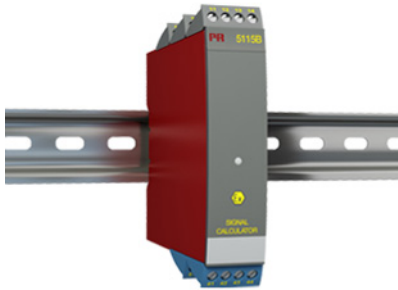


Ex signal calculator



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: $(\text{Input 1} * K1) - (\text{Input 2} * K2) + K4$
- Example: Average measurement: $(\text{Input 1} * 0.5) + (\text{Input 2} * 0.5) + K4$
- 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.

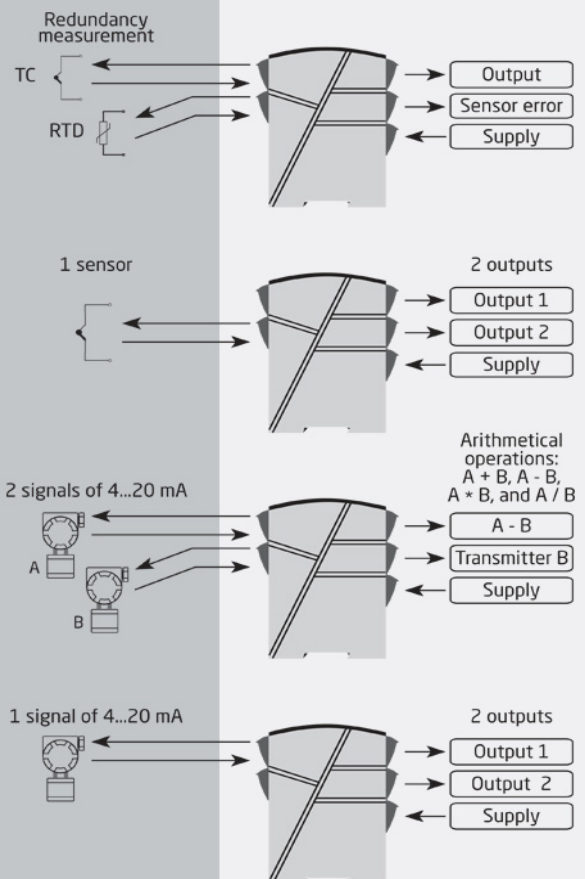
Mounting / installation

- 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.

Note

- Not suitable for new installations requiring certification to the latest ATEX standards - see ATEX certificate DEMKO 00ATEX128567 and EU Declaration of Conformity for details.

Applications



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 TCinputs 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 = ∞, VDROD < 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..... | EAEU KZ 7500361.01.01.08756 |
| DNV Marine..... | TAA0000101 |