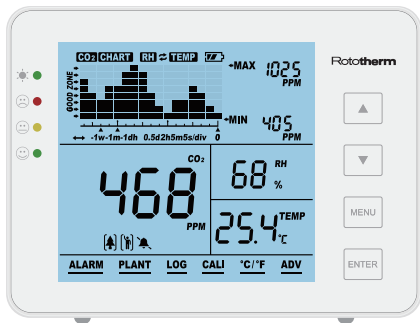


# Rototherm

## CO2 Monitor-AM60 Instruction Manual



CO2/TEMP/RH  
[www.rototherm.co.uk](http://www.rototherm.co.uk)

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## **Getting Started**

Thanks for purchasing our desktop CO2 monitor! This product is used to monitor CO2 concentration, RH, and temperature for indoor air quality monitoring.

## **Packing List**

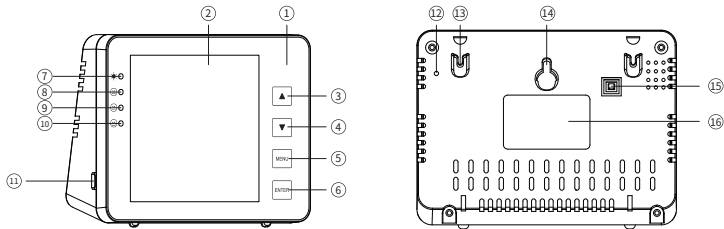
CO2 Monitor Unit  
USB Cable for Power  
User's Manual  
AC Adapter (Optional)

## **Features at a Glance**

- Large Display
- Touch Button Operation
- 15° Bevel Design, Easy to Read
- Low Drift NDIR Sensor, Long Lifespan
- Audible Alarm
- Chart with Variable Time Zoom Levels
- CO2/RH/Temperature Monitor Tracer
- CO2 Auto-Calibration and Manual Calibration
- Temp and RH Manual Calibration
- Max/Min Value Display in Certain Time
- Built-in Backup Battery












# Overview

## Drawing Sketch and Components List



Item	Description	Item	Description
①	Front Panel	⑨	Orange Condition Indicator
②	LCD	⑩	Green Condition Indicator
③	UP Button	⑪	USB Port
④	Down Button	⑫	Hole for Buzzer
⑤	Menu Button	⑬	Hole for Rope
⑥	Enter/OK Button	⑭	Hole for Screws
⑦	Battery Indicator	⑮	ON/OFF Switch
⑧	Red Condition Indicator	⑯	Label

## General Operation and Settings

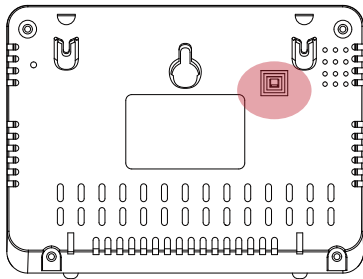
- Press down the switch on the back to activate this monitor. After 3 minutes' warm-up, your device is ready for use. See details in Page 4.
- Use the provided USB cable to connect the device for charging. See detail in Page 5.
- Use  and  buttons to switch timeline and CO2/RH/TEMP. The trend chart displays the history records for any of the three parameters. See detail in Page 7.
- Press  once will bring up the main menu. To select the function, press  /  button. See detail in Page 9.
- Select **PLANT** to switch human  and plants  modes. See detail in Page 10.
- Enter **ALARM** to switch alarm  and mute  . See detail in Page 10.
- Select **ADV** to change the high/low alarms for human  and plant . See detail in Page 13.
- Enter **°C/°F** to switch temperature units °C and °F. See detail in Page 12.


## Restore Factory Defaults


In Detection Panel , hold  for 4 seconds until an audible beep is heard.

## Switch On/Off

Press down the switch to activate this monitor, wait for 3 minutes for warm-up.  
Press the switch again to switch it off.



