



rotronic CL11 CO2 Temperature Humidity Display Logger Instruction Manual

[Home](#) » [ROTRONIC](#) » rotronic CL11 CO2 Temperature Humidity Display Logger Instruction Manual

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CL11
Short Instruction Manual

Contents [[hide](#)]

- 1 GENERAL DESCRIPTION
- 2 PROGRAMMING
- 3 POWER SUPPLY
- 4 CONNECTION TO PC OR LAPTOP
- 5 FUNCTION KEYS
- 6 DISPLAY
- 7 USE
 - 7.1 POWER ON/OFF
 - 7.2 DATE/TIME SETTINGS
 - 7.3 SETTING OF THE UNITS
 - 7.4 TAKING MEASUREMENTS
 - 7.5 CO₂ VALUE (CARBON DIOXIDE)
 - 7.6 HUMIDITY
 - 7.7 TEMPERATURE
 - 7.8 BACKLIGHT
 - 7.9 MIN, MAX, AVG
 - 7.10 ALARM
 - 7.11 DATA LOG
- 8 INSTRUMENT SETTINGS
- 9 HUMIDITY CALIBRATION
- 10 CALIBRATION WITH SALT SOLUTIONS
- 11 CO₂ CALIBRATION
- 12 TROUBLESHOOTING
- 13 TECHNICAL DATA
- 14 OPTIONAL ACCESSORIES
- 15 DELIVERY PACKAGE
- 16 Documents / Resources
 - 16.1 References
- 17 Related Posts

GENERAL DESCRIPTION

The CL11 is a precise, portable instrument that can measure and save relative humidity, temperature, and CO₂ content and the temperature of the external probe.

PROGRAMMING

Most settings, such as clearing the memory, CO₂ alarm, alarm tone ON/OFF, CO₂ display, units (°C/°F), sampling rate, pressure equalization and real-time clock can be changed with the function keys.



POWER SUPPLY

The CL11 is charged with a 5 VDC AC adapter (standard accessory).

CONNECTION TO PC OR LAPTOP

Connect the CL11 to a PC or laptop using a mini USB cable. The stored data can then be downloaded easily with the HW4 software. The software can be downloaded free of charge from www.rotronic.com.

FUNCTION KEYS

SET	Press and hold the key in normal mode to enter setting mode
START/ESC	<ul style="list-style-type: none"> • "START", starts automatic logging mode • "ESC", ends logging • "ESC", exits the settings and calibration mode
MODE/UP	<ul style="list-style-type: none"> • Press the key to switch between external probe and internal temperature • Press the key to select the unit or increase the set value
RESET/DOWN	<ul style="list-style-type: none"> • Press the key to restart the instrument and to recalculate the MIN/MAX/STEL/TWA records • Press the key to select the unit or decrease the set value
MIN/MAX/AVG/ENTER	<ul style="list-style-type: none"> • Press the key to view the MIN, MAX, STEL, TWA value when switching on

DISPLAY

Top LCD line:	CO ₂ measurement
Bottom LCD line:	Temperature/Humidity/Real time clock
CO ₂ :	Carbon dioxide measurement
MIN/MAX:	Minimum and maximum measurements
TWA:	Weighted average: 8 hours
STEL:	Operating time: up to 15 minutes
GOOD:	CO ₂ values are in a safe range
NORMAL:	CO ₂ values are in a normal range
POOR:	CO ₂ values are in a critical range
TEMP:	Temperature
IProbe:	Temperature of the probe
%:	Unit of relative humidity
°C/°F:	Celsius/Fahrenheit (temperature)
REC:	In automatic recording mode

USE

POWER ON/OFF

The instrument is switched on automatically when it is connected to the 5 VDC AC adapter. It takes 28 seconds to boot. The time is shown as countdown. Thereafter you are in normal mode.

The real time clock is shown.

To switch off, disconnect the instrument from the AC adapter.

DATE/TIME SETTINGS

When the instrument is on, press "SET" for more than 2 seconds to enter setting mode. Press "UP" or "DOWN" to select the program (P60, is shown in the bottom right corner) and press "ENTER" to start the program. First select the time format by pressing "UP" or "DOWN". You can select between 12h and 24h mode and confirm this by pressing "ENTER". Then set the year, month, day, hours, minutes and seconds of the real time clock. Press "UP" or "DOWN" to set the values and press "ENTER" to confirm them. When you have set the date and time, the memory must be cleared. Press "UP" or "DOWN" to select P 10 and press "ENTER" to confirm your selection. Press "UP" or "DOWN". Press "YES" to confirm deletion of records and press "ENTER" to confirm your selection. Press "ESC" to return to normal mode.

