## SD-ENO-CO2-Sensor GTIN-13: 5744002690160

EnOcean 868MHz Solar powered Co2, Humidity and Temperature sensor with backup battery option. The sensor is using Cozir-Blink from Gas Sensing Solutions with Auto-Zero Calibration for maintaining Co2 measurement accuracy over the lifetime of the product. California Building Standards Code, Title 24 compliant.

- Maintenance free Solar powered Co2 sensor

- High quality Cozir-Blink Co2 sensing in range: 0-5.000 ±30 ppm

- Humidity sensing in range: 0 - 100% max ±2%

- Temperature sensing in range: 0 - 80°C, ±0,3°, 10-50°C ±0,2°
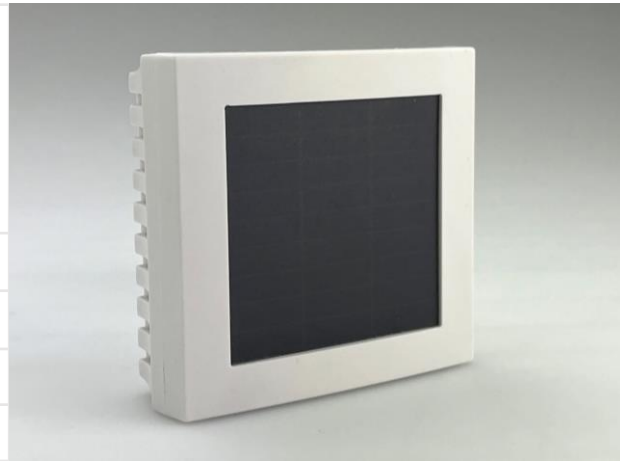
Functional Description:
The sensor operates in 3 modes:
- DAY mode
- NIGHT mode
- BATTERY ONLY mode

depending on the Solar Panels ability to deliver energy.

DAY mode:
Data is send every 4½, 9, 13½ or 18 minutes depending on Super Capacitor energy status and the Solar Panels ability to deliver energy.

NIGHT mode:
Data is send every 2 hours
Switch to NIGHT mode is when light level in DAY mode is too low to harvest energy for 1 hours

Battery Only mode:
If the light conditions are less than approx. 100 lux most of the day and no artificial light, backup batteries can be mounted, which will take over when light conditions are low.
If light conditions are so low that the Solar Panel can't supply any useable energy in 24 hours, the sensor will switch to BATTERY ONLY mode and data is sent every 45 minutes all the time. In this mode battery lifetime is > 5 years

Mounting:
The sensor is intended for wall mounting, either via double-sided tape or screws. The sensor also fits on a standard EURO wall box

Dimension:
The H=81mm x W=81mm x D=20mm

Supported EnOcean Equipment Profiles (EEP):
VLD D2-14-59:
Multi Function Sensors, Indoor Multisensor with Temperature, Humidity and CO2

MID 0x06:
Energy status of the device (Super Capacitor energy status)

MID 0x0D:
Energy delivery of the Harvester (Solar panel ability to deliver energy)

MID 0x10:
Backup Battery Status.

UTE:
Universal Teach In with a short press with a thin paperclip thru LEARN hole on back of the sensor.
The hole is marked with a label named LEARN.

DAY TX interval based on Solar Panel Harvest Energy and SuperCap Energy Status

CAP STATUS / SOLAR STATUS	<20%	>=20%	>=40%	>=60%	>=80%	=100%
VERY BAD	18	18	13½	13½	9	9
BAD	18	13½	13½	9	9	9
AVERAGE	13½	13½	9	9	4½	4½
GOOD	13½	9	9	4½	4½	4½
VERY GOOD	9	9	4½	4½	4½	4½

Interval in minutes

CE ⌧ Rev. 01-24-1.00

EEP D2-14-59:
Multi Function Sensors - indoor Multisensor with temperature, humidity, PM, CO2, HCHO and TVOC:

Offset	Size	Data	Description	Valid Range	Scale	Calculation
0	8	Humidity	Relative Humidity	0…200	0…100%	Data/2
8	10	Temp	Temperature	0…800	0…80°C	Data/10
18	9	Particulate Matter 10um		511 (Not present)		
27	9	Particulate Matter 2.5um		511 (Not present)		
36	9	Particulate Matter 1um		511 (Not present)		
45	11	HCHO		2047 (Not present)		
56	16	TVCO		65535 (Not present)		
72	14	CO2	CO2	0…10000	0…10000ppm	Last 16 bits/4
86	2			0 (Not used)		

MID 0x06 Energy status of the SuperCap:

Offset	Size	Data	Description	Valid Range	Scale
0	8	Message Index	0x06: Energy status of the device		
8	8	Energy	Energy status of SuperCap	1…100 0: Last message due to powerloss	1…100%

MID 0x0D Energy delivery of harvester Solar Panel:

Offset	Size	Data	Description
0	8	Message Index	0x0D: Current delivery of the harvester
8	4	NOT USED	
12	4	Charging capabilities	Enumeration: 0x0: Energy provided from harvester is **very good** for future operation. 0x1: Energy provided from harvester is **good** for future operation. 0x2: Energy provided from harvester is **average** for future operation. 0x3: Energy provided from harvester is **bad** for future operation. 0x4: Energy provided from harvester is **very bad** for future operation.

MID 0x10 Backup battery status:

Offset	Size	Data	Description	Valid Range	Scale
0	8	Message Index	0x10: Backup battery status		
8	8	Energy	Energy status of battery	0…100 255: No battery detected	0…100%

UTE 0xD4 Universal Teach-in

Offset	Size	Description	Valid Range	Scale	Unit
0	1	Communication during EEP operation	Enum: 0b0: Unidirectional 0b1: Bidirectional		
1	1	EEP Teach-In-Response message expectation	Enum: 0b0: Response expected 0b1: No Teach-In-Response		
2	2	Request type	Enum: 0b00: Teach-In request 0b01: Teach-In deletion request 0b10: Teach-In or deletion of Teach-in, not specified 0b11: Not used		
4	4	Command identifier (CMD)	Enum: 0x0: EEP Teach-In Query		
8	8	Number of individual channel to be taught in	0x00…0xFE Enum: 0xFF: Teach-In of all channels supported by the device	0x00…0xFE	Channel No.
16	8	Manufacturer-ID (8 LSB)	0x00…0xFF		
24	5	Not used (=0)			
29	3	Manufacturer-ID (3 MSB)	0x00…0x07		
32	8	TYPE	0x00…0xFF		
40	8	FUNC	0x00…0xFF		
48	8	RORG	0x00…0xFF		