NurseCall N86 Room Transmitter

N86_UM_EN_V1.1_2021.12_Final

TeleAlarm®
A KATEK Brand

en User manual

Table of Contents

1 Identification

1.1 Document

Name	No.
User Manual	V1.0_2021.04_Draft

Table 1-1: Document No.

Version	Description
V1.0_2021.04	First Edition

Table 1-2: Version Management

1.2 Customer support addresses

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2 Generalities

2.1 NurseCall System

Alarms and Messages arriving from NurseCall Transmitters such as the NurseCall N86 Wall Transmitter are managed and stored by the NurseCall Main Unit (or external third party system using AP80 devices).

NOTICE!
The document "NurseCall General Overview" explains the system concept.

2.2 NurseCall N86 Wall Transmitter

The NurseCall N86 Room Transmitter is a multifunction terminal radio transmitter, designed for patients and nursing staff to make a call or cancel a call directly in the patient's room. Caretakers can trigger also a presence call as well as an assistance call or even an emergency call to summon assistance from other caretakers. The N86 is part of a NurseCall system, and is easily expandable.

In the NurseCall system, the NurseCall N86 Room Transmitter allows the resident of a home or the patient of a clinic to easily alert the care personnel if needed. The patient simply has to push the large red button. The system is then able to control and to monitor the progress of the care personnel.

The alarm and event transmission is performed by radio. There is no need for a wired connection between the NurseCall N86 Room Transmitter and the NurseCall Main Unit, this makes the system installation easy and allows great mobility.

Depending on the model, two relay outputs are available and may be used to connect alarm and staff presence indicators such as, for instance, the signal lamps installed above the door.

Two tricolor LED signal lamps allow the progress to be monitored on the device.

In this document you will find all the information you need for the installation and the use of the NurseCall N86 Room Transmitter.

3 Safety Instructions

WARNING!
The User / Installer should read and understand this chapter before any intervention on the NurseCall N86 Room Transmitter.

3.1 Introduction

3.1.1 Principle

NOTICE!
In case of unclear information, please contact your local representative.

3.1.2 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 N86 Room Transmitter must be adhered to.

3.1.3 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.

3.2 Environmental conditions

WARNING!
The NurseCall N86 Room Transmitter should not be located near a water tap or any other source of water. The product must not be subjected to dripping water.
The electrical safety of the NurseCall N86 Room Transmitter is only guaranteed if the electrical installation is in accordance with the national regulations and if this installation works properly.
The NurseCall N86 Room Transmitter may not be used in buildings prone to fire and explosion hazards.

CAUTION!
The NurseCall N86 Room Transmitter 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 N86 Room Transmitter in a dry place, away from any source of heat.

CAUTION!
Interferences
Avoid immediate proximity to other electric devices such as a television or an Internet box.

3.3 General safety instructions

DANGER!
Electrocution
During maintenance operations, when the NurseCall N86 Room Transmitter is powered and its casing is removed, the NurseCall N86 Room Transmitter may not be left unattended.

CAUTION!
The NurseCall N86 Room Transmitter may only be connected to the electrical sources as described in *Section 5.2 Installation, Page 19*.

CAUTION!
Maintenance and repairs may only be performed in accordance 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 N86 Room Transmitter.
Take into account all the warnings and follow all the instructions displayed on the NurseCall N86 Room Transmitter and those which are printed in the documentation.
Never try to use replacement pieces other than those authorized by the manufacturer of the NurseCall N86 Room Transmitter.

CAUTION!
It is mandatory to use the products specified in the present User Manual to clean the NurseCall N86 Room Transmitter. If you plan to use another product, only do so after having obtained the authorization of the manufacturer.

WARNING!

Electro Static Discharge

The NurseCall N86 Room Transmitter contains highly sensitive electronic components. It should be opened only in an **ESD** protected environment with respect to the following precautions:

- Discharge yourself from electrostatic loads by touching a grounded conductive surface before opening the unit.
- Avoid touching conductive parts inside the NurseCall N86 Room Transmitter if not absolutely necessary.

CAUTION!

Never let any liquid enter the system. In case of liquid spill inside the NurseCall N86 Room Transmitter, act immediately as follows:

1. Switch off the NurseCall N86 Room Transmitter by taking out the battery or removing the power supply.
2. Dry up the NurseCall N86 Room Transmitter.
3. Clean the NurseCall N86 Room Transmitter.
4. Check its electrical functions.

NOTICE!

For further information, please contact your local representative.

3.3.1 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.

3.4 Special safety instructions

Appropriate safety instructions linked to specific risks are described in the corresponding section of this manual.

4 Description

4.1 General description

4.1.1 Top view

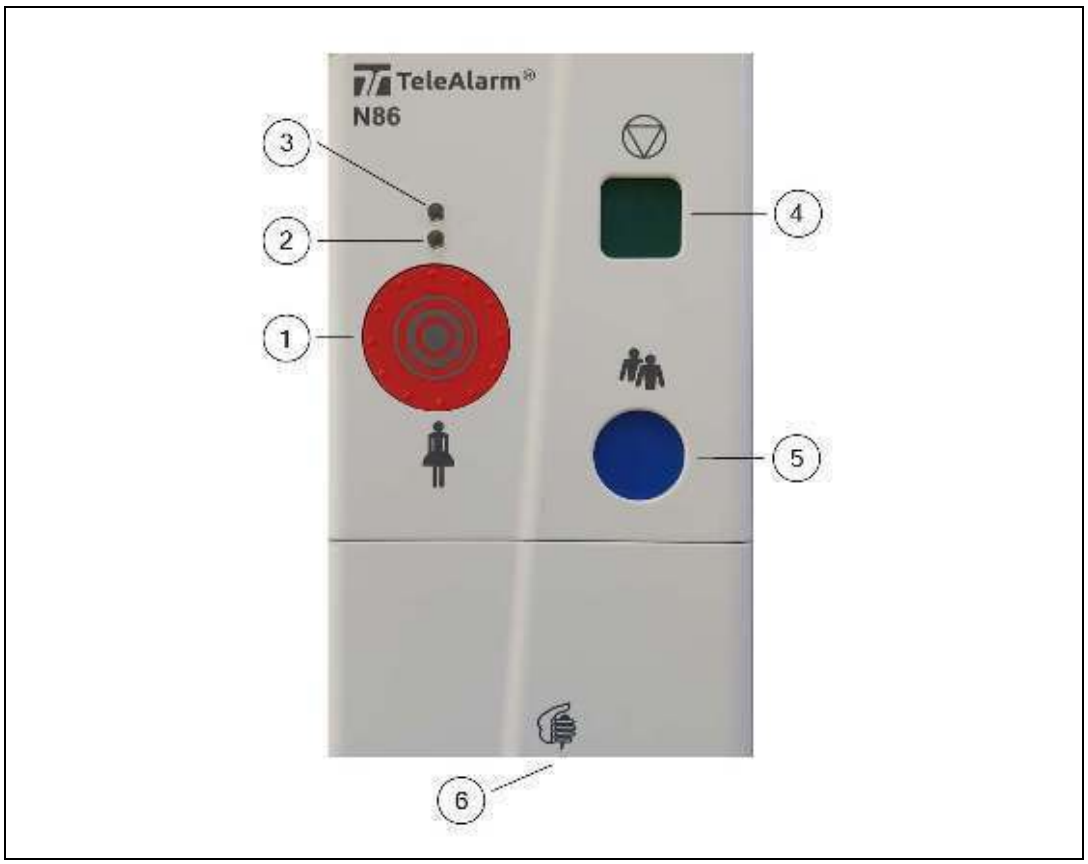


Fig. 4-1: Top view

1. **Red** call for help button
2. LED indicator for alarm
3. LED indicator for presence
4. **Green** clear alarm button, to clear an alarm locally
5. **Blue** assistance call button
6. Installation compartment
7. Jack plug socket for pear-push button

NOTICE!
An emergency call could be triggered by pressing the **Red** call for help and **Blue** assistance call buttons simultaneously

4.2 Main functions

The main function of the NurseCall N86 Room Transmitter is to enable easier handling of emergencies and help, directly from the patient's room.

4.2.1 Red call button

Its large red button with textured surface makes it easy to identify and to press, launching an help call.

4.2.2 Blue assistance call button

If, upon arriving, nursing staff requires additional help, a call for assistance can be sent by pressing the round blue button.

4.2.3 Red call and Blue assistance call buttons simultaneously

If, upon arriving, nursing staff requires additional and/or special help, a call for emergency can be sent by pressing simultaneously the round red and blue buttons.

4.2.4 Clear alarm with B81/B80A and/or N86 green button (Standard mode)

This feature "Standard Mode" must be confirmed in the N86 program parameter! "default"
When automatic call repetition mode and presence mode is enabled, the call can be cleared by a B81 acknowledgment transmitter or by the N86 green square clear Alarm button, to stop the alarm repetition and to put the N86 in presence mode.
When automatic call repetition mode and presence mode is disabled, a call can be canceled by a B81 acknowledgment transmitter or by the N86 green square clear alarm button.
After the Alarm is cleared the N86 will be in this case directly set back in Stand-by mode

If only presence mode is enabled and repeat mode disabled, a B81 or the N86 green square button can be used to clear the call and to put the N86 in presence mode. After the alarm is cleared the N86 can be set in stand-by mode by pressing the N86 green square button once or by pressing the B81 once very close to the N86

Technical alarms like button blocked or Pear push disconnected can be cleared by pressing the N86 green square button or by pressing the B81 very close to the N86
When the N86 is in alarm mode it needs two "clear alarm" to set the N86 in stand-by

4.2.5 Clear Alarm with group identification (Multiple Staff mode)

This feature "Multiple Staff mode" must be confirmed in the N86 program parameter!
When automatic call repetition is enabled, a call must be cleared by a B81 acknowledgment transmitter to stop the alarm repetition and to put the N86 in presence mode. Using the B81 will allow to know who has cleared which patient alarm. All further summoned nurses who are entering the room can sign in by pressing their B81 very close to the N86
After the alarm is cleared the N86 can only be set in the stand-by mode by pressing the N86 green square clear Alarm button.

