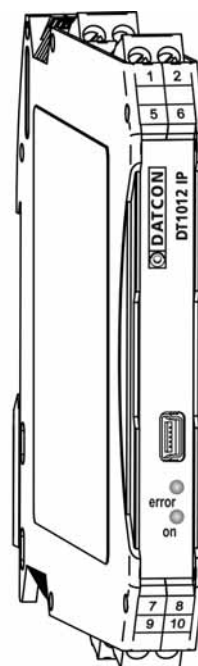


DT1012 IP (PS)

Temperature / Resistance / Potentiometer Transmitter

Operating Instructions



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1. About this document

1.1. Function

This operating instructions manual has all the information you need for quick set-up and safe operation of DT1012 IP.

Please read this manual before you start setup.

1.2. Target group

This operating instructions manual is directed to trained personnel.

The contents of this manual should be made available to these personnel and put into practice by them.

1.3. Symbolism used



Information, tip, note

This symbol indicates helpful additional information.



Caution, warning, danger

This symbol informs you of a dangerous situation that could occur. Ignoring this cautionary note can impair the person and/or the instrument.

List

- The dot set in front indicates a list with no implied sequence.

Action

- This arrow indicates a single action.

Sequence

- 1 Numbers set in front indicate successive steps in a procedure.

2. For your safety

2.1. Authorized personnel



All operations described in this operating instructions manual must be carried out only by trained and authorized specialist personnel. For safety and warranty reasons, any internal work on the instruments must be carried out only by DATCON personnel.

2.2. Appropriate use

The DT1012 IP is a Temperature / Resistance / Potentiometer Transmitter. Detailed information on the application range is available in chapter **3. Product description**.

2.3. Warning about misuse



Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, or damage to system components through incorrect mounting or adjustment.

2.4. General safety instructions



The DT1012 IP is a high-tech instrument requiring the strict observance of standard regulations and guidelines.

The user must take note of the safety instructions in this operating instructions manual, the country-specific installation standards as well as all prevailing safety regulations and accident prevention rules.

2.5. CE conformity

A DT1012 IP (PS) is in conformity with the provisions of the following standards:

EN IEC 61326-1 (EMC)
EN 55011 (EMC)
EN 55011/A1 (EMC)
EN 55011/A2 (EMC)
EN 61010-1 (LVD)
EN IEC 63000 (RoHS 2)

2.6. Environmental instructions

Protection of the environment is one of our most important duties. Please take note of the instructions written in the following chapters:

- Chapter **3.6. Storage and transport**
- Chapter **9.2. Disposal**

3. Product description

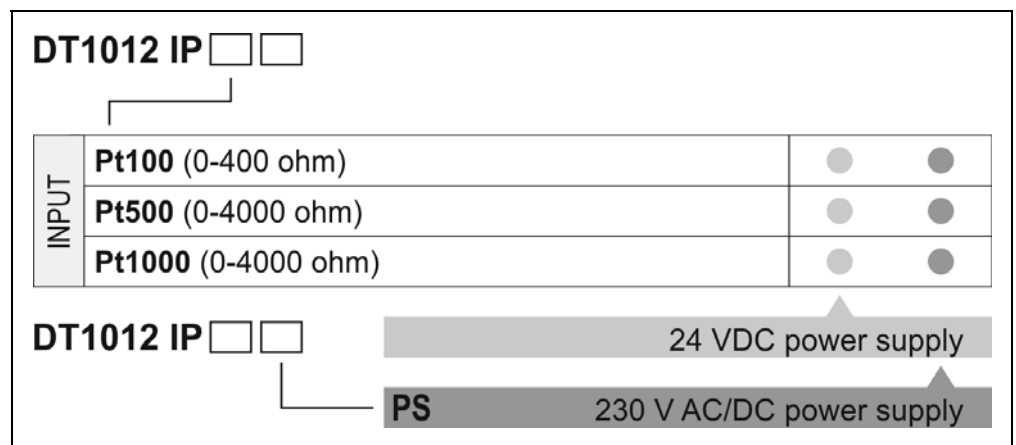
3.1. Delivery configuration

Delivered items

The scope of delivery encompasses:

- DT1012 IP (PS)
- documentation:
 - this operating instructions
 - Certificate
 - mini USB (5 pin) – USB A cable
 - Configuration software CD

3.2. Type designation



Area of application



3.3. Principle of operation

A Pt100 / Pt500 / Pt1000 temperature sensor, linear resistor or potentiometer can be connected to the input of the DT1012 IP... Temperature / Resistance / Potentiometer Transmitter.

When a Pt temperature sensor is connected, the output signal is proportional to the measured temperature, in the case of resistance, to the measured resistance, in the case of a potentiometer, to the position of the potentiometer.

The output signal can be current in the range 4-20 mA (passive output, external power supply required).

The instrument has three-way separation, that is: the input, output and power supply are galvanically independent from each other.

Sensors / transmitters can be connected to the input with 2 / 3 / 4 wires. In case of 3 / 4 wire connection, the resistance of the connecting wires does not affect the measurement.

The instrument can be scaled, and any input signal range can be assigned to the output signal range.

Scaling, selection of the output signal level, signal averaging, etc., are done via USB port.

The configuration program running on the PC and the USB cable are included with the instrument.

The transmission characteristics of the transmitter are exceptionally good: the error of the output signal $< \pm 0.1 \text{ }^\circ\text{C}$, the temperature factor $< \pm 20 \text{ ppm / }^\circ\text{C}$ typically.

There are three types depending on the measuring range:

- DT1012 IP Pt100 measuring range: Pt 100 / 0-400 ohm
- DT1012 IP Pt500 measuring range: Pt 500 / 0-4000 ohm
- DT1012 IP Pt1000 measuring range: Pt 1000 / 0-4000 ohm
(Pt_{xx} measure range: -200 - +800 °C)

There are two type of power supply:

- DT1012 IP... 24 VDC,
- DT1012 IP... PS 230 V AC/DC

Configuration from the PC:

The input and output characteristics can be freely configured from a PC via a USB port.

The PC program required for configuration is included with the instrument and can be downloaded from the www.datcon.eu website. The USB interface is separated from the output of the instrument and the power supply, but not from its input, so the PC can only be connected to the instrument under operating conditions with due care. The instrument is also powered by the USB port, so it is sufficient to connect the USB cable for configuration (in this case, the analog output does not work).

Principle of operation

The Pt sensor, resistor, potentiometer connected to the input is sent to the input of the 24-bit A/D converter through the protection and signal conditioning stages. The digital signal of the A/D converter is processed by a microcontroller.

The microcontroller performs signal processing according to the settings and outputs the signal in the form of a PWM signal for the output stage. After galvanic isolation, the output stage converts it into an analog current signal (passive output, external power supply required).

The instrument generates the power supply voltages required for the input side and the output side from the connected power supply using a galvanically separated, double-output DC-DC converter.

Power supply

The (PS) can be ordered with two types of power supply:

DT1012 IP: 24 VDC

DT1012 IP PS: 230 V AC/DC

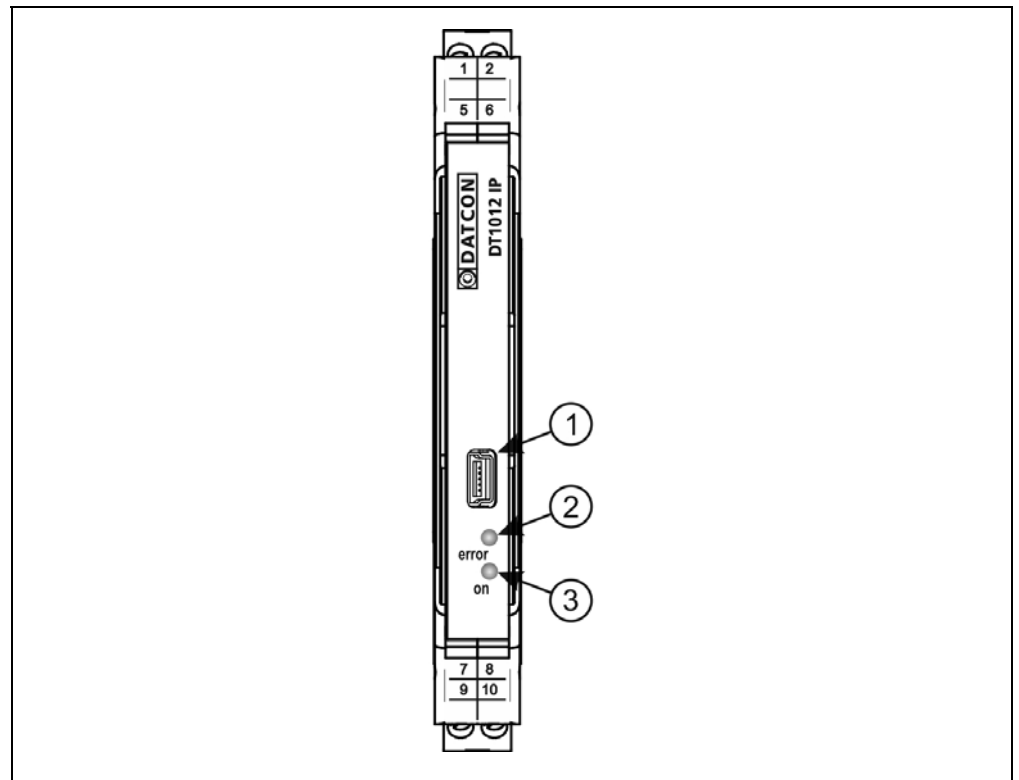
3.4. Setting

After the instrument is connected to the power supply — see **6.1. First power on** with factory settings according to chapter — ready for operation.

A detailed description of the settings can be found in chapter **7. Setting-up**.

3.5. Indicator LEDs, USB connector

The figure below shows the front panel of the instrument with the USB connector and indicators:



1. USB-B mini 5-pin female connector for connecting a USB cable.
2. "error" indicator, which indicates the error state with a red, flashing light. The sequence number of the error is given by the number of flashes.
3. "on" indicator, which indicates the switched-on state of the instrument with a continuous green light.

3.6. Storage and transport

This instrument should be stored and transport in places whose climatic conditions are in accordance with chapter **10.1. Technical specification**, as described under the title: Environmental conditions.



