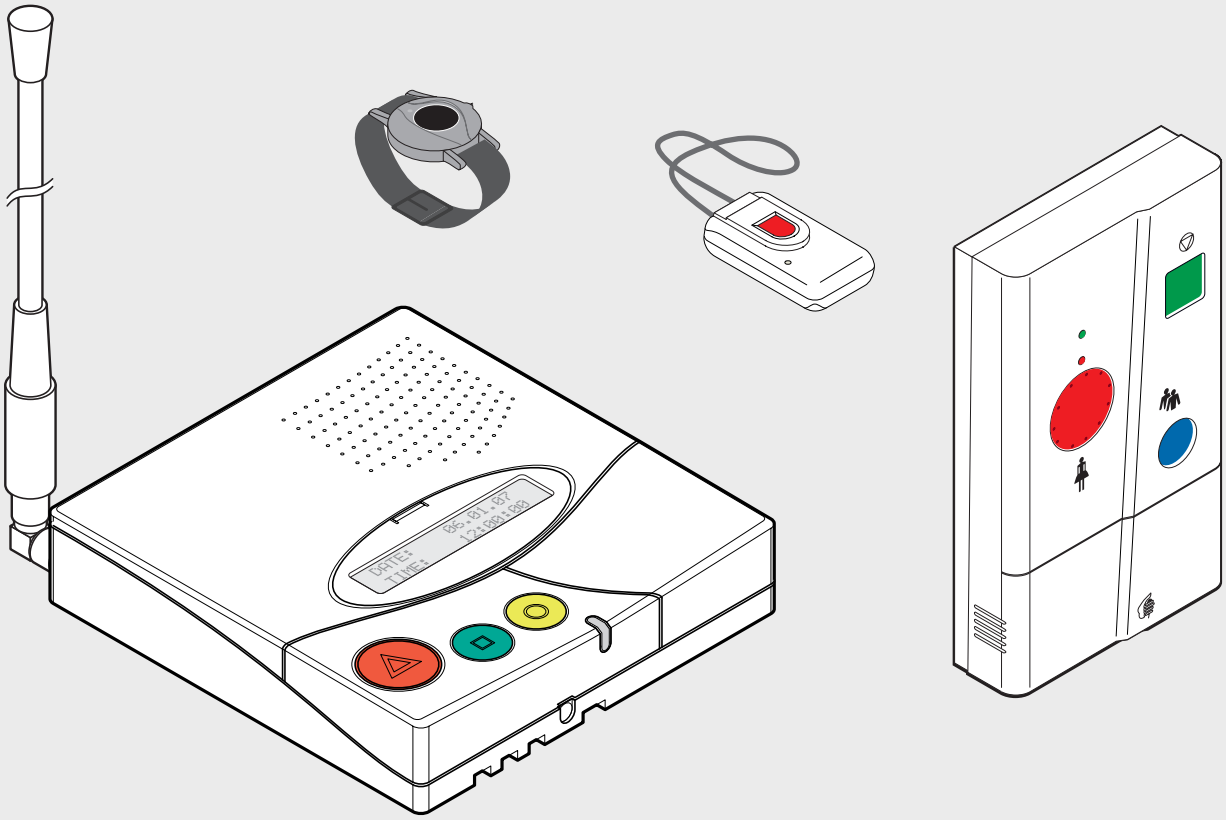

NurseCall

BOSCH

General Overview

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1 Identification

1.1 Document

Name	No.
General Overview	970.000

Table 1.1 Document No.

Version	Description
v1.2 | 2008.09	First Edition

Table 1.2 Version Management

1.2 Customer support addresses

TeleAlarm SA Bosch Group
Unterer Quai 37
CH-2502 Biel-Bienne
Switzerland
Phone: +41 32 327 25 40

Bosch Security Systems BV
Postbus 80002
5600 JB Eindhoven
Netherlands
Phone: 0900 8212499

Bosch Security Systems France
Atlantic 361
361, avenue du Général de Gaulle
F-92147 Clamart
France
Phone: + 33 (0)825 12 8000

Bosch Security Systems nv/sa
Torkonjestraat 21F
B-8510 Marke
Belgium
Phone: +32 (0)56 20 02 40

Bosch Sicherheitssysteme GmbH
Haus-ServiceRuf
Ingersheimer Straße 16
D-70499 Stuttgart
Germany
Phone: 01805-47726724

Bosch Security Systems AB
Vestagatan 2
416 64 Göteborg
Sweden
Phone: +46 (0)31 722 5300

Bosch Security Systems Ltd
Broadwater Park
North Orbital Road
Denham
UB9 5HN
United Kingdom
Phone: 01 895-878088

2 Generalities

2.1 Your modern Nurse Call system

The Nurse Call system offers an excellent solution for care and organization in homes for elderly people or hospitals.

It can be installed in new or existing building thanks to its system of radio transmission.

Up to 500 transmitters can be managed by the NurseCall System.

2.2 Alarm/messages identification

Several data can be processed by the NurseCall:

- Identification of Alarm/Message;
- Floor number / room number / bed number or a single number;
- Date and time;
- Quality of radio signal received;
- Storage type (Alarm or Event);
- Identification of the unit receiving the Alarm/Message (Main / Relay).
- Local position if Locating Mode is selected.

2.3 Radio transmission system

Each NurseCall device is equipped with a radio transmitter or receiver.

All Alarms/Messages are transmitted from any part of the controlled building.

Further Receiver Units (Relay Units) are connected to the Main Unit by RS485-bus.

Maximum RS485-bus length: up to 1200 m.

2.4 Simplified installation and programmation

Thanks to radio transmission, the system is highly flexible and quickly installed.

The attribution of a floor number / room number / bed number or a single number to a Transmitter can be selected (0 to 254). The attribution is programmed in the NurseCall Main Unit.

3 General principle of operations

Guiding principle of the NurseCall System operation.

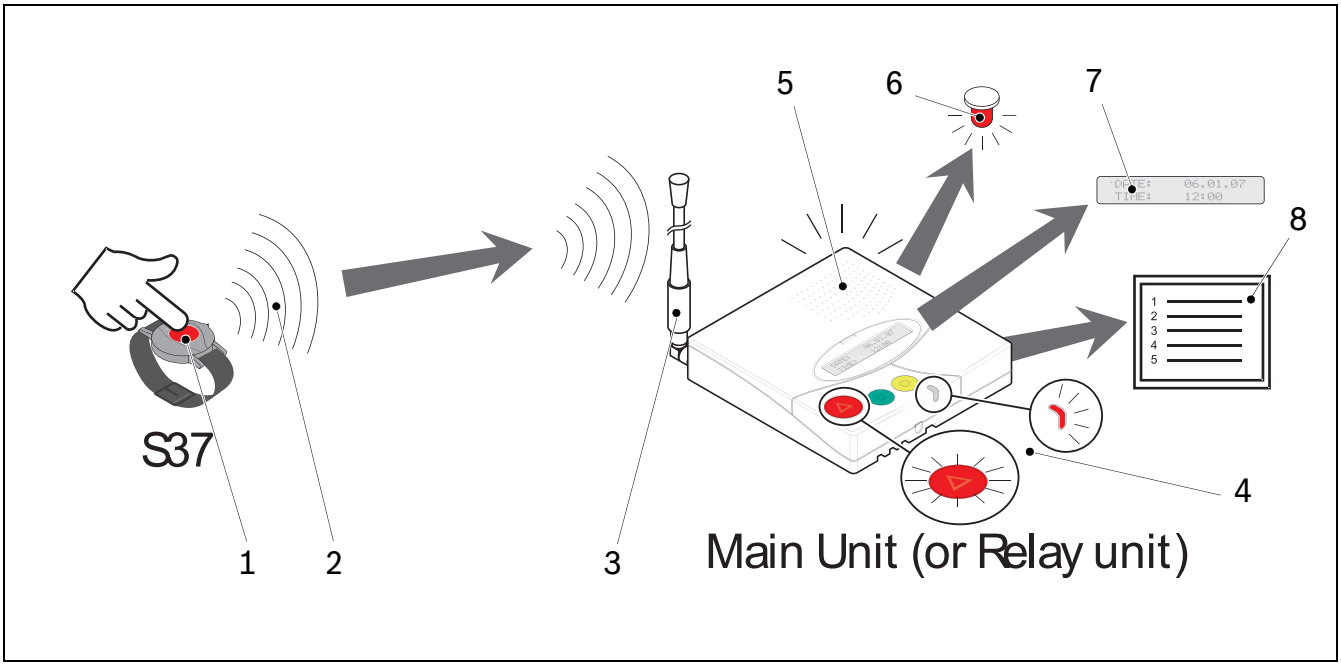

Fig. 3.1 General Principle of operations (example)

1. An alarm or a call for help is activated on a NurseCall device;
2. Alarm is sent by radio-transmission to the central system: Main Unit or Relay Unit;
3. The Main Unit or Relay Unit receives the alarm through its antenna;
4. The **Red** button and the LED Indicator are blinking;
5. An auditive signal indicates that an alarm is received;
6. A visual signal can be activated;
7. The Main Unit or Relay Unit shows Alarm/Event corresponding data;
8. The list of Alarms/Events can be transferred from Main Unit internal buffers to a computer, then printed.

