

4. CONNECTIONS

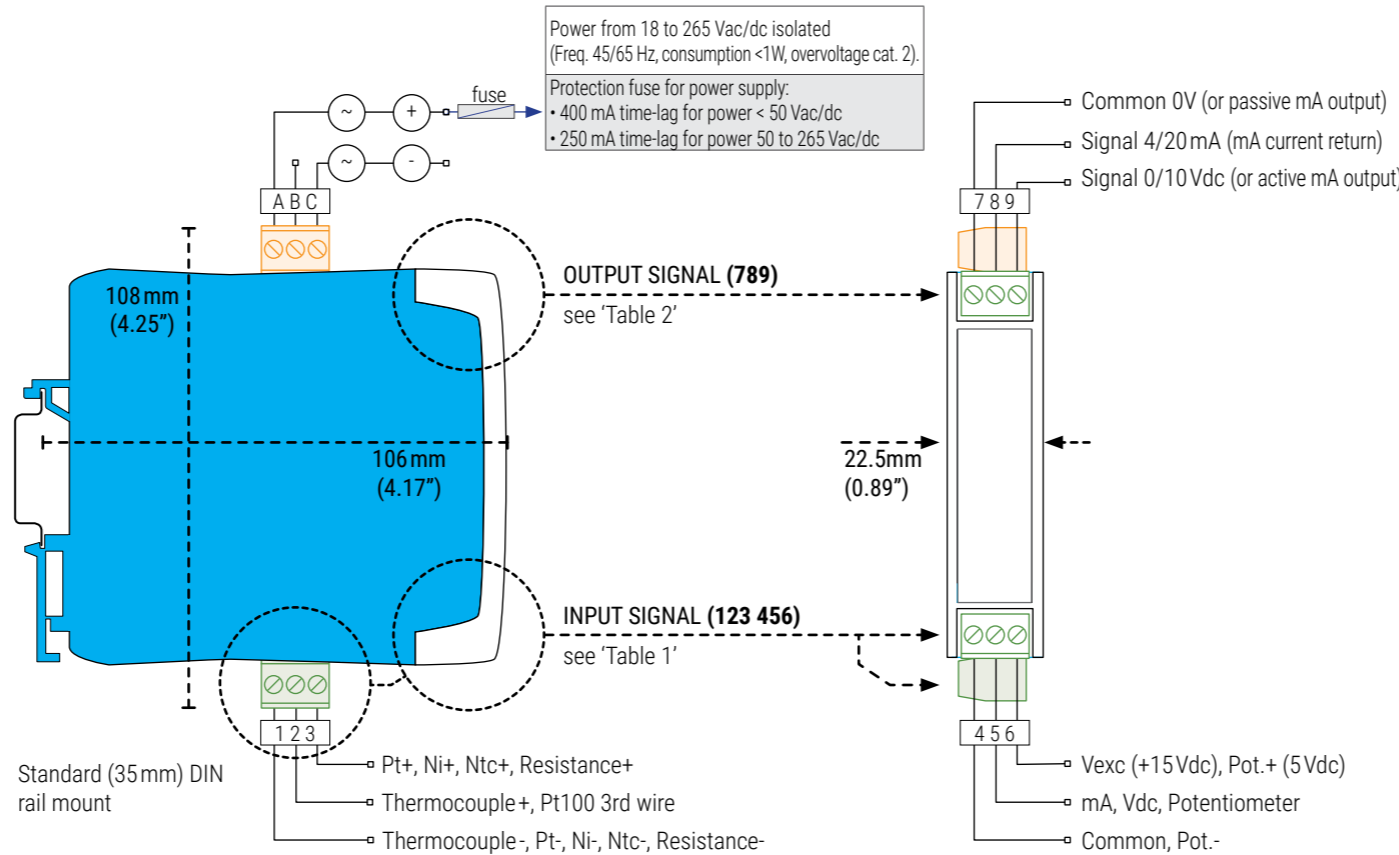


Table 1 | INPUT signal connections

| INPUT signal | 1 | 2 | 3 | 4 | 5 | 6 |
|----------------------|------|----------------------|------|--------|---------|-------|
| 4/20 mA passive | | | | | mA- | Vexc |
| 4/20 mA active | | | | mA- | mA+ | |
| 0/10 Vdc | | | | common | +Vdc | |
| 0/10 Vdc with Vexc | | | | common | +Vdc | Vexc |
| Potentiometer | | | | Pot.- | Potent. | Pot.+ |
| Resistance | Res- | | Res+ | | | |
| NTC | NTC- | | NTC+ | | | |
| Thermocouple | tc- | tc+ | | | | |
| Pt100 (3 wires) | Pt- | Pt- (3rd wire) | Pt+ | | | |
| Pt100 (2 wires) | | Pt- (short. 1 and 2) | Pt+ | | | |
| Pt1000, Pt500 | Pt- | | Pt+ | | | |
| Ni100, Ni500, Ni1000 | Ni- | | Ni+ | | | |

Table 2 | OUTPUT signal connections

| OUTPUT signal | 7 | 8 | 9 | Connections |
|-----------------|-----------|----------|-----------|-------------|
| 4/20 mA active | | mA- (in) | mA+ (out) | |
| 4/20 mA passive | mA+ (out) | mA- (in) | | |
| 0/10 Vdc | common | | +Vdc | |

5. HOW TO ORDER

Reference PCE-SCI-U

6. INPUT SIGNAL - CONFIGURATION CODES

