ELECTRO·SENSORS

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TR400 Tachometer

Tachometers, Counters & Displays

Features

- Displays rate or time-in-process
- Detects and converts 0.01 to 4,000 Hz signal input
- Optional relay outputs: 2 or 6
- Optional analog output: 4-20 mA or 0-10 V
- Completely field programmable
- Full diagnostic functions
- Single-channel or bidirectional (quadrature) decoding
- Front panel reverse direction indication
- 3 programmable inputs
- Built-in relay test function
- Optional explosion proof enclosure
- Optional NEMA 4X enclosure kit
- 115, 230 VAC (50-60 Hz) and 10-30 VDC power options

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 4,000 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 under-speed or over-speed, 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 4-20 mA outputs can be programmed in the reverse direction as well as the forward direction, or both directions.

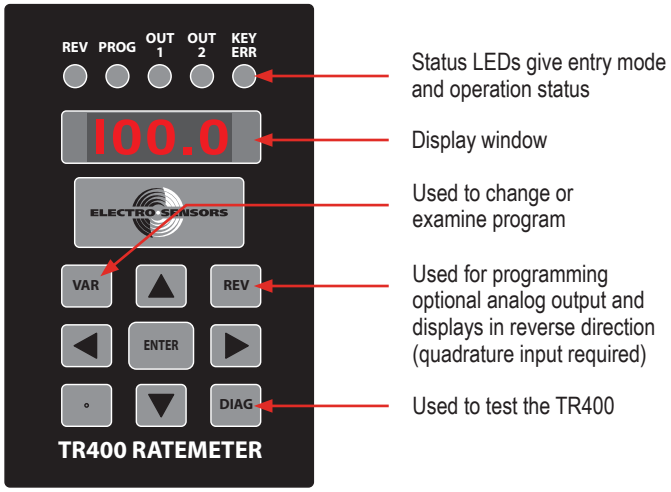
Options:

- Two or six programmable Form C relay contact outputs. Rated 250 VAC, 30 VDC at 5 amps resistive load
- Programmable 4-20 mA or 0-10 VDC output

Principle of Operation

A shaft-mounted pulser disc or pulser wrap generates an alternating magnetic field that is picked up be the sensing head. 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.



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5 YEAR WARRANTY

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Specifications

Input Power	
Voltage Optional Voltages	115 VAC, 6 VA @ 50/60 Hz, 1/16 Amp, requires external fuse 230 VAC, 10-30 VDC
Sensor Input	Switch Selectable
NPN Open-Collector	2,200 Ohm pull up to 12 VDC, 2.5 Volt trigger level
PNP Open-Collector	2,200 Ohm pull down, 2.5 Volt trigger level
Logic Level	2.5 Volt trigger level
Magnetic Pick-up	150 mV peak-to-peak minimum signal, 50 mV trigger level
Sensor Supply	12 VDC unregulated, 100 mA max
External Control I/O	
Standard Inputs	3 programmable switch inputs
Setpoint Outputs (Relays)	2 or 6 programmable Form C relays on board, rated 250 VAC 5 Amp, 30 VDC 5 Amp resistive load
Optional Analog Output	1 programmable 4-20 mA or 0-10 VDC output, 12 bit DAC
Operational	
Accuracy	Display / Relays: 0.01% ± 1 Digit Analog: 0.1% of full scale
Input Frequency Range	0.01 Hz to 4,000 Hz
Response Time	Minimum 0.02 seconds
Control Range	Default 500 - 1, can be programmed from 9999 - 1
Modes of Operation	Speed, Time In Process, Single Channel, Quadrature
Setpoints	2 or 6 programmable as “over” or “under” and/or Forward and Reverse
Display Update Time	0.5 seconds min, 8 seconds max
Mechanical	
Enclosure	ABS Plastic 94V-0
Keypad	Polycarbonate Tactile Switch Pad, Chemical Resistant, and Splash Proof
Display	4-Digit, 0.3" Height, 7-Segment Displays, 5-Status LEDs
Operating Temperature	0° C to +50° C (+32° F to +122° F)
Dimensions	3.10" w x 4.85" h x 6.25" l
Panel Cutout	2.61" w x 4.31" h

Specifications subject to change without notice.

Ordering

Input Power	# of Relays	Analog Output	Part Number
115 VAC	-	-	800-078701
115 VAC	2	-	800-078705
115 VAC	-	4-20 mA	800-078703
115 VAC	2	4-20 mA	800-078707
115 VAC	-	0-10 V	800-078713
115 VAC	2	0-10 V	800-078717
115 VAC	6	4-20 mA	800-078800
230 VAC	-	-	800-078702
230 VAC	2	-	800-078706
230 VAC	-	4-20 mA	800-078704
230 VAC	2	4-20 mA	800-078708
230 VAC	-	0-10 V	800-078714
230 VAC	2	0-10 V	800-078718
230 VAC	6	4-20 mA	800-078801
10-30 VDC	-	-	800-078719
10-30 VDC	2	-	800-078721
10-30 VDC	-	4-20 mA	800-078720
10-30 VDC	2	4-20 mA	800-078722
10-30 VDC	-	0-10 V	800-078723
10-30 VDC	2	0-10 V	800-078724
10-30 VDC	6	4-20 mA	800-078802

Options	
Explosion Proof Enclosure	305-001400
NEMA 4X Enclosure Kit	725-003600
Relay Kit	725-000007
Faceplate Kit	725-000009

Customization

If one of our standard products does not meet your specifications, please call one of our applications specialists. Many of our products can be customized to fit specific needs.

Additional Information

See the TR400 Installation and Operating Manual for complete details, specifications, and programming instructions.