FM (United States and Canada) Hazardous Area Approvals—Fisher™ LCP200 Local Control Panel

Hazardous Area Classifications 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.

Notes

This information supplements the nameplate markings affixed to the product and the LCP200 instruction manual (D104296X012), available from your Emerson sales office or Fisher.com.

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

LCP200 instruments with a IIC rating may have different hardware than IIB rated instruments; be sure to order the appropriately rated instrument based on your application and wiring practices.

⚠ WARNING

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

Intrinsically Safe

Specific Conditions of Use

1. The enclosure contains non-metallic enclosure parts. To prevent the risk of electrostatic sparking, the non-metallic surface shall be cleaned with a damp cloth.

Notes

Ambient temperature rating: -40°C ≤ Ta ≤ +65°C

1. Install unit in area of low risk from mechanical hazards.
2. Install per drawing GG51183, shown in figure 1, 2, 3, and 4, as indicated on the nameplate.
3. Substitution of components may impair intrinsic safety.

Refer to table 1 and 2 for approval information.

Table 1. Approval Information, FM (United States and Canada) - Class/Division

Certification Body	Certification Obtained	Entity Rating	Temperature Code
FM	Intrinsically Safe Class I, Division 1 Groups A,B,C, D Class II, Division 1 Groups E, F, G Class III Install Per Drawing GG51183 (shown in figure 1, 2, 3, and 4)	Per Drawing GG51183 (shown in figure 1, 2, 3, and 4)	T6

Table 2. Approval Information, FM (United States and Canada) - Zone

Certification Body	Certification Obtained	Entity Rating	Temperature Code
FM	Intrinsically Safe Gas Class I, Zone 0 AEx/Ex ia IIC Ga Dust Zone 20 AEx/Ex ia IIIC Da Install Per Drawing GG51183 (shown in figure 1, 2, 3, and 4)	Per Drawing GG51183 (shown in figure 1, 2, 3, and 4)	Gas: T6 Dust: T85°C

Figure 1. Intrinsically Safe, LOOP Power, FM (United States/Canada)

Wiring Configuration A (LOOP-Powered only) From Barrier to Digital Valve Controller and LCP200

