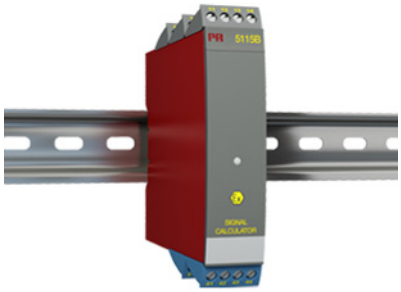


Ex signal calculator

5115B

– Redundancy measurement with 2 input signals
– Signal calculator with the four arithmetical operations
– Duplication of the input signal
– Input for RTD, Ohm, TC, mV, mA, and V
– Universal supply by AC or DC

Application

- Redundancy measurement of temperature by means of two sensors, where the secondary sensor takes over the measurement when a sensor error occurs on the primary sensor.
- Duplication of the input signal, e.g. from a temperature sensor or an analog process signal to two separate analog outputs.
- Signal calculator with four arithmetical operations: Addition, subtraction, multiplication and division.
- Example: Differential measurement:(Input 1 * K1) - (Input 2 * K2) + K4
- Example: Average measurement:(Input 1 * 0.5) + (Input 2 * 0.5) + K4
- Example: Different functions on the outputs:Output 1 = input 1 - input 2, and Output 2 = input 1 + input 2
- I.S. safety barrier and power supply for 2-wire transmitters.

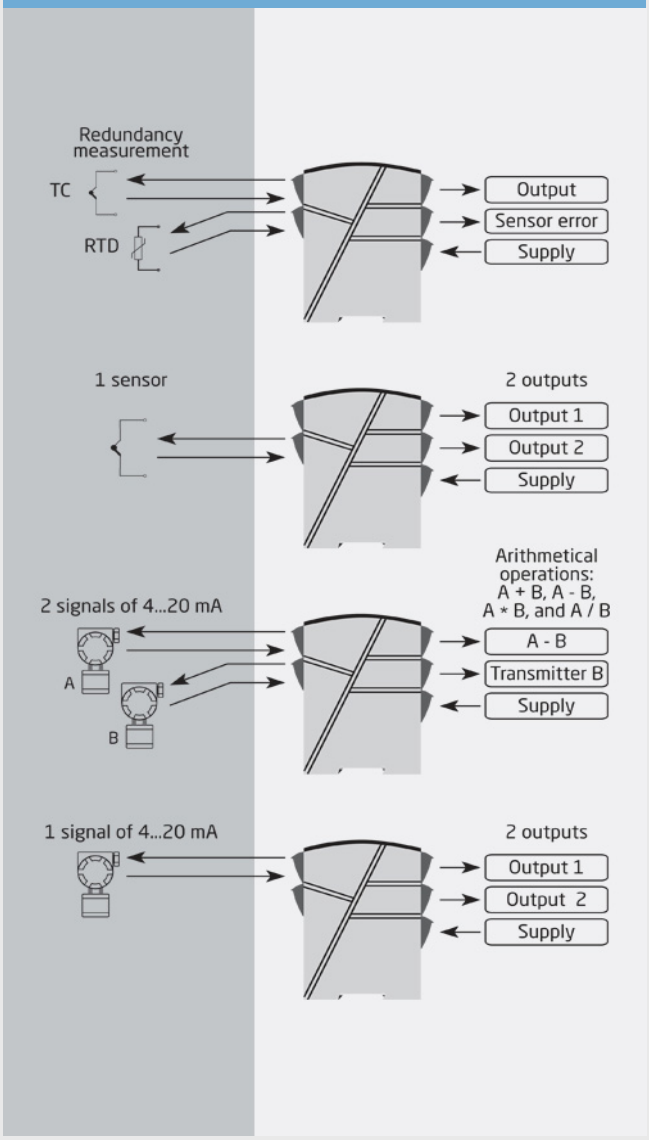
Technical characteristics

- Within a few seconds the user can program PR5115B to a selected application using the configuration program PReset.
- A green front LED indicates normal operation, sensor error on each sensor, and functional error.
- 5-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



omni INSTRUMENTS
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Order:

Type	Input	
5115B	RTD / TC / mV / R	: 1
	mA / V / mV	: 2
	Input 1, RTD / TC / mV / R	: 3
	Input 2, mA / V / mV	

*NB! Please remember to order CJC connectors type 5910Ex (input 1) and 5913Ex (input 2) for TC inputs with an 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 ..... 225 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 ..... 2.1 W / 2.8 W (1 / 2 ch.)
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

Programming ..... Loop Link
Signal / noise ratio ..... Min. 60 dB (0...100 kHz)
Accuracy ..... Better than 0.05% of selected range
Updating time ..... 115 ms (temperature input)
Updating time ..... 75 ms (mA / V / mV input)
Redundancy switch-over time ..... ≤ 400 ms
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.)
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

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

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 ..... Nom. 10 MΩ (mV input)

mV input

Measurement range ..... -150...+150 mV

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

Voltage output

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

Passive 2-wire mA output

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

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 ..... DEMKO 00ATEX128567, II (1) GD [EEx ia] IIC
EAC Ex ..... RU C-DK.HA65.B.00355/19
DNV Marine TAA0000101

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