

Hazardous Area Installation Manual

MX2033 and MX2034 Digital Proximity System

Before proceeding to wire and install the Model MX2033 or MX2034 Digital Proximity System (DPS), read and thoroughly understand these instructions. They are intended for experienced personnel who require only basic installation guidance, and assume that the DPS has already been selected and applied properly for the machinery at hand. Please contact Metrix or its local representative for additional assistance. See also section 2 of this manual for additional technical resources available free-of-charge on our website at www.metrixvibration.com

This electronic equipment was manufactured according to high quality standards to ensure safe and reliable operation when used as intended. Due to its nature, this equipment may contain small quantities of substances known to be hazardous to the environment or to human health if released into the environment. For this reason, Waste Electrical and Electronic Equipment (commonly known as WEEE) should never be disposed of in the public waste stream. The “Crossed-Out Waste Bin” label affixed to this product is a reminder to dispose of this product in accordance with local WEEE regulations. If you have questions about the disposal process, please contact Metrix.



1. Overview

The Digital Proximity System (DPS) provides the performance of a fully API 670-compliant eddy-current proximity measurement system with the flexibility of digital programmability. For the first time, users have the ability to easily select their transducer system in the field from pre-programmed calibrations for a variety of probe tip diameters, manufacturers, extension cable lengths, target materials, and linear ranges.

A Digital Proximity System consists of a probe, extension cable, and MX2032, MX2033 or MX2034 DPS signal conditioner.

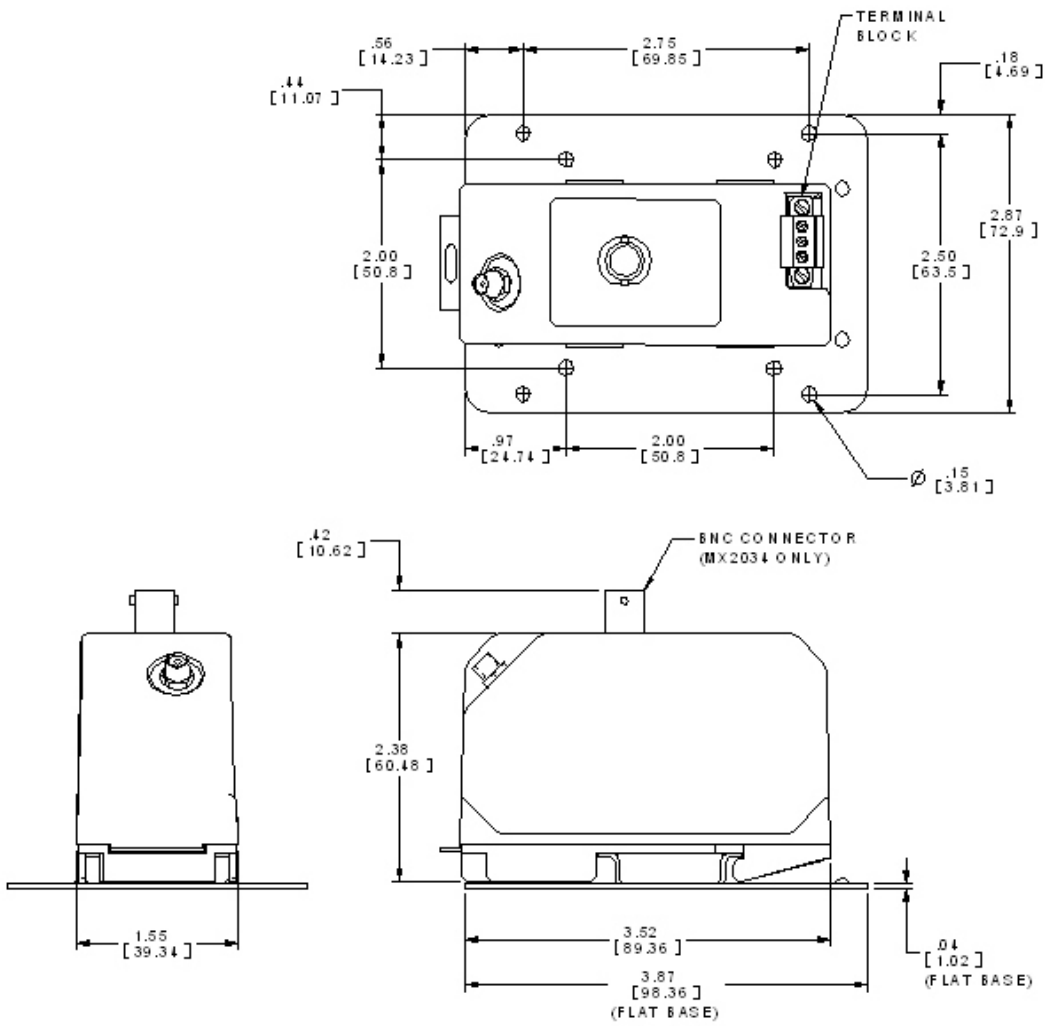


2. Supplementary Information

Refer to Product Datasheet 1087015, Installation Manual 100545, and Operation & Maintenance Manual 100576. These are available at www.metrixvibration.com.

3. Mounting

Mount the DPS in a suitable enclosure in a location that is compatible with its environmental specifications (See Datasheet 10870151). The driver or transmitter comes as a DIN rail mount. The below figure shows the unit with the optional flat base mounting plate, part number 9647. The 9647 mounting plate has two different hole patterns. One is for Metrix 5465/5488 transmitters and the other pattern is for Metrix 5533, MX3300 and most other manufacturers' probe drivers.



4. Extension Cable Installation

Route the extension cable using the following guidelines:

- Check that the Driver/Transmitter, extension cable, and probe belong to the same system (e.g. Metrix 10000 Series or 3300 series) and that the total system length is correct (5m or 9m).
- Secure the extension cable to supporting surfaces or place in conduit. Make certain the cable is not kinked, scraped, nor bent beyond the minimum recommended radius of 1".
- Secure coaxial connectors between the extension cable and the proximity probe. Connection should be "finger tight".
- Insulate the connection between the probe lead and the extension cable by wrapping the connector with Teflon tape and the Metrix 8973 connector insulator.

