User Manual V1.0.4

Air Quality and Environment Monitoring Meter

1. Safety instructions

Please read the following information carefully before operating:
(1) The meter can be operated in the environment of –30~65℃, 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℃. 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

A ◯ B ◯

Model No. Function	A	B
Temperature	●	●
Humidity	●	●
Carbon dioxide	●	●
Data logging	○	●

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

(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 Meter prompt comparison table

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
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

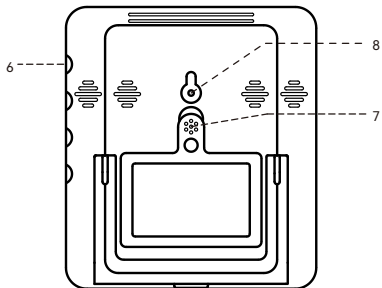|	
WAITκ	Wait to start logging
REC	Under record status
END	Stop logging when memory is not full
END FULL	Stop logging when memory is full

File format symbol table

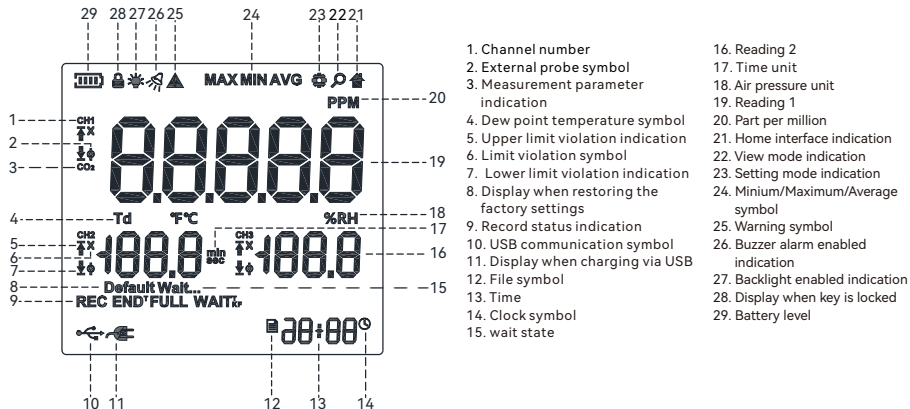|	
dlg	dL9
txt	tHt
xls	HLS
csv	CSU

3.Appearance
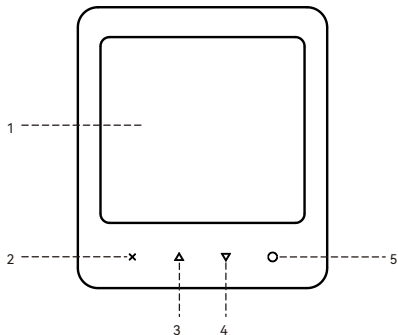
1. LCD

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

4.LCD Introduction

1. Channel number
2. External probe symbol
3. Measurement parameter indication
4. Dew point temperature symbol
5. Upper limit violation indication
6. Limit violation symbol
7. Lower limit violation indication
8. Display when restoring the factory settings
9. Record status indication
10. USB communication symbol
11. Display when charging via USB
12. File symbol
13. Time
14. Clock symbol
15. wait state
16. Reading 2
17. Time unit
18. Air pressure unit
19. Reading 1
20. Part per million
21. Home interface indication
22. View mode indication
23. Setting mode indication
24. Minium/Maximum/Average symbol
25. Warning symbol
26. Buzzer alarm enabled indication
27. Backlight enabled indication
28. Display when key is locked
29. Battery level

⬆: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.

❸

5.Specifications

Measurement Parameter	Temperature	Humidity	Carbon dioxide
Measurement Range	–30~65℃(Internal probe) –40~125℃(External probe)	0~100%RH(non-condensing)	0~10000ppm
Resolution	0.1℃	0.1%RH	1ppm
Accuracy	±0.5℃(–10~65℃) ±1.0℃(Other range)	±5%RH(10~90%RH,25℃) ±6%RH(Other range)	±3%±40ppm(400~2000ppm,0~50℃) (Other range, for reference only)
Response Time(t₉₀)	15min(Internal probe) 5min(External probe)	15min(Internal probe) 5min(External probe)	5s~120min optional(model with recording function) 5s~30min optional(model without recording function)
Measuring Interval	5s		
Memory Capacity	22528 readings(for the model with data logging function)		
LCD Refresh Interval	5s		
Operation Temperature	0~50℃①		
Storage Temperature	–30~65℃(No battery)		
Power supply interface	Micro USB, DC 5V/2A		
Battery specifications	1.5V AAA alkaline batteries(USB power supply is recommended)		
Case Material	ABS		
Dimension	96mm*108mm*20mm		
Weight	About 124g(without batteries)		
Protection Class	IP20		

①. When temperature is lower than 0 ℃ or higher than 50 ℃, the carbon dioxide sensor will stop working. When temperature is back to 2~48 ℃, the sensor will return to work. When temperature is out of the range of –40~70℃, the meter will power off.

