



## BED/CHAIR

Bed/Seat Sensor Alarm  
NE41 17025-02 v2.5

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NEAT Electronics AB  
Varuvägen 2  
SE-246 42 Löddeköpinge  
Sweden  
Phone: +46 (0)46 707065  
Fax: +46 (0)46 707087  
[www.neat-group.com](http://www.neat-group.com)  
[infosweden@neat-group.com](mailto:infosweden@neat-group.com)

#### **Declaration of Conformity**

Hereby NEAT Electronics AB declares that the radio equipment BED/CHAIR 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.neat-group.com/downloads/documentation](http://www.neat-group.com/downloads/documentation)

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# Document revision history

| Date       | Version | Revision details                           |
|------------|---------|--|
| 2019-10-19 | 2.0     | Updated format and layout. Release of v2.0 |
| 2019-12-20 | 2.1     | Minor updates and changes.                 |
| 2020-06-16 | 2.5     | Function and firmware updates.             |

# 1 Important

## 1.1 Safety notes

- Read instructions prior to use.
- Always test the system per instructions prior to use.
- The product may not be suitable for all persons.
- Check device regularly and replace when necessary.
- Always check the function of the product after making adjustments.
- Our units are NOT intended for any life support device, thus intending a device whose malfunction may result in damage to a life.

## 1.2 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.
- No part of the product kit may be painted.
- For repairs, contact your NEAT dealer.

## 1.3 Cleaning

- Clean the device with a soft cloth, dampened slightly with mild soapy water.
- Do not clean the device with harsh chemicals, solvents or other corrosive substances.

## 1.4 Disposal

- Dispose of properly. The worn out product must be returned to a recycling facility for proper disposal or returned to NEAT Electronics.

## 2 Parts in the system



Before turning on the control unit to verify its proper operation, the system must be fully installed by following the steps outlined in this installation guide.

The system consists of the following parts.

| Picture | Part   |
|---------|--|
| 1       | Control unit                                       |
| 2       | BED/CHAIR Sensor                                   |
| 3       | BED/CHAIR Elastics                                 |
| 4       | BED/CHAIR Sensor cable                             |
| 5       | Multiple sensor connection cable (sold separately) |
| 6       | BED/CHAIR NPU programming cable                    |

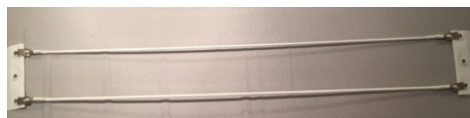
**Table 1.** Parts and denominations.



**Picture 1.** Control unit.



**Picture 2.** BED Sensor.



**Picture 3.** Elastics.

It is important to use the elastics to fix the bed sensor on the mattress. Two units are needed for each sensor.



**Picture 4.** BED/CHAIR sensor cable.



**Picture 5.** Multiple sensor connection cable.



**Picture 6.** BED/CHAIR NPU programming cable.

## 3 Installation

### 3.1 General procedure



*For proper operation, it is important to follow the steps below!*

1. Mount the sensor on the bed/chair (the examples in this user manual is for BED Sensor).
2. Connect the cable to the sensor and the control unit.
3. Fasten the control unit in the sensor pocket.

Before turning on the device, make sure the cable is connected to the sensor and there is no contact with metal surfaces or any person on the sensor, since this may cause false alarms.

