DEUTA Controls AL-602-03-902 Desk Sensor with Vibration and PIR Sensor Owner's Manual

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Contents

Validity of this documentation

This documentation is only applicable to the product

AL-602-03-902 EnoPuck BASIC

and is only applicable starting from products with FW/HW Version 1.0/2.0.

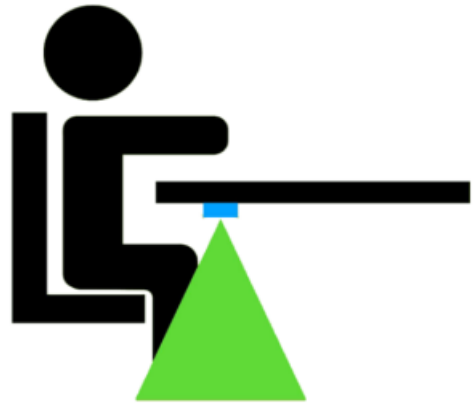
The device must only be installed and operated according to the instructions in these operating instructions.

Intended use

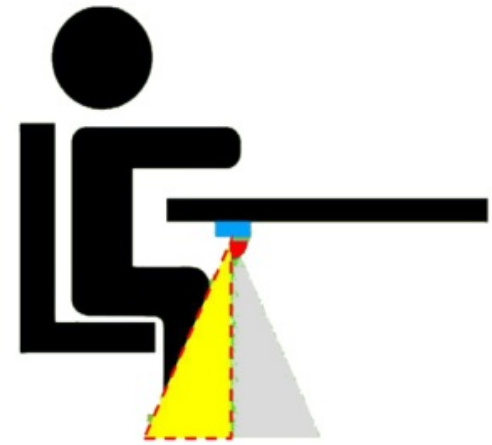
The **AL-602-03-902 EnoPuck BASIC** must not be used in any relation with equipment that supports, directly or indirectly, human health or life or with applications that can result in danger for people, animals or real value.

The **AL-602-03-902 EnoPuck BASIC** can be put on a tables surface, or even mounted below a desk using a double-sided adhesive tape. The lens cover can be used to shield a certain area to avoid an unwanted motion detection. Without the lens cover, detection range will be 360°, as shown in the following example (green

detection area):



Using the lens cover, you can shield half of the area as shown below (yellow detection area):



Disposal

Electrical and electronic equipment may not be disposed of with household waste. This also applies to products without this symbol. Electrical and electronic equipment contain materials and substances that can be harmful to the environment and health. Electrical and electronic equipment must be disposed of properly after use.

Note only for EU: WEEE 2012/19/EU applies throughout Europe. Directives and laws may vary nationally.

Device description

Functionality

The AL-602-03-902 EnoPuck BASIC is used to detect the presence of people working on a desk by the internal vibration and PIR (passive infrared) motion sensor in the front.

The integrated radio interface based on EnOcean® wireless technology offers the possibility to integrate this information into any building automation system with an EnOcean interface. It can also be directly teached in into an EnOcean based actuator.

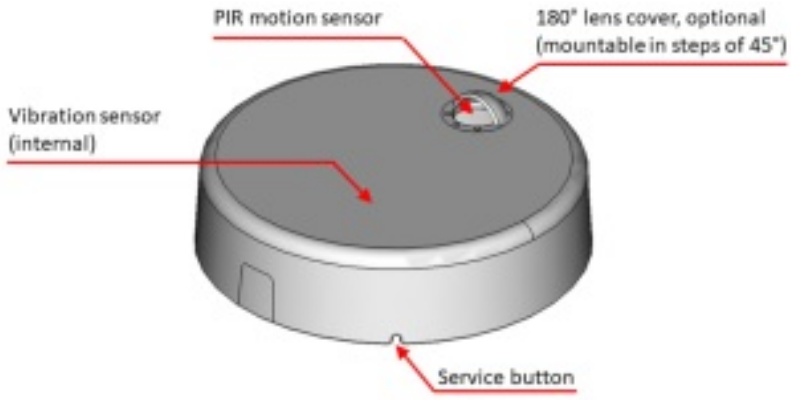
If vibration or motion is detected, a wireless message will be sent by the integrated radio transmitter based on the international EnOcean® wireless standard

The technical data of the integrated sensors are as follows:

- **PIR sensor:** 100 degree opening angle, range 3 to 5 meters
- **Vibration:** sensitivity 0.05 g

The measured values / events are transmitted via EnOcean. There is no external wired interface.
The EnoPuck BASIC is supplied by two internal 1,5 V AA batteries.