Table 3 | Input signal - Configuration codes

| Code | Input signal range | |
|----------|------------------------|----------------|
| 00 to 09 | [no function assigned] | |
| 10 | 4/20 mA | Process |
| 11 | 0/10 Vdc | |
| 12 | 0/100 % | Potentiometer |
| 13 | 0/100KOhm | Resistance |
| 14 | 0/50KOhm | |
| 15 | 0/25KOhm | |
| 16 | 0/10KOhm | |
| 17 | 0/5KOhm | |
| 18 | 0/2.5KOhm | |
| 19 | 0/1200 °C | Thermocouple J |
| 20 | 0/1000 °C | |
| 21 | 0/800 °C | |
| 22 | 0/600 °C | |
| 23 | 0/450 °C | |
| 24 | 0/300 °C | |
| 25 | 0/150 °C | |
| 26 | 0/1350 °C | Thermocouple K |
| 27 | 0/1000 °C | |
| 28 | 0/800 °C | |
| 29 | 0/600 °C | |
| 30 | 0/450 °C | |
| 31 | 0/300 °C | Thermocouple N |
| 32 | 0/150 °C | |
| 33 | 0/1300 °C | |
| 34 | 0/1000 °C | |
| 35 | 0/800 °C | Thermocouple E |
| 36 | 0/600 °C | |
| 37 | 0/450 °C | |
| 38 | 0/300 °C | |
| 39 | 0/150 °C | |
| 40 | [no function assigned] | |
| 41 | 0/900 °C | Thermocouple T |
| 42 | 0/600 °C | |
| 43 | 0/450 °C | |
| 44 | 0/300 °C | |
| 45 | 0/150 °C | |
| 46 | 0/400 °C | Thermocouple T |
| 47 | 0/300 °C | |
| 48 | 0/200 °C | |

