

ELECTRO•SENSORS

Superior • Systems • Solutions

Speed & Direction Indicator

Models TR400 & TR400-6

- Displays rate or time in process
- Easy installation and setup
- Completely field adjustable
- Single channel or quadrature decoding
- NEMA 4 faceplate
- Front panel reverse indication
- Optional 4-20mA output
- Optional relay outputs (2 or 6 available)
- 5-Year Limited warranty on speed switches, sensors & ratemeters*

* Contact factory for more information

Product Information

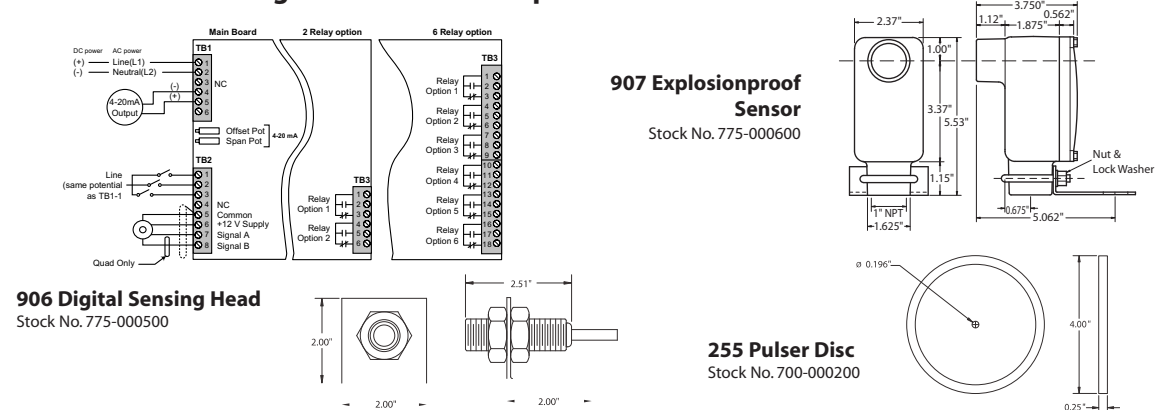
Description

The TR400 is a full logic control process ratemeter that can display any production rate or time in process easily and accurately. The ability to accurately detect and convert 0.01 to 10,000 Hz signal input makes the TR400 an inexpensive solution to many industrial applications. With the addition of optional relay outputs and/or 4-20 mA analog output, the TR400 becomes a complete process control and display system. The optional relay outputs can be programmed for underspeed or overspeed, and include adjustable delays at "power up" and output activation. The 4-20 mA output can be scaled to reflect any area of the monitored range, including operations requiring an inverse output. Quadrature signal decoding gives the TR400 the ability to detect direction as well as speed for bidirectional applications. The relays and 4-20mA outputs can be programmed in the reverse direction as well as the forward direction, or both directions.

Principle of Operation

The standard TR400 system is supplied with a shaft-mounted magnetic pulser disc or optional pulser wrap, which generates eight pulses per revolution with our standard non-contact sensor. The sensor transmits the speed as a digital pulse frequency to the TR400 via a three-conductor shielded cable. The TR400 then compares this frequency signal to its programmed values to determine the appropriate display value and output states (if required). When the TR400 is programmed to detect quadrature input signals, the front panel will indicate the reverse direction with the "REV" LED. All outputs are fully functional in both forward and reverse directions. The relay outputs can be programmed to latch (requiring a manual reset), or stay active only when the set point condition is present. The TR400 set point delay allows the user to program how long the set point must be exceeded before the setpoint output activates.

