# P20 TRANSDUCER OF TEMPERATURE AND STANDARD SIGNALS

sifam tinsley
PRECISION INSTRUMENTATION

## FEATURES:

PD14 Programmer

LPConfig Program

Linear chrtcs.

## INPUTS:

DC

-20..20 mA

-10..10 V

## OUTPUTS:

0/4..20 mA

0..10 V

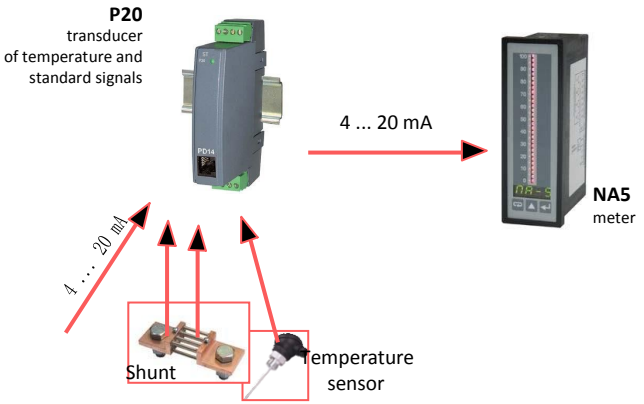
## GALVANIC ISOLATION:

Sup.

PD14 interface

- Full galvanic isolation of the input, output and supply.
- Matching of analog signals in automation systems.
- Fully configurable through the PD14 programmer. By means of the programmer, one can change the input type, measurement averaging time and rescaling the analog output according to the output individual characteristic.
- Small dimensions.
  0.2 accuracy class.

## Example of Application




## Inputs

| Input | Measurement Measure* | Parameters | Error |
|---|---|---|---|
| Current: -20...20 mA | 0...20 mA<br>4...20 mA<br>0...5 mA<br>-20...20 mA | Resistance: 12 Ω ± 1% | Conversion class: 0.2 *<br><br>* A part of sub-ranges for thermo-couples and RTD has a specified individual class (see table 1) |
| Voltage: -10...10 V | 0...10 V<br>0...5 V<br>-10...10 V<br>-5...5 V | Resistance: > 1 MΩ | |
| Voltage d.c. [mV] | 0...60 mV<br>-60...60 mV<br>-150...150 mV<br>0...150 mV | - | |
| Pt 100 | -200...850 °C | | |
| Pt250 | | | |
| Pt500 | | | |
| Pt1000 | | | |
| Thermocouple J type | -200...1200 °C | | |
| Thermocouple K type | -200...1370 °C | | |
| Thermocouple S type | 0...1760 °C | | |
| Thermocouple N type | -200...1200 °C | | |
| Resistance | 0...4000 Ω | | |

* for detailed measurement ranges see table 1

## Outputs

| Output kind | Load resistance | Remarks |
|---|---|---|
| 0/4...20 mA | $R_{load} \leq 500\ \Omega$ | Conversion class: 0.2 |
| 0...10 V | $R_{load} \geq 500\ \Omega$ | |

## External features

| | | |
|---|---|---|
| Weight | < 0.125 kg | |
| Overall dimensions | 22.5 x 120 x 100 mm | |
| Protection grade (acc. to EN 60529) | for housing: IP40 | for terminals: IP20 |
| Fixing | on a DIN rail 35 mm | acc. to EN 60715 |


Export department:

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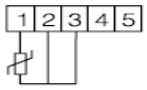
## Rated operation conditions

| | | |
|---|---|---|
| | 85...253 V d.c./a.c. (45...65Hz)<br>lub 20...85 V d.c., 20...65 V a.c. (45...65 Hz) | Power consumption: < 2 VA |
| Temperature | ambient: -20...23...55˚C | storage: -25...85˚C |
| Relative humidity | < 95% | inadmissible condensation |
| Working position | any | |
| Preheating time | 10 min | |
| Averaging time | range: d.c. current [mA], d.c. voltage [V] @ 0.1 s | other ranges ≥ 0.3 s |

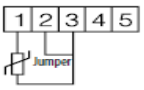
## Safety and compatibility requirements

| | | |
|---|---|---|
| Electromagnetic compatibility | noise immunity | acc. to EN 61000-6-2 |
| | noise emissions | acc. to EN 61000-6-4 |
| Isolation between circuits | basic | acc. to EN 61010-1 |
| Pollution level | 2 | |
| Installation category | III | |
| Maximal phase-to-earth voltage | for supply circuits: 300 V | |
| | for input: 50 V | |
| | for output: 50 V | |
| Altitude above see level | < 2000 m | |