NOTICE!
The Local Acknowledgement is performed on the NurseCall Main Unit with the **Green** button.

NOTICE!
The Acknowledgement can also be performed from several devices (S35, S37 and N46). See specific document.

3.1 Example of NurseCall application

Several NurseCall possibilities.

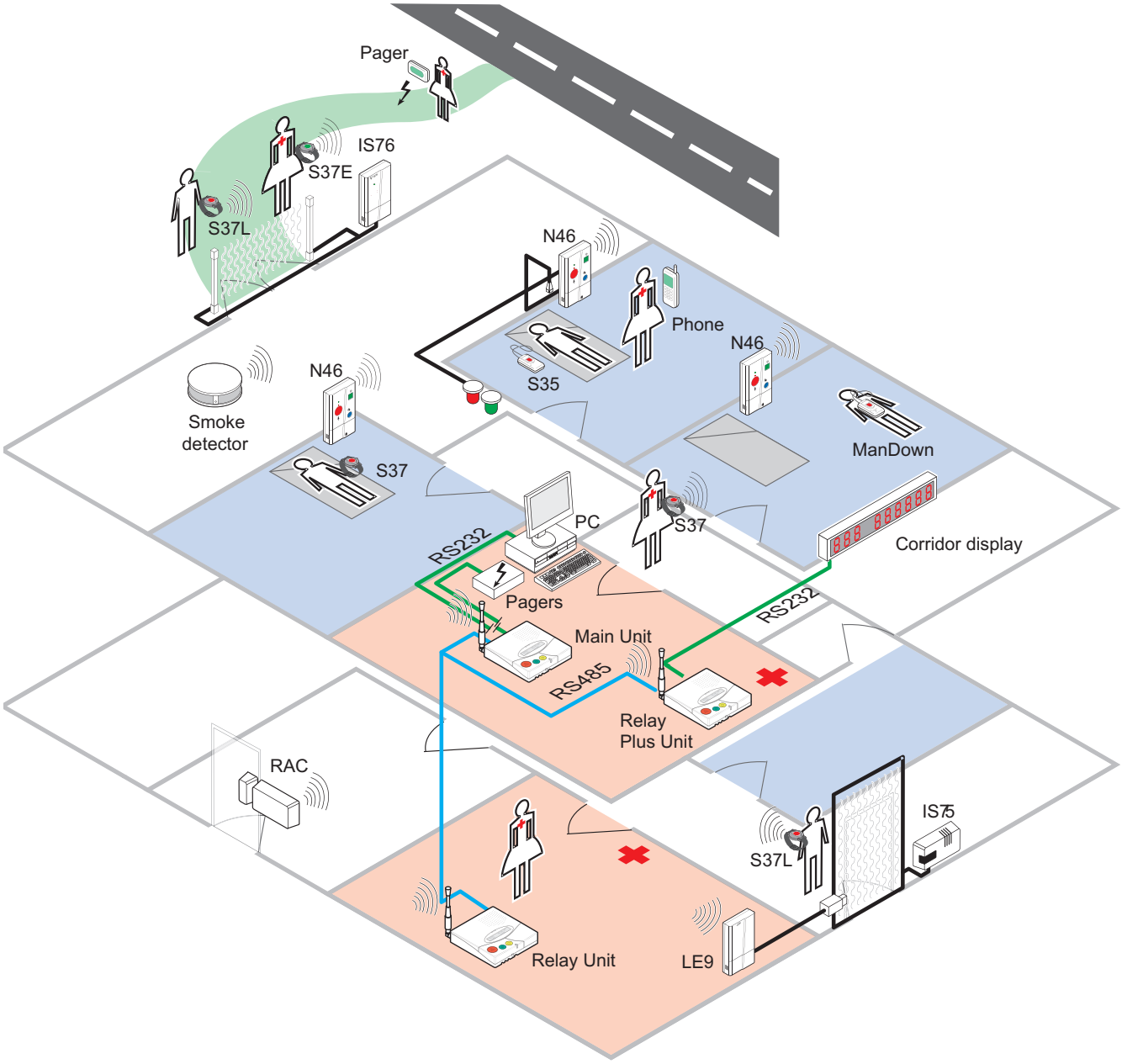

Fig. 3.2 Example of operation

All the devices are described with their respective function in the following pages.

Name	Designation	Description Page No	Function Page No
Main Unit	NurseCall System management	14	21 and following
Relay Unit	NurseCall System extension	14	21 and following
Relay Plus Unit	NurseCall System extension	14	21 and following
N46	Multifunction Wall Transmitter	15	22
S35	Pendant Transmitter	16	21
S37	Wristband Transmitter	16	21
S37L	Wristband Transmitter with Locating function	16	23, 24 and 25
S37E	Wristband Transmitter with Accompany function	17	25
SD	Smoke Detector	18	26
RAC	Wireless Contact	17	27
LE9	Radio Receiver	19	24
IS75	Person Detection Beacon	18	23 and 24
IS76	Person Detection Beacon	19	23 and 24
	ManDown Sensor	17	26
	Paging and DECT phone system	20	-

Table 3.1 Cross references

4 Transmitters, receivers and optional peripherals

The elements are described in the following pages.

