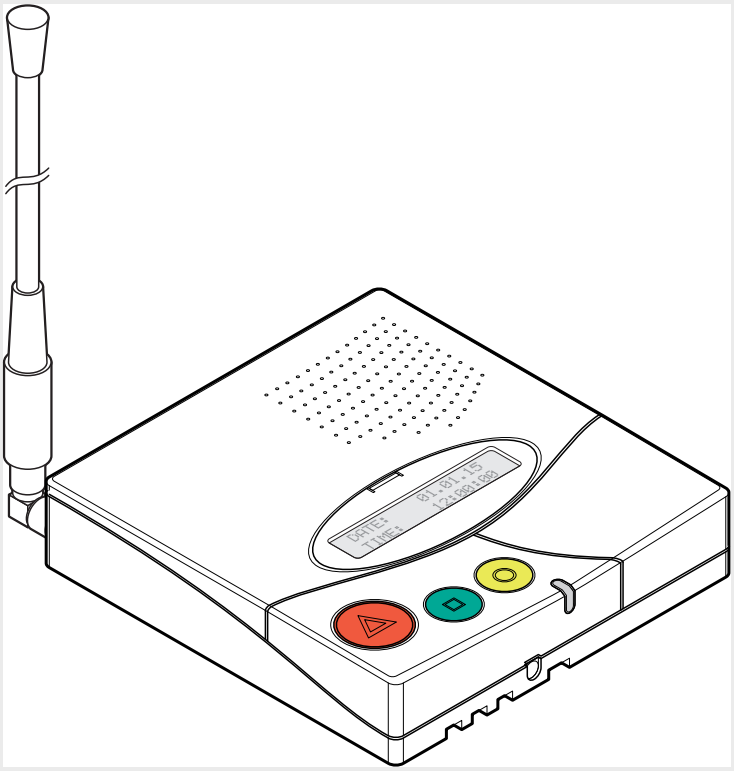


NurseCall Main Unit

F.01U.252.699 | V1.3 | 2015.09

TeleAlarm®
swiss design

en User Manual

Table of Contents

1 Safety instructions

NOTICE!
The user and installer should read and understand this chapter before any intervention on the NurseCall Main Unit.

1.1 Importance of safety instructions

Each safety and protection instruction in this manual must be adhered to in order to avoid personnel injuries, property damages or environmental pollution.
In a similar manner, the legal bylaws, the measures in prevention of accidents and for the protection of the environment, as well as the recognized technical rules aiming at appropriate and safe working conditions which as applied in the country and at the place of use of the NurseCall Main Unit must be adhered to.

1.2 Disregarding safety rules

Disregarding the safety rules, as well as existing legal and technical regulations, may lead to accidents, to property damages or to environmental pollution.

1.3 Environmental conditions

NOTICE!
The NurseCall Main Unit must not be located near a water tap or any other source of water.
The electrical safety of the unit is only guaranteed if the electrical installation is conform to the national regulation and if this installation works properly.
The NurseCall Main Unit may not be used in buildings prone to fire and explosion hazards.

NOTICE!
The NurseCall Main Unit may not be used under exposure to the direct sunlight, to heat, to dust or to an excessive humidity (only use the equipment in a clean environment).

▶ Install the NurseCall Main Unit in a dry place, away from any source of heat.

CAUTION!
Interferences
Avoid immediate proximity to other electric devices such as a television.

CAUTION!
Connect the power adapter in a power outlet near the unit.
Make sure that it remains easily accessible.

1.4 General safety instructions

DANGER!
Electrocution
During maintenance operations, when the NurseCall Main Unit is powered and its casing is removed, it may not be left unattended.

CAUTION!
The NurseCall Main Unit may only be connected to the electrical sources as described in *Section A.1 Electrical specifications, page 51*.

CAUTION!
Maintenance and repairs may only be performed in conformance with the instructions and by authorized technical personnel only.
The sole possession of the user manual does not allow the personnel to perform any kind of repair on the NurseCall Main Unit.
Take into account all the warnings and follow all the instructions displayed on the NurseCall Main Unit and those which are printed in the documentation.
Never try to use replacement pieces other than those authorized by the manufacturer of the NurseCall Main Unit.

CAUTION!
It is mandatory to use the products specified in the present user manual to clean the NurseCall Main Unit. If you plan to use another product, only do so after having obtained the authorization of the manufacturer.

DANGER!
The NurseCall Main Unit contains highly sensitive electronic components. It should be opened only in an **ESD** protected environment with respect to the following precautions:
1. Discharge yourself from electrostatic loads by touching a grounded conductive surface before opening the unit.
2. Avoid touching conductive parts inside the unit if not absolutely necessary.

CAUTION!
Never let any liquid enter the system. In case of liquid spill inside the NurseCall Main Unit, act immediately as follows:
1. Switch off the unit using the main switch under the casing.
2. Unplug the power supply adaptor.
3. Dry up the unit.
4. Clean the unit.
5. Check that the unit switches on correctly.

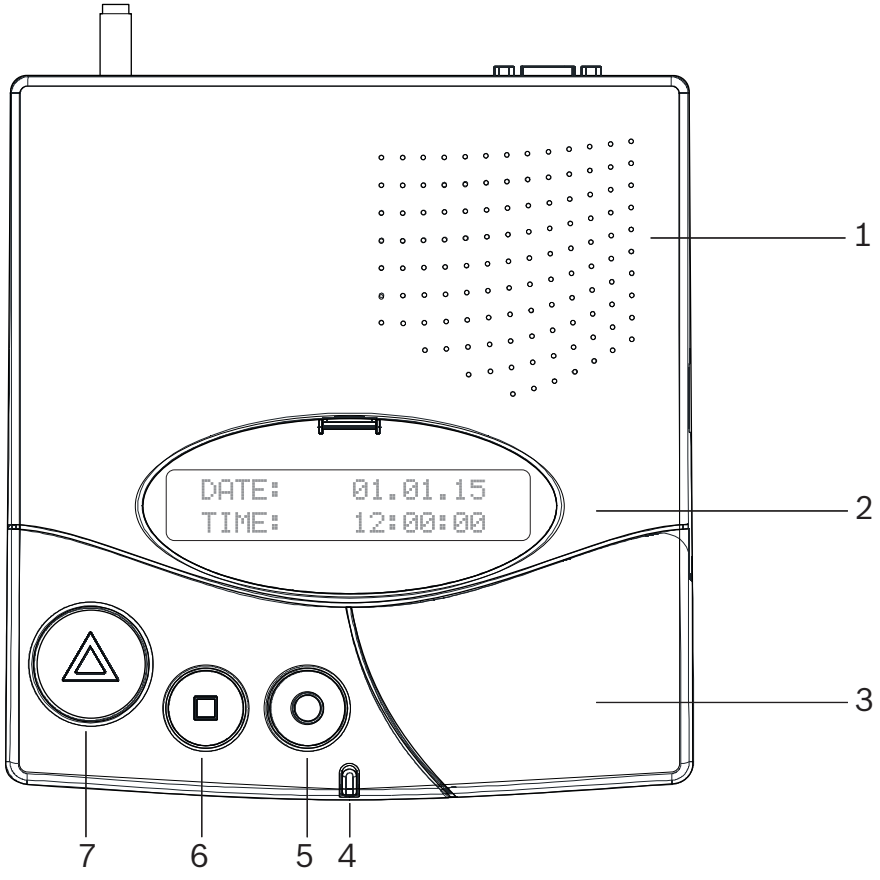
1.4.1 Observation and information

In case of defective operation or any other technical incident for which no remedy is described in this manual, please contact immediately your local representative.

2 Description

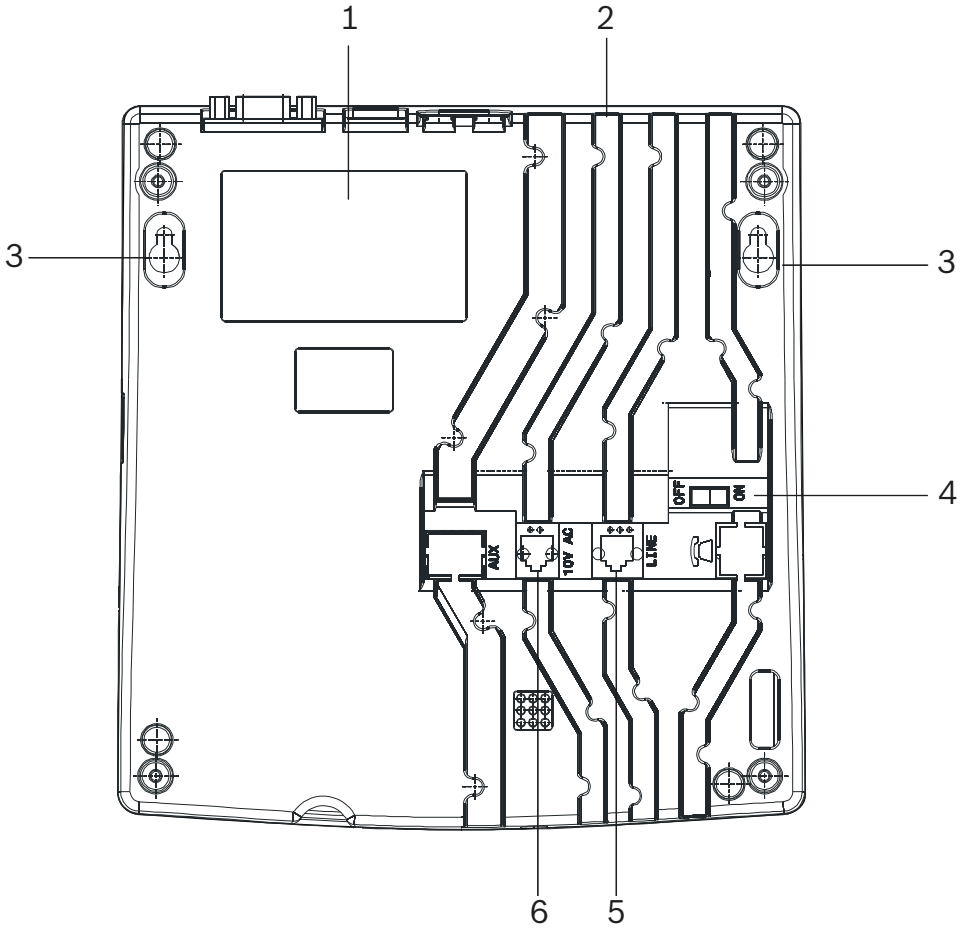
2.1 General description

2.1.1 Top view



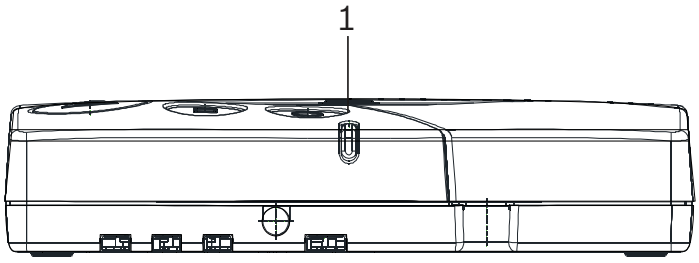
1. Loudspeaker.
   See *Section 2.2.1 Loudspeaker, page 11*.
2. Display.
   See *Section 2.2.2 Display, page 11*.
3. Keyboard, under the cover.
   See *Section 2.2.3 Keyboard, page 11*.
4. LED Indicator
5. **Yellow** button
   Used to view more details about the event or alarm currently displayed (date and time, position, etc...).
6. **Green** button
   Used to acknowledge an alarm locally, see *Section 5.2.3 Local acknowledgement, page 45*.
7. **Red** button with light
   This button is not used. Pressing the button does not activate a function.
   The light blinks red during an alarm.

2.1.2 Bottom view



1. Identification label.
2. Cable channels.
3. Wall mounting holes (distance between holes, 157 mm).
   See *Section 3.2.3 Wall installation, page 16* for a detailed description.
4. ON/OFF switch.
5. LINE socket, used for firmware update.
   See *Section A.7.1 LINE socket (unit bottom), page 59* for wiring.
6. 10V AC socket.
   See *Section A.7.2 Power socket (unit bottom), page 59* for wiring.

