

## Introduction

**WARNING** means that failure to observe the necessary precautions can result in death, serious injury, and/or considerable material damage.

**Note** means important information about the product or that part of the operating manual.

The TS-3 Temperature Sensor provides a current source input for corresponding temperature compensation circuitry of specific Milltronics ultrasonic level-measurement devices. Temperature compensation is essential in applications where variation in temperature of the sound medium is expected.

The TS-3 is used in conjunction with ultrasonic transducers that do not have an integral temperature sensor. It is also used in instances where the use of the integral temperature sensor (specific to some transducer models) is restricted.

By installing the temperature sensor in close proximity to the sound path of the associated ultrasonic transducer, a signal representative of the sound medium's ambient temperature is obtained.

### Typical applications for the TS-3 are:

- where faster temperature response is required,
- where a flanged transducer is used
- where high temperatures are encountered.

### Notes:

- The sensor should not be mounted in direct sunlight.
- The TS-3 is not compatible with products using the TS-2 or LTS-1 temperature sensors.
- Refer to the associated transceiver manual for usage compatibility.

## General Guidelines

**WARNING:** This product is designated as a Pressure Accessory per Directive 97/23/EC and is not intended for use in pressure applications.

The equipment may be used in all hazardous areas with all gases with temperature classes T1, T2, and T3, and is only certified for use in ambient temperatures in the range of -40°C to 145°C and should not be used outside this temperature range.

- Installation shall be carried out in accordance with the applicable code of practice, and by suitably trained personnel.
- These devices should only be supplied from a circuit containing a suitably-rated fuse that has a breaking

capacity of 4000A. This fuse is included in Milltronics' transceivers. The apparatus shall be installed in an enclosure or conduit pipe which ensures that the cable and bushing is protected from mechanical damage and light

- Repair of this equipment shall be carried out in accordance with the applicable code of practice.
- The certification of the TS-3 transducers relies upon the following materials used in its construction:

Enclosure: Tefzel  
Encapsulant: Durapot 861A and Stycast 1090SI

Manual override can be accomplished by using the disconnect switch provided in the building installation of the associated controller.

**WARNING:** Improper installation may result in loss of process pressure.

## Specifications

### Range

- -40 to 145 °C (-40 to 293 °F)

### Response (63% Δt)

- 55 sec, forced air
- 90 sec, flanged, forced air
- 150 sec, natural convection

### Pressure

- 400 kPa (4 bar or 60 psi) max above atmosphere

### Construction

- Tefzel<sup>®1</sup> body
- 2 conductor 20 AWG (7 x 28), foil shield with drain wire, silicone jacket
- ¼" NPT or ¼" BSP mounting and conduit threads
- totally encapsulated

### Approvals

- CE<sup>2</sup>, FM, CSA, CENELEC
- see nameplate or consult Milltronics for current approvals

## Maintenance

When performance changes are observed, shut down the system and promptly inspect the complete system including the transducer.

<sup>1</sup> Tefzel<sup>®</sup> is registered trade marks of DuPont. It is a fluoropolymer inert to most chemicals. For exposure to specific environments, check with chemical compatibility charts before installing the TS-3 in your application.

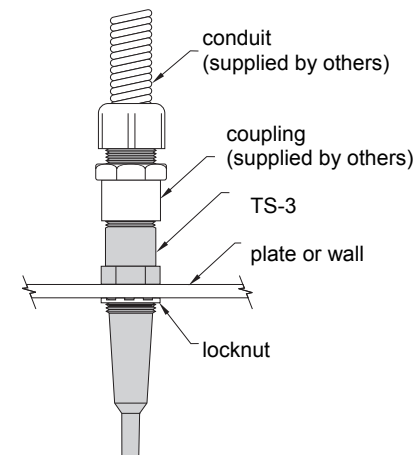
<sup>2</sup> EMC performance available upon request.

**WARNING:** Never attempt to loosen, remove, or disassemble process connection or instrument housing while vessel contents are under pressure.

## Mounting

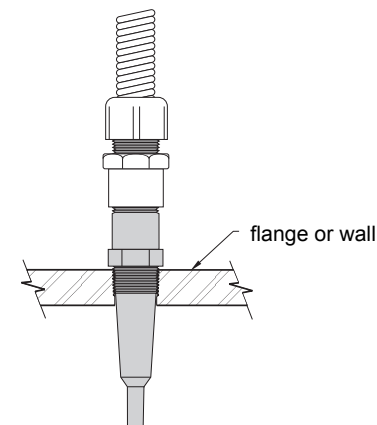
**Note:** For pressure tight applications, install temperature sensor hand tight plus 1 to 2 turns. Teflon<sup>®</sup> tape or other appropriate sealant may be used to aid in sealing the threads for use in pressure applications.

## Clearance



**WARNING:** DO NOT use the Locknut installation method in pressure applications.

## Tapped



<sup>®</sup> Teflon is a registered trademark of DuPont.

