LANSEN
WIRELESS BUILDING TECHNOLOGY

True CO2 Sensor

true CO2 / temperature / humidity

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.

FIRMWARE

MODES	C1-A/B, T1 or S1 (selectable on order)
SAMPLE INTERVAL	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.

WARNINGS

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

INFO

LIFESPAN	16 years expected, standard configuration and operating temperature.
DEVICE	LAN-WMBUS-E-CO2

*The expected battery lifetime stated is based on simulations and true measurements at 25 gr C, and is valid to the best of our ability but not a guarantee. The calculations and measurements can be sent upon request for your reference.

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.

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 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 6 and sent synchronous using the Wireless MBUS protocol as defined by OMS. 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.

Specifications in this document are subject to change without notice

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LANSEN
WIRELESS BUILDING TECHNOLOGY

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 $+85^0$	$\pm 0{,}2^0$ at $+5^0$ to $+60^0$ $\pm 0{,}5^0$ at -20^0 to $+85^0$
HUMIDITY	0 - 100 % RH	±2 %RH at 20-80 %RH. ±3 %RH at 10-90 %RH ±3,5 %RH at 0-100 %RH
CO2	0-5000 ppm	±(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

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