PCE INSTRUMENTS PCE-WSAC 50W Wind Speed Alarm Controller User Manual

Contents

PCE-WSAC 50W Wind Speed Alarm Controller

Specifications

- **Model:** PCE-WSAC 50W
- **Wind Speed Alarm Controller**
- **Power Supply:** Battery Monocell D 1.5V or 110-230V AC, 50/60Hz (depending on version)
- **Power Consumption:** Approx. 0.3W at 1.5V DC
- **Display:** Digital
- **Environmental Conditions:** Indoor use

Product Usage Instructions

Safety Information
Ensure to read and understand all safety notes provided in the manual before using the product.

Assembly
Follow the assembly instructions provided in section 3 of the manual to properly set up the wind speed sensor.

Operation of Wind Speed Display
To operate the wind speed display:

- **Sensor Connection:** Connect the sensor according to the guidelines in section 4.1 of the manual.
- **Settings/Main Menu:** Access and adjust settings through the main menu as detailed in section 4.2 of the manual.

Contact
If you have any questions or need assistance, refer to section 5 of the manual for contact information.

Disposal

Properly dispose of the product following the instructions in section 6 of the manual.

Frequently Asked Questions

Q: What are the power supply options for the PCE-WSAC 50W?
A: The PCE-WSAC 50W can be powered by a battery Monocell D 1.5V or by 110-230V AC, 50/60Hz depending on the version.

Q: How do I connect the sensor to the wind speed display?
A: Refer to section 4.1 of the manual for detailed instructions on connecting the sensor to the wind speed display.

User manuals in various languages can be found by using our product search on: **www.pce-instruments.com**

Safety notes

Please read this manual carefully and completely before you use the device for the first time. The device may only be used by qualified personnel and repaired by PCE Instruments personnel.
Damage or injuries caused by non-observance of the manual are excluded from our liability and not covered by our warranty.

- The device must only be used as described in this instruction manual. If used otherwise, this can cause dangerous situations for the user and damage to the meter.
- The instrument may only be used if the environmental conditions (temperature, relative humidity, …) are within the ranges stated in the technical specifications. Do not expose the device to extreme temperatures, direct sunlight, extreme humidity or moisture.
- Do not expose the device to shocks or strong vibrations.
- The case should only be opened by qualified PCE Instruments personnel.
- Never use the instrument when your hands are wet.
- You must not make any technical changes to the device.
- The appliance should only be cleaned with a damp cloth. Use only pH-neutral cleaner, no abrasives or solvents.
- The device must only be used with accessories from PCE Instruments or equivalent.
- Before each use, inspect the case for visible damage. If any damage is visible, do not use the device.
- Do not use the instrument in explosive atmospheres.
- The measurement range as stated in the specifications must not be exceeded under any circumstances.
- Non-observance of the safety notes can cause damage to the device and injuries to the user.
  We do not assume liability for printing errors or any other mistakes in this manual.
  We expressly point to our general guarantee terms which can be found in our general terms of business.

Safety symbols
Safety-related instructions the non-observance of which can cause damage to the device or personal injury carry

a safety symbol.

Symbol	Designation / description
	**General warning sign** Non-observance can cause damage to the device and injuries to the user.
	**Warning: electrical voltage** Non-observance can cause electric shock.

