

P5201

Universal Programmable Transmitters with Galvanic Isolation

- One type of transmitter for all regular resistance and thermocouple sensors.
- Linearized output signal 4 to 20 mA, 0 to 20 mA or 0 to 10 V according to the version.
- Accuracy up to 0.05 % of set range.
- Adjustable span 1 to 100 % of input range.
- Galvanic isolation of input from output (1000 V AC).
- Current loop supply or galvanic isolated supply 24 V DC.
- Temperature indication on optional LCD in the whole input range with 0.1 or 1 °C resolution.
- Two limit comparators and up to two switch relays.



Application

P5201 transmitters convert a resistance or a voltage signal from a sensor into a current, linear output signal of 4 to 20 mA 0 to 20 mA, 0 to 10 V or other output signals within the range of standard output signal (0 to 5 mA, 1 to 6 V and others). They include up to two switch relays (depending on a version) which can be used for a limit status alarm. The limit status can be also indicated by an error current.

Description

A resistance sensor can be connected in a two-, three- or four-wire connection. Lead resistance is fully compensated by the four-wire connection. The three-wire connection must have for compensation all leads to the sensor with identical resistance values. With the two-wire connection of a resistance sensor the lead resistance can be compensated by entering a constant of resistance value in a configuration sheet with the order or by a set-up program.

A voltage sensor (a thermocouple) should be connected with a two-wire connection. A temperature compensation of cold junction can be selected in the ordering table either as internal or as external. It is done by a Pt1000A sensor which guarantees a maximum accuracy and stability of the temperature measurement. The transmitter also enables using other means for temperature compensation of cold junction (compensation box, thermostat). The compensating temperature must be then specified in the configuration sheet or configured by the set-up program.

A potentiometer position is measured in percent. The start position is 0 % and the end position is 100 % independently on the total resistance value. After consultation with the manufacturer and on certain conditions it is possible to measure also a potentiometer with value out of the specified input range. If it is necessary to measure a position of the potentiometer as resistance, it is possible to use a connection for measuring of resistance.

The input signal is converted by an A/D converter to a digital signal which is converted by a microprocessor to a primary value (temperature) according to the set parameters and then to an output current or voltage according to the set range. At the same time positions of particular comparators are calculated and particular relays are set. A version with a display indicates a primary variable in the whole input range independently on the current output status. Comparators also work both in the whole input range and independently of the set range.

Transmitters with input setting for codes R7x to R8x have firm configuration of the input circuits. The input is not universal therefore it is unable to change the code of the input setting and the code of the sensor connection by the set-up program. The other codes can be changed. Codes for input setting R7x to R8x must be specified during the order.

If the transmitter includes a relay the relay 1 is adjoined the comparator 1 and the relay 2 is adjoined the comparator 2. Each relay has one switch-on contact which can be also set as a switch-off contact by entering in the configuration sheet, by the set-up unit or by the set-up program. Positions of the comparators in transmitter error state can be chosen by the set-up unit, the set-up program or by entering in the configuration sheet. Positions of the comparators can be also indicated by the error output current, even if the comparator doesn't include a relay. For example, if you set the comparator to 200 °C for the range 0 to 100 °C the output current or voltage will have a linear increase within this range. After exceeding the range it continues to increase and it stops at approximately 20.5 mA (10.25 V). If the temperature exceeds 200 °C, the output signal will change to an error signal, which can be either above 21 mA (10.5 V) or below 3.6 mA (0 mA, 0 V). For detailed description of setting of comparators see further instructions in this manual or see configuration sheet.

Input and output circuits are galvanically isolated by a transformer. Supply circuit of L4x and L5x versions is galvanically isolated from the others.

Архангельск (8182)63-90-72
Астана +7(7172)727-132
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Казань (843)206-01-48

Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41

Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78

Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

P5201 Universal Programmable Transmitters with Galvanic Isolation

Table 1

Code of input setting	Configuration of input	Linearization standard	Input range	Minimal span	Digital accuracy	Display resolution	units
R01	Resistor		0 to 400 Ω	4	0.08	0.1	Ω
R02	Resistor		0 to 4000 Ω	40	0.8	1	Ω
R03	Potentiometer max. 400 Ω		0 to 100 %	1	0.1	0.1	%
R04	Potentiometer max. 4000 Ω		0 to 100 %	1	0.1	0.1	%
R05	Voltage		-15 to 60 mV	0.75	0.02	0.01	mV
R11	Pt100	IEC 751	-200 to 850 °C	11	0.2	0.1	°C
R12	Pt500	IEC 751	-200 to 850 °C	11	0.2	0.1	°C
R13	Pt1000	IEC 751	-200 to 850 °C	11	0.2	0.1	°C
R14	Ni100	DIN 43760	-60 to 250 °C	4	0.2	0.1	°C
R15	Ni1000	DIN 43760	-60 to 250 °C	4	0.2	0.1	°C
R57	Thermocouple B	IEC 584	100 to 1000 °C 1000 to 1800 °C	18 1	3 1	1	°C
R58	Thermocouple E	IEC 584	-200 to 0 °C 0 to 800 °C	12	1 0.3	1	°C
R51	Thermocouple J	IEC 584	-200 to 0 °C 0 to 1000 °C	12	1 0.3	1	°C
R52	Thermocouple K	IEC 584	-200 to 0 °C 0 to 1300 °C	15	1 0.6	1	°C
R59	Thermocouple L	DIN 43710	-200 to 900 °C	11	0.5	0.1	°C
R53	Thermocouple N	IEC 584	-200 to 0 °C 0 to 1300 °C	15	1 0.6	1	°C
R54	Thermocouple R	IEC 584	-50 to 1700 °C	18	2	1	°C
R55	Thermocouple S	IEC 584	-50 to 1700 °C	18	2	1	°C
R56	Thermocouple T	IEC 584	-250 to -100 °C -100 to 400 °C	7	2 0.5	0.1	°C
R11 C8	Difference of two Pt100 (max. sum of resistors 400 Ω)	IEC 751	-200 to 850 °C	11	0.4	0.1	°C
R13 C8	Difference of two Pt1000 (max. sum of resistors 4000 Ω)	IEC 751	-200 to 850 °C	11	0.4	0.1	°C
R71 *	Current input (input resistance 1000 Ω)		-15 to 60 μA	0.75	0.02	0.01	μA
R72 *	Current input (input resistance 100 Ω)		-150 to 600 μA	7.5	0.2	0.1	μA
R73 *	Current input (input resistance 10 Ω)		-1500 to 6000 μA	75	2	1	μA
R74 *	Current input (input resistance 2.5 Ω)		-6 to 24 mA	0.19	0.008	0.01	mA
R75 *	Current input (input resistance 1 Ω)		-15 to 60 mA	0.75	0.02	0.01	mA
R81 *	Voltage input (input resistance 1 MΩ)		-250 to 1000 mV	12	0.35	1	mV
R82 *	Voltage input (input resistance 2 MΩ)		-2.5 to 10 V	0.12	0.0035	0.01	V
R85 *	Potentiometer max. 25 kΩ		0 to 100 %	1	0.1	0.1	%

Digital accuracy specifies an error of measured value at the RS232 digital output. Display of the transmitter indicates digital value rounded according to the resolution of the display.

* It is not possible to change the configuration of the input (code input setting and sensor connection).

Communication with the transmitter through the RS232C interface requires a KA-01 communication cable with a galvanic isolation. For the interface and protocol description see the data sheet No. 0406. The configuration can be done by a PC and by NPT-02 set-up program. Changing of range and calibration can be done by a simple set-up unit NJ-14 or with optional display by push-buttons on the transmitter directly in the field. Changing of parameters by the set-up unit can be disabled.

Technical specifications

Input ranges:

see table 1

Input accuracy:

see digital accuracy in table 1

Input signal:

resistance signal of temperature sensor or potentiometer

voltage signal of thermocouple

voltage or current signal

resistance signal of compensating temperature sensor (Pt1000A)

Sensor connection:

resistance range two, three and four-wire

voltage range two-wire

potentiometer three or four-wire

compensating temperature sensor

two-wire (only with external compensation version)

Maximum wire resistance for resistance ranges:

20 Ω (each connecting wire)

Current through resistance sensor:

< 0.15 mA

Output signal:

P5201 H1x, L0x-L3x, S1x, S2x 4 to 20 mA

P5201 L4x 0 to 20 mA

P5201 L5x 0 to 10 V

D/A conversion error:

≤ ±0.05 % SR

Current output total error:

$$\leq \pm \left(\frac{\text{digital accuracy}}{\text{SR}} \times 100 + 0.05 \right) [\%]$$

