

P5201

Universal Programmable Transmitters with Circuit Isolation

- One type of transmitter for all regular resistance and thermoelectric sensors
- Linearized output signal 4 to 20 mA, 0 to 20 mA or 0 to 10 V
- Accuracy up to 0.05 % of set range
- Rangeability 1 to 100 % of input range
- 1000 V AC galvanic isolation of input from output
- Supplying from current loop or galvanic isolated supplying 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
- Reranging by a set-up unit or by a PC software
- Optional RS232C interface communication
- Meet harsh industrial requirements and EMC standards according to EN 61326-1/A1
- Intrinsically Safe Version EEx ia IIC T4 ... T6 (ATEX)



Application

P5201 transmitters convert a resistance, a voltage or a current signal from temperature sensor into a current or voltage, linear, galvanically isolated output signal 4 to 20 mA, 0 to 20 mA or 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. Versions H10EEx and H11EEx are designed for headmounting of temperature sensor and they can be mounted in areas with explosion hazard.

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 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 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 of other means for temperature compensation of cold junction (a compensation box, a 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 of 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 of the current output status. Comparators also work both in the whole input range and independently of the set range.

It is unable to change a configuration of the input setting for codes R7x to R8x and these codes must be written into a order. 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.

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 choosed 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. E. g. 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). A detailed description of setting of comparators see

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Table 1

Code of Input Setting	Configuration of Input	Linearization Standard	Input Range	Minimum 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
R06	Difference of Two Pt100 (Max. Sum of Resistors 400 Ω)	IEC 751	-200 to 850 °C	11	0.4	0.1	°C
R07	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	%

The digital accuracy specifies an error of measured value at the RS232 digital output. The optional display on the transmitter or on the set-up unit indicates a digital output value rounded-off to the resolution of the display.

* It is not possible to change configuration of input setting and sensor connection.

chapter „Setting the transmitter with display“ and also it is found in the 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.

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. 406. 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. The configuration of an intrinsically safe transmitter can be done by a PC and by NPT-02 set-up program only in an area without explosion hazard.

If an intrinsically safe transmitter is mounted into the metal head with housing at least IP 20 it can be placed in an area with explosion hazard. The transmitter can be then configured only by an intrinsically safe version of NJ-14 set-up unit! All instruments connected to wires leading to an area with explosion hazard have to be in intrinsic safety version. Their parameters of intrinsic safety must not exceed values of transmitter P5201 EEx!

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 T/C, voltage or current signal, resistance signal of compensating temperature sensor (Pt1000A)

Sensor Connection:

Resistance Ranges Two-, three-, four-wire
 Voltage and Current Range Two-wire
 Potentiometer Three-wire or four-wire
 Compensating Temperature Sensor Two-wire (version with external compensation only)

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

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Current Output Total Error:

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

P5201 H1x, L0x-L3x, S1x, S2x	approx. 23 mA
P5201 L4x	approx. 23 mA
P5201 L5x	approx. 11.5 V

Transfer Function:

Linear with temperature or linear with input value, other on request

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)

Adjustability 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)

11.5 to 30 V DC (H1xEEEx),

current consumption max. 23 mA

24 V DC ± 15 % (L4x, L5x)

current consumption max. 50 mA

Recommended Power Supply:

ZS-010, ZS-011, ZS-020 (Standard version)

ZS-030 (H1xEEEx Versions)

Load Resistance:

P5201 H1x, L0x-L3x, S1x, S2x

$$R_L [\Omega] \leq (U_N [V] - 11) / 0.022$$

P5201 L4x max. 500 Ω

P5201 L5x min. 10 kΩ

Galvanic Isolation of Input from Output:

Input - output 1000 V AC / 1 min.

Input - supply 1000 V AC / 1 min.

(P5201 L4x, L5x)

Output - supply 500 V AC / 1 min.