See Figure 3 and Notes 1, 2, 3, 4, 5, and 6 in Figure 4

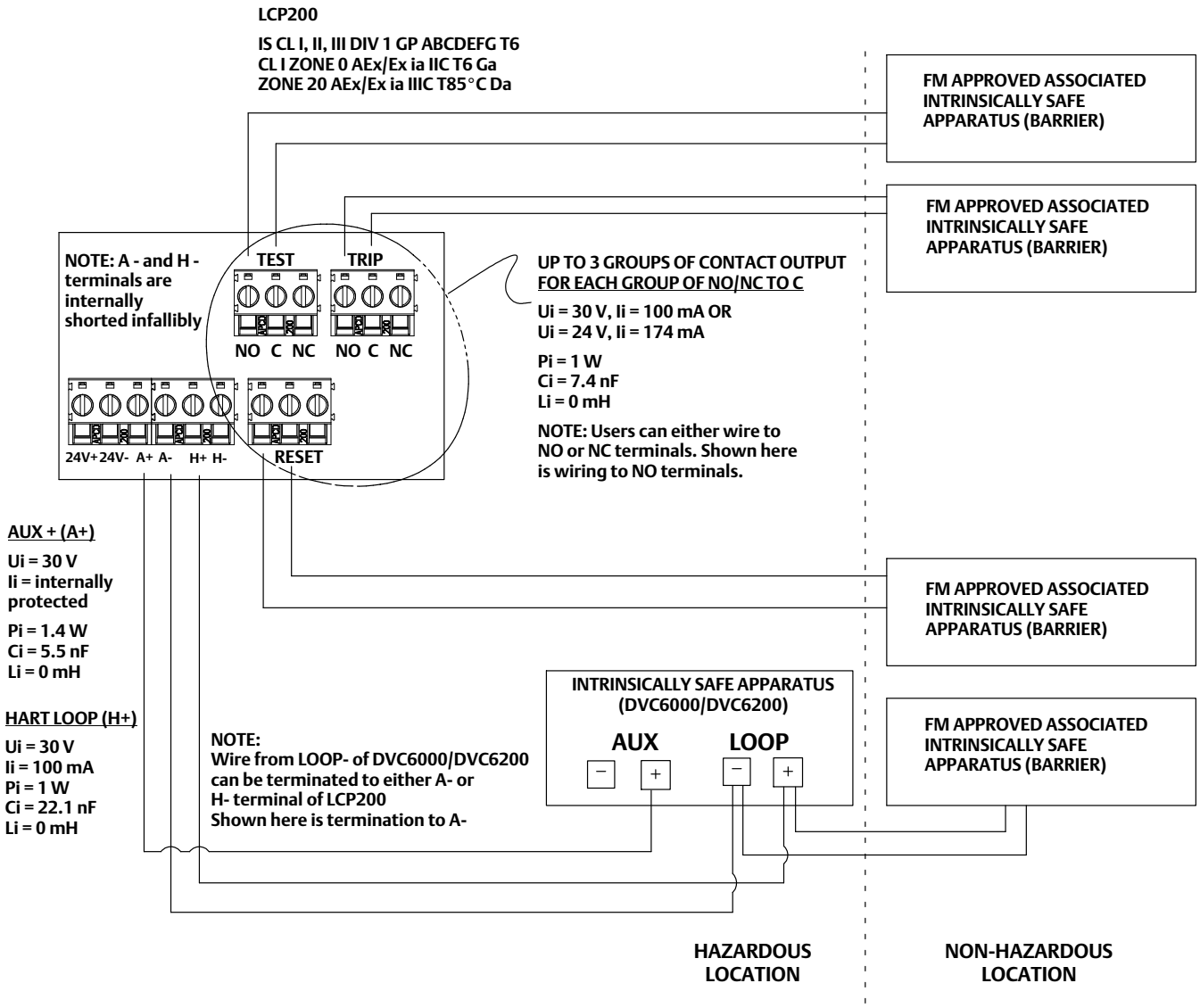

Figure 2. Intrinsically Safe, External Power 24V, FM (United States/Canada)
Wiring Configuration B (External 24V Only) From Barrier to Digital Valve Controller and LCP200
See Figure 3 and Notes 1, 2, 4, 5, and 6 in Figure 4.