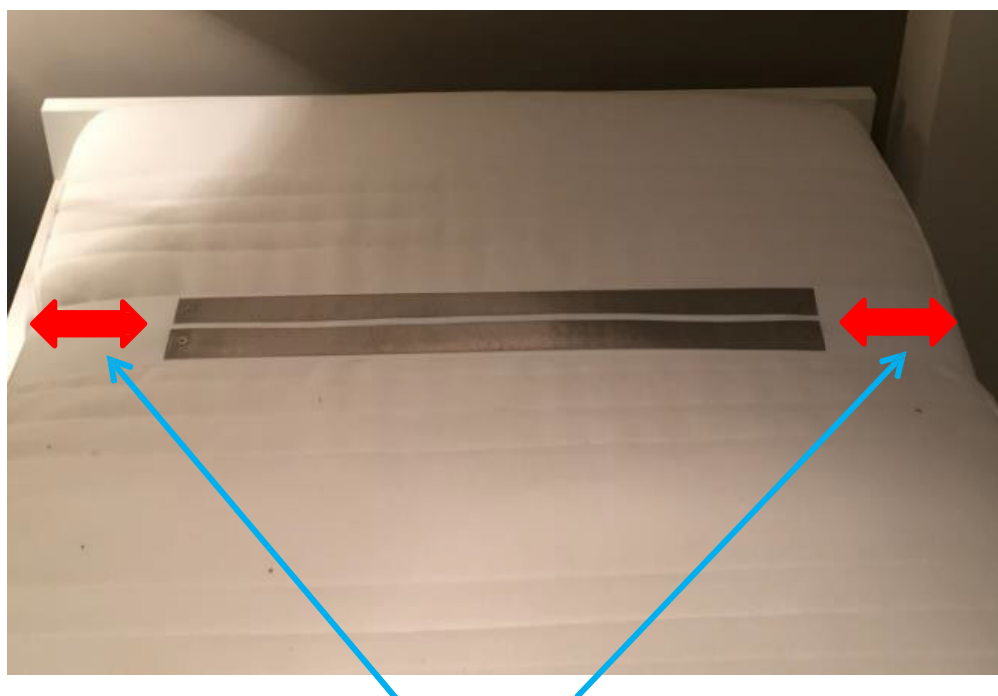


**DO NOT TURN ON THE CONTROL UNIT** before you have completed the previous steps.

4. Turn on the control unit.

### 3.2 Sensor installation

Install the sensor on the bed/chair you want to cover. In order to prevent the sensor from moving, attach the elastics to the buttonholes.



**Picture 7.** Top view of BED sensor on mattress.

Ensure the sensor bands are placed on the surface of the mattress and not on the sides of the bed/chair or on the bottom. Avoid contact with metal surfaces (bed bases, barriers) as it may generate false alarms.

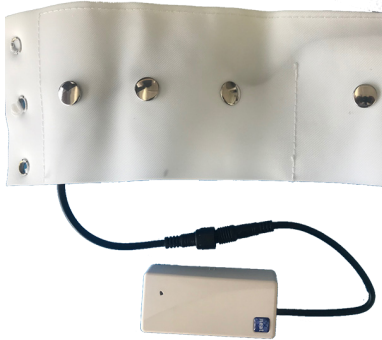
### 3.3 Connecting the control unit

Connect the cable to the corresponding terminals.



*Picture 8. Connection of control unit cable.*

Connect the control unit to the sensor cable. Make sure the two arrows on the contacts are aligned with each other and press the two contacts at the same time. Screw the cap onto the threads and tighten firmly.



*Picture 9. Control unit with connected sensor cable.*

### 3.4 Control unit location

The pocket in the sensor has multiple button connectors, look for the best option depending on the place where it will be located, avoiding metallic barriers and pressure on the unit.



*Picture 10. Fasten the main unit to the anchor.*

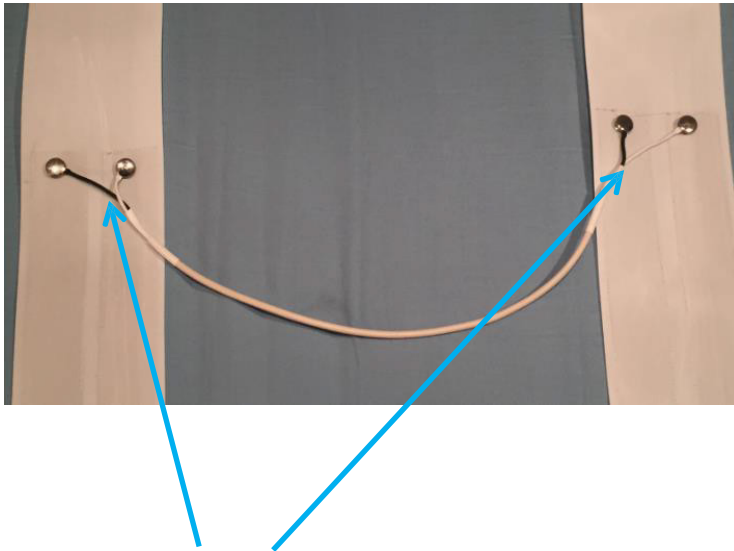
Once attached, avoid the cable being accessible to the user, leaving it fully collected inside the pocket.



