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ROC Protocol Specifications Manual

Energy and Transportation Solutions

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Chapter 1 – Introduction

This manual provides information required to understand the specifications for the ROC protocol. The intended use is for developing communication drivers to interface with a Remote Operations Controller (ROC), FloBoss, and RegFlo. This manual is intended for users experienced in the development of communication drivers. The protocol provides access to database configuration, real-time clock, event and alarm logs, and historically archived data.

The ROC database is broken into individual parameters. Each database parameter is uniquely associated by parameter number and point type. See *Chapter 3, Parameter Lists for Point Types*, for detailed information.

Note: For simplicity, this manual uses the terms **FloBoss 100-Series** to encompass the FloBoss 103, FloBoss 104, and FloBoss 107 and **FloBoss 500-Series** to encompass both the FloBoss 503 and FloBoss 504. Any differences, if significant, are noted where they occur. Also, this manual uses **ROC** generically for both the Remote Operations Controller and FloBoss products. In most cases, the products are identical in operation. Unless otherwise noted, the descriptions and procedures apply to all devices using the ROC protocol.

1.1 Manual Organization

This manual is organized into the following chapters:

Chapter	Description
Chapter 1 Introduction	Describes this manual and provides a summary of the general protocol message format, summary of each opcode, and how to calculate data offsets.
Chapter 2 Opcodes	Lists each opcode the ROC protocol uses.
Chapter 3 Parameter Lists for Point Types	Describes ROC point types and data types.
Chapter 4 CRC-16 Code and Examples	Provides information concerning the cyclical redundancy check the ROC protocol uses.
Chapter 5 IEEE Floating Point Format	Provides information about the binary representation of floating-point numbers.
Chapter 6 Spontaneous Report-by-Exception Example	Provides an example of Spontaneous Report-by-Exception (RBX or RBX).

Chapter	Description
Chapter 7 Device to Device Communications	Provides information detailing store and forward options in the ROC.
Index	Provides an alphabetic listing of items and topics contained in this manual.

1.2 General Protocol Message Format

Figure 1-1 shows the various ROC and host protocol message formats.

General Message Format - Station ‘A’ Polling Station ‘B’ for Data/Action:

Destination (B)		Source (A)		Opcode	Data Length	m Data Bytes								CRC	
unit	group	unit	group		# of bytes	d1	d2	d3	–	–	–	–	dm	lsb	msb

General Message Format - Station ‘B’ Responding to Station ‘A’:

Destination (A)		Source (B)		Opcode	Data Length	n Data Bytes								CRC	
unit	group	unit	group		# of bytes	d1	d2	d3	–	–	–	–	dn	lsb	msb

Figure 1-1. General Message Format

A message generally contains the following fields, in order from left to right:

Field	Description	
Destination	Specifies the address for the destination device. Destination has two components:	
	Unit	One-byte unit code for the station address. The unit code for a ROC address is user-configurable. For a host, this must be a unique number. **0** represents “broadcast within group” and **240** is the “direct connect address.”
	Group	Indicates the group code for the station address. This is user-configurable and usually set to **2**.
Source	Specifies the address for the source device. Source has two components:	
	Unit	One-byte unit code for the station address. The unit code for a ROC address is user-configurable. For a host, this must be a unique number. **0** represents “broadcast within group” and **240** is the “direct connect address.”
	Group	Indicates the group code for the station address. This is user-configurable and usually set to **2**.
Opcode	Defines the operation code (opcode) action to perform.	

Field	Description	
# of bytes	Indicates the number of bytes in the data byte field, consisting of the path, desired opcode, number of data bytes for the desired message, and the desired message itself.	
Data Bytes	Contains messages of varying lengths, consisting of the path, desired opcode, number of data bytes for the desired message, and the message itself.	
CRC	Confirms validity of message transmission.	
	lsb	Least significant byte.
	msb	Most significant byte.

Messages are of flexible length. The first six data bytes are used for the header information including: destination, source, opcode, and data length (number of bytes). The length of a message equals the number of data bytes transmitted plus eight overhead bytes (header information and CRC).

The minimum message length is eight bytes if the number of data bytes is zero (no data bytes transmitted). The maximum message length is 248 bytes (240 bytes of data). A "nibble" is a four-bit unit or half a byte.

Figure 1-2 provides examples of the messages exchanged if the host requests the current time and date from ROC 13 of Group 5.

Host Request to ROC:

ROC Address		Host Address		Opcode	Data Length	CRC	
unit	group	unit	group	–	# of bytes	lsb	msb
13	5	1	0	7	0	l	m

ROC Response to Host:

Host Address		ROC Address		Opcode	Data Length	8 Data Bytes								CRC	
unit	group	unit	group	–	# of bytes	d1	d2	d3	–	–	–	–-	dn	lsb	msb
1	0	13	5	7	8	sec	min	hr	day	mo	yr	lyr	dwk	l	m

Figure 1-2. Request/Response Example

Note: Addresses **240,240** and **0,x** are reserved and should not be used.

1.3 Calculating Data Offsets

A data byte offset is the offset (zero-based) from the beginning of a transmit or receive buffer for the data items that comprise the opcode data. The offset of the first data item is always **6** to allow for the header information (bytes 0-5).

Certain data offset values are determined based on the ROC configuration, such as for Opcode 0. The data byte offset for each item may be calculated. To calculate the next data offset value, add the previous offset value to the length of the previous data item:

Offset = Previous Offset + Length of Previous Data Item

Chapter 2 – Opcodes

This chapter details each ROC protocol opcode.

2.1 Opcode Overview

Table 2-1 briefly describes each opcode. The tables in this section provide detailed descriptions of the various opcodes used. For each opcode, a brief description of the data bytes is provided. In some cases, the number of data bytes returned for an opcode varies. For example, Opcode 0, a full update, always returns certain input/output (I/O) information along with optionally specified data.

Certain opcodes only send data and do not receive data back from the ROC. For example, Opcode 8 requests the ROC to set the time and date. The host transmits six to nine data bytes defining the new time and date. The ROC resets the time and date and sends back an acknowledgment in which the opcode is repeated, but no data bytes are transmitted back. All acknowledgments are 8-byte messages that repeat the opcode received, but do not transmit any data bytes.

Opcode 255 is an error message indicator. This is also an 8-byte message with no data bytes included. The opcode is set to 255 to indicate the message received by the ROC had valid Cyclical Redundancy Check (CRC), but contained invalid parameters. For example, if a request was made for information on Analog Input #11, but the ROC was configured for only eight analog inputs (0 to 7), the ROC would respond back with the 8-byte message with the opcode equal to 255 (error).

The number of analog inputs varies from ROC to ROC. This variability is indicated by listing the first analog input and indicating the remaining analog inputs by a period ("."). In the following tables, a period in either the Data byte(s) column or the Description of Data column indicates a repetition of the proceeding item for the necessary number of instances.

Table 2-1. Summary of Opcodes

Opcode	Description
0	Sends general update such as I/O update, gas flows, and control loop status.
2	Sends 240 characters (starting with 0, ending with 239) of test data.
6	Sends ROC configuration with 20 data bytes defining ROC configuration.
7	Sends current time and date.
8	Sets new time and date.
10	Sends data from configurable opcode tables.
11	Sets data in configurable opcode tables.
17	Sets operator identification.
18	Logs event.
19	RESERVED
24	Stores and forwards.
80	RESERVED

Opcode	Description
100	Reads user-defined point information (Command 11)
102	Sets system variables.
103	Sends system information such as on/off times, manual/alarm status, firmware version, and current time and date.
105	Sends history point definition, min/max data, and current values for specified history point.
107	Sends tag and current history period for specified history points.
120	Sends pointers for alarm, event, and history logs.
121	Sends specified number of alarms starting at specified alarm pointer.
122	Sends specified number of events starting at specified event pointer.
123	Reads user template data.
126	Sends last 60 minutes of data for specified history point.
128	Sends archived daily and hourly data for the currently selected day and month.
130	Sends archived hourly and daily data for specified history point starting at specified history pointer.
131	Sends specified number of event sequence numbers starting at specified pointer (Industry Canada).
132	Clears specified number of event sequence numbers starting at specified pointer (Industry Canada).
133	Sends number of writable events (Industry Canada).
136	Requests multiple history points for multiple time periods
148	Reads 240 bytes of data from a specified memory address.
149	RESERVED
150	Sends number of rows for specified display.
151	Sets number of rows for specified display.
158	Sends configuration table.
160	Sends the entire structure for a specified Function Sequence Table (FST).
162	Sets a single parameter.
165	Sets or sends current configurable historical data.
166	Sets specified contiguous block of parameters.
167	Sends specified contiguous block of parameters.
170	Sends current values of specified I/O points.
171	Sets parameters for specified point.
180	Sends specified parameters.
181	Sets specified parameters.
190 & 195	RESERVED
200	Performs HART Pass-thru
224	Sends Spontaneous Report-by-Exception (SRBX or RBX) message to host.
225	Acknowledges Spontaneous Report-by-Exception message from ROC.
255	Transmits error messages by ROC in response to a request with invalid parameters or format.

Table 2-2. Opcode Support by Product

Communication Opcode	ROC300-Series with ROCPAC	ROC300-Series with FlashPAC	FloBoss 407	FloBoss 103/104	FloBoss 107	FloBoss 503/504	RegFlo
0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	Yes	Yes	Yes	No	No	No	No
6	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11	Yes	Yes	Yes	Yes	Yes	Yes	Yes
17	Yes	Yes	Yes	Yes	Yes	Yes	Yes
18	Yes	Yes	Yes	Yes	Yes	Yes	No
24	Yes	Yes	Yes	Yes	No	Yes	No
102	Yes	Yes	Yes	No	No	No	No
103	Yes	Yes	Yes	Yes	Yes	Yes	Yes
105	Yes	Yes	Yes	Yes	Yes	Yes	No
107	Yes	Yes	Yes	Yes	Yes	Yes	Yes
120	Yes	Yes	Yes	Yes	Yes	Yes	Yes
121	Yes	Yes	Yes	Yes	Yes	Yes	Yes
122	Yes	Yes	Yes	Yes	Yes	Yes	No
123	Yes	Yes	Yes	Yes	Yes	Yes	No
126	Yes	Yes	Yes	Yes	Yes	Yes	No
128	Yes	Yes	Yes	Yes	Yes	Yes	No
130	Yes	Yes	Yes	Yes	Yes	Yes	Yes
131	Yes	Yes	Yes	No	Yes	No	No
132	Yes	Yes	Yes	No	Yes	No	No
133	Yes	Yes	Yes	No	Yes	No	No
136	No	No	No	No	Yes	No	No
148	Yes	Yes	Yes	Yes	Yes	Yes	Yes
150	Yes	Yes	Yes	No	No	No	No
151	Yes	Yes	Yes	No	No	No	No
158	Yes	Yes	Yes	No	No	No	No
160	Yes	Yes	Yes	No	No	No	No
162	Yes	Yes	Yes	No	No	No	No
165	Yes	Yes	Yes	Yes	Yes	Yes	No
166	Yes	Yes	Yes	Yes	Yes	Yes	Yes
167	Yes	Yes	Yes	Yes	Yes	Yes	Yes
170	Yes	Yes	Yes	No	No	No	No
171	Yes	Yes	Yes	No	No	No	No
180	Yes	Yes	Yes	Yes	Yes	Yes	Yes
181	Yes	Yes	Yes	Yes	Yes	Yes	Yes
200	No	No	No	No	Yes	No	No
224	Yes	Yes	Yes	Yes	Yes	Yes	Yes
225	Yes	Yes	Yes	Yes	Yes	Yes	Yes
255	Yes	Yes	Yes	Yes	Yes	Yes	Yes

2.2 Opcode 0 – General Update

Opcode 0 obtains a general update of the current state for the physical input/output (I/O) points and the standard application-oriented points. Although the opcode can be used to retrieve specific I/O and application-oriented points, the opcode always sends the diagnostic (system) analog inputs (AI), the discrete inputs (DI), the timed duration inputs (TDI), and the analog inputs.

Because the FloBoss 407 has no I/O beyond point 6 of Rack A, the Multi-Variable Sensor (MVS) data is placed starting at point 17 (first point of Rack B). This data is treated like additional analog inputs. Sixteen additional AI points support the four possible Multi-Variable Sensors in Opcode 0. Refer to *Table 2-5* for the point number and description of each of these AI points.

For example, if you are only interested in flow, only set bit 0 (AGA – American Gas Association) of the second data byte making up the requested message. The ROC responds by providing the current state only for the flows, diagnostic analog inputs, discrete inputs, timed duration inputs, and the analog inputs.

Notes:

- Opcode 0 expresses the point number for the physical I/O differently from that described in *Chapter 3*. *Chapter 3* designates the physical I/O as point numbers 0 to 63, but Opcode 0 expresses them as point numbers 1 to 64.
- When an opcode describes a point number, the first byte is the point number and the additional bytes contain the data.

Table 2-3. Opcode 0 – ROC300-Series, FloBoss 407, FloBoss 100-Series, and FloBoss 500-Series

Opcode 0 – ROC300-Series, FloBoss 407, FloBoss 100-Series, and FloBoss 500-Series						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 0: General Update (ROC300-Series, FloBoss 407, FloBoss 100-Series, and FloBoss 500-Series)	6	1	Block number (start with “0”; request more blocks if needed)	6	1	Number of Discrete Inputs configured
	7	1	Selection (see below)	7	1	Number of Timed Duration Inputs configured
			Note: When requesting additional blocks, the selection remains the same as that requested with block 0.	8	1	Number of Analog Inputs including diagnostic Analog Inputs
				9	1	Number of Meter Runs configured
				10	1	Number of Pulse Inputs configured

Opcode 0 – ROC300-Series, FloBoss 407, FloBoss 100-Series, and FloBoss 500-Series

Communi-cation Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
				11	1	Number of Proportional, Integral, and Derivative (PIDs) configured
				12	1	Number of Tanks configured (ROC300-Series with a ROCPAC only)
				13	1	Number of Analog Outputs configured
				14	1	Number of Timed Duration Outputs configured
				15	1	Number of Discrete Outputs configured
	This byte is used to select the types of points to be sent by setting the corresponding bit. Values for DI, TDI, AI, and MVS points (FloBoss 407 only) will always be sent. Bytes include:			16	2	Alarm pointer (integer), top bit of msb set to indicate power reset

		DOs	TDO	AOs	TNK	PID	PI	AGA
bit	7	6	5	4	3	2	1	0

			18	2	Event pointer (integer)
			20	2	Hourly history pointer (bit 15 set indicates ROC300-Series, FloBoss 407, FloBoss 100-Series, or FloBoss 500-Series)
			22	4	Diagnostic or system AI, Engineering Units (EU) value (float) (above repeated four more times)
			42	1	Discrete Input bit 0 = Status, 1-7 = Point Number
				.	(above repeated as necessary)
				5	
				1	Point Number
				4	Timed Duration Input, EU (float)
				.	(above repeated as necessary)
					Offset dependent on ROC configuration
				5	
				1	Point Number
				4	Analog Input, EU (float)
				80	MVS values (FloBoss 407), sent for four sensors in Points 16 to 31 as indicated in Table 2-5.
				.	(above repeated as necessary)

Opcode 0 – ROC300-Series, FloBoss 407, FloBoss 100-Series, and FloBoss 500-Series						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
					16: 4, 4, 4, 4	Meter Run #1: Current gas flow MCF/day (float); Current energy MMBTU/day (float); Total MCF since contract hr (float); Total MMBTU since contract hour (″)
					.	(above repeated as necessary)
					13: 1, 4, 4, 4	Pulse#1: Point Number; Raw accumulator counts; Rate, EU / time unit; Total today, EU (float)
					.	(above repeated as necessary)
					9: 1, 4, 4	PID Loop #1: Status; Primary Setpoint (float); Secondary Setpoint (float)
					.	(above repeated as necessary)
					4	Tank #1: volume since contract hour (″) (ROC300-Series with a ROCPAC only)
					.	(above repeated as necessary)
					5: 1, 4	Point Number; Analog Output, EU (float)
					.	(above repeated as necessary)
					5: 1, 4	Point Number; Timed Duration Output, EU (float)
					.	(above repeated as necessary)
					1	Discrete Output bit 0 = Status, 1-7 = Point Number
					.	(above repeated as necessary)
					1	Which contiguous block is being sent[1]

1. Depending upon I/O count, Opcode 0 responses can exceed the 240-byte maximum. Should this occur, the response is divided into contiguous blocks consisting of 240 bytes maximum. Bytes 6 to 41 are returned for block 0 only. The block number is returned as the last byte of every Opcode 0 response.

Table 2-4. Opcode 0 – RegFlo

Opcode 0 – RegFlo						
Communi-cation Opcode	**Host Request to RegFlo**			**RegFlo Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 0: General Update (RegFlo)	6	1	Always 0	6	1	Number of Discrete Inputs configured
	7	1	Always 0	7	1	Not Used
				8	1	Number of Analog Inputs
				9	2	Not Used
				10	2	Not Used
				11	1	Number of PIDs configured
				12	1	Not Used
				13	1	Number of Analog Outputs configured
				14	1	Not Used
				15	1	Number of Discrete Outputs configured
				16	2	Current Alarm Log pointer
				18	2	Event pointer (integer)
				20	2	0
				22	4	Filtered EU of AI point 6 – Accumulated Flow
				26	4	Filtered EU of AI point 7 – Barometric Pressure
				30	4	Filtered EU of AI point 8 – Input Voltage
				34	4	Filtered EU of AI point 9 – Board Temperature
				38	4	Filtered EU of AI point 10 – Logic Voltage
				42	1	AI Point Number (=1)
				43	4	Filtered EU of AI point 1 – P1 Input
				47	1	AI Point Number (=2)
				48	4	Filtered EU of AI point 2 – P2 Input
				52	1	AI Point Number (=3)
				53	4	Filtered EU of AI point 3 – P3 Input
				57	1	AI Point Number (=4)
				58	4	Filtered EU of AI point 4 – Travel
				62	1	AI Point Number (=5)
				63	4	Filtered EU of AI point 5 – Inst Flow

Table 2-5 defines the opcode point numbers used for the Multi-Variable Sensor (MVS) values on the FloBoss 407.

Table 2-5. Opcode 0 – MVS Values

Opcode 0 – MVS Values (FloBoss 407 only)	
Length	**Description**
20 bytes	**MVS Sensor #1**
1 4	Point Number – 16 DP EU Value (floating point value)
1 4	Point Number – 17 SP EU Value (floating point value)
1 4	Point Number – 18 PT EU Value (floating point value)
1 4	Point Number – 19 DP Reverse EU Value (floating point value)
20 bytes	**MVS Sensor #2**
1 4	Point Number – 20 DP EU Value (floating point value)
1 4	Point Number – 21 SP EU Value (floating point value)
1 4	Point Number – 22 PT EU Value (floating point value)
1 4	Point Number – 23 DP Reverse EU Value (floating point value)
.	(above repeated for MVS Sensors #3 and #4 and Point Numbers 24 through 31)

DP = Differential Pressure; SP = Static Pressure; PT = Process Temperature

2.3 Opcode 2

Opcode 2 tests communications along with a data analyzer for simpler viewing of data.

Note: Opcode 2 is supported **only** by the ROC300-Series and FloBoss 407 units.

Table 2-6. Opcode 2 - ROC300-Series and FloBoss 407

Opcode 2 – ROC300 Series and FloBoss 407						
Communication Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 2: Send 240 Characters of Test Data (ROC300-Series and FloBoss 407)			No data bytes.			Returns 240 characters. First character is 0, followed by 1, then 2, and so on. Last character is 239.

2.4 Opcode 6

Opcode 6 obtains the current configuration of a ROC or FloBoss.

2.4.1 Opcode 6: ROC300-Series with ROCPAC

Opcode 6 returns the current configuration of a ROC300-Series containing a ROCPAC. The factory or sales representative sets the Customer Name value.

Table 2-7. Opcode 6 – ROC300-Series with ROCPAC

Opcode 6 – ROC300-Series with ROCPAC						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 6: Send ROC Configuration – (ROC300-Series with ROCPAC)			No data bytes.	6	1	Number of Discrete Inputs
				7	1	Number of Analog Inputs plus five diagnostic Analog Inputs
				8	1	Number of Discrete Outputs
				9	1	Number of Analog Outputs
				10	1	Number of Active AGA meter runs
				11	1	Number of Pulse Inputs
				12	1	Number of Active PIDs
				13	1	Number of Active Tanks (ROCPAC only)
				14	1	Number of database points for Base RAM
				15	1	Number of database points for RAM1
				16	1	Number of database points for RAM2
				17	1	Not Used (always 0)
				18	1	FST present
				19	1	Utilities: Bit 0 ≥ AGARPT Bit 1 ≥ LCD Bit 2 ≥ Com1 User Enable Bit 3 ≥□Com2 User Enable Bit 4 ≥ User C Enable Bit 5-7 ≥ Unused
				20	1	ROC Manual Status ≥ point in manual
				21	1	ROC Alarm Status ≥ point in alarm
				22	1	Number of Soft Points
				23	1	Number of Communication Ports
				24	1	Indicates Opcode 180 update for User Defined Points (UDPs) or Type of ROC
				25	1	Number of Configurable Opcode Tables
				26	20	Customer Name
				46	18	Number of points defined for User Defined Points 22 through 39
				64	2	Not Used

2.4.2 Opcode 6: ROC300-Series (w/FlashPAC) and FloBoss 407

Opcode 6 returns the current configuration of a FloBoss 407 or a ROC300-Series containing FlashPAC. For the FloBoss 407, this opcode returns 20 more values to cover the additional point types (Point Type 40 and beyond).

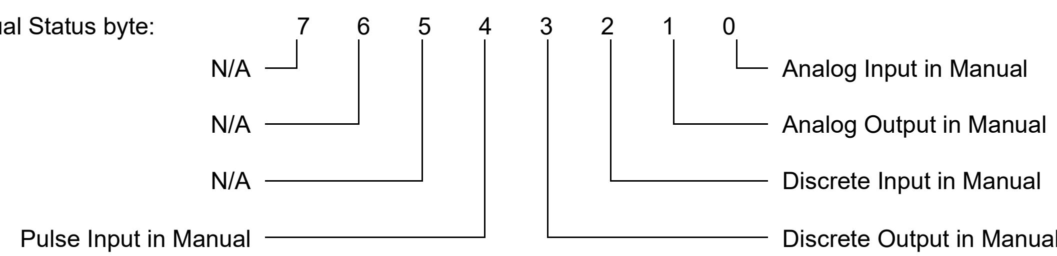
Table 2-8. Opcode 6 – ROC300-Series with FlashPAC and FloBoss 407

Opcode 6 – ROC300-Series with FlashPAC and FloBoss 407						
Communi-cation Opcode	**ROC Response to Host**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 6: Send ROC Configuration – (ROC300-Series with a FlashPAC and FloBoss 407)			No data bytes.	6	1	Number of Discrete Inputs
				7	1	Number of Analog Inputs
				8	1	Number of Discrete Outputs
				9	1	Number of Analog Outputs
				10	1	Number of Active AGA Meter Runs
				11	1	Number of Pulse Inputs
				12	1	Number of Active PIDs
				13	1	Number of Tanks (always 0)
				14	1	History – Base Ram (always 30)
				15	1	History – Module 1 (FB407=20, ROC300=30)
				16	1	History – Module 2 (FB407=0, ROC300=27)
				17	1	Not Used (always 0)
				18	1	Number of FSTs
				19	1	Utilities Bit Map
				20	1	Manual Mode Flag – Refer to Note 1.
				21	1	Alarm Flag – Refer to Note 2.
				22	1	Number of Soft Points
				23	1	Number of Communication Ports
				24	1	Type of ROC, FloBoss, or RegFlo: 2 = FloBoss 407 3 = ROC300-Series with FlashPAC 4 = FloBoss 100-Series version 1.xx, FloBoss 503, or RegFlo version 1.xx 5 = FloBoss 504 6 = ROC800 7 = RegFlo version 2.xx or 3.xx 8 = FloBoss 103 version 2.xx 9 = 3095FC
				25	1	Number of Configurable Opcodes
				26	20	Customer Name
				46	1	Number of User Defined Point Type 22
				47	1	Number of User Defined Point Type 23
				48	1	Number of User Defined Point Type 24
				49	1	Number of User Defined Point Type 25
				50	1	Number of User Defined Point Type 26
				51	1	Number of User Defined Point Type 27
				52	1	Number of User Defined Point Type 28
				53	1	Number of User Defined Point Type 29
				54	1	Number of User Defined Point Type 30

Opcode 6 – ROC300-Series with FlashPAC and FloBoss 407						
Communi-cation Opcode	ROC Response to Host			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
				55	1	Number of User Defined Point Type 31
				56	1	Number of User Defined Point Type 32
				57	1	Number of User Defined Point Type 33
				58	1	Number of User Defined Point Type 34
				59	1	Number of User Defined Point Type 35
				60	1	Number of User Defined Point Type 36
				61	1	Number of User Defined Point Type 37
				62	1	Number of User Defined Point Type 38
				63	1	Number of User Defined Point Type 39
				64	1	Number of MVS – Point Type 40
				65	1	Number of Run Parameters – Point Type 41
				66	1	Number of Extra Run Parameters – Point Type 42
				67	1	Number of User Lists – Point Type 43 (FloBoss 407 only)
				68	1	Number of Power Control – Point Type 44
				69	11	Point Types 45 to 55 – Not Used
				80	1	AI Calibration Values – Point Type 56
				81	1	Keypad Logon Security – Point Type 57
				82	1	Point Type 58 – Not Used
				83	1	Number of Program Flash – Point Type 59
				84	1	Point Type 60 – Not Used

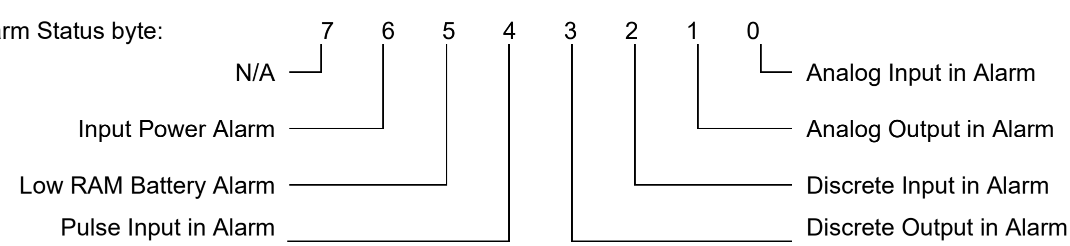
Note: The ROC Manual Status byte returned by Opcode 6 indicates whether the I/O points for a particular I/O point type are currently in manual mode (1 = manual).

ROC Manual Status byte:



Note: The ROC Alarm Status byte Opcode 6 returns indicates whether the I/O points for a particular point are currently in a state of alarm (1 = alarm). Possible states of alarm are: low, high, low-low, high-high, rate, A/D failure, and manual.

ROC Alarm Status byte:



2.4.3 Opcode 6: FloBoss 103/104, FloBoss 500-Series, and RegFlo

Opcode 6 returns the current configuration of the FloBoss 103/104, FloBoss 500-Series, and RegFlo. This opcode returns 20 more values to cover the new point types (Point Type 40 and beyond) added to support these devices.

Table 2-9. Opcode 6 – FloBoss 103/104, FloBoss 500-Series, and RegFlo

Opcode 6 – FloBoss 103/104, FloBoss 500-Series, and RegFlo						
Communi-cation Opcode	**ROC Response to Host**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 6: Send ROC Configuration – (FloBoss 103/104, FloBoss 500-Series, and RegFlo)			No data bytes.	6	1	Number of Discrete Inputs
				7	1	Number of Analog Inputs
				8	1	Number of Discrete Outputs
				9	1	Number of Analog Outputs
				10	1	Number of Active AGA meter runs Not Used (RegFlo)
				11	1	Number of PIs Not Used (RegFlo)
				12	1	Number of Active PIDs
				13	1	Number of Tanks – always 0 Not Used (RegFlo)
				14	1	History for Base Ram – always 15 Number of History Points – always 20 (RegFlo) or always 15 (FloBoss 103 version 1.10 or earlier) Number of Configured Standard History Points - 8 to 35 (FloBoss 100-Series Version 1.20 or greater)
				15	1	History for Module 1 – always 0 Number of Extended History Points – (RegFlo) Version 1.xx = 0 Version 2.xx or 3.xx = 10 Number of Extended History Points - (FloBoss 100-Series) Version 1.10 or earlier = 0 Version 1.20 or greater = 0 to 15
				16	1	History for Module 2 – always 0 Not Used (RegFlo)
				17	1	Not Used – always 0 Number of Logic Alarms – always 10 (RegFlo)
				18	1	Number of FSTs
				19	1	Not Used – always 0
				20	1	Not Used – always 0 Number of User Analog Values – (RegFlo)
				21	1	Not Used – always 0 Number of User Discrete Values – (RegFlo)
				22	1	Number of Soft Points
				23	1	Number of Comm Ports

Opcode 6 – FloBoss 103/104, FloBoss 500-Series, and RegFlo						
Communi-cation Opcode	**ROC Response to Host**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
				24	1	Type of ROC, FloBoss, or RegFlo: 2 = FloBoss 407 3 = ROC300-Series with FlashPAC 4 = FloBoss 100-Series, FloBoss 503, or RegFlo version 1.xx 5 = FloBoss 504 6 = ROC809 7 = RegFlo version 2.xx or 3.xx 8 = Reserved 9 = 3095FC
				25	1	Number of Configurable Opcodes
				26	20	Customer Name
			Offsets 46 through 83 are the number of points that exist for Point Types 22 through 59. Offsets 46-71 are not used – always 0 (RegFlo).	46	1	Number of User Defined Point Type 22
				47	1	Number of User Defined Point Type 23
				48	1	Not Used
				49	1	Number of User Defined Point Type 25
				50	1	Number of User Defined Point Type 26
				51	1	Number of User Defined Point Type 27
				52	1	Number of User Defined Point Type 28
				53	1	Number of User Defined Point Type 29
				54	1	Number of User Defined Point Type 30
				55	1	Number of User Defined Point Type 31
				56	1	Number of User Defined Point Type 32
				57	1	Number of User Defined Point Type 33
				58	1	Number of User Defined Point Type 34
				59	1	Number of User Defined Point Type 35
				60	1	Number of User Defined Point Type 36
				61	1	Number of User Defined Point Type 37
				62	1	Number of User Defined Point Type 38
				63	1	Number of User Defined Point Type 39
				64	1	Point Type 40 – MVS
				65	1	Number of Run Parameter – Point Type 41
				66	1	Number of Extra Run Parameters – Point Type 42
				67	1	Number of User Lists – Point Type 43
				68	1	Number of Power Control – Point Type 44
				69	1	Number of Meter Calibration and Sampler – Point Type 45
				70	1	Number of Meter Configuration Parameters – Point Type 46
				71	1	Number of Meter Flow Values – Point Type 47
				72	1	Number of PID Control – Point Type 48
				73	1	Point Type 49 – Not Used
				74	1	Point Type 50 – Not Used
				75	1	Point Type 51 – Not Used
				76	1	Number of Battery Parameters – Point Type 52
				77	1	Number of Modbus Configuration – Point Type 53

Opcode 6 – FloBoss 103/104, FloBoss 500-Series, and RegFlo						
Communi-cation Opcode	ROC Response to Host			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
				78	1	Number of Modbus Function Tables – Point Type 54
				79	1	Number of Modbus Special Function – Point Type 55
				80	1	Number of AI Calculation Values – Point Type 56
				81	1	Number of Logon Parameters – Point Type 57
				82	1	Number of Revision Information – Point Type 58
				83	1	Number of Program Flash – Point Type 59
				84	1	Not Used – always 0
				85	1	Communication Port where Opcode 6 Request Received. 0=LOI 1=COM1 2=COM2 – (FloBoss 100-Series) Not Used – always 0 (FloBoss 500-Series and RegFlo)

2.4.4 Opcode 6: FloBoss 107

Opcode 6 returns the current configuration of the FloBoss 107.

Table 2–10. Opcode 6 – FloBoss 107

Opcode 6 – FloBoss 107						
Communi-cation Opcode	ROC Response to Host			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 6: Send ROC Configuration – (FloBoss 107)			No data bytes.	6	1	Number of Discrete Inputs
				7	1	Number of Analog Inputs
				8	1	Number of Discrete Outputs
				9	1	Number of Analog Outputs
				10	1	Number of Active meter runs
				11	1	Number of PIs
				12	1	Number of Active PIDs
				13	1	Number of Tanks – always 0
				14	1	Number of Standard History Points (0 - 100)
				15	1	Number of Extended History Points (0 – 25)
				16	1	Not Used – always 0
				17	1	Not Used – always 0
				18	1	Number of FSTs
				19	1	Not Used – always 0
				20	1	Not Used – always 0
				21	1	Not Used – always 0
				22	1	Number of Soft Points
				23	1	Number of Comm Ports

Opcode 6 – FloBoss 107						
Communi-cation Opcode	**ROC Response to Host**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
				24	1	Type of ROC, FloBoss 4 = FB107 (except in boot mode) 10 = FB107 Boot Mode
				25	1	Number of Configurable Opcodes
				26	20	Customer Name
			Offsets 46 through 83 are the number of points that exist for Point Types 22 through 59.	46	1	Number of User Defined Point Type 22
				47	1	Number of User Defined Point Type 23
				48	1	Not Used – always 0
				49	1	Number of User Defined Point Type 25
				50	1	Number of User Defined Point Type 26
				51	1	Number of User Defined Point Type 27
				52	1	Number of User Defined Point Type 28
				53	1	Number of User Defined Point Type 29
				54	1	Number of User Defined Point Type 30
				55	1	Number of User Defined Point Type 31
				56	1	Number of User Defined Point Type 32
				57	1	Number of User Defined Point Type 33
				58	1	Number of User Defined Point Type 34
				59	1	Number of User Defined Point Type 35
				60	1	Number of User Defined Point Type 36
				61	1	Number of User Defined Point Type 37
				62	1	Number of User Defined Point Type 38
				63	1	Number of User Defined Point Type 39
				64	1	Number of MVS - Point Type 40
				65	1	Number of Run Parameter – Point Type 41
				66	1	Number of Extra Run Parameters – Point Type 42
				67	1	Number of User Lists – Point Type 43
				68	1	Number of Radio Power Control Parameters – Point Type 44
				69	1	Number of Meter Calibration and Sampler – Point Type 45
				70	1	Number of Meter Configuration Parameters – Point Type 46
				71	1	Number of Meter Flow Values – Point Type 47
				72	1	Number of PID Control – Point Type 48
				73	1	Point Type 49 – Not Used – always 0
				74	1	Point Type 50 – Not Used – always 0
				75	1	Point Type 51 – Not Used – always 0
				76	1	Not Used – always 0
				77	1	Not Used – always 0
				78	1	Not Used – always 0
				79	1	Number of Modbus Special Function – Point Type 55
				80	1	Not Used – always 0
				81	1	Number of Logon Parameters – Point Type 57
				82	1	Number of Revision Information – Point Type 58

Opcode 6 – FloBoss 107						
Communi-cation Opcode	**ROC Response to Host**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
				83	1	Number of Program Flash – Point Type 59
				84	1	Not Used – always 0
				85	1	Communication Port where Opcode 6 Request Received. 0=LOI 1=COM1 2=COM2 3=COM3 4=LCD Port
				86	1	Operating Mode 0=Normal 1=Boot
				87	1	FB107 Backplane Type 4=Base backplane only - 4 slots 8=Base with expansion backplane – 8 slots
				88-91	4	Not Used – always 0
				92	1	Maximum number of Standard History points
				93	1	Maximum number of Extended History points
				94	1	Number of Diagnostic Points – Point Type 20
				95-112	18	Number of SAM User Points – Point Type 60 - 77
				113-114	2	Not Used – always 0
				115	1	Number of Ethernet Points – Point Type 80
				116-119	4	Not Used – always 0
				120	1	Number of HART Points – Point Type 85
				121	1	Number of Extended History Information Points – Point Type 86
				122	1	Not Used – always 0
				123	1	Number of BLM User List Points – Point Type 88
				124	1	Number of History Chart Points – Point Type 89
				125-127	3	Not Used – always 0
				128	1	Number of License Key Information Points – Point Type 93
				129	1	Number of User C Configuration Points – Point Type 94
				130-132	3	Not Used – always 0
				133	1	Number of Extended Soft Point Parameters – Point Type 98
				134-151	18	Not Used – always 0
				152	1	Number of Modbus Configuration Points – Point Type 117
				153	1	Number Modbus Register to TLP Mapping Points – Point Type 118
				154	1	Not Used – always 0
				155	1	**Number of Master Modbus Modem** Configuration Points – Point Type 120

Opcode 6 – FloBoss 107						
Communi-cation Opcode	ROC Response to Host			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
				156	1	Number of Master Modbus Polling Table Points – Point Type 121
				157	1	DS800 Configuration – Point Type 122
				158-206	49	Not Used (Reserved for Future) – always 0
				207	1	RTU Network Discovery List - Point Type 172
				208	1	Network Commissioned List - Point Type 173
				209	1	Network Export Data – Point Type 174
				210	1	Network Import Data – Point Type 175
				211	1	IEC62591 Live List Parameters – Point Type 176
				212	1	IEC62591 Commissioned List Parameters – Point Type 177
				213	1	Number of User Defined Point Type 178
				214	1	Number of User Defined Point Type 179
				215	1	Number of User Defined Point Type 180
				216	1	Number of User Defined Point Type 181
				217	1	Number of User Defined Point Type 182
				218	1	Number of User Defined Point Type 183
				219	1	Number of User Defined Point Type 184
				220	1	Number of User Defined Point Type 185
				221	1	Number of User Defined Point Type 186
				222	1	Number of User Defined Point Type 187
				223	1	Number of User Defined Point Type 188
				224	1	Number of User Defined Point Type 189
				225-234	10	Not Used (Reserved for Future) – always 0

2.5 Opcode 7

Opcode 7 returns the current time and date, the number of years since the last leap year, and the day of week.

Note: Read the time/date by using Opcodes 167 and 180 and specifying Point Type 12.

Table 2–11. Opcode 7 - All Devices

Opcode 7 – All devices						
Communication Opcode	Host Request to ROC			ROC Response to Host		
	Data Offset	Data Length	Description of Data	Data Offset	Data Length	Description of Data
Opcode 7: Send Current Time and Date			No data bytes.	6	1	Current Second
				7	1	Current Minute
				8	1	Current Hour
				9	1	Current Day
				10	1	Current Month
				11	1	Current Year
				12	1	# Years Since Last Leap Year – (ROC300-Series and FloBoss 407) Leap Year or Not Leap Year – (FloBoss 100-Series, FloBoss 500-Series, and RegFlo) 1 = Leap Year 0 = Not Leap Year
				13	1	Current day of week 1=Sunday...7=Saturday

2.6 Opcode 8

Opcode 8 is the only way to set the real-time clock. The leap year counter provides a mechanism to set the leap year. The real-time clock automatically increments the leap year counter on January 1st. When the leap year counter is zero (0), the real-time clock enables February 29th.

The "current day of week" for the real-time clock must be initialized to work properly: the real-time clock does not set "current day of week" automatically. The Function Sequence Table (FST) command day of week (DWK) uses the "current day of week" value.

Table 2–12. Opcode 8 – All Devices

Opcode 8 – All devices						
Communication Opcode	Host Request to ROC			ROC Response to Host		
	Data Offset	Data Length	Description of Data	Data Offset	Data Length	Description of Data
Opcode 8: Set Current Time and Date	6	1	Current seconds			No data bytes.
	7	1	Current minutes			Time and date are set and acknowledgment sent back.
	8	1	Current hour			
	9	1	Current day			
	10	1	Current month			
	11	1	Current year			
or						
Opcode 8: Set Current Time and Date	6	1	Current seconds			No data bytes.
	7	1	Current minutes			Time and date are set and acknowledgment sent back.
	8	1	Current hour			
	9	1	Current day			
	10	1	Current month			

Opcode 8 – All devices						
Communication Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
	11	1	Current year			
	12	1	Years since last leap year			Ignored by FloBoss 500-Series, but can be sent.
or						
Opcode 8: Set Current Time and Date	6	1	Current seconds			No data bytes.
	7	1	Current minutes			Time and date are set and acknowledgment sent back.
	8	1	Current hour			
	9	1	Current day			
	10	1	Current month			
	11	1	Current year			
	12	1	Years since last leap year			Ignored by FloBoss 500-Series, but can be sent.
	13	1	Current day of week 1 = Sunday, 7 = Saturday			Ignored by FloBoss 500-Series, but can be sent.
or for FloBoss 100-Series, FloBoss 500-Series, and RegFlo only.						
Opcode 8: Set Current Time and Date – (FloBoss 100-Series, FloBoss 500-Series, and RegFlo only)	6	1	Current seconds			No data bytes.
	7	1	Current minutes			Time and date are set and acknowledgment sent back.
	8	1	Current hour			
	9	1	Current day			
	10	1	Current month			
	11	1	Current year			
	12	1	Years since last leap year			Ignored by FloBoss 500-Series, but can be sent.
	13	1	Current day of week 1 = Sunday, 7 = Saturday			Ignored by FloBoss 500-Series, but can be sent.
	14	1	Current Century (hundred years, such as 20 for the year 2000)			

2.7 Opcode 10

Opcode 10 reads data defined by a configurable opcode point. The Starting Table Location plus the Number of Table Locations must be less than or equal to 44.

Table 2–13. Opcode 10 – All Devices

Opcode 10 – All devices						
Communi-cation Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 10: Send Data from Configurable Opcode Tables	6	1	Table Number (0-7) – (ROC300-Series and FloBoss 407) Table Number (0-3) – (FloBoss 100-Series and FloBoss 500-Series) Table Number (0-4) – (RegFlo)	6	1	Table Number (0-7) – (ROC300-Series and FloBoss 407) Table Number (0-3) – (FloBoss 100-Series and FloBoss 500-Series) Table Number (0-4) – (RegFlo)
	7	1	Starting Table Location (0-43)	7	1	Starting Table Location (0-43)
	8	1	Number of Table Locations (1-44)	8	1	Number of Table Locations (1-44)
				9	4	Table Version Number (float)
				13	x	Data

2.8 Opcode 11

Opcode 11 writes data defined by a configurable opcode point. The starting table location plus the number of table locations must be less than or equal to 44.

Table 2–14. Opcode 11 – All Devices

Opcode 11 – All devices						
Communi-cation Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 11: Set Data in Configurable Opcode Tables	6	1	Table Number (0-7) – (ROC300-Series and FloBoss 407) Table Number (0-3) – (FloBoss 100-Series, FloBoss 500-Series, and RegFlo)			No data bytes.
	7	1	Starting Table Location (0-43)			Acknowledgment sent back.
	8	1	Number of Table Locations (1-44)			
	9	x	Data			

2.9 Opcode 17

Opcode 17 sets an operator identification code for the communications port through which communications are occurring. The operator identification is logged with an event, indicating the operator responsible for creating the event. The ROC provides a default operator identification for each communications port.

Version	Description
1.00	Introduced
1.90	Enhanced Security Introduced

Once you set the operator identification, it remains set until changed either by:

- Subsequent Opcode 17 requests.
- ROC initialized by a cold hard start.

then, the internal security which corresponds to the Operator ID/Enhanced Security Enable, Access level, and Password/ Long Password are stored in Point Type 57, Logon Securities, for the port through which communications is occurring.

When the new security feature is opted by user, the Enhanced Security Enable (30 character alphanumeric) and Long Password (40 character alphanumeric) is used to login the device. The opcode length is different compared to the shorter packet structure and the host needs to alter the protocol frame based on the security selection in the device.

Note: The Enhanced Security feature is available in FB107 device only. The FB107 firmware 1.90 (or better) will be required to use this feature.

Table 2–15 (A). Opcode 17 – All Devices

Opcode 17 – All devices						
Communication Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 17: Set Operator ID – (ROC300-Series version 2.20 or less and FloBoss 407 version 1.08 or less)	6	3	Operator ID			No data bytes.
or						
Opcode 17: Set Operator ID – (FloBoss 100-Series, FloBoss 500-Series, RegFlo, ROC300-Series version 2.21 or greater, and FloBoss 407 version 1.10 or greater)	6	3	Operator ID			No data bytes.
	9	2	Password			Acknowledgment sent back.
or						
Opcode 17: Set Operator ID – (FloBoss 100-Series version 1.20 or greater, FloBoss 500-Series version 2.40 or greater, ROC300-Series version 2.21 or greater, and FloBoss 407 version 1.10 or greater)	6	3	Operator ID			No data bytes.
	9	2	Password			Acknowledgment sent back.
	11	1	Access Level			
	6 9 11	3 2 6	Operator ID Password “Logout”			

Table 2–15(B). Opcode 17 – For FB107 only

Opcode 17 – All devices						
Communication Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
or						
Opcode 17: Set Operator ID – (FloBoss 107, version 1.90 or greater)	6	30	Operator ID			No data bytes.
	36	40	Password			Acknowledgment sent back.
or						
Opcode 17: Set Operator ID – (FloBoss 107- version 1.90 or greater)	6	30	Operator ID			No data bytes.
	36	40	Password			Acknowledgment sent back.
	76	1	Access Level			
	6 36 76	30 40 6	Operator ID Password “Logout”			
Opcode 17: Session Key Request **Note:** Session Key String is the ASCII string “GETSESSIONKEY” in all capital letters	6	13	Session Key String [AC13]	6	24	Wrapped Session Key [AC24]

2.10 Opcode 18

Opcode 18 creates an event external to the ROC and appends it to the ROC Event Log. The event code and data format must conform to that described by Opcode 122 (refer to *Section 2.18*) to display the events when read from the ROC.

Table 2–16. Opcode 18 – All devices except RegFlo

Opcode 18 - All devices except RegFlo						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 18: Log Event	6	2	Event Code			No data bytes.
	8	14	Event Data			Acknowledgment sent back.

2.11 Opcode 24

Opcode 24 defines the requested store and forward action through up to three intermediate ROC or FloBoss devices to the final destination ROC. Refer to *Chapter 7, Device to Device Communications*, for details on how this opcode works.

Table 2–17. Opcode 24 - All devices except RegFlo

Opcode 24 - All devices except RegFlo						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 24: Store and Forward	6	1	Host Address			No response to host until message returns from Final Destination ROC.
	7	1	Host Group			
	8	1	1st Destination Address			
	9	1	1st Destination Group			
	10	1	2nd Destination Address			
	11	1	2nd Destination Group			
	12	1	3rd Destination Address			
	13	1	3rd Destination Group			
	14	1	4th Destination Address			
	15	1	4th Destination Group			
	16	1	Desired Opcode			
	17	1	Number of data bytes for the desired Opcode			
	18	x	Opcode request data (if any)			

2.12 Opcode 102

Opcode 102 configures the number of active PIDs, tanks, and AGAs. This opcode also adjusts the number of database points per RAM area. It can be noted from the definition of the parameters for Point Type 15 that these parameters are read-only. It is only through this opcode that these parameters can be modified.

Note: Opcode 102 is only supported by ROC300-Series and FloBoss 407.

Table 2–18. Opcode 102 - ROC300-Series and FloBoss 407

Opcode 102 - ROC300-Series and FloBoss 407		
Communi-	**Host Request to ROC**	**ROC Response to Host**

	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 102: Set System Variables (ROC300-Series and FloBoss 407)	6	1	ROC Address			No data bytes.
	7	1	ROC Group			Acknowledgment sent back.
	8	20	Station Name			
	28	1	Active PIDs			
	29	1	Active AGAs			
	30	1	Active Tanks			
	31	1	Base RAM Number of History Points			
	32	1	RAM1 Number of History Points			
	33	1	RAM2 Number of History Points			
	34	1	RAM3 Number of History Points			
	35	1	Contract Hour			

2.13 Opcode 103

Opcode 103 determines the current version of firmware residing in the ROC, as well as other device-specific information. This opcode is useful in determining which ROC units should be upgraded and in referral to the factory when trying to diagnose a problem believed to be the ROC.

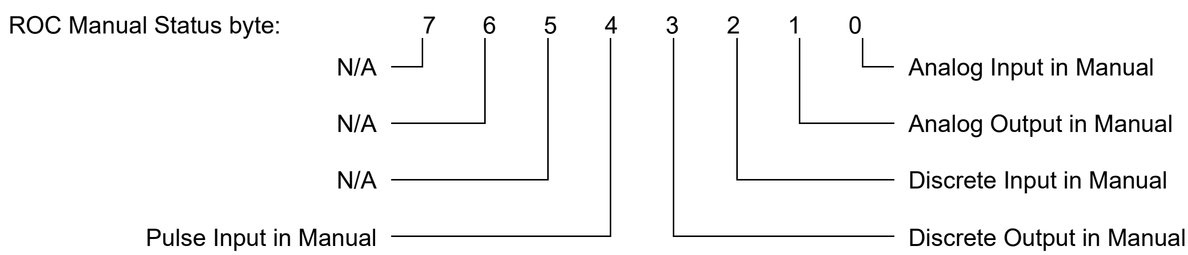
For ROC300-Series and FloBoss 407s, Opcode 103 provides the last occurrence of a power cycle.

Opcode 103 is also used to see if any I/O points are currently in manual or alarm mode. The opcode also clears the Power Reset flag, which is used to indicate a device restart. Opcode 0 returns the status of the Power Reset flag.

Table 2–19. Opcode 103 – All Devices

Opcode 103 – All devices						
Communication Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 103: Send System Information (Power Off/On Times, Manual/ Alarm Status, Firmware Version.)			No data bytes.	6	6	Last power-off time and date: Seconds, minutes, hour, day, month and year Always 0 – (FloBoss 100-Series, FloBoss 500-Series, and RegFlo)
				12	6	Last power-on time and date: Seconds, minutes, hour, day, month and year Always 0 – (FloBoss 100-Series, FloBoss 500-Series, and RegFlo)
				18	1	Manual Status flag (Refer to Note 1) Always 0 – (FloBoss 100-Series, FloBoss 500-Series, and RegFlo)
				19	1	Alarm Status flag (Refer to Note 2) Always 0 – (FloBoss 100-Series, FloBoss 500-Series, and RegFlo)
				20	40	Product Identification (ROC and FloBoss)
				20	20	Version name (Part number) – (RegFlo)
				40	20	Hardware Identification number – (RegFlo)
				60	20	Time and date firmware produced
				80	2	ROC Unit and Group number – (ROC and FloBoss)
				80	1	Device Address – (RegFlo)
				81	1	Device Group – (RegFlo)
				82	20	Station Name
				102	6	Current time and date: Seconds, minutes, hour, day, month, and year

Note: The ROC Manual Status byte returned by Opcode 103 indicates whether the I/O points for a particular I/O point type are currently in manual mode (1 = manual).



Note: The ROC Alarm Status byte returned by Opcode 103 indicates whether the I/O points for a particular point are currently in a state of alarm (1 = alarm). Possible states of alarm are: low, high, low-low, high-high, rate, A/D failure, and manual.

ROC Alarm Status byte:

7	N/A
6	Input Power Alarm
5	Low RAM Battery Alarm
4	Pulse Input in Alarm
3	Discrete Output in Alarm
2	Discrete Input in Alarm
1	Analog Output in Alarm
0	Analog Input in Alarm

2.14 Opcode 105

Opcode 105 retrieves the occurrence of today's and yesterday's minimum and maximum values.

Note: The history points can be specified by point number only as in the top half of the table, or by RAM area and history point as in the bottom half.

The opcode also retrieves the parameter archived and the type of archival. For additional history opcodes, refer to *Section 2.32*, *Opcode 2-65*.

Table 2-20. Opcode 105 – All devices except RegFlo

Opcode 105 – All devices except Reg Flo						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data Offset	**Data Length**	**Description of Data**	**Data Offset**	**Data Length**	**Description of Data**
Opcode 105: Send History Point Defini-tion, Min and Max Data, and Current Value for Specified History Point	6	1	History Point Number: 0-99 – (FloBoss 107) 0-89 – (ROC300-Series with ROCPAC) 0-86 – (ROC300-Series with FlashPAC) 0-49 – (FloBoss 407) 0-34 – (FloBoss 103/104) 0-14 – (FloBoss 500-Series)	6	1	Historical Point Number
				7	1	Not Used in this format – always 0
				8	1	Type of archival
				9	1	Point type
				10	1	Point / Logic Number
				11	1	Parameter Number
				12	4	Current value (float)
				16	4	Minimum value since contract hour (float)
				20	4	Maximum value since contract hour (float)
				24	5	Time of minimum value occurrence: Seconds, minutes, hour, day, and month
				29	5	Time of maximum value occurrence: Seconds, minutes, hour, day, and month

Opcode 105 – All devices except Reg Flo						
Communi-cation Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
				34	4	Minimum value yesterday (float)
				38	4	Maximum value yesterday (float)
				42	5	Time of yesterday's minimum value occurrence: Seconds, minutes, hour, day and month
				47	5	Time of yesterday's maximum value occurrence: Seconds, minutes, hour, day, and month
				52	4	Value during last completed hour (float)
or						
	6	1	Historical RAM area (0-2) – (ROC300-Series and FloBoss 407) Historical RAM area (0) – (FloBoss 500-Series and FloBoss 100-Series)	6	1	Historical RAM area
	7	1	Historical Point Number (0-100) – (FloBoss 107) Historical Point Number (0-35) – (FloBoss 103/104) Historical Point Number (0-29) – (ROC300-Series and FloBoss 407) Historical Point Number (0-14) – (FloBoss 500-Series)	7	1	Historical Point Number
				8	1	Type of Archival
				9	1	Point Type
				10	1	Point / Logic Number
				11	1	Parameter Number
				12	4	Current Value (float)
				16	4	Minimum value since contract hour (float)
				20	4	Maximum value since contract hour (float)
				24	5	Time of minimum value occurrence: Seconds, minutes, hour, day, and month
				29	5	Time of maximum value occurrence: Seconds, minutes, hour, day, and month
				34	4	Minimum value yesterday (float)
				38	4	Maximum value yesterday (float)
				42	5	Time of yesterday's minimum value occurrence: Seconds, minutes, hour, day, and month
				47	5	Time of yesterday's maximum value occurrence: Seconds, minutes, hour, day, and month
				52	4	Value during last completed hour (float)

2.15 Opcode 107

Opcode 107 sends the tag and history period for a specified RAM area and specified history points, up to a maximum of 20 history points. The history points can be specified in any order, but must be from the same RAM area. The ROC can have up to three history RAM areas, which must be specified as follows:

0 = Base RAM
1 = RAM1
2 = RAM2

Each RAM area can have a maximum of 30 history points. Specify the history points as 0 – 29. If the RAM area has been configured (see Opcode 102) to something less than 30, an invalid response can occur if a history point is specified that is greater than or equal to the number of history points configured for the RAM area.

Table 2–21. Opcode 107 – All devices except RegFlo

Opcode 107 – All devices except RegFlo						
Communi-cation Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 107: Send Tag and Current History Period for Specified History Point(s)	6	1	Historical RAM area (0, 1 or 2) – (ROC300-Series and FloBoss 407) Historical RAM area (0) – (FloBoss 100-Series, FloBoss 500-Series, and RegFlo)	6	1	Historical RAM area
	7	1	Number of historical points specified	7	1	Number of historical points specified
	8	1	Logical historical point	8	1	Logical historical point
		.	above repeated as necessary 20 maximum – (ROC300-Series and FloBoss 407) 15 maximum – (FloBoss 100-Series, FloBoss 500-Series, and RegFlo)		.	above repeated as necessary 20 maximum – (ROC300-Series and FloBoss 407) 15 maximum – (FloBoss 100-Series, FloBoss 500-Series, and RegFlo)
					10	Tag (ASCII data)
					2	Historical period location
					.	(above repeated as necessary)

2.16 Opcode 120

Opcode 120 (see *Tables 2-21* and *2-22* and *Figure 2-1*) sends current pointers for the Alarm and Event Logs.

2.16.1 Opcode 120: ROC300-Series and FloBoss 407

Opcode 120 also sends the current hour (periodic) and day pointers for the base RAM, RAM1, and RAM2 history modules/areas and the capacity in days for each RAM area. The maximum number of alarms and events is 240.

Table 2–22. Opcode 120 – ROC300-Series and FloBoss 407

Opcode 120 – ROC300-Series and FloBoss 407						
Communi-cation Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 120: Send Pointer for Alarm, Event, and History – (ROC300-Series and FloBoss 407)			No data bytes.	6	2	Alarm Log pointer
				8	2	Event Log pointer
				10	2	Base RAM current historical hour
				12	2	RAM1 current historical hour
				14	2	RAM2 current historical hour
				16	2	Not Used
				18	1	Base RAM current historical day
				19	1	RAM1 current historical day
				20	1	RAM2 current historical day
				21	1	Not Used
				22	2	Maximum number of alarms (normally 240)
				24	2	Maximum number of events (normally 240)
				26	1	Base RAM number of history days (ROC-300-Series with ROCPAC) 35 – (ROC-300-Series with FlashPAC and FloBoss 407)
				27	1	RAM1 number of history days (normally 35)
				28	1	RAM2 number of history days (normally 35)
				29	1	Not Used
				30	2	Current audit log pointer (Industry Canada units only)
				30	1	Minutes per historical period (always 60)
				31	1	Not Used

2.16.2 Opcode 120: FloBoss 500-Series, FloBoss 100-Series, and RegFlo

Opcode 120 also sends the current hour (periodic) and day pointers for the base RAM, RAM1, and RAM2 history modules/areas and the capacity in days for each RAM area. The maximum number of alarms and events is 240.

Table 2–23. Opcode 120 – FloBoss 500-Series, FloBoss 100-Series, and RegFlo

Opcode 120 – FloBoss 500-Series, FloBoss 100-Series, and RegFlo						
Communication Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 120: Send Pointer for Alarm, Event, and History – (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)			No data bytes.	6	2	Alarm Log pointer
				8	2	Event Log pointer Not Used (RegFlo)
				10	2	Index to current Hourly (Periodic) History
				12	2	Always 0 – (FloBoss 500-Series and RegFlo version 1.xx) Index to current Extended Periodic History – (FloBoss 100-Series, and RegFlo version 2.xx and 3.xx)
				14	2	Always 0 – (FloBoss 500-Series, and RegFlo) Number of Extended History Logs – (FloBoss 103/104, version 1.20 and greater, and FloBoss 107)
				16	2	Not Used
				18	1	Index to current Daily History
				19	1	Not Used
				20	1	Not Used
				21	1	Not Used
				22	2	Maximum number of alarms (normally 240)
				24	2	Maximum number of events (normally 240) Not Used (RegFlo)
				26	1	Number of days of Daily History logs
				27	1	Number of days of Hourly (Periodic) History logs
				28	1	Always 0 – (FloBoss 500-Series and RegFlo version 1.xx) Number of Days of Extended History Logs – (FloBoss 100-Series and RegFlo version 2.xx and 3.xx)
				29	1	Not Used
				30	2	Current audit log pointer (FB107 Industry Canada units only)
				30	1	Number of minutes of Minute History logs
				31	1	Not Used

Figure 2-1 shows how the history archive is arranged in the ROC. Each section is circular in nature; after the last location is filled, it starts over at the beginning.

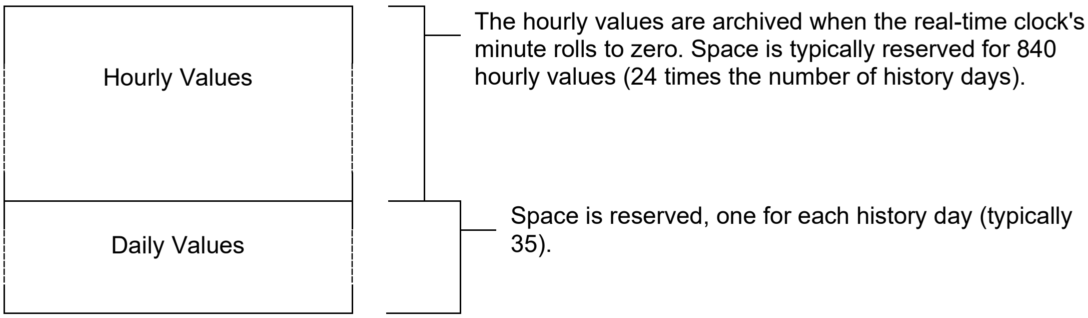


Figure 2-1. History Data Arrangement

2.17 Opcode 121

Opcode 121 requests alarm data from the Alarm Log in the ROC. The Alarm Log consists of a maximum of 240 alarms. Alarms are enabled by setting bit 4 of the Mode parameter for I/O points and by setting bit 4 of the Calculation Method parameter for AGA flow points.

Table 2–24. Opcode 121 – All Devices

Opcode 121						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 121: Send Specified Number of Alarms Starting with Specified Alarm Pointer	6	1	Number of alarms requested (maximum 10)	6	1	Number of alarms being sent
	7	2	Starting Alarm Log pointer (0-239)	7	2	Starting Alarm Log pointer
				9	2	Current Alarm Log pointer
				11	22	1st Alarm: Alarm Type (1 byte – see below) Alarm Code (1 byte – see below) Time and date (6 bytes): SS | MM | HH | DD | MM | YY Tag (10 bytes) Value (4 bytes)
					.	(above repeated as necessary)

Alarm Type: The byte is broken into two nibbles: high nibble equals bits 4 to 7, and low nibble equals bits 0 to 3. A nibble is a four-bit unit or half a byte.

- High nibble equals 1 for Sensor DP (FloBoss 407 and ROC300-Series with MVS).
- High nibble equals 2 for Sensor AP (FloBoss 407 and ROC300-Series with MVS).
- High nibble equals 3 for Sensor PT (FloBoss 407 and ROC300-Series with MVS).

- High nibble equals 5 for I/O point AIs, DIs, PIs, and AOs (high nibble translated from
  80 ÷ 16 = 5).
- High nibble equals 6 for AGAs (high nibble translated from 96 ÷ 16 = 6).
- High nibble equals 7 for User Text Alarm (high nibble translated from 112 ÷ 16 = 7).
- High nibble equals 8 for User Value Alarms (high nibble translated from 128 ÷ 16 = 8).
- High nibble equals 9 for MVS Sensor (high nibble translated from 144 ÷ 16 = 9).
- High nibble equals 10 for Sensor Module (SM) Alarms (high nibble translated from 160 ÷ 16 = 10).
- High nibble equals 15 for FST Alarms (high nibble translated from 240 ÷ 16 = 15).
- Low nibble equals 0 means alarm clear.
- Low nibble equals 1 means alarm set.
- Low nibble equals 2 means Pulse Input alarm clear.
- Low nibble equals 3 means Pulse Input alarm set.
- Low nibble equals 4 means SRBX alarm clear.
- Low nibble equals 5 means SRBX alarm set.
- Low nibble equal to some other value is possible, but not given here (contact factory).

Alarm Code: For an I/O point (high nibble of the Alarm Type byte is 1, 2, 3, or 5):

0 = Low Alarm	4 = Rate Alarm
1 = Lo Lo Alarm	5 = Status Change
2 = High Alarm	6 = A/D Failure
3 = Hi Hi Alarm	7 = Manual Mode

For an AGA point (the high nibble of the Alarm Type byte is 6):

0 = Low Alarm
2 = High Alarm
4 = Redundant Total Count Alarm (FB104 and FB504 only)
5 = Redundant Flow Alarm (FB104 and FB504 only)
6 = No Flow Alarm
7 = Manual Mode

For a User Value alarm (the high nibble of the Alarm Type byte 8):

0 = Logic Alarm (RegFlo only)

For an MVS Sensor point (the high nibble of the Alarm Type byte is 9):

4 = Input Freeze Mode
5 = EIA-485 Fail Alarm
6 = Sensor Communications Fail Alarm
7 = Off Scan Mode

For an SM Sensor point (the high nibble of the Alarm Type byte is 10):

0 = Sequence Out of Order Alarm
1 = Phase Discrepancy Detected Alarm

2 = Inconsistent Pulse Count Alarm
3 = Frequency Discrepancy Alarm
4 = Channel A Failure Alarm
5 = Channel B Failure Alarm

All other alarms = Invalid Alarm.
Time and Date: Seconds, minute, hour, day, month, and year.
Tag: Ten ASCII characters.
Value: Represents the value at time of the occurrence of the alarm.

2.18 Opcode 122

Opcode 122 requests up to 10 events from the Event Log in the ROC. The Event Log consists of a fixed number of events. The maximum number of events in the Event Log is returned in Opcode 120. Each event consists of 22 bytes, organized according to one of the five formats described in *Figure 2-2, Event Formats*. *Table 2-26* shows the format used by each point type.

Table 2–25. Opcode 122 – All Devices except RegFlo

Communication Opcode	Host Request to ROC			ROC Response to Host		
	Data Offset	Data Length	Description of Data	Data Offset	Data Length	Description of Data
Opcode 122: Send Specified Number of Events Starting with the Specified Event Pointer	6	1	Number of events requested (maximum 10)	6	1	Number of events being sent
	7	2	Starting Event Log pointer	7	2	Starting Event Log pointer
				9	2	Current Event Log pointer
				11	22	1st Event: See *Figure 2-2, Event Formats*, for breakout of these 22 bytes. To determine which format is used by a given point type, see *Table 2-26*.
					.	(above repeated as necessary)

Format 1 (see notes below)

Point Type	Parm #	Time and Date Occurrence of Event						Pt #	Operator ID			Event Text									
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
–	–	sec	min	hr	day	mo	yr														

Format 2 (see notes below)

Point Type	Parm #	Time and Date Occurrence of Event						Pt #	Operator ID			Old Value				New Value				Not Used or Tag	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
–	–	sec	min	hr	day	mo	yr														

Format 3 from EVT Function

Point Type	FST #	Time and Date Occurrence of Event						Event Text										Floating Point Value			
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
240	–	sec	min	hr	day	mo	yr														

Format 4

Point Type	Parm #	Time and Date Logging of Event						Time and Date per Event						Not Used							
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14 through 20							
–	–	sec	min	hr	day	mo	yr	sec	min	hr	day	mo	yr	x	x	x	x	x	x	x	x

Format 5

Point Type	Parm #	Time and Date Occurrence of Event						Not Used													
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
–	–	sec	min	hr	day	Mo	yr	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Format 6 (see notes below)

Point Type	Cal Type	Time and Date Occurrence of Event						Pt #	Operator ID			Old Value				New Value				Cal Info	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
79	Note 1	sec	min	hr	day	mo	yr	Note 2												Note 3	Note 4

Figure 2-2. Event Formats

Notes for Format 1 in Figure 2-2:

The FloBoss 500-Series, FloBoss 407 (version 1.10 or greater), and ROC300-Series with FlashPAC (version 2.20 or greater) log AGA limit events in this format. An entry is logged when any input or calculated variable is outside the limits of the calculation. In the case of ROC300-Series and FloBoss 407 units, the Operator ID indicates the meter run number. The following is a list of the possible AGA limit events logged.