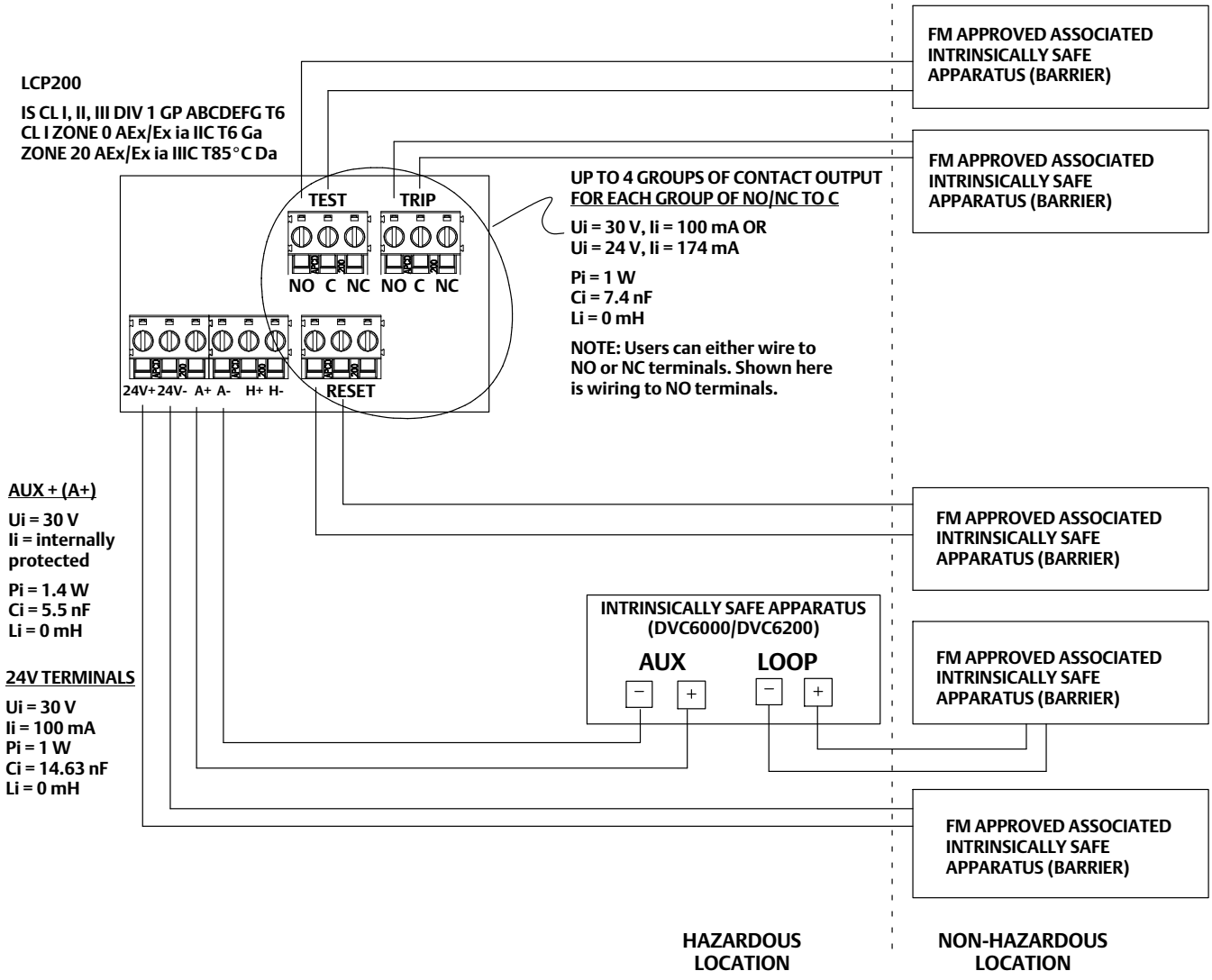

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Figure 3. Notes

NOTES:

THE INTRINSIC SAFETY ENTITY CONCEPT ALLOWS THE INTERCONNECTION OF TWO FM APPROVED INTRINSICALLY SAFE DEVICES, WITH ENTITY PARAMETERS NOT SPECIFICALLY EXAMINED IN COMBINATION AS A SYSTEM WHEN: Uo OR Voc OR Vt ≤ Vmax OR Vi, Io OR Isc OR It ≤ Imax OR Ii, Ca OR Co ≥ Ci + Ccable, La OR Lo ≥ Li + Lcable, Po ≤ Pi.

DUST-TIGHT CONDUIT MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

EACH CONNECTION BETWEEN THE LCP200 AND THE ASSOCIATED INTRINSICALLY SAFE APPARATUS SHALL BE SEPARATELY SHIELDED FROM THE OTHER CONNECTIONS.

WHEN CALCULATING THE ENTITY COMBINATIONS THAT INCLUDE THE DVC6000/DVC6200, THE SUMMATION OF THE Ci + Ccable AS WELL AS THE Li + Lcable FOR THE DVC6000/DVC6200 AND THE LCP200 SHALL BE USED.

ASSOCIATED APPARATUS MANUFACTURERS' INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.

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Figure 4. Notes

Refer to Notes 1, 2, 3, 4, 5, and 6 for Figure 1. Intrinsically Safe, LOOP Power, FM (United States/Canada) Wiring Configuration A (LOOP-Powered only) From Barrier to Digital Valve Controller and LCP200

Refer to Notes 1, 2, 4, 5, and 6 for Figure 2. Intrinsically Safe, External Power 24V, FM (United States/Canada) Wiring Configuration B (External 24V Only) From Barrier to Digital Valve Controller and LCP200

NOTES:

1) FOR Ex ia APPLICATIONS THE FOLLOWING INFORMATION SHALL BE OBSERVED:
   a) THE OVERALL GAS GROUP RATING OF THE INTRINSICALLY SAFE CIRCUIT WILL BE LOWEST GAS GROUPING OF ALL APPARATUS FORMING THE CIRCUIT. FOR EXAMPLE, A CIRCUIT WITH BOTH IIB AND IIC APPARATUS WILL HAVE AN OVERALL CIRCUIT GAS GROUP RATING OF IIB.
   B) THE LEVEL OF PROTECTION OF THE INTRINSICALLY SAFE CIRCUIT WILL BE THE LOWEST LEVEL OF ALL APPARATUS FORMING THE CIRCUIT. FOR EXAMPLE, A CIRCUIT WITH BOTH “ia” AND “ib” WILL HAVE AN OVERALL PROTECTION LEVEL OF “ib”.

