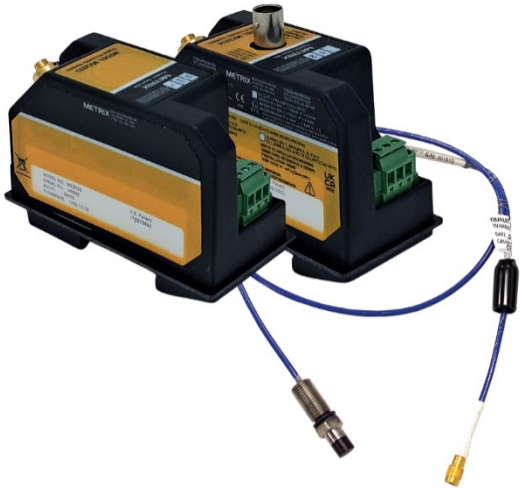
Hazardous Area Installation Manual

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-change 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 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.

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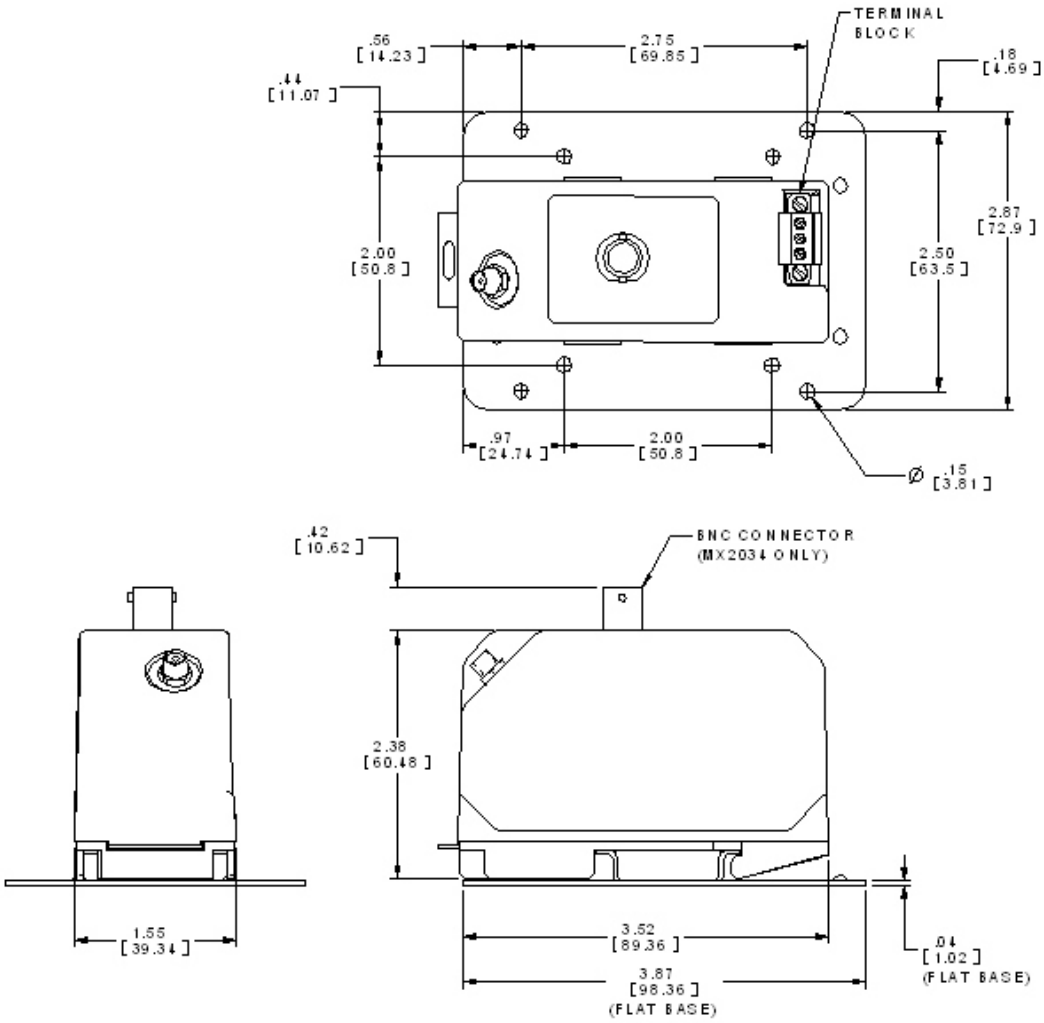
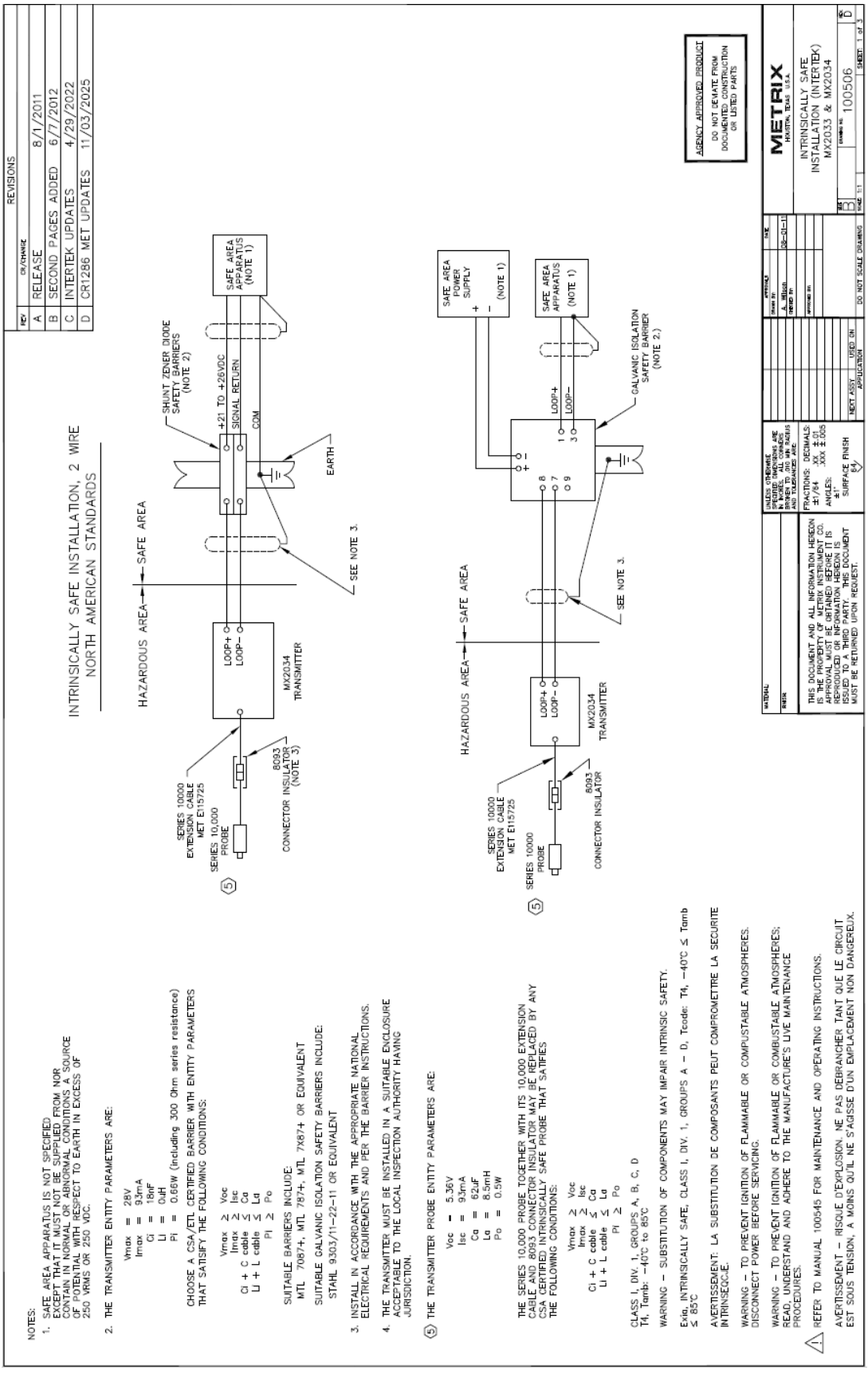


