



CSA 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.

⚠ 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.

Ordinary Locations Approval

Complies with general electrical safety CAN/CSA-C22.2 No. 61010-1-2004
SELV, conduit connected, Enclosure Type 4X, IP66, Installation Category I, Pollution Degree 4

DVC6200 Series (FOUNDATION Fieldbus, PROFIBUS)

Rated Input 9-30 VDC, 4-20 mA
-52°C to + 80°C Ambient

DVC6205 (FOUNDATION fieldbus, PROFIBUS)

Rated Input 9-30 VDC, 4-20 mA
Outputs 0-9.6 VDC, 0-3.5 mA
-52°C to + 80°C Ambient

DVC6215 Remote Mount

Rated Input 10 VDC max, 3.5 mA max
-52 to 125°C Ambient

Explosion-proof and Dust Ignition-proof

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

Class I, Division 1, Groups B,C,D ; Class I, Division 2, Groups A,B,C,D

Class II, Division 1, Groups E,F,G ; Class II, Division 2, Groups F,G

Class III, Division 1

Ex d IIC

Ex nC IIC

Type 4X, IP66

Single Seal Device

Rated input 30 Vmax, 20 mA

- 52°C < Ambient < + 80°C

Max inlet pressure 10 bar (145 psig) (air or natural gas)

Temperature Code: T6 (Tamb ≤ 75°C), T5 (Tamb ≤ 80°C)

DVC6215 and DVC6215NA Remote Mount

Class I, Division 1, Groups A,B,C,D ; Class I, Division 2, Groups A,B,C,D (DVC6215 only);

Class II, Division 1, Groups E,F,G ; Class II, Division 2, Groups F,G

Class III, Division 1

Ex d IIC

Ex nA IIC (DVC6215 only)

Type 4X, IP66

Rated input 30 Vmax, 20 mA

- 52°C < Ambient < + 125°C

Temperature Code: T6 (Tamb ≤ 75°C), T5 (Tamb ≤ 90°C), T4 (Tamb ≤ 125°C)

Intrinsically Safe

Class I, Division 1, Groups A,B,C,D

Class II, Division 1, Groups E,F,G

Class III, Division 1

Ex ia IIC

Ex ia IIB

Type 4X, IP66

Single Seal Device

Rated input 30 V DC max, 20 mA

- 52 °C < Ambient < + 80 °C (-52 °C to 125 °C for DVC6215)

Max inlet pressure 10 bar (145 psig) (air or natural gas)

Intrinsically safe when connected per installation drawing GE42818, 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. CSA Loop Schematics—FIELDVUE DVC6200 HW2 and DVC6200 SIS

CLASS I, ZONE 0, GROUP IIC or IIB
 CLASS I, DIV 1, GROUPS ABCD
 **CLASS II, DIV 1, GROUPS EFG
 **CLASS III

DVC6200, DVC6200S HW2 - WITH OR WITHOUT I/O PACKAGE			
I/O PACKAGE?	NO	YES	YES
RATING	Ex ia IIC CL I, DIV 1, GP ABCD	Ex ia IIC CL I, DIV 1, GP ABCD	Ex ia IIC CL I, DIV 1, GP ABCD
LOOP TERMINAL	Ui (Vmax) : 30 VDC Ii (Imax) : 130 mA Pi : 1.0 W Ci : 15 nF Li : 0.15 mH	Ui (Vmax) : 30 VDC Ii (Imax) : 130 mA Pi : 1.0 W Ci : 15 nF Li : 0.15 mH	Ui (Vmax) : 30 VDC Ii (Vmax) : 101 mA Pi : 757 mW Ci : 15 nF Li : 0.30 mH
AUX TERMINALS	NOT PROVIDED	NOT USED	Uo (Voc) : 30 VDC Io (Isc) : 101 mA Po (Pout) : 757 mW Co (Ca) : 52.4 nF Lo (Ca) : 3.18 mH
RATING	N/A	Ex ia IIC	Ex ia IIC
OUTPUT TERMINALS	NOT PROVIDED	Ui (Vmax) : 28 VDC Ii (Imax) : 100 mA Pi : 1.0 W Ci : 15 nF Li : 0.23 mH	Ui (Vmax) : 28 VDC Ii (Imax) : 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 - FOR CLASS II, DIV 1 GROUPS EFG and CLASS III, ANY OF THE ABOVE ENITY PARAMETERS CAN BE USED.

