

NOTES:

1. SAFE AREA APPARATUS IS NOT SPECIFIED EXCEPT THAT IT MUST NOT BE SUPPLIED FROM NOR CONTAIN IN NORMAL OR ABNORMAL CONDITIONS A SOURCE OF POTENTIAL WITH RESPECT TO EARTH IN EXCESS OF 250 VRMS OR 250 VDC.

2. THE SAFETY BARRIER MUST BE EITHER A ZENER DIODE SAFETY BARRIER, OR A GALVANIC ISOLATOR WITH THE FOLLOWING ENTITY PARAMETERS:

Uo = 28V

Io = 93mA

Po = 0.66W

Co = 0.083uF

Lo = 4.11mH

THE BARRIER MUST BE CERTIFIED BY AN APPROVED CERTIFICATION BODY TO [Ex ia] IIC

3. THE CAPACITANCE AND EITHER THE INDUCTANCE OR INDUCTANCE TO RESISTANCE (L/R) RATIO OF THE INTERCONNECTING CABLE MUST NOT EXCEED THE VALUES IN TABLE 3. THE VALUES IN THE TABLE HAVE TAKEN ACCOUNT OF Ceq AND Leq.

4. THE CAPACITANCE AND EITHER THE INDUCTANCE OR INDUCTANCE TO RESISTANCE (L/R) RATIO OF THE INTERCONNECTING CABLE MUST NOT EXCEED THE VALUES IN TABLE 1 OR TABLE 2, WHICHEVER IS APPLICABLE. THE VALUES IN THE TABLE HAVE TAKEN ACCOUNT OF Ceq AND Leq.

5. THE HAZARDOUS AREA CABLE IS TO BE INSTALLED AS EITHER A SEPARATE CABLE OR A SEPARATE CIRCUIT WITHIN A "TYPE A" CABLE OR WITHIN A "TYPE B" CABLE AS DEFINED IN CLAUSE 8 OF EN60079-25:2003. THE PEAK VOLTAGE OF ANY CIRCUIT IN THE "TYPE B" CABLE MUST NOT EXCEED 60V.

6. THE INSTALLATION MUST COMPLY WITH THE APPROPRIATE NATIONAL INSTALLATION REQUIREMENTS. EXAMPLE: BS 6704: 1996/EN60079-14:1997

7. SPECIAL CONDITIONS OF SAFE USE:

THE PROTECTION CONCEPT USED MUST BE IRREVOCABLY MARKED ON THE LABEL DURING INSTALLATION.

TO REDUCE THE RISK OF ELECTROSTATIC IGNITION THE EQUIPMENT MUST BE CLEANED ONLY WITH A DAMP CLOTH.

8. THE SERIES 10,000 PROBE TOGETHER WITH ITS 10,000 EXTENSION CABLE AND 8093 CONNECTOR INSULATOR MAY BE REPLACED BY A BENTLY NEVADA 3300 PROXIMITY TRANSDUCER SYSTEM PROBE AND CABLE (BAS 99ATEX1099).