4. Extension Cable Installation

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



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:
   Uo = 25.4V
   Io = 86.8mA
   Po = 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:
   Uo = 15.5V
   Io = 7.2mA
   Po = 0.028W

   A SUITABLE EXAMPLE IS A KFD2-VR-Ex1.19-Y109129 OR EQUIVALENT

   THE BARRIER MUST BE CERTIFIED, BY CSA OR ANY NRTL/ETL APPROVED CERTIFICATION BODY TO [EEx ia] IIC.

   GALVANIC ISOLATORS MUST BE RATED FOR AT MINIMUM THE LIMITS OF CAPACITANCE AND INDUCTANCE SHOWN IN TABLE 2.

3. INSTALL IN ACCORDANCE WITH THE APPROPRIATE NATIONAL ELECTRICAL REQUIREMENTS AND PER THE BARRIER INSTRUCTIONS.

4. THE TRANSMITTER MUST BE INSTALLED IN A SUITABLE ENCLOSURE ACCEPTABLE TO THE LOCAL INSPECTION AUTHORITY HAVING JURISDICTION.

⑤ THE TRANSMITTER PROBE ENTITY PARAMETERS ARE:

Voc = 5.36V
Isc = 94mA
Ca = 62uF
La = 8.5mH
Po = 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 SATIFIES THE FOLLOWING CONDITIONS:

Vmax ≥ Voc
Imax ≥ Isc
Ci + C cable ≤ Ca
Li + L cable ≤ La
Pi ≥ Po

CLASS I, DIV. 1, GROUPS A, B, C, D
T4, Tamb: −40°C to 85°C

WARNING − SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.

Exia, INTRINSICALLY SAFE, CLASS I, DIV. 1, GROUPS A − D, Tcode: T4, −40°C ≤ Tamb ≤ 85°C

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

WARNING − TO PREVENT IGNITION OF FLAMMABLE OR COMPUSTABLE ATMOSPHERES. DISCONNECT POWER BEFORE SERVICING.

WARNING − TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTABLE ATMOSPHERES; READ, UNDERSTAND AND ADHERE TO THE MANUFACTURE'S LIVE MAINTENANCE PROCEDURES.

⚠ REFER TO MANUAL 100545 FOR MAINTENANCE AND OPERATING INSTRUCTIONS.

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

TABLE 1
DIODE RETURN BARRIER

GROUP	CAPACITANCE uF	INDUCTANCE mH	L/R RATIO uH/OHM
IIC	0.065	4.1	54
IIB	0.331	12.3	162
IIA	0.646	32.8	432

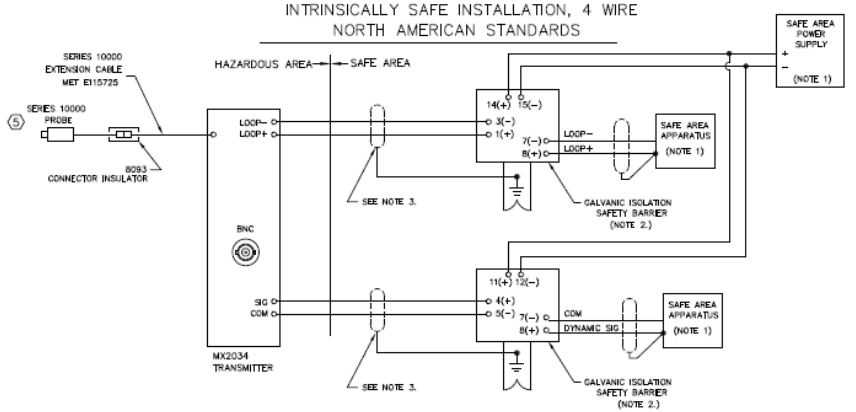
TABLE 2
GALVANIC ISOLATOR

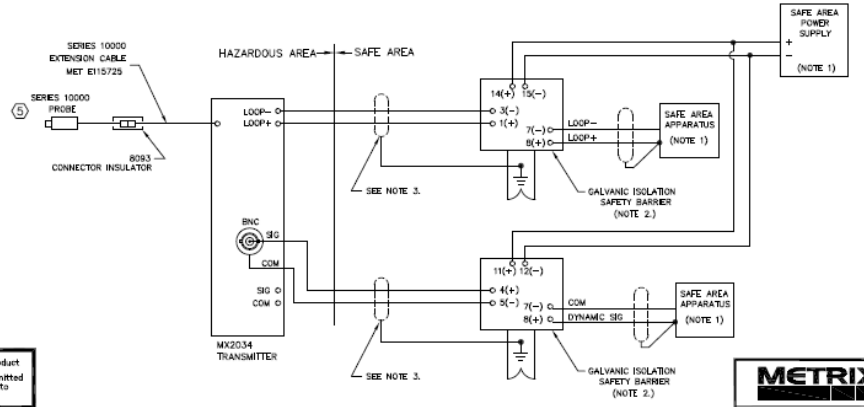
GROUP	CAPACITANCE uF	INDUCTANCE mH	L/R RATIO uH/OHM
IIC	0.065	4.3	56
IIB	0.632	17.72	210
IIA	2.132	36.02	444