When automatic call repetition mode and/or presence mode is disabled, a call can only be cleared by a B81 acknowledgment transmitter triggered close to the N86.
After the Alarm is cleared the N86 will be in this case directly set back in Stand-by mode

When only presence mode is enabled and repeat mode disabled, only a B81 can be used to clear the call and to put the N86 in presence mode. After the alarm is cleared the N86 can only be set in the stand-by mode by pressing the N86 green square clear Alarm button.

Technical alarms like button blocked or Pear push disconnected can only be cleared by pressing the B81 very close to the N86 and then pressing the N86 green square button once, or twice when the N86 is in presence mode
The green N86 button can be used to stop the blinking of the white LED.

4.2.6 Clear alarm with Nurse identification (Badge only mode)

This feature "Badge only mode" must be confirmed in the N86 program parameter!
When automatic call repetition mode and presence mode are enabled, a call must be cleared by a B81 acknowledgedment transmitter close to the N86, to stop the alarm repetition and to put the N86 in presence mode. All further summoned nurses who are entering the room must also clear the alarm by a B81 acknowledgedment transmitter close to the N86, to put the N86 in presence mode.
After the alarm is cleared the N86 can only be set in the stand-by mode by pressing the B81 very close to the N86.

When automatic call repetition mode and/or presence mode is disabled, a call can only be cleared by a B81 acknowledgment transmitter triggered close to the

N86 After the Alarm is cleared the N86 will be in this case directly set back in Stand-by mode by pressing the B81 very close to the N86

Technical alarms like button blocked or Pear push disconnected can only be cleared by pressing the B81 once very close to the N86, or twice when the N86 is in presence mode
The green N86 button can only be used to stop the blinking of the white LED, it doesn't clear the alarm on the installation

NOTICE!
The Mode "Standard" is the default one

4.2.7 Alarm signaling

The presence and alarm LED indicators enhance the signaling of alarms.

4.2.8 Reassurance light

The N86 is signalled during dark conditions by a reassurance light (actually the alarm LED). It is lighted only if the N86 is externally powered. Its intensity could be adjusted with a dedicated parameter.(see the Programming Reference Manual).

4.2.9 Socket for pear-push button

The NurseCall N86 Room Transmitter is easily expandable, as a socket for pear-push button is directly accessible.

4.3 Options

Three main options could be installed :

1. External notification using the NurseCall N86 Room Transmitter with two relays device.
2. Add a pull cord using the Pull Cord Set, to be mounted in the NurseCall N86 Room Transmitter
3. Use the mounting plate for easy wall mounting

4.3.1 Relay contacts for external signals

Optionally, relay contacts for room signal lights and connecting ports for wired room installation can be used.

4.3.2 Pull Cord Set

A pull cord set can easy be mounted in the N86.
A precise instruction guidance will be provided in the pull cord set package.

4.3.3 Mounting Plate / Bracket

The mounting plate is made for easy mounting preparation as well to give a certain mobility to the NurseCall N86 Room Transmitter. The mounting plate works as a bracket. To fix the NurseCall N86 Room Transmitter it must be attached to the wall bracket and then pulled down slightly.
To remove the NurseCall N86 Room Transmitter from the bracket the underside is raised slightly away from the mounting plate and then pushed up slightly.
The Mounting Plate is obtainable in a set of 10 items.

5 Installation

5.1 Unpacking

The NurseCall N86 Room Transmitter 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).

NOTICE!
In case of defective or missing equipment, do not try to install the NurseCall N86 Room Transmitter. Contact immediately your local representative.

1. Take all components out of the box and place the NurseCall N86 Room Transmitter on the working space.
2. Check each component in the box, in accordance with the list of contents below.
3. Check that the NurseCall N86 Room Transmitter and its accessories have not been damaged during transportation.

5.1.1 List of contents

Reference	Description
T.240.001.486 - N86-NC T.240.001.505 - N86-2R-NC	NurseCall N86 Room Transmitter or NurseCall N86 Room Transmitter with two relays
T.000.001.640	CR2 3V Lithium battery
T.000.001.637	NCS Leaflet with instructions

Table 5-1: Packing list

5.2 Installation

5.2.1 Generalities

› Install the NurseCall N86 Room Transmitter in a dry place and away from any source of heat.

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

5.2.2 Wall installation

The NurseCall N86 Room Transmitter can be fixed with two or up to five screws on a wall. Two holes at 60 mm interval are provided for direct mounting on connection boxes.
The three upper holes are used for positioning the device and cannot be reached from the installation compartment.

Two of the lower holes can be reached from outside and thus used for fixing the device.

A mounting plate with the same mounting dimensions as the NurseCall N86 Room Transmitter bottom plate can be obtained in a set of 10 items.
The NurseCall N86 Room Transmitterstays with this mounting plate extremely mobile.

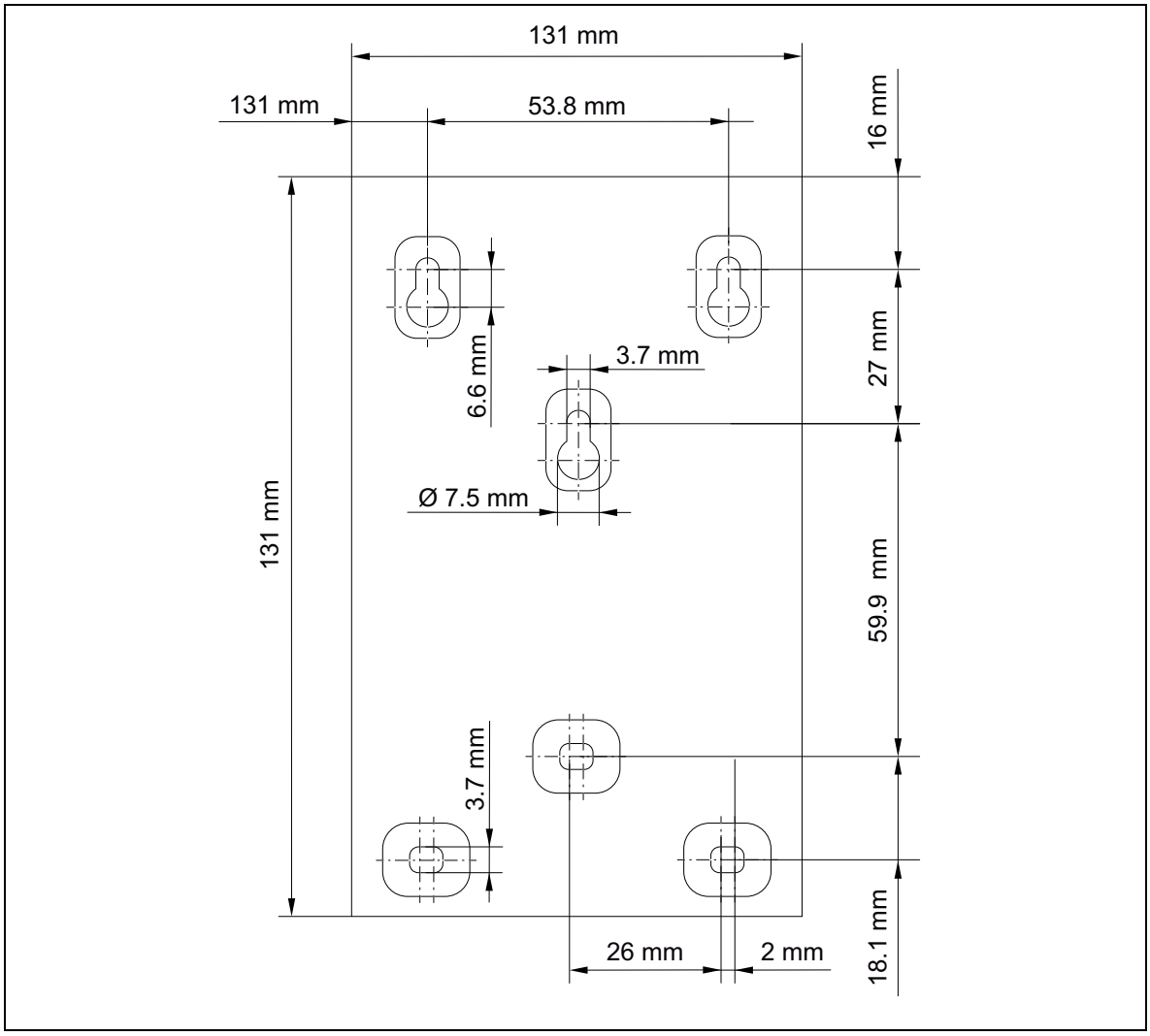


Fig. 5-1: Fixation holes

5.2.3 Connecting to the power supply

The NurseCall N86 Room Transmitter can be powered by a lithium battery or/ and an external 6-30 VDC power supply. If the device is powered with an external power supply, the battery is not necessary, but it can be used as a backup power supply in case of power loss.

If the device is powered by the battery only, the battery life is about 5 years. .

If the device is powered by an external power supply and the battery is used as backup power supply, it is recommended to check it at regular intervals (for instance once a year) and to change it if necessary.

CAUTION!

When powering the device, the external 6-30 VDC power supply must be equipped with a setting off safety device, that is easy to access. The power supply must also be equipped with a safety fuse of lower value, e.g. 100 or 125 mA

An external supply source must fulfil the IEC 62368-1:2018 standard requirements for PS2 circuits according to §6.2.2.5 of the standard, or for limited power circuits according to Annex Q.

IEC 60601 standard requirements must be respected in electrical medical system.

5.2.4 Mode identification

When the power supply or battery is connected to the N86 Room Transmitter, the LED will blink 1 second in different colours, afterwards, the device will display the current mode through the this LED, by blinking purple one time for the Standard mode, two times for the Multiple Staff mode and three times for the Badge only mode.