Specifications

Technical specifications of the wind speed sensor version

Measurement	
Measurement range	4 … 180 km/h
Start-up speed	8 km/h
Maximum speed	200 km/h
Accuracy	±1 km/h (4 … 15 km/h) ±3 % (15 … 180 km/h)
Units	km/h mph m/s
Data transfer	
Type of data transfer	IEEE 802.15,4. ISM 2.4 GHz
Transmission power	6.3 mW (8 dBm)
Receiving sensitivity	-102 dBm
Reach	In buildings max. 60 m, typ. 30 m Outside buildings, direct sight: max. 750 m, typ. 200 m
Transmission time	2 s
Electrical specifications	
Power supply	Monocell battery D 1.5 V
Power consumption	Approx. 0.3 W when power supply is 1.5 V DC
General specifications	
Case material	PA + FG
Ball bearing	Stainless steel X65Cr13
Bracket	Stainless steel AISI
Weight (with standard bracket)	680 g
Weight (with self-levelling bracket)	900 g
Dimensions	320 x 110 x 100 mm
Environmental conditions	-20 … +70 ºC (Operation) -35 … +70 ºC (Storage) 0 … 95 % RH non-condensing
Protection class	IP65

Technical specifications of the wind speed display

Electrical specifications	
Power supply	Depending on version: PCE-WSAC 50W 230: 110 … 230 V AC, 50 / 60 Hz PCE-WSAC 50W 24: 24 V DC
Power consumption	<3.5 VA
Inputs	
Analogue	4 … 20 mA
Wireless	IEEE 802.15.4 ISM 2.4 GHz
Pulse input	
Outputs	
Analogue output	4…20 mA
max. connectable impedance	500 Ohm
Resolution of analogue output	10 bits
Accuracy of analogue output	1.5 %
Alarm relay	250 V AC, 8 A
General specifications	
Display	Backlit 128 x 64 pixel LC display
Case material	Polycarbonate
Weight	250 g
Dimensions	145 x 95 x 125 mm
Environmental conditions	-20 … +70 ºC (Operation) -35 … +70 ºC (Storage) 0 … 95 % RH non-condensing
Protection class	IP65

Delivery contents

PCE-WSAC 50W / PCE-WSAC 50W+

- 1x wind speed sensor (incl. standard bracket)
- 1x wind speed display
- 1x self-levelling additional bracket
- 1x radio antenna
- 1x monocell battery D 1.5V DC

- 1x user manual

PCE-WSAC 50+

- 1x wind speed display
- 1x user manual

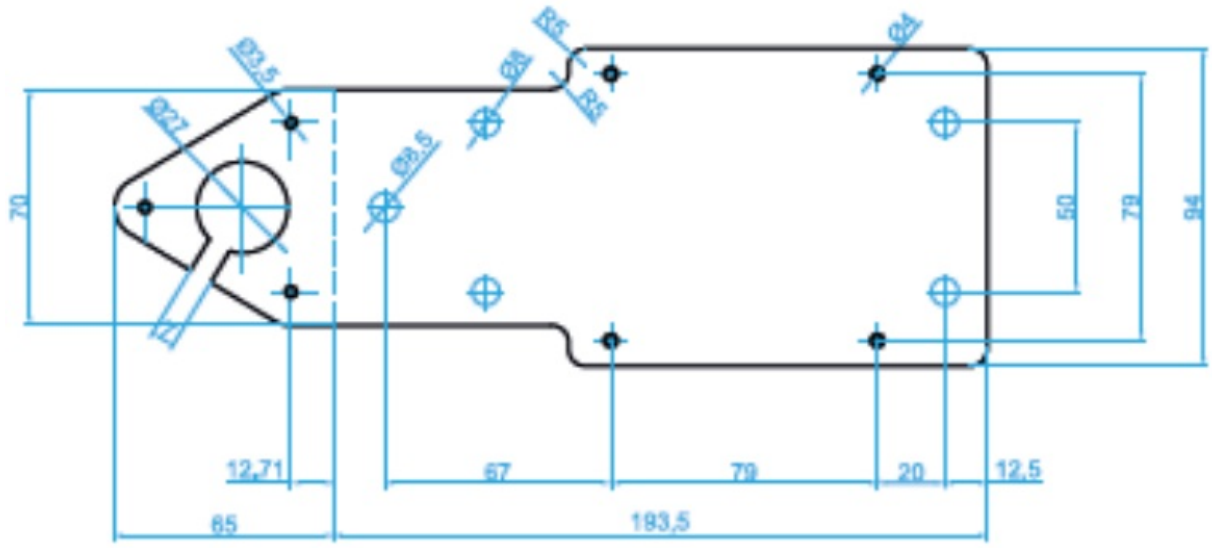
Note: The sensors for the PCE-WSAC 50+ models must be ordered separately.