4.1 Interconnection diagram

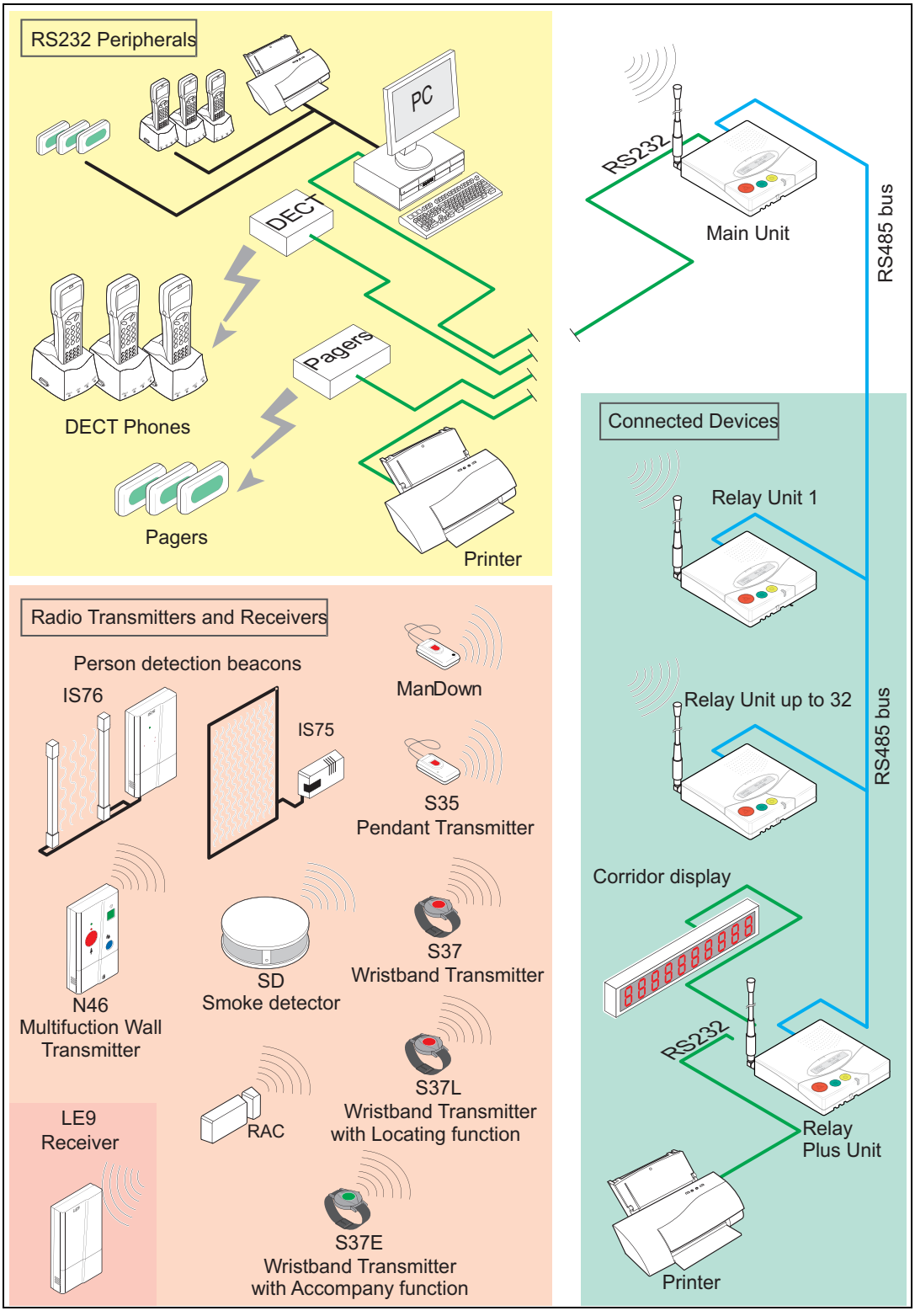

Fig. 4.1 Interconnection diagram

4.2 Description of elements

4.2.1 Main Unit

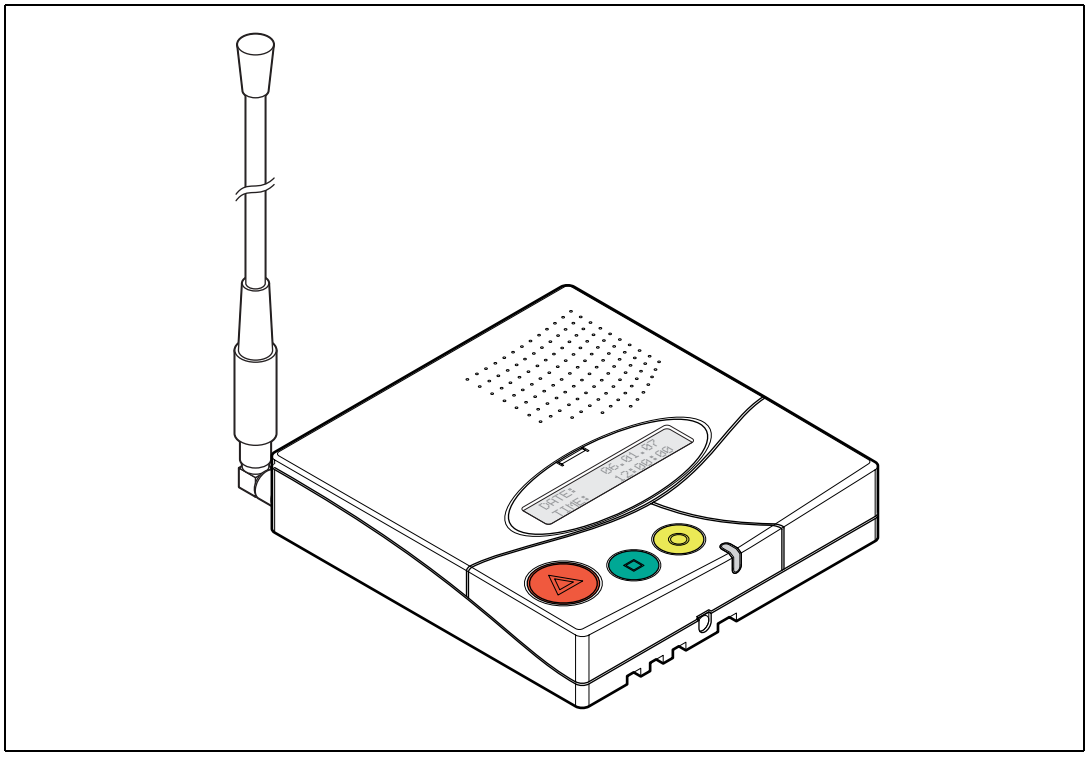

Fig. 4.2 Main Unit,Relay Unit and Relay Plus Unit are externally similar

Alarms and Messages arriving from NurseCall Transmitters are managed and stored by the NurseCall Main Unit.

If the NurseCall Main Unit is connected to optional peripherals using the RS232-Interface, the information is additionally transmitted to these peripherals.

One Main Unit is mandatory per NurseCall System.

4.2.2 Relay Unit

The Relay Unit allows reception range improvement as well as a remote user console (display and keyboard). It works in conjunction with the Main Unit via RS485 data communication.

4.2.3 Relay Plus Unit

The Relay Plus Unit allows reception range improvement as well as a remote user console (display and keyboard). It works in conjunction with the Main Unit via RS485 data communication. In addition to the Relay Unit, it allows the management of a printer peripheral.
The Relay Plus Unit printer interface connected to RS485-bus can be used in order to connect an additional printer or a corridor display. In such configuration, the in-house paging system can be combined with a printer without a PC.

4.2.4 N46 Multifunction Wall Transmitter

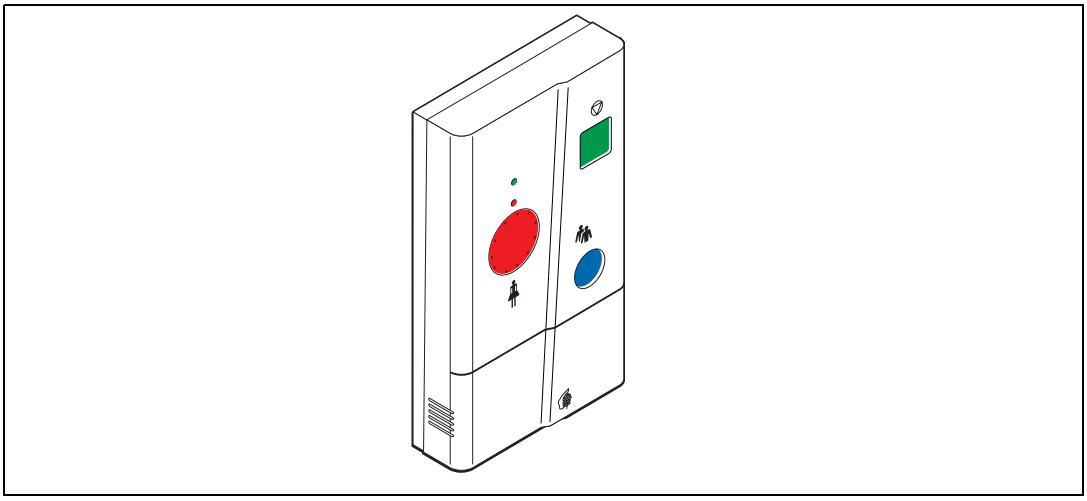

Fig. 4.3 N46 Multifunction Wall Transmitter

The N46 Multifunction Wall Transmitter allows the resident of a home or the patient of a clinic to easily alert the care personnel. The person simply has to push the **Red** button.

If, upon arriving, the nursing staff requires additional help, a call for assistance can be sent by pressing the **Blue** button. This call is re-sent at intervals until cancelled. To cancel the call for help, the **Green** button must be pressed.

▶ See *Section 5.2 "Room" Call for Help*, page 22.

As listed below, the N46 has a lot of functionalities.

- Simple and quick installation (no cabling required);
- Emergency call and Assistance call buttons;
- Jack plug for Pear-push button;
- Terminal strip for external buttons;
- Cancel function;
- Programmable function keys for logging on / logging off by nursing staff;
- 3 V lithium battery or external 12-24 V DC;
- Periodic self-checking, battery-level monitor;
- Option: relay for control of signal lamps.

4.2.5 S35 Pendant Transmitter

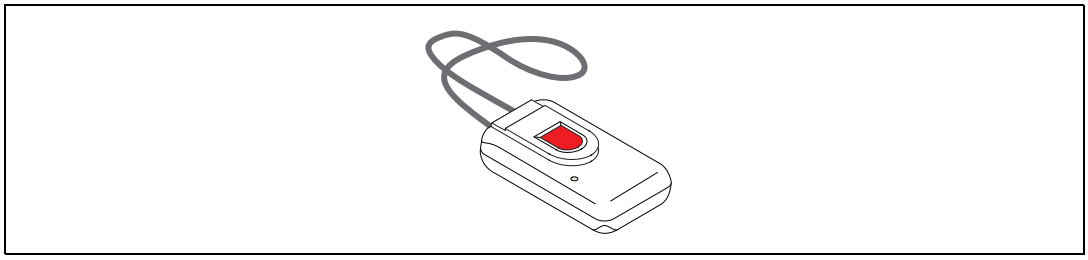

Fig. 4.4 S35 Pendant Transmitter

The S35 Pendant Transmitter enables the user to summon help at any time by pressing a button or by pulling the Transmitter.

