

ATEX 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](#) or at [Fisher.com](#).

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

Approval information is for both aluminum and stainless steel constructions.

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.

WARNING

To avoid static discharge from the plastic cover when flammable gases or dust are present, do not rub or clean the cover with solvents. To do so could result in a spark that may cause the flammable gases or dust to explode, resulting in personal injury or property damage. Clean with a mild detergent and water only.

⚠ WARNING**Special Conditions of Use:**

The apparatus enclosure contains aluminium and is considered to constitute a potential risk of ignition by impact or friction. This shall be taken into account when installed in Zone 0 locations and care shall be taken to prevent impact or friction during the installation and use (applicable only to aluminium constructions).

Flameproof  II 2 GD**⚠ WARNING**

Potential electrostatic charging hazard. See WARNING on page 1.

Covered by Standards:

EN IEC 60079-0: 2018

EN 60079-1:2014

EN 60079-31:2014

DVC6200 and DVC6205 Series HART, FOUNDATION Fieldbus, PROFIBUS

Ex db IIC T5/T6 Gb, IP66

Ex tb IIIC T88 °C Db, IP66 (not applicable to DVC6205 Series)

Ta = -52 or -40 to +85 °C

DVC6215 and DVC6215NA

Ex db IIC T4/T5/T6 Gb, IP66

Ta = -52 to +125 °C

Type n, Increased Safety  II 3 G**⚠ WARNING**

Potential electrostatic charging hazard. See WARNING on page 1.

Covered by Standards:

EN IEC 60079-0: 2018

EN IEC 60079-15: 2019

DVC6200 and DVC6205 Series HART, FOUNDATION Fieldbus, PROFIBUS

Ex nC IIC T5/T6 Gc, IP66

Ta = -52 or -40 to +80 °C

DVC6215

Ex ec IIC T4/T5/T6 Gc, IP66

Ta = -52 to +125 °C

Intrinsically Safe II 1 GD

WARNING

Potential electrostatic charging hazard. See WARNING on page 1.

Covered by Standards:
EN IEC 60079-0: 2018
EN 60079-11:2012

DVC6200 and DVC6205 Series

Ex ia IIC or IIB T4/T5/T6 Ga, IP66
Ex ia IIC, T4/T5/T6 Ga, IP66
Ex ia IIIC Txx °C Da, IP66
Ta = -52 / -40 to +80 °C
Ex ia IIC/IIB valid to: Ta = -55 to +80 °C

HART
FOUNDATION Fieldbus, PROFIBUS
DVC6200 Series
DVC6200 and DVC6205 Series
DVC6200 and DVC6205 Series

DVC6215

Ex ia IIC T4/T5/T6 Ga, IP66
Ta = -52 to +125 °C

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

DVC6200 HW2 and DVC6200 SIS Figures 1 and 5
DVC6205, DVC6205 SIS and DVC6215 Remote Mount Figures 2 and 5
DVC6200f and DVC6200p Figures 3 and 5
DVC6205f, DVC6205p and DVC6215 Remote Mount Figures 4 and 5

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

**ZONE 0, Ex ia IIC OR IIB T5 TO 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 V DC Ii: 130 mA Pi: 1.0 W Ci: 15 nF Li: 0.15 mH	Ui: 30 V DC Ii: 130 mA Pi: 1.0 W Ci: 15 nF Li: 0.15 mH	Ui: 30 V DC Ii: 101 mA Pi: 757 mW Ci: 15 nF Li: 0.30 mH
AUX TERMINALS	NOT PROVIDED	NOT USED	U: 30 V DC Io: 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 V DC Ii: 100 mA Pi: 1.0 W Ci: 15 nF Li: 0.23 mH	Ui: 28 V DC Ii: 100 mA Pi: 1.0 W Ci: 15 nF Li: 0.23 mH

NOTES:

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 AND 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)

