

IECEX Hazardous Area Approvals Fisher™ FIELDVUE™ DVC6200 Series Digital Valve Controllers



Hazardous Area Approvals and Special Instructions for “Safe Use” and Installations in Hazardous Locations

Certain nameplates may carry more than one approval, and each approval may have unique installation/wiring requirements and/or conditions of “safe use”. These special instructions for “safe use” are in addition to, and may override, the standard installation procedures. Special instructions are listed by approval type.

Note

This information supplements the nameplate markings affixed to the product and the DVC6200 Series quick start guide ([D103556X012](#)), available from your [Emerson sales office](#).

Always refer to the nameplate itself to identify the appropriate certification.

⚠ WARNING

Failure to follow these conditions of “safe use” could result in personal injury or property damage from fire or explosion and area re-classification.

Flameproof, Ex d

⚠ WARNING

Do not open while energized.

Electrostatic charge hazard (on plastic cover). Do not rub or clean with solvents. To do so could result in an explosion.

Flameproof joints are not intended to be repaired.

Covered by Standards:

IEC 60079-0: 2017 (Ed 7)

IEC 60079-1: 2014 (Ed 7)

DVC6200 and DVC6205 Series (HW2, SIS, FOUNDATION Fieldbus, PROFIBUS)

Ex db IIC T5 (Ta ≤ 80°C) / T6 (Ta ≤ 75°C) Gb

DVC6215, DVC62015NA Remote Mount

Ex db IIC T4 (Ta ≤ 125°C) / T5 (Ta ≤ 95°C) / T6 (Ta ≤ 80°C) Gb

Dust by Enclosure, Ex t

⚠ WARNING

Electrostatic charge hazard. Do not rub or clean with solvents. To do so could result in an explosion.

Covered by Standards:

IEC 60079-0: 2017 (Ed 7)

IEC 60079-1: 2022 (Ed 3)

DVC6200 Series (HW2, SIS, FOUNDATION Fieldbus, PROFIBUS)

Ex tb IIC T88°C (Ta ≤ 80°C) Db

Only with Extreme Temperature Construction

Type n, Ex n

⚠ WARNING

Do not open while energized.

Electrostatic charge hazard (on plastic cover). Do not rub or clean with solvents. To do so could result in an explosion.

Covered by Standards:

IEC 60079-0: 2017 (Ed 7)

IEC 60079-15: 2017 (Ed 5)

DVC6200 and DVC6205 Series (HW2, SIS, FOUNDATION Fieldbus, PROFIBUS)

Ex nC IIC T5 (Ta ≤ 80°C) / T6 (Ta ≤ 75°C) Gc

DVC6215 Remote Mount

Ex nA IIC T4 (Ta ≤ 125°C) / T5 (Ta ≤ 95°C) / T6 (Ta ≤ 80°C) Gc

Increased Safety, Ex e

⚠ WARNING

Do not open while energized.

Electrostatic charge hazard (on plastic cover). Do not rub or clean with solvents. To do so could result in an explosion.

Covered by Standards:

IEC 60079-0: 2017 (Ed 7)

IEC 60079-7: 2017 (Ed 51)

DVC6215 Remote Mount

Ex ec IIC T4 (Ta ≤ 125°C) / T5 (Ta ≤ 95°C) / T6 (Ta ≤ 80°C) Gc

30 V max, 20 mA

IP66

Intrinsically Safe, Ex i

⚠ WARNING

Electrostatic charge hazard (on plastic cover). Do not rub or clean the cover with solvents. To do so could result in an explosion.

The apparatus enclosure contains aluminum and is considered to constitute a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact or friction. (Applicable only to aluminum constructions).