SETTING OF THE UNITS

Press and hold "SET" for more than 2 seconds to enter setting mode. Press "UP" or "DOWN" to select the program (P30, is shown in the bottom right corner) and press "ENTER" to start the program. Press "UP" or "DOWN" to select °C or °F and press "ENTER" to confirm your selection. Press "ESC" to return to normal mode.

TAKING MEASUREMENTS

The instrument starts measuring when it is on and refreshes the measurements every second. If the environment changes, it takes 30 seconds before the CO sensor reacts.



NOTE: Keep the instrument away from faces as exhalation can change the CO₂ value (carbon dioxide).

CO₂ VALUE (CARBON DIOXIDE)

You can find the CO₂ reading in ppm in the top part of the display.

HUMIDITY

The humidity value is shown a little lower.

TEMPERATURE

Press "MODE" to change the temperature parameter shown at the bottom left. You can choose between the temperature and the temperature of the probe. If the external probe is not on, "—." is shown on the display.

BACKLIGHT

The backlight is activated by pressing any key for 10 seconds.

MIN, MAX, AVG

This instrument enables you to check the minimum, maximum, STEL & TWA values as soon as you switch it on. Press "MIN/MAX/AVG" in normal mode to scroll between the minimum value, the maximum value, the 15-minute (STEL) and the 8-hour average value (TWA). STEL & TWA refer to the CO₂ value. The MIN/MAX functions refer to all parameters. If the instrument has been on for less than 15 minutes or 8 hours, the STEL and TWA values are shown as "—" to indicate that the time interval for measurement is too short.

ALARM

The instrument has an audible alarm and an alarm light to warn you when the CO₂ limit is exceeded. (You can set the respective limit values in the instrument's settings.) It beeps (approx. 80 dB) and the red LED lights up when the CO₂ content exceeds the set limit, and only stops again when the measurements drop below the set value or you switch off the alarm manually. It beeps again when the value exceeds the limit again.



Note: When the alarm is switched off, only the LED lights up; it does not beep.

To switch off the audible alarm manually, press "SET" for more than 2 seconds to enter setting mode. Press "UP" or "DOWN" to select P20 and press "ENTER" to confirm your selection. Press "UP" or "DOWN" to select P22 (alarm on/off) and press "ENTER" to confirm your selection. Press "UP" or "DOWN" to select "OFF"; the alarm is switched off.

DATA LOG

The instrument can record the values for CO₂ /TEMP./RH/PROBE automatically and monitor the environment over the long term. The memory has a capacity of 10000 points for every parameter. You can set the sampling rate from 1 second to 4 hours, 59 minutes and 59 seconds. The factory default is 30 seconds.

To set the sampling rate, press and hold “SET” for more than 2 seconds to enter setting mode. Press “UP” or “DOWN” to select the program P 40 (shown in the bottom right corner) and press “ENTER” to start the program. Press “UP” or “DOWN” to select the hours, minutes and seconds of the sampling rate and press “ENTER” to confirm your selection. Press “ESC” to return to normal mode. When you have set the sampling rate, press and hold “START” for 2 seconds in normal mode to start the logging program. The REC symbol and green LED light up to indicate that the instrument is recording. The LCD display continues to show the real time value.

Repeat the above to create another log. When the log memory is full, the message “FULL” appears on the screen. Press and hold “ESC” for 2 seconds to close the data log. The REC symbol and green LED go out.

INSTRUMENT SETTINGS

When the instrument is on, press “SET” for more than 2 seconds to enter setting mode. Press “ESC” to return to normal mode. Press “UP” or “DOWN” to select the program and press “ENTER” to start it. The programmable settings light up on the display.

Press “UP” or “DOWN” to select the settings and press “ENTER” to confirm your selection. If you wish to return to the main menu without saving your selection, press “ESC”.

P 10 Clear data log	Note: · donE is shown while the memory is deleted
P 11, select yes or no	
P 20 CO2 coefficient settings	Note: · The factory default is 1400 ppm · The value can be adjusted in 100 ppm steps · The alarm signal is on · The “NORMAL” value can be set from 400 to 1000 ppm · The factory default for “NORMAL” is 800 ppm · The “POOR” value can be set from 1000 to 1400 ppm · The factory default for “POOR” is 1400 ppm · The ABC function is on · Green LED preset to ON
P 21 Alarm settings	
P 22 Alarm signal on/off	
P 23 Lower limit of the “NORMAL” symbol	
P 24 Lower limit of the “POOR” symbol	
P 25 ABC function on/off	
P26 Green LED on/off	
P30 Temperature unit setting	Note