(P5201 L4x, L5x)

Indication of Sensor Break or Other Errors:

Display: Indicates error code

Output:

P5201 H1x, L0x-L3x, S1x, S2x

Selectable >21 mA or <3.6 mA

P5201 L4x Selectable >21 mA or 0 mA

P5201 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 mΩ

Isolation: Contact - Other Circuits 1500 V AC

Supplementary Specifications

Output Limits:

P5201 H1x, L0x-L3x, S1x, S2x

Approximately 3.8 to 20.5 mA signal

P5201 L4x Approximately 0 to 20.5 mA signal

P5201 L5x Approximately 0 to 10.25 V signal

Error Output Limits:

Display (L2x, S2x Only):

4-digit LCD with sign

Effect of Supply Voltage:

P5201 H1x, L0x-L3x, S1x, S2x ≤±0.002 % of span / V

P5201 L4x, L5x ≤±0.01 % of span / V

Effect of Ambient Temperature:

≤±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 kΩ (for input setting code R05)

Long-term Stability:

≤0.1 % SR / 2 years


EMC (Electromagnetic compatibility):

According to EN 61326-1:98/A1:99

SR ... Span of set range

Intrinsically Safe Version (EI1 Code):

Degree of Intrinsic Safety:

H10EEEx, H11EEEx  II 1G EEEx ia IIC T4 ... T6

Certification:

Certificate No. FTZÚ 01 ATEX 0067X

Temperature Class and Ambient Temperature Relations:

T4 -40 °C < T_{amb} < 85 °C

T5 -40 °C < T_{amb} < 55 °C

T6 -40 °C < T_{amb} < 40 °C

Output (Current Loop):

U_i = 30 V DC

I_i = 100 mA

P_i = 0.9 W

L_i = 350 μH

C_i = 0 nF

Sensor Input:

U_o = 6.6 V DC

I_o = 100 mA

P_o = 0.66 W

L_o = 1 mH

C_o = 1 μF

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 galvanically isolated, therefore more transmitters can be powered from a common power supply. In this case it is recommended to insert FAST 50 mA fuse or an appropriate resistor into supply circuits if the power supply is designed for higher load current (>100 mA).

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Operating Temperature Ranges:

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 Specifications

Housing:

P5201 H1x (depends on housing of head)	
IP 40, terminals IP 00	
P5201 L0x, L1x, L2x, L3x, L4x, L5x	
IP 40, terminals IP 20	
P5201 S1x, 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:

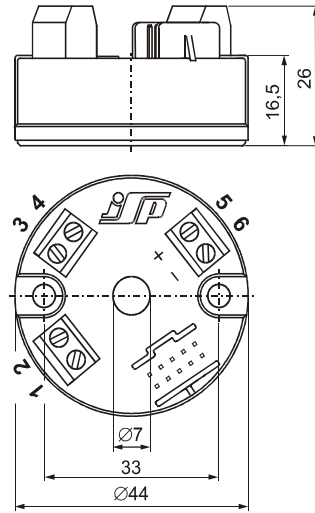
Polycarbonate

Warranty:

5 years

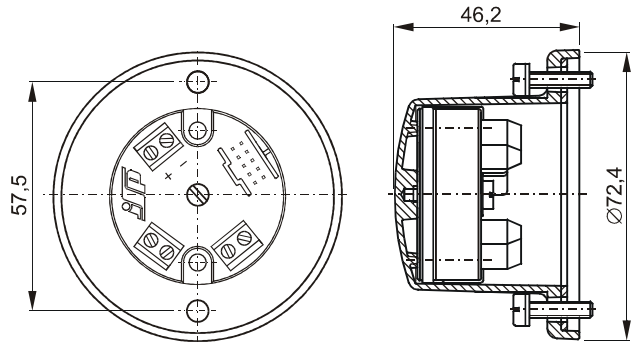
Dimensional Drawings

P5201 H1x Versions



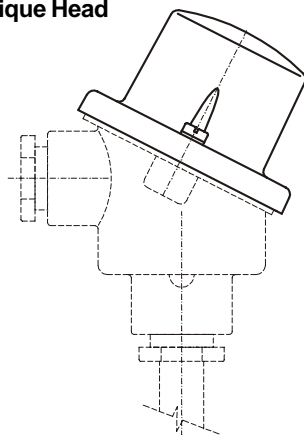
Screw terminals are used for connection of wires with cross-section 0.5 to 1.5 mm².

P5201 H1x in VH1 Cap for Head Form B to DIN (M5 Mounting bolts for 57 to 58 mm pitch)

