

# User manual for Air Quality and Environment Monitoring Meter

V1.2.0

## 1. Safety instructions

Please read the following information carefully before operating:

- (1) The meter can be operated in the environment of -30~65°C, 0~100%RH(non-condensing). The meter may be damaged if used in other environment.
- (2) The battery can be used at the temperature of -15~50°C. If you need to use the meter at other temperatures please change the battery.
- (3) Please do not disassemble or repair the meter by yourself.
- (4) Please remove the battery if the meter is not used for a long time.

## 2. Product selection guide

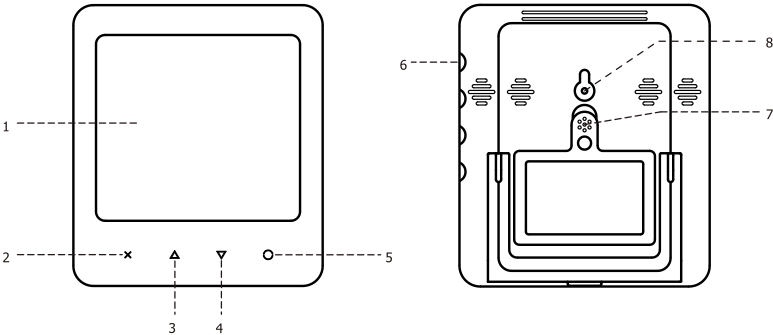


| Model No.<br>Function | A | B | C | D | E |
|-----------------------|---|---|---|---|---|
| Temperature           | ● | ● | ● | ● | ● |
| Humidity              | ● | ● | ● | ● | ● |
| Carbon dioxide        | ● | ○ | ○ | ● | ○ |
| Air pressure          | ○ | ● | ○ | ○ | ● |
| TVOC                  | ○ | ○ | ● | ○ | ○ |
| Data logging          | ○ | ○ | ○ | ● | ● |

● means the product enabled, ○ means the product disabled.

1

## 3. Appearance

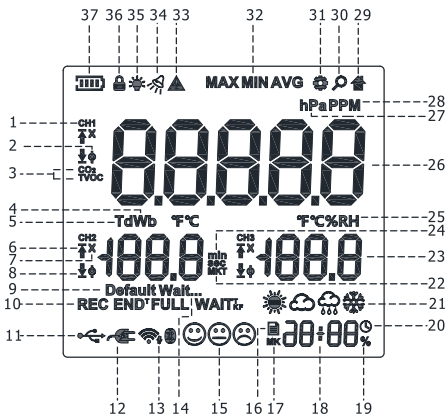


- 1. LCD
- 2. Remove limit violation symbol
- 3. Temperature unit switching or +
- 4. View or -

- 5. Power or setting
- 6. External probe socket
- 7. CAL button
- 8. Reset button

2

## 4. LCD Introduction



- ↑:Display when exceeding the upper limit currently.
- ↓:Display when exceeding the lower limit currently.
- ×:Display when exceeding the upper or lower limit currently or before.

- 1. Channel number
- 2. External probe symbol
- 3. Measurement parameter indication
- 4. Wet bulb temperature symbol
- 5. Dew point temperature symbol
- 6. Upper limit violation indication
- 7. Limit violation symbol
- 8. Lower limit violation indication
- 9. Display when restoring the factory settings
- 10. Record status indication
- 11. USB communication symbol
- 12. display when charging via USB
- 13. Wireless signal indication
- 14. Wait state
- 15. Human comfort indicator
- 16. File symbol
- 17. Mark indication
- 18. Time
- 19. Percentage symbol
- 20. Clock symbol
- 21. Weather forecast symbol
- 22. Mean kinetic temperature symbol
- 23. Reading 2
- 24. Time unit
- 25. Temperature/ Humidity unit
- 26. Reading 1
- 27. Air pressure unit
- 28. Part per million
- 29. Home interface indication
- 30. View mode indication
- 31. Setting mode symbol
- 32. Minimum / Maximum / Average symbol
- 33. Warning symbol
- 34. Buzzer alarm enabled indication
- 35. Backlight enabled indication

