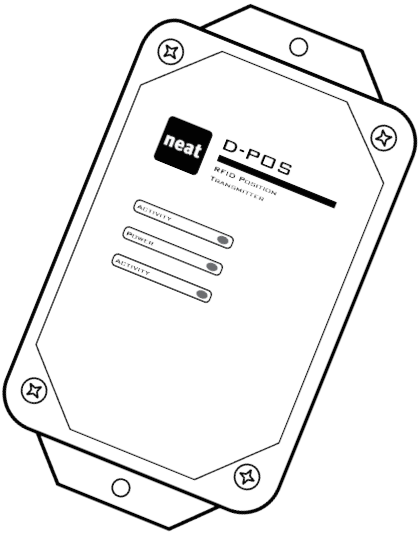
D-POS
User Manual



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EU Notes

When the device is used it complies to essential requirements and relevant provisions. A complete Declaration of Conformity can be obtained from www.neat-group.com/downloads/documentation.

US Notes

FCC ID: 2AGLF0702901

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

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.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Ulrik Lundberg
CEO

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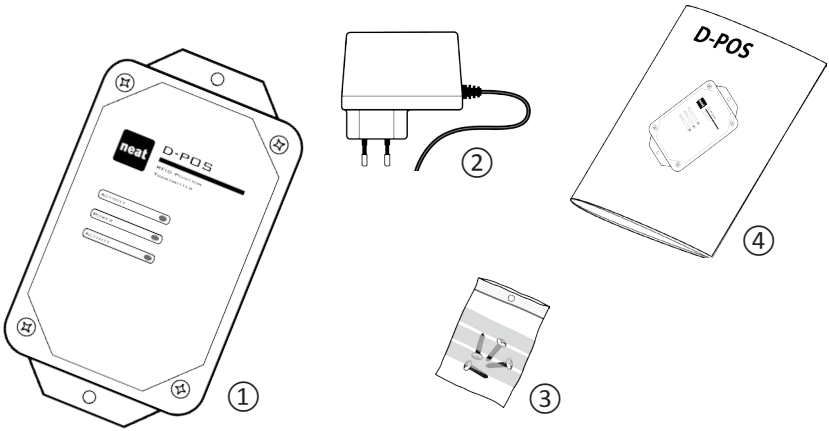
1 Parts in the package



#	Denomination
①	1 x D-POS unit
②	1 x AC-*
③	1 x Plastic bag with 4 lid screws
④	1 x This user manual

Table 1. D-POS Kit parts

* AC adaptor depending on your country/region

Country/Region	Article number
EU except UK	NE31 07006-01 ($12V_{DC}$, 1.5A Eurostick)
UK	NE31 07006-15 ($12V_{DC}$, 1.6A UK plug)
US	NE31 07006-22 ($12V_{DC}$, 1.6A US plug)

Table 2. AC adaptors for different sales regions

D-POS and its corresponding parts must be installed by a professional fitter.

2 Intended use

The D-POS system is a versatile and highly customizable system for monitoring and surveillance of wardens, users, zones, doors, stairs etc. in order to create a safe, flexible and easily manageable environment for the dementia care sector.

3 Hardware overview

#	Denomination
①	2 x Screw holes for fixed mounting
②	4 x Lid screws
③	LED2
④	LED3
⑤	LED1
⑥	Opening for connectors (on the side/back)

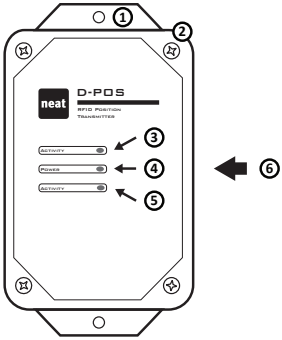


Table 3. Unit hardware overview

3.1 PCB

#	Denomination
①	Rotatary switches S1- S3
②	MiniUSB connector for NPU
③	Potientiometers P1, P2
④	DIP switches DIP1- DIP8
⑤	Connector J1
⑥	Tamper switch
⑦	LED1- LED3
⑧	Jumpers JP1-JP3