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

INTRINSICALLY SAFE INSTALLATION, 4 WIRE
NORTH AMERICAN STANDARDS





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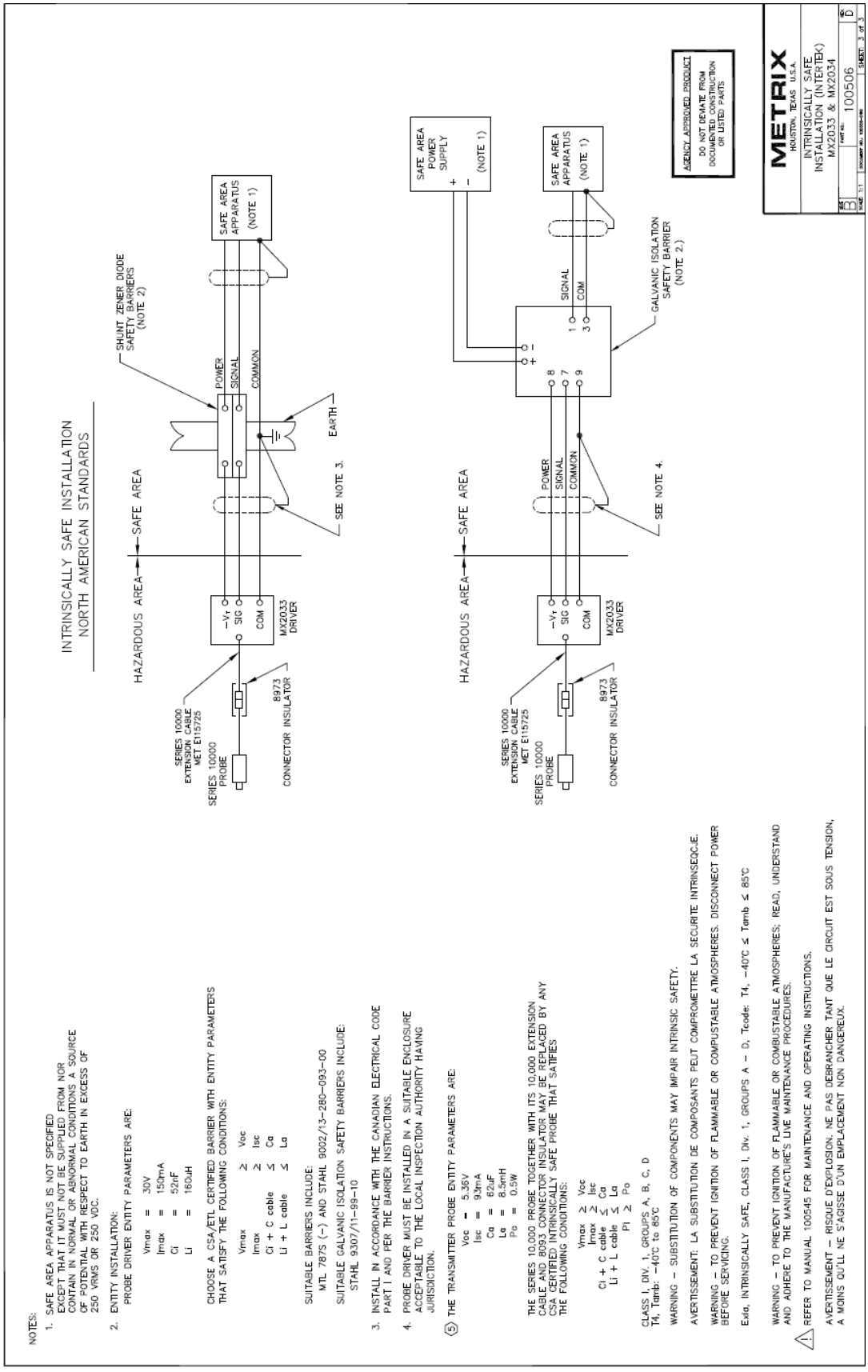
METRIX HOUSTON, TEXAS USA

INTRINSICALLY SAFE INSTALLATION (INTERTEK) MX2033 & MX2034

SIZE	PART NO.	REV
B	100506	D

SCALE: 1:1 | DOCUMENT NO. 100506-090 | SHEET: 2 of 3

7. MX2033 Intrinsically Safe, North America



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. ENTITY INSTALLATION:
   PROBE DRIVER ENTITY PARAMETERS ARE:
   Vmax = 30V
   Imax = 150mA
   Ci = 52nF
   Li = 160uH

   CHOOSE A CSA/ETL CERTIFIED BARRIER WITH ENTITY PARAMETERS
   THAT SATISFY THE FOLLOWING CONDITIONS:
   Vmax ≥ Voc
   Imax ≥ Isc
   Ci + C cable ≤ Ca
   Li + L cable ≤ La

   SUITABLE BARRIERS INCLUDE:
   MTL 787S (-) AND STAHL 9002/13-280-093-00

   SUITABLE GALVANIC ISOLATION SAFETY BARRIERS INCLUDE:
   STAHL 9307/11-99-10
3. INSTALL IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE
   PART I AND PER THE BARRIER INSTRUCTIONS.
4. PROBE DRIVER MUST BE INSTALLED IN A SUITABLE ENCLOSURE
   ACCEPTABLE TO THE LOCAL INSPECTION AUTHORITY HAVING
   JURISDICTION.

⑤ THE TRANSMITTER PROBE ENTITY PARAMETERS ARE:
   Voc = 5.36V
   Isc = 93mA
   Ca = 62uF
   La = 8.5mH
   Po = 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:
   Vmax ≥ Voc
   Imax ≥ Isc
   Ci + C cable ≤ Ca
   Li + L cable ≤ La
   Pi ≥ Po

CLASS I, DIV. 1, GROUPS A, B, C, D
T4, Tamb: -40°C to 85°C

WARNING – SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.