3

## 5. Specifications

| Measurement Parameter   | Temperature                                               | Humidity                                      | Carbon dioxide                                               | Air pressure                   | TVOC                                                                            |
|-------------------------|-----------------------------------------------------------|-----------------------------------------------|--------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------------|
| Measurement Range       | -30~65°C (Internal probe)<br>-40~125°C (External probe)   | 0~100%RH (non-condensing)                     | 0~10000ppm                                                   | 300~1100hPa                    | 0~60ppm                                                                         |
| Resolution              | 0.1°C                                                     | 0.1%RH                                        | 1ppm                                                         | 0.2hPa                         | 1ppb (0~2008ppb) <sup>①</sup><br>6ppb (2009~11110ppb)<br>32ppb (11111~60000ppb) |
| Accuracy                | ±0.3°C (-10~65°C)<br>±0.5°C (Other range)                 | ±3%RH (10~90%RH, 25°C)<br>±4%RH (Other range) | ±3%±40ppm (400~2000ppm)<br>(Other range, for reference only) | ±1hPa<br>(950~1050hPa, 0~40°C) | 20%<br>(0.3~3ppm, 25°C, 50%RH)                                                  |
| Response Time (t90)     | 15min                                                     | 15min                                         | ≥3min                                                        | 5s                             | 3min                                                                            |
| Measuring Interval      | 5s                                                        | 5s                                            | 5s~30min (optional)                                          | 5s                             | 2s~30min (optional)                                                             |
| Memory Capacity         | 22528 readings (for the model with data logging function) |                                               |                                                              |                                |                                                                                 |
| LCD Refresh Interval    | 5s                                                        |                                               |                                                              |                                |                                                                                 |
| Operation Temperature   | -30~65°C <sup>②</sup>                                     |                                               |                                                              |                                |                                                                                 |
| Storage Temperature     | -30~65°C (No battery)                                     |                                               |                                                              |                                |                                                                                 |
| Power Supply            | 1.5V AAA                                                  |                                               |                                                              |                                |                                                                                 |
| Communication Interface | Micro USB, DC 5V/2A                                       |                                               |                                                              |                                |                                                                                 |
| Case Material           | ABS                                                       |                                               |                                                              |                                |                                                                                 |
| Size                    | 96 mm*108mm*20mm                                          |                                               |                                                              |                                |                                                                                 |
| Waterproof              | IP20                                                      |                                               |                                                              |                                |                                                                                 |

- ①. 1ppm=1000ppb.
- ②. For carbon dioxide meter, when temperature is lower than 0 °C or higher than 50 °C, the carbon dioxide sensor will stop working. When temperature is back to 2~48 °C, the sensor will return to work. When temperature is out of the range of -40~70°C, the meter will power off.

4

6. Operation

The meter will self-lock if not any operation within 15 seconds(the icon  will be displayed). Hold the key  for 2 seconds to unlock it. You can hear a sound “di” when pressing a key.

6.1 Power on

- (1)The meter will turn on automatically when installing new batteries;
- (2)If the meter has been shut down, hold the key  for 3 seconds to turn it on.

6.2 Power off (invalid during logging)

- (1) In home interface, hold the key  until “off” shows, then the meter will power off.
- (2) When battery is low or temperature exceeds the operation temperature, the meter will power off.

6.3 Temperature unit switching(invalid during logging)

Hold the key  for 2 seconds to switch Fahrenheit and Celsius.

6.4 Dew point display switching

Click the key  to switch temperature and dew point temperature. (For air pressure meter, you can click the key  once again to switch to wet bulb temperature).

6.5 Time display switching

Click the key  to toggle the display between year, month, date and time.

6.6 View the maximum, minimum, average, upper and lower limits

Click the key  to view the values, including maximum, minimum, average, upper and lower limits. In view mode(the icon  will be displayed), it will return to home interface if not any operation within 15 seconds, or you can press ,  or  to go back to home interface.

6.7 Clear the statistical data (For the model without data logging function)

Hold the key  for 2 seconds to delete the statistical data, including maximum, minimum and average (the MAX/MIX/AVG symbol will flash once). Then it will restart to calculate the maximum, minimum and average values.

6.8 Turn off the buzzer alarm

If the buzzer alarm has been enabled, the buzzer will be ringing when exceeding the upper/lower limit. Click any key to turn off the buzzer.

5

6.9 Remove limit violation symbol(invalid during recording)

Hold the key  for 2 seconds, and the limit violation symbol  will be removed after a sound “di”.

6.10 Parameter setting(invalid during recording)

In setting mode, you can click the key  to enter the next setting, or you can click the key  to go back to the previous setting.

(1) Enter setting mode:

In home interface, hold the key  until the year value flashes, then you will enter the setting mode(the icon  will be displayed). Click the key  to set the following parameters: time, buzzer duration, backlight duration (for the model without data logging function), the upper/ lower limit of each channel, measuring interval(for carbon dioxide meter without data logging function and TVOC meter without data logging function), recording interval and file format(for the model with data logging function). press the key  to increase the value or press the key  to decrease the value. “On” means that the function is enabled all the time, “off” means that the function is disabled.

