

Features

- Displays rate, time-in-process, ratio, sum, difference, or draw
- Optional relay outputs and/or 4-20 mA analog output
- Completely field programmable
- Full diagnostic functions
- Setpoint and start delay functions
- 3 programmable inputs
- 3 programmable transistor setpoint outputs
- Keypad lockout
- Optional explosion proof enclosure
- Optional NEMA 4X enclosure kit
- 115, 230 VAC (50-60 Hz) and 10-30 VDC power options



Description

The TR5000 is a full logic control process ratemeter that can display up to three separate values of rate and compare them to programmable setpoints. Rates A and B can be programmed by the user for speed or time in process. Rate C allows the user to display a relationship between rates A and B. This can be a Ratio (A/B), Sum (A+B), Difference (A-B), or Draw (A-B)/B. A ratio is typically used in blending and mixing applications. The sum and difference are commonly used when the operator needs to display the combined output of two separate but related processes. Draw is commonly used in web handling systems, such as plastic or wire, to indicate the thickness or stretch of the material being processed.

Options:

- 4-20 mA output can be programmed to represent three rates: A, B, or C. The 4-20 mA output can be scaled to reflect any area of the range, including operations requiring an inverse output
- Up to three programmable relay contact outputs, rated 250 VAC, 30 VDC at 5 Amps resistive load

Principle of Operation

A shaft-mounted pulser disc or pulser wrap generates an alternating magnetic field that is picked up by the sensing head. The sensor transmits the speed as a digital pulse frequency to the TR5000 via a three conductor shielded cable. The TR5000 then compares this frequency signal to its programming and determines the appropriate setpoint output state and display value.

The TR5000 features three transistor outputs that can be set within any of the three rates A, B, or C. These outputs can be programmed to latch (requiring a manual reset), or stay active only when the setpoint condition is present.



Status LEDs give entry mode and operation status

Display window

Used to change or examine program

Used for selecting rate display

Used to test the TR5000



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TR5000 Tachometer

Tachometers, Counters & Displays

Specifications

| Input Power | |
|---------------------------|------------------------------------------------------------------------|
| Voltage | 115 VAC, 6 VA @ 50/60 Hz, 1/16 Amp, requires external fuse |
| Optional Voltages | 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 |
| Standard Setpoint Outputs | 3 programmable, open collector transistors, 30 VDC, 150 mA max |
| Optional Setpoint Outputs | 3 programmable N.O. contacts |
| Rating | 250 VAC 5 A, 30 VDC 5 A Resistive |
| 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 |
| Response Time | Minimum 0.02 seconds |
| Control Range | Default 500 - 1, can be programmed from 9999 - 1 |
| Modes of Operation | Time In Process, Ratio, Sum, Difference, Draw |
| Setpoint Presets | 3 programmable as "over" or "under" of Rate A, B, or C |
| Display Update Time | 0.5 seconds |
| Mechanical | |
| Enclosure | ABS Plastic 94V-0 |
| Keypad | Polycarbonate Tactile Switch Pad, Chemical Resistant, and Splash Proof |
| Display | 5-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.

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Ordering

| Input Power | # of Relays | Analog Output | Part Number |
|-------------|-------------|---------------|-------------|
| 115 VAC | - | - | 800-072000 |
| 115 VAC | 3 | - | 800-072200 |
| 115 VAC | - | 4-20 mA | 800-072400 |
| 115 VAC | 3 | 4-20 mA | 800-072600 |
| 115 VAC | - | 0-10 V | 800-072501 |
| 115 VAC | 3 | 0-10 V | 800-072701 |
| 230 VAC | - | - | 800-072100 |
| 230 VAC | 3 | - | 800-072300 |
| 230 VAC | - | 4-20 mA | 800-072500 |
| 230 VAC | 3 | 4-20 mA | 800-072700 |
| 230 VAC | - | 0-10 V | 800-072502 |
| 230 VAC | 3 | 0-10 V | 800-072702 |
| 10-30 VDC | - | - | 800-072102 |
| 10-30 VDC | 3 | - | 800-072302 |
| 10-30 VDC | - | 4-20 mA | 800-072503 |
| 10-30 VDC | 3 | 4-20 mA | 800-072703 |
| 10-30 VDC | - | 0-10 V | 800-072504 |
| 10-30 VDC | 3 | 0-10 V | 800-072704 |

| Options | |
|---------------------------|------------|
| Explosion Proof Enclosure | 305-001400 |
| NEMA 4X Enclosure Kit | 725-003600 |
| Faceplate Kit | 725-000014 |

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 TR5000 Installation and Operating Manual for complete details, specifications, and programming instructions.