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

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

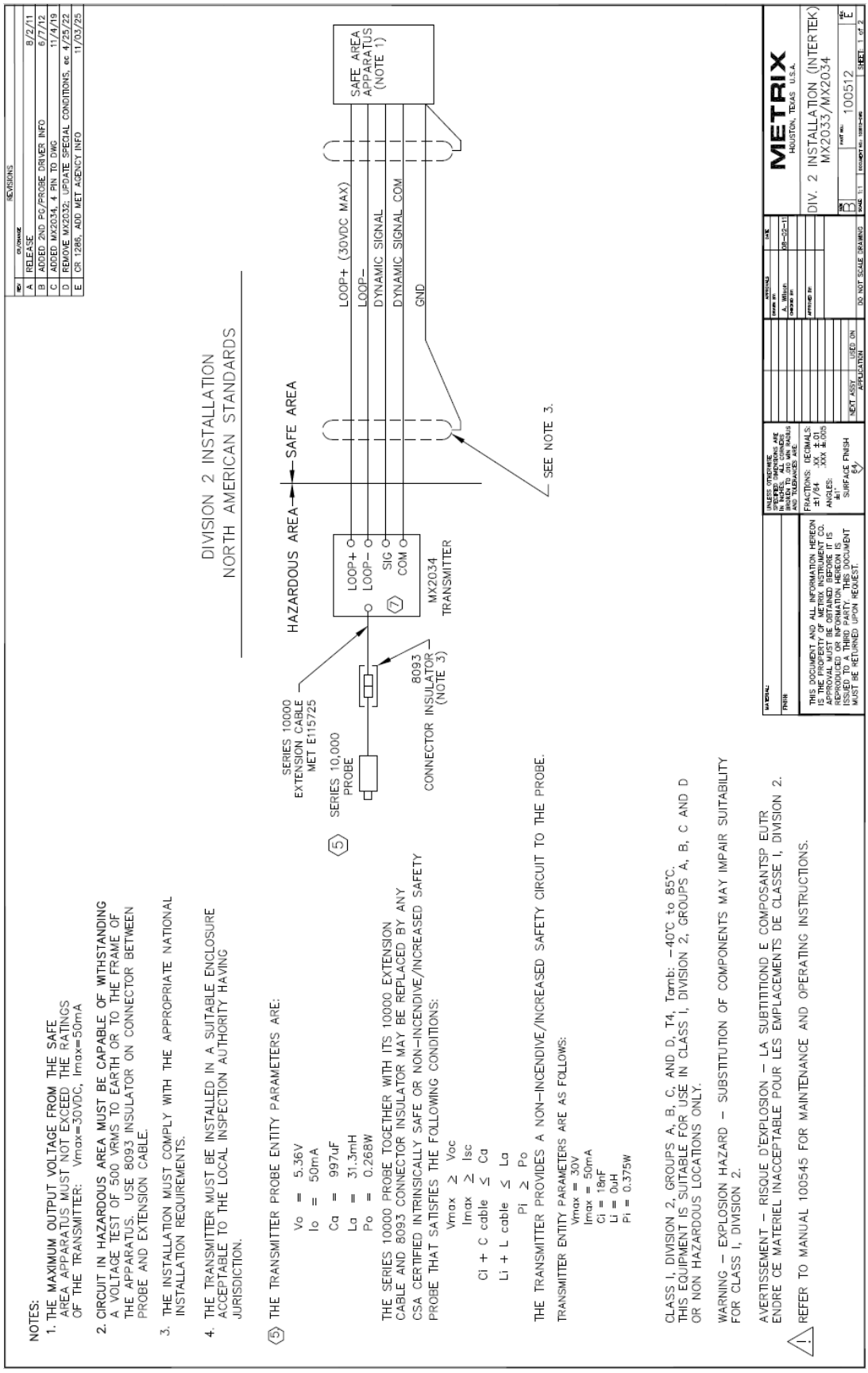
Exia, INTRINSICALLY SAFE, CLASS I, Div. 1, GROUPS A – D, Tcode: T4, -40°C ≤ Tamb ≤ 85°C

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

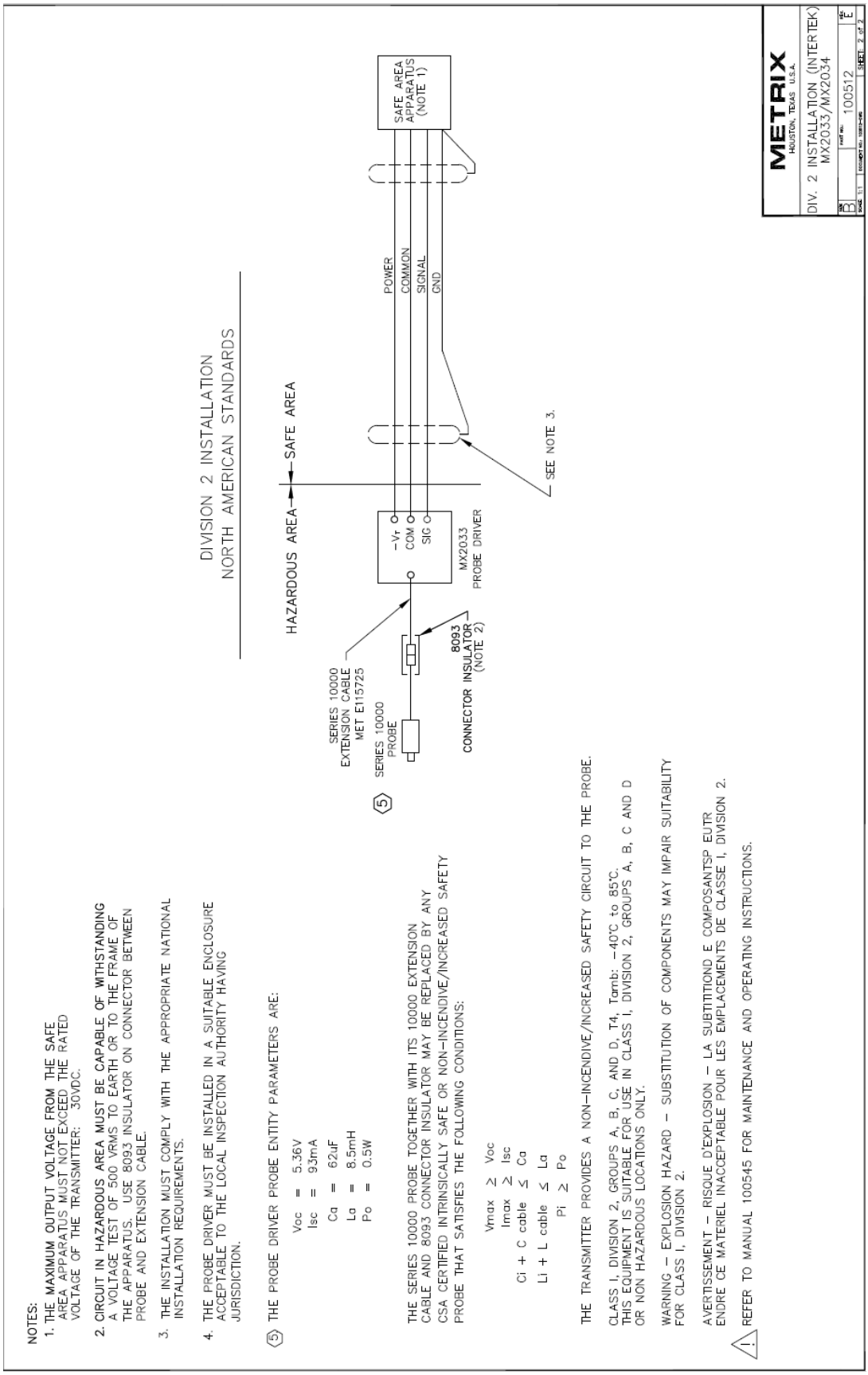
⚠ REFER TO MANUAL 100545 FOR MAINTENANCE AND OPERATING INSTRUCTIONS.

