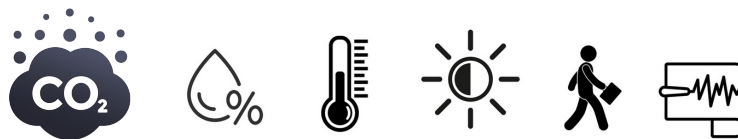


AL-602-01-868 EnoPuck® CO2 / CE

CO₂ - traffic light with multi-sensor, RGB-Led, EnOcean, +12 V DC
Item no. 12301

Interfaces:

Sensors for CO₂, temperature, relative humidity, acceleration / vibration, motion / PIR, buzzer, 1x EnOcean bi-directional (antenna internal), supply: +12 V DC, 100 mm x 28 mm



The CO₂ traffic light type AL-602-01-868 EnoPuck CO₂ / CE offers the possibility to be used both as a stand-alone solution and in connection with a building automation system as a multi-sensor and LED light indicator.

Measurement and display of the CO₂ measured value are carried out in the individual solution in the form of a traffic light (green/yellow/red), whereby the limit values, colors and brightness of the LEDs can be configured at any time via the BL-PC-FLEX-2 software (default setting of the limit values ex works = from 1000 yellow / from 2000 ppm red, others on request).

The technical data of the sensor system are as follows:

- CO₂ : 0 - 10.000 ppm

Beyond the application as a pure CO₂ traffic light, further sensors are integrated:

- Temperature : 0 - 50 °C
- Humidity: 0 - 100
- PIR sensor: 100 degree opening angle, range 3 to 5 meters

- Vibration: Sensitivity 0.061 g
- Brightness: 0 - 64.000 Lux

All measured values are transmitted via EnOcean. The EnoPuck CO2 is configured wirelessly via the BL-PC-FLEX-2 software. The only connection of the EnoPuck CO2 is the power supply with +12 V DC. For optional acoustic warning, a buzzer is also available in the device, which can be linked to the events.

Technical data

Interfaces

Type	EnOcean
Quantity	1
Transmit/receive center frequency	868.3 MHz / ASK
Frequency range used	868.0 - 868.6 MHz
Maximum transmit power	Typ. 6 dBm @ 868.300 MHz
Receiver category according to EN	2

Sensor technology: CO₂

Measuring range	0 - 10,000 ppm
Accuracy	± 30 ppm absolute, ± 3 % of measured value (@ 25 °C, range 400 - 10,000 ppm)
Repeatability	10 ppm
Temperature	2.5 ppm / °C
Response time	Type. 25 s

Sensors: rel. humidity

Measuring range	0 - 100 %
Accuracy	± 2 %
Repeatability	0,1 %
Response time	Type. 8 s

Sensors: Temperature

Measuring range	- 40 - 120 °C
Accuracy	± 0,5 °C
Repeatability	0,1 °C
Response time	Type. 2 s

Sensor technology: Acceleration sensor

Measuring range	± 8 g
Sensitivity	0.061 mg

Sensors: Motion / PIR

Angle of coverage	100 degree
Coverage	3 - 5 m

Sensors: Brightness

Measuring range	0 - 64,000 lux
Accuracy	± 10 %

User interfaces

Service button	Yes
Service LED	-
Buzzer / acoustic detector	Yes, configurable

Housing / Connection technology

Connection technology	Round socket for connection of power supply unit (hollow plug extra-low)
Housing	Plastic, PC, translucent, white

Supply

Supply voltage	12 V DC
Power consumption	Type. 1.5 W, max. 5 W

Dimensions and weight

Weight	150 g
Dimensions	Diameter: 100 mm Height: 28 mm

Environmental conditions

Operating	0..50 °C
Storage temperature	-20..+70 °C
Humidity	0..99 % relative humidity, non-condensing
Protection class	IP20

Tests / Approvals

CE	2014/53/EU RED Directive
	2011/65/EU + Annex
	2015/863/EU RoHS-3 Directive

Table of supported EEP (EnOcean Equipment Profile)
Send / TX

Lfd. No.	EEP	Description	Tx ID
1	A5-09-04	CO2 sensor (humidity, CO2, temperature)	Base ID + 100 (dec.)
2	A5-07-01	Occupancy sensor with supply voltage monitor (PIR, Vibration)	Base ID + 101 (dec.)
3	A5-08-01	Brightness	Base ID + 102 (dec.)

Notice:

The EnoPuck CO2 transmits with EnOcean base ID + 100 / EEP A5-09-04, base ID + 101 / EEP A5-07-01 and base ID +102 / A5-08-01, so no configuration or selection of EEP is required.

Receive / RX

Lfd. No.	EEP	Description
1	F6-02-01	Light and Blind Control - Application Style 1
2	F6-02-02	Light and Blind Control - Application Style 2
3	F6-02-03	Light Control - Application Style 1
4	A5-07-01	Occupancy with Supply voltage monitor
5	A5-07-02	Occupancy with Supply voltage monitor
6	A5-07-03	Occupancy with Supply voltage monitor and 10-bit illumination measurement
7	A5-06-01	Brightness sensor, range 300lx to 60,000lx
8	A5-09-04	CO2 sensor (humidity, CO2, temperature)

Device description
Power supply

The EnoPuck CO2 is supplied with a voltage of 12 V DC via the plug-in power supply included in the scope of delivery. The power consumption is typ. 1.5 W.

