ABB S.p.A

REV.	MODIFICATION	E	DATE	APPROVED
1	ADDED SHEET FOR CL1 DIV2		12/11/2021	

FIRST ISSUED FOR:

APPLICATION WITH AND WITHOUT HMI

PXX100 Pressure Transmitter Intrinsically safe

Vmax = 30 Vdc	Ui = 30 Vdc
Imax = 100 mA	Ii = 100 mA
Pmax = 1W	Pi = 1W
Ci = 3,7 nF	Ci = 3,7 nF
Li = 0 uH	Li = 0 uH

APPLICATION WITH AND WITHOUT HMI

Protection concepts	Process temperature	Max. Amb. Temp.
Ex ia IIC T4 Class I Zone 0 AEx ia IIC T4 CL I, Div 1 Gr A, B, C, D T4	≤ 120°C	85°C
Ex ia IIIC T135°C	≤ 85°C	85°C
Zone 20/21 AEx ia IIIC T135°C CL II, Div 1 Gr E, F, G 120°C	>85°C ≤120°C	75°C

Entity concept

Equipment which is CSA approved for intrinsic safety may be connected to barriers based on the ENTITY CONCEPT. This concept permit interconnection of approved transmitters, meters and other devices in combinations which have not been specifically examined by CSA, provided that the agency's criteria are met. The combination is then intrinsically safe if the entity concept is acceptable to the authority having jurisdiction over the installation.

The entity concept criteria are as follows:
The intrinsically safe devices, other than barriers, must not be source of power.

The maximum voltage (Vmax or Ui) and current (Imax or Ii), and power (Pmax or Pi) which the device can receive and remain intrinsically safe, must be equal or greater than the voltage (Voc or Vt or Uo) and current (Isc or It or Io) and power (Po) which can be delivered by the barrier.

The sum of the maximum unprotected capacitance (Ci) for each intrinsically device and the interconnecting wiring must be less than the capacitance (Ca or Co) which can be safely connected to the barrier.

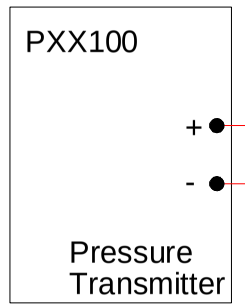
The sum of the maximum unprotected inductance (Li) for each intrinsically safe device and the interconnecting wiring must be less than the inductance (La or Lo) which can be safely connected to the barrier..

The max entity parameters of PXX100 are indicated in this drawing

The entity parameters of barriers are provided by the barrier manufacturer.

HAZARDOUS (CLASSIFIED) LOCATION

CL I, Div 1, Gr A, B, C, D T4
CL II, Div 1, Gr E, F, G, 120°C
CL I , Zone 0 AEx ia IIC T4 Ga / Ex ia IIC T4 Ga
Zone 20/21 AEx ia IIIC T135°C Da/Db / Ex ia IIIC T135°C Da/Db



For Cable see table

Table for cable	
T amb	Cable type in Hazloc
-40°C up to +75°C	Cables suitable for 85°C
-40°C up to +85°C	Cables suitable for 95°C

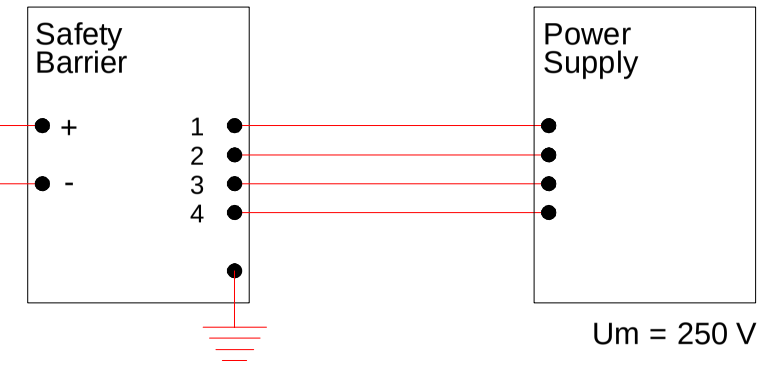
WARNING :
To prevent ignition of flammable atmosphere, disconnect power before servicing.

User repair is not permitted.
Substitution of components may impair intrinsic safety.

Installation shall be in according with:

- ISA RP 12.06.01
- National Electrical Code ANSI/NFPA 70
- Canadian Electrical Code Part 1
- Operating Manual OI/PGX/PAX100-EN Rev.C
  Free download from www.abb.com/measurement

UNCLASSIFIED LOCATION



Intrinsically safe galvanically isolated barrier or
Intrinsically safe earthed / grounded barrier

Voc = ≤ 30 Vdc	Uo = ≤ 30 Vdc
Isc = ≤ 100 mA	Io = ≤ 100 mA
Po = ≤ 1W	Po = ≤ 1W
Ca = ≥ Ccable + 3,7 nF	Co = ≥ Ccable + 3,7 nF
La = ≥ Lcable	Lo = ≥ Lcable
La/Ra = ≥ La/Racable	Lo/Ro = ≥ Lo/Rocable

The safety barrier shall be installed in according to the manufacturer's installation drawing,instruction and certificates

The resistance between the intrinsically safe ground and the earth ground must be less then 1 ohm.