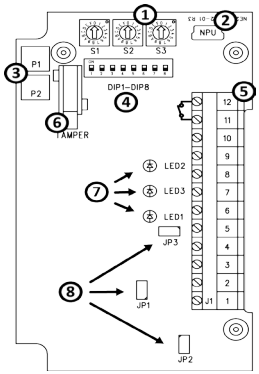


Table 4. Unit PCB overview

3.2 Connector J1

#	Denomination
12	Output, Normally Closed
11	Output, Normally Closed
10	Ground
9	Input 2/Sync
8	Input 1
7	Ground
6	12-24 V_{DC} input
5	Common 2
4	D-POS ANT 2
3	LOOP Antenna
2	Common 1
1	D-POS ANT 1

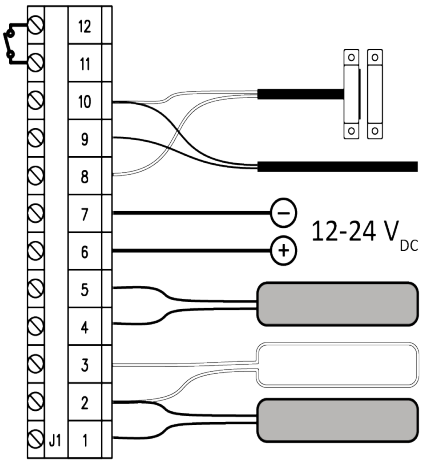


Table 5. Connector J1

Only use D-POS ANT (NEAT Ferrite Antenna), art#: NE31 07030-01.

3.3 Tamper switch

The unit is equipped with a tamper switch which indicates if the lid is open by both opening the Output as well as blinking with LED3, see “3.5 LED Indication” below.

3.4 Tamper relay output (#11 and #12)

This relay output is normally closed under normal operation, and is opened if one or all of the following occurs:

- The lid is opened (the tamper switch is trigged)
- The unit looses power.
- One or both antennas cease to function (which antenna is it is indicated by LED1 and/or LED2).

The output is open during boot up, which normally takes a second or so, but is closed when the unit has booted up and runs normally.

The tamper relay will not indicate broken wire for antenna 1 when jumper JP1 is mounted or for antenna 2 if used with a LOOP with jumper mounted on the LOOP.

3.5 LED Indication

There are three light emitting diodes (LED) in D-POS. The activity LEDs- LED1 and LED2- are red. The power LED- LED3- is green. When the D-POS unit is powered on, all three LEDs light up for one second. LED3 burns with a steady green light as long as the power supply is OK and the D-POS unit is working without problems.

When the unit is working correctly, LED1 is blinking when antenna 1 is transmitting and LED2 is blinking when antenna 2 is transmitting.

If LED3 is blinking with a green light, an error has been detected with the power supply or the antennas, or the D-POS unit is broken or the lid is open (tamper switch is open).

If LED1 is blinking with a red light and LED3 is blinking with a green light, there is a problem with antenna 1. If LED2 is blinking with a red light and LED3 is blinking with a green light, there is a problem with antenna 2.

3.6 LOOP Antenna

A LOOP Antenna is an electrical cable in a loop creating an electrical field. Max cable length <10 meters and cable area >0.4 mm^2 (AWG 21).

4 Installation

1. To change the configuration of D-POS, remove the lid and make sure the AC/DC adapter is unplugged. Change the settings of rotary switches, DIP switches, jumpers and potentiometers as described on page 6 in this manual.
2. Connect a D-POS ANT to screw terminals 1 & 2 **OR** a LOOP antenna to screw terminals 2 & 3.