External product interface



The external product interface consists of the following items:

- Infrared lens in conjunction with a passive infrared sensor for motion detection
- Mountable 180° lens cover, 8 positions in steps of 45°
- Service button to send teach in / learn telegram

Observe intended use

The AL-602-03-902 EnoPuck BASIC must not be used in any relation with equipment that supports, directly or indirectly, human health or life or with applications that can result in danger for people, animals or real value.

Observe statutory provisions for operating frequency range

The AL-602-03-902 EnoPuck BASIC must only be operated in compliance with the country-specific provisions regarding operation of radio equipment.

Non-conduction mounting surface

A non-conductive mounting surface is necessary.
Ensure the AL-602-03-902 EnoPuck BASIC is mounted on a non-conductive surface. If it is not, performance may be adversely affected.

Technical data

Communication / EnOcean wireless interface

Type	EnOcean
Number	1
Transmit / receive center frequency	902.875 MHz
Maximum transmission power	+99 dBµV/m

Table 1: Technical data / communication

Sensor: Vibration sensor

Measuring range	± 8 g
Sensitivity	0,05 g

Table 2: Technical data / vibration sensor

Sensor: Motion / PIR

Detection angle	100 degrees
Detection range	3 – 5 m

Table 3: Technical data / PIR sensor

User interfaces

Service button	Yes
Service LED	–

Table 4: Technical data / user interfaces

Housing / connection technology

Connection technology	–
Housing	Plastic, PC, white opaque

Table 5: Technical data / housing

Power supply

Power supply voltage	2x AA, 1,5V internal batteries
Power consumption	Typ. 1 mW, 50 µA standby

Table 6: Technical data / power supply

Environmental conditions

Operating temp.	0..50 °C
Storage temp.	-20 ..+70 °C
Rel. humidity	0..99 % rel. humidity, non condensing
Protection class	IP20

Table 7: Technical data / environmental conditions

Dimensions and weight

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

Table 8: Technical data / dimensions and weight

Approvals

FCC Rule parts	15.231
Equipment class	Part 15 Security / Remote control

Table 9: Technical data / tests and approvals

Standards and guidelines

EMC	EN IEC 61000-6-2 :2016 EN IEC 61000-3-2 :2019 EN 61000-3-3 :2013 EN 55032 :2012/AC :2013

Table 10: Technical data / standards and guidelines

Functional description in detail

Events and messages

Vibration and motion are monitored in parallel by the AL-602-03-902 EnoPuck BASIC. The events are handled with the same priority, whatever will happen first.

Detect vibrations

The EnoPuck BASIC continuously monitors the environment by the PIR sensor on top of the housing. After a phase of no detection, the EnoPuck BASIC will immediately send a message with Bit 0 = 1 and Bit 7 = 1 when a motion is detected by the sensor. After a detection event, the EnoPuck BASIC will not react again for a time of 30 seconds.

Detect motion

The EnoPuck BASIC continuously monitors the environment by a highly sensitive vibration sensor inside the device. After a phase of no detection, the EnoPuck BASIC will send immediately a message Bit 1 = 1 and Bit 7 = 1 when vibration is detected by the sensor. After a detection event, the EnoPuck BASIC will not react again for a time of 30 seconds.

When vibration and motion are detected at the same time, both bits Bit 0 and Bit 1 will be set accordingly

Send learn telegram

To connect the EnoPuck BASIC to any building automation system, a so called learn telegram can be send by the EnoPuck BASIC.

Simply push the service button. The EnoPuck BASIC will immediately send a learn telegram.