### 3.5 Installing multiple sensors

In order to cover larger areas i.e. for users likely to move around in the bed, there is the possibility to connect up to three sensors to the same control unit. With the installation of two sensors, the risk of false alarms in this type of installations is drastically reduced.

For connecting multiple sensors, use the multiple sensor connection cable as shown in the following picture. The control unit is connected to one of the sensors.



**Picture 11.** Connect the sensors with the multiple connection cable.

Once the sensor or sensors are installed, cover the mattress with the mattress protector and the sheet. Then, turn on the unit to verify its operation.



**Picture 12.** Ensure proper placement of the sensors.

## 4 Programming

### 4.1 Neat Programming Unit (NPU) and BED programmer

1. First the control unit must be disconnected from the sensor and connected to the NPU cable.
2. Connect the NPU unit to mains supply and the USB cable to computer. (Note that the white cable can only be connected to the PCU unit using the black colored connection cable specific to this unit).



Picture 13. NPU connection cable.

### 4.2 Programmer software

The software can be obtained from your NEAT distributor. Install as administrator and run. The picture below is the programmer main screen.

The screenshot shows the 'Read from PCU - PCU Programmer' software interface. The window title is '(Read from PCU) - PCU Programmer' and it has a menu bar with 'File', 'Communication', and 'Help'. The interface is divided into several sections:

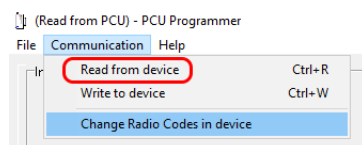
- Inputs:** Contains a 'Send Alarm' checkbox (unchecked), a 'Radio Code' field (0483), and an 'Alarm Type' dropdown menu (Bed alarm). Below this are four rows for sensor inputs: 'Allow user out of pad (bed/chair)' (checkbox unchecked), 'Pad connection (on)' (checkbox checked, Radio Code 0483, Alarm Type Tamper ok), 'Pad connection (off)' (checkbox checked, Radio Code 0483, Alarm Type Tamper alarm), 'On pad (bed/chair)' (checkbox unchecked, Radio Code 0483, Alarm Type User defined), and 'Out of pad (bed/chair)' (checkbox checked, Radio Code 0483, Alarm Type Bed alarm).
- Radio Parameters:** Contains 'Number of short transmissions' (3), 'Number of long transmissions' (3), and 'Ignore received acknowledge' (checkbox unchecked).
- Alarm Delay:** Contains 'On pad delay (s)' (7), 'Out of pad delay (s)' (7), and 'Time allowed out of pad (s)' (900).
- Time Schedule:** Contains 'Enable time schedule' (checkbox checked), 'Activation time' (21:00), 'Inactivation time' (08:30), and a 'Daylight saving time region' dropdown menu (Europe).
- Product Information:** Contains 'Program version' (10.02-00), 'Serial number' (483), 'Production date' (2016-04-19), and 'Radio calibration' (10).
- Technical Alarms:** Contains 'Radio Code' (0483), 'Radio test alarm period (h, 0=OFF)' (23), 'Battery alarm period (h, 0=OFF)' (24), and 'Inactivity time limit (1-256h)' (20).
- Other fields:** 'Most recent date/time in PCU (power switch 1-0)' with 'Date' and 'Time' fields.

At the bottom of the window, it says 'Read complete'.

Picture 14. Programmer screen.

