

# Kombi-LWEU-RHT-CO2-TVOC-DP

A good indoor climate increases comfort, maintains health and secures the value of the property. Clean and adequate indoor air increases the satisfaction of building users and the productivity of work. For this purpose we have designed Kombi-LWEU-RHT-CO2-TVOC-DP, a wireless and economical multi-sensor indoor air quality transmitter.

Kombi-LWEU measures temperature, humidity, carbon dioxide (CO<sub>2</sub>) concentration, total volatile organic compound (TVOC) concentration and differential pressure.

Kombi-LWEU uses LoRaWAN for communication with the cloud.



## General Specifications

|                            |  |
|----------------------------|--|
| Enclosure                  | ABS+PC, white painted                          |
| Environmental Protection   | IP20   |
| Weight                     | ~180 g, including batteries                    |
| External Dimensions        | 75 mm x 48 mm x 105 mm (WHD)                   |
| Rated Operating Conditions | -30...+60°C, non-condensing                    |
| Allowed Storage Conditions | -40...+80°C, without batteries, non-condensing |

## Power Supply

|                       |  |
|-----------------------|--|
| Internal Battery Type | 3.6V Lithium Thionyl battery pack                            |
| Typical Battery Life  | 5 years with 30 minutes transmission interval                |
| External Power Supply | Micro USB type B, 5 ± 0.5 V, max 200 mA, no suspend function |

## Measuring and data transmission

|                      |   |
|----------------------|---|
| Interval             | Configurable: 5min / 10min / 15min / 20min / 30min / 1h / 2h / 3h / 4h / 6h |
| Radio                | LoRa radio technology with Murata ABZ-093 LoRaWAN modem                     |
| Antenna              | Internal  |
| Frequency Band       | 863-870 MHz (LoRaWAN 1.0.2 EU band)   |
| Transmission Power   | Max +14 dBm E.R.P.  |
| Range, Line-of-sight | Depends on installation location and environment, in good conditions 10 km  |

# Kombi-LWEU-RHT-CO2-TVOC-DP

## Temperature measurement

|                   |  |
|-------------------|--|
| Sensor            | High-accuracy semiconductor sensor, Swiss          |
| Measurement Range | -40...+125°C                                       |
| Accuracy          | Typically $\pm 0.1^{\circ}\text{C}$ (+20...+60 °C) |

## Humidity measurement

|                   |   |
|-------------------|---|
| Sensor            | High-accuracy semiconductor sensor, Swiss       |
| Measurement Range | 0...100 %RH                                     |
| Accuracy          | Typically $\pm 2$ %RH (+0...+80°C, 0...100 %RH) |

## Carbon dioxide concentration

|                   |   |
|-------------------|---|
| Sensor            | NDIR sensor   |
| Measurement Range | 400...5000 ppm  |
| Accuracy          | Typically $\pm 45$ ppm + 3% rdg                                 |
| Autocalibration   | Must see fresh air (unoccupied room) once a week for some hours |

## Total volatile organic compound concentration

|                   |                             |
|-------------------|-----------------------------|
| Sensor            | Semiconductor sensor, Swiss |
| Measurement Range | 0.3...30 ppm                |
| Accuracy          | Typically $\pm 15\%$        |

## Differential pressure measurement

|                   |                                  |
|-------------------|----------------------------------|
| Sensor            | High-accuracy flow sensor, Swiss |
| Measurement Range | -125...+125 Pa                   |
| Accuracy          | Typically $\pm 0.08$ Pa + 3% rdg |