



AL-602-03-902 EnoPuck BASIC

**Desk Sensor with vibration and PIR sensor
EnOcean 902 MHz**

Part no. 12408

Version 1.1.02, valid since FW/HW 1.0 / 2.0

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Every conceivable measure has been taken to ensure the accuracy and completeness of this documentation. However, as errors can never be fully excluded, we always appreciate any information or suggestions for improving the documentation.

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1 Validity of this documentation

This documentation is only applicable to the product

AL-602-03-902 EnoPuck BASIC

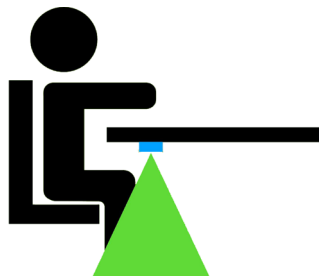
and is only applicable starting from products with FW/HW Version 1.0/2.0.

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

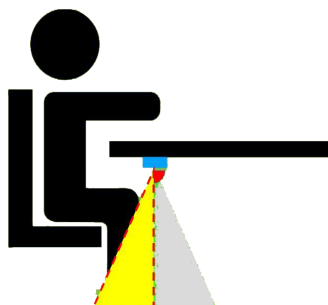
2 Intended use

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):



3 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.

4 Device description

4.1 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 taught 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

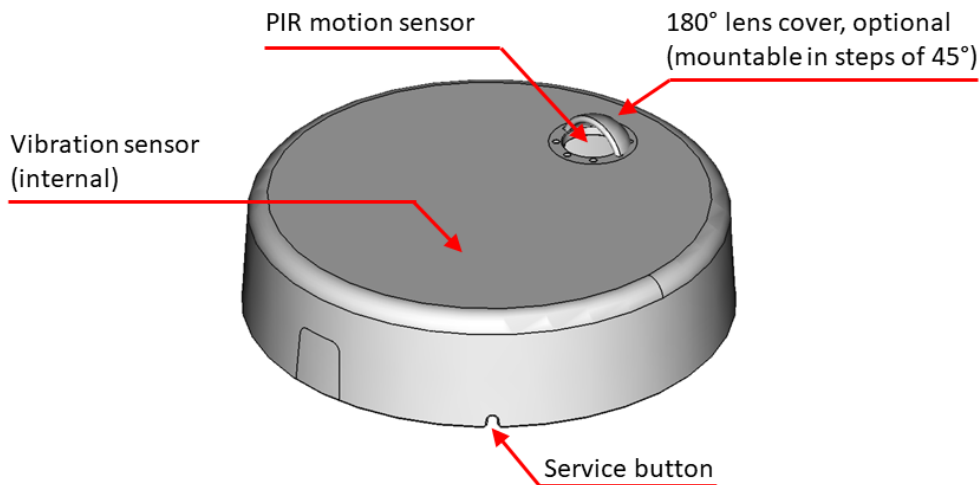
The measured values / events are transmitted via EnOcean. There is no external wired interface.

The **EnoPuck BASIC** is supplied by two internal 1,5 V AA batteries.

4.2 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



4.3 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.

4.4 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.

4.5 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.

5 Technical data

5.1 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

5.2 Sensor: Vibration sensor

Measuring range	± 8 g
Sensitivity	0,05 g

Table 2: Technical data / vibration sensor

5.3 Sensor: Motion / PIR

Detection angle	100 degrees
Detection range	3 – 5 m

Table 3: Technical data / PIR sensor

5.4 User interfaces

Service button	Yes
Service LED	-

Table 4: Technical data / user interfaces

5.5 Housing / connection technology

Connection technology	-
Housing	Plastic, PC, white opaque

Table 5: Technical data / housing

5.6 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

5.7 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

5.8 Dimensions and weight

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

Table 8: Technical data / dimensions and weight

5.9 Approvals

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

Table 9: Technical data / tests and approvals

5.10 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
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Table 10: Technical data / standards and guidelines

6 Functional description in detail

6.1 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.

6.1.1 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.

6.1.2 Detect motion

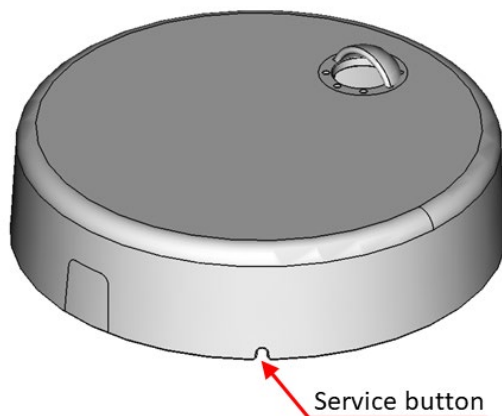
The Enopuck BASIC continuously monitors the environment by a highly sensitive vibration sensor inside the device. After a phase of no detection, the Enopuck BASIC will send immediately a message **Bit 1 = 1** and **Bit 7 = 1** when vibration is detected by the sensor. After a detection event, the Enopuck 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.

6.1.3 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.