4.2.6 S37 Wristband Transmitter

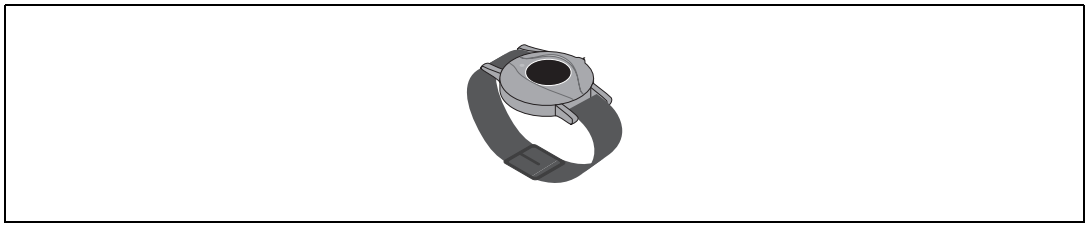

Fig. 4.5 S37 Wristband Transmitter

The S37 Wristband Transmitter enables the user to summon help at any time by pressing a button.

4.2.7 S37L Wristband Transmitter with Locating function

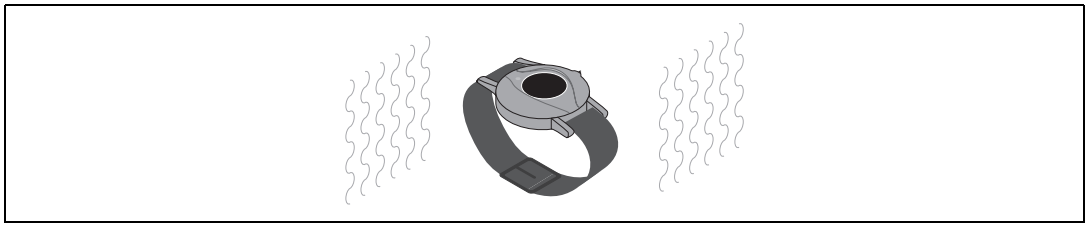

Fig. 4.6 S37L Wristband Transmitter with Locating

The S37L Wristband Transmitter is used to locate the person. The Transmitter sends the call for help and the position of the last passed beacon.

It can also be used to automatically generate an alarm if the person is approaching a forbidden door/zone ("Dementia" alarm).

This system requires IS75 or IS76 Person Detection Beacons.

4.2.8 S37E Wristband Transmitter with Accompany function

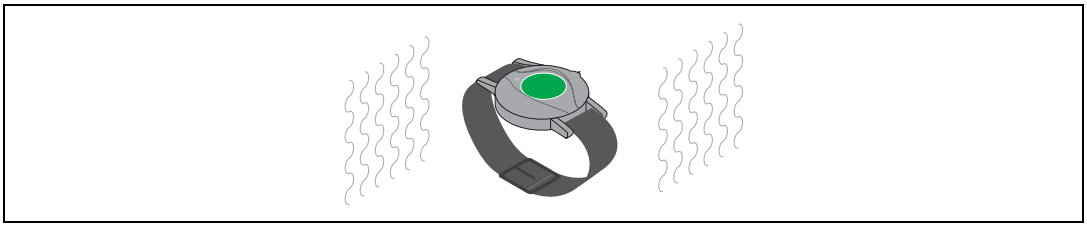

Fig. 4.7 S37E Wristband Transmitter with Accompany function

The S37E Wristband Transmitter is used to allow staff to accompany a person holding a S37L Transmitter. The S37E Transmitter sends a special code at the corresponding position of the last passed beacon.

It automatically stops from generating an alarm if the person holding a S37L is accompanied by staff holding a S37E, near a forbidden door/zone ("Dementia" alarm).

This system requires IS75 or IS76 Person Detection Beacons.

4.2.9 RAC Wireless Contact

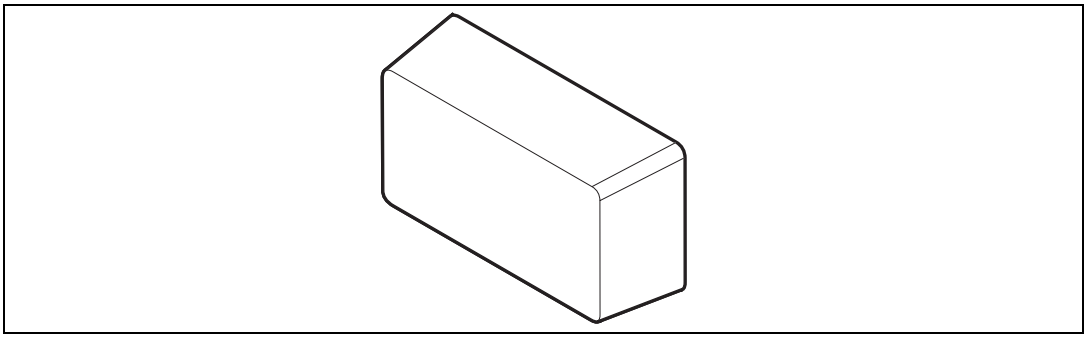

Fig. 4.8 RAC Wireless Contact

The RAC Transmiter is equipped with a magnetic contact. It allows Alarm/Event transmission when detecting an opening or closing of door (equipped with a magnet).

One can also connect a wire contact system to the connector block of the RAC. This permits to convert the signal to a radio-transmitted call for help.

4.2.10 ManDown Sensor

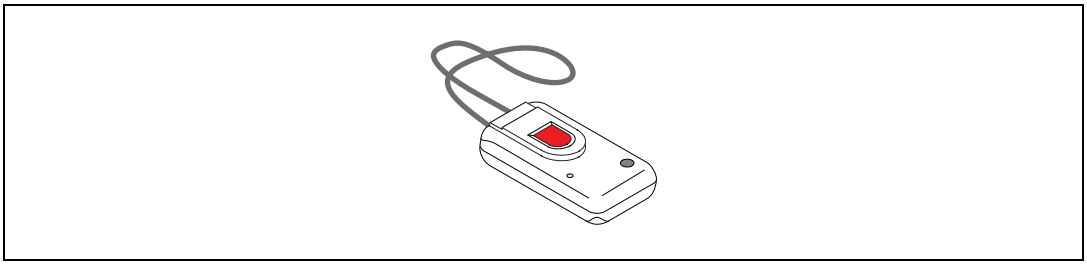

Fig. 4.9 ManDown

Detection of the patient position. In case of a horizontal position for more than 30 seconds, the ManDown Transmitter sends an alarm.

4.2.11 Smoke Detector

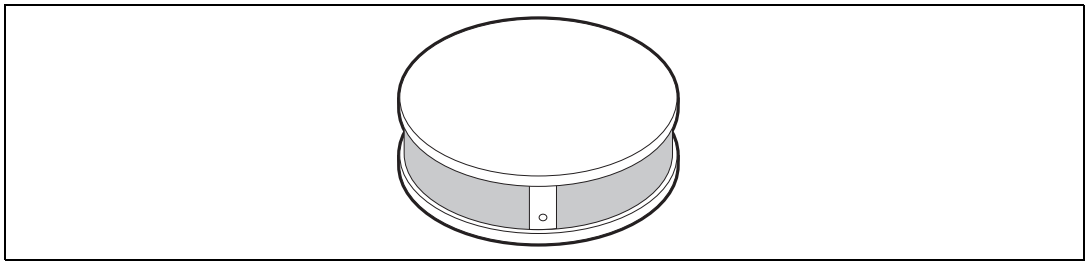

Fig. 4.10 Smoke Detector

The Wireless Smoke Detector allows to integrate smoke detection in NurseCall System.