To use both D-POS ANT **and** *a LOOP Antenna connect D-POS ANT to screw terminals 4 & 5 and then the LOOP Antenna to screw terminals 2 & 3.*

3. If a magnetic contact switch is used, connect it to screw terminals 8 & 10.
4. If the RFID field from two D-POS units overlap, connect a synchronization cable to screw terminals 9 & 10 on both D-POS units.
5. Connect the AC/DC adaptor to screw terminals 6 & 7.

Only use AC/DC adaptor provided by NEAT, see Table 2 on page 4 or use 12-24 V_{DC} as central power supply.

6. Close and fasten the lid using the screws supplied.
7. Plug in the AC/DC adaptor in a mains outlet in the apartment.
8. The power LED lights up with a steady green light to indicate power is on.

To adjust rotary switches and potentiometers we recommend a flat screwdriver with a 2.4 x 0.5 mm blade. Use max. 10 meters of cable with cable area 0.4 mm^2 or more (AWG 21) for ferrite and loop antennas.

5 Settings

D-POS is configured with rotary switches S1-S3, DIP switches 1-8, jumpers JP1-JP3 and potentiometers P1-P2 as shown in 3.1. Basic configuration of D-POS using switches, potentiometers and jumpers is explained on the next pages.

5.1 NPU Configuration

In some applications there may be need for a configuration that cannot be set up with D-POS on-board switches and potentiometers. One example is when two magnetic switches are needed to control one antenna each. In this case a computer with the D-POS Programmer software and the NEAT USB interface (NPU) must be used.

To use computer configuration, set DIP switch 1 to ON. In this operating mode, settings made with rotary switches S1-S3, DIP switches 2-8 and potentiometers P1-P2 are ignored.

For more details on how to use D-POS programmer see D-POS and D-ATOM Technical Handbook, document number NE41 08001-02.

DIP1	Configuration
ON	Computer configuration
OFF	On-board switches and potentiometers

Table 6. DIP1- Configuration settings

5.2 Antenna 2 activation

Antenna 2 can be used to extend the coverage area or for a second separate door up to 10 meters away from D-POS. When a second antenna is connected to screw terminals 4 and 5, set DIP switch 4 to ON, otherwise OFF.

DIP4	Antenna 2
ON	Active
OFF	Not active

Table 7. Activate antenna 2

5.3 External control

D-POS has two external inputs which can be connected to closing switches to control RFID transmission. Input 2 can only be used if D-POS is configured with a computer, see “5.1 NPU Configuration” on page 8.

To use input 1 to control RFID transmission (antennas 1 and 2) set DIP switch 2 to ON. DIP switch 3 determines whether RFID transmission shall be active when the input is open or closed.

DIP2	Antennas 1 and 2
ON	Antennas are controlled by input 1
OFF	Antennas are always active

Table 8. DIP2- configure antenna 1 and 2 position signals

DIP3	Input 1 mode
ON	Normally open — antennas active when input closed
OFF	Normally closed — antennas active when input open

Table 9. DIP3- Configure input activation state

5.4 Identification Code

Each D-POS unit must to be identified with a unique code. With the on-board rotary switches S1-S2 and DIP switches 5 and 6 it is possible to select one of 256 different identification codes.

When a computer is used to configure D-POS it is possible to choose one of 65000 different identification codes.

The ID code consists of four hexadeximal digits. The table below shows which code will be transmitted by antenna 1 and antenna 2 depending on the values of rotary switch S1-S2 and DIP switch 5 and 6.

DIP5	DIP6	Antenna 1 ID code	Antenna 2 ID code
OFF	OFF	S1 S2 0 1	S1 S2 0 1
ON	OFF	S1 S2 0 1	S1 S2 0 2
OFF	ON	S1 0 0 1	S1 0 0 1
ON	ON	S1 0 0 1	S2 0 0 2

Table 10. DIP5 and 6- antenna position codes

5.5 Zone Number

Each D-POS unit can be configured to belong to one of 16 zones: 0-9, A-F. The zone is selected with rotary switch S3. The zone number is used by D-ATOM to determine if it shall send an alarm or not.