5. MX2034 Intrinsically Safe 2 Wires, North America

REVISONS	
REV	DESCRIPTION
A	RELEASE 8/1/2011
B	SECOND PAGES ADDED 6/7/2012
C	INTERTEK UPDATES 4/29/2022

INTRINSICALLY SAFE INSTALLATION, 2 WIRE
NORTH AMERICAN STANDARDS

NOTES:

- SAFE AREA APPARATUS IS NOT SPECIFIED AND SHOULD BE OBTAINED 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 TRANSMITTER ENTITY PARAMETERS ARE:
 - $V_{max} = 28V$
 - $I_{max} = 93mA$
 - $L = 82\mu H$
 - $U = 0.4H$
 - $P_i = 0.66W$ (including 300 Ohm series resistance)

CHOOSE A CSA/ETL CERTIFIED BARRIER WITH ENTITY PARAMETERS THAT SATISFY THE FOLLOWING CONDITIONS:

- $V_{max} \geq V_{oc}$
- $I_{max} \geq I_{sc}$
- $U_{max} \geq U_c$
- $L_i + L \text{ cable} \leq L_c$
- $P_i \geq P_o$

SUITABLE BARRIERS INCLUDE:

- MIL 7087+; MIL 787+; MIL 787+ OR EQUIVALENT
- SUITABLE GALVANIC ISOLATION SAFETY BARRIERS INCLUDE:
- STAHLE 9303/11-22-11 OR EQUIVALENT

- INSTALL IN ACCORDANCE WITH THE APPROPRIATE NATIONAL ELECTRICAL REQUIREMENTS AND PER THE BARRIER INSTRUCTIONS.
- THE TRANSMITTER MUST BE INSTALLED IN A SUITABLE ENCLOSURE ACCEPTABLE TO THE LOCAL INSPECTION AUTHORITY HAVING JURISDICTION.

Ⓢ THE TRANSMITTER PROBE ENTITY PARAMETERS ARE:

- $V_{oc} = 5.26V$
- $I_{sc} = 93mA$
- $C_c = 82pF$
- $U_c = 0.5V$
- $P_o = 0.5W$

THE SERIES 10,000 PROBE TOGETHER WITH ITS 10,000 EXTENSION CABLE AND 8093 CONNECTOR INSULATOR MAY BE REPLACED BY ANY ONE OF THE FOLLOWING INTRINSICALLY SAFE PROBES THAT SATISFIES THE FOLLOWING CONDITIONS:

- $V_{max} \geq V_{oc}$
- $I_{max} \geq I_{sc}$
- $C_c \leq C_c$
- $L_i + L \text{ cable} \leq L_c$
- $P_i \geq P_o$

CLASS I, DIV. 1, GROUPS A, B, C, D
T₁, Tamb: -40°C to 85°C

WARNING – SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.

Ex'd, INTRINSICALLY SAFE, CLASS I, DIV. 1, GROUPS A – D, Tcode: T₁, -40°C ≤ Tamb ≤ 85°C

AMERTISSEMENT: LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SECURITE INTRINSEQUE.

WARNING – TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.

WARNING – TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES; READ, UNDERSTAND AND ADHERE TO THE MANUFACTURER'S LIVE MAINTENANCE PROCEDURES.

⚠ REFER TO MANUAL 100545 FOR MAINTENANCE AND OPERATING INSTRUCTIONS.

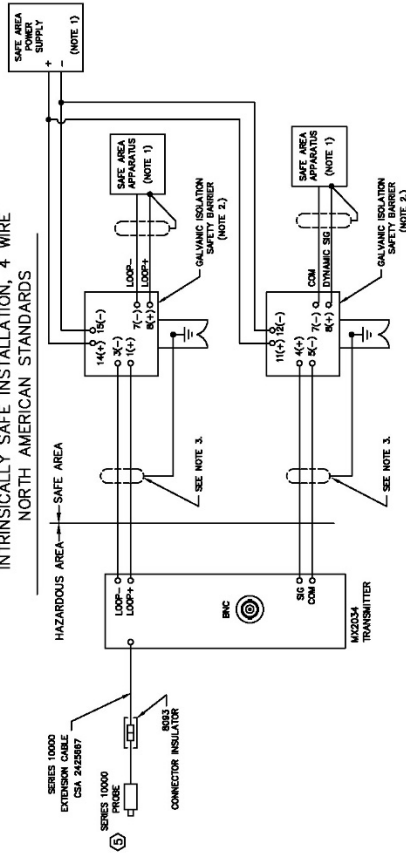
AMERTISSEMENT – RISQUE D'EXPLOSION. NE PAS DEBRANCHER TANT QUE LE CIRCUIT EST SOUS TENSION, A MOINS QU'IL NE S'AGISSE D'UN EMPLOIEMENT NON DANGEREUX.

AGENCY APPROVED PRODUCT
DO NOT REMOVE FROM DOCUMENTED CONSTRUCTION OR LISTED PARTS

METRIX
INTRINSICALLY SAFE
INSTALLATION (INTERTEK)
MX2033 & MX2034

100506

INTRINSICALLY SAFE INSTALLATION, 4 WIRE
NORTH AMERICAN STANDARDS



GROUP	CAPACITANCE μF	INDUCTANCE mH	L/R RATIO μH/Ω
1B	0.001	0.001	100
1C	0.001	0.001	100
1D	0.001	0.001	100
1E	0.001	0.001	100

GROUP	CAPACITANCE μF	INDUCTANCE mH	L/R RATIO μH/Ω
1B	0.001	0.001	100
1C	0.001	0.001	100
1D	0.001	0.001	100
1E	0.001	0.001	100

GROUP	CAPACITANCE μF	INDUCTANCE mH	L/R RATIO μH/Ω
1B	0.001	0.001	100
1C	0.001	0.001	100
1D	0.001	0.001	100
1E	0.001	0.001	100

- NOTES:
- 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 SAFETY BARRIER MUST BE:
LOOP POWER CONNECTION: 24VDC POWERED GALVANIC ISOLATOR WITH THE FOLLOWING OR LOWER OUTPUT PARAMETERS:
 $I_o = 25 \text{ mA}$
 $I_o = 66.6 \text{ mA}$
 $P_o = 0.551 \text{ W}$
 - A SUITABLE EXAMPLE IS A KFD1-STCA-EX1 OR EQUIVALENT
DYNAMIC SIGNAL CONNECTION: 24VDC POWERED GALVANIC ISOLATOR WITH THE FOLLOWING OR LOWER OUTPUT PARAMETERS:
 $I_o = 15 \text{ mA}$
 $I_o = 7.2 \text{ mA}$
 $P_o = 0.028 \text{ W}$
 - A SUITABLE EXAMPLE IS A KFD2-VR-EX1, 18-Y109129 OR EQUIVALENT
THE BARRIER MUST BE CERTIFIED BY CSA OR ANY NRTL/ETL APPROVED CERTIFICATION BODY TO [IEC 16] IIC.
 - GALVANIC ISOLATORS MUST BE RATED FOR AT MINIMUM THE LIMITS OF CAPACITANCE AND INDUCTANCE SHOWN IN TABLE 2.
 - INSTALL IN ACCORDANCE WITH THE APPROPRIATE NATIONAL ELECTRICAL REQUIREMENTS AND PER THE BARRIER INSTRUCTIONS.
 - THE TRANSMITTER MUST BE INSTALLED IN A SUITABLE ENCLOSURE ACCEPTABLE TO THE LOCAL INSPECTION AUTHORITY HAVING JURISDICTION.