2) THE LOWEST PERMISSIBLE INPUT VOLTAGE (Ui), INPUT CURRENT (Ii), AND INPUT POWER (Pi) OF EACH APPARATUS SHALL BE GREATER THAN OR EQUAL TO THE OUTPUT VOLTAGE (Uo), OUTPUT CURRENT (Io), AND OUTPUT POWER (Po) OF THE ASSOCIATED APPARATUS (BARRIER). THE SUM OF THE MAX UNPROTECTED CAPACITANCE (Ci) AND MAX UNPROTECTED INDUCTANCE (Li), INCLUDING THE INTERCONNECTED 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 THAN THE COMBINATION MAY BE CONNECTED.

3) INSTALLATION OF THE LCP200 IS SUCH THAT ITS LOOP TERMINALS WILL BE CONNECTED IN PARALLEL WITH OTHER INTRINSICALLY SAFE APPARATUS LOOP TERMINALS. THE WIRING COMING FROM THE BARRIER INTO THE HAZARDOUS LOCATION MAY BE TERMINATED AT EITHER THE INTRINSICALLY SAFE APPARATUS, OR AT THE LCP200.

4) EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE CANADIAN ELECTRIC CODE, PART I OR NEC NFPA 70 AND ANSI/ISA RP12.0 6.01

5) MAXIMUM SAFE AREA VOLTAGE MUST NOT EXCEED 250 VRMS

6) THE ENCLOSURE CONTAINS NON-METALLIC ENCLOSURE PARTS. TO PREVENT THE RISK OF ELECTROSTATIC SPARKING, THE NON-METALLIC SURFACE SHALL BE CLEANED WITH A DAMP CLOTH.

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Explosion-proof

Specific Conditions of Use

1. The enclosure contains non-metallic enclosure parts. To prevent the risk of electrostatic sparking, the non-metallic surface shall be cleaned with a damp cloth.
2. The flameproof joints of the equipment are not intended to be repaired. Consult the manufacturer if repair of the joints is necessary.
3. The electronics compartment rear cover is assembled and torqued at the factory and is not to be removed by the end user.
4. Consult the manufacturer for genuine replacement terminal cover fasteners. The fasteners are 316 stainless steel, bolt class A4-70, sized M6 x 1 mm x 15 mm.

Notes

Ambient temperature rating: -40°C ≤ Ta ≤ +65°C

1. Install unit in area of low risk from mechanical hazards.
2. Install per drawing GG51183, shown in figure 5, 6, and 7, as indicated on the nameplate.
3. Substitution of components may impair intrinsic safety.

Refer to table 3 and 4 for approval information.

Table 3. Approval Information, FM (United States and Canada) - Class/Division

Certification Body	Certification Obtained	Loop Schematic	Temperature Code
FM	CL I, II, III DIV 2 GP ABCDEFG T6 CL II, III, DIV 1, GP EFG T6 CL I, DIV 1, GP CD T6 CL I, DIV 1, GP ABCD T6 (US) CL I, DIV 1, GP CD T6 (CANADA) Install Per Drawing GG51183 (shown in figure 5, 6, and 7)	Per Drawing GG51183 (shown in figure 5, 6, and 7)	T6

Table 4. Approval Information, FM (United States and Canada) - Zone

Certification Body	Certification Obtained	Loop Schematic	Temperature Code
FM	CL I ZONE 1 AEx/Ex eb ia mb IIC T6 Gb ZONE 20 AEx/Ex ta IIIC T85°C Da CL I, ZONE 1 AEx/Ex db ia IIB T6 Gb CL I, ZONE 1 AEx/Ex db ia IIC T6 Gb Install Per Drawing GG51183 (shown in figure 5, 6, and 7)	Per Drawing GG51183 (shown in figure 5, 6, and 7)	Gas: T6 Dust: T85°C

Figure 5. Explosion-Proof, FM (United States/Canada)
Wiring Configuration A (LOOP-Powered only)
See Figure 7 Notes