Table 3 | Input signal - Configuration codes

| Code | Input signal range | |
|---------|--------------------------------------|------------------------------------|
| 49 | 0/100 °C | Thermocouple T |
| 50 | 0/1750 °C | Thermocouple R |
| 51 | 0/1500 °C | |
| 52 | 0/1200 °C | |
| 53 | 0/900 °C | Thermocouple S |
| 54 | 0/1750 °C | |
| 55 | 0/1500 °C | |
| 56 | 0/1200 °C | |
| 57 | 0/900 °C | |
| 58 | [no function assigned] | |
| 59 | 0/700 °C | Pt100 |
| 60 | 0/600 °C | |
| 61 | 0/500 °C | |
| 62 | 0/400 °C | |
| 63 | 0/300 °C | |
| 64 | 0/200 °C | |
| 65 | 0/100 °C | |
| 66 | -50/+50 °C | Pt500 |
| 67 | -100/+100 °C | |
| 68 | -200/+200 °C | Pt1000 |
| 69 | 0/630 °C | |
| 70 | 0/300 °C | |
| 71 | -150/150 °C | Ni100 |
| 72 | 0/630 °C | |
| 73 | 0/300 °C | Ni200 |
| 74 | -190/190 °C | |
| 75 | -60/180 °C | Ni1000 |
| 76 | -60/120 °C | |
| 77 | -60/180 °C | |
| 78 a 80 | [no function assigned] | |
| 81 | -60/150 °C | NTC (R ₂₅ =10K, β=3500) |
| 82 | -60/150 °C | NTC (44006) |
| 83 | 0/100 °C | NTC (44006) |
| 84 a 94 | [no function assigned] | |
| 95 | 'Password' function | |
| 96 | Pt100 'Alpha' (01=0.0385, 02=0.0390) | |
| 97 | Factory default configuration | |
| 98 | Firmware version | |
| 99 | [no function assigned] | |
| --- | Exit de menu and discard changes | |

1. INSTALLATION AND START-UP

- Install the instrument at the DIN rail
- Connect the power supply (see section 4)
 - see section 7.1 for an explanation on 'normal mode' of operation
- Access the 'configuration system' (see section 8)
 - remove the output signal terminal
 - make sure there are no dangerous voltages at the input signal terminals (in case of doubt, remove also the two input signal terminals)
 - open the front cover
 - locate the 'configuration digits'
 - locate the 'UP' (▲) and 'SQ' (■) keys
- Configure the input signal (see section 7)
 - choose the desired configuration code for the input signal (see section 6)
 - introduce the code at the instrument (see section 7.2)
- Configure the output signal (see section 7)
 - verify the actual configuration and modify if required (see section 7.3)
- Block access to the 'configuration system' (see section 8)
 - remove the output signal terminal (if it was placed)
 - close the front cover
 - connect the output signal terminal
 - confirm that the front cover can not be opened
 - connect the two input signal terminals (if they were removed)
- Connect the output signal (see section 4)
- Connect the input signal (see section 4)

2. MATERIAL INCLUDED

- The instrument is provided with the following elements :
- 1 x instrument PCE-SCI-U
 - 4 x plug-in screw terminals, connected to the instrument
 - 1 x Quick installation guide

3. ADDITIONAL DOCUMENTATION

| | |
|------------------------------------|-------------------------|
| User's manual PCE-SCI-U | |
| Datasheet PCE-SCI-U | |
| Quick installation guide PCE-SCI-U | |
| CE Declaration of conformity | |
| Warranty | |
| Web | www.pce-instruments.com |

7. CONFIGURATION AND OPERATION

7.1 OPERATION IN 'NORMAL MODE'

When the power supply is connected, the instrument :

- activates the 'configuration digits', and displays the code for the actual input signal range
- activates the decimal point (flash), showing the actual output signal range
- the instrument is in 'normal mode' of operation

'Eco' function ('configuration digits' are automatically powered off)

If there is no interaction from the operator for 60 seconds, the instrument powers off the 'configuration digits'. The decimal point remains active (flashing), indicating that the instrument is working correctly.

To power on the 'configuration digits', press one of the front keys 'SQ' (■) or 'UP' (▲). This will power on the 'configuration digits' and activate the 'normal mode' of operation.

7.2 INPUT SIGNAL CONFIGURATION

With the instrument in 'normal mode' of operation (see section 7.1), press the 'SQ' (■) key for 1 second. The horizontal leds light from bottom to top. When the upper led lights, the instrument activates the 'configuration mode'.

