



2-wire programmable transmitter

5331A

- RTD, TC, Ohm, or mV input
- Extremely high measurement accuracy
- 1.5 kVAC galvanic isolation
- Programmable sensor error value
- For DIN form B sensor head mounting



Application

- Linearized temperature measurement with Pt100...Pt1000, Ni100...Ni1000, or TC sensor.
- 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.

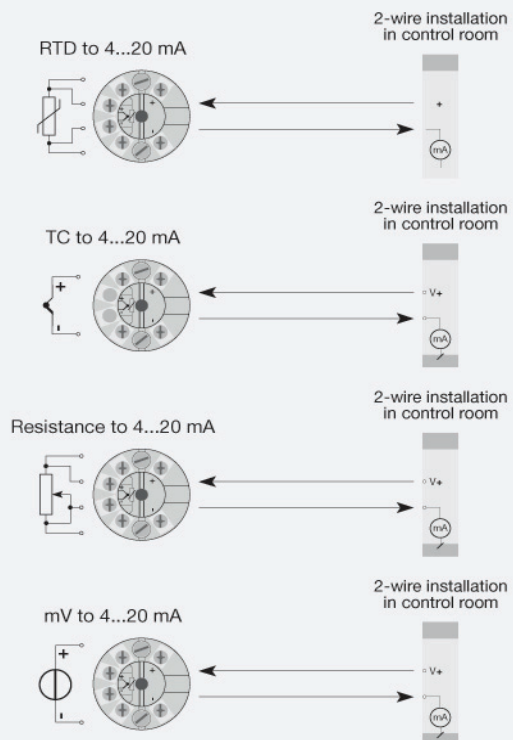
Technical characteristics

- Within a few seconds the user can program PR5331A 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.

Mounting / installation

- For DIN form B sensor head or DIN rail mounting with the PR fitting type 8421.

Connections



Order:

Type	Ambient temperature	Galvanic isolation
5331A	-40°C...+85°C : 3	1500 VAC : B

Environmental Conditions

Specifications range.....	-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 mm ² stranded wire
Screw terminal torque.....	0.4 Nm
Vibration.....	IEC 60068-2-6 : 2007
Vibration: 2...25 Hz.....	±1.6 mm
Vibration: 25...100 Hz.....	±4 g

Common specifications

Supply voltage.....	7.2...35 VDC
Internal consumption.....	25 mW...0.8 W
Voltage drop.....	7.2 VDC
Isolation voltage, test / working.....	1.5 kVAC / 50 VAC
Warm-up time.....	5 min.
Communications interface.....	Loop Link
Signal / noise ratio.....	Min. 60 dB
Response time (programmable).....	1...60 s
EEPROM error check.....	< 3.5 s
Accuracy.....	Better than 0.05% of selected range
Signal dynamics, input.....	20 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 NE 21, A criterion, burst.....	< ±1% of span

Input specifications

Max. offset.....	50% of selected max. value
RTD input.....	Pt100, Ni100, lin. R
Cable resistance per wire (max.), RTD.....	5 Ω
Sensor current, RTD.....	Nom. 0.2 mA
Effect of sensor cable resistance (3-/4-wire), RTD.....	< 0.002 Ω / Ω
Sensor error detection, RTD.....	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, TC.....	Yes
Sensor error current: When detecting / else.....	Nom. 33 µA / 0 µA
Voltage input: Measurement range.....	-12...800 mV
Min. measurement range (span), voltage input.....	5 mV
Input resistance, voltage input.....	10 MΩ

Output specifications

Current output: Signal range.....	4...20 mA
Min. signal range.....	16 mA
Updating time.....	440 ms
Load resistance, current output.....	≤ (Vsupply - 7.2) / 0.023 [Ω]
Load stability, current output.....	≤0.01% of span / 100 Ω
Sensor error indication, current output.....	Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale.....	23 mA / 3.5 mA
*of span.....	= of the presently selected range

Approvals

EMC.....	EN 61326-1
ATEX 2004/108/EC.....	KEMA 10ATEX0002 X
IECEx.....	DEK 13.0035X
INMETRO.....	DEKRA 13.0001 X
EAC TR-CU 020/2011.....	EN 61326-1
DNV Marine.....	Stand. f. Certific. No. 2.4



2-wire programmable transmitter

5331D

- RTD, TC, Ohm, or mV input
- Extremely high measurement accuracy
- 1.5 kVAC galvanic isolation
- Programmable sensor error value
- For DIN form B sensor head mounting



Application

- Linearized temperature measurement with Pt100...Pt1000, Ni100...Ni1000, or TC sensor.
- 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.

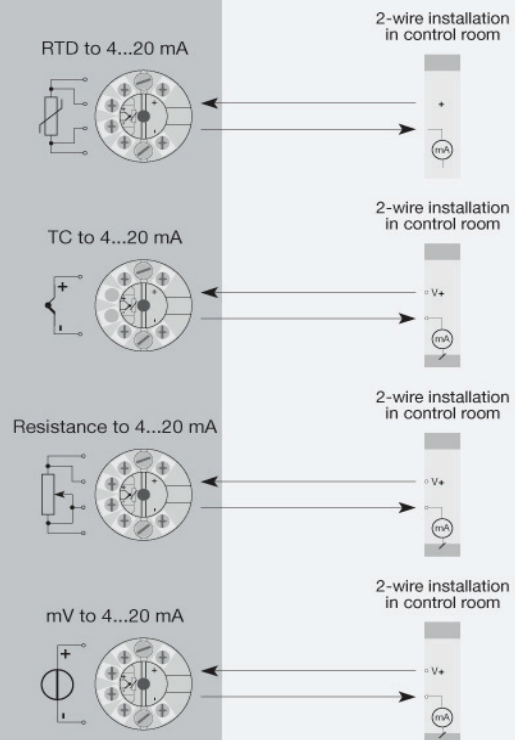
Technical characteristics

- Within a few seconds the user can program PR5331D 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.

Mounting / installation

- For DIN form B sensor head mounting.
- NB: As Ex barrier we recommend 5104B, 5114B, or 5116B.