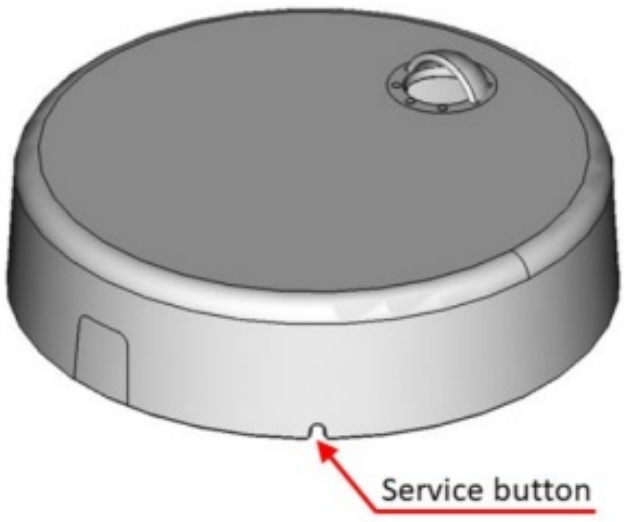


Table of supported EEP's (EnOcean Equipment Profiles)

Transmit / TX

The EnOcean wireless standard defines so called EnOcean Equipment Profiles (EEP). Each EnOcean based product sends and receives data according to at least one standardized data format. The EnoPuck BASIC

transmits data described as follows:

Cons. nr.	EEP	Description	Tx-ID
1	A5-07-01	Occupancy sensor with supply voltage monitor (PIR, Vibration)	EURID

Table 11: Technical data / EnOcean EEP for tx

The following table describes in detail data send by the EnoPuck BASIC according to the EEP A5-07-01:

Offset	Size	Bitrange	Data	Shortcut	Description	Valid rang e	Scale	Unit
0	8	DB3.7…DB3.0	Supply volt age	SVC	Battery voltag e	0..250	0…5.0	V
8	8	DB2.7… B2.0	Not used (= 0)					
16	8	DB1.7… B1.0	PIR Status	PIRS	PIR Status	s. ***Table 13*** below		

24	4	DB0.7…DB0.4	Not used (= 0)			
28	1	DB0.3	LRN bit	LRNB	LRN Bit	0: Teach-in telegram 1: Data telegram
29	2	DB0.2…DB0.1	Not used (= 0)			
31	1	DB0.0	Supply voltage avai lable	SVA	Supply voltage availability at DB_3	1: Supply voltage is support ed

Table 12: EnOcean transmit data

Note:

The EnoPuck BASIC sends EnOcean telegrams according to the following rules:

- Immediately when the PIR or VIB sensors detect a motion or vibration event.

The bits are coded as follows:

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Motion det ected	Reserved	Reserved	Reserved	Reserved	Reserved	Vibration	PIR sensor

Table 13: EnOcean data, PIR and vibration message coding

- Bit 7: 1 = motion detected
- Bit 6: Reserved
- Bit 5: Reserved
- Bit 4: Reserved
- Bit 3: Reserved
- Bit 2: Reserved
- Bit 1: 1 = Vibration detected; 0 = No vibration detected;
- Bit 0: 1 = PIR motion detected; 0 = PIR motion detected;

Receive/ RX

The EnoPuck BASIC only sends EnOcean telegrams. No data is received / interpreted

