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NOVO

Handbook for Technical Administrators

Technical Handbook
NE41 15013-02 v2.0

Declaration of Conformity

Hereby NEAT Electronics AB declares that the radio equipment NOVO 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

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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
infosweden@neat-group.com

Content

Document revision history

Revision Date	Version	Revision details
2018-05-21	1.0	v1.0 release
2020-01-15	2.0	Release of v2.0. General review to include new NOVO version.

1 Introduction

1.1 Intended use

The Care Phone NOVO is a unit designed for the purpose of providing security and a sense of comfort and safety for the user. The unit is primarily designed for people living in their own residence or in nursing homes.

1.2 About this handbook

This documentation is mainly a technical handbook but can be used as a user manual for advanced users.

The technical handbook is valid for all versions of NOVO (i.e. NOVO IP/GSM, NOVO IP/4G, NOVO PSTN/GSM, NOVO PSTN+ and NOVO PSTN).

To determine your version, please refer to the bottom label on your product.

Throughout this technical handbook common functions and properties will be described for all NOVO versions and where applicable the special characteristics for a certain version will be specified.

For the purposes of this document "mobile network" is used to describe both GSM and 4G network.

For the purposes of this document NOVO IP/Mobile is used to describe both NOVO IP/GSM and NOVO IP/4G.

In this document "unit" refers to NOVO, "transmitter" and "peripheral" refers to miscellaneous radio transmitters sold and verified by NEAT Electronics that can be registered in the NOVO.

Pictograms

Information notes and warnings intended for maintenance personnell and/or users are emphasized in these instructions by the pictograms defined here.

The Information sign and corresponding text is intended for information which might be useful but not critical for the reader and/or user.

The Warning triangle sign and corresponding text is intended for critical information to which the user and/or reader should pay special attention.

Highlighted text

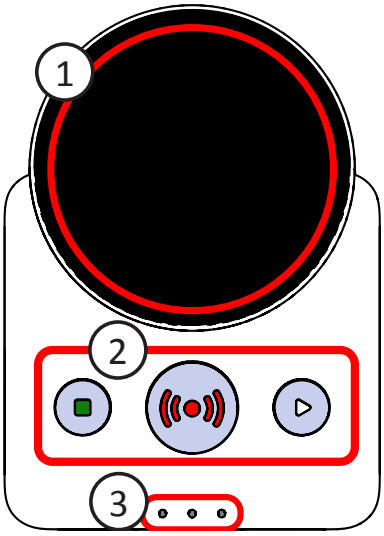
In the running text certain text is **highlighted** for emphasis.

2 The main unit

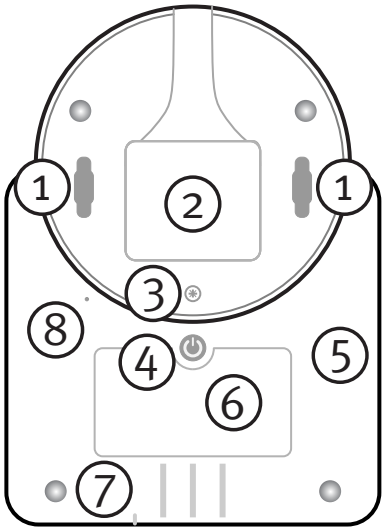
Novo comes in five versions: NOVO IP/GSM, NOVO IP/4G, NOVO PSTN/GSM, NOVO PSTN+ and NOVO PSTN.

2.1 Overview

Care phone NOVO appears as in the picture below. The unit has been designed to make it as simple as possible to handle with maximum safety. The size of the plastic cover is: 128 x 180 x 65 mm.



Picture 1. *Care phone NOVO top view*



Picture 2. *Care Phone NOVO bottom view*

#	Denomination
1	Speaker
2	Buttons
3	Front LEDs

Table 1. *NOVO top view parts.*

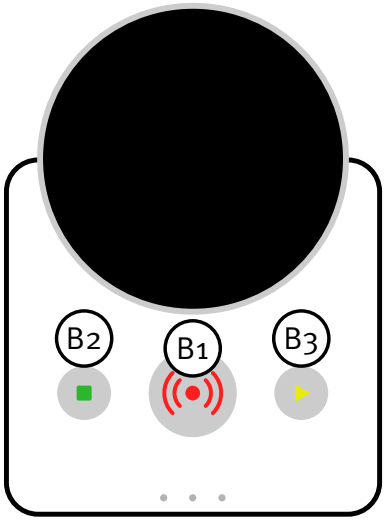
#	Denomination
1	Keyholes (for hanging up the unit) x 2
2	Connector well (under the connector lid)
3	Bottom cover screw
4	Power button
5	SIM card hatch*
6	Product label area
7	Microphone
8	Reset hole

Table 2. *NOVO bottom view parts.*

**The SIM card slot is accessible through a soft SIM-hatch on certain models.*

2.2 Buttons

The NOVO unit has three distinct buttons located on the front cover.



Picture 3. *Buttons on care phone NOVO.*

#	Denomination	Colour
B1	Alarm button	Red
B2	Reset button	Green*
B3	Extra *button	Yellow*

Table 3. *NOVO unit buttons.*

** In certain countries the Reset button is yellow and the Extra button is green.*

2.2.1 Alarm button (B1)

A user alarm can be activated by pressing the red **Alarm button (B1)**.

This button is also used in Control Mode and Service Mode.

2.2.2 Reset button (B2)

Before making an alarm call, NOVO can be configured to play a pre-call signal. During that time the user has the option to reset the alarm by pressing Reset button (**B2**). The unit will then play the disconnection signal to indicate this (if alarm is configured as audible), cancel the call and return to idle mode. This function can also be enabled, through configuration, between call attempts.

This button is also used in Control Mode and Service Mode.

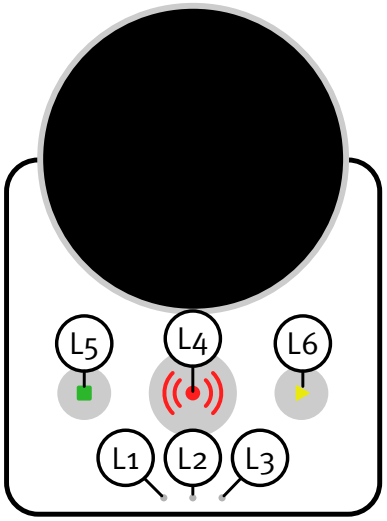
2.2.3 Extra button (B3)

The **Extra button's (B3)** default function is to toggle and indicate Home/Away. For more information about Home/Away please refer to "4.1.2 Home/Away".

This button is also used in Control Mode, Service Mode and Daily Report.

2.3 LEDs

The main unit has six (6) LEDs.



Picture 4. *NOVO unit LEDs*

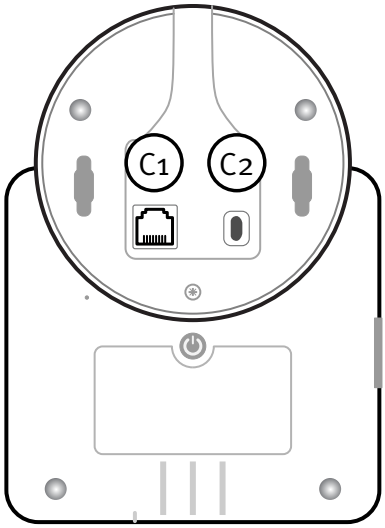
#	Colour	Position (seen as above)
L1	Green	Leftmost LED in front
L2	Red	Middle LED in front
L3	Yellow	Rightmost LED in front
L4	Red	Behind the Alarm button (B1)
L5	Green*	Behind the Reset button (B2)
L6	Yellow*	Behind the Extra button (B3)

Table 4. *NOVO unit LEDs.*

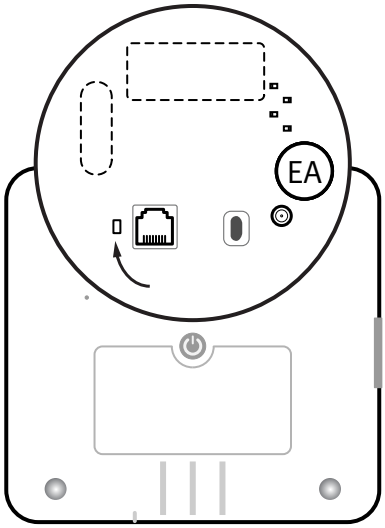
**In certain countries the Reset button is yellow, and the Extra button is green.*

The LED indications are described in chapter "3.1 Visual indications".

