

IECEx Hazardous Area Approvals Fisher™ FIELDVUE™ DVC6005 Series Remote Mount 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 DVC6005 Series Remote Mount quick start guide ([D103784X012](#)), available from your [Emerson sales office](#), Local Business Partner or at [Fisher.com](#).

Approval information is for both aluminum and stainless steel constructions.

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

⚠ WARNING

Do not open while energized.

Potential electrostatic charging hazard. Do not rub or clean the cover with solvents. To do so could result in an explosion.

Covered by Standards:

IEC 60079-0:2011

IEC 60079-1:2007

DVC6005 Series (HART HW1 & HW2, FOUNDATION Fieldbus)

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

30 V max, 20 mA

IP66

-52°C ≤ Ambient ≤ +80°C

DVC6015, DVC6025, DVC6035

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

10 V max, 5 mA

IP66

-60°C ≤ Ambient ≤ +125°C

Type n

⚠ WARNING

Do not open while energized.

Potential electrostatic charging hazard. Do not rub or clean the cover with solvents. To do so could result in an explosion.

Covered by Standards:

IEC 60079-0:2011

IEC 60079-15:2010

DVC6005 Series (HART HW1 & HW2, FOUNDATION Fieldbus)

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

30 V max, 20 mA

IP66

-52°C ≤ Ambient ≤ +80°C

DVC6015, DVC6025, DVC6035

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

10 V max, 5 mA

IP66

-60°C ≤ Ambient ≤ +125°C

Intrinsically Safe

Covered by Standards:

IEC 60079-0:2011

IEC 60079-11:2011

DVC6005 Series (HART HW1 & HW2, FOUNDATION Fieldbus)

Ex ia IIC or IIB T4/T5/T6 (as applicable) Ga

30 V max, 20 mA

IP66

-52°C ≤ Ambient ≤ +80°C

DVC6015, DVC6025, DVC6035

Ex ia IIC T4/T5/T6 (as applicable) Ga

10 V max, 5 mA

IP66

-60°C ≤ Ambient ≤ +125°C

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

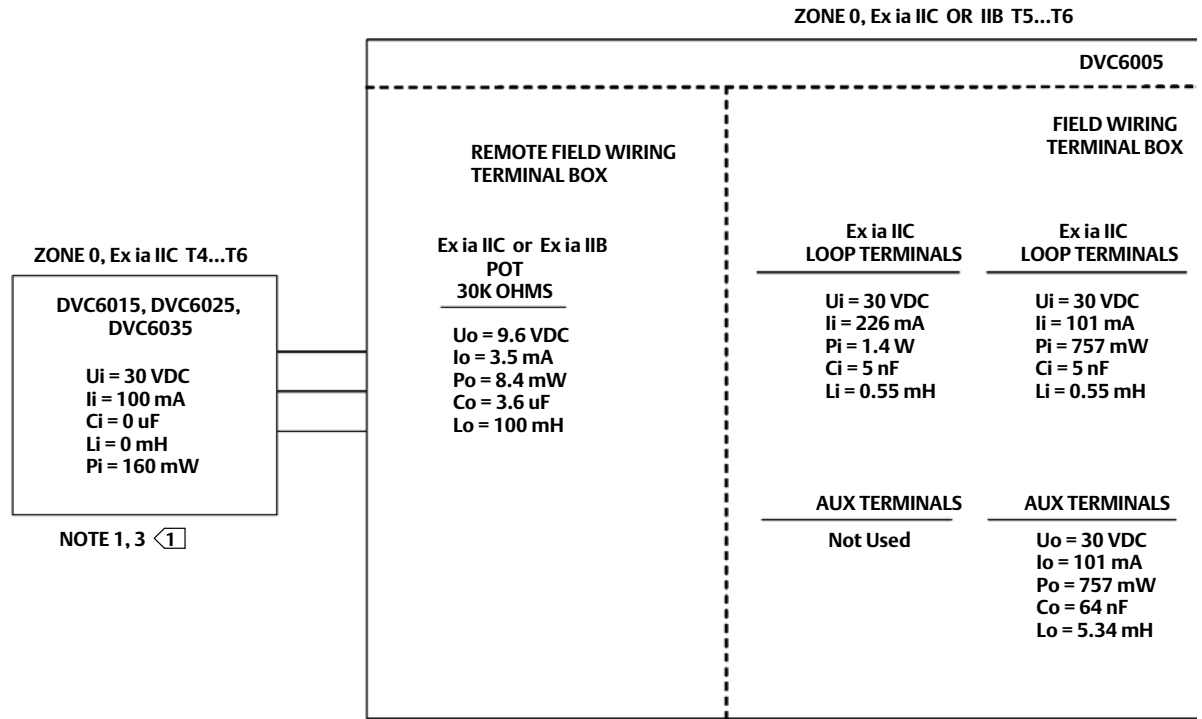
DVC6005 HW1 and DVC6015, DVC6025, DVC6035 figure 1 and 5