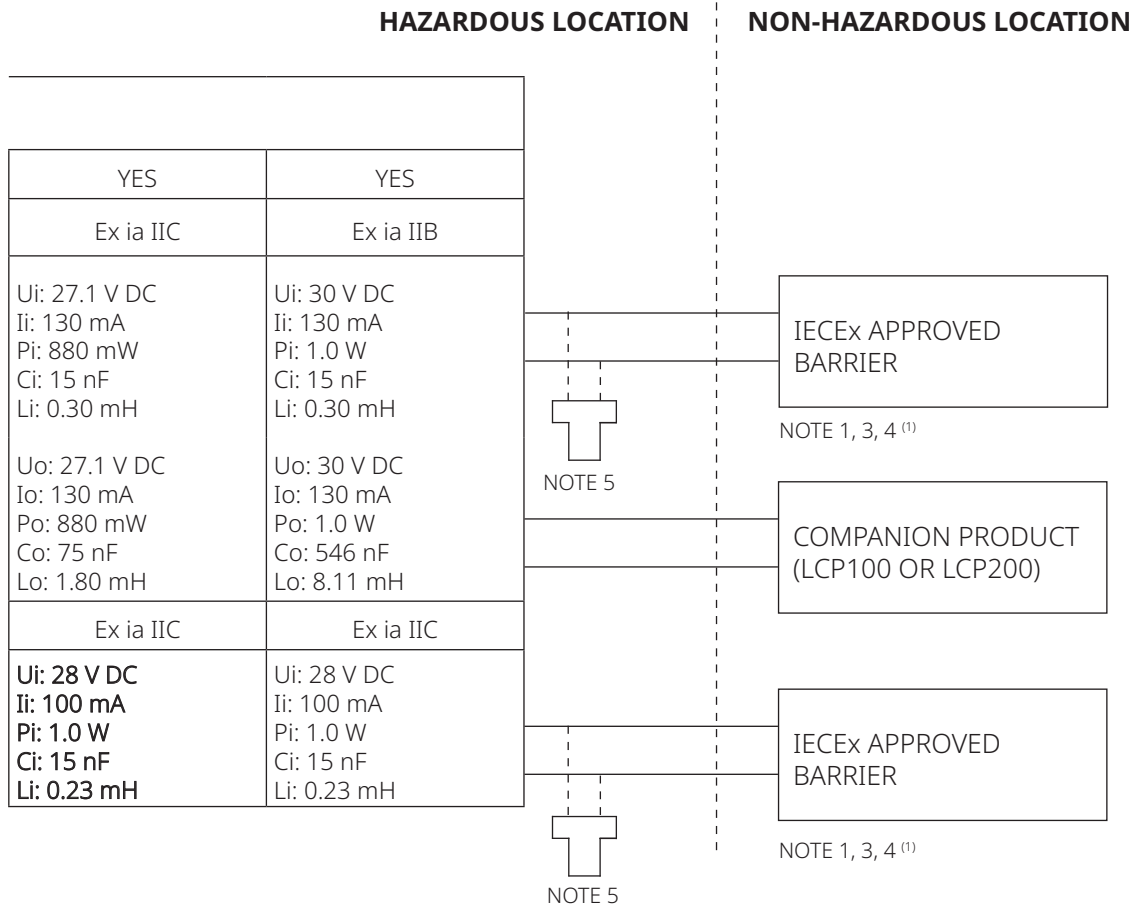