The Operator ID for the event identifies the meter run number as “RNx” where x is the run number. An event will be logged only once until the calculation parameter is back within limits. No event is created when the parameter is back within limits.

Description of Limit Exceeded Event Entry	Event Text
AGA 1992 calculation Reynolds number < 4000	ReD < 4000
Orifice diameter > Pipe diameter	d ≥ D
AGA 1992 calculation orifice diameter < 11.43 mm or 0.45 inches	d < 11.43 mm (0.45 in)
AGA 1992 calculation pipe diameter < 50.8 mm or 2.0 inches	D < 50.8 mm (2 in)
AGA 1992 calculation beta > 0.75	Beta > 0.75
AGA 1992 calculation beta < 0.1	Beta < 0.1
AGA 1985 flange calculation beta > 0.70	Beta > 0.70
AGA 1985 flange calculation beta < 0.15	Beta < 0.15
AGA 1985 pipe calculation beta > 0.67	Beta > 0.67
AGA 1985 pipe calculation beta < 0.20	Beta < 0.20

Description of Limit Exceeded Event Entry	Event Text
AGA 1992 Gross calculation pressure > 1750 psia	Pf > 1750
AGA 1992 Gross calculation temperature < -8°C or 17°F	Tf < -8°C (17°F)
AGA 1992 Gross calculation temperature > 66°C or 143°F	Tf > 66°C (143°F)
AGA 1985 NX19 calculation pressure > 5000 psia	Pf < 5000
AGA 1985 NX19 calculation temperature < -40°C or -40°F	Tf ≤ -40°C (-40°F)
AGA 1985 NX19 calculation temperature > 116°C or 240°F	Tf > 116°C (240°F)
AGA 1992 Gross calculation error for Zf	Zf = 1.0
AGA 1992 Gross calculation error for Zb	Zb = 1.0
AGA 1992 Gross calculation error for Zs	Zs = 1.0
AGA 1992 AGA8 calculation error for Zf	Zf = 1.0
AGA 1992 AGA8 calculation error for Zb	Zb = 1.0

Notes for Format 2 in Figure 2-2:

1. For an event generated (by Opcode 165 as Point Type 19) when a history point is configured, the Point # byte in Format 2 is interpreted as follows:

   Bits 0 through 5 (the right 6 bits) denote the history point number, 0 to 29, which indicates point 1 through 30.

   Bits 6 through 7 (the left 2 bits) denote the history RAM area or module:
   00 = Base RAM
   01 = RAM1
   10 = RAM2

   For example, the bit pattern **01010000** represents point 17 of history area/module RAM1.

2. Old values and New values are formatted in the native data type of the parameter changed with the Least Significant Byte (LSB) first. If the length of the parameter is less than 4 bytes, the Old and New values start at bytes 12 and 16, respectively, with unused bytes at the end of both the Old and New value 4-byte reserved area.

   For example, if the data type of the parameter changed was a TLP type (3 bytes), the Old value would be entered in bytes 12-14 and the New value would be entered in bytes 16-18, with bytes 15 and 19 unused. Refer to *Section 3.2, ROC Point Type Parameter Definitions*, concerning data types.

3. If the length of the parameter is 10 bytes, the New value is entered in both the Old, New, and Tag bytes (12 through 21) and the Old value is not retained. If the length of the parameter is greater than 10 bytes, the first 10 bytes of the New value are entered in the Old, New, and Tag bytes (12 through 21) and the Old value is not retained.

Notes for Format 6 in Figure 2-2:

1. Defines type of calibration performed

   0 = Set Zero
   1= SetSpan
   2 = Set Mid-point 1
   3 = Set Mid-point 2
   4 = Set Mid-point 3
   5 = Calibration Verified
   10 = Set Zero Shift/Static Pressure Offset/ RTD Bias
   29 = Calibration Cancelled

2. Logical number of MVS or Analog Input being calibrated

3. Type of point being calibrated (MVS=40, AI=3)

4. Defines MVS input being calibrated (only valid when point type is MVS)

   1 = Differential Pressure Input
   2 = Static Pressure Input
   3 = Temperature Input
   4 = Low DP Input (if stacked DP)

Table 2–26. Event Format by Point Type

Event Format by Point Type		
Point Type	**Format***	**Description**
0	2	Configurable Opcode
1	2	Discrete Input Configuration Variables
2	2	Discrete Output Configuration Variables
3	2	Analog Input Configuration Variables
4	2	Analog Output Configuration Variables
5	2	Pulse Input Configuration Variables
6	2	PID Configuration Variables
7	2	AGA Configuration Variables
8	2	AGA Point Definition
9	2	AGA Switched Run Configuration Variables
10	2	AGA Flow Rates Parameter
11	2	Tanks – (ROC300-Series with ROCPAC)
12	2	Clock Configuration Variables
13	2	System Flags
14	2	Communication Port Configuration Variables
15	2	System Variables
16	2	FSTs
17	2	Soft Points
19	2	Database Points
20	2	Tasks – (ROC300-Series and FloBoss 407)
21 to 39	2	User Defined Functions
40	2	Multi-Variable Sensor – (ROC300-Series and FloBoss 407)
41	2	Run Parameters
42	2	Extra Run Parameters
43	2	User Lists (FloBoss only)
44	2	Power Control
45	2	Meter Calibration And Sampler – (FloBoss 100-Series and FloBoss 500-Series)
46	2	Meter Configuration Parameters – (FloBoss 100-Series and FloBoss 500-Series)
47	2	Meter Flow Values – (FloBoss 100-Series and FloBoss 500-Series)
48	2	Mode Change – (ROC300-Series and FloBoss 407) PID Control Parameters – (FloBoss 100-Series and FloBoss 500-Series)
49	1	Upload to Disk (INTERNAL USE ONLY)
50	1	Download to ROC (INTERNAL USE ONLY)
52	2	Battery Parameters – (FloBoss 500-Series only)
53	2	Modbus Configuration Parameters – (FloBoss 100-Series and FloBoss 500-Series)
54	2	Modbus Function Tables – (FloBoss 100-Series and FloBoss 500-Series)
55	2	Modbus Special Function Table – (FloBoss 100-Series and FloBoss 500-Series)
56	2	Analog Input Calibration
57	2	Keypad / Log-On Security Parameters
58	2	Revision Information
59	2	Program Flash Control Parameters
79	6	Calibration Event (INTERNAL USE ONLY)
81	2	Logic Alarm Parameters

Event Format by Point Type		
Point Type	**Format***	**Description**
83	2	User Analog Values (RegFlo)
84	2	User Discrete Values (RegFlo)
86	2	Extended History Parameters
144	5	Initialization Sequence
145	4	All Power Removed
146	5	ROC Initialized From Default Values
147	5	ROM CRC (Cyclical Redundancy Check) Mismatch
148	5	Database Initialized
149	2	Diag (Diagnostic) - Ram Changed
150	5	Program FLASH Memory Event
200	1	Clock Change Event – (FloBoss 500-Series)
240	3	FST
248	1	Text Storage

2.19 Opcode 123

Opcode 123 reads User Template Data. Up to seven template parameters may be requested by one Opcode 123.

Table 2–27. Opcode 123 – All Devices except RegFlo

Opcode 123 – All devices except RegFlo						
Communication Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 123: Read User Template Data	6	1	Template Number (0-17)	6	1	Number of Template Parameters Sent
	7	1	Starting Parameter (0-127)	7	34	First Parameter Definition
	8	1	Number of Parameters (1-7)		1	Point Type
					1	Template Offset (Not used – FB107)
					1	Help Pointer (Not used – FB107)
					1	Read Only=0, Read/Write=1
					1	Data Type 0 = ascii character 1 = signed character 2 = unsigned character 3 = signed short integer 4 = unsigned short integer 5 = signed long integer 6 = unsigned long integer 7 = floating point 8 = 8-bit binary 9 = 10-character string 10 = 20-character string 11 = 30-character string 12 = 40-character string 13 = type, logical, parameter (TLP) 14 = 12-character string 15 = 3-character string
					1	Row Position (Not used – FB107)
					1	Column Position (Not used – FB107)
					1	Parameter Number
					6	Parameter Tag
					20	Label Text
				.	.	Above repeated as necessary

Table 2–28. Opcode 123 – Send User Defined Template (FloBoss 107 ONLY)

Opcode 123 – FloBoss 107								
Communi-cation Opcode	Host Request to ROC				ROC Response to Host			
	Data		Description of Data		Data		Description of Data
	Offset	Length			Offset	Length	
	6	1	Template Number		6	1	Point Type
			Template Number (Point Type 21 logicals)	User Defined Points			
			0-1	22-23			
			2				
			3-17				
			18-37				
			38-55				
			56-67				
	7	1	Starting Parameter		7	1	Point Type
	8	1	Number of Parameters		9	1	Reserved
					10	1	Write Enable 0 = Read Only 1 = Read/Write
					11	1	Data Type 1 = INT8 2 = UNIT8 3 = INT16 4 = UNIT16 5 = INT32 6 = UINT32 7 = FLOAT 8 = BIN 9 = AC10 10 = AC20 11 = AC30 12 = AC40 13 = TLP (UNIT8[3]) 14 = AC12 15 = AC3 16 = AC6
					12	1	Reserved
					13	1	Reserved
					14	1	Parameter Number
					15	6	Tag
					21	20	Description
					X	N	Bytes 6-21 are repeated for each parameter

2.20 Opcode 126

Opcode 126 requests the ROC unit's minute data for a specified history point. The minute database consists of 60 rolling registers, each containing either an average or a current value for the respective minute. *Figure 2-3* displays an example of the arrangement of the data available in the minute database (registers 0 to 59).

Table 2–29. Opcode 126 – All Devices except RegFlo

Opcode 126 – All devices except RegFlo						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 126: Send Minute Values For Specified History Point	6	1	History Point Number	6	1	History Point Number
				7	1	Current minute
				8	240	60 values from minute registers 0 - 59 (float)

Register

0	Value for the minute from 09:59:00 to 10:00:00.
1	Value for the minute from 10:00:00 to 10:01:00.
2	Value for the minute from 10:01:00 to 10:02:00.
..	
5	Value for the minute from 10:04:00 to 10:05:00.
6	Value for the minute from 10:05:00 to 10:06:00.
7	Value for the minute from 10:06:00 to 10:07:00.
8	Value for the minute from 9:07:00 to 9:08:00.
..	
..	
..	
57	Value for the minute from 9:56:00 to 9:57:00.
58	Value for the minute from 9:57:00 to 9:58:00.
59	Value for the minute from 9:58:00 to 9:59:00.

Figure 2-3. Minute Database Example

Figure 2-3 displays the current minute registers of the real-time clock at 10:07:23. Note how the values from the previous hour are overwritten at registers 0 – 7 and have not yet been overwritten at registers 8-59.

2.21 Opcode 128

Opcode 128 requests history data for a specific day of archived data for a specified history point. *Figure 2-4, Organization of the 24 Hourly Values*, depicts how the history data is organized. Refer to Opcode 255, error 62.

If an hour is not found, a zero (0) is returned for that hour. The hourly data begins with the first hour of a contract day.

Note: Due to changes in the Meter Run configuration power outages (FloBoss 500-Series only), clock changes, or selection of Force End of Day, it is possible to have more or fewer than 24 periodic values in one day. In this case, Opcode 128 may return invalid data. If Contract Hour rollover is missed for any reason, Opcode 128 returns an error code for that day.

Table 2–30. Opcode 128 – All Devices except RegFlo

Opcode 128 – All devices except RegFlo						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 128: Send Archived Data for Specified History Point for Specified Day and Month	6	1	History Point Number	6	1	History Point Number
	7	1	Day requested	7	1	Month — Date and time the first hour being sent was logged
	8	1	Month requested	8	1	Day
				9	1	Hour
				10	1	Minute
				11	2	Database pointer for first hour sent
				13	96	24 hourly values starting at first hour logged. Hours not found are reported as zeros. Note: FloBoss 500-Series can return partial hourly values for meter run changes.
				109	4	Daily value archived
				113	18	Minimum value (float) Maximum value (float) Time of minimum value occurrence: (5 bytes: sec, min, hr, day, mo) Time of maximum value occurrence Yesterday: (5 bytes: sec, min, hr, day, mo)
				131	1	Database Point Type
				132	4	Current value stored at current day's contract hour. Value should be 0 – (FloBoss 100-Series, FloBoss 407 and FloBoss 500-Series)
				136	4	Current value stored at previous day's contract hour. Value should be 0 – (FloBoss 100-Series, FloBoss 407 and FloBoss 500-Series)

Register	
0	Archived value for the first hour of a contract day: (contract hour):00:00 to (contract hour + 1):00:00.
1	Archived value for the second hour of a contract day: (contract hour + 1):00:00 to (contract hour + 2):00:00.
2	Archived value for the third hour of a contract day: (contract hour + 2):00:00 to (contract hour + 3):00:00.
.. .. ..	
23	Archived value for the last hour of a contract day: (contract hour + 23):00:00 to (contract hour + 24):00:00.

Note: If the quantity (contract hour + hour) is greater than 23, then subtract 23.

Figure 2-4. Organization of the 24 Hourly Values

2.22 Opcode 130

Opcode 130 requests a specified number of hourly (periodic for RegFlo) or daily data values for a specified history point, starting at a specified history pointer. Specifying history points can be done in different ways. Each History RAM area can have a maximum of 30 history points, and the ROC currently supports three areas of RAM (originally related to RAM modules): the Base RAM, RAM1, and RAM2.

The history points can be referenced by:

- RAM Area and Point Number:
  Base RAM – request RAM area 0, point 0 – 29.
  RAM1 – request RAM area 1, point 0 – 29.
  RAM2 – request RAM area 2, point 0 – 29.

Note: In a ROC300-Series with ROCPAC or FloBoss 407 with firmware version 1.08 or earlier, history is accessed only by RAM area and Point Number.

- Point Number only (enter "0" for the RAM area) as 0 – 86, where:
  Base RAM – correspond to points 0 – 29.
  RAM1 – correspond to points 30 – 59.
  RAM2 – correspond to points 60 – 86.

Note: In a ROC300-Series with FlashPAC or FloBoss 407 with firmware version 1.10 or greater, history may be accessed by Point Number only. Use of RAM area and Point Number is also supported.

To read time values for a particular history RAM area, specify **254** as the history point number. Following is the format of the hourly and daily timestamp value:

Minute	Hour	Day	Month

The value of the extended history timestamp is the number of seconds since year 1970.

The starting history pointer specifies the beginning record for hourly values or daily values:

- **Daily Values**: 840 + x, where x can be 0 – 34 to indicate the starting history pointer.
- **Hourly Values**: 0 – 839 (24 hours per day repeated for a maximum of 35 days). The number of history days for a given RAM area is returned by Opcode 120. For a ROC300-Series with a FlashPAC, a FloBoss 407, a FloBoss 500-Series, or a FloBoss 100-Series, it is always 35 days maximum.
- **Log Interval Values**: 0 – 839 (equivalent to 24 hours per day repeated for a maximum of 35 days). The number of history days for

a given RAM area is returned by Opcode 120. The number of history days is calculated as 840 logs x Log interval in minutes / 1440 minutes per day. Used in RegFlo only.

- **Extended Values**: 0 – 10080 (the maximum is equivalent to 5 minute logs repeated for a maximum of 35 days). The number of history days for a given RAM area is returned by Opcode 120. The number of history days is calculated as number of logs * Log interval in minutes / 1440 minutes per day. Used only in FloBoss 100-Series or in RegFlo versions 2.xx and 3.xx.

2.22.1 Opcode 130: ROC300-Series, FloBoss 407, and FloBoss 500-Series

Table 2–31. Opcode 130 – ROC300-Series, FloBoss 407, and FloBoss 500-Series

<table>
<tr><th colspan="7">Opcode 130 – ROC300-Series, FloBoss 407, and FloBoss 500-Series</th></tr>
<tr><th rowspan="3">Communi-cation Opcode</th><th colspan="3">Host Request to ROC</th><th colspan="3">ROC Response to Host</th></tr>
<tr><th colspan="2">Data</th><th rowspan="2">Description of Data</th><th colspan="2">Data</th><th rowspan="2">Description of Data</th></tr>
<tr><th>Offset</th><th>Length</th><th>Offset</th><th>Length</th></tr>
<tr><td rowspan="5">Opcode 130: Send Specified # of Hourly or Daily Data for Specified History Point – (ROC300-Series, FloBoss 407, and FloBoss 500-Series)</td><td>6</td><td>1</td><td>Historical RAM area –
0, 1, or 2 (ROC300-Series)
0 or 1 (FloBoss 407)
Always 0 (FloBoss 500-Series)</td><td>6</td><td>1</td><td>Historical RAM area (0, 1, or 2)</td></tr>
<tr><td>7</td><td>1</td><td>Point Number:
0 to 14 – (FloBoss 500-Series)
FloBoss 407:
<table>
<tr><th>RAM Area</th><th>Point Number</th><th>Version</th></tr>
<tr><td>0</td><td>0 to 49</td><td>1.10 or greater</td></tr>
<tr><td>1</td><td>0 to 19</td><td>1.10 or greater</td></tr>
<tr><td>0</td><td>0 to 29</td><td>1.08 or less</td></tr>
<tr><td>1</td><td>0 to 19</td><td>1.08 or less</td></tr>
</table>
ROC300-Series:
<table>
<tr><th>RAM Area</th><th>Point Number</th><th>Version</th></tr>
<tr><td>0</td><td>0 to 86</td><td>2.20 or greater</td></tr>
<tr><td>1</td><td>0 to 56</td><td>2.20 or greater</td></tr>
<tr><td>2</td><td>0 to 26</td><td>2.20 or greater</td></tr>
<tr><td>0</td><td>0 to 29</td><td>2.12 or less</td></tr>
<tr><td>1</td><td>0 to 29</td><td>2.12 or less</td></tr>
<tr><td>2</td><td>0 to 19</td><td>2.12 or less</td></tr>
</table>
</td><td>7</td><td>1</td><td>Point Number (0-89)</td></tr>
<tr><td>8</td><td>1</td><td>Number of values requested (maximum 60)</td><td>8</td><td>1</td><td>Number of values being sent</td></tr>
<tr><td>9</td><td>2</td><td>Starting history pointer</td><td>9</td><td>4</td><td>1st hourly or daily value</td></tr>
<tr><td></td><td></td><td></td><td></td><td>.</td><td>(above repeated as necessary)</td></tr>
</table>

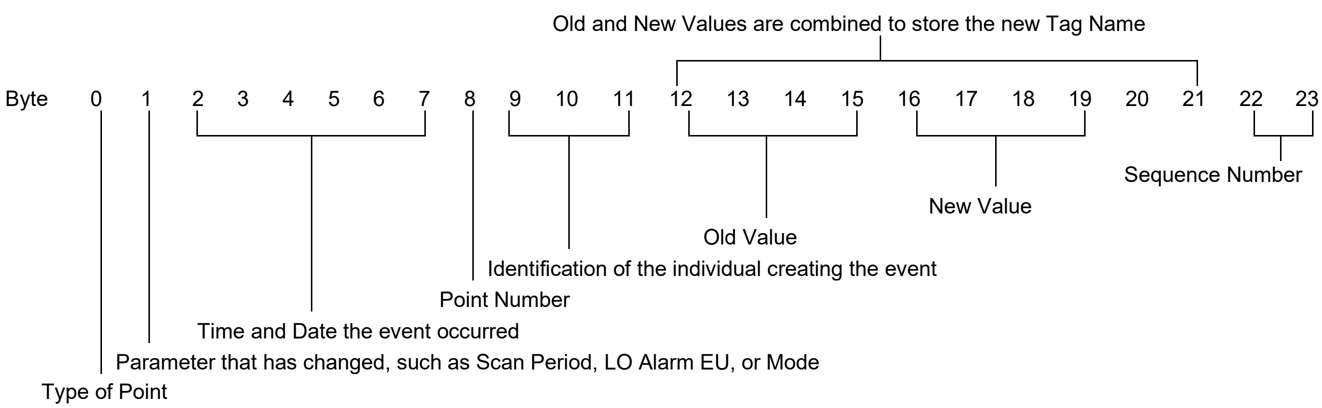
2.22.2 Opcode 130: FloBoss 100-Series and RegFlo

Table 2–32. Opcode 130 – FloBoss 100-Series and RegFlo

Opcode 130 – FloBoss 100-Series and RegFlo						
Communication Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 130: Send Specified # of Hourly or Daily Data for Specified History Point – (FloBoss 100-Series and RegFlo)	6	1	Type of History 0 = Hourly (Periodic) or Daily 1= Extended	6	1	Type of History 0 = Hourly (Periodic) or Daily 1= Extended
	7	1	History Point Number (for Timestamp specify 254)	7	1	History Point Number
	8	1	Number of history values requested (maximum 60)	8	1	Number of history values being sent
	9	2	Starting history pointer	9	4	1st history value
				13	4	2nd history value
					.	(above repeated as necessary)

2.23 Opcode 131

Opcode 131 sends a specified number of events with sequence numbers starting at a specified pointer to the Audit Log in the ROC (Industry Canada units only). The Audit Log consists of a maximum of 240 events (100 events for a ROC300-Series unit with ROCPAC and early versions of FloBoss 407) for ROC300 FlashPAC and FloBoss 407 devices or 1000 events for FloBoss 107 devices. Each event consists of 24 bytes as described below:



Byte 0 – Refer to remainder of document for valid Point Types.

Byte 1 – Refer to remainder of document for valid parameters.

Time and Date – Second, minute, hour, day, month, and year.

Old Value – The previous value of the specified parameter.

New Value – The new value of the specified parameter.

Sequence Number – The sequence number of the event.

Table 2–33. Opcode 131- ROC300-Series, FloBoss 407and FloBoss 107

Opcode 131 – ROC300-Series, FloBoss 407 and FloBoss 107						
Communication Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data Offset	**Data Length**	**Description of Data**	**Data Offset**	**Data Length**	**Description of Data**
Opcode 131: Send Specified Number of Events with Sequence Numbers Starting with the Specified Pointer	6	1	Number of events requested (Maximum of 9)	6	1	Number of Audit Log events being returned
	7	2	Starting Audit Log pointer	7	2	Starting Audit Log pointer
				9	22	1st Event: See *Figure 2-2, Event Formats*, for breakout of these 22 bytes. To determine which format is used by a given Point Type, see *Table 2–26*.
				31	2	Sequence Number (most significant bit set indicates event not saved to disk)
				.	.	(above 24 bytes repeated as necessary for a maximum of 9 events)

2.24 Opcode 132

Opcode 132 clears all event flags (bit 15) in the Audit Log (Industry Canada ROC and FloBoss only).

Table 2–34. Opcode 132 - ROC300-Series, FloBoss 407 and FloBoss 107

Opcode 132 – ROC300-Series, FloBoss 407 and FloBoss 107						
Communication Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data Offset	**Data Length**	**Description of Data**	**Data Offset**	**Data Length**	**Description of Data**
Opcode 132: Clear all Audit Log Flags	6	1	Number of Audit Log events to clear (always 0 for FB107)	6	1	Size of Audit Log (always 240 for ROC300 and FB407, always 0 for FB107)
	7	2	Starting Audit Log Pointer (always 0 for FB107)	7	2	Always 0

2.25 Opcode 133

Opcode 133 sends the number of unused events in the Audit Log (Industry Canada units only) and the current Audit Log pointer.

Table 2–35. Opcode 133 – ROC300-Series and FloBoss 407

Opcode 133 – ROC300-Series and FloBoss 407						
Communi-cation Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 133: Send number of unused events in Audit Log and the current Audit Log pointer.			No data bytes.	6	2	Number of writable events in Audit Log
				8	2	Current Audit Log Pointer

2.26 Opcode 136

Opcode 136 requests a specified number of history data values for a specified starting history index for a specified number of time periods, starting at a specified history point for a specified number of history points.

Version	Description
1.xx	Introduced

The history segment indicates where data is requested. Following are the history segments:

0 = General History #0
1 = General History #1
2 = General History #2
.
.
.
9 = General History #9
10 = General History #10

The history index specifies the record to be used:

- Minute History: 0 – 60.
- Periodic History: 0 – (#periodic entries in history point – 1) (24 hours per day repeated for a maximum of 35 days).
- Daily History: 0 – (#daily entries in history point – 1).

There are three types of history possible to be retrieved from each history segment: Minute (0), Periodic (1), or Daily (2).

The starting history point can be referenced by point number only as 0 – x, where x is the number of history points defined for a History Segment.

Opcode 136 returns the history values for the requested history index from the starting history point and continuing until the requested number of history points is completed. The time stamp for the history index will always be returned.

The timestamp is a TIME [UINT32] representing the number of seconds elapsed since 12:00 a.m. Jan. 1, 1970. This can be thought of as row addressing. An error is returned if the day was not found.

Table 2–36. Opcode 136 – Request History Index Data

Opcode 136						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data			**Data**		
	Offset	**Length**	**Description of Data**	**Offset**	**Length**	**Description of Data**
Opcode 136: Send specified # of history data for specified history index starting at specified history point	6	1	History Segment (0-10)	6	1	History Segment 0 **Note**: Reserved for FB107
	7	2	History Index: Periodic 0 - (#periodic entries in history point – 1) Daily 0 - (#daily entries in history point – 1) Extended (#extended history – 1 65535 = current history records	7	2	History Index: Periodic 0 - (#periodic entries in history point – 1) Daily 0 - (#daily entries in history point – 1) Extended (#extended history entries – 1) 65535 – Current history index}
	9	1	Type of History: Periodic = 0 Daily = 1 Extended = 2	9	2	Current history index
	10	1	Starting history point (0-(# of history points for history segment – 1))	11	1	# of data elements being sent ((# history points + 1) * # time periods) Value is 0 if the request is invalid.
	11	1	# of history points	12	4	Time stamp for 1st time period
	12	1	# of time periods (see note below) ((# history points + 1) * # time periods) must not be greater than 60	16	4	1st history point value
					.	(repeat for number of history points)
					(above repeated for number of time periods)	

Note: If no time periods are requested, the ROC does not return history values.

2.27 Opcode 148

Opcode 148 reads 240 bytes of data from a specified segment:offset address location in ROC memory.

Table 2–37. Opcode 148 – All Devices

Opcode 148 – All devices						
Communication Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 148: Reads 240 bytes from a specified segment:offset address.	6	2	Offset Address (0-FFFF)	6	2	Offset Address
	8	2	Segment Address (0001-0007, 0060-0067, or 0070)	8	2	Segment Address Not Used (RegFlo)
				10	240	Data

2.28 Opcodes 150 and 151

Opcodes 150 and 151 request and send the two user-defined displays resident in the ROC.

Note: These opcodes are only supported by ROC300-Series and FloBoss 407.

Table 2–38. Opcodes 150 and 151 – ROC300-Series and FloBoss 407

Opcodes 150 and 151 – ROC300-Series and FloBoss 407						
Communication Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 150: Send number of rows for speci-fied display	6	1	Display number (0 or 1)	6	1	Display number (0 or 1)
	7	1	Number of rows, three maximum	7	1	Number of rows, three maximum
	8	1	Starting row (21 rows maximum)	8	1	Starting row
				9	80	Bytes of data for single row
					.	(above repeated as necessary)
Opcode 151: Set number of rows for speci-fied display	6	1	Display number (0 or 1)			Number data bytes.
	7	1	Number of rows, three maximum			Acknowledgment sent back.
	8	1	Starting row (21 rows maximum)			
	9	80	Bytes of data for single row			
		.	(above repeated as necessary)			

2.29 Opcode 158

Opcode 158 requests a configuration table describing the first 24 point types of the ROC. The intended use of Opcode 158 is for ROC software testing.

Note: Opcode 158 is only supported by ROC300-Series and FloBoss 407.

Table 2–39. Opcode 158 – ROC300-Series and FloBoss 407

Opcode 158 – ROC300-Series and FloBoss 407						
Communication Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 158: Send table of current configuration table			No data bytes.	6	2	Start index into table
				9	1	Number of configured
					4	Size of type
					4	Starting address of type
					.	(repeated for each type, 0-23)

2.30 Opcode 160

Opcode 160 sends the entire parameter structure for a specified FST (Function Sequence Table).

Table 2–40. Opcode 160 -– ROC300-Series and FloBoss 407

Opcode 160 – ROC300-Series and FloBoss 407						
Communication Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 160: Sends the entire structure for a specified FST	6	1	FST Number	6	1	FST Number
				7	152	FST Parameters, refer to Point Type 16 for breakdown

2.31 Opcode 162

Opcode 162 sets a single parameter.

Table 2–41. Opcode 162 – ROC300-Series and FloBoss 407

Opcode 162 – ROC300-Series and FloBoss 407						
Communication Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 162: Set a single parameter	6	1	Point Type			No data bytes.
	7	1	Point / Logical Number			Acknowledgement returned.
	8	1	Parameter Number			
	9	x	Data			
	8	2	Data Length			
			Data to Write to FST_Info Structure			

2.32 Opcode 165

Opcode 165 configures a single history point or reads the current configuration for a contiguous group of history points. This opcode is the only way to configure a history point. When configuring a history point, Opcode 165 checks to see if a valid point exists for that being configured. If the opcode determines an invalid configuration, the ROC simply acknowledges and nothing is configured. When reading the history points, only those points remaining for the RAM area following the specified starting history point are returned.

For an event generated (by Opcode 165 as Point Type 19) when a history point is configured, the point # byte is interpreted as follows:

Bits 0 – 5 (the right 6 bits) denote the history Point Number, 0 to 29, which indicates point 1 through 30.

Bits 6 – 7 (the left 2 bits) denote the history RAM area (or module):

00 = Base RAM
01 = RAM1
10 = RAM2

For example, the following bit pattern would represent point 17 of history area / module RAM1:

01010000 = history point 17 of RAM1.

Refer to *Section 3.1.4, Bit Assignments*, for additional information.

The historical database points can be archived via Opcode 165 by setting the archive type:

128 Archived every hour (Average).

129 Archived every hour (Accumulated).

130 Archived every hour (Current).

134 Archived every hour (Totalize).

66 Database value logged when directed by the FST command WDB – Write Results Register Value to History.

65 Database value logged down to the second with FST-controlled time stamp of Day, Hour:Min:Sec. Use FST command WTM – Write current Time to History.

64 Database value logged down to the minute with FST-controlled time stamp of Day-Month, Hour:Min. Use FST command WTM – Write current Time to History.

0 Not defined.

Table 2–42. Opcode 165 – All Devices except RegFlo

Opcode 165 – All devices except RegFlo						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 165: Set or Send Current Configurable Historical Data Overhead		To Set	ROC300-Series and FloBoss 407 only.		For Set	ROC300-Series and FloBoss 407 only.
	6	1	Set data byte equals 1			No data bytes.
	7	1	Historical RAM area (0, 1, or 2)			Acknowledgment sent back.
	8	1	Database Number (0-29)			
	9	1	Archive type			
	10	1	Point type			
	11	1	Point / Logic Number			
	12	1	Parameter Number			
or		To Read		or	For Read	All ROC and FloBoss units.
	6	1	Set data byte equals 0	6	1	0
	7	1	Historical RAM area – 0, 1, or 2 (ROC300-Series) 0 or 1 (FloBoss 407) 0 (FloBoss 500-Series and FloBoss 100-Series)	7	1	Historical RAM area (0, 1, or 2) Always 0 (FloBoss 100-Series and FloBoss 500-Series)
	8	1	Starting database number (0-99)	8	1	Number of Database Points Sent.
	9	1	Set to 0	9	4: 1	Archive type
					1	Point type
					1	Point / Logic Number
					1	Parameter Number
				x	.	(above repeated as necessary)

2.33 Opcode 166

Opcode 166 configures either a single point or a contiguous block of parameters for a single point. This opcode is more efficient than Opcode 181 when the entire, or even partial, point configuration is required.

Note: You **cannot** use Opcodes 166 and 181 to configure a history point in the ROC300 and FB407. You **must** use Opcode 165 for that purpose. Similarly, you cannot configure the Local Operator Interface (LOI) communications port using Opcode 166. To configure this port, you must use Opcode 181.

Table 2–43. Opcode 166 – All Devices

Opcode 166 – All devices						
Communi-cation Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 166: Set Specified Contiguous Block of Parameters	6	1	Point Type			No data bytes.
	7	1	Point / Logic Number			Acknowledgment sent back.
	8	1	Number of Parameters			
	9	1	Starting Parameter Number			
	10	x	Data (a contiguous block)			

2.34 Opcode 167

Opcode 167 reads the configuration of a single point or it can be used to read a contiguous block of parameters for a single point. Opcode 167 is more efficient than Opcode 180 when reading the entire, or even partial, point configuration.

Use Opcode 167 to return a two-dimensional array (pt_typ_pos[2] [70]) indicating the I/O module installed in the ROC by "type" and "position in the I/O database." Specify **24** for the point type to indicate this I/O position array. The I/O information is represented by an array dimensioned for 70 I/O modules. The system (diagnostic) analog inputs are also included.

Array Position	Physical Location	
0 to 15	Rack A – 1 to 16	
16 to 31	Rack B – 1 to 16	
32 to 47	Rack C – 1 to 16	
48 to 63	Rack D – 1 to 16	
64 to 69	Rack E – 1 to 6	System / Diagnostic Analog Inputs

The "type" indicates the type of I/O module installed. The I/O module types are:

- Undefined – 0
- Discrete Input – 1
- Discrete Output – 2
- Analog Input – 3
- Analog Output – 4
- Pulse Input – 5

The "position in the I/O database" indicates the logical offset in the ROC unit's I/O database. Do not confuse this number with the "Point/Logic Number" used in the protocol's format.

Table 2–44. Opcode 167 – All Devices

Opcode 167 – All devices							
Communi-cation Opcode	Host Request to ROC			ROC Response to Host			
	Data		Description of Data	Data		Description of Data	
	Offset	Length		Offset	Length		
Opcode 167: Send Specified Contiguous Block of Parameters	6	1	Point Type	6	1	Point Type	
	7	1	Point / Logic Number	7	1	Point / Logic Number	
	8	1	Number of Parameters	8	1	Number of Parameters	
	9	1	Starting Parameter Number	9	1	Starting Parameter Number	
				10	x	Data (a contiguous block)	

2.35 Opcode 170

Opcode 170 sends the point number (0-68), the point type (1, 2, 3, 4, 5, or 15, where "15" means "spare/none installed"), the current value for the specified starting I/O point, and the next sequential number of I/O points specified with a maximum of 32 points. The current value returned can have different meanings based upon the way the point is configured. This occurs only with discrete inputs and discrete outputs.

The discrete inputs are normally configured for status change but can be configured for timed duration (TDI). When the discrete inputs are configured for status change, the "Status" parameter is returned as the current value. When the discrete inputs are configured for timed duration, the "EU Value" parameter is returned as the current value.

The Analog Inputs, Analog Outputs, and Pulse Inputs return parameters "Filtered EUs," "Value in EUs," and "Value in EUs," respectively, as the current value.

The (AGA) instantaneous flow values can be read by requesting points 69-73. The ROC returns a **3** as the point type for the flow values and the units represented are MCF/Day.

Note: Opcode 170 is supported **only** in ROC300-Series and FloBoss 407s.

Table 2–45. Opcode 170 – ROC300-Series and FloBoss 407

Opcode 170 – ROC300 Series and FloBoss 407						
Communi-cation Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 170: Send Current Values of Specified I/O Points (ROC300-Series and FloBoss 407)	6	1	Starting I/O point (0-68)	6	1	Number of I/O points sent
	7	1	Number of I/O points Note: The diagnostic AIs are physically set as follows: 64 = +T 65 = Power Input 66 = Aux # 2 67 = Aux # 1 68 = Board Temperature	7	6	1 Point Number (0-68) 1 Point type DI=1, DO=2, AI=3, AO=4, PI=5, Spare=15 4 Current value stored in 4 bytes
					.	(above repeated as necessary)

2.36 Opcode 171

Opcode 171 is similar to Opcode 181, but only configures the I/O (discrete inputs and discrete outputs, analog inputs and analog outputs, and pulse inputs).

Note: Opcode 171 is supported **only** in ROC300-Series and FloBoss 407s.

Table 2–46. Opcode 171 – ROC300-Series and FloBoss 407

Opcode 171 – ROC300-Series and FloBoss 407						
Communi-cation Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 171: Set Parameters for Specified Point	6	1	Point Number (0-68)			No data bytes.
	7	1	Point Type DI=1, DO=2, AI=3, AO=4, PI=5			Acknowledgment sent back.
	8	1	Number of parameters			
	9	x	1 Parameter Number x Data bytes (see below)			
		.	(above repeated as necessary)			
			Number of data bytes for the following: 1 ASCII character 1 signed character 1 unsigned character 2 signed integer 2 unsigned integer 4 signed long 4 unsigned long 4 float 1 binary			

Opcode 171 – ROC300-Series and FloBoss 407						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
			3 (TLP) type, number, parameter 10 ASCII characters 20 ASCII characters 30 ASCII characters 40 ASCII characters			

2.37 Opcode 180

Opcode 180 reads several parameters in a single request. The parameters can be from different point numbers and of different point types. The opcode is intended to read any combination of parameters listed in the tables of *Chapter 3*. The opcode responds with an error response if the response is longer than 240 bytes, or if the request is for an invalid parameter, possibly due to a point that is not configured.

If the request was for an invalid parameter in a ROC300-Series or a FloBoss 407 with version 1.10 or greater, the opcode returns an error code identifying the parameter in the requested order. For example: If the invalid parameter was located in the fourth TLP requested, then the error code would be **4**.

If the request was for an invalid parameter in a FloBoss 407 with version 1.08 or earlier, the opcode returns an error code identifying the parameter number plus 1. For example: If the number of the invalid parameter was 61, then the error code would be **62**.

Table 2–47. Opcode 180 – All Devices

Opcode 180 – All devices						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 180: Send Specified Parameters	6	1	Number of parameters requested	6	1	Number of parameters requested
	7	3 [1	Type of Point	7	1	Type of Point
		1	Point / Logical Number (0-based)		1	Point / Logical Number (0-based)
		1	Parameter Number		1	Parameter Number
		.	(above repeated as necessary)		x	Data comprising the parameter
					.	(above repeated as necessary)

2.38 Opcode 181

Opcode 181 sets specific parameters in the ROC. This opcode is the opposite of Opcode 180 in that it writes values instead of reading them. The ROC responds with an acknowledgment. Opcode 181 can be used to configure the operator interface communications ports.

Note: Do **not** use Opcode 181 to configure a history point when using a ROC300-Series or FloBoss 407. You **must** use Opcode 165 to configure history in these devices.

Table 2–48. Opcode 181 – All Devices

Opcode 181 – All devices						
Communi-cation Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 181: Set Specified Parameters	6	1	Number of parameters requested			No data bytes.
	7	1	Type of Point			Acknowledgment sent back.
		1	Point / Logical Number (0-based)			
		1	Parameter Number			
		x	Data comprising the parameter			
		.	(above repeated as necessary)			

2.39 Opcode 200

Opcode 200 passes data between devices, and can be used to poll a wired HART or *Wireless*HART (IEC 62591) device using a communication port.

Version	Description
1.40	Introduced

Note: The FloBoss 107 **does not** support version 1.0 of Opcode 200. The ROC800-Series **does** support Version 1.0, as documented in the *ROC Plus Protocol Specifications Manual* (Form A6127, D301250X012).

Errors

The opcode answers with an error response if:

- An invalid command is used (Error 1)
- An invalid logical is used (if the module is not installed) (Error 3)
- The end device indicates a time out (Error 71)
- A post is received and another post is pending (Error 76)
- If the installed HART or 62591 module is not communicating or is in boot mode (Error 78)

- Scanning of the device has been disabled (wired HART only)

Table 2–49. Opcode 200 – FB107

Opcode 200 – Version 2.0 (FB107)						
Communi-cation Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 200: Send Specified Parameters	6	1	Pass Through Type: 2 = Wired HART 3 = 62591	6	1	Pass Through Type: 2 = Wired HART 3 = 62591
	7	1	Pass Through Action: 0 = Post Request 1 = Get Response	7	1	Pass Through Status: 0 = Response Pending 1 = Response Received
	8	1	Logical – ROC800 – based on module position. FB107 – 0-3 for Wired HART and 0 for 62591 module.	8	1	Logical from Request
	9	1 - 240	Data	9	Variable	Response from device. (Present if Status = Response Received)

2.40 Opcodes 224 and 225

Opcodes 224 and 225 provide spontaneous report-by-exception parameters. Refer to *Chapter 7* for an example of Spontaneous Report-by-Exception (SRBX or RBX) . If messages from two ROC devices collide, the two ROC devices wait an interval of time related to the ROC Address before attempting to re-transmit. The host uses Opcode 225 to acknowledge receipt of the RBX alarm message.

Table 2–50. Opcodes 224 and 225 – All Devices

Opcodes 224 and 225 – All devices						
Communi-cation Opcode	Host Request to ROC			ROC Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 224: Signal Report-by-Exception			Host will try Opcode 0 for a general update followed by Opcode 121 for any new alarms			No data bytes.
Opcode 225: Acknowledge Report-by-Exception	6	2	Current Alarm Log pointer			No data bytes. Acknowledgment sent back. ROC clears RBX status if the ROC's alarm pointer equals data received from the host.

2.41 Opcode 255 – Error Indicator

Opcode 255 is an error message indicator. This is an 8-byte message with no data bytes included. The opcode is set to 255 to indicate that the message received by the ROC had valid Cyclical Redundancy Check (CRC), but contained invalid parameters. For example, if a request was made for information on Analog Input #11, but the ROC was configured for only eight analog inputs (0 – 7), then the ROC would respond back with the 8-byte message with the opcode equal to 255.

Table 2–51. Opcode 255 – All Devices

Opcode 255 – All devices						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 255: Invalid Parameters in Request Received by ROC			Error message indicator	6	1	Error code (see *Tables 2-48* and *2-49*).
				7	1	Opcode that had the error
				8	1	Byte in received message that had the error

Table 2-51 presents a list of Opcode 255 errors that can be returned for various opcode requests (for FlashPAC-equipped ROC300-Series, FloBoss 100-Series, and FloBoss 500-Series). *Table 2-52* presents a similar list for ROCPAC-equipped ROC300-Series, FloBoss 100-Series, FloBoss 407, and RegFlo.

Table 2–52. Error Codes Returned by Opcode 255 – ROCPACs and FloBoss 407

Error Codes Returned by Opcode 255 (ROCPACs and FloBoss 407 Only)		
Opcode Request	**Error Returned**	**Description of Error Code**
0	2	Received too many data bytes.
2	3	Number of data bytes > 0.
3	4	Number of data bytes > 0.
6	5	Number of data bytes > 0.
7	6	Number of data bytes > 0.
8	7	Less than 6, or more than 8 data bytes received.
8	251	Industry Canada audit log full
10	7	One of the following: 1) Incorrect number of data bytes received. 2) Not a valid configurable Opcode point. 3) Starting table location greater than 43. 4) Number of table locations greater than 44.
10	8	One of the following: 1) Starting table location plus the number of table locations greater than 44. 2) The length of data is greater than 234 bytes.
10	9	Error in configuration. One of the parameter definitions is no longer valid.

Error Codes Returned by Opcode 255 (ROCPACs and FloBoss 407 Only)		
Opcode Request	**Error Returned**	**Description of Error Code**
11	7	One of the following: 1) Incorrect number of data bytes received. 2) Not a valid configurable Opcode point. 3) Starting table location greater than 43. 4) Number of table locations greater than 44.
11	8	One of the following: 1) Starting table location plus the number of table locations greater than 44. 2) Expecting more data than was received.
11	9	Error in configuration. One of the parameter definitions is no longer valid.
11	251	Industry Canada audit log full
17	6	Too little data.
17	8	Too much data.
17	20	Security error.
17	21	Not in security user list.
17	63	Requested security level too high.
17	251	Industry Canada audit log full
18	9	Number of data bytes ≠ 16.
24	50	Number of data bytes < 12.
102	50	Number of data bytes ≠ 30.
102	251	Industry Canada audit log full
103	50	Number of data bytes > 0.
105	52	One of the following conditions: 1) Number of data bytes > 2. 2) Invalid Point Number for requested module. 3) Invalid RAM area number.
107	54	One of the following conditions: 1) Number of data bytes > 22. 2) Requested more than 20 tags. 3) Invalid RAM area number.
	55	Invalid Point Number for requested RAM area.
120	56	Number of data bytes > 0.
121	57	One of the following: 1) Number of data bytes ≠ 3. 2) Starting alarm pointer > 239.
122	58	One of the following: 1) Number of data bytes ≠ 3. 2) Starting event pointer > 239.
126	59	One of the following conditions: 1) Number of data bytes > 2. 2) Invalid Point Number for requested RAM area. 3) Invalid RAM area number.
128	60	One of the following conditions: 1) The history Point Number requested exceeds the number of points defined for that history RAM area. 2) The data portion of the message received did not consist solely of 3 bytes. 3) The history point is not defined for periodic, hourly archival.
128	61	One of the following conditions: 1) Not a valid day specified; the day specified must be between 1 and 31, inclusive. 2) Not a valid month specified; the month specified must be between 1 and 12, inclusive.

Error Codes Returned by Opcode 255 (ROCPACs and FloBoss 407 Only)		
Opcode Request	**Error Returned**	**Description of Error Code**
128	62	Specified day and/or month requested does not match the day and/or month in the time stamp associated with the first history value for the day. Refer to the following Note and Figure 2-5.
128	63	The Point Number exceeds the number of possible history points for that RAM area.
130	62	One of the following conditions: 1) The number of data values requested exceeds the number of data values defined for that history RAM area. 2) The data portion of the message received did not consist solely of 5 bytes. 3) The module number exceeds or is equal to the maximum number of modules supported by the ROC.
130	63	One of the following conditions: 1) The Point Number exceeds the number in the requested module. 2) The requested Point Number has an invalid archival type.
131	103	Industry Canada audit log retrieval error
132	104	Industry Canada clear audit log error
133	103	Industry Canada audit log retrieval error
150	73	One of the following conditions: 1) Number of data bytes ≠ 3. 2) Display number > 1.
151	74	One of the following conditions: 1) Display number > 1. 2) Number lines requested > 3. 3) Starting row > 20. 4) Starting row + Number of rows > 21.
151	75	Number of data bytes incorrect.
158	77	Number of data byes > 0.
162	251	Industry Canada audit log full
165	85	One of the following conditions: 1) Number of data bytes < 4. 2) Set/Send byte < 4. 3) Invalid Point Number for RAM area.
165	86	Number of data bytes ≠ 7 for “Set Operation.”
165	87	Number of data bytes ≠ 4 for “Send Operation.”
166	88	Received 4 or fewer data bytes, or invalid Point Type.
166	91	Point does not exist.
166	251	Industry Canada audit log full
167	8	More than 250 data bytes in response.
167	9	Invalid parameter.
167	90	One of the following conditions: 1) Did not receive 4 data bytes. 2) Invalid Point Type.
167	91	Point does not exist.
167	92	Point does not exist.
167	93	Invalid range of parameters asked for.
167	94	Too many data bytes to send (more than 240).

Error Codes Returned by Opcode 255 (ROCPACs and FloBoss 407 Only)		
Opcode Request	**Error Returned**	**Description of Error Code**
170	93	One of the following conditions: 1) Number of data bytes ≠ 2. 2) Number requested > 32. 3) Invalid starting Point Number. 4) Too many points requested for requested starting Point Number.
171	94	One of the following conditions: 1) Number of data bytes ≠ 4. 2) Invalid Point Type.
	95	Invalid point or type.
171	251	Industry Canada audit log full
180	XXX	The parameter in which the error was detected (see Opcode 180 description).
181	103	Received less than 4 data bytes.
181	104	Point type out of range (1 – 24 are valid).
181	105	Point does not exist, or invalid parameter.
181	106	Not enough data bytes received.
181	251	Industry Canada audit log full
225	102	Number of data bytes ≠ 2.
XXX	1	Invalid Opcode requested.

Note: Error 62 returned for Opcode 128 denotes the specified day and/or month requested does not match the day and/or month in the time stamp associated with the first history value for the day. Refer to *Figure 2-5*.

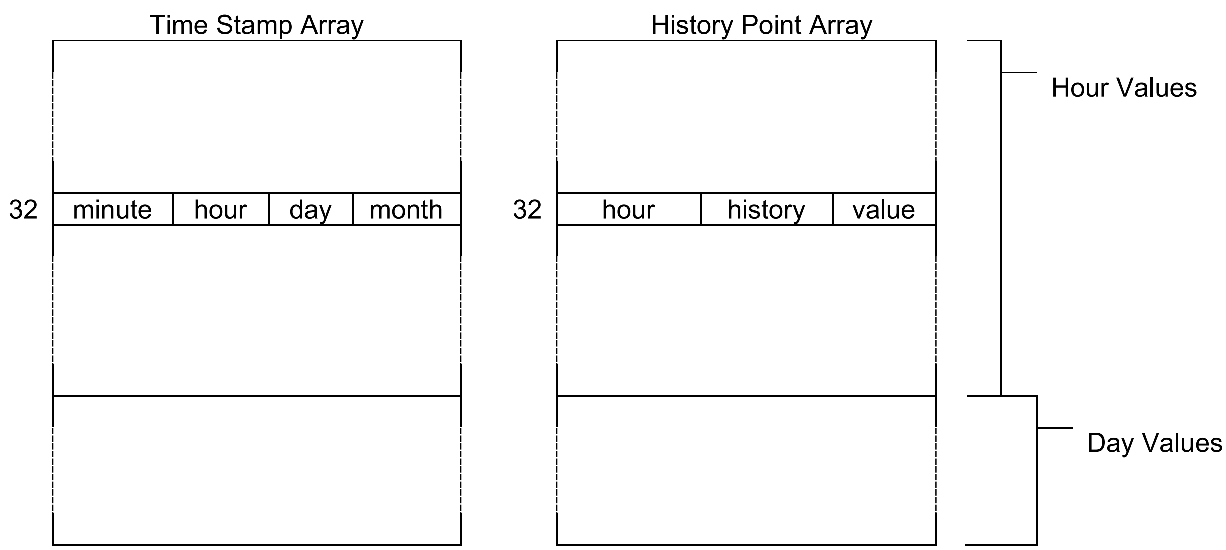


Figure 2-5. History Relationship between Time Stamp and Value

Two pointers (array indexes) are saved for each Julian day: one pointer for the hour history array and the second pointer for the day history array. Refer to *Figure 2-6*. These two pointers index an array of values and indicate the location where the history value(s) begin for the day (contract hour).

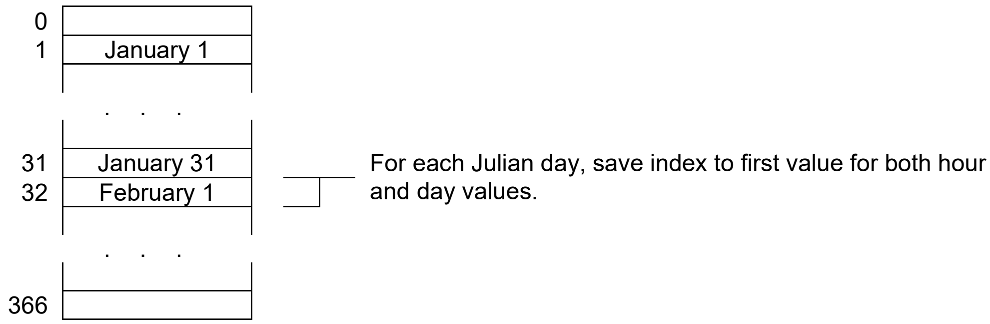


Figure 2-6. Table of Pointers Indexed by Julian Day

Figure 2-7 shows how hour and day history for one history point is arranged in the ROC. Each box (part) is cyclic in nature. When the last location is reached, the next location becomes the first location. The size of each box is limited by the number of history days that can be accommodated.

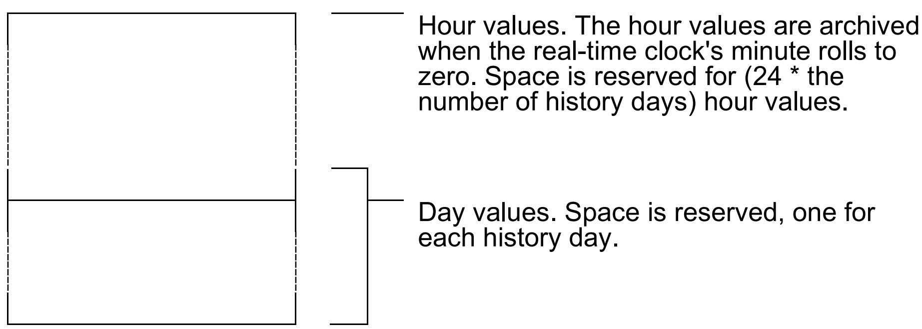


Figure 2-7. Storage Array for One History Point

Table 2–54. Opcode 255 – FlashPACs, FloBoss 500-Series, FloBoss 100-Series, and RegFlo

Error Codes Returned by Opcode 255 for: FlashPACs, FloBoss 500-Series, FloBoss 100-Series, and RegFlo	
Error Code	**Description**
1	Invalid Opcode request.
2	Invalid Parameter Number.
3	Invalid Logical Number / Point Number.
4	Invalid Point Type.
5	Received too many data bytes.
6	Received too few data bytes.
7	Did not receive 1 data byte.
8	Did not receive 2 data byte.
9	Did not receive 3 data byte.
10	Did not receive 4 data byte.
11	Did not receive 5 data byte.
12	Did not receive 16 data byte.
13	Outside valid address range.
14	Invalid history request.
15	Invalid FST request.
16	Invalid event entry.
17	Requested too many alarms.

Error Codes Returned by Opcode 255 for: FlashPACs, FloBoss 500-Series, FloBoss 100-Series, and RegFlo	
Error Code	**Description**
18	Requested too many events.
19	Write to read only parameter.
20	Security error.
21	Invalid security logon.
22	Invalid store and forward path.
23	Flash programming error.
24	History configuration in progress.
30–38	Reserved.
63	Requested security level too high.

2.42 Communications Drivers

Opcodes 180 and 181 meet the needs of most basic communications drivers. Refer to *Tables 2-46* and *2-47*, respectively, for information on these opcodes.

Chapter 3 – Parameter Lists for Point Types

Configuring the ROC requires you to be familiar with the structure of the database. The database is broken into individual parameters and each database parameter is uniquely associated by parameter number and point type.

This section details ROC point types, Data Types, and User Defined Point (UDP) Types.

3.1 ROC Point Types and Data Types

Tables 3-1 through *3-4* show point types and data types for the Remote Operations Controller (ROC), RegFlo, and FloBoss devices. Point types are device specific. Certain point types are used by all ROC or FloBoss units, while other point types are used by certain units. Use *Tables 3-1* through *3-3* to determine if a point type is valid for the type of ROC, RegFlo, or FloBoss you are using. *Table 3-4* defines the data types found in the parameter tables.

Note: Not all point types are supported by all ROC, FloBoss, or RegFlo devices.

Table 3–1. ROC Point Types – ROC300-Series

Point Types	Description	ROC300-Series FlashPAC	ROC300-Series ROCPAC
0	Configurable Opcode	Yes	Yes
1	Discrete Inputs (DI)	Yes	Yes
2	Discrete Outputs (DO)	Yes	Yes
3	Analog Inputs (AI)	Yes	Yes
4	Analog Outputs (AO)	Yes	Yes
5	Pulse Inputs (PI)	Yes	Yes
6	Proportional, Integral, and Derivative (PID) Control	Yes	Yes
7	American Gas Association (AGA) Flow Parameters	Yes	Yes
9	Local Display Panel	Yes	Yes
10	AGA Flow Values	Yes	Yes
11	Tank Parameters	No	Yes
12	ROC Clock	Yes	Yes
13	System Flags	Yes	Yes
14	Communication Ports	Yes	Yes
15	System Variables (ROC Information)	Yes	Yes

Point Types	Description	ROC300-Series FlashPAC	ROC300-Series ROCPAC
16	Function Sequence Table (FST) Parameters	Yes	Yes
17	Soft Points	Yes	Yes
18	AI Calibration	No	Yes
19	Database Setup	Yes	Yes
20	ROC Tasks	Yes	Yes
21	Information for User Defined Points	Yes	Yes
22 – 23	User Defined Points	Yes	Yes
24	Reserved		
25 – 31	User Defined Points	Yes	Yes
32	User Defined – Typically Modem Config for COM1	Yes	Yes
33	User Defined – Typically Modem Config for LOI and COM2	Yes	Yes
34	User Defined – Typically Modbus Config for COM1	Yes	Yes
35	User Defined – Typically Function Config for COM1	Yes	Yes
36	User Defined – Typically Host Config for COM1	Yes	Yes
37	User Defined – Typically Modbus Config for LOI and COM2	Yes	Yes
38	User Defined – Typically Function Config for LOI and COM2	Yes	Yes
39	User Defined – Typically Host Config for COM1	Yes	Yes
40	Multi-Variable Sensor (MVS) Parameters	Yes[1]	No
41	AGA Run Parameters	Yes	No
42	Extra Run Parameters	Yes	No
44	Power Control	Yes	No
49	Upload to Disk	Yes	Yes
50	Download to ROC	Yes	Yes
56	AI Calibration	Yes	No
57	Keypad / Logon Security Parameters	Yes	No
59	Program Flash Control Parameters	Yes	No

[1]Added via a user program

Table 3–2. ROC Point Types – FloBoss 100-Series, FloBoss 407, and FloBoss 500-Series

Point Types	Description	FloBoss 103/104	FloBoss 107	FloBoss 407	FloBoss 500-Series
0	Configurable Opcode	Yes	Yes	Yes	Yes
1	Discrete Inputs	Yes	Yes	Yes	Yes
2	Discrete Outputs	Yes	Yes	Yes	Yes
3	Analog Inputs	Yes	Yes	Yes	Yes
4	Analog Outputs	Yes	Yes	Yes	Yes
5	Pulse Inputs	Yes	Yes	Yes	Yes
6	PID Control (FloBoss 100-Aeries and FloBoss 500-Series Backward Compatibility)	Yes	Yes	Yes	Yes
7	AGA Flow Parameters (FloBoss 100-Series and FloBoss 500-Series Backward Compatibility)	Yes	Yes	Yes	Yes
8	History Parameters	Yes	Yes	No	Yes
10	AGA Flow Values (FloBoss 100-Series and FloBoss 500-Series Backward Compatibility)	Yes	Yes	Yes	Yes
12	ROC Clock	Yes	Yes	Yes	Yes
13	System Flags	Yes	Yes	Yes	Yes
14	Communication Ports	Yes	Yes	Yes	Yes
15	System Variables (ROC Information)	Yes	Yes	Yes	Yes
16	FST Parameters	Yes	Yes	Yes	Yes
17	Soft Points	Yes	Yes	Yes	Yes
19	Database Setup	Yes	Yes	Yes	Yes
20	ROC Tasks	No	No	Yes	No
20	Diagnostics	No	Yes	No	No
21	Information for User Defined Points	Yes	Yes	Yes	No
22–23	User Defined Points	Yes	Yes	Yes	No
24	Reserved				
25–31	User Defined Points	Yes	Yes	Yes	No
32	User Defined – Typically Modem Config for COM1 (407)	Yes	Yes	Yes	No
33	User Defined – Typically Modem Config for LOI and COM2 (407)	Yes	Yes	Yes	No

Point Types	Description	FloBoss 103/104	FloBoss 107	FloBoss 407	FloBoss 500-Series
34	User Defined – Typically Modbus Config for COM1 (407)	Yes	Yes	Yes	No
35	User Defined – Typically Function Config for COM1 (407)	Yes	Yes	Yes	No
36	User Defined – Typically Host Config for COM1 (407)	Yes	Yes	Yes	No
37	User Defined – Typically Modbus Config for LOI and COM2 (407)	Yes	Yes	Yes	No
38	User Defined – Typically Function Config for LOI and COM2 (407)	Yes	Yes	Yes	No
39	User Defined – Typically Host Config for LOI and COM2 (407)	Yes	Yes	Yes	No
40	Multi-Variable Sensor (MVS) Parameters	No	Yes	Yes	No
41	AGA Run Parameters (FloBoss 100-series and FloBoss 500-series Backward Compatibility)	Yes	Yes	Yes	Yes
42	Extra Run Parameters (FloBoss 100-series and FloBoss 500-series Backward Compatibility)	Yes	Yes	Yes	Yes
43	User Lists	Yes	Yes	Yes	Yes
44	Power Control	Yes	Yes	Yes	Yes
45	Meter Calibration and Sampler	Yes	Yes	No	Yes
46	Meter Configuration Parameters	Yes	Yes	No	Yes
47	Meter Flow Values	Yes	Yes	No	Yes
48	PID Control Parameters	Yes	Yes	No	Yes
49	Upload to Disk	Yes	Yes	Yes	Yes
50	Download to ROC	Yes	Yes	Yes	Yes
52	Battery Parameters	No	No	No	Yes
53	Modbus Configuration Parameters	Yes	No	No	Yes
54	Modbus Function Tables	Yes	No	No	Yes
55	Modbus Special Function Table	Yes	Yes	No	Yes
56	AI Calibration	Yes	No	Yes	Yes
57	Keypad / Logon Security Parameters	Yes	Yes	Yes	Yes
58	Revision Information	Yes	Yes	No	Yes
59	Program Flash Control Parameters	Yes	Yes	Yes	Yes

Point Types	Description	FloBoss 103/104	FloBoss 107	FloBoss 407	FloBoss 500-Series
60-77	SAM User Defined Parameters	No	Yes	No	No
80	Enhanced Communication (ECM) Parameters	No	Yes	No	No
85	HART Parameters	No	Yes	No	No
86	Extended History Parameters	Yes	Yes	No	No
88	BLM User Lists	No	Yes	No	No
89	Chart User List Parameters	No	Yes	No	No
93	License Key Information Parameters	No	Yes	No	No
94	User C Program Parameters	No	Yes	No	No
98	Extended Soft Point Parameters	No	Yes	No	No
117	Modbus Configuration Parameters	No	Yes	No	No
118	Modbus Register Mapping Parameters	No	Yes	No	No
120	Modbus Master Modem Configuration	No	Yes	No	No
121	Modbus Master Polling Table Configuration Parameters	No	Yes	No	No
122	DS800 Configuration Parameters	No	Yes	No	No
172	RTU Network Discovery List	No	Yes	No	No
173	Network Commission List	No	Yes	No	No
174	Network Export Data	No	Yes	No	No
175	Network Import Data	No	Yes	No	No
176	IEC 62591 Live List Parameters	No	Yes	No	No
177	IEC 62591 Commissioned List Parameters	No	Yes	No	No

Table 3–3. ROC Point Types – RegFlo

Point Types	Description	Point Types	Description
0	Configurable Opcode	17	Soft Points
1	Discrete Inputs	19	Database Setup
2	Discrete Outputs	56	AI Calibration
3	Analog Inputs	57	Keypad / Logon Parameters
4	Analog Outputs	80	Regulator Parameters
8	History Parameters	81	Logic Alarm Parameters
12	ROC Clock	83	User Analog Values
13	System Flags	84	User Discrete Values
14	Communication Ports	86	Extended History Parameters
15	System Variables		

Table 3–4. Data Types

Data Types		
Data Type	**Definition**	**Byte Length**
AC	ASCII character (groups of 10, 20, or 30 characters)	1 per character
BIN	Binary	1
FLP or FL	Floating Point – IEEE Format	4
INT 8, 16, 32	Signed Integer – number of bits follows	1, 2, or 4
N/A	Not Applicable	
TLP	Point **T**ype, **L**ogical or Point Number, and **P**arameter Number	3
UINT8, 16, 32	Unsigned Integer – number of bits follows	1, 2, or 4

You reference data in the ROC800 by **t**ype, **l**ocation or **l**ogical, and **p**arameter (TLP). *Type* refers to the number of the point type. The *location* or *logical number* is a value based on physical input or output. A *parameter* is a numeric value assigned to each piece of data contained in a given point type. The tables in this section list the parameters numbers and descriptions for each of the point types.

3.1.1 Type, Location/Logical, and Parameter (TLPs)

Throughout ROCLINK 800 software, you use the TLP dialog box to assign specific inputs and outputs (I/O) to parameters using Point Type (T), Logical Number (L), and Parameter (P) to define point locations.

Interpret the I/O information (for example, **AIN A 3, EU**) in the following way:

- The first part is a three-character mnemonic (in this example, "AIN" means Analog Input) that indicates the Point Type.
- The second part (such as "A 3") indicates the point number.
- The third part is a mnemonic indicating the selected parameter (such as EU for the Filtered Engineering Units Parameter).

3.1.2 Logical/Point Number Details

Within each point type, individual points are referenced by a point number or a logical number. The point numbers the ROC protocol uses for Point Types 1 to 5 are based on a physical input or output (I/O) with a "rack and module" location; the point numbers for all other point types are "logical" and are simply numbered in sequence.

- **Physical Point Numbers 0 to 69:**
  For Point Types 1 through 5, there are Point Numbers for the field I/O and for the diagnostic inputs as follows:
  - Point Numbers 0 to 63 are assigned to field I/O (built-in or modular, 64 maximum). For example, if there were ten I/O modules in a ROC364, they would be points 0 through 9. The ROC I/O point database would reference these points by rack and module location, such as A1 through A10.
  - Point Numbers 64 to 69 are assigned to the diagnostic (system) I/O. For example, the five diagnostic points in a ROC364 would be 64 through 68. The ROC I/O point database would reference these points by "rack and module," namely E1 to E5.
- **Logical Point Numbers 0 to 127:**
  For all other Point Types (0 and 6 – 122), the Point Number is 0 to x, where x is one less than the total number of points that exist for that Point Type. For example, the four MVS points in a FloBoss 407 would be logical numbers 0 through 3.

Note: All parameters are 0-based for each point type.

3.1.3 User Defined Point Types

User Defined Point (UDP) Types are available in the ROC and FloBoss units. Use UDPs to make user program data available to ROCLINK 800, typically for configuration purposes.

The Modbus program for the COM1 port reserves UDP 32, UDP 34, UDP 35, and UDP 36 for configuration data. When using a FloBoss 100-series, FloBoss 500-series, and RegFlo, the Modbus COM1 program (built into firmware) reserves UDP 53, UDP 54, and UDP 55 for configuration data.

The Modbus program for COM2 and the Local Operator Interface (LOI) port reserves UDP 33, UDP 37, UDP 38, and UDP 39 for configuration data.