If the key is released before activating the 'configuration mode', the horizontal leds light downwards from top to bottom, and the instrument returns to 'normal mode' of operation. Inside the 'configuration mode' the decimal point is not active.

Inside the 'configuration mode', the 'configuration digits' indicate the code for the actual input signal range (see section 6 for a list of codes). Press the 'UP' (▲) key to increase the code number.

- press once to increase the value in '+1'
- maintain the key pressed to automatically increase the value

When the desired code is reached, press the 'SQ' (■) key. The leds light a round shape while the new configuration is stored, and the instrument returns to 'normal mode' of operation.

When exiting the 'configuration mode' without changes ('rollback' activation, 'inactive code' selection, etc) the horizontal leds light downwards from top to bottom, and the instrument returns to 'normal mode' of operation.

'Rollback' function

If there is no interaction from the operator for 30 seconds, the instrument exits the 'configuration mode' and returns to 'normal mode' of operation, discarding changes.

7.3 OUTPUT SIGNAL CONFIGURATION

How to identify the configured output signal

The configured output signal is identified with the active decimal point:

- active decimal point to the right, for 4/20 mA output
- active decimal point to the left, for 0/10 Vdc output

| Output 0/10 Vdc (left decimal point) | Output 4/20 mA (right decimal point) |
|---|---|
| | |

How to configure the output signal

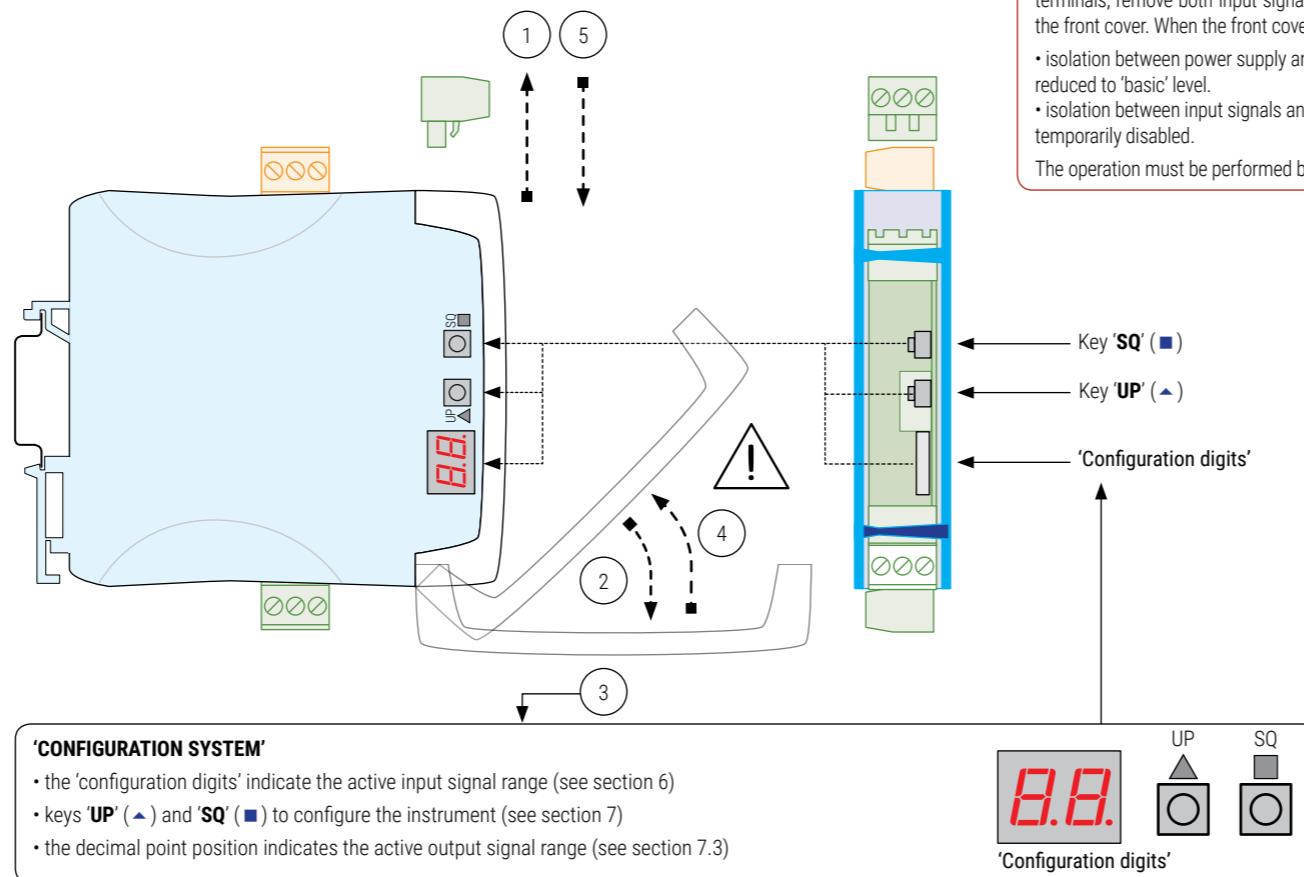
With the instrument in 'normal mode' of operation (see section 7.1), press the 'SQ' (■) and 'UP' (▲) keys at the same time.