5.2.5 Reset

Reset is done when powering up the device (battery or external power supply) and after each parameter programming. To perform a reset, make sure to remove both the battery and the external power supply. This operation causes the synchronization of the daily message.

NOTICE!

All connections need to be carried out before powering the device (insertion of the battery and/or application of the external power supply).

5.2.6 Transmitter Identification

All NurseCall N86 Room Transmitters are provided with their own unique radio identification code (UID) that is assigned in the factory. For the use with a NurseCall Main Unit only the last three cyphers of the unique serial number is the radio identification code of the transmitter. Therefore a double code can happen in only a TeleAlarm NurseCall 8 system. For such a case the three-digit ID code can be changed with help of the PR80 programmer and set to "alternate ID number".

During the installation, it is necessary to set the relationship between the identification code of the Transmitter and the place where it is installed (floor/ room/bed or "alphanumeric" single number). This identification is programmed on the Nursecall Main Unit (refer to the NurseCall Main Unit User Manual).

5.2.7 Operation Check

Once the transmitter has been installed and setup properly, it is recommended to check all functionalities of the device. The radio transmission can be checked by sending an acknowledgement call by pressing the green button or by triggering a B81 acknowledgment transmitter.

5.2.8 Replacing the battery

WARNING!

- May explode if exposed to fire;
- Use only original batteries intended for use with your NurseCall N86 Room Transmitter.
  Using other type of batteries could be dangerous;
- Do not expose the battery to liquids;
- Do not let the metal contacts on the battery 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 allow the battery to be put into the mouth. Battery electrolytes may be toxic if swallowed.

CAUTION!

There is a risk of explosion if battery is replaced by a wrong type or if not connected correctly.
The battery should be replaced exclusively by Authorized Personnel.
Dispose of used batteries according to instructions and regulations.

Battery type is 3V CR2.

Procedure

1. Open the compartment cover (1) by sliding it downwards and then towards you.
2. Carefully remove the used battery (2).
3. Place the new battery. The positive terminal must be facing the Red button.
4. Replace the compartment cover.

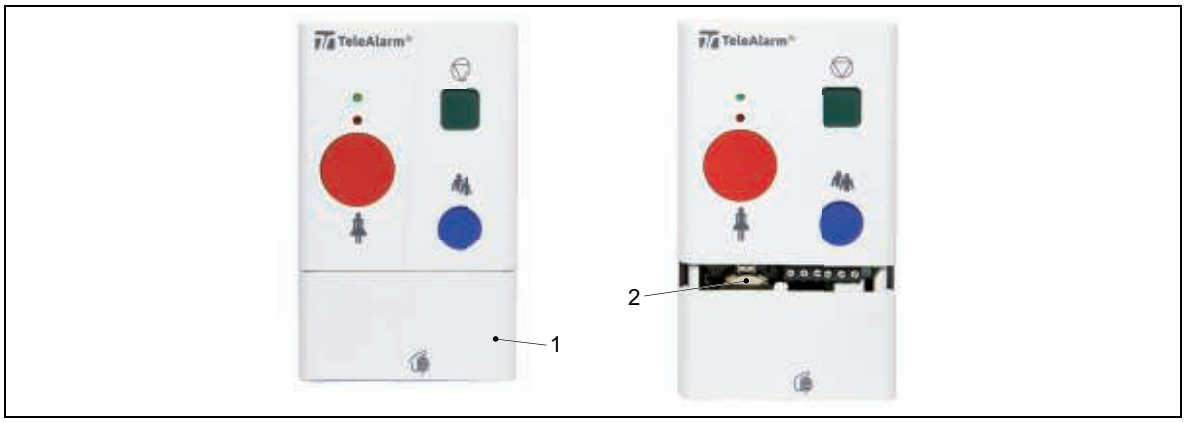


Fig. 5-2: Replacing the battery

5.2.9 Configuration and Wiring

The whole N86 parameter configuration can only be done by the programming unit PR80, see the *PR80 Programming Reference Manual*.

NOTICE!

There are no jumpers to set or solder bridges to lay or to change.

NOTICE!

Setting up one or more inputs to "NC" position results to higher power consumption. This configuration should be used with external power supply or will reduce the battery life.

5.3 Inputs and Outputs

5.3.1 General inputs

The * marks a factory setting.

External trigger / Input Pear	J3 / P6	Jack socket 3.5 mm and Input Pear C10 / C11		NO *	Closing contact causes a Pear button alarm or any other programmed call type
				NC	Opening contact causes an any programmed call type
Power supply	PJ 5	C1		+	6 to 30 V DC
		C2		-	GND 0V

5.3.2 Wired Outputs

Call for Help Relay	P5	C3 / C4	R1	NO	A Call for Help causes the closing of the relay contact
Staff Presence Relay	P5	C5 / C6	R2	NO	Staff Presence signalling causes the closing of the relay

5.3.3 Wired Inputs

Programmable call type Default NO/ Trig Auxiliary Help 1	P6	C7 / C8	Auxiliary input digital. NO=Trig 5, NC=Trig 6	NO *	Closing the contact triggers the programmed Call Type
				NC	Opening the contact triggers the programmed Call Type
Programmable call type Default NO/ Trig Technical Alarm	P6	C8 / C9	Technical alarm input digital. NO=Trig 9, NC=Trig 10	NO *	Closing the contact triggers the programmed Call Type
				NC	Opening the contact triggers the programmed Call Type
Programmable call type Default NO/ Trig Pear button	P6	C10 / C11	Auxiliary pear-push input digital. NO=Trig 7, NC=Trig 8 *Attention: Connected to J3 the NO Pear connection*	NO *	Closing the contact triggers the programmed Call Type
				NC	Opening the contact triggers the programmed Call Type

(*)
NO (Normally Open): Trigger selected when closed to GND
NC (Normally Close): Trigger selected when open from GND

CAUTION!

Relays contacts support 0.3A @30 VDC or 15 VAC (RMS)
The sum of the input voltage and the voltage at a relay contact and the sum of both relay contact voltages shall not exceed the limits of ES1 (60 VDC or 42 Vpeak) defined in IEC 62368-1:2018 standard §6.2.2.5

5.3.4 General configuration

The * marks a factory setting.

Parameter	State	Function
Alternate ID	Empty*	No ID number filled in
Use alternate ID	When required	Alternate ID number in decimal format
	Not activated*	The alternate ID number is not taken into account
	Activated	Only the alternate ID number is taken into account
Supervision interval	Default*	Transmitter Radio connection will be checked every 20min
	When required	Supervision interval time >0 , supervision is "On" Minimum 1 = 30 sec. / Maximum 2880 = one day
Supervision with Ackn.	Activated	A sent Supervision signal will be confirmed by a receiver acknowledgment
	Not activated*	A sent Supervision signal will not be confirmed by a receiver acknowledgment
Multiple Receiver	Activated*	NC "alarm received confirmation from NC on transmitter
	Not activated	LE80 "Alarm received confirmation from LE80 on transmitter
	Not activated	Both NC and LE80 "Alarm received confirmation from NC and LE80 on transmitter"
Presence mode	Activated* (o)	N86-2R : Staff Presence Processing is activated. Also possible for N86 not equipped with relays*
	Not Activated* (o)	N86 : Staff Presence Processing is disabled. Also possible for N86-2R equipped with relays*

Sent assistance if only presence is activated	Activated	The Assistance Call is also possible when the Care Personnel has not signalled his/her presence..
	Not activated*	The Assistance Call is possible only if the Care Personnel has signalled his/her presence.
Repeat technical alarms	Activated*	Technical Alarms are repeated every 2 minutes until alarm is cleared (max 20 minutes)
	Not activated	Technical Alarms are not repeated.
Repeat help calls	Activated*	Help calls are repeated until call is cleared (max 20 minutes)
	Not activated	Help calls are not repeated.
Repeat assistance calls	Activated*	Assistance calls are repeated until call is cleared (max 20 minutes)
	Not activated	Assistance calls are not repeated.
Repeat Emergency calls	Activated*	Emergency calls are repeated until call is cleared (max 20 minutes)
	Not activated	Emergency calls are not repeated.
N86 operating mode	Standard	Staff presence and event acknowledge can be done either anonymously using the green button or in an identified way using the B81/B80A
	Multiple Staff	Multiple nursing people mark their identified presence using their B81/B80A. In general, action is terminated (back to standby) anonymously using the green button, but back to standby from high level of alarms shall be done by using B81/ B80A device
	Badge only	Staff presence and event acknowledgment can only be done in an identified way using the B81/ B80A. Green button is disabled

(o) NurseCall N86 Room Transmitters that feature the output relays are delivered with the Staff Presence Processing activated. Models that do not feature the output relays are delivered with the Staff Presence Processing disabled.

6 Use

Every time a NurseCall N86 Room Transmitter is used by pressing a button or activating a wired input, the device sends a radio signal and the lamps indicates its action and / or actual state. Optionally, two relays allow the transmission of status to a remote display such as the signal lamps placed on top of the door.

Each radio message is sent with a different call which allows the receiver (NurseCall system) to recognize the performed action.

NOTICE!
It is recommended to keep the button pressed until the lamp placed above the red button lights up.

6.1 Call for Help

The Call for Help can be triggered in three different ways:
- by pushing the red Call for Help button.
- by pushing the external switch connected to the J3 connector, for example a pear push button.
- by activating at least one of the three inputs of the terminal block P6 (C7 / C8, C8 / C9 or C10 / C11)

The Call for Help is repeated approximately every 2 minutes until a call clear takes place, up to a maximum of 20 minutes. This repeat function can be disabled by setting the parameter "Repeat Help calls" not activated. A Call for Help is signalled by red flashes on the signal lamp and, optionally, by the activation of the relay Call for Help.

NOTICE!
In some cases, the action Call for Help generates a Call for Assistance action. See *Section 7.3 Operation states diagrams, Page 35*.

6.2 Call for Assistance

The Call for Assistance is triggered by pushing the Call for Assistance button (blue).