5) THE TRANSMITTER PROBE ENTITY PARAMETERS ARE:

$$V_{oc} = 5.36 \text{ V}$$

$$I_{sc} = 94 \text{ mA}$$

$$C_b = 62 \mu\text{F}$$

$$L_b = 0.001 \text{ mH}$$

$$P_o = 0.5 \text{ W}$$

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 SATIFIES THE FOLLOWING CONDITIONS:

$$V_{max} \geq V_{oc}$$

$$I_{max} \geq I_{sc}$$

$$C + C_{cable} \leq C_b$$

$$L + L_{cable} \leq L_b$$

$$P_i \geq P_o$$

CLASS I, DIV. 1, GROUPS A, B, C, D

WARNING - SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.

Ex. In. INTRINSICALLY SAFE, CLASS I, DIV. 1, GROUPS A - D, Tcode: T4, -40°C ≤ Tamb ≤ 65°C

AVERTISSEMENT: LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SECURITE INTRINSEQUE.

WARNING - TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.

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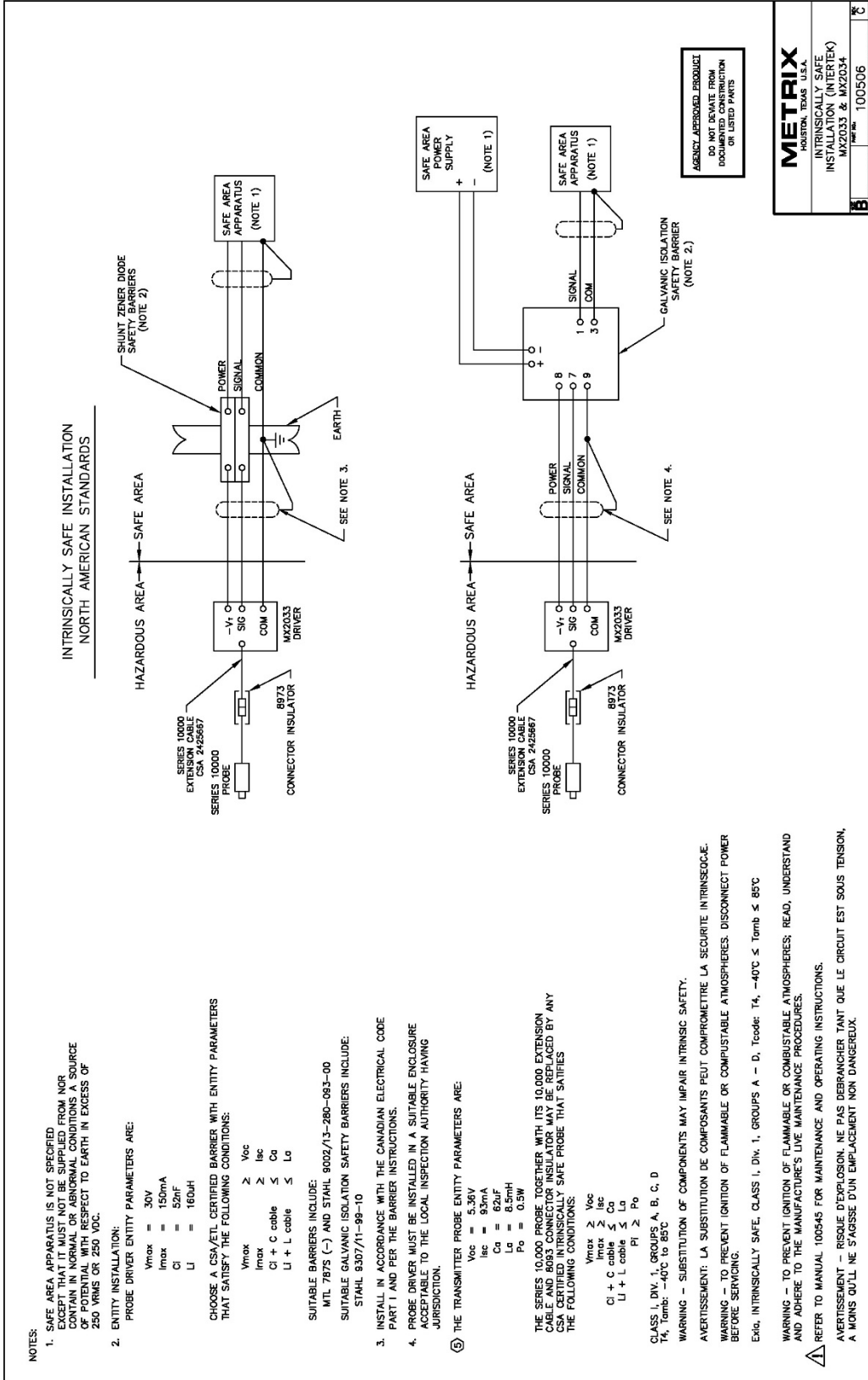
REFER TO MANUAL 100545 FOR MAINTENANCE AND OPERATING INSTRUCTIONS.

AVERTISSEMENT - RESQUE D'EXPLOSION, NE PAS DERANCHER TANT QUE LE CIRCUIT EST SOUS TENSION, A MOINS QU'IL NE S'AGISSE D'UN EMPLOI NON DANGEREUX.