3.1.4 Bit Assignments

This section provides an example bit assignment. The bits in each byte are numbered 0 to 7, right to left, with bit 7 shown the furthest to the left. **1** in any bit indicates that bit is active or enabled.

Bit:	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Response Code	1	0	0	0	0	0	0	0

Communication Error	L Parity Error
V Parity Error	Reserved
Overrun Error	Buffer Overflow
Framing Error	Undefined

3.2 ROC Point Type Parameter Defintions

Tables 3–1 and *3–2* list all point types. *Tables 3–5* through *3–64* detail each of the configurable point types (0 through 122). Each point type table is prefaced by a short description, a statement of the number of logical points (or iterations) of the point type, and the storage location for point type information. Point type tables contain the following information:

Field	Description
Parameter#	Defines the specific parameter number associated with that point type.
Access	Indicates if the parameter can be read from and written to (**R/W**) or if the parameter is read-only (**R/O**).
Data Type	Identifies the type of data being stored (see *Table 3-5*)
Length	Indicates the number of bytes the parameter uses.
Range	Indicates the range of accepted values for the parameter (may be device-specific).
Default	Indicates the initial value of the parameter (may be device-specific).
Description	Provides a brief description of the parameter, its functionality, and its values.

Data types have further definitions:

Table 3–5. Data Type

Data Type	Definition	# of Bytes	Default Range
BIN	Binary	1	0 →1 For each Bit
AC	ASCII character groups	1 per character	0x20 → 0x7E for each character
INT8	Signed Integer – 8 bits	1	-128 → 127
INT16	Signed Integer – 16 bits	2	-32,768 → 32,767

Data Type	Definition	# of Bytes	Default Range
INT32	Signed Integer – 32 bits	4	-2,147,483,648 → 2,147,483,647
UINT8	Unsigned Integer – 8 bits	1	0 → 255
UINT16	Unsigned Integer – 16 bits	2	0 → 65,535
UINT32	Unsigned Integer – 32 bits	4	0 → 4,294,967,296
FL	Single Precision Floating Point – IEEE Format	4	Any valid IEEE double precision float (see Chapter 5)
DBL	Double Precision Floating Point – IEEE Format	8	Any valid IEEE double precision float (see Chapter 5)
TLP	Type, Point or Logical Number, Parameter Number	3	{0 → 255, 0 → 255, 0 →255}
TIME	Arithmetic Time: Number of seconds since Jan 1 1970 @ 00:00:00. This is a UINT32.	4	0 → 0 → 4,294,967,296 Jan 1, 1970 00:00:00 → Feb. 7, 2106 06:28:15

To configure point types for a specific device, refer to the following software manuals:

- *ROCLINK 800 Configuration Software User Manual (for FloBoss 107)* (part D301249X012)
  This manual provides information on configuring the FloBoss 107 device.
- *ROCLINK 800 Configuration Software User Manual* (part D301159X012)
  This manual provides information on configuring ROC300-Series (ROC306, ROC312, or ROC364), FloBoss 407, or FloBoss 500-Series (FloBoss 503 and FloBoss 504) devices.

Note: You can also refer to the online help system that accompanies ROCLINK 800 for configuration data.

3.2.1 Point Type 0

Description: Point type 0 provides configurable opcode parameters.

Number of Logical Points: 8 configurable points may exist (for FloBoss 107).

The parameters for this point type consist of a sequence number and 44 ROC parameter identifications (Point Type, Logical Number, and Parameter Number – TLP). After you configure the TLPs in Point Type 0:

- Use opcodes 10 and 11 to read and write data directly without specifying the Point Type, Logical Number, or Parameter Number.
- Use opcodes 180 and 181 to read and write the parameter data and do not include the parameter definition.

Table 3-6. Point Type 0, Configurable Opcode Parameters

Point Type 0, Configurable Opcode Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	FL	4	N/A	For FB107: Logic 0: 0.0 Logic 1: 1.0 Logic 2: 2.0 Logic 3: 3.0 Logic 4: 4.0 Logic 5: 5.0 Logic 6: 6.0 Logic 7: 7.0	Sequence / Revision #
1	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 1
2	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 2
3	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 3
4	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 4
5	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 5
6	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 6
7	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 7
8	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 8
9	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 9
10	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 10
11	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 11
12	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 12
13	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 13
14	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 14
15	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 15

Point Type 0, Configurable Opcode Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
16	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 16
17	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 17
18	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 18
19	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 19
20	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 20
21	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 21
22	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 22
23	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 23
24	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 24
25	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 25
26	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 26
27	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 27
28	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 28
29	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 29
30	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 30
31	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 31
32	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 32
33	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 33
34	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 34
35	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 35
36	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 36
37	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 37
38	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 38
39	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 39
40	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 40
41	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 41
42	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 42
43	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 43
44	R/W	TLP	3	Any valid TLP	0,0,0	Defines TLP for data 44

3.2.2 Point Type 1: Discrete Input Parameters

Description: Point type 1 provides discrete input parameters.

Note: RegFlo only uses parameters 0 to 7.

Table 3-7. Point Type 1, Discrete Input Paramters

Point Type 1, Discrete Input Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	10 characters	For FB107: DI 1 Slotx, DI 2 Slotx, DI 3 Slotx, and DI 4 Slotx where “x” is slot 0-8	Identifies the point tag
1	R/W	UINT8	1		0	Filter; number of either 100ms or 15-second increments.
2	R/W	UNIT8	1		0	Status
3	R/W	BIN	1		0x00 (for FB107)	Indicates the modes: Bit 7 – Manual Mode 0 = Normal Scan 1 = Scan Disabled Bit 6 – Report-by-Exception (RBX) on Set 0 = Disabled on Set 1= RBX on Set Bit 5 – RBX on Clear 0 = Disabled 1 = RBX on Clear Bit 4 – Alarm Enable 0 = Disabled 1 = Log Alarms Bit 3 – TDI Enable (ROC300-series and FloBoss 407) 0 = Disabled 1 = TDI Active Bit 2 – Filter Interval 0 = 250 ms (ROC300-series and FloBoss 407) 0 = 1 second (FloBoss 500-series, FloBoss 100-series, and RegFlo) 1 = 15 seconds Bit 1 – Latch Enable 0 = Disable 1 = Enable Bit 0 – Invert Enable 0 = Disabled 1 = Enable

Point Type 1, Discrete Input Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
4	R/O	BIN	1			Indicates the alarm code: Bit 7 – Manual Mode Bit 6 – Point Fail (FloBoss 107); Not Used (All others) Bit 5 – Status Change Bit 4 – TDI Rate Alarm (ROC300-series and FloBoss 407) Bit 3 – TDI High High Alarm (ROC300-series and FloBoss 407) Bit 2 – TDI High Alarm (ROC300-series and FloBoss 407) Bit 1 – TDI Low Low Alarm (ROC300-series and FloBoss 407) Bit 0 – TDI Low Alarm (ROC300-series and FloBoss 407) **Note**: Bits 4-0 – Not Used (FloBoss 107)
5	R/W	UINT32	4			Accumulated Values
6	R/W	UINT32	4			On counter (50 millisecond interval)
7	R/W	UINT32	4			Off counter (50 millisecond interval)
8	R/W	INT16	2			0% pulse width (ROC300-Series and FloBoss 407)
9	R/W	INT16	2			100% pulse width (ROC300-Series and FloBoss 407)
10	R/W	UNIT16	2			Maximum time between pulses / maximum count (ROC300-Series and FloBoss 407)
11	R/W	AC	10			Units (ROC300-series and FloBoss 407)
12	R/W	UINT16	2			Scan Period (50 millisecond intervals)
13	R/W	FL	4			Low Reading (Zero) Engineering Units (EU) (ROC300-series and FloBoss 407)
14	R/W	FL				High Reading (Span) EU (ROC300-series and FloBoss 407)
15	R/W	FL				Low Alarm EU (ROC300-series and FloBoss 407)
16	R/W	FL				High Alarm EU (ROC300-series and FloBoss 407)
17	R/W	FL				Low Low Alarm EU (ROC300-series and FloBoss 407)
18	R/W	FL				Hi Hi Alarm EU (ROC300-series and FloBoss 407)
19	R/W	FL				Rate Alarm EU (ROC300-series and FloBoss 407)
20	R/W	FL				Alarm Deadband (ROC300-series and FloBoss 407)
21	R/W	FL				EU Value (ROC300-series and FloBoss 407)
22	R/O	UINT16	2			TDI Count (ROC300-series and FloBoss 407)

3.2.3 Point Type 2: Discrete Output Parameters

Description: Point type 2 provides discrete output parameters.

Note: RegFlo only uses parameters 0 to 8.

Table 3-8. Point Type 2, Discrete Output Parameteres

Point Type 2, Discrete Output Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	10 characters	For FB107: DO 1 Slotx and DO 2 Slotx, where "x" is slot 0-6	Identifies the point tag
1	R/W	UINT16	2		For FB107: 20 (20 x 50ms = 1 sec)	Time On (50 millsecond intervals)
2	R/O	UINT8	1		0	Spare
3	R/W	UINT8	1		0	Status
4	R/W	BIN	1			Indicates the mode: : Bit 7 – Manual Mode 0 = Scanning Enabled 1 = Scanning Disabled Bit 6 and 5 – Not Used Bit 4 – Clear on Reset 0 = Disabled – Retain Last Status 1 = Enabled Bit 3 – TDO Enabled 0 = Disabled 1 = Enabled Bit 2 – Reserved – Do not set this bit Bit 1 – Toggle 0 = Disabled 1 = Enabled Bit 0 – Momentary 0 = Disabled 1 = Enabled
5	R/O	BIN	1			Indicates the alarm code: Bit 7 – Manual Mode Bit 6 – Point Fail (FloBoss 107); Not Used (All others) Bits 5 through 0 – Not Used
6	R/W	UINT32	4			Accumulated value
7	R/W	AC	10			Units
8	R/W	UNIT16	2			Cycle Time
9	R/W	INT16	2			0% Count

Point Type 2, Discrete Output Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
10	R/W	INT16	2			100% Count
11	R/W	FL	4			Low reading EU
12	R/W	FL	4			High reading EU
13	R/W	FL	4			EU value
14	R/W	BIN	1			Indicates the alarm mode. Bit 7 – Not Used Bit 6 – Report-by-Exception (RBX) on Set. Valid values are 0 (Disabled on Set) and 1 (RBX on Set) **Note**: Valid **only** for the FB107.
15	R/W	BIN	1			Indicates scanning mode. Valid values are 0 (Automatic) and 1 (Manual). **Note**: Valid **only** for the FB107.
16	R/W	UINT8	1			Manual state (FB107 only)
17	R/W	UINT8	1			Physical state (FB107 only)

3.2.4 Point Type 3: Analog Input Parameters

Description: Point type 3 provides the analog input point type.

Table 3-9. Point Type 3, Analog Input Parameters

Point Type 3, Analog Input Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10		**A1**: "Diff Pres" (DVS) "P1 Press" (PIM) **A2**: "Static " (DVS "P2 Press " (PIM) **A3**: "RTD " **Onboard and Aux 6-point AIs**: "AI 1 Slot0" "AI 2 Slot0" (thru) "AI 1 Slot6" "AI 2 Slot6" **8-point AI/DI**: "AI 1 Slot1" "AI 2 Slot1" "AI 3 Slot1" "AI 4 Slot1" "AI 5 Slot1" "AI 6 Slot1" "AI 7 Slot1" "AI 8 Slot1" (thru) "AI 1 Slot7" "AI 2 Slot7" "AI 3 Slot7" "AI 4 Slot7" "AI 5 Slot7" "AI 6 Slot7" "AI 7 Slot7" "AI 8 Slot7" **3-point RTD**: "RTD1 Slot1: "RTD2 Slot1" "RTD3 Slot1" (thru) "RTD2 Slot7" "RTD2 Slot7" "RTD2 Slot7"	Identifies the point tag

Point Type 3, Analog Input Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
					System-level AIs: E1: “Logic: E2: “Battery” E3: “Charge In” E4: “System mA” E5: “Brd Temp”	
1	R/W	AC	10		**A1**: “IN H20” (DVS) “PSIG” (PIM) **A2**: “PSIA” or “PSIG” (DVS) “PSIG“ (PIM) **A3**: “Degrees F “ **RTD Module AIs**: “Degrees F” **All other aux AIs**: “Percent” **System-level AIs**: E1: “Volts: E2: “Volts” E3: “Volts” E4: “Milliamps” E5: “Degrees F”	Units
2	R/W	UINT16	2		**A1**: 20 (1 second) **A2**: 20 (1 second) **A3**: 20 (1 second) **RTD Module AIs**: 20 (1 second) **All other aux AIs**: Set to System Scan Period **All System-level AIs**: 100 (5 seconds)	Scan period (50 millisecond intervals)
3	R/W	UINT16	2		3	Filter (50 millisecond intervals)

Point Type 3, Analog Input Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
4	R/W	INT16	2		**A1**: 0 (DVS) 3000 (PIM) **A2**: 0 (DVS) 3000 (PIM) **A3**: 9617“ **On-board AIs:** 643 **Aux 6-point Module AIs**: 643 **8-pt AI/DI Module AIs**: 800 **RTD Module AIs**: 9250 **System-level AIs**: E1: 191 E2: 0 E3: 0 E4: 8 E5: 31	Adjusted D/A 0%
5	R/W	INT16	2		**A1**: 29695 (DVS) 28000 (PIM) **A2**: 29695 (DVS) 28000 (PIM) **A3**: 28093“ **On-board AIs:** 3220 **Aux 6-point Module AIs**: 3220 **8-pt AI/DI Module AIs**: 4000 **RTD Module AIs**: 26850 **System-level AIs**: E1: 479 E2: 3592 E3: 3592 E4: 4095 E5: 737	Adjusted D/A 100%

Point Type 3, Analog Input Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
6	R/W	FL	4		**A1**: 0.0 (DVS) 0.0 (PIM) **A2**: 0.0 (DVS) 0.0 (PIM) **A3**: 40.0“ **On-board AIs:** 0.0 **Aux 6-point Module AIs**: 0.0 **8-pt AI/DI Module AIs**: 0 **3 Pt RTD Module AIs**: -40.0 **System-level AIs**: E1: 2.0 E2: 0.0 E3: 0.0 E4: 10.0 E5: -40.0	Low Reading (in Engineering Units)
7	R/W	FL	4		**A1**: As read from sensor **A2**: As read from sensor **A3**: 752.0“ **On-board AIs**: 100.0 **Aux 6-point Module AIs**: 100.0 **8-pt AI/DI Module AIs**: 100.0 **3 Pt RTD Module AIs**: 752.0 **System-level AIs**: E1: 5.0 E2: 28.0 E3: 28.0 E4: 5000.0 E5: 167.0	High Reading (in Engineering Units)

Point Type 3, Analog Input Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
8	R/W	FL	4		**All Non-system AIs**: Set to "Low EU Reading" **System-level AIs**: E1: 3.7 E2: 0.0 E3: 0.0 E4: 10.0 E5: -10.0	Low Alarm (in Engineering Units)
9	R/W	FL	4		**All Non-system AIs**: Set to "High EU Reading" **System-level AIs**: E1: 3.7 E2: 28.0 E3: 28.0 E4: 5000.0 E5: 110.0	High Alarm (in Engineering Units)
10	R/W	FL	4		**All Non-system AIs**: Set to "Low EU Reading" **System-level AIs**: E1: 2.9 E2: 0.0 E3: 0.0 E4: 10.0 E5: 20.0	Low Low Alarm (in Engineering Units)
11	R/W	FL	4		**All Non-system AIs**: Set to "High EU Reading" **System-level AIs**: E1: 3.8 E2: 28.0 E3: 28.0 E4: 5000.0 E5: 120.0	Hi Hi Alarm (in Engineering Units)
12	R/W	FL	4		**All Non-system AIs**: 5.0 **System-level AIs**: E1: 2.5 E2: 0.5 E3: 5.0 E4: 5.0 E5: 5.0	Rate Alarm (in Engineering Units)

Point Type 3, Analog Input Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
13	R/W	FL	4		**All Non-system AIs**: 2.0 **System-level AIs**: E1: 0.2 E2: 0.3 E3: 2.0 E4: 2.0 E5: 2.0	Alarm Deadband
14	R/W	FL	4		0.0	Filtered (in Engineering Units)

Point Type 3, Analog Input Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
15	R/W	BIN	1		0x00 (for FB107)	Mode: Bit 7 – Manual Mode 0 = Scanning Enabled 1 = Scanning Disabled Bit 6 – RBX on Set 0 = Disabled 1 = Active Bit 5 – RBX on Clear 0 = Disabled 1 = Active Bit 4 – Alarm Enable 0 = Disabled 1 = Log Alarm Bit 3 – Average Enable (ROC and FloBoss) 0 = Disabled 1 = Average Enable Bit 3 – Pressure Compensation Flag (RegFlo P1, P2, and P3 Inputs Only) If Sensor Type is Pressure: 0 = Convert Absolute to Gauge Pressure 1 = No Conversion Otherwise: Not Used Bit 2 – Temp Comp Enable (Not supported by FloBoss 100-series, ROC300-seris or FloBoss 407) 0 = Disabled 1 = Temp Comp Enable Bit 2 – Unit of Pressure Sensor (RegFlo P1, P2, and P3 Inputs Only) If Sensor Type is Pressure: 0 = Units of Pressure is psig 1 = Units of Pressure is inches wc Otherwise: Not Used Bit 1 – Clipping 0 = Disable 1 = Clipping Enable Bit 1 – Sensor Type (RegFlo P1, P2, and P3 Inputs Only) 0 = Pressure Sensor 1 = RTD Bit 0 – Fault Handling (FloBoss 103/104 version 1.20 and greater, FloBoss 107, FloBoss 407 version 1.10 and greater and FloBoss 500-series) 0 = Retain Last EU Value 1 = Set EU Value to Fault EU Value (Parameter 19)

Point Type 3, Analog Input Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
16	R/O	BIN	1		0x00 (for FB107)	Alarm Code: Bit 7 – Manual Mode Bit 6 – Point Fail Bit 5 – Not Used Bit 4 – Rate Alarm Bit 3 – High High Alarm Bit 2 – High Alarm Bit 1 – Low Low Alarm Bit 0 – Low Alarm
17	R/O	INT16	2			Raw D/A Input (ROC300-series and FloBoss 407)
	R/W	INT16	2		0	Raw D/A Input (FloBoss 100-series and FloBoss 500-series)
18	R/O	UINT16	2		0	Actual Scan Time (50 millisecond intervals)
19	R/W	FL	4		0.0	Fault EU Value (FloBoss 103/104 version 1.20 and greater, FloBoss 107, FloBoss 407 version 1.10 and greater or FloBoss 500-series)
20	R/O	INT16	2	0 → 32767	Same as Parameter 4 (Adjusted A/D 0%)	Calibrated Zero Raw – Lowest calibrated raw A/D input (FloBoss 107 only) **Note**: A value of 32767 appears until all the default values are read from the module.
21	R/O	INT16	2	0 → 32767	Same as Parameter 5 (Adjusted A/D 100%)	Calibrated Mid-point Raw #1 A/D Value; second-lowest raw A/D input (FloBoss 107 only)
22	R/O	INT16	2	0 → 32767	Same as Parameter 5 (Adjusted A/D 100%)	Calibrated Mid-point Raw #2 A/D Value; third-lowest raw A/D input (FloBoss 107 only)
23	R/O	INT16	2	0 → 32767	Same as Parameter 5 (Adjusted A/D 100%)	Calibrated Mid-point Raw #3 A/D Value; second-highest calibrated raw A/D input (FloBoss 107 only)
24	R/O	INT16	2	0 → 32767	Same as Parameter 5 (Adjusted A/D 100%)	Calibrated Span Raw; highest calibrated raw A/D input (FloBoss 107 only)
25	R/W	FL	4	Any valid IEEE 754 Float	Same as Parameter 6 (Low Reading A/D)	Calibrated Zero EU Value; lowest calibrated EU value. (FloBoss 107 only) **Note**: A value of 0 appears until the default values are read from the module.
26	R/W	FL	4	Any valid IEEE 754 Float	Same as Parameter 7 (High Reading A/D)	Calibrated Mid-point EU #1; second-lowest calibrated UE value (FloBoss 107 only)
27	R/W	FL	4	Any valid IEEE 754 Float	Same as Parameter 7 (High Reading A/D)	Calibrated Mid-point 2 EU #2; third-lowest or –highest calibrated EU value (FloBoss 107 only)
28	R/W	FL	4	Any valid IEEE 754 Float	Same as Parameter 7 (High Reading A/D)	Calibrated Mid-point EU #3; second-highest calibrated EI value (FloBoss 107 only)
29	R/W	FL	4	Any valid IEEE 754 Float	Same as Parameter 7 (High Reading A/D)	Calibrated Span EU; highest calibrated EU value (FloBoss 107 only)
30	R/W	FL	4	Any valid IEEE 754 Float	0.0	Offset (Zero Shift); value to be added to all calculated EU values (FloBoss 107 only)

Point Type 3, Analog Input Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
31	R/W	FL	4	Any valid IEEE 754 Float	0.0	Calibration Set Value; desired ED value for a calibrated point (FloBoss 107 only) **Note**: No event is logged for this parameter.
32	R/W	FL	4	Any valid IEEE 754 Float	0.0	Calibrated Manual value; the currently EU value of the AI while performing calibration (FloBoss 107 only) .
33	R/O	UINT16	2	0 → 3600	0	CalibrationTimer; indicates the number of seconds until a calibration timeout occurs. (FloBoss 107 only) .
34	R/W	UINT8	1	0 → 4	0	Indicates the calibration mode (Floboss 107 only): 0 = Use current calibration 1 = Start calibration 2 = Calibrate Input 3 = Restore previous calibration values 4 = End calibration **Note**: No event is logged for this parameter.
35	R/W	UINT8	1	0 → 6	0	Indicates the calibration type (FloBoss 107 only): 0 = No calibration active 1 = Set Zero 2 = Set Span 3 = Set Mid-point #1 4 = Set Mid-point #2 5 = Set Mid-point #3 6 = Set Offset

3.2.5 Point Type 4: Analog Output Parameters

Description: Point type 4 provides the analog output point type parameters.

Table 3-10. Point Type 4, Analog Output Parameters

Point Type 4, Analog Output

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	10 characters	For FB107: AO 1 Slotx where "x" is slot 0-6	Identifies the point tag
1	R/W	AC	10	10 characters	" "	Units
2	R/W	INT16	2	NA	0	Adjusted D/A 0%
3	R/W	INT16	2	NA	3250	Adjusted D/A 100%
4	R/W	FL	4	NA	0.0	Low reading EU
5	R/W	FL	4	NA	100.0	High reading EU
6	R/W	FL	4	NA	0.0	Value in EUs. **Note**: Valid **only** for the FB107.
7	R/W	BIN	1	NA	0x00	Mode: Bit 7 – Manual Mode 0 = Normal Scan 1 = Manual Scan Bit 6 – RBX on Set 0 = Disabled 1 = Active Bit 5 – RBX on Clear 0 = Disabled 1 = Active Bit 4 – ALM Enable 0 = Disabled 1 = Log Alarms Bit 3 – Clear on Reset 0 = Disabled 1 = Enable Bits 2 through 0 – Not Used
8	R/O	BIN	1	NA	0x00	Alarm Code: Bit 7 – Manual Mode Bit 6 – Point Fail Bits 5 through 0 – Not Used
9	R/O	INT16	2	NA	0	Raw D/A Output
10	R/W	BIN	1	NA	0	Indicates the scanning mode. Valid values are 0 (Automatic) and 1 (Manual). **Note**: Valid **only** for the FB107.

Point Type 4, Analog Output

Parameter#	Access	Data Type	Length	Range	Default	Description
11	R/W	FL	4	NA	0.0	Indicates the Manual EU. **Note**: Valid **only** for the FB107.
12	R/W	FL	4	NA	0.0	Indicates the Physical EU. **Note**: Valid **only** for the FB107.

3.2.6 Point Type 5: Pulse Input Parameters

Description: Point type 5 provides the pulse input point type parameters.

Table 3-11. Point Type 5, Pulse Input Parameters

Point Type 5, Pulse Input Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10		**PIM A5**: "PI 1 – PIM"" **PIM A6**: "PI 2 – PIM" **A15**: "PI 1 – Spare" **A16**: "PI 2 – Spare" **All other PIs**: "PI 1 – Slot0" "PI 2 – Slot0" … "PI 1 – Slot6" "PI 2 – Slot6"	Identifies the point tag
1	R/W	AC	10		" "	Units
2	R/W	UINT8	1		For FB107 100 (100 x 50ms – 5 seconds)	Indicates the Rate Flag: 0=Rate 1=Accumulate 2=Accumulate using Entered Max Rollover value.
3	R/W	UINT8	1			Indicates the Rate Period: 0=Minutes 1=Hours 2=Days
4	R/O	UINT8	1			Not Used (ROC300-Series, FloBoss 407, FloBoss 500-Series, RegFlo, and FloBoss 103/104 version 1.20 or less).
	R/W	UINT8	1		0	Filter Time (FloBoss 103/104 version 2.00 or greater and FloBoss 107). The PIM's PIs do not accept non-zero values. 0 = None 1 to 255 = Filter time in 22 millisecond increments (for example: 1=22.0 milliseconds, 255=5.61 seconds) **Note**: Only the on-board and Auxiliary 6-point IO modules support filtering on the PIs.
5	R/W	UINT16	2		For FB107 100 (100 x 50ms – 5 seconds)	Scan Period (50 millisecond intervals)
6	R/W	FP	4		For FB107 1.0	Conversion factor

Point Type 5, Pulse Input Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
7	R/W	FP	4		For FB107 10.0	Low Alarm EU
8	R/W	FP	4		For FB107 100.0	High Alarm EU
9	R/W	FP	4		For FB107 0.0	Low Low Alarm EU
10	R/W	FP	4		For FB107 110.0	Hi Hi Alarm EU
11	R/W	FP	4		For FB107 5.0	Rate Alarm EU
12	R/W	FP	4		For FB107 2.0	Alarm Deadband / Rollover Maximum
13	R/W	FP	4		For FB107 0.0	Value in EUs
14	R/W	FP			**A15 and A16 Pseudo-PIs** 10000000 **All other points**: 00000000	Mode: Bit 7 – Manual Mode 0 = Normal Scan 1 = Manual Scan Bit 6 – RBX on Set 0 = Disabled 1 = Active Bit 5 – RBX on Clear 0 = Disabled 1 = Active Bit 4 – ALM Enable 0 = Disabled 1 = Log Alarm Bit 3 – Conversion 0 = Reciprocal Conversions – EUs / Pulse 1 = Direct Conversion – Pulses / EU Bits 2 through 0 – Not Used
15	R/O	BIN	1		For FB107 0	Alarm Code: Bit 7 – Manual Mode Bit 6 – Point Fail (FloBoss 107) Not Used (All others) Bit 5 – Not Used Bit 4 – Rate Alarm Bit 3 – High High Alarm Bit 2 – High Alarm Bit 1 – Low Low Alarm Bit 0 – Low Alarm
16	R/W	UINT32	4		For FB107 0	Accumulated value, in pulses. Value is updated at the system scan period. . **Note**: This parameter is **R/O** for Industry Canada units.

Point Type 5, Pulse Input Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
17	R/O	FP	4		For FB107 0	Current rates
18	R/W	FP	4		For FB107 0	Today's total
19	R/O	FP	4		For FB107 0	Yesterday's totals
	R/O	UINT32	4			Continuous accumulator (for Industry Canada)
20	R/W	UINT32	4		For FB107 0	Pulses for Day; updated every PD scan period (for FloBoss 500-series, FloBoss 100-series, FB107, and RegFlo)
	R/W	UINT8	1			EU Units (FloBoss 407 version 1.10 or greater only): 0 = MCF (km3) 1 = CF (m3) 2 = 10 CF (10m3) 3 = CCF (100m3)
21	R/O	FL	4		For FB107 0	Indicates the frequency in Hertz. Updated every PI scan period. **Note**: Valid **only** for the FB107.

3.2.7 Point Type 6: Proportional, Integral & Derivative (PID) Parameters

Description: Point type 6 provides PID parameters.

Note: For FloBoss 107, this point type has been replaced by point type 48. Where applicable, point type 48 parameters map to point type 6 parameters**. As of version 2.00 or greater, point type 6 has been deleted.**

Table 3-12. Point Type 6, PID Parameters

Point Type 6, PID Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10			Identifies the point tag
1	R/W	BIN	1			Control Type: Bit 7 – Scanning Enable 1 = Disabled 0 = Enabled Bit 6 – Setpoint tracks PV in manual 1 = Tracking Enabled 0 = Tracking Disabled Bit 5 – Not Used unless the PID Point is Configured for DO Control (ROC300-series and FloBoss 407) 1 = Error 0 = Off Bit 4 – Control Loop Shut Down 1 = Disable scanning on restart 0 = Enable scanning on restart Bit 3 – Override Select (FloBoss 500-series, FloBoss 100-series, and RegFlo) 0 = Low select 1 = High select Bit 2 – DO Control 1 = DO Control 0 = AO Control Bit 1 – Selects Primary or Override 1 = Override (and primary) loops active 0 = Primary loop (or override loop) active only Bit 0 – Mode of Operation 1 = Automatic 0 = Manual
2	R/O	UINT8	1			Switch (Loop) Status 0 = Neither loop controlling output 1 = Primary loop controlling output 2 = Override loop controlling output
3	R/O	UINT16	2			Actual Loop Period (in seconds). **Note**: Always **0** for FB107.
4	R/W	TLP	3			Primary input point
5	R/W	TLP	3			Primary Output – Output of PID (AO or open DO)

Point Type 6, PID Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
6	R/O	FP	4			Primary Switch Setpoint (FloBoss 500-series, FloBoss 100-series, and RegFlo) **Note**: Always **0** for FB107.
	R/W	FP	4			Primary Switch Setpoint (ROC300-series and FloBoss 407)
7	R/O	TLP	3			Primary Switch Process Variable (FloBoss 500-series, FloBoss 100-series, and RegFlo) **Note**: Always **0** for FB107.
	R/W	TLP	3			Primary Switch Process Variable (ROC300-series and FloBoss 407)
8	R/O	AC	1			Primary Switch Mode (FloBoss 500-series, FloBoss 100-series, and RegFlo) **Note**: Always **0** for FB107.
	R/W	AC	1			Primary Switch Mode (ROC300-series and FloBoss 407)
9	R/W	TLP	3			Override input point
10	R/W	TLP	3			Override input point – second output of PID (Close DO)
11	R/O	FP	4			Override Switch Setpoint (FloBoss 500-series, FloBoss 100-series, and RegFlo) **Note**: Always **0** for FB107.
	R/W	FP	4			Override Switch Setpoint (ROC300-series and FloBoss 407)
12	R/O	TLP	3			Override Switch Process Variable (FloBoss 500-series, FloBoss 100-series, and RegFlo) **Note**: Always **0** for FB107.
	R/W	TLP	3			Override Switch Process Variable (ROC300-series and FloBoss 407)
13	R/O	AC	1			Override Switch Mode (FloBoss 500-series, FloBoss 100-series, and RegFlo) **Note**: Always **0** for FB107.
	R/W	AC	1			Override Switch Setpoint (ROC300-series and FloBoss 407)
14	R/W	FP	4			Primary Setpoint
15	R/W	FP	4			Primary Setpoint EU / Minimum – Change Maximum
16	R/O	UINT16	2			Primary Loop Period (FloBoss 500-series, FloBoss 100-series, and RegFlo) **Note**: Always **0** for FloBoss 107.
	R/W	UINT16	2			Primary Loop Period (ROC300-series and FloBoss 407)
17	R/W	FP	4			Primary Proportional Gain
18	R/W	FP	4			Primary Reset (Integral) Gain
19	R/W	FP	4			Primary Rate (Derivative) Gain
20	R/W	FP	4			Primary Scale Factor
21	R/W	FP	4			Primary Integral Deadband
22	R/W	FP	4			Primary Process Variable

Point Type 6, PID Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
23	R/W	FP	4			Primary Output EU – Current Output of PID
24	R/O	FP				Primary Switch Process Variable – Primary Change in Output (FloBoss 500-series, FloBoss 100-series, and RegFlo) **Note**: Always **0** for FloBoss 107.
	R/W	FP				Primary Switch Process Variable – Primary Change in Output (ROC300-series and FloBoss 407)
25	R/O	UINT16	2			Minimum Control Time (FloBoss 500-series, FloBoss 100-series, and RegFlo)
	R/W	UINT16	2			Minimum Control Time (ROC300-series and FloBoss 407)
26	R/W	FP	4			Override Setpoint
27	R/W	FP	4			Override Setpoint EU / minimum – Change Maximum
28	R/O	UINT16	2			Override Loop Period (FloBoss 500-series, FloBoss 100-series, and RegFlo) **Note**: Always **0** for FloBoss 107
	R/W	UNIT16	2			Override Loop Period (ROC300-series and FloBoss 407)
29	R/W	FP	4			Override Proportional Gain
30	R/W	FP	4			Override Reset (Integral) Gain
31	R/W	FP	4			Override Rate (Derivative) Gain
32	R/W	FP	4			Override Scale Factor
33	R/W	FP	4			Override Integral Deadband
34	R/W	FP	4			Override Process Variable
35	R/W	FP	4			Override Output EU – Current Output of PID
36	R/O	FP	4			Override Switch Process Variable – Override Change in Output (FloBoss 500-series, FloBoss 100-series, and RegFlo)
	R/W	FP	4			Override Switch Process Variable – Override Change in Output (ROC300-series and FloBoss 407)

3.2.8 Point Type 7: AGA Flow Parameters

Description: Point type 7 provides AGA flow parameters.

Note: For FloBoss 107, this point type has been replaced by point type 46. Where applicable, point type 46 parameters map to point type 7 parameters. **As of version 2.00 or greater, point type 7 has been deleted.**

Table 3-13. Point Type 7, AGA Flow Parameters

Point Type 7, AGA Flow Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10			Identifies the point tag
1	R/W	FP	4			Latitude
2	R/W	FP	4			Elevation

Point Type 7, AGA Flow Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
3	R/W					Calculation Method: Bit 7 – Flow Calc Manual Mode (FloBoss 103/104, ROC300-series, FloBoss 407) 0 = Normal 1 = Manual (User Program Calc) Turbine Flow Calculation Standard (FloBoss 500-series) 0 = AGA7 Calculation 1 = ISO9951 Calculation Differential Flow Calculation Standard (FloBoss 107) 0 = AGA3 Calculation 1 = ISO5167 Calculation Bit 6 – RBX Set 0 = Disabled 1 = Active Bit 5 – RBX on Clear 0 = Disabled 1 = Active Bit 4 – ALM Enable 0 = Disabled 1 = Log Alarms Bit 3 – US or Metric 0 = US Units 1 = Metric Units Bit 2 – AGA8 Algorithm (ROC300-series and FloBoss 407) 0 = 1985 Algorithm 1 = 1992 Algorithm (always 1 for FloBoss 407) Limit Meter Run Events (FloBoss 103/104 version 2.00 or greater, and FloBoss 107) 0 = Events not limited 1 = Events limited Not Used (FloBoss 500-series, and FloBoss 103/104 version 1.21 and earlier) Bit 1 – Flow Calculation Method 0 = Differential 1 = Linear Bit 0 – Compressibility Method (ROC300-series only) 0 = NX19 1 = AGA8 Properties Calc Manual Mode (FloBoss 103/104 version 2.11 or greater) 0 = Normal 1 = Manual (User Program Calc) Not Used (FloBoss 103/104 version 2.10 or earlier, FloBoss 107, FloBoss 407, and FloBoss 500-series)

Point Type 7, AGA Flow Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
4	R/W	BIN	1			AGA Configuration – Options: Bit 7 – Log Methane Adjustment 0 = Log normalization 1 = Do not log normalization Bit 6 – Heating Value Basis (ROC300-series, FloBoss 407, FloBoss 500-series, and FloBoss 103/104) 0 = Mass Basis 1 = Volume Basis Mass/Volume Units (applies to calculation outputs, alarm limits, sampler accumulation, and heating value) (FloBoss 107 only) 0 = Mass units 1 = Volumetric units Bit 5 – Gravitational Acceleration Source 0 = Calculate 1 = Enter Acceleration Bit 4 – Heating Value Source 0 = Calculate 1 = Enter Heating Value Bit 3 – Static Pressure Value 0 = Gauge 1 = Absolute Bit 2 – Static Pressure Tap Location 0 = Downstream 1 = Upstream Bit 1 – Specific Gravity Source 0 = Calculate 1 = Enter Specific Gravity Bit 0 – Tap (always 0 for FloBoss 100-Series) 0 = Flange Tap 1 = Pipe Tap
5	R/W	FP	4			Specific gravity
6	R/W	FP	4			Heating value
7	R/W	FP	4			Gravity acceleration
8	R/O	UINT16	2			Scan Period (FloBoss 500-series, FloBoss 100-series, and RegFlo)
	R/W	UINT16	2			Scan Period (ROC300-series and FloBoss 407)
9	R/W	FP	4			Pipe diameter
10	R/W	FP	4			Orifice diameter
11	R/W	FP	4			Orifice measured (reference) temperature
12	R/W	UINT8	1			Orifice material
13	R/W	AC	30			Meter run point description

Point Type 7, AGA Flow Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
14	R/O	BIN	1			Alarm Code: Bit 7 – Manual Mode Bit 6 – No Flow Bit 2 – High Alarm Bit 0 – Low Alarm Bits 5, 4, 3, and 1 – Not Used
15	R/W	FP	4			Low Alarm EU – Flow
16	R/W	FP	4			High Alarm EU – Flow
17	R/W	FP	4			Viscosity
18	R/W	FP	4			Specific Heat Ratio
19	R/W	FP	4			Contact or Base Pressure
20	R/W	FP	4			Contact or Base Temperature
21	R/W	FP	4			Low Differential Pressure (hw) Cutoff – Orifice K-factor – Turbine (FloBoss 504, FloBoss 104 and FloBoss 107) Meter Factor – Turbine (FloBoss 407 version 1.10 or greater)
22	R/W	FP	4			User Correction Factor
23	R/W	FP	4			N_2 – Nitrogen
24	R/W	FP	4			CO_2 – Carbon Dioxide
25	R/W	FP	4			H_2S – Hydrogen Sulfide
26	R/W	FP	4			H_2O – Water
27	R/W	FP	4			He – Helium
28	R/W	FP	4			CH_4 – Methane
29	R/W	FP	4			C_2H_6 – Ethane
30	R/W	FP	4			C_3H_8 – Propane
31	R/W	FP	4			C_4H_{10} – n-Butane
32	R/W	FP	4			C_4H_{10} – i-Butane
33	R/W	FP	4			C_5H_{12} – n-Pentane
34	R/W	FP	4			C_5H_{12} – i-Pentane
35	R/W	FP	4			C_6H_{14} – n-Hexane
36	R/W	FP	4			C_7H_{16} – n-Heptane
37	R/W	FP	4			C_8H_{18} – n-Octane
38	R/W	FP	4			C_9H_{20} – n-Nonane
39	R/W	FP	4			$C_{10}H_{22}$ – n-Decane
40	R/W	FP	4			O_2 – Oxygen
41	R/W	FP	4			CO – Carbon Monoxide
42	R/W	FP	4			H_2 – Hydrogen

Point Type 7, AGA Flow Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
43	R/W	UINT8	1			Calculation Units – (FloBoss 407 version 1.10 or greater): 0 = MCF (km3) / MMBTU (GJoules) 1 = CCF (100 m3) / MBTU (MJoules) 2 = 10 MCF (10 km3) / MMMBTU (TJoules)
	R/O	UINT8	1			Not Used (ROC300-Series, FloBoss 100-Series and 500-Series, FloBoss 407 version 1.08 or earlier, RegFlo)
44	R/W	UINT8	1			Enable Stacked Differential Pressure (hw)
45	R/W	TLP	3			Low Differential Pressure (hw) Input
46	R/W	TLP	3			Differential Pressure (hw) Input – Orifice Flow Rate Input – Turbine
47	R/W	TLP	3			Static Pressure Input – Pf
48	R/W	TLP	3			Temperature Input – Tf
49	R/W	FP	4			Low Differential Pressure (hw) Setpoint
50	R/W	FP	4			High Differential Pressure (hw) Setpoint
51	R/W	FP	4			Meter Value Differential Pressure (hw) – Orifice Uncorrected Flow Rate – Turbine
52	R/W	FP	4			Static Flowing Pressure Value – Pf
53	R/W	FP	4			Flowing Temperature Value – Tf

3.2.9 Point Type 8: Standard History Parameters

Description: Point type 8 provides standard history parameters. For the FB107, logicals are assigned the following history points:

Logical 0 = Points 1-15
Logical 1 = Points 16-30
Logical 2 = Points 31-45
Logical 3 = Points 46-60
Logical 4 = Points 61-75
Logical 5 = Points 76-90
Logical 6 = Points 91-100

Table 3-14. Point Type 8, Standard History Parameters

Point Type 8, Standard History Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	History point 1: 46,0,0 Other history points: 0,0,0	For FB107: TLP for tag for history point 1, 16, 31, 46, 61, 76, or 91
1	R/O	TLP	3			History log point number 1
	R/W	TLP	3	Any point type tag TLP	History point 1: 46,0,41 Other history points: 0,0,0	For FB107: TLP for tvalue for history point 1, 16, 31, 46, 61, 76, or 91
2	R/O	UINT8	1			Archive Type 0 = Undefined 64 = FST Time (MM:DD:HH:MM) 65 = FST Value 66 = FST Time (DD:HH:MM:SS) 128 = Average 129 = Accumulation 130 = Current Value (Snapshot) 134 = Totalize
	R/W	UINT8	1		History point 1: 134 Other history points: 0	For FB107: History type for history point 1, 16, 31, 46, 61, 76, or 91. 0 = No type specified 64 = FST time with resolution of minutes 65 = FST value 66 = FST time with resolution of seconds 128 = Average of database value 129 = Accumulation of database value 130 = Single value of database value 134 = Database value is a totalizer

Point Type 8, Standard History Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
3	R/O	UINT8	1			Averaging or Rate Type 0 = Undefined If average archive type: 1 = Flow-dependent time-weighted liner average 2 = Flow-dependent time-weighted formulaic average 3 = Flow-weighted liner average 4 = Flow-weighted formulaic average 5 = Linear average If accumulate archive type: 10 = Accumulate on second basis 11 = Accumulate on minute basis 12 = Accumulate on hour basis 13 = Accumulate on day basis If current value archive type: 0 = Value at end of archive period 1 = Minimum value during archive period (FloBoss 107 and RegFlo) 2 = Maximum value during archive period (FloBoss 107 and RegFlo)
	R/W	UINT8	1		History point 1: 0 Other history points: 0	For FB107: Detail of history type for history point 1, 16, 31, 46, 61, 76, or 91. 0 = No detail specified if Type = Average 1 = Flow-dependent time-weighted linear average 2 = Flow-dependent time-weighed formulaic average 3 = Flow-weighted linear average 4 = Flow-weighted formulaic average 5 = Linear average. If Type is **Accumulate**: 10 = Basis is per second 11 = Basis is per minute 12 = Basis is per hour 13 = Basis is per day If Type is **Single Value**: 0 = Value at end of log interval 1 = Minimum value during log interval 2 = Maximum value during log interval If Type is **Totalizer**: 0 = No detail specified
4	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	History point 2: 46,0,0 Other history points: 0,0,0	For FB107: TLP for tag for history point 2, 17, 32, 47, 62, 77, or 92

Point Type 8, Standard History Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
5	R/O	TLP	3			History log point number 2
	R/W	TLP	3	Any point type TLP	History point 2: 46,0,51 Other history points: 0,0,0	For FB107: TLP value for history point 2, 17, 32, 47, 62, 77, or 92
6	R/O	UINT8	1			Archive type
	R/W	UINT8	1		History point 2: 128 Other history points: 0	For FB107: History type for history point 2, 17, 32, 47, 62, 77, or 92
7	R/O	UINT8	1			Indicates averaging or rate type
	R/W	UINT8	1		History point 2: 1 Other history points: 0	For FB107: Detail of history type for history point 2, 17, 32, 47, 62, 77, or 92. See Parameter 3
8	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	History point 3: 46,0,0 Other history points: 0,0,0	For FB107: TLP for tag for history point 3, 18, 33, 48, 63, 78, or 93
9	R/O	TLP	3			History log point number 3
	R/W	TLP	3	Any point type TLP	History point 2: 46,0,52 Other history points: 0,0,0	For FB107: TLP for value of history point 3, 18, 33, 48, 63, 78, or 93
10	R/O	UINT8	1			Archive type
	R/W	UINT8	1		History point 3: 128 Other history points: 0	For FB107: History type for history point 3, 18, 33, 48, 63, 78, or 93. See Parameter 2.
11	R/O	UNIT8	1			Indicates averaging or rate type
	R/W	UINT8	1		History point 3: 1 Other history points: 0	For FB107: Detail of history type for history point 3, 18, 33, 48, 63, 78, or 93. See Parameter 3
12	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	History point 4: 46,0,0 Other history points: 0,0,0	For FB107: TLP for tag for history point 4, 19, 34, 49, 64, 79, or 94
13	R/O	TLP	3			History log point number 4
	R/W	TLP	3	Any point type TLP	History point 4: 46,0,53 Other history points: 0,0,0	For FB107: TLP for value of history point 4, 19, 34, 49, 64, 79, or 94

Point Type 8, Standard History Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
14	R/O	UINT8	1			Archive type
	R/W	UINT8	1		History point 4: 128 Other history points: 0	For FB107: History type for history point 4, 19, 34, 49, 64, 79, or 94. See Parameter 2.
15	R/O	UNIT8	1			Indicates averaging or rate type
	R/W	UNIT8	1		History point 4: 1 Other history points: 0	For FB107: Detail of history type for history point 4, 19, 34, 49, 64, 79, or 94. See Parameter 3
16	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	History point 5: 46,0,0 Other history points: 0,0,0	For FB107: TLP for value of history point 5, 20, 35, 50, 65, 80, or 95
17	R/O	TLP	3			History log point number 5
	R/W	TLP	3	Any point type TLP	History point 5: 47,0,16 Other history points: 0,0,0	For FB107: TLP for value of history point 5, 20, 35, 50, 65, 80, or 95
18	R/O	UINT8	1			Archive type
	R/W	UINT8	1		History point 5: 128 Other history points: 0	For FB107: History type for history point 5, 20, 35, 50, 65, 80, or 95. See Parameter 2.
19	R/O	UINT8	1			Indicates averaging or rate type
	R/W	UINT8	1		History point 5: 1 Other history points: 0	For FB107: Detail of history type for history point 5, 20, 35, 50, 65, 80, or 95. See Parameter 3
20	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	History point 6 46,0,0 Other history points: 0,0,0	For FB107: TLP for tag of history point 6, 21, 36, 51, 66, 81, or 96
21	R/O	TLP	3			History log point number 6
	R/W	TLP	3	Any point type TLP	History point 6 47,0,4 Other history points: 0,0,0	For FB107: TLP for value of history point 6, 21, 36, 51, 66, 81, or 96
22	R/O	UINT8	1			Archive type
	R/W	UINT8	1		History point 6: 128 Other history points: 0	For FB107: History type for history point 6, 21, 36, 51, 66, 81, or 96. See Parameter 2

Point Type 8, Standard History Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
23	R/O	UINT8	1			Indicates averaging or rate type
	R/W	UINT8	1		History point 6: 1 Other history points: 0	For FB107: Detail of history type for history point 6, 21, 36, 51, 66, 81, or 96. See Parameter 3
24	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	History point 7 46,0,0 Other history points: 0,0,0	For FB107: TLP for tag of history point 7, 22, 37, 52, 67, 82, or 97
25	R/O	TLP	3			History log point number 7
	R/W	TLP	3	Any point type TLP	History point 7 47,0,0 Other history points: 0,0,0	For FB107: TLP for value of history point 7, 22, 37, 52, 67, 82, or 97
26	R/O	UINT8	1			Archive type
	R/W	UINT8	1		History point 7: 129 Other history points: 0	For FB107: History type for history point 7, 22, 37, 52, 67, 82, or 97. See Parameter 2
27	R/O	UINT8	1			Indicates averaging or rate type
	R/W	UINT8	1		History point 7: 13 Other history points: 0	For FB107: Detail of history type for history point 7, 22, 37, 52, 67, 82, or 97. See Parameter 3
28	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	History point 8 47,0,1 Other history points: 0,0,0	For FB107: TLP for tag of history point 8, 23, 38, 53, 68, 83, or 98
29	R/O	TLP	3			History log point number 8
	R/W	TLP	3	Any point type TLP	History point 8 47,0,1 Other history points: 0,0,0	For FB107: TLP for value of history point 8, 23, 38, 53, 68, 83, or 98
30	R/O	UINT8	1			Archive type
	R/W	UINT8	1		History point 8: 129 Other history points: 0	For FB107: History type for history point 8, 23, 38, 53, 68, 83, or 98. See Parameter 2
31	R/O	UINT8	1			Indicates averaging or rate type
	R/W	UINT8	1		History point 8: 13 Other history points: 0	For FB107: Detail of history type for history point 8, 23, 38, 53, 68, 83, or 98. See Parameter 3

Point Type 8, Standard History Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
32	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	0,0,0	For FB107: TLP for tag for history point 9, 24, 39, 54, 69, 84, or 99
33	R/W	TLP	3			History log point number 9
	R/W	TLP	3	Any point type TLP	0,0,0	For FB107: TLP for value for history point 9, 24, 39, 54, 69, 84, or 99
34	R/W	UINT8	1			Archive type
	R/W	UINT8	1		0	For FB107: History type for history point 9, 24, 39, 54, 69, 84, or 99. See Parameter 2
35	R/W	UINT8	1			Indicates averaging or rate type
	R/W	UINT8	1		0	For FB107: Detail of history type for history point 9, 24, 39, 54, 69, 84, or 99. See Parameter 3
36	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	0,0,0	For FB107: TLP for tag for history point 10, 25, 40, 55, 70, 85, or 100
37	R/W	TLP	3			History log point number 10
	R/W	TLP	3	Any point type TLP	0,0,0	For FB107: TLP for value for history point 10, 25, 40, 55, 70, 85, or 100
38	R/W	UINT8	1			Archive type
	R/W	UINT8	1		0	For FB107: History type for history point 10, 25, 40, 55, 70, 85, or 100. See Parameter 2
39	R/W	UINT8	1			Indicates averaging or rate type
	R/W	UINT8	1		0	For FB107: Detail of history type for history point 10, 25, 40, 55, 70, 85, or 100. See Parameter 3
40	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	0,0,0	For FB107: TLP for tag for history point 11, 26, 41, 56, 71, or 86.
41	R/W	TLP	3			History log point number 11
	R/W	TLP	3	Any point type TLP	0,0,0	For FB107: TLP for value for history point 11, 26, 41, 56, 71, or 86.
42	R/W	UINT8	1			Archive type
	R/W	UINT8	1		0	For FB107: History type for history point 11, 26, 41, 56, 71, or 86. See Parameter 2
43	R/W	UINT8	1			Indicates averaging or rate type
	R/W	UINT8	1		0	For FB107: Detail of history type for history point 11, 26, 41, 56, 71, or 86. See Parameter 3

Point Type 8, Standard History Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
44	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	0,0,0	For FB107: TLP for tag for history point 12, 27, 42, 57, 72, or 87.
45	R/W	TLP	3			History log point number 12
	R/W	TLP	3	Any point type TLP	0,0,0	For FB107: TLP for value for history point 12, 27, 42, 57, 72, or 87
46	R/W	UINT8	1			Archive type
	R/W	UINT8	1		0	For FB107: History type for history point 12, 27, 42, 57, 72, or 87. See Parameter 2
47	R/W	UINT8	1			Indicates averaging or rate type
	R/W	UINT8	1		0	For FB107: Detail of history type for history point 12, 27, 42, 57, 72, or 87. See Parameter 3
48	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	0,0,0	For FB107: TLP for tag for history point 13, 28, 43, 58, 73, or 88.
49	R/W	TLP	3			History log point number 13
	R/W	TLP	3	Any point type TLP	0,0,0	For FB107: TLP for value for history point 13, 28, 43, 58, 73, or 88.
50	R/W	UINT8	1			Archive type
	R/W	UINT8	1		0	For FB107: History type for history point 13, 28, 43, 58, 73, or 88. See Parameter 2
51	R/W	UINT8	1			Indicates averaging or rate type
	R/W	UINT8	1		0	For FB107: Detail of history type for history point 13, 28, 43, 58, 73, or 88. See Parameter 3
52	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	0,0,0	For FB107: TLP for tag for history point 14, 29, 44, 59, 74, or 89.
53	R/W	TLP	3			History log point number 14
	R/W	TLP	3	Any point type TLP	0,0,0	For FB107: TLP for value for history point 14, 29, 44, 59, 74, or 89.
54	R/W	UINT8	1			Archive type
	R/W	UINT8	1		0	For FB107: History type for history point 14, 29, 44, 59, 74, or 89. See Parameter 2
55	R/W	UINT8	1			Indicates averaging or rate type
	R/W	UINT8	1		0	For FB107: Detail of history type for history point 14, 29, 44, 59, 74, or 89. See Parameter 3

Point Type 8, Standard History Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
56	R/O	TLP	3			Identifies the point tag TLP
	R/W	TLP	3	Any point type tag TLP	0,0,0	For FB107: TLP for tag for history point 15, 30, 45, 60, 75, or 90.
57	R/W	TLP	3			History log point number 15
	R/W	TLP	3	Any point type TLP	0,0,0	For FB107: TLP for value for history point 15, 30, 45, 60, 75, or 90.
58	R/W	UINT8	1			Archive type
	R/W	UINT8	1		0	For FB107: History type for history point 15, 30, 45, 60, 75, or 90. See Parameter 2
59	R/W	UINT8	1			Indicates averaging or rate type
	R/W	UINT8	1		0	For FB107: Detail of history type for history point 15, 30, 45, 60, 75, or 90. See Parameter 3

3.2.10 Point Type 9: Local Display Panel Parameters

Description: Point type 9 provides the parameters for the local display panel.

Table 3-15. Point Type 9, Local Display Panel Parameters

Point Type 9, Local Display Panel

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10			Indicates text for line 1 of display
1	R/W	AC	10			Indicates text for line 2 of display
2	R/W	AC	10			Indicates text for line 3 of display
3	R/W	TLP	3			Indicates the TLP providing data for line 1 of display
4	R/W	TLP	3			Indicates the TLP providing data for line 2 of display
5	R/W	TLP	3			Indicates the TLP providing data for line 3 of display

3.2.11 Point Type 10: AGA Flow Calculation Values

Description: Point type 10 provides the parameters for the AGA flow calculations.

Note: For the FloBoss 107, this point type has been replaced by point type 47. Where applicable, point type 47 parameters may to point type 10 parameters. **As of version 2.00 or greater, point type 10 has been deleted.**

Number of Logical Points: 4 configurable points may exist (for the FloBoss 107).

Table 3-16. Point Type 10, AGA Flow Calculation Parameters

Point Type 10, AGA Flow Calculation Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/O	FL	4			Indicates the value by meter: Orifice: hw – Meter Differential Pressure Value (Inches H_2O or kPa) Turbine: Uncorrected Flow (MCF or km^3)
1	R/O	FL	4			Pf – Static Flowing Pressure Value (psi or kPa)
2	R/O	FL	4			Tf – Flowing Temperature Value (°F or °C)
3	R/O	FL	4			Instantaneous Flow (Flow rate per Day) – MCF/Day or km3/Day
4	R/O	FL	4			Instantaneous Energy (Energy rate per Day) – MMBTU/Day or GJ/Day
5	R/O	FL	4			Flow Today – MCF or km3 (FloBoss 500-series, FloBoss 100-series, RegFlo, ROC300-series version 2.20 or greater, and FloBoss 407 version 1.10 or greater)
	R/W	FL	4			Flow Today – MCF or km3 (ROC300-series 2.12 or earlier and FloBoss 407 version 1.08 or earlier)
6	R/O	FL	4			Energy Today – MMBTU or GJ (FloBoss 500-series, FloBoss 100-series, RegFlo, ROC300-series version 2.20 or greater, and FloBoss 407 version 1.10 or greater)
	R/W	FL	4			Energy Today – MMBTU or GJ (ROC300-series 2.12 or earlier and FloBoss 407 version 1.08 or earlier)
7	R/O	FL	4			Flow Yesterday – MCF or km3 (FloBoss 500-series, FloBoss 100-series, RegFlo, ROC300-series version 2.20 or greater, and FloBoss 407 version 1.10 or greater)
	R/W	FL	4			Flow Yesterday – MCF or km3 (ROC300-series 2.12 or earlier and FloBoss 407 version 1.08 or earlier)
	R/W	UINT32	4			Flow Continuous Accum – MCF or km3 (Industry Canada)

Point Type 10, AGA Flow Calculation Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
8	R/O	FL	4			Energy Yesterday – MMBTU or GJ (FloBoss 500-series, FloBoss 100-series, RegFlo, ROC300-series version 2.20 or greater, and FloBoss 407 version 1.10 or greater)
	R/W	FL	4			Energy Yesterday – MMBTU or GJ (ROC300-series 2.12 or earlier and FloBoss 407 version 1.08 or earlier)
	R/W	UINT32	4			Energy Continuous Accum – MMBTU or GJ (Industry Canada)
9	R/O	FL	4			Orifice: Pressure Extension – hwPf (AGA3) For FB107 Only: sqrt(hw) (ISO5167) Turbine: Uncorrected Flow Rate
10	R/O	FL	4			Orifice: IMV (Integral Multiplier Value) C prime (C') in AGA3 1985 (ROC300-series only) Turbine: BMV (Base Multiplier Value)
11	R/O	FL	4			Sample Time
12	R/O	FL	4			Orifice: Expansion Factor (Y) Turbine: Fpm
13	R/O	FL	4			Orifice: Fr – AGA 1985 (ROC300-series only) Fn – AGA 1992 (ROC300-series and FloBoss 407) Reynolds Number (ReD) (FloBoss 100-series, FloBoss 500 series and RegFlo) Turbine: Not Used
14	R/O	FL	4			Orifice: Ftf Turbine: Ftm (ROC300-series and FloBoss 407) Not Used (FloBoss 100-series, FloBoss 500-series and RegFlo)
15	R/O	FL	4			Fpv – Compressibility
16	R/O	FL	4			Fgr
17	R/O	FL	4			Orifice: AGA 1992 – Cd (Coefficient of discharge) AGA 1985 – Fb (ROC300-series only) Turbine: Ftm (FloBoss 500-series, FloBoss 103/104, and RegFlo) Not Used (ROC300-series, FloBoss 407, FloBoss 107)
18	R/O	FL	4			Fpb
19	R/O	FL	4			Ftb
20	R/O	FL	4			Orifice: Fa – AGA 1985 (ROC300-series only) Ev – AGA 1992 Turbine: Not Used
21	R/O	FL	4			Flowing Minute (ROC300-series with a ROCPAC only)

3.2.12 Point Type 11: Tank Parameters

Description: Point type 11 provides tank parameters.

Table 3-17. Point Type 11, Tank Parameters

Point Type 11, Tank Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10			Tag Identification
1	R/W	AC	10			Units
2	R/W	TLP	3			Tank Level Input
3	R/W	TLP	3			Meter Output (Pulse Input)
4	R/W	UINT16	2			Scan Period
5	R/W	UNIT8	1			Alarm Code: Bit 4 – Rate Alarm 0 = Cleared 1 = Active Bits 7, 6, 5, 3, 2, 1, and 0 – Not Used
6	R/O	UINT8	1			Not Used
7	R/W	FP	4			Rate Alarm EUs
8	R/W	FP	4			Strapping Value
9	R/W	FP	4			Specific Gravity
10	R/W	FP	4			Level Deadband
11	R/W	FP	4			Manual Entry – bbls (barrels)
12	R/O	FP	4			Total Units Hauled
13	R/O	FP	4			Current Fluid Level
14	R/O	FP	4			Contract Hour Level
15	R/O	FP	4			Units Discharged in barrels (bbls)
16	R/O	FP	4			Today’s Volume
17	R/O	FP	4			Yesterday’s Volume
18	R/O	FP	4			Last Scan Level
19	R/O	FP	4			Corrected Base Pulse Input – PI

3.2.13 Point Type 12: ROC Clock Parameters

Description: Point type 12 provides ROC clock parameters.

Number of Logical Points: 0 is the only valid logical number.

Table 3-18. Point Type 12, ROC Clock Parameters

Point Type 12, ROC Clock Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	UINT8	1	0 → 59	0	Seconds
1	R/W	UINT8	1	0 → 59	0	Minutes
2	R/W	UINT8	1	0 → 23	8	Hours
3	R/W	UINT8	1	1 → 31	9	Day
4	R/W	UINT8	1	1 → 12	1	Month
5	R/W	UINT8	1	0 → 99	02	Year
6	R/O	UINT8	1	NA	0	Leap Year (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
	R/W	UINT8	1			Leap Year (ROC300-Series and FloBoss 407)
7	R/O	UINT8	1	NA	3	Day of Week (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
	R/W	UINT8	1			Day of Week (ROC300-Series and FloBoss 407)
8	R/O	UINT8	1			Time: Seconds, Minutes, Hours, Day, Month, and Year (ROC300-Series and FloBoss 407)
	R/W	UINT8	1			Time: Seconds, Minutes, Hours, Day, Month, and Year (ROC300-Series and FloBoss 407)
	R/O	UINT8	6	NA	NA	For FB107: Time. Byes: 0 = Seconds 1 = Minutes 2 = Hours 3 = Day 4 = Month 5 = Year
9	R/W	UINT8	1	0 → 99	20	Century (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
10	R/W	UINT8	1	1, 0	0	Enables Daylight Savings Time. Valid values are 0 (Disable) and 1 (Enable). (FloBoss 500-Series, FloBoss 100-Series, FloBoss 107, and RegFlo)
11	R/W	UINT8	1	0 → 23	2	Daylight Saving Time Start Hour
12	R/W	UINT8	1	1 → 7	1	Daylight Saving Time Start Day of Week
13	R/W	UINT8	1	1 → 5	2	Daylight Saving Time Start Week of Month
14	R/W	UINT8	1	1 → 12	3	Daylight Saving Time Start Month

Point Type 12, ROC Clock Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
15	R/O	UINT32	4	0 → 4.294,967,295	12,628,808,800 (2:00:00 AM March 10, 2013)	Daylight Saving Time start date and time in binary format (seconds since 1970)
16	R/W	UINT8	1	0 → 23	2	Daylight Saving Time End Hour
17	R/W	UINT8	1	1 → 7	1	Daylight Saving Time End Day of Week
18	R/W	UINT8	1	1 → 5	1	Daylight Saving Time End Week of Month
19	R/W	UINT8	1	1 → 12	11	Daylight Saving Time End Month
20	R/O	UINT32	4	0 → 4.294,967,295	13,519,944,400 (2:00:00 AM November 4, 2012)	Daylight Saving Time end date and time in binary format (seconds since 1970)

3.2.14 Point Type 13: System Flags

Description: Point type 13 provides system flag parameters.

Number of Logical Points: 0 is the only valid logical number.

Table 3-19. Point Type 13, System Flags Parameters

Point Type 13, System Flags Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	UINT8	1	For FB107: 0, 1	For FB107: 1	Indicates the CRC check.
1	R/W	UINT8	1			For **ROC306/312**, indicates DI/PI: 0 = Both are DIs 1 = One DI and one PI 2 = Both are PIs For **FB103/104 (Version 2.00 or greater)**, indicates System Mode flag: Bit 0-6 = Not used Bit 7: 0 = Lowest power mode 1 = No sleep; communications always on **Note**: Parameter 1 **not** used for ROC364, FloBoss 407, FloBoss 500-Series, FloBoss 107, or RegFlo.
2	R/W	UINT8	1			For **ROC300-Series and FloBoss 407**, enables the LCD User Program. For **FloBoss 103/104**, enables the User Calc 2 program. **Note**: Parameter 2 **not** used for FloBoss 500-Series, FloBoss 107, or RegFlo.
3	R/W	UINT8	1			For **ROC300-Series, FloBoss 407, and FloBoss 103/104**, enables the LOI user program. For **FloBoss 103/104**, enables the User Calc 2 program. **Note**: Parameter 3 **not** used for FloBoss 500-Series, FloBoss 107, or RegFlo.
4	R/W	UINT8	1			For **ROC300-Series and FloBoss 407**, clears FSTs and displays. **Note**: Parameter 4 **not** used for FloBoss 500-Series, FloBoss 100-Series, or RegFlo.
5	R/W	UINT8	1			For **ROC300-Series, Floboss 407, and FloBoss 103/104**, enables the Comm1 port user program. **Note**: Parameter 5 **not** used for FloBoss 500-Series, FloBoss 107, or RegFlo.
6	R/W	UINT8	1			For **ROC300-Series, Floboss 407, and FloBoss 103/104**, enables the Comm2 port user program. **Note**: Parameter 6 **not** used for FloBoss 500-Series, FloBoss 107, or RegFlo.

Point Type 13, System Flags Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
7	R/W	UINT8	1			For **ROC300-Series and, Floboss 407**, enables the User Calc program. For **FloBoss 100-Series**, enables the User Calc program 1. **Note**: Parameter 7 **not** used for FloBoss 500-Series, FloBoss 107, or RegFlo.
8	R/W	UINT8	1	For FB107: 0, 1	For FB107: 0	Conducts an RTS test on the operator interface (LOI) port. Valid values are: 0 = Disable 1 = Enable for 30 seconds (for **FloBoss 500-Series and FloBoss 100-Series**) 1-255 = Sets (in seconds) an enable period (for **ROC300-Series and FloBoss 407**)
9	R/W	UINT8	1			Conducts an RTS test on the communications port 1. Valid values are: 0 = Disable 1 = Enable for 30 seconds (for **FloBoss 500-Series**) 1-255 = Sets (in seconds) an enable period (for **ROC300-Series and FloBoss 407**) **Note**: Parameter 9 **not** used for FloBoss 100-Series.
10	R/W	UINT8	1	For FB107: 0, 1	For FB107: 0	Conducts an RTS test on the communications port 2. Valid values are: 0 = Disable 1 = Enable for 30 seconds (for **FloBoss 100-Series**) 1-255 = Sets (in seconds) an enable period (for **ROC300-Series and FloBoss 407**) **Note**: Parameter 9 **not** used for FloBoss 500-Series.
11	R/W	UINT8	1	For FB107: 0, 1	For FB107: 0	Clears configuration memory.
12	R/W	UINT8	1	For FB107: 0, 1	For FB107: 1	Enables I/O scan
13	R/W	UINT8	1			Enables auxiliary output 2 (**ROC364 only**). **Note**: Parameter 13 **not** used for ROC306/312, FloBoss 407, FloBoss 500-Series, or FloBoss 100-Series.
14	R/W	UINT8	1			For **ROC300-series only,** turns Auxiliary Output 1 On. For **FloBoss 407 only**, enables +T Voltage: 0 = Disabled 1 = Enabled **Note**: Parameter 14 **not** used for FloBoss 500-Series or FloBoss 100-Series.