Switch on: 

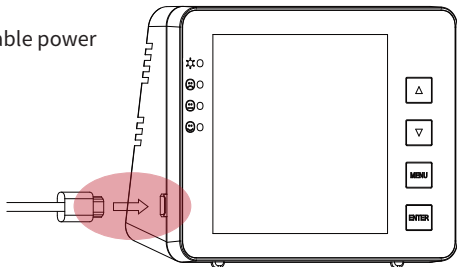
Switch off: 

Switch it off if you don't use it for more than 1 week.

## Power Source

### Plug in USB power

When the device is ON, plug in USB cable power



## Battery

### Battery indicator

Charging: flashing green indicator

Fully charged: steady green indicator

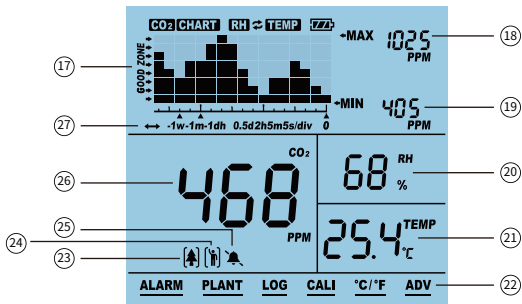
### Battery recharging

When the device is ON, plug in USB cable power

Charging time: 6 hours (Charge extra 30 minutes after the indicator turning from red to green)

Working time:  $\geq 12$  hours

# LCD Display

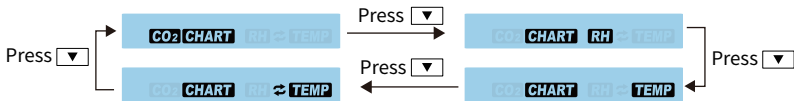
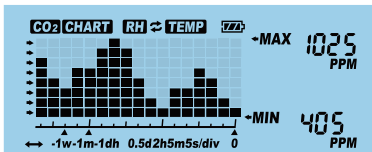


Item	Name	Item	Name
①7	CO2/RH/TEMP Chart	②3	Plant Mode
①8	Max Reading of Chart	②4	Human Mode
①9	Min Reading of Chart	②5	Audible Alarm On/Off
②0	RH Reading	②6	CO2 Reading
②1	Temperature Reading °C / °F	②7	Time per Division- indicates the chart's span of time
②2	Main Menu		

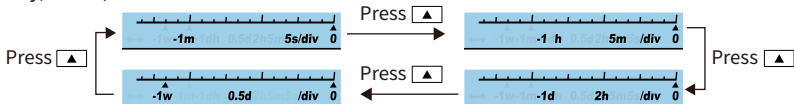


## Trend Chart Display

The below chart displays the past readings for any of the three parameters (CO2/RH/Temp). There are 4 modes that can be toggled by using  key: CO2, TEMP, RH, and Cycle(automatically cycles through CO2/Temp/RH).



Press  will toggle the available Zoom Levels for each parameters.(Minute/Hour/Day/Week)



Below is a table that shows the available Zoom Levels for all parameters CO2/RH/Temp,as well as the duration of each division for corresponding Zoom Levels:

Zoom Level (Time Span)	Time per Division
1M(minute)	5sec /div
1H(hour)	5m/div
1D(day)	2h/div
1W(week)	0.5d/div

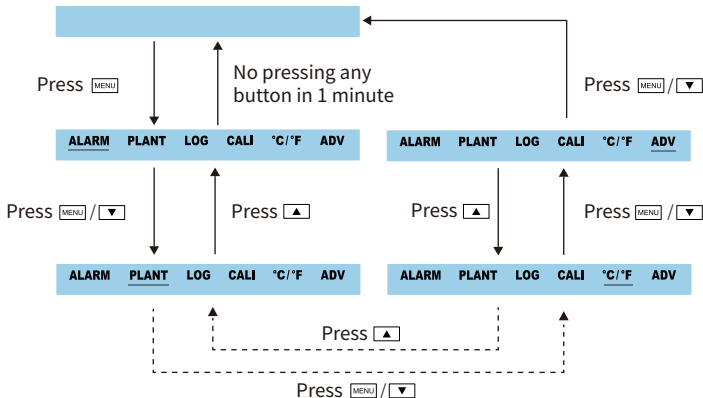
## Max/Min

At the top right corner of the display, there are two numerical indicators: MAX and MIN.As the Zoom Level is changed, the MAX and MIN values will reflect the maximum and minimum values on the chart of the selected parameter(CO2, RH and Temp).