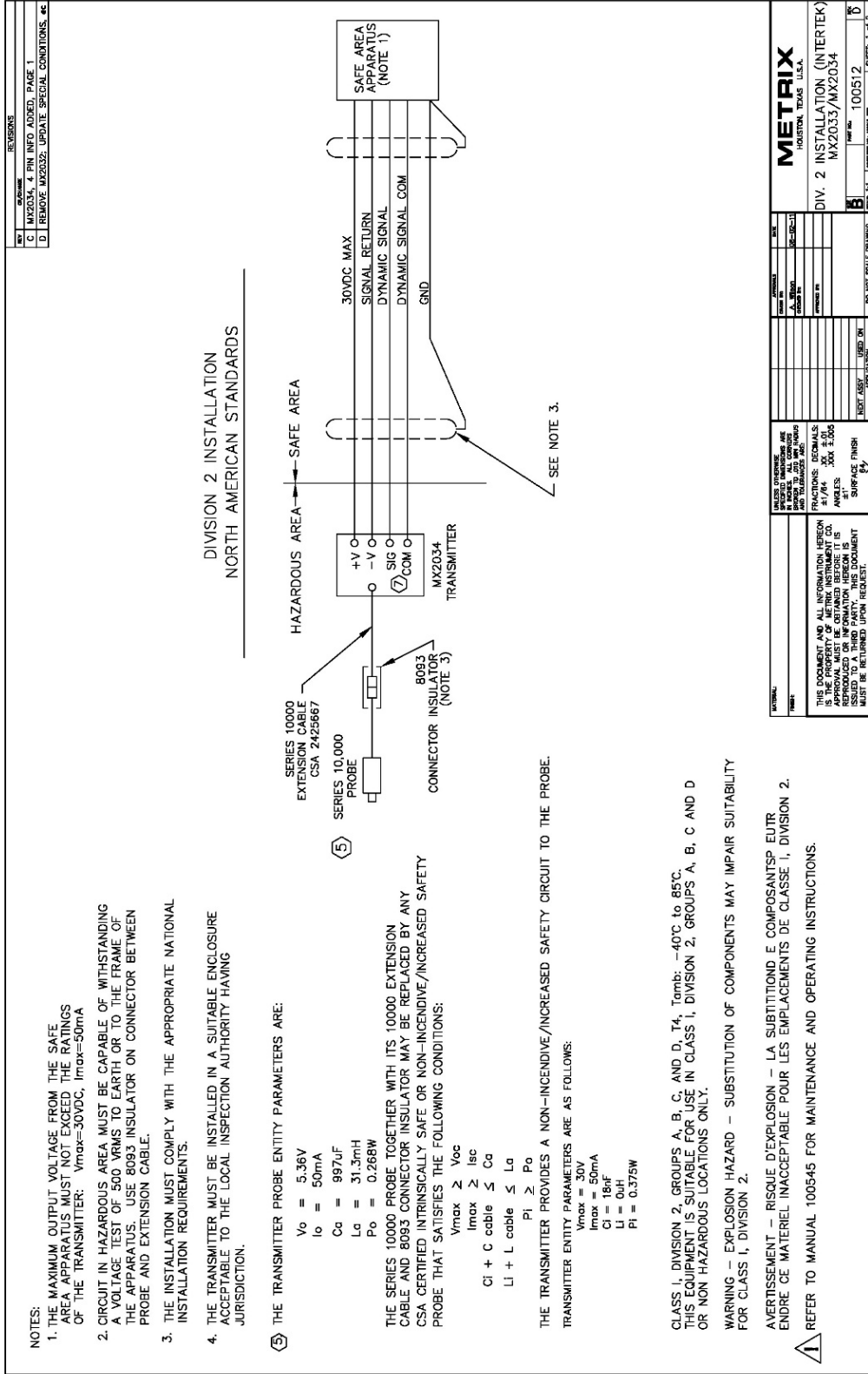
Benefits Certified Product
No modifications permitted
without approval to
InterTEK

METRIX HOUSTON, TEXAS, USA
INTRINSICALLY SAFE
INSTALLATION (INTERTEK)
MX2033 & MX2034
PART NO. 100506
REV. 1.1 | LICENSE NO. 100506 | SHEET 2 of 3

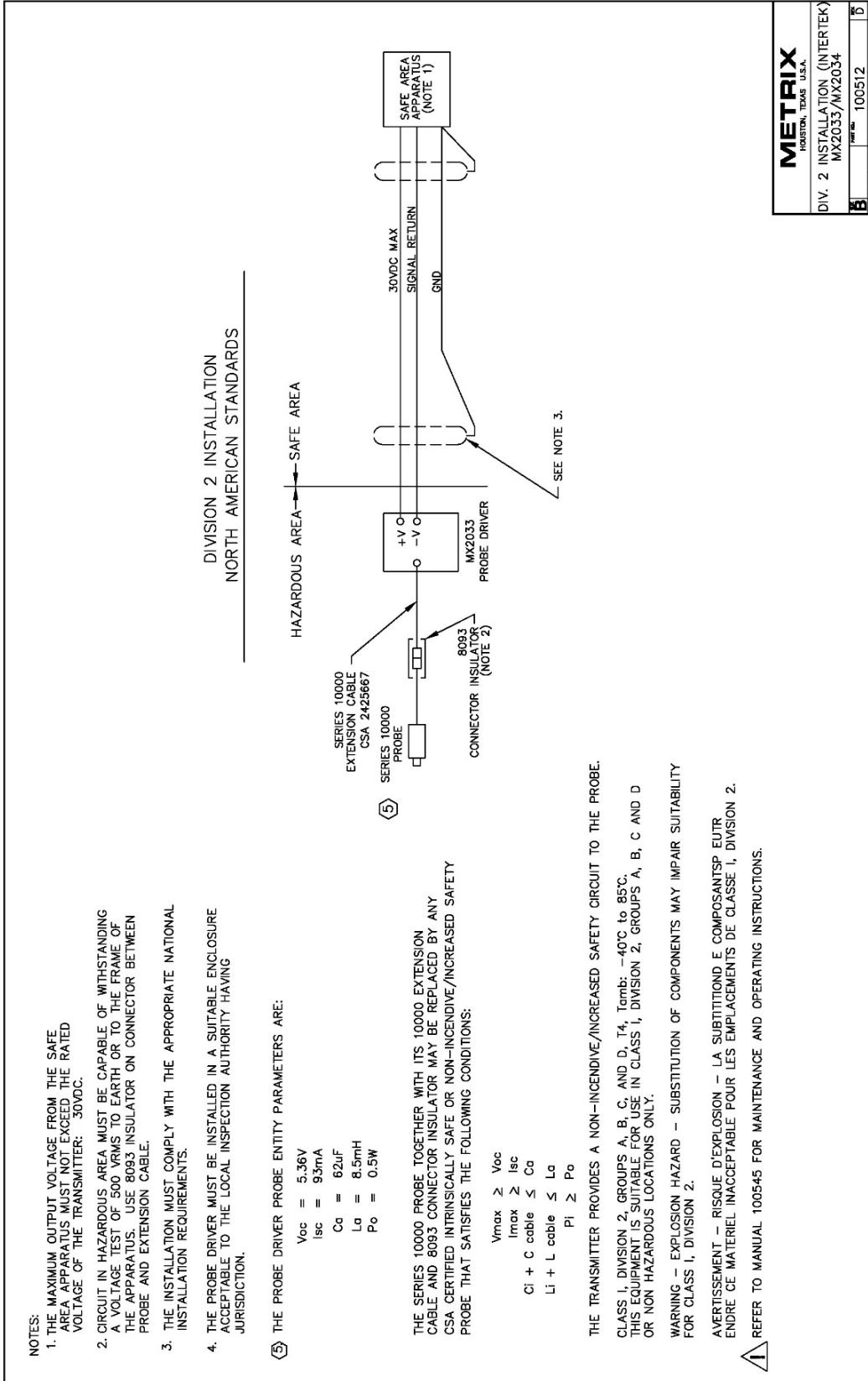
7. MX2033 Intrinsically Safe, North America



8. MX2034 Division 2 Wiring, North America



9. MX2033 Division 2 Wiring, North America



METRIX
INSTRUMENTATION, INC. U.S.A.