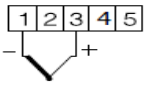
## Connection Diagrams



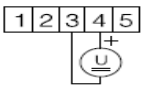

Resistance thermometer in a three-wire system



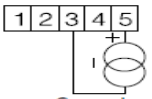

Resistance thermometer in a two-wire system or resistance measurement




Thermocouple or voltage
- 60... 60 mV
0... 60 mV
- 150... 150 mV
0... 150 mV




Voltage
- 10... 10 V
0... 10 V
0... 5 V
-5...5 V




Current
- 20... 20 mA
0... 20 mA
4... 20 mA
0...5 mA

## Ordering

**P20 ordering code:**

| | | | | | |
|---|---|---|---|---|---|
| P20 - | X | X | XX | XX | X |
| **Analog output:** | | | | | |
| current 0...20 mA | 1 | | | | |
| current 4...20 mA | 2 | | | | |
| voltage 0...10 V | 3 | | | | |
| **Supply:** | | | | | |
| 85...253 V a.c./d.c. | | 1 | | | |
| 20...85 V d.c., 20...65 V a.c. | | 2 | | | |
| **Kind of input:** | | | | | |
| write the code from table 1 | | | XX | | |
| **Version:** | | | | | |
| standard | | | | 00 | |
| custom-made* | | | | XX | |
| **Acceptance tests:** | | | | | |
| without extra requirements | | | | | 8 |
| with an extra quality inspection certificate | | | | | 7 |
| acc. to customer's request* | | | | | X |

* - after agreeing with the manufacturer

**Order example:**

The code **P20 - 1-1-04-00-7** means:

- **P20** - transducer of temperature and standard signals
- **1** - with current analog output: 0... 20 mA
- **1** - voltage supply 85... 253 V a.c./d.c.
- **04** - Pt100 output signal on the 0...400°C range
- **00** - standard version
- **7** - with an extra quality inspection certificate

**Table 1.** input signals P20

| Type of sensor/input [Unit] | Range | Code | Type of sensor/input [Unit] | Range | Code |
|---|---|---|---|---|---|
| Pt100 [°C] | -200..850 | 01 | TC of K type [°C] | -200..1370 | 36 |
| | 0..850 | 02 | | 0..1200 | 37 |
| | 0..600 | 03 | | 0..1000 | 38 |
| | 0..400 | 04 | | 0..800 | 39 |
| | 0..200 | 05 | | 0..600 | 40 |
| | -200..200 | 06 | | 0..400[1] | 41 |
| | -100..100[1] | 07 | | -200..200[1] | 42 |
| Pt250 [°C] | -200..850 | 08 | TC of S type [°C] | 0..1760 | 43 |
| | 0..850 | 09 | | 0..1600 | 44 |
| | 0..600 | 10 | | 0..1400[1] | 45 |
| | 0..400 | 11 | | 0..1200[1] | 46 |
| | 0..200 | 12 | | 0..1000[1] | 47 |
| | -200..200 | 13 | TC of N type [°C] | -200..1200 | 48 |
| | -100..100 | 14 | | 0..1200 | 49 |
| Pt500 [°C] | -200..850 | 15 | | 0..1000 | 50 |
| | 0..850 | 16 | | 0..800 | 51 |
| | 0..600 | 17 | | 0..600[1] | 52 |
| | 0..400 | 18 | | 0..400[1] | 53 |
| | 0..200 | 19 | | -200..200[1] | 54 |
| | -200..200 | 20 | Voltage d.c. [V] | 0..10 | 55 |
| | -100..100 | 21 | | 0..5 | 56 |
| Pt1000 [°C] | -200..850 | 22 | | -10..10 | 57 |
| | 0..850 | 23 | | -5..5 | 58 |
| | 0..600 | 24 | Voltage d.c. [mV] | 0..60 | 59 |
| | 0..400 | 25 | | -60..60 | 60 |
| | 0..200 | 26 | | 0..150 | 61 |
| | -200..200 | 27 | | -150..150 | 62 |
| | -100..100 | 28 | Current d.c. [mA] | 0..20 | 63 |
| TC of J type [°C] | -200..1200 | 29 | | 4..20 | 64 |
| | 0..1200 | 30 | | 0..5 | 65 |
| | 0..1000 | 31 | | -20..20 | 66 |
| | 0..800 | 32 | Resistance [Ω] | 0..400 | 67 |
| | 0..600 | 33 | | 0..4000 | 68 |
| | 0..400[1] | 34 | Custom-made | | XX |
| | -200..200[1] | 35 | | | |

[1] Accuracy class 0.5

**See also:**

LPConfig

Free LPConfig software for easy programming of ST's products. Available on our website

PD14 programmer - unit for programming ST's products, with USB connection, LPCon compatible.

Programmable digital meter of d.c. current and d.c. voltage N30H.

For more information about ST's products please visit our website: www.sifamtinsley.com !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