The Call for Assistance is repeated approximately every 2 minutes until a call acknowledgement takes place, up to a maximum of 20 minutes. This repeat function can be disabled by setting the parameter "Repeat Assistance calls" not

activated. A Call for Assistance is signalled by red double flashes on the signal lamp and by the alternate action/release of the relay Call for Help.

6.3 Call for Emergency

The Call for Emergency is triggered by pushing the Call for Help (red) and the Call for Assistance button (blue) simultaneously.

The Call for Emergency is repeated approximately every 2 minutes until a call acknowledgement takes place, up to a maximum of 20 minutes. This repeat function can be disabled by setting the parameter "Repeat Emergency calls" not activated. A Call for Emergency is signalled by quickly double blue flashes on the signal lamp and by the quickly alternate action/release of the relay Call for Help.

6.4 Clear a Call (Staff Presence)

The clear call action is triggered by pushing the N86 green button, or by triggering a B81/B80A or by an "Alarm cleared" programmed input.

The call acknowledgement stops immediately all repetitions of the alarm calls.

Optionally, a clear call action triggers the Staff Presence signal this is indicated by green flashes on the N86 signal lamp and by activating the N86R Staff Presence relay. when The Caregiver clears the N86 alarm after entering the room

6.4.1 Clear alarm by B81/B80A and/or N86 green button (Standard mode)

When in "Standard mode" automatic call repetition and presence mode is enabled, the call can be cleared by a B81/B80A acknowledgment transmitter or by the N86 green square clear Alarm button, to stop the alarm repetition and to put the N86 in presence mode.
After the alarm acknowledgments the NurseCall N86 Room Transmitter can be set in stand-by mode by pressing the green square button once or by pressing the B81 Acknowledgment Transmitter very close to the NurseCall N86 Room Transmitter.

When automatic call repetition mode and presence mode is disabled, a call can be canceled by a B81/B80A acknowledgment transmitter or by the N86 green button.
After the Alarm is cleared the N86 will be in this case directly set back in Stand-by mode

Also, when only presence mode is enabled and repeat mode disabled, a B81/ B80A or the N86 green button can be used to clear the call and to put the N86 in presence mode. After the alarm is cleared the N86 can be set in stand-by mode by pressing the N86 green button once or by pressing the B81/B80A once very close to the N86

Technical alarms like button blocked or Pear push disconnected can be cleared by pressing the N86 green square button or by pressing the B81/B80A very close to the N86
When the N86 is in presence mode it needs two "clear alarm" to set the N86 in stand-by mode.

6.4.2 Clear Alarm with group identification (Multiple Staff mode)

This "Multiple Staff mode" can only be used when the receiving installation is adapted to its behavior!
This feature "Multiple Staff mode' must be confirmed in the N86 program parameter!
When automatic call repetition is enabled, a call must be cleared by a B81 acknowledgment transmitter to stop the alarm repetition and to put the N86 in presence mode. Using the B81 will allow to know who has cleared which patient alarm. All further summoned nurses who are entering the room can sign in by pressing their B81 very close to the N86
After the alarm is cleared the N86 can only be set in the stand-by mode by pressing the N86 green button.

When automatic call repetition mode and/or presence mode is disabled, a call can only be canceled cleared by a B81 acknowledgment transmitter triggered close to the N86.
After the Alarm is cleared the N86 will be in this case directly set back in Stand-by mode

When only presence mode is enabled and repeat mode disabled, only a B81 can be used to clear the call and to put the N86 in presence mode. After the alarm is cleared the N86 can only be set in the stand-by mode by pressing the N86 green square clear Alarm button.

Technical alarms like button blocked or Pear push disconnected can only be cleared by pressing the B81 very close to the N86 and then pressing the N86 green square button once, or twice when the N86 is in presence mode
The green N86 button can be used to stop the blinking of the white LED.

6.4.3 Acknowledgment with Nurse identification (Badge only mode)

This feature "Badge only mode" must be confirmed in the N86 program parameter!
When automatic call repetition and presence is enabled, a call must be cleared B81/B80A acknowledgement transmitter close to the N86, to stop the alarm repetition and to put the N86 in presence mode. All further summoned nurses who are entering the room must also clear the alarm by a B81/B80A acknowledgedment transmitter close to the N86, to put the N86 again in presence mode.
After the alarm is cleared the N86 can only be set in the stand-by mode by pressing the B81/B80A very close to the N86.

When automatic call repetition mode and/or presence mode is disabled, a call can only be cleared by a B81/B80A acknowledgment transmitter triggered close to the N86. After the Alarm is cleared the N86 will be in this case directly set back in Stand-by mode by pressing the B81/B80A very close to the N86

Technical alarms like button blocked or Pear push disconnected can only be cleared by pressing the B81 once very close to the N86, or twice when the N86 is in presence mode
The green N86 button can only be used to stop the blinking of the white LED, it doesn't clear the alarm on the installation

6.5 Terminal for wired inputs

The call of a wired input can be triggered by closing (NO) and / or opening (NC) the contact.
Different call types can be programmed

The behaviour of the triggered call is depending on the programmed call parameters. All alarm Calls are signalled in the same way as the Call for Help, Assistance call or Emergency call on the signal lamp and the relays.

6.6 Caregiver Presence

The Caregiver presence message is triggered when the Caregiver confirms his presence by triggering the acknowledgement transmitter B81 near to the NurseCall N86 Room Transmitter, when entering the room.

Depending on the programmed parameter "Mode 0 the caregiver can also confirm his presence by triggering the green button. The Caregiver presence message is signalled by green flashes on the signal lamp and by activating the Staff Presence relay.

6.7 Caregiver leaving the room

The Caregiver "away" message is triggered when the Caregiver triggers the N86 green button or the B81/B80A for Mode 1, when leaving the room.

Pressing the green button by leaving the room is signalled by switching off the green flashes on the signal lamp and by releasing the Staff Presence relay.

6.8 Daily Message and Battery Low Message

The radio transmission can be checked by way of the daily message which is automatically sent about every 21 hours.

The battery level status (%) is sent with every daily message. When the battery voltage is too low, the Battery Low message will be sent with a triggered Alarm Call and with the daily message.

As the battery could not be monitored if the N86 is externally powered it is advised to exchange it every 5 years

6.9 Supervision

The radio transmission can be checked by way of the supervision which is parametrable. Default value is 10 minutes. The NurseCall N86 Room Transmitter can be set by a NCCM program parameter to comply with automatic radio link monitoring in accordance with VDE 0834

6.10 Bi-directional radio traffic

All sent alarms and events will be answered by the system, in this way it is secured that no alarms or events will be lost.

A green light on the transmitter will blink once as confirmation Alarm received and acknowledged by the system. A red light on the transmitter will blink three times when the system didn't acknowledge the alarm

6.11 Error Message

The Error Message is sent every 2 minutes if the device has detected a general dysfunction, or if one of the following triggering devices remains in its activated position for up to 2 minutes:

- Call for Help button
- Acknowledgement button
- Call for Assistance
- Pear Button input (pear removed or broken cable)

7 Operation

7.1 Description of the eight different states

During operation, the NurseCall N86 Room Transmitter can be set to one of eight following states:

State	Description
Stand-by	No call is being processed.
Help Call without staff presence	The patient has triggered a Call for Help but the Care Personnel has not yet responded.
Help Call with staff presence	The Care Personnel has responded after a Call for Help.
Assistance without staff presence	A Call for Assistance has been triggered without the presence of the Care Personnel.
Assistance with staff presence	A Call for Assistance has been triggered in the presence of the Care Personnel.
Emergency without staff presence	A Call for Emergency has been triggered without the presence of the Care Personnel.
Emergency with staff presence	Emergency has been triggered in the presence of the Care Personnel.
Staff Presence without alarm	The Care Personnel has responded without a previous call from the patient.

Each state is indicated by the signal lamp and by a special position of the output relays.
It is possible to configure the NurseCall N86 Room Transmitter in order that:

- the Call for Assistance can be triggered only if the Care Personnel is present.
- the device does not manage the Staff Presence. This mode makes sense only if the output relays are not provided or not used.

The transition to a specific condition depends on the device configuration, of its actual condition and of the action completed; as shown on the charts in the following chapters.

NOTICE!
When the NurseCall N86 Room Transmitter is powered by an external power supply, the signal lamps follow the state of the corresponding relay outputs.

7.2 Legend of illustrations

7.2.1 LED and relays behaviour

Legend	Description
	The contact of the Call for Help relay is closed LED RED / REL1 ON
	The contact of the Call for Help relay is open LED OFF/ REL1 OFF
	The contact of the Call for Help relay opens and closes alternately LED RED / REL1 blink 2s period
	The contact of the Call for Help relay opens and closes alternately quickly LED BLUE / REL1 blink 1s period
	The contact of the Staff Presence relay is closed LED GREEN / REL2 OFF
	The contact of the Staff Presence relay is open LED GREEN / REL2 ON

7.2.2 Triggered events

Legend	Description
	Technical category event
	Help category event
	Assistance category event
	Emergency category event

Legend	Description
	Green button event
	B81/B80A event
	Green button event inactive
	B81/B80A event inactive