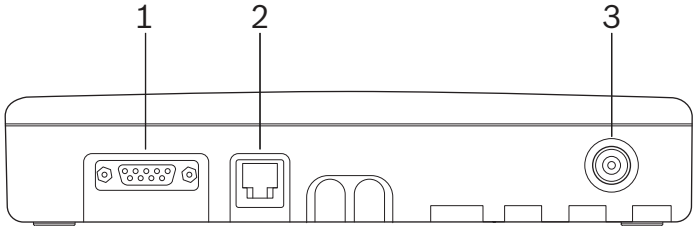
2.1.3 Front view



1. LED Indicator

Status	**LED**
Standby mode (normal operation)	Green (permanent)
Backup battery low	Green (blinking)
Power supply disconnected	Green (flashing)
Help, assistance or fire	Red (blinking)
Programming mode	Orange (blinking)

2.1.4 Rear view



1. RS-232 connector
   See *Section A.7.3 RS-232 socket (unit rear), page 59* for wiring.
2. RS-485 connector
   See *Section A.7.4 RS-485 socket (unit rear), page 59* for wiring.
3. Antenna connector

2.2 Detailed description

2.2.1 Loudspeaker

When one of the following alarms or messages is received by the NurseCall Main Unit, the internal loudspeaker is activated until acknowledgement.

Status	Loudspeaker
Power supply disconnected	Dual-tone beep every minute
Call for help, reserve call, technical call	4 second interval, one tone
Error message	15 second interval, one tone
Disconnection of a relay unit from RS485-bus	1 minute interval, one tone
Call for assistance / fire alarm	Continuously dual-tone beep
Local acknowledgement	Short beep

2.2.2 Display

The NurseCall Main Unit is equipped with a 2 x 20 characters display that guides the operator during the programming. During normal operation, alarms and messages are displayed.

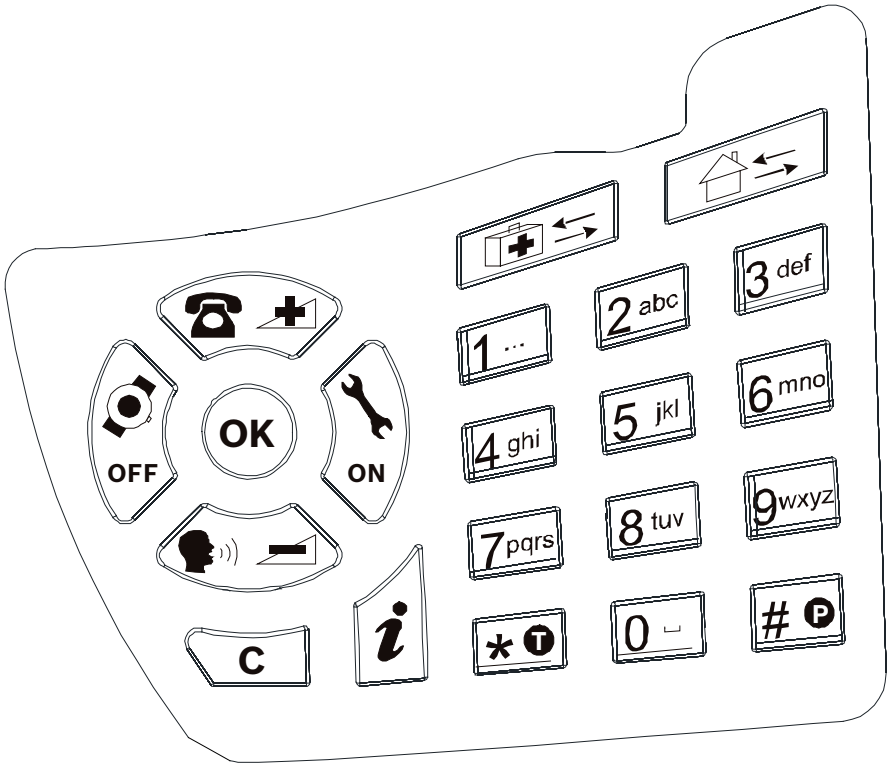
```
NurseCall Main Unit
V2.17 BN111.240.00B
```

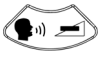
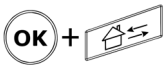
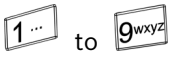
NOTICE!

This user manual is written for the unit language **English USA**. Certain displays may differ for the unit language **English UK**.

2.2.3 Keyboard

The keyboard has 21 alphanumeric keys. They are used to program the NurseCall Main Unit or during normal operation.



Keys	Programming Mode	Normal Operation
	Access to parameters programming. See *Section 4.3 Parameters, page 25*.	Not used.
	Access to transmitters programming. See *Section 4.5 Transmitters, page 38*.	Not used.
	Scroll up to the next parameter.	Increase the volume of the loudspeaker. See *Section 5.1 Adjusting the loudspeaker volume, page 43*.
	Scroll down to the next parameter.	Decrease the volume of the loudspeaker. See *Section 5.1 Adjusting the loudspeaker volume, page 43*.
	Set a parameter value to OFF or to go to the previous programming field.	Scroll down to the previous alarm/event.
	Set a parameter value to ON or to go to the next programming field.	Scroll up to the next alarm/event.
	Confirm a value or a command.	Not used.
	Cancel an entry or a command. Quit the programming mode.	Not used.
	Check the value of a parameter or a transmitter.	Check the status of the backup battery. See *Section 7.3 Monitoring the backup battery, page 47*.
	Not used.	Not used.
	NPS programming function. See *Section 4.1.2 Programming with the NPS software, page 22*.	Not used.
	Enter a value.	Not used.
	Erase all programmed acknowledgement transmitters during a specific procedure. See *Section 4.5.8 Erasing all acknowledgement transmitters, page 42*.	Not used.
	Disable the beep codes and delete the POS indication. See *Section 4.3.5 RS-232 output setting, page 27* and *Section Example of programming, Page 28*.	Not used.
	Enter a value or to set the default values. See *Section 4.3.5 RS-232 output setting, page 27*.	Launch the event/alarm display mode.
	No effect.	Lock and unlock the keyboard.

2.2.4 RS-232 interface

A 9-pole SUB-D connector at the rear of the housing can be used for connection to

- a printer
- a paging system
- a DECT phone system
- a PC with Alarm Management Software.

▶ For the hardware configuration of this interface, see *Section 3.2.6 Connecting the RS-232, page 17*.

▶ For the programming of this interface, see *Section 4.3.5 RS-232 output setting, page 27*.

▶ For the wiring of the connector, see *Section A.7.3 RS-232 socket (unit rear), page 59*.

Connection to a printer

To protocol all events, a printer with serial connection (RS-232 Interface) and endless paper should be used. Printers with a parallel port can be used together with an intermediate serial - parallel converter.

NOTICE!

The paper printout corresponds to the indication at the display of the NurseCall Main Unit.

Characteristics

- Data rate: 9600 Bauds.
- Transmission: asynchronous
- 10 bit-structure (1 start bit, 8 data bits without parity, 1 stop bit).

The operating status of the printer cannot be tested (switched on/off, paper status).
An RS-232 printer is mandatory.

Connection to a paging system

The NurseCall system uses several protocols: standard ESPA 4.4.4. with RPE670/i-page, POCSAG, DeTeWe and Medicall 800.

▶ See *Section A.5 Paging systems specifications, page 53* for more information about these protocols.

Connection to a DECT phone system

The NurseCall system can transfer the received alarms to DECT handsets Multitone CH60 or CH70.

▶ See *Section A.6 DECT phone system specifications, page 58* for more information about this system.

Connection to a PC using an Alarm Management Software

At connection / disconnection of a PC using an Alarm Management Software, events are generated. The loudspeaker is disabled during the connection.

NOTICE!

Alarms/messages arriving in the alarm buffer are repeated every 3 minutes until acknowledgement. A technical failure, for example a power outage, is treated as an event. No acknowledgement is therefore necessary. See *Section 5.2 Consulting the alarm or event buffer, Page 43*.

2.2.5 RS-485 interface

One NurseCall Main Unit and up to 32 NurseCall Relay Units can be connected by a RS-485 bus. The bus must be connected to pins 2 and 5 of the RS-485 socket.

▶ For connector wiring, see *Section A.7.4 RS-485 socket (unit rear), page 59*.

NOTICE!
Keep polarity equal when connecting further units to the RS485 bus!

NOTICE!
Maximum RS485-bus length: 1200 m.
Use only one twisted pair cable for the interconnection.

NOTICE!
The receiver units located at the two ends of the bus must be terminated with a 100 Ohm resistor. See *Section 3.2.8 Connecting the RS-485, page 19* for more information about the jumper setting.

In this configuration, you always should connect the NurseCall Main Unit first. The NurseCall Relay Units must then be connected to the RS485-bus one by one, not at the same time.

Relay output

In the same connector, a potential free contact is available. It is a low current switching contact. The relay (potential free, switching power max. 48 V / 0.5 A) is activated at a call for help, call for assistance or fire alarm. This relay can be set as closing or switching contact (cycle of 10 seconds on / 10 seconds off). This feature can be used to drive a signal lamp for example.

▶ For connector wiring, see *Section A.7.4 RS-485 socket (unit rear), page 59*.

▶ For relay setting, see *Section 4.3.7 Output relay setting, page 31*.

2.2.6 Antenna

The antenna is connected to the NurseCall Main Unit using the adapter supplied with the unit.

▶ See *Section 3.2.4 Installing the antenna, page 16*.

3 Installation

3.1 Unpacking

The NurseCall Main Unit is carefully packed for transportation.
The components contained in the box are protected, but should be handled with care.
Store the packaging material for further use (storage or transport).

1. Take all components out of the box and place the NurseCall Main Unit on the working space.
2. Check each component in the box, in accordance with the list of contents below.
3. Check that the NurseCall Main Unit and its accessories have not been damaged during transportation.

In case of defective or missing equipment, do not try to install the NurseCall Main Unit.

▶ Contact immediately your local representative.

3.1.1 List of contents

Description
NurseCall Main Unit
Power supply adaptor (Europe) 230VAC/10VAC or Power supply adaptor (UK) 230VAC/10VAC UK or Power supply adaptor (US) 115VAC/10VAC
Antenna 434MHz 1/2 L=34 cm FME
Straight adapter BFME-TNC
Right angled bended adapter BFME-ETNC
2 m Cable FCC 6/4
NurseCall Main Unit User Manual

3.2 Installation

3.2.1 Generalities

▶ Install the NurseCall Main Unit in a dry place, away from any source of heat.

Tools required:

– Torx T20 screwdriver.
– Torx T10 screwdriver.

3.2.2 Installation on a piece of furniture

It is recommended to place the NurseCall Main Unit on a non-slippery surface. However, do not place anything (blanket or lace) on top of the unit.

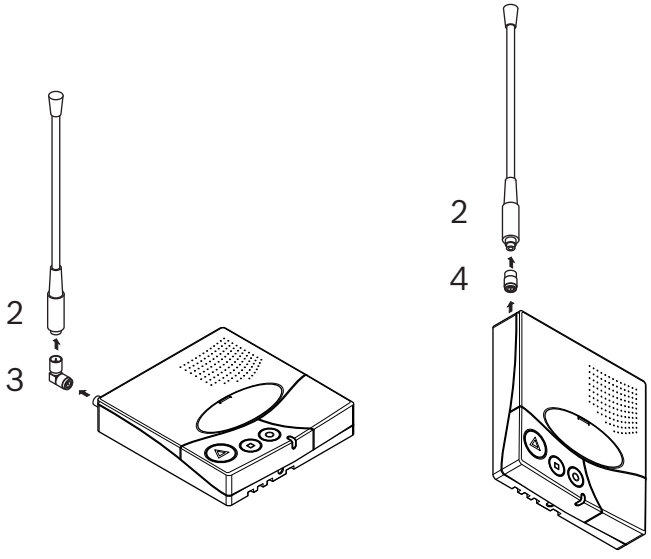
3.2.3 Wall installation

You can fasten the NurseCall Main Unit on a smooth wall surface using two screws. The distance between holes is 157 mm.