Sensors

Order code	Description
PCE-WS A	Wind speed sensor with 4 … 20 mA output
PCE-WS P	Wind speed sensor with pulse output
PCE-WV A	Wind direction sensor with 4 … 20 mA output

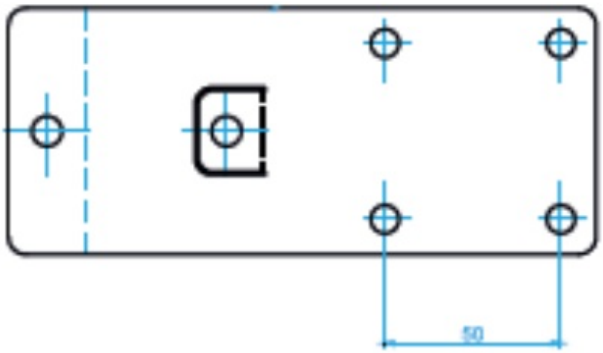
Assembly

Standard bracket



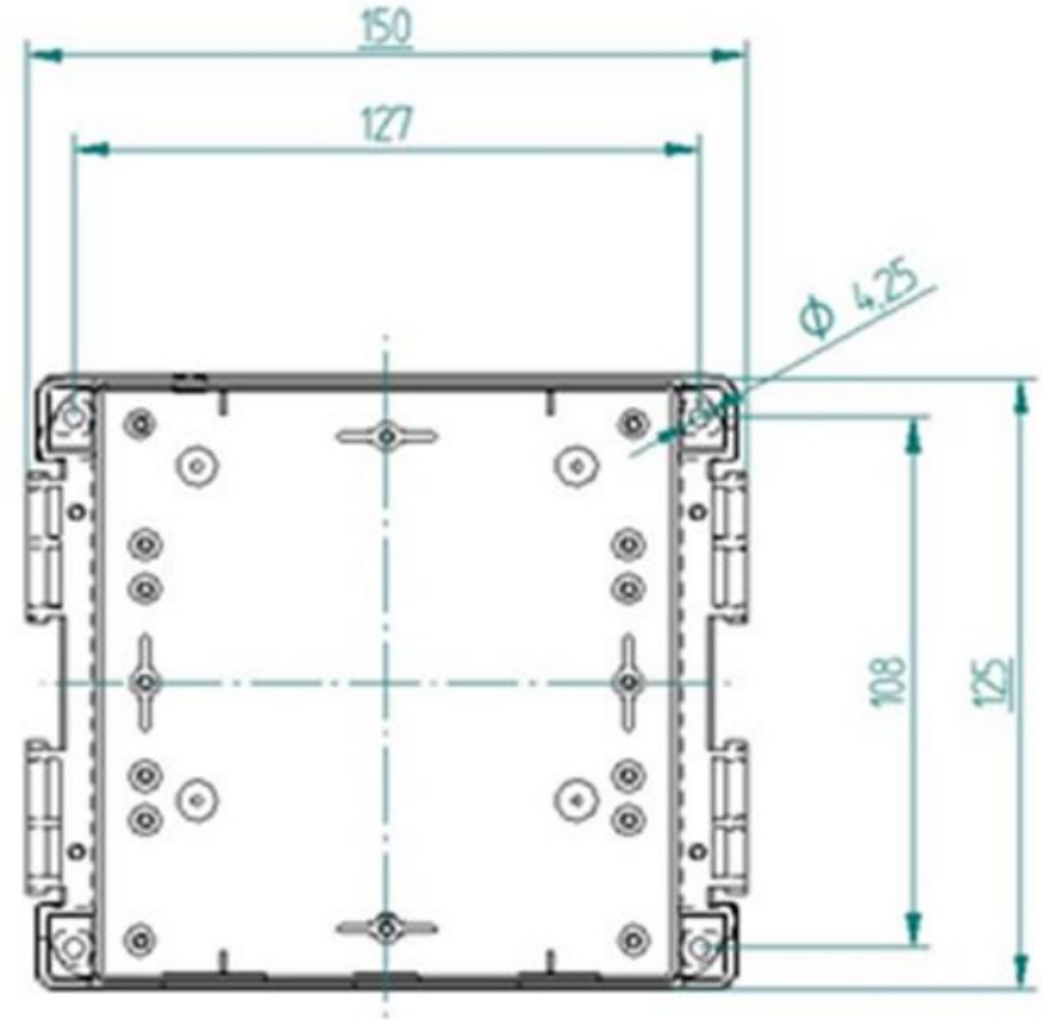
60-degree bending along dashed line, stainless steel, 2 mm thick