Covered by Standards:

IEC 60079-0: 2017 (Ed 7)

IEC 60079-11: 2011 (Ed 6)

DVC6200 Series (HW2, SIS)

Ex ia IIC or IIB T5/T6 Ga

Ex ia IIIC Txxx°C Da

Dust approval requires fluorosilicone elastomers

DVC6205 Series (HW2, SIS)

Ex ia IIC or IIB T5/T6 Ga

DVC6200 Series (FOUNDATION Fieldbus, PROFIBUS)

Ex ia IIC T4/T5/T6 Ga

Ex ia IIIC Txxx°C Da

Dust approval requires fluorosilicone elastomers

DVC6205 Series (FOUNDATION Fieldbus, PROFIBUS)

Ex ia IIC T4/T5/T6 Ga

IP66

DVC6215 Remote Mount

Ex ia IIC T4/T5/T6 Ga

Intrinsically safe when connected per drawing GE42990, as shown in the following figures:

DVC6200 HW2 and DVC6200 SIS figure 1 and 5

DVC6205, DVC6205 SIS, and DVC6215 Remote Mount figure 2 and 5

DVC6200f and DVC6200p figure 3 and 5

DVC6205f, DVC6205p, and DVC6215 Remote Mount figure 4 and 5

Figure 1. Loop Schematics—FIELDVUE DVC6200 HW2 and DVC6200 SIS

ZONE 0, Ex ia IIC OR IIB T5...T6
**ZONE 20, Ex ia IIIC Txx°C

DVC6200, DVC6200S HW2 - WITH OR WITHOUT I/O PACKAGE			
I/O PACKAGE?	NO	YES	YES
RATING	Ex ia IIC	Ex ia IIC	Ex ia IIC
LOOP TERMINALS	Ui : 30 VDC li : 130 mA Pi : 1.0 W Ci : 15 nF Li : 0.15 mH	Ui : 30 VDC li : 130 mA Pi : 1.0 W Ci : 15 nF Li : 0.15 mH	Ui : 30 VDC li : 101 mA Pi : 757 mW Ci : 15 nF Li : 0.30 mH
AUX TERMINALS	NOT PROVIDED	NOT USED	Uo : 30 VDC lo : 101 mA Po : 757 mW Co : 52.4 nF Lo : 3.18 mH
RATING	N/A	Ex ia IIC	Ex ia IIC
OUTPUT TERMINALS	NOT PROVIDED	Ui : 28 VDC li : 100 mA Pi : 1.0 W Ci : 15 nF Li : 0.23 mH	Ui : 28 VDC li : 100 mA Pi : 1.0 W Ci : 15 nF Li : 0.23 mH

1 SEE NOTES IN FIGURE 5

** NOTE - POWER MAY BE APPLIED TO EITHER THE LOOP TERMINALS OR OUTPUT TERMINALS OR TO BOTH SETS OF TERMINALS AT THE SAME TIME.

** NOTE - THE AUX TERMINAL PARAMETERS ARE NOT FULLY INDEPENDENT FROM THE LOOP TERMINAL PARAMETERS AND IS THEREFORE DEEMED AS A SOURCE WITH OUTPUTS.

** NOTE - WHEN THE AUX TERMINALS ARE USED, THE MAXIMUM OUTPUT (U, I, & P) WILL BE IDENTICAL TO THE ASSOCIATED APPARATUS FEEDING THE LOOP TERMINALS.

** NOTE - ONLY IF THE NAMEPLATE BEARS THIS MARKING.

*** NOTE - EQUIPMENT MARKED Ex ia IIIC Txx°C MAY USE ANY OF THE ENTITY PARAMETERS STATED ABOVE.

	WITHOUT I/O PACKAGE	WITH I/O PACKAGE
GAS	T5 (Ta ≤ 80°C)	T5 (Ta ≤ 80°C)
	T6 (Ta ≤ 74°C)	T6 (Ta ≤ 61°C)
DUST	T91°C (Ta ≤ 80°C)	T104°C (Ta ≤ 80°C)
	T85°C (Ta ≤ 74°C)	T85°C (Ta ≤ 61°C)

