SAFE INSTALLATION MANUAL (FM APPROVAL)

2-WIRE UNIVERSAL TEMPERATURE TRANSMITTER
(HART communication, intrinsically safe)

MODEL **B3HU**

BEFORE USE ....

■ SAFETY PRECAUTIONS

This manual describes important points of caution for safe use of this product in potentially explosive atmosphere. Please read this manual carefully before installing and operating the product.

■ MODEL NUMBER IDENTIFICATION

Model No. B3HU – 1

1) SAFETY APPROVAL
- 0 : None
- 1 : FM intrinsically safe

■ MANUFACTURED DATE CODE IDENTIFICATION

The manufactured year and month can be identified by the serial number described on the specification label.

Serial No. Y M xxxxxx

YEAR

V : 2008	1 : 2011
W : 2009	: :
X : 2010	9 : 2019

MONTH
- A : January
- B : February
- C : March
- : :
- L : December

⚠ WARNING

Explosions could result in death or serious injury:

- The housing cover must not be removed under any circumstances.
- Before you remove the unit or mount it, or before you connect or disconnect the wiring, turn off the power supply and the input signal for safety. Do not disconnect unless the area is known to be non-explosive.
- Whenever you need to measure voltage across the terminals or apply a simulated input signal to the terminals, make sure that there is no danger of explosion in the atmosphere.
- Before connecting a HART communicator in an explosive atmosphere, make sure the instruments in the loop are installed in accordance with intrinsically safe field wiring practices.
- Verify the certification of the product described on the specification label on the product.
- Verify that the operating atmosphere of the transmitter is consistent with the appropriate hazardous locations certifications.
- Verify that the environmental temperature is within the temperature class required for the area.

Failure to follow these installation guidelines could result in death or serious injury:

- Make sure only qualified personnel perform the installation.

⚠ SAFETY FEATURES & CAUTIONS

■ INTRINSICALLY SAFE APPROVAL

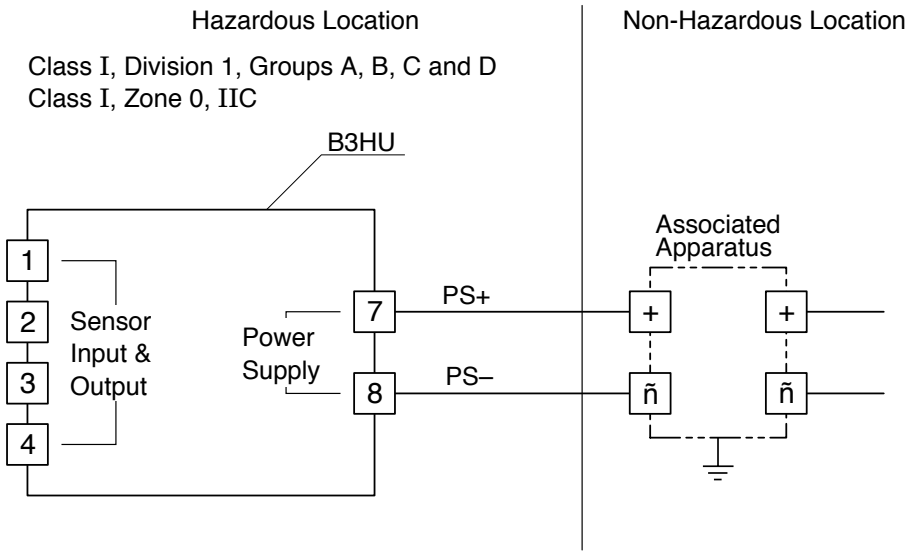
- FM
  Class I, Division 1, Groups A, B, C and D
  Class I, Zone 0, AEx ia IIC
- Entity Parameters

Ui (Vmax) = 30V DC	Uo (Voc) = 6.4V DC
Ii (Imax) = 96mA DC	Io (Isc) = 30mA DC
Pi (Pmax) = 720mW	Po = 48mW
Ci = 1 nF	Co (Ca) = 20 µF
Li = 0 mH	Lo (La) = 10 mH

- Prior to installation, check that the safety class of this unit satisfies the system requirements.
- A safety barrier must be installed between the unit and its power supply. Refer to "Installation Diagram" attached at the end of this manual when selecting a safety barrier.
- The power supply and the safety barrier must be located in a non-hazardous area.
- Environmental temperature must be within the following ranges depending upon the required temperature class.
  T4 : -40°C ≤ Ta ≤ +80°C
  T5 : -40°C ≤ Ta ≤ +55°C
- DO NOT RUB the surface of the plastic enclosure with a dry cloth. Electrostatic charge generated by the friction may cause an explosion.
- The wiring method must be in accordance with the electrical parameters described in this manual.
- Substitution of components may impair suitability for the hazardous location and may cause an explosion.
- When metal particles are present in the air, install the model B3HU inside an enclosure with proper ventilation.
- For installing the B3HU in an environment with a high relative humidity exceeding 0 to 95% RH or in a condensing atmosphere, install the unit inside an appropriate enclosure.

INSTALLATION DIAGRAM for FM INTRINSICALLY SAFE MODEL

DOC NO. 20089-81-NC



Entity Parameters

Power Supply (7 and 8)	Sensor Circuit (1 to 4)
Maximum Input Voltage Ui (Vmax): 30V	Maximum Output Voltage Uo (Voc): 6.4V
Maximum Input Current Ii (Imax): 96mA	Maximum Output Current Io (Isc): 30mA
Maximum Input Power Pi (Pmax): 0.72W	Maximum Output Power Po: 48mW
Maximum Internal Capacitance Ci: 1nF	Maximum External Capacitance Co (Ca): 20μF
Maximum Internal Inductance Li: 0mH	Maximum External Inductance Lo (La): 10mH

For the sensor circuit, these entity parameters must be taken into account when installed.

Installation requirements between temperature transmitter and associated apparatus:

Uo or Voc ≤ Ui or Vmax Io or Isc ≤ Ii or Imax Po ≤ Pi or Pmax

Ca ≥ Ci + Ccable La ≥ Li + Lcable

Uo, Voc, Io, Isc, Po, Pmax, Ca and La are parameters of the associated apparatus.

NOTES

1. The associated apparatus must be approved by FM.
2. Input voltage of associated apparatus must be less than 250 Vrms/V dc.
3. Installation should be in accordance with ANSI/ISA-RP12.06.01 “Recommended Practice for Wiring Methods for Hazardous (Classified) Locations Instrumentation Part 1: Intrinsic Safety” and the National Electrical Code (ANSI/NFPA 70).
4. The intrinsically safe sensor connected to sensor circuit of the B3HU must be approved by FM or simple apparatus. (a device which will neither generate nor store more than 1.2 V, 0.1 A, 25 mW or 20 mJ, e.g. thermocouples or RTDs)