Connections



Order:

Type	Ambient temperature	Galvanic isolation
5331D	-40°C...+85°C : 3	1500 VAC : B

Environmental Conditions

Specifications range.....	-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 mm ² stranded wire
Screw terminal torque.....	0.4 Nm
Vibration.....	IEC 60068-2-6 : 2007
Vibration: 2...25 Hz.....	±1.6 mm
Vibration: 25...100 Hz.....	±4 g

Common specifications

Supply voltage.....	7.2...30 VDC
Internal consumption.....	25 mW...0.8 W
Voltage drop.....	7.2 VDC
Isolation voltage, test / working.....	1.5 kVAC / 50 VAC
Warm-up time.....	5 min.
Communications interface.....	Loop Link
Signal / noise ratio.....	Min. 60 dB
Response time (programmable).....	1...60 s
EEPROM error check.....	< 3.5 s
Accuracy.....	Better than 0.05% of selected range
Signal dynamics, input.....	20 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 NE 21, A criterion, burst.....	< ±1% of span

Input specifications

Max. offset.....	50% of selected max. value
RTD input.....	Pt100, Ni100, lin. R
Cable resistance per wire (max.), RTD.....	5 Ω
Sensor current, RTD.....	Nom. 0.2 mA
Effect of sensor cable resistance (3-/4-wire), RTD.....	< 0.002 Ω / Ω
Sensor error detection, RTD.....	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, TC.....	Yes
Sensor error current: When detecting / else.....	Nom. 33 µA / 0 µA
Voltage input: Measurement range.....	-12...800 mV
Min. measurement range (span), voltage input.....	5 mV
Input resistance, voltage input.....	10 MΩ

Output specifications

Current output: Signal range.....	4...20 mA
Min. signal range.....	16 mA
Updating time.....	440 ms
Load resistance, current output.....	≤ (Vsupply - 7.2) / 0.023 [Ω]
Load stability, current output.....	≤0.01% of span / 100 Ω
Sensor error indication, current output.....	Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale.....	23 mA / 3.5 mA
*of span.....	= of the presently selected range

Approvals

EMC.....	EN 61326-1
ATEX 2004/108/EC.....	KEMA 06ATEX0062
IECEx.....	DEK 13.0035X
FM.....	2D5A7
CSA.....	1125003
INMETRO.....	DEKRA 13.0001 X
EAC TR-CU 020/2011.....	EN 61326-1
EAC Ex TR-CU 012/2011.....	RU C-DK.GB08.V.00410
DNV Marine.....	Stand. f. Certific. No. 2.4



2-wire programmable transmitter

5333A

- RTD or Ohm input
- High measurement accuracy
- 3-wire connection
- Programmable sensor error value
- For DIN form B sensor head mounting



Application

- Linearized temperature measurement with Pt100...Pt1000 or Ni100...Ni1000 sensor.
- Conversion of linear resistance variation to a standard analog current signal, for instance from valves or Ohmic level sensors.

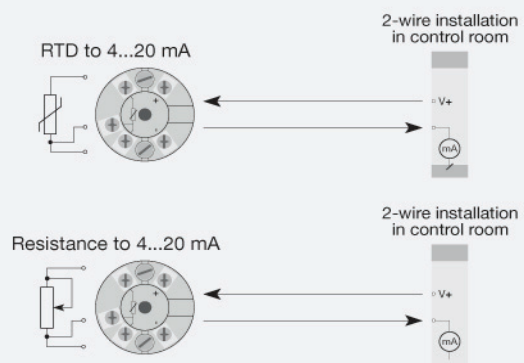
Technical characteristics

- Within a few seconds the user can program PR5333A to measure temperatures within all RTD ranges defined by the norms.
- The RTD and resistance inputs have cable compensation for 3-wire connection.

Mounting / installation

- For DIN form B sensor head or DIN rail mounting with the PR fitting type 8421.

Connections



Order:

Type
5333A

Environmental Conditions

Specifications range.....	-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 mm ² stranded wire
Screw terminal torque.....	0.4 Nm
Vibration.....	IEC 60068-2-6 : 2007
Vibration: 2...25 Hz.....	±1.6 mm
Vibration: 25...100 Hz.....	±4 g

Common specifications

Supply voltage.....	8.0...35 VDC
Internal consumption.....	25 mW...0.8 W
Voltage drop.....	8.0 VDC
Warm-up time.....	5 min.
Communications interface.....	Loop Link
Signal / noise ratio.....	Min. 60 dB
Response time (programmable).....	0.33...60 s
Accuracy.....	Better than 0.1% of selected range
Signal dynamics, input.....	19 bit
Signal dynamics, output.....	16 bit
Effect of supply voltage change.....	< 0.005% of span / VDC
EMC immunity influence.....	< ±0.5% of span

Input specifications

Max. offset.....	50% of selected max. value
RTD input.....	Pt100, Ni100, lin. R
Cable resistance per wire (max.), RTD.....	10 Ω
Sensor current, RTD.....	> 0.2 mA, < 0.4 mA
Effect of sensor cable resistance (3-wire), RTD.....	< 0.002 Ω / Ω
Sensor error detection, RTD.....	Yes

Output specifications

Current output: Signal range.....	4...20 mA
Min. signal range.....	16 mA
Updating time.....	135 ms
Load resistance, current output.....	≤ (Vsupply - 8) / 0.023 [Ω]
Load stability, current output.....	≤0.01% of span / 100 Ω
Sensor error indication, current output.....	Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale.....	23 mA / 3.5 mA
*of span.....	= of the presently selected range

Approvals

EMC.....	EN 61326-1
ATEX 2004/108/EC.....	KEMA 10ATEX0003 X
IECEx.....	DEK 13.0036X
INMETRO.....	DEKRA 13.0002 X
EAC TR-CU 020/2011.....	EN 61326-1
DNV Marine.....	Stand. f. Certific. No. 2.4



2-wire programmable transmitter

5333D

- RTD or Ohm input
- High measurement accuracy
- 3-wire connection
- Programmable sensor error value
- For DIN form B sensor head mounting



Application

- Linearized temperature measurement with Pt100...Pt1000 or Ni100...Ni1000 sensor.
- Conversion of linear resistance variation to a standard analog current signal, for instance from valves or Ohmic level sensors.

Technical characteristics

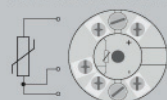
- Within a few seconds the user can program PR5333D to measure temperatures within all RTD ranges defined by the norms.
- The RTD and resistance inputs have cable compensation for 3-wire connection.

Mounting / installation

- For DIN form B sensor head mounting.
- NB: As Ex barrier we recommend 5104B, 5114B, or 5116B.