### 4.2.1 Reading from the PCU unit

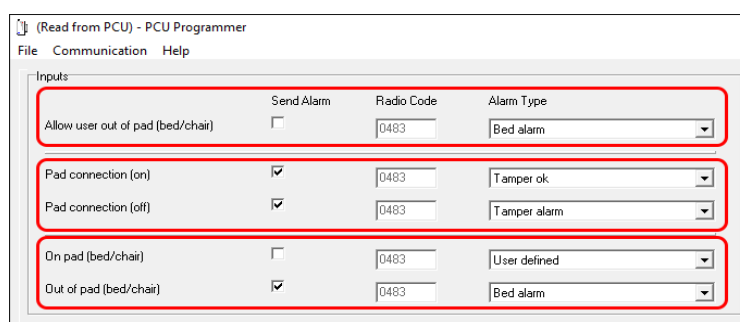
Select the menu **Communication** and then **Read from device** in the drop down list.



Picture 15. Communication drop down menu.

## 4.3 Configuration options

### 4.3.1 Inputs



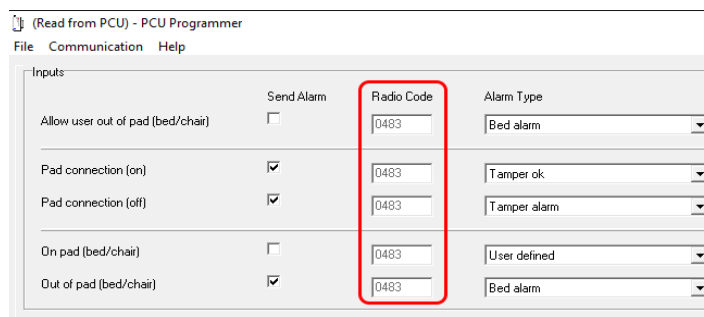
Picture 16. Inputs section.

There are three sub-sections in the **Inputs** area:

1. Allow user out of pad (bed/chair).
2. Pad connection (On)/Pad Connection (Off) for Tamper alarm
3. On pad (bed/chair)/Out of pad (bed/chair), e.g. used for activation of “Night light”, or simply to alert when the user gets out of bed.

### BED/CHAIR in a TREX 2G/D-TREX 2G system

For the TREX 2G/D-TREX System it is recommended to work only with one (1) specific radio code in all sections, since you can work with the types of alarms to create the different groups of work.



Picture 17. Inputs radio codes.

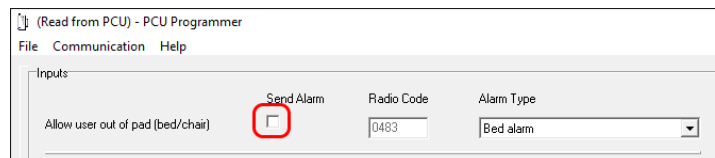
## BED/CHAIR in a NOVO/NEO system

For NOVO/NEO systems, different radio codes are used in order to differentiate between actions/alarms that can be carried out from the unit, for example **On pad** and **Out of pad** alarms.

### 4.3.2 Allow user out of pad

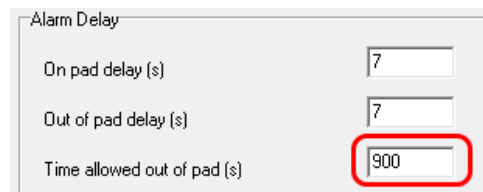
This function monitors if the user leaves the bed, e.g. going to the bathroom, and will send an alarm if not returned within a specific time.

To activate this service it is necessary to check the box **Allow user out of pad**.



**Picture 18.** Turning on Allow user out of pad.

Once the function is activated, it is necessary to determine the time that you will allow the user to leave the bed, by entering seconds in the box **Time allowed out of pad (s)**; in this example 900 s = 15 minutes. The minimum allowed Alarm Delay values is 7 seconds.



**Picture 19.** Time allowed out of pad is entered in seconds.

### 4.3.3 On pad/Out of pad Alarm

Other services can be offered, e.g. together with a WIOR unit it is possible to turn on/turn off a night lighting system when a user leaves/returns to bed.

