PROTROL

Draw, Ratio & Net Ratemeter

Features

- 2 Separate Dividing Scale Factors for Inputs A & B

- 2 Set Points Each With a Hysteresis Alarm Range

- Displays Three Separate Values;
  A (A Rate), B (B Rate) &
  C (A-B), (A÷B) or [(A-B)÷B]

- Digital Input Up To 10kHz

- NEMA 4X / IP65 Front

- 2 Stage Panel Lockout

- RS232 or RS422 Communications

Description:

Featuring 6 digits of bright, 7-segment LED displays, the Protrol is a rate, ratio and draw meter which is field programmable. The two inputs (A & B) each have separate scaling factors. The unit can be programmed to display: two separate ratemeters (A & B), the net difference of A & B, the ratio of A to B (A ÷ B) or the draw [(A - B) ÷ B]. Two assignable set points are standard with a programmable hysteresis (alarm range).

Specifications:

Display

5 digit, .55" high, 7 segment, red orange, LED.

Input Power: 110 ± 15% or 12 to 15VDC; 220 VAC ± 15% or 12 to 15VDC.

Current: maximum 250 mA DC or 6.5 VA at rated AC voltage.

Output Power: (AC powered units only) + 12VDC @ 50mA unregulated -10 +50%

Temperature:

Operating: +32°F (0°C) to +130°F (+54°C).

Storage: -40°F (-40°C) to +200°F (93°C).

Memory: EEPROM stores data for ten years if power is lost.

Reset:

Front Panel: Resets (updates) normalization process.

Remote: Resets control output (if it's in hysteresis and below the preset).

Control Outputs:

2 each N.O. Relay - 5 Amp @ 120/240 VAC or 28 VDC. (N.C. Relay contacts or NPN sink from 10VDC to .5V @ 100mA available with solder jumpers).

Input:

STD: High Impedance. Open or 0 to 1V (low), 4 to 30V (high) 10K Ohm impedance. 9.99 kHz max. input speed.

OPTION "M": For Magnetic pickup Inputs, accepts 30mV inputs

Set Points: Two control set points are provided. The outputs have a programmable hysteresis alarm range from 0 to 99999

Rate Display: The ratemeters (A&B) update once per second and are accurate to 0.01% FS (± 1 display digit). The unit will sample from 2 to 24 seconds and will compute a weighted average (normalization).

Programming: Set points, decimal points, Scaling from .0001 to 99999, input type, normalization factor, hysteresis alarm range, and security panel lock code are all programmable from the front panel.

Housing: Standard 1/8 DIN, high impact ABS plastic case (NEMA 4X / IP65 front panel).
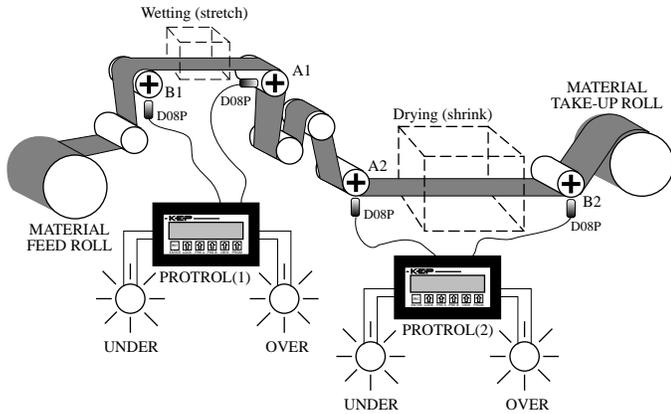
Shipping Weight: 2 lbs.