Connections

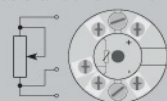
RTD to 4...20 mA



2-wire installation
in control room



Resistance to 4...20 mA



2-wire installation
in control room



Order:

Type
5333D

Environmental Conditions

Specifications range.....	-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 mm ² stranded wire
Screw terminal torque.....	0.4 Nm
Vibration.....	IEC 60068-2-6 : 2007
Vibration: 2...25 Hz.....	±1.6 mm
Vibration: 25...100 Hz.....	±4 g

Common specifications

Supply voltage.....	8.0...30 VDC
Internal consumption.....	25 mW...0.8 W
Voltage drop.....	8.0 VDC
Warm-up time.....	5 min.
Communications interface.....	Loop Link
Signal / noise ratio.....	Min. 60 dB
Response time (programmable).....	0.33...60 s
Accuracy.....	Better than 0.1% of selected range
Signal dynamics, input.....	19 bit
Signal dynamics, output.....	16 bit
Effect of supply voltage change.....	< 0.005% of span / VDC
EMC immunity influence.....	< ±0.5% of span

Input specifications

Max. offset.....	50% of selected max. value
RTD input.....	Pt100, Ni100, lin. R
Cable resistance per wire (max.), RTD.....	10 Ω
Sensor current, RTD.....	> 0.2 mA, < 0.4 mA
Effect of sensor cable resistance (3-wire), RTD.....	< 0.002 Ω / Ω
Sensor error detection, RTD.....	Yes

Output specifications

Current output: Signal range.....	4...20 mA
Min. signal range.....	16 mA
Updating time.....	135 ms
Load resistance, current output.....	≤ (Vsupply - 8) / 0.023 [Ω]
Load stability, current output.....	≤0.01% of span / 100 Ω
Sensor error indication, current output.....	Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale.....	23 mA / 3.5 mA
*of span.....	= of the presently selected range

Approvals

EMC.....	EN 61326-1
ATEX 2004/108/EC.....	KEMA 03ATEX1535 X
IECEx.....	DEK 13.0036X
FM.....	2D5A7
CSA.....	1125003
INMETRO.....	DEKRA 13.0002 X
EAC TR-CU 020/2011.....	EN 61326-1
EAC Ex TR-CU 012/2011.....	RU C-DK.GB08.V.00410
DNV Marine.....	Stand. f. Certific. No. 2.4



2-wire programmable transmitter

5334A

- TC input
- High measurement accuracy
- Galvanic isolation
- Programmable sensor error value
- For DIN form B sensor head mounting



Application

- Linearized temperature measurement with TC sensor.
- Amplification of bipolar mV signals to a 4...20 mA signal, optionally linearized according to a defined linearization function.

Technical characteristics

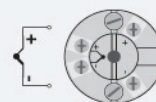
- Within a few seconds the user can program PR5334A to measure temperatures within all TC ranges defined by the norms.
- Cold junction compensation (CJC) with a built-in temperature sensor.
- Continuous check of vital stored data for safety reasons.

Mounting / installation

- For DIN form B sensor head or DIN rail mounting with the PR fitting type 8421.

Connections

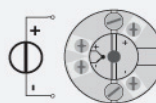
TC to 4...20 mA



2-wire installation
in control room



mV to 4...20 mA



2-wire installation
in control room



Order:

Type	Ambient temperature	Galvanic isolation
5334A	-40°C...+85°C : 3	1500 VAC : B

Environmental Conditions

Specifications range.....	-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 mm ² stranded wire
Screw terminal torque.....	0.4 Nm
Vibration.....	IEC 60068-2-6 : 2007
Vibration: 2...25 Hz.....	±1.6 mm
Vibration: 25...100 Hz.....	±4 g

Common specifications

Supply voltage.....	7.2...35 VDC
Internal consumption.....	25 mW...0.8 W
Voltage drop.....	7.2 VDC
Isolation voltage, test / working.....	1.5 kVAC / 50 VAC
Warm-up time.....	5 min.
Communications interface.....	Loop Link
Signal / noise ratio.....	Min. 60 dB
Response time (programmable).....	1...60 s
EEPROM error check.....	< 3.5 s
Accuracy.....	Better than 0.05% of selected range
Signal dynamics, input.....	18 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 NE 21, A criterion, burst.....	< ±1% of span

Input specifications

Max. offset.....	50% of selected max. value
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, TC.....	Yes
Sensor error current: When detecting / else.....	Nom. 33 µA / 0 µA
Voltage input: Measurement range.....	-12...150 mV
Min. measurement range (span), voltage input.....	5 mV
Input resistance, voltage input.....	10 MΩ

Output specifications

Current output: Signal range.....	4...20 mA
Min. signal range.....	16 mA
Updating time.....	440 ms
Load resistance, current output.....	≤ (Vsupply - 7.2) / 0.023 [Ω]
Load stability, current output.....	≤0.01% of span / 100 Ω
Sensor error indication, current output.....	Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale.....	23 mA / 3.5 mA
*of span.....	= of the presently selected range

Approvals

EMC.....	EN 61326-1
ATEX 2004/108/EC.....	KEMA 10ATEX0002 X
IECEx.....	DEK 13.0035X
INMETRO.....	DEKRA 13.0001 X
EAC TR-CU 020/2011.....	EN 61326-1



2-wire programmable transmitter

5334B

- TC input
- High measurement accuracy
- Galvanic isolation
- Programmable sensor error value
- For DIN form B sensor head mounting



Application

- Linearized temperature measurement with TC sensor.
- Amplification of bipolar mV signals to a 4...20 mA signal, optionally linearized according to a defined linearization function.

Technical characteristics

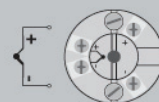
- Within a few seconds the user can program PR5334B to measure temperatures within all TC ranges defined by the norms.
- Cold junction compensation (CJC) with a built-in temperature sensor.
- Continuous check of vital stored data for safety reasons.

Mounting / installation

- For DIN form B sensor head mounting.
- NB: As Ex barrier we recommend 5104B, 5114B, or 5116B.