Self-levelling additional bracket

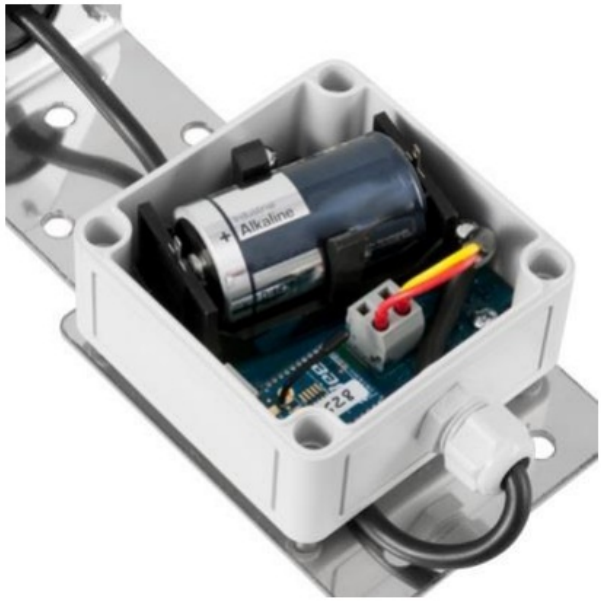


ATTENTION: When mounting the self-levelling additional bracket, make sure it is not completely tightened. It must be locked with the two M8 nuts in a way that it is still freely movable but without play!
Observe the correct order of the connecting elements (see image).

