

# CO<sub>2</sub> DISPLAY/CL11/CP11



## Benefits

- Measures and logs CO<sub>2</sub>, relative humidity and temperature
- Rotronic HYGROMER® IN-1 humidity sensor
- Up to 40,000 data point memory

## Applications

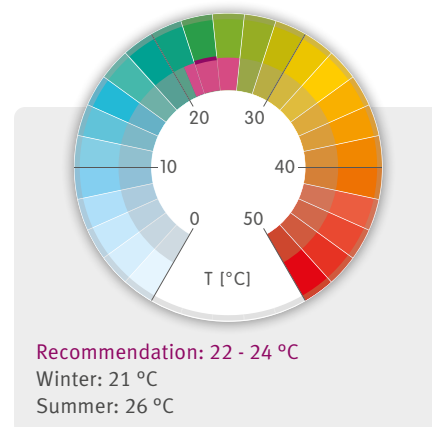
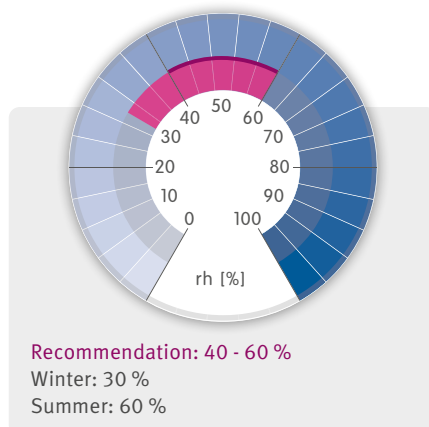
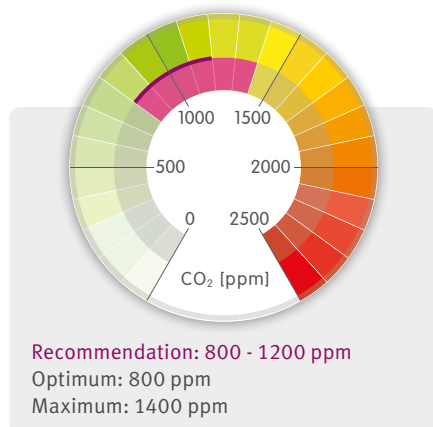
- Indoor air quality: classrooms, kindergartens, meeting rooms, open-plan offices, shopping centers, fitness studios



## General Information

| Order code            | CO <sub>2</sub> Display                                                                                                                                                                                                                                                                    | CL11                                                                                                                                                                       | CP11 |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Sensors / Calibration | <ul style="list-style-type: none"><li>• HYGROMER® IN-1 humidity sensor</li><li>• Calibration of humidity possible at 35/80 %RH</li><li>• NDIR sensor with automatic calibration (ABC)</li><li>• Manual calibration of CO<sub>2</sub> at 400 ppm</li></ul>                                  |                                                                                                                                                                            |      |
| Display               | <ul style="list-style-type: none"><li>• Large, easy-to-read display of measured values</li><li>• CO<sub>2</sub> indicator for quick recognition of air quality (GOOD/NORMAL/POOR)</li><li>• REC LED to indicate data recording is in progress</li><li>• Display of date and time</li></ul> | Large display with backlight                                                                                                                                               |      |
| Control panel         | Large buttons for easy operation of the measuring instrument                                                                                                                                                                                                                               |                                                                                                                                                                            |      |
| Connections           | <ul style="list-style-type: none"><li>• Port for USB stick for data downloads</li><li>• 12 VDC power supply</li></ul>                                                                                                                                                                      | <ul style="list-style-type: none"><li>• Mini USB port for connection to a PC</li><li>• 5 VDC power supply, for connection of the optionally available AC adapter</li></ul> |      |