4.2.12 IS75 Person Detection Beacon

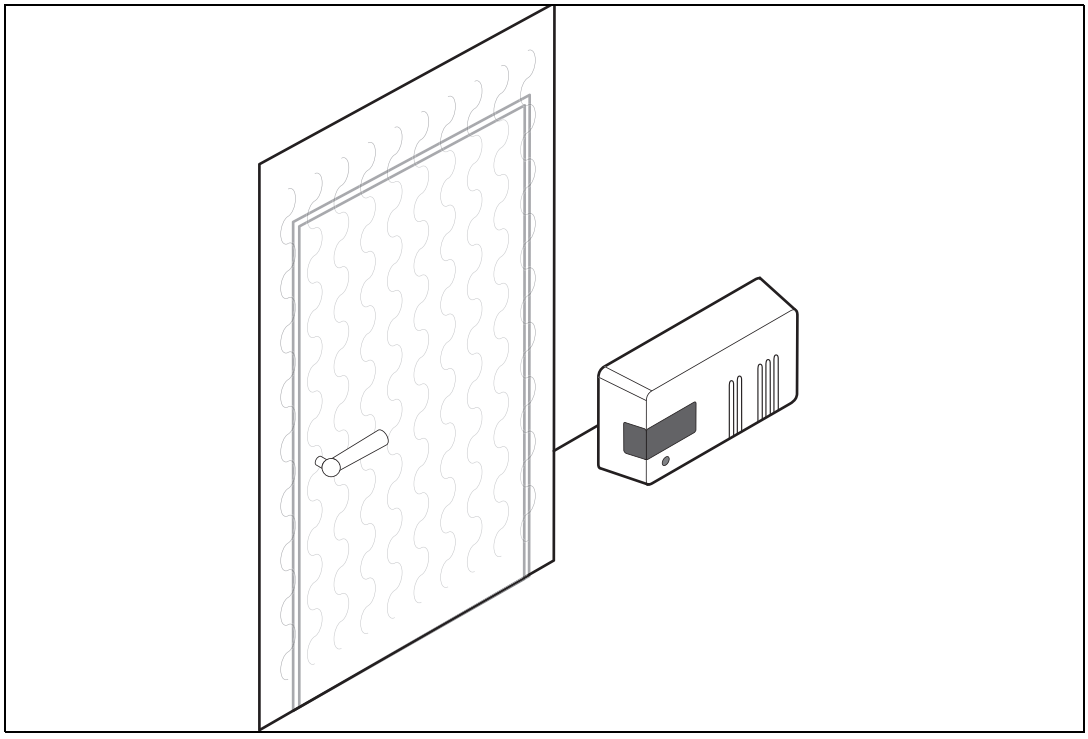

Fig. 4.11 IS75 Person Detection Beacon

The NurseCall can optionally be delivered with the Locating function. Beacon modules IS75 or IS76 should be installed on doors or corridors in the building supervised.

By carrying out a loop using a simple wire connected to the IS75, a coded magnetic field is generated. This system allows the "L" type Alarm Transmitters to transmit a position information along with its identification code. This information may be used to localize the patient that has triggered a Call for Help, or transmit an alarm as soon as a "Dementia" patient is going through an exit door.

When passing one of these modules, the Wristband Transmitter S37L refreshes its actual position. At alarm triggering, the Wristband Transmitters S37L does not only transmit its identification (who sent the alarm), but also the position of the last passed beacon.

The Locating information is available on all Receiver Units.

4.2.13 IS76 Person Detection Beacon

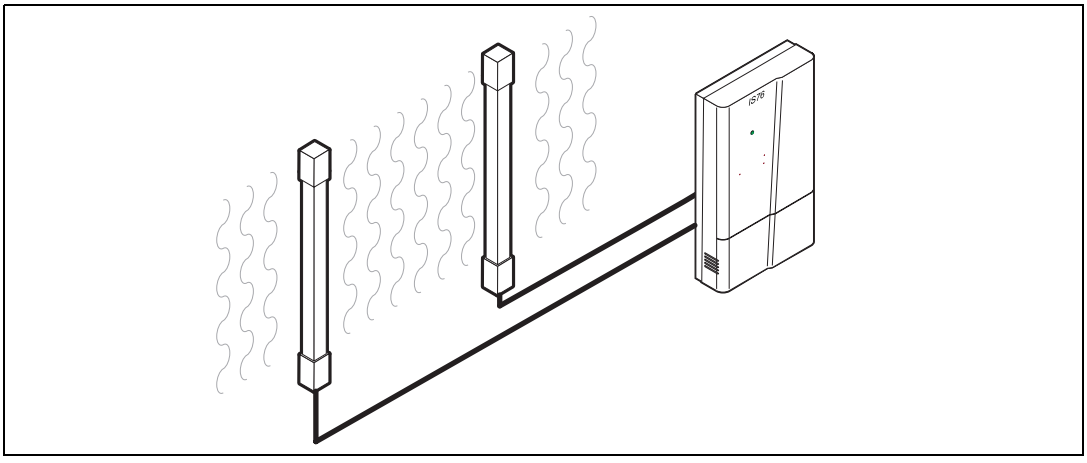

Fig. 4.12 IS76 Person Detection Beacon

The NurseCall can optionally be delivered with the Locating function. Beacon modules IS75 or IS76 should be installed on doors or corridors in the building supervised.

If it is not possible to realize a wire loop or if the reinforcement of the door is in metal, the IS76 system is used. 1 or 2 "Ferrite Antennas", depending on the width of the door, generate a coded magnetic field. This system allows the "L" type Alarm Transmitters to transmit a position information along with its identification code. This information may be used to locate the patient that has triggered a Call for Help, or transmit an alarm as soon as a "Dementia" patient is going through an exit door.

When passing one of these modules, the Wristband Transmitter S37L refreshes its actual position. At alarm triggering, the Wristband Transmitters S37L does not only transmit its identification (who sent the alarm), but also the position of the last passed beacon.

The Locating information is available on all Receiver Units.

4.2.14 LE9 Receiver

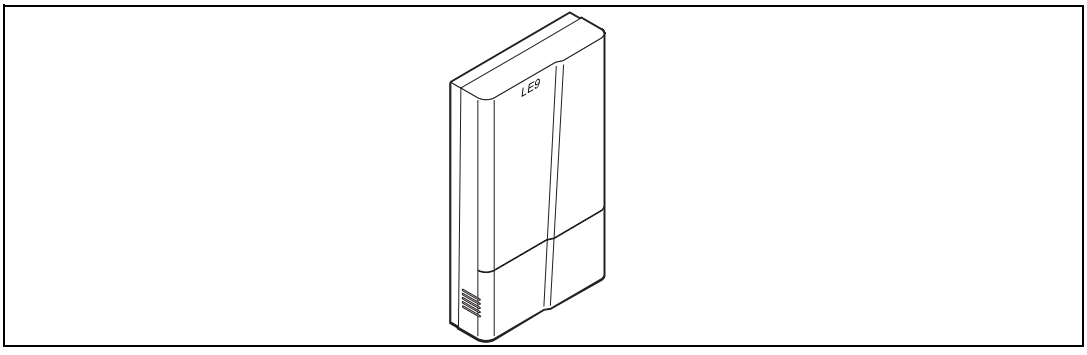

Fig. 4.13 LE9 Receiver

The LE9 Radio Receiver allows to control a set of output relays dedicated to various applications with the NurseCall System.

4.2.15 RS232 Peripheral devices

Printer
Printer with serial connection (RS232-Interface) and endless paper should be used to protocol all Events. Printers with a parallel port can be used together with an intermediate serial - parallel converter.

Paging and Phone (DECT system)

The NurseCall system uses several protocols, standard ESPA 4.4.4. protocol, a specific Multitone protocol (Access 700-MEP) as well as the DeTeWe protocol.

The NurseCall system can transfer the received Alarms to DECT handsets Multitone CH70 or CH72.

PC (with Alarm Management Software installed)

PC to manage alarms or messages.

5 NurseCall functions description

The interaction of NurseCall elements and peripherals in several examples of use is explained in the following pages.

5.1 "Mobile" Call for Help

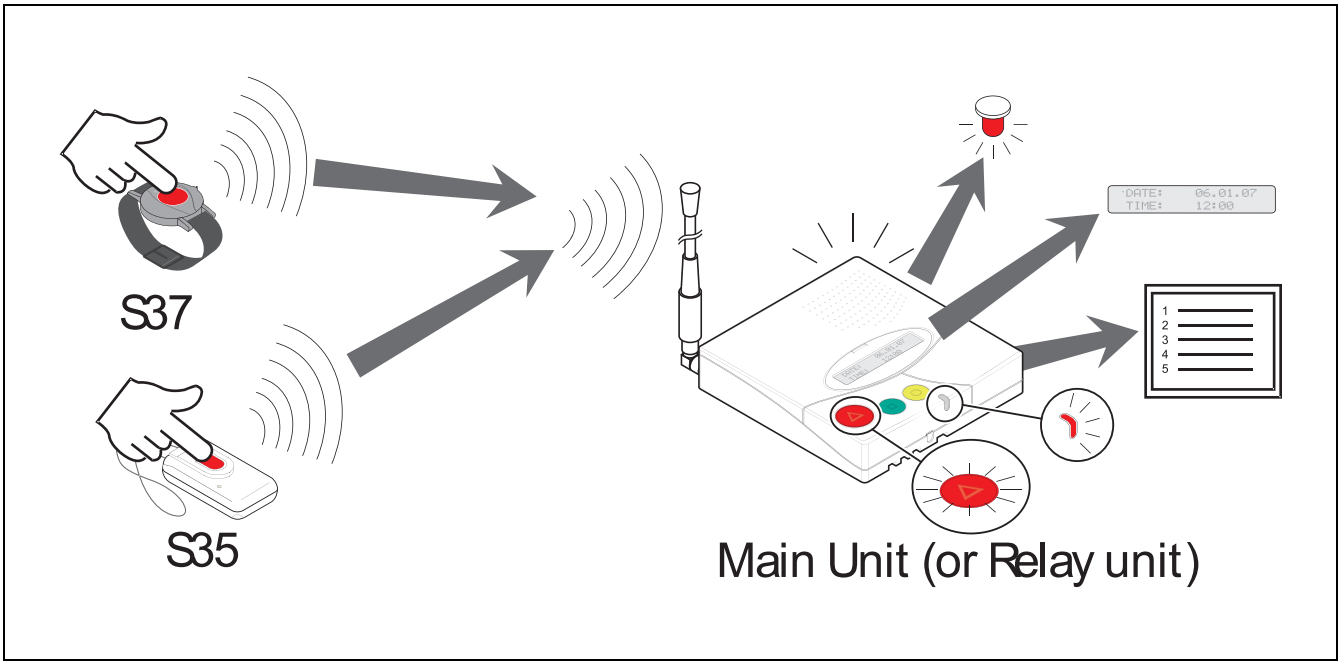

Fig. 5.1 Call for Help with S35 and S37 Transmitters

By pressing the **Red** button of the S35 or S37 Transmitters, the person activates a Call for help.