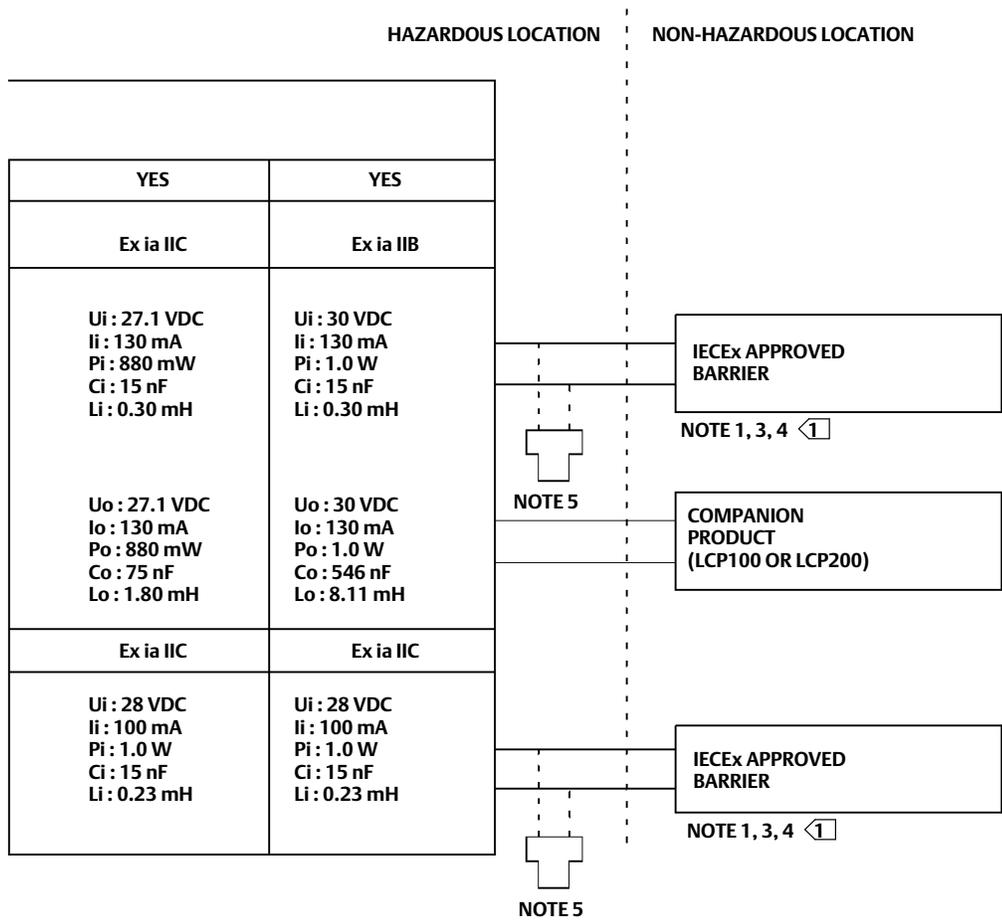
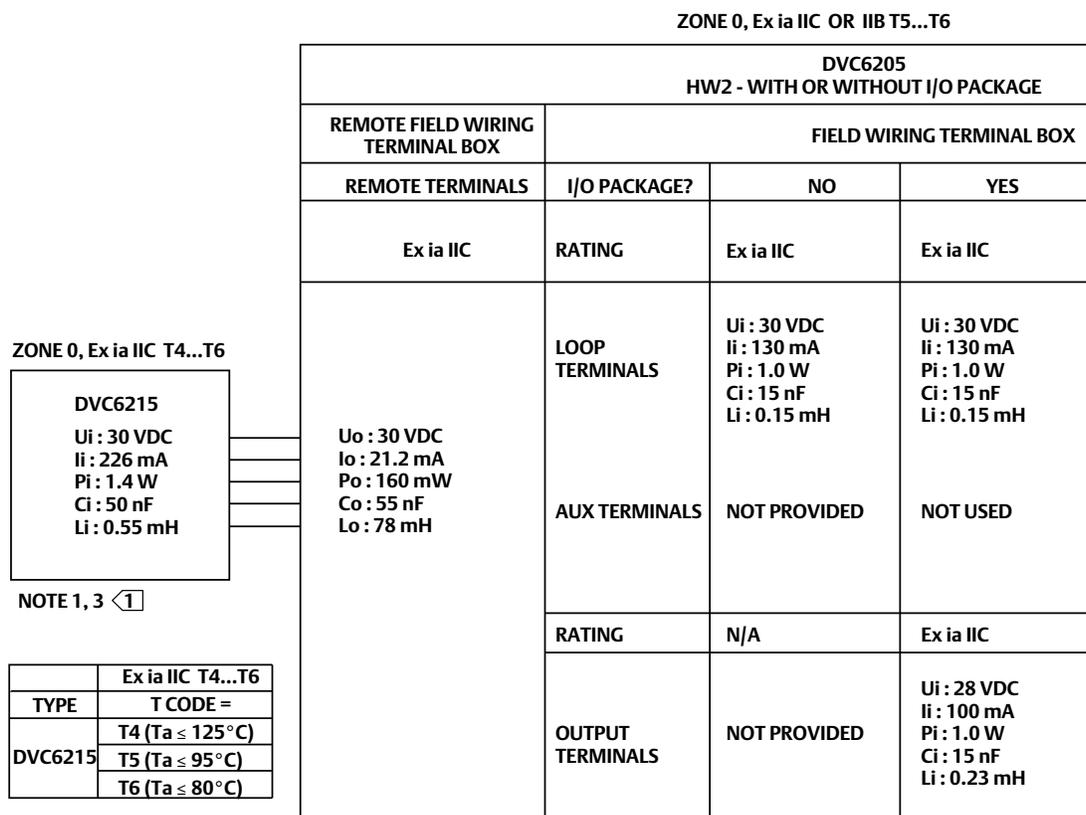