The selected zone number will be used for both antenna 1 and antenna 2.

5.6 Antenna Power

Potentiometer P1 determines the size of the RFID field for antenna 1. Potentiometer P2 determintes the field size for antenna 2. Turn potentiometers clockwise to increase the size of the RFID field.

If the RFID field is to large when the potentiometer is at its minimum, remove JP2 to reduce antenna power for antenna 1 and/or jumper JP3 to reduce power for antenna 2.

To reduce the RFID field further when a loop antenna is connected as antenna 1, insert jumper JP1.

JP1	JP2	Output Power, Loop antenna 1
OFF	ON	High power
OFF	OFF	Medium power
ON	OFF	Low power

Table 11. JP1 och 2- Loop antenna 1 output setting

JP1	JP2	Output Power, Ferrite antenna 1
OFF	OFF	Low power
OFF	ON	High power

Table 12. JP1 och 2- Ferrite antenna 1 output setting

JP3	Output Power, Ferrite antenna 2
ON	High power
OFF	Low power

Table 13. JP3- Ferrite antenna 2 output setting

*Jumper JP1 **MUST** be removed when using Ferrite antenna 1.*

6 Walk Test Mode

To verify the size of the RFID field, a walk test mode can be activated with DIP switch 8.

When a D-ATOM is inside the RFID field, its LED will blink once per second. The color of the D-ATOM LED indicates if it is configured to send an alarm when passing an RFID field with the ID code and zone number transmitted by D-POS: red for alarm, green for no alarm.

During walk test mode D-ATOM will not make any transmission to D-DOOR, NEO or TREX etc, so do not forget to return DIP switch 8 to OFF position when RFID field check is done.

DIP 8	Walk Test Mode
ON	Active
OFF	Not active

Table 14. DIP 8- Configure Walk Test Mode

7 Important

7.1 Safety Notes

- Read instructions prior to use
- Always test the system per instructions prior to use and always check the function of the product after making adjustments
- This product may not be suitable for all persons.
- This product should not be a substitute for the routine visual monitoring protocol by caregiver and must not be used in situations where a delay in the arrival of appropriate medical care, could lead to a potentially life-threatening situation.
- Our units are NOT intended for any life support device, thus intending a device whose malfunction may result in damage to a life.
- Check the device regularly and replace when necessary.
- Do not integrate to other systems other than those specified in this document.
- The product will not cause electromagnetic disturbances under normal working conditions.
- The product can be placed near other products or devices as long as mechanical vibration is not present.

7.2 Use

- Use only original parts.
- Keep away from dust, moist and dirt.
- Do not drop, knock, twist or shake the device.
- Do not warm up the device or use it near fire.
- The product may not be painted.
- For repairs, contact a NEAT dealer.

7.3 Cleaning

- All parts in the product kit can be cleaned with a mild soap solution and a damp cloth. Dry with a dry cloth.
- Strong chemicals, alcohol, grease and other harsh substances must not be used when cleaning or handling the parts in the product kit.
- The product must be disconnected from the power socket before cleaning.
- After cleaning, control that the product works properly by sending a test alarm to the alarm receiver/central.

7.4 Disposal

At the end of the product's use life, please dispose of it at appropriate collection points provided in your country. For disposal or recycling information, please contact your local authorities or the Electronic Industries Alliance (EIA, www.eiae.org). In the European Union, the bin label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling or returned to NEAT Electronics.

8 Technical data

Denomination	Data
Current	12-24 V_{DC} 1,5A
Measures	130 x 73 x 25 mm
Weight	129 g

Output #11, #12

Resistance$_{max}$ (Closed)	16 Ω
Blocking voltage$_{max}$	60 V_{DC}
Load current$_{max}$	100 mA
Leakage current$_{max}$ (Open)	1 µA
Isolation voltage	1500V