Assembly plan with borehole description



Preparing the wind speed sensor

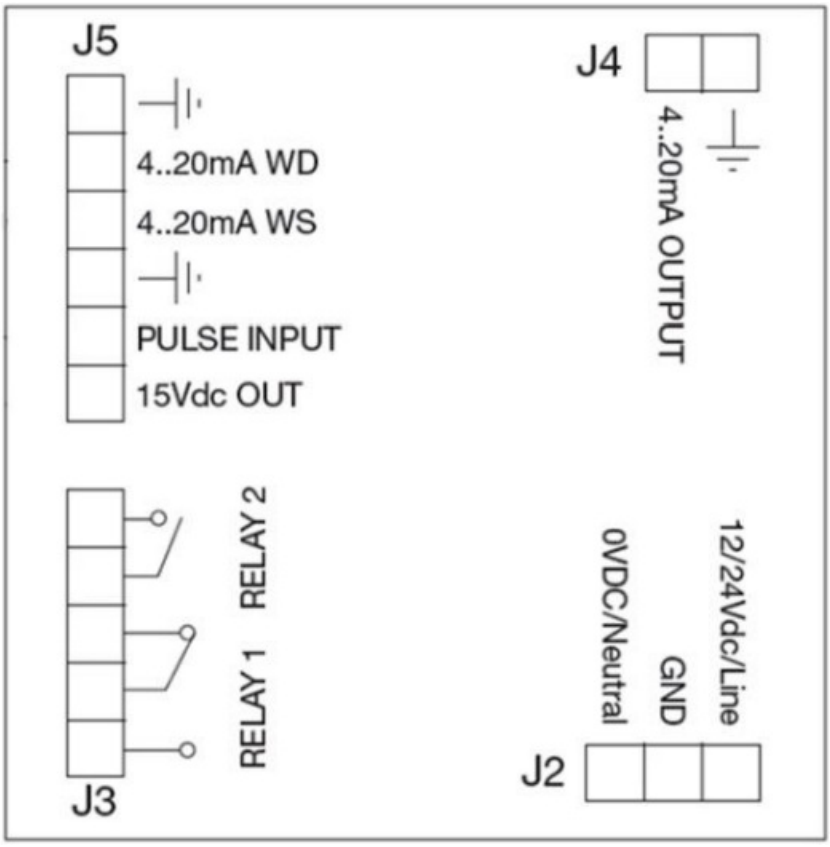


ATTENTION: Ensure correct polarity!
Before inserting or replacing the battery, loosen all 4 screws of the case.

Connections

- Connect the antenna to the threaded bush of the case, via the screw connection.
- To establish the power supply for the wind speed display, open the case.
- Connect the power cable to terminal J2 in the case.

ATTENTION: Disconnect the device from the power supply before opening the case cover!



Function keys
Key functions in programming mode

Key	Function
 **SEL**	Increases the program steps (P00, P01 …) and the programmable options and value s
 **TEST**	Decreases the program steps and the programmable options and values
ENTER	Confirms entered values, ends program step
ESC	Leaves current program and moves decimal place