DVC6005 HW2 and DVC6015, DVC6025, DVC6035 figure 2 and 5

DVC6005f and DVC6015, DVC6025, DVC6035 figure 3 and 5

DVC6005f and DVC6015, DVC6025, DVC6035, FISCO Installations .. figure 4 and 5

Figure 1. IECEx Loop Schematics FIELDVUE DVC6005 HW1 and DVC6015, DVC6025, DVC6035



	Ex ia IIC T4...T6
TYPE	T CODE =
DVC6015 DVC6025 DVC6035	T4 (Ta ≤ 125°C)
	T5 (Ta ≤ 95°C)
	T6 (Ta ≤ 80°C)

	Ex ia IIC OR IIB T5...T6
TYPE	T CODE =
DVC6005	T5 (Ta ≤ 80°C)
	T6 (Ta ≤ 75°C)

1 SEE NOTES IN FIGURE 5

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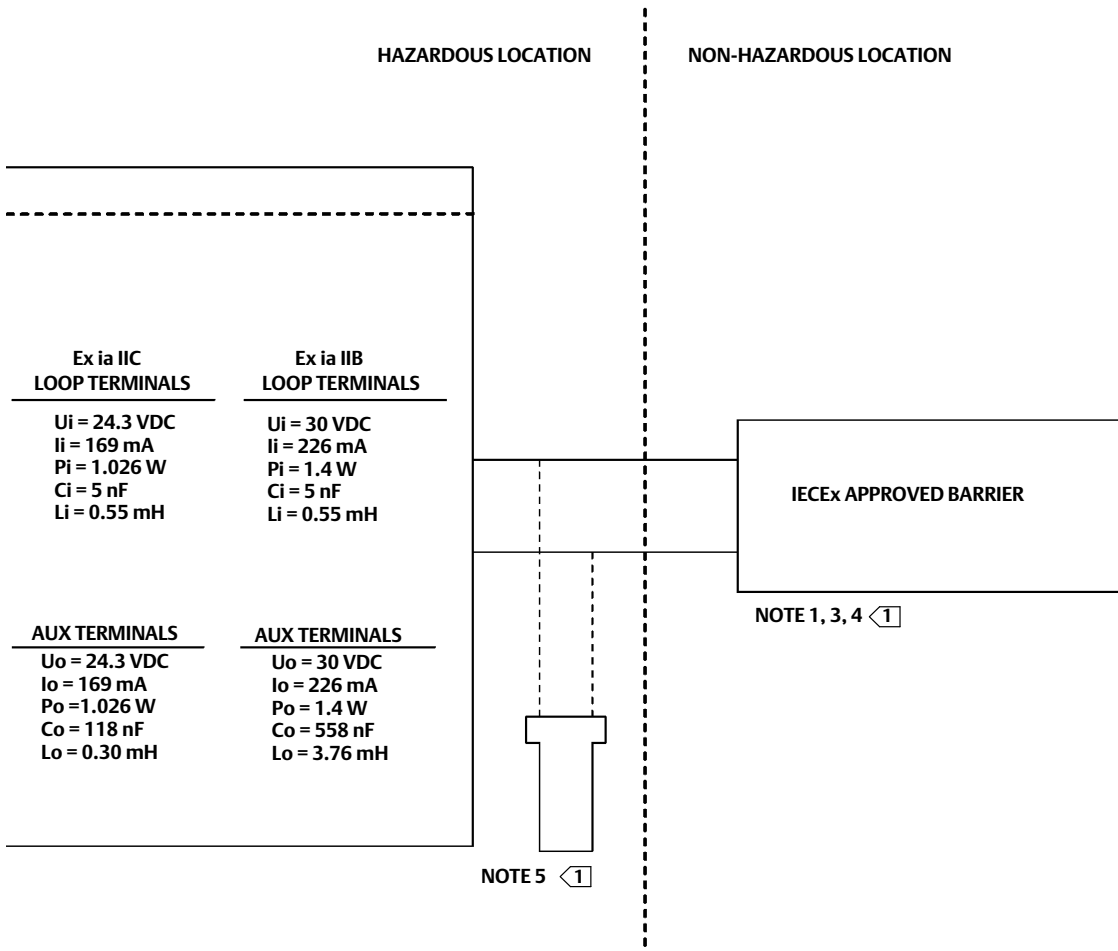
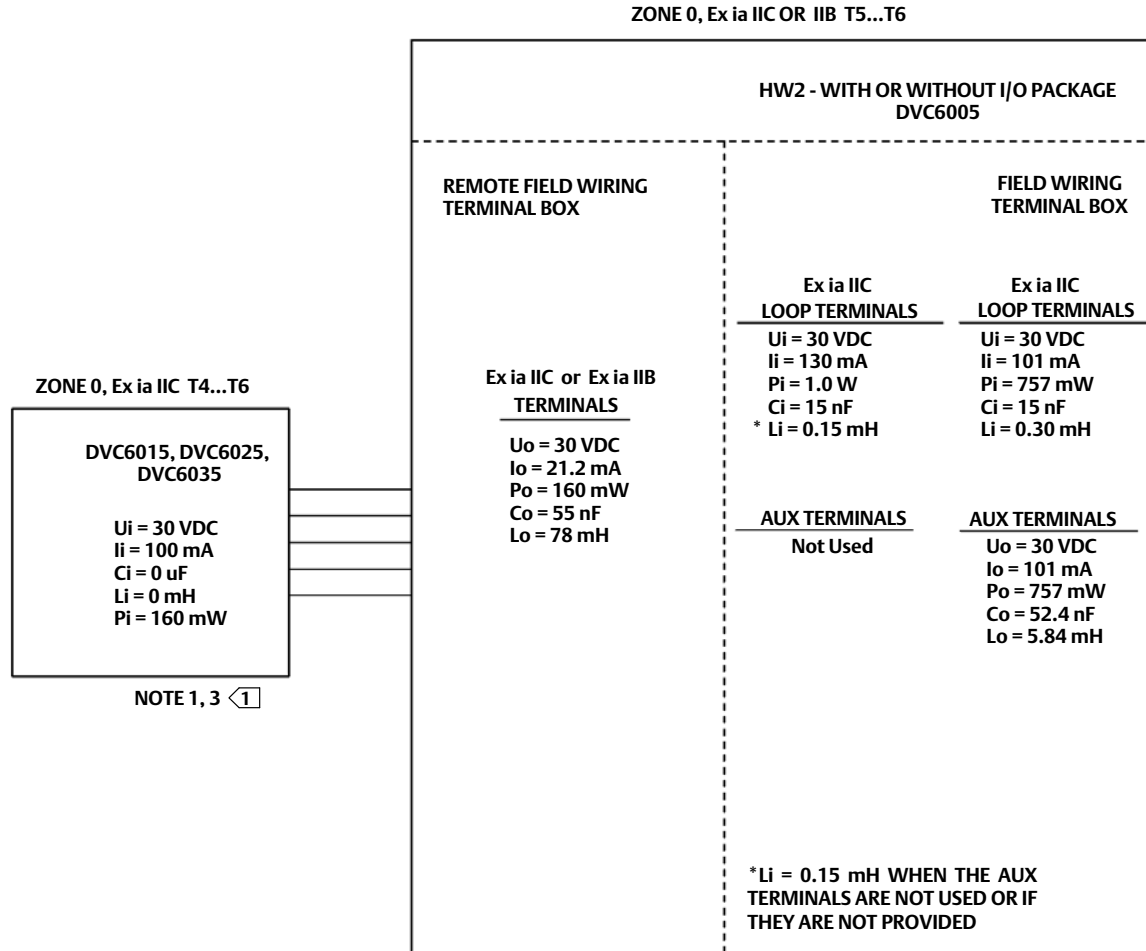
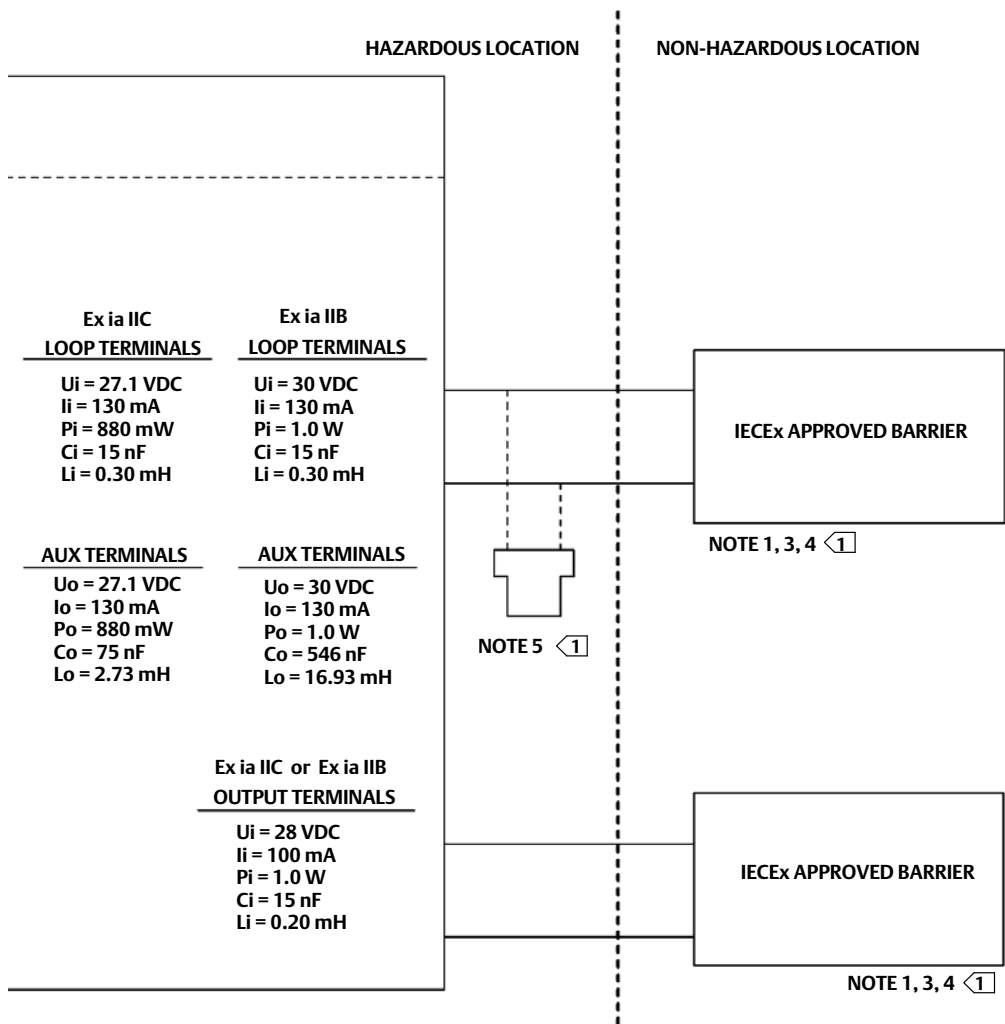