EnOcean

The integrated EnOcean transceiver enables bi-directional communication with sensors, a higher-level controller, and the BL-PC-FLEX-2 configuration software and EnOcean USB stick.

LED, RGB

The illumination is provided by RGB LEDs, which shine into the case from below.

Functions of the Enopuck CO₂

Measurement of CO₂ concentration and color display (RGB)

The Enopuck CO₂ continuously measures the CO₂ concentration of the ambient air, and switches the LEDs to the colors green, yellow or red (or any self-configured color value) accordingly when the configured limit values are exceeded.

The transmission interval of the measured value CO₂ (as well as that of any other measured value) via EnOcean is configurable via BL-PC-FLEX-2.

Re-calibration of the CO₂ measured value

If the Enopuck CO₂ has ever been subjected to a mechanical load such as a shock, strong vibration or a fall, the measurement of the CO₂ value may no longer be correct.

In this case, manual calibration of the CO₂ sensor in the Enopuck CO₂ is required.

Please proceed as follows:

1. Find a suitable installation location where the Enopuck CO₂ can measure outside air (no drafts). Make sure that the device is not exposed to moisture or rain at any time.
2. Supply the Enopuck CO₂ via the plug-in power supply unit. Do not disconnect the power supply until the end of the process.

3. Press the service button permanently for at least 8 seconds:



- After 2 seconds, the EnoPuck CO2 flashes red. This signals that a calibration will be performed if you press it again. If you release now, the process is still aborted.
 - After 6 seconds, the EnoPuck CO2 will start flashing blue.
4. The calibration process takes 10 minutes. You can now release the button. Wait until the process is complete. The waiting time is used to create the same CO2 concentration inside the EnoPuck CO2 as in the outside air. At the end of the time, the value measured then is taken as the reference value of 400 ppm. This is the typical CO2 concentration in the outside air.
 5. Once the calibration has been successfully completed, the EnoPuck CO2 will glow solid green.
 6. Disconnect the EnoPuck CO2 from the power supply unit. After the restart, the EnoPuck CO2 is ready for operation again.
 7. In the event of an error occurring, this lights up permanently red. Please disconnect the EnoPuck CO2 from the supply and repeat the calibration procedure again in this case.

Measurement of rel. humidity, temperature

The EnoPuck CO2 continuously measures the relative humidity and the temperature. The measured values are sent together with the CO2 value.

Motion and vibration detection

The EnoPuck CO2 continuously monitors the environment for movement or vibration, such as the tabletop at the installation location, via an integrated acceleration sensor and a PIR sensor integrated in the top. As soon as one of the two events (vibration and/or PIR detection) occurs, a "motion detected" message is sent immediately.

Ambient brightness measurement

The EnoPuck CO2 continuously measures the ambient brightness. The measurement of the brightness is made possible by the fact that the EnoPuck CO2MIC independently switches the LEDs briefly and gently off and on again whenever the measured value is to be transmitted.

Receiving EnOcean radio telegrams

The EnoPuck CO2 is configured wirelessly via the BL-PC-FLEX-2 configuration software. The EnoPuck CO2 is detected as such by the software and displayed in the Project Explorer.

When the three color channels of an EnoPuck CO2 are controlled by a superimposed controller, all the functions of the software are then available.

Sending EnOcean radio telegrams

The transmission of the measured values humidity, CO2, temperature takes place per sensor in separately configurable intervals via the software BL-PV-FLEX-2.

In addition, a message of motion detection (vibration and motion detector) occurs immediately in each case.

Sending the learning telegrams

The EnoPuck CO2 has a service button in the device. This is located on the side, approx. 3 cm to the right of the socket for the power supply unit, and can be actuated with a paper clip, for example:

If the button is pressed 1x briefly within 2 seconds, a learning telegram for the EEP A5-09-04 is sent after the 2 seconds have elapsed.

If the button is pressed 2x briefly within 2 seconds, a learning telegram for the EEP A5-07-01 is sent after the 2 seconds have elapsed.

If the button is pressed 3 times briefly within 2 seconds, a learning telegram for the EEP A5-08-01 is sent after the 2 seconds have elapsed.



Dimensions:

Diameter: 100 mm; Height: approx. 28 mm



Ordering information

Article text	Order no.	Description
AL-602-01-868 EnoPuck CO2 / CE	12301	CO2 traffic light, EnoPuck CO2, RGB LED, EnOcean 868 MHz, Multisensor technology for CO2, humidity, temperature, vibration, PIR; Supply voltage 12 V DC (+/- %), dimensions 100 x 18 mm, Housing: PC white diffuse; incl. plug-in power supply 12 V DC;
AL-490-00-868 EnOcean USB stick 868.3 MHz CE	11227	EnOcean USB stick, 868.3 MHz for PC, to use the software BL-PC-FLEX-2 or with VL-7xx HMI / operator panel, Ambient temp.: 0 ... +40 °C; 0..93 % r.h.; internal antenna;

Note in accordance with FuAG §20 Para. 4:

This device is only approved for operation within the member states of the European Union.

EU Declaration of Conformity

Hereby DEUTA Controls GmbH declares that the radio equipment type **AL-602-01-868 EnoPuck CO2 / CE** is in compliance with Directive 2014/53/EU. The full text of the EU Declaration of Conformity is available at the following internet address: www.deuta-controls.de in the Service/Downloads area. (doc. EUDC2020_164).

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