



Operational description

AL-436-00-928 EnoSense People Counter

EnOcean Sensor for people counting / PIR based
EnOcean 928 MHz / JAPAN

Part no. 12760 (beige) / 12759 (black) / 12604 (white)

Version 1.00, valid since FW / HW 1.3 / 1.3

© 2023 DEUTA Controls GmbH

All rights reserved

This Manual, including all figures and illustrations, is copyright-protected. Any further use of this Manual by third parties that violate pertinent copyright provisions is prohibited.

Reproduction, translation, electronic and photo technical filing/archiving (e.g., photocopying) as well as any amendments require the written consent of DEUTA Controls GmbH, Bergisch Gladbach, Germany. Non-observance will involve the right to assert damage claims.

DEUTA Controls GmbH

Paffrather Straße 140
51465 Bergisch Gladbach
Phone: +49 2202 28557-61
Fax: +49 2202 28557-79
E-Mail: info@deuta-controls.de
Web: www.deuta-controls.net

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.

E-Mail: info@deuta-controls.de

Table of contents

1	Operational description	4
1.1	Functionality	4
1.2	External product interface	4
1.3	Observe intended use	5
1.4	Observe statutory provisions for operating frequency range.....	5
1.5	Non-conduction mounting surface	5
2	Technical data	6
2.1	Communication / EnOcean wireless interface	6
2.2	Sensor: Motion / PIR	6
2.3	User interfaces	6
2.4	Housing / connection technology	6
2.5	Power supply	6
2.6	Environmental conditions	7
2.7	Dimensions and weight	7
2.8	Standards and guidelines	7
2.9	Approvals	7
3	Functional description in detail	8
3.1	People counting	8
3.2	Send learn telegram	8
3.3	Table of supported EEP's (EnOcean Equipment Profiles)	8
3.3.1	Transmit / TX	8
3.3.2	MSC data structure	9
3.3.3	People counting / data transmission rules	10
3.3.4	Receive/ RX	10
4	Revision history	11

1 Operational description

1.1 Functionality

The **AL-436-00-928 EnoSense People Counter** offers the possibility to recognize passing people in both directions and to send the current count value via radio (EnOcean).

The sensor electronics, which are built into a plastic housing, are attached with a double-sided adhesive pad over the door (vertical detection) or on a door frame (horizontal detection).

Depending on your requirements, the sensor is available in a black, white or beige housing. In this case, the power is supplied by two internal AA batteries. Depending on the application, these typically last 5 years or more.

The information is transmitted via the EnOcean wireless standard (EEP: MSC, 47-D1-07-10).

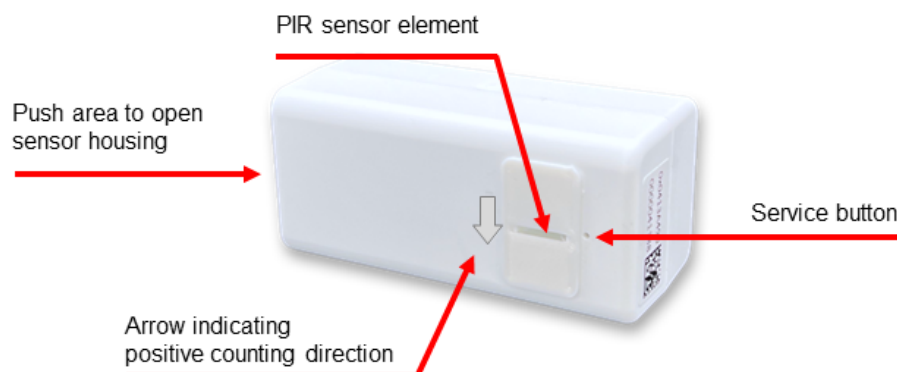
The following information is currently available for the evaluation:

- Count value (with overflow): 8 bit, 0..255
- Battery voltage: 8 bit [mV/20]

1.2 External product interface

The external product interface consists of the following items:

- Lens opening of the passive infrared sensor for passing people detection
- Service button to send teach in / learn telegram
- Push area to open sensor (access to battery holder)



1.3 Observe intended use

The **AL-436-00-928 EnoSense People Counter** 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.

1.4 Observe statutory provisions for operating frequency range.

The **AL-436-00-928 EnoSense People Counter** must only be operated in compliance with the country-specific provisions regarding operation of radio equipment.

1.5 Non-conduction mounting surface

A non-conductive mounting surface is necessary.