9. THE APPARATUS ENCLOSURE IS MADE FROM PLASTIC WHICH MUST BE PROTECTED AGAINST IMPACT AND FRICTION.

10. FOR THE MX2034 DD = 04/S4, 05/S5/ OR 06/S6, THE BNC CONNECTOR IS ALWAYS PRESENT. FOR Ex ia HAZARDOUS AREA, THE BNC/TERMINAL BLOCK SIG & COM ARE TO BE USED AS A TEST CONNECTION ONLY WHEN IN SAFE AREAS.
- | TABLE 1 | | | |
|----------------------|-------------------|------------------|---------------------|
| DIODE RETURN BARRIER | | | |
| GROUP | CAPACITANCE
uF | INDUCTANCE
mH | L/R RATIO
uH/OHM |
| IIC | 0.065 | 4.1 | 54 |
| IIB | 0.231 | 12.3 | 162 |
| IIA | 0.646 | 32.8 | 432 |
- | TABLE 2 | | | |
|-------------------|-------------------|------------------|---------------------|
| GALVANIC ISOLATOR | | | |
| GROUP | CAPACITANCE
uF | INDUCTANCE
mH | L/R RATIO
uH/OHM |
| IIC | 0.065 | 4.3 | 56 |
| IIB | 0.632 | 17.72 | 210 |
| IIA | 2.132 | 36.02 | 444 |
- | TABLE 3 | | | |
|----------------------|-------------------|------------------|---------------------|
| EXTERNAL PROBE CABLE | | | |
| GROUP | CAPACITANCE
uF | INDUCTANCE
mH | L/R RATIO
uH/OHM |