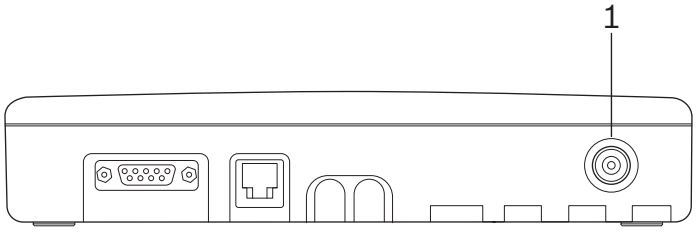
Power and phone line cords should be placed inside the cable channels on the bottom of the NurseCall Main Unit.

3.2.4 Installing the antenna

1. Use the straight adapter (4) for wall installation or the right angled bended adapter (3) for installation on a piece of furniture.



2. Fasten the adapter (3) or (4) on the antenna connector (1).



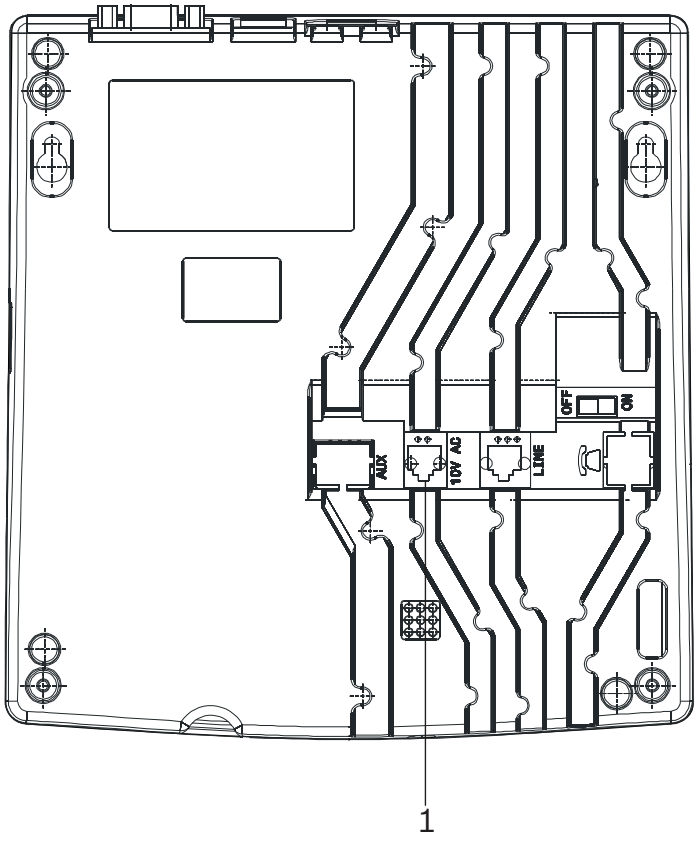
3. Fasten the antenna (2) on the adapter.

3.2.5 Connecting to the mains

The NurseCall Main Unit is powered by an adaptor (230/10 VAC or 115/10 VAC).

CAUTION!
In case of a different supply, the equipment must fulfill isolation requirements according to EN60950 standard (last edition).

1. Plug the power adaptor into a power outlet placed near the unit. It should be easily accessible at any time.

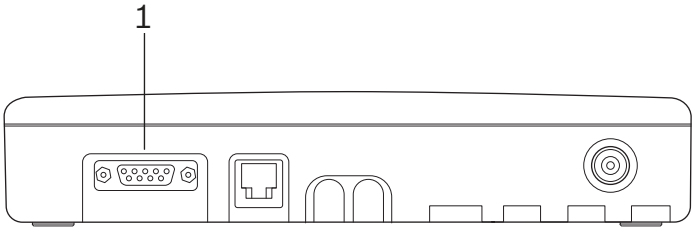


2. Connect the cable to the socket labeled 10V AC (1), under the unit.

For connector wiring, see *Section A.7.2 Power socket (unit bottom), page 59*.

3.2.6 Connecting the RS-232

▶ Connect the device to the 9-pole SUB-D connector (1) at the rear part of the housing.

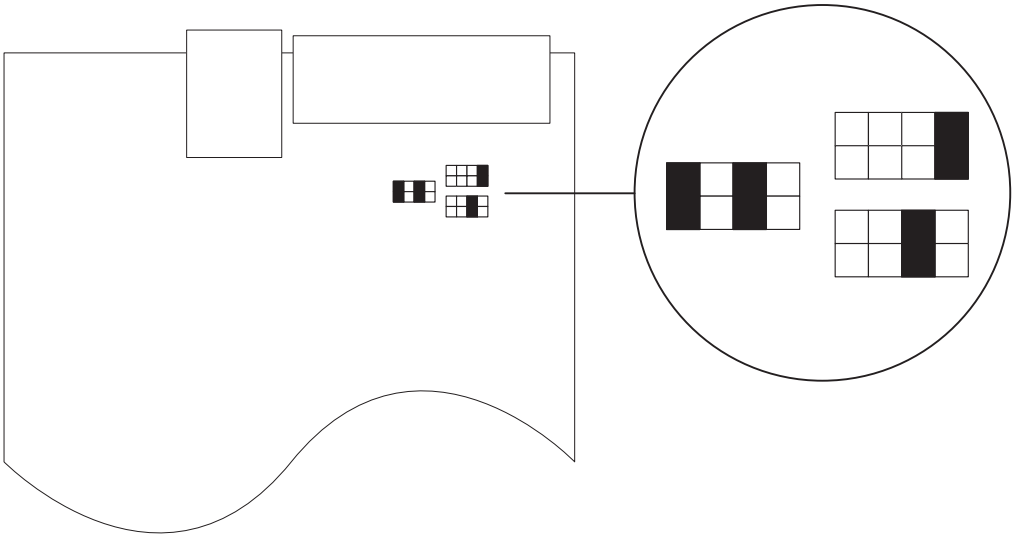


For connector wiring, see *Section A.7.3 RS-232 socket (unit rear), page 59*.

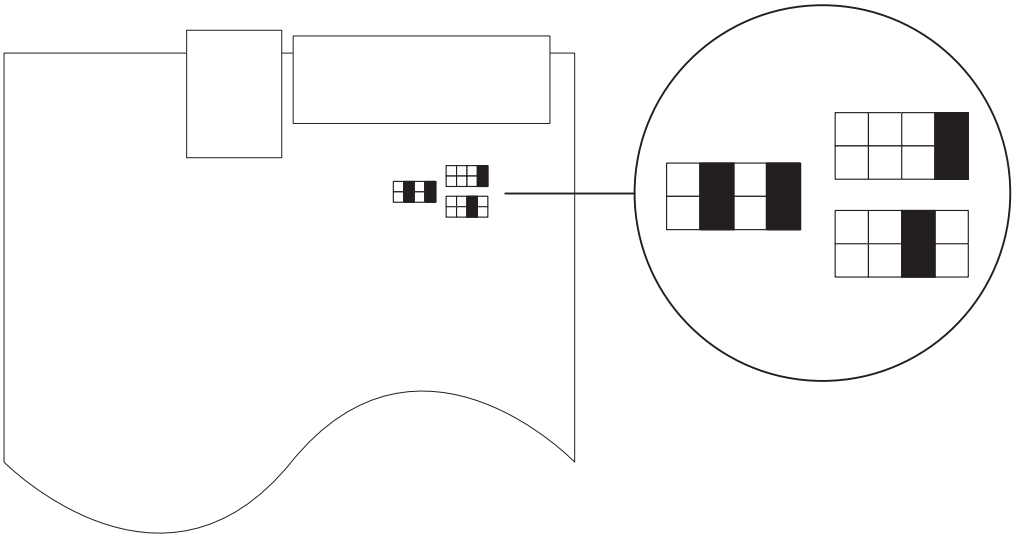
3.2.7 Setting the jumpers on the communication board

1. Disassemble the unit; see *Section 7.5.1 Disassembling the unit, page 48*.
2. Remove the communication board; see *Section Removing the communication board, page 48*.
3. Set the jumpers as required in your configuration. By default the jumpers are set for connection to a DECT phone system.

Setting the jumpers for a DECT phone system, Alarm Management Software, NPS programming or Medicall 800:



Setting the jumpers for Paging systems (except Medicall 800) and printers:



4. Assemble the communication board and the unit. This is basically the reverse of the disassembling procedure, see *Section 7.5.1 Disassembling the unit, page 48*.

3.2.8 Connecting the RS-485

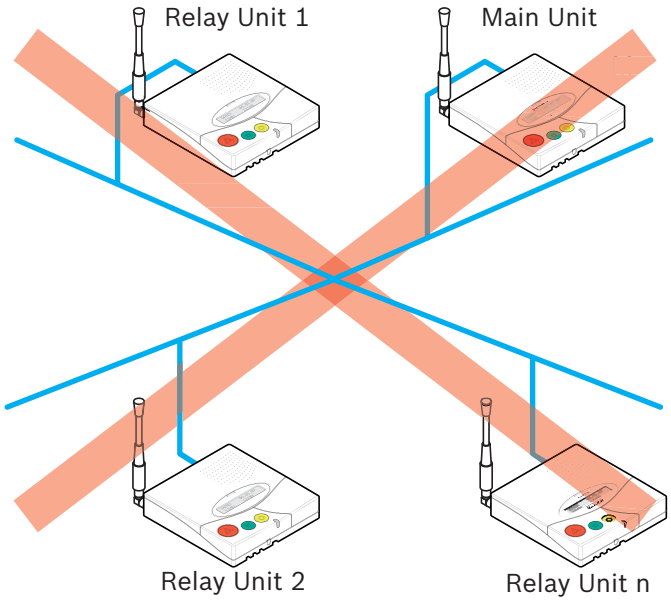
One NurseCall Main Unit and up to 32 NurseCall Relay Units can be connected to an RS-485 bus. Please contact a specialist for a correct installation.

▶ See *Section A.7.4 RS-485 socket (unit rear), page 59* for connector wiring.

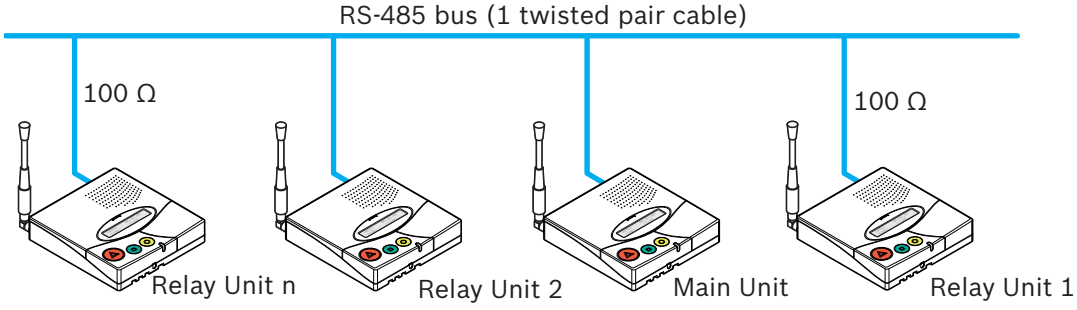
CAUTION!

Do not use a star connection for the RS-485 network!

Incorrect connection:



Correct connection:



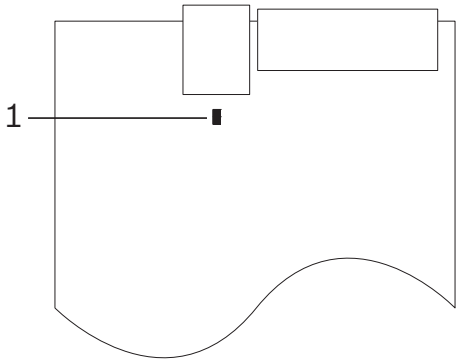
NOTICE!

The NurseCall Main or Relay Units located at the two ends of the bus must be terminated with a 100 Ohm resistor.

3.2.9 Setting the 100 Ohm termination jumper

Within the NurseCall Main or Relay Units, the RS-485 interface can be configured with a jumper.

1. Disassemble the unit as described in *Section 7.5.1 Disassembling the unit, page 48*.
2. Remove the communication board as described in *Section Removing the communication board, page 48*.
3. Put the 100 Ohm termination jumper J112 (1).



4. Assemble the communication board and the unit. This is basically the reverse of the disassembling procedure, see *Section 7.5.1 Disassembling the unit, page 48*.

NOTICE!

If you do not want to disassemble the NurseCall Main Unit, you also can short-out pins 3 and 4 of the connector. This has the same effect as the jumper setting described above.
See *Section A.7.4 RS-485 socket (unit rear), page 59* for connector wiring.