Point Type 13, System Flags Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
15	R/W	UINT8	1	0 → 6	0	Cold (Hard) Start options: 0 = None 1 = Restore config from flash / defaults 2 = Restore config and clear alarm / event logs 3 = Restore config and clear ROC displays 4 = Restore config and clear FSTs 5 = Restore config and clear history 6 = Restore config and clear all of above
16	R/W	UINT8	1	0, 1	0	Warm start
17	R/W	UINT8	1		0	Read I/O
18	R/W	UINT8	1	0, 1	0	Write to config memory
19	R/W	UINT8	1	0, 1	1	Config memory write complete
20	R/W	UINT8	1	0, 1	1	For **FloBoss 100-Series** and **FloBoss 500-Series**, enables the event log. For **FloBoss 407** and **ROC300-Series** with a FlashPAC, enables init history
21	R/W	UINT8	1	0 → 2	1	Manages LOI Security for **FloBoss 100-Series**, **FloBoss 500-Series**, **FlashPAC version 2.20 or greater**, and **FloBoss 407 version 1.10 or greater.** Valid values are: 0 = Disabled 1 = Enabled; managed by password 2 = Enabled; managed by passwoprd and access level security **Note**: Parameter 21 **not** used for FlashPAC version 2.12 or less, RegFlo, and FloBoss 407 version 1.08 or less.
22	R/W	UINT8	1	0 → 2	0	Manages Comm Port 1 Security for **FloBoss 100-Series**, **FloBoss 500-Series**, **FlashPAC version 2.20 or greater**, and **FloBoss 407 version 1.10 or greater**. Valid values are: 0 = Disabled 1 = Enabled; managed by password 2 = Enabled; managed by passwoprd and access level security **Note**: Parameter 22 **not** used for FlashPAC version 2.12 or less, RegFlo, and FloBoss 407 version 1.08 or less.
23	R/W	UINT8	1	0 → 2	0	For **FloBoss 100-Series**, **FlashPAC version 2.20 or greater**, **and FloBoss 407 version 1.10 or greater** , manages Comm Port 2 Security: 0 = Disabled 1 = Enabled; managed by password 2 = Enabled; managed by passwoprd and access level security **Note**: Parameter 23 **not** used for FlashPAC version 2.12 or less, FloBoss 500-Series, RegFlo, and FloBoss 407 version 1.08 or less.

Point Type 13, System Flags Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
24	R/W	UINT8	1	0 → 2	0	For **FloBoss 103/104**, installs a termination type: 1 = 4 point I/O – DI, DO, AI, AO Installed 2 = 4 point I/O – No I/O Installed 3 = 6 point I/O – I/O Installed 4 = 6 point I/O – No I/O Installed Manages LCD Port Security for **FloBoss 107.** Valid values are: 0 = Disabled 1 = Enabled; managed by password 2 = Enabled; managed by passwoprd and access level security **Note**: Parameter 24 **not** used with FloBoss 500-Series, RegFlo, ROC300-Series, and FloBoss 407.
25	R/W	UINT8	1	0 → 12		Sets Comm Port Pass-Through mode for FloBoss 100-Series,: 0 = No Pass Through. 1 = LOI to COM1 (103/104 and 107) 2 = COM1 to LOI (103/104), LOI to COM2 (107) 3 = LOI to COM2 (103/104), LOI to COM3 (107) 4 = COM2 to LOI (103/104), COM1 to LOI (107) 5 = COM1 to COM2 (103/104), COM1 to COM2 (107) 6 = COM2 to COM1 (103/104), COM1 to COM3 (107) 7 = COM2 to LOI (107) 8 = COM2 to COM1 (107) 9 = COM2 to COM 3 (107) 10 = COM3 to LOI (107) 11 = COM3 to COM1 (107) 12 = COM3 to COM2 (107) **Note**: Parameter 25 **not** used with FloBoss 500-Series, RegFlo, ROC300-Series, and FloBoss 407.

Point Type 13, System Flags Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
26	R/W	UINT8	1			For **FloBoss 103/104**, manages the 6 Point I/O Setup Flag: Bit 0: 0 = AI1 1 = DI1 Bit 1: 0 = AI2 1 = DI2 Bit 2: 0 = AO 1 = DO1 Bit 4: 0 = PI1 1 = DI3 Bit 5: 0 = PI2 1 = DI4 Bits 3, 6 and 7 – Not Used **Note**: Parameter 26 **not** used with FloBoss 500-Series, RegFlo, ROC300-Series, FloBoss 107, and FloBoss 407.
27	R/W	UINT8	1	0 → 2	0	Manages Comm Port 3 Security for **FloBoss 107.** Valid values are: 0 = Disabled 1 = Enabled; managed by password 2 = Enabled; managed by passwoprd and access level security **Note**: Parameter 27 **not** used with FloBoss 500-Series, RegFlo, ROC300-Series, FloBoss 103/104, and FloBoss 407.
28	R/W	UINT8	1	0 → 1	0	Manages communications port 3 RTS for **FloBoss 107 only**, 0 = Disabled 1 = Enable for 30 seconds **Note**: Parameter 28 **not** used with FloBoss 500-Series, RegFlo, ROC300-Series, FloBoss 103/104, and FloBoss 407.
29	R/W	UINT8	1	35 or 60	35	Manages the configured number of daily history logs for **FloBoss 107 only**, **Note**: Parameter 29 **not** used with FloBoss 500-Series, RegFlo, ROC300-Series, FloBoss 103/104, and FloBoss 407.
30	R/W	UINT8	1	0 → 1	0	Manages where the history time stamp occurs for **FloBoss 107 only.** Valid values are: 0 = Stamp at end of history period 1 = Stamp at beginning of history period **Note**: Parameter 30 **not** used with FloBoss 500-Series, RegFlo, ROC300-Series, FloBoss 103/104, and FloBoss 407.

Point Type 13, System Flags Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
31	R/W	UINT8	1	0 → 2	0	Archives the hourly and daily history upon meter run configuration changes. The value **0** is compliant with API 21.1-1993. Manages the configured number of daily history logs for **FloBoss 107 only**, 0 = Archive hourly and daily histories 1 = Archive only hourly history 2 = Do not archive either hourly or daily histories. **Note**: Parameter 31 **not** used with FloBoss 500-Series, RegFlo, ROC300-Series, FloBoss 103/104, and FloBoss 407.

3.2.15 Point Type 14: Communications Ports

Description: Point type 14 provides communication port parameters.

Number of Logical Points: 4 configurable points may exist (0=LOI, 1 = Com1, 2 = Com2, 3 = Com3).

Table 3-20. Point Type 14, Communication Port Parameters

Point Type 14, Communication Port Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10			Provides a tag identifier.
	R/W	AC	10	10 characters	Logical 0: “Local Port” Logical 1: “RS485…..” Logical 2: “Comm2…..” Logical 3: “Comm3…..”	Proivdes a tag ID for FB107.
1	R/W	UINT16	2			Indicates a baud rate.
	R/W	UINT16	2	300 → 57600	19200	Indicates a baud rate for the FB107
2	R/W	UINT8	1	1, 2	1	Indicates a stop bit.
3	R/W	UINT8	1	7, 8	8	Indicates the number of data bits.
4	R/W	UINT8	1	0 → 2	0	Indicates parity. Valid values are: 0 = None 1 = Odd 2 = Even
5	R/O	BIN	1			Indicates the status. Bit 7: User Status (ROC300-Series, FloBoss 103/104, FloBoss 407) Bit 7: Not Used (FloBoss 500-Series, FloBoss 107, and RegFlo) Bits 6 through 2: Not Used Bit 1: RBX Status. Valid values are 0 (RBX Inactive) and 1 (RBX Active for this port) Bit 0: No Port Installed. Valid values are 0 (Comm Board present) and 1 (No Comm Board Installed)=
	R/O	BIN	1	NA	0x00	Indicates the status for the FB107: Bits 7 through 2 and 0 are **not** used in the FB107 Bit 1: RBX Status: 0 = Inactive RBX 1 = Active RBX .

Point Type 14, Communication Port Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
6	R/W	BIN	1			Indicates the mode: Bit 7: User Flag (ROC300-Series and FloBoss 407). Valid values are 0 (Reset) and 1 (Set) Bit 6: User Flag (ROC300-Series and FloBoss 407). Valid values are 0 (Reset) and 1 (Set) Bit 5:Store and Forward Port (ROC300-Series and FloBoss 407). Valid values are 0 (Same) and 1 (Opposite) Bit 4: Not Used Bit 3: Enable RTS/CTS. Valid values are 0 (Disabled) and 1 (Enabled) Bit 2: Enable Extra Key On (ROC300-Series, FloBoss 100-Series, and FloBoss 407). Valid values are 0 (Disabled) and 1 (Enabled). Bit 1: Enable RBX. Valid values are 0 (RBX Disabled) and 1 (RBX Enabled). Bit 0: Not Used.
	R/W	BIN	1	NA	For FB107: 0x00	Indicates the mode for the FB107. Bits 3 and 0 are not used in the FB107 Bit 2: Extra Key On delay fopr RBX: 0 = Disable delay 1 = Enable delay Bit 1: Enable RBX: 0 = Disable RBX 1 = Enable RBX
7	R/W	UINT8	1	NA	For FB107: 0	Specifies the Key-On delay (10 milllisecond increments)
8	R/W	UINT8	1	NA	For FB107: 0	Specifies the Key-Off delay turnaround (10 millisecond increments)
9	R/W	UINT8	1			Indicates the RBS retry count (ROC300-Series and FloBoss 407). Optional Interface Board type (FloBoss 103/104 only) Bits 5 through 7: Not Used Bit 4: Radio Logic Bit 3: Reserved Bit 2: Dial-up modem Bit 1: EIA-232 (RS-232) Bit 0: None. Not used (FloBoss 500-Series, FloBoss 107, and RegFlo).
10	R/W	UINT16	2	NA	0	Extra Key-On Delay (10 millisecond increments) (ROC300-Series, FloBoss 407, and FloBoss 100-Series) Retry Time (FloBoss 500-Series)
11	R/O	UINT16	2	NA	0	Indicates an alarm pointer.
12	R/O	UINT16	2	NA	0	Receive counter copy
13	R/O	UINT16	2	NA	0	Retry counter
14	R/O	UINT16	2	NA	0	Valid receive counter

Point Type 14, Communication Port Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
						FloBoss 500-Series, FloBoss 100-Series, RegFlo, FlashPACs, and FloBoss 407 Version 1.05 or greater
15	R/O	UINT8	1	0 → 2	0	Indicates the modem status: 0 = OK 1= Connected 2 = Ring
16	R/W	UINT8	1	0 → 2	0	Indicates the type of modem: 0 = No modem installed 1 = Point configured to interface with an external modem 2 = Internal board installed (not supported by FB107)
17	R/W	FL	4	NA	60.0	Indicates the connect time (in 1 second units)
18	R/W	AC	10			Indicates the Configuration command
	R/W	AC	40	40 characters	“ATH0E0V0:	Indicates the configuration command for the FB107
19	R/W	AC	10			Indicates the Connect command
	R/W	AC	40	40 characters	“ATDT<number>…..”	Indicate sthe connect command for the FB107
20	R/W	FL	4	NA	For FB107: 60.0	Indicates the disconnect time (in 1-second units), and used as the communication sleep time. Indicates the amount of time after which (without activity on port) the device disconnects an external modem.
21	R/W	FL	4	NA	For FB107: 600.0	Indicates the inactivity time (in 1-second units). After this amount of time (without activity on the port), the device sends an initialization string to an external model
22	R/W	FL	4	NA	For FB107: 20.0	Indicates the RBX Time Base #1 (in seconds)
23	R/W	UINT8	1	NA	For FB107: 1	Indicates the RBX Retry Count #1
24	R/W	FL	4	NA	For FB107: 30.0	Indicates the RBX Time Base #2 (in seconds)
25	R/W	UINT8	1	NA	For FB107: 2	Indicates the RBX Retry Count #2
26	R/W	FL	4	NA	For FB107: 45.0	Indicates the RBX Time Base #3 (in seconds)
27	R/W	UINT8	1	NA	For FB107: 3	Indicates the RBX Retry Count #3
28	R/W	UINT8	1	NA	For FB107: 1	Indicates the RBX address
29	R/W	UINT8	1	NA	For FB107: 0	Indicates the RBX group
30	R/W	UINT8	1	NA		Provides the Store and Forward Address #1 (not used for FloBoss 100-Series and RegFlo)
31	R/W	UINT8	1	NA		Provides the Store and Forward Group #1 (not used for FloBoss 100-Series and RegFlo)
32	R/W	UINT8	1	NA		Provides the Store and Forward Address #2 (not used for FloBoss 100-Series and RegFlo)
33	R/W	UINT8	1	NA		Provides the Store and Forward Group #2 (not used for FloBoss 100-Series and RegFlo)
34	R/W	UINT8	1	NA		Provides the Store and Forward Address #3 (not used for FloBoss 100-Series and RegFlo)

Point Type 14, Communication Port Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
35	R/W	UINT8	1	NA		Provides the Store and Forward Group #3 (not used for FloBoss 100-Series and RegFlo)
36	R/W	UINT16	2	1 → 10,000	For FB107: 30	Indicates the idle character delay (in milliseconds) (FloBoss 103/104 version 2.11 or greater, FloBoss 107, and FloBoss 500-Series version 2.40 or greater).
37	R/W	UINT16	2	0 → 1	For FB107: 0	Indicates the Extra Key-On Delay (FloBoss 500-Series version 2.44 or greater). Indicates the Port Owner (FloBoss 107): Valid values are: 0 = ROC Protocol/Modbus Slave 1 = Modbus Master (not valid for LOI or Ethernet ports) 2 = DS800 (not valid for LOI port) 3 = User Program Controlled 4 = Network Radio Module 5 = Modbus Slave Only
38	R/O	UNIT32	4	NA	NA	Indicates the Receive Buffer Address (FloBoss 107 only); used to debug communication issues.
39	R/O	UNIT32	4	NA	NA	Indicates the Transmit Buffer Address (FloBoss 107 only); used to debut communication issues.

3.2.16 Point Type 15: System Variables (ROC Information)

Description: Point type 15 provides ROC system variable parameters.

Number of Logical Points: 0 is the only valid logical number.

Table 3-21. Point Type 15, System Variable Parameters (ROC Information)

Point Type 15, System Variable Parameters (ROC Information)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	UINT8	1	NA	1	Indicates the ROC address
1	R/W	UINT8	1	NA	2	Indicates the ROC group
2	R/W	AC	20	20 characters	For FB107: "FB107……………."	Indicates the Station Name
3	R/W	UINT8	1	0	For FB107: 0	Indicates the active PIDs
4	R/W	UINT8	1	1	For FB107: 1	Indicates the active AGA meter runs
5	R/W	UINT8	1	For FB107: 1 → 250	For FB107: 20	Indicates the active tanks (ROCPAC only) Indicates the number of FST instructions per FST execution cycle (FloBoss 100-Series) Not Used (FlashPAC version 2.22 or less, FloBoss 407 version 1.08 or less, and FloBoss 500-Series) Indicates the system status (FlashPAC version 2.23 or greater and FloBoss 407 version 1.10 or greater): Bit 0: Low Lithium battery Bit 1 to 7: No used
6	R/W	UINT8	1	For FB107: 1 → 100	For FB107: 40	Indicates the number of base database points Indicates the number of standard history points (FloBoss 100-Series only)
7	R/W	UINT8	1	For FB107: 0 → 25	For FB107: 5	Indicates the number of RAM1 database points Indicates the number of extended history points (FloBoss 100-Series only)
8	R/W	UINT8	1	For FB107: 0	For FB107: 0	Indicates the number of RAM2/History3 database points.
9	R/W	UINT8	1	For FB107: 1, 0	For FB107: 0	Forces End of Day
10	R/W	UINT8	1	For FB107: NA	For FB107: 0	Indicates the contract hour
11	R/O	AC	20	For FB107: 20 characters	For normal FB107: "W68182..VerN.NN" For Industry Canada FB107: "W68255 VerN.NN" For DTRU FB107: "W68286 VerN.NN"	Indicates the version name (part number)
12	R/O	AC	20	For FB107: 20 characters	For FB107: "Fisher FCD……."	Provides manufacturing identification
13	R/O	AC	20	For FB107: 20 characters	"Mmm dd,yyyy.hh:mm"	Indicates the time created

Point Type 15, System Variable Parameters (ROC Information)

Parameter#	Access	Data Type	Length	Range	Default	Description
14	R/O	AC	20			Provides the unit serial number
	R/O	AC	12	12 characters	"000000000000"	Provide serial number for FB107
15	R/O	AC	20	For FB107: 20 characters	For FB107: "NONE…………..."	Indicates the customer name
16	R/O	UINT8	1	For FB107: 4	For FB107: 4	Indicates the maximum number of PIDs
17	R/O	UINT8	1	For FB107: 4	For FB107: 4	Indicates the maximum number of AGA meter runs
18	R/O	UINT8	1	For FB107: 0	For FB107: 0	Indicates the maximum number of tanks
19	R/O	UINT8	1	For FB107: 4	For FB107: 4	Indicates the number of FSTs possible
20	R/O	BIN	1			Indicates the RAM installed; memory assignments (ROC300-Series and FloBoss 407): Bit 7: E0000-FFFFF Bit 6: C0000-DFFFF Bit 5: A0000-BFFFF Bit 4: 80000-9FFFF Bit 3: 60000-7FFFF Bit 2: 40000-5FFFF Bit 1: 20000-3FFFF Bit 0: 00000-1FFFF
	R/O	BIN	1	0x0F	0X0F	RAM for FB107
21	R/O	BIN	1			Indicates the ROM installed; memory assignments (ROC300-Series and FloBoss 407): Bit 7: E0000-FFFFF Bit 6: C0000-DFFFF Bit 5: A0000-BFFFF Bit 4: 80000-9FFFF Bit 3: 60000-7FFFF Bit 2: 40000-5FFFF Bit 1: 20000-3FFFF Bit 0: 00000-1FFFF
	R/O	BIN	1	0x0F	0x0F	ROM for FB107
22	R/O	FL	4	For FB107: NA	For FB107: 0.0	Indicates MPU loading

Point Type 15, System Variable Parameters (ROC Information)

Parameter#	Access	Data Type	Length	Range	Default	Description
23	R/O	BIN	1			Indicates Utilities (ROC300-Series, FloBoss 407, and Floboss 17)): Bit 7: Industry Canada Unit Bit 6: Not Used Bit 5: Not Used Bit 4: User Calculation Program allowed Bit 3: COM2 User Program allowed Bit 2: COM1 User Program allowed Bit 1: LCD installed Bit 0: AGA data archived (ROC300-Series with ROCPAC only)
	R/O	UNIT8	1	0	Bit 7 = 0 Bits 6-0 = Normal FB107 Bit 7 = 1 Bits 6-0 = Measurement Canada FB107	Indicates Utilites for FB107
FloBoss 500-Series, FloBoss 100-Series, RegFlo, FlashPACs, and FloBoss 407 Version 1.05 or greater						
24	R/O	UINT16	2			Indicates the type of ROC or FloBoss: 100 = RegFlo 2 version 2.xx 101 = FloBoss 103 without sensor and RegFlo3 Version 3.xx 103 = FloBoss 103 with DVS sensor 104 = FloBoss 104 300 = ROC 306/312/364 364 = ROC364 407 = FloBoss 407 503 = FloBoss 503 with DVS sensor or RegFlo1 version 1.xx 504 = FloBoss 504 with turbine interface module 107 = FloBoss 107
25	R/W	UINT8	1	0 → 2	0	Indicates the Units flag: 0 = English 1 = Metric (kPa) 2 = Metric (bar) (RegFlo only)
26	R/W	UINT32	4	0 → 4,294,967,295	For FB107: 0	Encryption Key 1
27	R/W	UINT32	4	0 → 4,294,967,295	For FB107: 0	Encryption Key 2
28	R/W	UINT32	4	0 → 4,294,967,295	For FB107: 0	Encryption Key 3
29	R/W	UINT32	4	0 → 4,294,967,295	For FB107: 0	Encryption Key 4
30	R/W	UINT32	4	0 → 4,294,967,295	For FB107: 0	Encryption Key 5
31	R/W	UINT32	4	0 → 4,294,967,295	For FB107: 0	Encryption Key 6
32	R/W	UINT32	4	0 → 4,294,967,295	For FB107: 0	Encryption Key 7
33	R/W	UINT32	4	0 → 4,294,967,295	For FB107: 0	Encryption Key 8
34	R/W	UINT8	1	0-1	0	Indicates the security mode: 0 = Long log on security disabled 1 = Long log on security enabled

3.2.17 Point Type 16: FST Parameters

Description: Point type 16 provides FST parameters.

Number of Logical Points: 4 configurable points may exist.

Table 3-22. Point Type 16, FST Parameters

Point Type 16, FST Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	10 characters	Logical 0 = "FST #1…." Logical 1 = "FST #2…."	Idenitfies the point tag
1	R/W	FLP	4	NA	For FB107: 0.0	Result Register
2	R/W	FLP	4	NA	For FB107: 0.0	Register #1
3	R/W	FLP	4	NA	For FB107: 0.0	Register #2
4	R/W	FLP	4	NA	For FB107: 0.0	Register #3
5	R/W	FLP	4	NA	For FB107: 0.0	Register #4
6	R/W	FLP	4	NA	For FB107: 0.0	Register #5
7	R/W	FLP	4	NA	For FB107: 0.0	Register #6
8	R/W	FLP	4	NA	For FB107: 0.0	Register #7
9	R/W	FLP	4	NA	For FB107: 0.0	Register #8
10	R/W	FLP	4	NA	For FB107: 0.0	Register #9
11	R/W	FLP	4	NA	For FB107: 0.0	Register #10
12	R/W	UINT32	4	NA	For FB107: 0	Timer #1 (units are system scan time)
13	R/W	UINT32	4	NA	For FB107: 0	Timer #2 (units are system scan time)
14	R/W	UINT32	4	NA	For FB107: 0	Timer #3 (units are system scan time)
15	R/W	UINT32	4	NA	For FB107: 0	Timer #4(units are system scan time)
16	R/W	AC	30	30 characters	"……………………"	Message #1 For FB107: MSG function puts its text into this parameter.
17	R/W	AC	30	30 characters	"……………………"	Message #2: Not Used (FloBoss 100-Series, FloBoss 500-Series, RegFlo) For FB107: MS2 function puts its text into this parameter.
18	R/O	AC	10	10 characters	" "	Message #1 Data Not Used (RegFlo) For FB107: MSG function puts its value into this parameter.
19	R/W	UINT8	1	NA	For FB107: 0	Miscellaneous #1
20	R/W	UINT8	1	NA	For FB107: 0	Miscellaneous #2
21	R/W	UINT8	1	NA	For FB107: 0	Miscellaneous #3
22	R/W	UINT8	1	NA	For FB107: 0	Miscellaneous #4
23	R/W	UINT8	1	NA	For FB107: 0	Compare Flag - SVD

Point Type 16, FST Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
24	R/W	UINT8	1	0, 1, 5, 8	0	Run Flag. Valid values are 0 = FST not running 1 = FST running 5 = Invalid function encountered 8 = FST Trace mode
25	R/W	UINT8	1			Code size (FloBoss 100-Series, FloBoss 407, ROC300-Series, RegFlo)
	R/W	UINT16	2	NA	0	Code size (in bytes) for FB107
26	R/O	UINT16	2			Instruction Pointer (FloBoss 500-Series and RegFlo)
	R/W	UINT16	2	NA	0	Instruction Pointer (for FloBoss 100-Series, FloBoss 407, and ROC300-Series). Indicates the byte index of the next function to execute in FST.
27	R/W	UINT32	4			Execution Delay
	R/W	UINT16	2	NA	0	Function execution delay (units are system scan time)
28	R/O	AC	10	10 characters	“ “	Message #2 Data (for FB107): MS2 function puts its value into this parameter.

3.2.18 Point Type 17: Soft Point Parameters

Description: Point type 17 provides soft point parameters.

Number of Logical Points: 32 configurable points may exist.

Table 3-23. Point Type 17, Soft Point Parameters

Point Type 17, Soft Point Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	10 characters	For FB107: see description	Idenitfies the point tag Defaults for FB107: Logical 0 = “Soft Pt 0” Logical 1 = “Soft Pt 1” Logical 2 = “Soft Pt 2” Logical 3 = “Soft Pt 3” Logical 4 = “Soft Pt 4” Logical 5 = “Soft Pt 5” Logical 6 = “Soft Pt 6” Logical 7 = “Soft Pt 7” Logical 8 = “Soft Pt 8” Logical 9 = “Soft Pt 9” Logical 10 = “Soft Pt 10” Logical 11 = “Soft Pt 11” Logical 12 = “Soft Pt 12” Logical 13 = “Soft Pt 13” Logical 14 = “Soft Pt 14” Logical 15 = “Soft Pt 15” Logical 16 = “Soft Pt 16” Logical 17 = “Soft Pt 17” Logical 18 = “Soft Pt 18” Logical 19 = “Soft Pt 19” Logical 20 = “Soft Pt 20” Logical 21 = “Soft Pt 21” Logical 22 = “Soft Pt 22” Logical 23 = “Soft Pt 23” Logical 24 = “Soft Pt 24” Logical 25 = “Soft Pt 25” Logical 26 = “Soft Pt 26” Logical 27 = “Soft Pt 27” Logical 28= “Soft Pt 28” Logical 29 = “Soft Pt 29” Logical 30 = “Soft Pt 30” Logical 31 = “Soft Pt 31”
1	R/W	UINT16	2	For FB107: NA	For FB107: 0	Integer flag
2	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #1
3	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #2
4	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #3

Point Type 17, Soft Point Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
5	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #4
6	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #5
7	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #6
8	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #7
9	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #8
10	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #9
11	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #10
12	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #11
13	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #12
14	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #13
15	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #14
16	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #15
17	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #16
18	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #17
19	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #18
20	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #19
21	R/W	FLP	4	For FB107: NA	For FB107: 0.0	Data #20
22	R/W	UINT8	1	0 → 1	0	Controls soft point logging. Valid values are: 0 (Enable logging) 1 (Disable logging)

3.2.19 Point Type 18: Analog Input Calibration Parameters for ROCPAC

Description: Point type 18 provides analog input calibrations parameters for ROCPAC.

Table 3-24. Point Type 18, Analog Input Calibration Parameters for ROCPAC

Point Type 18, Analog Input Calibration Parameters for ROCPAC

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10			Idenitfies the point tag
1	R/W	INT16	2			Raw value 1
2	R/W	INT16	2			Raw value 2
3	R/W	INT16	2			Raw value 3
4	R/W	INT16	2			Raw value 4
5	R/W	INT16	2			Raw value 5
6	R/W	FLP	4			EU Value 1
7	R/W	FLP	4			EU Value 2
8	R/W	FLP	4			EU Value 3
9	R/W	FLP	4			EU Value 4
10	R/W	FLP	4			EU Value 5
11	R/W	FLP	4			Press Effect
12	R/W	FLP	4			Set EU Value
13	R/W	FLP	4			Manual EU
14	R/W	UINT16	2			Timer
15	R/W	UINT8	1			Mode
16	R/W	UINT8	1			Type

3.2.20 Point Type 19: Database Parameters

Description: Point type 19 provides database parameters.

Number of Logical Points: 100 configurable points may exist. One logical of point type 19 exists for each logical of point type 8.

Note: Opcode 165 uses Point Type 19 to configure history points and create events.

Table 3-25. Point Type 19, Database Parameters

Point Type 19, Database Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/O	FL	4	For FB107: NA	For FB107: NA	Idenitfies the point tag This parameter is **not** used in the FB107.
1	R/O	UINT8	1	For FB107: Any archive type	For FB107: see description	Archive Type (FloBoss 500-Series, FloBoss 100-Series, and RegFlo). Default values for FB107: Logical 0: 134 Logical 1: 128 Logical 2: 128 Logical 3: 128 Logical 4: 128 Logical 5: 128 Logical 6: 129 Logical 7: 129 Logicals 8 – 99: 0
	R/W	UINT8	1			Archive Type (FloBoss 407 and ROC300-Series)
2	R/O	UINT8	1	For FB107: Any point type	For FB107: see description	Point Type (FloBoss 500-Series, FloBoss 100-Series, and RegFlo). Default values for FB107: Logical 0: 47 Logical 1: 46 Logical 2: 46 Logical 3: 46 Logical 4: 47 Logical 5: 47 Logical 6: 47 Logical 7: 47 Logicals 8 – 99: 0
	R/W	UINT8	1			Point Type (FloBoss 407 and ROC300-Series)
3	R/O	UINT8	1	For FB107: Any logical of the point type	For FB107: see description	Point /Logical Number (FloBoss 500-Series, FloBoss 100-Series, and RegFlo). Default values for FB107: Logicals 0 – 99: 0
	R/W	UINT8	1			Point/Logical Number (FloBoss 407 and ROC300-Series)

Point Type 19, Database Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
4	R/O	UINT8	1	For FB107: Any parameter of the point type	For FB107: see description	Parameter Number (FloBoss 500-Series, FloBoss 100-Series, and RegFlo). Default values for FB107: Logical 0: 41 Logical 1: 51 Logical 2: 52 Logical 3: 53 Logical 4: 16 Logical 5: 4 Logical 6: 0 Logical 7: 1 Logicals 8 – 99: 0
	R/W	UINT8	1			Parameter Number (FloBoss 407 and ROC300-Series)
5	R/O	FL	4	For FB107: NA	For FB107: 0.0	Last Daily Value (FloBoss 500-Series, FloBoss 100-Series, FlashPACs, FloBoss 407 version 1.05 or greater, and RegFlo)
6	R/O	FL	4	For FB107: NA	For FB107: 0.0	Last Hour's Total (FloBoss 103/104 version 2.00 or greater and FloBoss 107)
7	R/W	AC	10	10 characters	For FB107: see description	User-specified text typically used for history value units. Default values for FB107: Logical 0: "Minutes…" Logical 1: "InH2)….." Logical 2: "PSIG……" Logical 3: "Deg F " Logical 4: "………" Logical 5: "………" Logical 6: "MCF……." Logical 7: "MMBTU….." Logicals 8 – 99: "………."

3.2.21 Point Type 20: ROC Tasks (ROC300-Series and FloBoss 407)

Description: Point type 20 provides ROC tasks for the ROC300-Series and the FloBoss 407.

Table 3-26. Point Type 20, ROC Tasks

Point Type 20, Database Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/O	UINT16	2			Stack Pointer
1	R/O	UINT16	2			Stack Segment
2	R/O	UINT8	1			Priority
3	R/W	UINT8	1			Status
4	R/O	AC	10			Task Name
5	R/O	UINT16	2			Child
6	R/O	UINT16	2			Entry Time
7	R/O	UINT16	2			Exit Time
8	R/O	UINT8	0-225			Task Time
9	R/W	UINT8	0-225			Set Time
10	R/O	UINT16	0-65536			Pass Counter

3.2.22 Point Type 20: Diagnostic Parameters (FloBoss 107)

Description: Point type 20 provides diagnostic parameters for the FloBoss 107.

For the FloBoss 107, the Point Type 20 logical-to-slot positions are:

Logical 0 = CPU Specific	Logical 6 = Slot 2
Logical 1 = Integral Sensor	Logical 7 = Slot 3
Logical 2 = LCD Controller	Logical 8 = Slot 4
Logical 3 = LCD	Logical 9 = Slot 5
Logical 4 = Slot 0 – On-board 6-point configurable I/O	Logical 10 =Slot 6
Logical 5 = Slot 1	Logical 11 = Slot 7

Table 3-27. Point Type 20, Diagnostic Parameters (FloBoss 107)

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	UINT8	1		0	Identifies module type (in FloBoss 107 database). Valid values are: 0 = Not Installed 16 = CPU Module 17 = CPU Module Boot 18 = Integral DVS Installed 19 = Integral PIM Installed 20 = SPI to Serial Module 21 = FB107 LCD/Keypad 22 = FB10x LCD 23 = On-board 6 Point I/O Installed 24 = On-board No I/O Installed 25 = Aux I/O Configurable 6 Point 26 = MVS Interface Installed 27 = Application Module Installed 28 = 3 Point RTD Installed 29 = 8 Point AI / DI Installed 30 = 6 Point DO Relay Installed 31 = 6 Point AO / DO Installed 33 = HART Installed 32 = Low Level PI / DI module installed 33 = HART module installed 34 = Thermocouple module installed 35 = Data Logger module installed 36 = IEC62591 module installed 40 = RS232 Comm installed 41 = RS485 Comm installed 42 = Dialup Modem installed 43 = Network Radio Module installed 45 = Enhanced Communication Module (ECM) Installed 50 = I/O Base (IO Base module without a daughterboard or in boot mode)

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
1	R/W	UINT8	1		0	Indicates the actual (physical) module type; same definition as parameter 0.
2	R/W	AC	20	20 characters		Describes installed module.
3	R/W	AC	10	10 characters		Provides module application revision
4	R/W	AC	20	20 characters		Provides module application part number
5	R/W	AC	20	20 characters		Provides module application build date
6	R/W	AC	30	30 characters		Provides module application serial number
7	R/O	UINT32	4		0	Composite Alarm Summary (same value for all logicals). Valid values are 0 (No Alarm) and 1 (Alarm Set). Bits 31-12 Reserved for Future – Set to 0. Bit 11 – Alarm Active of Slot 7 Bit 10 – Alarm Active of Slot 6 Bit 9 – Alarm Active of Slot 5 Bit 8 – Alarm Active of Slot 4 Bit 7 – Alarm Active of Slot 3 Bit 6 – Alarm Active of Slot 2 Bit 5 – Alarm Active of Slot 1 Bit 4 – Alarm Active of Slot 0 Bit 3 – Alarm Active of LCD/Keypad Bit 2 – Alarm Active of Backplane Bit 1 – Alarm Active of Integral Sensor Bit 0 - Alarm Active of the CPU Module (system AIs and flow alarms)
8	R/O	UINT32	4		0	Composite Integrity Status (same value for all logicals). Valid values are 0 (No Error) and 1 (Integrity Error). Bits 31-12 Reserved for Future – Set to 0. Bit 11 – Composite Integrity of Slot 7 Bit 10 – Composite Integrity of Slot 6 Bit 9 – Composite Integrity of Slot 5 Bit 8 – Composite Integrity of Slot 4 Bit 7 – Composite Integrity of Slot 3 Bit 6 – Composite Integrity of Slot 2 Bit 5 – Composite Integrity of Slot 1 Bit 4 – Composite Integrity of Slot 0 (CPU and IO) Bit 3 – Composite Integrity of LCD/Keypad Bit 2 - Composite Integrity of Backplane Bit 1 – Composite Integrity of the Integral Sensor Bit 0 - Composite Integrity of the CPU Module
9	R/O	UINT32	4		0	Indicates Module Alarm Status **CPU Module – Logical 0** Bits 31-12 Reserved, set to 0 Bit 11 – Meter Run #4 Active Flow Alarm, 0=no, 1=yes Bit 10 – Meter Run #3 Active Flow Alarm, 0=no, 1=yes Bit 9 – Meter Run #2 Active Flow Alarm, 0=no, 1=yes Bit 8 – Meter Run #1 Active Flow Alarm, 0=no, 1=yes Bit 5-7 Reserved = 0

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
						Bit 4 – System AI – E1 Alarm Active, 0=no, 1=yes Bit 3 – System AI – E2 Alarm Active, 0=no, 1=yes Bit 2 – System AI – E3 Alarm Active, 0=no, 1=yes Bit 1 – System AI – E4 Alarm Active, 0=no, 1=yes Bit 0 – System AI – E5 Alarm Active, 0=no, 1=yes **DVS or PIM Sensor – Logical 1** Bits 31-4 Reserved, set to 0 Bit 3 – PI 2 (counter-clockwise) Active Alarm, 1=yes Bit 2 – PI 1 (clockwise) Active Alarm 0=no,1=yes Bit 1 – DP or P1 Alarm Active – 0=no, 1=yes Bit 0 – SP or P2 Alarm Active – 0=no, 1=yes **LCD Module – Logical 2** Bits 31 – 0 Reserved, set to 0 **On-Board 6 Pt IO Module – Logical 4** Bits 31-7 Reserved, set to 0 Bit 6 – PI 2 or DI 4 Alarm Active, 0=no, 1=yes Bit 5 – PI 1 or DI 3 Alarm Active, 0=no, 1=yes Bit 4 – DO 2 Alarm Active, 0=no, 1=yes Bit 3 – AO 1 or DO 1 Alarm Active, 0=no, 1=yes Bit 2 – AI 2 or DI 2 Alarm Active, 0=no, 1=yes Bit 1 – AI 1 or DI 1 Alarm Active, 0=no, 1=yes Bit 0 – RTD Alarm Active, 0=no, 1=yes **On-Board Module NO IO – Logical 4** Bits 31-1 Reserved, set to 0 Bit 0 – RTD Alarm Active, 0=no, 1=yes **Aux 6 Pt IO Module – Logicals 5-11** Bits 31-7 Reserved, set to 0 Bit 6 – PI 2 or DI 4 Alarm Active, 0=no, 1=yes Bit 5 – PI 1 or DI 3 Alarm Active, 0=no, 1=yes Bit 4 – DO 2 Alarm Active, 0=no, 1=yes Bit 3 – AO 1 or DO 1 Alarm Active, 0=no, 1=yes Bit 2 – AI 2 or DI 2 Alarm Active, 0=no, 1=yes Bit 1 – AI 1 or DI 1 Alarm Active, 0=no, 1=yes Bit 0 - Reserved, set to 0 **MVS Interface Module – Logicals 5-11** Bits 31-6 Reserved, set to 0 Bit 5 – MVS #6 Alarm Active, 0=no, 1=yes Bit 4 – MVS #5 Alarm Active, 0=no, 1=yes Bit 3 – MVS #4 Alarm Active, 0=no, 1=yes Bit 2 – MVS #3 Alarm Active, 0=no, 1=yes Bit 1 – MVS #2 Alarm Active, 0=no, 1=yes Bit 0 – MVS #1 Alarm Active, 0=no, 1=yes

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
						3 Point RTD Module – logicals 5-11 Bits 31-3 Reserved, set to 0 Bit 2 – RTD 3 Alarm Active, 0=no, 1=yes Bit 1 – RTD 2 Alarm Active, 0=no, 1=yes Bit 0 – RTD 1 Alarm Active, 0=no, 1=yes **8 Point AI / DI Module – logicals 5-11** Bits 31-8 Reserved, set to 0 Bit 7 – AI 8 or DI 8 Alarm Active, 0=no, 1=yes Bit 6 – AI 7 or DI 7 Alarm Active, 0=no, 1=yes Bit 5 – AI 6 or DI 6 Alarm Active, 0=no, 1=yes Bit 4 – AI 5 or DI 5 Alarm Active, 0=no, 1=yes Bit 3 – AI 4 or DI 4 Alarm Active, 0=no, 1=yes Bit 2 – AI 3 or DI 3 Alarm Active, 0=no, 1=yes Bit 1 – AI 2 or DI 2 Alarm Active, 0=no, 1=yes Bit 0 – AI 1 or DI 1 Alarm Active, 0=no, 1=yes **6 Point DO Relay Module – logicals 5-11** Bits 31 – 6 Reserved, set to 0 Bit 5 – DO 6 Alarm Active, 0=no, 1=yes Bit 4 – DO 5 Alarm Active, 0=no, 1=yes Bit 3 – DO 4 Alarm Active, 0=no, 1=yes Bit 2 – DO 3 Alarm Active, 0=no, 1=yes Bit 1 – DO 2 Alarm Active, 0=no, 1=yes Bit 0 – DO 1 Alarm Active, 0=no, 1=yes **Wellhead Tank Module – logicals 5-11** Bits 31 – 6 Reserved, set to 0 Bit 5 – DO 2 Alarm Active, 0=no, 1=yes Bit 4 – DO 1 Alarm Active, 0=no, 1=yes Bit 3 – AI 4 or DI 4 Alarm Active, 0=no, 1=yes Bit 2 – AI 3 or DI 3 Alarm Active, 0=no, 1=yes Bit 1 – AI 2 or DI 2 Alarm Active, 0=no, 1=yes Bit 0 – AI 1 or DI 1 Alarm Active, 0=no, 1=yes **Application Module – logical 5-11** Bits 31-1 Reserved, set to 0 Bit 0 – SAM Alarm, 0=no, 1=yes **6 Point AO / DO Module – logicals 5-11** Bit 5 – AO 6 or DO 6 Alarm Active, 0=no, 1=yes Bit 4 – AO 5 or DO 5 Alarm Active, 0=no, 1=yes Bit 3 – AO 4 or DO 4 Alarm Active, 0=no, 1=yes Bit 2 – AO 3 or DO 3 Alarm Active, 0=no, 1=yes Bit 1 – AO 2 or DO 2 Alarm Active, 0=no, 1=yes Bit 0 – AO 1 or DO 1 Alarm Active, 0=no, 1=yes **Network Radio Module – Logical 5-6** Bits 25-31 – Reserved (set tp 0) Bit 24 – Commission Logcal 24, Alarm Active, 0=no, 1=yes Bit 23 – Commission Logcal 24, Alarm Active, 0=no, 1=yes

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
						Bit 22 – Commission Logcal 23, Alarm Active, 0=no, 1=yes Bit 21 – Commission Logcal 21, Alarm Active, 0=no, 1=yes Bit 20 – Commission Logcal 20, Alarm Active, 0=no, 1=yes Bit 19 – Commission Logcal 19, Alarm Active, 0=no, 1=yes Bit 18 – Commission Logcal 18, Alarm Active, 0=no, 1=yes Bit 17 – Commission Logcal 17, Alarm Active, 0=no, 1=yes Bit 16 – Commission Logcal 16, Alarm Active, 0=no, 1=yes Bit 15 – Commission Logcal 15, Alarm Active, 0=no, 1=yes Bit 14 – Commission Logcal 14, Alarm Active, 0=no, 1=yes Bit 13 – Commission Logcal 13, Alarm Active, 0=no, 1=yes Bit 12 – Commission Logcal 12, Alarm Active, 0=no, 1=yes Bit 11 – Commission Logcal 11, Alarm Active, 0=no, 1=yes Bit 10 – Commission Logcal 10, Alarm Active, 0=no, 1=yes Bit 9 – Commission Logcal 9, Alarm Active, 0=no, 1=yes Bit 8 – Commission Logcal 7, Alarm Active, 0=no, 1=yes Bit 7 – Commission Logcal 7, Alarm Active, 0=no, 1=yes Bit 6 – Commission Logcal 6, Alarm Active, 0=no, 1=yes Bit 5 – Commission Logcal 5, Alarm Active, 0=no, 1=yes Bit 4 – Commission Logcal 4, Alarm Active, 0=no, 1=yes Bit 3 – Commission Logcal 3, Alarm Active, 0=no, 1=yes Bit 2 – Commission Logcal 2, Alarm Active, 0=no, 1=yes Bit 1 – Commission Logcal 1, Alarm Active, 0=no, 1=yes Bit 0 – Commission Logcal 0, Alarm Active, 0=no, 1=yes
10	R/W	UINT32	4			Indicates module's Integrity Status Common Integrity to all Modules: Bit 31 - Communication Failure Bit 30 – Invalid Module for Slot Bit 29 – Module/Sensor Mismatch Bit 28 – Module in Boot Mode Bit 27 – Module Failure Integrity Error Bits 26-24 Not Used – Reserved for Common Integrity – Set to 0 Detailed Integrity – (Module Specific) **CPU Module – Logical 0** Bits 23-8 Reserved, set to 0 Bit 7 – System AI – E1 Out of Range, 0=no, 1=yes Bit 6 – System AI – E2 Out of Range, 0=no, 1=yes Bit 5 – System AI – E3 Out of Range, 0=no, 1=yes Bit 4 – System AI – E4 Out of Range, 0=no, 1=yes Bit 3 – System AI – E5 Out of Range, 0=no, 1=yes Bit 2 – I/O Scanning Disabled – 0=Scanning Normal 1=Scanning Disabled Bit 1 – Permanent License Key – 0=valid, 1=invalid Bit 0 – CPU Overload – 0=good, 1=overload **DVS Sensor – Logical 1** Bits 23-2 Reserved, set to 0 Bit 1 – DP out of range

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
						Bit 0 – SP out of range **PIM Sensor – Logical 1** Bits 23-4 Reserved, set to 0 Bit 3– P1 Communication Failure, 1=fail Bit 2 – P2 Communication Failure, 1=fail Bit 1 – P1 out of range, 1=out of range Bit 0 – P2 out of range, 1=out of range **LCD Module – Logical 3** Bits 23 – 0 Reserved, set to 0 **On-Board 6 Pt IO Module – Logical 4** Bits 23-4 Reserved, set to 0 Bit 3 – AI 1 – Out of Range – 0=good, 1=bad Bit 2 – AI 2 – Out of Range – 0=good, 1=bad Bit 1 – AO 1 – Readback Error – 0=good, 1=bad Bit 0 – RTD – Out of Range – 0=good, 1=bad **On-Board Module NO IO – Logical 4** Bits 23-1 Reserved, set to 0 Bit 0 – RTD – Out of Range – 0=good, 1=bad **Aux 6 Pt IO Module – Logicals 5-11** Bits 23-4 Reserved, set to 0 Bit 3 – AI 1 – Out of Range – 0=good, 1=bad Bit 2 – AI 2 – Out of Range – 0=good, 1=bad Bit 1 – AO 1 – Readback Error – 0=good, 1=bad Bit 0 - Reserved, set to 0 **MVS Interface Module – logical 5-11** Bits 23-4 Reserved, set to 0 Bit 5 – MVS #6 Integrity Failure, 0=good, 1=bad Bit 4 – MVS #5 Integrity Failure, 0=good, 1=bad Bit 3 – MVS #4 Integrity Failure, 0=good, 1=bad Bit 2 – MVS #3 Integrity Failure, 0=good, 1=bad Bit 1 – MVS #2 Integrity Failure, 0=good, 1=bad Bit 0 – MVS #1 Integrity Failure, 0=good, 1=bad **3 Point RTD Module – logicals 5-11** Bits 23-3 Reserved, set to 0 Bit 2 – RTD 3 Out of Range – 0=good, 1=bad Bit 1 – RTD 2 Out of Range – 0=good, 1=bad Bit 0 – RTD 1 Out of Range – 0=good, 1=bad **8 Point AI / DI Module – logicals 5-11** Bits 23-8 Reserved, set to 0 Bit 7 – AI 8 Out of Range – 0=good, 1=bad Bit 6 – AI 7 Out of Range – 0=good, 1=bad Bit 5 – AI 6 Out of Range – 0=good, 1=bad Bit 4 – AI 5 Out of Range – 0=good, 1=bad

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
						Bit 3 – AI 4 Out of Range – 0=good, 1=bad Bit 2 – AI 3 Out of Range – 0=good, 1=bad Bit 1 – AI 2 Out of Range – 0=good, 1=bad Bit 0 – AI 1 Out of Range – 0=good, 1=bad **6 Point DO Module – logicals 5-11** Bits 23-6 Reserved, set to 0 Bit 5 – DO 6 Relay Failure – 0=good, 1=bad Bit 4 – DO 5 Relay Failure – 0=good, 1=bad Bit 3 – DO 4 Relay Failure – 0=good, 1=bad Bit 2 – DO 3 Relay Failure – 0=good, 1=bad Bit 1 – DO 2 Relay Failure – 0=good, 1=bad Bit 0 – DO 1 Relay Failure – 0=good, 1=bad **Wellhead Tank Module – logicals 5-11** Bits 23-6 Reserved, set to 0 Bit 5 – DO 2 Relay Failure – 0=good, 1=bad Bit 4 – DO 1 Relay Failure – 0=good, 1=bad Bit 3 – AI 4 Out of Range – 0=good, 1=bad Bit 2 – AI 3 Out of Range – 0=good, 1=bad Bit 1 – AI 2 Out of Range – 0=good, 1=bad Bit 0 – AI 1 Out of Range – 0=good, 1=bad **Application Module – logical 5-11** Bits 23-3 Reserved, set to 0 Bit 2 – SAM Point Type Mismatch, 0=good, 1=bad Bit 1 – SAM Module Revision Mismatch, 0=good,1=bad Bit 0 – SAM Integrity Failure, 0=good, 1=bad (When set, use Parameter 25 for Integrity Error String) **6 Point AO / DO Module – logicals 5-11** Bits 23-6 Reserved, set to 0 Bit 5 – AO 6 Readback Failure – 0=good, 1=bad Bit 4 – AO 5 Readback Failure – 0=good, 1=bad Bit 3 – AO 4 Readback Failure – 0=good, 1=bad Bit 2 – AO 3 Readback Failure – 0=good, 1=bad Bit 1 – AO 2 Readback Failure – 0=good, 1=bad Bit 0 – AO 1 Readback Failure – 0=good, 1=bad **HART Module – logicals 5-11** Bits 23-16 Reserved, set to 0 Bit 15 – Channel 4, composite dev field err – 0=good,1=bad Bit 14 – Channel 3, composite dev field err – 0=good,1=bad Bit 13 – Channel 2, composite dev field err – 0=good,1=bad Bit 12 – Channel 1, composite dev field err – 0=good,1=bad Bit 11 – Channel 4, composite Comm Error – 0=good,1=bad Bit 10 – Channel 3, composite Comm Error – 0=good,1=bad Bit 9 – Channel 2, composite Comm Error – 0=good,1=bad Bit 8 – Channel 1, composite Comm Error – 0=good,1=bad Bit 7 – Channel 4, AO Readback Error – 0=good, 1=bad Bit 6 – Channel 3, AO Readback Error – 0=good, 1=bad Bit 5 – Channel 2, AO Readback Error – 0=good, 1=bad

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
						Bit 4 – Channel 1, AO Readback Error – 0=good, 1=bad Bit 3 – Channel 4, AI Out of Range – 0=good, 1=bad Bit 2 – Channel 3, AI Out of Range – 0=good, 1=bad Bit 1 – Channel 2, AI Out of Range – 0=good, 1=bad Bit 0 – Channel 1, AI Out of Range – 0=good, 1=bad **IEC62591 Module – logicals 5-11** Bits 24 – IEC62591 Module Composite Status – 0=good,1=bad Bit 20-23 Reserved, set to 0 Bit 19 – Commission Logical 19, Composite – 0=good,1=bad Bit 18 – Commission Logical 18, Composite – 0=good,1=bad Bit 17 – Commission Logical 17, Composite – 0=good,1=bad Bit 16 – Commission Logical 16, Composite – 0=good,1=bad Bit 15 – Commission Logical 15, Composite – 0=good,1=bad Bit 14 – Commission Logical 14, Composite – 0=good,1=bad Bit 13 – Commission Logical 13, Composite – 0=good,1=bad Bit 12 – Commission Logical 12 Composite – 0=good,1=bad Bit 11 – Commission Logical 11, Composite – 0=good,1=bad Bit 10 – Commission Logical 10, Composite – 0=good,1=bad Bit 9 – Commission Logical 9, Composite – 0=good,1=bad Bit 8 – Commission Logical 8, Composite – 0=good,1=bad Bit 7 – Commission Logical 7, Composite – 0=good, 1=bad Bit 6 – Commission Logical 6, Composite – 0=good, 1=bad Bit 5 – Commission Logical 5, Composite – 0=good, 1=bad Bit 4 – Commission Logical 4, Composite – 0=good, 1=bad Bit 3 – Commission Logical 3, Composite – 0=good, 1=bad Bit 2 – Commission Logical 2, Composite – 0=good, 1=bad Bit 1 – Commission Logical 1, Composite – 0=good, 1=bad Bit 0 – Commission Logical 0, Composite – 0=good, 1=bad **NIM Module – logicals 5-6** Bits 27-31 are reserved for common integrity Bit 26 – Not Used – set to 0 Bit 25 – NIM Module Composite Status – 0=good,1=bad Bit 24 – Commission Logical 24, Composite - 0=good,1=bad Bit 23 – Commission Logical 23, Composite - 0=good,1=bad Bit 22 – Commission Logical 22, Composite - 0=good,1=bad Bit 21 – Commission Logical 21, Composite - 0=good,1=bad Bit 20 – Commission Logical 20, Composite - 0=good,1=bad Bit 19 – Commission Logical 19, Composite - 0=good,1=bad Bit 18 – Commission Logical 18, Composite - 0=good,1=bad Bit 17 – Commission Logical 17, Composite - 0=good,1=bad Bit 16 – Commission Logical 16, Composite - 0=good,1=bad Bit 15 – Commission Logical 15, Composite - 0=good,1=bad Bit 14 – Commission Logical 14, Composite - 0=good,1=bad Bit 13 – Commission Logical 13, Composite - 0=good,1=bad Bit 12 – Commission Logical 12, Composite - 0=good,1=bad Bit 11 – Commission Logical 11, Composite - 0=good,1=bad Bit 10 – Commission Logical 10, Composite - 0=good,1=bad

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
						Bit 9 – Commission Logical 9, Composite - 0=good,1=bad Bit 8 – Commission Logical 8, Composite - 0=good,1=bad Bit 7 – Commission Logical 7, Composite - 0=good,1=bad Bit 6 – Commission Logical 6, Composite - 0=good,1=bad Bit 5 – Commission Logical 5, Composite - 0=good,1=bad Bit 4 – Commission Logical 4, Composite - 0=good,1=bad Bit 3 – Commission Logical 3, Composite - 0=good,1=bad Bit 2 – Commission Logical 2, Composite - 0=good,1=bad Bit 1 – Commission Logical 1, Composite - 0=good,1=bad Bit 0 – Commission Logical 0, Composite - 0=good,1=bad
11	R/W	UINT32	4		0	Module Configuration (Module Specific) **CPU Module – Logical 0** Bits 31-3 – Not used – set to 0 Bit 2 – LED Control, 0=LEDs On, 1=LEDs OFF Bit 1 – Loop Output Voltage, 0=24v, 1=10v Bit 0 = CPU Sleep Mode – 0 = Disabled, 1=Enabled **LCD Controller – Logical 2** Bits 31-4 Not used – set to 0 Bit 3 – LCD Power Savings Mode, 1=Low Power Mode, 0 = Normal Mode Bit 2 – Port Control, 1=User C controls port, 0 = Normal Bit 1 – Mode, 1=BLM, 0 = Normal Bit 0 – Port Owner. 1=ROC/Modbus Slave, 0 = LCD Master **On-board 6 Pt I/O Module – Logical 4** Bits 31-8 – Not used – set to 0 Bit 7 – 0 AI2 250Ohm Installed, 1=250 Ohm Not nstalled Bit 6 – 0 AI1 250Ohm Installed, 1=250 Ohm Not Installed Bit 5 – 0=PI 2, 1=DI 4 Bit 4 – 0=PI 1, 1=DI 3 Bit 3 – 0=DO2 Bit 2 – 0=AO 1, 1=DO 1 Bit 1 – 0=AI 2, 1=DI 2 Bit 0 = 0=AI 1, 1=DI 1 **Auxiliary 6 Pt I/O Module – Logicals 5 – 11** Bits 31-8 – Not used – set to 0 Bit 7 – 0 AI2 250Ohm Installed, 1=250 Ohm Not Installed Bit 6 – 0 AI1 250Ohm Installed, 1=250 Ohm Not nstalled Bit 5 – 0=PI 2, 1=DI 4 Bit 4 – 0=PI 1, 1=DI 3 Bit 3 – 0=DO2 Bit 2 – 0=AO 1, 1=DO 1 Bit 1 – 0=AI 2, 1=DI 2 Bit 0 = 0=AI 1, 1=DI 1 **PIM Sensor – Logical 1** Bits 23-2 Reserved, set to 0

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
						Bit 1 – P2 Installed, 1=installed, 0 = not installed Bit 0 – P1 Installed, 1=installed, 0 = not installed **Note**: P1 or P2 installed = 1 is only set by the RTU when the sensors are detected. P1 or P2 installed = 0 is set by the User to “Uninstall” a sensor. **8 Point AI / DI Module – logicals 5-11** Bits 31-8 Reserved, set to 0 Bit 15 – 0 AI7 250Ohm Installed, 1=250 Ohm Not Installed Bit 14 – 0 AI6 250Ohm Installed, 1=250 Ohm Not Installed Bit 13 – 0 AI5 250Ohm Installed, 1=250 Ohm Not Installed Bit 12 – 0 AI4 250Ohm Installed, 1=250 Ohm Not Installed Bit 11 – 0 AI3 250Ohm Installed, 1=250 Ohm Not Installed Bit 9 – 0 AI2 250Ohm Installed, 1=250 Ohm Not Installed Bit 8 – 0 AI1 250Ohm Installed, 1=250 Ohm Not Installed Bit 7 – 0=AI 8, 1=DI 8 Bit 6 – 0=AI 7, 1=DI 7 Bit 5 – 0=AI 6, 1=DI 6 Bit 4 – 0=AI 5, 1=DI 5 Bit 3 – 0=AI 4, 1=DI 4 Bit 2 – 0=AI 3, 1=DI 3 Bit 1 – 0=AI 2, 1=DI 2 Bit 0 – 0=AI 1, 1=DI 1 **6 Point AO / DO Module – Logicals 5 - 11** Bits 31-6 – Not used – set to 0 Bit 5 – 0=AO 6, 1=DO 6 Bit 4 – 0=AO 5, 1=DO 5 Bit 3 – 0=AO 4, 1=DO 4 Bit 2 – 0=AO 3, 1=DO 3 Bit 1 – 0=AO 2, 1=DO 2 Bit 0 = 0=AO 1, 1=DO 1 **Wellhead Table Module – Logicals 5 - 11** Bits 31-8 Reserved – set to 0 Bit 7 – 0=AI4 250Ohm installed, 1=250Ohm not installed Bit 6 – 0=AI3 250Ohm installed, 1=250Ohm not installed Bit 5 – 0=AI2 250Ohm installed, 1=250Ohm not installed Bit 4 – 0=AI1 250Ohm installed, 1=250Ohm not installed Bit 3 – 0=AI 4, 1=DI 4 Bit 2 – 0=AI 3, 1=DI 3 Bit 1 – 0=AI 2, 1=DI 2 Bit 0 = 0=AI 1, 1=DI 1
					For IEC 62591 Modulle: 36863	**IEC62591 Module – Logicals 5—11** Bits 31-16 Reserved, set to 0 Bits 15—0 Network ID, valid range is 0-36863
					For NRM: Hop Key = 0 Network ID = 0	**Network Radio Module- Logicals 5-6** Bits 31-18 – Reserved; set to 0 Bits17-16 – Encryption Mode; 00 = None, 01 = 128, 10 = 256,

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
						11 = Not Configured Bits 15-8 – Frequency Hop Key; valid range is 0-14 Bits 7-0 – Network ID, valid range if 0-255
12	R/W	UINT32	4		For FB107: Logical 0: 1 Logical 2: 19200 For the FB107/104: 0 For IEC62591 Module: 0x44555354 For NRM: 0 (Slave)	Indicates the module-specific configuration. **CPU Module – Logical 0** Clock Speed : 0=3.6864 MHz 1=14.7456 MHz 2=29.4912 MHz **LCD Controller – Logical 2** Baud Rate: 9600 19200 38400 57600 **LCD Module – Logical 2** BLM List Scroll Rate in Seconds = 1-255 **IEC62591 Module – Logicals 5 – 11** Join Key (bytes 0-3) **Network Radio Module – Logicals 5-6** Network Access Point Selection Bit 0: 0=Slave, 1=Access Point Bit 1: 0=Time Sync Enabled, 1=Time Sync Disabled

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
13	R/W	UINT32	4	For Logical 3: 10 - 255	For FB107: Logical 0: 1 Logical 2: 19200 For the FB107/104: 2 Logical 3: 10 For ICE62591 Module: 0x44555354 For NRM: 0	Indicates the module-specific configuration: **CPU Module – Logical 0** System Scan Time for IO, PID and FST : 0=50 MS 1=100 MS 2=1000 MS **LCD Controller– Logical 2** Stop Bits: 1 or 2 **LCD/Touch Screen Module – Logical 3** Inactivity time for User Lists and Plate changes: Units are in minutes **IEC62591 Module** Join Key (bytes 4-7) **Network Radio Module – Logicals 5-6** Network Model: 0 = 1-12 devices 1 = 1-24 devices **Note**: This is writeable only when then NRM is the access point. The slave devices reflect back to this parameter what the access point currently is.
14	R/W	UINT32			For Logical 2: 8 For Logical 0: 0 For IEC62591 Module: 0x4f524b53 For NRM: 0	For General Use – Can be either Configuration or Status **CPU Module – Logical 0** Total number of Resets. **PIM – Logical 1** Rotation Direction: 0=Clockwise 1=Counter-clockwise **LCD Controller – Logical 2** Data Bits: 7 or 8 **IEC62591 Module – Logicals 5-11** Join Key (bytes 8-11) **Network Radio Module – Logicals 5-6** Bits 8-31 – reserved, set to 0 Bits 0-7 – Radio Transmit Power in dBm; minimum is 0 and maximum is 7.

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
15	R/W	UINT32			Logical 2: 0	For General Use – Can be either Configuration or Status **CPU Module – Logical 0** Reset Switch Real Time Status: 0 = Open 1 = Closed **LCD Controller– Logical 2** Parity: 0=none, 1=even, 2=odd **Application Modules – Logicals 5-11** Bit 8-31 = 0 Bit 0-7= Actual SAM Subtype code **Network Radio Module – Logicals 5-6** 1 = Force Time
16	R/W	UINT32			0	For General Use – Can be either Configuration or Status **Application Modules: Logicals 5-11** Bits 8-31 = 0 Bits 0-7 = Installed SAM Sub Type Code 0 = Not Used 1 = 485 GC Interface 2 = 485 Level Sensor Interface 3 = 485 Downhold Gauge Interface 5 = 485 Hart Communication 6 = 485 Coriolis Interface 7 = 485 Distillery Control **IEC62591 Module** *Status* Bit 7: 1=Radio Failiure Bit 6: 1=HART Server Failure *State* Bits 0-5: 0 = Initialization 1 = Detecting Radio 2 = Setting Network Configuration 3 = Waiting to Join Network 4 = Online **Network Radio Module – Logicals 5-6** Network Configuration Binary Time: Set by host.