P 31 Select °C or °F	· The factory default is °C
P 40 Sampling rate log	Note · The factory default is 30 seconds · The format is HH:MM:SS
Select from 00:00:01 to 04:59:59	
P 50 Pressure equalization	Note · The factory default is 1013 hpa · The value can be adjusted in 1 hpa steps
Select from 700 to 1990 hpa	
P 60 Real time clock settings	Note · Factory default: 12-hour format · Factory default: 2012.01.01
P 61 Select between 12 or 24 hour format	
12:00:00 Enter the year/month/date	
Enter the hours/minutes/seconds	

HUMIDITY CALIBRATION

The instrument can be calibrated either with a 35 % or 80 % salt solution. It is recommended that the ambient conditions are at 25 °C.



WARNING: Do not calibrate the humidity without the standard calibration salt because otherwise serious damage could result. For calibration salt or other services, contact Rotronic. The one-point adjustment can cause the error code Ell or an inaccurate measurement. Always perform a two-point adjustment to end the procedure. First calibrate a low humidity.

CALIBRATION WITH SALT SOLUTIONS

Place the probe in a 35% salt solution with the instrument on. Press and hold "SET" + "START" + "DOWN" simultaneously for 3 seconds to enter calibration mode. Press "UP" or "DOWN" to select a 35.0% calibration and press "ENTER" to start the calibration. "Calibration value" (35.2 % at 25 °C) lights up on the LCD display. Wait 60 minutes until the 35 % calibration is finished. For immediate saving, press "ENTER" at any time. The 80 % calibration is carried out as soon as the 35 % calibration has been finished. Press "ENTER" within 20 minutes to start the 80 % calibration. "Calibration value" lights up on the LCD display. Wait 60 minutes until the 80 % calibration is finished. For quick saving, press "ENTER" at any time. The instrument is now correctly calibrated. Press "ESC" to cancel calibration without saving.

CO₂ CALIBRATION

The factory defaults of the instrument are calibrated at a CO₂ content of 400 ppm. We recommend that you carry

out manual calibration regularly to ensure accuracy. The instrument can be calibrated at a CO₂ content of 400 ppm. Calibration should be performed in the open air on a sunny day. Press and hold “SET”+“START”+“DOWN” simultaneously for 3 seconds to enter calibration mode. Press “UP” or “DOWN” to select a 400 ppm CO₂ calibration. Press “ENTER” to start the calibration. The CO₂ value flashes on the LCD display. Wait about 10 minutes until the values stop flashing. Calibration is then finished. Press “ESC” to cancel calibration without saving.



WARNING: Do not calibrate the instrument in an environment with unknown CO₂ content because otherwise calibration will be performed at 400 ppm, which can lead to inaccurate measurements.

TROUBLESHOOTING

Error	Message	Solution
E01	The CO ₂ sensor is not working	Switch the instrument off and back on again
E33	The CO ₂ sensor is not working	Repeat the CO ₂ calibration
E02	The measured value is too low	Place the device in a normal environment
E03	The measured value is too high	Place the device in a normal environment
E11	RH calibration error	Repeat the humidity calibration
E31	Temperature sensor or AD damaged	Send the instrument in for repair
E32	Memory IC damaged	Send the instrument in for repair
E33	RH sensor or circuit damaged	Send the instrument in 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 measurement range / accuracy	0...9999 ppm / (30 ppm+5 % of the measurements) @0-5000 ppm
Measurement range	-20...60 °C / 10...90 %RH
Operating limit of the electronics	0...50 °C for CO ₂ , -20...60 °C for the other parameters, non-condensing
Memory	40000 automatic recordings
Size, mm	157 a) x 120 (W)x 45 (H)
Weight	Approx. 190 g
Direct current adapter type	5 VDC, at least 400 mA
PC connection	Mini USB port

OPTIONAL ACCESSORIES


Order code	
AC1214	5 VDC universal adapter

DELIVERY PACKAGE

- CL11
- Mini USB cable
- 5 V adapter
- Software CD

www.rotronic.com

Documents / Resources

	rotronic CL11 CO2 Temperature Humidity Display Logger [pdf] Instruction Manual CL11, CO2 Temperature Humidity Display Logger, CL11 CO2 Data Logger, CL11 CO2 Gas Measurement Data Logger
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References

- [nic NIC.COM - Network Information Center](#)
- [r0 Measurement Solutions - Humidity, Temperature, CO2 and Differential Pressure Measurement \(EN_US\)](#)