4 Programming

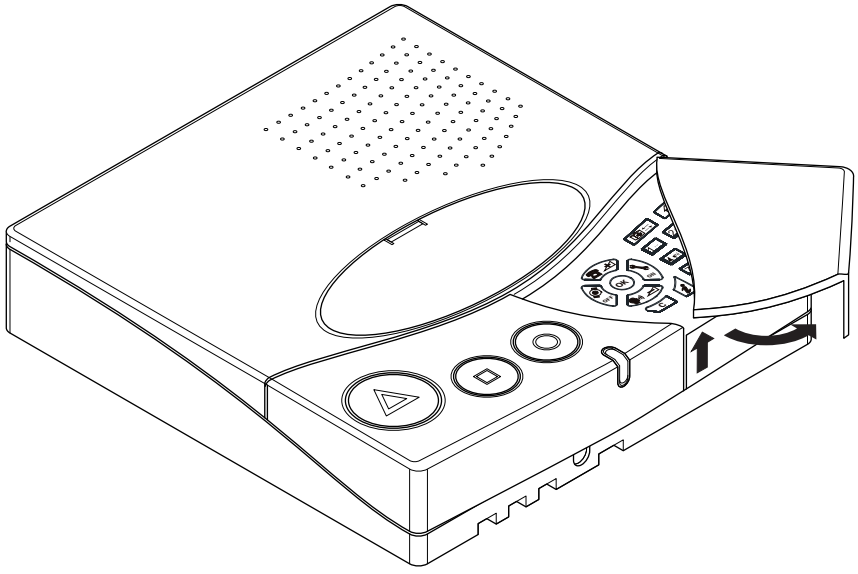
4.1 Generalities

NOTICE!
In the programming mode, the NurseCall Main Unit does not display any alarm or message!

The NurseCall Main Unit can be programmed either remotely by using a specific software package called NPS or directly by using the keyboard and display.

4.1.1 Programming with the keyboard

▶ Open the cover carefully and use the programming keys.



▶ To access the parameters programming, press OK then ON.

See *Section 4.3 Parameters, page 25* for more details.

▶ To access the special settings programming, press 0 three times quickly.
See *Section 4.4 Special settings, page 34* for more details.

▶ To access the transmitters programming, press OK then OFF.

See *Section 4.5 Transmitters, page 38* for more details.

4.1.2 Programming with the NPS software

The NurseCall system can be programmed with a specific software called NPS.

NOTICE!
In order to program the NurseCall Main Unit with this software, you should connect your PC to the NurseCall Main Unit with an RS-232 cable.

▶ To connect and set the interface, see *Section 3.2.6 Connecting the RS-232, page 17*.

Enable the programming

1. Press (OK) then  .

2. Confirm the command with (OK).

4.1.3 Exit the programming mode and cancel entries

▶ Press C once or several times.

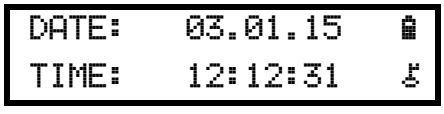
4.1.4 Key not allowed

▶ If you have pressed a key by mistake during the programming, a high-pitched beep is generated.

4.1.5 Locking and unlocking the keyboard

▶ Press *1 then #2 within one second to lock or unlock the keyboard.

This function locks only the keyboard to prevent any false manipulation. The colored buttons on the left hand side are still available.
When the keyboard is locked, a small lock appears at the bottom right of the display:



4.1.6 Programming time-out

▶ Programming of the NurseCall Main Unit terminates automatically if no entries are made on the keyboard for more than **one minute**.

4.2 First use

At first use or when resetting all the parameters, you must program:

▶ the unit language
▶ the locating mode
▶ the display mode for the transmitters' identification

See *Section 4.4.2 Resetting all the parameters, page 34*.

4.2.1 List of original factory settings

Parameter	Original Factory Setting	Page
Language	English USA	*24*
* Locating mode (set at first use. To change the value, reset the unit)	Off	*24*
* Display mode (set at first use. To change the value, reset the unit)	Floor/room/bed	*24*
Output RS-232	None	*27*
Forwarding of transmitter ID via the RS-232 interface	Off	*27*
RPE 670 / i-page for paging systems	No	*28*
Day / night mode	No	*28*
Night start for paging or phone DECT systems	18h00	*28*
Night end for paging or phone DECT systems	06h00	*28*
ID paging for paging systems	2	*28*
ID NurseCall for paging systems	1	*28*
Beep codes allocated to each pager	Help:7; Assi: 5; Ackn: 2	*28*
Number of digits for ESPA 4.4.4.	3	*28*
Mix Mode ESPA 4.4.4 / Alarm Management Software	No	*28*
Technical events sent to a specified pager group	Off	*28*
Digit for the POCSAG paging system address	4	*30*
First digit for DeTeWe paging system address	1	*30*
Local acknowledgement	Yes	*31*
Access code for local acknowledgement	No	*31*
Output relay function	Closing	*31*
Output relay mode	Help + Assistance	*31*
Accompany mode	No	*32*
Lower limit for the accompany mode	231	*32*
Radio noise check	Yes	*32*
Relay output in case of a radio noise event	Off	*32*
Tracking function	No	*33*
Dementia criterion	No	*33*
Range of automatic dementia gates	Standard 231-254	*33*
Assistance alarm from S35Q, S37Q and S37L transmitters	Off	*33*
Assistance and fire priority	No	*35*
Special texts in German	No	*35*
Set to Universal NurseCall	No	*36*
Conversion code for Universal NurseCall	No	*36*
Last 300 ID codes blocked for Universal NurseCall	No	*36*
Maximum number of alarm transmitters	500	*37*
Maximum number of acknowledgement transmitters	5	*37*
Maximum number of events buffered	100	*37*
Disabling the daily messages check	Off	*37*
Repeat alarms timing to RS-232 output	3 minutes	*37*
Speaker volume	Midrange	*43*

4.2.2 Language

Select the unit language.

▶ See *Section 4.3.3 Programming the unit language, page 25* for more details.

4.2.3 Locating mode

NOTICE!
It is mandatory to perform a reset if you wish to change the value for the locating mode.
See *Section 4.4.2 Resetting all the parameters, page 34*.

Enable (**ON**) or disable (**OFF**) the indication of the transmitter position (locating mode) on the NurseCall Main Unit display.

▶ Press 

to disable or 

to enable the locating mode.

WARNING!
When the locating mode is disabled, the accompany mode, tracking function and dementia criterion are no longer available in the parameters programming.

4.2.4 Display mode

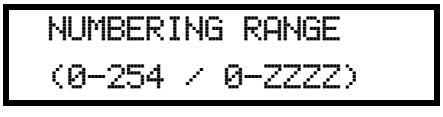
NOTICE!
It is mandatory to perform a reset if you wish to change the value for the display mode.
See *Section 4.4.2 Resetting all the parameters, page 34*.

Select the display mode for the transmitters' identification.

1. Press 

to select **NUMBER** or 

to select **FL,RO,BE** (floor, room, bed).
2. If you select **NUMBER**, then you must choose between a 3-digit display (single number) and an extended 4-sign display (digits and letters).



▶ Press 

to select the 3-digit display **0-254** or 

to select the 4-sign display **0-ZZZZ**.

3. If you select **FL,RO,BE** (floor, room, bed), you must choose between an acknowledgment on **FL+RO** (floor and room only) or **FL+RO+BE** (floor, room, and bed).

▶ Press  to select **FL+RO** or  to select **FL+RO+BE** (floor, room, bed).

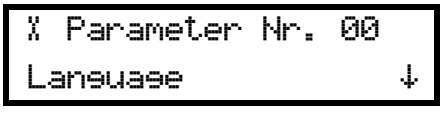
NOTICE!
When acknowledging a transmitter in mode **FL+RO**, all the transmitters located at this floor and room will be acknowledged.

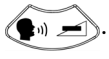
4.3 Parameters

4.3.1 Access to parameters

1. Press OK then  to access the parameters.

2. Press OK to program these parameters or  to check the value of each parameter.



3. Scroll with  and  . Press OK to confirm. Press  to escape.

4.3.2 List of parameters

No.	Parameter	Reference
00	Language	*Section 4.3.3 Programming the unit language, page 25*
01	Date and time	*Section 4.3.4 Date and time setting, page 26*
02	RS-232 output	*Section 4.3.5 RS-232 output setting, page 27*
03	Local acknowledgement	*Section 4.3.6 Local acknowledgement setting, page 31*
04	Relay Output	*Section 4.3.7 Output relay setting, page 31*
05	Accompany mode	*Section 4.3.8 Accompany mode, page 32*
06	Radio noise check	*Section 4.3.9 Radio noise check, page 32*
07	Tracking function	*Section 4.3.10 Tracking function, page 33*
08	Dementia criterion	*Section 4.3.11 Dementia criterion, page 33*
09	Assistance alarm	*Section 4.3.12 Assistance alarm from S35Q, S37Q and S37L transmitters, page 33*

4.3.3 Programming the unit language

NOTICE!
This parameter is set at first use. Here you can change it.
See *Section 4.2 First use, page 22*.

Choose between 7 language settings:

- 0 = English USA
- 1 = English UK
- 2 = French
- 3 = German
- 4 = Italian
- 5 = Dutch
- 6 = Swedish

1. Select the parameter Nr. **00**.

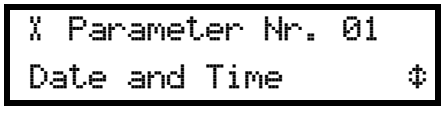
2. Press (OK).

3. Select the language with and .
4. Confirm the language selected with (OK).

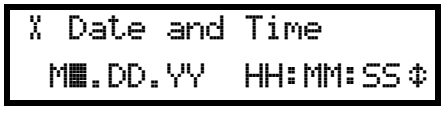
NOTICE!
This user manual is written for the unit language **English USA**. Certain displays may differ for the unit language **English UK**.

4.3.4 Date and time setting

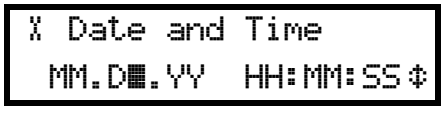
1. Select the parameter Nr. **01**.



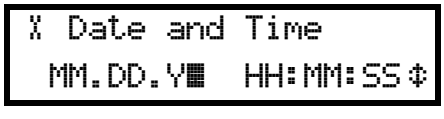
2. Press (OK).



3. Set the month with and .
4. Go to the day with (ON).



5. Set the day with and .
6. Go to the year with (ON).



7. Set the year with and .
8. Repeat the same operation for the time setting (**HH:MM:SS**).
9. Confirm the setting with OK.

4.3.5 RS-232 output setting

NOTICE!
Within the NurseCall Main Unit, the RS-232 interface should be configured with jumpers.
See *Section 3.2.7 Setting the jumpers on the communication board, page 18*.

Select one of the following:
- None
- Printer
- Alarm Management SW
- PAGING
- DECT

1. Select the parameter Nr. **02**.

```
% Parameter Nr. 02
RS-232 Output      ⇕
```

2. Press OK.

```
% RS-232 Output
None               ↓
```

3. Set the desired value with and . Confirm with OK.

NOTICE!
For the values **None** and **Printer**, you do not have to define more parameters.

Setting the interface to Alarm Management Software

```
% RS-232 Output
Alarm Management SW⇕
```

1. Select **Alarm Management SW** in the RS-232 Output menu. Confirm with OK.

```
%Alarm Management SW
TRansm.ID>RS232:Off⇕
```

2. Activate (**On**) or deactivate (**Off**) the forwarding of transmitter ID via the RS-232 interface with and . Default value is **Off**.

Example of programming

Hereafter is an example of the programming, with the following characteristics:

- Locating mode = ON
- Display mode = FL/RO/BE
- Protocol = ESPA 4.4.4
- RPE 670 / i-page system = YES
- Day / night transfer function = YES

▶ See *Section A.5 Paging systems specifications, page 53*.