## Guidelines for a healthy indoor climate

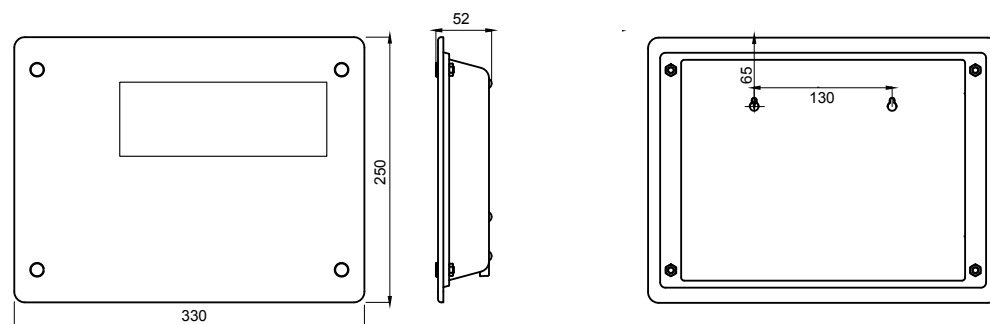


## Technical Information

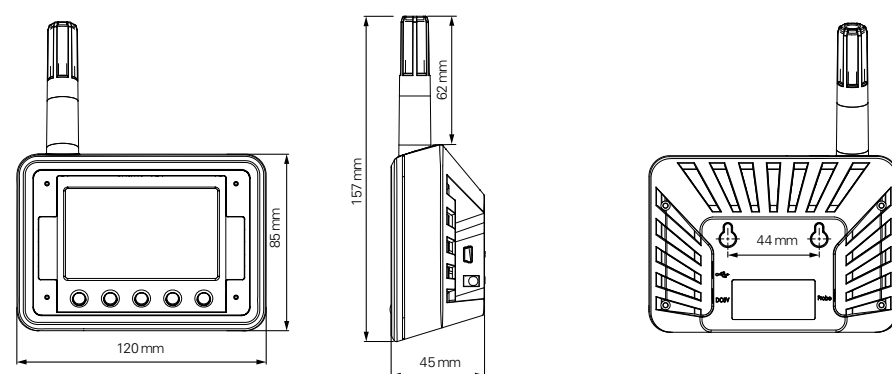
|                                |                                                                                                                        |                                                                                                                        |                                                                                                                                                                                                              |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                |                                       |                                      |                                                                                                                           |
|                                | CO <sub>2</sub> Display                                                                                                | CL11                                                                                                                   | CP11                                                                                                                                                                                                         |
| General Specifications         |                                                                                                                        |                                                                                                                        |                                                                                                                                                                                                              |
| Type                           | Wall or benchtop display unit                                                                                          | Benchtop display unit                                                                                                  | Handheld device                                                                                                                                                                                              |
| Parameters                     | CO <sub>2</sub> , relative humidity and temperature                                                                    |                                                                                                                        | CO <sub>2</sub> , relative humidity, temperature, dew point & wet bulb temperature                                                                                                                           |
| Application range              | 0...50 °C / 0...95 %rh, non-condensing                                                                                 | 0...50 °C / 0...100 %rh, non-condensing                                                                                |                                                                                                                                                                                                              |
| Clock                          | Real time clock with 4 min. battery backup                                                                             | Real time clock with 2 min. battery backup                                                                             | Real time clock                                                                                                                                                                                              |
| Alarm / Indicator              | Adjustable for CO <sub>2</sub> measurement (visual)                                                                    | Adjustable for CO <sub>2</sub> measurement (visual & audible)                                                          | Adjustable for CO <sub>2</sub> measurement (audible)                                                                                                                                                         |
| Instrument-Specific Data       |                                                                                                                        |                                                                                                                        |                                                                                                                                                                                                              |
| Current consumption            | 700 mA                                                                                                                 | 50 mA                                                                                                                  | 40 mA                                                                                                                                                                                                        |
| Warm-up time                   | <1 min.                                                                                                                |                                                                                                                        |                                                                                                                                                                                                              |
| Memory capacity                | <ul style="list-style-type: none"><li>19,500 values with time stamp</li><li>Automatic recording (%rh/°C/ppm)</li></ul> | <ul style="list-style-type: none"><li>40,000 values with time stamp</li><li>Automatic recording (%rh/°C/ppm)</li></ul> | <ul style="list-style-type: none"><li>18,000 values with time stamp</li><li>Automatic recording (%rh/°C/ppm)</li><li>99 single values with time stamp</li><li>Manual recording (%rh/°C/DP/WBT/ppm)</li></ul> |
| CO <sub>2</sub> Measurement    |                                                                                                                        |                                                                                                                        |                                                                                                                                                                                                              |
| Measurement principle          | Infrared (NDIR) with automatic calibration (ABC)                                                                       |                                                                                                                        |                                                                                                                                                                                                              |
| Measuring range                | 0.....9999 ppm                                                                                                         |                                                                                                                        |                                                                                                                                                                                                              |
| Accuracy at 23 °C ±5 K         | ±30 ppm ±5 % of the measured value @ 0...5000 ppm                                                                      |                                                                                                                        |                                                                                                                                                                                                              |
| Resolution                     | 1 ppm                                                                                                                  |                                                                                                                        |                                                                                                                                                                                                              |
| Adjustment point               | 400 ppm                                                                                                                |                                                                                                                        |                                                                                                                                                                                                              |
| Pressure dependence            | +1.6 % reading per kPa                                                                                                 |                                                                                                                        |                                                                                                                                                                                                              |
| Null drift                     | <10 ppm/year                                                                                                           |                                                                                                                        |                                                                                                                                                                                                              |
| Maintenance                    | No maintenance (standard indoor applications)                                                                          |                                                                                                                        |                                                                                                                                                                                                              |