6.Operation

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

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 button O for 3 seconds to turn it on.

6.2 Power off (invalid during logging)

(1)In home interface, hold the button O until "off" shows, then the meter will power off.
(2)When the battery power is too low or the ambient temperature exceeds the limit operating temperature of the meter, the meter will automatically shut down (this type of shutdown must be powered on again to turn it on.)

6.3 Temperature unit switching(invalid during logging)

Long press the button △ for 2 seconds to switch Fahrenheit and Celsius.

6.4 Dew point display switching

Click the key △ to switch temperature and dew point temperature.

6.5 Time display switching

Click the key O 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. The factory default high and low limits for carbon dioxide, temperature and humidity are listed below:

	Low limit	High limit
carbon dioxide	200ppm	999ppm
temperature	-10℃	35℃
humidity	20%RH	90%RH

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

Long press 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 audible and visual alarm(buzzer and red backlight)

When the meter is over the limit alarm, tap the "Power and setting"button to turn off the alarm bell and red backlight.

6.9 Remove limit violation symbol(invalid during logging)

Long press 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 button ◯ to enter the next setting, or you can click the button ✖ to go back to the previous setting.

(1)Enter setting mode:

In home interface, long press the button ◯ until the year value flashes, then you will enter the setting mode(the icon ✿ will be displayed). Click the button ◯ one by one to set the following parameters: time, alarm duration(audible and visual alarm: buzzer and red backlight, alarm duration gear: off, 5sec,10sec, 30sec, 1min, 3min, 5min, on). When the setting item parameter is flashing press the button △ to increase the value or press the button ▽ 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 button ◯ 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 long press the button ◯ for 2 seconds to go back to home interface.

Note: the user can set the measurement interval of carbon dioxide by pressing the button. The larger the interval, the lower consumption of the meter. The longer the battery life, the responsive the device.

6.11 View the serial number

Long press the button ◯ and the button ▽ 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)

Long press the button ✖ and the button △ at the same time until showing "DEFAULT" and the icon ✿ .

6.13 Reset

Use a suitable object to click the reset button on the back of the meter to trigger a meter reset. This reset operation only by restarts the meter (resetting during the recording process will cause part of data recorded within 5 minutes to be lost).

6.14 Carbon dioxide calibration

(1)**Automatic environmental background value calibration:**

The CO_2 measurement interval or recording interval is set to 5 seconds later, the meter will be automatically calibrated every 8 days of continuous normal operation. During the valid calibration period, the meter must be placed outdoor or in a well-ventilated environment for at least 10 minutes to ensure calibration accuracy. When the CO_2 measurement interval or recording interval is set to 5 seconds, the power consumption of the meter is high, so it is recommended to use an adapter powered by a USB port.

(2)**400ppm calibration**

In the running mode, only if the carbon measurement interval or recording interval has been set to 5 seconds ,press and hold the CAL button on the back

of the meter for 5 seconds ,"cAL 400" is displayed, and 400ppm calibration starts. At this time, place the instrument in a ventilated and excellent air quality environment. After 5 minutes, the instrument will automatically perform 400ppm calibration. After the calibration is completed, it will automatically return to the main mode interface.If the calibration is abnormal, the screen will prompt "Err3". At this time, you need to short press the CAL button to exit the calibration. After exiting, you can perform the calibration again until the calibration is successful.

(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. Record operation and file description (for the model with data logging function)

7.1 Start logging
Long press the button ▽ 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)Long press 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)When the storage space is full, the "END FULL" sign is displayed, and the recording is automatically stopped.
(4)If the battery power is too low, it will automatically stop recording, save the data and shut down.

7.3 Description and operation of record files
The record file is based on the serial number of the machine + the year, month, day, hour, minute, and second at the start of the recording as the file name. It can be set to four text formats: dlg, tet, xls, and csv by pressing the key (please refer to the file format logo Chart).After stopping the recording, connect to the computer to generate a recording file in the corresponding format on the disk.

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.

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.