CL11

SHORT INSTRUCTION OF MANUAL

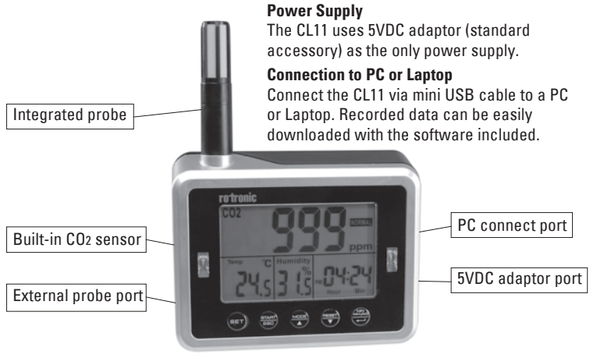
Congratulations on your purchase on the new desktop humidity, temperature and CO_2 instrument. Please read these short instructions carefully before installing the device.

General description

The CL11 is an accurate desktop datalogger that displays & records relative humidity, temperature, CO_2 and external probe temperature. These short instructions are limited to a description of the main functions and installation of the device. The detailed instruction manual can be found on the internet at www.rotronic-humidity.com

Programming

Most of the settings, such as memory clear, CO_2 alarm, alarm beeper on/off, 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 CL11 uses 5VDC adaptor (standard accessory) as the only power supply.

Connection to PC or Laptop

Connect the CL11 via mini USB cable to a PC or Laptop. Recorded data can be easily downloaded with the software included.

Functions Keys

SET

-In normal mode, press longer to enter setup mode

START/ESC

-"START", Start automatic logging mode
-"ESC", Stop logging mode
-"ESC", Exits setup & calibration mode

MODE/UP

-Press to switch between external probe / internal temperature
-Press to select unit or increases value in setup mode

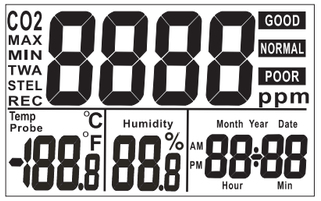
RESET/DOWN

-Press to restart the device and re-calculate the MIN/MAX/STEL/TWA readings
-Press to select unit or decrease value in setup

MIN/MAX/AVG/ENTER

-Press to view MIN., MAX., STEL, TWA value from power on
-Saves and ends settings menu

Display



Upper LCD	CO_2 reading
Lower LCD	Temp./Humidity/Real time display
CO_2	Carbon Dioxide reading
MIN/MAX	Minimum/Maximun readings
TWA	8 hours Time Weighted Average
STEL	15 mins short-term exposure limit
GOOD	CO_2 value is in "GOOD" range
NORMAL	CO_2 value is in "NORMAL" range
POOR	CO_2 value is in "POOR" range
Temp	Temperature
Probe	Probe temperature
%	Unit of relative humidity
°C/°F	Celsius/Fahrenheit of temperature
REC	In automatic logging mode

Operation

POWER ON/OFF

Once the 5VDC power adaptor is connected, the device will be automatically powered on. At power on, it performs 28 seconds countdown (Fig.1) for device warm up, then enters normal mode with real time clock displayed (Fig.2).



Fig.1

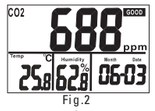


Fig.2

To power off, unplug the power adaptor.

DATE/TIME SETUP

When meter is powered on, hold down the "SET" key for 2 seconds until entering setup mode. Press "UP" or "DOWN" key to select the program (P 60, displayed in right bottom corner) and press "ENTER" key to enter.

First, choose the time format as 24 hour or 12 hour by press "UP" or "DOWN" key and then press "ENTER" key to confirm. Now, start to input the real time clock value from year, month, date, hour, minute to second. Press "UP" or "DOWN" key to adjust and the press "ENTER" 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 "ENTER" key to enter. Press "UP" or "Down" key to choose "YES" to clear previous memories and press "ENTER" key to confirm.

