LANSEN
WIRELESS BUILDING TECHNOLOGY

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.

INDICATIONS

The -I version also have the possiblity to indicate directly on the sensor the current ambient CO2 level. The indications are both visual and acoustic.

FIRMWARE

MODES	MIOTY ETSI TS-103-357

INTERVAL

SAMPLE	1-15 min depending on configuration: Standard 3 min.
TRANSMISSION	1-15 min depedning on configuration: Standard 3 min.

WARNINGS

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

POWER/LIFETIME

POWER SUPPLY	2 x ER18505 3.6V Li-SOCl2 battery pack.
CAPACITY	8200 mA
VOLTAGE	2.0 to 3.6V
LIFESPAN E2-CO2	10 years typical, standard configuration and recomended operating temperature.
RADIO	14 dBM (25mW) output power to antennas. ERP typical: 9.5 dbm (9mW) .
ANTENNAS	2 antennas for true differential transmission.

GENERAL INFORMATION

STANDARDS	2014/53/EU (RED) MIOTY ETSI TS-103-357
MATERIAL	White, ABS
SIZE (W x H x D)	80 x 80 x 25 mm

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

TEMPERATURE SENSOR

The on-board temperature sensor is highly accurate with typical accuracy $\pm0,2^0$.

HUMIDITY SENSOR

The on-board humidity sensor is highly accurate in the entire temperature range, with typical accuracy $\pm2\%RH$.

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 (clean air) 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 CO2, temperature and humidity are sampled every 3 minutes and sent using the MIOTY protocol. This makes the sensor ideal for integration in data collecting systems, smart cities or for controlling ventilation.
The data from the device is also protected using the AES128 encryption compliant with MIOTY standard.

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Prel Rev 1.1

DEVICES

Name	Temp	Humi-dity	CO2	Pres-sure	Sound level	Ambient light (LUX)	Optional mains powered 5V	Battery powered	LED and sound indication on CO2 level	Old values in data
LAN-MIOTY-E-TH	X	X						X		Current + 2 old
LAN-MIOTY-E-CO2	X	X	X					X		Current + 2 old
LAN-MIOTY-E2-CO2-I	X	X	X				X	X	X	Current + 2 old
LAN-MIOTY-E2-CO2-S	X	X	X		X		X	X		Current + 1 old
LAN-MIOTY-E2-CO2-S-I	X	X	X		X		X	X	X	Current + 1 old
LAN-MIOTY-E2-AEQ (coming product)	X	X	X	X	X	X	X	X		Current
LAN-MIOTY-E2-AEQ-I (coming product)	X	X	X	X	X	X	X	X	X	Current

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
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.	53 dBA to 90 dBa at 850 HZ prel.	tdb.

INDICATIONS LED AND SOUND

AIR QUALITY	CO2 LEVEL ppm	LED indicator	Sound indicator
BAD	> 1500	RED	3 short beeps on first measurement above 1500 ppm. Thereafter 3 short beeps every 10 minutes.
MEDIOCRE	1000-1500	YELLOW	2 short beeps on first measurement above 1000 ppm.
OK	< 1000	GREEN	1 short beep after returning from mediocre and the measurement is below 800 ppm. Otherwise no sound indication.

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