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WITHOUT I/O PACKAGE	WITH I/O PACKAGE
T5 (Ta ≤ 80°C)	T5 (Ta ≤ 80°C)
T6 (Ta ≤ 74°C)	T6 (Ta ≤ 61°C)

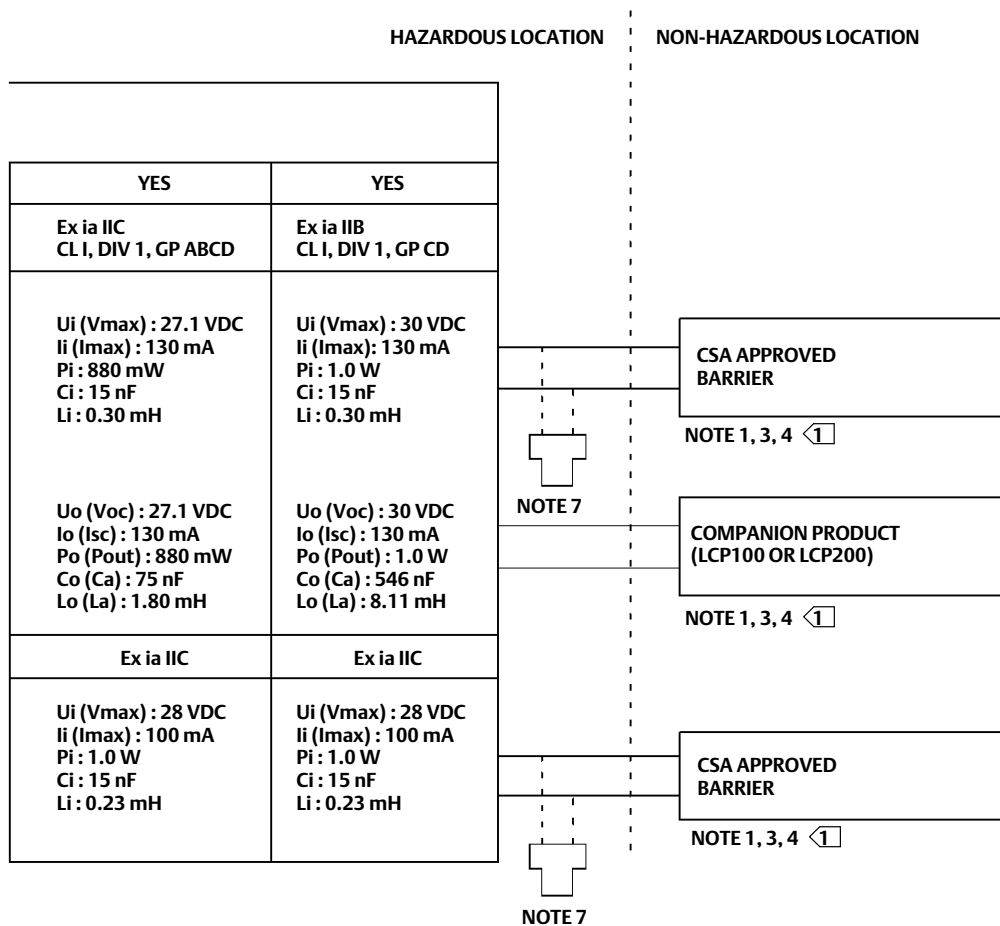
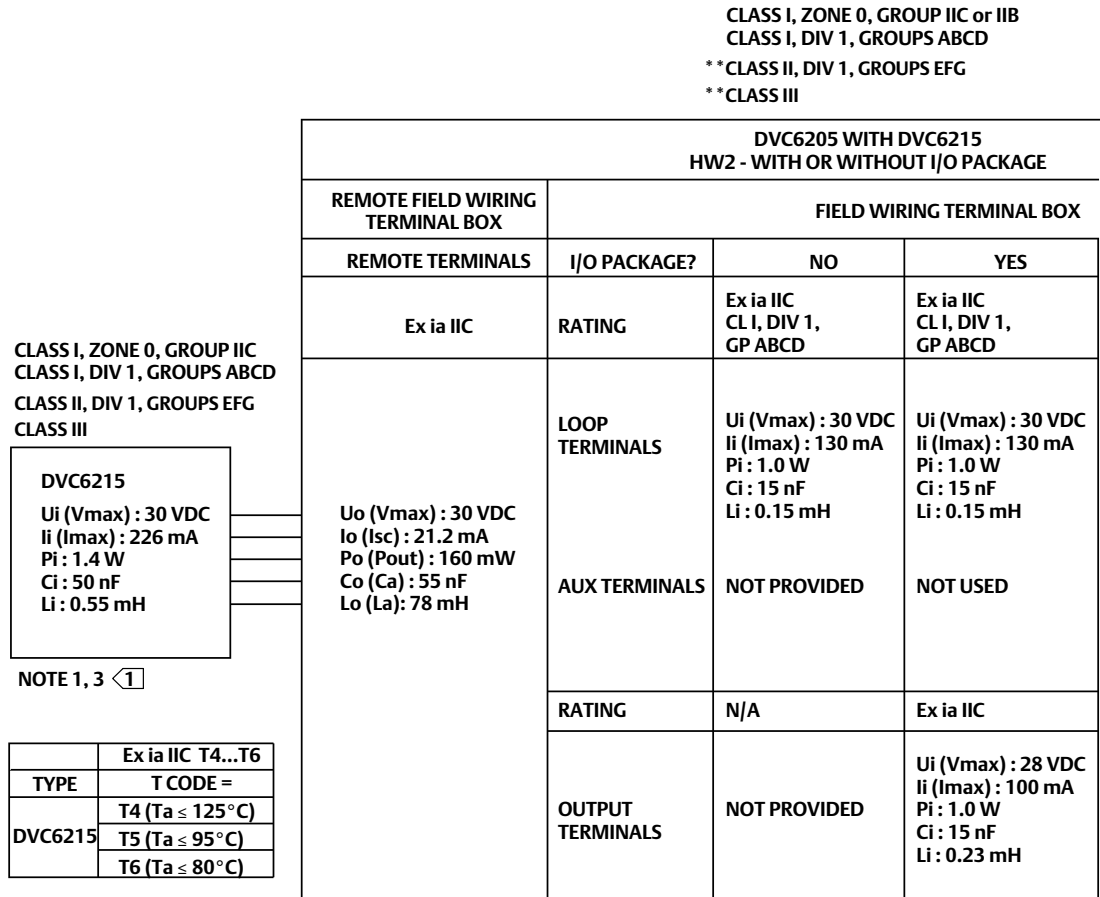