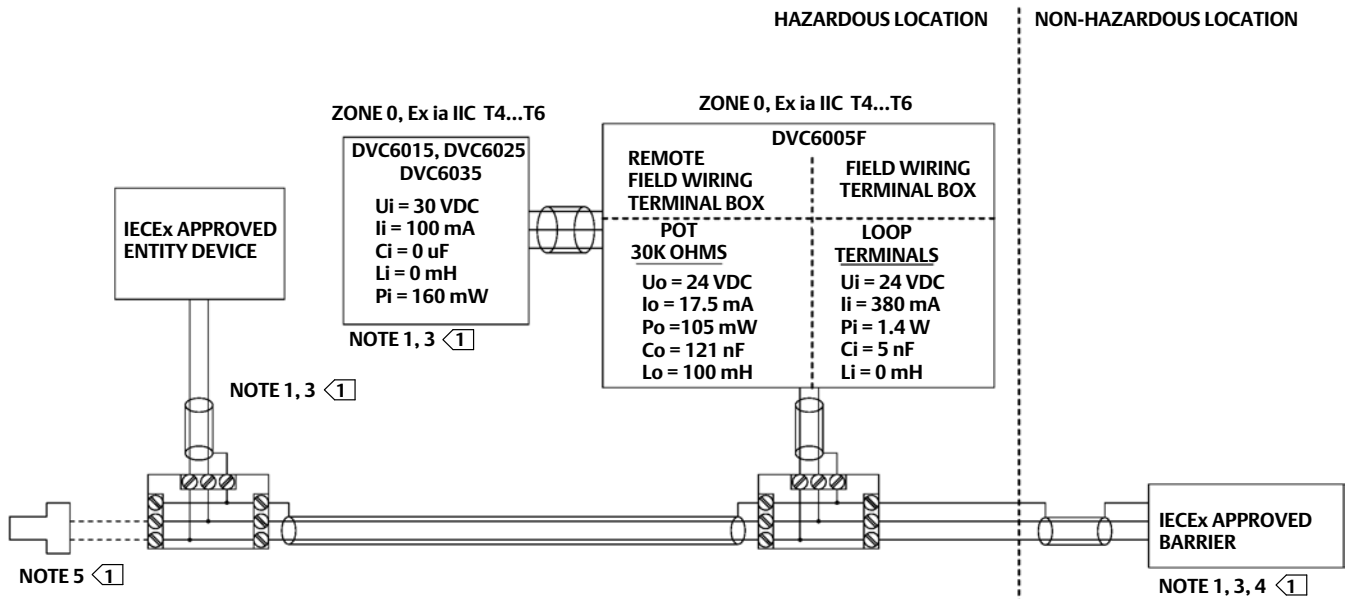
Figure 2. IECEx Loop Schematics FIELDVUE DVC6005 HW2, and DVC6015, DVC6025, DVC6035