2.4 Connectors on NOVO



Picture 5. *NOVO IP/Mobile with connector lid removed.*



Picture 6. *NOVO IP/Mobile with accumulator lid removed.*

The connectors are located in a well under the connector lid in the bottom of the speaker. Access the well by removing the connector lid.

Connector#	Denomination	Type
C1	IP	RJ 45 (Ethernet)
C2	AC	Micro-USB
EA	External antenna	SMA Connector (female)

Table 5. *NOVO IP/Mobile connectors denominations and physical characteristics.*

2.4.1 IP connector (C1)

The IP connector (C1) is a RJ45 (Ethernet) female connector and used for IP traffic over cable.

2.4.2 AC connector (C2)

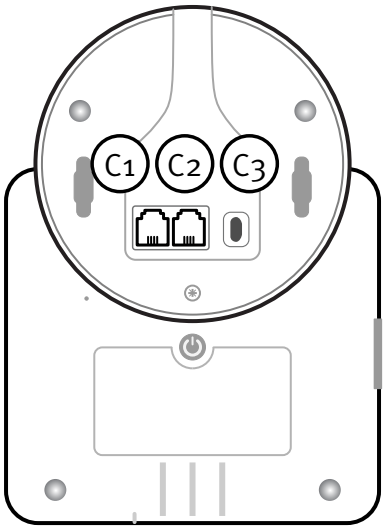
Connect the adaptor to the outlet marked **AC** in the bottom well of the NOVO, see "2.4 Connectors on NOVO".

Only use the AC adaptor for your market.

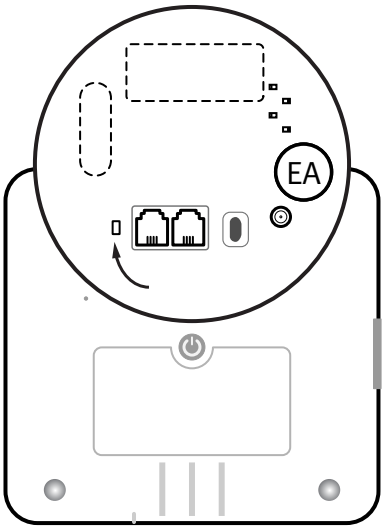
2.5 External MOBILE antenna (EA)

See "2.7 External antenna".

2.6 Connectors on NOVO PSTN/GSM, NOVO PSTN+ and NOVO PSTN



Picture 7. *NOVO PSTN/GSM with connector lid removed.*



Picture 8. *NOVO PSTN/GSM with accumulator lid removed.*

The connectors are located in a well under the connector lid in the bottom of the speaker. Access the well by removing the connector lid.

Connector#	Denomination	Type
C1	TELE	RJ11 (4/6)
C2	LINE	RJ11 (4/6)
C3	AC	Micro-USB
EA	External antenna	SMA Connector (female)

Table 6. *NOVO PSTN/GSM connectors denominations and physical characteristics.*

2.6.1 TELE connector (C1)

The TELE connector (C1) is a RJ11 female connector and used to connect a secondary phone to the PSTN network.

2.6.2 LINE connectorLINE (C2)

The TELE connector (C1) is a RJ11 female connector and used for PSTN traffic.

NOVO must be connected to the first PSTN wall outlet and all other regular phones must be connected to the TELE connector (C1).

2.6.3 AC connector (C3)

The AC adaptor conforms to the European directive EuP II. Connect the adaptor to the outlet marked **AC** in the bottom well of the NOVO, see "2.6 Connectors on NOVO PSTN/GSM, NOVO PSTN+ and NOVO PSTN".

Only use the AC adaptor for your market.

2.6.4 External GSM antenna (EA)

See next section, "2.7 External antenna".

2.7 External antenna

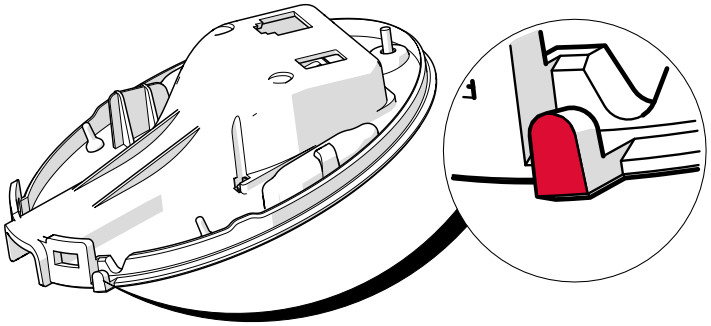
Applies to NOVO IP/Mobile, NOVO PSTN/GSM and NOVO PSTN+.

NOVO supports the use of an external antenna. The unit can be configured to use either the external or the internal antenna. The external antenna can be used in case of poor mobile network signal.

The external antenna can be placed in an indoor or outdoor environment. Mount the antenna with the tape and/or screws included in the external antenna package. Place the antenna where the optimal signal strength can be achieved given the location for the installation.

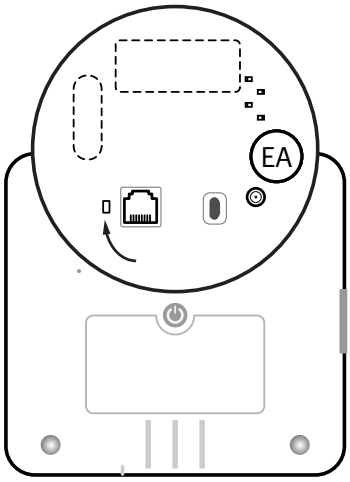
Connecting the external antenna

1. If an external antenna is to be used, the plastic flange (marked in red in the illustration below) must be removed from the bottom cover.



Picture 9. *Remove the plastic flange if an external antenna is to be used.*

2. Locate the SMA contact (**EA**).



Picture 10. *SMA connector (EA).*

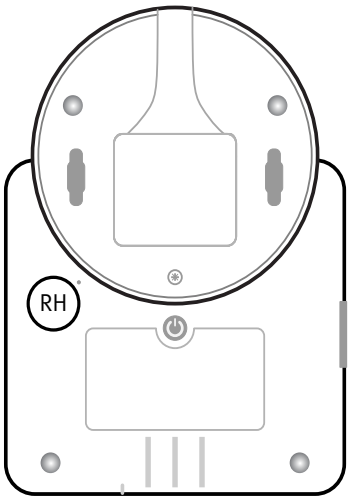
3. Remove the power and network cables.
4. If unit is On, turn off the unit with the On/Off button. Remove the accumulator lid by unscrewing the screw just below the connector lid.
5. Gently screw the antenna connector clock wise onto the SMA contact **(EA)**.
6. Place the cable between the small plastic “heels” to lead the antenna out of the cover.
7. Refit the bottom cover.
8. Refit the AC and finally the network cable and start up the unit.
9. Activate the external antenna in the Service Menu, see "Set external Mobile antenna to On/Off" on page 38.
10. Test the Mobile network signal, see "Range test" on page 37.

2.8 On/Off button (PS1)

The **On/Off button (PS1)** is not connected in series with the power source. This means that the processor (CPU) can control when the unit shall be powered on and off. The CPU can for instance shut off the unit to save the backup accumulator.

Please note that it isn't enough to disconnect the AC plug to shut off the unit. The unit will switch to the backup accumulator as power source.