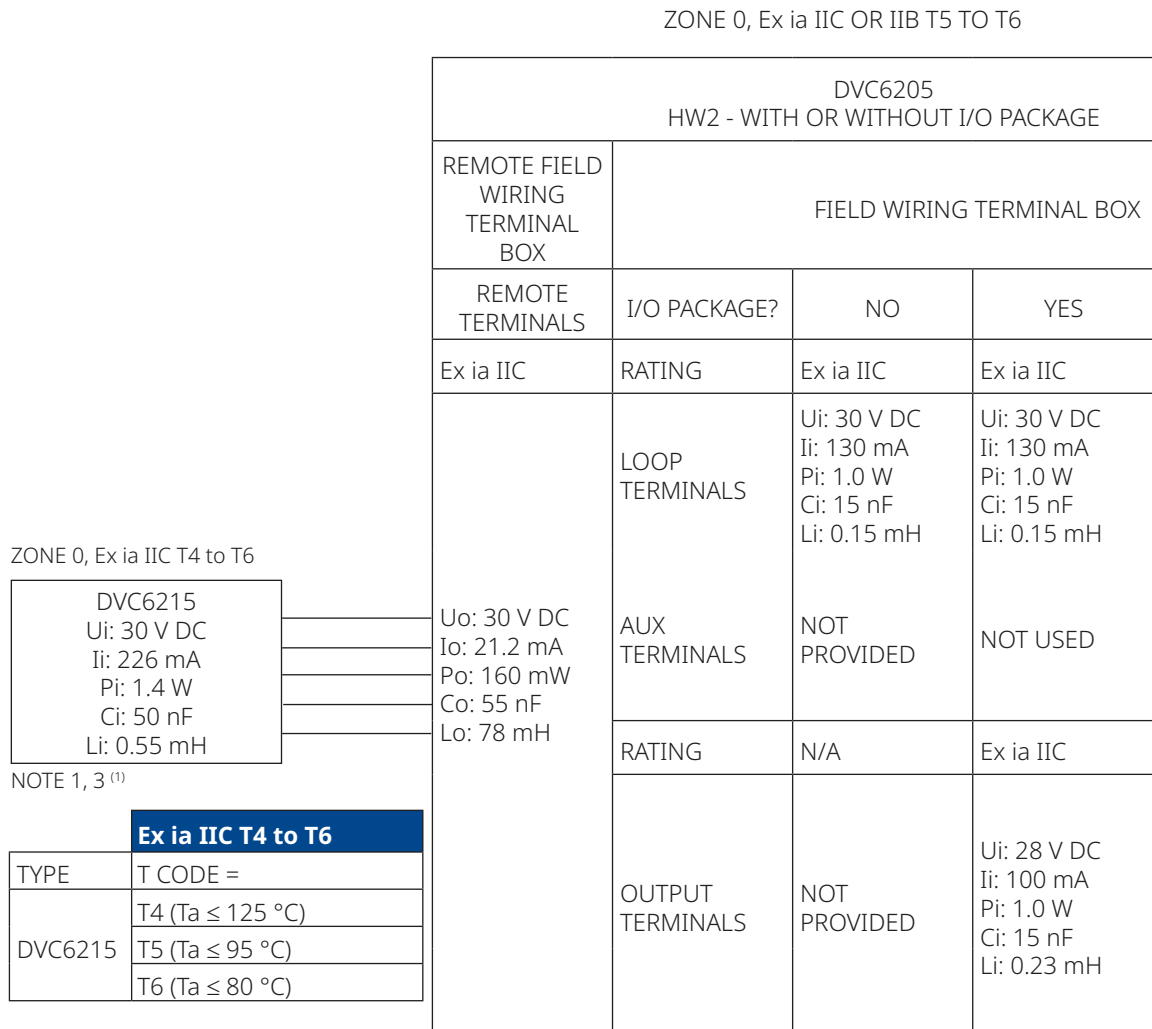


