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Manual
Anemometer PCE-423

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Contents

1 Introduction

Thank you for purchasing an anemometer from PCE Instruments.
The PCE-423 anemometer with a thermal sensor stands out for its excellent price/performance ratio. The PCE-423 anemometer has a high resolution and can be used for different purposes. This PCE-423 anemometer is a part of the basic equipment for professionals working with ventilation systems. The PCE-423 anemometer is also used in institutional research and development. The thin probe (8 mm diameter) makes it possible to use the anemometer in areas with a minimum range of measurement, such as the inside of refrigeration units. Additionally, the PCE-423 anemometer has a telescopic probe with a max. length of 1 m. Both the USB cable and the software (included in the delivery) allow to connect the PCE-423 anemometer to a PC or laptop to transfer data continuously. Data can be stored in either txt or csv format for further analysis.

2 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. There is no warranty of damages or injuries caused by non-observance of the manual.

- The device may only be used in approved temperature ranges.
- The case should only be opened by qualified personnel of PCE Instruments.
- The instrument should never be placed with the user interface facing an object (e.g. keyboard side on a table).
- 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.

This manual is published by PCE Instruments without any guarantee.

We expressly point to our general guarantee terms which can be found in our general terms of business.

If you have any questions please contact PCE Instruments.

3 Specification

3.1 Technical specifications

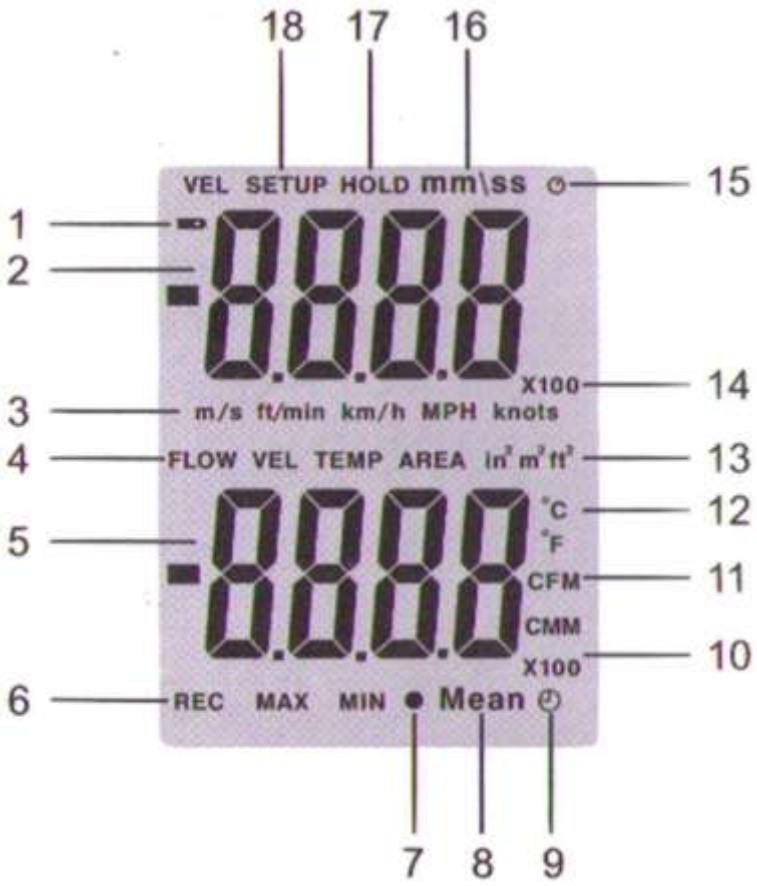
Measurement specifications	
Sampling rate	approx. 1 / 0.8 s
Measurement range	
Wind speed	0.1 … 25.0 m/s 20 … 4925 ft/min 0.2 … 48.5 knots 0.3 … 90 km/h 0.2 … 55.8 mph
Temperature	0.0 … +50.0 °C
Resolution	
Wind speed	0.01 m/s 1 ft/min 0.1 knots 0.1 km/h 0.1 mph
Temperature	0.1 °C
Accuracy	
Wind speed	± 5 % ± 1 digit (of measured value)
Temperature	± 1 °C
General specifications	
Thermal probe	Telescopic probe Length: 185 … 1000 mm Max. diameter: 12 mm Min. diameter: 10 mm
Interface	USB
Display	LCD display (46.7 x 60 mm)
Power supply	1 x 9 V battery
Case	ABS plastic
Auto Power Off	After 5 min of inactivity
Operating conditions	0 … +50 °C , < 80 % RH
Dimensions	210 x 75 x 50 mm
Weight	280 g

3.2 Contents of delivery

1 x anemometer PCE-423 with telescopic probe
1 x software
1 x USB data cable
1 x mains adapter
1 x 9 V battery
1 x instruction manual
1 x carrying case