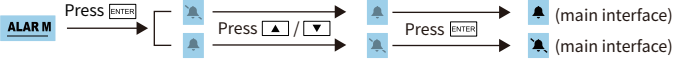


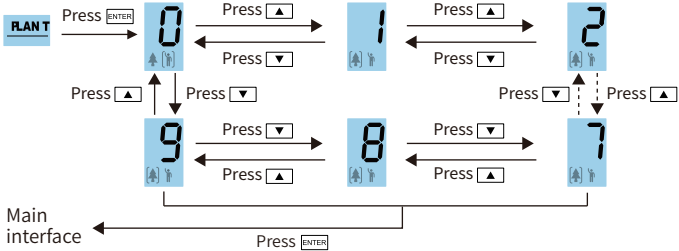


# Main Menu Functions

ALARM PLANT LOG CALI °C/°F ADV

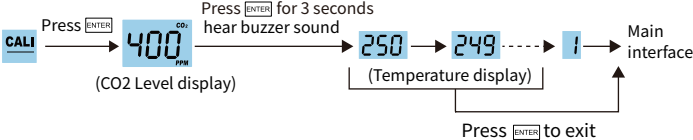

The Main Menu functions can be activated by pressing . Pressing / once will bring up the main menu, with an underlining flashing bar indicating the current choice.



To select the function, press **ENTER** when it is underlined by the flashing bar. Note that after 30 seconds if nothing is pressed, the Main Menu will disappear and the device will revert to the normal state.

Function	Description
ALARM	 <p>When ALARM display , an audible alarm will sound if the CO2 level exceeds preset CO2 alarm value;  means MUTE.</p>
PLANT	 <p>Select number 0 to enter human mode. 0 is defaulted as human mode, unchangeable. The preset Low and high alarm are 800 and 1500ppm. Enter "ADV" to adjust them if necessary. In plant mode, it allows user to select between types of plants for optimal setting by using /  cycles through 1~9. See number references with corresponding alarm settings in High and low alarms in Page 17.</p>

Function	Description
LOG	<p>Press <b>LOG</b> → Press <b>ENTER</b> → <b>CO<sub>2</sub> CHART</b> (GOOD_ZONE histogram)</p> <p>Press <b>▼</b> → [-1m 5s/div 0]</p> <p>Press <b>▼</b> → [-1 h 5m /div 0]</p> <p>Press <b>▼</b> → [-1d 2h /div 0]</p> <p>Press <b>▼</b> → [-1w 0.5d /div 0]</p> <p>Press <b>▲</b>, right 2nd column flashes → [GOOD_ZONE histogram]</p> <p>Press <b>▲</b>, right 2nd,3rd... column flashes → [GOOD_ZONE histogram]</p>
This function allows the user to see historical data records.	

Function	Description
CALI	 <p>Press <b>ENTER</b> → <b>400</b> <sup>CO<sub>2</sub></sup> <sub>PPM</sub> (CO<sub>2</sub> Level display)</p> <p>Press <b>ENTER</b> for 3 seconds hear buzzer sound → <b>250</b> → <b>249</b> → <b>1</b> (Temperature display)</p> <p>Press <b>ENTER</b> to exit → Main interface</p> <p>Before calibration, run this device for at least 20 minutes with windows open or in outdoor environment with portable battery source to reach an atmosphere with 400ppm CO<sub>2</sub>. Wait till the CO<sub>2</sub> reading is stable, follow above steps for calibration. After calibration leave it 10 minutes before normal use.</p>
°C / °F	 <p>Press <b>ENTER</b> → <b>°C/°F</b></p> <p>Press <b>▲ / ▼</b> → <b>TEMP °C</b> → Press <b>ENTER</b> → <b>TEMP °F</b></p> <p>Press <b>▲ / ▼</b> → <b>TEMP °F</b> → Press <b>ENTER</b> → <b>TEMP °C</b></p> <p>Use this function to toggle between Celsius (°C) and Fahrenheit (°F) for the temperature display.</p>