DIV. 2 INSTALLATION (INTERTEK)
MX2033/MX2034

PAGE 11	PART NO. 100512
REVISION: 001	SHEET: 2 OF 2

10. MX2034 Intrinsically Safe 2 Wires, Non-North America (EN/IEC Standards)

REV	DESCRIPTION	DATE
A	RELEASE	8/1/2011
B	ADDING MX2034, 4 PIN TO DWG	10/11/2019
C	INTERTEK UPDATES	4/29/2022

INSTALLATION, 2 WIRE
PROXIMITY TRANSMITTER IN HAZARDOUS LOCATION
ATEX/IECEx

GROUP	CAPACITANCE	INDUCTANCE	L/R RATIO
IA	0.056	4.1	74
IB	0.331	12.3	36.9
IIA	0.848	35.8	43.9

GROUP	CAPACITANCE	INDUCTANCE	L/R RATIO
IA	0.056	4.1	74
IB	0.331	12.3	36.9
IIA	0.848	35.8	43.9

GROUP	CAPACITANCE	INDUCTANCE	L/R RATIO
IA	0.056	4.1	74
IB	0.331	12.3	36.9
IIA	0.848	35.8	43.9

GROUP	CAPACITANCE	INDUCTANCE	L/R RATIO
IA	0.056	4.1	74
IB	0.331	12.3	36.9
IIA	0.848	35.8	43.9

NOTES:

- SAFE AREA APPARATUS IS NOT SPECIFIED EXCEPT THAT IT MUST NOT BE SUPPLIED FROM NOR CONTAIN IN NORMAL OR ABNORMAL CONDITIONS A SOURCE OF ENERGY THAT EXCEEDS THE LIMITS SPECIFIED IN 250 Vrms OR 250 VDC.
- THE SAFETY BARRIER MUST BE:
 - A 28V, 300 OHM AND A 28V DIODE RETURN DUAL CHANNEL SHUNT ZENER DIODE SAFETY BARRIER HAVING THE FOLLOWING OR LOWER OUTPUT PARAMETERS:
 - $I_z = 53mA$
 - $P_o = 0.68W$
 - A SUITABLE EXAMPLE IS MIL77874.
- THE BARRIERS MUST BE CERTIFIED BY BASEFEA OR ANY EEC/ETL APPROVED CERTIFICATION BODY TO [IEC] IIC AND THE OUTPUT CURRENT MUST BE LIMITED BY A RESISTOR "R" SUCH THAT: $I_o = I_z/R$
- A 24VDC POWERED GALVANIC ISOLATOR WITH THE FOLLOWING OR LOWER OUTPUT PARAMETERS:
 - $I_{uz} = 28V$
 - $I_o = 81mA$
 - $P_o = 0.637W$
- A SUITABLE EXAMPLE IS A STAHL 8303/11-22-11.
- THE BARRIER MUST BE CERTIFIED BY BASEFEA OR ANY EEC/ETL APPROVED CERTIFICATION BODY TO [IEC] IIC.
- 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} .
- THE HAZARDOUS AREA CABLE IS TO BE INSTALLED AS EITHER A SEPARATE CABLE OR A SEPARATE CIRCUIT WITHIN A "TYPE A" CABLE ENCLOSURE. THE CABLE MUST BE MARKED WITH THE "TYPE B" CABLE MUST NOT EXCEED 60V.
- THE INSTALLATION MUST COMPLY WITH THE APPROPRIATE NATIONAL INSTALLATION REQUIREMENTS. EXAMPLE: BS 6744: 1986/EN60795-14:1987
- SPECIAL CONDITIONS OF SAFE USE:
 - THE PROTECTION CONCEPT USED MUST BE IRREVOCALLY MARKED ON THE LABEL DURING INSTALLATION.
 - TO REMOVE THE $\frac{1}{2}$ IN. OF ELECTROSTATIC ISOLATION, 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 (BNS 99ATEX1099).
- THE APPARATUS ENCLOSURE IS MADE FROM PLASTIC WHICH MUST BE PROTECTED AGAINST IMPACT AND FRICTION.
- FOR THE MX2034 DD = 04/54, 05/55/ OR 06/56, THE HAZARDOUS AREA A THE BNC TERMINAL BLOCK SIG & COM ARE TO BE USED AS A TEST CONNECTION ONLY WHEN IN SAFE AREAS.

BASEFEA APPROVED PRODUCT
No modifications permitted without reference to Basefeia

AGENCY APPROVED PRODUCT
DO NOT IMITATE FROM DOCUMENTED CONSTRUCTION OR LISTED PARTS

METRIX
INTRINSICALLY SAFE INSTALLATION
UNITED STATES
MX2033/MX2034
HOUSTON, TEXAS
USA

DATE: 11/11/2019
DRAWING NO: 100508
SHEET: 1 OF 3

11. MX2034 Intrinsically Safe 4 Wires, Non-North America (EN/IEC Standards)

INSTALLATION, 4 WIRE PROXIMITY TRANSMITTER IN HAZARDOUS LOCATION ATEX/IECEX

INSTALLATION, 4 WIRE HAZARDOUS AREA

DOZE RETURN NUMBER	CAPACITANCE	INDUCTANCE	L/R RATIO
1	0.05	4.1	82
2	0.05	4.1	82
3	0.05	4.1	82
4	0.05	4.1	82

DOZE RETURN NUMBER	CAPACITANCE	INDUCTANCE	L/R RATIO
1	0.05	4.1	82
2	0.05	4.1	82
3	0.05	4.1	82
4	0.05	4.1	82

EXTERNAL PROBE CABLE	CAPACITANCE	INDUCTANCE	L/R RATIO
1	0.05	4.1	82
2	0.05	4.1	82
3	0.05	4.1	82
4	0.05	4.1	82

NOTES:

1. THE SAFE AREA APPARATUS IS NOT SPECIFIED. EXCEPT THAT IT MUST NOT BE SPECIFIED FROM WORK CONTAINING NORMAL OR ABNORMAL CONDITIONS A SOURCE OF 250 V RMS OR 300 V DC.
2. THE SAFETY BARRIER MUST BE:
 - U₀ = 23.4V
 - I₀ = 86.8mA
 - P₀ = 0.028W
3. A SUITABLE EXAMPLE IS A KFD1-STC-EXT OR EQUIVALENT DYNAMIC SIGNAL CONNECTION, 2-WIRE POWERED GALVANIC ISOLATOR WITH THE FOLLOWING OR LOWER OUTPUT PARAMETERS:
 - U₀ = 15.9V
 - I₀ = 7.2mA
 - P₀ = 0.028W
4. A SUITABLE EXAMPLE IS A KFD2-RR-EX-1B-Y10129 OR EQUIVALENT. THE BARRIER MUST BE CERTIFIED BY SILVERA, OR ANY EEC/ETL APPROVED CERTIFICATION BODY TO LIST 1A.
5. GALVANIC ISOLATORS MUST BE RATED FOR AT LEAST THE LIMITS OF CAPACITANCE AND INDUCTANCE SHOWN IN TABLE 2.
6. THE CAPACITANCE AND EITHER THE INDUCTANCE OR RESISTANCE 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 CABLE LENGTH.
7. THE PROTECTION CONCEPT USED MUST BE IRREVOCABLY MARKED ON THE CABLE DURING INSTALLATION. TO REDUCE THE RISK OF ELECTROSTATIC INTERFERENCE, EQUIPMENT MUST BE GROUND ONLY WITH A LEAD CLOTH.
8. THE SERIES 10000 PROBE TOGETHER WITH ITS 10000 EXTENSION CABLE MUST BE USED AS A SINGLE UNIT. THE PROBE AND CABLE MUST BE INSTALLED AS A SINGLE UNIT WITHIN A TYPE B CABLE AS DEFINED IN CLAUSE B OF THE TYPE B CABLE MUST NOT EXCEED 50V.
9. THE INSTALLATION MUST COMPLY WITH THE APPROPRIATE NATIONAL INSTALLATION REQUIREMENTS. EXAMPLE IS 670AC 100V/240V/141-161/1927.
10. SPECIAL CONDITIONS OF SAFE USE:
 - ¹¹ THE PROTECTION CONCEPT USED MUST BE IRREVOCABLY MARKED ON THE CABLE DURING INSTALLATION.
 - ¹² TO REDUCE THE RISK OF ELECTROSTATIC INTERFERENCE, EQUIPMENT MUST BE GROUND ONLY WITH A LEAD CLOTH.

⑥ THE SERIES 10000 PROBE TOGETHER WITH ITS 10000 EXTENSION CABLE MUST BE USED AS A SINGLE UNIT. THE PROBE AND CABLE MUST BE INSTALLED AS A SINGLE UNIT WITHIN A TYPE B CABLE AS DEFINED IN CLAUSE B OF THE TYPE B CABLE MUST NOT EXCEED 50V.

THE TRANSMITTER PROBE ENTITY PARAMETERS ARE:

U_{oc} = 5.58V
 I_{sc} = 94mA
 P₀ = 0.5W

THE SERIES 10000 PROBE TOGETHER WITH ITS 10000 EXTENSION CABLE AND BNC CONNECTOR INSULATOR MAY BE REPLACED BY ANY OTHER CERTIFIED INTRINSICALLY SAFE PROBE THAT SATISFIES THE FOLLOWING CONDITIONS:

U_{oc} = 5.58V
 I_{sc} = 94mA
 P₀ = 0.5W

⑧ THE APPARATUS ENCLOSURE IS MADE FROM PLASTIC WHICH MUST BE PROTECTED AGAINST IMPACT AND FRICTION.

⑩ FOR THE MEX2034 DO NOT USE DOZES 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

METRIX HOUSTON, TEXAS
USA

INTRINSICALLY SAFE INSTALLATION
(ATEX/IECEX)
MX2033/MX2034

Part No. 100508
REV. 1.11 10/2008

SHEET 2 OF 3

AGENCY APPROVED PRODUCT
DO NOT DEVIATE FROM
DOCS OR LISTED PARTS
OR LISTED PARTS

Benefit Certified Product
No modifications permitted
without permission to
Benefit

12. MX2033 Intrinsically Safe, Non-North America (EN/IEC Standards)

**INSTALLATION
PROBE DRIVER IN HAZARDOUS LOCATION
ATEX/IECEX**

NOTES:

- SAFE AREA APPARATUS IS NOT SPECIFIED EXCEPT THAT IT MUST NOT BE SUPPLIED FROM NOR CONTAIN IN NORMAL OR ABNORMAL CONDITIONS A SOURCE OF HAZARDOUS ENERGY EXCEEDING 250 VDC, 250 Vrms OR 250 VAC. THE SOURCE MUST BE DERIVED ONLY FROM LINEAR (RESISTIVELY LIMITED) SOURCES.
- THE SAFETY BARRIER MUST BE EITHER A 28V, 300 OHM AND A 20V, 380 OHM DUAL CHANNEL SHUNT ZENER DIODE SAFETY BARRIER HAVING THE FOLLOWING OR LOWER PARAMETERS:
 $I_z = 28V$
 $I_o = 1.38mA$
 $P_o = 0.81W$
OR A 28V, 300 OHM AND A 28V DIODE RETURN DUAL CHANNEL SHUNT ZENER DIODE SAFETY BARRIER HAVING THE FOLLOWING OR LOWER OUTPUT PARAMETERS:
 $I_z = 28V$
 $I_o = 50mA$
 $P_o = 0.80W$
THE BARRIERS MUST BE CERTIFIED BY BASEFEA OR ANY EEC/ETL APPROVED CERTIFICATION BODY TO [IEC 61508] AND THE SAFETY BARRIER 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:
 $U_z = 26.5V$
 $I_o = 0.77mA$
 $P_o = 0.174W$
THE BARRIER MUST BE CERTIFIED BY BASEFEA OR ANY EEC/ETL APPROVED CERTIFICATION BODY TO [IEC 61508].
- CIRCUIT IN HAZARDOUS AREA MUST BE CAPABLE OF WITHSTANDING EITHER THE OVERVOLTAGE OR THE OVERCURRENT 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.
- 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 $C_{eq} = 0.012uF$ AND $L_{eq} = 0.2mH$.
- PROBE DRIVER MUST BE INSTALLED IN AN ENCLOSURE COMPLYING WITH IP 20.
- THE HAZARDOUS AREA CABLE IS TO BE INSTALLED AS EITHER A TYPE 'A' OR 'B' CABLE AS DEFINED IN EN 50039 (1990). THE PEAK VOLTAGE OF ANY CIRCUIT IN THE "TYPE B" CABLE MUST NOT EXCEED 60V.
- THE INSTALLATION MUST COMPLY WITH THE APPROPRIATE NATIONAL INSTALLATION REQUIREMENTS. EXAMPLE: UK: BS5546 PART 4 (1977).
- 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.
 SYSTEM LENGTH IS A MAXIMUM OF NINE METERS.
- THE SERIES 10,000 PROBE TOGETHER WITH ITS 10,000 EXTENSION CABLE OR INSULATOR MUST BE REPLACED BY A BENTLEY NEWMAN 3331 PROXIMITY TRANSDUCER SYSTEM PROBE AND CABLE (BAS 98A101098).