Transfer function:

linear with temperature or linear with input variable,
other on request

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Cold junction compensation error:

- internal compensation
< ±0.5 °C (within range -30 to 80 °C)
- external compensation
< ±0.3 °C (within range -30 to 80 °C, Pt1000A sensor)
< ±0.7 °C (within range -50 to 150 °C, Pt1000A sensor)

Range of span setting:

- ±1% to ±100 % of input range span

Start setting:

- within input range, see table 1

Damping (95%):

- adjustable 0.5 to 60 s (4 measurements per second)

Supply voltage:

- 11 to 36 V DC (H1x, L0x-L3x, S1x, S2x)
- 24 V AC ±15 % (L4x, L5x)
- current consumption max 23 mA

Recommended power supply:

- standard version ZS-010, ZS-011, ZS-020,

Load resistance:

- $R_L [\Omega] \leq (U_N [V] - 11) / 0.022$ (H1x, L0x-L3x, S1x, S2x)
- max 500 Ω (L4x)
- min. 10 k Ω (L5x)

Galvanic isolation of input from output:

- input - output 1000 V AC / 1 min
- input - supply 1000 V AC / 1 min (L4x, L5x)
- output - supply 500 V AC / 1 min (L4x, L5x)

Sensor break indication:

- display indication of error code
(H1x, L0x-L3x, S1x, S2x)
- output selectable > 21 mA or < 3.6 mA
- L4x selectable > 21 mA or < 0 mA
- L5x selectable > 10.5 V or < 0 V

Switch contact relay parameters:

- max. switched voltage 150 V DC or 125 V AC
- max. switched current 1 A
- max. switched direct power 30 W
- max. switched alternate power 60 VA
- switch-on resistance <100 m Ω
- isolation: contact - other circuits 1500 V AC

Supplementary parameters

Output limit:

- H1x, L0x-L3x, S1x, S2x
signal approximately 3.8 to 20.5 mA
- L4x signal approximately 0 to 20.5 mA
- L5x signal approximately 0 to 10.25 V
- error current limit approx. 23 mA

Error Output Limits:

- H1x, L0x-L3x, S1x, S2x approx. 23 mA
- L4x approx. 23 mA
- L5x approx. 11.5 V

Display (only for L2x, S2x)

- 4-digit LCD with sign

Effect of supply voltage:

- H1x, L0x-L3x, S1x, S2x $\leq \pm 0.002$ % of span / V
- L4x, L5x $\leq \pm 0.01$ % of span / V

Effect of ambient temperature:

- $\leq \pm 0.05$ % SR / 10 °C

Effect of ambient temperature:

- $\leq \pm 0.05$ % SR / 10 °C

Effect of wire resistance for resistance ranges:

- two-wire connection
can be compensated by constant value
- three-wire connection
no effect with identical values of wire resistance
- four-wire connection
no effect with specified wire resistance range

Effect of sensor inner resistance for voltage input:

- ≤ 0.004 mV / 1 k Ω (for code R05)

Long-term stability:

- $\leq \pm 0.1$ % SR / 2 years

EMC (Electromagnetic compatibility):

- according to EN 61326-2-3

Operating conditions

Transmitters must be powered by safe power supplies. They are protected against reversing of polarity and peak voltage overload. Their input and output circuits are not galvanically isolated, therefore with powering of more transmitters from a common power supply it is necessary that connected sensors and cables have a high insulation resistance. However, with this type of connection it is recommended to insert a galvanic isolation into supply circuits. If the power supply is designed for a higher load current (>100 mA) it is recommended to insert FAST 50mA fuse or a current-limiting resistor into supply circuits.

Operating temperature:

- P5201 H1x, L0x, L1x, L3x, S1x -40 to 85 °C
- P5201 L2x, S2x -10 to 55 °C
- P5201 L4x, L5x -30 to 60 °C
- Pt1000A compensating resistor -50 to 150 °C

Humidity:

- P5201 H1x 0 to 100 % rh with condensation
(after headmounting)
- P5201 L0x, L1x, L2x, L3x, L4x, L5x
5 to 95 % rh
- P5201 S1x, S2x 0 to 100 % rh with condensation

Elevation:

- up to 2000 m above sea level

Other parameters

Housing:

- P5201 H1x IP 40, terminals IP 00
(after headmounting according to housing of the head)
- P5201 L1x, L2x IP 40, terminals IP 20
- P5201 L2x, S2x IP 55

Weight:

- P5201 H1x 40 g
- P5201 L0x, L1x, L4x, L5x 80 g
- P5201 L2x, L3x 180 g
- P5201 S1x, S2x 250 g

Material of boxes:

- Polycarbonate

Warranty:

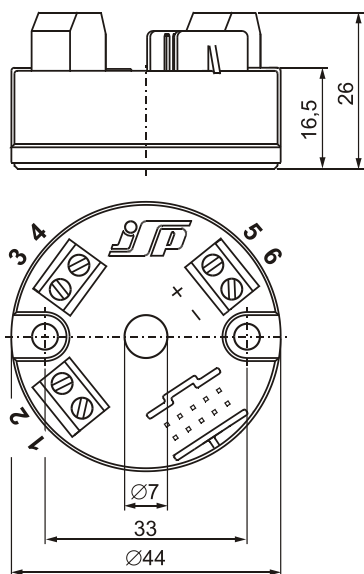
- 5 years

SR ... Span of set range

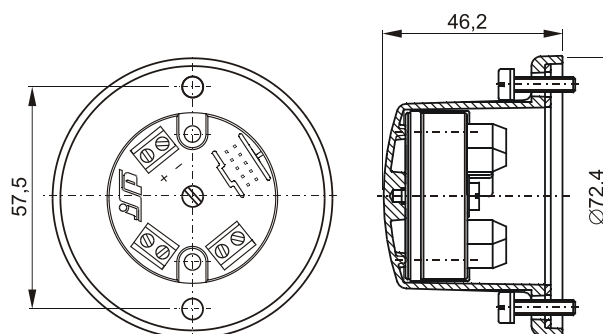
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Dimensional drawings

Version P5201 H10, H11



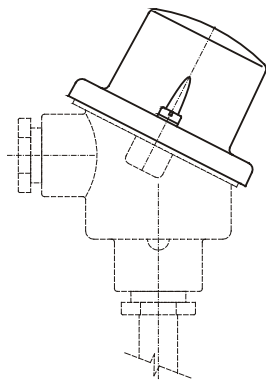
P5201 H10, H11 in cap VH1 for head form B acc. to DIN
(mounting bolts M5 for pitch 57 to 58 mm)



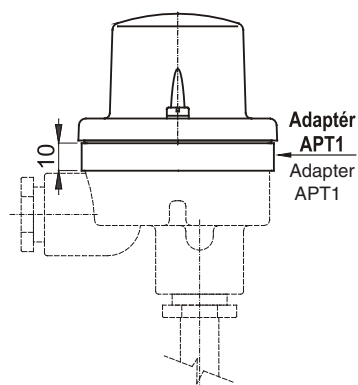
Screw terminals are used for connection of
wires with cross-section 0.5 to 1.5 mm².

Installation of P5201 H1x in cap VH1 for different types of heads

Oblique head



Straight head with asymmetric
position of terminal board

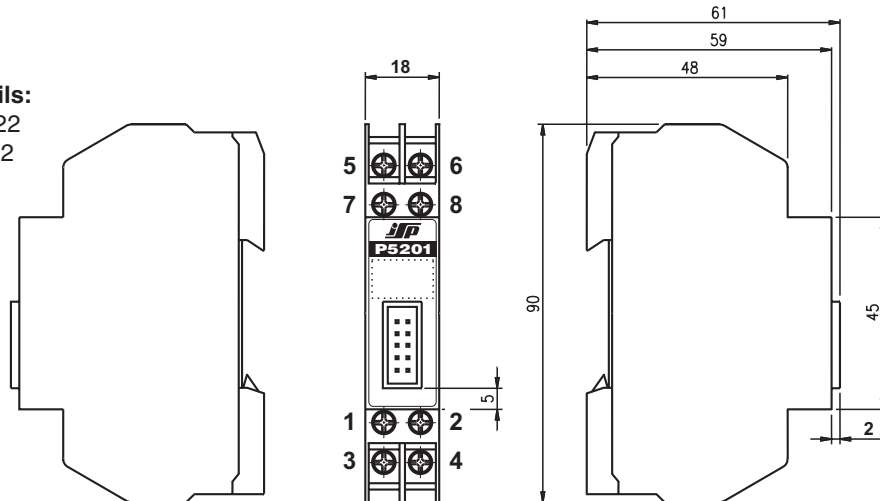


P5201 Universal Programmable Transmitters with Galvanic Isolation

Version P5201 L0x, L1x, L4x, L5x

Appropriate mounting rails:

35 x 27 x 7.5 mm EN 50022
 35 x 24 x 15 mm EN 50022
 35 x 27 x 15 mm
 32 mm EN 50035 G-32



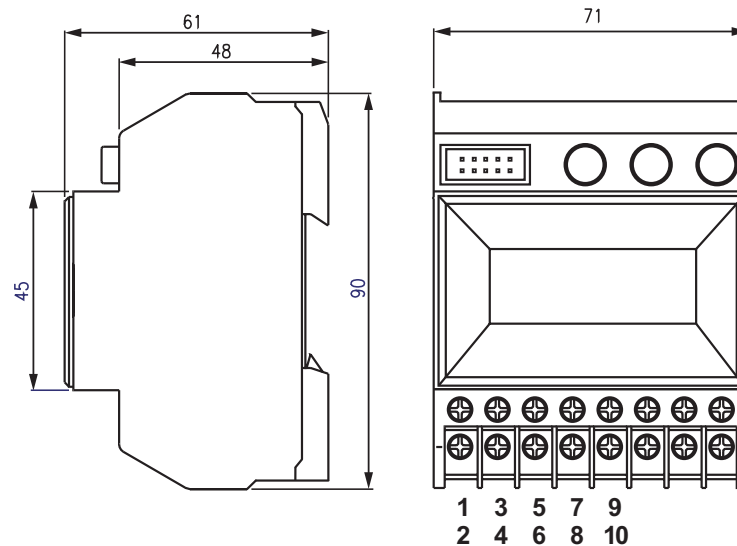
Screw terminals are used for connection of wires with cross-section 0.5 to 1.5 mm².

version P5201 L2x, L3x

(version L3x is without display and buttons)

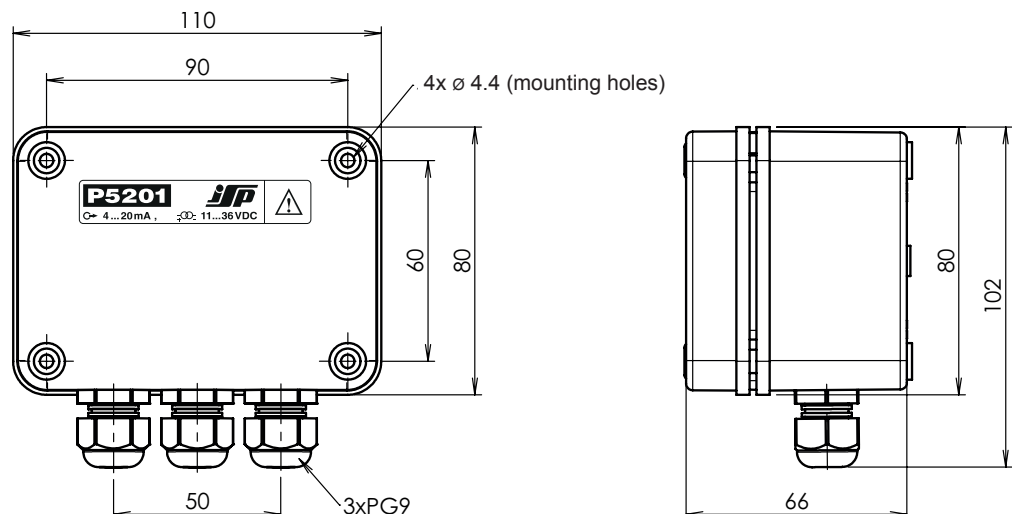
Appropriate mounting rails:

35 x 27 x 7.5 mm EN 50022
 35 x 24 x 15 mm EN 50022
 35 x 27 x 15 mm
 32 mm EN 50035 G-32



Screw terminals are used for connection of wires with cross-section 0.5 to 1.5 mm².