Figure 2. Loop Schematics—FIELDVUE DVC6205, DVC6205 SIS, and DVC6215



1 SEE NOTES IN FIGURE 5

** NOTE - POWER MAY BE APPLIED TO EITHER THE LOOP TERMINALS OR OUTPUT TERMINALS OR TO BOTH SETS OF TERMINALS AT THE SAME TIME.

** NOTE - THE AUX TERMINAL PARAMETERS ARE NOT FULLY INDEPENDENT FROM THE LOOP TERMINAL PARAMETERS AND IS THEREFORE DEEMED AS A SOURCE WITH OUTPUTS.

** NOTE - WHEN THE AUX TERMINALS ARE USED, THE MAXIMUM OUTPUT (U, I, & P) WILL BE IDENTICAL TO THE ASSOCIATED APPARATUS FEEDING THE LOOP TERMINALS.

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	Ex ia IIC or IIB T5...T6	
	WITHOUT I/O PACKAGE	WITH I/O PACKAGE
TYPE	T CODE =	T CODE =
DVC6205	T5 (Ta ≤ 80°C)	T5 (Ta ≤ 80°C)
	T6 (Ta ≤ 74°C)	T6 (Ta ≤ 61°C)

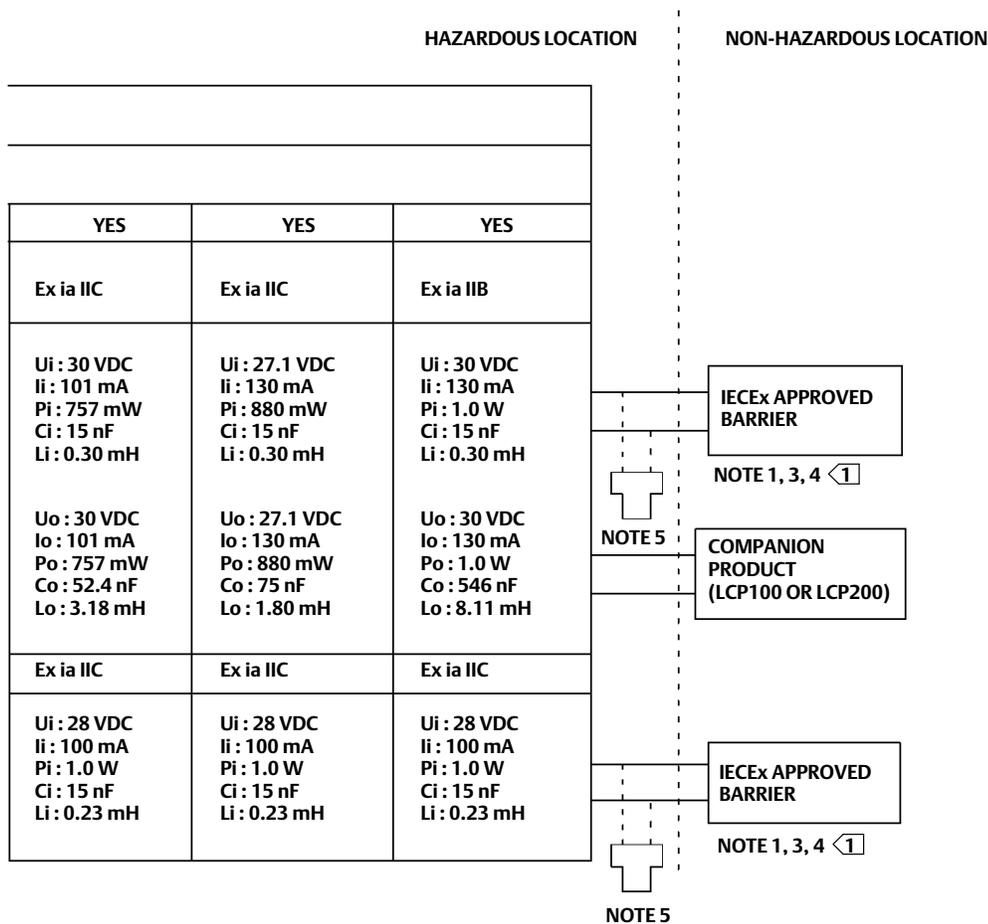
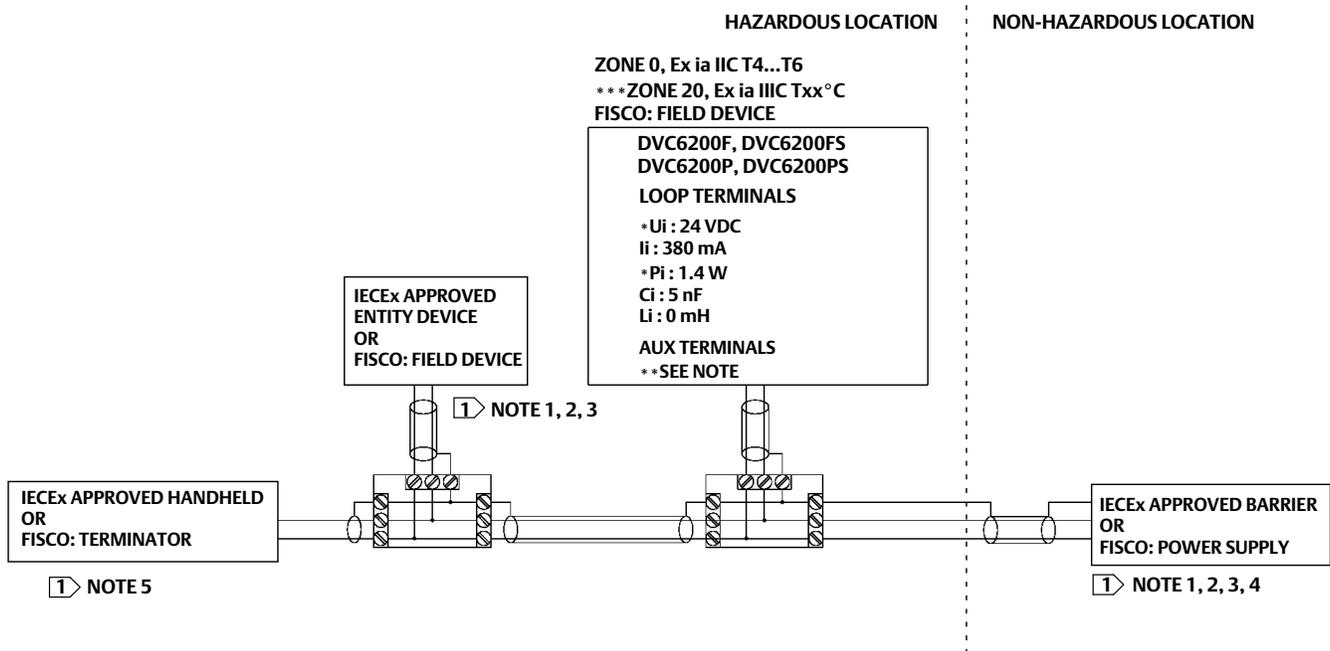