Special conditions for use :

The SIL version of PXX100 pressure transmitter wich is identified by "NL" being included model designation is not capable of passing a 500V r.m.s. dielectric strength test in accordance to clause 10.3 of IEC60079-11:2011 between its Intrinsically safe circuit and its enclosure. This shall be considered in any equipment intrinsic safe installation.

The PXX100 with HMI option may either be marked for use in explosive gas atmospheres only, or be marked for use in both explosive gas atmosphere and explosive dust atmosphere. Therefore, when an HMI version of the PXX100 is to be installed in an explosive dust atmosphere the user / installer shall check the certification marking on the equipment to confirm its suitability for installation in an explosive dust atmosphere.

When a PXX100 with HMI option is for use in an explosive dust atmosphere, the installation shall be such that the window of the equipment shall not exposed to a high risk of mechanical danger.

DATE 21-Apr-2020
SCALE

TITLE
PXX100
CONTROL DRAWING DH3275
Intrinsically safe

DRAWING N° DH3275
SHEET 1 of 2

ABB S.p.A
Tremezzina - CO - Italy

REV.	MODIFICATION	E	DATE	APPROVED
1	ADDED SHEET FOR CL1 DIV2		12/11/2021	

FIRST ISSUED FOR:

APPLICATION WITH AND WITHOUT HMI

PXX100 Pressure Transmitter Non Incendive NIFW

Vmax = 30 Vdc	Ui = 30 Vdc
Ci = 3,7 nF	Ci = 3,7 nF
Li = 0 uH	Li = 0 uH

APPLICATION WITH AND WITHOUT HMI

Protection concepts	Process temperature	Max. Amb. Temp.
CL I, Div 2 Gr A, B, C, D T4	≤ 120°C	85°C

INSTALLATION ACCORDING TO NON-INCENDIVE FIELD WIRING CONCEPT

HAZARDOUS (CLASSIFIED) LOCATION
CL I, Div 2, Gr A, B, C, D T4

UNCLASSIFIED LOCATION

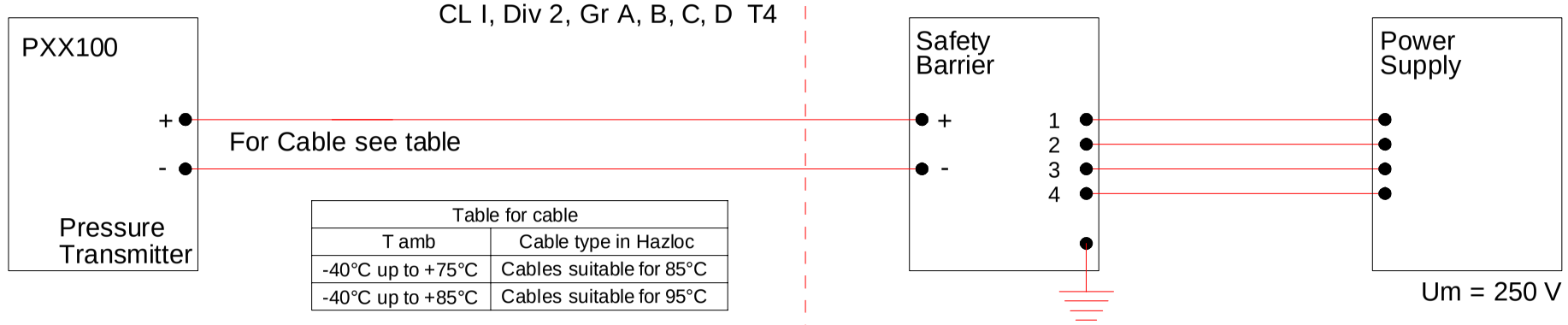


Table for cable	
T amb	Cable type in Hazloc
-40°C up to +75°C	Cables suitable for 85°C
-40°C up to +85°C	Cables suitable for 95°C

ANIFW galvanically isolated barrier or
ANIFW earthed / grounded barrier

Um = 250 V	Um = 250 V
Uo = ≤ 30 Vdc	Voc = ≤ 30 Vdc
Co = ≥ Ccable + 3,7 nF	Ca = ≥ Ccable + 3,7 nF
Lo = ≥ Lcable	La = ≥ Lcable
Lo/Ro = ≥ Lo/Rocable	La/Ra = ≥ La/Racable

The safety barrier shall be installed in according to the manufacturer's installation drawing,instruction and certificates

NON-INCENDIVE FIELD WIRING CONCEPT :