As an example, in order to turn on the night lights, check the **Out of pad alarm** checkbox and select alarm type **User defined**. To turn off the night lights when the user returns to bed, check the **On pad alarm** checkbox and select alarm type **Bed alarm**. Configure the WIOR to handle the relays for these alarm types and radio code(s). To find out how this is done in the WIOR, please consult the user documentation.



**Picture 20.** On/Out of pad settings.

## 4.3.4 Alarm delay

### Out of pad delay

Some users might move in such a way that they temporarily are out of contact with the sensor. To avoid false alarms, e.g. to avoid the activation of the night light in the previous example, because of an irregular moving pattern, set the **Out of pad delay** parameter to 7 seconds (this is the minimum allowed delay).

|                             |     |
|-----------------------------|-----|
| Alarm Delay                 |     |
| On pad delay (s)            | 7   |
| Out of pad delay (s)        | 7   |
| Time allowed out of pad (s) | 900 |

Picture 21. Out of pad delay setting.

### On pad delay

In the example with the night lights and returning to bed, it is possible to have a small delay before sending the **On pad alarm**. This light will be kept lit a bit longer after the user lays down. The minimum time allowed is 7 seconds.

|                             |     |
|-----------------------------|-----|
| Alarm Delay                 |     |
| On pad delay (s)            | 7   |
| Out of pad delay (s)        | 7   |
| Time allowed out of pad (s) | 900 |

Picture 22. On pad delay settings.

## 4.3.5 Pad connection (on)/Pad connection (off)

When the sensor is for some reason (intentionally or unintentionally) disconnected from the control unit, the control unit can send an alarm with alarm type **Tamper alarm** and when the sensor is connected again it sends an alarm with alarm type **Tamper ok**.

To save battery the control unit checks the connection port every 5 minutes, so the Tamper alarm will be delayed for a maximum time of 5 minutes.

|                      |                                     |      |              |
|----------------------|-------------------------------------|------|--------------|
| Pad connection (on)  | <input checked="" type="checkbox"/> | 0483 | Tamper ok    |
| Pad connection (off) | <input checked="" type="checkbox"/> | 0483 | Tamper alarm |

Picture 23. Pad connections On/Off settings.

## 4.3.6 Inactivity Alarm (Time limit of inactivity)

The PCU unit will send an inactivity alarm (hex 1E, dec 30) when the user remains in bed for a configurable time, after this time the alarm will be sent. The inactivity alarm is repeated with the interval set by parameter “Inactivity time limit”.

|                                    |      |
|------------------------------------|------|
| Radio Code                         | 0483 |
| Radio test alarm period (h, 0=OFF) | 23   |
| Battery alarm period (h, 0=OFF)    | 24   |
| Inactivity time limit (1-256h)     | 20   |

Picture 24. Time of inactivity.

## 4.4 Technical Alarms

Technical alarms provide possibility to simply monitor the BED alarm.

### Radio Test Alarm

The PCU will automatically send an auto test alarm according to the indicated time. In this way, it is possible to know if the device is operational through the services and records of technical alarms in the software applications D-TECT ALARM and D-SERV-ER. (A 23-hour configuration time is recommended in the PCU unit).



*Value o (zero) is **NOT** recommended! No radio test alarms will be sent and the unit cannot be supervised properly!*

### Battery Alarm

When battery is low the control units automatically sends a **Battery alarm**. The alarm is sent periodically and this is set here. Recommended periodicity is 24 hrs. The maximum value is 240 hours. Once a low battery alarm is received the PCU batteries should be replaced within 30 days.

| Technical Alarms                       |           |
|--|-----------|
| Radio Code                             | 0483      |
| Radio test alarm period (h, 0=OFF)     | 23        |
| <b>Battery alarm period (h, 0=OFF)</b> | <b>24</b> |
| Inactivity time limit (1-256h)         | 20        |

**Picture 25.** Battery alarm periodicity settings.



*Value o (zero) is **NOT** recommended! No battery alarms will be sent and the unit cannot be supervised properly!*

