

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



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.

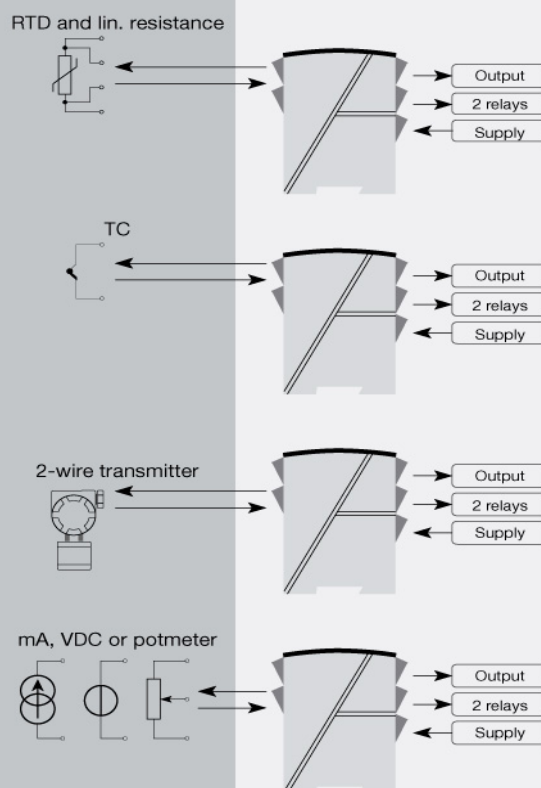
Technical characteristics

- 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.

Applications



Order:

Type
5116B

*NB! Please remember to order CJC connectors type 5910Ex for TC inputs with internal CJC

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 (HxWxD).....	109 x 23.5 x 130 mm
Weight approx.....	235 g
DIN rail type.....	DIN EN 60715/35 mm
Wire size.....	0.13...2.08 mm ² AWG 26...14 stranded wire
Screw terminal torque.....	0.5 Nm
Vibration.....	IEC 60068-2-6
2...13.2 Hz.....	±1 mm
13.2...100 Hz.....	±0.7 g

Common specifications**Supply**

Supply voltage, universal.....	21.6...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
PELV/SELV.....	IEC 61140

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).....	28...16.5 VDC / 0...20 mA
Programming.....	Loop Link
Signal / noise ratio.....	Min. 60 dB (0...100 kHz)
Accuracy.....	Better than 0.05% of selected range
Signal dynamics, input.....	22 bit
Signal dynamics, output.....	16 bit
Auxiliary voltages: Reference voltage.....	2.5 VDC ±0.5% / 15 mA
EMC immunity influence.....	< ±0.5% of span
Extended EMC immunity: NAMUR NE21, A criterion, burst.....	< ±1% of span

Input specifications**Common input specifications**

Max. offset.....	50% of selected max. value
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RTD input

RTD type.....	Pt46, Pt100, Ni100, Cu53, 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

Thermocouple type.....	B, E, J, K, L, N, R, S, T, U, W3, W5, LR
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 = ∞, VDROPP < 6 V
Sensor error detection.....	Loop break 4...20 mA

Voltage input

Measurement range.....	0...250 VDC
Measurement range.....	-2500...+2500 mV
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.....	0...20 mA
Min. signal range.....	10 mA
Load (@ current output).....	$\leq 600 \Omega$
Load stability.....	$\leq 0.01\%$ of span / 100 Ω
Current limit.....	≤ 28 mA
Sensor error indication.....	Programmable 0...23 mA
NAMUR NE43 Upscale/Downscale.....	23 mA / 3.5 mA

Passive 2-wire mA output

Signal range.....	4...20 mA
Load stability.....	$\leq 0.01\%$ of span / 100 Ω
Max. external 2-wire supply.....	29 VDC
Effect of external 2-wire supply voltage variation.....	$< 0.005\%$ of span / V

Voltage output

Signal range.....	0...10 VDC
Min. signal range.....	500 mV
Load (@ voltage output).....	≥ 500 k Ω

Relay output

Relay functions.....	Increasing / decreasing
Relay functions.....	Window
Max. voltage.....	250 VAC / VDC
Max. current.....	2 A
Max. AC power.....	500 VA
Max. DC current, resistive load > 30 VDC.....	See manual for details
Sensor error reaction.....	Break / Make / Hold / None
of span.....	= of the presently selected range

Observed authority requirements

EMC.....	2014/30/EU
LVD.....	2014/35/EU
ATEX.....	2014/34/EU
RoHS.....	2011/65/EU
EAC.....	TR-CU 020/2011
EAC Ex.....	TR-CU 012/2011

Approvals

ATEX.....	KEMA 04ATEX1316 X
FM.....	FM21US0035X
c UL us, UL 508.....	E231911
EAC Ex.....	EAEU KZ 7500361.01.01.08756
DNV Marine.....	TAA0000101