rotronic CP11 Handheld Instrument for CO2 Humidity and Temperature Instruction Manual

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Contents

GENERAL DESCRIPTION

The CP11 is a precise, portable instrument that can display and save relative humidity, temperature and CO_2 content and calculate parameters such as dew point or wet bulb temperature.

PROGRAMMING

Most settings, such as clearing the memory, CO_2 alarm, the units (OC /OF), sampling rate and real time clock can be changed with the function keys.

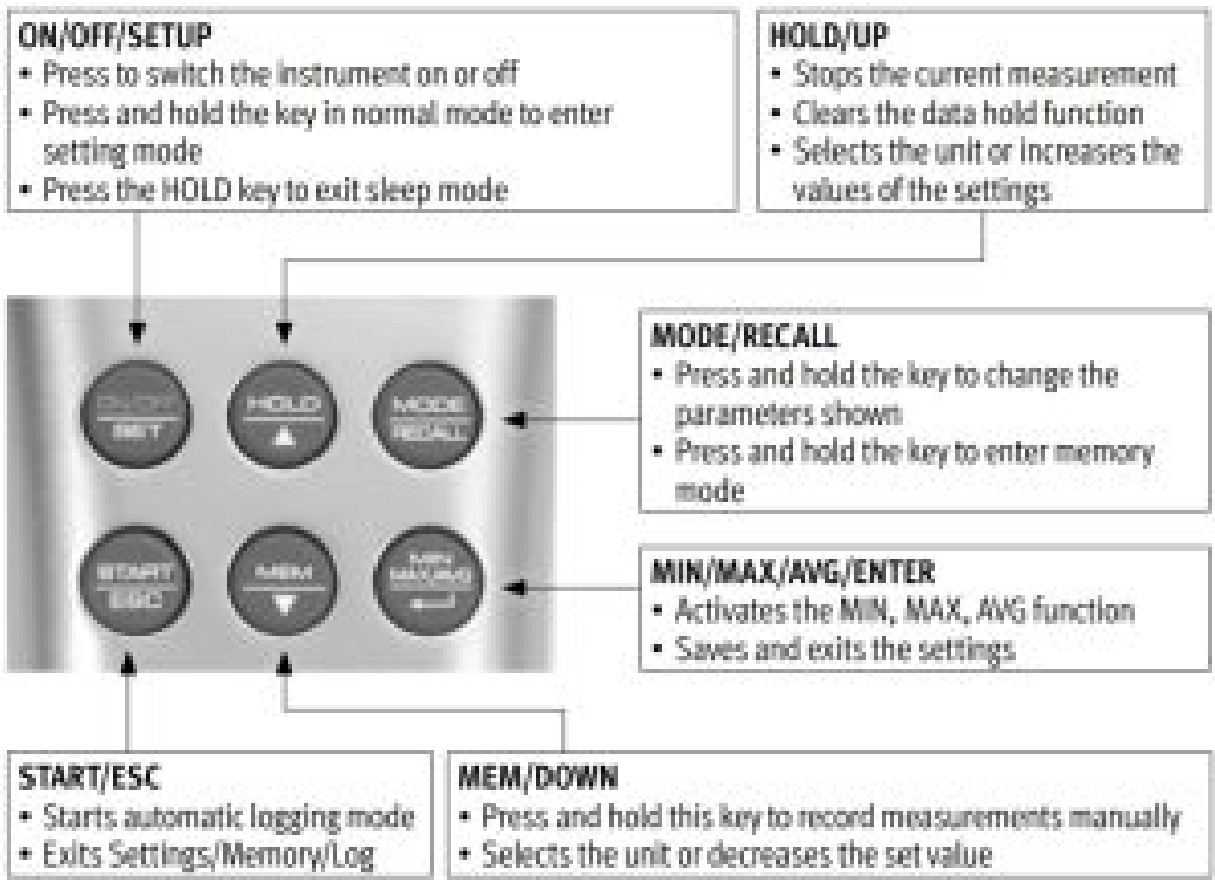
POWER SUPPLY

The CP11 is battery powered and requires 4 AA alkaline batteries or a 5 VDC adapter (optional accessory). To insert or change the batteries, use the enclosed screwdriver. Unscrew the two screws and insert the batteries correctly. Ensure contact with the battery poles.