| IIC | 32 | 500 | 4000 |
| IIB | 720 | 1000 | 17000 |
| IIA | 1000 | 1000 | 35000 |
- INSTALLATION, 2 WIRE
PROXIMITY TRANSMITTER IN HAZARDOUS LOCATION
ATEX/IECEX
-
-
- | | | | | | | |
|--|--|---------------------------------------|----------------------|--|--------------------------|---------------|
| MATERIAL: | UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. ALL CORNERS BROKEN TO .010 MIN RADIUS AND TOLERANCES ARE: | APPROVALS | DATE | METRIX
HOUSTON, TEXAS
USA | | |
| FINISH: | | DRAWN BY:
A. Wilson | 08-01-11 | | | |
| | | CHECKED BY: | | | | |
| | | APPROVED BY: | | | | |
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±1/64 .XX ±.01
ANGLES:
±1° .XXX ±.005
SURFACE FINISH
64 | MX2034
MX2033
NEXT ASSY USED ON | | INTRINSICALLY SAFE, INSTALLATION (ATEX/IECEX)
MX2033/MX2034 | | |
| | | APPLICATION | DO NOT SCALE DRAWING | SIZE
B | PART NO.:
100508 | REV.
D |
| | | | | SCALE: 1:1 | DOCUMENT NO.: 100508-DWG | SHEET: 1 of 3 |
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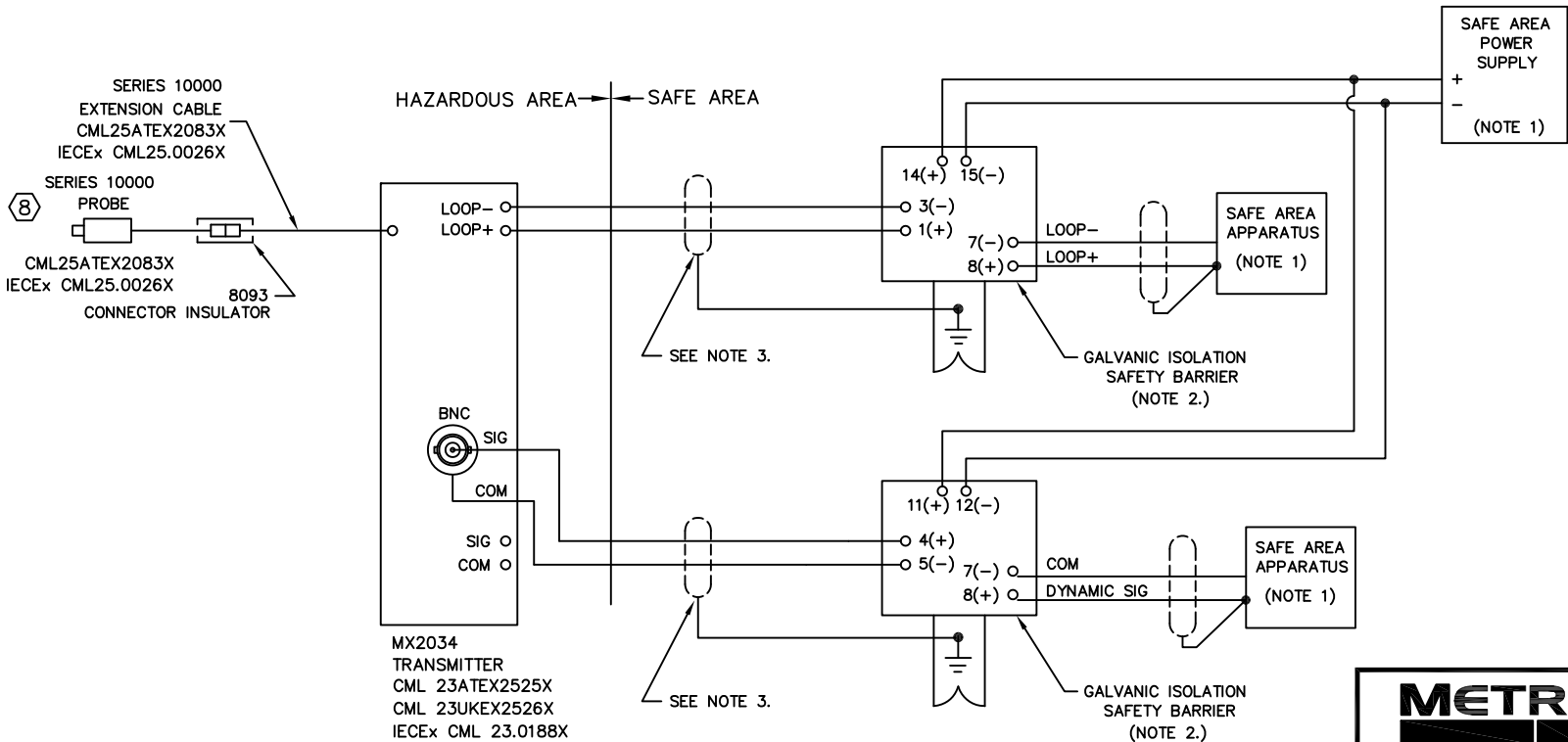
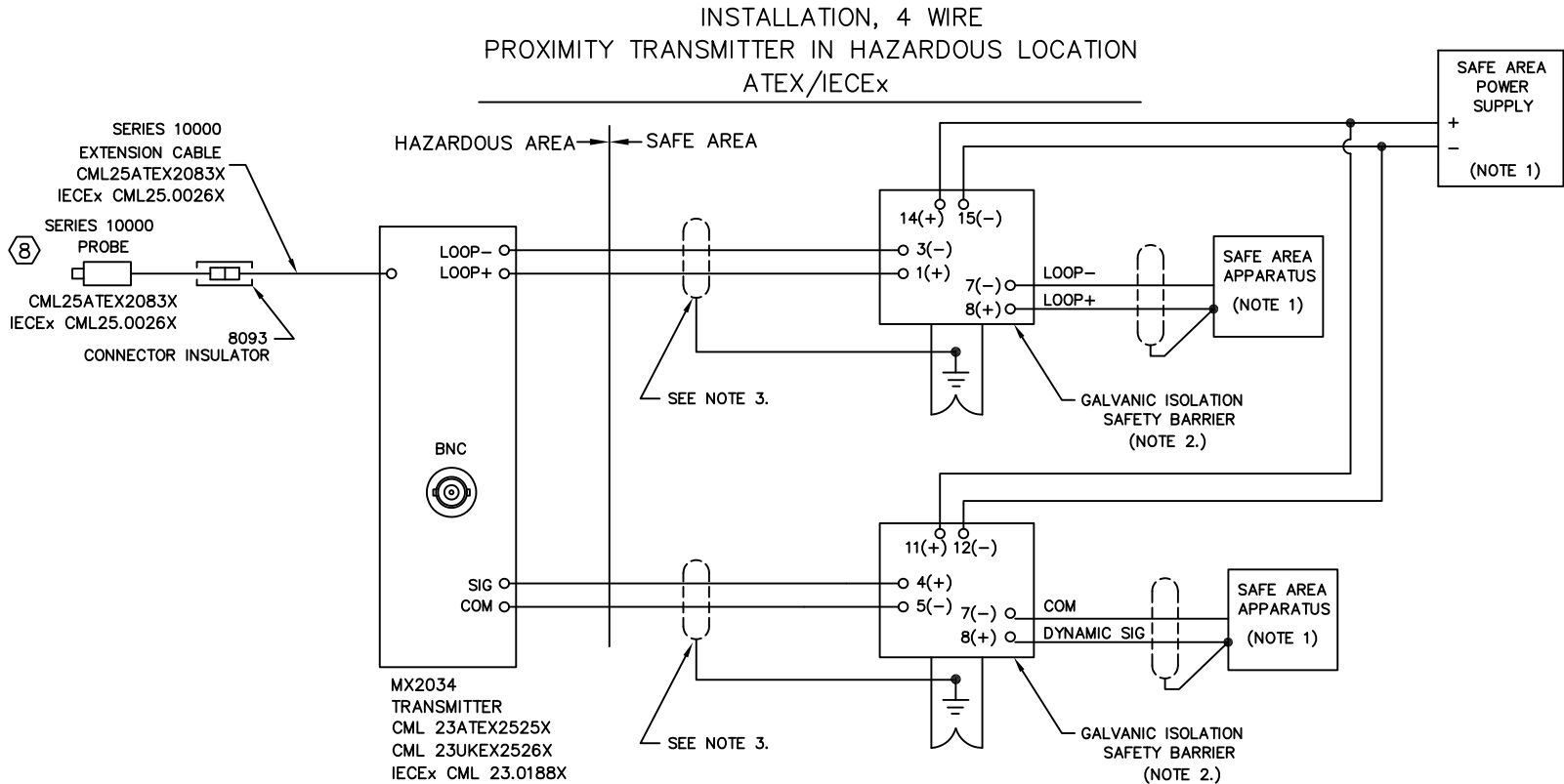
NOTES:

1. SAFE AREA APPARATUS IS NOT SPECIFIED EXCEPT THAT IT MUST NOT BE SUPPLIED FROM NOR CONTAIN IN NORMAL OR ABNORMAL CONDITIONS A SOURCE OF POTENTIAL WITH RESPECT TO EARTH IN EXCESS OF 250 VRMS OR 250 VDC.
2. THE SAFETY BARRIER MUST BE:
- LOOP POWER CONNECTION: 24VDC POWERED GALVANIC ISOLATOR WITH THE FOLLOWING OR LOWER OUTPUT PARAMETERS:
- $U_o = 25.4V$
 $I_o = 86.8mA$
 $P_o = 0.551W$
- A SUITABLE EXAMPLE IS A KFD1–STC4–Ex1 OR EQUIVALENT
- DYNAMIC SIGNAL CONNECTION: 24VDC POWERED GALVANIC ISOLATOR WITH THE FOLLOWING OR LOWER OUTPUT PARAMETERS:
- $U_o = 15.5V$
 $I_o = 7.2mA$
 $P_o = 0.028W$
- A SUITABLE EXAMPLE IS A KFD2–VR–Ex1.19–Y109129 OR EQUIVALENT
- THE BARRIER MUST BE CERTIFIED, BY BASEEFA OR ANY EEC/ETL APPROVED CERTIFICATION BODY TO [EEEx ia] IIC.
- GALVANIC ISOLATORS MUST BE RATED FOR AT MINIMUM THE LIMITS OF CAPACITANCE AND INDUCTANCE SHOWN IN TABLE 2.
3. THE CAPACITANCE AND EITHER THE INDUCTANCE OR INDUCTANCE TO RESISTANCE (L/R) RATIO OF THE INTERCONNECTING CABLE MUST NOT EXCEED THE VALUES IN TABLE 3. THE VALUES IN THE TABLE HAVE TAKEN ACCOUNT OF C_{eq} AND L_{eq} .
4. THE CAPACITANCE AND EITHER THE INDUCTANCE OR INDUCTANCE TO RESISTANCE (L/R) RATIO OF THE INTERCONNECTING CABLE MUST NOT EXCEED THE VALUES IN TABLE 1 OR TABLE 2, WHICHEVER IS APPLICABLE. THE VALUES IN THE TABLE HAVE TAKEN ACCOUNT OF C_{eq} AND L_{eq} .
5. THE HAZARDOUS AREA CABLE IS TO BE INSTALLED AS EITHER A SEPARATE CABLE OR A SEPARATE CIRCUIT WITHIN A "TYPE A" CABLE OR WITHIN A "TYPE B" CABLE AS DEFINED IN CLAUSE 8 OF EN60079–25:2003. THE PEAK VOLTAGE OF ANY CIRCUIT IN THE "TYPE B" CABLE MUST NOT EXCEED 60V.
6. THE INSTALLATION MUST COMPLY WITH THE APPROPRIATE NATIONAL INSTALLATION REQUIREMENTS. EXAMPLE: BS 6704: 1996/EN60079–14:1997
7. SPECIAL CONDITIONS OF SAFE USE:
- THE PROTECTION CONCEPT USED MUST BE IRREVOCABLY MARKED ON THE LABEL DURING INSTALLATION.
- TO REDUCE THE RISK OF ELECTROSTATIC IGNITION THE EQUIPMENT MUST BE CLEANED ONLY WITH A DAMP CLOTH.
- THE SERIES 10,000 PROBE TOGETHER WITH ITS 10,000 EXTENSION CABLE AND 8093 CONNECTOR INSULATOR MAY BE REPLACED BY A BENTLY NEVADA 3300 PROXIMITY TRANSDUCER SYSTEM PROBE AND CABLE (BAS 99ATEX1099).
- THE TRANSMITTER PROBE ENTITY PARAMETERS ARE:
- $V_{oc} = 5.36V$
 $I_{sc} = 94mA$
 $C_a = 62\mu F$
 $L_a = 8.5mH$
 $P_o = 0.5W$
- THE SERIES 10,000 PROBE TOGETHER WITH ITS 10,000 EXTENSION CABLE AND 8093 CONNECTOR INSULATOR MAY BE REPLACED BY ANY CSA CERTIFIED INTRINSICALLY SAFE PROBE THAT SATISFIES THE FOLLOWING CONDITIONS:
- $V_{max} \geq V_{oc}$
 $I_{max} \geq I_{sc}$
 $C_i + C_{cable} \leq C_a$
 $L_i + L_{cable} \leq L_a$
 $P_i \geq P_o$
9. THE APPARATUS ENCLOSURE IS MADE FROM PLASTIC WHICH MUST BE PROTECTED AGAINST IMPACT AND FRICTION.
10. FOR THE MX2034 DD = 04/S4, 05/S5/ OR 06/S6, THE BNC CONNECTOR IS ALWAYS PRESENT. FOR Ex ia HAZARDOUS AREA, THE BNC/TERMINAL BLOCK SIG & COM ARE TO BE USED AS A TEST CONNECTION ONLY WHEN IN SAFE AREAS.

