CO2-DISPLAY

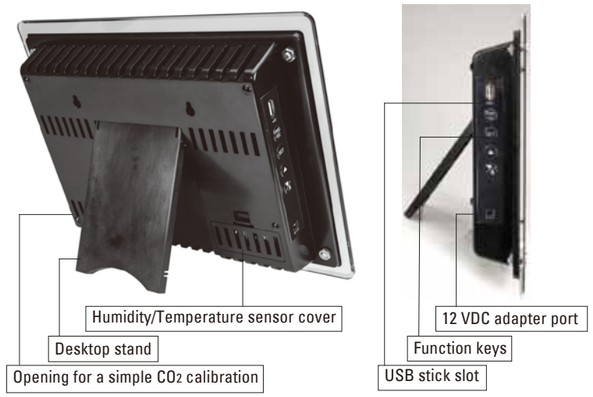
INSTRUCTION MANUAL
Congratulations on your purchase on the new wall mount humidity, temperature and CO_2 instrument. Please read these instructions carefully before installing the device.

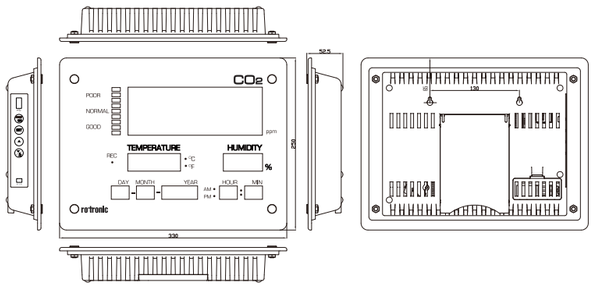
General description
This CO_2 panel is an accurate wall mount and desktop data logger that displays and records relative humidity, temperature and CO_2. Date and time is additionally displayed.

Programming
Most of the settings, such as memory clear, CO_2 status indicator, units (°C/°F), sampling rate, pressure compensation and real time clock can all be changed using the function keys.

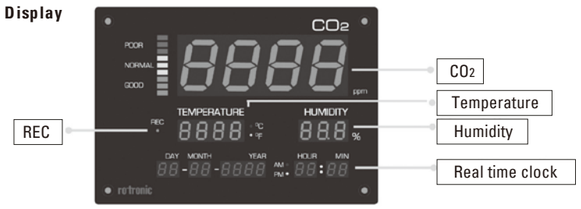
Power Supply
The CO_2 panel uses 12VDC power adapter, which is included in the package.

USB stick connection
Recorded data can be easily downloaded to USB stick and save as *.XLS file. Easily analyze the recorded data through the free software SW21 or through Excel.





Display



GOOD	CO_2 value is in "GOOD" range
NORMAL	CO_2 value is in "NORMAL" range
POOR	CO_2 value is in "POOR" range
%	Unit of relative humidity
°C/°F	Unit of temperature (Celsius/Fahrenheit)
REC	Blinking in automatic logging mode

Functions Keys

START/ESC (START/ESC)
-"START", Press longer to start automatic logging mode (REC is blinking)
-"ESC", Press longer to stop logging mode
-"ESC", Exits setup and calibration mode

SET (SET)
-In normal mode, press longer to enter setup mode

UP
-Press to select unit or increases value in setup mode

DOWN / DONWLOAD
-Press to select unit or decreases value in setup
-Press longer to download data to USB stick

Operation

POWER ON/OFF

Once the 12VDC power adaptor is connected, the device will be automatically powered on. At power on, it performs 30 seconds countdown for device warm up, then enters normal mode with real time clock displayed.

To power off, unplug the power adaptor.

DATE/TIME SETUP

When device is powered on, hold down "SET" key for 2 seconds until entering device setup mode. Press "UP" or "DOWN" key to select the program (P 50, displayed in right-middle panel) and press "SET" key to enter.
First, choose the time format as 24 hour or 12 hour by press "UP" or "DOWN" key and then press "SET" key to confirm. Now, start to input the real time clock value from year, month, day, hour to minute. Press "UP" or "DOWN" key to adjust and the press "SET" key to confirm.

After the date and time are set, a clearance of the memory must be performed. Press "UP" or "Down" key to select P 10 and press "SET" key to enter P11. Press "UP" or "Down" key to choose "YES" to clear previous memories and press "SET" to confirm. Then, press "ESC" key twice to return to normal mode.