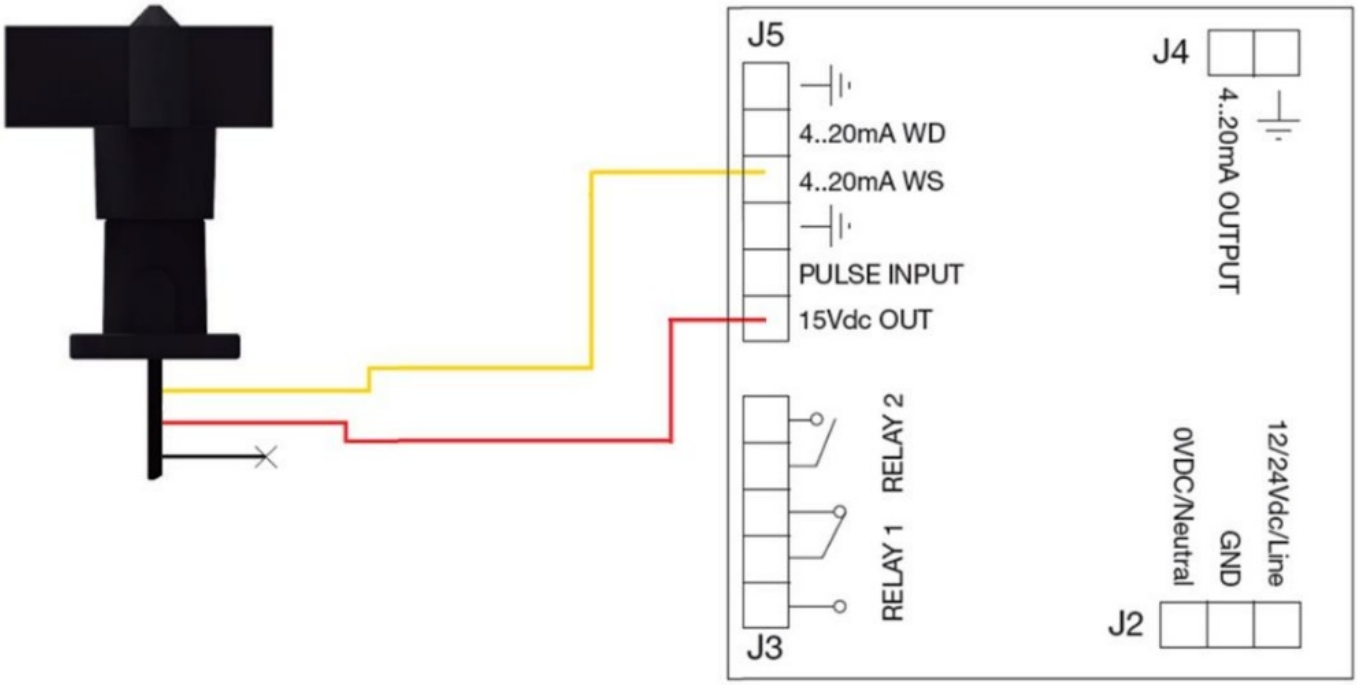
Operation of wind speed display

Sensor connection

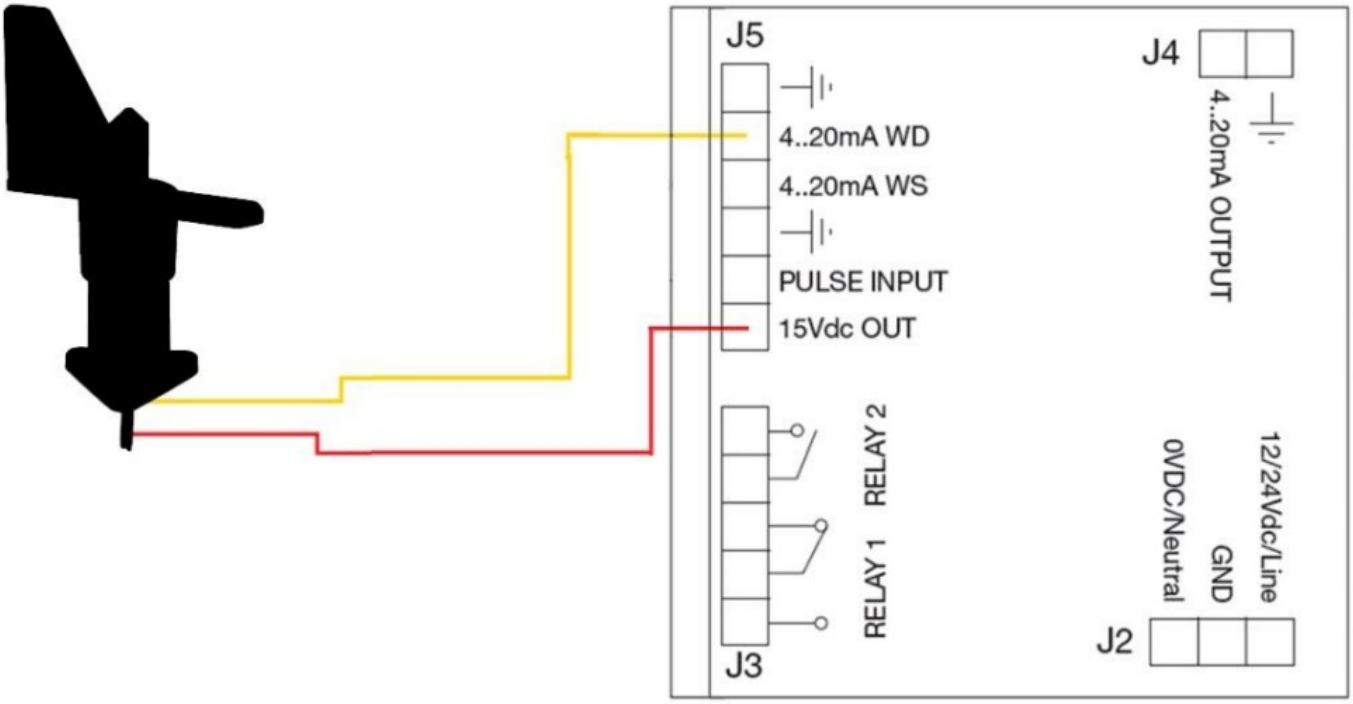
1. PCE-WSAC 50W / PCE-WSAC 50W+
    - The wind speed sensor is coupled with the wind speed display via radio.
    - The wind speed measured by the sensor is displayed when the battery is inserted into the transmitter.
    - The transmitter and the receiver communicate via RF IEEE 802.15.4, at a frequency of 2.4 GHz.
    - The wind sensor must always be positioned vertically!