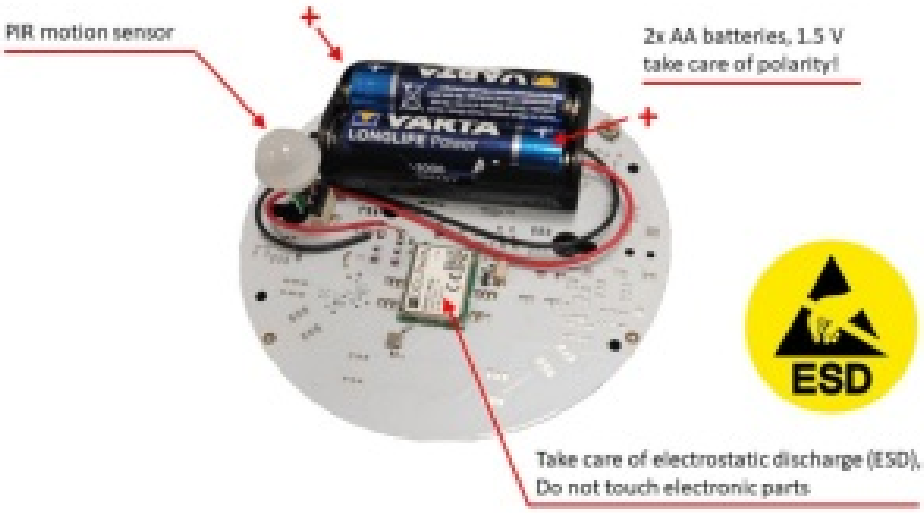
Cons. №	EEP	Description
–	–	–

Service / changing batteries

Caution: When opening the device, you have to take care of electrostatic discharge. Otherwise, electronics will be damaged.

In case of discharged batteries, they can be replaced with two new AA batteries, 1,5 V.

You have to remove carefully the four screws on the backside of the EnoPuck BASIC (Tool: Bit T6). Do not touch any electronic components, since you could damage the device.



Safety remarks

CAUTION: Risk of damage or explosion if a battery of incorrect type is used.

This product contains AA type batteries. If a battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death.

Keep new and used batteries away from children.

Device labels

The following labels are placed on the bottom side of the EnoPuck BASIC:

IC
FCC ID: 2AZTH-AL-602-03-902
IC: 27242-60203902
PMN: AL-602-03-902
FVIN: 1.0 HVIN: 2.0

FCC (United States) Regulatory Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

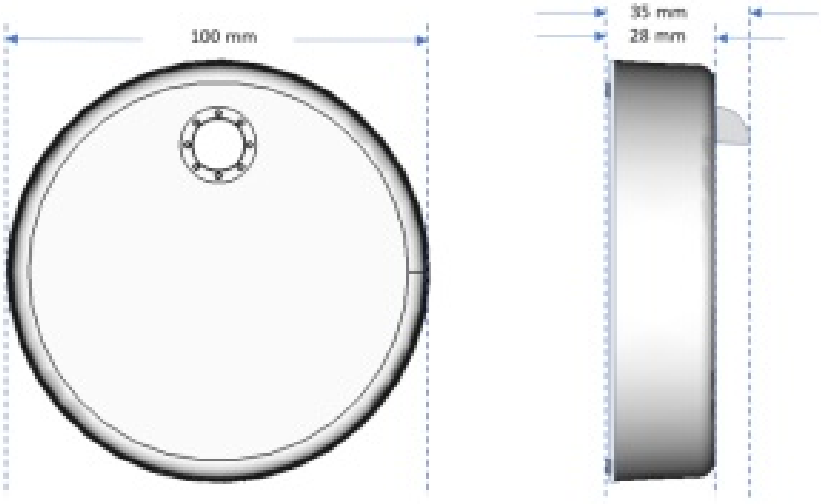
ISED Regulatory Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Dimensions / drawings

Diameter: 100 mm;
Height: approx. 28 mm+ 7 mm lens cover if mounted



Ordering information

Part name	Part nr.	Description
AL-602-03-902 EnoPuck BASIC	12408	Table sensor, EnoPuck BASIC, EnOcean 902 MHz, sensors for vibration and PIR d etector; supply voltage 2x AA 1,5 V internal, dime nsions 100 x 28 mm, PC, white opaque; incl. adhesive pad;

Revision history

Version	Author	Reviewer	Date	Major changes
1.0	Lehzen	–	15.06.2021	Initial release
1.1	Lehzen	Pohl / Kurzawa	15.06.2021	Release candidate for FCC approval
1.1.01	Lehzen	–	15.06.2021	Minor changes in 9, FCC instead of FDD
1.1.02	Lehzen	Pohl / Kurzawa	06.07.2021	Changed functional description according to FCC test report

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Documents / Resources

	DEUTA Controls AL-602-03-902 Desk Sensor with Vibration and PIR Sensor [pdf] Owner's Manual AL-602-03-902, AL60203902, 2AZTH-AL-602-03-902, 2AZTHAL60203902, AL-602-03-902 Desk Sensor with Vibration and PIR Sensor, Desk Sensor with Vibration and PIR Sensor, Vibration and PIR Sensor, PIR Sensor, Desk Sensor