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
17	R/W	FL	4		0.0	Module Diagnostic (Module Specific) **Integral Sensor – Logical 1** P1 or DP Sensor Range **Network Radio Module – Logicals 5-6** Noise Level – 0-127 All other modules – set to 0.0
18	R/W	FL	4		0.0	Module Diagnostic (Module Specific) **CPU Module – Logical 0** Battery Current in mA **Integral Sensor – Logical 1** P2 or AP Sensor Range **Network Radio Module – Logicals 5-6** Signal Strength – 0-127 All other modules – set to 0.0
19	R/W	FL			0.0	Module Diagnostic (Module Specific) **CPU Module – Logical 0** Average I/O Scan Time in Seconds **Network Radio Module – Logicals 5-6** Percent Good Packets All other modules – set to 0.0
20	R/W	UINT32	4		0	Module Diagnostic (Module Specific) **CPU Module – Logical 0** Number of Good IO SPI Messages **PIM Sensor – Logical 1** Last Rotation Time in MS **LCD Controller– Logical 2** Valid Receive Counter **HART Module – Logicals 5-11** Bit 29 – Passthru License Installed – 0=No, 1=Yes Bit 28 – Channel 4, Device 5 Status – 0=good,1=no comms Bit 27 – Channel 4, Device 4 Status – 0=good,1=no comms Bit 26 – Channel 4, Device 3 Status – 0=good,1=no comms Bit 25 – Channel 4, Device 2 Status – 0=good,1=no comms Bit 24 – Channel 4, Device 1 Status – 0=good,1=no comms Bit 20 – Channel 3, Device 5 Status – 0=good,1=no comms Bit 19 – Channel 3, Device 4 Status – 0=good,1=no comms

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
						Bit 18 – Channel 3, Device 3 Status – 0=good,1=no comms Bit 17 – Channel 3, Device 2 Status – 0=good,1=no comms Bit 16 – Channel 3, Device 1 Status – 0=good,1=no comms Bit 12 – Channel 2, Device 5 Status – 0=good,1=no comms Bit 11 – Channel 2, Device 4 Status – 0=good,1=no comms Bit 10 – Channel 2, Device 3 Status – 0=good,1=no comms Bit 9 – Channel 2, Device 2 Status – 0=good,1=no comms Bit 8 – Channel 2, Device 1 Status – 0=good,1=no comms Bit 4 – Channel 1, Device 5 Status – 0=good,1=no comms Bit 3 – Channel 1, Device 4 Status – 0=good,1=no comms Bit 2 – Channel 1, Device 3 Status – 0=good,1=no comms Bit 1 – Channel 1, Device 2 Status – 0=good,1=no comms Bit 0 – Channel 1, Device 1 Status – 0=good,1=no comms **IEC62591 Module – Logicals 5-11** Bit 20-23 Reserved, set to 0 Bit 19 – Commission Logical 19, Comm Error– 0=good,1=bad Bit 18 – Commission Logical 18, Comm Error– 0=good,1=bad Bit 17 – Commission Logical 17, Comm Error– 0=good,1=bad Bit 16 – Commission Logical 16, Comm Error– 0=good,1=bad Bit 15 – Commission Logical 15, Comm Error– 0=good,1=bad Bit 14 – Commission Logical 14, Comm Error– 0=good,1=bad Bit 13 – Commission Logical 13, Comm Error– 0=good,1=bad Bit 12 – Commission Logical 12, Comm Error– 0=good,1=bad Bit 11 – Commission Logical 11, Comm Error– 0=good,1=bad Bit 10 – Commission Logical 10, Comm Error– 0=good,1=bad Bit 9 – Commission Logical 9, Comm Error– 0=good,1=bad Bit 8 – Commission Logical 8, Comm Error– 0=good,1=bad Bit 7 – Commission Logical 7, Comm Error– 0=good,1=bad Bit 6 – Commission Logical 6, Comm Error– 0=good,1=bad Bit 5 – Commission Logical 5, Comm Error– 0=good,1=bad Bit 4 – Commission Logical 4, Comm Error– 0=good,1=bad Bit 3 – Commission Logical 3, Comm Error– 0=good,1=bad Bit 2 – Commission Logical 2, Comm Error– 0=good,1=bad Bit 1 – Commission Logical 1, Comm Error– 0=good,1=bad Bit 0 – Commission Logical 0, Comm Error– 0=good,1=bad **NIM Module – Logical 5-6** Bits 25-31 Reserved, set to 0 Bit 24 – Commission Logical 24, Comm Error 0=good,1=bad Bit 23 – Commission Logical 23, Comm Error 0=good,1=bad Bit 22 – Commission Logical 22, Comm Error 0=good,1=bad Bit 21 – Commission Logical 21, Comm Error 0=good,1=bad Bit 20 – Commission Logical 20, Comm Error 0=good,1=bad Bit 19 – Commission Logical 19, Comm Error 0=good,1=bad Bit 18 – Commission Logical 18, Comm Error 0=good,1=bad Bit 17 – Commission Logical 17, Comm Error 0=good,1=bad Bit 16 – Commission Logical 16, Comm Error 0=good,1=bad Bit 15 – Commission Logical 15, Comm Error 0=good,1=bad Bit 14 – Commission Logical 14, Comm Error 0=good,1=bad

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
						Bit 13 – Commission Logical 13, Comm Error 0=good,1=bad Bit 12 – Commission Logical 12, Comm Error 0=good,1=bad Bit 11 – Commission Logical 11, Comm Error 0=good,1=bad Bit 10 – Commission Logical 10, Comm Error 0=good,1=bad Bit 9 – Commission Logical 9, Comm Error 0=good,1=bad Bit 8 – Commission Logical 8, Comm Error 0=good,1=bad Bit 7 – Commission Logical 7, Comm Error 0=good,1=bad Bit 6 – Commission Logical 6, Comm Error 0=good,1=bad Bit 5 – Commission Logical 5, Comm Error 0=good,1=bad Bit 4 – Commission Logical 4, Comm Error 0=good,1=bad Bit 3 – Commission Logical 3, Comm Error 0=good,1=bad Bit 2 – Commission Logical 2, Comm Error 0=good,1=bad Bit 1 – Commission Logical 1, Comm Error 0=good,1=bad Bit 0 – Commission Logical 0, Comm Error 0=good,1=bad All other modules – not used , set to 0
21	R/W	UINT32	4		0	Module Diagnostic (Module Specific) **CPU Module – Logical 0** Number of Bad IO SPI Messages **PIM Sensor – Logical 1** Number of Switch Alignment Errors **LCD Controller– Logical 2** Receive Buffer Location – used for debugging LCD communications. **HART Module – Logicals 5-11** Bit 28 – Channel 4, Device 5 Field Err – 0=good,1= failed Bit 27 – Channel 4, Device 4 Field Err – 0=good,1= failed Bit 26 – Channel 4, Device 3 Field Err – 0=good,1= failed Bit 25 – Channel 4, Device 2 Field Err – 0=good,1= failed Bit 24 – Channel 4, Device 1 Field Err – 0=good,1= failed Bit 20 – Channel 3, Device 5 Field Err – 0=good,1= failed Bit 19 – Channel 3, Device 4 Field Err – 0=good,1= failed Bit 18 – Channel 3, Device 3 Field Err – 0=good,1= failed Bit 17 – Channel 3, Device 2 Field Err – 0=good,1= failed Bit 16 – Channel 3, Device 1 Field Err – 0=good,1= failed Bit 12 – Channel 2, Device 5 Field Err – 0=good,1= failed Bit 11 – Channel 2, Device 4 Field Err – 0=good,1= failed Bit 10 – Channel 2, Device 3 Field Err – 0=good,1= failed Bit 9 – Channel 2, Device 2 Field Err – 0=good,1= failed Bit 8 – Channel 2, Device 1 Field Err – 0=good,1= failed Bit 4 – Channel 1, Device 5 Field Err – 0=good,1= failed Bit 3 – Channel 1, Device 4 Field Err – 0=good,1= failed Bit 2 – Channel 1, Device 3 Field Err – 0=good,1= failed Bit 1 – Channel 1, Device 2 Field Err – 0=good,1= failed Bit 0 – Channel 1, Device 1 Field Err – 0=good,1= failed

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
						IEC62591 Module – Logicals 5-11 Bit 20-23 Reserved, set to 0 Bit 19 – Commission Logical 19, Field Error– 0=good,1=bad Bit 18 – Commission Logical 18, Field Error– 0=good,1=bad Bit 17 – Commission Logical 17, Field Error– 0=good,1=bad Bit 16 – Commission Logical 16, Field Error– 0=good,1=bad Bit 15 – Commission Logical 15, Field Error– 0=good,1=bad Bit 14 – Commission Logical 14, Field Error– 0=good,1=bad Bit 13 – Commission Logical 13, Field Error– 0=good,1=bad Bit 12 – Commission Logical 12, Field Error– 0=good,1=bad Bit 11 – Commission Logical 11, Field Error– 0=good,1=bad Bit 10 – Commission Logical 10, Field Error– 0=good,1=bad Bit 9 – Commission Logical 9, Field Error– 0=good,1=bad Bit 8 – Commission Logical 8, Field Error– 0=good,1=bad Bit 7 – Commission Logical 7, Field Error– 0=good,1=bad Bit 6 – Commission Logical 6, Field Error– 0=good,1=bad Bit 5 – Commission Logical 5, Field Error– 0=good,1=bad Bit 4 – Commission Logical 4, Field Error– 0=good,1=bad Bit 3 – Commission Logical 3, Field Error– 0=good,1=bad Bit 2 – Commission Logical 2, Field Error– 0=good,1=bad Bit 1 – Commission Logical 1, Field Error– 0=good,1=bad Bit 0 – Commission Logical 0, Field Error– 0=good,1=bad **NIM Module – Logicals 5-6** Bits 25-31 Reserved, set to 0 Bit 24 – Commission Logical 24, Integrity Err - 0=good,1=bad Bit 23 – Commission Logical 23, Integrity Err - 0=good,1=bad Bit 22 – Commission Logical 22, Integrity Err - 0=good,1=bad Bit 21 – Commission Logical 21, Integrity Err - 0=good,1=bad Bit 20 – Commission Logical 20, Integrity Err - 0=good,1=bad Bit 19 – Commission Logical 19, Integrity Err - 0=good,1=bad Bit 18 – Commission Logical 18, Integrity Err - 0=good,1=bad Bit 17 – Commission Logical 17, Integrity Err - 0=good,1=bad Bit 16 – Commission Logical 16, Integrity Err - 0=good,1=bad Bit 15 – Commission Logical 15, Integrity Err - 0=good,1=bad Bit 14 – Commission Logical 14, Integrity Err - 0=good,1=bad Bit 13 – Commission Logical 13, Integrity Err - 0=good,1=bad Bit 12 – Commission Logical 12, Integrity Err - 0=good,1=bad Bit 11 – Commission Logical 11, Integrity Err - 0=good,1=bad Bit 10 – Commission Logical 10, Integrity Err - 0=good,1=bad Bit 9 – Commission Logical 9, Integrity Err - 0=good,1=bad Bit 8 – Commission Logical 8, Integrity Err - 0=good,1=bad Bit 7 – Commission Logical 7, Integrity Err - 0=good,1=bad Bit 6 – Commission Logical 6, Integrity Err - 0=good,1=bad Bit 5 – Commission Logical 5, Integrity Err - 0=good,1=bad Bit 4 – Commission Logical 4, Integrity Err - 0=good,1=bad Bit 3 – Commission Logical 3, Integrity Err - 0=good,1=bad Bit 2 – Commission Logical 2, Integrity Err - 0=good,1=bad Bit 1 – Commission Logical 1, Integrity Err - 0=good,1=bad Bit 0 – Commission Logical 0, Integrity Err - 0=good,1=bad

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
						All other modules – not used , set to 0
22	R/W	UINT32	4		For IEC62591 Module: 0x524f434b	Module Diagnostic (Module Specific) **PIM Sensor – Logical 1** Current Switch Index – Range 0-39 **Backplane– Logical 2** Transmit Buffer Location – used for debugging LCD communications. **IEC62591 Module– Logicals 5-11** Join Key (bytes 12-15) **Network Radio Module – Logcals 5-6** Initialitze Network Import and Export Lists 1 = Initialize FB107 automatically clears parameter All other modules – not used , set to 0

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
23	R/W	UINT32	4			Module Diagnostic (Module Specific) **CPU Module – Logical 0** Total number of configuration bytes remaining. Set after last save to configuration memory. **Integral Sensor – Logical 1** P1 or DP Units Code 1=psig 2=psia 3=inh20 4=kpa 5=kpag 6=kpaa **IEC62591 Module– Logicals 5-11** Bytes 0-31: IEC62591 module ID used to form a long address for the HART PassThru requests directly to the interface. **Network Radio Module – Logicals 5-6** Network Status: 0 = Initializing 1 = Not Joined to Network 2 = Joined to Network – not commissioned 3 = Joined to Network and commissioned 128 = Radio Failure 129 = Invalid Network Configuration 130 = Backplan UART Failure 131 = Invalid Device ID All other modules – not used, set to 0
24	R/W	UINT32	4			Module Diagnostic (Module Specific) **CPU – Logical 0** Backplane Type: 2=FB10x – 6 logicals – 2 slots 4=FB107 – 8 logicals – 4 slots 8=FB107 – 12 logicals – 8 slots **Integral Sensor – Logical 1** P2 or SP Units Code 1=psig 2=psia 3=inh20 4=kpa 5=kpag 6=kpaa **Application Modules: Logicals 5-11** Module Failure Reason Code:

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
						0 – No Failure 1 – Fcode 32 Failed, SOS 2 – Fcode 32 Failed, Number Points > 18 3 – Fcode 33 Failed, SOS 4 – Fcode 33 Failed, Point Type <60 or >77 5 – Fcode 34 Failed, SOS 6 – Fcode 34 Failed, Display Number <60 or >77 7 – Fcode 35 Failed, SOS 8 – Fcode 36 Failed, SOS 9 – Memory Allocation Failed, Out of SAM Memory 10 – Fcode 38 Failed, SOS 11 – Fcode 38 Failed, parameter or logical out of range 12 – Fcode 38 Failed, Invalid TLP – point type not found 13 – Fcode 38 Failed, Invalid TLP – parameter bad 14 – Fcode 23 Failed, SOS 15 – Fcode 24 Failed, SOS 16 – Revision Mismatch 17 – Fcode 37 Failed, SOS **IEC62591 Module– Logicals 5-11** Bits 16-31 = 0 Bits 0-15 = ICE62591 Module type used to form a long address for the HART PassThru requests directly to the interface. **Network Radio Module – Logicals 5-11** Import Timeout 10-3600 All other modules – not used, set to 0
25	R/W	AC	20			Module Diagnostic (Module Specific) **LCD Controller– Logical 2** Unique ID of backplane **Application Modules – Logicals 5-11** Integrity Error String set by the SAM All other logicals - not specified – set to “ “
26	R/W	AC	10		Logical 3: “BLM List”	Module Diagnostic (Module Specific) **PIM Sensor – Logical 1** P1 Sensor Serial Number **LCD Module – logical 3** BLM Screen Title **Network Radio Module – Logicals 5-6** Radio Firmware Revision

Point Type 20, Diagnostic Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
27	R/W	AC	10			Module Diagnostic (Module Specific) **PIM Sensor – Logical 1** P2 Sensor Serial Number
28	R/W	AC	10			Boot revision string – all logical.
29	R/W	AC	20			Boot build date – all logicals
30	R/W	AC	20			**Application Module – Logicals 5-11** Installed module description strings All other logicals: set to “ “
31	R/W	UINT32	4			**CPU Module – Logical 0** RTU Network Passthru Lock Address Bits 16-31 = 0 Bits 0-15 = represents the address and group address of the source host device (such as ROCLINK). 0 = No lock. Any non-zero value means that only passthru messages originating from this address may be passed through. Reset does not clear the lock. **IEC62591 Module– Logicals 5-11** Active Advertising Enable 1 = Enabled 0 = Disabled **Network Radio Module – Logicals 5-6** Start Auto Discovery Sequence 1 = Start 2 = Stop **Note**: the FB107 automatically clears this parameter after the Auto Discovery sequence completes. All other modules: not used, set to 0.
32	R/W	UINT32	4			**Network Radio Module – Logicals 5-6** Radio Address All other modules: Not used, set to 0
33	R/W	FL	4			**Network Radio Module – Logicals 5-6** Reflected Power All other modules: Not used, set to 0
34	R/W	FL	4			**Network Radio Module – Logicals 5-6** RESERVED All other modules: Not used, set to 0
35	R/W	UINT32	4			**Network Radio Module – Logicals 5-6** ROC Device ID All other modules: Not used, set to 0

3.2.23 Point Type 21: Information for User Defined Points

Description: Point type 21 provides information for user-defined points.

Number of Logical Points: 20 configurable points may exist.

Table 3-28. Point Type 21, User Defined Point Information

Point Type 21, Information for User Defined Points

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/O	AC	20			Provides a point type description.
	R/W	AC	20	20 characters	“ “	For FB107: Provides a point type description
1	R/O	UINT32	4			Provides a template pointer
	R/W	UINT32	4		0	For the FB107: Provides a memory pointer to the parameter table of the point type
2	R/O	UINT8	1			Indicates the number of parameters
	R/W	UINT8	1			For FB107: Indicates the number of parameters in the point type
3	R/O	UNIT8	1			Indicates the display number (FloBoss 100-Series)
	R/W	UNIT8	1			For FB107: Indicates the display number assigned to the point type

3.2.24 Point Types 32 & 33: Modem Configuration -COMM 1 (Point Type 32) and LOI and COMM 2 (Point Type 33) (ROC300-Series and FloBoss 407)

Description: Point type 32 provides (for the ROC300-Series and FloBoss 407) modem configuration parameters for COMM 1 and point type 33 provides modem configuration parameters for LOI and COMM 2.

Table 3-29. Point Types 32, Modem Configuration (COMM 1) and 33, Modem Configuration (LOI and COMM2)

Point Types 32 & 33, Modem Configuration (32 = COMM 1, 33 = LOI and COMM 2) (ROC300-Series and FloBoss 407)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	INT8	1			Indicates modem status
1	R/W	AC	1			Indicates modem type
2	R/W	UINT16	2			Indicates connect time
3	R/W	AC	30			Indicates the configuration command
4	R/W	UINT8	1			Indicates 1st RTU Address
5	R/W	UINT8	1			Indicates 2nd RTU Address
6	R/W	UINT8	1			Indicates 3rd RTU Address
7	R/W	UINT8	1			Indicates 4th RTU Address
8	R/W	UINT8	1			Indicates 5th RTU Address
9	R/W	UINT8	1			Indicates 6th RTU Address
10	R/W	AC	30			Indicates 1st connect command
11	R/W	AC	30			Indicates 2nd connect command
12	R/W	AC	30			Indicates 3rd connect command
13	R/W	AC	30			Indicates 4th connect command
14	R/W	AC	30			Indicates 5th connect command
15	R/W	AC	30			Indicates 6th connect command
16	R/W	INT16	2			Indicates the disconnect time

3.2.25 Point Types 34 & 37: Modbus Configuration -COMM 1 (Point Type 34) and LOI and COMM 2 (Point Type 37)

Description: Point type 34 provides (for the ROC300-Series and FloBoss 407) Modbus configuration parameters for COMM 1. Point type 37 provides Modbus configuration parameters for LOI and COMM 2.

Table 3-30. Point Types 34, Modbus Configuration (COMM 1) and 37, Modbus Configuration (LOI and COMM 2)

Point Types 34 & 37, Modbus Configuration (34 = COMM 1, 37 = LOI and COMM 2) (ROC300-Series and FloBoss 407)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	UINT8	1			ASCII = 0, RTU = 1
1	R/W	UINT8	1			Byte Order 1 = MSB 1st
2	R/W	UINT8	1			Host Enable = 1
3	R/W	UINT8	1			Log Data 1 = Yes
4	R/W	UINT8	1			Init Memory = 1
5	R/W	UINT8	1			Port Switch Enabled = 1
6	R/W	UINT16	2			DCD = 0, DI =1, SPT = 2
7	R/W	UINT8	2			Modbus baud rate
8	R/W	UINT8	2			Switch baud rate
9	R/W	UINT8	2			Input data start
10	R/W	UINT8	2			Output data start
11	R/W	INT16	2			HI Integer Scale
12	R/W	INT16	2			LOW Integer Scale
13	R/W	FLP	4			HI Float Scale 1
14	R/W	FLP	4			LO Float Scale 1
15	R/W	FLP	4			HI Float Scale 2
16	R/W	FLP	4			LO Float Scale 2
17	R/W	FLP	4			HI Float Scale 3
18	R/W	FLP	4			LO Float Scale 3
19	R/W	FLP	4			HI Float Scale 4
20	R/W	FLP	4			LO Float Scale 4
21	R/W	FLP	4			HI Float Scale 5
22	R/W	FLP	4			LO Float Scale 5
23	R/W	FLP	4			HI Float Scale 6
24	R/W	FLP	4			LO Float Scale 6
25	R/W	FLP	4			HI Float Scale 7
26	R/W	FLP	4			LO Float Scale 7
27	R/W	FLP	4			HI Float Scale 8

Point Types 34 & 37, Modbus Configuration (34 = COMM 1, 37 = LOI and COMM 2) (ROC300-Series and FloBoss 407)

Parameter#	Access	Data Type	Length	Range	Default	Description
28	R/W	FLP	4			LO Float Scale 8

3.2.26 Point Types 35 & 38: Function Configuration -COMM 1 (Point Type 35) and LOI and COMM 2 (Point Type 38)

Description: Point type 35 provides (for the ROC300-Series and FloBoss 407) function configuration parameters for COMM 1. Point type 38 provides function configuration parameters for LOI and COMM 2.

Table 3-31. Point Types 35, Function Configuration (COMM 1) and 38, Function Configuration (LOI and COMM 2)

Point Types 35 & 38, Function Configuration (35 = COMM 1, 38 = LOI and COMM 2) (ROC300-Series and FloBoss 407)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/O	AC	10			Identifies function tag
1	R/W	UINT16	2			Start Address 1
2	R/W	UINT16	2			End Address 1
3	R/W	UINT8	1			Type
4	R/W	UINT8	1			Logical Number
5	R/W	UINT8	1			Parameter
6	R/W	UINT8	1			Conversion
7	R/W	UINT16	2			Start Address 2
8	R/W	UINT16	2			End Address 2
9	R/W	UINT8	1			Type
10	R/W	UINT8	1			Logical Number
11	R/W	UINT8	1			Parameter
12	R/W	UINT8	1			Conversion
13	R/W	UINT16	2			Start Address 3
14	R/W	UINT16	2			End Address 3
15	R/W	UINT8	1			Type
16	R/W	UINT8	1			Logical Number
17	R/W	UINT8	1			Parameter
18	R/W	UINT8	1			Conversion
19	R/W	UINT16	2			Start Address 4
20	R/W	UINT16	2			End Address 4
21	R/W	UINT8	1			Type
22	R/W	UINT8	1			Logical Number
23	R/W	UINT8	1			Parameter
24	R/W	UINT8	1			Conversion
25	R/W	UINT16	2			Start Address 5
26	R/W	UINT16	2			End Address 5
27	R/W	UINT8	1			Type

Point Types 35 & 38, Function Configuration (35 = COMM 1, 38 = LOI and COMM 2) (ROC300-Series and FloBoss 407)

Parameter#	Access	Data Type	Length	Range	Default	Description
28	R/W	UINT8	1			Logical Number
29	R/W	UINT8	1			Parameter
30	R/W	UINT8	1			Conversion
31	R/W	UINT16	2			Start Address 6
32	R/W	UINT16	2			End Address 6
33	R/W	UINT8	1			Type
34	R/W	UINT8	1			Logical Number
35	R/W	UINT8	1			Parameter
36	R/W	UINT8	1			Conversion
37	R/W	UINT16	2			Start Address 7
38	R/W	UINT16	2			End Address 7
39	R/W	UINT8	1			Type
40	R/W	UINT8	1			Logical Number
41	R/W	UINT8	1			Parameter
42	R/W	UINT8	1			Conversion
43	R/W	UINT16	2			Start Address 8
44	R/W	UINT16	2			End Address 8
45	R/W	UINT8	1			Type
46	R/W	UINT8	1			Logical Number
47	R/W	UINT8	1			Parameter
48	R/W	UINT8	1			Conversion
49	R/W	UINT16	2			Start Address 9
50	R/W	UINT16	2			End Address 9
51	R/W	UINT8	1			Type
52	R/W	UINT8	1			Logical Number
53	R/W	UINT8	1			Parameter
54	R/W	UINT8	1			Conversion
55	R/W	UINT16	2			Start Address 10
56	R/W	UINT16	2			End Address 10
57	R/W	UINT8	1			Type
58	R/W	UINT8	1			Logical Number
59	R/W	UINT8	1			Parameter
60	R/W	UINT8	1			Conversion

3.2.27 Point Types 36 & 39: Host Configuration - COMM 1 (Point Type 36) and LOI and COMM 2 (Point Type 39)

Description: Point type 36 provides (for the ROC300-Series and FloBoss 407) host configuration parameters for COMM 1. Point type 39 provides host configuration parameters for LOI and COMM 2.

Table 3-32. Point Types 36, Host Configuration (COMM 1) and 39, Host Configuration (LOI and COMM 2)

Point Types 36 & 39, Host Configuration (36 = COMM 1, 39 = LOI and COMM 2) (ROC300-Series and FloBoss 407)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/O	AC	10			Identifes host tag
1	R/W	UINT8	1			0 RTU Address
2	R/W	UINT8	1			0 Function Number
3	R/W	UINT16	2			0 Register Number
4	R/W	UINT16	2			0 Save Number
5	R/W	UINT8	1			0 Number of Registers
6	R/W	UINT8	1			0 Status
7	R/W	UINT8	1			1 RTU Address
8	R/W	UINT8	1			1 Function Number
9	R/W	UINT16	2			1 Register Number
10	R/W	UINT16	2			1 Save Number
11	R/W	UINT8	1			1 Number of Registers
12	R/W	UINT8	1			1 Status
13	R/W	UINT8	1			2 RTU Address
14	R/W	UINT8	1			2 Function Number
15	R/W	UINT16	2			2 Register Number
16	R/W	UINT16	2			2 Save Number
17	R/W	UINT8	1			2 Number of Registers
18	R/W	UINT8	1			2 Status
19	R/W	UINT8	1			3 RTU Address
20	R/W	UINT8	1			3 Function Number
21	R/W	UINT16	2			3 Register Number
22	R/W	UINT16	2			3 Save Number
23	R/W	UINT8	1			3 Number of Registers
24	R/W	UINT8	1			3 Status
25	R/W	UINT8	1			4 RTU Address
26	R/W	UINT8	1			4 Function Number
27	R/W	UINT16	2			4 Register Number

Point Types 36 & 39, Host Configuration (36 = COMM 1, 39 = LOI and COMM 2) (ROC300-Series and FloBoss 407)

Parameter#	Access	Data Type	Length	Range	Default	Description
28	R/W	UINT16	2			4 Save Number
29	R/W	UINT8	1			4 Number of Registers
30	R/W	UINT8	1			4 Status
31	R/W	UINT8	1			5 RTU Address
32	R/W	UINT8	1			5 Function Number
33	R/W	UINT16	2			5 Register Number
34	R/W	UINT16	2			5 Save Number
35	R/W	UINT8	1			5 Number of Registers
36	R/W	UINT8	1			5 Status
37	R/W	UINT8	1			6 RTU Address
38	R/W	UINT8	1			6 Function Number
39	R/W	UINT16	2			6 Register Number
40	R/W	UINT16	2			6 Save Number
41	R/W	UINT8	1			6 Number of Registers
42	R/W	UINT8	1			6 Status
43	R/W	UINT8	1			7 RTU Address
44	R/W	UINT8	1			7 Function Number
45	R/W	UINT16	2			7 Register Number
46	R/W	UINT16	2			7 Save Number
47	R/W	UINT8	1			7 Number of Registers
48	R/W	UINT8	1			7 Status
49	R/W	UINT8	1			8 RTU Address
50	R/W	UINT8	1			8 Function Number
51	R/W	UINT16	2			8 Register Number
52	R/W	UINT16	2			8 Save Number
53	R/W	UINT8	1			8 Number of Registers
54	R/W	UINT8	1			8 Status
55	R/W	UINT8	1			9 RTU Address
56	R/W	UINT8	1			8 Function Number
57	R/W	UINT16	2			9 Register Number
58	R/W	UINT16	2			9 Save Number
59	R/W	UINT8	1			9 Number of Registers
60	R/W	UINT8	1			9 Status

3.2.28 Point Type 40: Multi-variable Sensor Parameters

Description: Point type 40 provides parameters for the Multi-variable sensor.

Number of Logical Points: 6 configurable points may exist (for MVS sensors 1-6).

Table 3-33. Point Type 40, Multi-variable Sensor Parameters

Point Type 40, Multi-variable Sensor Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	10 characters	For FB107: see description	Provides point tag ID. For FB107, default values are: Logical 0: “MVS#1…..” Logical 1: “MVS#2…..” Logical 2: “MVS#3…..” Logical 3: “MVS#4…..” Logical 4: “MVS#5…..” Logical 5: “MVS#6…..”
1	R/W	UINT8	1	For FB107: 0 → 255	For FB107: see description	Sensor address Logical 0: 240 Logical 1-5: 0
2	R/W	BIN	1	For FB107: NA	For FB107: 0x00	Sensor Configuration: Bit 7: Sensor Type (FB107) 0=MVS205 1=3095FB Not Used (All others) Bits 6 through 4 – Not Used Bit 3 Failure Mode (MVS205 version 1.03 or greater) 0 = Set to fault value on failure 1 = Hold last value on failure Bit 2 (MVS205 version 1.03 or greater) 0 = Upstream 1 = Downstream Bit 1: Calibration Temperature 0 = H_2O at 15.4°C (60°F) 1 = H_2O at 19.8°C (68°F) Bit 0: Units of Measure 0 = Imperial US 1 = Metric Units
3	R/W	UINT8	1	0 → 6	0	Poll Mode, indicated by user-entered value: 0 = Off Scan 1 = Normal Poll 2 = Input Freeze 3 = Not Used 4 = Poll for Configuration 5 = Set Tag and Address 6 = Calibrate

Point Type 40, Multi-variable Sensor Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
4	R/O	UINT8	1	0 → 255	0	Interface revision
5	R/O	BIN	1		For FB107: 0x00	Sensor Status Bit 7; Off Scan Flag 0 = On Scan 1 = Off Scan Bit 6 = 485 Comm Fail 0 = Good 1 = Fail Bit 5 = Sensor Comm Fail 0 = Good 1 = Fail Bit 4 = Input Freeze Flag 0 = Normal 1 = Freeze Bit 3 = Not Used Bit 2 = PT Fail 0 = Good 1 = Fail Bit 1 = AP Fail 0 = Good 1 = Fail Bit 0 = DP Fail 0 = Good 1 = Fail
6	R/O	BIN	1			Sensor Alarms Bit 7 = Off Scan Bit 6 = 485 Comm Fail Bit 5 = Sensor Comm Fail Bit 4 = Input Frozen Bit 3 = Not Used Bit 2 = PT Fail Bit 1 = AP Fail Bit 0 = DP Fail
	R/O	BIN	1	For FB107: NA	For FB107: 0x00	Sensor Alarms Bit 7 & 6:= Not used Bit 5 = PT High Alarm Bit 4 = AP High Alarm Bit 3 = DP High Alarm Bit 2 = PT Low Alarm Bit 1 = AP Low Alarm Bit 0 = DP Low Alarn
7	R/W	FL	4	For FB107: NA	For FB107: 0.0	Sensor Voltage
8	R/W	FL	4	For FB107: NA	For FB107: 0.0	Differential Pressure (DP) Reading
9	R/W	FL	4	For FB107: NA	For FB107: 0.0	Statis Pressure (AP) Reading
10	R/W	FL	4	For FB107: NA	For FB107: 0.0	Temperature (PT) Reading
11	R/W	FL	4	For FB107: NA	For FB107: 0.0	DP Reverse Flow

Point Type 40, Multi-variable Sensor Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
12	R/O	FL	4	For FB107: NA	For FB107: 0.0	Statis Pressure Effect (Zero Shift)
13	R/O	FL	4	For FB107: NA	For FB107: 0.0	DP Minimum Calibration Point Value
14	R/O	FL	4	For FB107: NA	For FB107: 0.0	DP Mid Point 1 Calibration Value
15	R/O	FL	4	For FB107: NA	For FB107: 0.0	DP Mid Point 2 Calibration Value
16	R/O	FL	4	For FB107: NA	For FB107: 0.0	DP Mid Point 3 Calibration Value
17	R/O	FL	4	For FB107: NA	For FB107: 0.0	DP Maximum Calibration Point Value
18	R/O	FL	4	For FB107: NA	For FB107: 0.0	AP Minimum Calibration Point Value
19	R/O	FL	4	For FB107: NA	For FB107: 0.0	AP Mid Point 1 Calibration Value
20	R/O	FL	4	For FB107: NA	For FB107: 0.0	AP Mid Point 2 Calibration Value
21	R/O	FL	4	For FB107: NA	For FB107: 0.0	AP Mid Point 3Calibration Value
22	R/O	FL	4	For FB107: NA	For FB107: 0.0	AP Maximum Calibration Point Value
23	R/O	FL	4	For FB107: NA	For FB107: 0.0	PT Minimum Calibration Point Value
24	R/O	FL	4	For FB107: NA	For FB107: 0.0	PT Mid Point 1 Calibration Value
25	R/O	FL	4	For FB107: NA	For FB107: 0.0	PT Mid Point 2 Calibration Value
26	R/O	FL	4	For FB107: NA	For FB107: 0.0	PT Mid Point 3 Calibration Value
27	R/O	FL	4	For FB107: NA	For FB107: 0.0	PT Maximum Calibration Point Value
28	R/W	UINT8	1	For FB107: NA	For FB107: 0	Calibration Command
29	R/W	UNIT8	1	For FB107: NA	For FB107: 0	Calibration Type
30	R/W	FL	4	For FB107: NA	For FB107: 0.0	Calibrate Set Value
31	R/W	FL	4	For FB107: NA	For FB107: 0.0	Manual DP Value
32	R/W	FL	4	For FB107: NA	For FB107: 0.0	Manual AP Value
33	R/W	FL	4	For FB107: NA	For FB107: 0.0	Manual PT ValueS
34	R/W	BIN	1	For FB107: NA	For FB107: 0x00	DP Mode: Bit 7 – Not Used Bit 6 – SRBX on Set (All inputs) 0 = Disable 1 = Enable Bit 5 – SRBX on Clear (All inputs) 0 = Disable 1 = Enable Bit 4 – DP Alarm Enable 0 = Disable Alarm 1 = Enable Alarm Bits 3 through 1– Not Used Bit 0 – Sensor Alarms Enable (All inputs) 0 = Disable Alarm 1 = Enable Alarm

Point Type 40, Multi-variable Sensor Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
35	R/O	BIN	1	For FB107: NA	For FB107: 0x00	DP Alarm Code: Bit 6 = Point Fail Bit 2 = High Alarm Bit 0 = Low Alarm Bits 7, 5, 4, 3, and 1 – Not Used
36	R/W	FL	4	For FB107: NA	For FB107: 0.0	DP Low Alarm
37	R/W	FL	4	For FB107: NA	For FB107: 0.0	DP High Alarm
38	R/W	FL	4	For FB107: NA	For FB107: 0.0	DP Deadband
39	R/W	FL	4	For FB107: NA	For FB107: 0.0	DP Alarm Fault Value
40	R/W	BIN	1	For FB107: NA	For FB107: 0x00	AP Mode: Bit 4 – Alarm Enable 0 = Disable Alarm 1 = Enable Alarm Bits 7, 6, 5, 3, 2, 1, and 0 – Not Used
41	R/O	BIN	1	For FB107: NA	For FB107: 0x00	AP Alarm Code: Bit 0 – Low Alarm Bit 2 – High Alarm Bit 6 – Point Fail Bits 7, 5, 4, 3, and 1 – Not Used
42	R/W	FL	4	For FB107: NA	For FB107: 0.0	AP Low Alarm
43	R/W	FL	4	For FB107: NA	For FB107: 0.0	AP High Alarm
44	R/W	FL	4	For FB107: NA	For FB107: 0.0	AP Deadband
45	R/W	FL	4	For FB107: NA	For FB107: 0.0	AP Alarm Fault Value
46	R/W	BIN	1	For FB107: NA	For FB107: 0x00	PT Mode: Bit 4 – Alarm Enable 0 = Disable Alarm 1 = Enable Alarm Bits 7, 6, 5, 3, 2, 1, and 0 – Not Used
47	R/O	BIN	1	For FB107: NA	For FB107: 0x00	PT Alarm Code: Bit 0 = Low Alarm Bit 2 = High Alarm Bit 6 = Point Fail Bits 7, 5, 4, 3, and 1 – Not Used
48	R/W	FL	4	For FB107: NA	For FB107: 0.0	PT Low Alarm
49	R/W	FL	4	For FB107: NA	For FB107: 0.0	PT High Alarm
50	R/W	FL	4	For FB107: NA	For FB107: 0.0	PT Deadband
51	R/W	FL	4	For FB107: NA	For FB107: 0.0	PT Fault Value
52	R/O	FL	4			PT Bias (FloBoss 407 version 1.10 or greater)
	R/W	FL	4	For FB107: NA	For FB107: 0.0	PT Bias (FloBoss 107)

Point Type 40, Multi-variable Sensor Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
53	R/O	FL	4			AP Offset (FloBoss 407 version 1.12 or greater and FloBoss 107)
	R/W	FL	4	For FB107: NA	For FB107: 0.0	Static Pressure Offset (for FB107)
54	R/O	UINT16	2	0-65535	0	Configuration Change Counter
55	R/O	UINT8	1	0 - 4	0	Sensor Type 0 = Unknown 1 = 4088A 2 = 4088B 3 = R3095 4 = MVS205

3.2.29 Point Type 41: Run Parameters

Description: Point type 41 provides run parameters.

Note: For the FloBoss 107, this point type has been replaced by point types 8 and 46. Where applicable, point type 46 parameters map to corresponding point type 41 parameters. For defaults and ranges on point type 41, refer to point types 46 and 47. **As of version 2.00 or greater, point type 41 has been deleted**.

Number of Logical Points: 4 configurable points may exist.

Table 3-34. Point Type 41, Run Parameters

Point Type 41, Run Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10			Identifes point tag
1	R/W	FL	4			Indicates atmospheric pressure
2	R/W	BIN	1			Calculation Method II: Bit 7 – K Factor Calculation (FloBoss 500-series version 2.40 and greater and FloBoss 100-series) 0 = Single K Factor Calculation 1= Multiple K Factor Calculation Bit 7 – Not Used (ROC300-series, FloBoss 407, FloBoss 500-series version 2.30 and earlier and RegFlo) Bit 6 – Not Used Bit 5 – Gas Quality Input Mode (FloBoss 500-series version 2.40 and greater and FloBoss 100-series) Bit 5 – Not Used (ROC300-series, FloBoss 407, FloBoss 500-series version 2.30 and earlier and RegFlo) Bit 4 – BTU Dry or Wet Override 0 = See Bit 3 1 = BTU as Delivered Bit 3 – BTU Dry or Wet Basis 0 = BTU Dry 1 = BTU Wet Bit 2 – Atmospheric Pressure Source 0 = Calculated 1 = Enter Atmospheric Pressure Bit 1 – AGA8 Gross Characterization Method 0 = Gross Method II 1 = Gross Method I Bit 0 – AGA8 Characterization Method 0 = Detailed Method 1 = Gross Method
	R/W	RIN	1			For FB107: Configuration statuses Byte 2
3	R/O	TLP	3			Not used
4	R/W	FL	4			Indicates pipe reference temperature (in deg F)– AGA 1992

Point Type 41, Run Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
5	R/W	UINT8	1			Indicates pipe material (AGA 1992). Valid values are: 0 = Stainless Steel) 1 = Monel 2 = Carbon steel
6	R/O	UINT8	1			Not Used
7	R/W	FL	4			Indicates type of meter. If orifice. Fb = AGA 1985 (ROC300-Series only) Fn = AGA 1992 (ROC300-Series only) If turbine: Ftm = (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			For FloBoss 100-Series and FloBoss 500-Series: Orifice: Cd – AGA 1992 Turbine: Ftm
8	R/W	FL	4			Fr = AGA 1985 (ROC300-Series only) Reynolds Number – AGA 1992 (ROC300-Series and FloBoss 407)
	R/O	FL	4			Reynolds Number (FloBoss 100-Series and FloBoss 500-Series
9	R/W	FL	4			(ROC300-Series and FloBoss 407) Orifice: Expansion Factor (Y) Turbine: Fpm
	R/O	FL	4			FloBoss 100-Series and FloBoss 500-Series: Oifice: Expansion Factor (Y) Turbine: Fpm
10	R/W	FL	4			Fpb Factor (ROC300-Series and FloBoss 407)
	R/O	FL	4			Fpb Factor (FloBoss 100-Series and FloBoss 500-Series)
11	R/W	FL	4			Ftp Factor (ROC300-Series and FloBoss 407)
	R/O	FL	4			Ftb Factor (FloBoss 100-Series and FloBoss 500-Series)
12	R/W	FL	4			Ftf Factor (ROC300-Series and FloBoss 407)
	R/O	FL	4			Ftf Factor (FloBoss 100-Series and FloBoss 500-Series)
13	R/W	FL	4			Fgr Fator (ROC300-Series and FloBoss 407)
	R/O	FL	4			Fgr Factor (FloBoss 100-Series and FloBoss 500-Series)
14	R/W	FL	4			Fpv (Compressibility) Factor (ROC300-Series and FloBoss 407)
	R/O	FL	4			Fpv (Compressibility) Factor (FloBoss 100-Series and FloBoss 500-Series)

Point Type 41, Run Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
15	R/W	UINT8	4			History Point 1 (ROC300-Series and FloBoss 407)
	R/O	UINT8	4			History Point 1 (FloBoss 500-Series, FloBoss 100-Series, and RegFlo) Not used – always 0
16	R/W	UINT8	1			RollUp (ROC300-Series and FloBoss 407). Valid values are: 0 = Flow-dependent time-weighted linear average 1 = Flow-dependent time-weighted formulaic average 2 = Flow-weighted linear average 3 = Flow-weighted formulaic average 4 = Accumulation 5 = Flow minute totalization
	R/O	UINT8	1			RollUp (FloBoss 500-Series, FloBoss 100-Series, and RegFlo) Not used; always 0
17	R/W	TLP	3			TLP of parameter to be archived (ROC300-Series and FloBoss 407)
	R/O	TLP	3			TLP (FloBoss 500-Series, FloBoss 100-Series, and RegFlo) Not used; always 0,0,0
18	R/W	FL	4			Conversion (ROC300-Series and FloBoss 407): When rollup is averaging type: Orifice = 0.5 Turbine = 1.0 When rollup is Accumulate: 1.0 = Accumulate in seconds 2.0 = Accumulate in minutes 3.0 = Accumulate in hours 4.0 = Accumlated in days
	R/O	FL	4			Conversion (FloBoss 500-Series, FloBoss 100-Series, and RegFlo) Not used; always 0
19	R/W	UINT8	1			History Point 2 (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			History Point 2 (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
20	R/W	UINT8	1			RollUp (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			RollUp (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
21	R/W	TLP	3			TLP (ROC300-Series and FloBoss 407)
	R/O	TLP	3			TLP (FloBoss 500-Sereis, FloBoss 100-Series, and RegFlo)
22	R/W	FL	4			Conversion (ROC300-Series and FloBoss 407)
	R/O	FL	4			Conversion (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)

Point Type 41, Run Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
23	R/W	UINT8	1			History Point 3 (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			History Point 3 (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
24	R/W	UINT8	1			RollUp (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			RollUp (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
25	R/W	TLP	3			TLP (ROC300-Series and FloBoss 407)
	R/O	TLP	3			TLP (FloBoss 500-Sereis, FloBoss 100-Series, and RegFlo)
26	R/W	FL	4			Conversion (ROC300-Series and FloBoss 407)
	R/O	FL	4			Conversion (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
27	R/W	UINT8	1			History Point 4 (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			History Point 4 (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
28	R/W	UINT8	1			RollUp (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			RollUp (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
29	R/W	TLP	3			TLP (ROC300-Series and FloBoss 407)
	R/O	TLP	3			TLP (FloBoss 500-Sereis, FloBoss 100-Series, and RegFlo)
30	R/W	FL	4			Conversion (ROC300-Series and FloBoss 407)
	R/O	FL	4			Conversion (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
31	R/W	UINT8	1			History Point 5 (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			History Point 5 (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
32	R/W	UINT8	1			RollUp (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			RollUp (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
33	R/W	TLP	3			TLP (ROC300-Series and FloBoss 407)
	R/O	TLP	3			TLP (FloBoss 500-Sereis, FloBoss 100-Series, and RegFlo)
34	R/W	FL	4			Conversion (ROC300-Series and FloBoss 407)
	R/O	FL	4			Conversion (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
35	R/W	UINT8	1			History Point 6 (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			History Point 6 (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
36	R/W	UINT8	1			RollUp (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			RollUp (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
37	R/W	TLP	3			TLP (ROC300-Series and FloBoss 407)
	R/O	TLP	3			TLP (FloBoss 500-Sereis, FloBoss 100-Series, and RegFlo)

Point Type 41, Run Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
38	R/W	FL	4			Conversion (ROC300-Series and FloBoss 407)
	R/O	FL	4			Conversion (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
39	R/W	UINT8	1			History Point 7 (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			History Point 7 (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
40	R/W	UINT8	1			RollUp (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			RollUp (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
41	R/W	TLP	3			TLP (ROC300-Series and FloBoss 407)
	R/O	TLP	3			TLP (FloBoss 500-Sereis, FloBoss 100-Series, and RegFlo)
42	R/W	FL	4			Conversion (ROC300-Series and FloBoss 407)
	R/O	FL	4			Conversion (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
43	R/W	UINT8	1			History Point 8 (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			History Point 8 (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
44	R/W	UINT8	1			RollUp (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			RollUp (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
45	R/W	TLP	3			TLP (ROC300-Series and FloBoss 407)
	R/O	TLP	3			TLP (FloBoss 500-Sereis, FloBoss 100-Series, and RegFlo)
46	R/W	FL	4			Conversion (ROC300-Series and FloBoss 407)
	R/O	FL	4			Conversion (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
47	R/W	UINT8	1			History Point 9 (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			History Point 9 (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
48	R/W	UINT8	1			RollUp (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			RollUp (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
49	R/W	TLP	3			TLP (ROC300-Series and FloBoss 407)
	R/O	TLP	3			TLP (FloBoss 500-Sereis, FloBoss 100-Series, and RegFlo)
50	R/W	FL	4			Conversion (ROC300-Series and FloBoss 407)
	R/O	FL	4			Conversion (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
51	R/W	UINT8	1			History Point 10 (ROC300-Series and FloBoss 407)
	R/O	UINT8	1			History Point 10 (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
52	R/W	UINT8	1			RollUp (ROC300-Series and FloBoss 407)

Point Type 41, Run Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
	R/O	UINT8	1			RollUp (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
53	R/W	TLP	3			TLP (ROC300-Series and FloBoss 407)
	R/O	TLP	3			TLP (FloBoss 500-Sereis, FloBoss 100-Series, and RegFlo)
54	R/W	FL	4			Conversion (ROC300-Series and FloBoss 407)
	R/O	FL	4			Conversion (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
55	R/W	UINT8	1			History Point 11 (ROC300-Series with a FlashPAC)
56	R/W	UINT8	2			RollUp
57	R/W	TLP	3			TLP
58	R/W	FL	4			Conversion
59	R/W	UINT8	1			History Point 12 (ROC300-Series with a FlashPAC)
60	R/W	UINT8	2			RollUp
61	R/W	TLP	3			TLP
62	R/W	FL	4			Conversion
63	R/W	UINT8	1			History Point 13 (ROC300-Series with a FlashPAC)
64	R/W	UINT8	2			RollUp
65	R/W	TLP	3			TLP
66	R/W	FL	4			Conversion
67	R/W	UINT8	1			History Point 14 (ROC300-Series with a FlashPAC)
68	R/W	UINT8	2			RollUp
69	R/W	TLP	3			TLP
70	R/W	FL	4			Conversion
71	R/W	UINT8	1			History Point 15 (ROC300-Series with a FlashPAC)
72	R/W	UINT8	2			RollUp
73	R/W	TLP	3			TLP
74	R/W	FL	4			Conversion
75	R/W	UINT8	1			History Point 16 (ROC300-Series with a FlashPAC)
76	R/W	UINT8	2			RollUp
77	R/W	TLP	3			TLP
78	R/W	FLP	4			Conversion

3.2.30 Point Type 42: Extra AGA Run Parameters

Description: Point type 42 provides extra AGA run parameters.

Note: For FloBoss 107, this point type has been replaced by point type 47. Where applicable, point type 42 parameters map to point type 47 parameters. **As of version 2.00 or greater, point type 42 has been deleted.**

Number of Logical Points: 4 configurable points may exist.

Table 3-35. Point Type 42, Extra Run Parameters

Point Type 42, Extra AGA Run Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10			Identifes point tag
1	R/W	FLP	4			Flow Today - MCF (km3) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Flow Today – MCF (km3) (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
2	R/W	FLP	4			Flow Yesterday - MCF (km3) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Flow Yesterday – MCF (km3) (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
3	R/W	FLP	4			Flow Month - MCF (km3) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Flow Month – MCF (km3) (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
	R/W	UINT32	4			Flow Month – MCF (km3) (Industry Canada) (ROC300-Series and FloBoss 407)
4	R/W	FLP	4			Flow Previous Month - MCF (km3) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Flow Previous Month – MCF (km3) (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
	R/W	UINT32	4			Flow Previous Month – MCF (km3) (Industry Canada) (ROC300-Series and FloBoss 407)
5	R/W	FLP	4			Flow Accumulated (rollover at 1,000,000) - MCF (km3) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Flow Accumulated (rollover at 1,000,000) - MCF (km3) (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
	R/W	UINT32	4			Flow Accumulated (rollover at 1,000,000) - MCF (km3) (Indusry Canada) (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
6	R/W	FLP	4			Minutes Today (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Minutes Today (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)

Point Type 42, Extra AGA Run Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
7	R/W	FLP	4			Minutes Yesterday (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Minutes Yesterday (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
8	R/W	FLP	4			Minutes Month (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Minutes Month (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
9	R/W	FLP	4			Minutes Previous Month (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Minutes Previous Month (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
10	R/W	FLP	4			Minutes Accumulated (rollover at 1,000,000) - MCF (km3) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Minutes Accumulated (rollover at 1,000,000) - MCF (km3) (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
11	R/W	FLP	4			Energy Today – MMBTU (GJ) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Energy Today – MMBTU (GJ) (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
12	R/W	FLP	4			Energy Yesterday – MMBTU (GJ) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Energy Yesterday – MMBTU (GJ) (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
13	RW	FLP	4			Energy Month – MMBTU (GJ) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Energy Month – MMBTU (GJ) (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
	R/W	UINT32	4			Energy Month – MMBTU (GJ) (Industry Canada) (ROC300-Series and FloBoss 407)
14	R/W	FLP	4			Energy Previous Month – MMBTU (GJ) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Energy Previous Month – MMBTU (GJ) (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
	R/W	UINT32	4			Energy Previous Month – MMBTU (GJ) (Industry Canada) (ROC300-Series and FloBoss 407)
15	R/W	FLP	4			Energy Accumulated (rollover at 1,000,000) - MCF (km3) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Energy Accumulated (rollover at 1,000,000) - MCF (km3) (FloBoss 500-Series, FloBoss 100-Series, and RegFlo)
	R/W	UINT32	4			Energy Accumulated (rollover at 1,000,000) - MCF (km3) (Industry Canada) (ROC300-Series and FloBoss 407)

Point Type 42, Extra AGA Run Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
16	R/W	FLP	4			Uncorrected Today – MCF (km3) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Uncorrected Today – MCF (km3) (FloBoss 500-Series., FloBoss 100-Series, and RegFlo)
17	R/W	FLP	4			Uncorrected Yesterday – MCF (km3) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Uncorrected Yesterday – MCF (km3) (FloBoss 500-Series., FloBoss 100-Series, and RegFlo)
18	R/W	FLP	4			Uncorrected Month – MCF (km3) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Uncorrected Month – MCF (km3) (FloBoss 500-Series., FloBoss 100-Series, and RegFlo)
	R/W	UINT32	4			Uncorrected Month – MCF (km3) (Industry Canada) (ROC300-Series and FloBoss 407)
19	R/W	FLP	4			Uncorrected Previous Month – MCF (km3) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Uncorrected Previous Month – MCF (km3) (FloBoss 500-Series., FloBoss 100-Series, and RegFlo)
	R/W	UINT32	4			Uncorrected Previous Month – MCF (km3) (Industry Canada) (ROC300-Series and FloBoss 407)
20	R/W	FLP	4			Uncorrected Accumulation (rollover at 1,000,000) – MCF (km3) (ROC300-Series and FloBoss 407)
	R/O	FLP	4			Uncorrected Accumulation (rollover at 1,000,000) – MCF (km3) FloBoss 500-Series., FloBoss 100-Series, and RegFlo)
	R/W	UINT32	4			Uncorrected Accumulation (rollover at 1,000,000) – MCF (km3) (Industry Canada) (ROC300-Series and FloBoss 407)
21	R/O	FLP	4			Orifice Plate Bore Diameter at flowing temperature – d
22	R/O	FLP	4			Meter Tube (pipe) Internal Diameter at flowing temperature – D
23	R/O	FLP	4			Beta – Diameter Ratio
24	R/O	FLP	4			Ev (Velocity of Approach) – AGA 1992
25	R/O	FLP	4			Cd (Coeeficient of discharge) – AGA 1992
26	R/O	FLP	4			Reynolds Number
27	R/O	FLP	4			Upstream Absolute Static Pressure
28	R/O	FLP	4			Molecular Weight

3.2.31 Point Type 43: User List Parameters

Description: Point type 43 provides user list parameters.

Number of Logical Points: 4 configurable points may exist.

Table 3-36. Point Type 43, User List Parameters

Point Type 43, User List Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	For FB107: 10 characters	For FB107: "Meter 1"	Text 1
1	R/W	AC	10	For FB107: 10 characters	For FB107: "Press 1"	Text 2
2	R/W	AC	10	For FB107: 10 characters	For FB107: "Temp 1"	Text 3
3	R/W	AC	10	For FB107: 10 characters	For FB107: "Flow 1"	Text 4
4	R/W	AC	10	For FB107: 10 characters	For FB107: "Energy 1"	Text 5
5	R/W	AC	10	For FB107: 10 characters	" "	Text 6
6	R/W	AC	10	For FB107: 10 characters	" "	Text 7
7	R/W	AC	10	For FB107: 10 characters	" "	Text 8
8	R/W	AC	10	For FB107: 10 characters	" "	Text 9
9	R/W	AC	10	For FB107: 10 characters	" "	Text 10
10	R/W	AC	10	For FB107: 10 characters	" "	Text 11
11	R/W	AC	10	For FB107: 10 characters	" "	Text 12
12	R/W	AC	10	For FB107: 10 characters	" "	Text 13
13	R/W	AC	10	For FB107: 10 characters	" "	Text 14
14	R/W	AC	10	For FB107: 10 characters	" "	Text 15
15	R/W	AC	10	For FB107: 10 characters	" "	Text 16
16	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 46,0,51	Data 1
17	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 46,0,52	Data 2
18	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 46,0,53	Data 3
19	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 47,0,0	Data 4
20	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 47,0,1	Data 5
21	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 0,0,0	Data 6
22	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 0,0,0	Data 7
23	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 0,0,0	Data 8
24	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 0,0,0	Data 9
25	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 0,0,0	Data 10
26	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 0,0,0	Data 11
27	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 0,0,0	Data 12

Point Type 43, User List Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
28	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 0,0,0	Data 13
29	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 0,0,0	Data 14
30	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 0,0,0	Data 15
31	R/W	TLP	3	For FB107: Any valid TLP	For FB107: 0,0,0	Data 16
				FloBoss 107		
32	R/W	AC	10	10 characters	"InH20 "	Auxiliary Units String 1
33	R/W	AC	10	10 characters	"PSIG "	Auxiliary Units String 1
34	R/W	AC	10	10 characters	"Deg F "	Auxiliary Units String 1
35	R/W	AC	10	10 characters	"MCF/Day "	Auxiliary Units String 1
36	R/W	AC	10	10 characters	"MMBTU/Day "	Auxiliary Units String 1
37	R/W	AC	10	10 characters	" "	Auxiliary Units String 1
38	R/W	AC	10	10 characters	" "	Auxiliary Units String 1
39	R/W	AC	10	10 characters	" "	Auxiliary Units String 1
40	R/W	AC	10	10 characters	" "	Auxiliary Units String 1
41	R/W	AC	10	10 characters	" "	Auxiliary Units String 1
42	R/W	AC	10	10 characters	" "	Auxiliary Units String 1
43	R/W	AC	10	10 characters	" "	Auxiliary Units String 1
44	R/W	AC	10	10 characters	" "	Auxiliary Units String 1
45	R/W	AC	10	10 characters	" "	Auxiliary Units String 1
46	R/W	AC	10	10 characters	" "	Auxiliary Units String 1
47	R/W	AC	10	10 characters	" "	Auxiliary Units String 1
48	R/W	AC	10	10 characters	Logical 0 – "List 1" Logical 1 – "List 2" Logical 2 – "List 3" Logical 3 – "List 4"	User List Title
49	R/W	UINT8	1	1 → 255	4	Scroll Time in seconds

3.2.32 Point Type 44: Radio Power Control Parameters

Description: Point type 44 provides radio power control parameters.

Number of Logical Points: 4 configurable points may exist (logical 0 controls LOI, logical 1 controls Comm1, logical 2 controls Comm2, logical 3 controls Comm3).

Table 3-37. Point Type 44, Power Control Parameters

Point Type 44, Power Control Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	10 characters	Logical 0: “LOI Radio” Logical 1: “COM1 Radio” Logical 2: “COM2 Radio” Logical 3: “COM3 Radio”	Idenitfies point tag
1	R/O	INT16	2	0 → 1	0	Indicates status. Valid values are: 0 = Power Off 1 = Power On
2	R/W	INT16	2	0 → 2	0	Enables power. Valid values are: 0 = Disabled 1 = Second Mode 2 = Minute Mode
3	R/W	INT16	2	0 → 65535	0	Valid RX (Receive) Counter
4	R/W	INT16	2	0 → 9999	700	Start Time #1 (units = 100 ms)
5	R/W	INT16	2	0 → 9999	9999	Start Time #2 (units = 100 ms)
6	R/W	INT16	2	0 → 9999	9999	Start Time #3 (units = 100 ms)
7	R/W	INT16	2	0 → 32767	20	On Time #1 (units = 100 ms)
8	R/W	INT16	2	0 → 32767	0	On Time #2 (units = 100 ms)
9	R/W	INT16	2	0 → 32767	0	On Time #3 (units = 100 ms)
10	R/W	INT16	2	0 → 32767	60	Off Time #1 (units = 100 ms)
11	R/W	INT16	2	0 → 32767	0	Off Time #2 (units = 100 ms)
12	R/W	INT16	2	0 → 32767	0	Off Time #3 (units = 100 ms)
13	R/W	INT16	2	1 → 3	1	Active Time Zone. Valid values are: 1= Zone 1 2 = Zone 2 3 = Zone 3
14	R/W	INT16	2	0 → 32767	100	Hold Time (100 millisecond intervals)
15	R/O	INT16	2	0 → 32767	0	Power Time (100 millisecond intervals)
16	R/W	INT16	2	0 → 32767	0	Discrete Output Number (point number of the DO Status parameter)

Point Type 44, Power Control Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
17	R/W	FL	4	NA	11.0	Low Battery Voltage
18	R/W	UINT32	4	NA	0	On Counter
19	R/W	UINT32	4	NA	0	Off Counter

3.2.33 Point Type 45: Meter Calibration and Sampler Parameters

Description: Point type 45 provides parameters for meter calibration and sampling.

Number of Logical Points: 4 configurable points may exist.

Table 3-38. Point Type 45, Meter Calibration and Sampler Parameters

Point Type 45, Meter Calibration and Sampler Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	BIN	1		For FB107: 0X00	Calibration Options: Bit 4 through 7= Not Used Bit 3= Differential Pressure Water Manometer Calibrator Requires Parameters 4 and 5 of Point Type 45 and Parameters 20, 21, and 22 of Point Type 46 be set. (FloBoss 503 and FloBoss 103) Bit 3= Not Used (FloBoss 504, FloBoss 104 and FloBoss 107) Bit 2 = Differential Pressure Deadweight Calibrator Requires Parameter 3 of Point Type 45 and Parameters 20, 21, and 22 of Point Type 46 be set. Bit 1 = Static Pressure Deadweight Calibrator Requires Parameter 3 of Point Type 45 and Parameters 20, 21, and 22 of Point Type 46 be set. Bit 0 = Mercury Manometer Requires Parameters 1 and 2 of Point Type 45 be set. (FloBoss 500-series, FloBoss 103/104) Bit 0 =Not Used (FloBoss 107) **Note**: Either Bit 2 or Bit 3 can be set, but not both. If both bits are set, Bit 3 is cleared and Bit 2 is used.
1	R/W	FL	4		For FB107: 0.0	Ambient temperature of mercury Not used – FloBoss 107
2	R/W	FL	4		For FB107: 0.0	Temperature of mercury when calibrating Not Used – FloBoss 107
3	R/W	FL	4		For FB107: 32.14398	Calibrated Weights Gravitational Acceleration
4	R/W	FL	4		For FB107: 0.0	Water temperature when calibrating Not Used – FloBoss 107
5	R/W	FL	4		For FB107: 0.0	Air temperature when calibrating Not Used – FloBoss 107
6	R/W	FL	4		For FB107: 1.0	User Correction Factor
7	R/W	UINT8	1		For FB107: 0	Sampler Enable. Valid values are 0 (Disabled) and 1 (Enabled)
8	R/W	FL	4		For FB107: 1000	Sampler Accumulation Trigger
9	R/W	FL	4		For FB107: 1.0	Sampler Duration (in seconds)

Point Type 45, Meter Calibration and Sampler Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
10	R/O	BIN	1		For FB107: 0	Sensor Module (SM) Integrity Alarm Code: (FloBoss 504 only) Bit 6 through 7 – Not Used Bit 5 – Channel B Failure 0 = No Alarm Present 1 = Alarm Present Bit 4 – Channel A Failure 0 = No Alarm Present 1 = Alarm Present Bit 3 – Frequency Discrepancy Detected 0 = No Alarm Present 1 = Alarm Present Bit 2 – Pulse Synchronization Error 0 = No Alarm Present 1 = Alarm Present Bit 1 – Phase Discrepancy Detected 0 = No Alarm Present 1 = Alarm Present Bit 0 – Sequence Out of Order Error 0 = No Alarm Present 1 = Alarm Present
11	R/W	UINT16	2		For FB107: 0	SM Integrity Alarm Deadband Time (in seconds) (FloBoss 504 only)
12	R/W	BIN	1		For FB107: 0	SM Alarm Control: (FloBoss 504 only) Bit 3 through 7 – Not Used Bit 2 – RBX on Set 0 = Disable RBX on Set 1 = Enable RBX on Set Bit 1 – RBX on Clear 0 = Disable RBX on Clear 1 = Enable RBX on Clear Bit 0 – Alarming 0 = Disabled 1 = Enabled
13	R/W	UINT8	1		For FB107: 0	Integrity Level – Turbine: (FloBoss 504 only) 1 = Level A 2 = Level B 3 = Level C (Default) 4 = Level D 5 = Level E
14	R/W	TLP	3		For FB107: 0,0,0	TLP for sampler. Must be discrete output configured in momentary mode. (FloBoss 107 only)

3.2.34 Point Type 46: Meter Configuration Parameters

Description: Point type 46 provides meter configuration parameters.

Number of Logical Points: 4 configurable points may exist.

Table 3-39. Point Type 46, Meter Configuration Parameters

Point Type 46, Meter Configuration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	10 characters	For FB107: "Meter#1 " through "Meter#3 "	Identifies point tag
1	R/W	AC	30	30 characters		Describes point

Point Type 46, Meter Configuration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
2	R/W	BIN	1		For FB107: 0x05	Indicates the calculation method: Bit 7 – Flow Calc Manual Mode (FloBoss 103/104) 0 = Normal 1 = Manual (User Program Calc) Turbine Calculation Standard (FloBoss 500-series) 0 = AGA7 Calculation 1 = ISO9951 Calculation Differential Flow Calculation Standard (FloBoss 107) 0 = AGA3 Calculation 1 = ISO5167 Calculation Bit 6 – RBX on Set 0 = No RBX on Set 1 = Enable RBX on Set Bit 5 – RBX on Clear 0 = Disabled 1 = Enabled Bit 4 – Meter Run Alarming 0 = Disabled 1 = Enabled Bit 3 – Units of Measurement 0 = English Units 1 = Metric Units Bit 2 – Log Meter Run Limit Events (FloBoss 103/104 version 2.00 and greater and FloBoss 107) 0 = Events Not Logged 1 = Events Logged Bit 1 – Flow Calculation Method 0 = Differential 1 = Linear Bit 0 – Properties Calc Manual Mode (FloBoss 103/104 version 2.11 or greater) 0 = Normal 1 = Manual (User Program Calc) Not Used (FloBoss 103/104 version 2.10 or earlier, FloBoss 107 and FloBoss 500-series)

Point Type 46, Meter Configuration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
3	R/W	BIN	1		For FB107: 0x04	Indicates Calculation Method II: Bit 7 – K-factor Calculation (FloBoss 500-series version 2.40 and greater and FloBoss 100-series) 0 = Single K-factor calculation 1= Multiple K-factor calculation Not Used (FloBoss 500-series version 2.30 and earlier) Bit 6 – Not Used Bit 5 – Gas Quality Input Mode (FloBoss 500-series version 2.40 and greater and FloBoss 100-series) Gas composition, specific gravity, and heating value (FB107) 0 = Constant 1 = Live Not Used (FloBoss 500-series version 2.30 and earlier) Bit 4 – Heating Value Delivered Basis 0 = Ignore 3 1 = BTU as Delivered Bit 3 – Heating value (BTU) Dry or Wet Basis 0 = BTU Dry 1 = BTU Wet Bit 2 – Atmospheric Pressure Source 0 = Calculated based on elevation 1 = Manual entry of Atmospheric Pressure Bit 1 – AGA8 Gross Characterization Method 0 = Gross Method 2 1 = Gross Method 1 Bit 0 – AGA8 Characterization Method 0 = Detailed Method 1 = Gross Method

Point Type 46, Meter Configuration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
4	R/W	BIN	1		For FB107: 0x56	Options: Bit 7 – Log Methane Adjustment 0 = Log normalization 1 = Do not log normalization Bit 6 – Heating Value Basis (FloBoss 500-series and FloBoss 103/104) 0 = Mass Basis 1 = Volume Basis For FloBoss 107: Units basis for specifying certain meter run values, include the heading value, alarm limts, and sample accumulation. With AGA8, Gross 1, the FB107 firmware forces this value to 1. 0 = Mass units 1 = Volume units Bit 5 – Gravitational Acceleration Source 0 = Calculate based on latitude 1 = Manually enter Acceleration Bit 4 – Heating Value Source 0 = Calculate based on composition 1 = Manually enter Heating Value For FB107, AGA8 Gross 1 and Gross 2, the firmware forces this value to 1. Bit 3 – Static Pressure Value 0 = Gauge 1 = Absolute Bit 2 – Static Pressure Tap Location 0 = Downstream 1 = Upstream Bit 1 – Specific Gravity Source 0 = Calculate based on composition 1 = Manually enter specific gravity For FB107, AGA8 Gross1 and Gross2, the firmware forces this value to 1. Bit 0 – Type of pressure tap 0 = Flange 1 = Pipe
5	R/W	UINT8	1		For FB107: 0	Contract Hour (Not Used in FloBoss 107)
6	R/W	FL	4			Integral Multiplier Period – Orifice (minutes) Base Multiplier Period – Turbine (minutes) For FB107: Recalcl
	R/W	FL	4	For FB107: integer divisor of 60	For FB107: 1.0	Recalculation period, in minutes. If the flow input is from a differential meter, the recalculation period is called the Integral Multiplier Period (IMP). If the flow input is from a linear meter, the recalculation period is called the Base Multiplier Period (BMP)

Point Type 46, Meter Configuration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
7	R/W	FL	4	For FB107: > 0.0	For FB107: 8.071	Pipe Diameter (inches or mm)
8	R/W	FL	4		For FB107: 68.0	Pipe Reference Temperature (degrees F or C)
9	R/W	UINT8	1	For FB107: 0, 1, 2	For FB107: 2	Pipe material. Valid values are: 0 = Stainless steel (SS) 1 = Monel 2 = Carbon steel 3 = 304 Stainless steel 4 = 316 Stainless steel 5 = Monel 400
10	R/W	FL	4	For FB107: > = 0.0	For FB107: 4.0	Orifice plate diameter (inches or millimeters)
11	R/W	FL	4		For FB107: 68.0	Orifice plate reference temperature (degrees F or C)
12	R/W	UINT8	1	For FB107: 0, 1, 2	For FB107: 2	Orifice material. Valid values are: 0 = Stainless steel (SS) 1 = Monel 2 = Carbon steel 3 = 304 Stainless steel 4 = 316 Stainless steel 5 = Monel 400
13	R/W	FL	4		For FB107: 14.73	Base or contract pressure (psia or kPa)
14	R/W	FL	4		For FB107: 60.0	Base or contract temperature (degrees F or C)
15	R/W	FL	4	For FB107: > = 0.0	For FB107: 14.45	Atmospheric pressure (psia or kPa)
16	R/W	FL	4	For FB107: > = 0.07	For FB107: 0.573538	Specific gravity, dimensionless
17	R/W	FL	4	For FB107: > = 0.0	For FB107: 1025.0	Heating value (BTU/ft3, MJ/m3, BTU/Lbm, or MJ/Kg)
18	R/W	FL	4		For FB107: 6.899E-06	Viscosity (lbm/ft-sec or cP)
19	R/W	FL	4		For FB107: 1.3	Specific Heat Ratio, dimensionless
20	R/W	FL	4		For FB107: 500.0	Elevation (ft or m)
21	R/W	FL	4		For FB107: 35.0	Latitude (degrees)
22	R/W	FL	4		For FB107: 32.14398	Local Gravitational Acceleration (ft/sec^2 or M/sec^2)
23	R/W	FL	4		For FB107: 1.0	Nitrogen (N_2) compositon, in mole %
24	R/W	FL	4		For FB107: 0.0	Carbon Dioxide (CO_2) compostion, in mole %
25	R/W	FL	4		For FB107: 0.0	Hydrogen Sulfide (H_2S) composition, in mole %
26	R/W	FL	4		For FB107: 0.0	Water (H_2O) composition, in mole %
27	R/W	FL	4		For FB107: 0.0	He Helium
28	R/W	FL	4		For FB107: 96.0	Methane (CH_4) compostion, in mole %
29	R/W	FL	4		For FB107: 3.0	Ethane (C_2H_6) compostion, in mole %
30	R/W	FL	4		For FB107: 0.0	Propane (C_3H_8) compostion, in mole %
31	R/W	FL	4		For FB107: 0.0	n-Butane (C_4H_{10}) compostion, in mole %
32	R/W	FL	4		For FB107: 0.0	i-Butane (C_4H_{10}) compostion, in mole %

Point Type 46, Meter Configuration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
33	R/W	FL	4		For FB107: 0.0	n-Pentane (C_5H_{12}) compostion, in mole %
34	R/W	FL	4		For FB107: 0.0	i-Pentane (C_5H_{12}) compostion, in mole %
35	R/W	FL	4		For FB107: 0.0	n-Hexane (C_6H_{14}) compostion, in mole %
36	R/W	FL	4		For FB107: 0.0	n-Heptane (C_7H_{16}) compostion, in mole %
37	R/W	FL	4		For FB107: 0.0	n-Octane (C_8H_{18}) compostion, in mole %
38	R/W	FL	4		For FB107: 0.0	n-Nonane (C_9H_{20}) compostion, in mole %
39	R/W	FL	4		For FB107: 0.0	n-Decane ($C_{10}H_{22}$) compositon, in mole %
40	R/W	FL	4		For FB107: 0.0	Oxygen (O_2) compositon, in mole %
41	R/W	FL	4		For FB107: 0.0	Carbon Monoxide (CO) compositon, in mole %
42	R/W	FL	4		For FB107: 0.0	Hydrogen (H_2) compositon, in mole %
43	R/W	FL	4	For FB107: >=0.0	For FB107: 1.0	Low hw Cutoff (in inches H_2O column or kPa) if the flow input is from a differential meter. K-factor (in pulses/ft3 or pulses/m3) if the flow input is from a linear meter. This is used **only** when the flow input is from a pulse input point.
44	R/W	FL	4		For FB107: 0.0	If the flow input is from a **differential meter**: When using stacked differential pressues, this is the threshold value where the normal range differential pressure (value of parameter 48) gets selected if (during the previous scan) the low range differential pressure (value of parameter 47) has been selected. Units in H20 or kPa. If the flow input is from a **linear meter**: This is the low flowrate cutoff (in mcf/day or km3/day). This is not used if the flow input is from a pulse input point.
45	R/W	FL	4		For FB107: 0.0	If the flow input is from a **differential meter**: When using stacked differential pressures, this is the threshold value where the normal range of differential pressure (value of parameter 48) gets selected if (during the previous scan) the low range differential pressure (value of parameter 47) had been selected. If the flow input is from a **linear meter**: This is not used.
46	R/W	UINT8	1	For FB107: 0 or 1	For FB107: 0.0	If the flow input is from a differential meter: Enables stacked differential pressure. Valid values are: 0 = Disable 1 = Enable If the flow input is from a linear meter: Not used.
47	R/W	TLP	3	For FB107: Any valid FL TLP	For FB107: 0,0,0	If the flow input is from a differential meter: the TLP of the low differential pressure input when there are stacked differential pressures. If the flow input is fropm a linear meter: not used.