2.9 Reset button

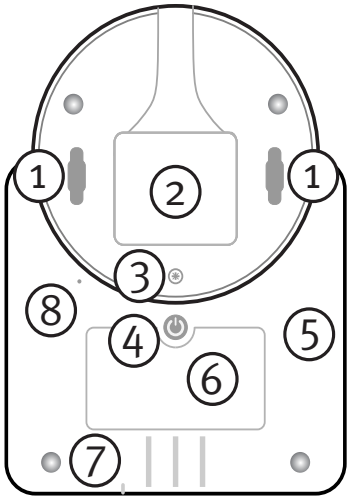


Picture 11. *Reset hole (RH) location.*

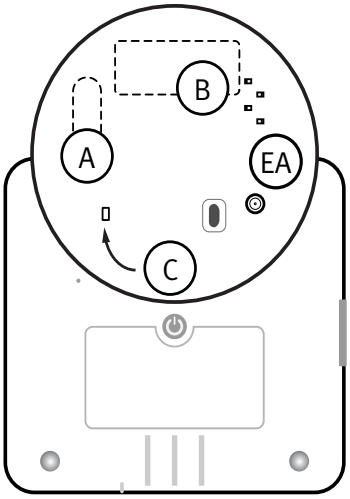
The Reset button is accessible through the **Reset hole (RH)**. To do a manual reset of the unit, bypassing On/Off button, carefully push a pin with a dull end through the hole until unit reboot.

After a manual reset the unit will restore alarm and event queues as well as the previous Home/Away state and Presence/Ready state. It will also restore status on whether Radio interference has been reported and whether Mobile network failure, IP network failure or Mains failure alarms and/or events have been reported.

2.10 Accumulator lid



Picture 12. *Accumulator lid screw (3).*



Picture 13. *Accumulator compartment.*

The pictures above display the internal accumulator compartments for the standard and large accumulator. The accumulator connector (C) is pictured as well.

#	Denomination
A	Standard capacity accumulator compartment
B	Large capacity accumulator compartment
C	Accumulator connector

Table 7. *Accumulator compartment denominations.*

To open the accumulator lid, remove the cover screw (marked 3 in Picture 10). The accumulator compartment for the backup accumulators is under the lid. When replacing a backup accumulator, note that the accumulator must be of the correct type and delivered from NEAT.

Always disconnect the AC adaptor and all other cables before opening the accumulator lid.

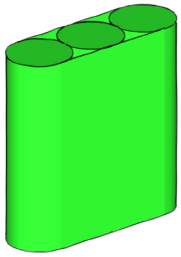
Accumulator replacement should only be performed by trained personnel.

NOVO can be equipped with either of two accumulator types:

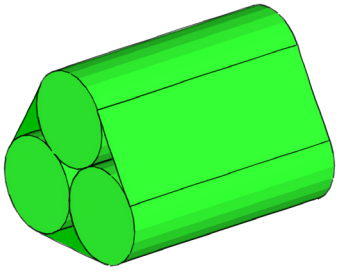
- the standard accumulator with 400 mAh capacity.
- a large capacity accumulator with 2000 mAh capacity.

Note that NOVO IP/4G model requires the large capacity accumulator.

Below are schematic illustrations of the accumulators.



Picture 14. *Standard NOVO accumulator.*



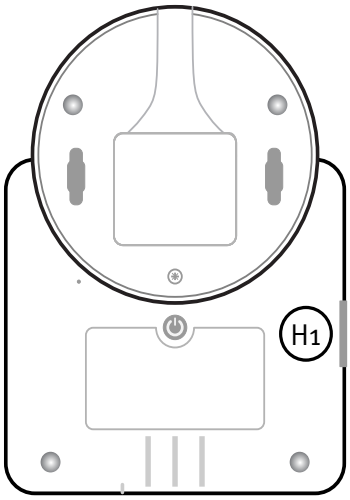
Picture 15. *NOVO large capacity accumulator.*

2.10.1 Replacing the accumulator

1. Power off the unit and disconnect the AC adaptor and any other cables from the unit.
2. Remove the bottom cover by unscrewing the screw below the connector lid.
3. Disconnect the accumulator connector and remove the old accumulator.
4. Fit the new accumulator in the appropriate accumulator compartment, see "Picture 13".
5. Connect the new accumulator in the accumulator connector, see "Picture 13".
6. Refit the accumulator lid, secure it with the screw and reconnect any cables.

2.11 Mounting the SIM card

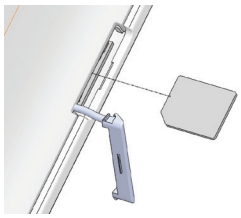
Applies only to NOVO IP/Mobile, NOVO PSTN/GSM and NOVO PSTN+.



Picture 16. *SIM Hatch (H1) location.*

Depending on model the SIM-hatch is made of either rubber (soft) or plastic (hard). SIM cards should only be changed by the customer on NOVO products with a soft SIM-hatch. To change SIM card on a NOVO product with a hard, plastic SIM-hatch send the unit to NEAT Electronics or a certified distributor.

NOVO IP/Mobile, NOVO PSTN/GSM and NOVO PSTN+ only support micro SIM (3FFF).



Picture 17. *Insert SIM card into SIM card slot.*

1. Power off the unit.
2. Open the SIM-hatch (**H1**). Note that the hatch should not be entirely removed.
3. Insert the SIM card according to the sketch in the bottom label.
4. Refit the SIM-hatch (**H1**).
5. Power on the unit. A reboot the NOVO is required after inserting the SIM-card.

2.12 Mounting the NOVO

2.12.1 Key holes

There are two key holes for wall mounting the unit. The holes are designed to be used together with screws with a head diameter of 7-8 mm. The screw head should be approximately 4 mm out of the wall for best fit.

A drawing and measures is found in "Appendix B NOVO Mounting holes".

3 Indications

3.1 Visual indications

3.1.1 Front LEDs

In normal operation the front LEDs (L1 – L3) are off. When an error occurs, the corresponding LED will indicate the error. The significance of the LEDs is described on the bottom label of the unit.

When the unit is running on accumulator power the LED indications will switch to blinking to consume less power. See the tables below for all supported indications.

Note that the individual visual error indications can be disabled by configuration. Furthermore, all visual error indications can be disabled with a specific configuration parameter.

LED indications for NOVO IP/Mobile, NOVO PSTN/GSM and NOVO PSTN+.

	L1 (Network)	L2 (AC)	L3 (Accumulator)
Normal mode, no failures	Off	Off	Off
Network failure (IP/Mobile/LINE)	On	Off	Off
AC failure	Off	0.5s On/4.5s Off	Off
Accumulator failure	Off	Off	On
Network and AC failure	0.5s On/4.5s Off	0.5s On/4.5s Off	Off
Network and accumulator failure	On	Off	On
AC and accumulator failure	Off	0.5s On/4.5s Off	0.5s On/4.5s Off
Network, AC and accumulator failure	0.5s On/4.5s Off	0.5s On/4.5s Off	0.5s On/4.5s Off
Radio interference	0.5s On/0.5s Off	0.5s On/0.5s Off	0.5s On/0.5s Off
SIM card failure	0.5s On/0.5s Off	Off	Off
AC and SIM card failure	0.5s On/4.5s Off	0.5s On/4.5s Off	Off

Table 8. *Front LED (L1 - L3) indications.*

Firmware download and upgrade indication NOVO IP/Mobile, NOVO PSTN/GSM and NOVO PSTN+

When downloading over ftp the sender can set whether the NOVO unit shall indicate an ongoing firmware download by blinking the Reset button LED (L5) 0.5s On/0.5s Off or not.

There is **NO** indication when downloading over USB.

When firmware download is complete the unit automatically reboots and starts the firmware upgrade process. During firmware upgrade LEDs L1, L2 and L3 flash in synchronization 100ms On/100ms Off and after upgrade the unit starts up normally.

LED indications for NOVO PSTN

The table below applies to NOVO PSTN.

	L1 (LINE)	L2 (AC)	L3 (Accumulator)
Normal mode, no failures	Off	Off	Off
Line failure	On	Off	Off
AC failure	Off	0.5s On/4.5s Off	Off
Accumulator failure	Off	Off	On
Line and AC failure	0.5s On/4.5s Off	0.5s On/4.5s Off	Off
Line and accumulator failure	On	Off	On
AC and accumulator failure	Off	0.5s On/4.5s Off	0.5s On/4.5s Off
Line, AC and accumulator failure	0.5s On/4.5s Off	0.5s On/4.5s Off	0.5s On/4.5s Off
Radio interference	0.5s On/0.5s Off	0.5s On/0.5s Off	0.5s On/0.5s Off
AC failure	0.5s On/4.5s Off	0.5s On/4.5s Off	Off

Table 9. *Front LED (L1 - L3) indications.*

3.1.2 Alarm button (L4) LED indications

The following indications are made during normal operation with Alarm button LED (L4).