Connections

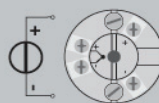
TC to 4...20 mA



2-wire installation
in control room



mV to 4...20 mA



2-wire installation
in control room



Order:

Type	Ambient temperature	Galvanic isolation
5334B	-40°C...+85°C : 3	1500 VAC : B

Environmental Conditions

Specifications range.....	-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 mm ² stranded wire
Screw terminal torque.....	0.4 Nm
Vibration.....	IEC 60068-2-6 : 2007
Vibration: 2...25 Hz.....	±1.6 mm
Vibration: 25...100 Hz.....	±4 g

Common specifications

Supply voltage.....	7.2...30 VDC
Internal consumption.....	25 mW...0.8 W
Voltage drop.....	7.2 VDC
Isolation voltage, test / working.....	1.5 kVAC / 50 VAC
Warm-up time.....	5 min.
Communications interface.....	Loop Link
Signal / noise ratio.....	Min. 60 dB
Response time (programmable).....	1...60 s
EEprom error check.....	< 3.5 s
Accuracy.....	Better than 0.05% of selected range
Signal dynamics, input.....	18 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 NE 21, A criterion, burst.....	< ±1% of span

Input specifications

Max. offset.....	50% of selected max. value
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, TC.....	Yes
Sensor error current: When detecting / else.....	Nom. 33 µA / 0 µA
Voltage input: Measurement range.....	-12...150 mV
Min. measurement range (span), voltage input.....	5 mV
Input resistance, voltage input.....	10 MΩ

Output specifications

Current output: Signal range.....	4...20 mA
Min. signal range.....	16 mA
Updating time.....	440 ms
Load resistance, current output.....	≤ (Vsupply - 7.2) / 0.023 [Ω]
Load stability, current output.....	≤0.01% of span / 100 Ω
Sensor error indication, current output.....	Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale.....	23 mA / 3.5 mA
*of span.....	= of the presently selected range

Approvals

EMC.....	EN 61326-1
ATEX 2004/108/EC.....	KEMA 06ATEX0062
IECEx.....	DEK 13.0035X
INMETRO.....	DEKRA 13.0001 X
EAC TR-CU 020/2011.....	EN 61326-1
EAC Ex TR-CU 012/2011.....	RU C-DK.GB08.V.00410
DNV Marine.....	Stand. f. Certific. No. 2.4



2-wire transmitter with HART® protocol

5335A

- RTD, TC, Ohm, or mV input
- Extremely high measurement accuracy
- HART® 5 protocol
- Programmable sensor error value
- 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.

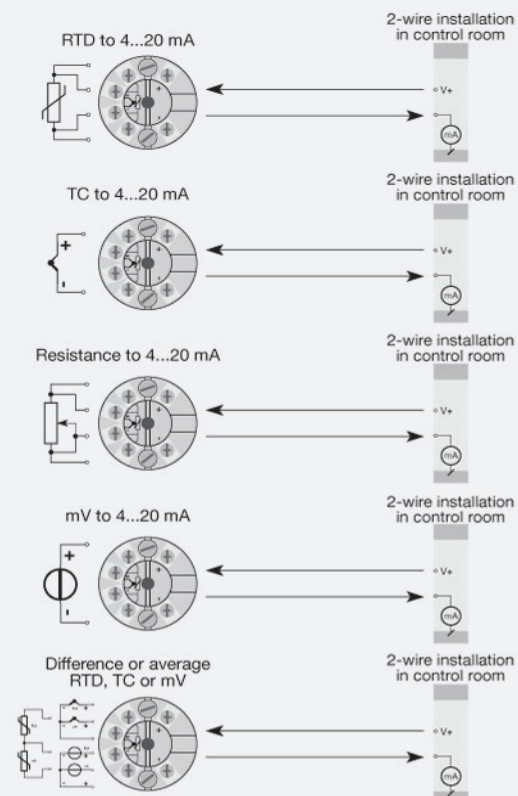
Technical characteristics

- Within a few seconds the user can program PR5335A 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 5335A has been designed according to strict safety requirements and is therefore suitable for application in SIL 2 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 or DIN rail mounting with the PR fitting type 8421.

Connections



Order:

Type
5335A

Environmental Conditions

Specifications range.....	-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 mm ² stranded wire
Screw terminal torque.....	0.4 Nm
Vibration.....	IEC 60068-2-6 : 2007
Vibration: 2...25 Hz.....	±1.6 mm
Vibration: 25...100 Hz.....	±4 g

Common specifications

Supply voltage.....	8.0...35 VDC
Isolation voltage, test / working.....	1.5 kVAC / 50 VAC
Warm-up time.....	30 s
Communications interface.....	Loop Link & HART®
Signal / noise ratio.....	Min. 60 dB
Accuracy.....	Better than 0.05% of selected range
Response time (programmable).....	1...60 s
Signal dynamics, input.....	22 bit
Signal dynamics, output.....	16 bit
Effect of supply voltage change.....	< 0.005% of span / VDC
EMC immunity influence.....	< ±0.1% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst.....	< ±1% of span

Input specifications

Max. offset.....	50% of selected max. value
RTD input.....	Pt100, Ni100, lin. R
Cable resistance per wire (max.), RTD.....	5 Ω (up to 50 Ω per wire is possible with reduced measurement accuracy)
Sensor current, RTD.....	Nom. 0.2 mA
Effect of sensor cable resistance (3-/4-wire), RTD.....	< 0.002 Ω / Ω
Sensor error detection, RTD.....	Yes
TC input: Thermocouple type.....	B, E, J, K, L, N, R, S, T, U, W3, W5
Cold junction compensation (CJC).....	< ±1.0°C
Sensor error detection, TC.....	Yes
Sensor error current: When detecting / else.....	Nom. 33 µA / 0 µA
Voltage input: Measurement range.....	-800...+800 mV
Min. measurement range (span), voltage input.....	2.5 mV
Input resistance, voltage input.....	10 MΩ

Output specifications

Current output: Signal range.....	4...20 mA
Min. signal range.....	16 mA
Load resistance, current output.....	≤ (Vsupply - 8) / 0.023 [Ω]
Load stability, current output.....	≤0.01% of span / 100 Ω
Sensor error indication, current output.....	Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale.....	23 mA / 3.5 mA
*of span.....	= of the presently selected range

Approvals

EMC.....	EN 61326-1
ATEX 2004/108/EC.....	KEMA 03ATEX1508 X
IECEX.....	KEM 10.0083X
INMETRO.....	NCC 12.0844 X
EAC TR-CU 020/2011.....	EN 61326-1
DNV Marine.....	Stand. f. Certific. No. 2.4
SIL.....	Hardware assessed for use in SIL applications



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.