- the horizontal leds light from bottom to top
- when the upper led lights, the actual decimal point position is displayed
- after 1 second, the decimal point will switch position
- release the two keys, the leds light a round shape while the new configuration is stored, and the instrument returns to 'normal mode' of operation
- if the keys are released before the new configuration is stored, the horizontal leds will light downwards from top to bottom, and the instrument returns to 'normal mode' of operation.

Connect the output terminals according to the output signal configured.

8. CONFIGURATION SYSTEM

1. Remove the output signal terminal
 - check that there are no dangerous voltages at the input signal terminals (in case of doubt, remove also the two input signal terminals)
2. Open the front cover
3. Configure the instrument
 - locate the 'configuration digits'
 - locate the 'UP' (▲) and 'SQ' (■) keys
4. Close the front cover
 - remove the output signal terminal (if it was previously placed)



'CONFIGURATION SYSTEM'

- the 'configuration digits' indicate the active input signal range (see section 6)
- keys 'UP' (▲) and 'SQ' (■) to configure the instrument (see section 7)
- the decimal point position indicates the active output signal range (see section 7.3)

9. MENU 'TOOLS'

The 'Force Low' (FL) and 'Force High' (Fh) functions inside the 'tools' menu, temporarily force the output signal to the low and high levels of the output signal range selected. These tools allow to validate the function of remote elements connected to the instrument output.

- 'Force Low' (FL) forces the output signal to the minimum (4mA or 0Vdc). The 'FL' flash message indicates that the function is active. Press any key to deactivate and return to the 'Force Low' (FL) menu entry.
- 'Force High' (Fh) forces the output signal to the maximum (20mA or 10Vdc). The 'Fh' flash message indicates that the function is active. Press any key to deactivate and return to the 'Force High' (Fh) menu entry.

How to access the 'tools' menu

With the instrument in 'normal mode' of operation (see section 7.1), press the 'UP' (▲) key for 1 second. The horizontal leds light from bottom to top. When the upper led lights, the instrument activates the 'tools' menu activates.

If the key is released before activating the 'tools' menu, the horizontal leds light downwards from top to bottom, and the instrument returns to 'normal mode' of operation. Inside the 'tools' menu the decimal point is not active.

Inside the 'tools' menu, the 'configuration digits' indicate the code of the first function available.