The packaging of DT1012 IP consist of environment-friendly, recyclable cardboard is used to protect the instrument against the impacts of normal stresses occurring during transportation. The corrugated cardboard box is made from environment-friendly, recyclable paper. The inner protective material is nylon, which should be disposed of via specialized recycling companies.

4. Mounting

4.1. General instructions



Mounting position

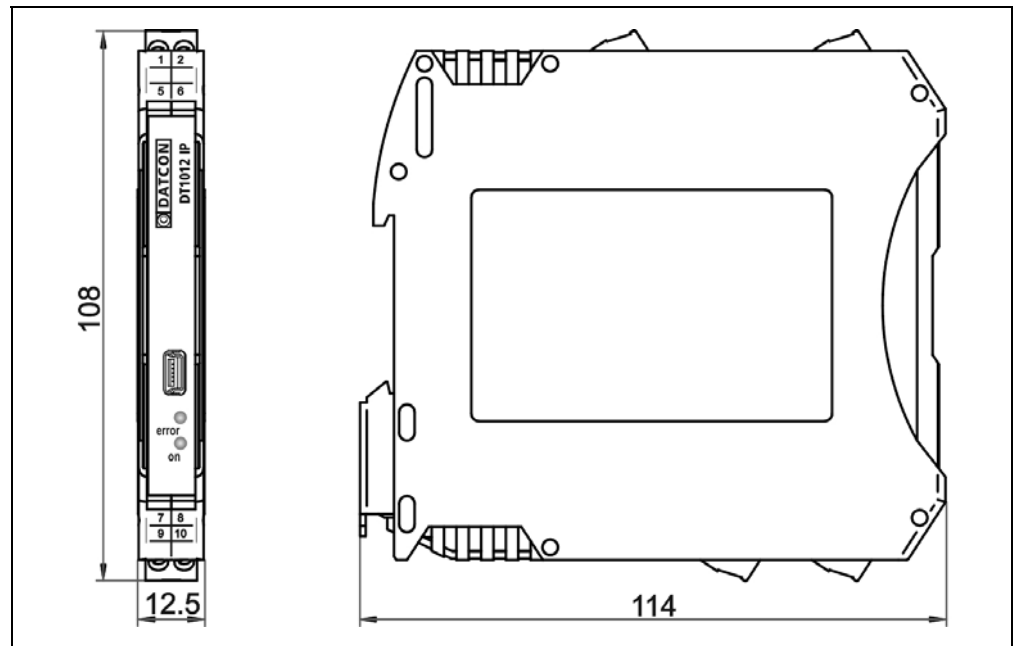
The instrument should be installed in a cabinet with sufficient IP protection, where the operating conditions are in accordance with chapter 10.1. **Technical specification**, as described under the title: **Ambient conditions**

The instruments are designed in a housing for mounting on TS-35 rail. The instruments should be mounted in vertical position (horizontal rail position).



If several instruments are placed next to each other in a horizontal installation position (vertical rail), it may cause the instrument to overheat.

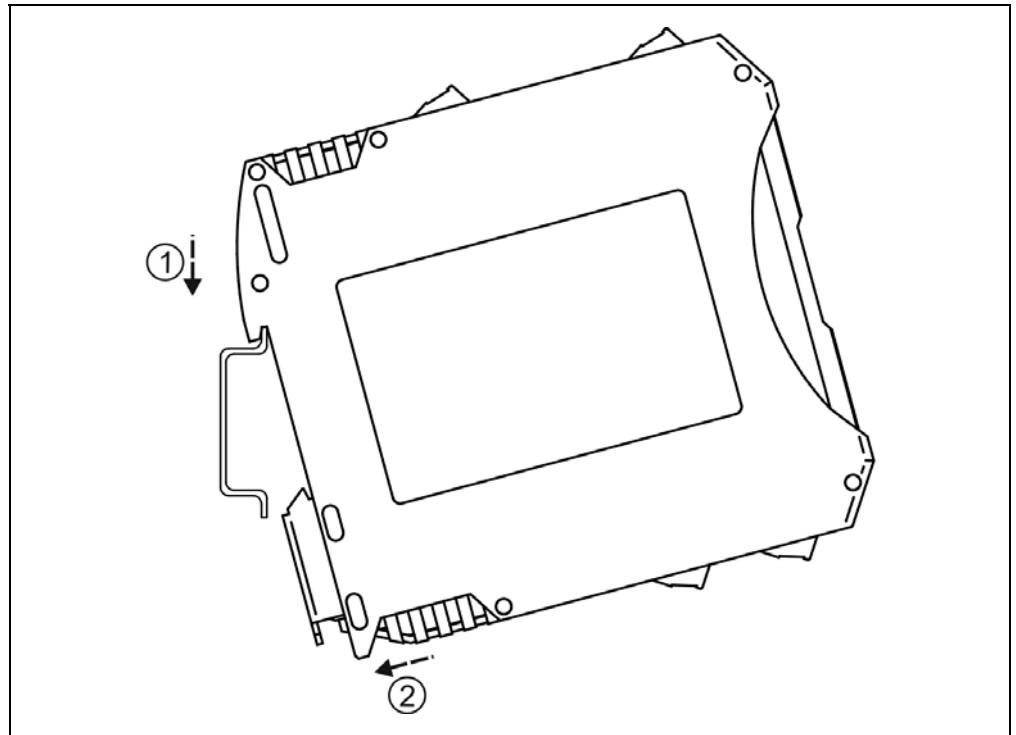
4.2. A készülék főbb méretei



4.3. Mounting

The following figure shows the mounting procedures (fixing on the rail):

Mounting on the rail



No tools are required for installation.

1. In the position shown in the figure, place the fixing groove of the instrument on the upper edge of the rail (step 1 in figure).
2. Push the lower part of the instrument towards the lower edge of the rail until you hear a clicking sound (fig. step 2).
3. Check whether the fixing is correct by moving the instrument housing slightly.

5. Connecting

5.1. Preparing the connection

Always observe the following safety instructions:



- The connection must be carried out by trained and authorized personnel only!
- Connect only in the complete absence of supply voltage
- Use only a screwdriver with appropriate head

Select and prepare connection cable

Take note the suitability of the connecting cable (wire cross-section, insulation, etc.).

The wire cross-section should be 0.25-1.5 mm².

You may use either solid conductor or flexible conductor.

In case of using flexible conductor use crimped wire end.

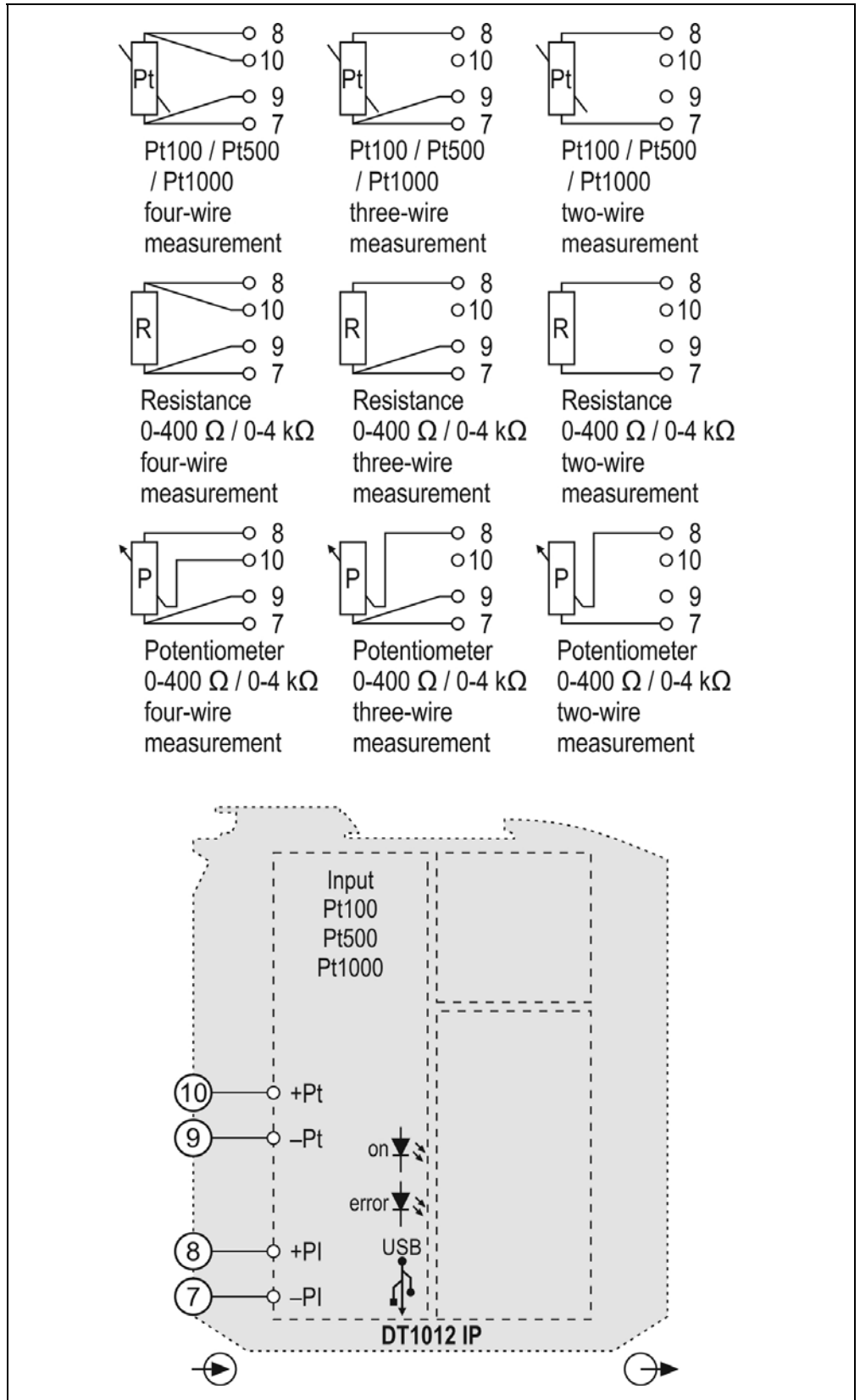


For the input connection we recommended to use screened cable. It's an important rule that the power cables and signal cables should lead on a separate way.

5.2. Connecting sensor / resistor / potentiometer to the input

The following figure shows the wiring plan, connecting the sensor / resistor / potentiometer to the input:

Wiring plan, connecting the sensor / resistor / potentiometer to the input



1. Loosen terminal screws.
2. Insert the wire ends into the open terminals according to the wiring plan.
3. Screw the terminal in.
4. Check the hold of the wires in terminals by pulling on them firmly.

