IoT Sensor plus for the SIGFOX network
QUICK START MANUAL

W6810 • W8810 • W8861

PRODUCT DESCRIPTION

The transmitters W6(8)8xx for SIGFOX network are designed to measure temperature, relative humidity and atmospheric pressure of air and CO_2 concentration in air. The devices are available in a compact design or with connectors for the connection of external probes. The transmitters of relative humidity also provide a value of dew point temperature. Internal replaceable batteries are used for power. Some models can be powered from an external power supply (the internal battery then serves as a backup source).

The measured values and service information are displayed cyclically in three steps on the LCD and are sent over an adjustable time interval via radio transmission in the SIGFOX network to the cloud data store. The cloud allows you to view current and historical data through a regular web browser. The device performs a measurement every 1 minute (CO_2 concentration every 10 minutes). For each measured variable it is possible to set two alarm limits. The alarm is signalled by the symbols on the LCD display and by sending an extraordinary message to the Sigfox network, from which it is to send to the user via e-mail or SMS message.

Device setup is done either locally by connecting your device to the computer with installed the COMET Vision software, or remotely via cloud web interface.

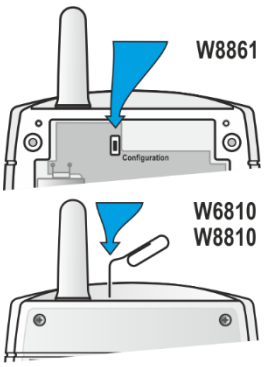
Device type	Measured value	Construction	Battery	External power supply
W6810	T + RH + CO_2 + DP	Internal temperature, relative humidity and CO_2 concentration sensors	1 pc	yes
W8810	T + CO_2	Internal temperature and CO_2 concentration sensors	1 or 2 pcs	yes
W8861	T + P + CO_2	Internal temperature and pressure sensors and connector for CO_2 probe	1 or 2 pcs	no

T…temperature, RH…relative humidity, P…atmospheric pressure, CO_2… CO_2 concentration, DP…dew point temperature

MOUNTING

- The device box has holes for fixing with appropriate screws or straps (the holes are accessible after removing the cover).
- Always install the devices vertically (with the antenna cap facing up) at least 10 cm away from all conductive objects.
- Do not install the devices in underground areas (the radio signal is generally unavailable here). In these cases, it is preferable to use the model with an external probe on the cable and place the device itself, for example, one floor above.
- The devices and probe cables should be place away from electromagnetic interference sources.
- If you install the device at a greater distance from the base station or in locations where the radio signal difficult to penetrates, follow the recommendations on the other side of this manual.

TURNING ON AND SETTING UP THE DEVICE



- The CONFIGURATION button use to switch on the device (see figure). Press the button and release it as soon as the display lights up (within approx. 1 second).
- Cloud is an internet storage of data. You need a PC with internet connection and a web browser to work with. Navigate to the cloud address you use and sign in to your account - if you use COMET Cloud by a device manufacturer, enter www.cometsystem.cloud and follow the instructions in the *COMET Cloud registration Card* that you received with your device. Each transmitter is identified by its unique address (device ID) in the Sigfox network. The transmitter has an ID printed on the nameplate along with its serial number. In the list of your device in the cloud, select the device with the desired ID and start viewing the measured values.
- Check in the cloud, whether the messages are correctly received. In case of problems with the signal, please refer to the manual for devices in the "Download" section at www.cometsystem.com
- Change the device settings as needed.
- Carefully tighten the cover of the instrument (making sure that the gasket in the housing groove is correctly positioned).

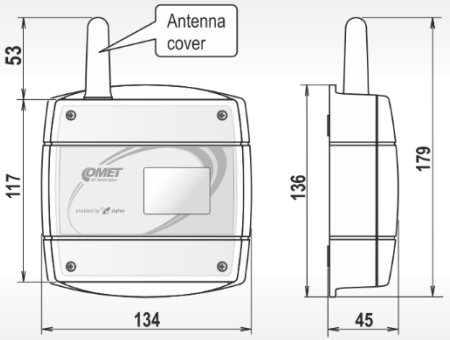
Device setting from the manufacturer – message sending interval of 10 minutes, alarms deactivated, altitude for pressure measurement is set 0 m, remote device setup enabled.

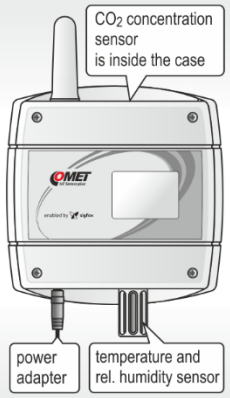
SAFETY INSTRUCTIONS

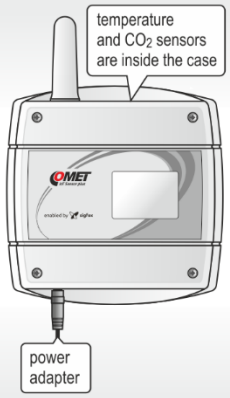
- Read carefully the **Safety information for IoT SENSOR** before operating the device and observe it during use!
- Installation, electrical connection and commissioning should only be performed by qualified personnel in accordance with applicable regulations and standards.
- Devices contain electronic components, it needs to liquidate them according to currently valid conditions.
- **To complement the information in this data sheet** read the manuals and other documentation, which are available in the Download section for a particular device at www.cometsystem.com