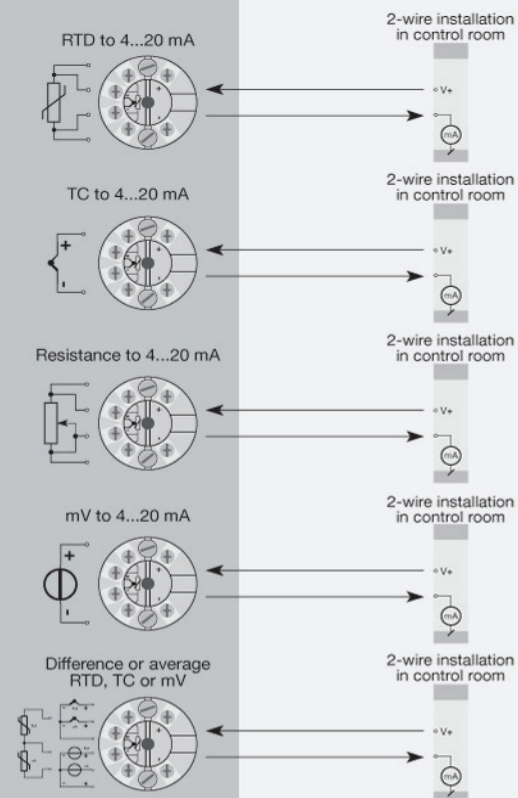
Technical characteristics

- 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 2 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.
- NB: As Ex barrier we recommend 5106B.

Connections



Order:

Type
5335D

Environmental Conditions

Specifications range.....	-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 mm ² stranded wire
Screw terminal torque.....	0.4 Nm
Vibration.....	IEC 60068-2-6 : 2007
Vibration: 2...25 Hz.....	±1.6 mm
Vibration: 25...100 Hz.....	±4 g

Common specifications

Supply voltage.....	8.0...30 VDC
Isolation voltage, test / working.....	1.5 kVAC / 50 VAC
Warm-up time.....	30 s
Communications interface.....	Loop Link & HART®
Signal / noise ratio.....	Min. 60 dB
Response time (programmable).....	1...60 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.....	< ±0.1% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst.....	< ±1% of span

Input specifications

Max. offset.....	50% of selected max. value
RTD input.....	Pt100, Ni100, lin. R
Cable resistance per wire (max.), RTD.....	5 Ω (up to 50 Ω per wire is possible with reduced measurement accuracy)
Sensor current, RTD.....	Nom. 0.2 mA
Effect of sensor cable resistance (3-/4-wire), RTD.....	< 0.002 Ω / Ω
Sensor error detection, RTD.....	Yes
TC input: Thermocouple type.....	B, E, J, K, L, N, R, S, T, U, W3, W5
Cold junction compensation (CJC).....	< ±1.0°C
Sensor error detection, TC.....	Yes
Sensor error current: When detecting / else.....	Nom. 33 µA / 0 µA
Voltage input: Measurement range.....	-800...+800 mV
Min. measurement range (span), voltage input.....	2.5 mV
Input resistance, voltage input.....	10 MΩ

Output specifications

Current output: Signal range.....	4...20 mA
Min. signal range.....	16 mA
Load resistance, current output.....	≤ (Vsupply - 8) / 0.023 [Ω]
Load stability, current output.....	≤0.01% of span / 100 Ω
Sensor error indication, current output.....	Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale.....	23 mA / 3.5 mA
*of span.....	= of the presently selected range

Approvals

EMC.....	EN 61326-1
ATEX 2004/108/EC.....	KEMA 03ATEX1537
IECEX.....	KEM 10.0083X
FM.....	2D5A7
CSA.....	1125003
INMETRO.....	NCC 12.0844 X
EAC TR-CU 020/2011.....	EN 61326-1
EAC Ex TR-CU 012/2011.....	RU C-DK.GB08.V.00410
DNV Marine.....	Stand. f. Certific. No. 2.4
SIL.....	Hardware assessed for use in SIL applications



2-wire transmitter with HART® protocol

5337A

- RTD, TC, Ohm, and bipolar mV input
- 2 analogue inputs and 5 device variables with status available
- HART® protocol revision selectable from HART® 5 or HART® 7
- Hardware assessed for use in SIL applications
- Mounting in Safe area or Zone 2/22



Application

- Linearized temperature measurement with TC and RTD sensors e.g. Pt100 and Ni100.
- HART® communication and 4...20 mA analog PV output for individual, difference or average temperature measurement of up to two RTD or TC input sensors.
- Conversion of linear resistance to a standard analog current signal, e.g. from valves or Ohmic level sensors.
- Amplification of bipolar mV signals to standard 4...20 mA current signals.
- Up to 63 transmitters (HART® 7) can be connected in a multidrop communication setup.

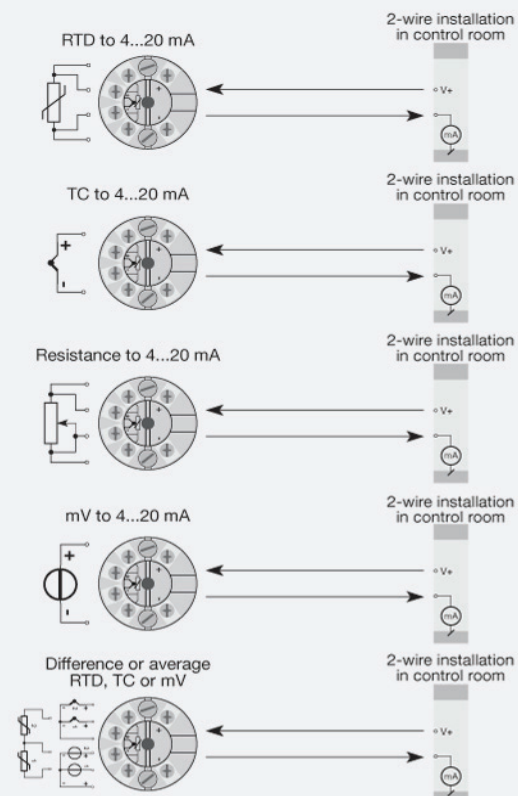
Technical characteristics

- HART® protocol revision can be changed by user configuration to either HART® 5 or HART® 7 protocol.
- The HART® 7 protocol offers:
 - Long Tag numbers of up to 32 characters.
 - Enhanced Burst Mode and Event notification with time stamping.
 - Device variable and status mapping to any dynamic variable PV, SV, TV or QV.
 - Process signal trend measurement with logs and summary data.
 - Automatic event notification with time stamps.
 - Command aggregation for higher communication efficiency.
- 5337A is designed according to strict safety requirements and is therefore suitable for applications in SIL installations.
- Continuous check of vital stored data.
- Meeting the NAMUR NE21 recommendations, the 5337 HART® transmitter ensures top measurement performance in harsh EMC environments. Additionally, the 5337 meets NAMUR NE43 and NE89 recommendations.

Mounting / installation

- For DIN form B sensor head or DIN rail mounting via the PR fitting type 8421.
- Configuration via standard HART® communication interfaces or by PR 5909 Loop Link.

