

# ***MicroPulser 1000 & 1000M***



## ***Installation and Operation Manual***

***Precision Bi-Directional  
Volume Pulser for Gas Meters***

### **Warranty**

Microflex warrants this unit against defects in materials and workmanship for a period of one year from the date of shipment. Microflex will, at its option, repair or replace equipment that proves to be defective during the warranty period. This warranty includes parts and labor.

A Return Authorization (RA) number must be obtained from the factory and clearly marked on the outside of the package before equipment will be accepted for warranty work.

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To obtain a Return Authorization (RA) number required for all returns, phone (01) 1 281-855-9639 or write to:

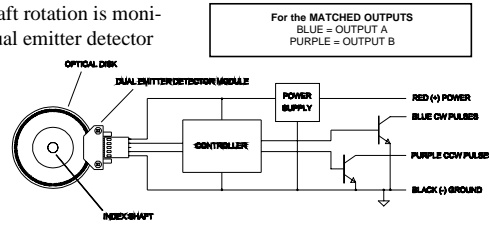
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16914 Blend Stone  
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**Microflex**

16914 Blend Stone - Houston, Texas 77084 - 281.855.9639 - Fax 281.463.2915 - [www.microflx.com](http://www.microflx.com)

## Operation Overview

MicroPulser translates the index drive rotation of gas meters into a pulse stream that is proportional to the measured flow rate. MicroPulser is a bi-directional pulser providing an output for clockwise and counterclockwise index rotation for the model 1000 and matched outputs for the 1000M. Index shaft rotation is monitored by a high resolution optical disk and a dual emitter detector module. The controller monitors two pulse streams from the dual detector module to determine shaft speed and direction. Using a True Absolute Rate error correction algorithm the controller removes false pulses due to shaft vibration and provides only true rate pulses to the appropriate output.



MicroPulser 1000 Block Diagram

## Installation

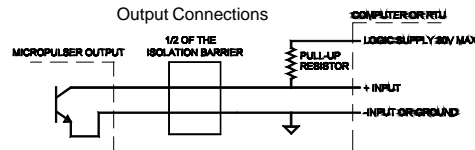
MicroPulser is installed between the meter and the vertical index. You may need additional hardware such as longer bolts or screws to mount the MicroPulser to the meter. Notice that the MicroPulser body is 2 inches thick. Depending on your installation this could add 2 inches to the length of the index mounting bolts.

The MicroPulser requires a dual channel isolation barrier installed per the barrier manufacturers specifications to maintain intrinsic safety. One channel is used to protect the MicroPulser power and the second channel is used for either the clockwise output or the counterclockwise output.

Refer to the MicroPulser FM I.S. Installation drawing for hazardous location installations.

## Using Open Collector Outputs

For increased flexibility the MicroPulser outputs are open collector. This allows the MicroPulser to be compatible with various input voltage level requirements. A pull-up resistor connected to the computer or RTU's power supply - powers the output to the desired voltage. To determine the resistor value for your installation, check the input requirements for your computer or RTU. The pull-up voltage, (*the power supply the resistor is connected to*), must be less than the maximum allowed voltage for the computer input. Usually the pull-up resistor is connected to the same power source used for the MicroPulser.



Note: Outputs share the same ground and are not isolated from each other. Use caution when connecting to separate pieces of equipment.

	2ma	4ma	8ma	16ma	20ma
5V	2.4K	1.2K	620	300	240
10V	5.1K	2.4K	1.2K	620	510
15V	7.5K	3.6K	1.8K	910	750
20V	10K	5.1K	2.4K	1.2K	1K
24V	12K	6.2K	3.0K	1.5K	1.2K

Pull-up resistor values in ohms

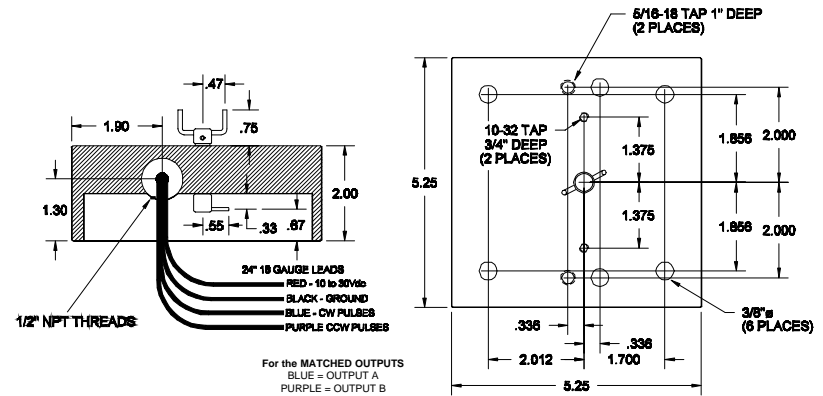
Some devices may already be configured for an open collector output and not require adding the pull-up resistor. Check the input specifications for the equipment that you are connecting to before attempting the MicroPulser installation.

## Specifications

Resolution ..... 1000 Pulses / Revolution  
 Operating Temperature Range ..... -40 to +65°C  
 Power Supply Voltage ..... +10 to +30Vdc  
 Power Supply Current ..... 20ma MAX  
 Outputs ..... Open Collector, +30V @ 50ma MAX  
 Maximum Shaft Speed ..... 50 RPM  
 Humidity ..... 100% relative humidity  
 Enclosure Rating ..... NEMA 3R

## Entity Parameters

Voc or Vt ≤ 30V  
 Isc or It ≤ 100ma  
 Ca ≤ Ccable + 0μF  
 La ≥ Lcable + 0mH



## Installation Notes

Notice that the spinner is not located in the center of the MicroPulser housing. Check the MicroPulser shaft alignment with the meter drive shaft carefully before installing.

Rotate the MicroPulser drive shaft so that the bottom drive pin will not hit the meter drive when the MicroPulser is set on the meter.

With the MicroPulser positioned on the meter - the top spinner should move freely without any binding or rubbing.

Remember that the shaft may need to rotate as far as 1/10th of a rotation (36 degrees) before pulses are produced on a new installation or rotation direction is reversed.

The gasket provided with the MicroPulser may not be required in all applications.