TABLE 1

GROUP	CAPACITANCE uF	INDUCTANCE mH	L/R RATIO uH/OHM
IIC	0.083	1.73	38
IIB	0.85	8.29	151
IIA	2.15	16.7	314

AGENCY APPROVED PRODUCT
DO NOT DEVIATE FROM DOCUMENTED CONSTRUCTION ON LISTED PARTS

Baseefa Certified Product
No modifications permitted without reference to Baseefa

METRIX HOUSTON, TEXAS, USA

INTRINSICALLY SAFE INSTALLATION
NON-NORTH AMERICA
MX2033/MX2034

REV. 1.1 | HAZARDOUS AREA | 100508 | SHEET: 3 OF 3

13. MX2034 Division 2 Wiring, Non-North America (EN/IEC Standards)

REV		DESCRIPTION	DATE
A	RELEASE	B/2/2011	
B	ADDING MX2034, 4 PIN TO DWG	10/9/2019	
C	INTERTEK UPDATES	4/29/2022	

INSTALLATION PROXIMITY SENSOR IN ZONE 2 LOCATION ATEX/IECEx

HAZARDOUS AREA — SAFE AREA

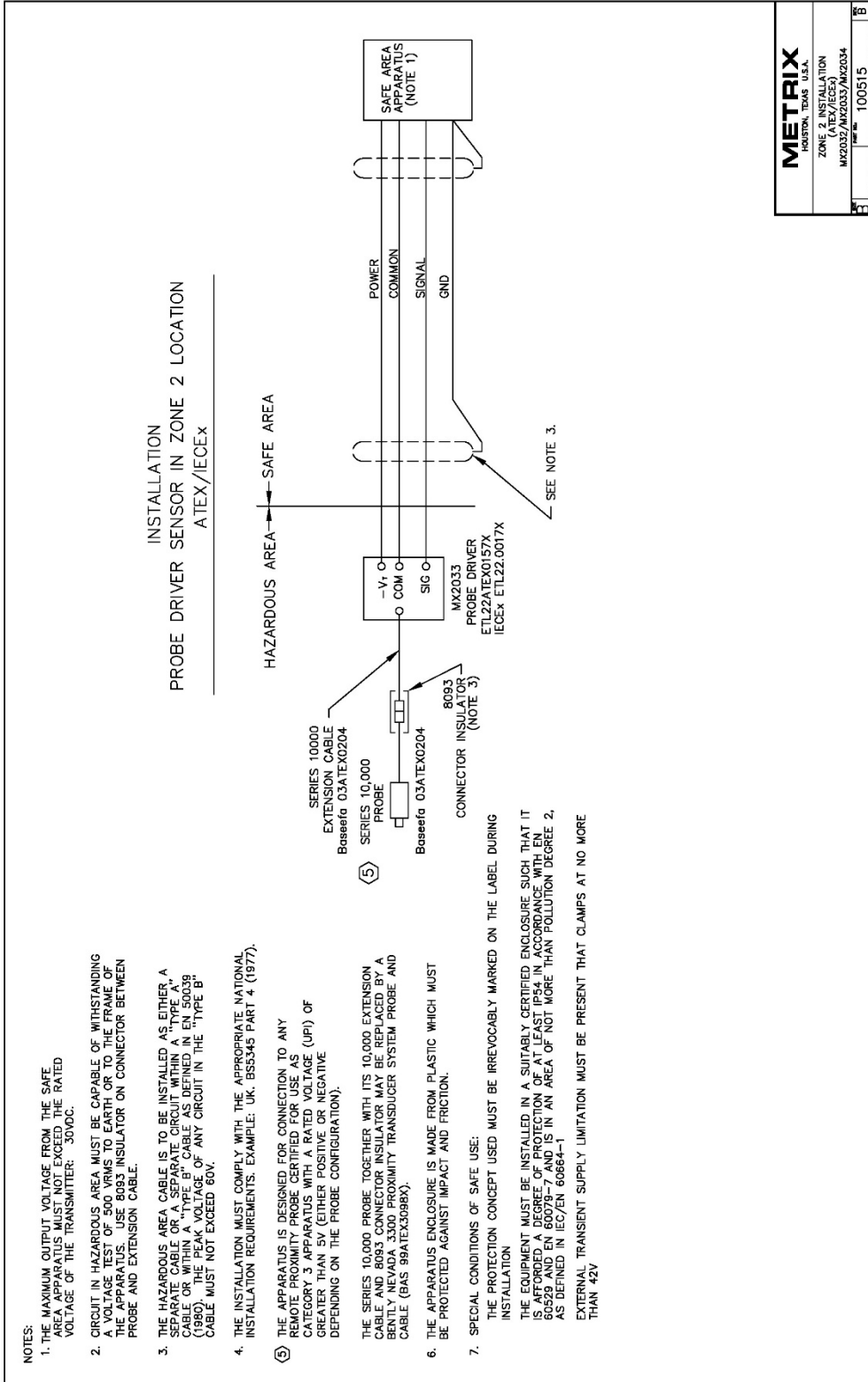
SEE NOTE 3.

NOTES:

1. THE MAXIMUM OUTPUT VOLTAGE FROM THE SAFE AREA APPARATUS MUST NOT EXCEED THE RATED VOLTAGE OF THE TRANSMITTER: 30VDC.
2. CIRCUIT IN HAZARDOUS AREA MUST BE CAPABLE OF WITHSTANDING VOLTAGE TEST OF 500 V RMS TO EARTH OR TO THE FRAME OF THE APPARATUS. USE 8093 INSULATOR ON CONNECTOR BETWEEN PROBE AND EXTENSION CABLE.
3. 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 50038 (1980). THE PEAK VOLTAGE OF ANY CIRCUIT IN THE "TYPE B" CABLE MUST NOT EXCEED 60V.
4. THE INSTALLATION MUST COMPLY WITH THE APPROPRIATE NATIONAL INSTALLATION REQUIREMENTS. EXAMPLE: UK: BS5345 PART 4 (1977).
5. THE APPARATUS IS DESIGNED FOR CONNECTION TO ANY REMOTE PROXIMITY PROBE CERTIFIED FOR USE AS CATEGORY 3 APPARATUS WITH A RATED VOLTAGE (UP) OF GREATER THAN 5V (EITHER POSITIVE OR NEGATIVE DEPENDING ON THE PROBE CONFIGURATION).
6. THE SERIES 10,000V PROBE TOGETHER WITH ITS 10,000V EXTENSION CABLE AND 8093 CONNECTOR INSULATOR MAY BE REPLACED BY A BENTLEY NEVADA 3300 PROXIMITY TRANSDUCER SYSTEM PROBE AND CABLE (BAS 99ATEX3098X).
7. THE APPARATUS ENCLOSURE IS MADE FROM PLASTIC WHICH MUST BE PROTECTED AGAINST IMPACT AND FRICTION.
8. DYNAMIC SIGNAL (SIG AND GND) TERMINAL BLOCK CONNECTIONS ARE AVAILABLE ON MX2034. DD = 04/54, 05/55, 06/56. SMC CONNECTION IS FOR TEMPORARY DATA COLLECTION ONLY AND MUST NOT BE A PERMANENT CONNECTION.
9. SPECIAL CONDITIONS OF SAFE USE:
 - THE PROTECTION CONCEPT USED MUST BE IRREVOCABLY MARKED ON THE LABEL DURING INSTALLATION
 - THE EQUIPMENT MUST BE INSTALLED IN A SUITABLY CERTIFIED ENCLOSURE SUCH THAT IT IS AFFORDED A DEGREE OF PROTECTION OF AT LEAST IP54 IN ACCORDANCE WITH EN 60529 AND EN 60079-7 AND IS IN AN AREA OF NOT MORE THAN POLLUTION DEGREE 2, AS DEFINED IN IEC/EN 60684-1
 - EXTERNAL TRANSIENT SUPPLY LIMITATION MUST BE PRESENT THAT CLAMPS AT NO MORE THAN 42V