Point Type 46, Meter Configuration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
48	R/W	TLP	3	For FB107: Any valid FL TLP	For FB107: 0,0,0	hw TLP – Orifice Uncorrected Flow Rate TLP – Turbine For the FB107: If the flow input is from a **differential meter**, TLP represents the differential pressure. If the flow input is from a **linear meter**, the TLP represents the flow rate. If the point type **is a pulse input**, the TLP can be (5,Logical,13) or (5,Logical,17). The history for a meter run using a pulse input is based on TLP=5,Logical,16. If the point type **is not** a pulse input, the TLP can be any floating-point value. In this case, the history for the meter run is based on the floating-point value.
49	R/W	TLP	3	For FB107: Any valid FL TLP	For FB107: 0,0,0	Static Pressure (Pf) TLP Definition
50	R/W	TLP	3	For FB107: Any valid FL TLP	For FB107: 0,0,0	Flowing Temperature (Tf) TLP Definition
51	R/W	FL	4			Differential Pressure (hw) – Orifice (InH2O or kPa) Uncorrected Flow Rate – Turbine (MCF/day or km3/day)
	R/W	FL	4	NA	0.0	For the FB107: If the flow input is from a **differential meter**, this represents the differential pressure (hw) in units of inH2O or kPa. If the flow input is from a **linear meter**: this represents the flow rate in units of mcf/day or km3/day.
52	R/W	FL	4			Pf – Flowing Pressure (in units of PSI, kPa, psia, or KPag)
53	R/W	FL	4			Tf – Flowing Temperature (degrees C or F)

Point Type 46, Meter Configuration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
54	R/W	BIN	1			Alarm Code: Bit 7 – Manual Mode 0 = No Alarm Present 1 = Alarm Present Bit 6 – No Flow 0 = No Alarm Present 1 = Alarm Present Bit 5 – Flow Rate Register Discrepancy (Not Used – FloBoss 107) 0 = No Alarm Present 1 = Alarm Present Bit 4 – Total Counts Register Discrepancy (Not Used – FloBoss 107) 0 = No Alarm Present 1 = Alarm Present Bit 3 – Not Used Bit 2 – High Alarm 0 = No Alarm Present 1 = Alarm Present Bit 1 – Not Used Bit 0 – Low Alarm 0 = No Alarm Present 1 = Alarm Present
	R/O	BIN	1	NA	0x00	For FB107, alarm statuses: Bit 7 – Manual mode status 0: No inputs for the flow rate; calculation is a manual entry. 1: At least one input for the flow rate; calculation is a manual entry. Bit 6 – No flow alarm status 0: The no flow alarm status is clear. 1: The no flow alamar status is set. Bit 5 – Not used Bit 4 – Not used Bit 3 – Not used Bit 2 – High flow rate alarm status: 0: No alarm present 1: Alarm is present Bit 1 – Not used Bit 0 – Low flow rate alarm status: 0: No alarm present 1: Alarm is present

Point Type 46, Meter Configuration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
55	R/W	FL	4		For FB107: 0	Low Alarm Flow (1000 ft^3/day or m^3/day) For the FB107, units are mft3/day, ft3/hr, mlb/day, lb/hr, or the metric equivalents.
56	R/W	FL	4		For FB107: 1000	High Alarm Flow (1000 ft^3/day or m^3/day) For the FB107, unit are mft3/day, ft3/hr, mlb/day, lb/hr, or the metric equivalents
57	R/W	UINT8	1	For FB107: 1 → 4	For FB107: 1	Averaging Technique for meter run history. Valid values are: 1 = Flow-dependent time-weighted linear averaging 2 = Flow-dependent time-weighted formulaic averaging 3 = Flow-weighted linear averaging 4 = Flow-weighted formulaic averaging 5 = Linear averaging
58	R/W	UINT8	1	For FB107: 0 or 1	For FB107: 0	Full Recalculation Flag. Valid values are 0 (No recalculation active) and 1 (Force full recalculation)
59	R/W	TLP	3			Input TLP for multiple K-factor calculation (FloBoss 500-Series version 2.40 or greater, FloBoss 100-Series version 2.07 or greater)
	R/W	TLP	3	For FB107: NA	For FB107: 0	For the FB107: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter, represents the TLP of value for selecting one of multiple K-factors. With a linear meter (where flow input is a pulse count input), this is typically the pulse frequency.
60	R/W	FL	4		For FB107: 0.0	Deadband for multiple K-factor calculation (FloBoss 500-Series version 2.40 or greater, FloBoss 100-Series version 2.07 or greater). For FloBoss 107: If the flow input is from a **differential** meter**:** Not used. If the flow input is from a **linear** meter: value is the deadband of the value of the TLP (parameter 59) that must be exceeded before the system calculates another variable K-factor. Units are a percentage of the low to high range of the values of the TLP (parameter 59).
61	R/W	FL	4		For FB107: 0.0	Lowest K-factor calculation (FloBoss 500-Series version 2.40 or greater, FloBoss 100-Series version 2.07 or greater). For FloBoss 107: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: Lowest K-factor
62	R/W	FL	4		For FB107: 0.0	2nd K-factor (FloBoss 500-Series version 2.40 or greater, FloBoss Series-100 version 2.07 or greater. For FloBoss 107: If the flow input is from a **differential** meter: not used. If the flow input is from a **linear** meter: 2^{nd} lowest K-factor.

Point Type 46, Meter Configuration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
63	R/W	FL	4		For FB107: 0.0	3rd K-factor (FloBoss 500-Series version 2.40 or greater, FloBoss Series-100 version 2.07 or greater. For FloBoss 107: If the flow input is from a **differential** meter: not used. If the flow input is from a **linear** meter: 3rd lowest K-factor.
64	R/W	FL	4		For FB107: 0.0	4th K-factor (FloBoss 500-Series version 2.40 or greater, FloBoss Series-100 version 2.07 or greater. For FloBoss 107: If the flow input is from a **differential** meter: not used. If the flow input is from a **linear** meter: 4th lowest K-factor.:
65	R/W	FL	4		For FB107: 0.0	Highest K-factor (FloBoss 500-Series version 2.40 or greater and FloBoss Series-100 version 2.07 or greater). For FloBoss 107: If the flow input is from a **differential** meter: not used. If the flow input is from a **linear** meter: 5th lowest K-factor.
66	R/W	FL	4		For FB107: 0.0	Lowest K-factor EU (FloBoss 500-Series version 2.40 or greater, FloBoss Series-100 version 2.07 or greater). For FloBoss 107: If the flow input is from a **differential** meter: not used. If the flow input is from a **linear** meter: value of TLP (parameter 59) for selecting the lowest K-factor. Units are the same as the value of the TLP specified in parameter 59.
67	R/W	FL	4		For FB107: 0.0	2nd K-factor EU (FloBoss 500-Series version 2.40 or greater, FloBoss Series-100 version 2.07 or greater). For FloBoss 107: If the flow input is from a **differential** meter: not used. If the flow input is from a **linear** meter: value of TLP (parameter 59) for selecting the 2nd lowest K-factor. Units are the same as the value of the TLP specified in parameter 59.)
68	R/W	FL	4		For FB107: 0.0	3rd K-factor EU (FloBoss 500-Series version 2.40 or greater, FloBoss Series-100 version 2.07 or greater). For FloBoss 107: If the flow input is from a **differential** meter: not used. If the flow input is from a **linear** meter: value of TLP (parameter 59) for selecting the 3rd lowest K-factor. Units are the same as the value of the TLP specified in parameter 59.
69	R/W	FL	4		For FB107: 0.0	4th K-factor EU (FloBoss 500-Series version 2.40 or greater, FloBoss Series-100 version 2.07 or greater). For FloBoss 107: If the flow input is from a **differential** meter: not used. If the flow input is from a **linear** meter: value of TLP (parameter 59) for selecting the 4th lowest K-factor. Units are the same as the value of the TLP specified in parameter 59.

Point Type 46, Meter Configuration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
70	R/W	FL	4		For FB107: 0.0	Highest K-factor EU (FloBoss 500-Series version 2.40 or greater and FloBoss Series-100 version 2.07 or greater). For FloBoss 107: If the flow input is from a **differential** meter: not used. If the flow input is from a **linear** meter: value of TLP (parameter 59) for selecting the 5th lowest K-factor. Units are the same as the value of the TLP specified in parameter 59,
71	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: 6th lowest K-factor.
72	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: 7th lowest K-factor.
73	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: 8th lowest K-factor.
74	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: 9th lowest K-factor.
75	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: 10th lowest K-factor.
76	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: 11th lowest K-factor.
77	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: highest K-factor.
78	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: Value is the TLP (parameter 59) for selecting the 6th lowest K-factor. Units are the same as the value of the TLP specified in parameter 59.
79	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: Value is the TLP (parameter 59) for selecting the 7h lowest K-factor. Units are the same as the value of the TLP specified in parameter 59.
80	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: Value is the TLP (parameter 59) for selecting the 8th lowest K-factor. Units are the same as the value of the TLP specified in parameter 59.

Point Type 46, Meter Configuration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
81	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: Value is the TLP (parameter 59) for selecting the 9th lowest K-factor. Units are the same as the value of the TLP specified in parameter 59.
82	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: Value is the TLP (parameter 59) for selecting the 10th lowest K-factor. Units are the same as the value of the TLP specified in parameter 59.
83	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: Value is the TLP (parameter 59) for selecting the 11th lowest K-factor. Units are the same as the value of the TLP specified in parameter 59.
84	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: Value is the TLP (parameter 59) for selecting the highest K-factor. Units are the same as the value of the TLP specified in parameter 59.
85	R/W	FL	4		For FB107: 0.0	FloBoss 107 only: Argon (Ar) composition; units are mole percentage
86	R/W	BIN	1	For FB107: 0 → 3	For FB107: 0	FloBoss 107 only: Configuration status, byte 4. Bits 5-7 – Not Used Bit 4 – Source of the Joule-Thomson coefficient (ISO5167 only) 0 = Calculate 1 = Manual entry Bit 3 – Calculation of the upsteam temperature (ISO5167 only) 0 = Disabled 1 = Enabled Bit 2 – Temperature tap location (ISO5167 only) 0 = Downstream 1 = Upstream Bit 1 – Flow rate time basis for alarming 0 = Daily flow rate 1 = Hourly flow rate Bit 0 – Source of the pressure loss in % (ISO5167 only). 0 = Calculate 1 = Manual entry

Point Type 46, Meter Configuration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
87	R/W	UINT32	4		For FB107: 10	FloBoss 107 only: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter using a PI point for the flow input: User specified number of seconds that must elapse without pulses to consider currently there is no flow.
88	R/W	UINT8	1	For FB107: 0 → 2	For FB107: 0	FloBoss 107 only: If the flow input is from a **differential** meter **and** the ISO 5167 standard is selected, this parameter is the type of primary element: 0: Orifice with flange taps 1: Orifice with corner taps 2: Orifice with D and D/2 taps 10: Venturi tube All other meter cases: not used
89	R/W	FL	4		For FB107: 0.99	FloBoss 107 only: If the flow input is from a **differential** meter **and** the ISO 5167 standard is selected **and** the primary element is a Venturi: User defineable coefficient of discharge (CdFT); dimensionless. All other meter cases: not used
90	R/W	FL	4	N/A	0	FloBoss 107 only: Alarm deadband, in mlb/day, lb/hr, mft3/day, ft3/hr, or the metric equivalent
91	R/W	FL	4	N/A	10.0	FloBoss 107 only: Pressure loss, in % of differential pressure not recovered downstream of the primary element (ISO5167 only).
92	R/W	FL	4	N/A	0.065	FloBoss 107 only: Joule-Thompson coefficient, in deg F/psi or deg C/kPa (ISO5167 only)
93	R/W	FL	4	0	0	FloBoss 107 only: API Options. Bits 7-2: Not used Bit 1: Expansion Factory Calculation 0 = AGA3 1992 Expansion Factor Calculation 1 = AGA3 2011 Expansion Factory Calculation Bit 0: API 21.1 Averaging Technique 0 = DP Averaging Technique is based on older version of API 21.1 and **is not** API 21.2 2011 compliant 1 = DP Averaging Technique **is** API 21.1 compliant

3.2.35 Point Type 47: Meter Flow Parameters

Description: Point type 47 provides meter flow parameters.

Number of Logical Points: 4 configurable points may exist.

Table 3-40. Point Type 47, Meter Flow Parameters

Point Type 47, Meter Flow Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/O	FL	4		For FB107: 0.0	Flow rate per day (MCF or km3)
1	R/O	FL	4		For FB107: 0.0	Energy rate per day (MMBTU or GJoules)
2	R/O	FL	4		For FB107: 0.0	Flow rate per hour (CF or M3)
3	R/O	FL	4		For FB107: 0.0	Energy rate per hour (BTU or MJoules)
4	R/O	FL	4			Pressure Extension (hwPf) – Orifice AGA3 Pressure Extension (sqrt (hw)) – Orifice ISO5167 Uncorrected Flow – Linear Meter
	R/O	FL	4	For FB107: >= 0	For FB107: 0.0	If the flow input is from a **differential** meter and the flow calculation is **volumetric**: Pressure extension: sqrt(hwPf); units are in sqrt(inches of H2O-psia) or sqrt(kpa-kpa). This is the value integrated to determine the integral value and then converted back to the system units. If the flow input is from a **differential** meter and the flow calculation is **ISO-5167**: Pressure extension: sqrt(hw); uints are sqrt(inches of H2O) or sqrt(kpa). This is the value integrated to determine the integral value and then converted back to the system units. If the flow input is from a **linear** meter: Uncorrected flow rate; uints are mft3/day or km3/day. If the flow input is from a pulse count input, this is the same value as TLP=46,Logical,51. If the flow input is not from a pulse count input, this value is the internally stored uncorrected flow rate converted back to the system units.
5	R/O	FL	4		For FB107: 0.0	Expansion Factor – Orifice Fpm – Turbine FloBoss 107 only: If flow input is from a **differential** meter: Expansion factor (Y), based on the averages during the previous integral multiple period (IMP). If flow input is from a **linear** meter: Fpm
6	R/O	FL	4		For FB107: 0.6	CdFT – Orifice Not Used – Turbine FloBoss 107 only: If flow input is from a **differential** meter: Coefficient of discharge (CdFT), based on the averages during the previous integral multiple period (IMP); dimensionless. If flow input is from a **linear** meter: Not used

Point Type 47, Meter Flow Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
7	R/O	FL	4		For FB107: 1.0	Fm – Orifice Ftm – Turbine FloBoss 107 only: If flow input is from a **differential** meter: Numeric conversion factor (Fn); dimensionless. If flow input is from a **linear** meter: Ftm
8	R/O	FL	4		For FB107: 1.0	Base pressure factor (Fpb) dimensionless
9	R/O	FL	4		For FB107: 1.0	Base temperature factor (Ftb) dimensionless
10	R/O	FL	4		For FB107: 1.0	Flowing temperature factor (Ftf) dimensionless
11	R/O	FL	4		For FB107: 1.0	Real gas relative density factor (Fgr)
12	R/O	FL	4		For FB107: 1.0	Supercompressibility factor (Fpv)
13	R/O	FL	4		For FB107: 1.0	Compressibility at standard conditions (Zs)
14	R/O	FL	4		For FB107: 1.0	Compressibility at base conditions (Zb
15	R/O	FL	4		For FB107: 1.0	Compressibility at flowing conditions (Zf1)
16	R/O	FL	4		For FB107: 0.0	Integral Multiplier Value (IMV) – Orifice Base Multiplier Value (BMV) – Turbine FloBoss 107 only: If flow input is from a **differential** meter: Integral multiplier value (IMV) at base conditions, based on the averages during the previous integral multiplier period (IMP); units are in the system units. If flow input is from a **linear** meter: Base multiplier value (BMV) at base conditions, based on the averages during the previous base multiplier period (BMP); dimensionless.
17	R/O	FL	4		For FB107: 0.0	Orifice Plate Bore Diameter at flowing conditions (D) (inches or millimeters) FloBoss 107 only: If flow input is from a **differential** meter: Orifice plate bore diameter (d) based on the averages during the previous integral multiplier period (IMP); units are inches or millimeters. If flow input is from a **linear** meter: Not used.
18	R/O	FL	4		For FB107: 0.0	Meter Tube Internal Diameter at flowing conditions (D) (inches or millimeters) FloBoss 107 only: If flow input is from a **differential** meter: Meter tube internal diameter (D) based on the averages during the previous integral multiplier period (IMP); units are inches or millimeters. If flow input is from a **linear** meter: Not used.
19	R/O	FL	4		For FB107: 0.1	Diameter Ratio (Beta) FloBoss 107 only: If flow input is from a **differential** meter: Diameter ratio (β); the ratio of the Orifice plate bore diameter (parameter 17) to the meter tube internal diameter (parameter 18); dimensionless. If flow input is from a **linear** meter: Not used.

Point Type 47, Meter Flow Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
20	R/O	FL	4		For FB107: 0.0	Velocity of Approach (Ev) FloBoss 107 only: If flow input is from a **differential** meter: Velocity of approach factor (E_v) based on the diameter ratio (β, parameter 19); dimensionless. If flow input is from a **linear** meter: Not used.
21	R/O	FL	4		For FB107: 0.0	Average hw – Orifice Total counts during last BMP (if pulse input) – linear meter FloBoss 107 only: If flow input is from a **differential** meter: Average differential pressure (h_w) during the previous integral multiplier period (IMP); units are inH2O or kPa. The average is calculated using the specified averaging technique. If flow input is from a **linear** meter: If the flow input **is** a **pulse** input, pulses counted during the previous base multiplier period (BMP). If the flow input **is not** a **pulse** input, this parameter is not used.
22	R/O	FL	4		For FB107: 0.0	Average flowing pressure (Pf) FloBoss 107 only: If flow input is from a **differential** meter: Average upstream flowing pressure (P_{f1}) during the previous integral multiplier period (IMP); units are psia or kPa.a. The average is calculated using the specified averaging technique. If flow input is from a **linear** meter: Average flowing pressure (P_f) during the previous base multiplier period (BMP); units are psia or kPa.a. The average is calculated using the specified averaging technique
23	R/O	FL	4		For FB107: 547.0	Average flowing temperature (Tf) FloBoss 107 only: If flow input is from a **differential** meter: Average flowing temperature (T_f) during the previous integral multiplier period (IMP); units are deg F or deg C. The average is calculated using the specified averaging technique. If flow input is from a **linear** meter: Average flowing temperature (T_f) during the previous base multiplier period (BMP); units are deg F or deg C. The average is calculated using the specified averaging technique
24	R/O	FL	4		For FB107: 1.0	Flowing Density; units in lb/ft3 or kg/m3.
25	R/O	FL	4		For FB107: 1.0	Base Density; units in lb/ft3 or kg/m3.
26	R/O	FL	4		For FB107: 0.0	Reynolds Number FloBoss 107 only: If flow input is from a **differential** meter: Reynolds number (Re_D); dimensionless. If flow input is from a **linear** meter: Not used.

Point Type 47, Meter Flow Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
27	R/O	FL	4			Upstream Static Pressure (PSIG, psia, or kPa) FloBoss 107 only: If flow input is from a **differential** meter: Upstream static pressure; units are psia or kPa. If flow input is from a **linear** meter: Not used.
28	R/O	FL	4		For FB107: 16.584	Molecular weight
29	R/O	FL	4		For FB107: 0.0	Fam (Not used in FloBoss 107)
30	R/O	FL	4		For FB107: 0.0	Fwt (Not used in FloBoss 107)
31	R/O	FL	4		For FB107: 0.0	Fwl (Not used in FloBoss 107)
32	R/O	FL	4		For FB107: 1.0	Local gravitation correction for the deadweight tester static pressure (F_{pwl}); dimensionless.
33	R/O	FL	4		For FB107: 1.0	Local gravitation correction for the deadweight tester differential pressure (F_{pwl}); dimensionless
34	R/O	FL	4		For FB107: 0.0	Fhgm (Not used in FloBoss 107)
35	R/O	FL	4		For FB107: 0.0	Fhgt (Not used in FloBoss 107)
36	R/O	FL	4		For FB107: 0.0	Volumetric flow today (MCF or km3)
37	R/O	FL	4		For FB107: 0.0	Volumetric flow yesterday (MCF or km3)
38	R/O	FL	4		For FB107: 0.0	Volumetric flow this month (MCF or km3)
39	R/O	FL	4		For FB107: 0.0	Volumetric flow for prevoius month (MCF or km3)
40	R/O	FL	4	For FB107: 0.0 → 10000.0	For FB107: 0.0	Volumetric accumulated flow since the last reset (MCF or km3)
41	R/O	FL	4		For FB107: 0.0	Minutes of flow today
42	R/O	FL	4		For FB107: 0.0	Minutes of flow yesterday
43	R/O	FL	4		For FB107: 0.0	Minutes of flow this month
44	R/O	FL	4		For FB107: 0.0	Minutes of flow for the previous month
45	R/O	FL	4	For FB107: 0.0 → 10000.0	For FB107: 0.0	Accumulated minutes of flow since the last reset
46	R/O	FL	4		For FB107: 0.0	Energy Today (MMBTU or GJoules)
47	R/O	FL	4		For FB107: 0.0	Energy Yesterday (MMBTU or GJoules)
48	R/O	FL	4		For FB107: 0.0	Energy this Month (MMBTU or GJoules)
49	R/O	FL	4		For FB107: 0.0	Energy for the Previous Month (MMBTU or GJoules)
50	R/O	FL	4	For FB107: 0.0 → 10000.0	For FB107: 0.0	Energy accumulated since the last reset (MMBTU or GJoules)
51	R/O	FL	4		For FB107: 0.0	Uncorrected Today (MCF or km3)
52	R/O	FL	4		For FB107: 0.0	Uncorrected Yesterday (MCF or km3)
53	R/O	FL	4		For FB107: 0.0	Uncorrected Month (MCF or km3)
54	R/O	FL	4		For FB107: 0.0	Uncorrected Previous Month (MCF or km3)
55	R/O	FL	4	For FB107: 0.0 → 10000.0	For FB107: 0.0	Uncorrected Accumulation (MCF or km3)

Point Type 47, Meter Flow Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
56	R/O	UINT8	1	For FB107: 0 → 3	For FB107: 0	Partial Recalculation Flag. Valid values are: 0 = No recalculation in progress 1 = Partial recalculation in progress 2 = Full recalculation in progress
57	R/O	FL	4		For FB107: 0.0	Redundant Flow Rate per Day (FloBoss 504 only) For FloBoss 107: Reserved
58	R/O	FL	4		For FB107: 0.0	Redundant Total Counts (FloBoss 504 only) For FloBoss 107: Reserved
59	R/O	UINT32	4		For FB107: 0	FloBoss 107: If the flow input is from a **differential** meter: Not used. If the flow input is from a **linear** meter: Raw pulses. If the flow input **is** from a **pulse** input, this value is equal to TLP=5,Logical,16. If the flow input **is not** from a **pulse** input, this value is calculated based on the rate and K-factor.
60	R/O	UINT8	1	For FB107: 0 → 1	For FB107: 0	Status of flow passing through the meter during the current section. Valid values are **0** (not flowing) and **1** (flowing).
61	R/O	FL	4		For FB107: 0.0	Daily Mass Flow Rate (Mlb/day or Tonnes/day) (FloBoss 107 only)
62	R/O	FL	4		For FB107: 0.0	Hourly Mass Flow Rate (lb/hr or kg/hr) (FloBoss 107 only)
63	R/O	FL	4		For FB107: 0.0	Mass Flow Today (Mlb or tonnes) (FlowBoss 107 only)
64	R/O	FL	4		For FB107: 0.0	Mass Flow Yesterday (Mlb or tonnes) (FloBoss 107 only)
65	R/O	FL	4		For FB107: 0.0	Mass Flow Current Month (Mlb or tones) (FloBoss 107 only)
66	R/O	FL	4		For FB107: 0.0	Mass Flow Previous Month (Mlb or tones) (FloBoss 107 only)
67	R/O	FL	4			Mass Flow Accumulated since last reset (Mlb or tones) (FloBoss 107 only)
68	R/O	BIN	1		For FB107: 0	Flow calculation configuration (FloBoss 107 only) Bits 7-4 – Not used Bit 3 – Phase of Fluid 0 = Gas 1 = Liquid Bit 2 – Flow Calculation Basis 0 = Volumetric 1 = Mass Bit 1 – Source of Properties Calculation 0 = Firmware 1 = User C Program Bit 0 – Source of Flow Calculation 0 = Firmware 1 = User C Program
69	R/O	FL	4		For FB107: 1.0	FloBoss 107 Only: If the calculation standard is not AGA7: Not used. If the calculation standard is AGA7: Pressure mulitiplier (Pf / Pb)

Point Type 47, Meter Flow Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
70	R/O	FL	4		For FB107: 1.0	FloBoss 107 Only: If the calculation standard is not AGA7: Not used. If the calculation standard is AGA7: Temperature mulitiplier (Tb / Tf)
71	R/O	FL	4		For FB107: 1.0	FloBoss 107 Only: If the calculation standard is not AGA7: Not used. If the calculation standard is AGA7: Compressiblity mulitiplier (Zb / Zf)
72	R/O	AC	20	20 characters	"AGA8-92 …"	Description of the standard used to calculate the flow rates of the fluid. This string is set by the firmware or a User C flow program. (FloBoss 107 only)
73	R/O	AC	20	20 characters	"AGA8-92 Detailed…"	Descriiption of the standard used to calculate the properties of the fluid. This string is set by the firmware of a User C properties program. (FloBoss 107 only)
74	R/O	FL	4	N/A	60.0	Upstream flowing temperature, in deg F or deg C (ISO5167 only) (FloBoss 107 only)
75	R/O	UINT8	1	For FB107: 0 → 2	For FB107: 0	Heating value table in use (FloBoss 107 only). Valid values are: 0 = GPA 2145-09 at 60 F 1 = ISO 6976 at 15 C 2 = ISO 6976 at 20 C

3.2.36 Point Type 48: PID Control Parameters

Description: Point type 48 provides PID control parameters.

Number of Logical Points: 8 configurable points may exist.

Table 3-41. Point Type 48, PID Control Parameters

Point Type 48, PID Control Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	10 characters	For FB107: "PID #1…." "PID #2…." "PID #3…." "PID #4…." "PID #5…." "PID #6…." "PID #7…." "PID #8…."	Identifies point tag
1	R/W	BIN	1		For FB107: 0x81	Control Type Bit 7– PID Scanning Status 0 = Enabled 1 = Disabled Bit 6– Setpoint Tracks PV in Manual status (primary loop only) 0 = Disabled 1 = Enabled Bit 5– Not Used Bit 4–Scanning Status After Restart 0 = Enable scanning after restart 1 = Disable scanning after restart Bit 3 – Primary/Override Selection 0 = Low Switch Select 1 = High Switch Select Bit 2 – Output Type 0 = Analog Control 1 = Discrete Control Bit 1 – Primary/Override 0 = Primary Loop 1 = Primary and Override Loop Bit 0 – Source of Flow Calculation 0 = Manual 1 = Automatic
2	R/O	UINT8	1		For FB107: 0	Active Loop Status. Valid values are: 0 = Neither loop controlling output 1 = Primary loop controlling output 2 = Secondary loop controlling output
3	R/W	FL	4	For FB107: >= 0.1	For FB107: 1.0	Loop Period (in seconds)
4	R/O	FL	4		For FB107: 1.0	Actual Loop Period (in seconds)
5	R/W	TLP	3	For FB107: Any valid float TLP	For FB107: 0,0,0	Primary PV Input Point TLP

Point Type 48, PID Control Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
6	R/W	FL	4	For FB107: Any float value	For FB107: 0.0	Setpoint of primary loop; units are units of PV
7	R/W	FL	4	For FB107: Any positive float value or 0.0	For FB107: 0.0	Maximum setpoint change rate of the primary loop; units are EU/minute.
8	R/W	FL	4	For FB107: Any positive float value or 0.0	For FB107: 0.5	Primary Proportional Gain For FloBoss 107: Proportional gain of the primary loop; units are dimensionless if the scale factor is used to scale the input to the output. Otherwise, the units are (units of MV)/(units of PV).
9	R/W	FL	4	For FB107: Any positive float value or 0.0	For FB107: 4.0	Primary Reset (Integral) Gain For FloBoss 107: Integral gain of the primary loop. If the proportional gain is **greater** than 0.0, the units are repeats/minute. If the proportional gain is **0.0 or less**, the units are fraction of the scale factor times the error to send this pass.
10	R/W	FL	4	For FB107: Any positive float value or 0.0	For FB107: 0.0	Primary Rate (Derivative) Gain For FloBoss 107: Derivative gain of the primary loop; units are minutes.
11	R/W	FL	4	For FB107: Any float value	For FB107: -1.0	Primary Scale Factor For FloBoss 107: Scale factor of the primary loop. For a **self-regulating** process, the units are (Δunits of output)/ (Δunits of input). For an **Integrating** process, the units are (Δunits of output)/ (Δunits of input per execution period of the loop).
12	R/W	FL	4	For FB107: Any positive float value or 0.0	For FB107: 0.0	Primary Integral Deadband For FloBoss 107: Integral deadband of the primary loop; units are units of the PV.
13	R/W	FL	4	For FB107: Any float value	For FB107: 0.0	Primary loop process variable (PV); units are EUs
14	R/O	FL	4	For FB107: Any float value	For FB107: 0.0	Change in output calculated by the primary loop; units are EU of the output.
15	R/W	TLP	3	For FB107: Any valid float TLP	For FB107: 0,0,0	TLP for the process variable fo the override loop.
16	R/W	FL	4	For FB107: Any float value	For FB107: 0.0	Setpoint of the override loop; units are units of PV.
17	R/W	FL	4	For FB107: Any positive float value or 0.0	For FB107: 0.0	Maximum setpoint change rate of the override loop; units are EU/minute.
18	R/W	FL	4	For FB107: Any positive float value or 0.0	For FB107: 0.5	Proportional gain of the override loop; units are dimensionless if the scale factor is used to scale the input to the output. Otherwise, the units are the (units of MV)/(units of PV)
19	R/W	FL	4	For FB107: Any positive float value or 0.0	For FB107: 4.0	Override Reset (Integral) Gain For FB107: Integral gain of the override loop. If the proportional gain is **greater** than 0.0, the units are repeats/minute. If the proportional gain is **0.0 (or less)** , the units are fraction of the scale factor times the error to send this pass.

Point Type 48, PID Control Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
20	R/W	FL	4	For FB107: Any positive float value or 0.0	For FB107: 0.0	Derivative gain of the override loop; units are minutes.
21	R/W	FL	4	For FB107: Any float value	For FB107: -1.0	Override Scale Factor For FB107: Scale factor of the override loop. For a **self-regulating** process, the units are (Δunits of output)/ (Δunits of input). For an **Integrating** process, the units are (Δunits of output)/ (Δunits of input per execution period of the loop).
22	R/W	FL	4	For FB107: Any positive float value or 0.0	For FB107: 0.0	Integral deadband of the override loop; units are units of the PV.
23	R/W	FL	4	For FB107: Any float value	For FB107: 0.0	Process variable (PV) of the override loop; units are EUs
24	R/O	FL	4	For FB107: Any float value	For FB107: 0.0	Change in output calculated by the override loop; units are EU of the output.
25	R/W	FL	4	For FB107: Any float value	For FB107: 0.0	Current Output of PID For FB107: Output of the PID control point. If the output is specified as an **analog** ouptut, the output is an analog value. If the output is two (2) **discrete** outputs, the value of the output is either a change sent to the **increase** discrete output (if the change value of the change is positive) or sent to the **decrease** discrete output (if the value of the change is negative).
26	R/W	TLP	3	For FB107: Any valid float TLP	For FB107: 0,0,0	PID Output Point (AO or Open DO) For FB107: If the output is specified to be an **analog** output, this is the TLP of the analog output. If the output is specified to be two (2) **discrete** outputs, this is the TLP of discrete output for increases.
27	R/W	TLP	3	For FB107: Any valid float TLP	For FB107: 0,0,0	Second Output of PID (Close DO) For FB107: If the output is specified to be an **analog** output: Not used. If the output is specified to be two (2) **discrete** outputs, this value is the TLP of the discrete output for decreases
28	R/W	FL	4	For FB107: Any float value	For FB107: 0.0	FloBoss 107 only: If the output is specified to be an analog output, the low limit of the value written to the analog output. If the output is specified to be two (2) **discrete** outputs, the low limit of the value written to the discrete output for decreases
29	R/W	FL	4	For FB107: Any float value	For FB107: 100	FloBoss 107 only: If the output is specified to be an **analog** output, the high limit of the value written to the analog output. If the output is specified to be two (2) **discrete** outputs, the high limit of the value written to the discrete output for increases.

Point Type 48, PID Control Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
30	R/W	UINT8	1	For FB107: 0, 1, 0r 2	For FB107: 0	Control Loop Selection, Valid values are: 0 = Accept changes from either loop 1 = Accept changes only from primary loop 2 = Accept changes only from override loop **Note**: Bit 1 of parameter 1 is set to 0, if parameter 30 is 1 or 2. Bit 1 of parameter 1 is set to 1, if parameter 30 is 0.
31	R/W	FL	4	For FB107: Any float value	For FB107: 0	FloBoss 107 only: If the control scheme is specified to use the primary **and** override loops: Error threshold for not selecting the override loop's change. When the error is greater than the error threshold in the normal operating range, only changes from the primary loop are selected. Otherwise, the high/low selector selects the appropriate change from either of the loops. A threshold of 0.0 deactivates this feature which means the high/low selector always selects the appropriate change from either of the loops. If the control scheme is specified to use only one of the primary **or** override loops: Not used.
32	R/W	AC	10	For FB107: 10 characters	"………"	Primary Loop PV and Setpoint Units (FloBoss 107 only)
33	R/W	AC	10	For FB107: 10 characters	"………"	Override PV Look and Setpoint Units (FloBoss 107 only)
34	R/W	AC	10	For FB107: 10 characters	"………"	PID Output Units (FloBoss 107 only)
35	R/W	FL	4	For FB107: Any float value	0.0	Low EU value for the primary loop's process variable and setpoint. It is the minimum value on the primary loop's PV and SP bar graph for the LCD's faceplate.
36	R/W	FL	4	For FB107: Any float value	100.0	High EU value for the primary loop's process variable and setpoint. It is the maximum value on the primary loop's PV and SP bar graph for the LCD's faceplate.
37	R/W	FL	4	For FB107: Any float value	0.0	Low EU value for the override loop's process variable and setpoint. It is the minimum value on the override loop's PV and SP bar graph for the LCD's faceplate.
38	R/W	FL	4	For FB107: Any float value	100.0	High EU value for the override loop's process variable and setpoint. It is the maximum value on the override loop's PV and SP bar graph for the LCD's faceplate.

3.2.37 Point Type 52: Battery Performance

Description: Point type 52 provides battery performance parameters.

Table 3-42. Point Type 52, Battery Performance

Point Type 42, Battery Performance

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10			Identifies point tag
1	R/O	FLP	4			Battery Voltage
2	R/O	FLP	4			Voltage Input
3	R/O	FLP	4			Battery Temperature
4	R/O	FLP	4			Low Battery Dropout
5	R/O	FLP	4			Battery Turn On Voltage
6	R/O	FLP	4			Reference Voltage
7	R/O	UINT8	1			Metric/US (Imperial) Units Flag
8	R/O	UINT8	1			Status
9	R/O	UINT8	1			Duty Cycle
10	R/O	UINT8	1			Battery Activity
11	R/O	UINT8	1			Task
12	R/O	UINT8	1			Sleep Flag

3.2.38 Point Type 53: Modbus Configuration Parameters

Description: Point type 53 provides Modbus configuration parameters.

Table 3-43. Point Type 53, Modbus Configuration Parameters

Point Type 53, Modbus Configuration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	BIN	1			Options Bit 4– 7 – Not Used Bit 3 – Modbus Type 0 = Standard 1 = Modbus with EFM Extensions Bit 2 – Byte Order 0 = Least Significant Byte (LSB) 1 = Most Significant Byte (MSB) Bit 1 – Log Modbus Events 0 = Log to Event Log 1 = No Logging Bit 0 – Modbus Type 0 = RTU 1 = ASCII
1	R/O	UINT8	1			Status
2	R/W	INT16	2			High Integer Scale
3	R/W	INT16	2			Low Integer Scale
4	R/W	FLP	4			High Float Scale #1
5	R/W	FLP	4			Low Float Scale #1
6	R/W	FLP	4			High Float Scale #2
7	R/W	FLP	4			Low Float Scale #2
8	R/W	FLP	4			High Float Scale #3
9	R/W	FLP	4			Low Float Scale #3
10	R/W	FLP	4			High Float Scale #4
11	R/W	FLP	4			Low Float Scale #4
12	R/W	FLP	4			High Float Scale #5
13	R/W	FLP	4			Low Float Scale #5
14	R/W	FLP	4			High Float Scale #1
15	R/W	FLP	4			Low Float Scale #6
16	R/W	FLP	4			High Float Scale #7
17	R/W	FLP	4			Low Float Scale #7
18	R/W	FLP	4			High Float Scale #8
19	R/W	FLP	4			Low Float Scale #8

3.2.39 Point Type 54: Modbus Function Tables

Description: Point type 54 provides Modbus function tables

Table 3-44. Point Type 54, Modbus Function Tables

Point Type 54, Modbus Function Tables

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	20			Identifies point tag
1	R/O	UINT16	2			Start Register #1
2	R/W	UINT16	2			End Register #1
3	R/W	TLP	3			ROC Parameter(s)
4	R/W	UNIT8	1			Conversion Code
5	R/O	UINT16	2			Start Register #2
6	R/W	UINT16	2			End Register #1
7	R/W	TLP	3			ROC Parameter(s)
8	R/W	UNIT8	1			Conversion Code
9	R/O	UINT16	2			Start Register #3
10	R/W	UINT16	2			End Register #3
11	R/W	TLP	3			ROC Parameter(s)
12	R/W	UNIT8	1			Conversion Code
13	R/O	UINT16	2			Start Register #4
14	R/W	UINT16	2			End Register #4
15	R/W	TLP	3			ROC Parameter(s)
16	R/W	UNIT8	1			Conversion Code
17	R/O	UINT16	2			Start Register #5
18	R/W	UINT16	2			End Register #5
19	R/W	TLP	3			ROC Parameter(s)
20	R/W	UNIT8	1			Conversion Code
21	R/O	UINT16	2			Start Register #6
22	R/W	UINT16	2			End Register #6
23	R/W	TLP	3			ROC Parameter(s)
24	R/W	UNIT8	1			Conversion Code
25	R/O	UINT16	2			Start Register #7
26	R/W	UINT16	2			End Register #7
27	R/W	TLP	3			ROC Parameter(s)
28	R/W	UNIT8	1			Conversion Code
29	R/O	UINT16	2			Start Register #8

Point Type 54, Modbus Function Tables

Parameter#	Access	Data Type	Length	Range	Default	Description
30	R/W	UINT16	2			End Register #8
31	R/W	TLP	3			ROC Parameter(s)
32	R/W	UNIT8	1			Conversion Code
33	R/O	UINT16	2			Start Register #9
34	R/W	UINT16	2			End Register #9
35	R/W	TLP	3			ROC Parameter(s)
36	R/W	UNIT8	1			Conversion Code
37	R/O	UINT16	2			Start Register #10
38	R/W	UINT16	2			End Register #10
39	R/W	TLP	3			ROC Parameter(s)
40	R/W	UNIT8	1			Conversion Code
41	R/O	UINT16	2			Start Register #11
42	R/W	UINT16	2			End Register #11
43	R/W	TLP	3			ROC Parameter(s)
44	R/W	UNIT8	1			Conversion Code
45	R/O	UINT16	2			Start Register #12
46	R/W	UINT16	2			End Register #12
47	R/W	TLP	3			ROC Parameter(s)
48	R/W	UNIT8	1			Conversion Code
49	R/O	UINT16	2			Start Register #13
50	R/W	UINT16	2			End Register #13
51	R/W	TLP	3			ROC Parameter(s)
52	R/W	UNIT8	1			Conversion Code
53	R/O	UINT16	2			Start Register #14
54	R/W	UINT16	2			End Register #14
55	R/W	TLP	3			ROC Parameter(s)
56	R/W	UNIT8	1			Conversion Code
57	R/O	UINT16	2			Start Register #15
58	R/W	UINT16	2			End Register #15
59	R/W	TLP	3			ROC Parameter(s)
60	R/W	UNIT8	1			Conversion Code

3.2.40 Point Type 55: Modbus Special Function Tables

Description: Point type 55 provides Modbus special function tables

Table 3-45. Point Type 55, Modbus Special Function Tables

Point Type 55, Modbus Function Tables

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	UINT16	2		For FB107: 32	Event/alarm register
1	R/W	UINT16	2		For FB107: 7161	Periodic History Index Register
2	R/W	UINT16	2		For FB107: 7160	Daily History Index Register
3	R/W	UINT16	2		For FB107: 7162	Extended History Index Register (FloBoss 103/104 version 2.00 or greater and FloBoss 107)
4	R/O	UINT8	1		For FB107: 0	History Format
5	R/W	UINT16	2		For FB107: 703	History Archive Register #1
6	R/W	UINT8	1		For FB107: 1	Start History Point
7	R/W	UINT8	1		For FB107: 8	End History Point
8	R/W	UNIT8	1	For FB107: 2, 3, 4	For FB107: 3	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
9	R/W	UINT8	1		For FB107: 0	Conversion Code
10	R/W	UINT16	2		For FB107: 704	History Archive Register #2
11	R/W	UINT8	1		For FB107: 1	Start History Point
12	R/W	UNIT8	1		For FB107: 8	End History Point
13	R/W	UINT8	1	For FB107: 2, 3, 4	For FB107: 2	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
14	R/W	UINT8	1		For FB107: 0	Conversion Code
15	R/W	UINT16	2		For FB107: 0	History Archive Register #3
16	R/W	UINT8	1		For FB107: 0	Start History Point
17	R/W	UNIT8	1		For FB107: 0	End History Point
18	R/W	UINT8	1	For FB107: 2, 3, 4	For FB107: 2	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
19	R/W	UINT8	1		For FB107: 0	Conversion Code
20	R/W	UINT16	2		For FB107: 0	History Archive Register #4
21	R/W	UINT8	1		For FB107: 0	Start History Point
22	R/W	UNIT8	1		For FB107: 0	End History Point

Point Type 55, Modbus Function Tables

Parameter#	Access	Data Type	Length	Range	Default	Description
23	R/W	UINT8	1	For FB107: 2, 3, 4	For FB107: 2	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
24	R/W	UINT8	1		For FB107: 0	Conversion Code
25	R/W	UINT16	2		For FB107: 0	History Archive Register #5
26	R/W	UINT8	1		For FB107: 0	Start History Point
27	R/W	UNIT8	1		For FB107: 0	End History Point
28	R/W	UINT8	1	For FB107: 2, 3, 4	For FB107: 2	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
29	R/W	UINT8	1		For FB107: 0	Conversion Code
30	R/W	UINT16	2		For FB107: 0	History Archive Register #6
31	R/W	UINT8	1		For FB107: 0	Start History Point
32	R/W	UNIT8	1		For FB107: 0	End History Point
33	R/W	UINT8	1	For FB107: 2, 3, 4	For FB107: 2	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
34	R/W	UINT8	1		For FB107: 0	Conversion Code
35	R/W	UINT16	2		For FB107: 0	History Archive Register #7
36	R/W	UINT8	1		For FB107: 0	Start History Point
37	R/W	UNIT8	1		For FB107: 0	End History Point
38	R/W	UINT8	1	For FB107: 2, 3, 4	For FB107: 2	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
39	R/W	UINT8	1		For FB107: 0	Conversion Code
40	R/W	UINT16	2		For FB107: 0	History Archive Register #8
41	R/W	UINT8	1		For FB107: 0	Start History Point
42	R/W	UNIT8	1		For FB107: 0	End History Point
43	R/W	UINT8	1	For FB107: 2, 3, 4	For FB107: 2	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
44	R/W	UINT8	1		For FB107: 0	Conversion Code
45	R/W	UINT16	2		For FB107: 0	History Archive Register #9
46	R/W	UINT8	1		For FB107: 0	Start History Point
47	R/W	UNIT8	1		For FB107: 0	End History Point

Point Type 55, Modbus Function Tables

Parameter#	Access	Data Type	Length	Range	Default	Description
48	R/W	UINT8	1	For FB107: 2, 3, 4	For FB107: 2	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
49	R/W	UINT8	1		For FB107: 0	Conversion Code
50	R/W	UINT16	2		For FB107: 0	History Archive Register #10
51	R/W	UINT8	1		For FB107: 0	Start History Point
52	R/W	UNIT8	1		For FB107: 0	End History Point
53	R/W	UINT8	1	For FB107: 2, 3, 4	For FB107: 2	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
54	R/W	UINT8	1		For FB107: 0	Conversion Code
55	R/W	UINT16	2		For FB107: 7046	Date Access Register (FloBoss 103/104 version 2.12 or greater) For FB107: Date Register
56	R/W	UINT8	1			Time Access Register (FloBoss 103/104 version 2.12 or greater)
	R/W	UINT16	2	NA	For FB107: 7047	For FB107: Date Register
57	R/W	UINT8	1	For FB107: 0 or 1	For FB107: 1	EFM Extensions. Valid values are 0 (Disabled) and 1 (Enabled) For FB107: Bit 1: 0 = Year Format 1980 1 = Year Format 2000 Bit 2 0 = EFM disabled 1 = EFM enabled
58	R/W	UINT16	2	N/A	703	History Archive Register #11 (FloBoss 107 only)
59	R/W	UINT8	1	N/A	1	Starting history point
60	R/W	UINT8	1	N/A	8	Ending history point
61	R/W	UINT8	1	2, 3, or 4	3	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
62	R/W	UINT8	1	N/A	0	Conversion Code
63	R/W	UINT16	2	N/A	703	History Archive Register #12 (FloBoss 107 only)
64	R/W	UINT8	1	N/A	1	Starting history point
65	R/W	UINT8	1	N/A	8	Ending history point

Point Type 55, Modbus Function Tables

Parameter#	Access	Data Type	Length	Range	Default	Description
66	R/W	UINT8	1	2, 3, or 4	3	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
67	R/W	UINT8	1	N/A	0	Conversion Code
68	R/W	UINT16	2	N/A	703	History Archive Register #13 (FloBoss 107 only)
69	R/W	UINT8	1	N/A	1	Starting history point
70	R/W	UINT8	1	N/A	8	Ending history point
71	R/W	UINT8	1	2, 3, or 4	3	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
72	R/W	UINT8	1	N/A	0	Conversion Code
73	R/W	UINT16	2	N/A	703	History Archive Register #14 (FloBoss 107 only)
74	R/W	UINT8	1	N/A	1	Starting history point
75	R/W	UINT8	1	N/A	8	Ending history point
76	R/W	UINT8	1	2, 3, or 4	3	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
77	R/W	UINT8	1	N/A	0	Conversion Code
78	R/W	UINT16	2	N/A	703	History Archive Register #15 (FloBoss 107 only)
79	R/W	UINT8	1	N/A	1	Starting history point
80	R/W	UINT8	1	N/A	8	Ending history point
81	R/W	UINT8	1	2, 3, or 4	3	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
82	R/W	UINT8	1	N/A	0	Conversion Code
83	R/W	UINT16	2	N/A	703	History Archive Register #16 (FloBoss 107 only)
84	R/W	UINT8	1	N/A	1	Starting history point
85	R/W	UINT8	1	N/A	8	Ending history point
86	R/W	UINT8	1	2, 3, or 4	3	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
87	R/W	UINT8	1	N/A	0	Conversion Code
88	R/W	UINT16	2	N/A	703	History Archive Register #17 (FloBoss 107 only)
89	R/W	UINT8	1	N/A	1	Starting history point
90	R/W	UINT8	1	N/A	8	Ending history point

Point Type 55, Modbus Function Tables

Parameter#	Access	Data Type	Length	Range	Default	Description
91	R/W	UINT8	1	2, 3, or 4	3	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
92	R/W	UINT8	1	N/A	0	Conversion Code
93	R/W	UINT16	2	N/A	703	History Archive Register #18 (FloBoss 107 only)
94	R/W	UINT8	1	N/A	1	Starting history point
95	R/W	UINT8	1	N/A	8	Ending history point
96	R/W	UINT8	1	2, 3, or 4	3	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
97	R/W	UINT8	1	N/A	0	Conversion Code
98	R/W	UINT16	2	N/A	703	History Archive Register #19 (FloBoss 107 only)
99	R/W	UINT8	1	N/A	1	Starting history point
100	R/W	UINT8	1	N/A	8	Ending history point
101	R/W	UINT8	1	2, 3, or 4	3	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
102	R/W	UINT8	1	N/A	0	Conversion Code
103	R/W	UINT16	2	N/A	703	History Archive Register #20 (FloBoss 107 only)
104	R/W	UINT8	1	N/A	1	Starting history point
105	R/W	UINT8	1	N/A	8	Ending history point
106	R/W	UINT8	1	2, 3, or 4	3	Type of History Archive. Valid values are: 2 = Periodic 3 = Daily 4 = Extended
107	R/W	UINT8	1	N/A	0	Conversion Code

3.2.41 Point Type 56: Analog Input Calibration Parameters

Description: Point type 56 provides analog input calibration parameters.

Table 3-46. Point Type 56, Analog Input Calibation Parameters

Point Type 56, Analog Input Calibration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10			Identifies point tag
1	R/W	INT16	2			Calibrated Zero A/D value
2	R/W	INT16	2			Callibrated Mid-point 1 A/D value
3	R/W	INT16	2			Callibrated Mid-point 2 A/D value
4	R/W	INT16	2			Callibrated Mid-point 3 A/D value
5	R/W	INT16	2			Calibrated Span A/D value
6	R/W	INT16	2			Calibrated Zero EU value
7	R/W	FLP	3			Calibrated Mid-point 1 EU value
8	R/W	FLP	3			Calibrated Mid-point 2 EU value
9	R/W	FLP	3			Calibrated Mid-point 3 EU value
10	R/W	FLP	3			Calibrated Span EU value
11	R/O	FLP	3			Offset (Zero shift, Static Pressure Offset, or RTD Bias) (ROC300-Series and FloBoss 407)
	R/W	FLP	3			Offset (Zero shift, Static Pressure Offset, or RTD Bias) (FloBoss 500-Series and FloBoss 103/104)
12	R/W	FLP	3			Callibration Set EU Value
13	R/O	FLP	3			Manual EU (Frozen value while in calibration) (ROC300-Series and FloBoss 407)
	R/W	FLP	3			Manual EU (Frozen value while in calibration) (FloBoss 500-Series and FloBoss 103/104)
14	R/O	UINT16	2			Time (number of seconds until calibration timeout) (ROC300-Series and FloBoss 407)
	R/W	UINT16	2			Time (number of seconds until calibration timeout) (FloBoss 500-Series and FloBoss 103/104)
15	R/W	UINT8	1			Calibration Mode. Valid values are: 0 = No calibration in progress 1 = Start calibration 2 = Calibrate input 3 = Restore previous calibration values 4 = End calibration

Point Type 56, Analog Input Calibration Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
16	R/W	UINT8	1			Calibration type. Valid values are: 0 = No calibration active 1 = Set Zero 2 = Set Span 3 = Set Mid-point 1 4 = Set Mid-point 2 5 = Set Mid-point 3 6 = Set Offset

3.2.42 Point Type 56: Analog Input Calibration Parameters (for RegFlo)

Description: Point type 56 provides analog input calibration parameters for RegFlo.

Table 3-47. Point Type 56, Analog Input Calibation Parameters (RegFlo)

Point Type 56, Analog Input Calibration Parameters (for RegFlo)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10			Identifies point tag
1	R/W	INT16	2			Raw value 1
2	R/W	INT16	2			Raw value 2
3	R/W	INT16	2			Raw value 3
4	R/W	INT16	2			Raw value 4
5	R/W	FLP	4			Raw value 5
6	R/W	FLP	4			EU value 1
7	R/W	FLP	4			EU value 2
8	R/W	FLP	4			EU value 3
9	R/W	FLP	4			EU value 4
10	R/W	FLP	4			EU value 5
11	R/W	FLP	4			If analog input is P1, P2, or P3 and Sensor Type is Pressure, then Barometric Pressure when the AI was calibrated units in psia, bar(a), or kPa(a). Otherwise, not used.
12	R/W	FLP	4			Tester value for Current Calibration Point, EU
13	R/W	FLP	4			Converted value for Current Calibration Point, EU
14	R/W	UINT16	2			Timer
15	R/W	UINT8	1			Mode. Valid values are: 0 = Normal Scan 1 = Prepare for Calibration 2 = Start Calibration 3 = Calibrate 4 = Restore Previous Calibration 5 = Calibration Complete
16	R/W	UINT8	1			Type. Valid values are: 0 =Wait for User Entry to set Calibration Value 1 = Set Low Range Calibration Value 2 = Set High Range Calibration Value 3 = Set Intermediate Calibration Value

3.2.43 Point Type 57: Keypad/Login Securities Parameters

Description: Point type 57 provides keypad and login securities parameters.

Number of Logical Points: 16 configurable points may exist.

Table 3-48. Point Type 57, Keypad/Login Securities Parameters

Point Type 57, Keypad/Login Securities Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	3	3 characters	For FB107: For Logical 0:"LOI" For all other logicals: "…"	Identifies operator
1	R/W	UINT8	1	For FB107: 0 → 5	For FB107: Logical 0: 5 For all other logicals: 0	List Security (FloBoss 407 and FloBoss 107) Bit 7 – User List 1 Write Access 0 = No 1 = Yes Bit 6 – User List 2 Write Access 0 = No 1 = Yes Bit 5 – User List 3 Write Access 0 = No 1 = Yes Bit 4 – User List 4 Write Access (FloBoss 107 only) 0 = No 1 = Yes Bit 3 – User List 4 Read Access (FloBoss 107 only) 0 = No 1 = Yes Bit 2 – User List 3 Read Access 0 = No 1 = Yes Bit 1 – User List 2 Read Access 0 = No 1 = Yes Bit 0 – User List 1 Read Access 0 = No 1 = Yes Access Level (0-5) (ROC300-Series with FlashPAC version 2.21 or greater, FloBoss 103/104 version 1.20 or greater, and FloBoss 500-Series version 2.40 or greater and FloBoss 107) Spare (ROC300-Series with ROCPAC, FlashPAC version 2.20 or earlier, FloBoss 103/104 version 1.13 or earlier, and FloBoss 500-Series version 2.30 or earlier).

Point Type 57, Keypad/Login Securities Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
2	R/W	UINT8	1		For FB107: Logical 0: 1 For all other logicals: 0	Keypad Security (FloBoss 407 and FloBoss 107) Bit 7 – Write Access 0 = No 1 = Yes Bits 2 - 6 – Not used Bit 1 – LCD Ever On 0 = No 1 = Yes Bit 0 – Read Access 0 = No 1 = Yes Spare (ROC300-Series, FloBoss 103/104, and FloBoss 500-Series)
3	R/W	UINT8	1		For FB107: Logical 0: 15 For all other logicals: 0	LCD Ever On Flag (FloBoss 407: 0 = Sleep Mode Enabled 1 = Sleep Mode Disabled (LCD always on) LCD User Timeout in minutes (ROC300-Series): 0 = Timeout disabled 1 to 255 = Timeout in minutes Spare (FloBoss 103/104 and FloBoss 500-Series) User List Security (FloBoss 107 only): Bit 7 – User List 1 Write Access 0 = No 1 = Yes Bit 6 – User List 2 Write Access 0 = No 1 = Yes Bit 5 – User List 3 Write Access 0 = No 1 = Yes Bit 4 – User List 4 Write Access 0 = No 1 = Yes Bit 3 – User List 1 Read Access 0 = No 1 = Yes Bit 2 – User List 2 Read Access 0 = No 1 = Yes Bit 1 – User List 3 Read Access 0 = No 1 = Yes Bit 0 – User List 4 Read Access 0 = No 1 = Yes
4	R/W	UINT16	2		For FB107: Logical 0: 1000 For all other logicals: 0	Password (0 – 9999)

Point Type 57, Keypad/Login Securities Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
5	R/W	UINT8	1			Access Level (0 5) (FloBoss 407, version 1.10 or greater)
	R/W	UINT16	2	60 → 65535	600	For FB107: Amount of time, in seconds, the device waits before logging a user out when there is no communication activity.
6	R/O	UINT8	1	0-1	0	Reserved (Internal use)
7	R/W	AC	30	30 characters	For FB107: For Logical 0: "Username" For all other logicals: "…………………………"	Identifies operator
8	R/W	AC	40	40 characters	For FB107: For Logical 0: "Password" For all other logicals: "…………………………"	Alphanumeric Password Note: The password must be encrypted and cannot be written in clear text. The password is case sensitive.

3.2.44 Point Type 58: Revision Information

Description: Point type 58 provides revision information.

Table 3-49. Point Type 58, Revision Information

Point Type 58, Revision Information

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/O	AC	20			Device Firmware Description
1	R/O	AC	10			Part Number
2	R/O	AC	10			Version
3	R/O	UINT8	1			Information Present Flag

3.2.45 Point Type 59: Program Flash Control Parameters

Description: Point type 59 provides program flash control parameters.

Table 3-50. Point Type 59, Program Flash Control Parameters

Point Type 59, Program Flash Control Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	UINT8	1			Operation in Progress Flag (ROC300-Series and FloBoss 407)
1	R/O	INT8	1			Status Code (ROC300-Series and FloBoss 407)
	R/W	INT8	1		For FB107: 1	Status Code (FloBoss 500-Series and FloBoss 100-Series) For FB107: RTU sets to non-zero value when the operation request is serviced OR a failure is detected. Valid values are: 1 = Success 0 = No Status Yet -1 = Flash Failure -2 = Host Failure -4 = Size Limit Exceeded -5 = CRC Error
2	R/O	UINT16	2			Service Request (ROC300-Series and FloBoss 407)
	R/W	UINT16	2		For FB107: 240	Service Request (FloBoss 500-Series and FloBoss 100-Series) For FB107: Operation request sent by host. RTU resets to 0 following termination of the download. Valid values are: 0 = No Operation Requested 1 = Prepare for Update 2 = Update in Prograss 3 = Update Completed 4 = User Cancelled Update 5 = Program boot Flash 6 = Program App Flash 10 = Program Serial Number 16 = Prepare for User C Update 17 = User C Update In Progress 18 = User C Update Complete 19 = Program User C to Flashy 20 = User C Program Complete 30 = Program User Displays 31 = Delete User Displays
3	R/O	UINT16	2			Service Timer (ROC300-Series and FloBoss 407)
	R/W	UINT16	2			Service Timer (FloBoss 500-Series and FloBoss 100-Series)
	R/W	UINT16	2	For FB107: 0	For FB107: 0	For FB107: CRC checksum calculated by host

Point Type 59, Program Flash Control Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
4	R/O	UINT16	2			Copy Index (ROC300-Series, FloBoss 407, and FloBoss 500-Series)
	R/O	UINT16	2	For FB107: 0	For FB107: 0	For FB107: CRC checksum calculated by RTU
5	R/W	UINT16	2			Update Sector (ROC300-Series, FloBoss 407, and FloBoss 500-Series) Not Used (FloBoss 107 only)
6	R/O	UINT32	4			Flash Pointer (ROC300-Series, FloBoss 407, and FloBoss 500-Series) Not Used (FloBoss 107 only)
7	R/O	UINT32	4		For FB107: 0	RAM Pointer
8	R/O	UINT32	4			Command Pointer (ROC300-Series, FloBoss 407, and FloBoss 500-Series)
	R/O	UINT32	4		For FB107: 0	Total Bytes Received (FloBoss 107 only)
9	R/O	UINT32	4			Update Sector Address (ROC300-Series and FloBoss 407)
	R/W	UINT32	4			Update Sector Address (FloBoss 500-Series and FloBoss 100-Series) Not Used (FloBoss 107 only)
10	R/O	UINT16	2			Copy Indiex ((ROC300-Series, FloBoss 407, and FloBoss 500-Series) Not Used (FloBoss 107 only)
11	R/O	UINT16	2			Not Used (ROC300-Series and FloBoss 407)
	R/W	UINT16	2			Not Used (FloBoss 500-Series and FloBoss 100-Series
12	R/O	UINT8	1			Not Used (ROC300-Series and FloBoss 407)
	R/W	UINT8	1			Not Used (FloBoss 500-Series and FloBoss 100-Series
	R/W	UINT8	1		For FB107: 0	For FB107: Measurement Canada Access Key. The FB107 always resets this value to 0 after any type of restart. The value must be reset to 0x5A to unlock the Flash update procedures.

3.2.46 Point Type 80: Ethernet/USB Configuration Parameters (FloBoss 107)

Description: Point type 80 provides Ethernet configuration parameters for the FloBoss 107.

Number of Logical Points: 2 configurable points may exist.