Figure 3. Loop Schematics—FIELDVUE DVC6200f and DVC6200p

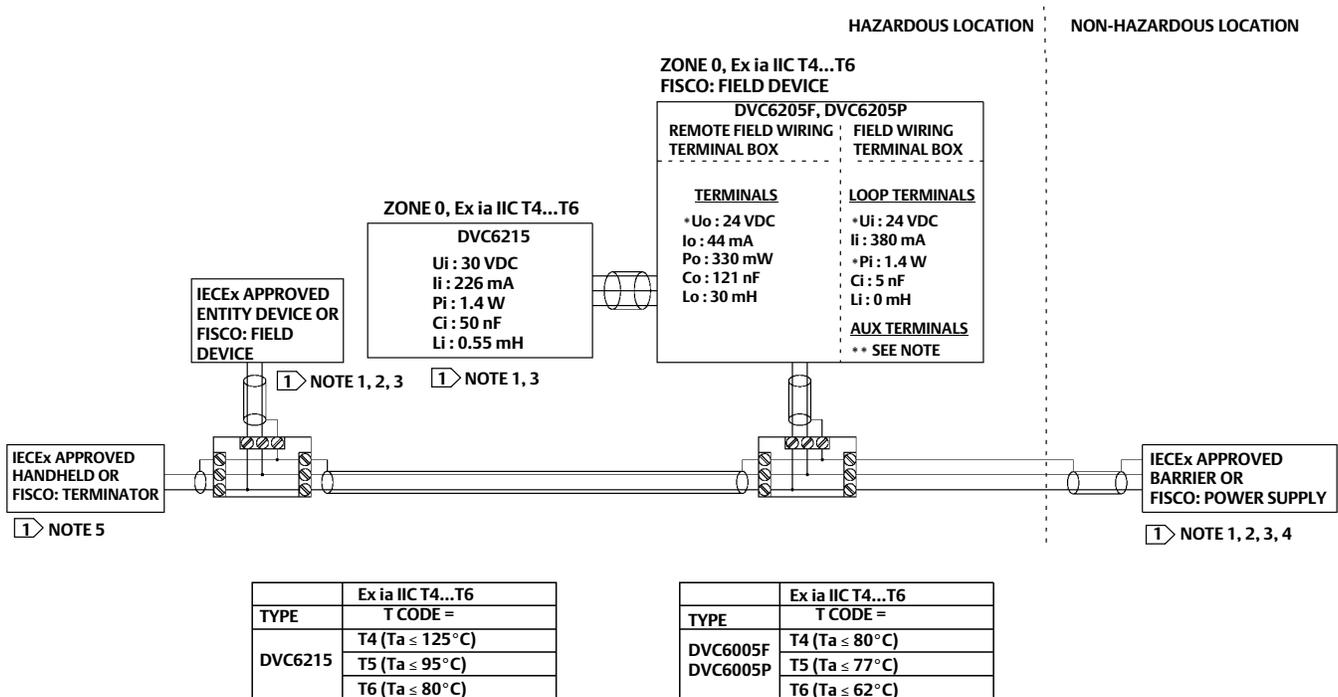


	Ex ia IIC T4...T6	***Ex ia IIIC Txx°C
TYPE	T CODE =	Txx°C =
DVC6200F	T4 (Ta ≤ 80°C)	T103°C (Ta ≤ 80°C)
DVC6200FS	T5 (Ta ≤ 77°C)	T100°C (Ta ≤ 77°C)
DVC6200P	T6 (Ta ≤ 62°C)	T85°C (Ta ≤ 62°C)
DVC6200PS		