4 System description

4.1 Display



1. Low battery indication
2. Main display; shows air velocity, saved data or time
3. Measuring unit air velocity (m/s; ft/min; km/h; MPH; knots)
4. Parameters secondary display: air flow (FLOW), air velocity (VEL), temperature (TEMP) or cross-sectional area (AREA)
5. Secondary display; shows flow rate, air velocity, temperature or cross-sectional area
6. Indication for recording (REC) or maximum / minimum value (MAX / MIN)
7. Icon for averaging over a certain amount of readings
8. Mean value icon
9. Icon for averaging over a certain period of time
10. Multiplier for secondary display (x 100)
11. Flow rate unit (CFM or CMM)
12. Temperature unit (°C / °F)
13. Unit of flow cross-sectional area
14. Multiplier for main display
15. Auto Power Off symbol
16. Format of time indication
17. Hold function icon
18. Setup icon

4.2 Buttons

Button	Function
	• Turn the device on / off
	• Freeze/unfreeze the current reading on the display (Hold) • Press and hold to adjust the zero point (Zero)
	• Enter a folder in setup menu • Confirm an adjustment
	• Turn the backlight on / off • Press and hold it for 3 seconds to enter setup menu
	• Choose the measuring unit for the main display (m/s, ft/min, km/h, mph, knots) • Move up in setup menu
	• Choose the measuring unit for the secondary display (°C, °F) • Move down in setup menu
	• Press to start averaging (over a certain time or amount of readings)
	• Press to retrieve the maximum / minimum value of a measurement • Press and hold for 2 seconds to go back to normal mode
	• Press to change between flow rate and temperature indication on the secondary display

5 Operation

5.1 To carry out a measurement

1. Connect the sensor to the anemometer. Note the marks on the plug and the device.
2. Turn on the device by pressing  . A counter appears on the display. After the counter has reached “0”, the device is ready to use.
3. Choose the measuring units for air velocity and temperature. Press  to switch between the air velocity units on the main display (m/s, ft/min, km/h, mph, knots). Press  to switch between the temperature units on the secondary display (°C, °F).
4. Set the zero point. To do so, please make sure that the metal protection ring on the sensor head is in the upper position (air velocity = 0). If this is the case, press and hold  . (Fig. 1)

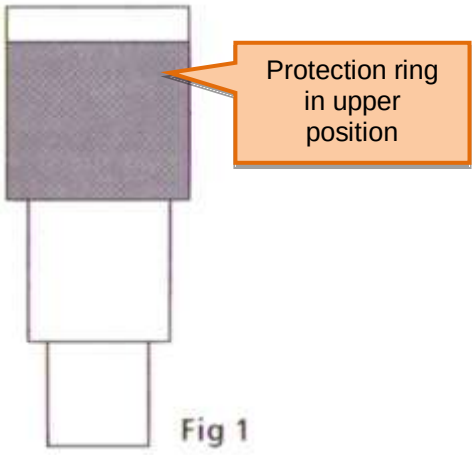


Fig 1

5. Move the protection ring to the lower position (Fig. 2). Use the telescopic stick (Fig. 3) to adjust the sensor to the desired length. Remember to carefully insert the sensor cable into the telescopic tube when extending it, to prevent damage to the cable.

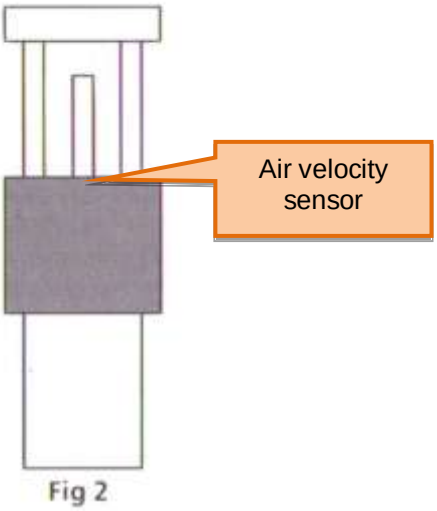


Fig 2

Fig 3

6. On top of the sensor, you can find arrows which indicate the flow direction. Please make sure that these arrows are in line with the actual flow direction (Fig. 4). Now you can see the flow rate on the main display and the temperature on the secondary display.