Table 3-51. Point Type 80, Ethernet/USB Configuration Parameters (FloBoss 107)

Point Type 80, Ethernet/USB Configuration Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/O	AC	12	N/A	Each unit is unique	Unique MAC address set by the factory.
1	R/W	AC	20	N/A	“10.0.0.2”	IP address for this unit
2	R/W	AC	20	N/A	“255.255.255.0”	Subnet address for this unit
3	R/W	AC	20	N/A	“10.0.0.1”	Gateway address for this unit
4	R/W	UINT16	2	0 → 655355	4000	ROC protocol port number
5	R/O	UINT8	1	0 → 4	0	Number of active ROC protocol connections
6	R/W	FL	4	0 → x	10.0	ROC protocol timeout (in minutes). The connection closes after this amount of time if no activity is detected.
7	R/W	UINT8	1	0 → 1	0	Closes all ROC protocol connections. 1 = Close all connections.
8	R/O	UINT32	4	N/A	0	Not used in FloBoss 107.
9	R/W	UINT16	2	0 → 655355	502	Modbus protocol port number
10	R/O	UINT8	1	0 → 4	0	Number of active Modbus protocol connections
11	R/W	FL	4	0 → x	10.0	Modbus protocol timeout (in minutes). The connection closes after this amount of time if no activity is detected.
12	R/W	UINT8	1	0 → 1	0	Closes all Modbus protocol connections. 1 = Close all connections.
13	R/O	UINT32	4	N/A	0	Not used in FloBoss 107. .
14	R/W	UINT8	1	0 → 2	2	Selects which address (ROC address or Modbus over IP slave access) Modbus over IP should use. Valid values are: 0 = Use ROC address 1 = User Modbus over IP Slave Address 2 = Use either ROC address or Modbus TCP Address
15	R/W	UINT8	1	0 → 255	-	Specifies the slave address for Modbus over IP
16	R/W	UINT8	1	1 → 255	3	Modbus Master TCP connection timeout (in seconds).
17	R/W	UINT8	1	1 → 255	3	Modbus Master TCP close timeout (in seconds).
18	R/W	UINT8	1			RESERVED
19	R/W	UINT8	1			RESERVED
Master Table 1 Block						
20	R/W	UINT8	1	0 → 1	0	Modbus Master TCP option for Master Table 1. Valid values are: 0 = TCP Modbus format 1 = Modbus wrapped in TCP

Point Type 80, Ethernet/USB Configuration Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
21	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 1
22	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 1
23	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 2
24	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 2
25	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 3
26	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 3
27	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 4
28	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 4
29	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 5
30	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 5
31	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 6
32	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 6
33	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 7
34	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 7
35	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 8
36	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 8
37	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 9
38	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 9
39	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 10
40	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 10
41	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 11
42	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 11
43	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 12
44	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 12
45	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 13
46	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 13
47	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 14
48	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 14
49	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 15
50	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 15
51	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 16
52	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 16
53	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 17
54	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 17

Point Type 80, Ethernet/USB Configuration Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
55	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 18
56	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 18
57	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 19
58	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 19
59	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 20
60	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 20
61	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 21
62	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 21
63	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 22
64	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 22
65	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 23
66	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 23
67	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 24
68	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 24
69	R/W	AC	20	N/A	“ “	IP Address for Table 1, Server 25
70	R/W	UINT16	2	0 → 655355	0	Port Number for Table 1, Server 25
Master Table 2 Block						
71	R/W	UNIT8	1	0 → 1	0	Modbus Master TCP Option for Master Table 2. Valid values are: 0 = TCP Modbus Format 1 = Modbus Wrapped in TCP
72	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 1
73	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 1
74	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 2
75	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 2
76	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 3
77	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 3
78	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 4
79	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 4
80	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 5
81	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 5
82	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 6
83	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 6
84	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 7
85	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 7
86	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 8

Point Type 80, Ethernet/USB Configuration Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
87	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 8
88	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 9
89	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 9
90	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 10
91	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 10
92	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 11
93	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 11
94	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 12
95	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 12
96	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 13
97	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 13
98	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 14
99	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 14
100	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 15
101	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 15
102	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 16
103	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 16
104	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 17
105	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 17
106	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 18
107	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 18
108	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 19
109	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 19
110	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 20
111	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 20
112	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 21
113	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 21
114	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 22
115	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 22
116	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 23
117	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 23
118	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 24
119	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 24
120	R/W	AC	20	N/A	“ “	IP Address for Table 2, Server 25

Point Type 80, Ethernet/USB Configuration Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
121	R/W	UINT16	2	0 → 655355	0	Port Number for Table 2, Server 25
122	R/W	UINT8	1	0 → 1	0	Gratuitous ARP Enable/disable. Valid values are: 0 = Disable 1 = Enable
123	R/W	UINT16	2	5 → 50400	1440	Interval in minutes after which FB107 will start ARPing if Heart beat signal is not received
124	R/W	UINT8	1	0 → 1	0	Writing 1 to this parameter resets the GARP init timer to its original configured value and ceases ARP
125	R/W	UINT32	4	5 → 86400	60	Interval (in seconds) at which the FB107 sends Gratuitous ARP once its init timer is expired

3.2.47 Point Type 80: Regulator Parameters (RegFlo Only)

Description: Point type 80 provides regulator parameters for the RegFlo only.

Table 3-52. Point Type 80, Regulator Parameters (RegFlow Only)

Point Type 80, Regulator Parameters (RegFlo Only)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	40			Not used
1	R/W	AC	40			Not used
2	R/W	UINT8	1			Mode for COMM 2: If internal modem with scheduled Power Up: 0 = Disabled 1 = 30 minutes per day 2 = 10 minutes for 8 consecutive hours 3 = Full-time 4 = Disabled If internal modem with Power Up on ring: 3 = Enabled (full-time) 4 = Disabled
3	R/W	UINT8	1			Hour for powering modem on COMM 2: If internal modem with scheduled power up: Hour for Powering modem (0-23) If internal model with Power Up on Ring: not used
4	R/W	UNIT8	1			Minute for Powering modem on COMM 2: If internal modem with scheduled power up: Minute for Powering modem (0-59) If internal model with Power Up on Ring: not used
5	R/W	UINT8	1			Sample Interval. Valid values are: 0 = 10 seconds 1 = 30 seconds 2 = 1 Minute 3 = 2 Minutes 4 = 5 Minutes 5 = 10 Minutes 6 = 30 Minutes
6	R/W	AC	20			Regulator serial number
7	R/W	UINT8	1			Diaphragm material. Valid values are: If Type RF100-EZR: 0 = 17E67 1 = 17E68 2 = 17E88 3 = 17E89 4 = 17397 If Type FR100-ERG: does not apply
8	R/W	FLP	4			Specific Gravity (only entered value)

Point Type 80, Regulator Parameters (RegFlo Only)

Parameter#	Access	Data Type	Length	Range	Default	Description
9	R/W	UINT8	1			Body Size of Regulator. Valid values are: If Type RF100-EZR: 0 = 2 inch 1 = 4 inch 2 = 1 inch 3 = 3 inch 4 = 6 inch 199 = Other If Type FR100-ERG: 0 = 2 inch 1 = 4 inch 2 = 1 inch 3 = 3 Inch 4 = 6 inch 5 = 8 x 6 inch 6 = 10 x 6 inch 7 = 12 x 6 inch 199 = Other
10	R/W	UINT8	1			Restricted Trim or Stop. Valid values are: If Type RF100-EZR (Restricted Capacity) all sizes: 0 = 30 1 = 60 2 = None If Type FR100-ERG (Restricted Stop) Size 1 inch only: 2 = None If Type FR100-ERG (Restricted Stop) Size 2 inch only: 0 = 30% 2 = None 4 = 70% If Type RF100-ERG, Size 3, 4, and 6 (1 Inch): 2 = None 3 = 40%
11	R/W	UINT8	1			Line to Regulator Body size ratio. Valid values are: 0 = Inlet 1:1, Outlet 1:1 1 = Inlet 2:1, Outlet 2:1 2 = Inlet 1:1. Outlet 2:1 3 = Inlet 2:1, Outlet 1:1

Point Type 80, Regulator Parameters (RegFlo Only)

Parameter#	Access	Data Type	Length	Range	Default	Description
12	R/W	UINT8	1			Spring Color. Valid values are: If Type RF100-EZR, Size 1 (inch only): 3 = Light Blue 5 = Black 6 = White If Type RF100-EZR, Size 2, 4, or 6 (inch only): 0 = Yellow 1 = Green 2 = Red If Type RF100-EZR, Size 3 (inch only): 0 = Yellow 3 = Light Blue 2 = Black If Type FR100-ERG, Size 1 (inch only): 1 = Green 2 = Red 3 = Blue If Type RF100-ERG, Size 2, 3, 4, and 6 (Inch only): 0 = Yellow 1 = Green 2 = Red 4 = Blue
13	R/W	UINT8	1			Cage Type. Valid values are: If Type RF100-EZR: Does not apply If Type FR100-ERG, Size 1, 3, or 4 (all 6-inch): 0 = Linear 1 = Quick Opening 2 = Whisper If Type RF100-ERG, Size 2 (Inch only): 0 = Linear 1 = Quick Opening 2 = Whisper 3 = 55% Whisper
14	R/W	AC	40			Selected Phone Number
15	R/W	UINT8	1			Log interval (used in System Settings Intervals). Valid values are: 0 = 1 Minute 1 = 2 Minutes 2 = 3 Minutes 4 = 4 Minutes 5 = 5 Minutes 6 = 10 Minutes 7 = 12 Minutes 8 = 15 Minutes 9 = 20 Minutes 10 = 30 Minutes 11 = 60 Minutes

Point Type 80, Regulator Parameters (RegFlo Only)

Parameter#	Access	Data Type	Length	Range	Default	Description
16	R/W	UINT8	1			Regulator Installation type. Valid vales are: 0 = Single Cut (2 sensors) 1 = Single Cut (3 sensors) 2 = Upstream Wide Open (2 sensors) 3 = Downstream Wide Open (2 sensors) 4 = Working monitor (2 sensors) 5 = Services (2 sensors) 6 = Custom
17	R/W	FLP	4			Gas Temperature Month – January (1)
18	R/W	FLP	4			Gas Temperature Month – February (2)
19	R/W	FLP	4			Gas Temperature Month – March (3)
20	R/W	FLP	4			Gas Temperature Month – April (4)
21	R/W	FLP	4			Gas Temperature Month – May (5)
22	R/W	FLP	4			Gas Temperature Month – June (6)
23	R/W	FLP	4			Gas Temperature Month – July (7)
24	R/W	FLP	4			Gas Temperature Month – August (8)
25	R/W	FLP	4			Gas Temperature Month – September (9)
26	R/W	FLP	4			Gas Temperature Month – October (10)
27	R/W	FLP	4			Gas Temperature Month – November (11)
28	R/W	FLP	4			Gas Temperature Month – December (12)
29	R/W	UINT8	1			Comm 1 Mode (RS-485). Valid values are: 3 = Enabled 4 = Disabled
30	R/W	UINT8	1			Not used
31	R/W	UINT8	1			Not used
32	R/W	UINT8	1			Instrument type. Valid values are: 0 = RF100-EZR 1 = RF100-EGR 199 = Other 200 = RF110
33	R/W	FLP	4			Not used
34	R/W	FLP	4			Not used
35	R/W	FLP	4			Not used
36	R/W	FLP	4			Not used
37	R/W	FLP	4			Not used
38	R/W	FLP	4			Not used

3.2.48 Point Type 81: Logic Alarm Parameters

Description: Point type 81 provides logic alarm parameters.

Table 3-53. Point Type 81, Logic Alarm Parameters

Point Type 81, Logic Alarm Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10			Identifies tag
1	R/W	FLP	4			Travel Operator Status. Valid values are: 0 = > 1 = < 2 = Not used 3 =- N/A
2	R/W	FLP	4			Inlet Pressure (P1) Operator Status. Valid values are: 0 = > 1 = < 2 = Not used 3 =- N/A
3	R/W	FLP	4			Outlet Pressure (P2) Operator Status. Valid values are: 0 = > 1 = < 2 = Not used 3 =- N/A
4	R/W	FLP	4			Auxiliary Pressure (P3 Operator Status. Valid values are: 0 = > 1 = < 2 = Not used 3 =- N/A
5	R/W	FLP	4			Flow Operator Status. Valid values are: 0 = > 1 = < 2 = Not used 3 =- N/A
6	R/W	FLP	4			Travel Value (entered value)
7	R/W	FLP	4			Inlet Pressure (P1) value (can be compared with P2 or P3 or entered value). Valid values are: 0 = P2 1 = P3 **Note**: Value based on Mode Bit 6 (parameter 12). For example, if P1 selected then 0.0 should be taken as 0.
8	R/W	FLP	4			Outlet Pressure (P2) value(can be compared with P1 or P3 or entered value). Valid values are: 0 = P1 1 = P3 **Note**: Value based on Mode Bit 6 (parameter 12). For example, if P1 selected then 0.0 should be taken as 0.

Point Type 81, Logic Alarm Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
9	R/W	FLP	4			Auxiliary Pressure (P3) value (can be compared with P1 or P3 or entered value). Valid values are: 0 = P1 1 = P3 **Note**: Value based on Mode Bit 6 (parameter 12). For example, if P1 selected then 0.0 should be taken as 0.
10	R/W	FLP	4			Flow Value (entered value).
11	R/W	UINT16	2			Mode
12	R/W	AC	20			Description

3.2.49 Point Type 83: User Analog Values

Description: Point type 83 provides user analog values.

Table 3-54. Point Type 83, User Analog Values

Point Type 83, User Analog Values

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10			Identifies tag
1	R/W	AC	10			Units
2	R/W	BIN	1			Mode Selections::: Bit 7 – Type of User Analog Values 0 = Calculation 1 = Manual Entry Bit 6 – RBX on Alarm Set 0 = Disabled 1 = Enabled Bit 5 – RBS on Alarm Clear 0 = Disabled 1 = Enabled Bit 4 – Alarm Status 0 = Disabled 1 = Enabled Bit 3 to 0 – Not used
3	R?W	BIN	1			Alarm Status Bit 4 to 7 – Not used Bit 3 – High High Alarm Bit 2 – High Alarm Bit 1 – Low Low Alarm Bit 0 – Low Alarm
4	R/W	FLP	4			Low Alarm, in EUs
5	R/W	FLP	4			High Alarm, in EUs
6	R/W	FLP	4			Low Low Alarm, in EUs
7	R/W	FLP	4			High High Alarm, in EUs
8	R/W	FLP	4			Alarm Deadband, in EUs
9	R/W	UINT8	1			Filter, in 5 weighting assigned to previous value. (0 is No Filtering)
10	R/W	FLP	4			Unfiltered value. If the type of User Analog Value is Calculation from FST, the FST should save to this parameter.
11	R/W	FLP	4			If the type of User Analog Value is Manual: Entered Value If the type of User Analog Value is Calculation, Filtered EU – Analog Scan program stores the result here.

3.2.50 Point Type 84: User Discrete Values

Description: Point type 84 provides user discrete values.

Table 3-55. Point Type 84, User Discrete Values

Point Type 84, User Discrete Values

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10			Identifies tag
1	R/W	BIN	1			Mode Selections:: Bit 7 – Type of User Discrete Values 0 = Calculation 1 = Manual Entry Bit 6 – RBX on Alarm Set 0 = Disabled 1 = Enabled Bit 5 – RBS on Alarm Clear 0 = Disabled 1 = Enabled Bit 4 – Alarm Status 0 = Disabled 1 = Enabled Bits 3 and 2 – Not used Bit 1 – Latching 0 = Disabled 1 = Enabled Bit 0 – Invert 0 = Disabled 1 = Enabled
2	R/O	BIN	1			Mode Selections:: Bit 7 – Not used Bit 6 – Not used Bit 5 – Value is On (set when Alarming is Enabled)lear Bits 4 to 0 – Not used
3			1			Filter, seconds
4			1			Raw Status. If the type of User Discrete Value is Calculation from FST, the FST should save to this parameter.
5			1			Status. Valid values are: If the type of User Discrete Value is Manual: Status = Entered Value If the type of User Discrete Value is Calculation: If Invert is Disabled: Status = Raw Status If Invert is Enabld: When Raw Status is 0, Status is 1 (On) When Raw Status is 1, Status is 0 (Off)
6			4			Accumulated Value; counts the number of changes from the Off to the On state.

Point Type 84, User Discrete Values

Parameter#	Access	Data Type	Length	Range	Default	Description
7	R/W	UINT32	4			On Timer: Time, in seconds, the User Discrete Value has been On.
8	R/W	UINT32	4			Off Timer: Time, in seconds, the User Discrete Value has been Off.

3.2.51 Point Type 85: HART Parameters (FloBoss 107)

Description: Point type 85 provides HART parameters for the FloBoss 107.

Number of Logical Points: 4 configurable points may exist.

Table 3-56. Point Type 85, HART Parameters (FloBoss 107)

Point Type 85, HART Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	10 characters	HRTx Sloty where "x" = 1 – 4 "y" = 0 - 7	Identifies channel tag
	R/O	AC	10			Version of firmware for the channel
1	R/W	UINT8	1	0 → 1	0	Channel I/O mode. Valid values are 0 (Input) and 1 (Output).
2	R/W	UINT8	1	Bits 0-6: 0 → 2 Bit 7: 0 or 1	1	HART Communication mode. If disabled, all HART communication stops and no changes occur unless manually entered. Bits 0 to 6: 0 = Disabled 1 = Point to Point 2 = Multidrop Bit 7: 0 = Primary Master 1 = Secondary Master
3	R/W	UINT8	1	1 → 5	1	Number of devices connected. Indicates the number of devices connected in multidrop mode.
4	R/O	UINT8	1	0 → 4	0	HART communication status. Valid values are: 0 = Not scanning 1 = Scanning normal 2 = Dual Master detected 3 = Pass thru 4 = Device in Burst Mode detected
5	R/W	UINT8	1	If analog input: 0,1,3,4 If analog output: 0 → 2	1	Analog Mode. For Analog Input, valid values are: 0 = Disabled 1 = Enabled 3 = Calibration (EU value no longer updates and freezes at this value) 4 = Cancel calibration (restore previous calibration). For Analog Output, valid values are: 0 = Disabled 1 = Enabled (Auto) 2 = Manual

Point Type 85, HART Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
6	R/W	UNIT8	1	0 ➝ 2	1	ROC Protocol Pass Thru Enable. Enables ROC protocol pass thru communication. Valid values are: 0 = Disabled 1 = Enabled, strip all bytes, including preamble, before message 2 = Enabled; don't alter the message and return all bytes **Note**: This is only R/W (to other than 0) if the license is available for this feature.
7	R/W	UINT32	4	0 ➝ 4,294,967,295	5000	For HART1 module: Indicates, in milliseconds, when to resume polling HART device after receiving ROC protocol pass thru communication. For HART2 module: Enables the internal 250 Ohm resistor; Bit 31: 0 = Enable internal resistor 1 = Disable internal resistor Bits 31 – 0: Unused
8	R/O	FL	4	Any valid IEEE 754 float	0	EU Value; indicates the EU value of the analog input.
9	R/W	UINT8	1	0 ➝ 1	0	Failsafe on Reset. Valid values are: 0 = Use last EU value on reset 1 = Use Failsafe value on reset. If enabled (1 selected), the Raw D/A Ouput is set to the failsafe value on a restart of any kind. If disabled (0 selected), the last EU value or the last saved EU Value is used to determine the Raw D/A Output after a restart.
10	R/W	FL	4	Any valid IEEE 754 float	0.0	Failsafe Value, which is output when the unit is started and the Failsafe on Reset Parameter is set to 1 (Use Failsafe Value on Reset).
11	R/W	FL	4	Any valid IEEE 754 float	0.0	Manual Value, the EU value used as an output when Scanning is in manual mode.
12	R/W	FL	4	Any valid IEEE 754 float	0.0	Auto Value, the EU value used an an output when Scanning is in automatic mode.
13	RO	FL	4	Any valid IEEE 754 float	0.0	Physical Value, the current value of the output in Engineering Units.
14	R/O	UINT16	2	0 ➝ 65,535	AI: 0 AO: 5,257	Physical Raw D/A Output, the calculated Digital-to-Analog value based on the EU value that is currently being outputted.
15	R/O	FL	4	Any valid IEEE 754 float	0.0	Calibration Live Value; the live value when calibrating an AI.
16	R/W	FL	4	Any valid IEEE 754 float	0.0	The Zero EU calibration value; this parameter is read/write when the HART channel is configurated as an AO or when in calibration mode, if configured as an AI;
17	R/W	FL	4	Any valid IEEE 754 float	100.0	EU Calibration Value Span. This parameter is read/write when the HART channel is configured as an AO or when in calibration mode if configured as an AI.
18	R/O	UINT16	2	0 ➝ 65,535	0	Raw EU Value of analog input or output.
19	R/W	UINT16	2	0 ➝ 65,535	AI: 740 AO: 5,150	Zero raw EU calibration value.

Point Type 85, HART Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
20	R/W	UINT16	2	0 ➝ 65,535	AI: 3700 AO: 26,400	Span of raw EU calibration value. AO default changed as of 2.02.
21	R/W	UINT8	1	Bit 7: 0 or 1 Bits 0-6: 0 ➝ 3	0	Device 1 Poll Mode: Bit 7 = Update State: 1 = Update 0 = No update Bits 6 – 0: 0 = Skip this device 1 = Primary Variable only 2 = All dynamic variables 3 = All Slot variables
22	R/O	UINT8	1	0 ➝ 15	0	Device 1 polling address.
23	R/O	UINT8	1	0 ➝ 2	0	Device 1 Status: 0 = No Device Found 1 = Communicating 2 = Comm error
24	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 Actual Scan Period Period at which device 1 is being updated.
25	R/W	AC	10	0x20 – 0x5f for each byyte	“ “	Device 1 Tag Tag that resides in device 1.
26	R/O	UINT16	2	0 ➝ 65,535	0	Device 1 Reponse Code/Status Response codes and status received from device 1
27	R/O	UINT8	1	0 ➝ 255	0	Device 1 Active Alarms Active alarms reported by device 1
28	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 Current (mA) Current in milliamps reported by device 1
29	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 Percent of Range Percent of range reported by device 1
30	R/W	UINT8	1	0 ➝ 1	0	Device 1 Fault Value Enable Enable the use of failsafe values for the dynamic variables when the unit has an error for device 1.
31	R/O	UINT8	1	0 ➝ 255	0	Device 1 PV Units Units code for primary variable reported by device 1
32	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 PV Value of primary variable of device 1
33	R/W	FL	4	Any valid IEEE 754 float	0	Device 1 PV Failsafe on Reset Value Primary failsafe on reset value for device 1
34	R/O	UINT8	1	0 ➝ 255	0	Device 1 SV Units Units code for secondard variable reported by device 1
35	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 SV Value of secondary variable of device 1
36	R/W	FL	4	Any valid IEEE 754 float	0	Devie 1 SV Failsafe on Reset Value Secondard failsafe on reset value for device 1
37	R/O	UINT8	1	0 ➝ 255	0	Device 1 TV Units Units code for tertiary variable reported by device 1

Point Type 85, HART Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
38	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 TV Value of tertiary variable of device 1
39	R/W	FL	4	Any valid IEEE 754 float	0	Device 1 TV Failsafe on Reset Value Tertiary failsafe on reset value for device 1
40	R/O	UINT8	1	0 → 255	0	Device 1 FV Units Units code for fourth variable reported by device 1
41	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 FV Value of fourth variable of device 1
42	R/W	FL	4	Any valid IEEE 754 float	0	Device 1 FV Failsafe on Reset Value Fourth failsafe on reset value for device 1
43	R/W	UINT8	1	0 → 255	0	Device 1 Solt 0 Assignment Slot 0 variable to request from device 1
44	R/O	UINT8	1	0 → 255	0	Device 1 Slot 0 Units Units of slot 0 variable requested from device 1
45	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 Slot 0 Variable Value of slot 0 variable to request from device 1
46	R/W	UINT8	1	0 → 255	0	Device 1 Slot 1 Assignment Slot 1 variable to request from device 1
47	R/O	UINT8	1	0 → 255	0	Device 1 Slot 1 Units Units of slot 1 variable requested from device 1
48	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 Slot 1 Variable Value of slot 1 variable requested from device 1
49	R/W	UINT8	1	0 → 255	0	Device 1 Slot 2 Assigment Slot 2 variable to request from device 1
50	R/O	UINT8	1	0 → 255	0	Device 1 Slot 2 Units Units of slot 2 variable requested from device 1.
51	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 Slot 2 Variable Value of slot 2 variable requested from device 1
52	R/W	UINT8	1	0 → 255	0	Device 1 Slot 3 Assignment Slot 3 variable to request from device 1
53	R/O	UINT8	1	0 → 255	0	Device 1 Slot 3 Units Units of slot 3 variable requested from device 1.
54	R/O	FL	4	Any valid IEEE 754 float		Device 1 Slot 3 Variable Value of slot 3 variable requested from device 1
55	R/W	AC	40	0x02 – 0x5F for each byte	“ “	Device 1 message
56	R/W	AC	20	0x02 – 0x5F for each byte	“ “	Device 1 descriptor
57	R/O	UINT16	2	0 → 65,535	0	Device 1 manufacturer’s ID and device ID
58	R/O	UINT32	4	0 → 4,294,967,295	0	Device 1 Serial number
59	R/O	UINT32	4	0 → 4,294,967,295	0	Device 1 ID number
60	R/O	UINT8	1	0 → 255	0	Device 1 sensor units
61	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 upper sensor limit.
62	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 lower sensor limit

Point Type 85, HART Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
63	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 minimum sensor span
64	R/O	UINT8	1	0 → 255	0	Device 1 uutput units
65	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 upper output limit
66	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 lower output limit
67	R/O	FL	4	Any valid IEEE 754 float	0	Device 1 damping value
68	R/W	UINT8	1	Bit 7: 0 or 1 Bits 0-6: 0 → 3	0	Device 2 Poll Mode: Bit 7 = Update State: 1 = Update 0 = No update Bits 6 – 0: 0 = Skip this device 1 = Primary Variable only 2 = All dynamic variables 3 = All Slot variables
69	R/O	UINT8	1	0 → 15	0	Device 2 polling address.
70	R/O	UINT8	1	0 → 2	0	Device 2 Status: 0 = No Device Found 1 = Communicating 2 = Comm error
71	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 Actual Scan Period Period at which device 2 is being updated.
72	R/W	AC	10	0x20 – 0x5f to each byyte	“ “	Device 2 Tag Tag that resides in device 2.
73	R/O	UINT16	2	0 → 65,535	0	Device 2 Reponse Code/Status Response codes and status received from device 2
74	R/O	UINT8	1	0 → 255	0	Device 2 Active Alarms Active alarms reported by device 2
75	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 Current (mA) Current in milliamps reported by device 2
76	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 Percent of Range Percent of range reported by device 2
77	R/W	UINT8	1	0 → 1	0	Device 2 Fault Value Enable Enable the use of failsafe values for the dynamic variables when the unit has an error for device 2.
78	R/O	UINT8	1	0 → 255	0	Device 2 PV Units Units code for primary variable reported by device 2
79	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 PV Value of primary variable of device 2
80	R/W	FL	4	Any valid IEEE 754 float	0	Device 2 PV Failsafe on Reset Value Primary failsafe on reset value for device 2
81	R/O	UINT8	1	0 → 255	0	Device 2 SV Units Units code for secondard variable reported by device 2
82	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 SV Value of secondary variable of device 2

Point Type 85, HART Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
83	R/W	FL	4	Any valid IEEE 754 float	0	Devie 2 SV Failsafe on Reset Value Secondard failsafe on reset value for device 2
84	R/O	UINT8	1	0 → 255	0	Device 2 TV Units Units code for tertiary variable reported by device 2
85	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 TV Value of tertiary variable of device 2
86	R/W	FL	4	Any valid IEEE 754 float	0	Device 2 TV Failsafe on Reset Value Tertiary failsafe on reset value for device 2
87	R/O	UINT8	1	0 → 255	0	Device 2 FV Units Units code for fourth variable reported by device 2
88	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 FV Value of fourth variable of device 2
89	R/W	FL	4	Any valid IEEE 754 float	0	Device 2 FV Failsafe on Reset Value Fourth failsafe on reset value for device 2
90	R/W	UINT8	1	0 → 255	0	Device 2 Slot 0 Assignment Slot 0 variable to request from device 2
91	R/O	UINT8	1	0 → 255	0	Device 2 Slot 0 Units Units of slot 0 variable requested from device 2
92	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 Slot 0 Variable Value of slot 0 variable to request from device 2
93	R/W	UINT8	1	0 → 255	0	Device 2 Slot 1 Assignment Slot 1 variable to request from device 2
94	R/O	UINT8	1	0 → 255	0	Device 2 Slot 1 Units Units of slot 1 variable requested from device 2
95	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 Slot 1 Variable Value of slot 1 variable requested from device 2
96	R/W	UINT8	1	0 → 255	0	Device 2 Slot 2 Assigment Slot 2 variable to request from device 2
97	R/O	UINT8	1	0 → 255	0	Device 2 Slot 2 Units Units of slot 2 variable requested from device 2.
98	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 Slot 2 Variable Value of slot 2 variable requested from device 2
99	R/W	UINT8	1	0 → 255	0	Device 2 Slot 3 Assignment Slot 3 variable to request from device 2
100	R/O	UINT8	1	0 → 255	0	Device 2 Slot 3 Units Units of slot 3 variable requested from device 2.
101	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 Slot 3 Variable Value of slot 3 variable requested from device 2
102	R/W	AC	40	0x02 – 0x5f for each byte	“ “	Device 2 message
103	R/W	AC	20	0x02 – 0x5f for each byte	‘ “	Device 2 descriptor
104	R/O	UINT16	2	0 → 65,535	0	Device 2 manufacturer’s ID and device ID
105	R/O	UINT32	4	0 → 4,294,967,295	0	Device 2 Serial number
106	R/O	UINT32	4	0 → 4,294,967,295	0	Device 2 ID number

Point Type 85, HART Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
107	R/O	UINT8	1	0 → 255	0	Device 2 sensor units
108	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 upper sensor limit.
109	R/O	FL	4	Any valid IEEE 754 float	0	Device 2lower sensor limit
110	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 minimum sensor span
111	R/O	UINT8	1	0 → 255		Device 2 output units
112	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 upper output limit
113	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 lower output limit
114	R/O	FL	4	Any valid IEEE 754 float	0	Device 2 damping value
115	R/W	UINT8	1	Bit 7: 0 or 1 Bits 0-6: 0 → 3		Device 3 Poll Mode: Bit 7 = Update State: 1 = Update 0 = No update Bits 6 – 0: 0 = Skip this device 1 = Primary Variable only 2 = All dynamic variables 3 = All Slot variables
116	R/O	UINT8	1	0 → 15	0	Device 3 polling address.
117	R/O	UINT8	1	0 → 2	0	Device 3 Status: 0 = No Device Found 1 = Communicating 2 = Comm error
118	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 Actual Scan Period Period at which device 3 is being updated.
119	R/W	AC	10	0x20 – 0x5f to each byte	“ “	Device 3 Tag Tag that resides in device 3.
120	R/O	UINT16	2	0 → 65,535	0	Device 3 Reponse Code/Status Response codes and status received from device 3
121	R/O	UINT8	1	0 → 255	0	Device 3 Active Alarms Active alarms reported by device 3
122	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 Current (mA) Current in milliamps reported by device 3
123	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 Percent of Range Percent of range reported by device 3
124	R/W	UINT8	1	0 → 1	0	Device 3 Fault Value Enable Enable the use of failsafe values for the dynamic variables when the unit has an error for device 3.
125	R/O	UINT8	1	0 → 255	0	Device 3 PV Units Units code for primary variable reported by device 3
126	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 PV Value of primary variable of device 1
127	R/W	FL	4	Any valid IEEE 754 float	0	Device 3 PV Failsafe on Reset Value Primary failsafe on reset value for device 3

Point Type 85, HART Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
128	R/O	UINT8	1	0 → 255	0	Device 3 SV Units Units code for secondard variable reported by device 3
129	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 SV Value of secondary variable of device 3
130	R/W	FL	4	Any valid IEEE 754 float	0	Device 3 SV Failsafe on Reset Value Secondard failsafe on reset value for device 3
131	R/O	UINT8	1	0 → 255	0	Device 3 TV Units Units code for tertiary variable reported by device 3
132	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 TV Value of tertiary variable of device 3
133	R/W	FL	4	Any valid IEEE 754 float	0	Device 3 TV Failsafe on Reset Value Tertiary failsafe on reset value for device 3
134	R/O	UINT8	1	0 → 255	0	Device 3 FV Units Units code for fourth variable reported by device 3
135	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 FV Value of fourth variable of device 3
136	R/W	FL	4	Any valid IEEE 754 float	0	Device 3 FV Failsafe on Reset Value Fourth failsafe on reset value for device 3
137	R/W	UINT8	1	0 → 255	0	Device 3 Slot 0 Assignment Slot 0 variable to request from device 3
138	R/O	UINT8	1	0 → 255	0	Device 3 Slot 0 Units Units of slot 0 variable requested from device 3
139	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 Slot 0 Variable Value of slot 0 variable to request from device 3
140	R/W	UINT8	1	0 → 255	0	Device 3 Slot 1 Assignment Slot 1 variable to request from device 3
141	R/O	UINT8	1	0 → 255	0	Device 3 Slot 1 Units Units of slot 1 variable requested from device 3
142	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 Slot 1 Variable Value of slot 1 variable requested from device 3
143	R/W	UINT8	1	0 → 255	0	Device 3 Slot 2 Assigment Slot 2 variable to request from device 3
144	R/O	UINT8	1	0 → 255	0	Device 3 Slot 2 Units Units of slot 2 variable requested from device 3.
145	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 Slot 2 Variable Value of slot 2 variable requested from device 3
146	R/W	UINT8	1	0 → 255		Device 3 Slot 3 Assignment Slot 3 variable to request from device 3
147	R/O	UINT8	1	0 → 255		Device 3 Slot 3 Units Units of slot 3 variable requested from device 3.
148	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 Slot 3 Variable Value of slot 3 variable requested from device 3
149	R/W	AC	40	0x20 – 0x5f for each byte	“ “	Device 3 message
150	R/W	AC	20	0x20 – 0x5f for each byte	“ “	Device 3 descriptor

Point Type 85, HART Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
151	R/O	UINT16	2	0 → 65,535	0	Device 3 manufacturer's ID and device ID
152	R/O	UINT32	4	0 → 4,294,967,295	0	Device 3 Serial number
153	R/O	UINT32	4	0 → 4,294,967,295	0	Device 3 ID number
154	R/O	UINT8	1	0 → 255	0	Device 3 sensor units
155	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 upper sensor limit.
156	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 lower sensor limit
157	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 minimum sensor span
158	R/O	UINT8	1	0 → 255	0	Device 3 output units
159	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 upper output limit
160	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 lower output limit
161	R/O	FL	4	Any valid IEEE 754 float	0	Device 3 damping value
162	R/W	UINT8	1	Bit 7: 0 or 1 Bits 0-6: 0 → 3	0	Device 4 Poll Mode: Bit 7 = Update State: 1 = Update 0 = No update Bits 6 – 0: 0 = Skip this device 1 = Primary Variable only 2 = All dynamic variables 3 = All Slot variables
163	R/O	UINT8	1	0 → 15	0	Device 4 polling address.
164	R/O	UINT8	1	0 → 2	0	Device 4 Status: 0 = No Device Found 1 = Communicating 2 = Comm error
165	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 Actual Scan Period Period at which device 4 is being updated.
166	R/W	AC	10	0x20 – 0x5f to each byte	" "	Device 4 Tag Tag that resides in device 4.
167	R/O	UINT16	2	0 → 65,535	0	Device 4 Reponse Code/Status Response codes and status received from device 4
168	R/O	UINT8	1	0 → 255	0	Device 4 Active Alarms Active alarms reported by device 4
169	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 Current (mA) Current in milliamps reported by device 4
170	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 Percent of Range Percent of range reported by device 4
171	R/W	UINT8	1	0 → 1	0	Device 4 Fault Value Enable Enable the use of failsafe values for the dynamic variables when the unit has an error for device 4.
172	R/O	UINT8	1	0 → 255	0	Device 4 PV Units Units code for primary variable reported by device 4

Point Type 85, HART Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
173	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 PV Value of primary variable of device 4
174	R/W	FL	4	Any valid IEEE 754 float	0	Device 4 PV Failsafe on Reset Value Primary failsafe on reset value for device 4
175	R/O	UINT8	1	0 → 255	0	Device 4 SV Units Units code for secondard variable reported by device 4
176	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 SV Value of secondary variable of device 4
177	R/W	FL	4	Any valid IEEE 754 float	0	Device 4 SV Failsafe on Reset Value Secondard failsafe on reset value for device 4
178	R/O	UINT8	1	0 → 255	0	Device 4 TV Units Units code for tertiary variable reported by device 4
179	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 TV Value of tertiary variable of device 4
180	R/W	FL	4	Any valid IEEE 754 float	0	Device 4 TV Failsafe on Reset Value Tertiary failsafe on reset value for device 4
181	R/O	UINT8	1	0 → 255	0	Device 4 FV Units Units code for fourth variable reported by device 4
182	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 FV Value of fourth variable of device 4
183	R/W	FL	4	Any valid IEEE 754 float	0	Device 4 FV Failsafe on Reset Value Fourth failsafe on reset value for device 4
184	R/W	UINT8	1	0 → 255	0	Device 4 Slot 0 Assignment Slot 0 variable to request from device 4
185	R/O	UINT8	1	0 → 255	0	Device 4 Slot 0 Units Units of slot 0 variable requested from device 4
184	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 Slot 0 Variable Value of slot 0 variable to request from device 4
187	R/W	UINT8	1	0 → 255	0	Device 4 Slot 1 Assignment Slot 1 variable to request from device 4
188	R/O	UINT8	1	0 → 255	0	Device 4 Slot 1 Units Units of slot 1 variable requested from device 4
189	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 Slot 1 Variable Value of slot 1 variable requested from device 4
190	R/W	UINT8	1	0 → 255	0	Device 4 Slot 2 Assignment Slot 2 variable to request from device 4
191	R/O	UINT8	1	0 → 255	0	Device 4 Slot 2 Units Units of slot 2 variable requested from device 4.
192	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 Slot 2 Variable Value of slot 2 variable requested from device 4
193	R/W	UINT8	1	0 → 255	0	Device 4 Slot 3 Assignment Slot 3 variable to request from device 4
194	R/O	UINT8	1	0 → 255	0	Device 4 Slot 3 Units Units of slot 3 variable requested from device 4.

Point Type 85, HART Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
195	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 Slot 3 Variable Value of slot 3 variable requested from device 4
196	R/W	AC	40	0x20 – 0x5f for each byte	“ “	Device 4 message
197	R/W	AC	20	0x20 – 0x5f for each byte	“ “	Device 4 descriptor
198	R/O	UINT16	2	0 → 65,535	0	Device 4 manufacturer’s ID and device ID
199	R/O	UINT32	4	0 → 4,294,967,295	0	Device 4 Serial number
200	R/O	UINT32	4	0 → 4,294,967,295	0	Device 4 ID number
201	R/O	UINT8	1	0 → 255	0	Device 4 sensor units
202	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 upper sensor limit.
203	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 lower sensor limit
204	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 minimum sensor span
205	R/O	UINT8	1	0 → 255	0	Device 4 output units
206	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 upper output limit
207	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 lower output limit
208	R/O	FL	4	Any valid IEEE 754 float	0	Device 4 damping value
209	R/W	UINT8	1	Bit 7: 0 or 1 Bits 0-6: 0 → 3	0	Device 5 Poll Mode: Bit 7 = Update State: 1 = Update 0 = No update Bits 6 – 0: 0 = Skip this device 1 = Primary Variable only 2 = All dynamic variables 3 = All Slot variables
210	R/O	UINT8	1	0 → 15	0	Device 5 polling address.
211	R/O	UINT8	1	0 → 2	0	Device 5 Status: 0 = No Device Found 1 = Communicating 2 = Comm error
212	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 Actual Scan Period Period at which device 5 is being updated.
213	R/W	AC	10	0x20 – 0x5f to each byyte	“ “	Device 5 Tag Tag that resides in device 5.
214	R/O	UINT16	2	0 → 255	0 → 65,535	Device 5 Reponse Code/Status Response codes and status received from device 5
215	R/O	UINT8	1	0 → 255	0	Device 5 Active Alarms Active alarms reported by device 5
216	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 Current (mA) Current in milliamps reported by device 5
217	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 Percent of Range Percent of range reported by device 5

Point Type 85, HART Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
218	R/W	UINT8	1	0 → 1	0	Device 5 Fault Value Enable Enable the use of failsafe values for the dynamic variables when the unit has an error for device 5.
219	R/O	UINT8	1	0 → 255	0	Device 5 PV Units Units code for primary variable reported by device 5
220	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 PV Value of primary variable of device 5
221	R/W	FL	4	Any valid IEEE 754 float	0	Device 5 PV Failsafe on Reset Value Primary failsafe on reset value for device 5
222	R/O	UINT8	1	0 → 255	0	Device 5 SV Units Units code for secondard variable reported by device 5
223	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 SV Value of secondary variable of device 5
224	R/W	FL	4	Any valid IEEE 754 float	0	Device 5 SV Failsafe on Reset Value Secondard failsafe on reset value for device 5
225	R/O	UINT8	1	0 → 255	0	Device 5 TV Units Units code for tertiary variable reported by device 5
26	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 TV Value of tertiary variable of device 5
227	R/W	FL	4	Any valid IEEE 754 float	0	Device 5 TV Failsafe on Reset Value Tertiary failsafe on reset value for device 5
228	R/O	UINT8	1	0 → 255	0	Device 5 FV Units Units code for fourth variable reported by device 5
229	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 FV Value of fourth variable of device 5
230	R/W	FL	4	Any valid IEEE 754 float	0	Device 5 FV Failsafe on Reset Value Fourth failsafe on reset value for device 5
231	R/W	UINT8	1	0 → 255	0	Device 5 Slot 0 Assignment Slot 0 variable to request from device 5
232	R/O	UINT8	1	0 → 255	0	Device 5 Slot 0 Units Units of slot 0 variable requested from device 5
233	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 Slot 0 Variable Value of slot 0 variable to request from device 5
234	R/W	UINT8	1	0 → 255	0	Device 5 Slot 1 Assignment Slot 1 variable to request from device 5
235	R/O	UINT8	1	0 → 255	0	Device 5 Slot 1 Units Units of slot 1 variable requested from device 5
236	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 Slot 1 Variable Value of slot 1 variable requested from device 5
237	R/W	UINT8	1	0 → 255	0	Device 5 Slot 2 Assigment Slot 2 variable to request from device 5
238	R/O	UINT8	1	0 → 255	0	Device 5 Slot 2 Units Units of slot 2 variable requested from device 5.
239	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 Slot 2 Variable Value of slot 2 variable requested from device 5

Point Type 85, HART Parameters (FloBoss 107)

Parameter#	Access	Data Type	Length	Range	Default	Description
240	R/W	UINT8	1	0 → 255	0	Device 5 Slot 3 Assignment Slot 3 variable to request from device 5
241	R/O	UINT8	1	0 → 255	0	Device 5 Slot 3 Units Units of slot 3 variable requested from device 5.
242	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 Slot 3 Variable Value of slot 3 variable requested from device 5
243	R/W	AC	40	0x20-0x5f for each byte	“ “	Device 5 message
244	R/W	AC	20	0x20 – 0x5f for each byte	“ ”	Device 5 descriptor
245	R/O	UINT16	2	0 → 65,535	0	Device 5 manufacturer’s ID and device ID
246	R/O	UINT32	4	0 → 4,294,967,295	0	Device 5 Serial number
247	R/O	UINT32	4	0 → 4,294,967,295	0	Device 5 ID number
248	R/O	UINT8	1	0 → 255	0	Device 5 sensor units
249	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 upper sensor limit.
250	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 lower sensor limit
251	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 minimum sensor span
252	R/O	UINT8	1	0 → 255	0	Device 5 output units
253	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 upper output limit
254	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 lower output limit
255	R/O	FL	4	Any valid IEEE 754 float	0	Device 5 damping value

3.2.52 Point Type 86: Extended History Parameters

Description: Point type 86 provides extended history parameters.

Number of Logical Points: 1 logical for up to 50 extended history pointst.

Table 3-57. Point Type 86, Extended History Parameters

Point Type 86, Extended History Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/O	UNIT8	1	25	25	Maximum number of extended history points
1	R/W	UINT8	1	1,2,3,4,5,10,12,15,20,30, or 60 minutes or seconds	10 minutes	For FB107: Extended history log interval. Bits 0-6: Value Bit 7: Time Units 0 = Minutes 1 = Seconds
2	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 1.
3	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 1.
4	R/W	UINT8	1	See description	0	History type of extended history point 1. Valid values are: 0 = No type specified 128 = Average of database value 129 = Accumulation of database value 130 = Single value of database value 134 = Database value is a totalizer
5	R/W	UNIT8	1	See description	0	Detail of history type of extended history point 1. Valid values are: 0 = No detail specified If type is **average**: 5 = Linear avg If type is **accumulate**: 10 = Basis is per sec 11 = Basis is per min 12 = Basis is per hr 13 = Basis is per day If type is **single value**: 0 = Value at end of log interval 1 = Minimum value during log interval 2 = Maximum value during log interval If type is **totalizer**: 0 = No detail specified
6	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 2.
7	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 2.
8	R/W	UINT8	1	See description	0	History type of extended history point 2. See parameter 4 for details.
9	R/W	UINT8	1	See description	0	Detail of history type of extended history point 2. See parameter 5 for details.
10	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 3.
11	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 3.

Point Type 86, Extended History Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
12	R/W	UINT8	1	See description	0	History type of extended history point 3. See parameter 4 for details.
13	R/W	UINT8	1	See description	0	Detail of history type of extended history point 3. See parameter 5 for details.
14	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 4.
15	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 4.
16	R/W	UINT8	1	See description	0	History type of extended history point 4. See parameter 4 for details.
17	R/W	UINT8	1	See description	0	Detail of history type of extended history point 4. See parameter 5 for details.
18	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 5.
19	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 5.
20	R/W	UINT8	1	See description	0	History type of extended history point 5. See parameter 4 for details.
21	R/W	UINT8	1	See description	0	Detail of history type of extended history point 5. See parameter 5 for details.
22	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 6.
23	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 6.
24	R/W	UINT8	1	See description	0	History type of extended history point 6. See parameter 4 for details.
25	R/W	UINT8	1	See description	0	Detail of history type of extended history point 6. See parameter 5 for details.
26	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 7.
27	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 7.
28	R/W	UINT8	1	See description	0	History type of extended history point 7 See parameter 4 for details.
29	R/W	UINT8	1	See description	0	Detail of history type of extended history point 7. See parameter 5 for details.
30	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 8.
31	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 8.
32	R/W	UINT8	1	See description	0	History type of extended history point 8. See parameter 4 for details.
33	R/W	UINT8	1	See description	0	Detail of history type of extended history point 8. See parameter 5 for details.
34	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 9.
35	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 9.
36	R/W	UINT8	1	See description	0	History type of extended history point 9. See parameter 4 for details.
37	R/W	UINT8	1	See description	0	Detail of history type of extended history point 9. See parameter 5 for details.
38	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 10.
39	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 10.
40	R/W	UINT8	1	See description	0	History type of extended history point 10. See parameter 4 for details.

Point Type 86, Extended History Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
41	R/W	UINT8	1	See description	0	Detail of history type of extended history point 10. See parameter 5 for details.
42	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 11.
43	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 11.
44	R/W	UINT8	1	See description	0	History type of extended history point 11. See parameter 4 for details.
45	R/W	UINT8	1	See description	0	Detail of history type of extended history point 11. See parameter 5 for details.
46	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 12.
47	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 12.
48	R/W	UINT8	1	See description	0	History type of extended history point 12. See parameter 4 for details.
49	R/W	UINT8	1	See description	0	Detail of history type of extended history point 12. See parameter 5 for details.
50	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 13.
51	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 13.
52	R/W	UINT8	1	See description	0	History type of extended history point 13. See parameter 4 for details.
53	R/W	UINT8	1	See description	0	Detail of history type of extended history point 13. See parameter 5 for details.
54	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 14.
55	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 14.
56	R/W	UINT8	1	See description	0	History type of extended history point 14. See parameter 4 for details.
57	R/W	UINT8	1	See description	0	Detail of history type of extended history point 14. See parameter 5 for details.
58	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 15.
59	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 15.
60	R/W	UINT8	1	See description	0	History type of extended history point 15. See parameter 4 for details.
61	R/W	UINT8	1	See description	0	Detail of history type of extended history point 15. See parameter 5 for details.
62	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 16.
63	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 16.
64	R/W	UINT8	1	See description	0	History type of extended history point 16. See parameter 4 for details.
65	R/W	UINT8	1	See description	0	Detail of history type of extended history point 16. See parameter 5 for details.
66	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 17.
67	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 17.
68	R/W	UINT8	1	See description	0	History type of extended history point 17. See parameter 4 for details.
69	R/W	UINT8	1	See description	0	Detail of history type of extended history point 17. See parameter 5 for details.

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Parameter#	Access	Data Type	Length	Range	Default	Description
70	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 18.
71	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 18.
72	R/W	UINT8	1	See description	0	History type of extended history point 18. See parameter 4 for details.
73	R/W	UINT8	1	See description	0	Detail of history type of extended history point 18. See parameter 5 for details.
74	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 19.
75	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 19.
76	R/W	UINT8	1	See description	0	History type of extended history point 19. See parameter 4 for details.
77	R/W	UINT8	1	See description	0	Detail of history type of extended history point 19. See parameter 5 for details.
78	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 20.
79	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 20.
80	R/W	UINT8	1	See description	0	History type of extended history point 20. See parameter 4 for details.
81	R/W	UINT8	1	See description	0	Detail of history type of extended history point 20. See parameter 5 for details.
82	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 21.
83	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 21.
84	R/W	UINT8	1	See description	0	History type of extended history point 21. See parameter 4 for details.
85	R/W	UINT8	1	See description	0	Detail of history type of extended history point 21. See parameter 5 for details.
86	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 22.
87	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 22.
88	R/W	UINT8	1	See description	0	History type of extended history point 22. See parameter 4 for details.
89	R/W	UINT8	1	See description	0	Detail of history type of extended history point 22. See parameter 5 for details.
90	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 23.
91	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 23.
92	R/W	UINT8	1	See description	0	History type of extended history point 23. See parameter 4 for details.
93	R/W	UINT8	1	See description	0	Detail of history type of extended history point 23. See parameter 5 for details.
94	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 24.
95	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 24.
96	R/W	UINT8	1	See description	0	History type of extended history point 24. See parameter 4 for details.
97	R/W	UINT8	1	See description	0	Detail of history type of extended history point 24. See parameter 5 for details.
98	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 25.

Point Type 86, Extended History Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
99	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 25.
100	R/W	UINT8	1	See description	0	History type of extended history point 25. See parameter 4 for details.
101	R/W	UINT8	1	See description	0	Detail of history type of extended history point 25. See parameter 5 for details.
102	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 26.
103	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 26.
104	R/W	UINT8	1	See description	0	History type of extended history point 26. See parameter 4 for details.
105	R/W	UINT8	1	See description	0	Detail of history type of extended history point 26. See parameter 5 for details.
106	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 27.
107	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 27.
108	R/W	UINT8	1	See description	0	History type of extended history point 27. See parameter 4 for details.
109	R/W	UINT8	1	See description	0	Detail of history type of extended history point 27. See parameter 5 for details.
110	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 28.
111	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 28.
112	R/W	UINT8	1	See description	0	History type of extended history point 28. See parameter 4 for details.
113	R/W	UINT8	1	See description	0	Detail of history type of extended history point 28. See parameter 5 for details.
114	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 29.
115	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 29.
116	R/W	UINT8	1	See description	0	History type of extended history point 29. See parameter 4 for details.
117	R/W	UINT8	1	See description	0	Detail of history type of extended history point 29. See parameter 5 for details.
118	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 30.
119	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 30.
120	R/W	UINT8	1	See description	0	History type of extended history point 30. See parameter 4 for details.
121	R/W	UINT8	1	See description	0	Detail of history type of extended history point 30. See parameter 5 for details.
122	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 31.
123	R/W	TLP	3	Any point type TLP	0,0,0	TLP for t value ag of extended history point 31.
124	R/W	UINT8	1	See description	0	History type of extended history point 31. See parameter 4 for details.
125	R/W	UINT8	1	See description	0	Detail of history type of extended history point 31. See parameter 5 for details.
126	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 32.
127	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value g of extended history point 32.

Point Type 86, Extended History Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
128	R/W	UINT8	1	See description	0	History type of extended history point 32. See parameter 4 for details.
129	R/W	UINT8	1	See description	0	Detail of history type of extended history point 32. See parameter 5 for details.
130	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 33.
131	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 33.
132	R/W	UINT8	1	See description	0	History type of extended history point 33. See parameter 4 for details.
133	R/W	UINT8	1	See description	0	Detail of history type of extended history point 33. See parameter 5 for details.
134	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 34.
135	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 34.
136	R/W	UINT8	1	See description	0	History type of extended history point 34. See parameter 4 for details.
137	R/W	UINT8	1	See description	0	Detail of history type of extended history point 34. See parameter 5 for details.
138	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 35.
139	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 35.
140	R/W	UINT8	1	See description	0	History type of extended history point 35. See parameter 4 for details.
141	R/W	UINT8	1	See description	0	Detail of history type of extended history point 35. See parameter 5 for details.
142	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 36.
143	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 36.
144	R/W	UINT8	1	See description	0	History type of extended history point 36. See parameter 4 for details.
145	R/W	UINT8	1	See description	0	Detail of history type of extended history point 36. See parameter 5 for details.
146	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 37.
147	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 37.
148	R/W	UINT8	1	See description	0	History type of extended history point 37. See parameter 4 for details.
149	R/W	UINT8	1	See description	0	Detail of history type of extended history point 37. See parameter 5 for details.
150	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 38.
151	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 38.
152	R/W	UINT8	1	See description	0	History type of extended history point 38. See parameter 4 for details.
153	R/W	UINT8	1	See description	0	Detail of history type of extended history point 38. See parameter 5 for details.
154	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 39.
155	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 39.
156	R/W	UINT8	1	See description	0	History type of extended history point 39. See parameter 4 for details.

Point Type 86, Extended History Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
157	R/W	UINT8	1	See description	0	Detail of history type of extended history point 39. See parameter 5 for details.
158	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 40.
159	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 40.
160	R/W	UINT8	1	See description	0	History type of extended history point 40. See parameter 4 for details.
161	R/W	UINT8	1	See description	0	Detail of history type of extended history point 40. See parameter 5 for details.
162	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 41.
163	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 41.
164	R/W	UINT8	1	See description	0	History type of extended history point 41. See parameter 4 for details.
165	R/W	UINT8	1	See description	0	Detail of history type of extended history point 41. See parameter 5 for details.
166	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 42.
167	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 42.
168	R/W	UINT8	1	See description	0	History type of extended history point 42. See parameter 4 for details.
169	R/W	UINT8	1	See description	0	Detail of history type of extended history point 42. See parameter 5 for details.
170	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 43.
171	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 43.
172	R/W	UINT8	1	See description	0	History type of extended history point 43. See parameter 4 for details.
173	R/W	UINT8	1	See description	0	Detail of history type of extended history point 43. See parameter 5 for details.
174	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 44.
175	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 44.
176	R/W	UINT8	1	See description	0	History type of extended history point 44. See parameter 4 for details.
177	R/W	UINT8	1	See description	0	Detail of history type of extended history point 44. See parameter 5 for details.
178	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 45.
179	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 45.
180	R/W	UINT8	1	See description	0	History type of extended history point 45. See parameter 4 for details.
181	R/W	UINT8	1	See description	0	Detail of history type of extended history point 45. See parameter 5 for details.
182	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 46.
183	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 46.
184	R/W	UINT8	1	See description	0	History type of extended history point 46. See parameter 4 for details.
185	R/W	UINT8	1	See description	0	Detail of history type of extended history point 46. See parameter 5 for details.

Point Type 86, Extended History Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
186	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 47.
187	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 47.
188	R/W	UINT8	1	See description	0	History type of extended history point 47. See parameter 4 for details.
189	R/W	UINT8	1	See description	0	Detail of history type of extended history point 47. See parameter 5 for details.
190	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 48.
191	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 48.
192	R/W	UINT8	1	See description	0	History type of extended history point 48. See parameter 4 for details.
193	R/W	UINT8	1	See description	0	Detail of history type of extended history point 48. See parameter 5 for details.
194	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 49.
195	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 49.
196	R/W	UINT8	1	See description	0	History type of extended history point 49. See parameter 4 for details.
197	R/W	UINT8	1	See description	0	Detail of history type of extended history point 49. See parameter 5 for details.
198	R/W	TLP	3	Any point type tag TLP	0,0,0	TLP for tag of extended history point 50.
199	R/W	TLP	3	Any point type TLP	0,0,0	TLP for value of extended history point 50.
200	R/W	UINT8	1	See description	0	History type of extended history point 50. See parameter 4 for details.
201	R/W	UINT8	1	See description	0	Detail of history type of extended history point 50. See parameter 5 for details.

3.2.53 Point Type 88: BLM User List Parameters

Description: Point type 88 provides BLM user list parameters.

Number of Logical Points: 32 configurable points (0-31) may exist.

Table 3-58. Point Type 88, BLM User List Parameters

Point Type 88, BLM User List Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	10 characters	‘ ‘	Identifies tag
1	R/W	AC	10	10 characters	‘ ‘	Units string
2	R/W	TLP	3	Any valid TLP	0,0,0	Data

3.2.54 Point Type 89: Chart User List Parameters

Description: Point type 89 provides chart user list parameters.

Number of Logical Points: 16 configurable points (0 - 15) may exist.

Table 3-59. Point Type 89, Chart User List Parameters

Point Type 88, BLM User List Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	UINT8	1	0 → 2	0	Chart type. Valid values are: 0 = Standard 1 = Extended 2 = Dynamic
1	R/W	UINT8	1	1 → 100	1	History Point Number (0 = Not configured)
2	R/W	UINT8	1	Valid TLP	0,0,0	Dynamic Point Data TLP Reference Note: Only valid for non-ASCII point types
3	R/W	AC	10	10 characters	"………."	Text string.
4	R/W	AC	10	10 characters	'………."	Units string
5	R/W	UINT8	1	0 → 1	0	Scaling Option. Valid values are 0 (Auto Scale) and 1 (User Scale)
6	R/W	FL	4	NA	0.0	User Upper Scale Range
7	R/W	FL	4	NA	0.0	User Lower Scale Range

3.2.55 Point Type 93: License Key Parameters

Description: Point type 93 provides license key parameters.

Number of Logical Points: 6 configurable points (0-5) may exist.

Table 3-60. Point Type 93, License Key Parameters

Point Type 93, License Key Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/O	UINT8	1	0 → 1	0	License Key Slot # (Hardware Slot Number). Slot number of hardware key. If the license is valid, then this parameter is always 1.
1	R/O	UINT8	1	1 → 6	0	License number (1 – 6)
2	R/O	AC	20	0x20 → 0x7E for each ASCII character	"………."	Application name for the software license.
3	R/O	AC	20	0x20 → 0x7E for each ASCII character	"………."	Application provider
4	R/O	UINT16	2	0 → 65,535	0	Application specific code (set by application provider)
5	R/O	AC	10	0x20 → 0x7E for each ASCII character	"………."	Version; a combination of the major, minor, and letter portion of the version (such as **255.255.A**).
6	R/O	UINT8	1	0 → 255	0	Quantity Total. Indicates the number of instances of license loaded in unit (always 1 for FloBoss 107)
7	R/O	UINT8	1	0 → 255	0	Quantity Remaining. Indicates the number of instances of license remaining to be allocated (always 1 for FloBoss 107).
8	R/O	TIME	4	0 → 4,294,967,295	0	Expiration Data. Indicates the number of seconds since January 1, 1970, 12:00AM.
9	R/O	UINT8	1	0 → 2	0	Software license validity state. Valid values are: 0 = Not valid 1 = Valid – Transferrable 2 = Valid – Not Transferrable
10	R/O	TIME	4	0 → 4,294,967,295	0	License Creation Date. Indicates the number of seconds since January 1, 1970, 12:00AM.

3.2.56 Point Type 94: User C Program Parameters

Description: Point type 94 provides User C program parameters.

Number of Logical Points: 6 configurable points (0-5) may exist.

Table 3-61. Point Type 94, User C Program Parameters

Point Type 94, User C Program Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/O	AC	20	0x20 → 0x7E for each byte	"No Program:	The customizable program name for this User C program, filled in from the header of the User C program.
1	R/O	AC	12	0x20 → 0x7Efor each byte	"………."	The program version string for the User C program, filled in from the header of the User C program.
2	R/O	UINT32	4	0 → 4,294,967,295		User Program Creation Date. The time and date stamp for this for the creation date of this User C++ program, expresses as the number of seconds since January 1, 1970, 12:00AM). This value is filled in from the header of the User C program..
3	R/O	AC	12	0x20 → 0x7Efor each byte	"………."	User C Library Version Number
4	R/W	UINT8	1	0 → 1	0	Program Enable. Valid values are 0 (stop program) and 1 (start program)
5	R/W	UINT8	1	0 → 1	0	Clear Program. Valid values are 0 (Do nothing) and 1 (clear program from memory; ignored if program is not stopped)
6	R/O	UINT8	1	0 → 3	0	Program Status. Valid values are: 0x00 = Program empty 0x01 = Program loaded 0x02 = Program running 0x03 = Program shutting down 0x04 = Library version error 0x05 = License Not Found error 0x06 = License Expired error 0x8X = If the most significant bit is set, an internal error resulted.
7	R/O	UINT32	4	0 → 0xFFFFFFFF	0	Program Disk Space Used. Indicates, in bytes, the amount of disk space the program occupies.
8	R/O	UINT32	4	16384 or 32768	0	Program DRAM Used. Indicates the amount of RAM space the program consumes. For the FloBoss 107, this value is always the 16384, which represents the total amount of RAM allocated for the User C program. If the program size (parameter 7) is less than or equal to 65528 bytes, this value will always be 16384. If the program size (parameter 7) is greater than 65528, this value will always be 32768.
9	R/W	UINT32	4	0 → 0xFFFFFFFF	0	Program Auto Restart Counter. If the program commits an illegal instruction while running, the program ends and restarted. If this occurs, this parameter is incremented.
10	R/O	UINT32	4	0 → 0xFFFFFFFF	0	Program Entry Point. Indicates the program's entry point in memory, used internally for debugging.

Point Type 94, User C Program Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
11	R/O	UINT32	4	0 → 0xFFFFFFFF	0	Program CRC. Used internally for debugging. This is the 16-bit CRC that is completed at the time the User C program is loaded.

3.2.57 Point Type 98: Extended Soft Point Parameters

Description: Point type 98 provides descriptions of extended soft point parameters for user data storage.

Number of Logical Points: 16 configurable points (0-15) may exist.

Table 3-62. Point Type 98, Extended Soft Point Parameters

Point Type 98, Extended Soft Point Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	40	0x20 0x7E for each byte	"Extended soft point X" where x = 1-16	Identification tag
1	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
2	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
3	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
4	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
5	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
6	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
7	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
8	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
9	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
10	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
11	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
12	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
13	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
14	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
15	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
16	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
17	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
18	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
19	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
20	R/W	FL	4	Any valid IEEE 754 float	0.0	Miscellaneous storage
21	R/W	UINT32	4	0 → 4294967295	0	Miscellaneous storage
22	R/W	UINT32	4	0 → 4294967295	0	Miscellaneous storage
23	R/W	UINT16	2	0 → 65535	0	Miscellaneous storage
24	R/W	UINT16	2	0 → 65535	0	Miscellaneous storage
25	R/W	UINT16	2	0 → 65535	0	Miscellaneous storage
26	R/W	UINT16	2	0 → 65535	0	Miscellaneous storage
27	R/W	UINT16	2	0 → 65535	0	Miscellaneous storage

Point Type 98, Extended Soft Point Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
28	R/W	UINT16	2	0 → 65535	0	Miscellaneous storage
29	R/W	UINT16	2	0 → 65535	0	Miscellaneous storage
30	R/W	UINT16	2	0 → 65535	0	Miscellaneous storage
31	R/W	UINT16	2	0 → 65535	0	Miscellaneous storage
32	R/W	UINT16	2	0 → 65535	0	Miscellaneous storage
33	R/W	UINT8	1	0 → 255	0	Miscellaneous storage
34	R/W	UINT8	1	0 → 255	0	Miscellaneous storage
35	R/W	UINT8	1	0 → 255	0	Miscellaneous storage
36	R/W	UINT8	1	0 → 255	0	Miscellaneous storage
37	R/W	UINT8	1	0 → 255	0	Miscellaneous storage
38	R/W	UINT8	1	0 → 255	0	Miscellaneous storage
39	R/W	UINT8	1	0 → 255	0	Miscellaneous storage
40	R/W	UINT8	1	0 → 255	0	Miscellaneous storage
41	R/W	UINT8	1	0 → 255	0	Miscellaneous storage
42	R/W	UINT8	1	0 → 255	0	Miscellaneous storage
43	R/W	UINT8	1	0 → 1	0`	Enables extendd soft point logging. Valid values are 0 (Enable logging) and 1 (Disable logging)

3.2.58 Point Type 117: Modbus Configuration Parameters

Description: Point type 117 provides Modbus configuration parameters.

Number of Logical Points: 5 configurable points may exist, corresponding to LOI, COM1, COM2, COM3, and LCD.

Table 3-63. Point Type 117, Modbus Configuration Parameters

Point Type 117, Modbus Configuration Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	UINT8	1	0 → 1	0	Transmission Mode; indicates the type of transmission mode. Valid values are 0 (RTU Mode) and 1 (ASCII Mode)
1	R/W	UINT8	1	0 → 1	0	Byte Order. Controls which byte is sent out first for floats, short integers, and long integers. Valid values are 0 (LSB first, associated with little-endian processors) and 1 (MSB first, associated with big-endian processors)
2	R/W	UINT8	1	0 → 1	1	Event Log Enable. Controls if changes to Modbus registers are logged to the event log (Slave mode only). Valid values are 0 (No logging) and 1 (Log to Event Log)
3	R/O	UINT8	1	0 → 3	0	Slave Exception Status. Controls the error code for the last Modbus message received (Slave mode only). Valid values are: 0 = No Error 1 = Illegal Function 2 = Illegal Data Address 3 = Illegal Data Value 4 = Invalid Message (CRC or LRC error)
4	R/W	UINT8	1	0 → 1	0	Master Poll Request Trigger. Controls the initiation of a Modbus master polling sequence (Master mode only). Valid values are 0 (No polling) and 1 (Begin polling with the entry on the Modbus master table indicated by the master starting request number (parameter 5) and continues through the table for the number of master requests (parameter 6). This parameter is reset by the system when the polling sequence completes.
5	R/W	UINT16	2	1 → 75	1	Master Starting Request Number. Contains the request number in the Modbus master table to begin with when the Modbus master poll request trigger (parameter 4) is set. (Master mode only)
6	R/W	UINT16	2	0 → 75	0	Master Number of Requests. Contains the total number of Modbus requests to be made when the Modbus master poll request sequence specified is executed on a continuous basis. Valid values are 0 (Continuous polling disabled) and 1 (Continuous polling enabled). (Master mode only)
7	R/W	UINT8	1	0 → 1	0	Master Continuous Polling Enable. Controls whether the Modbus master poll request sequence specified is executed on a continous basis (Master mode only). Valid values are 0 (Continuous polling disabled) and 1 (Continuous polling enabled).

