PROGRAMMABLE TRANSMITTER
PR5335D

2-wire transmitter with HART protocol

5335D

– RTD, TC, Ohm, or mV input
– Extremely high measurement accuracy
– HART 5 protocol
– Galvanic isolation
– For DIN form B sensor head mounting

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 analog 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 communication.

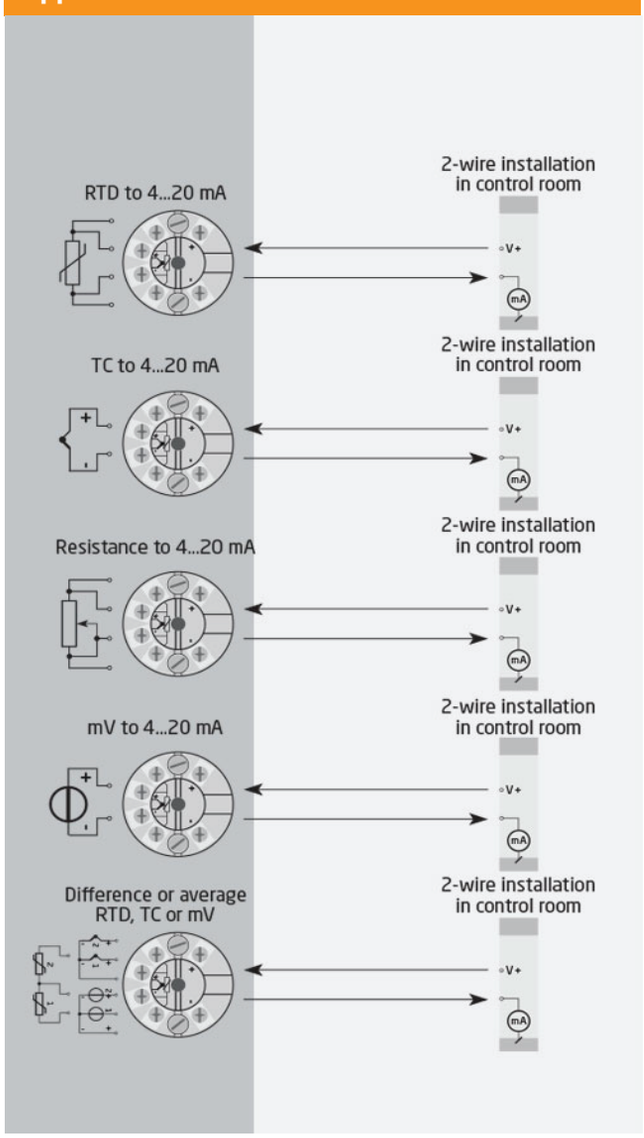
Technical characteristics

- Within a few seconds the user can program PR5335D 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.
- The 5335D has been designed according to strict safety requirements and is therefore suitable for application in SIL installations.
- Continuous check of vital stored data for safety reasons.
- Sensor error detection according to the guidelines in NAMUR NE89.

Mounting / installation

- For DIN form B sensor head mounting.

Application



PROGRAMMABLE TRANSMITTER PR5335D

Order

Type	Version
5335	Zone 0, 1, 2, 21, 22, M1 /DIV. 1, DIV.2 :D

Environmental Conditions

Operating temperatur : -40°C to +85°C
Calibration temperature : 20...28°C
Relative humidity :< 95% RH (non-cond.)
Protection degree (encl./terminal) : IP68 / IP00

Mechanical specifications

Dimensions : Ø 44 x 20.2 mm
Weight approx : 50 g
Wire size : 1 x 1.5 mm² stranded wire
Screw terminal torque : 0.4 Nm
Vibration : IEC 60068-2-6
2...25 Hz : ±1.6 mm
25...100 Hz : ±4 g

Common specifications

Supply

Supply voltage : 8.0...30 VDC

Isolation voltage

Isolation voltage, test / workin : 1.5 kVAC / 50 VAC

Response time

Response time (programmable) : 1...60 s

Warm-up time : 30 s.
Programming : Loop Link & HART
Signal / noise ratio : Min. 60 dB
EEprom error check : < 3.5 s
Accuracy : Better than 0.05% of selected range
Signal dynamics, input : 22 bit
Signal dynamics, output : 16 bit
Effect of supply voltage change : < 0.005% of span / VDC
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 : Pt100, Ni100, lin. R
Cable resistance per wire : 5 Ω (up to 50 Ω per wire is possible with reduced measurement accuracy)
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 detection : Yes
Sensor error current : When
detecting / else. : Nom. 33 µA / 0 µA

Voltage input

Measurement range : -800...+800 mV
Min. measurement range (span) : 5 mV
Input resistance. : 10 MΩ

Output specifications

Current output

Signal range : 4...20 mA
Min. signal range : 16 mA
Load (@ current output) : ≤(Vsupply - 8) / 0.023 [Ω]
Load stability : ≤ 0.01% of span / 100 Ω
Sensor error indication : Programmable 3.5...23 mA
NAMUR NE43 Upscale/Downscale : 23 mA / 3.5 mA

of span : = of the presently selected range

I.S. / Ex marking

ATEX : II 1 G Ex ia IIC T6...T4 Ga, II 2 D Ex ia IIIC Db, I M1 Ex ia I Ma
IECEx : Ex ia IIC T6...T4 Ga, Ex ia IIIC Db, Ex ia I Ma
FM, US : Cl. I, Div. 1, Gp. A, B, C, D T4/T6; Cl. I Zone 0, AEx ia IIC T4/T6; Cl. 1, Div. 2, Gp. A, B, C, D, T4/T6
CSA : Cl. I, Div. 1, Gp. A, B, C, D Ex ia IIC, Ga
INMETRO : Ex ia IIC T6...T4 Ga, Ex ia IIIC Da, Ex ia I Ma

Observed authority requirements

EMC : 2014/30/EU & UK SI 2016/1091
ATEX : 2014/34/EU & UK SI 2016/1107
RoHS : 2011/65/EU & UK SI 2012/3032
EAC : TR-CU 020/2011
EAC Ex : TR-CU 012/2011

Approvals

ATEX : DEKRA 20ATEX0108X
IECEx : DEK 20.0063X
FM : FM17US0013X
CSA : 1125003
INMETRO : DEKRA 18.0002X
DNV Marine : TAA0000101
EAC Ex : RU C-DK.HA65.B.00355/19
SIL : Hardware assessed for use in SIL applications