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

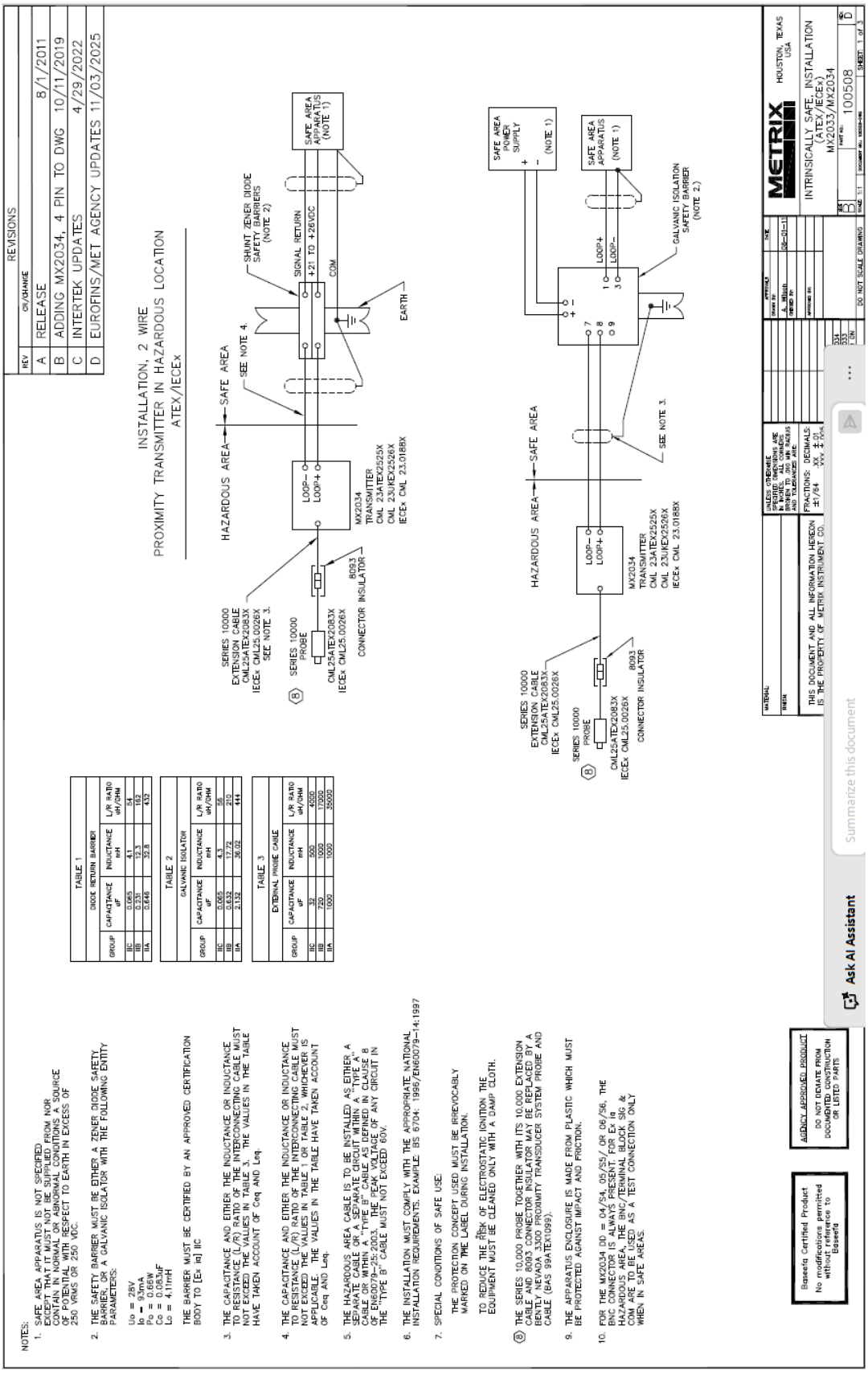
8. MX2034 Division 2 Wiring, North America



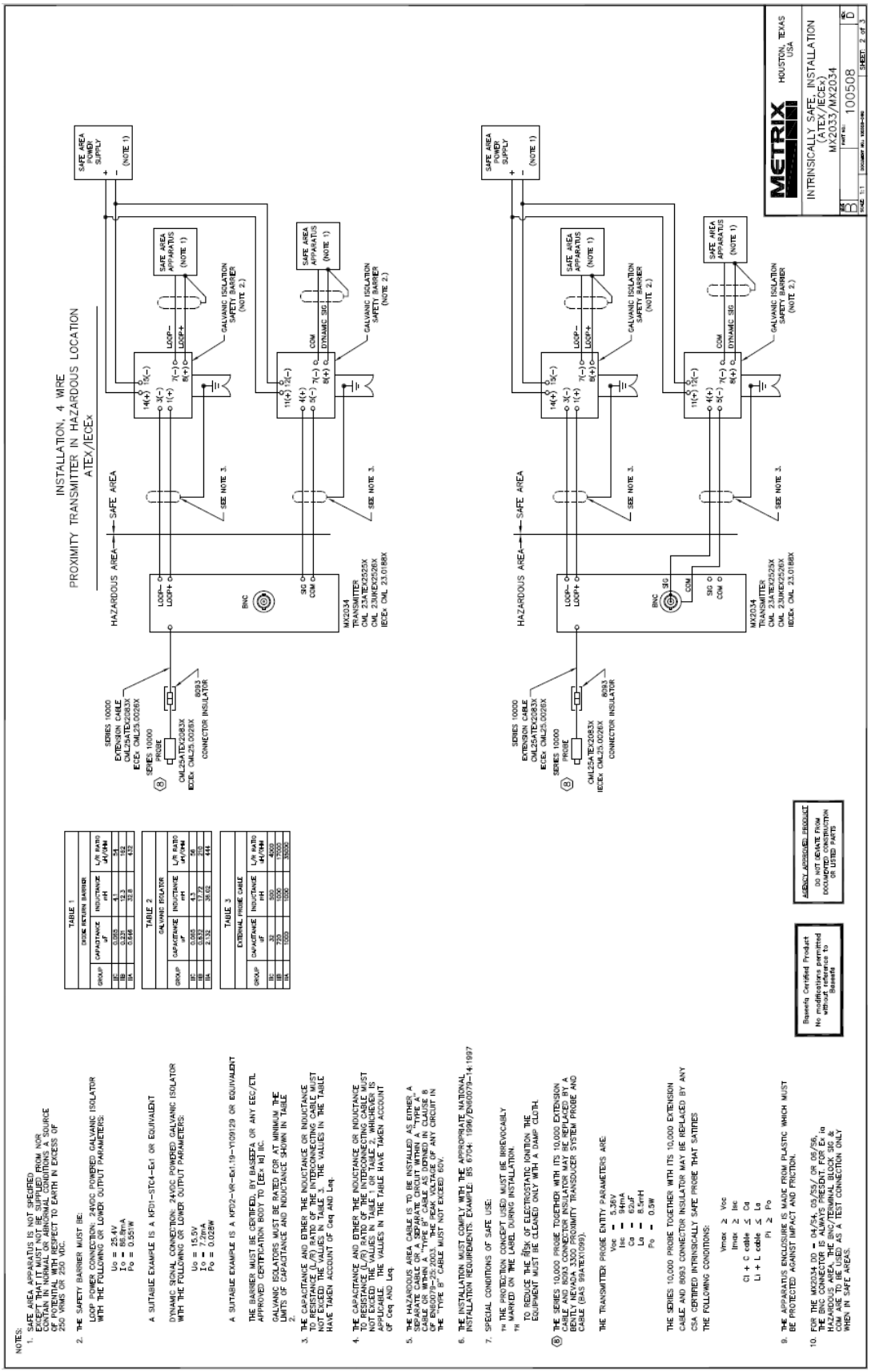
9. MX2033 Division 2 Wiring, North America



