Sandelius Model PR5335

2-WIRE TRANSMITTER WITH HART® PROTOCOL

- RTD, TC, Ohm, or mV input
- HARTÆcommunication
- For DIN form B sensor head mounting
- Extremely high measurement accuracy
- Galvanic isolation

Application:

- Linearized temperature measurement with Pt100...Pt1000, Ni100...Ni1000, or TC sensor.
- Difference or average temperature measurement of 2 resistance or TC sensors.
- Conversion of linear resistance variation to a standard analogue current signal, for instance from valves or Ohmic level sensors.
- Amplification of a bipolar mV signal to a standard 4...20 mA current signal.
- Connection of up to 15 transmitters to a digital 2-wire signal with HART Ækommunication.

Technical characteristics:

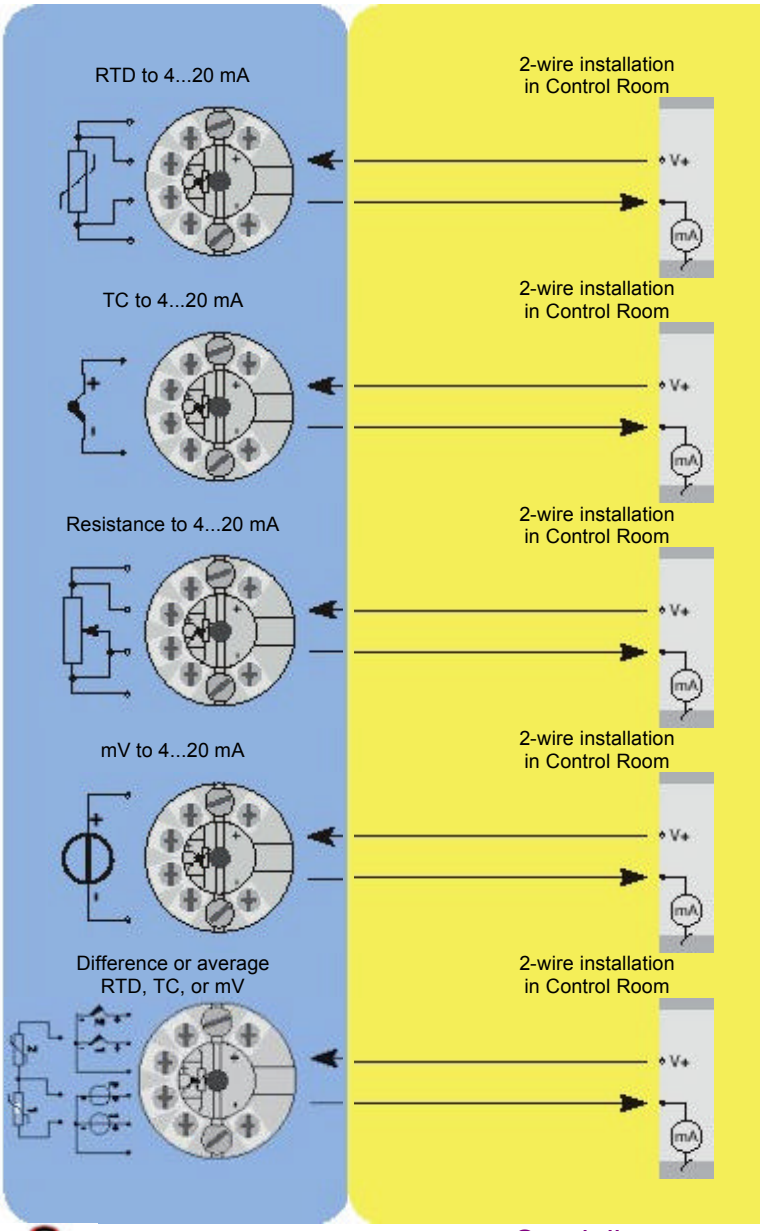
- Within a few seconds the user can program PR5335 to measure temperatures within all ranges defined by the norms.
- The RTD and resistance inputs have cable compensation for 2-, 3- and 4-wire connection.
- Continuous check of vital stored data for safety reasons.
- Sensor error detection according to the guidelines in NAMUR NE 89.

