



## **FX-WMBUS-E2-VOC**

Wireless M-Bus VOC, Temperature,  
& Humidity room sensor



- Battery powered for wireless installation
- AES128 Encrypted Wireless M-Bus communication
- Continuous battery level monitoring
- Seamless design

### **Measure to manage**

The Fidelix FX-WMBUS-E2-VOC room VOC, temperature, and humidity sensor is a plug-and-play room VOC, temperature, and humidity transmitter. Great care has been given to design a sleek, good looking device with high security and performance. The device has 2 antennas for maximum range in both vertical and horizontal directions.

The battery level is continuously monitored and a low-level warning is issued when battery is nearing depletion.

### **Technical features**

Temperature range:	-40..85°C
Dimensions:	80 x 80 x 25 mm
Power supply:	3.6V-battery
Communication:	OMS standard wireless M-Bus - interval 120 sec

### Firmware:

MODE	T1
INTERVAL	120 seconds
SAMPLE INTERVAL	6 minutes
ENCRYPTIONS	AES128 encryption OMS mode 5, Profile A
M-BUS DATA	Instant, average hour, average 24 hours

### Sensors:

TEMPERATURE	RANGE: -40 to +85°C ACC: ±0,2 at 5 to +55°C
HUMIDITY	ACC: ±2 %RH at 10-90 %RH
VOC	ACC: ±15..25% of value at 25°C / 50 %RH RANGE: 0-60 000 ppm

### Warnings:

BATTERY	Low battery
---------	-------------

### Power / Lifetime:

POWER SUPPLY	2 x ER18505 3.6V Li-SOCI2 battery pack
CAPACITY	8200 mA
VOLTAGE	2.6 to 3.6 V
LIFESPAN	16 years typical, standard operating temperature
RADIO	14 dBm (25mW) output power to antennas

### Conformity:

ENVIRONMENT	RoHS (2011/65/EU) / (EU) 2015/863 RADIO / EMC RED (2014/53/EU)
-------------	--

### General information:

OP TEMPERATURE	-40° to +85°C (recommended: +5..55°C)
RELATIVE HUMIDITY	Non condensing
MATERIAL	White, ABS
SIZE (W x L x D)	80 x 80 x 25mm
STANDARD	EN13757-3/4 / OMS 4.0.2

### VOC Sensor:

The on-board VOC sensor is used for sensing VOC gases (air quality). The sensor is a high-performance sensor with minimum drift and reliable performance also over long time. The VOC sensor uses a gliding average algorithm as well as a baseline compensation algorithm to be able to detect bad air quality. This technique captures changes in air quality but cannot typical be used to indicate a constant air quality problem that exist for really long periods.

Note that the first accurate reading can typically be expected after 24 hours.

### Measurements:

The VOC, temperature, and humidity are sampled every 6 minutes and sent synchronous using the OMS compliant Wireless M-BUS protocol. This makes the sensor ideal for integration in data collecting systems, drive by solutions or for controlling ventilation. The data from the device is also protected using the AES128 encryption compliant with OMS standard.

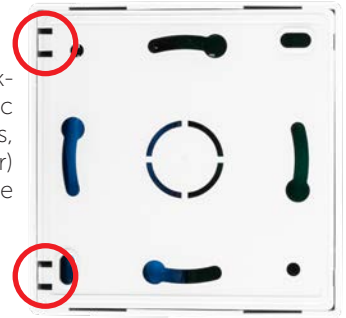
### Installation:

The sensor is mounted with screws. Always mount on an interior wall, e.g. hallway. The sensor works best 180cm above the floor. Mount the sensor so the holes at the front are on the right side. Make sure that the UP symbol on the label (located on the side) is pointing upwards. Avoid heating/cooling sources (solar radiation, lamps, pipes, extensive airflow, etc.).

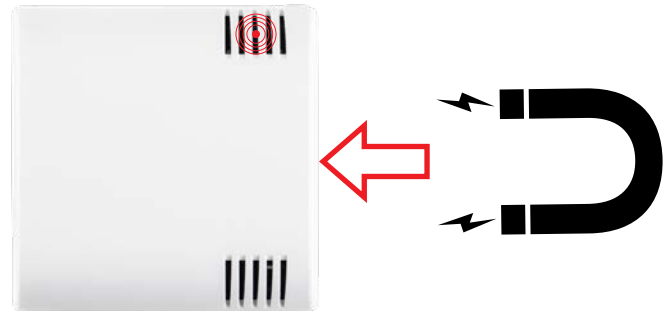
### Commissioning:

#### STEP 1:

- Turn the device upside down
- Remove the mounting back-plate by pushing the two plastic pieces, marked by red circles, inwards (e.g. with a screwdriver) and then lifting the back-plate up.



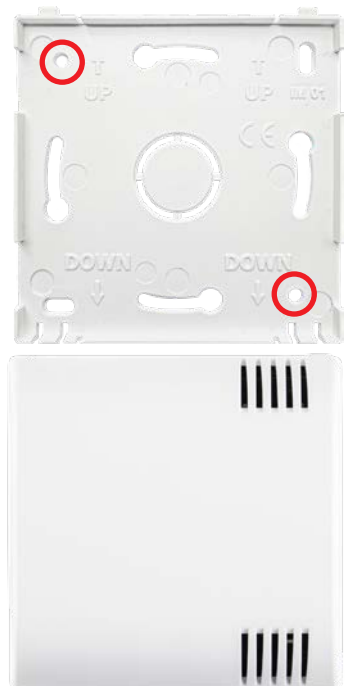
#### STEP 2:



- To activate the device, hold a permanent magnet against the label on the device until a red LED turns on. Look carefully as the LED is not very bright.
- Keep holding the magnet by the label until the red LED turns back off again (after about 5 seconds).
- When the red LED turns off, immediately remove the magnet.
- If the sensor is successfully activated, the red LED will now blink for a bout 10 seconds.

#### STEP 3:

- Fasten the mounting piece to a wall with the text UP pointing upwards using the recommended mounting instructions.
- Use two screws in the two holes marked with red in the picture.
- Mount the device on the mounting piece. Make sure the UP symbol on the label at the side of the device is pointing upwards.



**NOTE:** The ventilation slits must be on the right side!

#### STEP 4 (optional):

- To verify if the sensor is correctly activated, hold a magnet against the label on the right side. The red LED will start flashing immediately if the sensor is active, and stop immediately, once the magnet is removed again. If the red LED does not start flashing, revert back to step 2.