TABLE 1			
DIODE RETURN BARRIER			
GROUP	CAPACITANCE uF	INDUCTANCE mH	L/R RATIO uH/OHM
IIC	0.065	4.1	54
IIB	0.231	12.3	162
IIA	0.646	32.8	432

TABLE 2			
GALVANIC ISOLATOR			
GROUP	CAPACITANCE uF	INDUCTANCE mH	L/R RATIO uH/OHM
IIC	0.065	4.3	56
IIB	0.632	17.72	210
IIA	2.132	36.02	444

TABLE 3			
EXTERNAL PROBE CABLE			
GROUP	CAPACITANCE uF	INDUCTANCE mH	L/R RATIO uH/OHM
IIC	32	500	4000
IIB	720	1000	17000
IIA	1000	1000	35000



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NOTES:

1. SAFE AREA APPARATUS IS NOT SPECIFIED EXCEPT THAT IT MUST NOT BE SUPPLIED FROM NOR CONTAIN IN NORMAL OR ABNORMAL CONDITIONS A SOURCE OF POTENTIAL WITH RESPECT TO EARTH IN EXCESS OF 250 VRMS OR 250 VDC. THE SOURCE MUST BE DERIVED ONLY FROM LINEAR (RESISTIVELY LIMITED) SOURCES.

2. THE SAFETY BARRIER MUST BE

EITHER A 26V, 300 OHM AND A 20V, 390 OHM DUAL CHANNEL SHUNT ZENER DIODE SAFETY BARRIER HAVING THE FOLLOWING OR LOWER PARAMETERS:

$$\begin{aligned} U_Z &= 26V \\ I_o &= 138mA \\ P_o &= 0.81W \end{aligned}$$

OR A 28V, 300 OHM AND A 28V DIODE RETURN DUAL CHANNEL SHUNT ZENER DIODE SAFETY BARRIER HAVING THE FOLLOWING OR LOWER OUTPUT PARAMETERS:

$$\begin{aligned} U_Z &= 28V \\ I_o &= 93mA \\ P_o &= 0.66W \end{aligned}$$

THE BARRIERS MUST BE CERTIFIED BY BASEEFA OR ANY EEC/ETL APPROVED CERTIFICATION BODY TO [EEx ia] IIC AND THE OUTPUT CURRENT MUST BE LIMITED BY A RESISTOR "R" SUCH THAT: $I_o = V_Z/R$

OR A 24VDC POWERED GALVANIC ISOLATOR WITH THE FOLLOWING OR LOWER OUTPUT PARAMETERS:

$$\begin{aligned} U_z &= 26.5\text{V} \\ I_o &= 112\text{mA} \\ P_o &= 0.742\text{W} \end{aligned}$$

THE BARRIER MUST BE CERTIFIED, BY BASEEFA OR ANY EEC/ETL APPROVED CERTIFICATION BODY TO [EEEx id] IIC.