The care personnal is informed by the NurseCall through the Main Unit (or Relay Unit) and the connected devices:

- The **Red** button and the LED Indicator are blinking;
- Alarm/Event data is displayed;
- For example, a red light can be connected to the Main Unit (or Relay Unit) internal contact and placed in the corridor;
- The Alarm is stored in the buffer.

NOTICE!
The Local Acknowledgement is performed on the *NurseCall Main* or *Relay Unit* with the **Green** button.

▶ For more information on S35 or S37, see their specific documents.

5.2 "Room" Call for Help

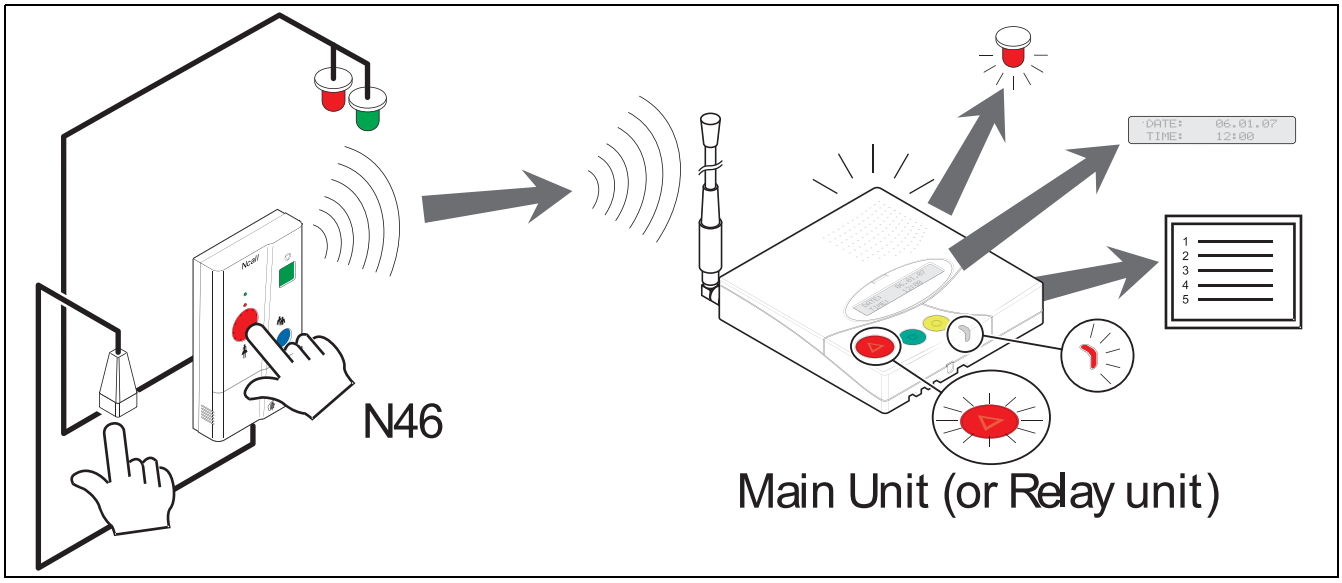

Fig. 5.2 Call for Help with Multifunction Wall Transmitter N46

By pressing the **Red** button of the N46 Multifunction Wall Transmitter or the Pear push button, the patient activates a Call for help.

The care personnal is informed by the NurseCall through the Main Unit (or Relay Unit) and connected devices:

- The **Red** button and the LED Indicator are blinking;
- Alarm/Event data is displayed;
- For example, a red light can be connected to the Main Unit (or Relay Unit) internal contact and placed in the corridor;
- The Alarm is stored in the buffer.

The Acknowledgement can be done with the **Green** button on the N46, on the Main Unit or on the Relay Unit.
By pressing again the **Green** button on the N46, the care person shows he/she is leaving the room.

By presssing the **Blue** button, the care person can request assistance.

NOTICE!
For example, two signal lights can be placed in the corridor to indicate alarm statutes:
Green light:

- OFF: no alarm;
- ON: care personnal is in the room.

Red light:

- OFF: no alarm;
- ON: Calling for help;
- Blinking: Calling for assistance.

▶ For more information on N46, see its specific document.

5.3 Locating mode

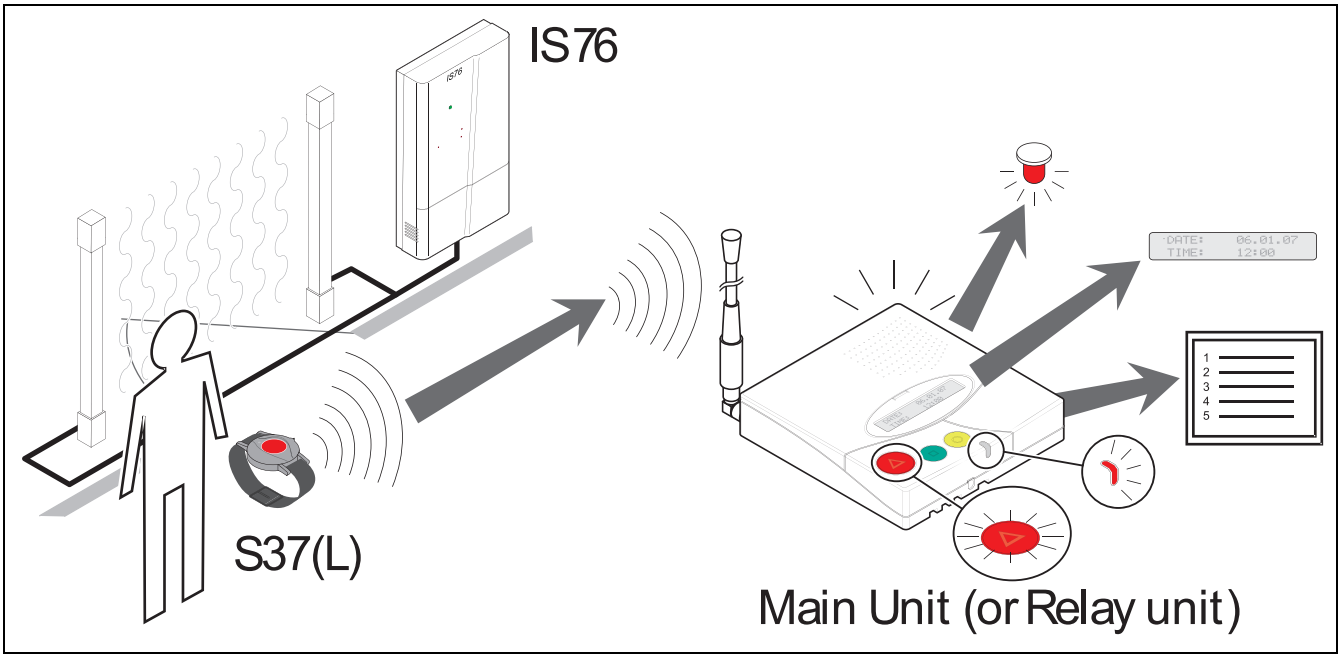

Fig. 5.3 Locating mode

The S37L Wristband Transmitter with Locating function automatically detects the coded magnetic field of the IS76 (or IS75) beacon.
At alarm triggering, the S37L sends the call for help and the position of the last passed beacon.

NOTICE!
The Locating can be used with IS76 or IS75 Person Detection Beacons.

- For more information on IS75 or IS76, see their specific documents.
- For more information on S37L, see its specific document.