Connections



Order:

Type
5337A

Environmental Conditions

Specifications range.....	-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 mm ² stranded wire
Screw terminal torque.....	0.4 Nm
Vibration.....	IEC 60068-2-6 : 2007
Vibration: 2...25 Hz.....	±1.6 mm
Vibration: 25...100 Hz.....	±4 g

Common specifications

Supply voltage.....	8.0...35 VDC
Voltage drop.....	8.0 VDC
Isolation voltage, test / working.....	1.5 kVAC / 50 VAC
Signal / noise ratio.....	> 60 dB
Communications interface.....	Loop Link & HART®
Response time (programmable).....	1...60 s
Accuracy.....	Better than 0.05% of selected range
EMC immunity influence.....	< ±0.1% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst.....	< ±1% of span

Input specifications

Max. offset.....	50% of selected max. value
RTD input.....	Pt50, Pt100, Pt200, Pt500, Pt1000, Ni50, Ni100, Ni120, Ni1000
Cable resistance per wire (max.), RTD.....	5 Ω (up to 50 Ω per wire is possible with reduced measurement accuracy)
Sensor current, RTD.....	Nom. 0.2 mA
TC input: Thermocouple type.....	B, E, J, K, L, N, R, S, T, U, W3, W5, LR
Cold junction compensation (CJC).....	Constant, internal or external via a Pt100 or Ni100 sensor
Voltage input: Measurement range.....	-800...+800 mV
Min. measurement range (span), voltage input.....	2.5 mV
Input resistance, voltage input.....	10 MΩ

Output specifications

Current output: Signal range.....	4...20 mA
Min. signal range.....	16 mA
Updating time.....	440 ms
Load resistance, current output.....	≤ (Vsupply - 8) / 0.023 [Ω]
Sensor error indication, current output.....	Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale.....	23 mA / 3.5 mA
HART protocol revisions.....	HART 5 and HART 7

Approvals

EMC.....	EN 61326-1
ATEX 2004/108/EC.....	KEMA 03ATEX1508 X
IECEx.....	KEM 10.0083X
INMETRO.....	NCC 12.0844 X
EAC TR-CU 020/2011.....	EN 61326-1
DNV Marine.....	Stand. f. Certific. No. 2.4
SIL.....	Hardware assessed for use in SIL applications



2-wire transmitter with HART® protocol

5337D

- RTD, TC, Ohm, and bipolar mV input
- 2 analogue inputs and 5 device variables with status available
- HART® protocol revision selectable from HART® 5 or HART® 7
- Hardware assessed for use in SIL applications
- Mounting in hazardous gas and dust area



Application

- Linearized temperature measurement with TC and RTD sensors e.g. Pt100 and Ni100.
- HART® communication and 4...20 mA analog PV output for individual, difference or average temperature measurement of up to two RTD or TC input sensors.
- Conversion of linear resistance to a standard analog current signal, e.g. from valves or Ohmic level sensors.
- Amplification of bipolar mV signals to standard 4...20 mA current signals.
- Up to 63 transmitters (HART® 7) can be connected in a multidrop communication setup.

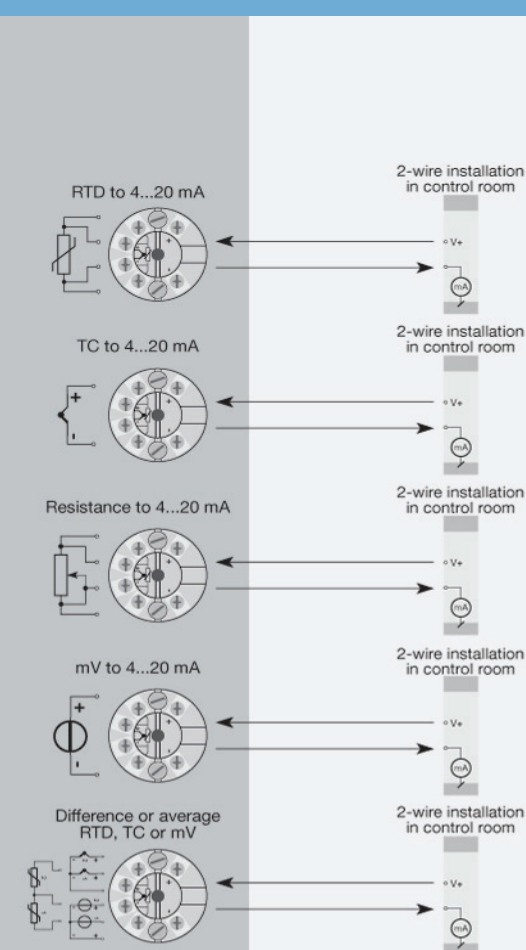
Technical characteristics

- HART® protocol revision can be changed by user configuration to either HART® 5 or HART® 7 protocol.
- The HART® 7 protocol offers:
 - Long Tag numbers of up to 32 characters.
 - Enhanced Burst Mode and Event notification with time stamping.
 - Device variable and status mapping to any dynamic variable PV, SV, TV or QV.
 - Process signal trend measurement with logs and summary data.
 - Automatic event notification with time stamps.
 - Command aggregation for higher communication efficiency.
- 5337D is designed according to strict safety requirements and is therefore suitable for applications in SIL installations.
- Continuous check of vital stored data.
- Meeting the NAMUR NE 21 recommendations, the 5337 HART® transmitter ensures top measurement performance in harsh EMC environments. Additionally, the 5337D meets NAMUR NE43 and NE89 recommendations.

Mounting / installation

- For DIN form B sensor head mounting.
- Configuration via standard HART® communication interfaces or by PR 5909 Loop Link.
- PR 5106B or 9106B is recommended as a barrier for 5337D.