Checking the Connections

Check if the cables are connected properly (have you connected all the cables, have you connected to the right place, do not the cable-ends touch each other).

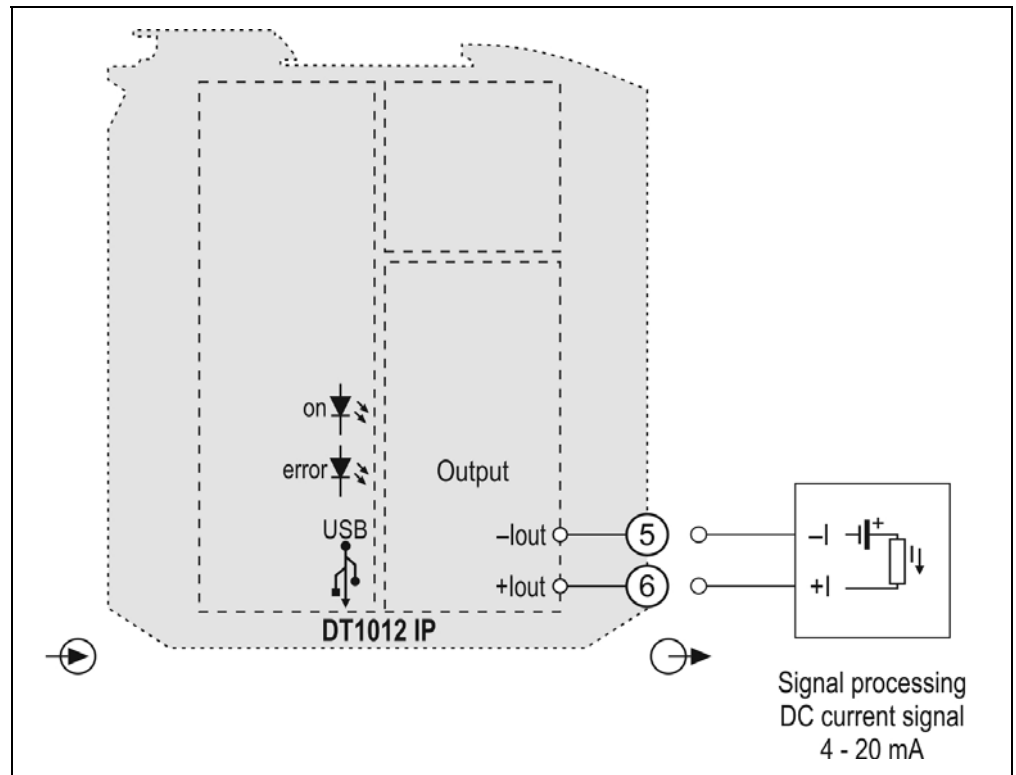
5.3. Connecting the current output to the signal processor unit

The following figure shows the wiring plan, connecting the passive current output to the signal processing unit:

Wiring plan, connecting the current output to the signal processing unit

Be careful the polarity of the cables

Leave connection terminals 3 and 4 free!



1. Loosen terminal screws.
2. Insert the wire ends into the open terminals according to the wiring plan.
3. Screw the terminal in.
4. Check the hold of the wires in terminals by pulling on them firmly.

Checking the connections

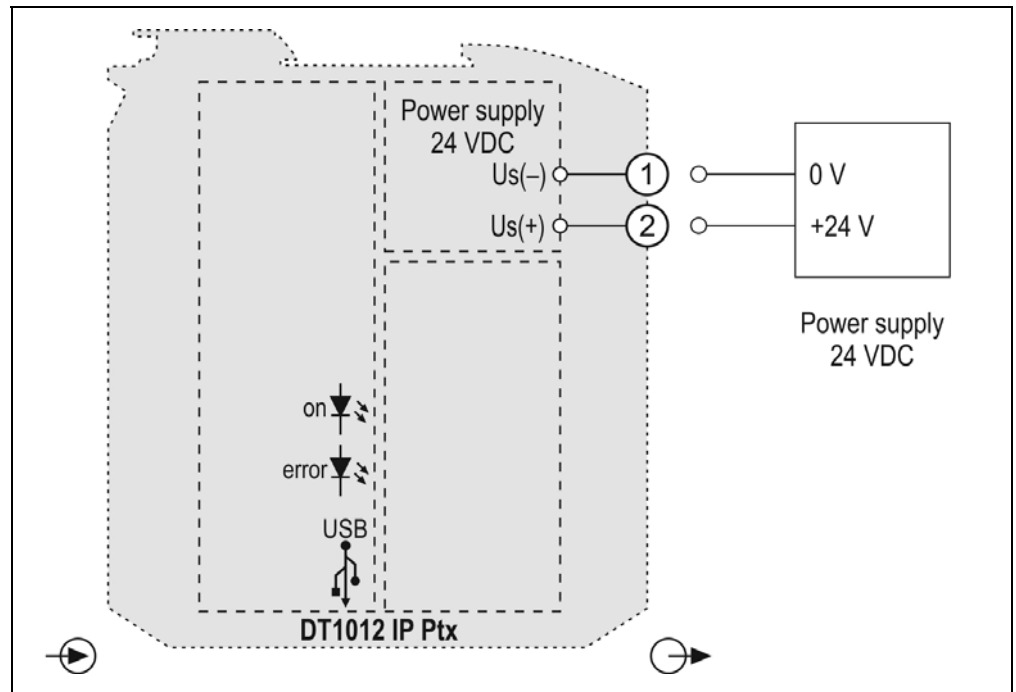
Check if the cables are connected properly (have you connected all the cables, have you connected to the right place, do not the cable-ends touch each other).

5.4. Connecting the instrument to DC power supply

The following figure shows the wiring plan, connecting the instrument to DC power supply:

Wiring plan connecting to DC power supply

Polarity is indifferent



1. Loosen terminal screws.
2. Insert the wire ends into the open terminals according to the wiring plan.
3. Screw the terminal in.
4. Check the hold of the wires in terminals by pulling on them firmly.

Checking the connections

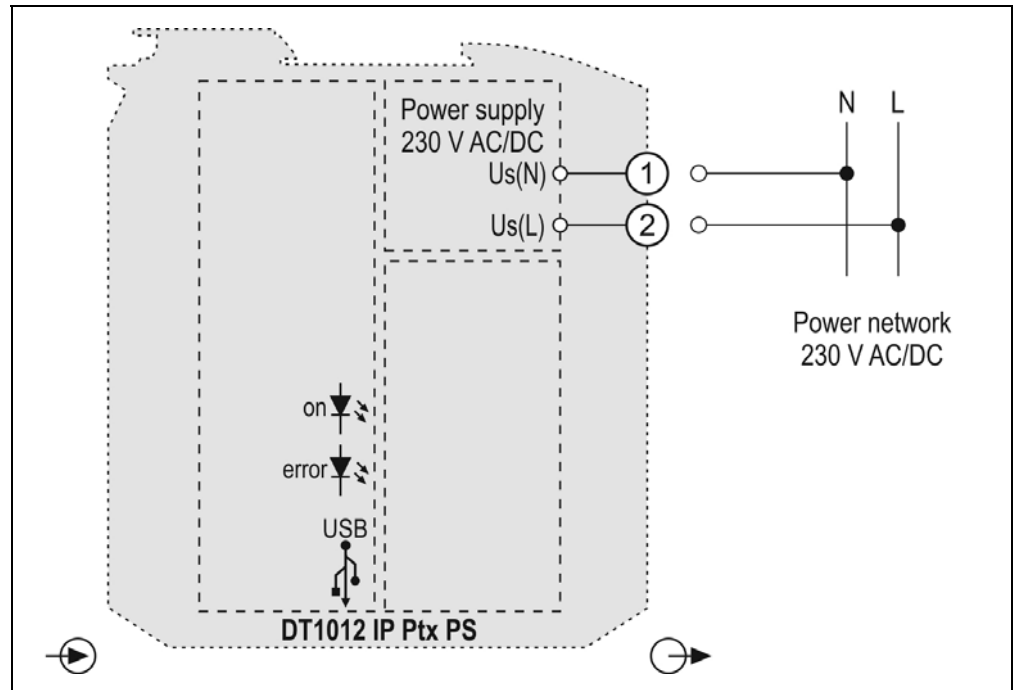
Check if the cables are connected properly (have you connected all the cables, have you connected to the right place, do not the cable-ends touch each other).

Connecting the instrument to 230 V AC/DC power supply

The following figure shows the wiring plan, connecting the instrument to 230 V AC/DC power supply:

(note the information about the installation overcurrent protection see chapter **10.1. Technical specification**)

Wiring plan connecting to 230 V AC/DC power supply



1. Loosen terminal screws.
2. Insert the wire ends into the open terminals according to the wiring plan.
3. Screw the terminal in.
4. Check the hold of the wires in terminals by pulling on them firmly.

Checking the connections

Check if the cables are connected properly (have you connected all the cables, have you connected to the right place, do not the cable-ends touch each other).