3. CIRCUIT IN HAZARDOUS AREA MUST BE CAPABLE OF WITHSTANDING A VOLTAGE TEST OF 500 VRMS TO EARTH OR TO THE FRAME OF THE APPARATUS. THE PROBE DRIVER IS CAPABLE OF WITHSTANDING THE INSULATION TEST REQUIRED BY CLAUSE 6.4.12 OF EN50 020 (2002). USE 8973 INSULATOR ON CONNECTOR BETWEEN PROBE AND EXTENSION CABLE.

4. THE CAPACITANCE AND EITHER THE INDUCTANCE OR INDUCTANCE TO RESISTANCE (L/R) RATIO OF THE INTERCONNECTING CABLE MUST NOT EXCEED THE VALUES IN TABLE 1. THE VALUES IN THE TABLE HAVE TAKEN ACCOUNT OF $C_{eq} = 0.012\mu F$ AND $L_{eq} = 0.2mH$.

5. PROBE DRIVER MUST BE INSTALLED IN AN ENCLOSURE COMPLYING WITH IP 20.

6. THE HAZARDOUS AREA CABLE IS TO BE INSTALLED AS EITHER A SEPARATE CABLE OR A SEPARATE CIRCUIT WITHIN A "TYPE A" CABLE OR WITHIN A "TYPE B" CABLE AS DEFINED IN EN 50039 (1980). THE PEAK VOLTAGE OF ANY CIRCUIT IN THE "TYPE B" CABLE MUST NOT EXCEED 60V.

7. THE INSTALLATION MUST COMPLY WITH THE APPROPRIATE NATIONAL
INSTALLATION REQUIREMENTS. EXAMPLE: UK. BS5345 PART 4 (1977).

8. SPECIAL CONDITIONS OF SAFE USE:

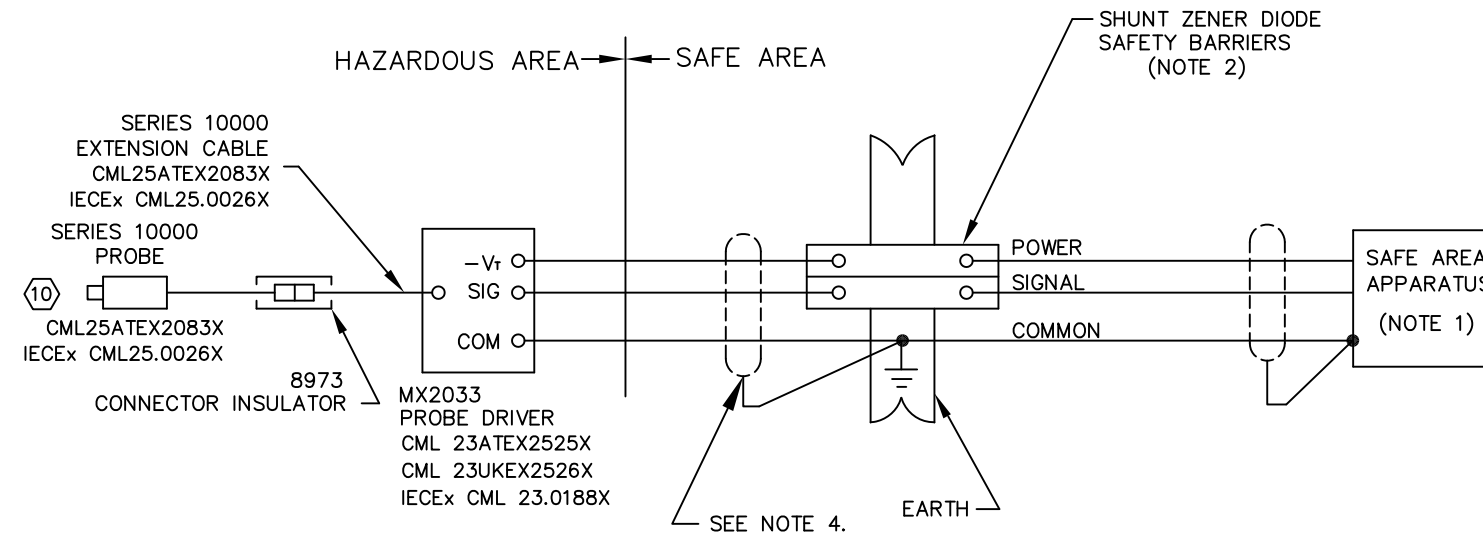
THE PROTECTION CONCEPT USED MUST BE IRREVOCABLY
MARKED ON THE LABEL DURING INSTALLATION.