Then, Press "ESC" key to return to normal mode.

UNIT SETUP

Hold down "SET" key for 2 seconds until entering setup mode. Press "UP" or "DOWN" key to select the program (P 30, displayed in right bottom corner) and press "ENTER" key to enter.

Press "UP" or "DOWN" key to select °F or °C and the press "ENTER" key to confirm. Press "ESC" key to return to normal mode.

TAKING MEASUREMENT

The meter starts to measure when power is on. In the condition of operating environment change, it takes 30 seconds to respond for CO_2 sensor.

NOTE:
Do not hold the meter close to faces as exhalation may affect the CO_2 value

CO2 (Carbon Dioxide)

User can get the CO_2 reading in ppm unit on top display (Fig.2).

Humidity

The middle lower display shows the measured humidity value

Temperature

Press "MODE" key to switch the displayed temperature parameter on left lower display. The selectable parameters are temperature & external probe temperature. While there is no external connected, it shows "---.-" on display.((Fig. 3, 4)

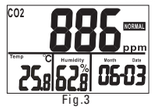


Fig.3

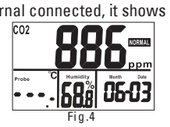


Fig.4

BACKLIGHT

The backlight will be activated for 10 seconds by pressing any key

MIN, MAX, AVG

This device allows you to check the minimun, maximun, STEL &TWA value from the moment you power on the meter. Under normal mode, press "MIN/MAX/AVG" key to see the minimum, maximum, 15 min average (STEL)& 8 hour average (TWA) in turns. (Fig.5~8). STEL&TWA are only for CO_2. MAX/MIN functions are for all parameters. If the device is powered on for shorter than 15 mins or 8 hours, the STEL and TWA value will be displayed as " - - - -" to indicate the time interval is not long enough for calculation.

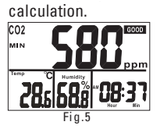


Fig.5



Fig.6

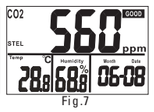


Fig.7

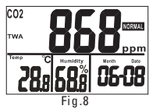


Fig.8

ALARM

The meter features acoustic & light alarm to give warnings when CO_2 concentration exceeds the limit. (See "Meter Setup" section for setting alarm threshold).
It emits beeps (~80dB) & red LED light when CO_2 level goes over the set value and stops only when the readings fall below the set value or manually turn beeper off.
It beeps again when value goes over the limit. Please note, if the beeper is selected as OFF, device emit light warning only, no beeper.

To manually turn beeper off, hold down "SET" key for more than 2 seconds until entering setup mode. Press "UP" or "Down" key to select P 20 and press "ENTER" key to enter. Press "UP" or "Down" key to select P22 (beeper on/off) and the press "ENTER" to enter. Then, press "UP" or "Down" key to switch the mode as "OFF" to turn the beeper off all of the time.

DATALOGGING

The meter can automatically record readings of CO_2/TEMP./RH/PROBE for long time environment monitoring. The memory capacity is 10000 points for each parameter. Users can set up sampling rate from 1 second to 4hours 59 minutes and 59 seconds. The factory default rate is 30 seconds.

To setup the sampling rate, hold down "SET" key for 2 seconds until entering setup mode. Press "UP" or "DOWN" key to select the program (P 40, displayed in right bottom corner) and press "ENTER" key to enter.

Start to input the sampling rate you need from hour, minute to second. Press "UP" or "DOWN" key to adjust and the press "ENTER" key to confirm. Press "ESC" key to return to normal mode.

After sampling rate setting is completed, press " START" key for 2 seconds under normal mode to start logging. The "REC" icon & green LED flashes to indicate the logging is in process and LCD remains displaying the real time measured value (Fig.9)

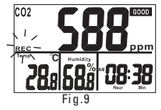


Fig.9

Repeat above to start another run of logging. While the logging space is full, it shows "FULL". To terminate data logging, press " ESC" key for 2 seconds. "REC" and green LED stop flashing.