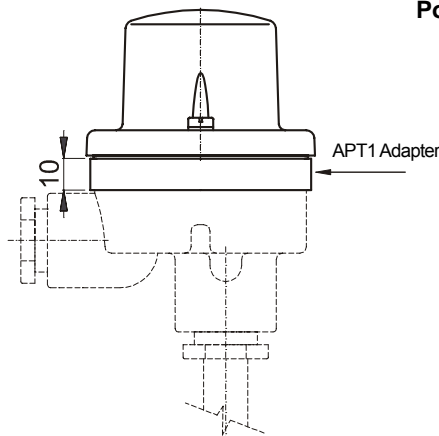


Installation of P5201 H1x in VH1 Cap on Different Kinds of Heads

Oblique Head



Straight Head with Asymmetric Position of Terminal Board



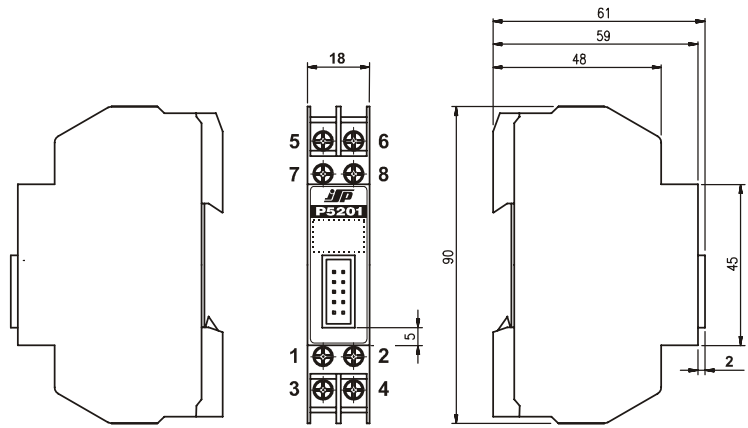
P5201 Universal Programmable Transmitters with Circuit Isolation

P5201 L0x, L1x, L4x, L5x Versions

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

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



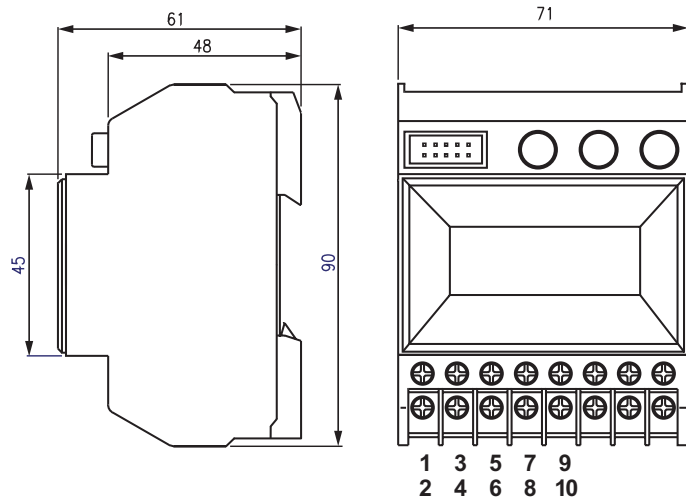
P5201 L2x, L3x Versions

(Versions L3x have no display and buttons.)

Appropriate Mounting Rails:

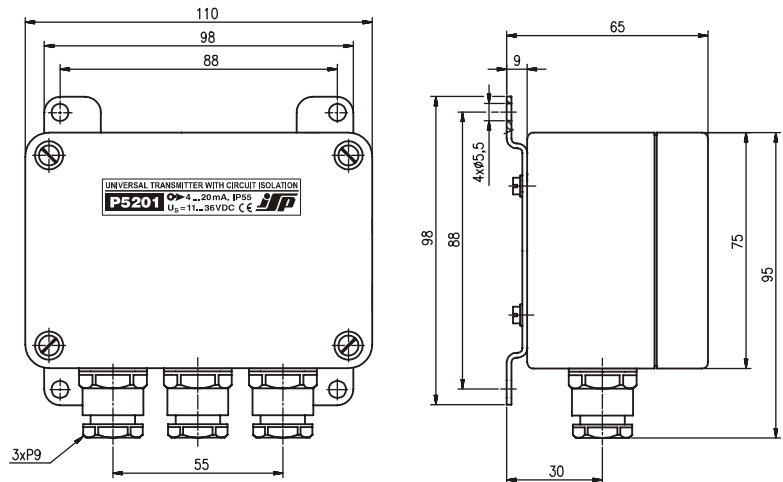
- 35 x 27 x 7.5 mm EN 50022
- 35 x 24 x 15 mm EN 50022
- 35 x 27 x 15 mm