Figure 2. IECEx Loop Schematics—FIELDVUE DVC6205, DVC6205 SIS, and DVC6215



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.

** NOTE - FOR CLASS II, DIV 1 GROUPS EFG AND CLASS III, ANY OF THE ABOVE ENTITY PARAMETERS CAN BE USED.

WITHOUT I/O PACKAGE	WITH I/O PACKAGE
T5 (Ta ≤ 80°C)	T5 (Ta ≤ 80°C)
T6 (Ta ≤ 74°C)	T6 (Ta ≤ 61°C)

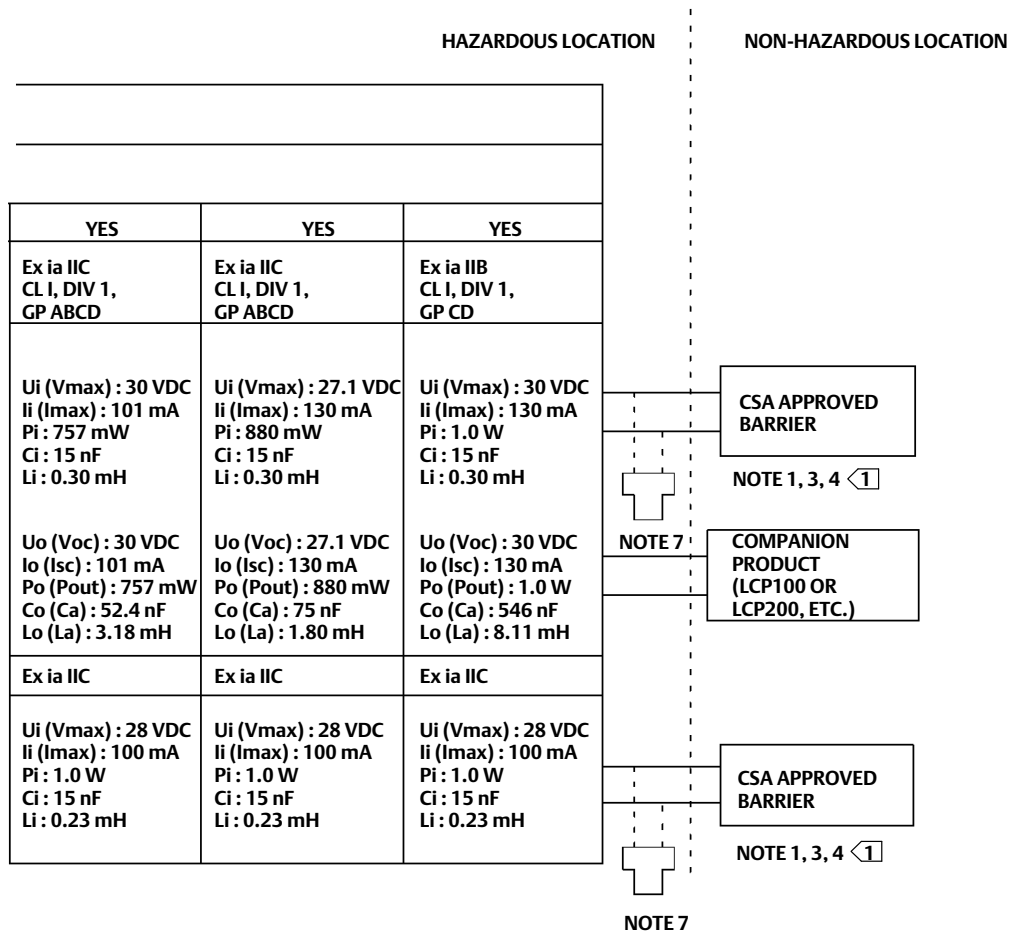
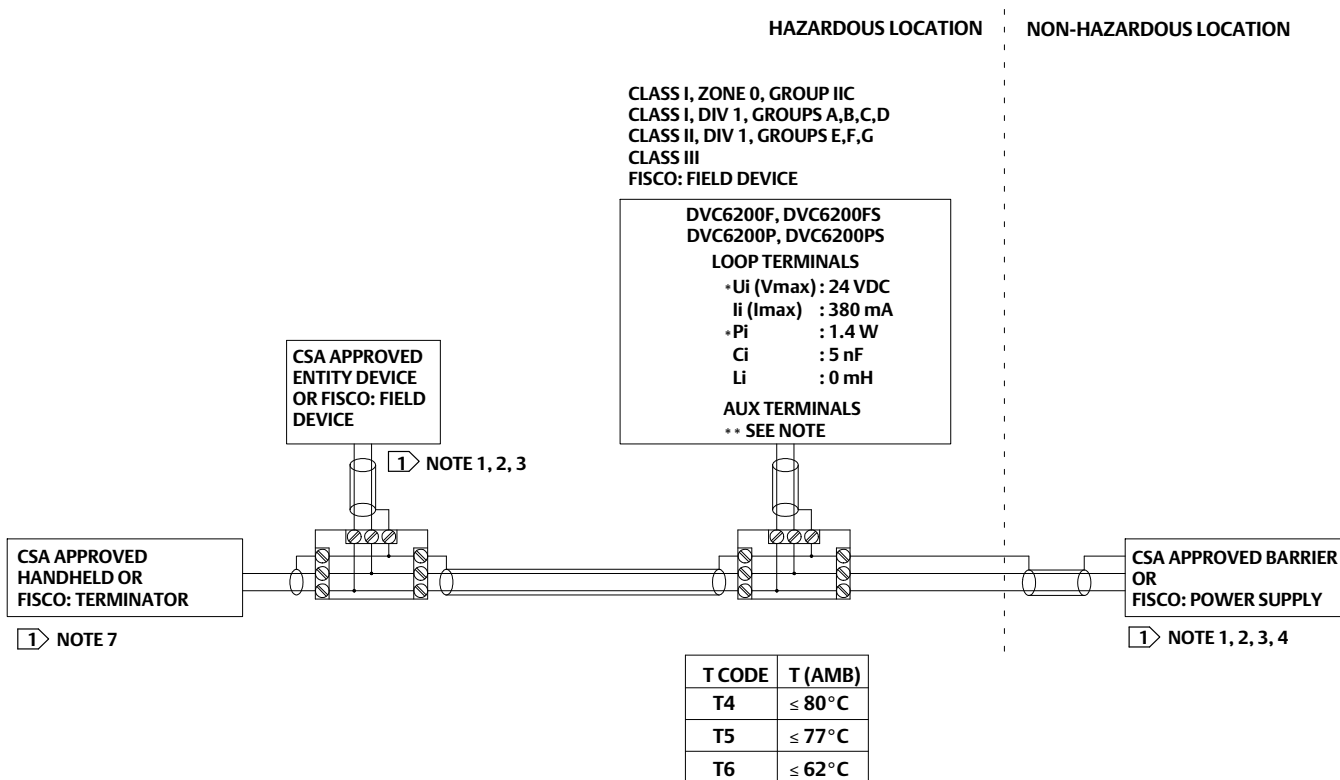