Dimensional Drawings And Terminal Strip Connection

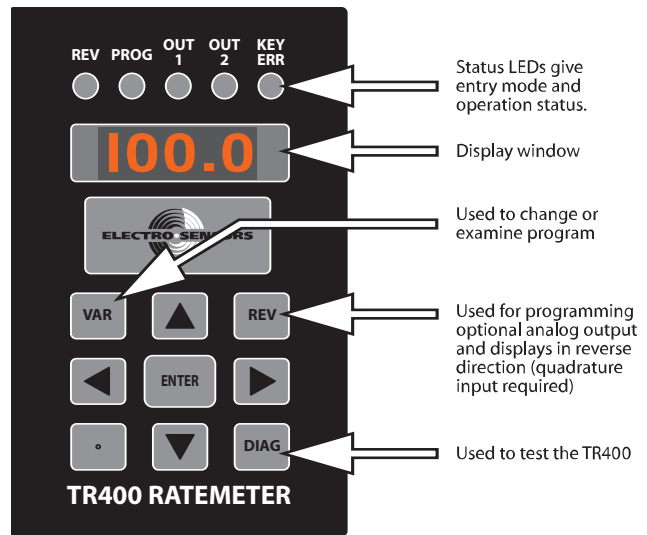


Straightforward and Accurate

The TR400 Speed and Direction Indicator offers straightforward calibration and total digital accuracy to safeguard your processes. Variables, such as the number of pulses per revolution, maximum RPM or the desired engineering display units are easily entered into the TR400 during program mode.

When you have completed the calibration process, the TR400 has security code lockout protection to prevent unauthorized changes to the program variables. It also has a non-volatile memory to retain your program settings during power outages.

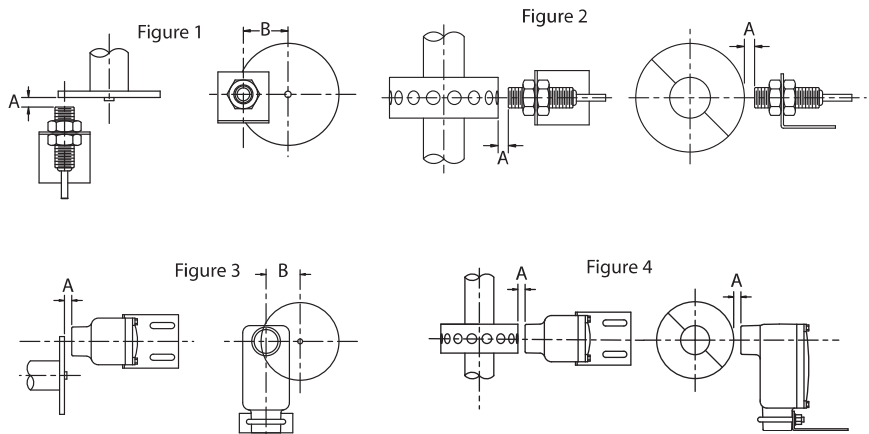
Should you need assistance with the installation or calibration process call our tech support line **(1-800-328-6170)** and one of our technicians will assist you and answer any questions you may have. You can also download an installation and operating manual from our website: www.electro-sensors.com



Sensor Installation

The standard sensor is supplied with a mounting bracket and two jam nuts. The explosionproof sensor is supplied with a slotted mounting bracket.

Sensors should be installed so the center line of the magnets pass in front of the center line of the sensor as the disc or wrap rotates. When using the pulser disc, the center line of the magnetized area of the disc, shown in Dimension B in figures 1 and 3, is $1\frac{3}{4}$ " from the center hole of the disc. The gap distance between the sensor and the disc or wrap, Dimension A, is $\frac{3}{8}$ " $\pm$ $\frac{1}{8}$ ". To achieve the proper gap distance, adjust the jam nuts holding the standard sensor in the mounting bracket, or adjust the position of the explosionproof sensor using the slots on the mounting bracket.



General Specifications

Power

Voltage.....	115 Vac, (230 Vac, 10-30 Vdc Optional)
Sensor Input.....	Switch Selectable
Maximum Frequency.....	4,000 Hz, 10KHz available on req.
Minimum Frequency	0.01 Hz
Sensor Supply	12 Vdc Unreg., 100 mA Max.

External Control I/O

Optional Inputs	3 Programmable AC Switch Inputs
Opt. Set Point Outputs.....	2 or 6 Programmable form C relays, rated 250 Vac, 30 Vdc 5 A Resistive Load
Opt. Analog Output	0-10 Vdc or 4-20 mA Output, 12 bit res.

Operational

Accuracy	0.1%
Response Time	Minimum 0.02 Seconds
Modes of Operation	Speed, Time in Process, Single Channel, or quadrature
Optional Set Points.....	2 or 6 programmable as Over or Under or Forward/Reverse

Mechanical

Display	4 Digit, 0.3" Height, Seven Segment Displays, Five Status LEDs
Operating Temperature	0° C to +50° C (+32° F to +122° F)
Dimensions	3.1"W x 4.85"H x 6.25"L
Panel Cutout.....	2.61"W x 4.31"H

Specifications subject to change without notice.

ES-400 Rev E