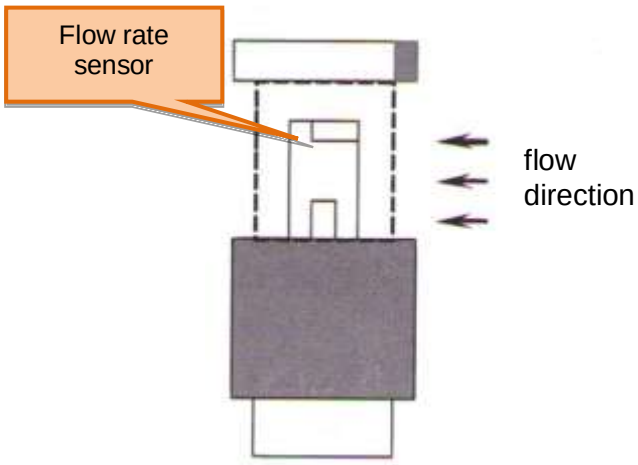


Fig 4

5.2 Measuring functions

5.2.1 Averaging over a certain amount of readings

Press 

and the current measurement value will appear on the secondary display. By means of the 

key you can change the measuring unit. To include this value in the calculation, press 

. You can repeat this procedure with as many readings as you wish to.

To finish averaging, press 

. Now the mean value will appear on the secondary display and the “MEAN” indication on the display starts flashing. To return to normal measuring mode, please press 

again.

5.2.2 Averaging over a certain period of time

Press and hold 

for 2 seconds until the time (mm:ss) is indicated on the main display. The current measuring value now appears on the secondary display. To change the measuring unit, press 

. After doing so, you can start averaging by pressing 

. The time indication in the main display starts to run. You can also pause (and resume) averaging at any time by pressing 

. To finish averaging, press 

. Now the mean value will appear on the secondary display and the “MEAN” indication on the display starts flashing. To return to normal measuring mode, please press 

again.

5.2.3 Hold function

Press 

to freeze the current reading on the display. A “HOLD” indication appears on the display. To unfreeze the reading, press 

again.

5.2.4 MIN / MAX function

Press 

once to show and hold the maximum value on the display. Press 

again to show and hold the minimum value. In addition, a “REC” indication and the indications “MAX” or “MIN” appear on the display. To exit this function and return to the normal measuring mode, press and hold 

for 2 seconds.

5.3 To replace the battery

To replace the battery, make sure that the device is turned off. Now move the cover of the battery compartment downwards, while you push the mark on the cover. After that, you can carefully remove the cover and remove the battery by releasing it carefully from the plug-in connectors. Next, insert a new battery and slide the cover of the battery compartment upwards to close it.

6 Setup

To access the setup menu, press and hold 

for 3 seconds. Now the “SETUP” indication appears.

To exit the setup menu, press and hold 

again for 3 seconds.

In the setup menu you have the following options:

- “UNIT” – Here you can choose the unit of the cross-sectional area. You can switch between in², m² and ft².
- “AREA” – Here you can adjust the cross-sectional area.
- “SLP” – Here you can activate / deactivate the Auto Power Off function.

To navigate through the menu, use 

and 

until you see the desired option on the display. Then, press 

to confirm.

6.1 Set the unit of the cross-sectional area (UNIT)

To access the unit selection screen for the cross-sectional area, use 

or 

until the display shows “UNIT” (Fig. 1). Now press 

to confirm. An “AREA” indication should appear on the display. This means that you can now select the unit of the cross-sectional area by using 

and 

. The selected unit is shown next to the “AREA” indication. To confirm your selection, press 

. To exit the setup menu, hold 

for 3 seconds.

Fig 1

Fig 2

6.2 Adjust the value of the cross-sectional area (AREA)

To access the adjustment screen of the cross-sectional area, use Unit and Unit until the display indicates “AREA”, the unit and the actual value of the cross-sectional area (Fig. 3). Then press Enter to confirm. The digits on the screen start to flash. Now you can set the decimal point by using Unit and Unit to navigate through the digits. To confirm the decimal point position, press Enter. After that, the last digit starts to flash. You can now set its value (from 0 to 9) by using Unit and Unit. Again, press Enter to confirm. The next digit starts to flash and you can set its value as described above. Repeat this procedure until you have set the desired values for all digits. After confirming all settings, you can exit the setup menu by holding Setup for 3 seconds.

Fig 3

6.3 Activate/deactivate the Auto Power Off function (SLP)

To access the setting screen of the Auto Power Off function, use Unit and Unit, until the display shows “SLP”. Then, press Enter to confirm. Now you can choose between “ON” and “OFF” by using Unit and Unit. To confirm your selection, press Enter. After that you can leave the setup menu by holding Setup for 3 seconds.

7 Software

First, please install the software and the USB driver “CP2102 USB to UART Bridge Controller” from the CD-ROM. If there are problems with the installation, you can find the driver installer “CP210xVCPInstaller.exe” in the folder “driver” on the CD.

- You can operate the anemometer via the PC software
- Data recording starts automatically
- You still have to adjust settings like the cross-sectional area on the device itself
- You can select the parameters to be measured by using check fields
- You can export, save and print the measured data

8 Contact

If you have any questions about our range of products or measuring instruments please contact PCE Instruments.

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