Programmable transmitter

5116B

- Input for RTD, TC, mV, Ohm, potentiometer, mA and V
- 2-wire supply > 16.5 V to Ex zone 0
- Bipolar voltage input
- Output for current, voltage and 2 relays
- Universal supply by AC or DC

Applications

Application

- Linearized, electronic temperature measurement with RTD or TC sensor.
- Conversion of linear resistance variation to a standard analog current / voltage signal, i.e. from solenoids and butterfly valves or linear movements with attached potentiometer.
- Power supply and signal isolator for 2-wire transmitters.
- Process control with 2 potential-free relay contacts which can be configured for advanced functions.
- Galvanic separation of analog signals and measurement of floating signals.

Technical characteristics

- Within a few seconds the user can program PR5116B to suit the specific application.
- By way of the front push-button the input can be calibrated to the exact span of the process. Zero drift on the process signal can be adjusted by a single press of the front button.
- A green front LED indicates normal operation and malfunction. A yellow LED is ON for each active output relay.
- Continuous check of vital stored data for safety reasons.
- 3-port 3.75 kVAC galvanic isolation.

Mounting / installation

- Mounted vertically or horizontally on a DIN rail. As the devices can be mounted without any distance between neighboring units, up to 42 devices can be mounted per meter.
Environmental Conditions

Operating temperature: -20°C to +60°C
Calibration temperature: 20 ±28°C
Relative humidity: < 95% RH (non-cond.)
Protection degree: IP20

Mechanical specifications

Dimensions (h x w x d): 109 x 23.5 x 130 mm
Weight approx.: 235 g
Wire size: 0.13...2.08 mm² AWG 26...14 stranded wire
Screw terminal torque: 0.5 Nm
Vibration: IEC 60606-2-6
2...13.2 Hz: ±1 mm
13.2...100 Hz: ±0.7 g

Common specifications

Supply
Supply voltage, universal: 21...253 VAC, 50...60 Hz or 19.2...300 VDC
Fuse: 400 mA SB / 250 VAC
Max. required power: 2.4 W
Max. power dissipation: 2.0 W

Isolation voltage
Isolation voltage, test / working: 3.75 kVAC / 250 VAC

Response time
Temperature input, programmable
(0...90%, 100...10%): 400 ms...60 s
mA / V input (programmable): 250 ms...60 s

Auxiliary supplies
2-wire supply (pin 54...52)
Programming: Loop Link
Signal / noise ratio: Min. 60 dB (0...100 kHz)
Accuracy: Better than 0.05% of selected range
Signal dynamics, input:
Signal dynamics, output:
22 bit
16 bit

Auxiliary voltages: Reference voltage: 2.5 VDC ±0.5% / 15 mA
EMC immunity influence: < ±0.5% of span
Extended EMC immunity: NAMUR NE43, A criterion, burst: < ±1% of span

Input specifications

Common input specifications
Max. offset: 50% of selected max. value

RTD input
RTD type: Pt100, Ni100, lin, R
Cable resistance per wire: 10 Ω (max. 50 Ω)
Sensor current: Nom. 0.2 mA
Effect of sensor cable resistance (3-4-wire)
< 0.002 Ω / Ω
Sensor error detection: Yes

TC input
Cold junction compensation (CJC): < ±1.0°C
Sensor error current: Nom. 30 μA
Sensor error detection: Yes

Current input
Measurement range: 0...100 mA
Min. measurement range (span): 4 mA
Input resistance: Supplied unit:
Nom. 10 Ω + PTC 10 Ω
Input resistance: Non-supplied unit:
RSHUNT = ∞, VDROP < 6 V
Sensor error detection:
Loop break 4...20 mA

Voltage input
Measurement range: 0...250 VDC
Min. measurement range (span): 5 mV
Input resistance:
Nom. 10 MΩ (≤ 2.5 VDC)
Input resistance:
Nom. 5 MΩ (≥ 2.5 VDC)
Input resistance:
> 5 MΩ (mV / input)

Potentiometer via 2.5 V ref: 170 Ω

Output specifications

Current output
Signal range:
Load (@ current output):
Load stability:
Current limit:
Sensor error indication:
Programmable 0...23 mA
NAMUR NE43 Upscale/Downscale:
23 mA / 3.5 mA

Passive 2-wire mA output
Signal range:
Load stability:
Max. external 2-wire supply:
Effect of external 2-wire supply:
Voltage output
Signal range:
Min. signal range:
Load (@ voltage output):
Relay output
Relay functions:
Max. voltage:
Max. current:
Max. AC power:
Max. DC current, resistive load:
Sensor error reaction:
Break / Make / Hold / None
of span:

Relay output
Relay functions:
Window
Max. voltage:
250 VAC / VDC
Max. current:
2 A
Max. AC power:
500 VA
Max. DC current, resistive load:
See manual for details
Sensor error reaction:
Break / Make / Hold / None
of span:

Observed authority requirements

EMC:
LVD:
RoHS:
EAC:
ATEX:
UL:
EAC Ex:
DNV-GL Marine:

Approvals

KEMA 04ATEX1316 X
3023092
UL 508 / C22.2 no. 14
RU C-DK.HA65.B.00355/19
TAA0000101