Connections



Order:

Type
5337D

Environmental Conditions

Specifications range.....	-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 mm ² stranded wire
Screw terminal torque.....	0.4 Nm
Vibration.....	IEC 60068-2-6 : 2007
Vibration: 2...25 Hz.....	±1.6 mm
Vibration: 25...100 Hz.....	±4 g

Common specifications

Supply voltage.....	8.0...30 VDC
Voltage drop.....	8.0 VDC
Isolation voltage, test / working.....	1.5 kVAC / 50 VAC
Communications interface.....	Loop Link & HART®
Signal / noise ratio.....	> 60 dB
Response time (programmable).....	1...60 s
Accuracy.....	Better than 0.05% of selected range
EMC immunity influence.....	< ±0.1% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst.....	< ±1% of span

Input specifications

Max. offset.....	50% of selected max. value
RTD input.....	Pt50, Pt100, Pt200, Pt500, Pt1000, Ni50, Ni100, Ni120, Ni1000
Cable resistance per wire (max.), RTD.....	5 Ω (up to 50 Ω per wire is possible with reduced measurement accuracy)
Sensor current, RTD.....	Nom. 0.2 mA
TC input: Thermocouple type.....	B, E, J, K, L, N, R, S, T, U, W3, W5, LR
Cold junction compensation (CJC).....	Constant, internal or external via a Pt100 or Ni100 sensor
Voltage input: Measurement range.....	-800...+800 mV
Min. measurement range (span), voltage input.....	2.5 mV
Input resistance, voltage input.....	10 MΩ

Output specifications

Current output: Signal range.....	4...20 mA
Min. signal range.....	16 mA
Updating time.....	440 ms
Load resistance, current output.....	≤ (Vsupply - 8) / 0.023 [Ω]
Sensor error indication, current output.....	Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale.....	23 mA / 3.5 mA
HART protocol revisions.....	HART 5 and HART 7

Approvals

EMC.....	EN 61326-1
ATEX 2004/108/EC.....	KEMA 03ATEX1537
IECEx.....	KEM 10.0083X
FM.....	2D5A7
CSA.....	1125003
INMETRO.....	NCC 12.0844 X
EAC TR-CU 020/2011.....	EN 61326-1
EAC Ex TR-CU 012/2011.....	RU C-DK.GB08.V.00410
DNV Marine.....	Stand. f. Certific. No. 2.4
SIL.....	Hardware assessed for use in SIL applications



Profibus PA / Foundation Fieldbus transmitter

5350A

- PROFIBUS® PA ver. 3.0
- FOUNDATION™ Fieldbus ver. ITK 4.6
- Automatic switch between protocols
- Basic or LAS capability with F.F.
- For DIN form B sensor head mounting



Application

- Linearized temperature measurement with RTD or TC sensor.
- Difference, average or redundancy temperature measurement with RTD or TC sensor.
- Linear resistance, potentiometer and bipolar mV measurement.

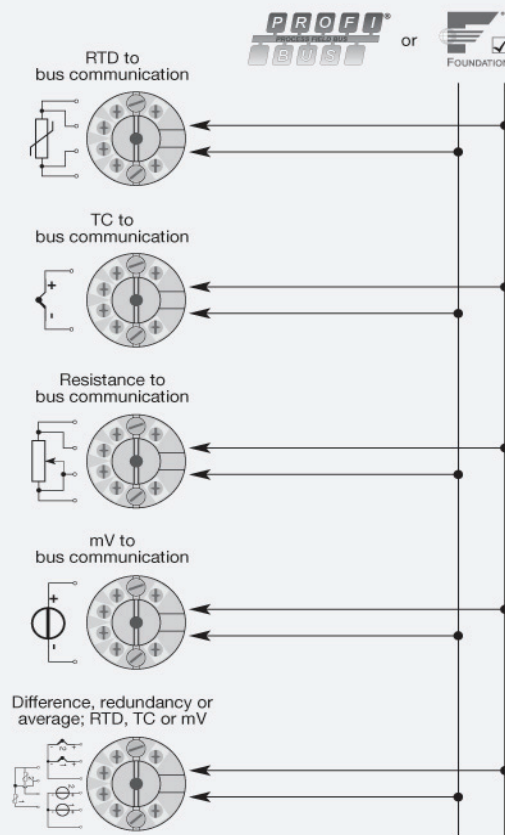
Technical characteristics

- Bus transmitter with both PROFIBUS® PA and FOUNDATION™ Fieldbus communication. A unique switch function ensures automatic shift between the two protocols.
- Set-up for PROFIBUS® PA can be done via Siemens Simatic® PDM®, ABB Melody / Harmony and Metso DNA software and for FOUNDATION™ Fieldbus via Emerson DeltaV, Yokogawa CS 1000 / CS 3000, ABB Melody / Harmony and Honeywell Experion software.
- The simulation mode function can be activated by way of a magnet.
- Polarity-independent bus connection.
- 24 bit A/D converter ensures high resolution.
- PROFIBUS® PA function blocks: 2 analog.
- FOUNDATION™ Fieldbus function blocks: 2 analog and 1 PID.
- FOUNDATION™ Fieldbus capability: Basic or LAS.

Mounting / installation

- For DIN form B sensor head or DIN rail mounting with the PR fitting type 8421.

Connections



Order:

Type
5350A

Environmental Conditions

Specifications range.....	-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.....	55 g
Screw terminal torque.....	0.4 Nm
Vibration.....	DIN class B, IEC 60068-2-6 and IEC 60068-2-64
Vibration: 2...25 Hz.....	±1.6 mm
Vibration: 25...100 Hz.....	±4 g

Common specifications

Supply voltage.....	9.0...32 VDC
Internal consumption.....	< 11 mA
Max. current increase in the event of an error.....	< 7 mA
Isolation voltage, test.....	1.5 kVAC for 60 s
Isolation voltage, working.....	50 VRMS / 75 VDC
Warm-up time.....	30 s
Signal / noise ratio.....	Min. 60 dB
Response time (programmable).....	1...60 s
Updating time.....	< 400 ms
Execution time, analog input.....	< 50 ms
Accuracy.....	Better than 0.05% of selected range
Signal dynamics, input.....	24 bit
EMC immunity influence.....	< ±0.1% of reading
Extended EMC immunity: NAMUR NE 21, A criterion, burst.....	< ±1% of reading

Input specifications

RTD input.....	Pt25...1000, Ni25...1000, Cu10...1000, lin. R, potentiometer
Cable resistance per wire (max.), RTD.....	50 Ω
Sensor current, RTD.....	Nom. 0.2 mA
Effect of sensor cable resistance (3-/4-wire), RTD.....	< 0.002 Ω / Ω
Sensor error detection, RTD.....	Yes
Short circuit detection, RTD.....	< 15 Ω
TC input: Thermocouple type.....	B, E, J, K, L, N, R, S, T, U, W3, W5
Cold junction compensation (CJC).....	< ±0.5°C
Sensor error detection, TC.....	Yes
Sensor error current: When detecting / else.....	Nom. 4 µA / 0 µA
Short circuit detection, TC.....	< 3 mV
Voltage input: Measurement range.....	-800...+800 mV
Input resistance, voltage input.....	10 MΩ

Output specifications

PROFIBUS PA protocol.....	Profile A&B, ver. 3.0
PROFIBUS PA protocol standard.....	EN 50170 vol. 2
PROFIBUS PA address (at delivery).....	126
PROFIBUS PA function blocks.....	2 analog
FOUNDATION™ Fieldbus protocol.....	FF protocol
FOUNDATION™ Fieldbus protocol standard.....	FF design specifications
FOUNDATION™ Fieldbus version.....	ITK 4.6
FOUNDATION™ Fieldbus capability.....	Basic or LAS
FOUNDATION™ Fieldbus function blocks.....	2 analog and 1 PID

Approvals

EMC.....	EN 61326-1
ATEX 2004/108/EC.....	KEMA 03ATEX1011 X
CSA.....	1418937
FM.....	3015609
NEPSI.....	GYJ14.1100U
EAC TR-CU 020/2011.....	EN 61326-1



Profibus PA / Foundation Fieldbus transmitter

5350B

- PROFIBUS® PA ver. 3.0
- FOUNDATION™ Fieldbus ver. ITK 4.6
- Automatic switch between protocols
- FISCO-certified
- Basic or LAS capability with F.F.