6.2 Table of supported EEP's (EnOcean Equipment Profiles)

6.2.1 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 range	Scale	Unit
0	8	DB3.7...DB3.0	Supply voltage	SVC	Battery voltage	0..250	0...5.0	V
8	8	DB2.7...DB2.0	Not used (= 0)					
16	8	DB1.7...DB1.0	PIR Status	PIRS	PIR Status	s. Table 13 below		

Offset	Size	Bitrange	Data	Shortcut	Description	Valid range	Scale	Unit
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 available	SVA	Supply voltage availability at DB_3	1: Supply voltage is supported		

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 detected	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;

6.2.2 Receive/ RX

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

Cons. Nr.	EEP	Description
-	-	-

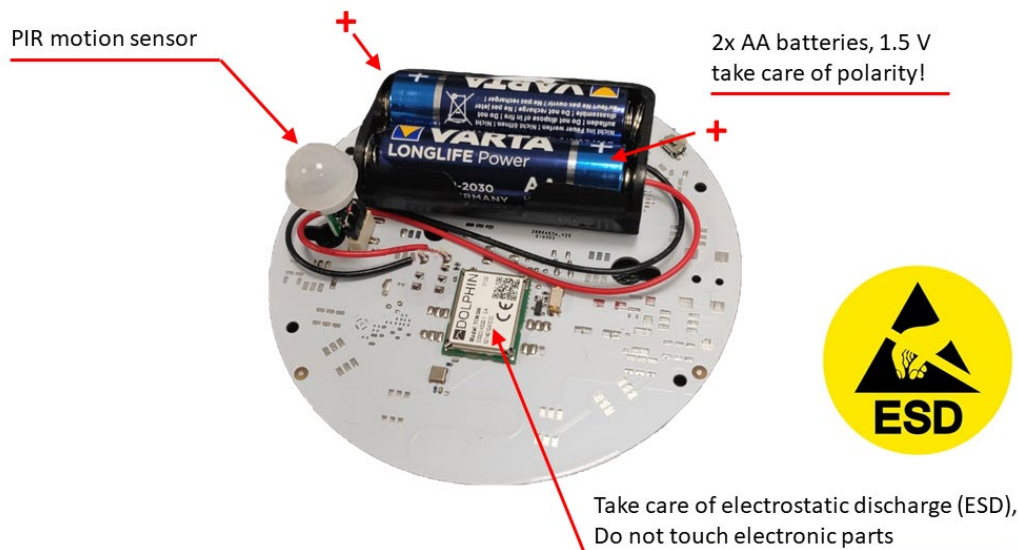
7 Service / changing batteries



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.



8 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.

9 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



RoHS

AL-602-03-902/EnoPuck Basic

PN: 12408

2 x Bat Typ AA Made in Germany

DEUTA Controls GmbH
Pafrather Straße 140
51465 Bergisch Gladbach
Germany
SN: xxxxx

FT

HV

QS

PG

10 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.

11 ISCED 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:

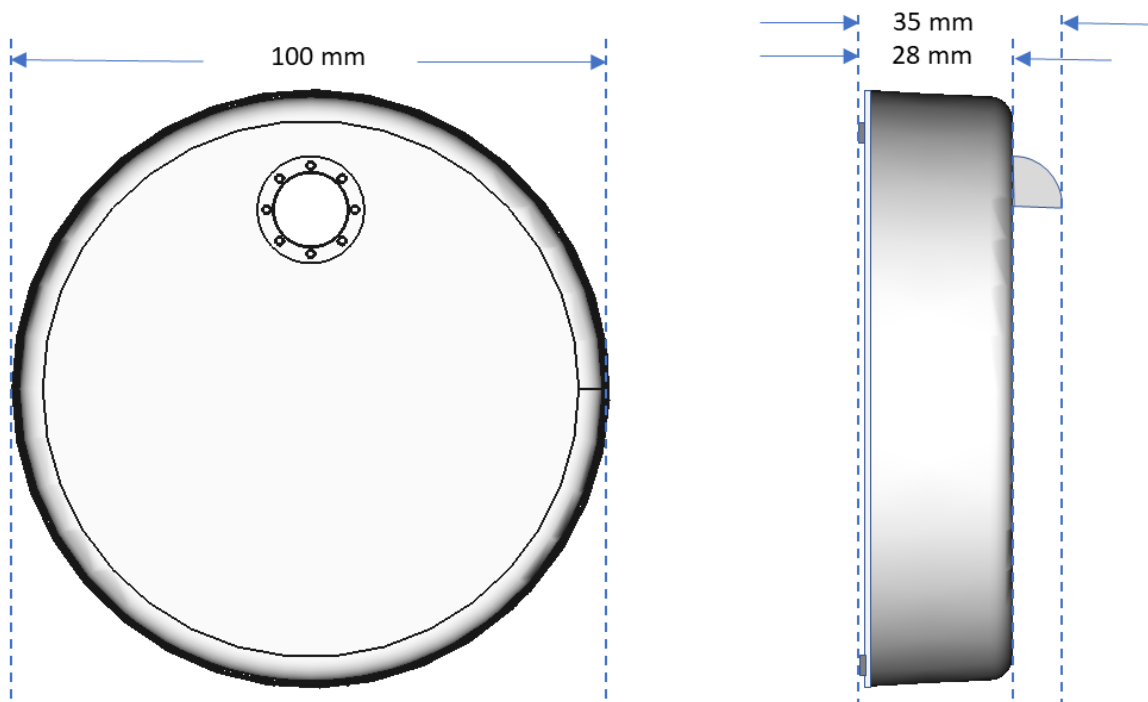
1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

12 Dimensions / drawings

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



13 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 detector; supply voltage 2x AA 1,5 V internal, dimensions 100 x 28 mm, PC, white opaque; incl. adhesive pad;

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14 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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