

Programmable transmitter

5116B

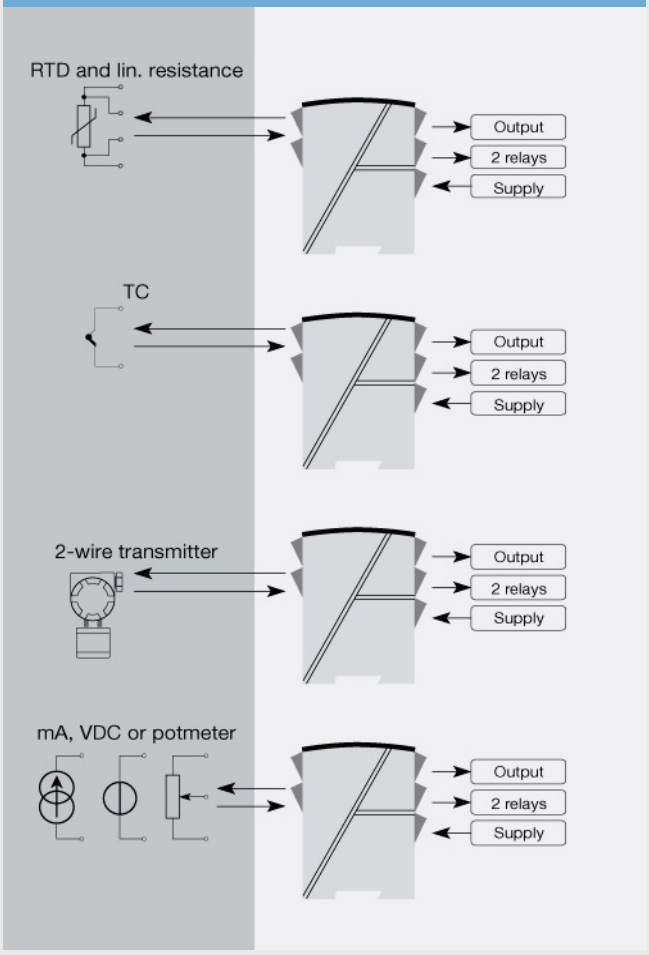
- Input for RTD, TC, mV, Ohm, potentiometer, mA and V
- 2-wire supply > 16.5 V to Ex zone 0
- Bipolar voltage input
- Output for current, voltage and 2 relays
- Universal supply by AC or DC

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 buttton.
- 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



For pricing or any further information, please contact Omni Instruments Ltd.

Measurement and data acquisition solutions

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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	PR 5909 Loop Link communications interface
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

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 = ∞, VDROP < 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

5116B-061726

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Output specifications

Current output

Signal range	0...20 mA
Min. signal range	10 mA
Load (@ current output)	≤ 600 Ω
Load stability	≤ 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	≤ 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 kΩ

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 LVD	TR-CU 004/2011
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

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