TO REDUCE THE RISK OF ELECTROSTATIC IGNITION THE EQUIPMENT MUST BE CLEANED ONLY WITH A DAMP CLOTH.

- 9 SYSTEM LENGTH IS A MAXIMUM OF NINE METERS.

- 10 THE SERIES 10,000 PROBE TOGETHER WITH ITS 10,000 EXTENSION CABLE AND 8093 CONNECTOR INSULATOR MAY BE REPLACED BY A BENTLY NEVADA 3300 PROXIMITY TRANSDUCER SYSTEM PROBE AND CABLE (BAS 99ATEX1099).

INSTALLATION PROBE DRIVER IN HAZARDOUS LOCATION ATEX/IECE_x



4. THE CAPACITANCE AND EITHER THE INDUCTANCE OR INDUCTANCE TO RESISTANCE (L/R) RATIO OF THE INTERCONNECTING CABLE MUST NOT EXCEED THE VALUES IN TABLE 1. THE VALUES IN THE TABLE HAVE TAKEN ACCOUNT OF $C_{eq} = 0.012\mu F$ AND $L_{eq} = 0.2mH$.

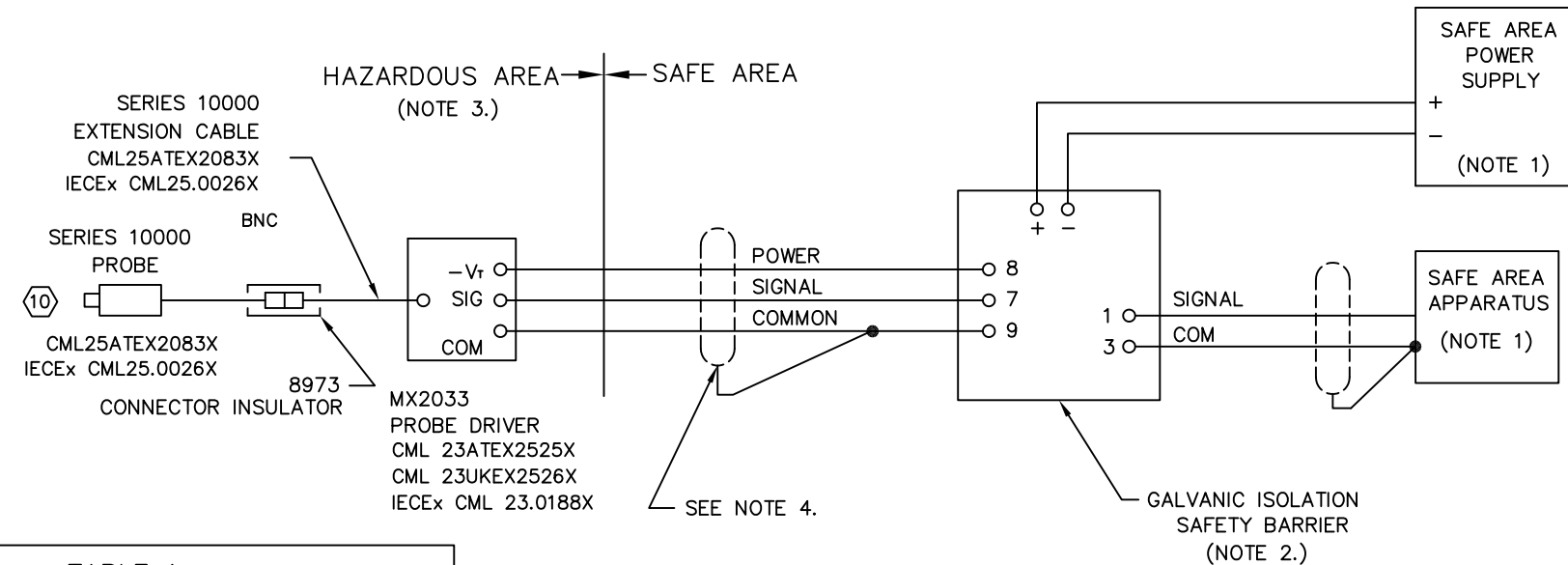


TABLE 1

TABLE 1			
GROUP	CAPACITANCE uF	INDUCTANCE mH	L/R RATIO uH/OHM
IIC	0.083	1.73	38
IIB	0.65	8.29	151
IIA	2.15	16.7	314

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