POWER MAY BE APPLIED TO EITHER THE LOOP TERMINALS OR OUTPUT TERMINALS OR TO BOTH SETS OF TERMINALS AT THE SAME TIME
 UNITS WITHOUT I/O PACKAGE WILL NOT HAVE "OUTPUT TERMINALS" OR "AUX TERMINALS" AVAILABLE FOR CONNECTION

Figure 3. IECEx Loop Schematics FIELDVUE DVC6005f and DVC6015, DVC6025, DVC6035



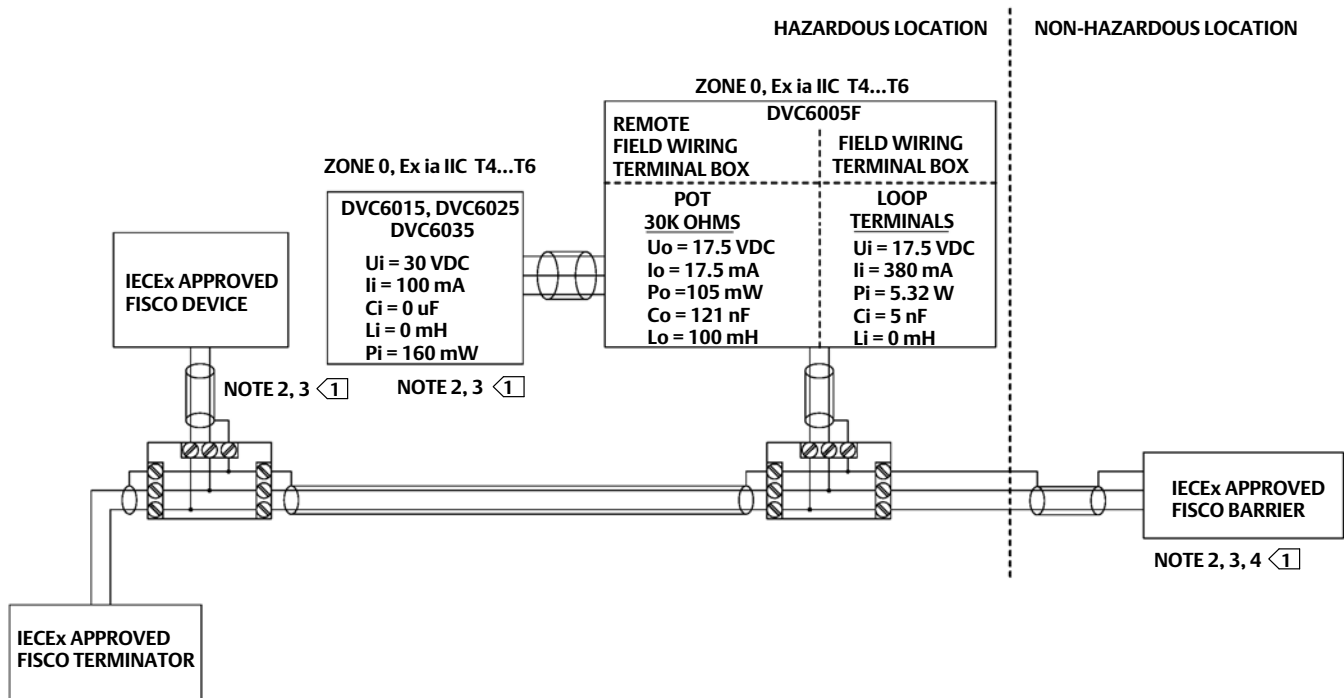
Ex ia IIC T4...T6	
TYPE	T CODE =
DVC6015 DVC6025 DVC6035	T4 ($T_a \leq 125^\circ\text{C}$)
	T5 ($T_a \leq 95^\circ\text{C}$)
	T6 ($T_a \leq 80^\circ\text{C}$)

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

SEE NOTES IN FIGURE 5

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Figure 4. IECEx Loop Schematics FIELDVUE DVC6005f and DVC6015, DVC6025, DVC6035; FISCO Installations



Ex ia IIC T4...T6	
TYPE	T CODE =
DVC6015 DVC6025 DVC6035	T4 ($T_a \leq 125^\circ\text{C}$)
	T5 ($T_a \leq 95^\circ\text{C}$)
	T6 ($T_a \leq 80^\circ\text{C}$)

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

1 SEE NOTES IN FIGURE 5

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Figure 5. Notes for IECEx Loop Schematics

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 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 V 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 CONNECT 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

$C' = C' \text{ LINE/LINE} + 0.5' \text{ LINE/SCREEN}$, IF BOTH LINES ARE FLOATING OR

$C' = C' \text{ LINE/LINE} + C' \text{ LINE/SCREEN}$, 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 IN 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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