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



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



NOTES:

1. SAFE AREA APPARATUS IS NOT SPECIFIED.
   SUCH APPARATUS MUST BE SELECTED FROM NOR-
   MALLY AVAILABLE APPARATUS, SUITABLE FOR THE
   CONDITIONS AT THE INSTALLATION AND CAPABLE
   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:

   Uo = 25.4V
   Io = 86.8mA
   Po = 0.551W

   A SUITABLE EXAMPLE IS A MTL7051-SMC-Ex1 OR EQUIVALENT

   DYNAMIC SIGNAL CONNECTION: 24VDC POWERED GALVANIC ISOLATOR
   WITH THE FOLLOWING OR LOWER OUTPUT PARAMETERS:

   Uo = 15.5V
   Io = 7.7mA
   Po = 0.029W

   A SUITABLE EXAMPLE IS A MTL7051-SMC-Ex1 OR EQUIVALENT

   THE BARRIER MUST BE CERTIFIED BY BASEEFA OR ANY EEC/ETL
   APPROVED CERTIFICATION BODY TO [EEx 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 Ccaj AND Laj.

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 FOR THE GROUP WHICH IS
   APPLICABLE. THE VALUES IN THE TABLE HAVE TAKEN ACCOUNT
   OF Ccaj AND Laj.

5. THE HAZARDOUS AREA CABLE IS TO BE INSTALLED AS EITHER A
   SEPARATE CABLE OR CABLE ASSEMBLY WITHIN A "TYPE A" CABLE OR WITHIN A "TYPE B" CABLE AS DEFINED IN CLAUSE 8
   OF EN50039—29.2003. 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: 1986/EN60079—14:1997

7. SPECIAL CONDITIONS OF SAFE USE:

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

   (2) 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 ANY
   BENTLY NEVADA 3300 PROXIMITY TRANSDUCER SYSTEM PROBE AND
   CABLE (BAS 99ATEX1099).

   THE TRANSMITTER PROBE ENTITY PARAMETERS ARE:

   Voc = 5.36V
   Isc = 94mA
   Ca = 65nF
   La = 8.5μH
   Po = 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:

   Vmax ≥ Voc
   Imax ≥ Isc
   Ci + C cable ≤ Ca
   Li + L cable ≤ La
   Pi ≥ Po

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

10. FOR THE MX2034 100 = 04/54, 05/55/ OR 06/56,
    THE BNC CONNECTOR IS CONSIDERED AS APL 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

GROUP	CAPACITANCE uF	INDUCTANCE mH	L/R RATIO uH/ohm
IIC	0.085	4.1	7.9
IIB	0.425	12.3	102
IIA	0.646	30.8	435

TABLE 2

GROUP	CAPACITANCE uF	INDUCTANCE mH	L/R RATIO uH/ohm
IIC	0.085	4.3	56
IIB	0.532	17.72	203
IIA	2.132	36.62	444

TABLE 3

GROUP	CAPACITANCE uF	INDUCTANCE mH	L/R RATIO uH/ohm
IIC	37	370	4930
IIB	293	1050	17600
IIA	1060	1050	35000

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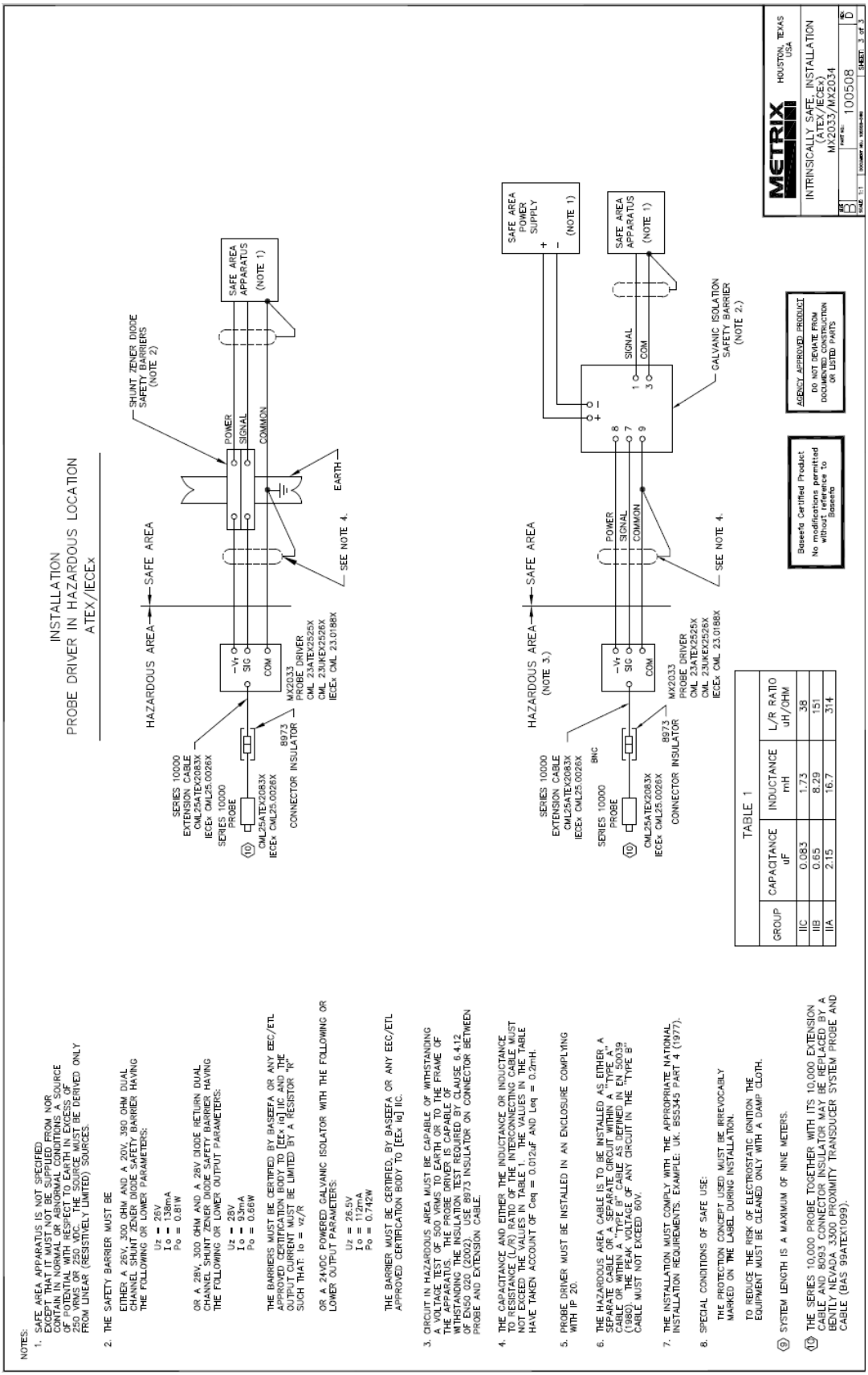
AGENCY APPROVED PRODUCT
DO NOT DEVIATE FROM DOCUMENTED CONSTRUCTION OR USED PARTS