Ensure the **AL-436-00-928 EnoSense People Counter** is mounted on a non-conductive surface. If it is not, performance may be adversely affected.

2 Technical data

2.1 Communication / EnOcean wireless interface

Type	EnOcean
Number	1
Operating frequency	928.350 MHz
Transmission power	0 dBm
Modulation type	FSK
Transfer / data rate	125 kbit/s

Table 1: Technical data / communication

2.2 Sensor: Motion / PIR

Detection angle	120 degrees
Detection range	0.5 – 2 m

Table 2: Technical data / PIR sensor

2.3 User interfaces

Service button	Yes
Service LED	-

Table 3: Technical data / user interfaces

2.4 Housing / connection technology

Connection technology	-
Housing	Plastic, PC, white / black / beige

Table 4: Technical data / housing

2.5 Power supply

Power supply voltage	2x AA, 1,5V internal batteries
Power consumption	Typ. 1 mW, 50 µA standby
Power rating	3 V DC, 0.05 A max. (operational)

Table 5: Technical data / power supply

2.6 Environmental conditions

Operating temp.	15°.. 40 °C
Storage temp.	-20 ..+70 °C
Rel. humidity	0..99 % rel. humidity, non condensing
Protection class	IP20

Table 6: Technical data / environmental conditions

2.7 Dimensions and weight

Weight	87 g
Dimensions	36 x 37 x 80 mm

Table 7: Technical data / dimensions and weight

2.8 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
ARIB	ARIB STD-T108 Ver.1.4 (23 April 2021)

Table 8: Technical data / standards and guidelines

2.9 Approvals

MIC	 R 204-A00038
-----	--

Table 9: Approvals

3 Functional description in detail

3.1 People counting

The **AL-436-00-928 EnoSense People Counter** will detect and count people passing by the sensor element, based on PIR technology.

Depending on the direction, counter will be incremented or decremented by one for each event.

3.2 Send learn telegram

To connect the **EnoSense People Counter** to any building automation system, a so called learn telegram can be send by the device.

Simply push the service button. The **EnoSense People Counter** will immediately a learn telegram.



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

3.3.1 Transmit / TX

The EnOcean wireless standard defines so called EnOcean Equipment Profiles (EEP). Each EnOcean based product sends data according to at least one standardized data format. The **EnoSense People Counter** transmits data described as follows:

Cons. nr.	EEP	Description	Tx-ID
1	47-D1-07-10	Counting value, bit (BYTE 0)+ Power supply voltage, 8 bit (BYTE 3)	EURID

Table 10: Technical data / EnOcean EEP for TX

The following table describes in detail data send by the EnoSense People Counter according to the EEP 47-D1-07-10:

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	23	DB2.7...DB1.0	Not used (= 0)					
24	8	DB0.7...DB0.0	Counter value	CNT	Counter value	0..255	1	-

Table 11: EnOcean transmit data

3.3.2 MSC data structure

Data field	People	Data field	Voltage	Data field	Switch	Data field	Error
Offset	40	Offset	16	Offset	24	Offset	32
Size	8	Size	8	Size	8	Size	8
Range min / max	0 / 255	Range min / max	0 / 255	Range min / max	0 / 255	Range min / max	0 / 255
Scale min / max	0 / 255	Scale min / max	0 / 5.1	Scale min / max	0 / 255	Scale min / max	0 / 255
Unit	-	Unit	V	Unit	-	Unit	-
Meaning	Counter value	Meaning	Supply voltage	Meaning	Reserved	Meaning	Reserved

3.3.3 People counting / data transmission rules

Operational description of People counting / data transmission rules

The sensor works on the basis of two PIR sensors, which, depending on the signal, evaluate a counting pulse in the positive or negative direction. Each time motion is detected, the counter value changes accordingly. The changed counter value (+/-) is immediately sent via EnOcean.

As long as no motion is detected by the sensor element, no message will be transmitted by the EnoSense People Counter. The wireless transmitter will not be activated.

In the moment when a motion (people passing by) will be detected, the wireless transmitter will be activated and a data message will be transmitted by the People Counter immediately. A second message (sub telegram) will be sent after 25 ms with the same data contents.

If no further motion is detected, the People Counter will not send any further message.

3.3.4 Receive/ RX

The **EnoSense People Counter** only sends EnOcean telegrams. No data is received / interpreted.

4 Revision history

Version	Author	Reviewer	Date	Major changes
1.00	Lehzen	Pohl	10.07.2023	Initial release

----- End of document -----