Function	Description
ADV	<p style="text-align: center;">Press <b>ENTER</b></p> <p style="text-align: center;">Press <b>ENTER</b></p>
	<p>Use this function to set high and low alarm values of human mode (0) as well as the first option of plant mode (1). High and low alarms for options 2-9 under plant mode are not adjustable. See details in Page 14. (Appendix)</p>

## RH/TEMP Calibration

This function allows the user to calibrate the temperature or humidity manually.  
( RH=Humidity; TEMP=Temperature)

In the detection mode, press and hold **MENU** for 3 seconds to bring up an underlining flashing bar of RH.

Function	Description
RH	<p>The flowchart for RH calibration starts with a display showing 68 RH % and 25.4 TEMP °C. Pressing and holding the MENU key leads to the same display with a flashing bar under the RH value. Pressing ENTER then leads to a display with 68 RH % and 25.4 TEMP °C, where the RH value is underlined and flashing. From this state, pressing the up arrow (▲) leads to 69 RH %, and pressing the down arrow (▼) leads to 67 RH %. Pressing ENTER from either of these states leads to the final calibrated value (69 RH % or 67 RH %) with the RH value underlined and flashing.</p>
TEMP	<p>The flowchart for TEMP calibration starts with a display showing 68 RH % and 25.4 TEMP °C. Pressing and holding the MENU key leads to the same display with a flashing bar under the TEMP value. Pressing ENTER then leads to a display with 68 RH % and 25.4 TEMP °C, where the TEMP value is underlined and flashing. From this state, pressing the up arrow (▲) leads to 25.5 TEMP °C, and pressing the down arrow (▼) leads to 25.3 TEMP °C. Pressing ENTER from either of these states leads to the final calibrated value (25.5 TEMP °C or 25.3 TEMP °C) with the TEMP value underlined and flashing.</p>



## Specifications

Typical test conditions: Ambient Temp: 23±3°C, RH=50%~70%, Altitude= 0~10 meters

Measurement	Specifications
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Operating & storage RH	0-95%(non-condensing)
<b>CO2 Measurement</b>	
Measuring range	(0-5000)ppm
Display resolution	1ppm (0-1000); 5ppm (1000-2000); 10ppm (>2000)
Accuracy	(0~3000)ppm: ± 50ppm ± 5% of reading (take the Maximum)
	(>3000)ppm: ± 7% of reading
Repeatability	20ppm at 400ppm
Temp compensation	±0.1% of reading per °C ±2 ppm per °C, referenced to 25°C
Response time	<2 min for 63% of step change or < 4.6 min for 90% step change
Warm-up time	<20 seconds

<b>Temperature Measurement</b>	
Operating temperature	32°F ~ 195°F (0°C ~90°C)
Display resolution	1°F / 0.1°C
Response time	<20 minutes (63%)
<b>RH Measurement</b>	
Measuring range	5~95%
Accuracy	±5%
Display resolution	1% Main interface display, 1% Max/Min display
Operating Voltage	DC(5±0.25)V
Dimension	120*90*35mm
Weight	190g

## Appendix

No.	Refers	Low/High Alarm	Adjustable
0	FOR Human	800-1500ppm	Yes
1	FOR Customized Plant	600-900ppm	Yes
2	FOR Bean	600-900ppm	No
3	FOR Chillies	800-1000ppm	No
4	FOR Cucumber	1000-1500ppm	No
5	FOR Grape	800-1400ppm	No
6	FOR Orchid	800-1400ppm	No
7	FOR Potato	1200-1800ppm	No
8	FOR Strawberry	800-1200ppm	No
9	FOR Tomato	800-1200ppm	No

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