The Non-incendive Field Wiring concept is very similar to the entity concept except it allowes devices approved with Non-incendive Component Field Wiring parameters to be installed in Class I Division 2 hazardous locations when connected to appropriated sources of power provided that the appropriated criteria are met.
The combination is then safe if the concept is acceptable to the authority having jurisdiction over installation.
The criteria are as follows: There must be one source of power. The source may be an intrinsic safety barrier or it may be a device marked with Non-incendive Field Wiring parameters suitable for connection to non-incendive circuit components located in Division 2 hazardous locations.The maximum voltage (Vmax or Ui) and current (Imax or Ii), which the device can receive and remain non-incendive, must be equal to or greater than the voltage (Voc or Vt or Uo) and current (Isc or It or Io) which can be delivered by the source of power.The sum of the maximum unprotected capacitance (Ci) for each device and the interconnecting wiring must be less than the capacitance (Ca or Co) which can be safely connected to the source of power.The sum of the maximum unprotected inductance (Li) for each device and the interconnecting wiring must be less than the inductance (La or Lo) which can be safely connected to the source of power. The Non-incendive Field Wiring parameters Vmax or Ui, Imax or Ii, Ci, and Li for the PXX100 transmitter are listed before.The parameters Voc or Uo, Isc or Io, Ca or Co and La or Lo for the source of power are provided by the manufacturer of that equipment.

WARNING :
To prevent ignition of flammable atmosphere, disconnect power before servicing.

User repair is not permitted.

Substitution of components may impair non incendive. method of protection.

Installation shall be in according with:

- ISA RP 12.06.01
- National Electrical Code ANSI/NFPA 70
- Canadian Electrical Code Part 1
- Operating Manual OI/PGX/PAX100-EN Rev.C
  Free download from www.abb.com/measurement

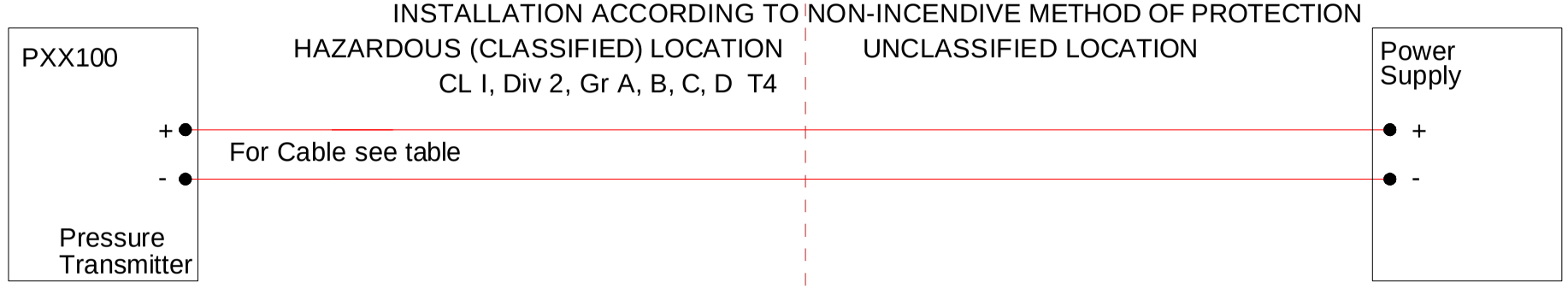
GENERAL NOTES FOR NON-INCENDIVE LOOPS :

- WARNING EXPLOSION HAZARD SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I DIVISION 2.
- TRANSMITTERS GROUND MUST BE AT SAME POTENTIAL AS BARRIER GROUND.

INSTALLATION ACCORDING TO NON-INCENDIVE METHOD OF PROTECTION

HAZARDOUS (CLASSIFIED) LOCATION
CL I, Div 2, Gr A, B, C, D T4

UNCLASSIFIED LOCATION



Power Supply ANIFW

Co = ≥ Ccable + 3,7 nF	Ca = ≥ Ccable + 3,7 nF	Uo = ≤ 30 Vdc
Lo = ≥ Lcable	La = ≥ Lcable	Voc = ≤ 30 Vdc
Lo/Ro = ≥ Lo/Rocable	La/Ra = ≥ La/Racable	

Special conditions for use :

The PXX100 with HMI option may either be marked for use in explosive gas atmospheres only, or be marked for use in both explosive gas atmosphere and explosive dust atmosphere.
Therefore, when an HMI version of the PXX100 is to be installed in an explosive dust atmosphere the user / installer shall check the certification marking on the equipment to confirm its suitability for installation in an explosive dust atmosphere.

When a PXX100 with HMI option is for use in an explosive dust atmosphere, the installation shall be such that the window of the equipment shall not exposed to a high risk of mechanical danger.

	DATE 21-Apr-2020 SCALE	TITLE PXX100 CONTROL DRAWING DH3275 NON Incendive CL1 Div2 NIFW	DRAWING N° DH3275 SHEET 2 of 2 ABB S.p.A Tremezzina - CO - Italy