- press the 'UP' (▲) key to move to the next function
- press the 'SQ' (■) key to activate the function

To exit the 'tools' menu, press the 'UP' (▲) key until the parameter '-' appears. Press the 'SQ' (■) key. The horizontal leds light downwards from top to bottom and the instrument returns to 'normal mode' of operation (or wait for the automatic 'rollback' (30 seconds)).

5. Connect the output signal terminal
 - when connected at place, check that the front cover can not be opened
 - if previously removed, connect the two input signal terminals

When correctly connected, the output signal terminal prevents the front cover from opening.

Opening the front cover reduces the security level of the operator. If dangerous voltages are connected to any of the input terminals, remove both input signal terminals before opening the front cover. When the front cover is open :

- isolation between power supply and accessible parts and is reduced to 'basic' level.
- isolation between input signals and accessible parts is temporarily disabled.

The operation must be performed by qualified operators.

11. REGULATIONS

This instrument conforms to the actual CE regulations. For a copy of the 'CE declaration of conformity' see section 3. Applicable regulations are :

Security regulations EN-61010-1 ('Fixed' equipment, 'Permanently connected'. 'Double' isolation. Overvoltage category 2).

Electromagnetic compatibility regulations EN-61326-1

This instrument does not provide a general mains switch and will start operation as soon as power is connected. The instrument does not provide protection fuse, and the fuse must be added during installation.

- Risk of electrical shock. Instrument terminals can be connected to dangerous voltage.
- Instrument protected with double isolation. No earth connection required.
- Instrument conforms to CE rules and regulations.
- According to directive 2012/19/EU, electronic equipment must be recycled in a selective and controlled way at the end of its useful life.
- Standard warranty of 2 years according to actual european legislation.

12. FACTORY CONFIGURATION

| | | |
|---------------|----------|-------|
| Input signal | 4/20 mA | [10] |
| Output signal | 4/20 mA | [xx.] |
| Passwords | disabled | [00] |
| 'Alpha' | 0.0385 | [01] |
| Display code | | [10.] |

To return to factory default parameters, select code '97' and activate value '01'.

- access the 'configuration mode'
- access code '97' and press key 'SQ' (■)
- the 'configuration digits' indicate code '00' flashing
- press key 'UP' (▲) to change to '01'
- press key 'SQ' (■)
- the leds light a round shape while the new configuration is stored, and the instrument returns to 'normal mode' of operation
- the 'configuration digits' indicate code '10.' and the default factory configuration is now active

13. ERROR CODES

Table 4 | Messages and errors

| | |
|----|---|
| E1 | 'Hardware underrange'. Input signal is below the minimum readable signal. Output signal is the minimum available 0Vdc, 0mA. Possible sensor break. |
| E2 | 'Hardware overrange'. Input signal is above the maximum readable signal. Output signal is the maximum available 10.5Vdc, 20.5mA. Possible sensor break. |
| E3 | 'Password error'. If 'password' function is active, the password code entered is not correct. |

The error code is shown flashing on display. The error code is not visible inside 'configuration mode' or inside the 'tools' menu. The error code remains active on display until the problem that caused the error is solved. In case of multiple error codes, solve the first problem to see the next active error code.

10. PASSWORD CONFIGURATION

Define a password to prevent access to 'configuration mode' and 'tools' menu to unauthorized operators.

- access the 'configuration mode'
- access code '95' and press key 'SQ' (■)
- the 'configuration digits' indicate code '00' flashing
- press key 'UP' (▲) to select the desired code (for example, '73')
- press key 'SQ' (■) to validate
- the menu returns to code '95'
- exit 'configuration mode' validating changes (access the '-' entry and press 'SQ' (■))
- to exit without validating changes, wait for the automatic 'rollback' (30 seconds)

Once the password is applied, when a key is pressed, the 'configuration digits' flash with code '00'. Enter the 'password' code to grant access (code '73' in the previous example).

How to deactivate the password

To deactivate the password, access code '95', select value '00', and validate changes.