	AC Mode	Accumulator Mode
Normal operation	On*	Off
Call in progress/Conversation	0.5s On/0.5s Off	0.5s On/0.5s Off
Wait between calls	1.0s On/1.0s Off	1.0s On/1.0s Off
No more call attempts**	2.5s On/2.5s Off	Off

Table 10. *Alarm button (L4) indications.*

** Indication can be disabled by configuration.*

*** No more call attempts are indicated when all call attempts have been exhausted without success. The alarm has failed.*

3.1.3 Reset button LED (L5) indications

The following indications are made with the Reset button LED (L5).

	AC Mode	Accumulator Mode
Firmware download over ftp*	0.5s On/0.5s Off	0.5s On/0.5s Off
Passive notifcation	0.5s On/0.5s Off	0.5s On/0.5s Off

Table 11. *Reset button LED (L5) indications.*

** The behaviour depends on whether the sender has enabled indication or not. If it is disabled there is no indicaton during download. There is **NO** indication when downloading over USB. This is NOT valid for NOVO PSTN!*

3.1.4 Extra button LED (L6) indications

The following indications are made with the Extra button LED (L6).

	AC Mode	Accumulator Mode
Away mode	On	0.5s On/4.5s Off
Home mode	Off	Off

Table 12. *Extra button LED (L6) indications.*

3.1.5 Control mode LED indications

When unit is in Control Mode LEDs L1 – L3 are off and LEDs L4 – L6 are lit.

3.1.6 Service mode LED indications

When the unit is in Service Mode L4 is lit and L6 flashes 0.5s On/0.5s Off.

3.1.7 Unit boot/startup

Boot/start-up is a two-step process and is indicated as follows:

1. The boot process is indicated by LEDs L1 – L3 as “running lights”, i.e. the LEDs are lit and turned off in sequence. Starting with L1, then L2 and L3. This sequence is repeated. Sequence takes less than 3 seconds from start to finish.
2. After the boot process completes successfully the unit will start up. The start-up process normally takes 1 – 3 seconds. This process is indicated with LEDs L1 – L3 all lit constantly.

When the boot and start-up processes are finished the unit will resume normal operation and indicate accordingly, see "3.1.1 Front LEDs".

3.2 Acoustic indications

To allow clear interaction with the user, NOVO can play pre-recorded sounds, i.e. voice messages.

Acoustical indications, like visual indications, are configurable.

3.2.1 Pre-call signal

NOVO can be configured to play a pre-call signal before starting the call process when a user alarm is triggered.

3.2.2 Disconnection signal

NOVO can be configured to play a disconnection signal when a call is disconnected, or an alarm cancelled during pre-call signal or wait between calls.

3.2.3 Warning functions in Idle mode

NOVO can be configured to indicate AC, accumulator and/or line/network failure with an acoustical warning. All warnings start with a short beep (warning beep) followed by a speech message describing the failure. While the error causing the warning is still active the unit will play a warning beep every 2 seconds during the first 60 seconds. After the initial 60 seconds the warning beep will be played every 30 seconds.

The acoustical warning indication can be muted by pressing the **Reset button (B2)**. This will not affect visual indications.

In the event of a new failure the acoustical warnings will restart, with the relevant error message.

4 Alarm functions

4.1 User alarms

Alarms that fall into this category are alarms initiated by the user. This can be done by pressing the **Alarm button (B1)** on the NOVO or using a portable trigger, SMILE.

An alarm triggered by an accessory such as WALL, PIR II or SMOKE can also belong to this category.

An alarm received by NOVO will be handled in accordance with the configuration for the alarm type received

4.1.1 Passive alarm

The Passive alarm can be triggered to indicate that an event has not occurred for a certain time. The purpose of this function is to raise an alarm if the user has not been active for a given period of time.

Assuming the unit is configured correctly this functionality is started by:

- the first radio message from a transmitter registered as a passive alarm, e.g. PIR II or INKA.
- A push on the **Reset button (B2)**.

NOVO will consider received User alarms (see "4.1 User alarms") as user activity and will therefore restart the countdown until a Passive alarm is triggered.

Example: An infrared detector can be registered in the NOVO as a passive alarm. When the infrared detector detects movement it sends an alarm message to NOVO. If NOVO does not receive this message from the infrared detector or any user alarm for 8 hours, NOVO will trigger the Passive alarm.

If the **Reset button (B2)** is configured to reset Passive alarm, the unit will generate a warning signal 60 seconds before triggering the Passive alarm. To stop the warning and cancel the Passive alarm, press any button or any registered transmitter. If the Passive alarm is not cancelled it will be triggered and handled as configured.

4.1.2 Home/Away

The purpose of Home/Away function is to communicate to the alarm central if the user is leaving the premises. Setting the unit to Away mode will also pause Passive functionality and Radio transmitter surveillance. When unit toggles between Home and Away it can be configured to transmit Home alarm and Away alarm respectively.

Away mode

In Away mode the follwing is valid:

- Passive functionality is paused
- Radio supervision for portable transmitters (e.g. SMILE) is paused
- Away mode is indicated by L6, see "3.1.4 Extra button LED (L6) indications".

Exiting Away mode can be done as follows:

- NOVO receives a **User alarm from trigger** or **User alarm from button**. NOVO will exit Away mode, handle the user alarm as configured and then trigger a Home alarm.
- **Extra button (B3)** is configured to send either Home alarm or Away alarm.
- NOVO receives a radio message with the alarm type Home or Away from a transmitter.

- Changing between Home and Away mode can also be done by some protocols depending on Alarm Receiver.

When unit exits Away mode and enters Home mode the following occurs:

- The passive function is restarted.
- Radio supervision is restarted.
- Visual indication for Away mode stops.

4.1.3 Presence/Ready

The purpose of Presence mode is to indicate that personnel is present in the user's home.

When unit toggles between Presence and Ready it can be configured to transmit Presence alarm and Ready alarm respectively. If NOVO is configured with **Auto Ready**, it can instead send the an Auto Ready alarm when resuming Ready mode.

In Presence mode the following is valid:

- If NOVO is so configured it will transmit an **Assistance alarm** when it receives a **User alarm from trigger** or **User alarm from button**.
- Presence mode is indicated by LEDs L1 – L3 flashing On 0.5s/Off3.5s.
- If another visual indication is active, Presence mode indication is inverted.

Exiting Presence mode can be done as follows:

- NOVO receives Presence or Ready alarm type.
- By pressing **Extra button (B3)**, configured to Presence or Ready alarm type.
- By pressing and holding down **Reset button (B2)** while pressing **Alarm button (B1)** twice to toggle between Presence/Ready mode
- **Auto ready**, unit is configured with a **Max time in Presence mode**. When that time limit is exceeded NOVO will automatically resume **Ready mode**.

When unit exits **Presence mode** and resumes **Ready mode** the following occurs:

- Visual indication for Presence mode stops.

4.2 Technical Alarms

Digitally connected units can be configured to send technical alarms to NEAT Carephone Management Portal (CMP). This allows continuous supervision of connectivity and functionality. The descriptions of the technical alarms in the sections below are valid for alarms sent to an alarm receiver (not the CMP).

4.2.1 Radio transmitter surveillance

Radio transmitters registered in NOVO can be configured to send radio test alarm. Radio transmitter surveillance can be activated in NOVO for such a transmitter. If NOVO does not receive radio test alarm for such a transmitter for a configurable period of time it will trigger a **Radio out of range** alarm.

When a radio test alarm is received from a transmitter previously reported to be out of range, NOVO can be configured to trigger a **Radio within range** alarm.

Radio transmitter surveillance is paused when unit is in Away mode.

4.2.2 Accumulator alarm

The unit monitors the voltage level of the **Accumulator**.

When the unit is connected to AC, the interval of voltage level checks can be configured. With the default configuration this interval is 24 hours.

When the unit is powered from the accumulator, NOVO checks the voltage level every minute.

Should the voltage level fall below the configured threshold, NOVO can be configured to trigger an **Accumulator alarm**.

NOVO can be configured to indicate Accumulator failure visually and/or acoustically. See relevant sections in chapter "3 Indications".

4.2.3 Automatic test alarm

NOVO can be configured to send an **Automatic test alarm** with a configurable interval (default value is 24 hours). This function is intended to allow supervision of the unit.