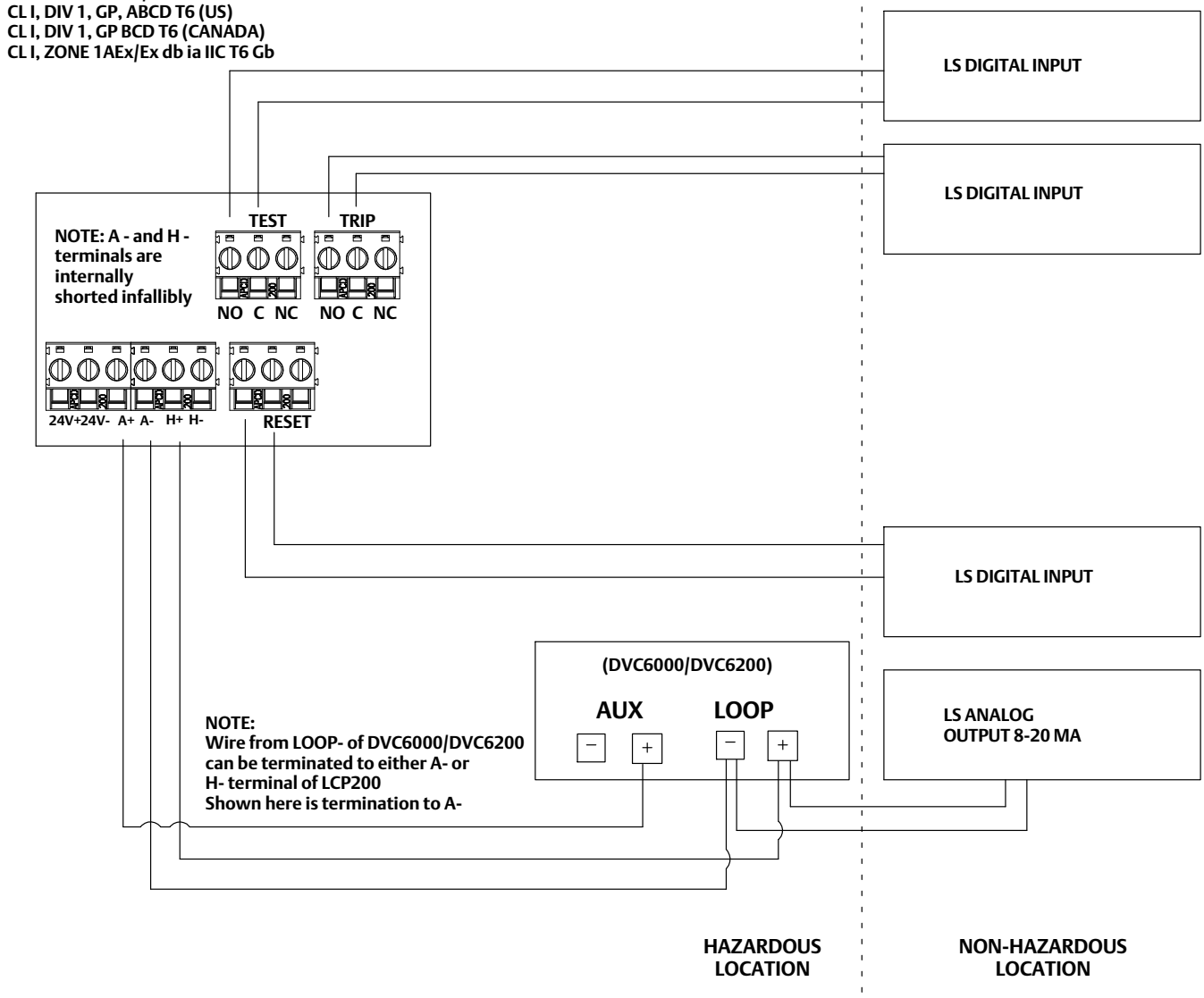

Figure 6. Explosion-Proof, External Power 24V, FM (United States/Canada)
Wiring Configuration B (External 24V Only)
See Figure 7 Notes