7.2.3 Transmitted events

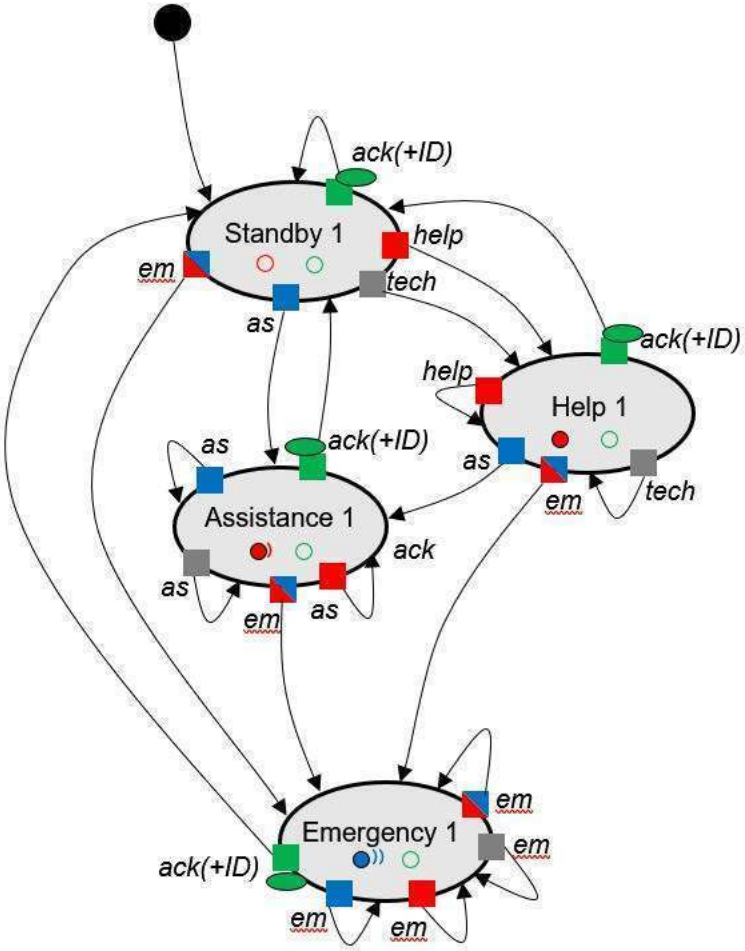
Legend	Description
help	help
as	assistance
em	emergency
tech	Technical input
ack(+ID)	Alarm cleared (+ Nurse ID if triggered from B81/B80A)

7.3 Operation states diagrams

7.3.1 Standard mode N86 events state diagram 1

- Staff presence processing is OFF
- Call for assistance only by staff presence is OFF

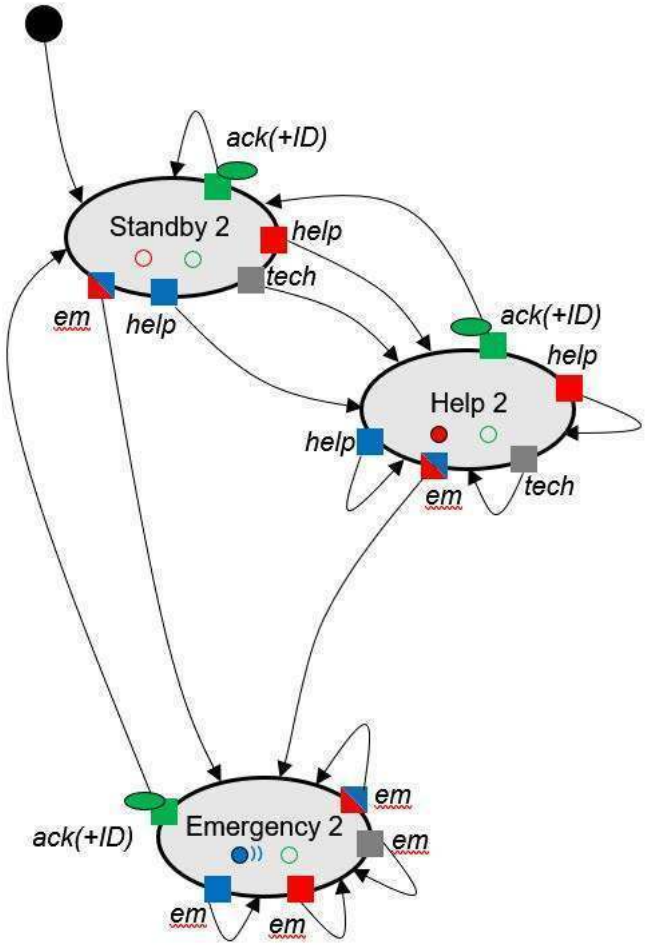
Device behaviour when pressing a button



7.3.2 Standard mode N86 events state diagram 2

- Staff presence processing is OFF
- Call for assistance only by staff presence is ON

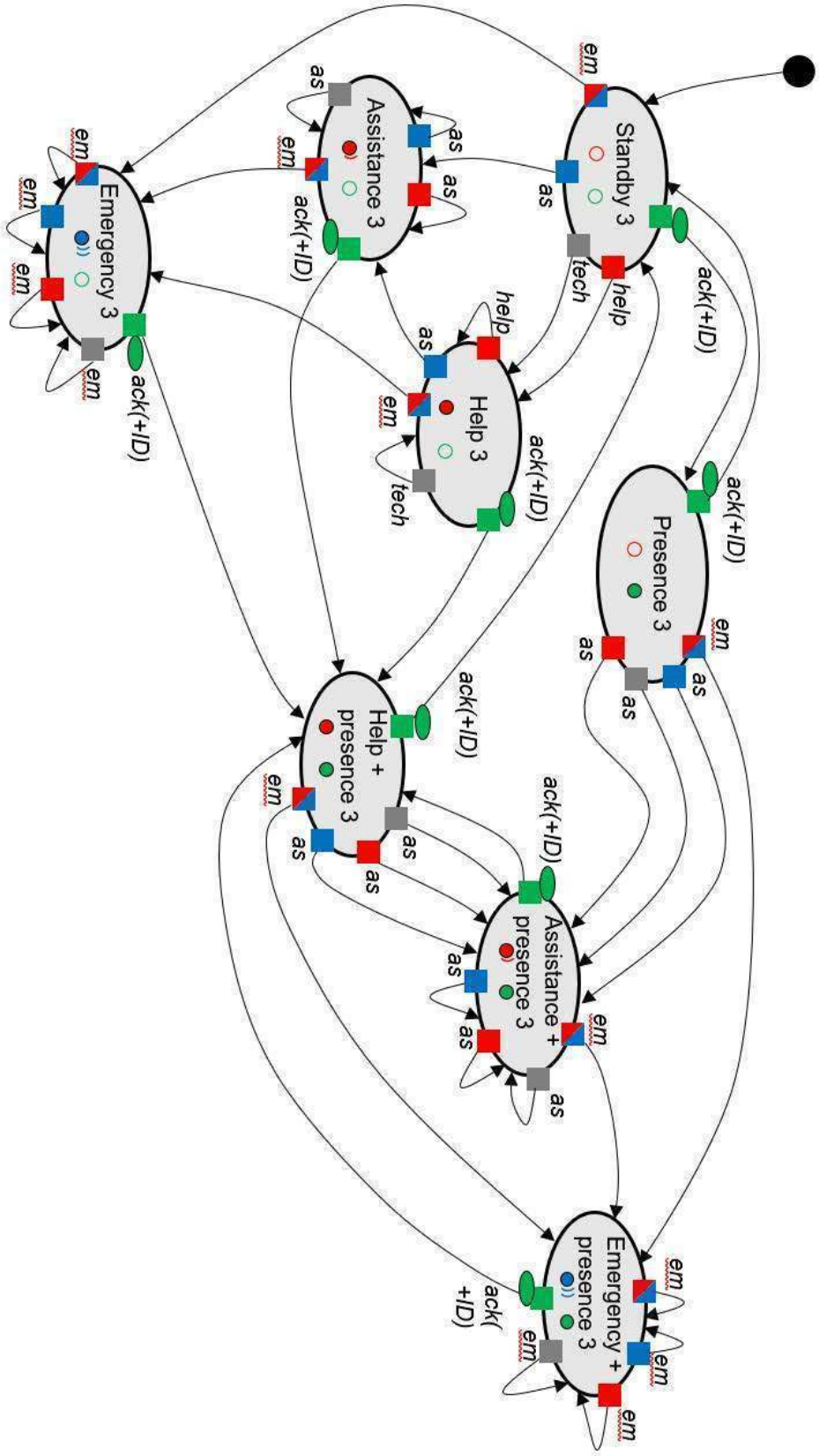
Device behaviour when pressing a button



7.3.3 Standard mode N86 events state diagram 3

- Staff presence processing is ON
- Call for assistance only by staff presence is OFF

