

# REOTEMP

## INSTRUMENTS

# PRESSURE & LEVEL TRANSMITTERS

## TX MODEL

### (Intrinsically Safe)

## User Manual



It is important that these transmitters be installed, operated and maintained in accordance with all NEC and applicable codes. Also, these products may not be modified in any way. Failure to adhere to this requirement will void the IS approval rating.

Model TX comes standard with a polyurethane jacketed cable containing a strength member which allows it to support the transmitter without additional supports. Also, this cable has a vent tube which provides an ambient pressure reference. The end of the vent tube should be protected from moisture. If moisture finds its way into the transmitter electronics it could adversely affect the performance of the product.

For some applications the use of a gortex filter inserted into the end of the vent tube will be adequate. In more humid conditions a desiccant cartridge plugged into the end of the vent tube is recommended. A teflon jacketed cable is available for applications that are not compatible with the standard polyurethane material.

Wiring of all the transmitters is based upon a 4 mA to 20 mA, 2-wire current loop. The DC power supply, transmitter and receiving instrumentation are wired in series. The transmitter controls the current in the loop which is directly proportionate to the measured pressure.

### Maintenance

REOTEMP Model TX transmitters require no maintenance. They are calibrated at the factory using pressure standards traceable to NIST. However, models TX have user accessible zero and span potentiometers located under the top cap. These are trimming adjustments with about  $\pm 10\%$  adjustment capability. Model TX is sealed and does not have any user accessible adjustments.

(Factory Mutual and Canadian Standards Association Approved)



### General

REOTEMP Model TX transmitters are approved for use in hazardous location applications as follows:

Intrinsically Safe, entity approval for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G; and Class I Zone 0 Aex ia IIC

Dust Ignition-proof for Class II and III, Division 1, Groups E, F and G

Non incandive for Class I, Division 2, Groups A, B, C and D

FMRC 3600, 3610, 3611, 3810 (including supplement #1), ISA-S12.0. 01, IEC 60529 (including amendment #1)

### Installation and Commissioning

Model TX pressure transmitter is connected to the pressure source using the the threaded stainless steel pressure port. Several pressure port sizes are available.

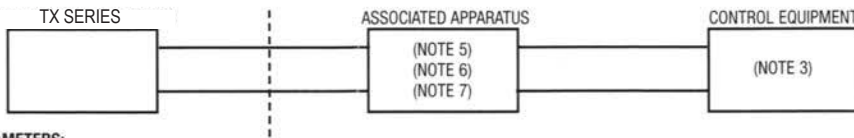
Model TX pressure transmitter incorporates a stainless steel (or optional material) diaphragm at the end of the pressure connection, providing a flush diaphragm configuration. It is connected to the pressure source

using the G1/2 B or G1 B threads directly or through the use of the available weld on adapters. Model TX is a submersible level transmitter and is suspended by the attached cable in a tank. The hydrostatic pressure produced by the liquid rising above the location of the level transmitter is directly related to the actual liquid level. Unless the metal body of the model TX is grounded directly in the mounting of the transmitter, the drain wire in the cable needs to be grounded to a suitable system ground. It is essential to do this for the built in noise protection to be effective.

### HAZARDOUS (CLASSIFIED) LOCATION

CLASS I, ZONE 0, GROUP IIC  
CLASS I, DIVISION I, GROUPS A, B, C, AND D  
CLASS I, DIVISION I, GROUPS E, F AND G  
CLASS I  
(NOTE 2)

### NON-HAZARDOUS LOCATION



### ENTITY PARAMETERS:

$V_{max} = 3D V$ ,  $I_{max} = 100 \text{ mA}$ ,  $P_1 = 1 \text{ W}$

$C_i = 22 \text{ nF}$  (FLYING LEADS:  $+ 0.2 \text{ nF/m}$ ).  $L_i = 0.1 \text{ mH}$  (FLYING LEADS:  $+ 2 \text{ nH/m}$ )

### NOTES:

- THE INTRINSIC SAFETY ENTITY CONCEPT ALLOWS THE INTERCONNECTION OF TWO FM APPROVED INTRINSICALLY SAFE DEVICES WITH ENTITY PARAMETERS NOT SPECIFICALLY EXAMINED IN COMBINATION AS A SYSTEM WHEN:  $U_o \text{ OR } V_{oc} \text{ OR } V_1 \leq V_{max}$ ,  $I_o \text{ OR } 1 \text{sc OR } 1t \leq I_{max}$ ,  $C_a \text{ OR } C_o \geq C_i$ ;  $+ C_{cable}$ ,  $L_a \text{ OR } L_o \geq L_i + L_{cable}$ ,  $P_o \leq P_i$
- DUST-TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS
- CONTROL EQUIPMENT CONNECTED TO THE ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN 250  $V_{rms}$  OR  $V_{dc}$
- INSTALLATION SHOULD BE IN ACCORDANCE WITH ANSI / ISA RP12.6 "INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS AND THE NATIONAL ELECTRICAL CODE  $\theta$  (ANSI 1 / NFPA70) SECTIONS 5D4 AND 505
- THE CONFIGURATION OF ASSOCIATED APPARATUS MUST BE FACTORY MUTUAL APPROVED UNDER ENTITY CONCEPT
- ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT
- The TX SERIES ARE APPROVED FOR CLASS I, ZONE 0 APPLICATIONS. IF CONNECTING AE x [ib] ASSOCIATED APPARATUS OR AE x [ib] I.S. APPARATUS TO THE TX SERIES THE I.S. CIRCUIT IS ONLY SUITABLE FOR CLASS I, ZONE 1 OR CLASS I, ZONE 2 AND IS NOT SUITABLE FOR CLASS I, ZONE 0 OR CLASS I, DIVISION I HAZARDOUS (CLASSIFIED) LOCATIONS
- NO REVISION TO DRAWING WITHOUT PRIOR FACTORY MUTUAL RESEARCH APPROVAL

### 4 mA to 20 mA 2-WIRE SYSTEM

	Hirschmann	Cable	M12	Bendix	Internal Junction Box
+Supply	1	Red/Brown	1	A	1
+Output	2	Black/Green	3	B	2

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