1. Selected **PAGING** in the RS-232 Output menu. Confirm with OK.

```
% RS-232 Output
PAGING                ⇕
```

2. Select the protocol (**ESPA 4.4.4**, **POCSAG**, **DeTeWe** or **Medicall 800**). Confirm with OK.

```
% PAGING
  ESPA 4.4.4.         ⇕
```

3. Activate (**YES**) or deactivate (**NO**) the RPE 670 system with ☎+ and 🔊−.

```
% PAGING
  RPE 670 ? YES       ⇕
```

4. Confirm with OK.
5. Enter the ID number of the paging system (0-9) and the NurseCall system (0-9).

```
% PAGING ESPA 4.4.4.
ID PAG.:2 ID NCALL:1
```

Select a field with OFF and ON, change a value with ☎+ and 🔊−. Confirm with OK.

6. Activate (**YES**) or deactivate (**NO**) the day / night transfer with ☎+ and 🔊−.

```
% PAGING ESPA 4.4.4.
Paser DAY-NIGHT YES⇕
```

7. Confirm with OK.
8. If the day / night transfer is activated, set the night start time. Default value is 18:00.

```
% PAGING ESPA 4.4.4.
Night Beg.: 18:00:00
```

Select a field with OFF and ON, change a value with ☎+ and 🔊−. Confirm with OK.

9. Set the night end time and confirm your setting with OK. Default value is 6:00.

```
% PAGING ESPA 4.4.4.
Night End : 06:00:00
```

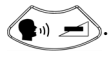
10. Decide how many characters per information (criterion, floor, room, bed, position) should be filtered to the paging/DECT system. The upper line shows the outcome.

```
CRITERI<-
CRIT 07 + 0 SPACES
```

Choose **0** to **11** characters for the criterion, followed by **0** to **9** spaces.

Select a field with 

and 

, change a value with  and  . Confirm with 

.

11. If the FL,RO,BE display is selected, set the filter. The upper line shows the outcome.

```
INFO.: fff   rrr 00b
FL:3+3 +RO:3+1 +BE:3
```

Select a field with 

and 

, change a value with  and  . Confirm with 

.

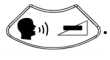
12. If the locating mode is activated, set the filtering of the position.

```
BE POS xyz
SPACES  : 1
```

To delete the **POS** indication, press 

. This is for pagers with only numeric indications.

```
BE xyz
SPACES  : 1
```

Change the number of spaces (0-9) with  and  . Confirm with 

.

13. Set the beep codes that will be allocated to each pager.
    Default values are, for HELP: 7; for ASSI: 5; for ACKN: 2.

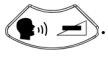
```
 BEEP CODE #=Disable
HELP:7 ASSI:5 ACKN:2
```

To disable the message that indicates the beep code, press 

. A hash (**#**) then appears instead of a value. To set a value again for the beep code, press

. Confirm with 

.

14. If you have activated the ESPA 4.4.4 protocol and deactivated the RPE 670 system, select the number of digits (**2**, **3** or **4**) with  and  . Confirm with 

.

```
% PAGING ESPA 4.4.4.
NB.DIGITS : 3       ⇕
```

15. Activate (**YES**) or deactivate (**NO**) the mix mode with  and  .

```
% PAGING ESPA 4.4.4.
MIX MODE : NO       ⇕
```

16. Confirm with 

.

17. Select a pager group to which the technical events will be sent:

18. Select a pager group between **01** and **24** with  and  . By default, it is **OFF**.

The following events are sent to the selected pager group:

- LOW BATTERY
- RADIO NOISE
- POWER OUTAGE
- BAT.ACK.TRANSM
- LOW ACCU

NOTICE!

The message "LOW BATTERY" is now considered as an event and no longer as an alarm.

Specific parameter for POCSAG

Enter the digit for the POCSAG system address. Choose from **4** and **9**. Default value is **4**.

Change the value of the digit with  and  . Confirm with  .

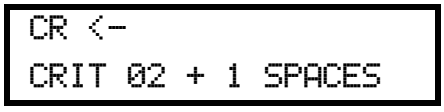
Specific parameter for DeTeWe

Enter the first digit for the DeTeWe system address. Choose from **1** and **9**. Default value is **1**.

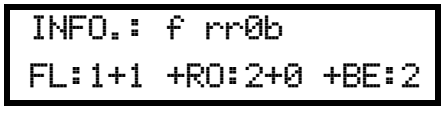
Change the value of the digit with  and  . Confirm with  .

Example of filtering with ESPA 4.4.4.

- Display mode FR,RO,BE with Locating mode ON
- Criterion filtering: 2 characters and 1 space



- Display mode filtering: 1 character + 1 space for the floor number
  2 characters + 0 space for the room number
  2 characters for the bed number

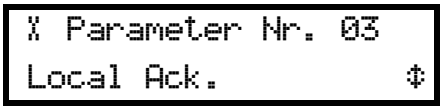


- Locating mode filtering: 6 spaces between bed number and POS xyz.

In this example, a call for help from floor 008, room 023, bed 1 with the actual position 248 will generate the following sequence: "HE_8_2301_____POS_248".

4.3.6 Local acknowledgement setting

1. Select the parameter Nr. **03**.



2. Press (OK).

3. Activate (**YES)** or deactivate (**NO)** the acknowledgement at the NurseCall Main Unit.
4. Confirm with (OK).

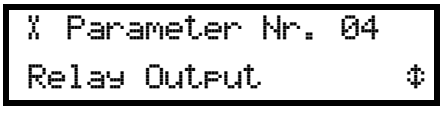
5. If you have selected **YES**, enter the access code. Press 4 ghi then 5 ojkl .

6. Select **YES** if each acknowledgement must be done by entering the code **45** or **NO** if a direct acknowledgement with the **Green** button shall be enabled. Confirm with (OK).

4.3.7 Output relay setting

This parameter sets the relay as a "closing" or "switching" contact.

1. Select the parameter Nr. **04**.



2. Press (OK).

3. Select **ON** if you wish a "closing" relay or **ON/OFF** if you wish a "switching" relay.

4. Select the relay activation according to alarms. Choose between:
   - Mode **HELP & ASSIST**
   - Mode **ASSISTANCE**
   - Mode **FIRE**
5. Confirm with (OK).

4.3.8 Accompany mode

NOTICE!
The accompany mode is not available if the locating mode is set to **OFF**.
See *Section 4.2.3 Locating mode, page 24*.

1. Select the parameter Nr. **05**.

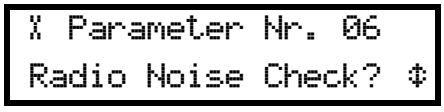
2. Press OK.

3. Activate (**YES)** or deactivate (**NO)** the accompany mode. The default parameter is **NO**.

4. If you select **YES**, define the range of the doors that will be activated in the accompany mode. The first number is the lower limit, use and to choose from 231 to 250. The second number (254) is the upper limit and cannot be changed.
5. Confirm with OK.

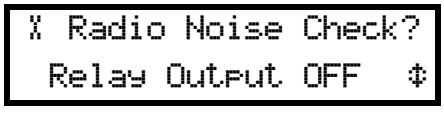
4.3.9 Radio noise check

1. Select the parameter Nr. **06**.



2. Press OK.

3. Select **YES** or **NO**. The default parameter is **YES**.



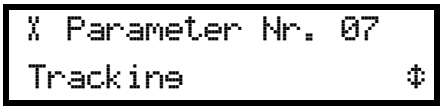
4. If you select **YES**, you must choose to activate (**ON**) or deactivate (**OFF**) the relay output. If you choose **ON**, the contact closes in the case of a radio noise event. If you choose **OFF**, the contact stays open. The default parameter is **OFF**.

   Select with and .
5. Confirm with OK.

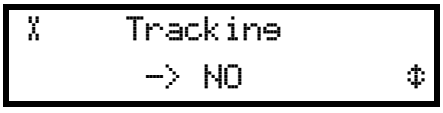
4.3.10 Tracking function

NOTICE!
The tracking function is not available if the locating mode is set to **OFF**.
See *Section 4.2.3 Locating mode, page 24*.

1. Select the parameter Nr. **07** and press (OK).



2. Activate (**YES)** or deactivate (**NO**) the tracking function. Confirm with (OK).

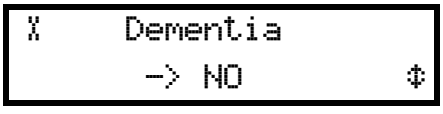


4.3.11 Dementia criterion

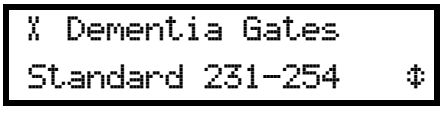
NOTICE!
The dementia criterion is not available if the locating mode is set to **OFF**.
See *Section 4.2.3 Locating mode, page 24*.

1. Select the parameter Nr. **08** and press (OK).

2. Activate (**YES)** or deactivate (**NO**) the dementia function.

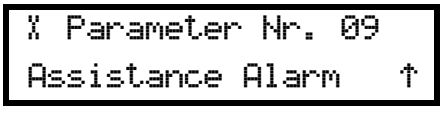


If you select **YES**, define the range of automatic dementia gates. Choose the standard range (231 to 254) or the extended range (128 to 254). Confirm with (OK).



4.3.12 Assistance alarm from S35Q, S37Q and S37L transmitters

1. Select the parameter Nr. **09** and press (OK).



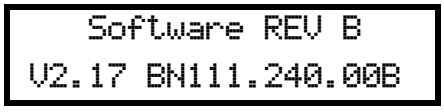
2. Deactivate (**OFF**) or set the time frame between **05** and **30 seconds**. Confirm with (OK).

4.4 Special settings

After pressing 0 three times quickly, you can enter special codes.

4.4.1 Displaying firmware version

1. Type the code **194155**.
2. The version of the firmware will be displayed for a few seconds.



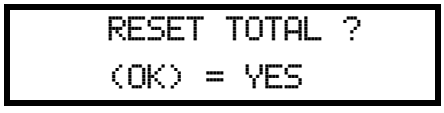
4.4.2 Resetting all the parameters

CAUTION!
Disconnect the RS-485 bus before performing a reset. When you are finished, the RS-485 bus can be connected again.

The following procedure resets all the programmed parameters of the NurseCall Main Unit to the original factory settings. See *Section 4.2.1 List of original factory settings, page 23*.

NOTICE!
This reset is mandatory if you wish to change the locating mode or the display mode. See *Section 4.2.3 Locating mode, page 24* and *Section 4.2.4 Display mode, page 24*.
It is also mandatory before setting the NurseCall Main Unit as Universal NurseCall or as Standard NurseCall. See *Section 4.4.7 Standard NurseCall selection, page 35* and *Section 4.4.8 Universal NurseCall selection, page 36*.

1. Type the code **194156**.



2. A confirmation is required.
   Press OK to confirm the reset or C if you wish to cancel the reset.
3. When the unit resets, it emits a short melody and displays a temporary message.

4. After a few seconds, the unit goes back to the first use display.
5. Select the language, the locating mode and the display mode.

▶ See *Section 4.2 First use*.

4.4.3 Assistance and fire priority

This command sets the assistance call and the fire alarm as priority calls.

This means that alarms of these types will be displayed first.

1. Type the code **123991**. The unit plays a melody and a confirmation message is displayed.

4.4.4 Assistance and fire non priority

This command sets the assistance call and the fire alarm as non-priority calls. This means that the last alarm is displayed, whatever its type. This is the default value.

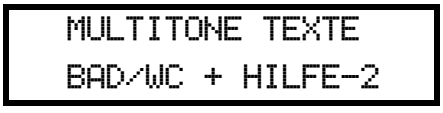
1. Type the code **123992**. The unit plays a melody and a confirmation message is displayed.

4.4.5 Special texts in German

This command sets special texts in German. The displayed criteria are:

- BAD/WC instead of TECHNIK
- HILFE-2 instead of NOTRUF2

1. Type the code **123007**. The unit plays a melody and a confirmation message is displayed.



4.4.6 Standard texts in German

This command sets standard texts in German. This is the default value.

1. Type the code **123008**. The unit plays a melody and a confirmation message is displayed.

4.4.7 Standard NurseCall selection

This command sets the NurseCall system as "Standard NurseCall". This is the default value.

CAUTION!

It is mandatory to perform a reset before changing this value.

See *Section 4.4.2 Resetting all the parameters, page 34*.

1. Type the code **001998**. The unit plays a melody and a confirmation message is displayed

4.4.8 Universal NurseCall selection

NOTICE!
It is mandatory to perform a reset before changing this value.
See *Section 4.4.2 Resetting all the parameters, page 34*.

