# VN2000 Flow Meters

## External RTD Probe

## DESCRIPTION

Resistance Temperature Detectors (RTDs) are temperature sensors that contain a resistor that changes resistance value as its temperature changes.

Through the use of an internal RTD, the flow meter software compensates for changes in temperature, to achieve an accurate mass flow measurement.

The VN2000 BTU meter configurations have one internal RTD built directly into the sensor probe and one external RTD probe to measure a temperature differential.

| | |
|---|---|
| BTU/Energy | Dual piezo vortex sensors<br>RTD embedded in sensor: 100 Ohm, 3 wire<br>External 100 Ohm RTD input |

The Badger Meter direct-insert, 100 Ω Platinum RTD probe cannot be inserted or removed without depressurizing the system.

*Figure 1: Direct insert RTD*

## Mounting Location

Mounting location depends on the system, but typically the temperature differential is measured across the supply and return sides of a heat exchanger.

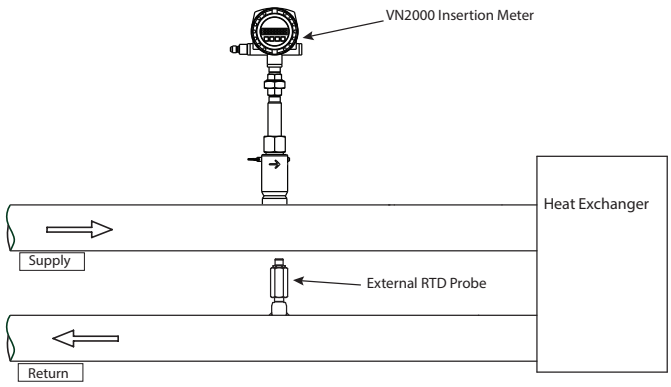


*Figure 2: Mounting location example*

## RTD INSTALLATION

1. Install the RTD probe via the customer-supplied 1/4 in. NPT port in the piping, in a pipe section that is always completely filled.
2. The RTD probe extends 2 in. from the bottom of the NPT threads. In smaller pipes, you may need to install the probe at a tee or in such a way that it does not bottom out on the pipe wall.
3. Use the supplied cable to connect the RTD probe to the transmitter. Standard length is 30 ft.

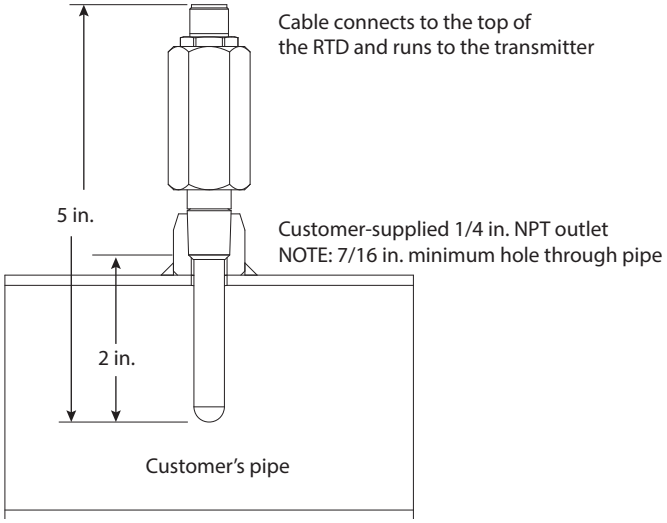


*Figure 3: RTD connection*

For connection and operation instructions for the VN2000 BTU/energy meter, see the user manual that ships with the meter.

Badger Meter

VRX-UM-02292-EN-02 (June 2022)

Installation Guide

**Control. Manage. Optimize.**

Trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2022 Badger Meter, Inc. All rights reserved.

**www.badgermeter.com**