Switching on the power supply

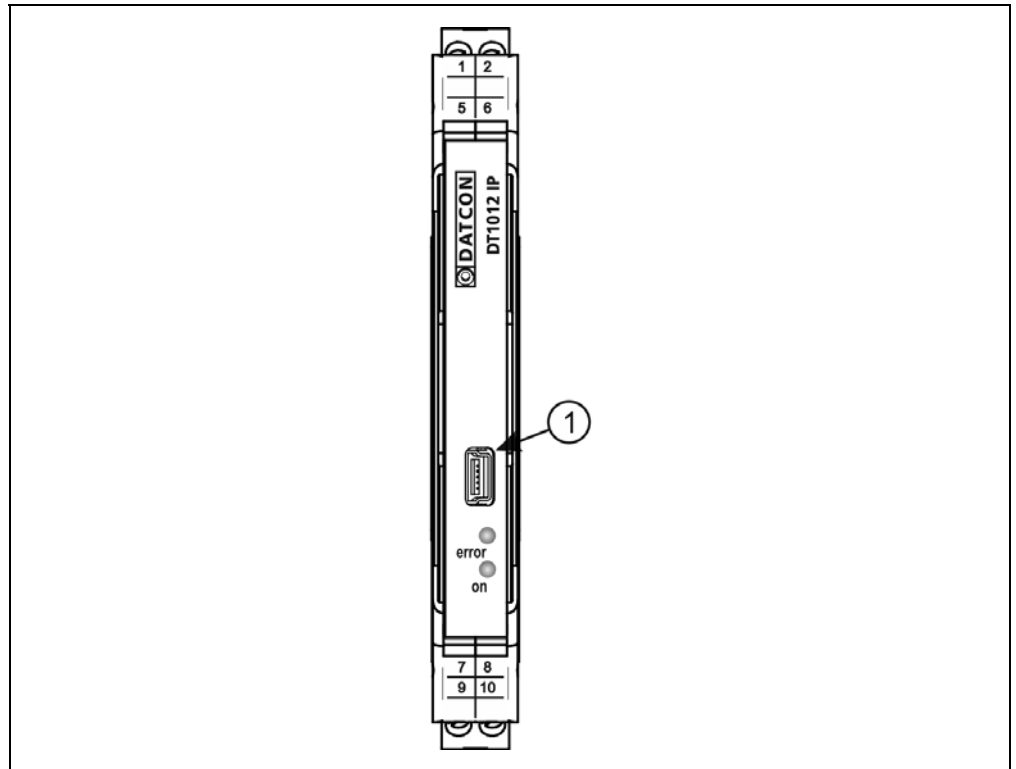
5.5. Switching on the power supply

Switch on the power supply.

If connected correctly, the green "on" indicator lights up and — depending on the settings — an output signal proportional to the input signal can be measured at the output.

5.6. Connecting to PC via USB cable

The following figure shows the wiring plan, connecting the instrument to The PC:



1. Open the front cover of the instrument (from bottom to top).
2. To communicate with the configuration program, plug the included USB cable (USB-B mini, 5-pin connector) into the "USB" socket marked with the number (1) in the figure above. The design of the cable is such that it can only be connected to the instrument in one position.

The same applies to the cable end on the PC side.

3. Make the desired settings as described in chapter 7. **Setting-up.** USB driver installation is not required. It is not necessary to supply the instrument with power while making the settings. After completing the settings, simply unplug the USB cable from the instrument. (Don't move it sideways or jerk it, just pull it.)



The USB port and the input of the instrument are not galvanically isolated, so the PC can only be connected to the instrument under operating conditions if the potential difference between them is negligible (a balancing current of less than 1 mA flows between the PC and the instrument).

It is not necessary to turn off the instrument when connecting or disconnecting the USB cable.

6. The first power on, indicators

6.1. First power on

The instrument is operational immediately after switching on the power supply (see: previous chapter).

The factory settings are as follows:

- Input signal source: Pt temperature sensor
- Wire: 4-wire measurement
- Average: 10

Input connection points to be connected:

-PI (7), +PI (8), -Pt(9) and +Pt (10)

- Output type: 4-20 mA passive
- Error indication: On
- Analog output scaling, lower value (4 mA): -200 °C
- Analog output scaling, upper value (20 mA): 800 °C

Output connection points to be connected:

-Iout (5) and +Iout (6).

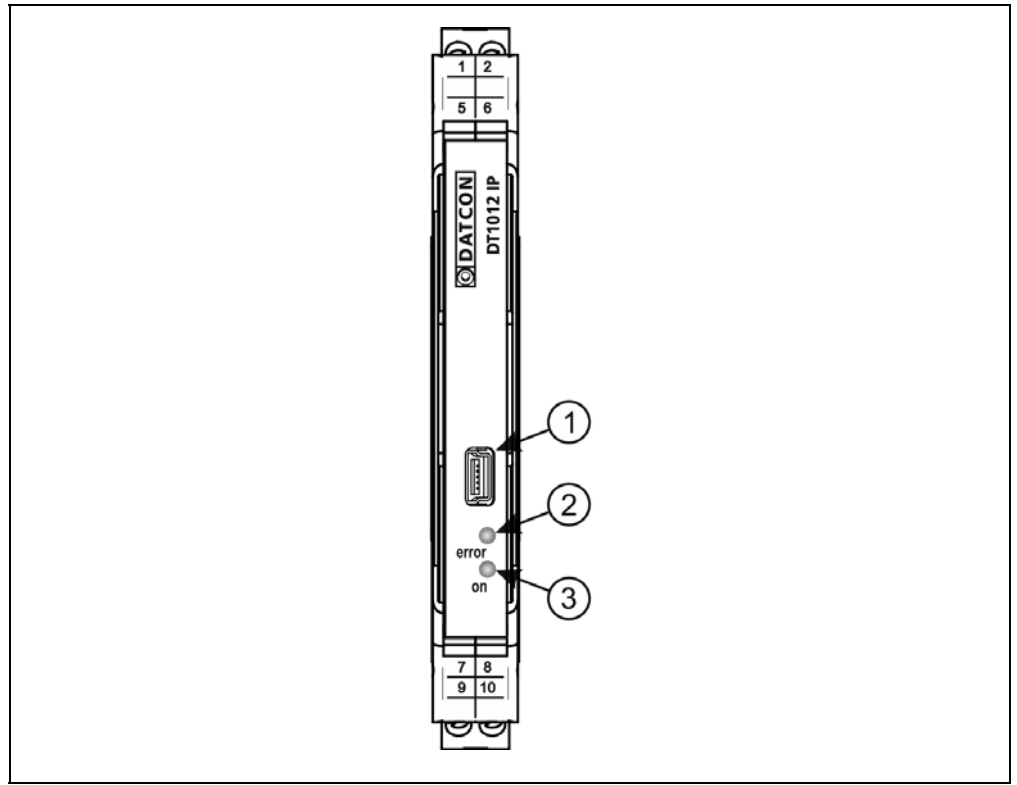


Before starting normal use, you must setup the instrument as described in chapter 7. **Setting-up**.

Attention! In the case of incorrect settings or the use of connectors that are not in accordance with the settings, the instrument will work incorrectly!

6.2. Indicators

The following figure shows the front panel of the instrument with the USB connector and indicators:



(2) "error" indicator (LED located on the front panel, under the USB connector), which indicates the error status with a red, flashing light.

The sequence number of the error is given by the number of flashes.

(3) "on" indicator, which indicates the power on state of the instrument with a continuous, green light.

Error status indication:

The "error" indicator: flashes red.

The "error" indicator can indicate the following error states:

- **1 flash:** Serious error
- **2 flash:** Broken input wiring
- **3 flash:** Uncalibrated potentiometer
- **4 flash:** Input signal out of range
- **5 flash:** Output signal out of range

7. Setting-up

7.1. About the setting in general

Necessary tools

Setup requires the following:

- mini USB (5 pin) - USB A cable (accessory)
- PIC32MM.exe configuration software (accessory)
- PC, with Windows Operation System and USB port

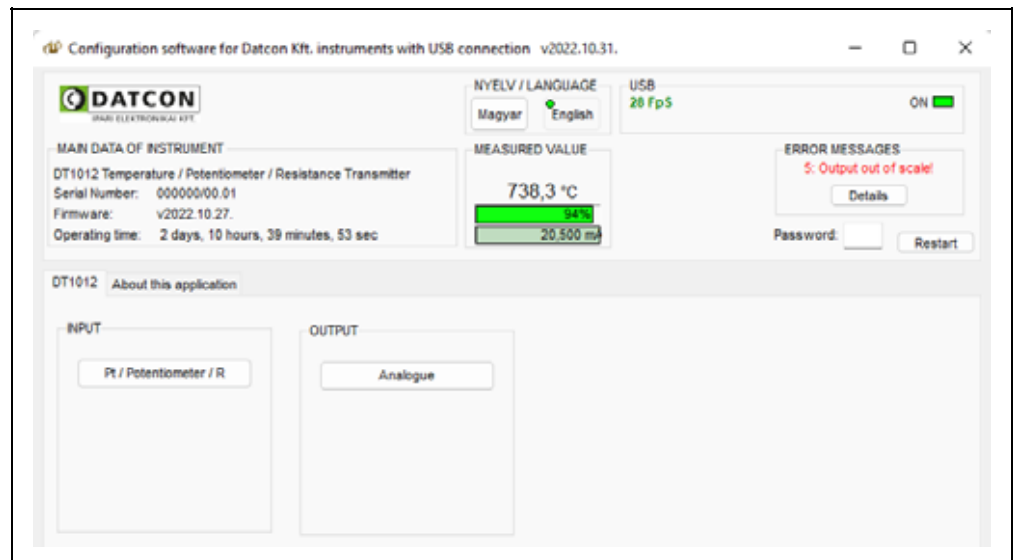
Installation software

The instrument's configuration program and USB interface do not require installation. It is enough if the mcHID.dll required for running and communication is in the same directory as the PIC32MM.exe setup program.

Setup steps

1. Connect the instrument to the PC with the included USB cable. If you want to check the input signal, then put the instrument under power. If you just want to configure the instrument, no power supply is required.
2. Start the PIC32MM.exe configuration program.
3. Use the configuration program as described on the following pages.
4. After completing the individual setting phases, click the "Enter to the instrument" button. As a result, the new settings are written into the instrument and stored permanently.
5. Close the PIC32MM.exe setup program.
The setup is complete.