(2) Exit setting mode:

Click the key  after finishing the setting, and the meter will save the settings and exit setting mode. In setting mode, if not any operation within 15 seconds, the meter will save the settings and go back to home mode. You can also hold the key  for 2 seconds to go back to home interface.

6.11 View the serial number

Hold the key  and the key  at the same time for 2 seconds, and the serial number will be displayed on the screen.

6.12 Restore the factory settings(invalid during logging)

Hold the key  and the key  at the same time until showing “DEFAULT” and the icon .

6.13 Reset

Click the reset button to restart the meter. Note: Reset during logging will result in partial loss of data recorded in past five minutes.

6.14 Carbon dioxide calibration (For carbon dioxide meter)

(1) Automatic calibration:

When the CO2 measurement interval or recording interval is set to 5 seconds, and the meter will run in fast mode. In fast mode, the meter will self-calibrate every 8 days. During the calibration period, place the meter in a good environment, and keep power-on over 10 minutes. Note: It is suggested to charge via USB in fast mode.

6

- (2) 400ppm point calibration
  - ①. Only if the carbon dioxide measurement interval or recording interval has been set to 5 seconds.
  - ②. Hold the CAL button until the screen displays “CAL 400”.
  - ③. Place the meter in a good environment.
  - ④. After 5 minutes, the meter will start the 400ppm point calibration automatically.
  - ⑤. After finishing the calibration, it will back to home interface automatically.

(3) Exit the calibration

In calibration mode, you can exit the calibration directly by pressing the CAL button. The calibration will be invalid when exiting directly. You can’t exit the calibration by pressing the CAL key when the “CAL” icon has flashed.

7. Data logging and files (for the model with data logging function)

7.1 Start logging

Hold the key  for 2 seconds to start logging, and “REC” will be displayed on the screen (For more details, please refer to the status symbol table).

7.2 Stop logging

- (1) Hold the key  for 2 seconds to stop logging, and “END” will be showed on the screen.
- (2) The meter will stop logging when connecting with a computer( “END”,, will be displayed on the screen).
- (3) The meter will stop logging when memory is full( “END FULL” will be displayed on the screen).
- (4) The meter will stop logging and power off when battery is low.

7.3 Logging files

Logging files are named by the serial number and the time to start logging. Four file formats can be set (For more details, please refer to the file format symbol table). You can view the file on a computer.

7.4 Delete logging files

- (1) Format the disk by a computer.
- (2) Open the disk on a computer, and remove the logging files.
- (3) Restore the factory settings.

7

8. Tips and helps

8.1 FAQs

- (1) When all the keys cannot respond, it indicates that the meter is undergoing self-calibrating, please wait and try again after 15 seconds.
- (2) The meter supports the use of external probe. Please insert the external probe into the external probe socket and restart the meter, and the symbol  will be displayed on the screen.
- (3) When the battery symbol flashes or “oFF” shows on screen, it indicates that the battery is low, and the meter will turn off automatically. Please replace the battery timely.
- (4) When the screen shows exception code, please refer to the abnormal code table for the reason. Any questions, please contact with after-sales.

8.2 Notices for TVOC model

- (1) If the meter has been shut down for more than 7 days, it needs to run for 24 hours in a good environment before normal use.
- (2) After power on, the TVOC sensor needs to warm up. During the warm-up period, the screen shows “Please wait...” and the remaining time of warm-up.

Abnormal code table

|                                                            |      |
|------------------------------------------------------------|------|
| Sensor failed to communicate                               | ---- |
| Hardware error                                             | Err0 |
| Abnormal supply voltage                                    | Err2 |
| Abnormal carbon dioxide calibration                        | Err3 |
| Abnormal operation environment of carbon dioxide           | StoP |
| Abnormal TVOC sensor                                       | Err8 |
| Operation temperature is too high                          | HI   |
| Operation temperature is too low                           | Lo   |
| The battery voltage is low (only for carbon dioxide meter) | Lb   |
| Less than 2 recording points                               | NoNE |
| Insufficient disk space                                    | FULL |

Status symbol table

|                   |                                      |
|-------------------|--------------------------------------|
| WAIT <sub>t</sub> | Wait to start logging                |
| REC               | Under record status                  |
| END               | Stop logging when memory is not full |
| END FULL          | Stop logging when memory is full     |

File format symbol table

|     |     |
|-----|-----|
| dlg | dL9 |
| txt | tHL |
| xls | HL5 |
| csv | CSU |

8