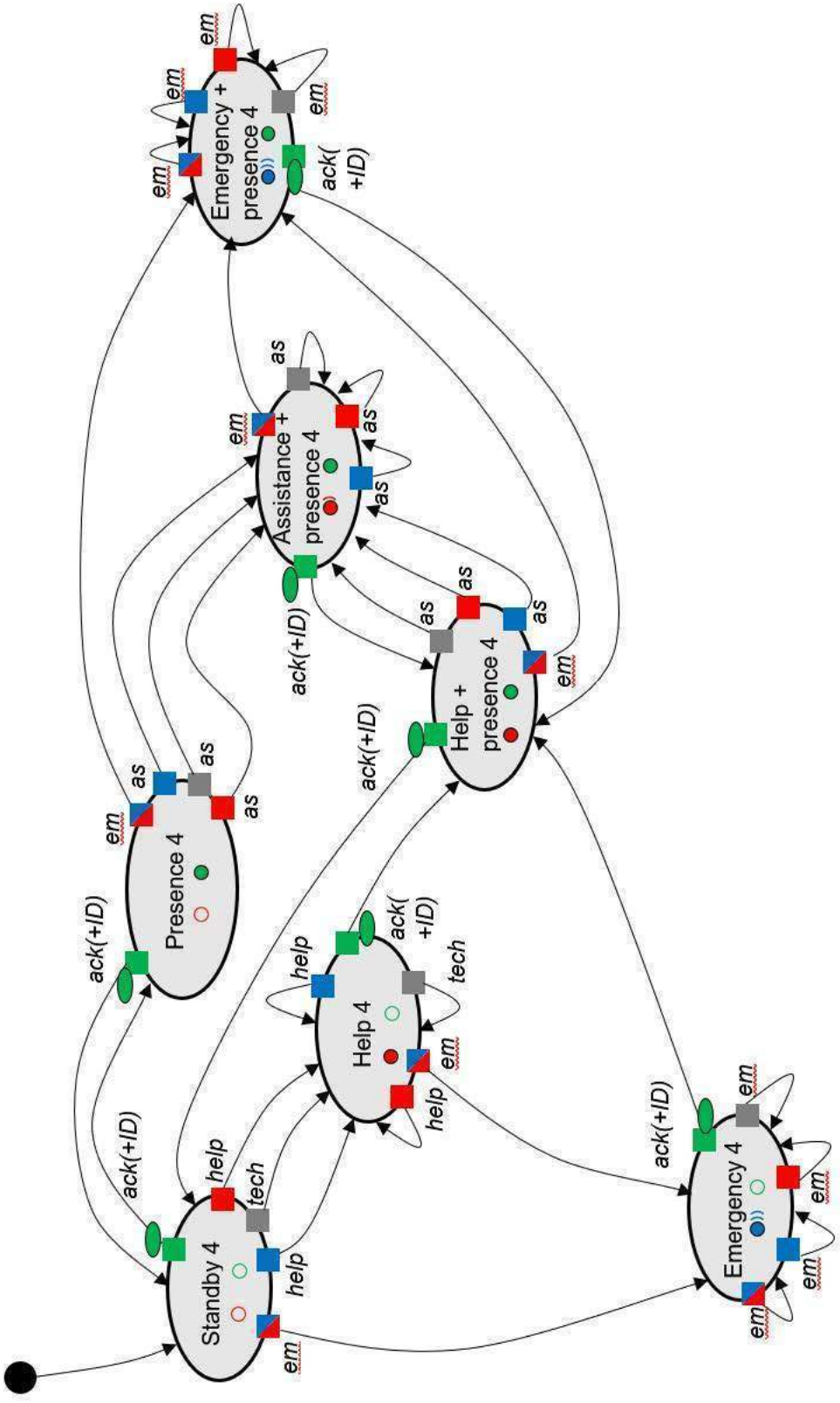
Device behaviour when pressing a button



7.3.4 Standard mode N86 events state diagram 4

- Staff presence processing is ON
- Call for assistance only by staff presence is ON

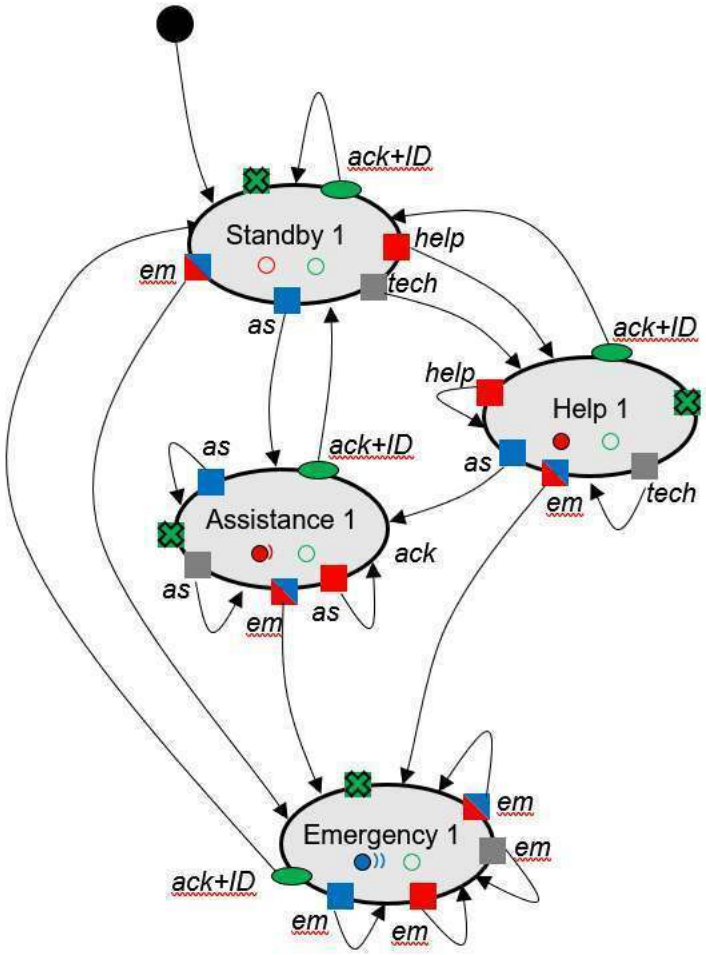
Device behaviour when pressing a button



7.3.5 Multiple Staff mode N86 events state diagram 1

- Staff presence processing is OFF
- Call for assistance only by staff presence is OFF

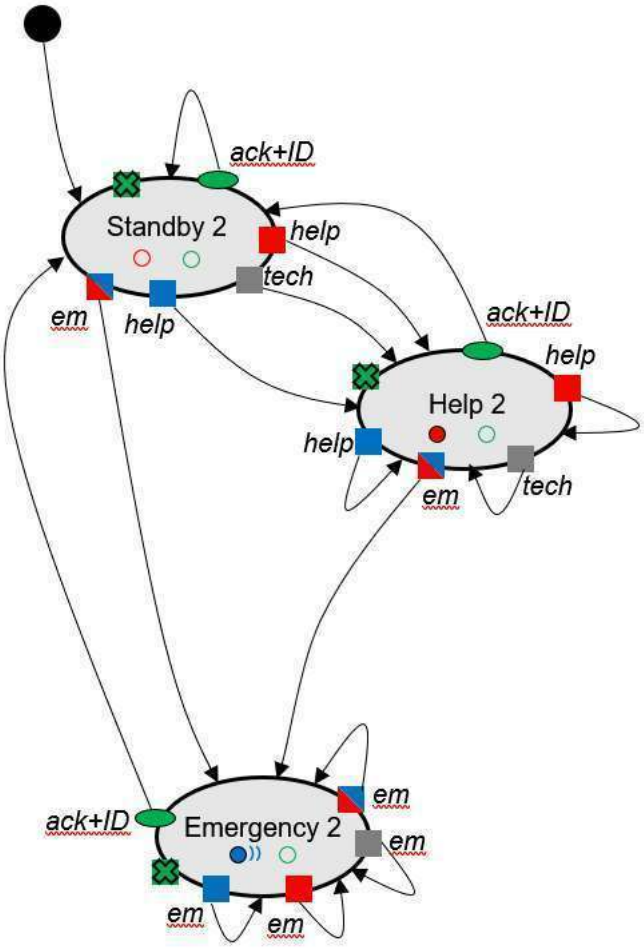
Device behaviour when pressing a button



7.3.6 Multiple Staff mode N86 events state diagram 2

- Staff presence processing is OFF
- Call for assistance only by staff presence is ON

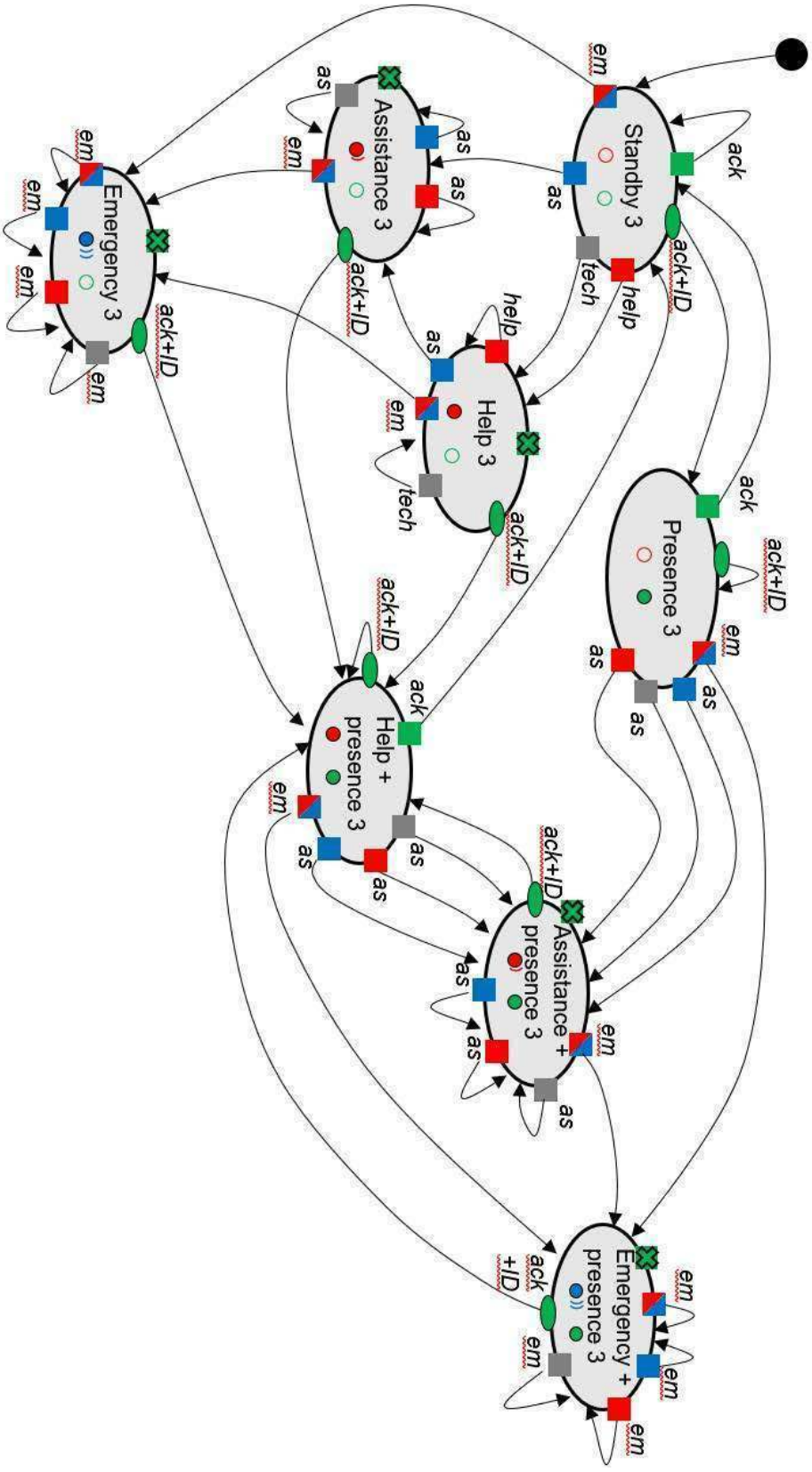
Device behaviour when pressing a button



7.3.7 Multiple Staff mode N86 events state diagram 3

- Staff presence processing is ON
- Call for assistance only by staff presence is OFF