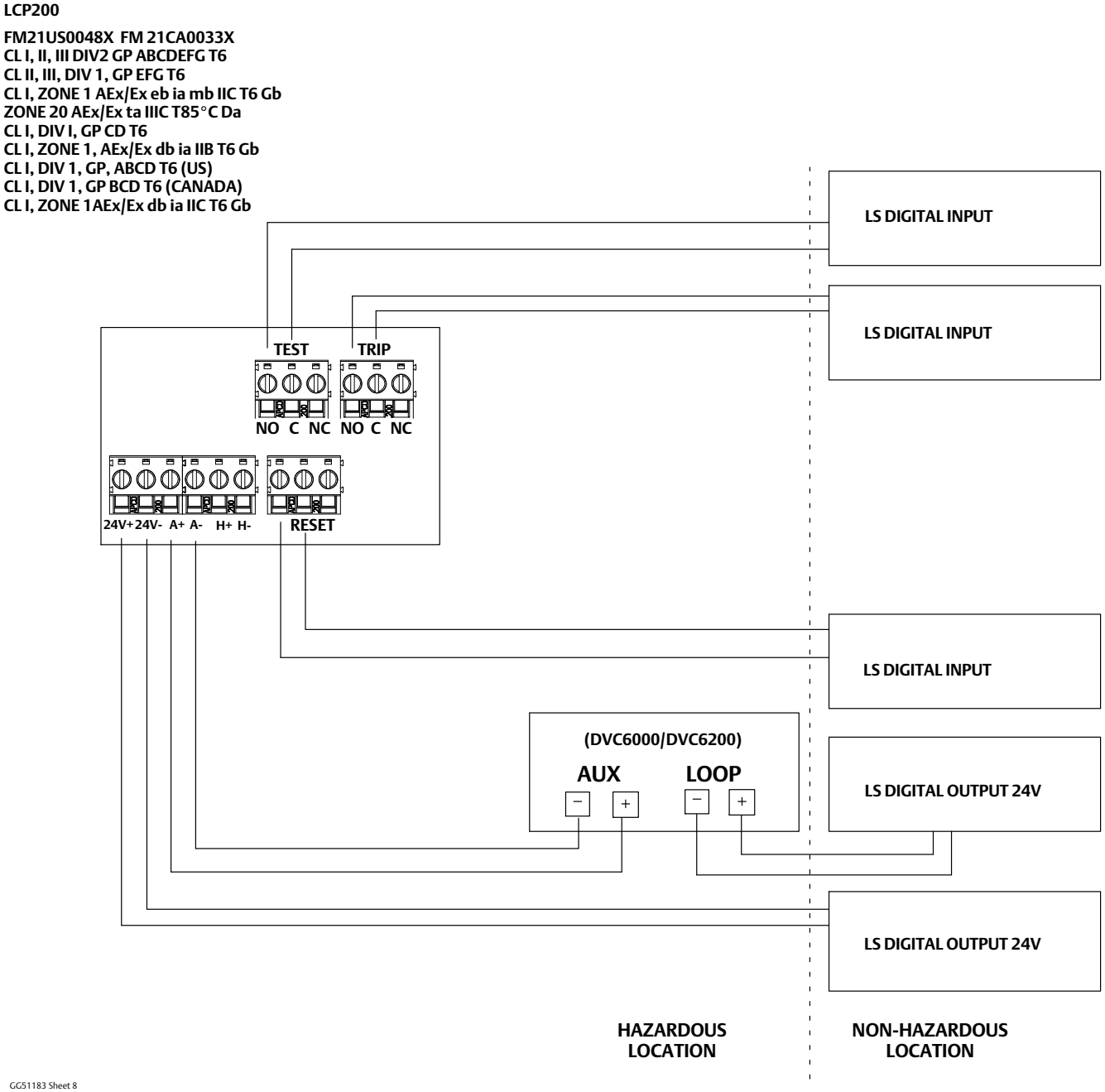

Figure 7. Notes

NOTES:

ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.
1) EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE CANADIAN ELECTRIC CODE, PART 1 OR NEC NFPA AND ANSI/ISA RP12.06.01.
2) THE ENCLOSURE CONTAINS NON-METALLIC ENCLOSURE PARTS TO PREVENT THE RISK OF ELECTROSTATIC SPARKING. THE NON-METALLIC SURFACE SHALL BE CLEANED WITH A DAMP CLOTH.
3) DUST-TIGHT CONDUIT SEAL MUST BE INSTALLED WITHIN 18" WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.
4) THE NAMEPLATE IS PROVIDED WITH BOXES THAT THE END USER/INSTALLER MUST CHECK OR ETCH FOR THE PROTECTION METHOD USED ACCORDING TO THE INSTALLATION.
5) CAUTION - USE FASTENERS WITH YIELD STRESS $\geq$ 450 MPa.
6) FOR ZONES APPLICATIONS, CONNECTION OF THE INTERNAL GROUND IS REQUIRED AS CONNECTION OF THE EXTERNAL GROUP IS OPTIONAL.

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