PCE-WSAC 50+

The wind speed sensor must be connected to the display by cable. To do this, open the housing cover, feed the cable through the compression fitting and connect the sensor as follows:



Wind direction sensor (all models)
A wind direction sensor can be connected to the display unit on all models. To do this, open the housing cover, feed the cable through the compression fitting and connect the sensor as follows:



Settings / main menu
In order to enter programming mode, press the “ENTER” and “ESC” keys simultaneously for 2 seconds.

Standard user setting
You can save your settings as “standard user setting“ and use them again when required.
If no configuration has been saved, the same operation will restore the factory default settings.

When no configuration has been saved, the factory settings can be restored with this procedure.

Program no.	Function
P00	Options to leave the menu: (1) Discard changes and return to normal measuring mode (2) Save changes and return to normal measuring mode (3) Save changes as „standard user setting“ and return to normal measuring mode (4) Restore „standard user setting“ when parameters have been changed unintentionally. T o do so, press and hold the ENTER key for at least 10 seconds. If the reset was successful, “USER SETTINGS RESTORED“ will appear in the dis play.

Sensor selection
The following menu items are relevant for setting the sensors.

Program no.	Function
P01	Wind sensor selection: **(0)** wind speed meter only, **[0]** (1) wind direction meter only, (2) wind speed meter + wind direction meter

P02	Setting the input for the wind speed: For P01 = 0 and P01 = 2 only (0) pulse input, **[0]** (1) 4 … 20 mA input (2) radio sensor
P03	Setting the input for the wind direction: Forr P01 = 1 and P01 = 2 only (0) 4-20 mA input, **[0]** (1) radio sensor
P04	Unit: (0) km/h, **[0]** (1) mph (2) m/s
P05	For P02 = 0 only Displayed reference speed (1-999) **[100]**
P06	For P02 = 0 only Frequency [Hz] for visualisation of the programmed value in P05 **[121]**
P07	For P02 = 0 only Ratio offset = speed/frequency **[3]**
P08	Selection of maximum measurement range (wind speed) For P02 = 1 only (0) 120 km / h, **[0]** (1) 180 km / h
P09	Selection of maximum measurement range (wind direction) For P03 = 0 only (0-359) **[0]**

Alarm
The alarm is triggered when the wind speed exceeds the set value. A delay time can be set via the function keys. This is to prevent unnecessary alarms from being triggered, for example, by wind gusts.
When the wind speed is below the set value, no alarm will be triggered.

When ALARM 2 is activated, ALARM 1 will be deactivated. When ALARM 2 is triggered, the reading will flash to additionally warn of strong wind gusts.

Program no.	Function
P10	ALARM 1 (0) deactivated (1) normally open contact (NO) **, [1]** (2) normally closed contact (NC)
P11	ALARM 1 Threshold value (1-999) **[50]**
P12	ALARM 1 mode (0) Continuous alarm (1) pulsating alarm **[1]**
P13	ALARM 1 For P12 = 1 only Switch-on time when pulsating alarm is activated in 0.1 s (1-99) **[10]**
P14	ALARM 1 For P12 = 1 only Switch-off time when pulsating alarm is activated in 0.1 s (1-99) **[10]**
P15	ALARM 1 Activation delay in seconds (0…999) **[2]**
P16	ALARM 1 Deactivation delay in seconds (0…999) **[5]**
P17	ALARM 2 (0) deactivated (1) normally open contact (NO) **, [1]** (2) normally closed contact (NC)
P18	ALARM 2 as P11, **[70]**