If active, the first test alarm will be sent after a random time between 5 and 60 minutes after units' installation. The second test alarm will be sent after a random period between 1 minute and the number of hours given by the configured interval.

4.2.4 Battery alarm

Transmitters registered in NOVO can send a Battery alarm and/or include the battery status (low/ok) in a normal alarm transmission. NOVO will transmit this battery alarm as it is configured to do.

4.2.5 Radio interference

If a continuous radio interference signal is detected for 30 seconds the unit can be configured to send a **Radio interference alarm** and indicate this visually and/or acoustically, see chapter "3 Indications".

The unit can be configured to send a **Radio OK alarm** when radio interference is no longer detected. That alarm will only be triggered if Radio Interference has been reported.

For Radio Interference, an **alarm delay** can be configured. The unit will indicate the failure when Radio Interference is detected but will delay transmitting an alarm for the configured alarm delay.

4.2.6 Mains failure

If the unit loses mains power (AC failure) and is powered from the backup accumulator it can be configured to send a **Mains Failure alarm** and indicate the failure visually and/or acoustically, see chapter "3 Indications".

For Mains failure, a **detection delay** can be configured. The unit will delay any indication of the failure for the configured detection delay.

For Mains failure, an **alarm delay** can be configured. The unit will delay transmitting an alarm for the configured alarm delay. The unit will indicate the failure as configured.

For Mains failure the unit will add a random time of 5 – 60 minutes to the **alarm delay**. The purpose of this randomized delay is to prevent many units in the same area from transmitting Mains Failure alarm simultaneously.

4.2.7 Mains return

If NOVO has reported Mains Failure it can be configured to report **Mains Return** when AC is returned. A Mains OK alarm will be sent after a random time between 5 – 30 minutes after detection of AC return.

Any visual/acoustical indications of Mains failure will stop as soon as the unit detects return of AC.

4.2.8 PSTN/MOBILE/IP surveillance

Depending on the model NOVO can report status of PSTN/MOBILE/IP connectivity.

For the purpose of this section PSTN/MOBILE/IP will be referred to as Network. Note that PSTN, Mobile and IP connections are monitored individually. The surveillance, indications and reporting are configured individually.

If the unit detects loss of Network it can be configured to send a **Network Failure alarm** and indicate the failure visually and/or acoustically, see chapter "3 Indications".

For Network failure, a **detection delay** can be configured. The unit will delay any indication of the failure for the configured detection delay.

For Network failure, an **alarm delay** can be configured. The unit will delay transmitting an alarm for the configured alarm delay. The unit will indicate the failure as configured.

NOVO can be configured to send a **Network OK alarm** when it detects that Network has been restored. Any indications for Network failure are stopped as soon as NOVO detects that Network has been restored.

5 The alarm call

5.1 Alarm event

Any event in the NOVO that will result in the transmission of an alarm is an **alarm event**.

- Alarm events can be user initiated, e.g. pressing the **Alarm button (B1)**.
- Alarm events can be initiated by unit as a result of any kind of surveillance of the status of the unit, e.g. detection of mains failure.
- Alarm events can be initiated by the unit as a result of any kind of surveillance of registered transmitters, e.g. Radio out of range.
- Alarm events can be received from registered transmitter, e.g. Smoke alarm.

For an alarm event to result in an alarm call the configuration of the following parameters must be valid.

5.1.1 Alarm type

An alarm event is associated with a certain **alarm type**. Either the alarm type is received directly from a transmitter, determined by the nature of the event (e.g. radio interference) or it is determined in the configuration of NOVO (e.g. handling of alarm type oxoo from a transmitter). The alarm type typically describes the reason for the alarm. Each alarm type has a number of configurable parameters dictating among other things if the alarm type is to be reported to an alarm receiver and/or CMP, speech direction settings, priority, audible settings, pre-call settings etc..

5.1.2 Alarm type group

All alarm types belong to an **alarm type group**. The specific group can be configured for each alarm type. 16 different alarm type groups can be defined. Each alarm type can only belong to one alarm type group.

5.1.3 Sequence

The alarm type group determines what **sequence** will be used when handling the alarm. Each sequence has a number of configurable parameters that determine how to transmit the alarm. 8 different sequences can be defined.

Each sequence has 10 possible steps. Each step has a configurable **Carrier** (e.g. PSTN) to be used, **number of call attempts** for each step and **next step** if alarm transmission is successful.

5.1.4 Call type

Each step also has a **call type** which contains among other things details of how to establish the call and what **protocol** to use, if **callback** is to be active and **heartbeat** configurations.

5.1.5 Global settings for sequence and call attempts

For all alarm events a maximum number of **cycles of sequence** can be configured to ensure unit will move on from a failed alarm event. Furthermore, a **max total call attempts** can be configured for the same purpose. These two parameters are **global** and will **override** any individual settings

5.2 Carrier type

Depending on the model, NOVO supports up to two carriers.

Model	IP	Mobile	PSTN
NOVO IP*/GSM	X	X	
NOVO IP*/4G	X	X	
NOVO PSTN/GSM		X	X
NOVO PSTN+		X**	X
NOVO PSTN			X

Table 13. *Carriers in NOVO models.*

** IP requires ethernet cable.*

*** NOVO PSTN+ model uses Mobile carrier for CMP contact only, it does not support sending user alarms over GSM.*

If the IP is used as a carrier, the corresponding SIP account settings must be valid.

5.2.1 Auto carrier

When two carriers are available unit can be configured to use **Auto carrier**.

For NOVO PSTN/GSM the primary carrier will by default be GSM.

For NOVO IP/Mobile the default primary carrier will be MOBILE.

To define the primary carrier explicitly, the **service level** for the carriers can be set through configuration. When using auto carrier, the unit will first attempt to use the primary carrier and in case of failure it will change to the **secondary carrier**.

5.2.2 Max conversation time

To prevent the unit getting stuck in an alarm call if the receiver does not disconnect a **max conversation time** can be set.

5.2.3 Alarm code

To identify the unit to the alarm receiver each NOVO has a unique ID, the alarm code.

This alarm code can be configured in the following ways:

- The **serial number** of the unit can be used as alarm code.
- If the serial number is not used the alarm code can be defined for the current **call type**.
- If the call type does not have an alarm code a **global** alarm code can be configured.

Some protocols used to communicate alarm information demand that the unit has an alarm code.

5.3 Wait between call attempts

When a call attempt fails for some reason NOVO will wait for a configurable amount of time before making the next call attempt. This state is indicated by blinking of the Alarm button, see "3.1.2 Alarm button (L4) LED indications".

Alarm types can be configured to allow the user to **cancel an ongoing alarm** during wait between call attempts. An alarm is cancelled by pressing the **Reset button (B2)**. If the cancelled alarm type is so configured a **disconnection signal** is played to indicate this.

If a new alarm with **higher priority** is received during wait between calls the unit will stop the current call sequence, put the interrupted alarm back in the alarm queue and handle the new **high priority alarm type** immediately according to its configuration.

5.4 Roaming

In order to guarantee the best possible reliability over mobile networks, NOVO employs a roaming mechanism based on end-to-end communication. Even when an operator is available with good signal strength, there can be problems in the network backbone. For this reason, NOVO will avoid operators if there is a problem with voice or data communication to the receiver.

NOVO will roam to a different operator when an alarm sequence cycle has failed or if the heartbeats to the alarm receiver or Neat Carephone Management Portal do not work. It will then continue to use the new, working operator for subsequent alarms. If at some point all operators have been used, an automatic network search is performed to select the best network as determined by the SIM card.

NOVO must be equipped with a roaming SIM card, preferably a SIM card sold and verified by NEAT Electronics. The following parameters must be set:

- Number of operators to use in roaming: greater than 1 (one).
- Max heartbeat failures before roaming: greater than 1 (one).
- Cycles of sequence: greater than 1 (one) to ensure that the alarm sequence is performed again with the new operator.

The roaming mechanism is designed to provide maximum reliability under local conditions. It will not guarantee connectivity if all base stations within range are malfunctioning. For this reason, it is recommended to have a secondary carrier as backup.

Because of the end-to-end communication requirement, the unit will roam if there is a problem with an alarm receiver (e.g. when heartbeats fail). This can introduce a delay in the alarm transmission if an alarm is triggered during network registration.