Approvals: CE Approved

Terminal Designations:

- ○ 1- COMMON ⎤ RELAYS A
- ○ 2- N.O.(N.C./NPN) ⎦
- ○ 3- COMMON ⎤ B
- ○ 4- N.O.(N.C./NPN) ⎦
- ○ 5- A INPUT
- ○ 6- B INPUT
- ○ 7- 12VDC OUT/+DC IN
- ○ 8- -DC (GROUND)
- ○ 9- RESET INPUT
- ○ 10- NOT USED
- ○ 11- A.C. INPUT
- ○ 12- A.C. INPUT

RATE INDICATORS

Protrol Application:

Dimensions:

This application involves the process of shrinking material for pre-shrunk jeans. The process involves the wetting/stretching and drying/shrinking of the material. The KEP Protrol allows the operator to view the rate of the input and output feeds (displays A & B). A third display (display C) allows the user to view A-B, A÷B or (A-B)÷B. In this application Protrol(1) monitors the wetting/stretch and Protrol(2) monitors the drying/shrink. The wetting process must maintain a 2.4% stretch and the drying process must maintain a 3.2% shrink. Both the wetting and drying functions must have over and under detection if the process exceeds or lags by .1%. For each Protrol there is an over detection lamp and an under detection lamp.

Here's how the Protrol's are set up. Each roller (excluding the feed and take-up rolls) are one foot in circumference. Since there are four targets per rotation, there are four pulses per foot. Therefore, the scaling factors are all set at four. The C display is selected to view (A-B)÷B. Both Protrols were field modified for a normally closed (N.C.) B relay.

Protrol(1):
Typically, B1 rotates at 25 RPM and A1 at 25.6 RPM. This yields a 2.4% stretch ([25.6-25]÷25=.024). Preset A is set at .025 and preset B is set at .023 (to maintain a .1% tolerance). Relay A is wired to the over detection lamp and relay B is wired under detection lamp.
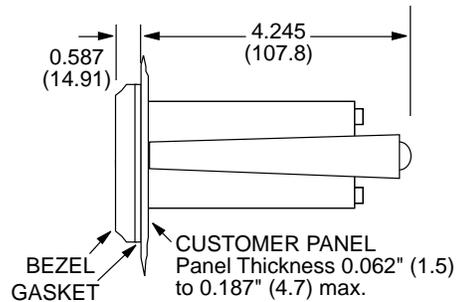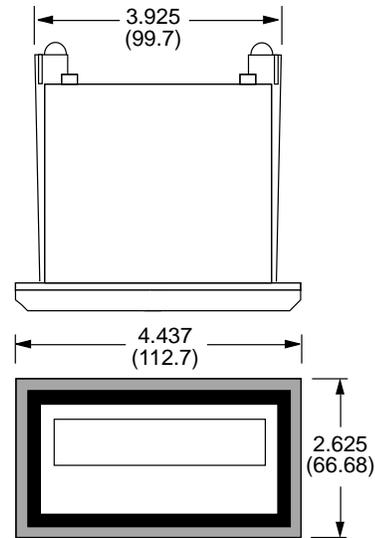
Protrol(2):
Typically, B2 rotates at 24.8 RPM and A2 at 25.6 RPM. This yields a 3.2% stretch ([25.6-24.8]÷24.8=.032). Preset A is set at .033 and preset B is set at .031 (to maintain a .1% tolerance). Relay A is wired to the over detection lamp and relay B is wired under detection lamp.

Now the operator can view the input and output speeds of the wetting and drying cycles, as well as the amount of stretch and shrink. The warning lamps let the operator know if there is a problem prior to the process or after the process.

NOTE: To view the C display in percentage (X100), order MS280.

HOW TO ORDER

EXAMPLE: PR   A   1

Series
PR = Protrol

Operating Voltage
A = 110 VAC ± 15% or 12 to 15 VDC
B = 220 VAC ± 15% or 12 to 15 VDC
C = 24 VAC ± 15% or 12 to 15 VDC

Options
1= RS232 Communications
2= RS422 Communications
M = Mag. Input, Input A & B, 30mV input
A= Analog Output (4-20/0-20 mA)

Accessories
Separate non keyboard panel order #34235
Separate keyboard panel - order #34237

RATE INDICATORS