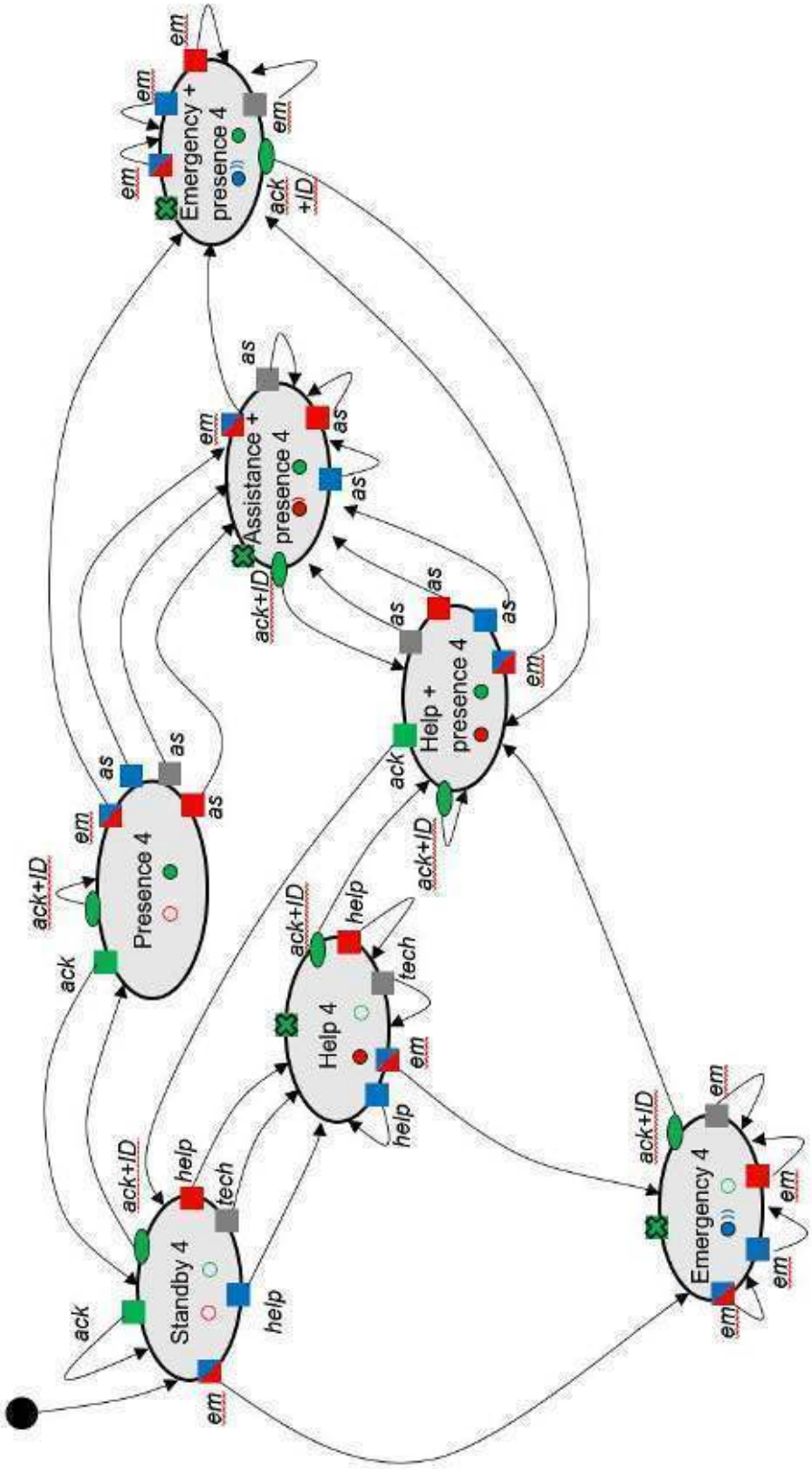
Device behaviour when pressing a button



7.3.8 Multiple Staff mode N86 events state diagram 4

- Staff presence processing is ON
- Call for assistance only by staff presence is ON

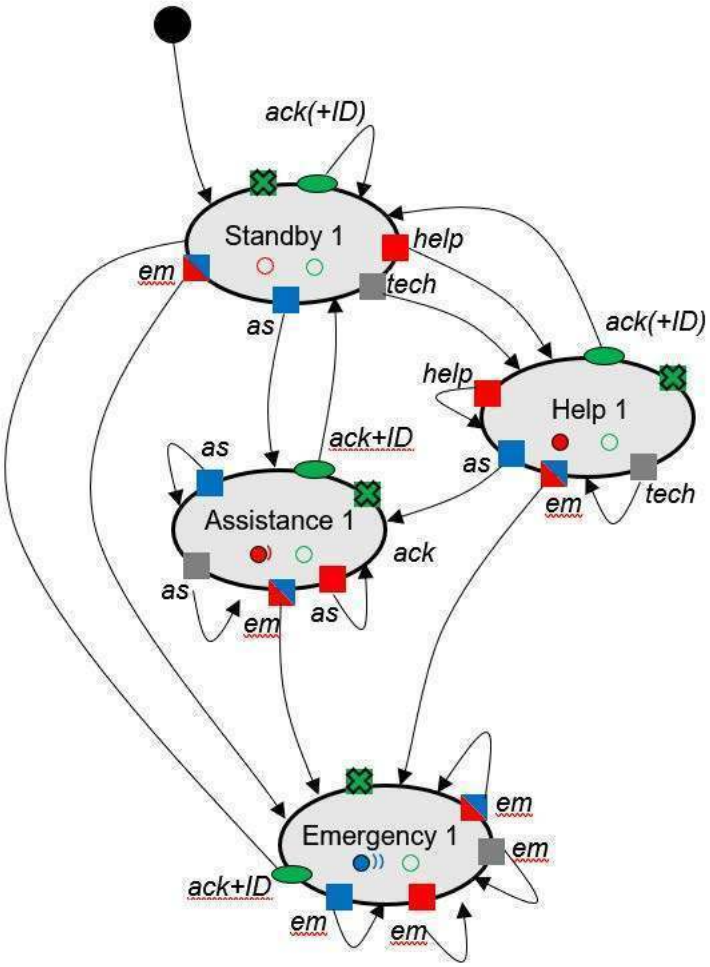
Device behaviour when pressing a button



7.3.9 Badge only mode N86 events state diagram 1

- Staff presence processing is OFF
- Call for assistance only by staff presence is OFF

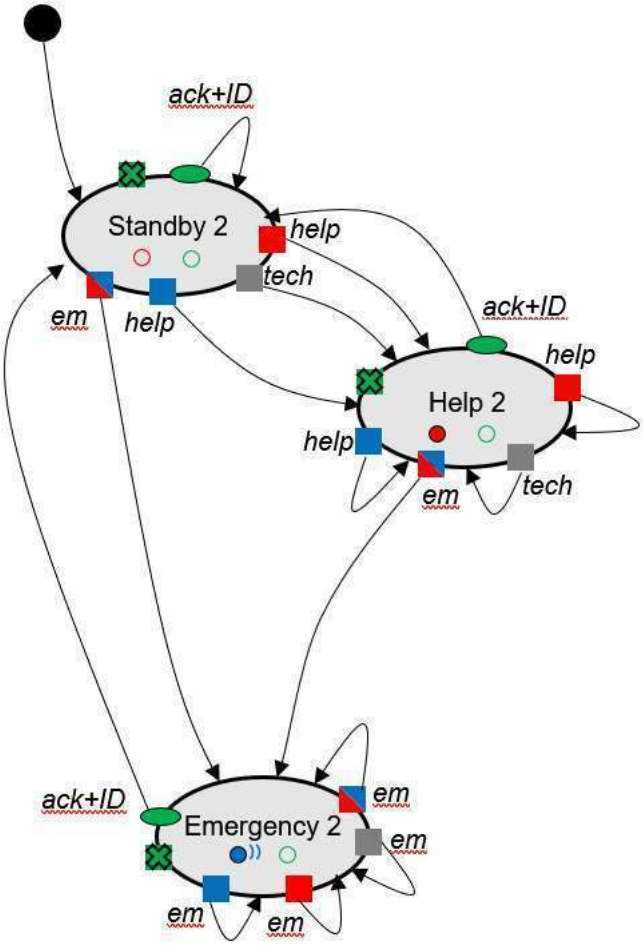
Device behaviour when pressing a button



7.3.10 Badge only mode N86 events state diagram 2

- Staff presence processing is OFF
- Call for assistance only by staff presence is ON