5.4 "Dementia" mode

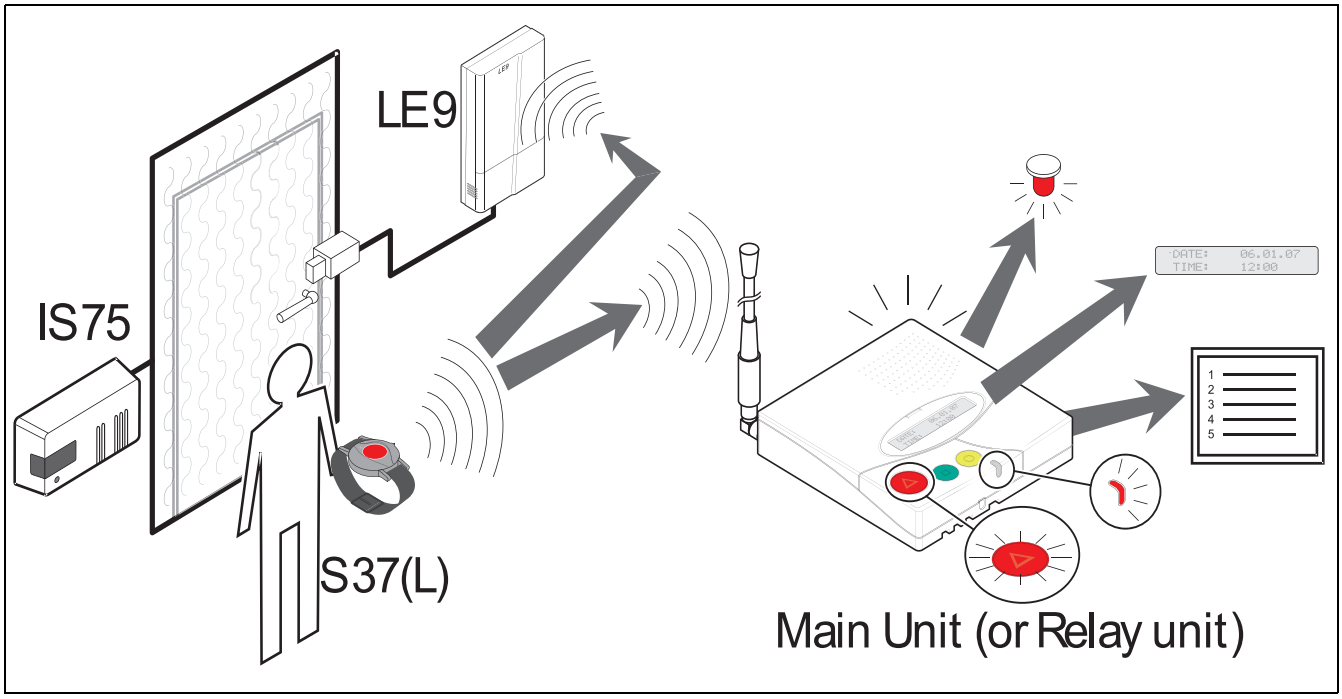

Fig. 5.4 "Dementia" mode

NOTICE!
The "Dementia" mode is using the Locating functions (S37L and IS75 or IS76 Beacons).

The S37L Wristband Transmitter with Locating function automatically detects the coded magnetic field of the IS75 (or IS76) beacon.

If the door has a "Dementia" code, the S37L sends the call for help and the position of this door automatically.

In our example, the system is combined with a LE9 to lock the door automatically.

NOTICE!
The "Dementia" mode can be used with IS75 or IS76 Person Detection Beacons.

- For more information on IS75 or IS76, see their specific documents.
- For more information on S37L, see its specific document.
- For more information on LE9, see its specific document.

5.5 Accompany mode

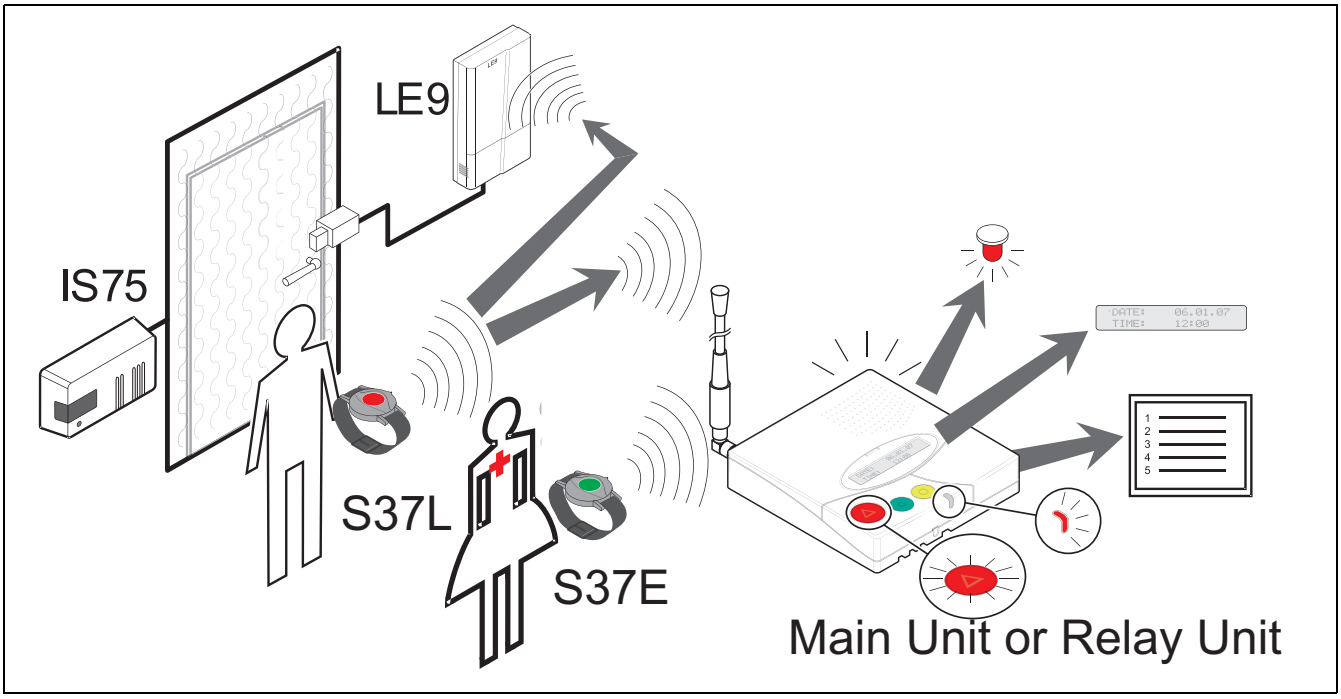

Fig. 5.5 Accompany mode

NOTICE!
The Accompany mode is using the Locating functions (S37L and IS75 or IS76 Beacons).

The S37E Wristband Transmitter with Accompany function automatically detects the coded magnetic field of the IS75 (or IS76) beacon.

The S37E Wristband Transmitter is used to allow staff to accompany a person holding a S37L Transmitter. The S37E Transmitter sends a special code at the corresponding position of the last passed beacon.

It automatically stops from generating an alarm if the person holding a S37L is accompanied by staff holding a S37E, near a forbidden door/zone ("Dementia" alarm)

In our example, the system is combined with a LE9 to unlock the door automatically.

NOTICE!
The Accompany mode can be used with IS75 or IS76 Person Detection Beacons.

- For more information on IS75 or IS76, see their specific documents.
- For more information on S37E, see its specific document.
- For more information on LE9, see its specific document.

5.6 Smoke detection

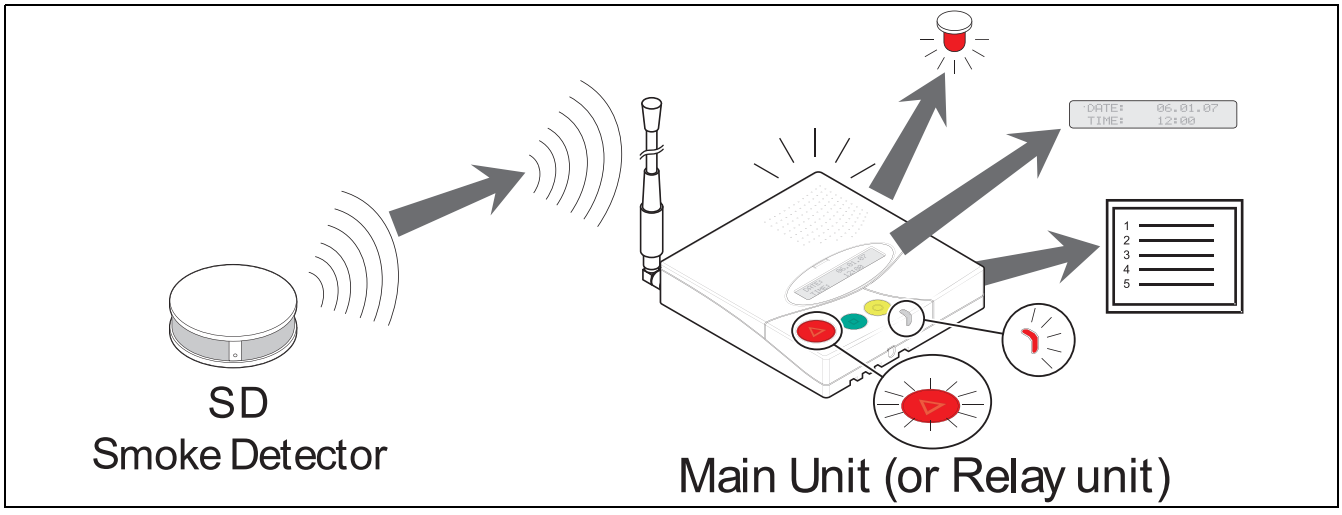

Fig. 5.6 Smoke Detection

When detecting smoke, the Smoke Detector sends an alarm to the Main Unit.