This command sets the NurseCall system as ''Universal NurseCall''. If this mode is selected, the following parameters are automatically set:
- display mode: FL,RO,BE (floor/room/bed); see *Section 4.2.4 Display mode, page 24*.
- RS-232 output: Alarm Management SW; see *Section 4.3.5 RS-232 output setting, page 27*.
- Buffer: 100 events; see *Section 4.4.11 Maximum number of events buffered, page 37*.

The ''Universal NurseCall'' breaks the limitation of 300/500 transmitters by using a concept in which the transmitters are not recorded inside the NurseCall Main Unit. In fact, the NurseCall Main Unit transfers directly each incoming radio ID code received from the transmitter or from a Relay Unit to its RS-232 communication port. The Alarm Management Software handles the radio codes. The ID code is sent according to the display mode floor/room/bed.

Example:
ID code 1234 => Floor = 1; Room = 23; Bed = 4.

ID code range
Each type of transmitter has its own ID code range. The unit adds an offset to the ID code.

Transmitter type	ID code range	Offset	Data sent
S37, S35	1 to 4095	0	1 to 4095
S36, smoke detector (old versions)	0 to 6560	0	0 to 6560
RAC, smoke detector	1 to 4095	6561	6562 to 10656
RAC, smoke detector (old versions)	0 to 6560	6561	6561 to 13121
N45, N46	1 to 4095	13122	13123 to 17217

Procedure
1. Type the code **001999**. The unit plays a melody and a confirmation message is displayed.

2. Set the CONVERSION CODE **OFF** or **ON** with  and  .

▶ If you select **ON**, the offset is ignored.

3. Set the LAST 300 BLOCKED function **OFF** or **ON** with  and  .

▶ If you select **ON**, the last 300 ID from previous transmitters which can reach 6560 (respectively 13121 for RAC and smoke detector) are not managed!

4.4.9 Maximum number of alarm transmitters

This command sets the maximum number of alarm transmitters (300=**OFF** or 500=**ON**).
The default value is **ON** (500).

▶ Type the code **001001**. A confirmation message is displayed.

4.4.10 Maximum number of acknowledgement transmitters

This command sets the maximum number of acknowledgement transmitters (5=**OFF** or 32=**ON**). The default value is **OFF** (5).

▶ Type the code **001002**. A confirmation message is displayed.

4.4.11 Maximum number of events buffered

This command sets the maximum number of events buffered (18=**OFF** or 100=**ON**). The default value is **ON** (100).

▶ Type the code **001003**. A confirmation message is displayed.

CAUTION!
When changing the value with this command, the event buffer is erased.

4.4.12 Disabling the daily messages check

Periodically, a message is sent by each transmitter in order to confirm its good functioning condition. To avoid saturating the event buffer, you can disable the daily message check performed by the NurseCall Main Unit by using this command and setting the parameter **ON**. Activate (**ON)** or deactivate (**OFF**) the disabling of the daily message check.
The default value is **OFF** (daily message check enabled).

▶ Type the code **001007**. A confirmation message is displayed.

4.4.13 RS232 message setting

This command sets the delay in minutes for the repetition of the messages on the RS-232 interface. Toggle "every 3 minutes" (**OFF**) or "every 1 minute" (**ON**). The default value is **OFF**.

▶ Type the code **001009**. A confirmation message is displayed.

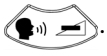
4.5 Transmitters

4.5.1 Starting programming

▶ To access the programming of transmitters , press OK then 

.

4.5.2 Programming an alarm transmitter

1. Select the alarm transmitter type with  and  .

```
Transmit. type : 0
Alarm Transmitter  ↓
```

2. Confirm with OK.

```
     OK:Program
   0:Erase i:Info
```

3. Press OK to program the transmitter.

```
Press Radio
   Button
```

4. Press the button of the transmitter.

```
Transmitter code
  XXXX accepted
```

XXXX is the ID code of the transmitter.

▶ If the transmitter is not accepted, see *Section 6 Troubleshooting and error messages, page 46*.

5. Depending on the choice that you have made for the display mode, enter the value for the floor, the room and the bed, or for a single 3-digit number, or for a 4-sign display. See *Section 4.2.4 Display mode, page 24*.

▶ The following example is for a 4-sign number display:

```
Number
Value: ____
```

Enter a value for each sign. Press once to enter the digit of the key that you are pressing. Press several times to enter a capital letter of the corresponding key. Example: to enter Z, press 4 times on the key 

. Press 

to erase and go back. Confirm with OK.

6. Enter the pager group value:

```
Pager
Value: _0
```

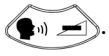
7. Confirm the value with OK.

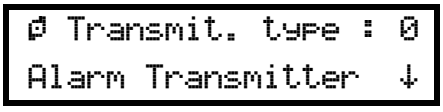
```
Transmitter
  Stored !
```

The unit goes then back to the alarm transmitters menu.

NOTICE!
To program the maximum number of alarm transmitters (300 or 500), see
Section 4.4.9 Maximum number of alarm transmitters, page 37 .

4.5.3 Checking an alarm transmitter

1. Select the alarm transmitter type with  and  .



2. Confirm with (OK).

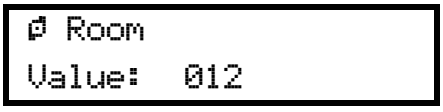
3. Press  to check the transmitter.

4. Press the button of the transmitter.

XXXX is the ID code of the transmitter.

The transmitter's location is displayed. The following example is for a floor/room/bed display:

5. Press (OK) to see the room value.



6. Press (OK) to see the bed value.

7. Press (OK) to see the pager value.

8. Press (OK). The unit then goes back to the alarm transmitters menu.

4.5.4 Erasing an alarm transmitter

1. Select the alarm transmitter type with ☎+ and 🔊−.

```
Transmit. type : 0
Alarm Transmitter  ↓
```

2. Confirm with OK.

```
     OK:Program
  0:Erase i:Info
```

3. Press 0- to erase the transmitter.

```
Press Radio
 Button or enter ID
```

4. Press the button of the transmitter or enter the transmitter's ID code.

```
 Erase Radio  XXXX
OK:Continue C:Abort
```

XXXX is the ID code of the transmitter.

5. Press OK to continue erasing the transmitter or C to abort.

```
Transmitter XXXX
  Erased
```

The unit then goes back to the alarm transmitters menu.

4.5.5 Programming an acknowledgement transmitter

1. Select the acknowledgement transmitter type with ☎+ and 🔊−.

```
Transmit. type : 1
Ack. Transmitter   ↑
```

2. Confirm with OK.

```
     OK:Program
  0:Erase i:Info
```

3. Press OK to program the transmitter.

```
Press Radio
   Button
```

4. Press the button of the transmitter.

```
Ack. Transmit.:1
Free:4     Code XXXX
```

XXXX is the ID code of the transmitter.

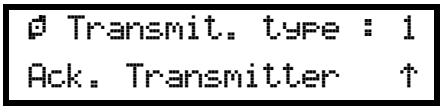
The unit then goes back to the acknowledgement transmitters menu.

▶ If the transmitter is not accepted, see *Section 6 Troubleshooting and error messages, page 46*.

NOTICE!
To program the **Free** value to **5** or **32**, see *Section 4.4.10 Maximum number of acknowledgement transmitters, page 37*.

4.5.6 Checking an acknowledgement transmitter

1. Select the acknowledgement transmitter type with  and  .



2. Confirm with  .

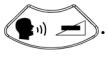
3. Press  to check the transmitter.

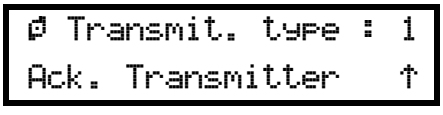
4. Press the button of the transmitter.

XXXX is the ID code of the transmitter.

The unit then goes back to the acknowledgement transmitters menu.

4.5.7 Erasing an acknowledgment transmitter

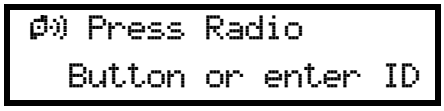
1. Select the acknowledgement transmitter type with  and  .



2. Confirm with  .

3. Press  to select the erase function.

4. Press to erase **ONE** acknowledgement transmitter.



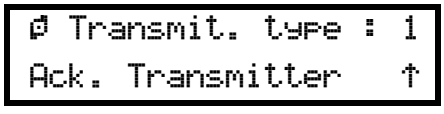
5. Press the button of the transmitter or enter the transmitter's ID code.

6. Press (OK) to continue erasing the transmitter or [C] to abort.

XXXX is the ID code of the transmitter.
The unit then goes back to the acknowledgement transmitters menu.

4.5.8 Erasing all acknowledgement transmitters

1. Select the acknowledgement transmitter type with [☎ +] and [🔊 −].



2. Confirm with (OK).

3. Press [0 -] to select the erase function.

4. Press [* ⓘ] to erase **ALL** the acknowledgement transmitters.

5. Press (OK) to continue erasing the transmitters or [C] to abort.

The unit then goes back to the acknowledgement transmitters menu.

5 Operation

5.1 Adjusting the loudspeaker volume

When the NurseCall Main Unit is in standby mode:

▶ Press  to increase the volume.

▶ Press  to decrease the volume.

5.2 Consulting the alarm or event buffer

The NurseCall Main Unit uses an alarm buffer and an event buffer for display indication.
The following alarms and messages are stored into the alarm buffer:

- call for help
- call for assistance
- reserve call (call for help 2)
- technical call
- fire alarm
- battery low message
- error message
- disconnection of a NurseCall Relay Unit from the RS-485 bus

If alarms are repeated, only the least recent entry remains in the buffer. The call for assistance replaces the call for help, the reserve call and the technical call in the alarm buffer.

In addition to all the alarms, all possible entries are stored in the event buffer.
The following messages are directly stored into the event buffer:

- acknowledgement N46, sent by an N46 Wall Transmitter, S35 or S37 Transmitters
- acknowledgement by S35 or S37 Transmitters
- local acknowledgement, an acknowledgement at the NurseCall Main Unit or Relay Unit
- daily message check
- personnel arrival message (A, B, C and D)
- personnel departure message
- power outage of a receiver unit
- return of power at a receiver unit
- backup battery low of a receiver unit
- interruption of the RS-232 connection interface between the NurseCall system and a PC
- return of the RS-232 connection interface between the NurseCall system and a PC
- connection of a NurseCall Relay Unit to the RS485-bus
- transmission of the event "door" by a RAC Wireless Contact.

NOTICE!
The alarm and event buffers have a capacity of 18 or 100 entries.
See *Section 4.4.11 Maximum number of events buffered, page 37*.

The event buffer will normally be filled with the last 18 or 100 entries.
In the alarm buffer, only the active alarms are present.

5.2.1 Switching between alarm and event buffers indication

The alarm buffer is indicated by default. If you are in the event buffer, the unit changes automatically to the alarm buffer after 1 minute without activity.
If there are no entries in the alarm buffer, the display shows the actual date and time.

▶ To switch from alarm to event buffer and vice versa, press 0 - .

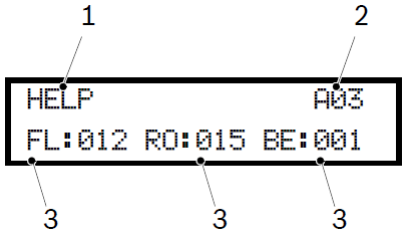
▶ Scroll the alarms or the events with OFF and ON.

5.2.2 Display indications

With the **Yellow** button, you can switch between three available information blocks.
The following information is displayed when an alarm or a message arrives:

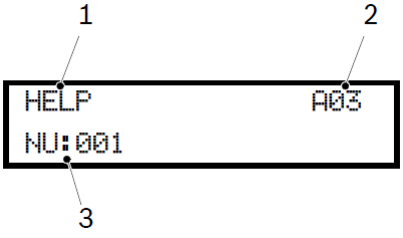
First information block

– In case of a "floor/room/bed" display mode:



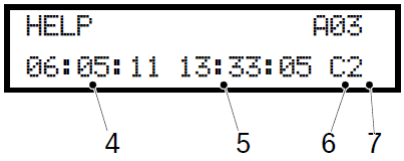
1. criterion of the alarm or message
2. alarm (A) or event (E) followed by its order in the buffer
3. identification of the transmitter location (floor/room/bed numbers)

– In case of "single number" display mode:



1. criterion of the alarm or message
2. alarm (A) or event (E) followed by its order in the buffer
3. identification of the transmitter location (three digits or four signs)

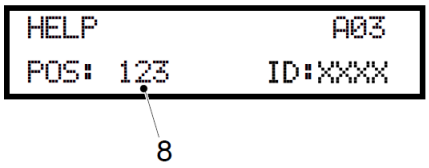
Second information block



4. date of the event;
5. time of the event;
6. main unit (space) or relay Unit (A...f) identification number;
7. quality of the received radio signal.