Point Type 117, Modbus Configuration Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
8	R/W	FL	4	0 → 86,400 (24 hours)	0	Master Poll Request Delay. Contains the delay time in seconds between continuous master poll requests (Continuous poll mode only)
9	R/W	UINT8	1	0	0	Modbus Mode. Valid values are 0 (Slave mode) and 1 (Master mode)
10	R/W	INT16	2	-32768 → 32767	0	When Low Scalling Integer. Contains the lower limit value when scaling floating-point data.
11	R/W	INT16	2	-32768 → 32767	4095	High Scaling Integer. Contains the upper limit value when scaling floating-point data.
12	R/W	FL	4	Any valid IEEE 754 float	0.0	Low Float Scale 1. Contains the lower limit in float range 1 when converting integers to floats and vice versa.
13	R/W	FL	4	Any valid IEEE 754 float	0.0	High Float Scale 1. Contains the upper limit in float range 1 when converting integers to floats and vice versa.
14	R/W	FL	4	Any valid IEEE 754 float	0.0	Low Float Scale 2. Contains the lower limit in float range 2 when converting integers to floats and vice versa.
15	R/W	FL	4	Any valid IEEE 754 float	0.0	High Float Scale 2. Contains the upper limit in float range 2 when converting integers to floats and vice versa.
16	R/W	FL	4	Any valid IEEE 754 float	0.0	Low Float Scale 3. Contains the lower limit in float range 3 when converting integers to floats and vice versa.
17	R/W	FL	4	Any valid IEEE 754 float	0.0	High Float Scale 3. Contains the upper limit in float range 3 when converting integers to floats and vice versa.
18	R/W	FL	4	Any valid IEEE 754 float	0.0	Low Float Scale 4. Contains the lower limit in float range 4 when converting integers to floats and vice versa.
19	R/W	FL	4	Any valid IEEE 754 float	0.0	High Float Scale 4. Contains the upper limit in float range 4 when converting integers to floats and vice versa.
20	R/W	FL	4	Any valid IEEE 754 float	0.0	Low Float Scale 5. Contains the lower limit in float range 5 when converting integers to floats and vice versa.
21	R/W	FL	4	Any valid IEEE 754 float	0.0	High Float Scale 5. Contains the upper limit in float range 5 when converting integers to floats and vice versa.
22	R/W	FL	4	Any valid IEEE 754 float	0.0	Low Float Scale 6. Contains the lower limit in float range 6 when converting integers to floats and vice versa.
23	R/W	FL	4	Any valid IEEE 754 float	0.0	High Float Scale 6. Contains the upper limit in float range 6 when converting integers to floats and vice versa.
24	R/W	FL	4	Any valid IEEE 754 float	0.0	Low Float Scale 7. Contains the lower limit in float range 7 when converting integers to floats and vice versa.
25	R/W	FL	4	Any valid IEEE 754 float	0.0	High Float Scale 7. Contains the upper limit in float range 7 when converting integers to floats and vice versa.
26	R/W	FL	4	Any valid IEEE 754 float	0.0	Low Float Scale 8. Contains the lower limit in float range 8 when converting integers to floats and vice versa.
27	R/W	FL	4	Any valid IEEE 754 float	0.0	High Float Scale 8. Contains the upper limit in float range 8 when converting integers to floats and vice versa.
28	R/W	UINT8	1	1 → 255	30	Master Poll Timeout. Amount of time, in seconds, the Modus master waits for a slave response. (Master mode only)

Point Type 117, Modbus Configuration Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
29	R/W	UINT8	1	0 → 255	2	Master Poll Number of Retries. Numes of retries the Modbus master attempts on a particular request number in the Master Poll Table before giving up and going to the next requested number. (Master mode only)

3.2.59 Point Type 118: Modbus Register Mapping

Description: Point type 118 provides Modbus register mapping.

Number of Logical Points: 12 configurable points (0-11) may exist.

Table 3-64. Point Type 118, Modbus Register Mapping

Point Type 118, Modbus Register Mapping (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	0x20 → 0x7E for each byte	"Reg Map #s"	Tag ID. String that describes the instance of the mapping table.
1	R/W	UINT16	2	0 → 65,535	0	Start Register #1. The starting register number for the first range of Modbus registers that map to ROC protocol TLP(s).
2	R/W	UINT16	2	0 → 65,535	0	End Register #1. The ending register number for the first range of Modbus registers that map to ROC protocol TLP(s).
3	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 1). The starting ROC protocol TLP that maps to the first range of Modbus registers.
4	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 1). Indicates whether multiple registers access consecutive logical numbers of consecutive parameters from the starting TLP. Valid values are 0 (perform logical indexing) and 1 (perform parameter indexing).

Point Type 118, Modbus Register Mapping (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
5	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 1). Identifies the conversion code used to convert the FloBoss 107 data into a format that is compatible to a Modbus device. Valid values are: 0 = No Conversion 1 = Float to Signed Integer, Float Scale 1 2 = Float to Signed Integer, Float Scale 2 3 = Float to Signed Integer, Float Scale 3 4 = Float to Signed Integer, Float Scale 4 5 = Float to Signed Integer, Float Scale 5 6 = Float to Signed Integer, Float Scale 6 7 = Float to Signed Integer, Float Scale 7 8 = Float to Signed Integer, Float Scale 8 17 = Signed Integer to Float, Float Scale 1 18 = Signed Integer to Float, Float Scale 2 19 = Signed Integer to Float, Float Scale 3 20 = Signed Integer to Float, Float Scale 4 21 = Signed Integer to Float, Float Scale 5 22 = Signed Integer to Float, Float Scale 6 23 = Signed Integer to Float, Float Scale 7 24 = Signed Integer to Float, Float Scale 8 25 = Convery Anything to Float, No Scaling 26 = Convert Anything to a Signed Short Integer 27 = Convert Anything to a Signed Long Integer 28 = Convert Anything to an Unsigned Short Integer 29 = Convert Anything to an Unsigned Long Integer 30 = Convert Anything to an Unsigned Character (UNIT8) 65 = IEEE Floating Point Number – byte order of 0,1,2,3 or 3,2,1.0 depending on value of parameter 1 of point type 117 66 = IEEE Floating Point Number – always 0,1,2,3 67 = IEEE Floating Point Number – 1,0,3,2 or 2,3,0,1 depending on value of parameter 1 of point type 117. 68 = IEEE Floating Point Number – always 1,0,3,2 69 = IEEE Floating Point Number – 2,3,0,1 or 1,0,3,2 depending on value of parameter 1 of point type 117 70 = IEEE Floating Point Number – always 2,3,0,1 71 = IEEE Floating Point Number – 3,2,1,0 or 0,1,2,3 depending on value of parameter 1 of point type 117 72 = IEEE Floating Point Number -= always 3,2,1,0 **Note**: For conversion codes 65-72, byte 0 (MSB) always contains the sign bit and conversion portion of the floating point value, while byte 3 (LSB) always contains the least significant portion of the floating point mantissa.
6	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range 1). Indicates the communications port to which the first range of registers maps. Valid values are: 0 = LOI 1 = Comm Port 1 2 = Comm Port 2 3 = Comm Port 3 255 = All Comm ports

Point Type 118, Modbus Register Mapping (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
7	R/W	UINT16	2	0 → 65,535	0	Start Register #2. Indicates the starting register number for the second range of Modbus registers that map to the ROC protocol TLP(s).
8	R/W	UINT16	2	0 → 65,535	0	End Register #2. Indicates the ending register number for the second range of Modbus registers that map to the ROC protocol TLP(s).
9	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 2). Indicates the starting ROC protocol TLP that maps to the second range of Modbus registers.
10	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 2). Indicates whether multiple registers access consecutive logical numbers or consecutive parameters from the starting TLP. Valid values are 0 (use logical indexing) or 1 (use parameter indexing).
11	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 2). Indicates the conversion code to convert the FloBoss 107 data into a format that is compatible to a Modbus device. See definitions in parameter 5.
12	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range 2). Indicates the communications port to which the second range of registers maps. See definition in parameter 6.
13	R/W	UINT16	2	0 → 65,535	0	Start Register #3. Indicates the starting register number for the third range of Modbus registers that map to the ROC protocol TLP(s).
14	R/W	UINT16	2	0 → 65,535	0	End Register #3. Indicates the ending register number for the third range of Modbus registers that map to the ROC protocol TLP(s).
15	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 3). Indicates the starting ROC protocol TLP that maps to the third range of Modbus registers.
16	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 3). Indicates whether multiple registers access consecutive logical numbers or consecutive parameters from the starting TLP. Valid values are 0 (use logical indexing) or 1 (use parameter indexing).
17	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 3). Indicates the conversion code to convert the FloBoss 107 data into a format that is compatible to a Modbus device. See definitions in parameter 5.
18	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range 3). Indicates the communications port to which the third range of registers maps. See definition in parameter 6.
19	R/W	UINT16	2	0 → 65,535	0	Start Register #4. Indicates the starting register number for the fourth range of Modbus registers that map to the ROC protocol TLP(s).
20	R/W	UINT16	2	0 → 65,535	0	End Register #4. Indicates the ending register number for the fourth range of Modbus registers that map to the ROC protocol TLP(s).

Point Type 118, Modbus Register Mapping (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
21	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 4). Indicates the starting ROC protocol TLP that maps to the fourth range of Modbus registers.
22	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 2). Indicates whether multiple registers access consecutive logical numbers or consecutive parameters from the starting TLP. Valid values are 0 (use logical indexing) or 1 (use parameter indexing).
23	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 4). Indicates the conversion code to convert the FloBoss 107 data into a format that is compatible to a Modbus device. See definitions in parameter 5.
24	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range 4). Indicates the communications port to which the fourth range of registers maps. See definition in parameter 6.
25	R/W	UINT16	2	0 → 65,535	0	Start Register #5. Indicates the starting register number for the fifth range of Modbus registers that map to the ROC protocol TLP(s).
26	R/W	UINT16	2	0 → 65,535	0	End Register #5. Indicates the ending register number for the fifth range of Modbus registers that map to the ROC protocol TLP(s).
27	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 5). Indicates the starting ROC protocol TLP that maps to the fifth range of Modbus registers.
28	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 5). Indicates whether multiple registers access consecutive logical numbers or consecutive parameters from the starting TLP. Valid values are 0 (use logical indexing) or 1 (use parameter indexing).
29	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 5). Indicates the conversion code to convert the FloBoss 107 data into a format that is compatible to a Modbus device. See definitions in parameter 5.
30	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range 5). Indicates the communications port to which the fifth range of registers maps. See definition in parameter 6.
31	R/W	UINT16	2	0 → 65,535	0	Start Register #6. Indicates the starting register number for the sixth range of Modbus registers that map to the ROC protocol TLP(s).
32	R/W	UINT16	2	0 → 65,535	0	End Register #6. Indicates the ending register number for the sixth range of Modbus registers that map to the ROC protocol TLP(s).
33	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 6). Indicates the starting ROC protocol TLP that maps to the sixth range of Modbus registers.

Point Type 118, Modbus Register Mapping (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
34	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 6). Indicates whether multiple registers access consecutive logical numbers or consecutive parameters from the starting TLP. Valid values are 0 (use logical indexing) or 1 (use parameter indexing).
35	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 6). Indicates the conversion code to convert the FloBoss 107 data into a format that is compatible to a Modbus device. See definitions in parameter 5.
36	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range 6). Indicates the communications port to which the sixth range of registers maps. See definition in parameter 6.
37	R/W	UINT16	2	0 → 65,535	0	Start Register #7. Indicates the starting register number for the seventh range of Modbus registers that map to the ROC protocol TLP(s).
38	R/W	UINT16	2	0 → 65,535	0	End Register #7. Indicates the ending register number for the seventh range of Modbus registers that map to the ROC protocol TLP(s).
39	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 7). Indicates the starting ROC protocol TLP that maps to the seventh range of Modbus registers.
40	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 7). Indicates whether multiple registers access consecutive logical numbers or consecutive parameters from the starting TLP. Valid values are 0 (use logical indexing) or 1 (use parameter indexing).
41	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 7). Indicates the conversion code to convert the FloBoss 107 data into a format that is compatible to a Modbus device. See definitions in parameter 5.
42	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range 7). Indicates the communications port to which the seventh range of registers maps. See definition in parameter 6.
43	R/W	UINT16	2	0 → 65,535	0	Start Register #8. Indicates the starting register number for the eighth range of Modbus registers that map to the ROC protocol TLP(s).
44	R/W	UINT16	2	0 → 65,535	0	End Register #8. Indicates the ending register number for the eighth range of Modbus registers that map to the ROC protocol TLP(s).
45	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 8). Indicates the starting ROC protocol TLP that maps to the eighth range of Modbus registers.
46	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 8). Indicates whether multiple registers access consecutive logical numbers or consecutive parameters from the starting TLP. Valid values are 0 (use logical indexing) or 1 (use parameter indexing).

Point Type 118, Modbus Register Mapping (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
47	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 8). Indicates the conversion code to convert the FloBoss 107 data into a format that is compatible to a Modbus device. See definitions in parameter 5.
48	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range 8). Indicates the communications port to which the eighth range of registers maps. See definition in parameter 6.
49	R/W	UINT16	2	0 → 65,535	0	Start Register #9. Indicates the starting register number for the ninth range of Modbus registers that map to the ROC protocol TLP(s).
50	R/W	UINT16	2	0 → 65,535	0	End Register #9. Indicates the ending register number for the ninth range of Modbus registers that map to the ROC protocol TLP(s).
51	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 9). Indicates the starting ROC protocol TLP that maps to the ninth range of Modbus registers.
52	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 9). Indicates whether multiple registers access consecutive logical numbers or consecutive parameters from the starting TLP. Valid values are 0 (use logical indexing) or 1 (use parameter indexing).
53	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 9). Indicates the conversion code to convert the FloBoss 107 data into a format that is compatible to a Modbus device. See definitions in parameter 5.
54	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range 9). Indicates the communications port to which the ninth range of registers maps. See definition in parameter 6.
55	R/W	UINT16	2	0 → 65,535	0	Start Register #10. Indicates the starting register number for the tenth range of Modbus registers that map to the ROC protocol TLP(s).
56	R/W	UINT16	2	0 → 65,535	0	End Register #10. Indicates the ending register number for the tenth range of Modbus registers that map to the ROC protocol TLP(s).
57	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 10). Indicates the starting ROC protocol TLP that maps to the tenth range of Modbus registers.
58	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 10). Indicates whether multiple registers access consecutive logical numbers or consecutive parameters from the starting TLP. Valid values are 0 (use logical indexing) or 1 (use parameter indexing).
59	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 10). Indicates the conversion code to convert the FloBoss 107 data into a format that is compatible to a Modbus device. See definitions in parameter 5.
60	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range 10). Indicates the communications port to which the tenth range of registers maps. See definition in parameter 6.

Point Type 118, Modbus Register Mapping (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
61	R/W	UINT16	2	0 → 65,535	0	Start Register #11. Indicates the starting register number for the 11th range of Modbus registers that map to the ROC protocol TLP(s).
62	R/W	UINT16	2	0 → 65,535	0	End Register #11. Indicates the ending register number for the 11th range of Modbus registers that map to the ROC protocol TLP(s).
63	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 11). Indicates the starting ROC protocol TLP that maps to the 11th range of Modbus registers.
64	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 11). Indicates whether multiple registers access consecutive logical numbers or consecutive parameters from the starting TLP. Valid values are 0 (use logical indexing) or 1 (use parameter indexing).
65	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 11). Indicates the conversion code to convert the FloBoss 107 data into a format that is compatible to a Modbus device. See definitions in parameter 5.
66	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range11). Indicates the communications port to which the 11th range of registers maps. See definition in parameter 6.
67	R/W	UINT16	2	0 → 65,535	0	Start Register #12. Indicates the starting register number for the 12th range of Modbus registers that map to the ROC protocol TLP(s).
68	R/W	UINT16	2	0 → 65,535	0	End Register #12. Indicates the ending register number for the 12th range of Modbus registers that map to the ROC protocol TLP(s).
69	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 12). Indicates the starting ROC protocol TLP that maps to the 12th range of Modbus registers.
70	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 12). Indicates whether multiple registers access consecutive logical numbers or consecutive parameters from the starting TLP. Valid values are 0 (use logical indexing) or 1 (use parameter indexing).
71	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 12). Indicates the conversion code to convert the FloBoss 107 data into a format that is compatible to a Modbus device. See definitions in parameter 5.
72	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range 12). Indicates the communications port to which the 12th range of registers maps. See definition in parameter 6.
73	R/W	UINT16	2	0 → 65,535	0	Start Register #13. Indicates the starting register number for the 13th range of Modbus registers that map to the ROC protocol TLP(s).
74	R/W	UINT16	2	0 → 65,535	0	End Register #13. Indicates the ending register number for the 13th range of Modbus registers that map to the ROC protocol TLP(s).

Point Type 118, Modbus Register Mapping (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
5	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 13). Indicates the starting ROC protocol TLP that maps to the 13th range of Modbus registers.
76	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 13). Indicates whether multiple registers access consecutive logical numbers or consecutive parameters from the starting TLP. Valid values are 0 (use logical indexing) or 1 (use parameter indexing).
77	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 13). Indicates the conversion code to convert the FloBoss 107 data into a format that is compatible to a Modbus device. See definitions in parameter 5.
78	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range 13). Indicates the communications port to which the 13th range of registers maps. See definition in parameter 6.
79	R/W	UINT16	2	0 → 65,535	0	Start Register #14. Indicates the starting register number for the 14th range of Modbus registers that map to the ROC protocol TLP(s).
80	R/W	UINT16	2	0 → 65,535	0	End Register #4. Indicates the ending register number for the 14th range of Modbus registers that map to the ROC protocol TLP(s).
81	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 14). Indicates the starting ROC protocol TLP that maps to the 14th range of Modbus registers.
82	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 14). Indicates whether multiple registers access consecutive logical numbers or consecutive parameters from the starting TLP. Valid values are 0 (use logical indexing) or 1 (use parameter indexing).
83	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 14). Indicates the conversion code to convert the FloBoss 107 data into a format that is compatible to a Modbus device. See definitions in parameter 5.
84	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range 14). Indicates the communications port to which the 14th range of registers maps. See definition in parameter 6.
85	R/W	UINT16	2	0 → 65,535	0	Start Register #15. Indicates the starting register number for the 15th range of Modbus registers that map to the ROC protocol TLP(s).
86	R/W	UINT16	2	0 → 65,535	0	End Register #15. Indicates the ending register number for the 15th range of Modbus registers that map to the ROC protocol TLP(s).
87	R/W	TLP	3	Any valid TLP except for the Program Flash Parameters (PT 90).	0,0,0	ROC Parameter(s) (Reg Range 15). Indicates the starting ROC protocol TLP that maps to the 15th range of Modbus registers.

Point Type 118, Modbus Register Mapping (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
88	R/W	UINT8	1	0 → 1	0	Indexing (Reg Range 15. Indicates whether multiple registers access consecutive logical numbers or consecutive parameters from the starting TLP. Valid values are 0 (use logical indexing) or 1 (use parameter indexing).
89	R/W	UINT8	1	0 → 8, 25 → 30, 65 → 72	0	Conversion Code (Reg Range 15. Indicates the conversion code to convert the FloBoss 107 data into a format that is compatible to a Modbus device. See definitions in parameter 5.
90	R/W	UINT8	1	0 → 3; 255	255	Comm Port (Reg Range 15). Indicates the communications port to which the 15th range of registers maps. See definition in parameter 6.

3.2.60 Point Type 120: Modbus Master Modem Configuration

Description: Point type 120 provides Modbus master modem configuration.

Number of Logical Points: 3 configurable points (logicals 0-2) may exist.

Table 3-65. Point Type 120, Modbus Master Modem Configuration

Point Type 120, Modbus Master Modem Configuration (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	0x020 → 0x7E for each byte	“Modem #...”	Tag ID. String that describes the instance of the Master modem table.
1	R/W	UINT8	1	0 → 255	0	First address. Associates a Modbus slave device address to the Connect command.
2	R/W	AC	30	0x020 → 0x7E for each byte	“ATDT”	First Connect command. Provides a 40-character modem comment, typically used to specify the telephone number of the slave device.
3	R/W	UINT8	1	0 → 255	0	Second address. Associates a Modbus slave device address to the Connect command.
4	R/W	AC	30	0x020 → 0x7E for each byte	“ATDT”	Second Connect command. Provides a 40-character modem comment, typically used to specify the telephone number of the slave device.
5	R/W	UINT8	1	0 → 255	0	Third address. Associates a Modbus slave device address to the Connect command.
6	R/W	AC	30	0x020 → 0x7E for each byte	“ATDT”	Third Connect command. Provides a 40-character modem comment, typically used to specify the telephone number of the slave device.
7	R/W	UINT8	1	0 → 255	0	Fourth address. Associates a Modbus slave device address to the Connect command.
8	R/W	AC	30	0x020 → 0x7E for each byte	“ATDT”	Fourth Connect command. Provides a 40-character modem comment, typically used to specify the telephone number of the slave device.
9	R/W	UINT8	1	0 → 255	0	Fifth address. Associates a Modbus slave device address to the Connect command.
10	R/W	AC	30	0x020 → 0x7E for each byte	“ATDT”	Fifth Connect command. Provides a 40-character modem comment, typically used to specify the telephone number of the slave device.
11	R/W	UINT8	1	0 → 255	0	Sixth address. Associates a Modbus slave device address to the Connect command.
12	R/W	AC	30	0x020 → 0x7E for each byte	“ATDT”	Sixth Connect command. Provides a 40-character modem comment, typically used to specify the telephone number of the slave device.

3.2.61 Point Type 121: Modbus Master Table

Description: Point type 121 provides Modbus master table information.

Number of Logical Points: 9 configurable points (0-8) may exist: three for each comm port (COM1, COM2, COM3)

Table 3-66. Point Type 121, Modbus Master Table

Point Type 121, Modbus Master Polling Table (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	0x020 → 0x7E for each byte	""MastTbl # "	Tag ID. String that describes the instance of the Master Polling table.
1	R/W	UINT8	1	0 → 255	0	RTU address 1. Indicates the device address for which the Modbus message is intended.
2	R/W	UINT8	1	0 → 6, 15, 16	0	Function code #1. Specifies the Modbus function code to be sent to the slave device. Valid values are: 0 = Disables the polling for the device address. 1 = Send register contents to the master (Read Coil Status) 2 = Send register contents to master (Read Input Status) 3 = Send register contents to master (Read Holding Status) 4 = Send register contents to master (Read Input Registers 5 = Set a single register value on slave (Force Single Coil) 6 = Set a single register value on slave (Preset Single Register) 15 = Set multiple register values on a slave (Force Multiple Coils) 16 = Set multiple register values on a salve (Preset Multiple Registers) 17
3	R/W	UINT16	2	0 → 65,535	0	Slave Register #1. Indicates the starting Modbus register number of the slave device for the query.
4	R/W	UINT16	2	0 → 65,535	0	Master Register #1. Indicates the starting Modbus register number on the Master Device (FB107) where the data is either stored for a read or provided for a write.
5	R/W	UINT8	1	1 → 120	1	Number of registers 1. Indicates the number of registers for the master to either read or write.

Point Type 121, Modbus Master Polling Table (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
6	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communication status 1. Displays the status of the master query. Valid values are: 0 = Inactive or start of transmission 1 = Received timeout error 2 = Received address check 3 = Received Function Code check 4 = Number of expected bytes check 8 = Valid (good) slave response received 128 = Write ROC/FloBoss data error 129 = Read ROC/FloBoss data error 130 = Master Modbus table error 131 = IP address in invalid format **Note**: Status values 0 and 3-8 are active on the master transmission. These values appear for a very short time and step to the next value if the process is without error. If an error occurs in the step, then the value is present until the next transmission is requested. A transmission without error has a status value of 8 (Valid Slave Response).
7	R/W	UINT8	1	0 → 255	0	Slave Address 2. Indicates the slave address for which the Modbus message is intended.
8	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 2. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
9	R/W	UINT16	2	0 → 65,535	0	Slave Register 2. Indicates the starting Modbus register number on the slave device for the query.
10	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 2. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
11	R/W	UINT8	1	1 → 120	1	Number of registers 2. Indicates the number of registers for the master to either read or write.
12	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 2. Indicates the status of the master query. See parameter 6 for status definitions.
13	R/W	UINT8	1	0 → 255	0	Slave Address 3. Indicates the slave address for which the Modbus message is intended.
14	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 3. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
15	R/W	UINT16	2	0 → 65,535	0	Slave Register 3. Indicates the starting Modbus register number on the slave device for the query.
16	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 3. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
17	R/W	UINT8	1	1 → 120	1	Number of registers 3. Indicates the number of registers for the master to either read or write.
18	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 3. Indicates the status of the master query. See parameter 6 for status definitions.

Point Type 121, Modbus Master Polling Table (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
19	R/W	UINT8	1	0 → 255	0	Slave Address 4. Indicates the slave address for which the Modbus message is intended.
20	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 4. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
21	R/W	UINT16	2	0 → 65,535	0	Slave Register 4. Indicates the starting Modbus register number on the slave device for the query.
22	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 4. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
23	R/W	UINT8	1	1 → 120	1	Number of registers 4. Indicates the number of registers for the master to either read or write.
24	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 4. Indicates the status of the master query. See parameter 6 for status definitions.
25	R/W	UINT8	1	0 → 255	0	Slave Address 5. Indicates the slave address for which the Modbus message is intended.
26	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 5. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
27	R/W	UINT16	2	0 → 65,535	0	Slave Register 5. Indicates the starting Modbus register number on the slave device for the query.
28	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 5. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
29	R/W	UINT8	1	1 → 120	1	Number of registers 5. Indicates the number of registers for the master to either read or write.
30	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 5. Indicates the status of the master query. See parameter 6 for status definitions.
31	R/W	UINT8	1	0 → 255	0	Slave Address 6. Indicates the slave address for which the Modbus message is intended.
32	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 6. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
33	R/W	UINT16	2	0 → 65,535	0	Slave Register 6. Indicates the starting Modbus register number on the slave device for the query.
34	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 6. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
35	R/W	UINT8	1	1 → 120	1	Number of registers 6. Indicates the number of registers for the master to either read or write.
36	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 6. Indicates the status of the master query. See parameter 6 for status definitions.
37	R/W	UINT8	1	0 → 255	0	Slave Address 7. Indicates the slave address for which the Modbus message is intended.

Point Type 121, Modbus Master Polling Table (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
38	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 7. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
39	R/W	UINT16	2	0 → 65,535	0	Slave Register 7. Indicates the starting Modbus register number on the slave device for the query.
40	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 7. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
41	R/W	UINT8	1	1 → 120	1	Number of registers 7. Indicates the number of registers for the master to either read or write.
42	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 7. Indicates the status of the master query. See parameter 6 for status definitions.
43	R/W	UINT8	1	0 → 255	0	Slave Address 8. Indicates the slave address for which the Modbus message is intended.
44	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 8. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
45	R/W	UINT16	2	0 → 65,535	0	Slave Register 8. Indicates the starting Modbus register number on the slave device for the query.
46	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 8. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
47	R/W	UINT8	1	1 → 120	1	Number of registers 8. Indicates the number of registers for the master to either read or write.
48	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 8. Indicates the status of the master query. See parameter 6 for status definitions.
49	R/W	UINT8	1	0 → 255	0	Slave Address 9. Indicates the slave address for which the Modbus message is intended.
50	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 9. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
51	R/W	UINT16	2	0 → 65,535	0	Slave Register 9. Indicates the starting Modbus register number on the slave device for the query.
52	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 9. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
53	R/W	UINT8	1	1 → 120	1	Number of registers 9. Indicates the number of registers for the master to either read or write.
54	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 9. Indicates the status of the master query. See parameter 6 for status definitions.
55	R/W	UINT8	1	0 → 255	0	Slave Address 10. Indicates the slave address for which the Modbus message is intended.
56	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 10. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.

Point Type 121, Modbus Master Polling Table (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
57	R/W	UINT16	2	0 → 65,535	0	Slave Register 2. Indicates the starting Modbus register number on the slave device for the query.
58	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 10. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
59	R/W	UINT8	1	1 → 120	1	Number of registers 10. Indicates the number of registers for the master to either read or write.
60	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 10. Indicates the status of the master query. See parameter 6 for status definitions.
61	R/W	UINT8	1	0 → 255	0	Slave Address 11. Indicates the slave address for which the Modbus message is intended.
62	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 11. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
63	R/W	UINT16	2	0 → 65,535	0	Slave Register 11. Indicates the starting Modbus register number on the slave device for the query.
64	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 11. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
65	R/W	UINT8	1	1 → 120	1	Number of registers 11. Indicates the number of registers for the master to either read or write.
66	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 11. Indicates the status of the master query. See parameter 6 for status definitions.
67	R/W	UINT8	1	0 → 255	0	Slave Address 12. Indicates the slave address for which the Modbus message is intended.
68	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 12. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
69	R/W	UINT16	2	0 → 65,535	0	Slave Register 12. Indicates the starting Modbus register number on the slave device for the query.
70	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 12. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
71	R/W	UINT8	1	1 → 120	1	Number of registers 12. Indicates the number of registers for the master to either read or write.
72	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 12. Indicates the status of the master query. See parameter 6 for status definitions.
73	R/W	UINT8	1	0 → 255	0	Slave Address 13. Indicates the slave address for which the Modbus message is intended.
74	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 13. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
75	R/W	UINT16	2	0 → 65,535	0	Slave Register 13. Indicates the starting Modbus register number on the slave device for the query.

Point Type 121, Modbus Master Polling Table (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
76	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 13. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
77	R/W	UINT8	1	1 → 120	1	Number of registers 13. Indicates the number of registers for the master to either read or write.
78	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 13. Indicates the status of the master query. See parameter 6 for status definitions.
79	R/W	UINT8	1	0 → 255	0	Slave Address 14. Indicates the slave address for which the Modbus message is intended.
80	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 14. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
81	R/W	UINT16	2	0 → 65,535	0	Slave Register 14. Indicates the starting Modbus register number on the slave device for the query.
82	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 14. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
83	R/W	UINT8	1	1 → 120	1	Number of registers 14. Indicates the number of registers for the master to either read or write.
84	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 14. Indicates the status of the master query. See parameter 6 for status definitions.
85	R/W	UINT8	1	0 → 255	0	Slave Address 15. Indicates the slave address for which the Modbus message is intended.
86	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 15 Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
87	R/W	UINT16	2	0 → 65,535	0	Slave Register 15. Indicates the starting Modbus register number on the slave device for the query.
88	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 15. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
89	R/W	UINT8	1	1 → 120	1	Number of registers 15. Indicates the number of registers for the master to either read or write.
90	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 15. Indicates the status of the master query. See parameter 6 for status definitions.
91	R/W	UINT8	1	0 → 255	0	Slave Address 16. Indicates the slave address for which the Modbus message is intended.
92	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 16. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
93	R/W	UINT16	2	0 → 65,535	0	Slave Register 16. Indicates the starting Modbus register number on the slave device for the query.
94	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 16. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.

Point Type 121, Modbus Master Polling Table (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
95	R/W	UINT8	1	1 → 120	1	Number of registers 16. Indicates the number of registers for the master to either read or write.
96	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 16. Indicates the status of the master query. See parameter 6 for status definitions.
97	R/W	UINT8	1	0 → 255	0	Slave Address 17. Indicates the slave address for which the Modbus message is intended.
98	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 17. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
99	R/W	UINT16	2	0 → 65,535	0	Slave Register 17. Indicates the starting Modbus register number on the slave device for the query.
100	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 17. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
101	R/W	UINT8	1	1 → 120	1	Number of registers 17. Indicates the number of registers for the master to either read or write.
102	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 17. Indicates the status of the master query. See parameter 6 for status definitions.
103	R/W	UINT8	1	0 → 255	0	Slave Address 18. Indicates the slave address for which the Modbus message is intended.
104	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 18. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
105	R/W	UINT16	2	0 → 65,535	0	Slave Register 18. Indicates the starting Modbus register number on the slave device for the query.
106	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 18. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
107	R/W	UINT8	1	1 → 120	1	Number of registers 18. Indicates the number of registers for the master to either read or write.
108	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 18. Indicates the status of the master query. See parameter 6 for status definitions.
109	R/W	UINT8	1	0 → 255	0	Slave Address 19. Indicates the slave address for which the Modbus message is intended.
110	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 19. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
111	R/W	UINT16	2	0 → 65,535	0	Slave Register 19. Indicates the starting Modbus register number on the slave device for the query.
112	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 19. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
113	R/W	UINT8	1	1 → 120	1	Number of registers 19. Indicates the number of registers for the master to either read or write.
114	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 19. Indicates the status of the master query. See parameter 6 for status definitions.

Point Type 121, Modbus Master Polling Table (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
115	R/W	UINT8	1	0 → 255	0	Slave Address 20. Indicates the slave address for which the Modbus message is intended.
116	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 20. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
117	R/W	UINT16	2	0 → 65,535	0	Slave Register 20. Indicates the starting Modbus register number on the slave device for the query.
118	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 20. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
119	R/W	UINT8	1	1 → 120	1	Number of registers 20. Indicates the number of registers for the master to either read or write.
120	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 20. Indicates the status of the master query. See parameter 6 for status definitions.
121	R/W	UINT8	1	0 → 255	0	Slave Address 21. Indicates the slave address for which the Modbus message is intended.
122	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 21. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
123	R/W	UINT16	2	0 → 65,535	0	Slave Register 21. Indicates the starting Modbus register number on the slave device for the query.
124	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 21. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
125	R/W	UINT8	1	1 → 120	1	Number of registers 21. Indicates the number of registers for the master to either read or write.
126	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 21. Indicates the status of the master query. See parameter 6 for status definitions.
127	R/W	UINT8	1	0 → 255	0	Slave Address 22. Indicates the slave address for which the Modbus message is intended.
128	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 22. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
129	R/W	UINT16	2	0 → 65,535	0	Slave Register 22. Indicates the starting Modbus register number on the slave device for the query.
130	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 22. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
131	R/W	UINT8	1	1 → 120	1	Number of registers 22. Indicates the number of registers for the master to either read or write.
132	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 22. Indicates the status of the master query. See parameter 6 for status definitions.
133	R/W	UINT8	1	0 → 255	0	Slave Address 23. Indicates the slave address for which the Modbus message is intended.

Point Type 121, Modbus Master Polling Table (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
134	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 23. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
135	R/W	UINT16	2	0 → 65,535	0	Slave Register 23. Indicates the starting Modbus register number on the slave device for the query.
136	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 23. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
137	R/W	UINT8	1	1 → 120	1	Number of registers 23. Indicates the number of registers for the master to either read or write.
138	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 23. Indicates the status of the master query. See parameter 6 for status definitions.
139	R/W	UINT8	1	0 → 255	0	Slave Address 24. Indicates the slave address for which the Modbus message is intended.
140	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 24. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
141	R/W	UINT16	2	0 → 65,535	0	Slave Register 24. Indicates the starting Modbus register number on the slave device for the query.
142	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 24. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
143	R/W	UINT8	1	1 → 120	1	Number of registers 24. Indicates the number of registers for the master to either read or write.
144	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 24. Indicates the status of the master query. See parameter 6 for status definitions.
145	R/W	UINT8	1	0 → 255	0	Slave Address 2. Indicates the slave address for which the Modbus message is intended.
146	R/W	UINT8	1	0 → 6, 15, 16	0	Function Code Number 2. Specifies the Modbus function code to be send to the slave device. See parameter 2 for valid codes.
147	R/W	UINT16	2	0 → 65,535	0	Slave Register 25. Indicates the starting Modbus register number on the slave device for the query.
148	R/W	UINT16	2	0 → 65,535	0	Modbus Register Number 25. Indicates the starting Modbus register number on the Master device (FB107) where the data is either stored for a read or provided for a write.
149	R/W	UINT8	1	1 → 120	1	Number of registers 25. Indicates the number of registers for the master to either read or write.
150	R/W	UINT8	1	0 → 4; 8; 128 → 131	0	Communications status 25. Indicates the status of the master query. See parameter 6 for status definitions.

3.2.62 Point Type 122: DS800 Control and Diagnostic Parameters

Description: Point type 122 provides DS800 control and diagnostic parameters.

Number of Logical Points: 1 configurable point exists

Table 3-67. Point Type 122, DS800 Control and Diagnostic Parameters

Point Type 122, DS800 Control and Diagnostic Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	UINT8	1	0 → 1	0	Power Switch for DS800. Valid values are 0 (Off) and 1 (On).
1	R/W	UINT8	1			RSI Enable (not used in FloBoss 107)
2	R/W	UINT8	1			ETCP Enable (not used in FloBoss 107)
3	R/W	UINT8	1			IXD Enable (not used in FloBoss 107)
4	R/W	UINT8	1			RSI Running (not used in FloBoss 107)
5	R/W	UINT8	1			ETCP Running (not used in FloBoss 107)
6	R/W	UINT8	1			IXD Running (not used in FloBoss 107)
7	R/W	UINT8	1	0 → 1	0	Clean stored resources. Setting this parameter to **1** removes **all** stored resources from file system. This **does not** stop resources that may be running, but running resources are not reloaded when the power switch is toggled.
8	R/O	AC	20	0x20 → 0x7E for each byte	20 spaces	Resource 1 Name; defined for this resource.
9	R/O	INT8	1	-1 → 5	0	Resource 1 Status. Valid values are: -1 = Fatal error 0 = No resource available 1 = Stored resource available 2 = Ready to run 3 = Run in real time 4 = Run in cycle by cycle 5 = Run with breakpoint encountered
10	R/O	UINT32	4	0 → 4,294,967,295	0	Resource 1 Programmed cycle time. Defines the cycle time, in milliseconds, for the resource.
11	R/O	UINT32	4	0 → 4,294,967,295	0	Resource 1 Current Cycle Time. Defines the current cycle time, in milliseconds, for the resource.
12	R/O	AC	20	0x20 → 0x7E for each byte	20 spaces	Resource 2 Name; defined for this resource.
13	R/O	INT8	1	-1 → 5	0	Resource 2 Status. Valid values are: -1 = Fatal error 0 = No resource available 1 = Stored resource available 2 = Ready to run 3 = Run in real time 4 = Run in cycle by cycle 5 = Run with breakpoint encountered
14	R/O	UINT32	4	0 → 4,294,967,295	0	Resource 2Programmed cycle time. Defines the cycle time, in milliseconds, for the resource.

Point Type 122, DS800 Control and Diagnostic Parameters (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
15	R/O	UINT32	4	0 → 4,294,967,295	0	Resource 2 Current Cycle Time. Defines the current cycle time, in milliseconds, for the resource.
16	R/O	AC	20	0x20 → 0x7E for each byte	20 spaces	Resource 3 Name; defined for this resource. **Note**: Resource 3 is not used by the FloBoss 107.
17	R/O	INT8	1	-1 → 5	0	Resource 3 Status. Valid values are: -1 = Fatal error 0 = No resource available 1 = Stored resource available 2 = Ready to run 3 = Run in real time 4 = Run in cycle by cycle 5 = Run with breakpoint encountered
18	R/O	UINT32	4	0 → 4,294,967,295	0	Resource 3 Programmed cycle time. Defines the cycle time, in milliseconds, for the resource.
19	R/O	UINT32	4	0 → 4,294,967,295	0	Resource 3 Current Cycle Time. Defines the current cycle time, in milliseconds, for the resource.
20	R/O	AC	20	0x20 → 0x7E for each byte	20 spaces	Resource 4 Name; defined for this resource. **Note**: Resource 4 is not used by the FloBoss 107.
21	R/O	INT8	1	-1 → 5	0	Resource 4 Status. Valid values are: -1 = Fatal error 0 = No resource available 1 = Stored resource available 2 = Ready to run 3 = Run in real time 4 = Run in cycle by cycle 5 = Run with breakpoint encountered
22	R/O	UINT32	4	0 → 4,294,967,295	0	Resource 4 Programmed cycle time. Defines the cycle time, in milliseconds, for the resource.
23	R/O	UINT32	4	0 → 4,294,967,295	0	Resource 1 Current Cycle Time. Defines the current cycle time, in milliseconds, for the resource.
24	R/O	UINT8	1		0	Kernel Status. Valid values are: 0 = Not loaded, not running 1 = Loaded, not enabled 2 = Loaded, no license 3 = Loaded, license expired 4 = Loaded running normally
25	R/W	UINT8	1	0 → 1	0	Clear kernel command. Valid values are:0 (Normal, do not clear) and 1 (Clear kernel from flash memory). The clear command occurs after a warm re-start.
26	R/O	AC	20	0x20 → 0x7E for each byte	20 spaces	Program Identifier for the User C program. This is provided from the header of the User C program.
27	R/O	AC	12	0x20 → 0x7E for each byte	20 spaces	Program Version String for the User C program. This is provided from the header of the User C program.
28	R/O	TIME	4	0 → 4,294,967,295	0	Program Time/Date Stamp. Indicates the time and date the User C ++ program was created (based on the number of seconds since Jan 1, 1970). This is provided from the header of the User C program.

3.2.63 Point Type 172: RTU Network Discovery List Point Type

Description: Point type 172 provides information for the RTU Network Discovery List.

Number of Logical Points: 32 configurable points (0-31) may exist.

Storage Location Point type 172 is not saved to internal configuration memory.

Introduced in Version 1.50 (FloBoss 107)

Table 3-68. Point Type 172, RTU Network Discovery List Point Type

Point Type 172, RTU Network Discovery List Point Type (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	20	0x20 → 0x7E for each byte	"No Tag"	Indicates the tag of the Remote RTU
1	R/W	UINT32	4		0	ROC device ID; unique ID of the Remote RTU
2	R/W	UINT8	1	0 → 24	0	Commission List Index. Indicates the logical number of the commissioned list point type which is assigned to the Remote RTU.,
3	R/W	UINT8	1	9, 1, 255	0	Commission flag. When reading, this parameter indicates if this live list slot is occupied with a live non-commissioned device. Valid values are 0 (Empty) and 1 (Occupied). When writing, this parameter commissions this device to the specified Commissioned List Index. Valid value is 255 (commission device).

3.2.64 Point Type 173: Network Commissioned List Point Type

Description: Point type 173 provides information for the Network Commissioned List.

Number of Logical Points: 25 configurable points (0-24) may exist.

Storage Location Point type 173 is saved to internal configuration memory.

Introduced in Version 1.50 (FloBoss 107)

Table 3-69. Point Type 173, Network Commissioned List Point Type

Point Type 173, Network Commissioned List Point Type (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	20	0x20 → 0x7E for each byte	"No Tag"	Indicates the tag of the device
1	R/W	UINT32	4	1 → 2,147,483,647	0	Unique ID of the commissioned device
2	R/W	UINT8	1	0 → 255	0	Network ID
3	R/W	UINT8	1	0 → 255	0	ROC group address
4	R/W	UINT8	1	0 → 255	0	ROC unit address
5	R/W	UINT8	1	0 → 255	0	ROC type
6	R/W	UINT32	4		0	ROC Backplane Type and Slot Usage: Bits 0-2: For the FloBoss 107: 0 = 4 Slot 1 = 8 Slot For the ROC800-Series 0 = 3 slot 1 = 9 slot 2 = 15 slot 3 = 21 slot 4 = 27 slot Bits 3-31 Slot in use for slots 0-27
7	R/O	UINT8	1	0 → 255	0	Integrity Summary Bits 3-6: Unused; set to zero Bit 0: 1=Integrity Fault detected Bit 1: 1=I/O Alarm detected Bit 2: 1=Stale Data detected Bit 7: 1=Identifying
8	R/O	UINT8	1	0 → 255	0	Communication status. Valid valuesa re: 0 = Good 1 = Commissioning 2 = Comm Fail
9	R/O	FL	4	Any valid IEE 754 float	0.0	ROC Battery Voltage
10	R/O	UINT8	1	0 → 127	0.0	Radio signal strength. Units are FreeWave J. Values are 0 to 127.

Point Type 173, Network Commissioned List Point Type (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
11	R/O	UINT8	1	0 → 127	0.0	Noise level. Units are FreeWave J. Values are 0 to 127.
12	R/O	UINT8	1	0 → 127	0	Percentage of good packets received from master radio.
13	R/O	UINT16	2	0 → 65,535	0	Revision of the Network Configurator software
14	R/W	UINT8	1	0, 1, 255	0	Decommission flag. When reading, this parameter indicates if this device is commissioned. Valid values are **0** (not commissioned) and **1** (commissioned). Writing **255** to this device decommissions it.
15	R/O	FL	4	Any valid IEE 754 float	0.0	Reflected power from radio in dBm. **Note**: To be added.
16	R/W	UINT8	1	0 → 1	0	Enables pass-thru to the remote node. Valid values are **0** (disable passthru) and **1** (enable passthru).
17	R/W	UINT32	4	0 → 4,294,967,295	0	Outgoing pass-thru message counter. The system resets this value to **0** after any type of restart.

3.2.65 Point Type 174: Network Export Data

Description: Point type 174 provides information for the Network Export Data.

Number of Logical Points: 30 configurable points (0-29) may exist.

Storage Location Point type 174 is saved to internal configuration memory.

Introduced in Version 1.50 (FloBoss 107)

Table 3-70. Point Type 174, Network Export Data

Point Type 174, Network Export Data (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	0x20 → 0x7E for each byte	"No Tag"	Indicates the tag of the selected export TLP
1	R/W	TLP	3		0,0,0	The TLP of the parameter to be exported.
2	R/W	UINT8	1	1 → 255	0	Network ID
3	R/W	UINT16	2	0 → 65,535	0	The unique ID associated with this TLP used to map the value on the import side. Valid values are: 0 = Indicates the logical is empty Bits 0-13: Unique data ID Bit 14-15: 00 = Float 01 = UINT32 10 = Double
4	R/O	FL	4	Any valid IEEE 754 float	0.0	Current value of the export TLP. The program updates this parameter at the time of the export.

3.2.66 Point Type 175: Network Import Data

Description: Point type 175 provides information for the Network Import Data.

Number of Logical Points: 128 configurable points (0-127) may exist.

Storage Location Point type 175 is saved to internal configuration memory.

Introduced in Version 1.50 (FloBoss 107)

Table 3-71. Point Type 175, Network Import Data

Point Type 175, Network Import Data (FB107)

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	10	0x20 → 0x7E for each byte	"No Tag"	Indicates the tag of the selected imported value
1	R/W	UINT8	1	1 → 255	0	Network ID
2	R/W	UINT16	2	0 → 65,535	0	The unique ID associated with this TLP used to map the value on the import side. Valid values are: 0 = Indicates the logical is empty Bits 0-13: Unique data ID Bit 14-15: 00 = Float 01 = UINT32 10 = Double
3	R/O	FL	4	Any valid IEEE 754 float	0.0	Current value of the import.
4	R/O	UINT8	1	0 → 255	0	The health or status of the imported value. Valid values are: 0 = Good 1 = Data not updated (stale) 2 = Remote Point Fail 3 = Point in Alarm
5	R/W	FL	4	Any valid IEEE 754 float	0.0	Fault value; value at which to set the imported value if a fault condition occurs. Fault condition is defined as a status other than Good (0) in parameter 4 (Health/Status)
6	R/W	UINT8	1	0 → 1	0	Fault enable; enables the fault value. Valid values are: 0 = Disabled 1 - Enabled
7	R/W	UNIT16	2		0	Reserved for future use
8	R/W	UNIT8	1	0 → 255	0	Source RTU; the network ID of the Remote RTU from which the TLP is being imported.
9	R/W	TLP	3		0,0,0	Forward TLP; the TLP to which the imported data is written.

3.2.67 Point Type 176: IEC62591 Live List Parameters

Description: Point type 176 provides IEC62591 live list parameters.

Number of Logical Points: 60 configurable points (0-59) may exist.

Introduced in Version 1.40 (FloBoss 107)

Table 3-72. Point Type 176, IEC62591 Live List Parameters

Point Type 176, IEC62591 Live List Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/O	AC	40	Valid ASCII string	"No Tag"	Indicates the device tag
1	R/O	UINT32	4	0 → 65535	0	Indicates the device ID
2	R/O	UINT16	2	0 → 65535	0	Indicates the manufacturer's ID
3	R/O	UINT16	2	0 → 65535	0	Indicates the device type
4	R/W	UINT8	1	0 → 19	0	Specifies the commissioned list index, the logical number of the commissioned list point type which is assigned to this wireless device.
5	R/W	UINT8	1	Read: 0 = Empty, 1=Occupied Write: 255 = Commission	0	Specifies the commissioned flag. When reading, this parameter indicates if the live list slot is occupied with a live non-commissioned device. When writing, this parameter will commission this device to the specified Commissioned List Index.
6	R/O	UINT32	4	0 → 4,294,967,295	0	Adapter ID
7	R/O	UINT16	2	0 → 65535	0	Adapter Type

3.2.68 Point Type 177: IEC62591 Commissioned List Parameters

Description: Point type 177 provides IEC62591 live list parameters.

Number of Logical Points: 20 configurable points (0-19) may exist.

Introduced in Version 1.40 (FloBoss 107)

Table 3-73. Point Type 177, IEC62591 Commissioned List Parameters

Point Type 177, IEC62591 Commissioned List Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
0	R/W	AC	40	Valid ASCII string	"No Tag"	Indicates the device tag
1	R/W	AC	40	Valid ASCII string	"No Message"	Indicates the device message
2	R/W	AC	20	Valid ASCII string	"No Descriptor"	Device Descriptor
3	R/O	UINT32	4	U32 Range	0	Transducer Serial Number
4	R/O	UINT32	4	U32 Range	0	Device ID
5	R/O	UINT16	2	U16 Range	0	Manufacturer ID
6	R/O	UINT16	2	U16 Range	0	Device Type
7	R/O	UINT32	4	U32 Range	0	Adapter ID
8	R/O	UINT16	2	U16 Range	0	Adapter Type
9	R/O	UINT8	1	Read: 0-1 Write: 255	0	De-commission flag. Read: 0 = Not Commissioned 1 = Commissioned Write: 255 = De-commission device
10	R/O	UINT16	2	U16 Range	0	Indicates the remaining battery life in days. If the device does not have a battery or other energy storage component then the device may return 0xFFFF
11	R/O	UINT8	1	U8 Range	0	Response Code/Status.
12	R/W	UINT8	1	0-10	0	Polling Mode. Valid values are 0 (Normally poll dynamic and slot variables) and 1 (Update all static and dynamic device parameters. After the update has completed, the IEC62591 module automatically sets this parameter back to 0.
13	R/W	UINT16	2	U16 Range	10	Wireless transmitter burst rate (in seconds), used for polling process variables.
14	R/O	UINT8	1	0-1	0	Communication Status. Valid values are 0 (Good) and 1 (Comm Fail)
15		FL	4	IEEE – 754 Range	0.0	Loop current of device (mA)
16	R/W	FL	4	IEEE – 754 Range	0	Primary Variable Value
17		UINT8	1	U8 Range	0	Primary Variable HART units code
18	R/W	FL	4	IEEE – 754 Range	0/0	Secondary variable value
19	R/O	UINT8	1	U8 Range	0	Secondary Variable HART units code

Point Type 177, IEC62591 Commissioned List Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
20	R/W	FL	4	IEEE – 754 Range	0.0	Tertiary variable value
21	R/O	UINT8	1	U8 Range	0	Tertiary variable HART units code
22	R/W	FL	4	IEEE – 754 Range	0.0	Quaternary variable value
23	R/O	UINT8	1	U8 Range	0	Quaternary variable HART units code
24	R/W	UINT8	1	U8 Range	0	Device Commission Status 0 = Idle 1 = Configuring Burst Message 2 = Configuring Burst Variables 3 = Configuring Burst Rate 4 = Enabling Bursting 5 = Bursting 6 = Values Stale 7 = Communication Failure 8 = Disabling Bursting 9 = Bursting: Delayed Response 10=Comminssion Failure
25	R/W	UINT8	1	U8 Range	250	Slot variable assigned to slot 0
26	R/O	UINT8	1	U8 Range	0	Slot 0 HART units code
27	R/W	FL	4	IEEE – 754 Range	0.0	Slot 0 value
28	R/W	UINT8	1	U8 Range	250	Slot variable number assigned to slot 1
29	R/O	UINT8	1	U8 Range	0	Slot 1 HART units code
30	R/W	FL	4	IEEE – 754 Range	0.0	Slot 1 variable
31	R/W	UINT8	1	U8 Range	250	Slot variable number assigned to slot 2
32	R/O	UINT8	1	U8 Range	0	Slot 2 HART Units Code
33	R/W	FL	4	IEEE – 754 Range	0.0	Slot 2 Value
34	R/W	UINT8	1	U8 Range	250	Slot Variable number assigned to slot 3
35	R/O	UINT8	1	U8 Range	0	Slot 3 HART Units Code
36	R/W	FL	4	IEEE – 754 Range	0.0	Slot 3 Value
37	R/O	UINT8	1	0 → 4	0	Number of discrete channels
38	R/O	UINT16	22	U16 Range	0	Discrete Channel 1: Set Point Classification
39	R/O	UINT16	2	U16 Range	0	Discrete Channel 1: Live Value Classification
40	R/W	UINT16	2	U16 Range	0	Discrete Channel 1: Set Point
41	R/O	UINT16	2	U16 Range	0	Discrete Channel 1: Live Value
42	R/O	UINT16	2	U16 Range	0	Discrete Channel 2: Set Point Classification
43	R/O	UINT16	2	U16 Range	0	Discrete Channel 2 Live Value Classification
44	R/W	UINT16	2	U16 Range	0	Discrete Channel 2: Set Point

Point Type 177, IEC62591 Commissioned List Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
45	R/O	UINT16	2	U16 Range	0	Discrete Channel 2: Live Value
46	R/O	UINT16	2	U16 Range	0	Discrete Channel 3: Set Point Classification
47	R/O	UINT16	2	U16 Range	0	Discrete Channel 3: Live Value Classification
48	R/W	UINT16	2	U16 Range	0	Discrete Channel 3: Set Point
49	R/O	UINT16	2	U16 Range	0	Discrete Channel 3: Live Value
50	R/O	UINT16	2	U16 Range	0	Discrete Channel 4: Set Point Classification
51	R/O	UINT16	2	U16 Range	0	Discrete Channel 4: Live Value Classification
52	R/W	UINT16	2	U16 Range	0	Discrete Channel 4: Set Point
53	R/O	UINT16	2	U16 Range	0	Discrete Channel 4: Live Value
54	R/W	UINT8	1	0 → 1	0	Device Failsafe Mode. Valid values are: 0 = Hold Last 1 = Use Fault Value
55	R/W	FL	4	IEEE – 754 Range	0	PV Fault Value
56	R/W	FL	4	IEEE – 754 Range	0	SV Fault Value
57	R/W	FL	4	IEEE – 754 Range	0	TV Fault Value
58	R/W	FL	4	IEEE – 754 Range	0	QV Fault Value
59	R/W	UINT8	1	U8 Range	0	Process Variable NaN Flags: Bit 0 = PV value is NaN at device Bit 1 = SV value is NaN at device Bit 2 = TV value is NaN at device Bit 3 = QV value is NaN at device Bit 4 = Slot Variable 1 is NaN at device Bit 5 = Slot Variable 2 is NaN at device Bit 6 = Slot Variable 3 is NaN at device Bit 7 = Slot Variable 4 is NaN at device
60	R/O	UINT8	1	U8 Range	0	Primary Variable Status
61	R/O	UINT8	1	U8 Range	0	Secondary Variable Status
62	R/O	UINT8	1	U8 Range	0	Tertiary Variable Status
63	R/O	UINT8	1	U8 Range	0	Quaternary Variable Status
64	R/O	UINT8	1	U8 Range	0	Discrete Channel 1 Status
65	R/O	UINT8	1	U8 Range	0	Discrete Channel 2 Status
66	R/O	UINT8	1	U8 Range	0	Discrete Channel 3 Status
67	R/O	UINT8	1	U8 Range	0	Discrete Channel 4 Status

Point Type 177, IEC62591 Commissioned List Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
68	R/W	UINT8	1	U8 Range	15	Process Variable Fault Detction Enabled Flags Bit 0 = PV Fault Detection Enabled Bit 1 = SV Fault Detection Enabled Bit 2 = TV Fault Detection Enabled Bit 3 = QV Fault Detection Enabled Bit 4 = Not Used Bit 5 = Not Used Bit 6 = Not Used Bit 7 = Not Used
69	R/W	UINT8	1	0 → 4	0	Trigger setting for burst mode. 0 = Continuous – Bursts continually at the configured Burst Rate 1 = Windowed – Burst is triggered when source deviates more than the trigger value 2 = Rising – Burst is triggered when source rises above specified value 3 = Falling – Burst is triggered when source falls below specified value 4 = On-Change – Burst is triggered when any value changes
70	R/W	FL	4	Any valid IEEE 754 float	0.0	Trigger Mode supplementary data for Window, Rising, or Falling selections. See parameter 69.
71	R/O	UINT8	1	0 → 255	0	The device variable classification code that is read at the time of device discovery (See HCF Spec 183 table 21 for list of codes)
72	R/O	UINT8	1	0 → 255	0	The device engineering unit code that is read at the time of device discovery (HCF Spec 183 table 2 for list of codes)
73	R/W	UINT16	2	1 → 3600	10	The time interval (in seconds) at which the device communicates. Determined by the Physical Layer and Data Link Layer requirements as well as the process and application requirements.
74	R/W	UINT16	2	1 → 3600	4	The time interval (in seconds) at which a device will publish its events. Must be less than or equal to Maximum Update Time (parameter 75).
75	R/W	UINT16	2	1 → 3600	4	When the Burst Trigger Mode (parameter 69) is anything other than Continuous, this value specifies the longest (in seconds) a device is allowed to remain silent without bursting.
76	R/O	UINT16	2	1 → 3600	10	The amount of time in seconds that an event must persist before the event notification is sent.
77	R/W	UINT16	2	1 → 3600	10	Same as parameter 73 for hybrid transmitters which may send multiple messages.
78	R/W	UINT16	2	1 → 3600	10	Same as parameter 13 for hybrid transmitters which may send multiple messages. The device must burst at this frequency even if its configured trigger does not occur.
79	R/W	UINT8	1	0 → 4	0	Same as parameter 69 for hybrid transmitters which may send multiple messages.

Point Type 177, IEC62591 Commissioned List Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
80	R/W	FL	4	Any valid IEEE 754 float	0.0	Same as parameter 70 for hybrid transmitters which may send multiple messages.
81	R/O	UINT8	1	0 →255	0	Same as parameter 71 for hybrid transmitters which may send multiple messages.
82	R/O	UINT8	1	0 →255	0	Same as parameter 72 for hybrid transmitters which may send multiple messages
83	R/O	UINT32	4	0 →4294967295	0	Time of the current event. Number of 1/32 millisecond intervals that have passed since the start of the day.
84	R/O	UINT8	1	0 →120	0	Indicates the Event Notification Control Code as well as the status of any pending events Bit 0-3 – Event Notification Control Code 0 = Off 1 = Enable on Token-Passing Data Link Layer 2 = Enable on TDMA Data Link Layer 3 = Enable on both TDMA and Token DLLs Bit 4 – Configuration Changed Event Pending Bit 5 – Device Status Event Pending Bit 6 – More Status Available Event Pending Bit 7 – Reserved
85	R/W	UINT8	1	0 →1	0	Writing a 1 to this parameter causes the acknowledgement of all device events.
86	R/O	UINT16	2	0 →65535	0	The configuration change counter as read from the device.

Point Type 177, IEC62591 Commissioned List Parameters

Parameter#	Access	Data Type	Length	Range	Default	Description
87	R/O	UINT16	2	0 →65535	0	In the event a HART command issued from the module to a sensor is not successful, this bitwise parameter indicates which command failed. Bit 0 – Command 103 Message 0 Bit 1 – Command 103 Message 1 Bit 2/3 – Command 104 Message 0/1 Bit 4/5 – Command 107 Message 0/1 Bit 6/7 – Command 108 Message 0/1 Bit 8/9 – Command 109 Message 0/1 Bit 10 – Command 117 Bit 11 – Command 118 Bits 12-15 – RESERVED **Note:** This field shows the status of important commands for Bursting and Events. ▪ Bursting ○ Command 103 Write Burst Period– Writes Min and Max burst update periods ○ Command 104 Write Burst Triggers– Sets burst trigger mode ○ Command 107 Write Burst Device Variables - Burst device variables returned by device on command 9 or 33 in burst mode ○ Command 108 Write Burst mode command number ○ Command 109 Burst Mode Control – Sets bursting ON/OFF ▪ **Event Notification** ○ Command 117 Write Event notification timing – Sets Event notification retry time, Maximum update time, Event De-bounce interval ○ Command 118 Event notification control - Enable/ Disable event notification
88	R/O	AC	10	0x20→0x7E for each byte	“00:00:00”	Parameter 83 converted to HH:MM:SS format

Chapter 4 – CRC-16 Code and Example

The ROC protocol applies a cyclical redundancy check (CRC) to the message string to produce a 16-bit remainder. This remainder is referred to as the CRC-16 code. The CRC-16 code is appended to the end of the message string.

The ROC uses the 16-bit polynomial CRC-16:

X16 + X15 + X2 + 1

The ROC uses the standard GPLIB CRC routine, and calculates CRC by table lookup, with the initial condition of 0000 (zeros).

For example, the activity of a host computer setting an operator identification in a ROC364 is logged in the events for subsequent configuration changes by the host computer.

ROC Address		Host Address		Opcode	Data Length	8 Data Bytes			CRC	
unit	group	unit	group	–	# of bytes	d1	d2	d3	lsb	msb
1	2	1	0	17	3	‘M’	‘O’	‘C’	133	24

Chapter 5 – IEEE Floating Point Format

In general, the ROC and FloBoss devices use IEEE format for binary representation of floating-point numbers (see ANSI/IEEE standard 754-1985 for further details).

The single-precision (4-byte) floating-point format consists of a 1-bit sign (s), an 8-bit biased exponent (e), and a 23-bit mantissa (m):

MSB seeeeeee 31 - 24	emmmmmmm 23 - 16	mmmmmmmm 15 - 18	LSB mmmmmmmm 7 - 0

where MSB = most significant byte and LSB = least significant byte

However, in the ROC protocol, the bytes of each floating-point number are returned in the following order:

Floating-Point format:	LSB	LSB+1	MSB-1	MSB
	7 0	15 8	23 16	31 24

Likewise for integers:

Integer format:	LSB	MSB
	7 0	15 8

Long Integer format:	LSB	LSB+1	MSB+1	MSB
	7 0	15 8	23 16	31 24

Note: For signed integers, the MSB contains the sign in its highest numbered bit.

Chapter 6 – Spontaneous Report-By-Exception Example

This chapter details the sequence of events describing the ROC Spontaneous-Report-by-Exception SRBX or RBX). A ROC364 is used in this example.

1. An alarm occurs that requires a Spontaneous-Report-by-Exception and the ROC sends a request.

   The ROC364 controller sends a request to the host computer at the next available chance. The request from the ROC364 controller appears as:

ROC364 Controller Request to Host Computer

Host Address		ROC Address		Opcode	Data Length	CRC	
unit	group	unit	group	–	# of bytes	lsb	msb
1	0	1	2	224	0	232	45

2. The host computer receives the report-by-exception request from the ROC364 controller and begins a general update of any existing alarms.
3. Once the host computer finishes polling the ROC364 controller, the host computer acknowledges the Spontaneous-Report-by-Exception request of the ROC364 controller by sending a pointer to the last alarm received and appears as follows:

Host Computer Response to ROC364 Controller

ROC Address		Host Address		Opcode	Data Length	8 Data Bytes		CRC	
unit	group	unit	group	–	# of bytes	d1	d2	lsb	msb
1	2	1	0	225	2	7	0	118	17

Note: The alarm pointer is equivalent to 7.

4. The ROC364 controller compares the pointer, determines if the host computer has polled for all outstanding alarms, and then clears the report-by-exception status.

Chapter 7 – Device-to-Device Communications

Store-and-forward messages are typically received on a communications port in one ROC and are transmitted out the same or other communications port to another ROC. In a ROC364 with a FlashPAC, you may use both communication ports.

The ROC300-series with ROCPAC units accomplishes store-and-forward through communication ports using a special user program that employs Opcode 24 (refer to *Chapter 2,Opcodes*). Contact the factory for information about programs such as sf_rbx.h00.

A FloBoss 407 or a ROC300-series with FlashPAC implements store-and-forward for a **single** communications port using Opcode 24; no additional software is required. See the following information and example. Store-and-forward through **dual** communication ports is possible in the FloBoss 407. However, the firmware must be version 1.05 or greater, and ROC364 with FlashPAC. Contact the factory for further details about dual-port store and forward.

Opcode 24 defines the requested store and forward action. Refer to *Table 7-1*. This opcode follows the general protocol message format used for ROC communications, with the exception that there is an embedded path and message within the message.

For the communication path, specify the address and group in the desired sequence. Specify the address and group as (0, 0) for the destinations that are not used, such as the third and fourth destinations.

Table 7-1. Opcode 24

Opcode 24						
Communi-cation Opcode	**Host Request to ROC**			**ROC Response to Host**		
	Data		**Description of Data**	**Data**		**Description of Data**
	Offset	**Length**		**Offset**	**Length**	
Opcode 24: Store and Forward	6	1	Host Address			No response to host until message returns from Final Destination ROC. See example sequence below.
	7	1	Host Group			
	8	1	1st Destination Address			
	9	1	1st Destination Group			
	10	1	2nd Destination Address			
	11	1	2nd Destination Group			
	12	1	3rd Destination Address			
	13	1	3rd Destination Group			
	14	1	4th Destination Address			
	15	1	4th Destination Group			
	16	1	Desired Opcode			
	17	1	Number of data bytes for the desired Opcode			
	18	x	Opcode request data (if any)			

The example below is for reading the clock, where the message is forwarded through one ROC to the last ROC. For this example, the desired path of communication is Host (1,0), ROC1 (1,2), ROC2 (2,2). Note that the six header bytes are shown in the first line of each sequence.

Host Request to ROC1:

Destination Address		**Source Address**			
Unit	Group	Unit	Group	Opcode	Number Bytes
1	2	1	0	24	12

Communication Path									
Unit	Group	Unit	Group	Unit	Group	Unit	Group	Unit	Group
1	0	1	2	2	2	0	0	0	0

Opcode	**Number Bytes**	**CRC**	
		LSB	MSB
7	0	X	X

ROC1 Request to ROC2 (final destination):

Destination Address		**Source Address**			
Unit	Group	Unit	Group	Opcode	Number Bytes
2	2	1	2	24	12

Communication Path									
Unit	Group	Unit	Group	Unit	Group	Unit	Group	Unit	Group
1	0	1	2	2	2	0	0	0	0

Opcode	Number Bytes	CRC	
		LSB	MSB
7	0	X	X

ROC2 Response Back to ROC1:

Destination Address		Source Address			
Unit	Group	Unit	Group	Opcode	Number Bytes
1	2	2	2	24	20

Communication Path									
Unit	Group	Unit	Group	Unit	Group	Unit	Group	Unit	Group
1	0	1	2	2	2	0	0	0	0

Op-code	# of Bytes	d1	d2	d3	d4	d5	d6	d7	d8	CRC LSB	CRC MSB
7	8	Sec	Min	Hour	Day	Month	Year	Leap Year	Day of Week	–	–

ROC1 Request to Host:

Host Address		ROC Address			
Unit	Group	Unit	Group	Opcode	Number Bytes
1	0	1	2	24	20

Communication Path									
Unit	Group	Unit	Group	Unit	Group	Unit	Group	Unit	Group
1	0	1	2	2	2	0	0	0	0

Op-code	# of Bytes	d1	d2	d3	d4	d5	d6	d7	d8	CRC LSB	CRC MSB
7	8	Sec	Min	Hour	Day	Month	Year	Leap Year	Day of Week	–	–

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