Series 380 Btu Transmitter

Model RED Totalizing Display

DESCRIPTION

Series 380

The Series 380 BTU transmitters provide a low cost system for metering cold or hot systems. The Series 380 transmitters can accurately measure flow and temperature differential to compute energy. Using either BACnet or Modbus RS-485 communications protocols or a scaled pulse output, the BTU Meter can interface with many existing control systems.

Model RED

The Model RED display is a very simple two-wire device that increments a counter each time it receives a pulse. To extend battery life, the display only indicates a value for about 20 seconds when the round circle on the front panel is pressed. The same button is used to program the Model RED display by following the instructions shipped with the product.

Programming is very simple and involves entering a starting number and setting the decimal point. To make it compatible with the Series 380 transmitter, special wiring is required including the addition of a 1N4000 Series or similar device, like the diode across the pulse output terminals of the Series 380 transmitter. The 1N4001…N4007 Series all work equally well.

WIRING
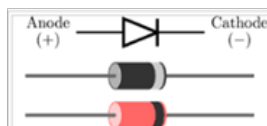
Banded end (cathode) of 1N4000 Series diode
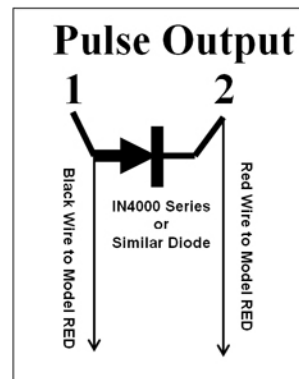
Application Data Sheet

PROGRAMMING

The Series 380 transmitter is configured using an A-301 programming kit, using Windows®-based software.

1. Determine if the pulse output is to represent Flow or Energy.
2. Select the unit of measure (Global for MODbus, BACnet, and Pulse out).
3. Set the pulse width to 50 mS (required by RED).
4. Set the Pulse Resolution.
5. Set the RED Decimal Point position.

The Model RED display is a seven-digit counter. The pulse resolution and units of measure must be selected so that the counter does not roll over too quickly but within a reasonable amount of time. If the counter is not to roll over in less than 10 years, the average count rate should not exceed 1 count every 30 seconds.

The display has no units of measure displayed, so a customer-provided units label is advised (such as BTU, kBtu, KWh, ton/hr, gallons and cubic feet).

The display is programmed using the button on the front panel. See the instructions shipped with the display. This information can also be found on *www.badgermeter.com*.

⚠ **WARNING**

WIRING MUST BE COMPLETED WITH THE DIODE IN PLACE BEFORE THE RED IS CONFIGURED OR AN "E" WILL APPEAR INDICATING A "WIRING ERROR." THAT MUST BE CLEARED BEFORE YOU CAN CONTINUE. SEE INSTALLATION SHEET FOR THE MODEL RED.

These instructions are for current production Model RED display units. Older versions are similar and wire exactly the same, however, the decimal point feature is not included and some of the programming steps are slightly different. Consult the instruction sheet shipped with the Model RED display for specific instructions for your version.

Programming Example

The Model RED display represents the energy total in kBtu, and the energy rate is expected to be in the range of a minimum of 1 kBtu per hour to a maximum of 100 kBtu per hour. If a resolution of 1 kBtu per pulse is selected, the counter increments at a maximum rate of 1 count every 36 seconds, which does not roll the counter before 11.4 years (which is preferable).

At the low end, the counter only increments once every 3600 seconds (1 count per hour).

If the system is not going to be operating at the peak rate, except for short periods, and a higher pulse rate is required, a selection of 0.1 kBtu per pulse is a better choice. This will still be only 1 count every 3.6 seconds at the maximum rate, which is still within the acceptable range of both the display and the transmitter.

Each time the transmitter sends a pulse representing 0.1 kBtu, the display increments the least significant digit by 1. So if a value of 000123.1 kBtu is displayed prior to receiving the pulse signal from the transmitter, the display advances to a value of 000123.2 kBtu.

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