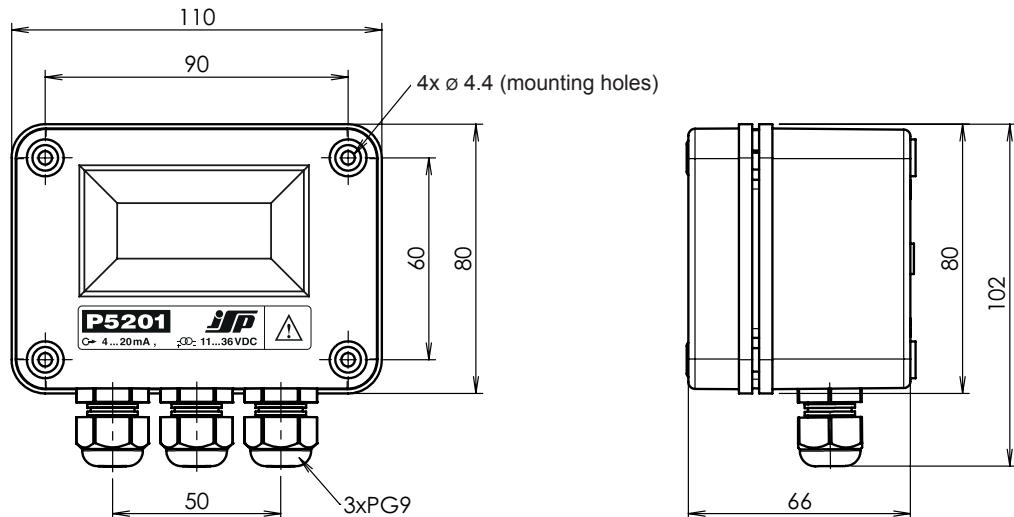
Version P5201 S1x



Screw terminals are used for connection of wires with cross-section 0.5 to 1.5 mm²

P5201 Universal Programmable Transmitters with Galvanic Isolation

Version P5201 S2x

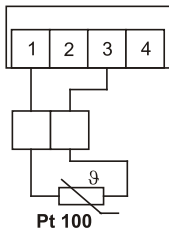


Screw terminals are used for connection of wires with cross-section 0.5 to 1.5 mm²

Electrical connection

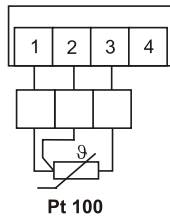
Input connection

Two-wire Connection of Resistance Sensor (Code C1)



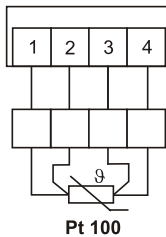
Possibilities of Wire Resistance Compensation: Enter total wire resistance R_t (included in the set-up program or in the configuration sheet).

Three-wire Connection of Resistance Sensor (Code C2)



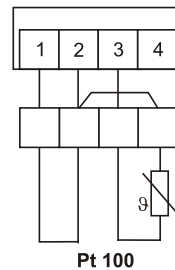
Pt 100

Four-wire Connection of Resistance Sensor (Code C3)



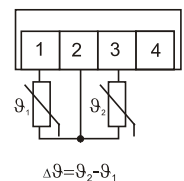
Pt 100

Three-wire Sensor Connection with Compensating Loop (Code C2)

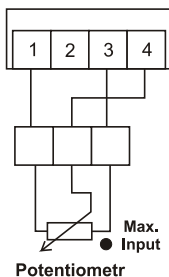


Pt 100

Temperature Difference of Two Two-wire Resistance Sensors (Code C8)

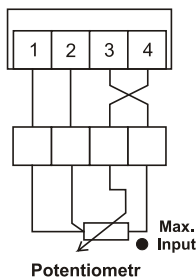


Potentiometer Connection without Lead Resistance Compensation (Code C4)



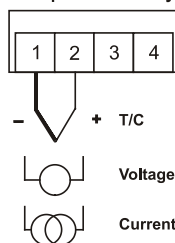
Potentiometr

Potentiometer Connection with Lead Resistance Compensation (Codes C3, C5)



Potentiometr

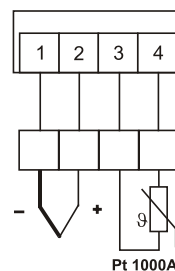
Voltage sensor or T/C Connection (Codes C6, C7) (Version with Internal Compensation Only)



Voltage

Current

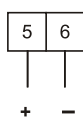
T/C Connection with External Cold Junction Compensation on Auxiliary Terminal Board (Code C7) (Version with External Compensation Only)