Full view of the setting program:



7.2. Input signal source setting

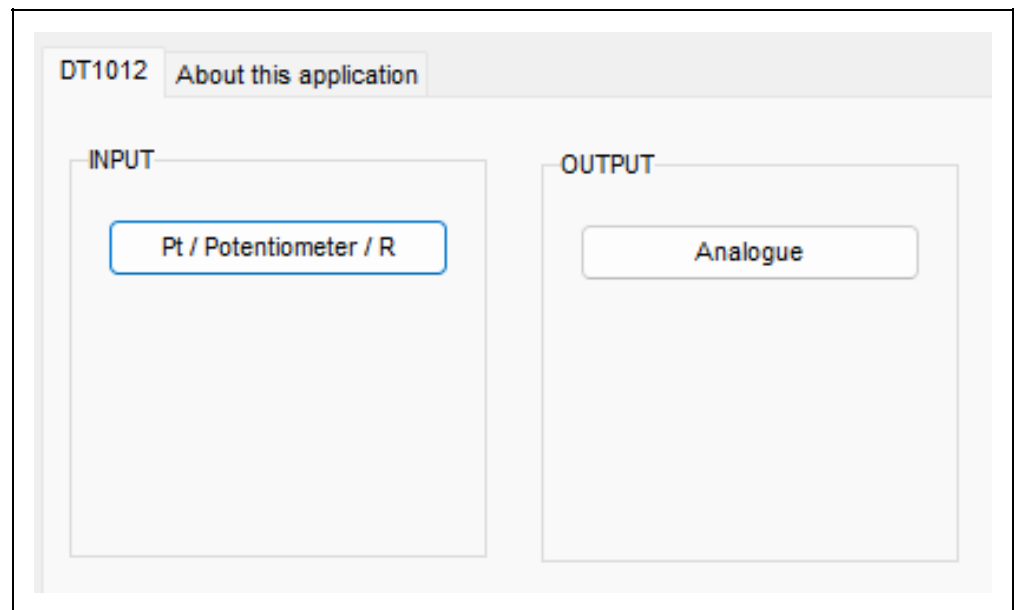
Signal source connected to the input of the instrument:

- Pt temperature sensor
- Potentiometer
- Scaled potentiometer
- Resistor

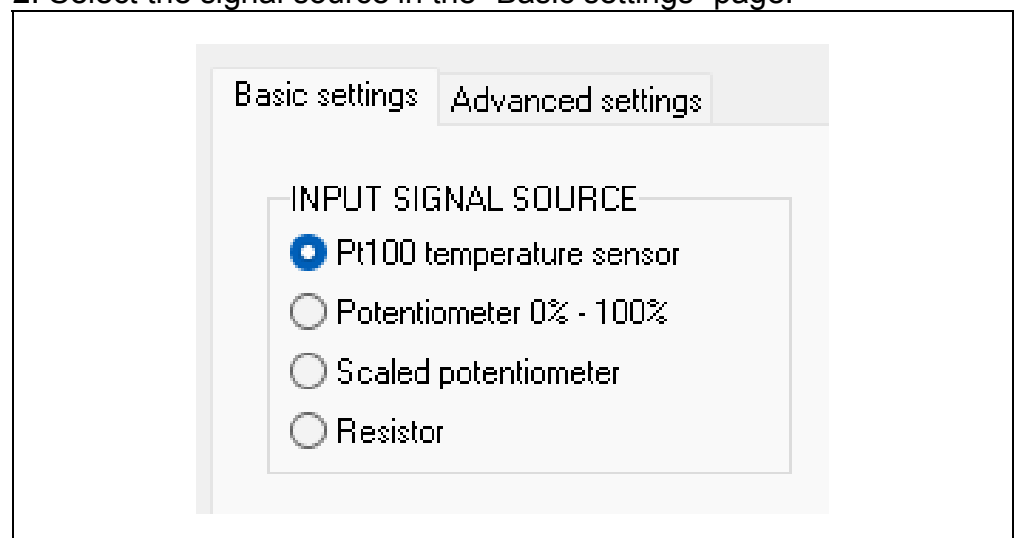
[Factory default: Pt temperature sensor]

Setup steps

1. Click the "Pt / Potentiometer / R" button in the "INPUT" field.

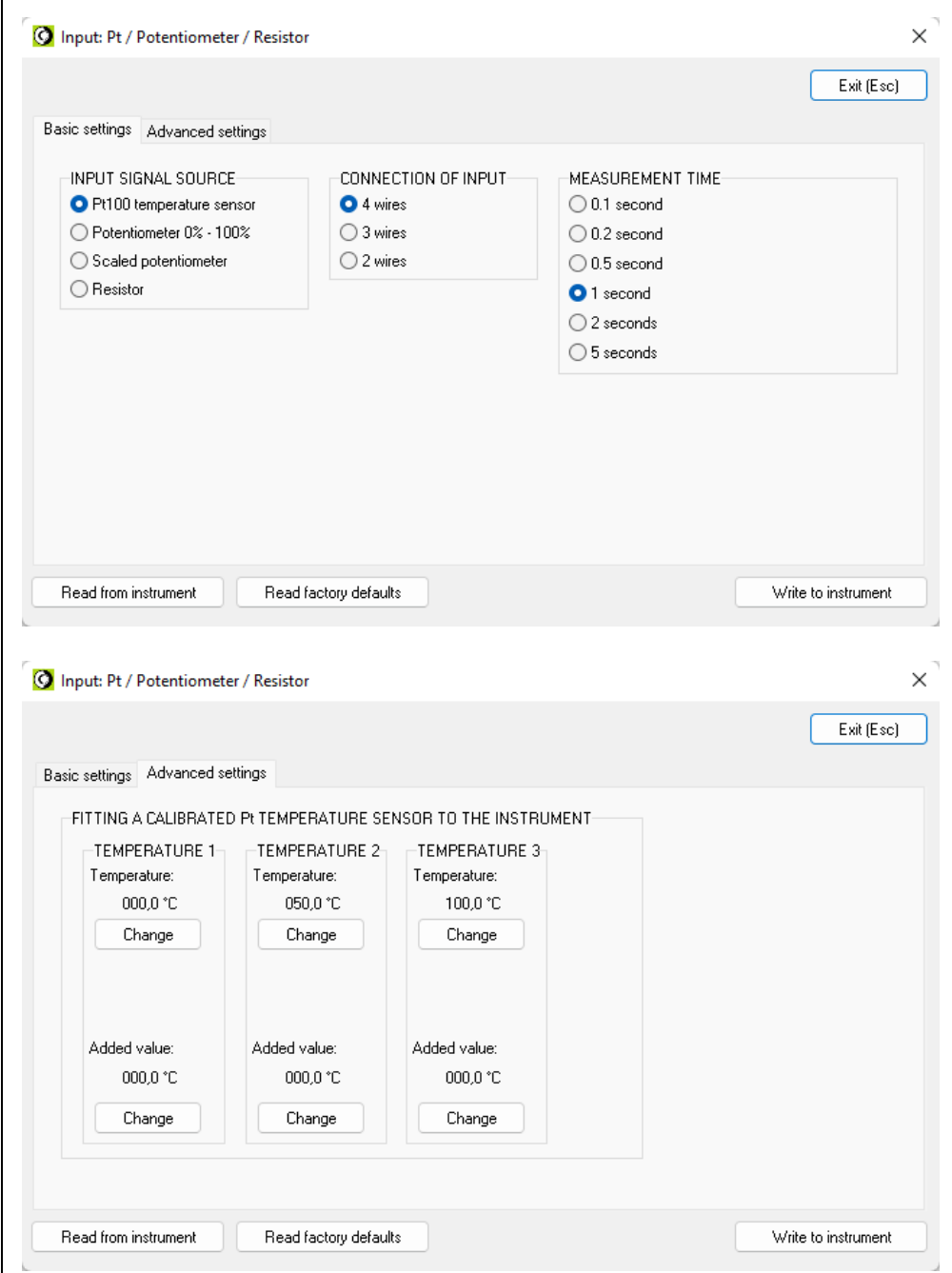


2. Select the signal source in the "Basic settings" page.



7.2.1. Pt temperature setting

3. Select the wire number you want to use.
4. Select the measurement time you want to use.
5. If you want to correct the error of the Pt sensor, you can do it at 3 points.
6. Store the settings by clicking the "Write to instrument" button.
7. Close the settings window by clicking the "Exit (Esc)" button.



The image shows two screenshots of the 'Input: Pt / Potentiometer / Resistor' settings window. The top screenshot shows the 'Basic settings' tab, and the bottom screenshot shows the 'Advanced settings' tab.

Basic settings:

- INPUT SIGNAL SOURCE:**
 - Pt100 temperature sensor
 - Potentiometer 0% - 100%
 - Scaled potentiometer
 - Resistor
- CONNECTION OF INPUT:**
 - 4 wires
 - 3 wires
 - 2 wires
- MEASUREMENT TIME:**
 - 0.1 second
 - 0.2 second
 - 0.5 second
 - 1 second
 - 2 seconds
 - 5 seconds

Buttons: Read from instrument, Read factory defaults, Write to instrument, Exit (Esc)

Advanced settings:

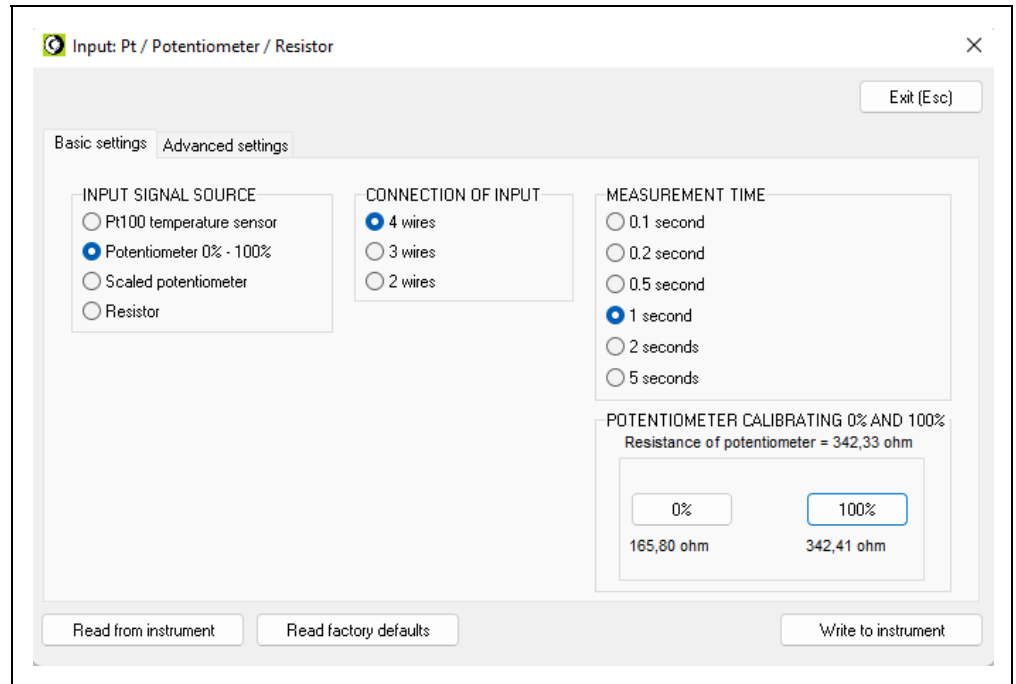
FITTING A CALIBRATED Pt TEMPERATURE SENSOR TO THE INSTRUMENT

| TEMPERATURE 1 | TEMPERATURE 2 | TEMPERATURE 3 |
|------------------------------------|------------------------------------|------------------------------------|
| Temperature: 000,0 °C Change | Temperature: 050,0 °C Change | Temperature: 100,0 °C Change |
| Added value: 000,0 °C Change | Added value: 000,0 °C Change | Added value: 000,0 °C Change |