5.5 Indications during an alarm call

NOVO can be configured to indicate the progress and status of an alarm call. Some of these configurations are made for each alarm type while others are global

5.5.1 Acoustical indications

Pre-call signal

Before starting an alarm sequence the unit can be configured to play a pre-call signal for a configurable amount of time. The pre-call signal will only be played if the alarm type that triggered the event is configured to allow pre-call signal.

If a new alarm with **higher priority** is received during pre-call status the unit will stop the current call sequence, put the interrupted alarm back in the alarm queue and handle the new **high priority alarm type** immediately according to its configuration.

*Note that during the pre-call signal the alarm type can also allow the user to cancel the alarm event by pressing the **Reset button (B2)**. If the alarm type is configured to play disconnection signal it will do so to confirm the action before returning to idle mode.*

Dial tones in speaker

The unit can be configured to play dial tones to the speaker if the current alarm type is configured as **audible**. When this is enabled the unit will play tones to the speaker indicating process of dialling the number. It will also play to the speaker an indication that the call is active before a voice connection has been established.

Entering wait between calls

When unit enters **wait between calls** while handling an alarm type that is configured as **audible** it will play two tones to the speaker to indicate this.

Disconnection signal

An alarm call is considered successful depending on demands put on the call by the protocol used and on the configurable parameter for the current alarm type, **Demand disconnection**.

When an alarm call is successfully concluded for an **audible** alarm type the unit will play the disconnection signal.

The disconnection signal is also played when an **audible** alarm is cancelled during pre-call or wait between calls.

5.5.2 Visual indications

Ongoing call

During an ongoing alarm call the unit will indicate call in progress/conversation, see "3.1.2 Alarm button (L4) LED indications", if the alarm type is configured to allow visual indications.

The unit can be configured to disable visual call indications when powered by backup accumulator.

Wait between calls

When unit enters wait between calls for an alarm type configured to have visual indications it will indicate this as described in "3.1.2 Alarm button (L4) LED indications".

No more call attempts

If a call sequence has failed to transfer an alarm type configured to have visual indications the unit will indicate this as is described in "3.1.2 Alarm button (L4) LED indications".

5.6 Protocols

NOVO supports several protocols. Contact NEAT or your distributor for a complete list.

The protocol determines the parameters for the communication session. A communication session can consist of a data transmission part and/or voice communication.

For an analogue alarm receiver data will be exchanged by DTMF/ST tones and for an IP-base alarm receiver data exchange is done digitally.

5.7 Examples

In the following sections examples will be given of how to configure NOVO Not all parameters are shown, only those most relevant for the purpose of each example.

When calling an alarm receiver, the protocol used by NOVO must correspond to the protocol supported by the alarm receiver.

5.7.1 A simple alarm sequence

The user triggers an **alarm event** by pressing the alarm button on a SMILE registered in NOVO.

Radio message from SMILE is received by NOVO. This alarm event is by configuration associated to the alarm type **User alarm from trigger**.

This **alarm type** belongs to an **alarm type group** configured to use **sequence** #1.

Sequence #1 consists of 1 **step**.

This step is configured as follows:

Step	Call type	Carrier type	Call attempts	Next step if success
1	A	PSTN	2	Stop

Table 14. *Example of steps in a sequence.*

The **Carrier type** determines the carrier used to transmit the alarm.

The **Call attempts** determine how many attempts of this step will be made to transmit the alarm in case of a failed call attempt.

Next step if success allows for an action (Step) in case of a successful alarm call. In this case none will be taken.

The **Call type** (A) consists of several parameters. The parameters used in this example are the following:

Call type	Address/phone number	Protocol
A	5553232	Homephone

Table 15. *Example of call type parameters.*

Note that Call types have many parameters and depending on the protocol different parameters are required to be set.

5.7.2 SCAIP over IP/GSM

The way NOVO communicates with a digital alarm receiver requires additional parameters. Following is an example of such a configuration showing some of these parameters.

Step	Call type	Carrier type	Call attempts
1	A	IP	2
2	B	GSM	2

Table 16. *The steps in the sequence used.*

In this example NOVO will, after 2 failed call attempts, change carrier from IP to GSM.

When calling a digital alarm receiver either an IP address is used or as in this case a DNS hostname (www.any-url.com is used here as an example). A communication port has to be defined and in some cases login credentials as well.

Call type	Address/phone number	Protocol	Port	Username	Password
A	www.any-url.com	SCAIP	555	username	password
B	www.any-url.com	SCAIP	555	username	password

Table 17. *Example of some call type parameters.*

5.7.3 NEAT Talk/CPC to an analogue alarm receiver

Below is an example of the relevant sequence steps and call type parameters for this example.

Step	Call type	Carrier type	Call attempts
1	B	IP	3
2	C	GSM	2

Table 18. *Example of parameters for steps in a sequence.*

Call type	Address/phone number	Protocol	Port	Username	Password
B	+4646555123@any-url.com	CPC	5060	username	password
C	+4646555123	NEAT Talk	45005	username	password

Table 19. *Example of call type parameters.*

6 Programming/configuration modes

6.1 General

NOVO can be configured in a number of ways depending on model and market.

It can be done with the buttons on the unit, via the Management Portal (CMP), with a software programmer, with a **HAND** terminal or with the **LPP** protocol.

Software programmer is available in certain markets. Contact your distributor for information.

For information about CMP see CMP – User manual, NE41 15011-02.

Model	Buttons	Programmer	CMP	HAND	LPP
NOVO IP/MOBILE	x	x	x		
NOVO PSTN/GSM	x	x	x	x	x
NOVO PSTN+	x	x		x	x
NOVO PSTN	x	x		x	x

Table 20. *Programming options for NOVO models.*

This document will offer a description of how NOVO can be configured with the unit's buttons as well as a short summary on how to configure with HAND and LPP. For information about CMP or Programmer please contact NEAT or your distributor.

Another way to configure all models of NOVO is to connect the unit to a computer with **USB** and in the file explorer copy the configuration to NOVO This is also how audio files are copied to NOVO.

Only audio files validated by NEAT and configurations created by NEAT or in a designated NEAT programmer should be used.

6.2 Programming via buttons

Programming using the buttons can be initiated while the unit is in **Idle** mode.

The unit is in Idle mode when it is not processing an alarm event.

When programming with the buttons is initiated the unit enters **programming mode**. While in programming mode NOVO does not handle incoming alarm events.

Via the buttons the unit can enter Control Mode and from that mode it can enter Service mode.

6.2.1 Control Mode

Control Mode is accessible from Idle mode. To enter Control Mode, shortly press the **Power button (PS1)**.

While the unit is in Control Mode the front LEDs (L4 – L6) are all lit.

The unit automatically returns to Idle mode when a function has been completed or after 5 seconds of inactivity.

#	Control Mode functions
1	Toggle Alarm button (B1) illumination
2	Change volume (conversation/signal level)
3	Enter Service Menu

Table 21. *Table 24. Control Mode functions.*

Toggle Alarm button (B1) illumination

While in Control Mode, press and hold **Alarm button (B1)** to toggle Alarm button illumination. The new status is announced in the speaker and unit returns to Idle mode.

Change volume (conversation/signal level)

This function allows the conversation and signal levels to be selected separately.

Three pre-configured levels are available. This will not change the setting for a volume level.

While in Control Mode, press and hold **Reset button (B2)** to enter **Set conversation level**. The current conversation level is indicated by playing a number of indication tones corresponding to the volume level.

To change level, press Reset button (B2) and hold until the desired level is indicated. When the Reset button (B2) is released the unit will select the conversation level, play a confirmation tone and enter **Set signal level**.

When the unit enters **Set signal level** it will indicate the current signal level by playing a number of indication tones corresponding to the signal level.

To change level, press Reset button (B2) and hold until the desired level is indicated. When the Reset button (B2) is released the unit will select the signal level, play a confirmation tone and return to idle mode.

Enter Service Menu

While in Control Mode, press and hold **Extra button (B3)** to enter Service mode.

6.2.2 Service Menu

Service Menu is accessible from Control Mode, see "Enter Service Menu".

The unit automatically returns to **Idle Mode** after 60 seconds of inactivity.

The functions available in Service Menu depend on the model of NOVO and the carriers supported by the model.