CONNECTION TO PC OR LAPTOP

Connect the CP11 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



DISPLAY

- **Top LCD line:** Humidity/Temperature/CO_2 measurement
- **Bottom LCD line:** Real time clock
- CO_2: Carbon dioxide measurement
- **HOLD:** The measurements are halted unchanged
- **MIN**/**MAX:** Minimum and maximum measurements
- **AVG:** Average measurements
- : Low battery
- **DP:** Dew point temperature
- **TEMP:** Ball temperature
- **WBT:** Wet bulb temperature
- **%RH:** Unit of relative humidity
- **°C**/**°F:** Celsius/Fahrenheit (temperature)
- **CAL:** In calibration mode
- **REC:** In manual/automatic logging state
- **RECALL:** Recall mode in manual recording

USE

DATE/TIME SETTINGS

When the instrument is on, press ON/OFF SET for more than 2 seconds to enter setting mode. Press HOLD ▲ or MEM ▼ to select the program P80 (rtc) and press MIN MAX/AVG ↵ to start the program.

First select the time format by pressing HOLD ▲ or MEM ▼. You can select between 12h and 24h mode and confirm this by pressing the key MIN MAX/AVG ↵. Then select the date format by pressing HOLD ▲ or MEM ▼. You can display the date either as month-day-year or as day-month-year. Press MIN MAX/AVG ↵ to confirm your selection. Then set the year, month, day, hours, minutes and seconds. Press HOLD ▲ or MEM ▼ to set the values and press MIN MAX/AVG ↵ to confirm them. Press START ESC to return to normal mode.

SETTING OF THE UNITS

When the instrument is in operation, press ON/OFF SET for more than 2 seconds to enter setting mode. Press HOLD ▲ or MEM ▼ to select the program P50 (Unit) and press MIN MAX/AVG ↵ to start the program. Press HOLD ▲ or MEM ▼ to select °C or °F and press MIN MAX/AVG ↵ to confirm your selection. Press START 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_2 sensor reacts. **NOTE:** Keep the instrument away from faces as exhalation can change the CO_2 value.

HUMIDITY

Press 

to view the humidity. The bottom line of the display shows the real time clock.

TEMPERATURE, DEW POINT, WEB BULB TEMPERATURE

Press 

to view the temperature. The bottom line of the display shows the real time clock.

CO_2 (CARBON DIOXIDE)

Press 

to view the CO2 content. Users see the CO2 measurement in ppm on the main display. The bottom line of the display shows the real time clock.

DATA HOLD

When you are in the normal display, press 

to stop the measurements. The “HOLD” symbol flashes at the top left of the LCD screen. All measurements taken so far remain unchanged. Press 

again to cancel the “HOLD“ function. NOTE: The hold function is not available in Min/Max/ AVG mode.

BACKLIGHT

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

MIN, MAX, AVG, CURRENT VALUES

This instrument enables you to check the minimum, maximum, average and current values as soon as you press 

. By pressing 

in normal mode, the MIN, MAX, AVG and current values are shown one after the other. Press 

to return to normal mode. In this mode, the corresponding measurements and time that this mode has been active are shown. This mode can be active for up to 18 hours.

You can change the parameter shown by pressing 

.

ALARM

The instrument sounds an audible alarm when the CO_2 limit is exceeded. (You can set the respective limit values in the instrument’s settings.) It beeps (approx. 80 dB) when the CO_2 content exceeds the set limit, and only stops again when the measurements drop below the set value. It beeps again when the value exceeds the limit again.

AUTO POWER OFF

The instrument switches itself off automatically when it has not been used for 20 minutes. To override this function, first switch the instrument off. Then press ON/OFF SET and HOLD ▲ hold and for 2 seconds and switch on the instrument until an “n“ appears.

MANUAL RECORDING

The instrument has a 99 data point memory. In normal mode or hold mode, press MEM ▼ to start recording. The REC symbol and main display light up three times. Up to 99 measured values can be stored for later viewing directly on the instrument’s display. The log data contains all information on the parameters, not only of the one being shown at the moment. When the 99 data point memory is full, the message “FULL” appears on the screen. If you feel that the readings are changing too quickly, you can press HOLD ▲ to stop the current recordings and then record the data manually. The function is not available in min/max mode.

99 SETPOINT MEMORY

Press and hold MODE RECALL in normal mode or in hold mode for more than 2 seconds until the Recall symbol appears. Press MEM ▼ or HOLD ▲ to scroll through the contents. The log sequence number is shown on the main LCD display first, then the readings. The time in memory mode shows how long readings were recorded.

DATA LOGGING

The instrument can record the humidity, temperature and CO_2 content automatically and monitor the environment over the long term. The memory has a capacity of 6000 points for every parameter. Users can set the sampling rate from 1 second to 4 hours, 59 minutes and 59 seconds. The factory defaults are 30 seconds.

To set the sampling rate while the instrument is on, press and hold ON/OFF SET for more than 2 second to enter setting mode. Press HOLD ▲ or MEM ▼ to select the program P60 (rAtE) and press MIN MAX/AVG ↵ to start the program.