Mounting / installation:

- Direct head mount.
- DIN rail mounting with an optional clip.
- For intrinsic safety barrier we recommend: PR5104B, PR5114B, or PR5116B

To Order Specify:

PR5335A General Purpose (CE Only)
PR5335D CE, DNV and Explosion Proof per CSA, FM, ATEX



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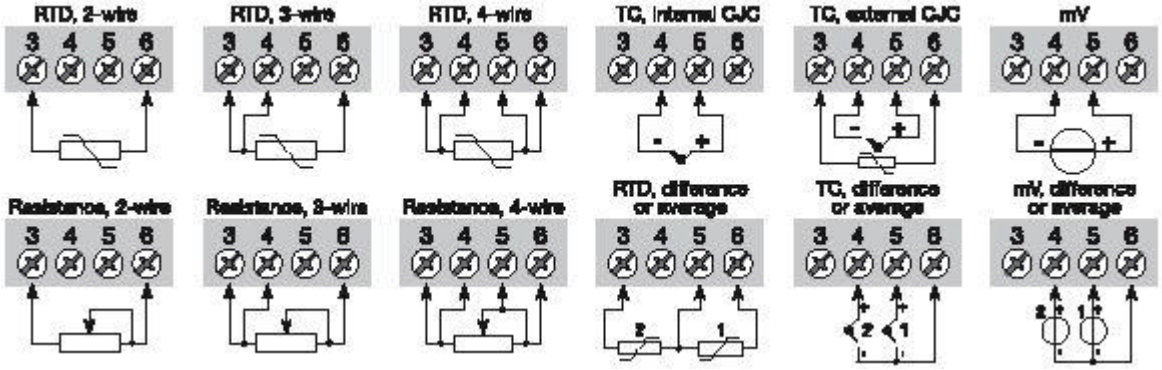
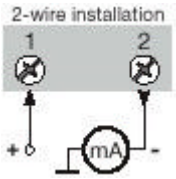
Connections

Input



Output



Common specifications:

Ambient Operating Temperature Range..... -40 to 185°F (-40 to 85°C)
May be programmed in either F or C.
Supply voltage, 5335B ..... 8.0...30 VDC
Supply voltage, 5335C and D ..... 8.0...28 VDC
Voltage drop ..... 8.0 VDC
Isolation voltage, test / operation ..... 1.5 kVAC / 50 VAC
Communications interface ..... Loop Link & HART Æ
Signal / noise ratio ..... Min. 60 dB
Signal dynamics, input ..... 22 bit
Signal dynamics, output ..... 16 bit
Calibration temperature ..... 20...28°C

Accuracy, the greater of general and basic values:

General Values		
Input Type	Absolute accuracy	Temperature cooefficient
All	≤ ±0.05% of span*	≤ ±0.005% of span* / °C

Basic values		
Input Type	Basic accuracy	Temperature coefficient
Pt100 and Pt1000	≤ ±0.1°C	≤ ±0.005°C / °C
Ni100	≤ ±0.2°C	≤ ±0.005°C/°C
Lin.R	≤ ±0.1 Ω	≤ ±5 m Ω /°C
Volt	≤ ±10 µV	≤ ±0.5 µV/°C
TC type: E, J, K, L, N, T, U	≤ ±0.5°C	≤ ±0.025°C/°C
TC type: B, R, S,W3, W5	≤ ±1°C	≤ ±0.1°C/°C

EMC immunity influence ..... ≤ ±0.1% of span*
Extended EMC immunity:
NAMUR NE 21, A criterion, burst ..... < ±1% of span*