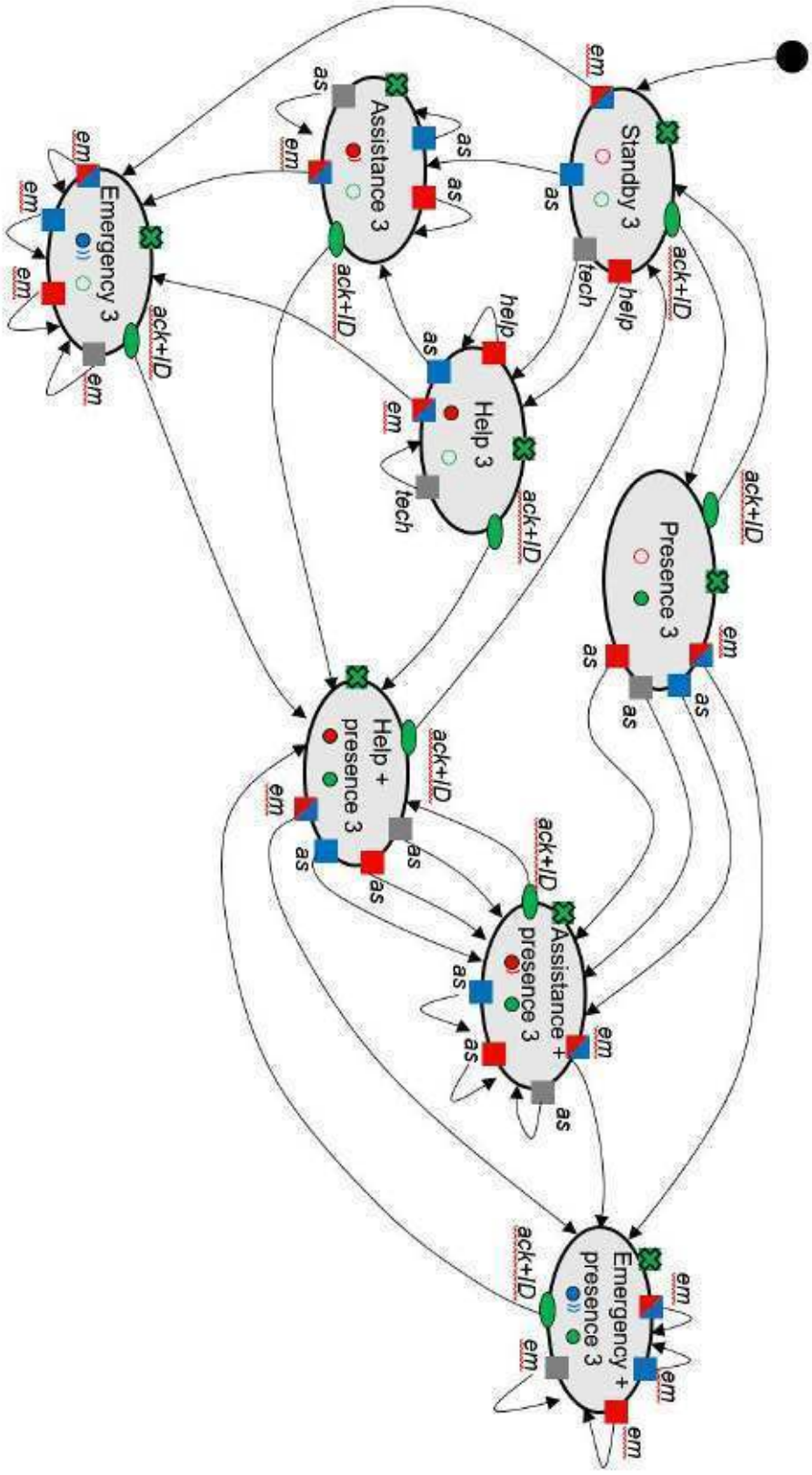
Device behaviour when pressing a button



7.3.11 Badge only mode N86 events state diagram 3

- Staff presence processing is ON
- Call for assistance only by staff presence is OFF

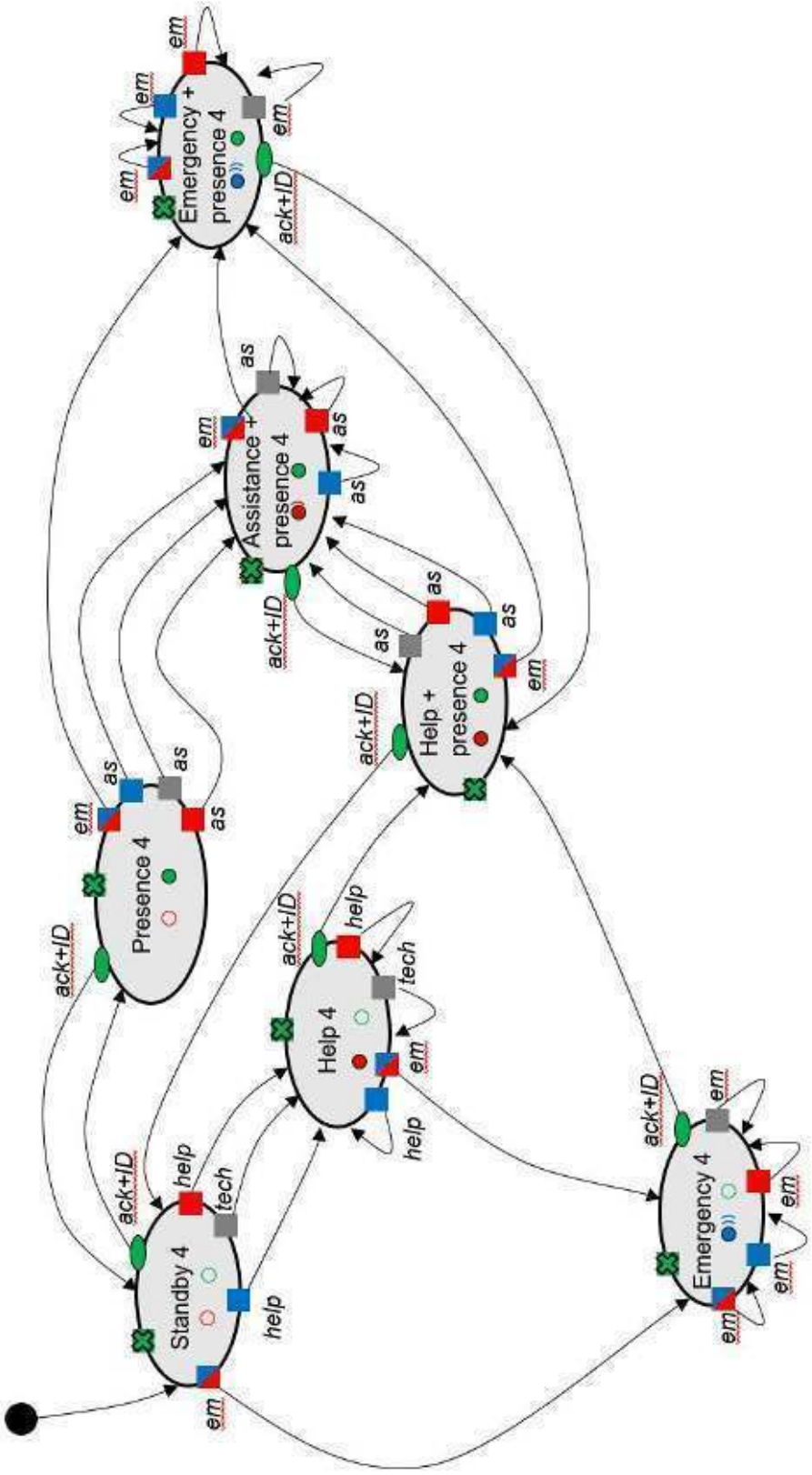
Device behaviour when pressing a button



7.3.12 Badge only mode N86 events state diagram 4

- Staff presence processing is ON
- Call for assistance only by staff presence is ON

Device behaviour when pressing a button



8 Storage

One can distinguish between long term storage and short term storage.
If the NurseCall N86 Room Transmitter must be temporarily stored, it may not be necessary to wrap it completely.
However, if you wish to store the NurseCall N86 Room Transmitter for a longer time, for instance in a storage room or any similar location, it is recommended to use original packing material.

8.1 Short term storage conditions

Unwrapped NurseCall N86 Room Transmitter in a room:

› Protection against direct sunlight and dust.

8.2 Long term storage conditions

NOTICE!
The NurseCall N86 Room Transmitter does not loose its programmed parameters when the power supply and the backup battery are disconnected.

NurseCall N86 Room Transmitter in its original packing material in a storage room:

› Backup battery removed;
› Protection against direct sunlight and dust.

9 Disposal

This chapter describes the appropriate disposal of the NurseCall N86 Room Transmitter.

The NurseCall N86 Room Transmitter is marked with a crossed-out wastebasket symbol.
This means that, at the end of its useful lifespan, the product shall be disposed separately from ordinary household wastes in accordance to the EU Directive 2012/19/UE.
The product and its accessories shall be delivered to an appropriate collection facility that will permit recycling, treatment and environmentally compatible disposal. This will prevent 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.

9.1 Disassembly

Only authorized personnel are allowed to disassemble a NurseCall N86 Room Transmitter.

9.2 Local disposal locations

The nearest disposal locations are established in accordance with the currently applicable laws. Ask the local authorities.

9.3 Returning to the manufacturer

If there is no practical disposal place, the NurseCall N86 Room Transmitter may be returned to your local representative.

9.4 Materials

The NurseCall N86 Room Transmitter must be returned to an authorized point of recycling.
In order to protect people and environment, the NurseCall N86 Room Transmitter must be recycled in an adequate manner. Consequently, all applicable laws and bylaws must be respected.

9.4.1 Battery

NOTICE!
The battery should never be placed in municipal waste. Use a battery disposal facility if available.

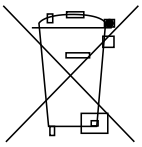


Fig. 9-1: Crossed-out wastebasket symbol

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

10 Appendix

10.1 Electrical specifications

External power supply & consumption	6 - 30 VDC Transmission: < 25 mA Idle mode: < 10 mA
Battery power supply & consumption	3V lithium battery type CR2 Transmission: < 25 mA Idle mode: < 10 µA
Battery life	Approx. 5 years

Table 10-1: Electrical specifications

10.2 Dimensions and weight

Casing dimensions	**[mm]**
Depth	26
Width	82
Height	133
Casing weight	**[g]**
Weight	110

Table 10-2: Dimensions and weight

10.3 Operating temperature

Operating temperature	-10 - 55°C

Table 10-3: Environmental conditions

10.4 CE declaration

The CE Declaration can be found at the following address:
http://www.telealarm.com/

TeleAlarm SA
Rue du Pont 23
2300 La Chaux-de-Fonds
Switerland
www.telealarm.com

TeleAlarm Europe GmbH
Hertzstraße 2
04329 Leipzig
Germany