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



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 28V, 300 OHM AND A 20V, 390 OHM DUAL CHANNEL SHUNT ZENER DIODE SAFETY BARRIER HAVING THE FOLLOWING OR LOWER PARAMETERS:

   U_z = 28V
   I_o = 138mA
   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:

   U_z = 28V
   I_o = 93mA
   P_o = 0.66W

   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:

   U_z = 26.5V
   I_o = 112mA
   P_o = 0.742W

   THE BARRIER MUST BE CERTIFIED, BY BASEEFA OR ANY EEC/ETL APPROVED CERTIFICATION BODY TO [EEx ia] 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 Ceq = 0.012uF AND Leq = 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 AS A TYPE A, TYPE B OR TYPE C MINERAL INSULATED CABLE TO BS6207 PART 1 (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:

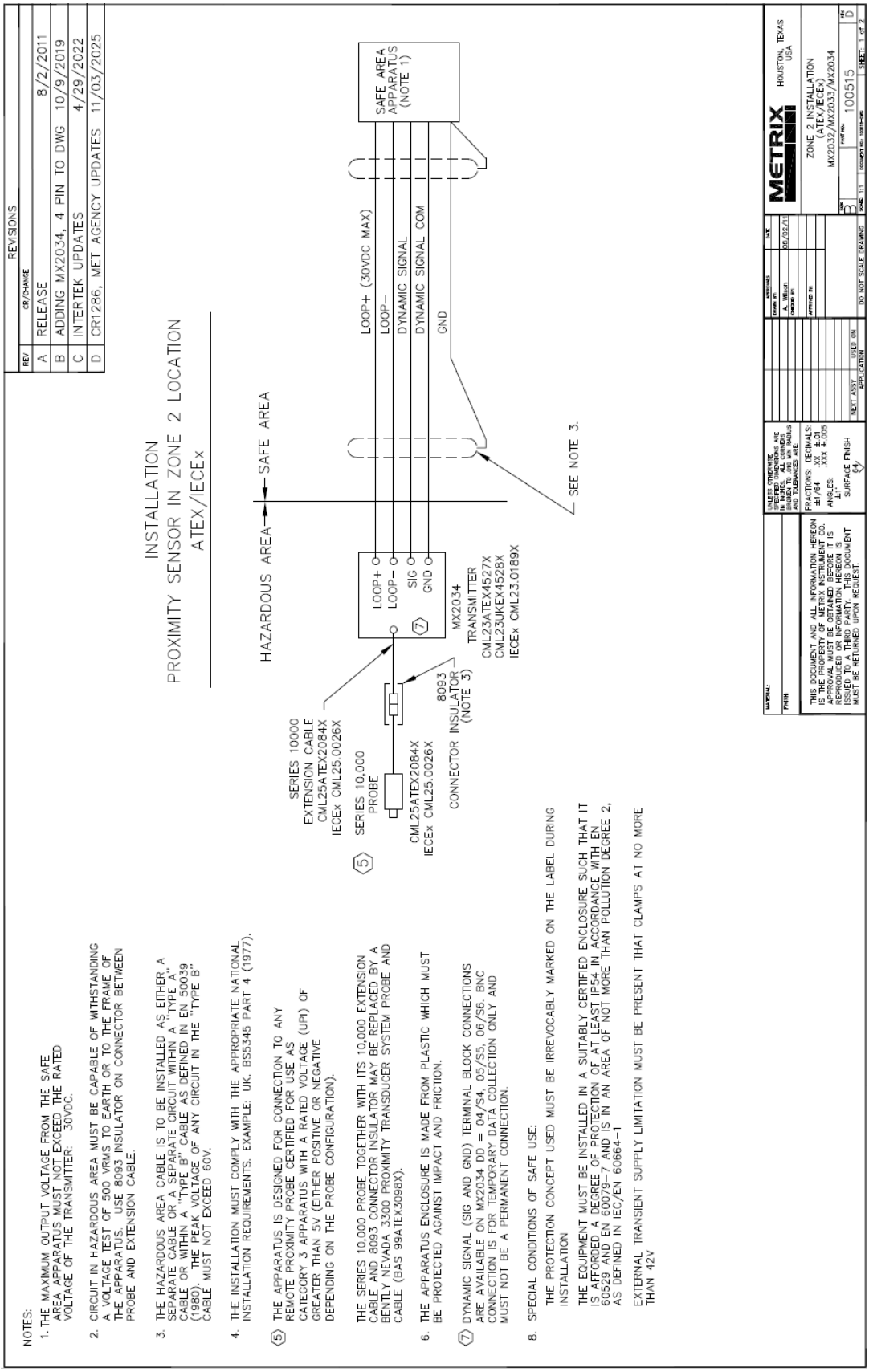
   THE PROTECTION CONCEPT USED MUST BE IRREVOCABLY MARKED ON THE LABEL DURING INSTALLATION.