## 4.5 Time schedule

By default BED is active 24h but it can be set to be active on certain periods, e.g. during the night. Check the **Enable time schedule** check box and set the on and off time. In this example the system is active during the night shift, between 9:00 PM until 8:30 AM. The time schedule length must be between 1 hour and 23 hours.

| Time Schedule        |                                     |
|----------------------|-------------------------------------|
| Enable time schedule | <input checked="" type="checkbox"/> |
| Activation time      | 21 : 00                             |
| Inactivation time    | 08 : 30                             |

**Picture 26.** Time schedule settings.

## Time schedule in a D-TREX/D-SERVER system

If BED is used in a D-TREX/D-SERVER system the time schedule must be disabled since the D-SERVER application has a parameter for managing the period of activation/deactivation.

**Picture 27.** Disable Time schedule if BED is used in a D-SERVER system.

### 4.5.1 Daylight saving time region

The PCU synchronizes with the computer clock, you have to pay special attention to this in order to guarantee the deactivation time!



*Always select Europe regardless of whether you are in another country!*

**Picture 28.** Daylight Savings Time settings.

## 4.6 Radio Parameters

In order to ensure the reception of the alarms with the receiver, e.g. in a NOVO, TREX-2G unit etc., a certain number of packet transmissions are sent. Default value is 3 short and 3 long transmissions and is the recommended setting for all NEAT devices. In addition, the program allows enabling or disabling ACK (Ignore receiving ACK).

**Picture 29.** Radio transmission (packets) parameters.

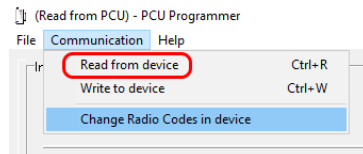
## 4.7 Product Information

This pop-up displays miscellaneous technical information.

**Picture 30.** Product information.

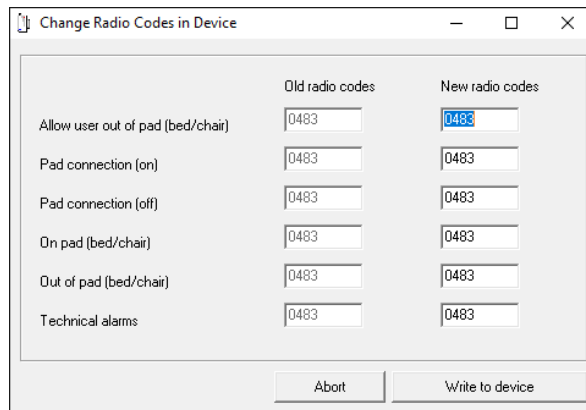
## 4.8 Change Radio Codes in device

To change the radio codes of the unit click on the tab **Communication** and select **Change Radio Codes in device**.



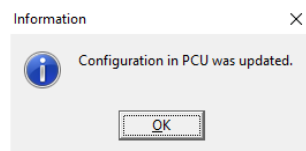
**Picture 31.** The menu item *Change Radio Codes in device*.

After making the changes, click on the option **Write to device**.



**Picture 32.** Changing radio codes in the control unit.

To verify that changes have been made correctly, read the configuration from unit again.



**Picture 33.** Configuration change confirmation pop-up.

## 4.9 File handling

The device configuration can be saved from the unit and it is useful if the unit has to be replaced. Then all settings can be uploaded into the new unit and time is saved.



## Appendix A Technical Data

|                                    |                                      |
|------------------------------------|--------------------------------------|
| Control unit measures(WxHxD)       | 35 x 80 x 28 mm                      |
| Weight (incl. batteries)           | 64 g                                 |
| Power supply                       | AA battery (LR06) x 2                |
| Frequency <sub>RF</sub> - EU       | 869.2 MHz, Social alarms, Category 1 |
| Frequency <sub>RF</sub> - Non EU*  | 866.2, 868.2, 906.2, 916.2 921.2 MHz |
| Transmit power <sub>max</sub> - EU | 10 mW (EIRP)                         |

**Table 2.** Technical data.

\* According to local regulations for social alarms.

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