Figure 3. CSA Loop Schematics—FIELDVUE DVC6200f and DVC6200p



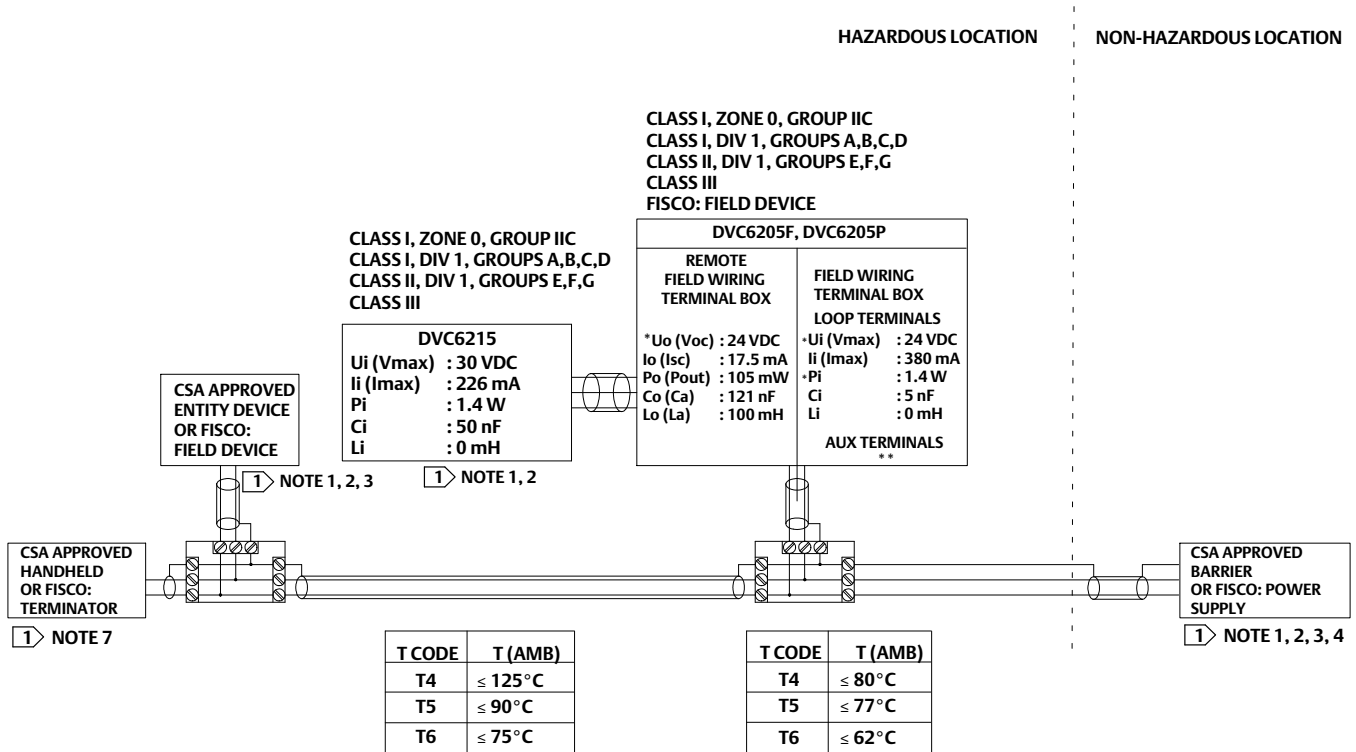
SEE NOTES IN FIGURE 5

* NOTE: IF FISCO IS IMPLEMENTED,

U_i (V_{max}): 17.5 VDC & P_i : 5.32 W

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

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



SEE NOTES IN FIGURE 5

*NOTE: IF FISCO IS IMPLEMENTED,

Ui (Vmax) : 17.5 VDC & Pi : 5.32 W

Uo (Voc) : 17.5 DC

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

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Figure 5. Notes for CSA Loop Schematics

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 CSA 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 FIELDBUS 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 FIELDBUS 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 FIELDBUS 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

$C' = C' \text{ LINE/LINE} + 0.5' \text{ LINE/SCREEN}$, 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 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 CANADIAN ELECTRICAL CODE (CEC) PART 1

4 MAXIMUM SAFE AREA VOLTAGE SHOULD NOT EXCEED 250 V_{rms}

5 RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN ONE OHM

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

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

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