When you enter, re-enter or step to the next function in Service Menu the unit will play a voice message indicating the next available function in the menu.

When a function has been executed, the unit automatically returns to the Service Menu and a voice message describing next available function is played.

Select the function by pressing **Alarm button (B1).**

Step to next function by pressing **Extra button (B3)**.

Exit function and return to Service Menu by pressing **Reset button (B2)**.

Exit Service Menu by pressing **Reset button (B2)**.

In Service Menu the **Alarm button LED (L1)** is lit and **Extra button LED (L3)** blinks.

#	IP/MOBILE	PSTN/MOBILE, PSTN+	PSTN
1	Add transmitter	Add transmitter	Add transmitter
2	Range test*	Range test*	Range test**
3	Remove transmitter	Remove transmitter	Remove transmitter
4	Toggle external MOBILE antenna	Toggle external MOBILE antenna	Toggle Home/Away/Passive
5	Toggle Home/Away/Passive	Toggle Home/Away/Passive	Toggle PABX
6	N/A	Toggle PABX	

Table 22. *Service Menu functions available depending on carriers supported by NOVO.*

**Range test in units with 4G or GSM available as a carrier includes both GSM coverage test and a Walk test.*

***Range test in units without 4G or GSM available as a carrier consist of Walk test only.*

Add transmitter

When the unit enters Service Menu it directly plays a voice message indicating the first function in the menu, **Add transmitter**, as the next function.

NOVO indicates that the function has been chosen by flashing LEDs L1 – L3 in synchronization.

NOVO returns to Service Menu after 20 seconds of inactivity.

There are two different ways to add a transmitter to NOVO; **Plug&Play** and **Position programming**.

Plug&Play is only available when adding transmitter that support Plug&Play. 40 Plug&Play transmitters can be added to NOVO via Plug&Play programming.

Position programming is available for all transmitters, 8 transmitters can be added to NOVO via Position programming.

In total 48 peripherals can be added to NOVO.

When a peripheral has been successfully added a **confirmation tone** is played to the speaker.

The radio message from the peripheral normally contains information about its **battery status**. That is indicated with the confirmation tone. The confirmation tone is a short beep if the peripheral reported its battery status as **OK**. The confirmation beep is a long beep if the peripheral reported its battery status as **low**.

If a peripheral is already registered in the unit at another position NOVO will play an **Error sound** instead of the confirmation sound. If registration is not successful, the unit does not return to Service Menu.

Plug&Play programming

To enter Plug&Play programming from the Service Menu, press **Alarm Button (B1)**. Novo will confirm your choice by playing a short confirmation tone.

Novo is now in Plug&Play programming. Activate the peripheral (e.g. press alarm button on SMILE) to register it in NOVO. A confirmation tone is played to confirm the addition.

A Plug&Play compatible peripheral sends information about its own equipment type in the radio message. This is used to determine how to register the peripheral in NOVO.

When the peripheral has been added the unit returns to Service Menu and indicates next function available with a voice message.

If the peripheral is already registered in another position or it does not support Plug&Play the unit will play an **Error sound** and remain in Plug&Play programming.

Position programming

Position programming is to be used when adding a peripheral that is not a Plug&Play device, i.e. does not include its own equipment type in the radio message.

When adding a peripheral in this way it is added to a specific transmitter position in NOVO. The first 8 transmitter positions in NOVO are used in Position programming. The configuration of these transmitter positions will determine how alarms from them are handled. NOVO supports a large number of alarm types and configurations for transmitters but below is the default configuration.

Position	Denomination
1	User alarm from trigger
2	User alarm from trigger
3	User alarm from trigger
4	Smoke
5	Fall alarm
6	Door alarm
7	Bed alarm
8	Passive alarm

Table 23. *Default alarm types for the first 8 transmitter positions.*

Please note that the table above shows a default configuration. Other configurations may apply to your unit.

Position programming is accessible when the unit has just entered the Add transmitter function, before any other choice is made. To enter Position programming, press the **Extra button (B3)** to choose the first **position**. The chosen position is indicated with a number of short beeps corresponding to the position, e.g. three beeps for position 3.

To step to the next position, press the **Extra button (B3)** again.

Activate the peripheral to register it at the chosen position. A confirmation tone is played to confirm the addition, see "Add transmitter". After a successful registration the unit automatically returns to Service Menu.

Range test

Range test can be used to confirm that a peripheral is registered and/or to test the radio range.

NOVO returns to Service Menu after 5 minutes of inactivity.

NOVO indicates that the function has been chosen by flashing LEDs L1 – L3 in synchronization.

When in Range test, activate a connected peripheral. If the unit is registered and in range NOVO will play a short confirmation tone if the peripheral reports its battery status as OK. NOVO will play a long confirmation tone if the peripheral reports its battery status as low.

Mobile coverage test

Units that support GSM/4G as carrier will perform **Mobile coverage test** during range test.

It will measure the mobile signal strength every 2 seconds and indicate the signal strength with LEDs as shown in "Table 24".

Signal	L1	L2	L3	L4	L5	L6
Very weak (1)	Flash	Off	Off	Flash	Flash	Flash
Weak (2)	On	Off	Off	Flash	Flash	Flash
Average- (3)	On	Flash	Off	Flash	Flash	Flash
Average+ (4)	On	On	Off	Flash	Flash	Flash
Strong (5)	On	On	Flash	Flash	Flash	Flash
Very strong (6)	On	On	On	Flash	Flash	Flash
Mobile not installed*	Flash	Flash	Flash	Flash	Flash	Flash
Mobile not active	Off	Off	Off	Flash	Flash	Flash

Table 24. *LED indications when in Mobile coverage test.*

** If Range test is initiated directly after startup,* ***Mobile not installed*** *will be indicated until the mobile module is initiated and running.*

Remove transmitter

There are three ways to remove a registered transmitter. All three methods described in the following sections assume that function **Remove transmitter** has been chosen by pressing **Alarm button (B1)** from the Service Menu.

NOVO will return to Service Menu after 20 seconds of inactivity.

NOVO indicates that the function has been chosen by flashing LEDs L1 – L3 in synchronization.

Remove a transmitter by activation

Activate the peripheral and press **Alarm button (B1)** until timeout. If the peripheral was registered, a short confirmation tone will be played, and the transmitter is removed from the NOVO configuration. The unit will automatically return to Service Menu.

Remove a transmitter by position

This method allows removal of a peripheral from the first 8 positions. It can be used if the position of the peripheral is known but activation is not possible for any reason.

When in **Remove transmitter** function, press the **Extra button (B3)** to enter the first position. The unit will play a short beep indicating the position. Press **Extra button (B3)** to step to the next position. After each step, NOVO will play a number of short beeps corresponding to the current position chosen. At the desired position, press and hold the **Alarm button (B1)** to remove the transmitter at that position. NOVO will play a confirmation sound and return to Service Menu.

*Note that this function only allows for removal from the first 8 positions. To remove a Plug&Play peripheral that can not be activated use **Remove all transmitters**, perform the removal via CMP or use a software programmer.*

Remove all transmitters

When in **Remove transmitter** function. Press and hold the **Alarm button (B1)** until a short tone is played in the loudspeaker. Release the **Alarm button (B1)**, press and hold until a confirmation tone is played. All radio peripherals have now been erased and unit will return to Service Menu.

Set external Mobile antenna to On/Off

This function is only available in units that support GSM or 4G (MOBILE) as a carrier.

Unit plays a voice message to indicate the current antenna status. To change the status, press and hold the **Alarm button (B1)** until the new status is indicated by a voice message.

NOVO returns to Service Menu after 10 seconds of inactivity.

NOVO indicates that the function has been chosen by LED L2 flashing and LED L1 on.

The unit will automatically return to Service Menu after execution.

Change Home/Away/Passive to On/Off

When this function is chosen the unit will play a voice message indicating the current status. To change status, press and hold the **Alarm button (B1)** until the new status is indicated by a voice message.

NOVO returns to Service Menu after 10 seconds of inactivity.

NOVO indicates that the function has been chosen by LED L2 flashing and LED L1 on.

The unit will automatically return to Service Menu after execution.