Figure 2. Loop Schematics – FIELDVUE DVC6205, DVC6205 SIS and DVC6215



NOTES

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 AND P) WILL BE IDENTICAL TO THE ASSOCIATED APPARATUS FEEDING THE LOOP TERMINALS.

Ex ia IIC or IIB T5 to 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)

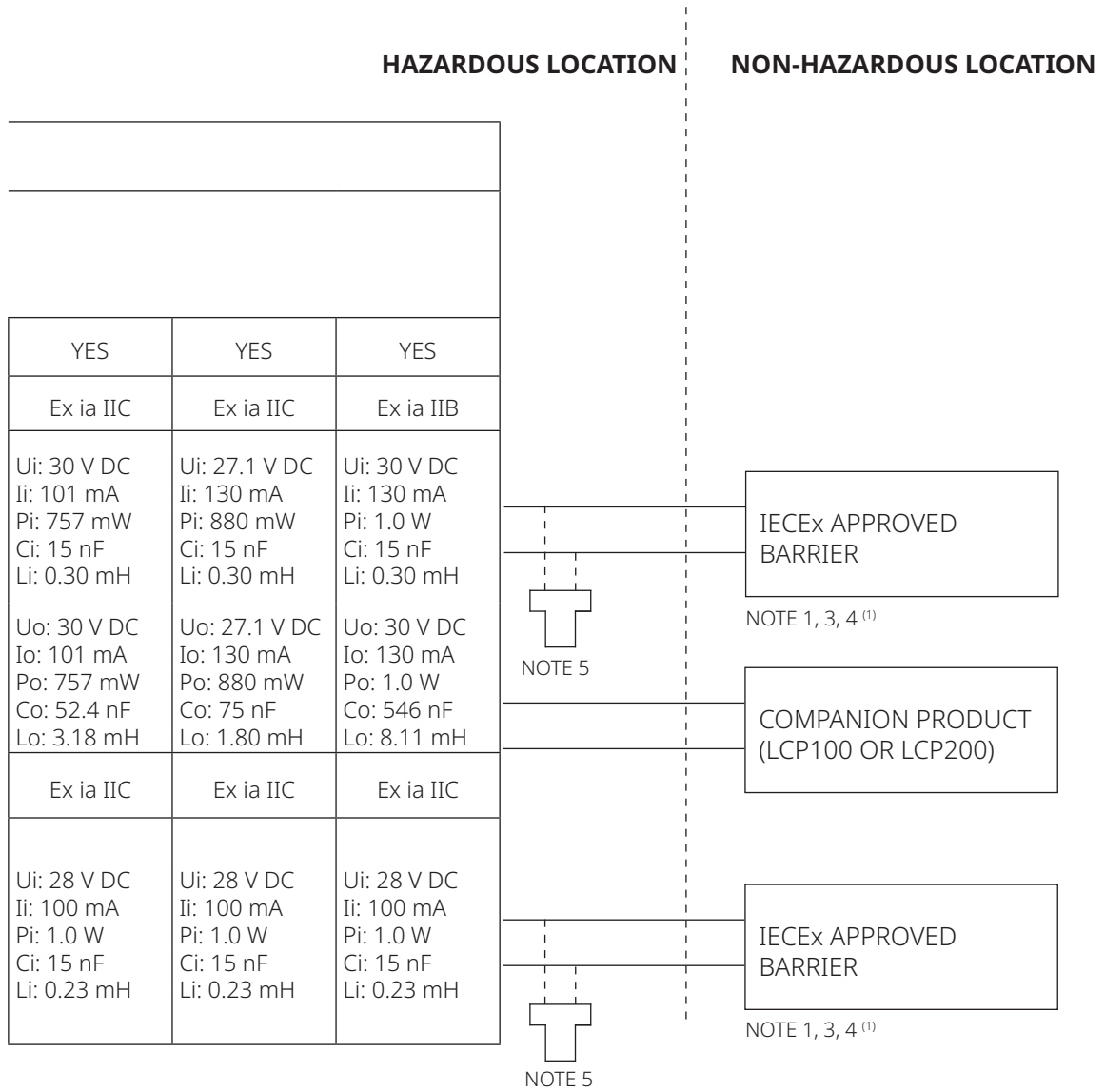
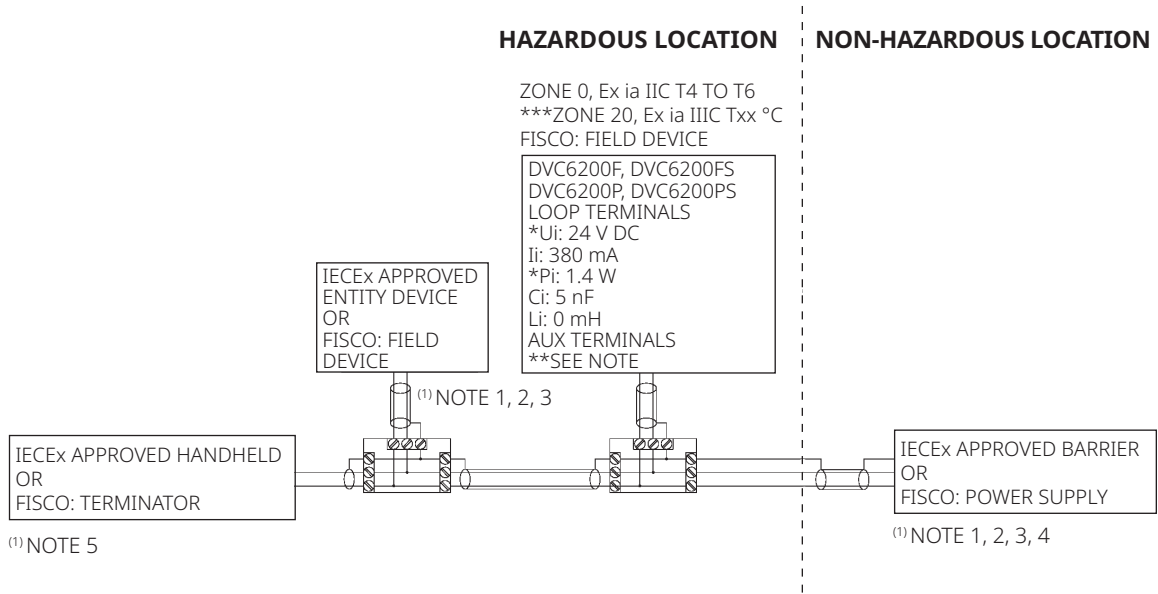


Figure 3. Loop Schematics – FIELDVUE DVC6200f and DVC6200p



	Ex ia IIC T4 to 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		

NOTES:

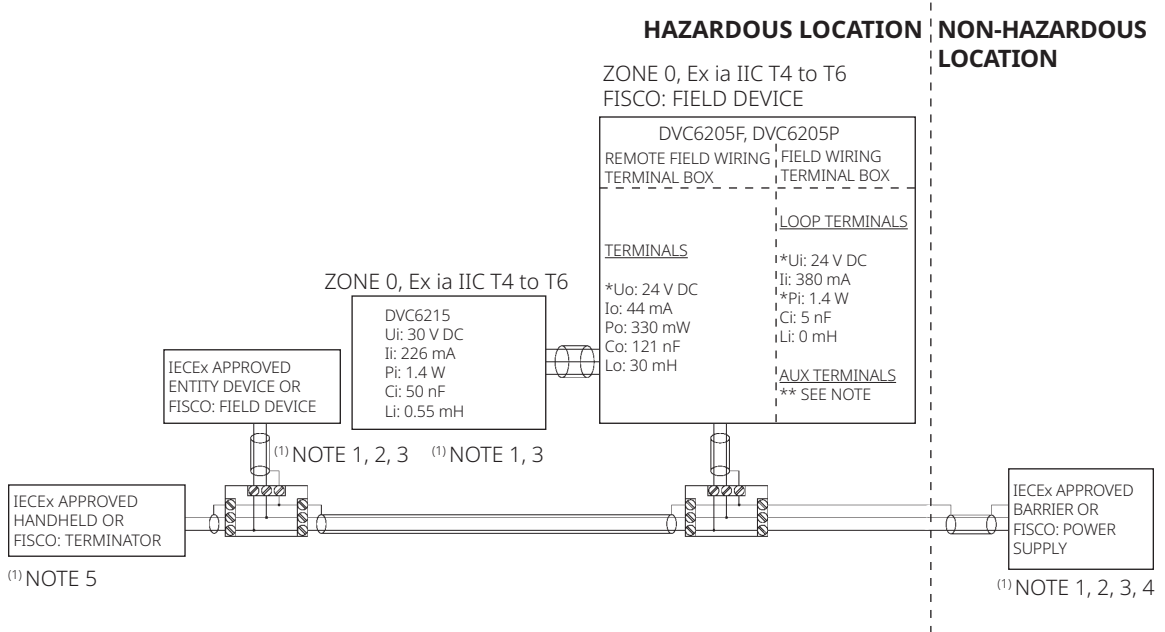
1. SEE NOTES IN FIGURE 5.

** 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,
 UJ: 17.5 V DC AND PI: 5.32 W

*** ONLY IF THE NAMEPLATE BEARS THIS MARKING.

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



Ex ia IIC T4 to T6	
TYPE	T CODE =
DVC6215	T4 ($T_a \leq 125\text{ }^\circ\text{C}$)
	T5 ($T_a \leq 95\text{ }^\circ\text{C}$)
	T6 ($T_a \leq 80\text{ }^\circ\text{C}$)

Ex ia IIC T4 to T6	
TYPE	T CODE =
DVC6005F DVC6005P	T4 ($T_a \leq 80\text{ }^\circ\text{C}$)
	T5 ($T_a \leq 77\text{ }^\circ\text{C}$)
	T6 ($T_a \leq 62\text{ }^\circ\text{C}$)

NOTES:

1. 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,
 $U_i: 17.5\text{ V DC}$ AND $P_i: 5.32\text{ W}$
 $U_o: 17.5\text{ V DC}$

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.

1. 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 (V_{MAX} OR U_I), THE CURRENT (I_{MAX} OR I_I), AND THE POWER (P_{MAX} OR P_I) OF THE INTRINSICALLY SAFE APPARATUS MUST BE EQUAL TO OR GREATER THAN THE VOLTAGE (V_{OC} OR U_O), AND THE CURRENT (I_{SC} OR I_O), AND THE POWER (P_O) DEFINED BY THE ASSOCIATED APPARATUS. IN ADDITION, THE SUM OF THE MAX UNPROTECTED CAPACITANCE (C_I) AND MAX UNPROTECTED INDUCTANCE (L_I), INCLUDING THE INTERCONNECTING CABLING CAPACITANCE (C_{CABLE}) AND CABLING INDUCTANCE (L_{CABLE}) MUST BE LESS THAN THE ALLOWABLE CAPACITANCE (C_A) AND INDUCTANCE (L_A) DEFINED BY THE ASSOCIATED APPARATUS. IF THE ABOVE CRITERIA IS MET, THEN THE COMBINATION MAY BE CONNECTED.

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

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 UH, 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 V DC. 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 μA FOR EACH CONNECTED DEVICE. SEPARATELY POWERED EQUIPMENT NEEDS A GALVANIC ISOLATION TO ASSURE THAT THE INTRINSICALLY SAFE FIELD BUS CIRCUIT REMAINS PASSIVE.

- continued -

Figure 5. Notes for Loop Schematics (continued)

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 UF

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 IEC EX APPROVED WITH ENTITY PARAMETERS AND INSTALLED PER THE MANUFACTURER'S CONTROL DRAWINGS.

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