

## CO2/TEMP/HUMIDITY AMR-Wireless M-BUS

### DEVICE

The combined true CO2, ambient temperature and humidity device from Lansen is a plug-and-play transmitter. Great care has been taken 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.

### PERFORMANCE

The battery level is continuously monitored and a low level warning is issued when battery is nearing depletion. The CO2 sensor is also monitored and a warning is issued if it is not working.

### TEMPERATURE SENSOR

The on-board temperature sensor is highly accurate with typical accuracy  $\pm 0,3^{\circ}$ .

### FIRMWARE

MODES	Configurable* C1-A/B, T1 or S1
SAMPLE INTERVAL	Configurable* 6 minutes.
ENCRYPTION	AES128 encryption OMS mode 5. Profile A.
MBUS DATA	Instant, Average hour, Average 24 hours.
STANDARD	T1 Mode, 6 min synchronous, 90 seconds asynchronous, Encryption ON.

### SENSORS

TEMPERATURE	RANGE: $-40^{\circ}$ to $+85^{\circ}$ ACC: $\pm 0,3$ at 0 to $+65^{\circ}$
HUMIDITY	ACC: $\pm 3$ %RH at 10-90 % RH.
CO2	ACC typical $\pm(50$ ppm + 3% ). 0-2000 ppm. (other range on request)

### WARNINGS

BATTERY	Low battery
SENSOR ERROR	Sensor not working.

### POWER/LIFETIME

POWER SUPPLY	2 x ER18505 3.6V Li-SOCI2 battery pack.
CAPACITY	8200 mA
VOLTAGE	2.6 to 3.6V
LIFESPAN	16 years typical, depending on configuration and operating temperature.
RADIO	14 dBm (25mW) output power to antennas
ANTENNAS	2 antennas for true differential transmission

### GENERAL INFORMATION

TANDARDS	2014/53/EU (RED) EN 13757-3/4:2013, OMS 4.0.2
OP TEMPERATURE	$0^{\circ}$ to $+55^{\circ}$ ( $-20^{\circ}$ to $+55^{\circ}$ on request)
OP PRESSURE	950 mbar to 1050 mbar (other range on request)
RELATIVE HUMIDITY	Non condensing
MATERIAL	White, ABS
SIZE (W x H x D)	80 x 80 x 25 mm

### DEVICES

LAN-WMBUS-E-CO2	Ambient Sensor for CO2/temperature/humidity
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\*Configuration will be enabled in future versions.

### HUMIDITY SENSOR

The on-board humidity sensor is highly accurate in the entire temperature range, with typical accuracy  $\pm 3\%$ RH.

### CO2 SENSOR

The on-board NDIR CO2 sensor with diffusion technology is used to measure the absolute CO2 level. An intelligent calibration routine calibrate the device at startup and during the entire lifetime. The sensor calibrates every 20 days to ensure good readings. The calibration is done using the lowest reading in the interval. This reading is used as the 400 ppm baseline for the next period. This works on the fact that the CO2 level move towards 400 ppm when the building is not occupied for a period.

### MEASUREMENTS

The CO2, Temperature and humidity is sampled every 6 minutes and sent synchronous using the Wireless MBUS protocol OMS compliant. The data is also repeated every 90 seconds as an asynchronous message. This makes the sensor ideal for integration in data collecting systems, drive by solutions or for controlling ventilation.

The data from the device could is also protected using the AES128 encryption compliant with OMS standard.