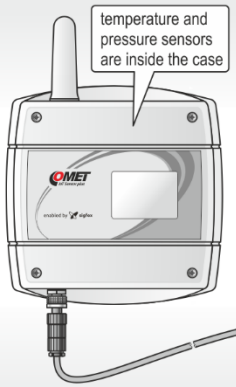
Technical specifications

Device type	W6810	W8810	W8861
Measurement interval	1 minute (temperature, relative humidity, atm. pressure) • 10 minutes (CO_2 concentration)		
Sending interval	Adjustable (10 minutes to 24 hours)		
RF part - working frequency	Transmission is in the band 868.130 MHz • Reception is in the band 869.525 MHz		
RF part - maximum transmission power	25 mW (14 dBm)		
RF part - radio configuration zone	RC1		
Power battery (lithium 3.6 V ~ 8.5 Ah ~ C size)	1 pc	1 or 2 pcs	1 or 2 pcs
External power supply - supply voltage	5 to 14 V	5 to 14V	—
External power supply - maximum supply current	300 mA	300 mA	—
Internal temperature measuring range	-20 to +60 °C	-20 to +60 °C	-20 to +60 °C
Accuracy of internal temperature measurement	± 0.4 °C	± 0.4 °C	± 0.4 °C
Relative humidity measuring range (without condensation)	0 to 95 %RH	—	—
Accuracy of the relative humidity sensor	± 1.8 %RH*	—	—
Atmospheric pressure measuring range	—	—	700 to 1100 hPa
Accuracy of atmospheric pressure measurement at 23 °C	—	—	±1.3 hPa
CO_2 concentration measuring range	0 to 5000 ppm	0 až 5000 ppm	according the probe
Accuracy of CO_2 concentration measurement (23 °C • 1013 hPa)	±(50 + 0.03 x MV) ppm	±(50 + 0.03 x MV) ppm	according the probe
Temperature dependence of CO_2 measurement **	±(1+ MV/1000) ppm /°C	±(1+ MV/1000) ppm /°C	according the probe
Dew point temperature measuring range	-60 to +60 °C	—	—
Accuracy of dew point temperature measurement	± 1.5 °C ***	—	—
Recommended calibration interval	1 year	2 roky	2 roky
Protection class	IP20	IP20	IP54
Protection class of external CO_2 probe	—	—	IP65
Temperature operating range	-20 to +60 °C	-20 to +60 °C	-20 to +60 °C
Relative humidity operating range	0 až 95 %RH	0 to 95 %RH	0 to 95 %RH
Recommended storage temperature range	-20 to +45 °C	-20 to +45 °C	-20 to +45 °C
Recommended storage humidity range	5 to 90 %RH	5 to 90 %RH	5 to 90 %RH
Working position	with antenna cover up	with antenna cover up	with antenna cover up
Weight of the device without probes (including one battery)	350 g	340 g	340 g
Dimensions [mm]			

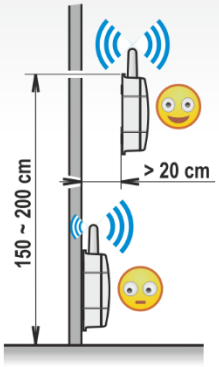


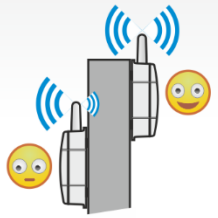




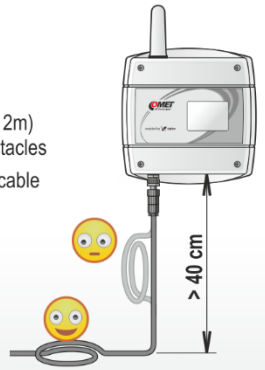


The optimal location of the devices in terms of radio range





- place the device as high as possible (max. 2m) at a sufficient distance (20 cm) from all obstacles
- lead the cable of the probe and the power cable first down to the distance of at least 40 cm from the device



CO2R1-x probe range: 0 to 1 % CO_2
accuracy: ±(0.01 + 0.05 x MV) [% CO_2 at 23 °C and 1013 hPa]
temperature error: ±(0.0001 + 0.001 x MV) [% CO_2/°C] **

CO2R5-x probe range: 0 to 5 % CO_2
accuracy: ±(0.075 + 0.02 x MV) [% CO_2 at 23 °C and 1013 hPa]
temperatue error: ±(0.003 x MH) [% CO_2/°C] **

MV ...measured value of CO_2 concentration

The external probe is not included in the device!

* at temperature 23 ºC in the range of 0 to 90 %RH (hysteresis ±1 %RH, non-linearity ±1 %RH, temperature error 0.05 % RH/ºC in range 0 to 60 ºC)
** in temperature range -20 to +45 ºC (*MV ...measured value of CO_2 concentration*)
*** at ambient temperature T < 25 ºC and RH > 30 % (for details see graphs at instruction manual)