Buttons: Read from instrument, Read factory defaults, Write to instrument, Exit (Esc)

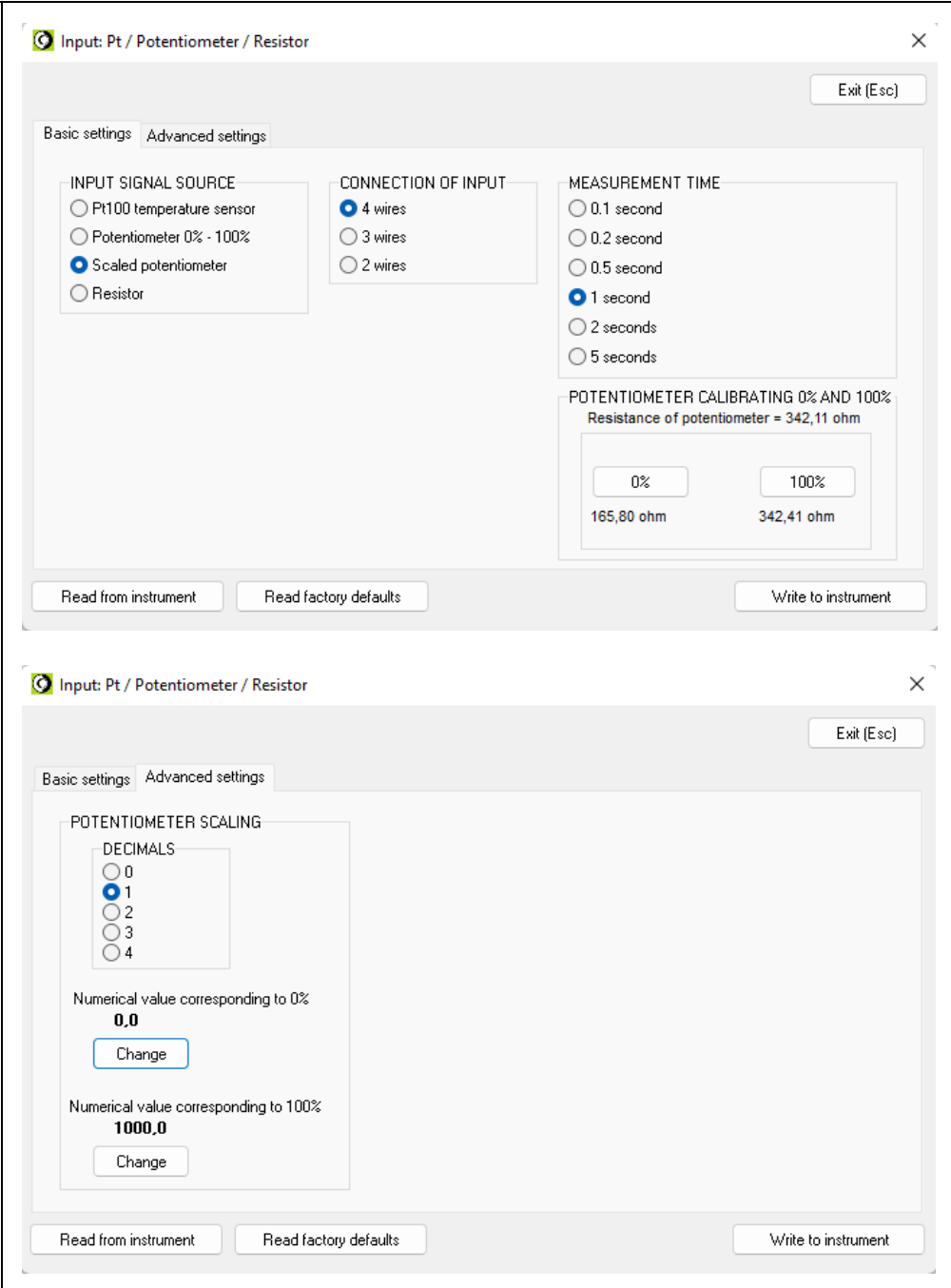
7.2.2. Potentiometer setting

3. Select the wire number you want to use.
4. Select the measurement time you want to use.
5. Set the potentiometer to initial value.
6. Click the "0%" button.
7. Set the potentiometer to final value.
8. Click the "100%" button.
9. Store the settings by clicking the "Write to instrument" button
10. Close the settings window by clicking the "Exit (Esc)" button.



7.2.3. Scaled potentiometer setting

3. Select the wire number you want to use.
4. Select the measurement time you want to use.
5. Set the potentiometer to initial value.
6. Click the "0%" button.
7. Set the potentiometer to final value.
8. Click the "100%" button.
9. Store the settings by clicking the "Write to instrument" button.
10. Set the decimal point, the values of the 0% and the 100%.
11. Store the settings by clicking the "Write to instrument" button.
12. Close the settings window by clicking the "Exit (Esc)" button.



The image shows two screenshots of the 'Input: Pt / Potentiometer / Resistor' settings window. The top screenshot shows the 'Basic settings' tab with the following configurations:

- INPUT SIGNAL SOURCE:** Scaled potentiometer (selected)
- CONNECTION OF INPUT:** 4 wires (selected)
- MEASUREMENT TIME:** 1 second (selected)
- POTENTIOMETER CALIBRATING 0% AND 100%:** Resistance of potentiometer = 342,11 ohm. Buttons for 0% (165,80 ohm) and 100% (342,41 ohm) are visible.

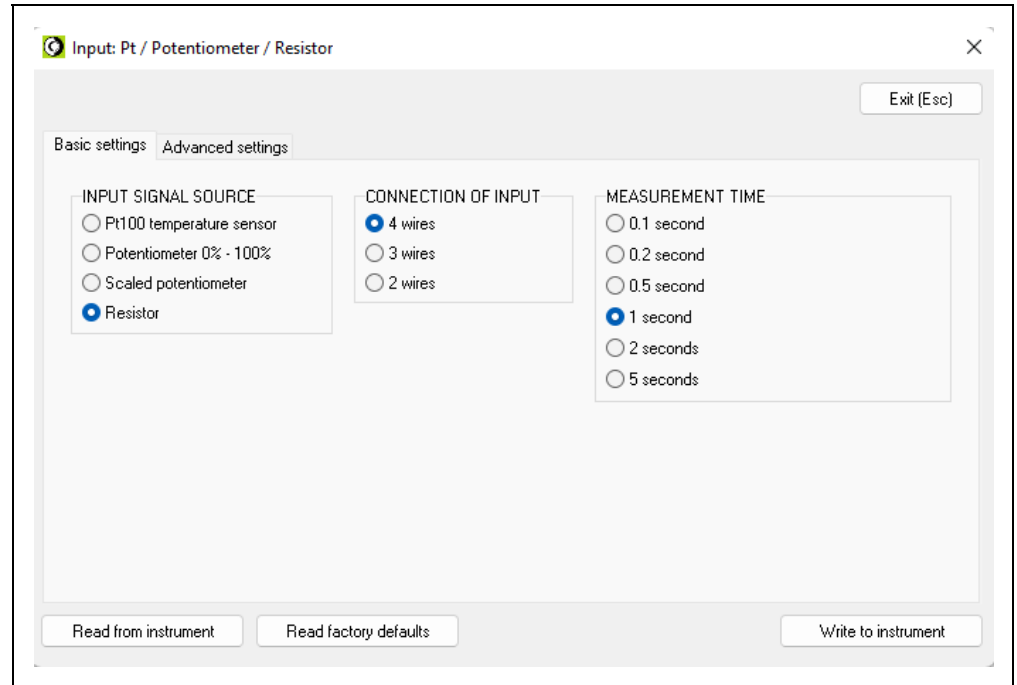
The bottom screenshot shows the 'Advanced settings' tab with the following configurations:

- POTENTIOMETER SCALING:**
 - DECIMALS:** 1 (selected)
 - Numerical value corresponding to 0%:** 0,0
 - Numerical value corresponding to 100%:** 1000,0

Both screenshots include buttons for 'Read from instrument', 'Read factory defaults', 'Write to instrument', and 'Exit (Esc)'.

7.2.4. Resistor setting

3. Select the wire number you want to use.
4. Select the measurement time you want to use.
5. Store the settings by clicking the "Write to instrument" button.
6. Close the settings window by clicking the "Exit (Esc)" button.



7.3. Analogue output setting

Function

Used to set the analogue output parameters as:

Analogue output type: 4-20mA / 0-20mA / 0-10V / 0-5V / 2-10V

Error indication: None / Yes

Location of error indication (for 4-20 mA): below 4 mA / above 20 mA

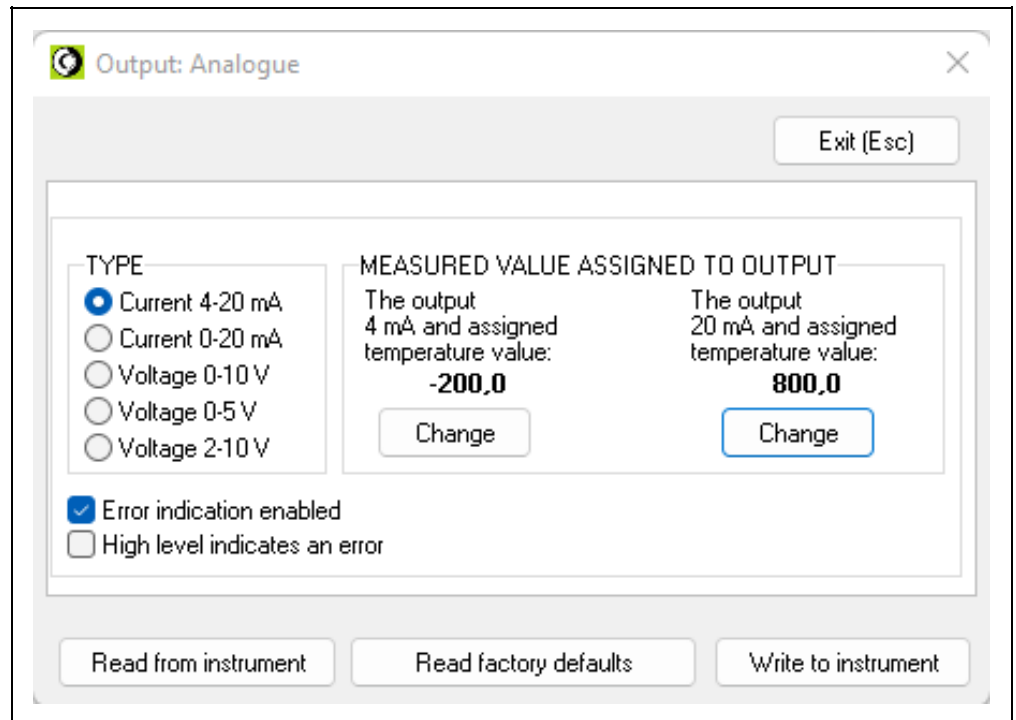
Lower scale value

Upper scale value

[Factory defaults: see figure below]