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



P5201 S1x Versions

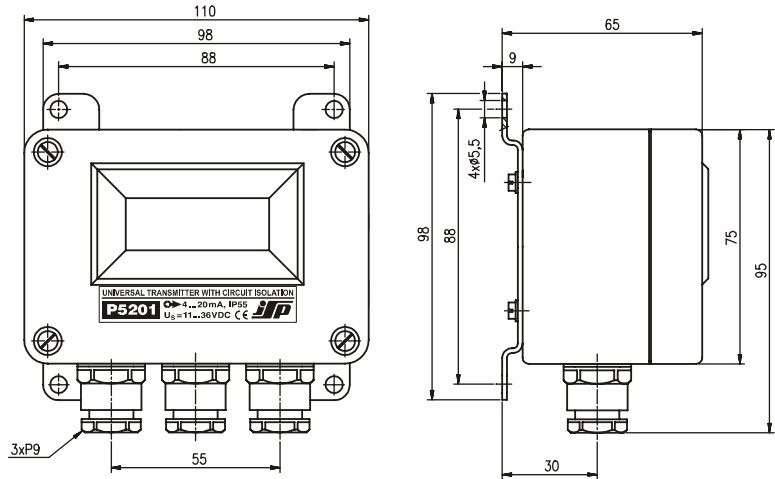
Screw terminals are used for connection of wires with cross-section 0.5 to 1.5 mm².



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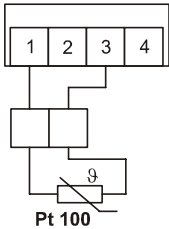
P5201 S2x Versions

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



Electrical Connections

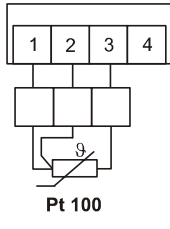
Two-wire Connection of Resistance Sensor (Code C1)



Pt 100

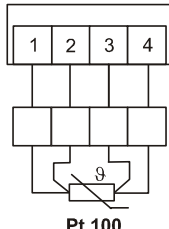
Possibilities of Wire Resistance Compensation: Enter total wire resistance R_t (included in the set-up program or in the configuration sheet).

Three-wire Connection of Resistance Sensor (Code C2)



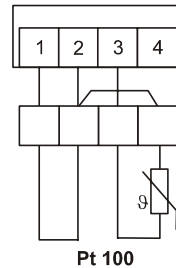
Pt 100

Four-wire Connection of Resistance Sensor (Code C3)



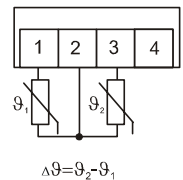
Pt 100

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



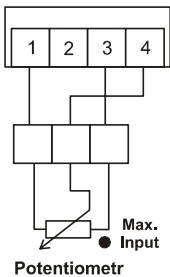
Pt 100

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



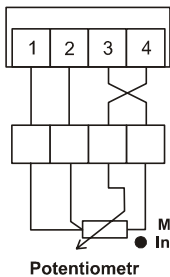
$\Delta\theta = \theta_2 - \theta_1$

Potentiometer Connection without Lead Resistance Compensation (Code C4)



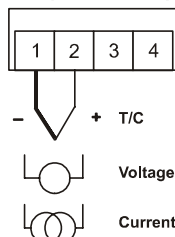
Potentiometr

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



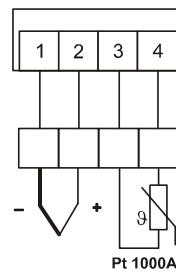
Potentiometr

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



- + T/C
Voltage
Current

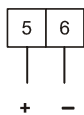
T/C Connection with External Cold Junction Compensation on Auxiliary Terminal Board (Code C7) (Version with External Compensation Only)