SEE NOTES IN FIGURE 5

- ***ONLY IF THE NAMEPLATE BEARS THIS MARKING.
- **NOTE: THE AUX TERMINALS ALLOW FOR ADDITIONAL CONFIGURATIONS BY SHORTING THEM TOGETHER LOCALLY OR REMOTELY BY USE OF A SWITCH.
- **NOTE: IF FISCO IS IMPLEMENTED,
 Ui: 17.5, VDC & Pi: 5.32 W

Figure 4. Loop Schematics—FIELDVUE DVC6205f, DVC6205p, and DVC6215



SEE NOTES IN FIGURE 5

**NOTE: THE AUX TERMINALS ALLOW FOR ADDITIONAL CONFIGURATIONS BY SHORTING THEM TOGETHER LOCALLY OR REMOTELY BY USE OF A SWITCH.

*NOTE: IF FISCO IS IMPLEMENTED,
 Ui : 17.5 VDC & Pi : 5.32 W
 Uo : 17.5 VDC

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Figure 5. Notes for Loop Schematics

SPECIAL CONDITIONS OF USE:

THE APPARATUS ENCLOSURE CONTAINS ALUMINUM AND IS CONSIDERED TO CONSTITUTE A POTENTIAL RISK OF IGNITION BY IMPACT AND FRICTION. CARE MUST BE TAKEN INTO ACCOUNT DURING INSTALLATION AND USE TO PREVENT IMPACT OR FRICTION.

THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS TO ASSOCIATED APPARATUS NOT SPECIFICALLY EXAMINED IN SUCH COMBINATION. THE CRITERIA FOR INTERCONNECTION IS THAT THE VOLTAGE (Vmax OR Ui), THE CURRENT (Imax OR Ii), AND THE POWER (Pmax OR Pi) OF THE INTRINSICALLY SAFE APPARATUS MUST BE EQUAL TO OR GREATER THAN THE VOLTAGE (Voc OR Uo), AND THE CURRENT (Isc OR Io), AND THE POWER (Po) DEFINED BY THE ASSOCIATED APPARATUS. IN ADDITION, THE SUM OF THE MAX UNPROTECTED CAPACITANCE (Ci) AND MAX UNPROTECTED INDUCTANCE (Li), INCLUDING THE INTERCONNECTING CABLING CAPACITANCE (Ccable) AND CABLING INDUCTANCE (Lcable) MUST BE LESS THAN THE ALLOWABLE CAPACITANCE (Ca) AND INDUCTANCE (La) DEFINED BY THE ASSOCIATED APPARATUS. IF THE ABOVE CRITERIA IS MET, THEN THE COMBINATION MAY BE CONNECTED.

$$V_{max} \text{ or } U_i \geq V_{oc} \text{ or } U_o \quad I_{max} \text{ or } I_i \geq I_{sc} \text{ or } I_o \quad P_{max} \text{ or } P_i \geq P_o \quad C_i + C_{cable} \leq C_a \quad L_i + L_{cable} \leq L_a$$

continued on next page

Figure 5. Notes for Loop Schematics (continued)

2 THE FISCO CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS TO ASSOCIATED APPARATUS NOT SPECIFICALLY EXAMINED IN SUCH COMBINATION. THE CRITERIA FOR THE INTERCONNECTION IS THAT THE VOLTAGE (V_{max} OR U_i), CURRENT (I_{max} OR I_i), AND POWER (P_{max} OR P_i), WHICH AN INTRINSICALLY SAFE APPARATUS CAN RECEIVE AND REMAIN INTRINSICALLY SAFE, CONSIDERING FAULTS, MUST BE EQUAL TO OR GREATER THAN THE VOLTAGE (V_{oc} OR U_o), CURRENT (I_{sc} OR I_o), AND POWER (P_o) LEVELS WHICH CAN BE DELIVERED BY THE ASSOCIATED APPARATUS, CONSIDERING FAULTS AND APPLICABLE FACTORS. IN ADDITION THE MAXIMUM UNPROTECTED CAPACITANCE (C_i) AND INDUCTANCE (L_i) OF EACH APPARATUS (OTHER THAN THE TERMINATION) CONNECTED TO THE FIELD BUS MUST BE LESS THAN OR EQUAL TO 5 nF AND 10 μ H RESPECTIVELY.

