LANSEN
WIRELESS BUILDING TECHNOLOGY

DEVICE

The combined true CO_2, 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 CO_2 sensor is also monitored and a warning is issued if it is not working. The device also keeps count on the total running time since first start and powerup.

WARNING / ALARM INDICATION

The CO_2 also comes in one version with visual and acoustic warning/alarm to alert on high CO_2 concentration.

The sensor will in this case using a buzzer and high brightness LED indicate that the CO_2 reached the Warning or Alarm level. This indication can then be used to alert that is time to ventilate the room (open windows) in order to have a safe environment. The CO_2 level correlates to the amount of virus and thus it can be used to provide a safer workplace.

FIRMWARE

MODES	C1-A/B, T1 or S1 (selectable on order)
SAMPLE INTERVAL	5 minutes CO2 & Sound
	2,5 minutes Humidity and Temperature
TRANSISSION INT.	2,5 minutes
ENCRYPTION	AES128 encryption OMS mode 5. Profile A.
MBUS DATA	Instant, Average hour, Average 24 hours.
STANDARD	T1 Mode, Encryption ON.
	Transmission intervall 2,5 minutes,

WARNINGS

BATTERY	Low battery.
SENSOR ERROR	CO2 sensor not working
CALIBRATION	Calibration not completed yet

LIFESPAN

LAN-WMBUS-E2-CO2-S	14 years typical
LAN-WMBUS-E2-CO2-S-I	10 years typical

The battery lifetime is the typical lifetime using standard configuration and operating temperature. For the LAN-WMBUS-E2-CO2-S-I (with indication) the lifetime is also depend on the number high CO2 levels that are detected. Contact us for details.

DEVICE

LAN-WMBUS-E2-CO2-S
LAN-WMBUS-E2-CO2-S-I (with indication)

TEMPERATURE SENSOR

The on-board temperature sensor is highly accurate with typical accuracy ±0,2°.

HUMIDITY SENSOR

The on-board humidity sensor is highly accurate in the entire temperature range, with typical accuracy ±2%RH.

SOUND SENSOR

The sound level is measured by the onboard microphone and presented in a dBa scale.

CO2 SENSOR

The on-board NDIR CO_2 sensor with diffusion technology is used to measure the absolute CO_2 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 average hour reading in the interval. This reading is used as the 400 ppm baseline for the next period. This works on the fact that the CO_2 level move towards 400 ppm when the building is not occupied for a period. The first accurate readings can typical be expected after 3-9 days after installation.

MEASUREMENTS

The parameters are sampled every 2,5 or 5 minutes and sent synchronous using the Wireless MBUS protocol as defined by OMS. 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.

Rev. 1.0

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Air & Environment Quality E/E2 Series

True CO2 / temperature / humidity /
sound level / pressure / LUX / LED and buzzer indication

GENERAL INFORMATION

STANDARDS	2014/53/EU (RED), EN 13757-3/4:2013, OMS 4.0.2
MATERIAL	White, ABS

OPERATING CONDITIONS

CO2 TEMP	0^0 to $+55^0$ (-20^0 to $+55^0$ on request)
CO2 PRESSURE	950 mbar to 1050 mbar (other range on request)
RADIO TRANSMITTER	Max: -30^0 to $+85^0$, Recomended $+5^0$ to $+50^0$
RELATIVE HUMIDITY	Non condensing
SIZE (W x H x D)	80 x 80 x 25 mm

POWER

POWER SUPPLY	2 x ER18505 3.6V Li-SOCl2 battery pack.
CAPACITY	7600-8200 mA
VOLTAGE	2.6 to 3.6V
RADIO	14 dBM (25mW) output power to antennas.
ANTENNAS	2 antennas for true differential transmission.

DEVICES

Name	Temp	Humidity	CO$_2$	Pressure	Sound level	Ambient light (LUX)	Optional mains powered 5V	Battery powered	LED and sound indication on CO$_2$ level
LAN-WMBUS-E-CO2	X	X	X					X	
LAN-WMBUS-E2-CO2 (coming product)	X	X	X					X	
LAN-WMBUS-E2-CO2-I	X	X	X				X	X	X
LAN-WMBUS-E2-CO2-S	X	X	X		X		X	X	
LAN-WMBUS-E2-CO2-S-I	X	X	X		X		X	X	X
LAN-WMBUS-E2-AEQ (coming product)	X	X	X	X	X	X	X	X	
LAN-WMBUS-E2-AEQ-I (coming product)	X	X	X	X	X	X	X	X	X

SENSORS

Type	Specification	TYP ACC
TEMPERATURE	-40^0 to $+85^0$	$\pm0,2^0$ at $+5^0$ to $+60^0$ $\pm0,5^0$ at -20^0 to $+85^0$
HUMIDITY	0 - 100 % RH	±2 %RH at 20-80 %RH. ±3 %RH at 10-90 %RH $\pm3,5$ %RH at 0-100 %RH
CO2	0-5000 ppm	$\pm(50$ ppm + 3%) after calibration even better on request.
LUX. prel	0,01 Lux to 83k Lux at same freq as the human eye.	4%
PRESSURE	20 kPa to 110 kPa absolute pressure	0,4 kPa
SOUND LEVEL prel.	40 dBA to 90 dBa at 850 HZ prel.	tdb.

INDICATIONS LED AND SOUND

AIR QUALITY	CO2 LEVEL ppm	LED Color	Led indication on new CO2 level	Sound indication on new CO2 level
BAD	> 2000	RED	Bad level reach: Will flash every 2 seconds for 3 minutes then every minute.	Bad level reached: Will beep total 15 times every 2 seconds.
MEDIOCRE	1000-2000	YELLOW	Mediocre level reached: Will flash every 2 seconds for 3 minutes then every minute.	Mediocre level reached: Will beep total 15 times every 2 seconds.
OK	< 1000	GREEN	Ok level reached: Will flash every 30 seconds for 10 minutes then every 2 minutes.	None