| Humidity Measurement           |                                                                                                                        |                                                                                                                        |                                                                                                                                                                                                              |
| Humidity sensor                | ROTRONIC HYGROMER® IN-1                                                                                                |                                                                                                                        |                                                                                                                                                                                                              |
| Measuring range                | 0...100 %rh                                                                                                            |                                                                                                                        |                                                                                                                                                                                                              |
| Accuracy at 23 °C ±5 K         | ±2 %rh (10...90 %rh), others ±5 %rh                                                                                    |                                                                                                                        |                                                                                                                                                                                                              |
| Resolution                     | 0.1 %rh                                                                                                                |                                                                                                                        |                                                                                                                                                                                                              |
| Adjustment points              | 35, 80 %rh                                                                                                             |                                                                                                                        |                                                                                                                                                                                                              |
| Response time τ <sub>0.3</sub> | <30 s, without filter                                                                                                  |                                                                                                                        |                                                                                                                                                                                                              |
| Long-term stability            | <1.5 %rh/year                                                                                                          |                                                                                                                        |                                                                                                                                                                                                              |
| Temperature Measurement        |                                                                                                                        |                                                                                                                        |                                                                                                                                                                                                              |
| Sensor                         | NTC thermistor                                                                                                         |                                                                                                                        |                                                                                                                                                                                                              |
| Measuring range                | -20...60 °C                                                                                                            |                                                                                                                        |                                                                                                                                                                                                              |
| Accuracy at 23 °C ±5 K         | ±0.3 K                                                                                                                 |                                                                                                                        |                                                                                                                                                                                                              |
| Resolution                     | 0.1 °C                                                                                                                 |                                                                                                                        |                                                                                                                                                                                                              |
| Response time                  | 4 s                                                                                                                    |                                                                                                                        |                                                                                                                                                                                                              |
| Software                       |                                                                                                                        |                                                                                                                        |                                                                                                                                                                                                              |
| HW4 (SW21)                     | Available as download at <a href="http://www.rotronic.com">www.rotronic.com</a>                                        |                                                                                                                        |                                                                                                                                                                                                              |
| Conformities / Housing         |                                                                                                                        |                                                                                                                        |                                                                                                                                                                                                              |
| CE / EMC compatibility         | EMC Directive 2014/30/EU, EN 61326-1:2012                                                                              |                                                                                                                        |                                                                                                                                                                                                              |
| Housing material               | ABS                                                                                                                    |                                                                                                                        |                                                                                                                                                                                                              |
| Dimensions                     | 330 x 250 x 50 mm                                                                                                      | 157 x 120 x 45 mm                                                                                                      | 76.7 x 41.8 x 233.9 mm                                                                                                                                                                                       |
| Weight                         | 1400 g                                                                                                                 | 200 g                                                                                                                  | 290 g                                                                                                                                                                                                        |

## Technical Information

### Dimensions CO<sub>2</sub> Display



### Dimensions CL11



### Dimensions CP11