When toggling Home/Away/Passive to **On** the unit will do the following:

- Configure **Reset button (B2)** to reset **Passive timer**.
- Set Passive timer to the configured interval (default value is 24 hours).
- Start the Passive timer countdown.
- Configure alarm type for **Extra button (B3)** as Home alarm type. The unit will enter Home mode by default.

When toggling Home/Away/Passive to **Off** the unit will do the following:

- Stop Passive timer and remove any pending or ongoing passive events.
- Remove configuration of **Home alarm type** from **Extra button (B3)**.
- Ensure unit is in Home mode.

6.3 Programming with LPP/HAND

NOVO models with PSTN can be programmed with Local Programming Protocol (LPP) if they are not configured to communicate with CMP.

To enter LPP during an open PSTN connection, press and hold Reset button (B2) while pressing Extra button (B3).

The protocol uses DTMF tones to transfer the programming commands. Programming can be done over the PSTN line or with a HAND unit.

For more information about LPP contact your distributor or NEAT.

Parameter	DTMF Command	HAND Command
Telefphone no A	0 0 # N N N #	[TEL A] NNN [OK]
Telefphone no B	0 1 # N N N #	[TEL B] NNN [OK]
Alarm code	1 5 # N N N #	[CODE] NN [OK]
Protocol	4 5 # N N N #	[PROT] NN [OK]
Set time	8 4 # H H M M #	84 [OK] HHMM [OK]
Exit programming	9 0 # #	[END]

Table 25. *LPP programming parameters.*

For more information about HAND please refer to HAND User Manual, NE41 07001-02..

7 Real Time Clock (RTC)

NOVO is equipped with a real time clock (RTC). The clock runs continuously, even when the unit is turned off or it is running on the backup accumulator.

The RTC is updated regularly via NTP servers if the unit is connected to the internet.

NOVO supports Daylight Savings Time and this is configurable. Please contact NEAT or your distributor to verify that your time zone is supported.

8 Alarm and event log

NOVO logs the last alarms and events. If the unit is connected to CMP (Neat Carephone Management Portal) these alarms and events are synchronized to the Management Portal. For more information on these logs and/or access to them, contact your distributor or access the CMP.

9 Important

9.1 Use and maintenance

- Do not damage the unit or its parts. If damaged, immidiately contact authorized personnel.
- Do not expose to direct sunlight.
- 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.

9.2 Cleaning

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

9.3 Safety Notes

- Read instructions prior to use.
- Always test the system per instructions prior to use.
- Always check the function of the product after making adjustments.
- This product may not be suitable for all persons and should not be a substitute for the routine visual monitoring protocol by a caregiver.
- This product 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 as a life support unit whose malfunction may result in damage to a life.
- Check the unit regularly and replace when necessary.
- Do not integrate with systems other than those specified in this document.
- Always keep the unit dry. Exposure to excessive moist can cause malfunction.
- The product can be placed near other products or units as long as mechanical vibration is not present.
- Remove batteries if the unit is to be out of use or stored for an extended period of time.

9.4 Disposal

At the end of the product's life, please dispose of it at appropriate collection points provided in your country. 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 your distributor.

Appendix A Technical data

Appendix A.1 Technical data NOVO

General info

Measures, W x H x D	128 x 180 x 65 mm
Weight (incl. backup accumulator)	300 g (standard capacity accumulator) or 355 g (large capacity accumulator)
Communication	NOVO PSTN (PSTN) NOVO PSTN+ (PSTN and GSM) NOVO PSTN/GSM (PSTN and GSM) NOVO IP/GSM (IP and GSM/GPRS) NOVO IP/4G (IP and GSM/LTE)
Power supply	5 V_{DC}, 1A
Max power consumption	‹5 W
Temperature range	+5 - +55 °C

Accumulator

Type	NiMH
Voltage	3.6 V_{DC}
Capacity	400 mAh or 2000 mAh
Stand-by backup time	up to 450 h

Speaker

Max power	2 W
Impedance	8 ohm

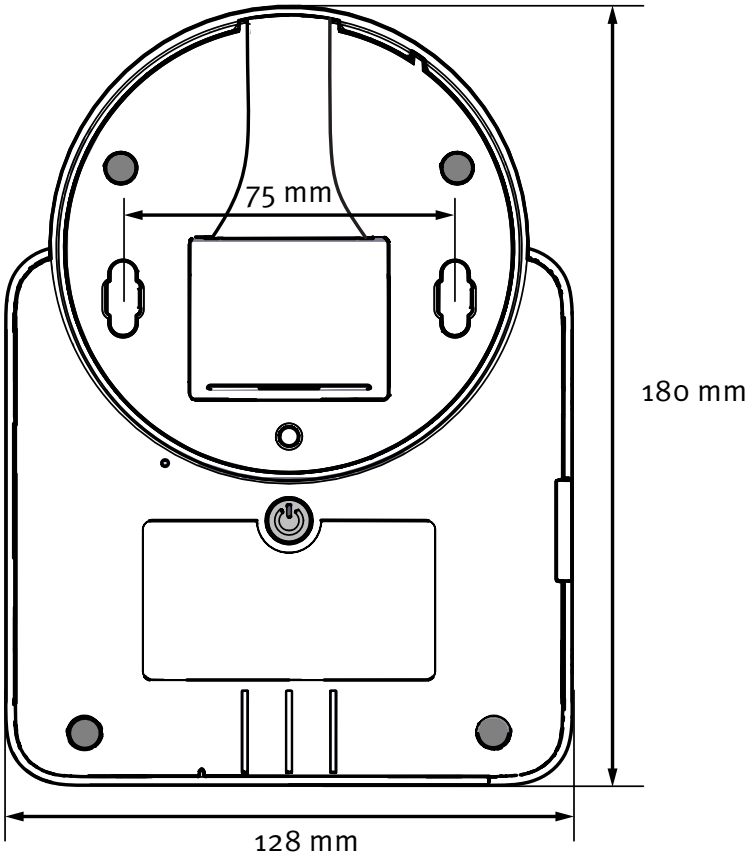
Radio

Max transmission power	10 mW (EIRP)
Radio frequency	869.2125 MHz (Social alarms, transmission)
	869.2375 MHz (Acknowledge)
Security level	Category 1 (Highest)
Radio range	Up to 300 meters, free air
Approvals	EN69050-1:2006+A1+A2+A11+A12:2011
	EN 301489-1 v1.9.1
	EN 301489-3 v1.6.1
	EN 301489-7 v1.3.1
	EN 300220-1 v2.4.1
	EN 300220-2 v2.4.1
	EN 301511 v9.0.2
	CGF-CC v3.4.0
	EN 50134-2 - Social alarms

Appendix A.2 Technical data SMILE

Measures, W x H x D	34 x 42 x 15 mm
Weight (incl. battery)	14 g
Radio frequency	869.2125 MHz (Social alarms, transmission)
	869.2375 MHz (Acknowledge)
IP Code	IP67
Temperature range	+5 - +55 °C

Appendix B NOVO Mounting holes



Picture 18. *NOVO unit key hole measures.*

Appendix C Recommended accumulators

400 mAh	NE31 14002-02
2000 mAh	NE31 14004-03

Appendix D Alarm types and Alarm type groups

Assistance alarms

Assistance alarm
Enuresis

Assult alarms

Assault alarm
Burglar alarm

Emergency alarms

Emergency alarm

External sensor alarms

Bed alarm
Carpet alarm
Door alarm

Other alarms

Double press
Long press
Manoeuvre
Measurement data
Medical dispenser
Position info
Radio test alarm
Reset alarm
Tamper alarm
Technical failure
User call 1
User call 2
User defined

Presence alarms

Action indication
Automatic ready indication
Log call
Presence indication
Ready indication
Reminder alarm

Smoke detector alarms

Co Gas
Gas alarm
Smoke detector alarm
Temperature alarm
Water alarm

Technical alarms

Accumulator alarm
Accumulator fully charged
Battery alarm
Daily report / Event
Heartbeat
Mains failure alarm
Mains OK indication
Network return
No network
Radio interference
Radio out of range
Radio within range
Service call

Test alarm

Test alarm

User alarms

Away indication
Bogus call
Epilepsy alarm
Fall alarm (man down)
Home indication
Inactivity
Passive alarm
Pull cord alarm
User alarm from button
User alarm from trigger
User alarm from trigger, battery low

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