Pt 1000A

Connection of output, supply and relays

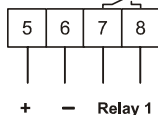
P5201 H1x, L0x



+ -

Output signal 4 to 20 mA
Supply from current loop

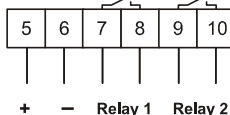
P5201 L1x



+ - Relay 1

Output signal 4 to 20 mA
Supply from current loop

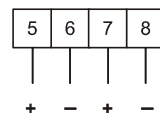
P5201 L2x, L3x, S1x, S2x



+ - Relay 1 Relay 2

Output signal 4 to 20 mA
Supply from current loop

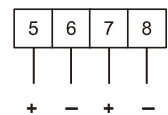
P5201 L4x



+ - + -

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 Circuit Isolation

Type	Description
• P5201 →	Universal Programmable Transmitter with Circuit Isolation
Code	Version
• H1	Mounting on Thermometer Head Form B according to DIN, Supply from Current Loop, Output 4 to 20 mA, 2 Limit Comparators, No Switch Relay
• L0	Narrow Version of Rail Mounted Transmitter, Supply from Current Loop, Output 4 to 20 mA, DIN Rails TS 35, 2 Limit Comparators, No Switch Relay
• L1 →	Narrow Version of Rail Mounted Transmitter, Supply from Current Loop, Output 4 to 20 mA, DIN Rails TS 35, 2 Limit Comparators, 1 Switch Relay
◦ L2	Wide Version of Rail Mounted Transmitter, Supply from Current Loop, Output 4 to 20 mA, DIN Rails TS 35, 2 Limit Comparators, 2 Switch Relays, LCD Display
◦ L3	Wide Version of Rail Mounted Transmitter, Supply from Current Loop, Output 4 to 20 mA, DIN Rails TS 35, 2 Limit Comparators, 2 Switch Relays
◦ L4	Narrow Version of Rail Mounted Transmitter, Isolated Supply 24 V DC, Output 0 to 20 mA, DIN Rails TS 35, 2 Limit Comparators, No Switch Relay
◦ L5	Narrow Version of Rail Mounted Transmitter, Isolated Supply 24 V DC, Output 0 to 10 V, DIN Rails TS 35, 2 Limit Comparators, No Switch Relay
S1	Wall Mounted Transmitter, Supply from Current Loop, Output 4 to 20 mA, 2 Limit Comparators, 2 Switch Relays, Housing IP 55
S2	Wall Mounted Transmitter, Supply from Current Loop, Output 4 to 20 mA, 2 Limit Comparators, 2 Switch Relays, Housing IP 55, LCD Display
Code	Terminal Board Temperature Compensation
• 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 is required with order.)
• R01	Resistance Sensor (0 to 400 Ω) without Conversion to Temperature
• R02	Resistance Sensor (0 to 4000 Ω) without Conversion to Temperature
• R03	Potentiometer (Total Resistance 40 to 400 Ω, Range in Percent)
• R04	Potentiometer (Total Resistance 400 to 4000 Ω, Range in Percent)
• R05	Voltage Sensor (-15 to 60 mV) without Conversion to Temperature
• R06	Difference of Two Resistance Sensors (Max. Total Resistance 400 Ω)
• R07	Difference of Two Resistance Sensors (Max. Total Resistance 4000 Ω)
• 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 ***	Customer Linearization for Resistance Sensor (0 to 400 Ω)
R92 ***	Customer Linearization for Resistance Sensor (0 to 4000 Ω)
R93 ***	Customer Linearization for Potentiometer (R ≤ 400 Ω)
R94 ***	Customer Linearization for Potentiometer (R ≤ 4000 Ω)
R95 ***	Customer Linearization for Other Voltage Sensor (Thermocouple -15 to 60 mV)
R96 ***	Customer Linearization for Difference of Two Resistance Sensors (Max. Total Resistance 400 Ω)
R97 ***	Customer Linearization for Difference of Two Resistance Sensors (Max. Total Resistance 4000 Ω)
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 kΩ)

• ... Ex Stock Version

◦ ... Marked Version can be Dispatched up to 10 Working Days

* 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, Hxx E11; It is not Possible to Change Configuration of Input and Sensor Connection by NPT-02 Set-up Program

P5201 Universal Programmable Transmitters with Circuit Isolation

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
• C5	Connection of Potentiometer with Wire Resistance Compensation	R03, R04, R93, R94
• C6	Connection of Voltage or Current Sensor or T/C without Compensation of Terminal Board Temperature	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	Optional Version	
◦ EI1	Intrinsically Safe Version II 1G EEx ia IIC T4 - T6, Certificate No. FTZÚ 01 ATEX 0067X (only for H1 Version)	
Code	Optional Accessories	
Q1	Calibration to Increased Accuracy up to 0.05 % of Factory Set Range	
S IPZK	Earthquake-resistance	
• NJ-14	Set-up Unit (See Data Sheet No. 325)	
◦ NJ-14EEx	Set-up Unit, Intrinsically Safe Version II 2 G EEx ia IIC T4 - T6, Certificate No. FTZÚ 01 ATEX 0046X (See Data Sheet No. 325)	
◦ 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. 326)	
• KA-01	RS232C Interface with Circuit Isolation	
• Pt1000A	Compensation Resistor Pt1000 (-30 to 150 °C) for External Compensation of Thermocouple	
• VH1	Cap for Head B for Mounting of Transmitter (H1 Versions)	
• APT1	Adapter for Straight Head	
		5-year Warranty
Example of Order:		
	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 Potentiometr in Percent)