Application

- Linearized temperature measurement with RTD or TC sensor.
- Difference, average or redundancy temperature measurement with RTD or TC sensor.
- Linear resistance, potentiometer and bipolar mV measurement.

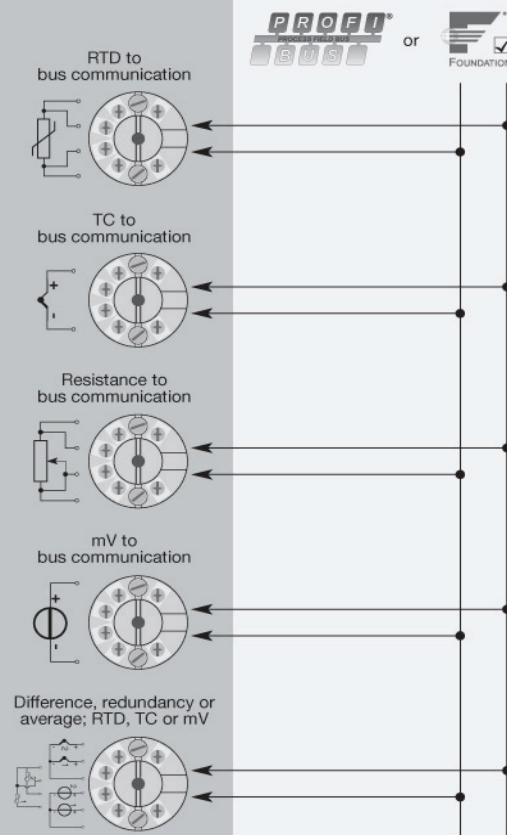
Technical characteristics

- Bus transmitter with both PROFIBUS® PA and FOUNDATION™ Fieldbus communication. A unique switch function ensures automatic shift between the two protocols.
- Set-up for PROFIBUS® PA can be done via Siemens Simatic® PDM®, ABB Melody / Harmony and Metso DNA software and for FOUNDATION™ Fieldbus via Emerson DeltaV, Yokogawa CS 1000 / CS 3000, ABB Melody / Harmony and Honeywell Experion software.
- The simulation mode function can be activated by way of a magnet.
- Polarity-independent bus connection.
- 24 bit A/D converter ensures high resolution.
- PROFIBUS® PA function blocks: 2 analog.
- FOUNDATION™ Fieldbus function blocks: 2 analog and 1 PID.
- FOUNDATION™ Fieldbus capability: Basic or LAS.

Mounting / installation

- For DIN form B sensor head mounting.

Connections



Order:

Type
5350B

Environmental Conditions

Specifications range.....	-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.....	55 g
Screw terminal torque.....	0.4 Nm
Vibration.....	DIN class B, IEC 60068-2-6 and IEC 60068-2-64
Vibration: 2...25 Hz.....	±1.6 mm
Vibration: 25...100 Hz.....	±4 g

Common specifications

Supply voltage.....	9.0...30 VDC
Supply voltage in FISCO installations.....	9.0...17.5 VDC
Internal consumption.....	< 11 mA
Max. current increase in the event of an error.....	< 7 mA
Isolation voltage, test.....	1.5 kVAC for 60 s
Isolation voltage, working.....	50 VRMS / 75 VDC
Warm-up time.....	30 s
Signal / noise ratio.....	Min. 60 dB
Response time (programmable).....	1...60 s
Updating time.....	< 400 ms
Execution time, analog input.....	< 50 ms
Accuracy.....	Better than 0.05% of selected range
Signal dynamics, input.....	24 bit
EMC immunity influence.....	< ±0.1% of reading
Extended EMC immunity: NAMUR NE 21, A criterion, burst.....	< ±1% of reading

Input specifications

RTD input.....	Pt25...1000, Ni25...1000, Cu10...1000, lin. R, potentiometer
Cable resistance per wire (max.), RTD.....	50 Ω
Sensor current, RTD.....	Nom. 0.2 mA
Effect of sensor cable resistance (3-/4-wire), RTD.....	< 0.002 Ω / Ω
Sensor error detection, RTD.....	Yes
Short circuit detection, RTD.....	< 15 Ω
TC input: Thermocouple type.....	B, E, J, K, L, N, R, S, T, U, W3, W5
Cold junction compensation (CJC).....	< ±0.5°C
Sensor error detection, TC.....	Yes
Sensor error current: When detecting / else.....	Nom. 4 µA / 0 µA
Short circuit detection, TC.....	< 3 mV
Voltage input: Measurement range.....	-800...+800 mV
Input resistance, voltage input.....	10 MΩ

Output specifications

PROFIBUS PA protocol.....	Profile A&B, ver. 3.0
PROFIBUS PA protocol standard.....	EN 50170 vol. 2
PROFIBUS PA address (at delivery).....	126
PROFIBUS PA function blocks.....	2 analog
FOUNDATION™ Fieldbus protocol.....	FF protocol
FOUNDATION™ Fieldbus protocol standard.....	FF design specifications
FOUNDATION™ Fieldbus version.....	ITK 4.6
FOUNDATION™ Fieldbus capability.....	Basic or LAS
FOUNDATION™ Fieldbus function blocks.....	2 analog and 1 PID

Approvals

EMC.....	EN 61326-1
ATEX 2004/108/EC.....	KEMA 02ATEX1318
IECEx.....	BVS 12.0035X
FM.....	3015609
CSA.....	1418937
INMETRO.....	NCC 12.1009 X
NEPSI.....	GYJ14.1101X
EAC TR-CU 020/2011.....	EN 61326-1
EAC Ex TR-CU 012/2011.....	RU C-DK.GB08.V.00410