Setup steps

1. Click the "Analogue" button in the "OUTPUT" field.
 2. In the window that appears, make the necessary settings.
 3. Store the settings by clicking the "Write to instrument" button
 4. Close the settings window by clicking the "Exit (Esc)" button.
- Until you close one setting window, you cannot open another!
The following figure shows the factory default settings:



7.4. Factory default resetting

Function

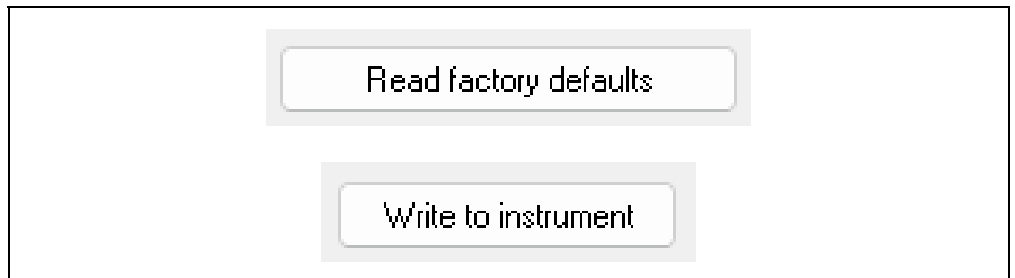
Used to restore factory settings.

Displays the factory default value of the settings in the opened settings window. This will not be set in the instrument yet, only if you click on the "Write to instrument" button. If you do not want to set these values in the instrument, exit by pressing the "Exit (Esc)" button or read the current settings from the instrument.

It can be advantageous if the desired setting differs only slightly from the factory setting.

Setup steps

1. Click on the "Read factory defaults" button, the factory default values are displayed.
2. If necessary, you can change these settings.
3. Store the settings by clicking the "Write to instrument" button, all the settings will be stored.
4. Close the settings window by clicking the "Exit (Esc)" button.

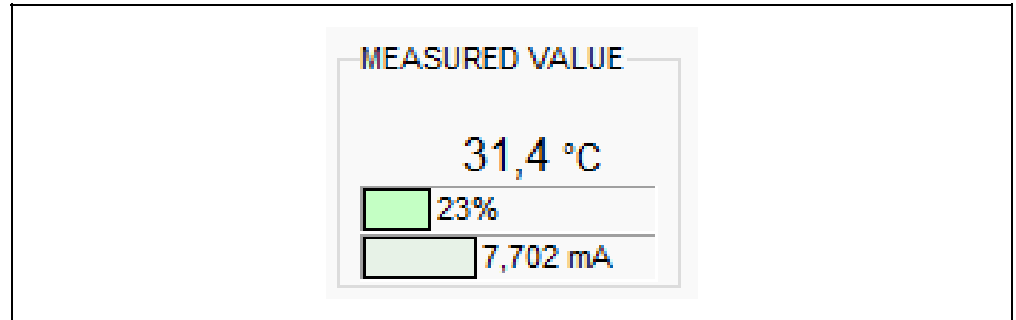


7.6. Display measuring values

Function

The configuration program displays the value of temperature, potentiometer position or resistance measured at the input. These data are for diagnostic purposes. This allows the user to check the instrument and the settings.

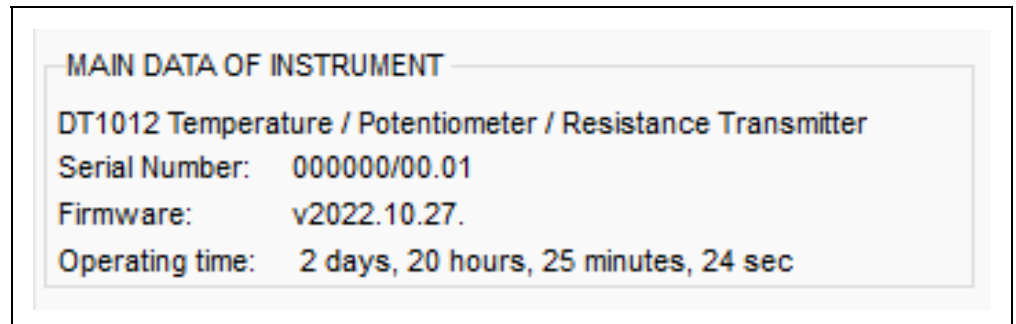
The measured values are updated on the screen as long as there is a communication connection between the PC and the instrument (in the middle of the configuration program window).



7.7. Display instrument-information

Function

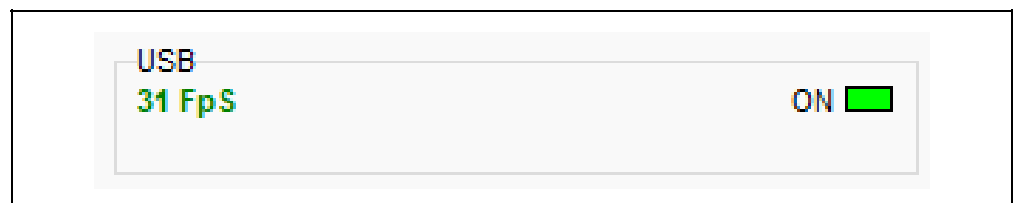
The configuration program displays the main data of the instrument: type, name, serial number, firmware version, operating time (in the upper left corner of the configuration program window).



7.8. Display USB communication information

Function

The configuration program displays the communication speed of USB interface (in the upper right corner of the configuration program window).



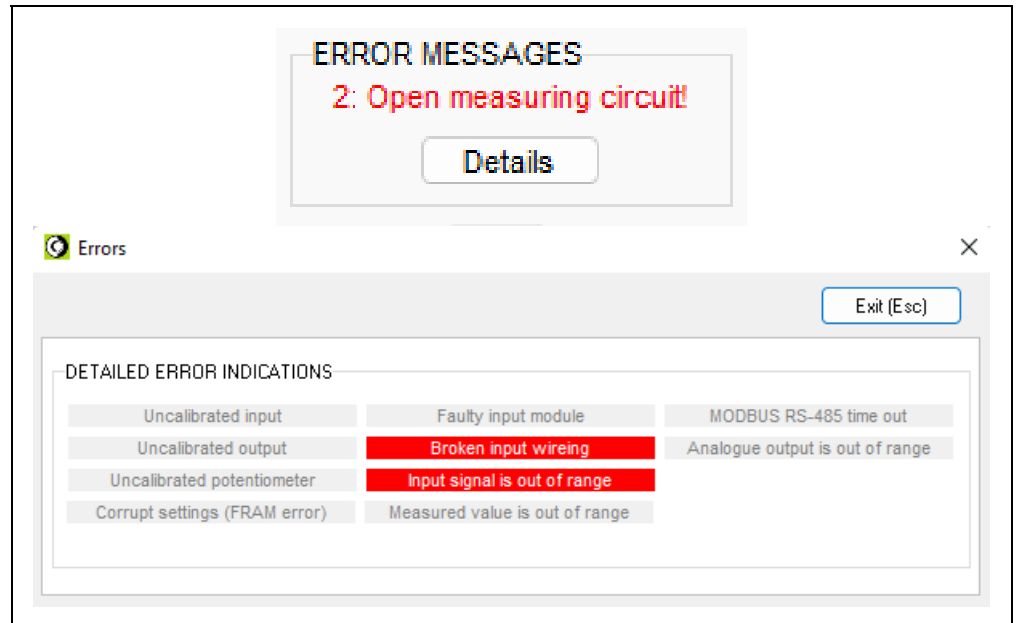
7.9. Error display

Function

The setup program is able to display errors that occur during operation, as long as the communication link between the PC and the instrument.

The short error message is displayed, in the "ERROR MESSAGES" window.

To see the all of error states, click on the "Details" button, the interpretation of the error code will appear in the drop-down window. (in the upper right corner of the configuration program window).



Error code "1": Serious error.

The error can only be resolved at the Datcon service center. If the instrument only receives power from the USB port, "Error 1" is still displayed, because in this case the input module of the instrument does not receive power, so the instrument perceives it as faulty.

Error code "2": Broken input wiring.

The input measuring circuit detects a break. Check the cables connected to the input of the instrument.

Error code "3": Uncalibrated potentiometer

The potentiometer initial (0%) and / or final (100%) values are not set.

Error code "4": Measured value is out of range

The input signal is out of input range.

See **10.1. Technical data** chapter.

Check the input signal, its wiring and the input settings.

Error code "5": Analogue output is out of range

The output signal goes out of the output range. Check the output settings and output signal value.

8. Fault rectification, repair

8.1. Fault finding



The fault finding must be carried out by trained and authorized personnel only!



- The green indicator is dark → check the power supply. If the supply voltage is OK: the instrument is defective.
- The red error indicator lights up → count the flashes of the red indicator, and find the error interpretation in chapter 7.9. **Error display.**

If you cannot eliminate the error based on the error detection result (incorrect input signal, incorrect settings, etc.) call the manufacturer service department.

8.2. Repairing



There is no user repairable part inside the instrument.