Pt 1000A

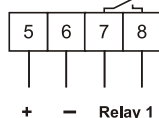
Output, supply and relay connection

5201 H1x, L0x



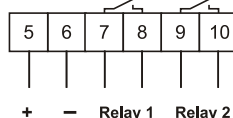
Output signal 4 to 20 mA
Supply from current loop

P5201 L1x



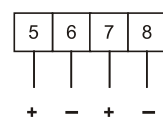
Output signal 4 to 20 mA
Supply from current loop

P5201 L2x, L3x, S1x, S2x



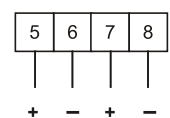
Output signal 4 to 20 mA
Supply from current loop

P5201 L4x



Output signal 0 to 20 mA
Supply 24 V±15%

P5201 L5x



Output signal 0 to 10 V
Supply 24 V±15%

P5201 Universal Programmable Transmitters with Galvanic Isolation

Type	Description	
• P5201	Universal Programmable Transmitter with Circuit Isolation	
Code	Version	
H1	Mounting into head form B according to DIN, supply from current loop, output 4 to 20 mA, 2 limit comparators, no switch relay	
• L0	Rail mounted transmitter, DIN rail TS 35, supply from current loop, output 4 to 20 mA, 2 limit comparators, no switch relay	
• L1	Rail mounted transmitter, DIN rail TS 35, supply from current loop, output 4 to 20 mA, 2 limit comparators, 1 switch relay	
• L2	Rail mounted transmitter, DIN rail TS 35, supply from current loop, output 4 to 20 mA, 2 limit comp., 2 switch relays, LCD disp.	
• L3	Rail mounted transmitter, DIN rail TS 35, supply from current loop, output 4 to 20 mA, 2 limit comparators, 2 switch relays	
• L4	Rail mounted transmitter, DIN Rail TS 35, isolated Supply 24 VDC, output 0 to 20 mA, 2 limit comparators, no switch relay	
• L5	Rail mounted transmitter, DIN Rail TS 35, isolated Supply 24 VDC, output 0 to 10 V, 2 limit comparators, no switch relay	
S1	Wall mounted transmitter, DIN Rail TS 35, isolated Supply 24 VDC, output 0 to 20 mA, 2 limit comparators, 2 switch relays, IP 55	
S2	Wall mounted transmitter, DIN Rail TS 35, isolated Supply 24 VDC, output 0 to 20 mA, 2 limit comp., 2 switch relays, IP 55. LCD disp.	
Code	Temperature compensation of terminal board	
• 0	Internal compensation (not for input setting R7x, R8x)	
1	External compensation (order Pt1000A in accessories.)	
Code	Input setting	
• NR	Presetting of range and input (R11 C3 RL-200 °C RH 850 °C ECH)	
• QR	Detailed customer specified setting according to configuration sheet (configuration sheet required with order)	
• R01	Resistance sensor (0 to 400 Ohm) without conversion to temperature	
• R02	Resistance sensor (0 to 4000 Ohm) without conversion to temperature	
• R03	Potentiometer (total resistance 40 to 400 Ohm, range in %, limit values 0 % and 100 %)	
• R04	Potentiometer (total resistance 400 to 4000 Ohm, range in %, limit values 0 % and 100 %)	
• R05	Voltage sensor (-15 to 60 mV) without conversion to temperature	
• R06	Difference of two resistance sensors (max. total resistance 400 Ohm)	
• R07	Difference of two resistance sensors (max. total resistance 4000 Ohm)	
• R11	Pt100 (-200 to 850 °C) with linearization	
• R12	Pt500 (-200 to 850 °C) with linearization	
• R13	Pt1000 (-200 to 850 °C) with linearization	
• R14	Ni100 (-60 to 250 °C) with linearization	
• R15	Ni1000 (-60 to 250 °C) with linearization	
• R51	Thermocouple "J" (-200 to 1000 °C) with linearization	
• R52	Thermocouple "K" (-200 to 1300 °C) with linearization	
• R53	Thermocouple "N" (-200 to 1300 °C) with linearization	
• R54	Thermocouple "R" (-50 to 1700 °C) with linearization	
• R55	Thermocouple "S" (-50 to 1700 °C) with linearization	
• R56	Thermocouple "T" (-250 to 400 °C) with linearization	
• R57	Thermocouple "B" (0 to 1800 °C) with linearization from 50 °C	
• R58	Thermocouple "E" (-200 to 800 °C) with linearization	
• R59	Thermocouple "L" (-200 to 900 °C) with linearization	
R91 ***	Other linearization for resistance sensor (0 to 400 Ohm)	
R92 ***	Other linearization for resistance sensor (0 to 4000 Ohm)	
R93 ***	Other linearization for potentiometer (R <= 400 Ohm)	
R94 ***	Other linearization for potentiometer (R <= 4000 Ohm)	
R95 ***	Other linearization for other voltage sensor (thermocouple -15 to +60 mV)	
R96 ***	Other linearization for difference of two resistance sensors (max. total resistance 400 Ohm)	
R97 ***	Other linearization for difference of two resistance sensors (max. total resistance 4000 Ohm)	
Code	Optional input setting	
R71 *	Current input -15 to 60 µA	
R72 *	Current input -150 to 600 µA	
R73 *	Current input -1500 to 6000 µA	
R74 *	Current input -6 to 24 mA	
R75 *	Current input -15 to 60 mA	
R81 *	Voltage input -250 to 1000 mV	
R82 *	Voltage input -2.5 to 10 V	
R85 ****	Potentiometer (total resistance 0.4 to 25 kOhm)	
Code	Sensor connection	For input setting
• C1	Two-wire connection of resistance sensor	R01, R02, R11-15, R91, R92
• C2	Three-wire connection of resistance sensor	R01, R02, R11-15, R91, R92
• C3	Four-wire connection of resistance sensor	R01, R02, R11-15, R91, R92
• C4	Connection of potentiometer without wire resistance compensation	R03, R04, R93, R94, R85
• C5	Connection of potentiometer with wire resistance compensation	R03, R04, R93, R94, R85
• C6	Connection of voltage or current sensor or T/C without compensation	R05, R51-59, R71-75, R81, R82, R95
• C7	Connection of T/C with compensation of terminal board temperature	R51-59, R95
• C8	Connection of two two-wire resistance sensors	R06, R07, R11-15, R96, R97
Code	Setting range	
• RL **	Start of range (fill in value and units)	
• RH **	End of range (fill in value and units)	
Code	Error current selection	
• ECL	Error current below 3.6 mA (H, L0-L3, S versions) or 0 mA (L4 version) or 0 V (L5 version) (fill in value and units)	
• ECH	Error current above 21 mA (H, L0-L4, S versions) or > 10.5 V (L5 version) (fill in value and units)	
Code	Definition of lower range value of output (special range)	
• ROL **	Start of range of output signal (L4, L5 version only) (fill in value and units)	
ROH **	End of range of output signal (L4, L5 version only) (fill in value and units)	
Code	Calibration	
KPP5	Transmitter calibration in five equally spaced points of input range	