	(When this value is exceeded, the displayed value will flash, as an additional warning).
P19	ALARM 2 as P12, **[0]**
P20	ALARM2 as P13, **[5]**
P21	ALARM 2 as P14, **[5]**
P22	ALARM 2 as P15 **[2]**
P23	ALARM 2 as P16 **[5]**
P24	ALARM 2 (0) non-resting**, [0]** (1) resting (switch off to enable)

Analogue output

Program no.	**Function**
P25	Analogue output (0) deactivate, **[0]** (1) proportional to wind speed (2) proportional to wind direction
P26	Wind speed/direction value corresponding to the analogue output value of 20 mA **[120]**

Timeout

Program no.	Function
P27	Timeout of radio transmission For P02 = 2 and P03 = 1 only Time in seconds (5 … 99) **[12]** **NOTE**: The Timeout should not be less than 9 seconds if the meter is battery powered
P28	Alarm status when timeout is activated (0) no alarm (1) ALARM 1 active (2) ALARM 2 active, [2]
P36	ALARM association [0] (0) ALARM1 and ALARM2 associated with anemometer 1, (1) ALARM1 and ALARM2 associated with anemometer 2, (2) ALARM1 associated with anemometer 1 and ALARM 2 associated with anemometer 2, (3) ALARM1 associated with anemometer 2 and ALARM 2 associated with anemometer 1

Data logger

Program no.	Function
P34	Recording periods (0) 10-second periods, (1) 1-minuten periods, (2) 10-minute periods, (3) 1- hour periods. [2]
P35	MicroSD management (0) Exit without any action, (1) Export new data to the SD card that has not been exporte d before (2) Export all data of the internal memory to the SD card (This process can take up to 5 minutes), (3) Clear internal memory (up to 20 seconds)

Indication of minimum and maximum wind readings

The PCE–WSAC 50W automatically records the minimum and maximum wind speed. Press the ENTER key in normal measuring mode to view the lowest wind speed measured after powering on the meter. Press the ENTER key again to view the highest measured wind speed.

The meter returns to normal measuring mode when no key has been pressed for 3 seconds.
To reset the minimum and maximum values, press and hold the ESC key for 2 seconds.

Note: Both values will be deleted when the power supply is interrupted.

Contact
If you have any questions, suggestions or technical problems, please do not hesitate to contact us.
You will find the relevant contact information at the end of this user manual.

Disposal

For the disposal of batteries in the EU, the 2006/66/EC directive of the European Parliament applies.

Due to the contained pollutants, batteries must not be disposed of as household waste. They must be given to collection points designed for that purpose.
In order to comply with the EU directive 2012/19/EU we take our devices back. We either re-use them or give them to a recycling company which disposes of the devices in line with law.

For countries outside the EU, batteries and devices should be disposed of in accordance with your local waste regulations.
If you have any questions, please contact PCE Instruments.

PCE Instruments contact information

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Specifications are subject to change without notice.

Documents / Resources

	PCE INSTRUMENTS PCE-WSAC 50W Wind Speed Alarm Controller [pdf] User Manual PCE-WSAC 50W, PCE-WSAC 50, PCE-WSAC 50W Wind Speed Alarm Controller, PCE-WSAC 50W, Wind Speed Alarm Controller, Speed Alarm Controller, Alarm Controller, Controller

References

- Anasayfa - Cihazları
- iberica.es
- Make an offer on the domain instruments.co.uk - Domains.co.uk
- Computer Instruments | Home
- Discover Italy: Official Tourism Website - Italia.it
- Industrial Measurement Products and Solutions | PCE Instruments
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