IN EACH SEGMENT ONLY ONE ACTIVE DEVICE, NORMALLY THE ASSOCIATED APPARATUS, IS ALLOWED TO PROVIDE THE NECESSARY ENERGY FOR THE FIELD BUS SYSTEM. THE VOLTAGE (U_o OR V_{oc} OR V_t) OF THE ASSOCIATED APPARATUS HAS TO BE LIMITED TO THE RANGE OF 9 TO 17.5 VDC. ALL OTHER EQUIPMENT CONNECTED TO THE BUS CABLE HAS TO BE PASSIVE, MEANING THAT THEY ARE NOT ALLOWED TO PROVIDE ENERGY TO THE SYSTEM, EXCEPT FOR A LEAKAGE CURRENT OF 50 μ A FOR EACH CONNECTED DEVICE. SEPARATELY POWERED EQUIPMENT NEEDS A GALVANIC ISOLATION TO ASSURE THAT THE INTRINSICALLY SAFE FIELD BUS CIRCUIT REMAINS PASSIVE.

THE CABLE USED TO INTERCONNECT THE DEVICES NEEDS TO HAVE THE PARAMETERS IN THE FOLLOWING RANGE:

LOOP RESISTANCE R':	15 TO 150 ohms/km
INDUCTANCE PER UNIT LENGTH L:	0.4 TO 1 mH/km
CAPACITANCE PER UNIT LENGTH C':	80 TO 200 nF/km
C' = C' LINE/LINE + 0.5' LINE/SCREEN, IF BOTH LINES ARE FLOATING OR	
C' = C' LINE/LINE + C' LINE/SCREEN, IF THE SCREEN IS CONNECTED TO ONE LINE.	
LENGTH OF SPLICE:	< 1 m (T-BOX MUST ONLY CONTAIN TERMINAL CONNECTIONS WITH NO ENERGY STORAGE CAPABILITY)
LENGTH OF SPUR CABLE:	< 30 m
LENGTH OF TRUNK CABLE:	< 1 km

AT EACH END OF THE TRUNK CABLE AN APPROVED INFALLIBLE TERMINATION WITH THE FOLLOWING PARAMETERS IS SUITABLE:

R = 90 TO 100 ohms AND C = 0 TO 2.2 μ F

NOTE, A BUILT-IN TERMINATOR IS INCLUDED ON THE FIELD SIDE AND A SELECTABLE TERMINATOR IS AVAILABLE ON THE HOST SIDE.

THE NUMBER OF PASSIVE DEVICES CONNECTED TO THE BUS SEGMENT IS NOT LIMITED IN THE FISCO CONCEPT FOR INTRINSICALLY SAFE REASONS. IF THE ABOVE RULES ARE RESPECTED, UP TO A TOTAL LENGTH OF 1000 m (SUM OF THE LENGTH OF THE TRUNK CABLE AND ALL SPUR CABLES), THE INDUCTANCE AND CAPACITANCE OF THE CABLE WILL NOT IMPAIR THE INTRINSIC SAFETY OF THE INSTALLATION.

3 INSTALLATION MUST BE IN ACCORDANCE WITH THE NATIONAL WIRING PRACTICES OF THE COUNTRY IN USE.

4 LOOPS MUST BE CONNECTED ACCORDING TO THE BARRIER MANUFACTURER'S INSTRUCTIONS.

5 IF HAND-HELD COMMUNICATOR OR MULTIPLEXER IS USED, IT MUST BE IECEx APPROVED WITH ENTITY PARAMETERS AND INSTALLED PER THE MANUFACTURER'S CONTROL DRAWINGS.

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