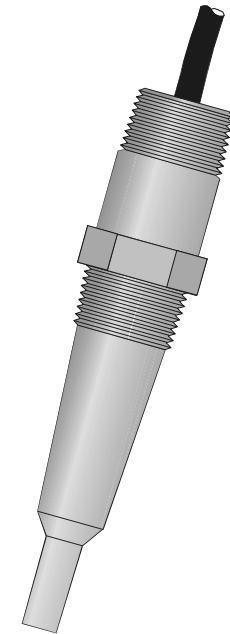
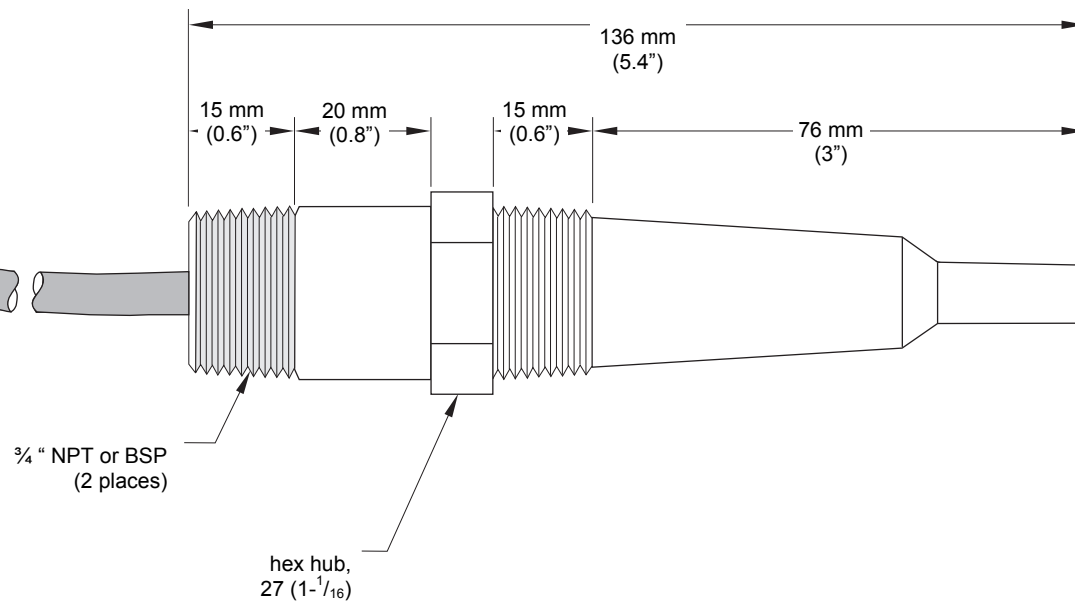
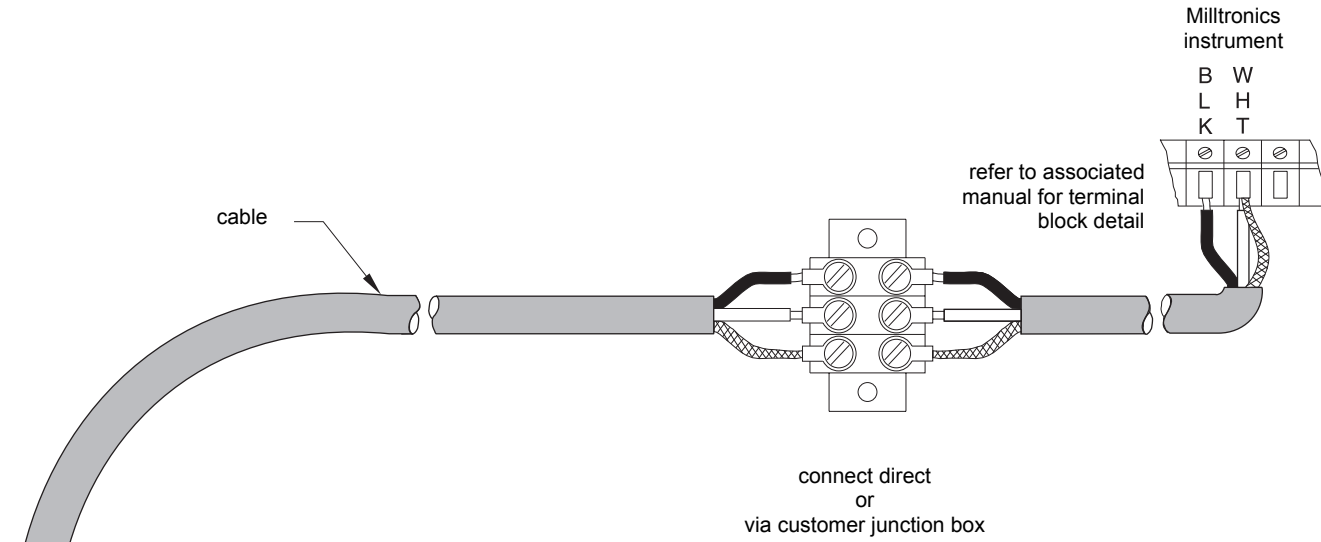
# Dimensions and Wiring

**MILLTRONICS**

## TS-3 TEMPERATURE SENSOR

Instruction Manual

May 2002



Rev. 1.1

TS-3 TEMPERATURE SENSOR