MATERIAL:	DATE: 08/02/21	SCALE: 1:1
DESCRIPTION:	DESIGNED BY: A. WILCOX	CHECKED BY:
FRACCTIONS DECIMALS: ±1/4%	FRACCTIONS: ±0.4 ±0.05	APPROVED BY:
THIS DOCUMENT AND ALL INFORMATION HEREON IS THE PROPERTY OF METRIX INSTRUMENT CO. UNLESS OTHERWISE SPECIFIED, IT IS ISSUED TO A THIRD PARTY. THIS DOCUMENT MUST BE RETURNED UPON REQUEST!	DO NOT SCALE DRAWING	DATE: 10/05/15
METRIX HOUSTON, TEXAS U.S.A.		ZONE 2 INSTALLATION (ATEX/IECEx) MX2032/MX2033/MX2034
		PROJECT: 100515
		SHEET: 1 of 2

14. MX2033 Division 2 Wiring, Non-North America (EN/IEC Standards)



METRIX
HOUSTON, TEXAS U.S.A.

ZONE 2 INSTALLATION
(ATEX/IECEx)
MX2032/MX2033/MX2034

Part No. 100515
REV. 1.1 | CONSULT THE USER MANUAL | SHEET 2 OF 2

15. Buffered Output Connections

There are connectors provided for access to the dynamic voltage output on the MX 2034 and the MX2032. On the MX2034 this is the BNC connector. On the MX2032 this is the terminal pin labeled "TEST". These connections are not approved for making temporary connections in hazardous areas and both have the entity parameter Um=0.

16. Field Repair and Service

The DPS does not contain any user-serviceable parts and cannot be repaired in the field, except for a custom calibration that can be completed using the DPS software. Replace a failed DPS with an equivalent unit.

17. Special conditions of safe use:

For Intrinsically Safe (Ex ia):

- 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

For Increased Safety (Ex ec):

- The protection concept used must be irrevocably marked on the label during installation
- The equipment must be installed in a suitably certified enclosure such that it is afforded a degree of protection of at least IP54 in accordance with EN 60529 and EN 60079-7 and is in an area of not more than pollution degree 2, as defined in IEC/EN 60664-1
- External transient supply limitation must be present that clamps at no more than 42V

When the apparatus is being used in accordance with the type of protection: Ex e IIC T4 (-40°C ≤ T_a ≤ +85°C), the apparatus must be mounted in an enclosure capable of withstanding a 7 Joule impact (at -40°C in non-metallic), provide a degree of ingress protection of at least IP54, use in an area of no worse than pollution of degree 2, and voltage supply is externally clamped at no more than 42V (i.e. 140% of 30V). It is recommended to use "Ex e" or suitable "Ex n" enclosure because they meet IP54 after thermal endurance and 7 Joule impact testing.

The apparatus is capable of withstanding the 600V insulation test required by clause 7.1 of EN 60079-07:2015.

DIV. 1 AND DIV. 2 AREA

WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD - SEE INSTRUCTIONS






AVERTISSEMENT - RISQUE POTENTIEL DE RECHARGE ÉLECTROSTATIQUE - VOIR LES INSTRUCTIONS

FIELD WIRING TO TRANSMITTER MUST COMPLY WITH LOCAL CODE. TRANSMITTER PROVIDES INCREASED SAFTEY CIRCUIT TO PROBE AND EXTENSION CABLE.

LE CÂBLAGE DE CHAMP À L'ÉMETTEUR DOIT RESPECTER LE CODE LOCAL. ÉMETTEUR FOURNIT UN CIRCUIT INCREASED SAFTEY À SONDE ET CABLE D'EXTENSION.

DIV 2: THE PRODUCT IS REQUIRED TO BE POWERED THROUGH A CERTIFIED POWER SUPPLY.

18. Hazardous Area Approvals

<p>ETL Approval (North America):</p> 	<p>Intertek Markings:</p> <p>Intrinsically Safe/Increased Safety Class I, Div. 1 & 2, Groups A, B, C, D Temp Code T4 ($-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$)</p>	<p>UL/CSA Standards:</p> <p>UL 60079-0:2019 UL 60079-7:2017 UL 60079-11:2013</p> <p>CSA C22.2 60079-0:2015 CSA C22.2 60079-7:2016 CSA C22.2 60079-11:2014</p>	<p>Intrinsically safe: when installed as per dwg 100506</p> <p>Increased Safety: Field wiring to transmitter must comply with local code. Refer to installation dwg 100512.</p>
<p>IECEx Approval (World):</p> 	<p>IEC Markings:</p> <p>Ex ia IIC T4 Ga $\text{Ta} (-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C})$ IECEX ETL 22.0014X</p> <p>Ex e IIC T4 Gc $\text{Ta} (-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C})$ IECEX ETL 22.0017X</p>	<p>IEC Standards:</p> <p>IEC60079-0:2017 IEC60079-11:2011 IEC60079-7:2015</p>	<p>CAUTION: Intrinsically safe: Only resistively limited sources are allowed. Electrostatic hazard – clean only with damp cloth.</p>
<p>ATEX/UKEX Approval (Europe):</p> 	<p>ATEX Markings:</p> <p> II 1 G Ex ia IIC T4 Ga $\text{Ta} (-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C})$ ETL 22ATEX0138X ITS 22UKEX0528X</p> <p> II 3 G Ex e IIC T4 Gc $\text{Ta} (-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C})$ ETL 22ATEX0157X ITS 22UKEX0533X</p>	<p>EN Standards:</p> <p>EN60079-0:2018 EN60079-11:2012 EN60079-7:2015</p>	<p>CAUTION: Increased Safety: Do not separate when energized.</p>



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PROBE/CABLE