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.

Press "UP" or "DOWN" key to select the program and press "ENTER" key to enter. Programmable setting flashes on display. Press " UP" or "DOWN" key to select and press " ENTER" to confirm. To leave without saving, press "ESC" key to return.

P 10 Logging data clear	**Note:** **-donE- displayed while memory is cleared**
P 11, choose yes or no	
P 20 CO_2 coefficient setup	**Note:** **-Factory preset alarm level is 1400ppm** **-Adjustable scale is every 100ppm** **-Beeper preset as ON** **-Adjustable level is 400 to 1000ppm** **Preset at 800ppm** **-Adjustable level is 1000 to 1400ppm** **Preset at 1400ppm** **-ABC preset as ON** **-Green LED preset as ON**
P 21 alarm setup	
P 22 alarm beeper on/off	
P 23 lower limit of "NORMAL" icon	
P 24 lower limit of "POOR" icon	
P 25 ABC function on/off	
P 26 Green LED on/off	
P30 Temperature unit setup	**Note:** **-Factory preset °C**
P 31, choose °C/°F	
P 40 Logging sampling rate	**Note:** **-Factory preset at 30 seconds.** **-The format is Hour: Min: Sec**
Choose from 00:00:01 to 04:59:59	
P 50 Pressure compensation	**Note:** **-Factory preset at 1013hpa** **-The adjustable scale is every 1hpa**
Choose from 700 to 1990 hpa	
P 60 Real Time Clock setup	**Note:** **-Factory preset at 12H** **-Factory preset at 2012.01.01, 12:00:00**
P 61 choose 12 or 24 hour format	
Input Year/Month/Date	
Input Hour/Minute/Second	

Humidity Calibration

This meter can be calibrated either via 35% & 80% salt bottles. The ambient condition is recommended to be steady 25°C.

CAUTION:
Do not calibrate the humidity without the default calibration salt. Otherwise, it will cause permanent damage. Contact **Rotronic** for calibration salt or services.
Single point calibration will cause error code E11 or non accurate reading. Always do dual point calibration to complete a process. We strongly suggest to start a calibration with the lower humidity standard.

Calibraiton via salt bottles

While the meter is powered on, plug the sensor probe into 35% salt. Press "SET" + "START"+"DOWN" keys simultaneously for 3 seconds to enter calibration mode. Press "UP" or "DOWN" key to select 35.0% calibration and press "ENTER" to start. "Calibrating value" (35.2% if at 25°C) are blinking on the LCD.

Waiting for 60 minutes to complete the 35% calibration. To immediately save, press "ENTER" key any time. 80.0% calibration comes right after 35% calibration is done. Within 20 minutes, press "ENTER" key to start 80.0% calibration. "calibrating value" is blinking on the LCD. Waiting for 60 minutes to complete the 80% calibration. To quickly save, press "ENTER" 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 calibrated as 400ppm by default and leads to inaccurate measurements. When the accuracy becomes a concern after a long time usage, return to **Rotronic** for standard calibration.

The meter is calibrated at standard 400ppm CO_2 concentration in factory. It's suggested to do manual calibration regularly to maintain good accuracy.

The meter can be calibrated at 400ppm CO_2 calibration in fresh outdoor air that is well ventilated on a sunny day.

Press "SET" +"START"+"DOWN" keys simultaneously for 3 seconds to enter calibration mode.
Press "UP" or "DOWN" key to select 400ppm CO_2 calibration.
Press "ENTER" key to start calibration 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

Technical Data

Humidity/accuracy:	0.1~99.9%/±3%(10~95%@25°C). ±5%(others)
Temperature/accuracy:	-20...60°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 for CO_2, -20...60°C for rest/ non condensing.
Memory:	10000 records auto logging.
Dimension,mm:	157(L)x120(W)x45(H)
Weight:	About 190gr.
DC power type:	5VDC, 400mA at least
PC connection:	mini USB port

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