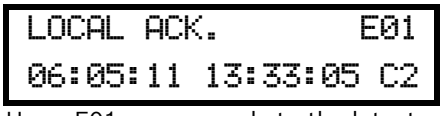
This information is visible in all display modes.

Third information block



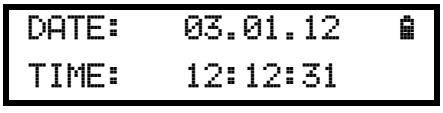
8. position of the last passed beacon, visible in all display modes. If no beacon is registered or if the alarm is sent outside of the range of a beacon, the POS **000** will be displayed. XXXX is the ID code of the transmitter that has triggered the alarm.

In the alarm buffer, the total number of entries is indicated on top at the right. You can immediately see how many alarms are active. In this example, there are a total of three alarms in the alarm buffer. In the event buffer, the position of the event in the buffer is indicated:



Here, E01 corresponds to the latest entry in the event buffer.

Unit displaying the current date and time:



Unit displaying an active alarm:

Unit displaying an event in the buffer:

5.2.3 Local acknowledgement

The local acknowledgement is performed on the NurseCall Main Unit with the **Green** button. You can decide if you have to enter a code to confirm the acknowledgement or not.
See *Section 4.3.6 Local acknowledgement setting, page 31*.

NOTICE!
The alarm receiving an acknowledgement is removed from the alarm buffer. The alarm and its acknowledgement can then be found in the event buffer.

5.2.4 Disconnecting a Relay Unit

If a Relay Unit stops communicating with the Main Unit, an alarm "Relay Off" is generated on the Main Unit. This alarm can only be acknowledged on the Main Unit by pressing the **Green** button, followed by the code **45**. Thereafter, an event "No Relay" is generated.
As soon as the Relay Unit communicates again with the Main Unit, the Event "Relay On" is generated. This operation is independent of the local acknowledgement setting.

6 Troubleshooting and error messages

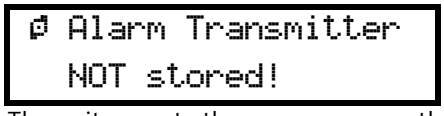
6.1 "Radio in use" message

If you program a transmitter already stored as an alarm transmitter, an error message displays

Press (OK) to program the transmitter, this overwrites the values. Press C to abort.

6.2 "Alarm Transmitter NOT stored" message

If you erase an alarm transmitter that is not already stored, an error message is displayed:



The unit repeats the error message then skips back to the erasing menu.

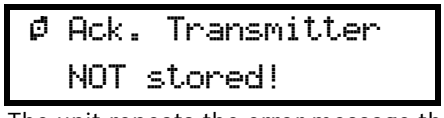
6.3 "Alarm Transmitter already stored" message

If you program an acknowledgement transmitter that is already stored as an alarm transmitter, an error message is displayed:

The unit then skips back to the programming menu.

6.4 "Ack. Transmitter NOT stored" message

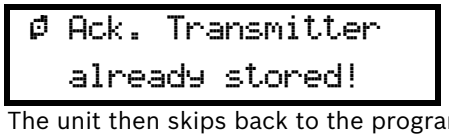
If you erase an acknowledgement transmitter that is not already stored, an error message is displayed:



The unit repeats the error message then skips back to the erasing menu.

6.5 "Ack. Transmitter already stored" message

If you program a transmitter that is already stored as an acknowledgement transmitter, an error message is displayed:



The unit then skips back to the programming menu.

6.6 The green button does not work

Problem: you have tried unsuccessfully to acknowledge an alarm with the **Green** button.
Cause: the local acknowledgement is disabled.
Solution: activate the local acknowledgement function.
See *Section 4.3.6 Local acknowledgement setting, page 31*.

7 Maintenance

7.1 Checking the system

Check the correct function of your NurseCall system.

▶ Perform periodically an alarm test.

7.2 Monitoring the power supply

In case of a power failure, the NurseCall Main Unit emits a beep and the following message is displayed alternatively with the date and time display:

```
Main Power
Error
```

The backup battery ensures that the NurseCall Main Unit remains operational even in the case of a power failure. When fully charged, the battery ensures a power backup of 24 hours. When power returns after a power failure, the battery is recharged. If it has been completely discharged, it will reach its full capacity after 24 hours of charging time.

7.3 Monitoring the backup battery

The status of the battery is indicated on the top right of the display.

▶ To check the backup battery voltage, press  . The following message is displayed:

```
Checking
Local Battery
```

NOTICE!
At startup, an automatic check is made.
During normal operation, an automatic check is made every 30 minutes.

▶ If the remaining battery capacity drops below 25 %, the following message is displayed:

```
Local Battery      0
Empty
```

▶ If the NurseCall Main Unit detects that the backup battery is defective, the following message is displayed:

```
Local Battery      
Failure
```

NOTICE!
If the backup battery is defective, replace it as described in *Section 7.5.2 Backup battery replacing, page 49*.

7.4 Cleaning

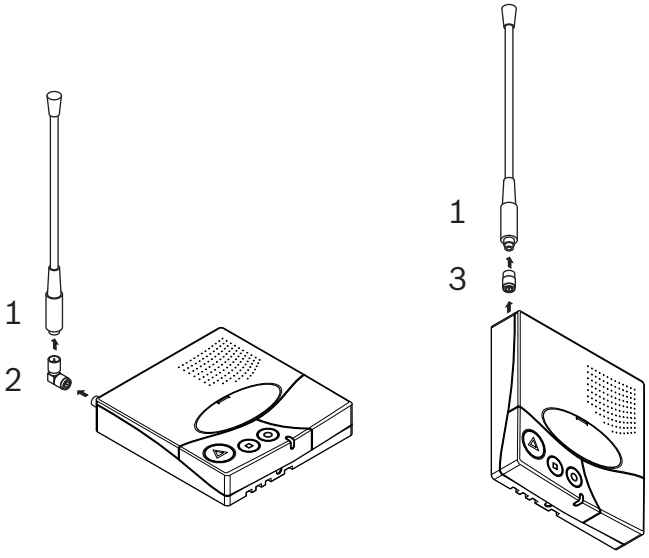
- ▶ Avoid using cleaning products or detergents.
- ▶ Wipe off your NurseCall Main Unit occasionally with a dry cloth.

7.5 Parts replacement

7.5.1 Disassembling the unit

Removing the antenna

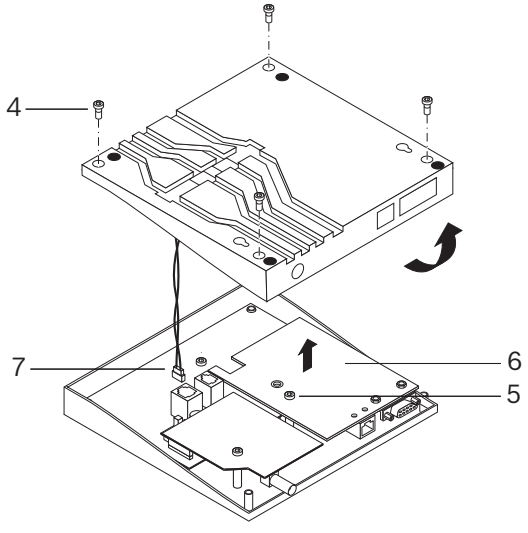
1. Remove the antenna (1) and its adapter (2) or (3).



Removing the communication board

DANGER!
Do not damage the battery cable, its connector (7) or the serial communication board connectors.

1. With a Torx T20 screwdriver, unscrew and remove the 4 screws (4).
2. With a Torx T10 screwdriver, unscrew and remove the screw (5).
3. Carefully remove the communication board (6).



7.5.2 Backup battery replacing

Important Safety Instructions

The battery should charge for 24 hours before using the NurseCall Main Unit for the first time, after replacing the battery or after a long power shortage. Battery type is 6V NiMH.

NOTICE!

The battery will charge correctly between 5 ºC (41ºF) and 45 ºC (113 ºF). A battery that is new or that has not been used for a long time can have reduced capacity at first use.

A rechargeable battery can be charged and discharged many times. However, it will eventually wear out. This is not a defect. It is recommended to replace batteries that cannot ensure a minimum power back-up time of 8 hours at full charge.

CAUTION!

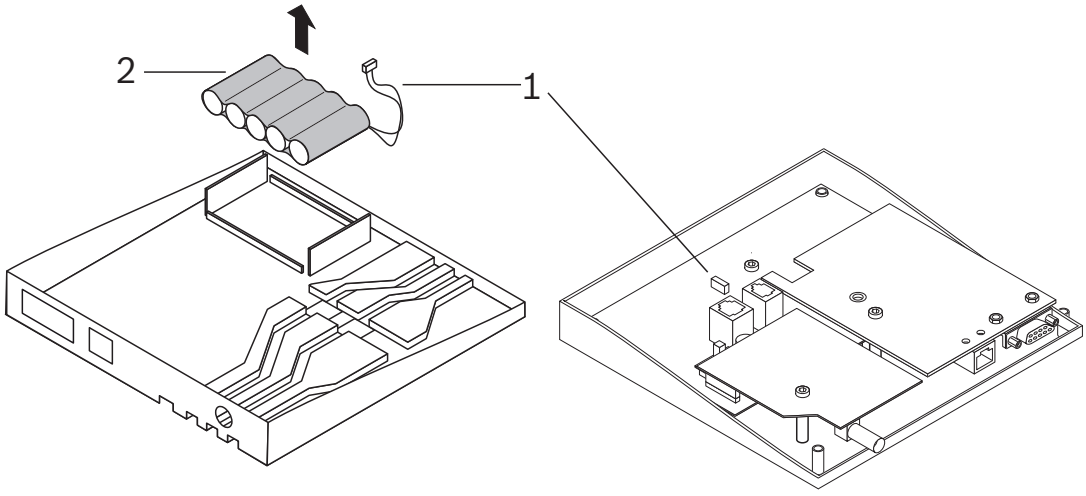
- May explode if exposed to fire.
- Use only original batteries intended for your NurseCall Main Unit.
- Do not expose the battery to liquids.
- Do not let the battery's contacts touch another metal. This could damage the battery;
- Do not disassemble or modify the battery;
- Do not expose the battery to extreme temperatures, and never above 60 ºC (140 ºF).
- For maximum battery capacity, use the battery at room temperature;
- Keep out of reach of children;
- Use the battery for the intended purpose only;
- Do not put the battery in the mouth. Battery electrolytes may be toxic if swallowed.

CAUTION!

There is a risk of explosion if battery is replaced by a wrong type.
The battery should be replaced exclusively by authorized personnel.
Dispose of used batteries according to instructions and regulations.

Procedure

1. Disassemble the unit as described in *Section 7.5.1 Disassembling the unit, page 48*.
2. Disconnect the battery cable (1).
3. Carefully remove the backup battery (2).
4. Place the new backup battery.
5. Connect the new battery cable (1).



8 Disposal

The NurseCall Main Unit is marked with a crossed-out wastebasket symbol.
This means that, at the end of its lifetime, the product should be disposed separately from ordinary household waste in accordance with the EU Directive 2002/96/EC.
The product and its accessories should be delivered to an appropriate collection facility that ensure recycling, treatment and an environmentally compatible disposal. This prevents any negative impact on the environment and human health, and promotes the recycling of materials. For more information on available collection facilities, contact your local waste collection service or your local representative.

8.1 Disassembly

Only authorized personnel are allowed to disassemble a NurseCall Main Unit.

8.2 Returning to the manufacturer

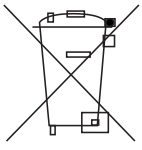
If there is no practical disposal place, the NurseCall Main Unit may be returned to your local representative.