Press HOLD ▲ or MEM ▼ to select the hours, minutes and seconds of the sampling rate and press MIN MAX/AVG ↵ to confirm your selection. Press START ESC to return to normal mode. When you have set the sampling rate, press START ESC and hold for 2 seconds in normal mode to start the logging program. The REC symbol appears to show the logging status. The main LCD display shows the real time value. The bottom line of the display shows the real time clock.

Repeat the above to create another log. When the log memory is full, the message “FULL” appears on the screen. Press and hold START ESC for 2 seconds to close the data log. The REC symbol goes out. Press MODE RECALL to enter the mode of your choice. Except for the mode selection function, auto power off, min/max, manual recording, and the hold and memory function are not available during logging.

INSTRUMENT SETTINGS

When the instrument is on, press and hold ON/OFF SET for more than 2 seconds to enter setting mode. Press START ESC to return to normal mode. Press HOLD ▲ or MEM ▼ to select the program and press MIN MAX/AVG ↵ to start it. The programmable settings light up on the display. Press HOLD ▲ or MEM ▼ to select the settings and press MIN MAX/AVG ↵ to confirm your selection. If you wish to return to the main menu without saving your selection, press START ESC.

P 10, clear 99 data point memory		**Note:** "donE" appears when the memory has been cleared.
P 11, select yes or no		
P20, delete auto log data		**Note:** "donE" appears when the memory has been cleared.
P21, select yes or no		
P30, CO2 alarm settings		**Note:** • The factory defaults are 1400 ppm • The scale can always be adjusted by 100 ppm
P31, select between 1000 and 9900		
P40, CO2 ABC settings		**Note:** • The ABC function is factory-set

P41, ON or OFF		
P70, pressure equalization		**Note:** • The factory defaults are 1013 hpa • The scale can always be adjusted by 1 hpa
P71, select between 700 and 1990 hpa		

BATTERY INDICATOR

The battery indicator lights up when the battery level is low. Please replace the batteries to ensure accurate measurement. For long-term measurements and data records, use of an adapter is recommended (optional accessory: AC1214).

HUMIDITY CALIBRATION

The instrument can be calibrated either with a 35 % or 80 % salt solution or a humidity generator. It is recommended that the ambient conditions are at 25 °C. Place the measurement probe in a 35 % salt solution while the instrument is off. Press and hold ON/OFF SET, START ESC, MEM simultaneously for 3 seconds to enter calibration mode. Press HOLD or MEM to select the 35.0 % calibration and press MIN MAX/AVG to stop it. “CAL“ and the calibration value light up on the LCD screen.

WARNING: Do not calibrate the humidity without the standard calibration salt because otherwise serious damage could result. For the calibration salt or other services, contact your dealer.

CO_2 CALIBRATION

The sensor has an automatic calibration function to ensure long-term accuracy. If you nevertheless wish to calibrate the sensor, press and hold ON/OFF SET, START ESC, MEM simultaneously for 3 seconds in off-state to enter calibration mode. Press HOLD or ON/OFF SET to select 400 ppm calibration (outdoor air calibration). Press MIN MAX/AVG to enter the mode. “CAL“ and the CO_2 value light up on the LCD screen. Wait for about 10 minutes until the display stops flashing and calibration is finished.

TROUBLESHOOTING

Error	Message	Solution
E01	The CO2 sensor is not working	Switch the instrument off and back on again
E33	The CO2 sensor is not working	Repeat the CO2 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
E04	The dew point and wet bulb temperature cannot be determined because the necessary values fo r calculation were not measured correctly. (DP, WB)	Correct the error
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	@23 °C (±0.5 K) ±2 %rh (10…90 %rh), others ±5 %rh
Temperature / Accuracy	@23 °C (±0.5 K) ±0.3 K
CO_2 accuracy	0…9999 ppm/+-(30 ppm+5 % of the measurements) @0~5000 ppm
Storage and transmission	-20…60 °C/10…90 %RH, non-condensing
Operating limit of the electronics	0…50 °C for CO2, -20…60 °C for the other parameters, non-condensing
Memory	99 manual readings, 18000 readings in auto logging
Size, mm	234 (L) x 77 (W) x 42 (H)
Weight	200 g
Battery	4 AA alkaline batteries
Power supply	5 VDC, 250 mA (available as optional extra AC1214)
PC connection	Mini USB port

OPTIONAL ACCESSORIES

Order code	
AC1214	5 VDC universal adapter

DELIVERY PACKAGE

- CP11
- Mini USB cable
- Screwdriver

Website: www.rotronic.com

Documents / Resources

	**rotronic CP11 Handheld Instrument for CO2 Humidity and Temperature** [pdf] Instruction Manual CP11, Handheld Instrument for CO2 Humidity and Temperature, Instrument for CO2 Humidity and Temperature, CO2 Humidity and Temperature Instrument

References

- **Measurement Solutions - Humidity, Temperature, CO2 and Differential Pressure Measurement (EN_US)**