UNIT SETUP

Hold down "SET" key for 2 seconds until entering meter setup mode. Press "UP" or "DOWN" key to select the program P 30 and press "SET" key to enter.
Press "UP" or "DOWN" key to select °F or °C and the press "SET" key to confirm.
Press "ESC" key to return to normal mode.

TAKING MEASUREMENT

The device starts measurement when power on and update readings every second.

CO_2 CONDITION INDICATOR

The meter features light bar indicator to have user easily recognize the indoor air quality. (See "Meter Setup" section for setting Normal & Poor threshold).

DATALOGGING

The meter can automatically record readings of CO_2/TEMP./RH for long time environment monitoring. The memory capacity is 6000 points for each parameter. Users can set up sampling rate from 1 minute to 12 hours and 59 minutes. The factory default rate is 1 minute.

First, setup the data record mode you need. Hold down "SET" key for 2 seconds until entering meter setup mode. Press "UP" or "DOWN" key to select the program P 10 and press "SET" key twice to enter P12. In P12, select the data record mode as "STOP" or "LOOP". Press "UP" or "DOWN" key to select and then press "SET" to confirm.

"STOP": The device stops logging while the memory space is full.
"LOOP": After the memory is full, it starts to overwrite the oldest data.

Second, setup the sampling rate. Once finishing the P12 and press "SET" key, it enters P13. Press "UP" or "DOWN" key to adjust the sample rate from hour to minute and press "SET" key to confirm. Press "ESC" key to return to normal mode.

After sampling rate setting and data record mode are completed, press " START" key for 2 seconds under normal mode to start logging. The "REC" LED turn into green and flash on panel to indicate the logging is in process.
To terminate data logging, press " ESC" key for 2 seconds and green LED light vanish. Repeat above to start another run of logging. If the data record mode is programmed as "STOP", "REC" LED turn into red color and flash while the logging memory space is full.

MEMORY DOWNLOAD

The meter features logged memory download function by using a USB stick instead of connecting it with a computer.

Before download, press "ESC" key for 2 seconds to stop the logging. Plug USB stick (max. 8GB memory) to USB slot on device left side, hold down "DOWN" for more than 2 seconds until seeing " USb" appears on panel and then "USb" starts flashing on panel to indicate the downloading is in process. It will take minutes to fully download the memory. The data downloading time depends on memory size and USB stick.

The download data is saved as *.XLS file in USB stick. Using free ROTRONIC software SW21 or Excel to analyze the data.

Suggest formatting your USB stick as FAT32 before using. If error code E60 ~ E65 appears on panel, suggest trying another model of USB memory stick.

Meter Setup
Hold down " SET" key for more than 2 seconds until entering setup mode. To exit setup, press "ESC" to return to normal mode.

The available meter setup program are shown in below. Press "UP" or "DOWN" key to select the program (P10, P20, P30, P40 or P50) in main menu and press "SET" key to enter sub menu. Press "SET" key to select different sub menu (P11, P12, P13 or P14), programmable setting then flashes on panel. Press "UP" or "DOWN" key to adjust and press "SET" to confirm. To leave without saving, press "ESC" key to return.

P 10 (Lo9) Logging related setup	**Note:**
P 11 (CLr), Clear logging memory Choose YES/NO	**-donE: displayed while memory is c leared**
P12 (End), Data record mode Choose STOP/LOOP	**-STOP: Stop while memory is full** **-LOOP: Overrides oldest values when memory is full**
P13 & P14 (rATE), Logging sampling rate Choose from 00:01 to 12:59	**Note:** **-Factory preset at 1 minute** **-The format is Hour: Min**
P 20 (CO_2) CO_2 related setup	**Note:**
P 21 (Nor) lower limit of "NORMAL" icon	**-Adjustable level is 400 to 1000ppm Preset at 800ppm**
P 22 (Poor) lower limit of "POOR" icon	**-Adjustable level is 1000 to 1400ppm Preset at 1400ppm**
P 23 (AbC) ABC function on/off	**-ABC preset as ON**
P 30 (uniT) Temperature unit setup	**Note:**
P 31, choose °C/°F	**-Factory preset °C**
P 40 (PrES) Pressure compensation	**Note:**
P41 (hPA) Choose from 700 to 1990 hpa	**-Factory preset at 1013hpa** **-The adjustable scale is every 1hpa**
P 50 (rTC) Real Time Clock setup	**Note:**
P 51 choose 12 or 24 hour format	**-Factory preset at 12H**
P 52~54 Input Year/Month/Day	**-Factory preset at 2013.01.01, 12:00**
P 55~56 Input Hour/Minute	

Humidity Calibration
This meter can be calibrated either via 35 % rH & via 80 % rH humidity standards. The ambient condition is recommended as stable 25°C.