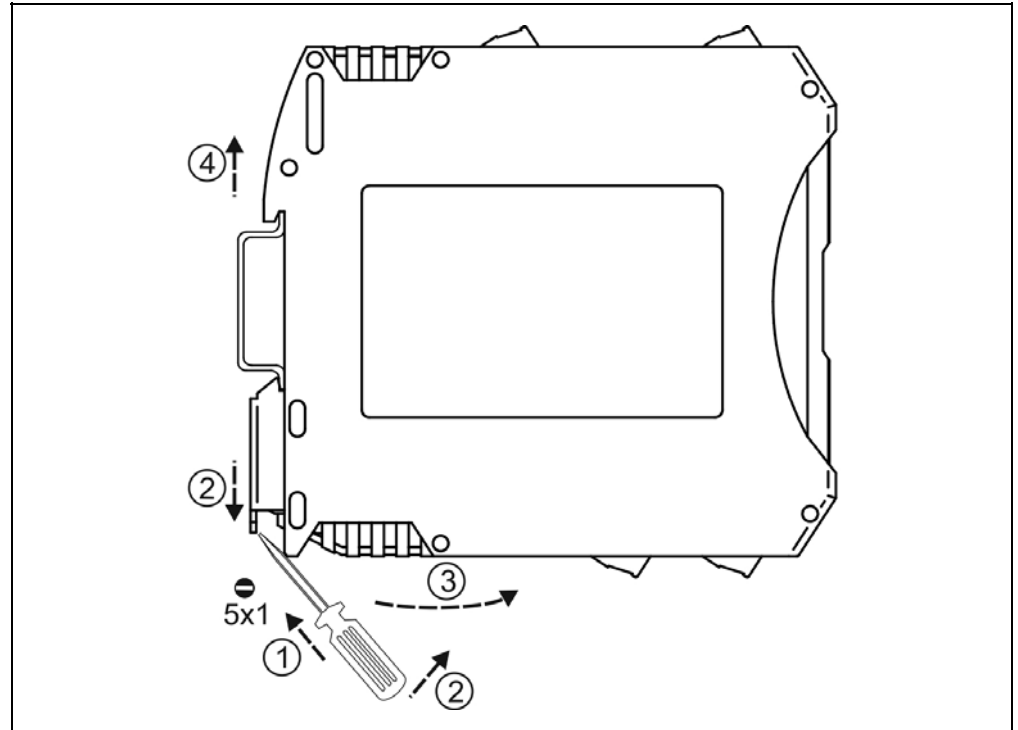
In accordance with Point 2.1. **Authorized personnel: For safety and warranty reasons, any internal work on the instrument must be carried out only by DATCON personnel.**

9. Dismounting

9.1. Dismounting procedure

The following figure shows the dismounting procedures:

Dismounting from the rail



The dismounting procedure needs a screwdriver for slotted screws.

1. Switch off the power supply
2. Disconnect all wires.
3. Put the screwdriver end into the fixing assembly's hole (figure step 1.).
4. Lift the screwdriver handle until it possible to open the fixing assembly (figure step 2.).
5. Keeping the screwdriver in this position lift the instrument bottom from the bottom edge of the rail (figure step 3.).
6. Lift the whole instrument (you may put out the screwdriver) (figure step 4), the instrument will be free.

9.2. Disposal



According with the concerning EU directive, the manufacturer undertakes the disposal of the instrument that are manufactured by it and intended to be destroyed. Please deliver it in contamination-free condition to the site of the Manufacturer or to a specialized recycling company.

10. Appendix

10.1. Technical specification

Input parameters

| | |
|------------------------------|---|
| Input signal: | When ordering, you can choose one of the following measuring sensor input type: Pt100 / Pt500 / Pt1000 Resistor / Potentiometer (max. 400 Ω or 4 k Ω) |
| Connection: | 4 / 3 / 2 wires |
| Measuring current: | 880 μ A @ Pt100 / 250 μ A @ Pt500, Pt1000) |
| Sensor dissipation | 80 μ W (Pt100 @ 0 $^{\circ}$ C) 270 μ W (Pt100 @ 800 $^{\circ}$ C) |
| Resistance of wire: | <100 ohm |
| Measurement range: | -200 - +800 $^{\circ}$ C 0-400 Ω or 0-4000 Ω |
| Number of correction points: | 3 |

Output parameters (passive current)

| | |
|----------------|------------|
| Output signal: | DC current |
| Output ranges: | 4-20 mA |
| Overload: | 22.5 mA |
| Loop power: | 8-30 VDC |

Transfer characteristics

| | |
|---|--|
| Output signal error @ 25 $^{\circ}$ C \pm 2 $^{\circ}$ C: | \pm 0.1% |
| Non-linearity, hysteresis: | 0.02% (max.) |
| Temperature coefficient: | typ.: 25 ppm / $^{\circ}$ C; max.: 50 ppm / $^{\circ}$ C |
| Supply-voltage effect: | practically zero |
| Measurement time: | 0.1 / 0.2 / 0.5 / 1 / 5 / 10 sec (configurable) |

Galvanic isolation

| | |
|------------------------------|---|
| Operating isolation voltage: | 250 Veff (between input-output, input-power supply terminals) |
| Type test voltage: | 4200 VDC (1 minute) |
| Piece test voltage: | 2500 VDC (1 minute) |
| Capacity: | 20 pF (between input-output, input-power supply terminals) |
| Protection class: | II. (reinforced insulating) |
| Leakage current: | 0,005 mA (between input-output, input-power supply terminals) |

Power supply

| | |
|--------------------------------------|---|
| Power supply: | |
| DT1012 IP | 24 VDC $\pm 10\%$, 1.6 W |
| DT1012 IP PS | 230 V AC/DC $\pm 10\%$, 3.8 VA (2.4 W) |
| Overvoltage category: | CAT II. |
| Installation overcurrent protection: | 4 A (B) |

Ambient conditions

| | |
|------------------------------|-------------------------------------|
| Operating temperature range: | 0-60 °C * |
| Storage temperature range: | -20 - +70 °C |
| Relative humidity: | 90% (max., non condensing) |
| Place of installation: | cabinet |
| Mounting position: | vertical (horizontal rail position) |

* A version with an operating temperature range of -20 to +60 °C is also available.

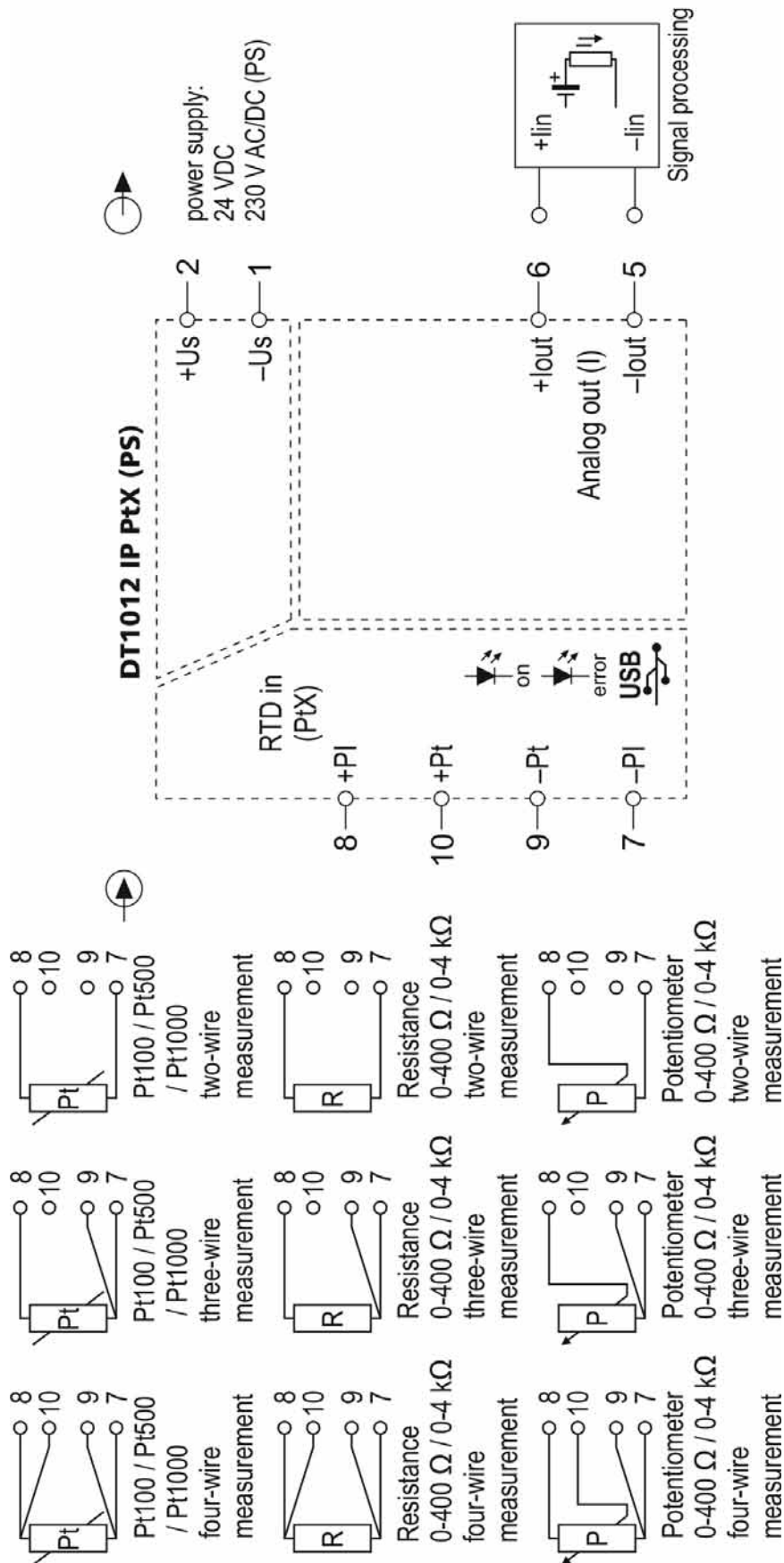
Electromagnetic compatibility (EMC):

| | |
|--|---------------|
| Accordance with the standard MSZ EN IEC 61326-1 and MSZ EN 55011 | |
| Immunity: | -A- criterion |
| Noise emission: | -A- class |

General data:

| | |
|--------------------------------|--|
| Housing: | TS-35 rail mounting housing material: polyamide PA6.6 |
| Fire resistance class: | V2-V0 / UL94 |
| Connection: | screw-terminal |
| Connecting cable: | 1.5 mm ² (max.) |
| Dimensions: | 12,5 x 108 x 114 mm (width x height x depth) |
| Mass: | 0.15 kg |
| Ingress Protection (EN 60529): | IP 20 |

The Manufacturer maintains the right to change technical data.



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INDUSTRIAL MEASUREMENT