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

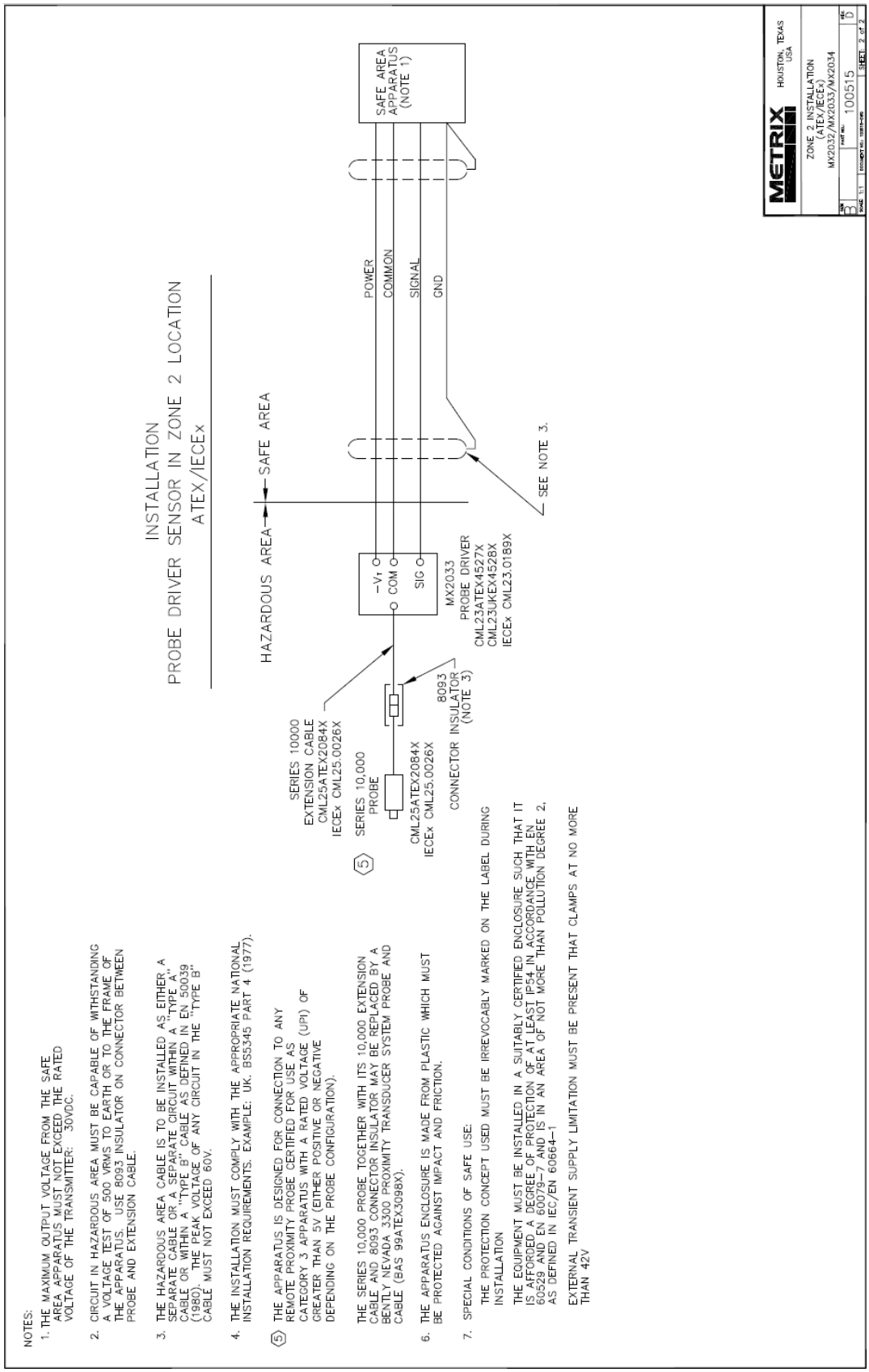
⑨ SYSTEM LENGTH IS A MAXIMUM OF NINE METERS.

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).

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



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



15. Buffered Output Connections

There are connectors provided for access to the dynamic voltage output on the MX2034. On the MX2034 this is the BNC connector. 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. Specific conditions of safe use (special conditions):

MX2033 and MX2034:

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 shall be completely installed within a suitably certified enclosure such that it is afforded a degree of protection of at least IP54 in accordance with EN 60529 and IEC/EN 60079-7 and is in an area of not more than pollution degree 2, as defined in IEC/EN 60664-1. All cable entries shall be suitably certified and have a minimum ingress protection of IP54 and shall have a service temperature range of at least -40°C to +93°C.
- 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.

10,000 Series Probe and Cable:

The following conditions relate to safe installation and/or use of the equipment.

- The Series 10,000 Probe shall be located in an area of not more than pollution degree 2, as defined in IEC 60664-1. Additionally, the connector shall be afforded a degree of ingress protection of at least IP54 in accordance with IEC 60529 when installed.
- Provision shall be made external to the Series 10,000 Probe, to ensure that the rated input is not exceeded by more than 40%.
- When the equipment incorporates a Teflon coating for the 5497PM Probe Mounting System it is considered to be potential electrostatic charging hazard. As such, the user shall minimize the risk of electrostatic discharge using methods listed in the manufacturer's instructions as per EN IEC 60079-0:2018 / IEC 60079-0:2017 Ed. 7 clause 7.4.2. Additionally, the surface shall only be cleaned with a damp cloth.

18. Hazardous Area Approvals

NRTL Approval (North America): 	NRTL Markings: E115725 Intrinsically Safe/Increased Safety Class I, Zone 0, AEx ia IIC T4 Ga Class I, Division 1, Groups A, B, C, D, T4 Class I, Zone 2, AEx ec IIC T4 Gc Class I, Division 2, Groups A, B, C, D, T4 Temp Code T4 (–40°C ≤ Ta ≤ +85°C)	UL/CSA Standards: UL 121201 / CSA C22.2 #213-17 UL 913 / CAN / CSA C22.2 #157-92 UL 61010-1 / CSA C22.2 #61010-1-12 UL 508	Intrinsically safe: when installed as per dwg 100506 Increased Safety: Field wiring to transmitter must comply with local code. Refer to installation dwg 100512.
IECEx Approval (World): 	IEC Markings: MX2033 and MX2034: Ex ia IIC T4 Ga Ta (–40°C ≤ Ta ≤ +85°C) IECEx CML 23.0188X Ex ec IIC T4 Gc Ta (–40°C ≤ Ta ≤ +85°C) IECEx CML 23.0189X 10,000 Series Probe and Cable: Ex ia/ec IIC T4 Ga Ta (–40°C ≤ Ta ≤ +105°C) – PVC Jacket Option Ta (–40°C ≤ Ta ≤ +110°C) IECEx CML 25.0026X Ex ia/ec IIC T3 Ga Ta (–40°C ≤ Ta ≤ +177°C) IECEx CML 25.0026X	IEC Standards: IEC60079-0:2017 IEC60079-11:2011 IEC60079-7:2017	CAUTION: Intrinsically safe: Only resistively limited sources are allowed. Electrostatic hazard – clean only with damp cloth. CAUTION: Increased Safety: Do not separate when energized.

ATEX/UKEX Approval (Europe): 	ATEX Markings: MX2033 and MX2034: Ⓔx II 1 G Ex ia IIC T4 Ga Ta (–40°C ≤ Ta ≤ +85°C) CML23ATEX2525X CML23UKEX2526X Ⓔx II 3 G Ex e IIC T4 Gc Ta (–40°C ≤ Ta ≤ +85°C) CML23ATEX4527X CML23UKEX4528X 10,000 Series Probe and Cable: Ⓔx II 1 G Ex ia IIC T4 Ga Ta (–40°C ≤ Ta ≤ +105°C) – PVC Jacket Option Ta (–40°C ≤ Ta ≤ +110°C) CML 25ATEX2083X Ⓔx II 1 G Ex ia IIC T3 Ga Ta (–40°C ≤ Ta ≤ +177°C) CML 25ATEX2083X Ⓔx II 3 G Ex ec IIC T4 Ga Ta (–40°C ≤ Ta ≤ +105°C) – PVC Jacket Option Ta (–40°C ≤ Ta ≤ +110°C) CML 25ATEX2084X Ⓔx II 3 G Ex ec IIC T3 Ga Ta (–40°C ≤ Ta ≤ +177°C) CML 25ATEX2084X	EN Standards: EN60079-0:2018 EN60079-11:2012 EN60079-7:2015+A1:2018	CAUTION: Intrinsically safe: Only resistively limited sources are allowed. Electrostatic hazard – clean only with damp cloth. CAUTION: Increased Safety: Do not separate when energized.

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