CAUTION:
Do not calibrate the humidity without the default humidity standards. Otherwise, it will cause permanent damage. Contact **Rotronic** for humidity standards or services.
Single point calibration will cause error code E11 or non accurate reading.
Always do dual point calibration to complete a process. Suggest starting calibration from low humidity.

Pull out the humidity probe from panel
Before calibration, pull out the humidity probe from cover in panel rear side.



Calibration via humidity standards
Power on the device, plug the sensor probe into 35% humidity standard. Press "SET" +"START"+"DOWN" keys simultaneously for 3 seconds to enter calibration mode. Press "UP" or "DOWN" key to select 350 (35.0% calibration) and press "SET" to start. "Calibrating value" (35.2% if at 25°C) is blinking on the LCD.

Waiting for 60 minutes to complete the 35% calibration. To quickly save, press "SET" key any time. 800 (80.0% calibration) comes right after 35% calibration is done. Within 20 minutes, press "SET" key to start 80.0% calibration. "calibrating value" are blinking on the LCD. Waiting for 60 minutes to complete the 80% calibration. To quickly save, press "SET" key any time.

Now, the device is well calibrated. To abort without saving, press "ESC" to quit without saving.

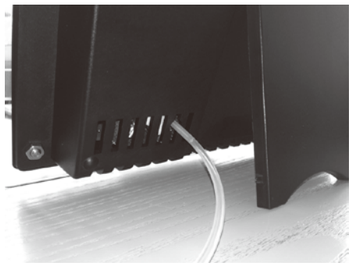
CO_2 Calibration

CAUTION:
Do not calibrate the meter in the air with unknown CO_2 concentration. Otherwise, it will be wrongly calibrated and leads to inaccurate measurements.

The meter can be calibrated in fresh outdoor air (on sunny day) at 400 ppm CO_2. Besides the 400 ppm, the meter can also be calibrated at 0 ppm or any value under 990 ppm. The latest calibration point is treated as final and meter will ignore the previous calibration data.

Before calibration, plug in the pipe of the ROTRONIC CO_2-Calibrator into the CO_2-sensor on panel rear side and turn the CO_2-Calibrator on.

Attention:
the cleanness of the CO_2-Calibrator air is 20...25 ppm.



Press "SET" +"START"+"DOWN" keys simultaneously for 3 seconds to enter calibration mode. Press "UP" or "DOWN" key to select 400 (400 ppm) or 0 (0 ppm) CO_2 calibration. 0 ppm function is only for 0ppm CO_2 calibration. For other CO_2 value, please choose 400 ppm and press "SET" to enter. The default value is 400 ppm but you can press "UP" or "DOWN" key to adjust the value from 5 to 990 ppm, it is 5 ppm per step. Once choosing the calibration value, press SET to start and see "CAL" and CO_2 value blink on LCD.
Wait about 10 minutes until the blinking stops to indicate the calibration is completed.

To abort calibration without saving, press "ESC" at any time.

Trouble Shooting

Error	Messages	Solution
E01	CO_2 sensor is out of order	Turn off meter and re-start again
E33	CO_2 sensor is out of order	Retry CO_2 calibration
E02	measured value is under range	Put meter in normal condition
E03	measured value is over range	Put meter in normal condition
E11	RH calibration error	Retry humidity calibration
E31	Temp. sensor or AD damaged	Return for repair
E32	Memory IC damaged	Return for repair
E33	RH sensor or circuit damaged	Return for repair
E60~E65	USB download error	Suggest to format USB stick or try a new type of memory stick.

Technical Data

Humidity/accuracy:	0.1~99.9%/±3%(10~95%@25°C). ±5%(others)
Temperature/accuracy:	0...50°C/±0.3°C@5~40°C
CO_2 /accuracy:	0...9999ppm/±(30ppm+5% of reading)@0~5000ppm
Storage and transit:	-20...60°C/10...90%rh, non condensing.
Operating limit at electronics:	0...50°C
Memory:	6000 records auto logging for each parameter.
Dimension,mm:	330(L) x 250(W) x 50(H)
Weight:	1400 g
Power consumption:	Max. 0.7A
DC power type:	12VDC
PC connection:	USB stick

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