8.3 Materials

The NurseCall Main Unit must be returned to an authorized point of recycling.
In order to protect people and environment, the NurseCall Main Unit must be recycled in an adequate manner. Consequently, all applicable laws and bylaws must be respected.

8.4 Battery

NOTICE!
The battery should be disposed of as household waste. Use a battery disposal facility when available.



- ▶ Please check local regulations for disposal of batteries or call your local representative for information.

A Appendix

A.1 Electrical specifications

Voltage	230 or 115/10VAC
Current	280 mA
Frequency	50/60 Hz
Power	2.8 W max.

A.2 Dimensions and weight

Casing dimensions	**[mm]**
Depth	220
Width	180
Height	40

Antenna	**[mm]**
Height	400

Casing weight	**[g]**
Weight (including antenna and power supply adaptor)	740

A.3 Environmental conditions

Operating temperature	0 - 40°C

A.4 List of criteria

Criterion	Number	Alarm (A) or Event (E)	Sent to DECT/ Paging systems	Comment
ERROR	00	A	Yes	System malfunction, e.g. component defective
PERSONNEL A	01	E	No	Coded key active (N46)
LOW BATTERY	02	A	Yes	Battery at low level (Transmitter)
ACK. N46	03	E	No	Acknowledgement (Sent by N46, S35 or S37)
DOOR	04	E	No	Door open or door closed
TECHNICAL	05	A	Yes	Technical Call (N46)
PERSONNEL C	06	E	No	Coded key presence (N46)
HELP	07	A	Yes	Call for Help
UNKNOWN	08	E	No	Not used
END PERSONNEL	09	E	No	Removed coded key (N46)
PERSONNEL D	10	E	No	Coded key presence (N46)
ASSISTANCE	11	A	Yes	Assistance Call
24 HOURS	12	E	No	Daily message check
RESERVE	13	A	Yes	Reserve Call (N46)
PERSONNEL B	14	E	No	Coded key presence (N46)
RADIO NOISE	15	E	No	Bad radio transmission (noise)
FIRE	16	A	Yes	Fire Alarm
ACK. TRANSM.1	17	E	No	Acknowledgement (Ack. Transmitter No. 1)
LOCAL ACK.	18	E	No	Local Acknowledgement (Main Unit or Relay Unit)
POWER OUTAGE	19	E	No	Main Unit or Relay Unit not powered
POWER BACK	20	E	No	Power back (Main Unit or Relay Unit)
COMPUTER OFF	21	E	No	Alarm management PC off
COMPUTER ON	22	E	No	Alarm management PC on
BAT.ACK.TRANSM	23	E	No	Battery at low level (One of the Ack. Transmitter)
RELAY ON	24	E	No	Relay Unit connected on RS-485 Bus
RELAY OFF	25	A	No	Relay Unit disconnected from RS-485 Bus
NO RELAY	26	E	No	Relay Unit off acknowledged (Main Unit)
LOW ACCU	27	E	No	Accumulator discharged (Main Unit or Relay Unit)
ACK. TRANSM.2	28	E	No	Acknowledgement (Ack. Transmitter No. 2)
ACK. TRANSM.3	29	E	No	Acknowledgement (Ack. Transmitter No. 3)
ACK. TRANSM.4	30	E	No	Acknowledgement (Ack. Transmitter No. 4)
ACK. TRANSM.5	31	E	No	Acknowledgement (Ack. Transmitter No. 5)
ACK. TRANSM.xx	xx	E	No	Acknowledgement (Ack. Transmitter No. xx)
ACK. TRANSM.32	58	E	No	Acknowledgement (Ack. Transmitter No. 32)
DEMENTIA	60	A	Yes	Dementia Alarm

NOTICE!

All events are buffered into the event buffer of the NurseCall Main Unit. All alarms and events are sent to the printer. All alarms and events except the events "COMPUTER OFF" and "COMPUTER ON" are sent to the Alarm management Software.

A.5 Paging systems specifications

The NurseCall system can be used with the following protocols: ESPA 4.4.4, POCSAG, Medicall 800 and DeTeWe. The following alarms or messages are sent to all systems:

- Assistance
- Fire
- Help
- Dementia
- Technical
- Error
- Low battery
- Reserve

For all these alarms, an acknowledgement message related to the generated alarm is sent.

A.5.1 ESPA 4.4.4. protocol

Characteristics

- Data rate: 9600 Bauds
- Transmission: asynchronous
- 10 bit-structure (1 start bit, 7 data bits with even parity, 1 stop bit)
- Half-duplex mode.

Only alarms arriving to the alarm buffer are transmitted, except "Relay Off". Acknowledgement messages are also transmitted. The transmission is fully alpha-numeric. Alarms are repeated every 1 or 3 minutes until acknowledgement.

ESPA 4.4.4. with RPE 670 / i-page

Alarms are sent to the user number attributed to the transmitter.
The default group is **00**.

Group	User number
00	12GG
01	13GG
02	14GG
03	15GG
04	16GG
05	17GG
06	18GG
07	19GG
08	20GG
09	21GG
10	22GG
11	23GG
12	24GG
13	25GG
14	26GG
15	27GG
16	28GG

Group	User number
17	29GG
18	30GG
19	31GG
20	32GG
21	33GG
22	34GG
23	35GG
24	36GG

ESPA 4.4.4. general

Certain protocols, such as Multitone Access 3000 compact, can be connected if configured correctly (ESPA 4.4.4. ; RPE 670 = NO).

Alarms or messages are sent to the paging system user number attributed to the transmitter. The number of digits (2, 3 or 4) for the user number can be set, see *Section Example of programming, page 28*. Hereafter is an example with 3 digits in the user numbers. The default group is **00** and the first number is always 99, 999 or 9999 (depending on the setting).

Group	User number
00	999
01	998
02	997
03	996
04	995
05	994
06	993
07	992
08	991
09	990
10	989
11	988
12	987
13	986
14	985
15	984
16	983
17	982
18	981
19	980
20	979
21	978
22	977
23	976
24	975

NOTICE!
In "floor/room/bed" display mode, use only alpha-numeric pagers which display at least 16 characters.

Change day / night
If the change day / night is activated, the NurseCall system transfers all alarms during night to the group 24. During the day, all groups 00 - 24 can be used. When switching from day to night or vice versa, the message "Day-Night" is sent to the activated pagers.

Priority alarms
The assistance and fire alarms are priority calls sent to all activated pagers.

Call repetition
If alarms or messages are not acknowledged after approximately 7 minutes, call repetitions are also sent to the group 23.

A.5.2 POCSAG protocol

Characteristics
- Data rate: 9600 Bauds
- Transmission: asynchronous
- 10 bit-structure (1 start bit, 7 data bits, no parity, 1 stop bit)
- Simplex mode

Only alarms arriving to the alarm buffer are transmitted, except "Relay Off". Acknowledgement messages are also transmitted. The transmission is only numeric. Alarms are repeated every 1 or 3 minutes until acknowledgement.

Alarms are sent to the POCSAG user number attributed to the transmitter.
The default group is **00**.

Group	User number
00	001x000
01	001x008
02	001x016
03	001x024
04	001x032
05	001x040
06	001x048
07	001x056
08	001x064
09	001x072
10	001x080
11	001x088
12	001x096
13	001x104
14	001x112
15	001x120

Group	User number
16	001x128
17	001x136
18	001x144
19	001x152
20	001x160
21	001x168
22	001x176
23	001x184
24	001x192

▶ The **x** digit can be programmed. *Section Specific parameter for POCSAG, page 30*.

Change day / night
If the change day / night is activated, the NurseCall system transfers all alarms during night to the group 24. During the day, all groups 00 - 24 can be used. When switching from day to night or vice versa, the message "Day-Night" is sent to the activated pagers.

Priority alarms
The assistance and fire alarms are priority calls sent to all activated pagers.

Call repetition
If alarms or messages are not acknowledged after approximately 7 minutes, call repetitions are also sent to the group 23.

A.5.3 DeTeWe protocol

Characteristics
- Data rate: 9600 Bauds
- Transmission: asynchronous
- 11 bit-structure (1 start bit, 8 data bits with odd parity, 1 stop bit)
- half-duplex mode.

Only alarms or messages arriving to the alarm buffer are transmitted, except "Relay Off". The transmission is fully alpha-numeric. Acknowledgement messages are also transmitted.

Alarms are sent to the DeTeWe user number attributed to the transmitter.
The default group is **00**.

Group	User number
00	x00
01	x01
02	x02
03	x03
04	x04
05	x05
06	x06
07	x07
08	x08

Group	User number
09	x09
10	x10
11	x11
12	x12
13	x13
14	x14
15	x15
16	x16
17	x17
18	x18
19	x19
20	x20
21	x21
22	x22
23	x23
24	x24

▶ The **x** digit can be programmed. See *Section Specific parameter for DeTeWe, page 30*.

Change day / night
The DeTeWe protocol does not handle the day / night transfer.

Priority alarms
The assistance and fire alarms are priority calls sent to all activated pagers.

A.5.4 Medicall 800 protocol

Characteristics
- Data rate: 9600 Bauds
- Transmission: asynchronous
- 10 bit-structure (1 start bit, 8 data bits, no parity, 1 stop bit)
- Half-duplex mode.

Only alarms arriving to the alarm buffer are transmitted (except "Relay Off"). Acknowledgement messages are also transmitted. Each alarm is sent only with the pager group information corresponding to the transmitter that has sent the alarm. This is performed without any criterion distinction.

Change day / night
The Medicall 800 protocol does not handle the day / night transfer.

Call repetition
If alarms or messages are not acknowledged after approximately 3 minutes, call repetitions are issued.

A.6 DECT phone system specifications

NOTICE!
The system can transfer the received alarms to DECT handsets, e.g. of the types Multitone CH60 or CH70 series.

A.6.1 Multitone DECT systems with P318 interface

NOTICE!
Data rate: 9600 Bauds. Transmission: asynchronous with a 10 bit-structure (1 start bit, 7 data bits with even parity, 1 stop bit) in half-duplex mode.

Only alarms or messages arriving to the alarm buffer are sent (except "Relay Off"). The transmission is fully alpha-numeric. Acknowledgement messages are also transmitted. Alarms or messages are repeated every 1 or 3 minutes until acknowledgement. See *Section 4.4.13 RS232 message setting, page 37*.

The transmission to the DECT system is a team call. Each team number must be matched with each paging group (default paging group= 00).

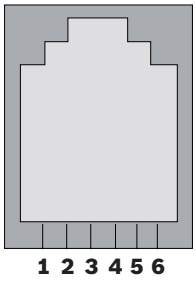
Change day / night
If you have activated the change day / night, the NurseCall system transfers all alarms during night to the group 24. During the day, all groups 00 - 24 can be used. When switching from day to night or vice versa, the message "Day-Night" is sent to the activated pagers to signalize the change.

Priority alarms
The assistance and fire alarms are priority calls sent to all activated DECT handsets.

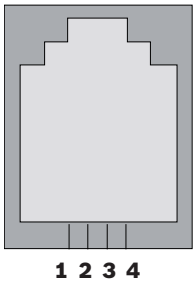
Call repetition
If alarms or messages are not acknowledged after approximately 7 minutes, call repetitions are also sent to the group 23.

A.7 Connectors

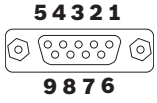
A.7.1 LINE socket (unit bottom)

LINE socket	Wiring
	1. Flash Data GND 2. Not used 3. Not used 4. Not used 5. Not used 6. Flash Data IN/OUT

A.7.2 Power socket (unit bottom)

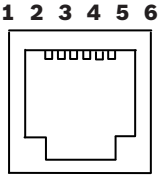
10V AC socket	Wiring
	1. Not used 2. AC-1 10-12VAC 3. AC-2 4. GND

A.7.3 RS-232 socket (unit rear)

RS-232 socket	Wiring
	1. --- 2. TXD (RXD) 3. RXD (TXD) 4. --- 5. GND 6. --- 7. CTS 8. RTS 9. ---

The values in brackets are for the jumper setting for Paging. See *Section Setting the jumpers for Paging systems (except Medicall 800) and printers:, Page 18*.

A.7.4 RS-485 socket (unit rear)

RS-485 socket	Wiring
	1. Relay output (a) 2. RS485 (A) 3. Termination = RS485 (A) 4. RS485(A) when jumper end line is placed 5. RS485 (B) 6. Relay Output (b)

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