▶ For more information about Smoke Detector, see its specific document.

5.7 ManDown function

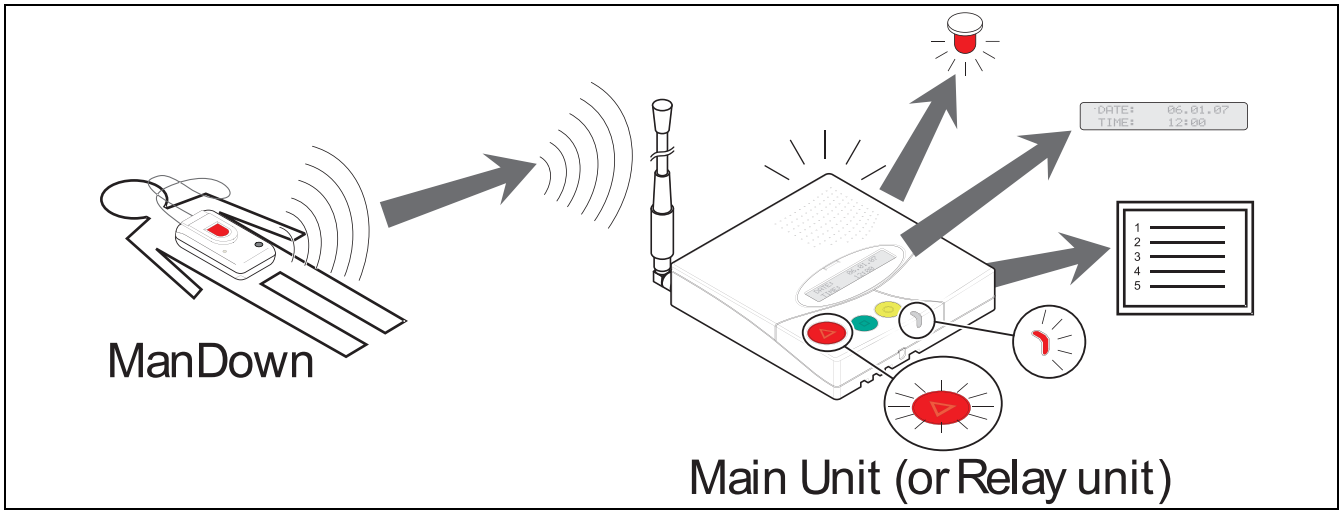

Fig. 5.7 ManDown function

The ManDown automatically sends an alarm after 30 seconds, if the patient position deviates more then 60° from vertical.

▶ For more information on ManDown, see its specific document.

5.8 Door opening / closing detection

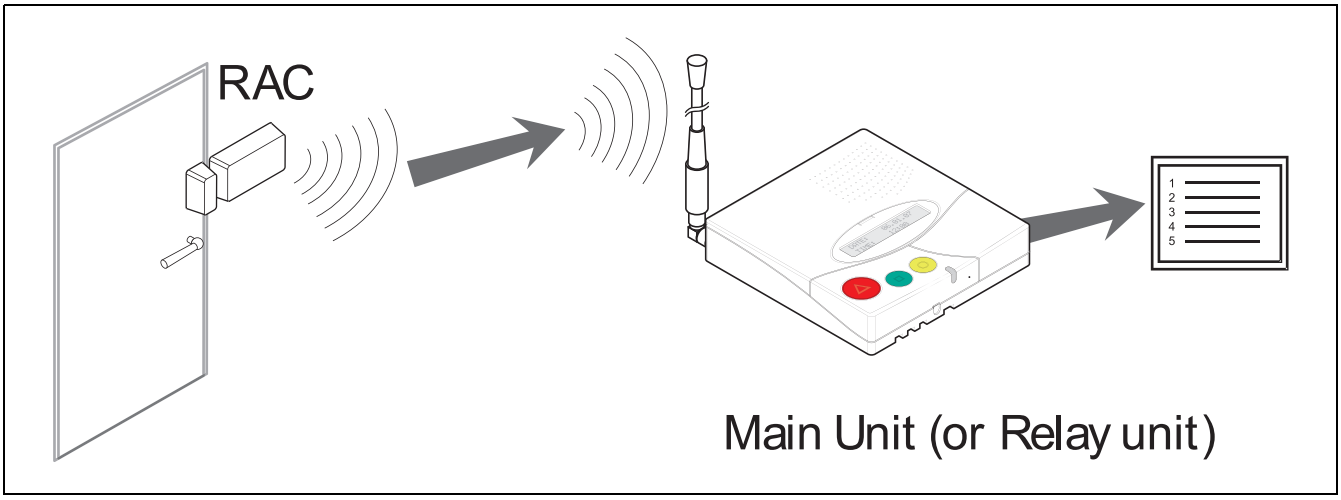

Fig. 5.8 RAC utilization example

Detection of mechanical movement by magnetic contact.
The RAC can be used for door or window opening / closing detection.

▶ For more information on RAC, see its specific document.

5.9 Remote contact opening / closing detection

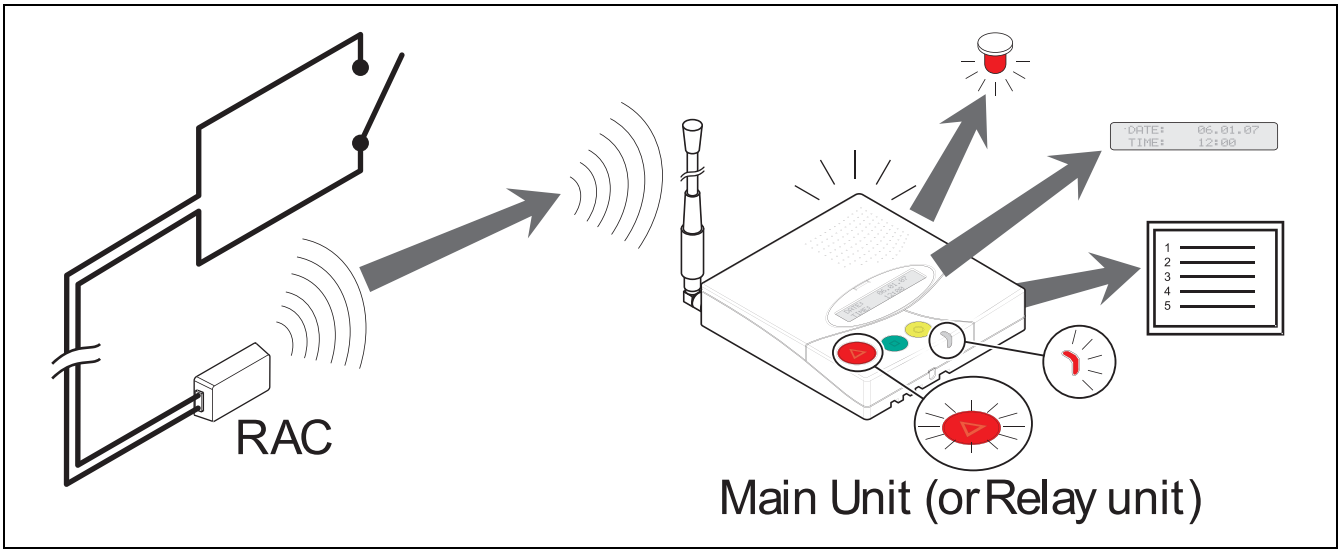

Fig. 5.9 RAC utilization example

Detection of the remote contact opening / closing. The RAC converts the wire contact signal to a wireless signal.

▶ For more information on RAC, see its specific document.

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