P5201 Universal Programmable Transmitters with Galvanic Isolation

KPP5	Transmitter calibration in five equally spaced points of input range	
Code	Optional accessories	
Q1	Increased accuracy up to 0.05 % of factory set range	
S IPZK	Earthquake-resistance, manufactured according to individual program of quality assurance	
• NJ-14	Set-up unit (see data sheet No. 0325)	
◦ USB-RS232C	Communication interface for connecting KA-01 to USB port of the PC	
• NPT-02	Set-up PC program (for WIN95 And Higher), cable KA-01 (see data sheet No. 0326)	
• KA-01	Communication adapter for connecting the transmitter to PC (RS232C)	
• Pt1000A	Compensation resistor Pt1000 (-30 to 150 °C) for external compensation of thermocouple	
• VH1	Cap for head B for mounting of transmitter (H versions)	
• APT1	Adapter for straight head	
Example of order:		5-year warranty
P5201 L10 R11 C2 RL 0 °C RH 350 °C ECL		
P5201 L10 NR (Presetting: R11 C3 RL-200 °C RH 850 °C ECH)		
P5201 L10 QR (Configuration sheet No. DB345 is required with order.)		

- ... Ex stock version ◦ ... Marked version can be dispatched up to 10 working days
- ** Fill in value and units (for ranges of potentiometer in percent)
- * Not for version Hxx, Lx0 and Sx0, It is not possible to change configuration of input and sensor connection by NPT-02 Set-up program
- *** Linearization chart in required range must be added
- **** Not for version Hx0, Lx0, Sx0; it is not possible to change configuration of input and sensor connection by NPT-02 Set-up program

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