Vibration ..... IEC 60068-2-6 Test FC
Lloyd's specification no. 1..... 4 g / 2...100 Hz
Humidity ..... < 95% RH (non-cond)
Dimensions ..... ÿ 44 x 20.2 mm
Tightness (enclosure / terminal) ..... IP68 / IP00
Electrical specifications, input:
Max. offset ..... 50% of select. max. value

RTD and linear resistance input:

Type	Range (Min./Max Values)	Min. Span °F / °C
Pt100	-328 to 1562°F / -200 to 850°C	45 / 25
Ni100	-76 to 482°F / -60 to 250°C	45 / 25
Lin. R	0 ohmns to 10,000 ohmns	30 ohmns

Cable resistance per wire (max.) ..... 5 Ω
Sensor current ..... Nom. 0.2 mA
Voltage input:
Measurement range ..... -800...+800 mV
Min. span ..... 2.5 mV

Input resistance ..... 10 MΩ

Current output:
Signal range ..... 4...20 mA
Min. signal range ..... 16 mA
Updating time ..... 440 ms

Load resistance ..... ≤ (Vsupply - 8) / 0.023 [Ω]

Thermocouple Input Ranges:

Type	Range (Min./Max Values)	Min. Span °F / °C	Standard
B	+752 TO 3300°F / +400 to 1820°C	360 / 200	IEC 584
E	-148 to 1832°F / -100 to 1000°C	90 / 50	IEC 584
J	-148 to 2192°F / -100 to 1200°C	90 / 50	IEC 584
K	-292 to 2501°F / -180 to 1372°C	90 / 50	IEC 584
L	-148 to 1652°F / -100 to 900°C	90 / 50	DIN43710
N	-292 to 2372°F / -180 to 1300°C	180 / 100	IEC 584
R	-58 to 3200°F / -50 to 1760°C	360 / 200	IEC 584
S	-58 to 3200°F / -50 to 1760°C	360 / 200	IEC 584
T	-328 to 752°F / -200 to 400°C	90 / 50	IEC 584
U	-328 to 1112°F / -200 to 600°C	135 / 75	DIN43710
W3	+32 to 4172°F / 0 to 2300°C	360 / 200	ASTM E988-90
W5	+32 to 4172°F / 0 to 2300°C	360 / 200	ASTM E988-90
LR	-328 to 1472°F / -200 to 800°C	90 / 50	GOST 3044-84

Cold junction compensation..... < ±1.0°C
Sensor error detection:
Programmable ..... 3.5...23 mA
Ex / I.S. data:

Ui..... : 30 VDC
Ii ..... : 120 mADC
Pi ..... : 0.84 W
Li ..... : 10 µH
Ci ..... : 1.0 nF
EEx / I.S. approval:
KEMA 06ATEX0062 X..... Ex II 1 GD, T80°C...T105°C
EEx ia IIC T6 / T4

Max. amb. temperature for T1...T4 ... 85°C
Max. amb. temperature for T5 and T6 .. 60°C
ATEX, applicable in zone..... 0, 1, 2, 20, 21 or 22
FM, applicable in..... IS, Cl. I, Div. 1, Gr. A, B, C, D
IS, Cl. I, Zone 0, AEx ia IIC
FM Installation Drawing No..... 5300Q502
CSA, applicable in..... IS, Cl. I, Div. 1, Gr. A, B, C, D
IS, Cl. I, Zone 0, Ex ia IIC
CSA Installation Drawing No..... 533XQC03
Marine approval:
Det Norske Veritas, Ships & Offshore .. Stand. for Certific. No. 2.4
Observed authority requirements: Standard:
EMC 2004/108/EC
Emission and immunity ..... EN 61326
ATEX 94/9/EC ..... EN 50014, EN 50020, EN 50281-1-1 a. EN 50284
FM, ASCN 3600, 3611, 3610
CSA, CAN / CSA ..... C22.2 No. 157, E60079-11, UL 913

*Of span = Of the presently selected range