CONCENTO^{CARE}

Planning Manual

Modular nurse call system
for future-oriented care

00 8814 35

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1 Performance features

CONCENTO^{CARE} is a nurse call and communication system for nursing homes, retirement homes, apartment buildings, assisted living and hospitals in accordance with DIN VDE 0834, Part 1 and Part 2.

1.1 Easy installation

- Standard installation material, no special system cable required.
- Rapid installation thanks to plug-in connectors.
- Flexibility thanks to the Management Interface or the system interface LAN with open interfaces for communicating with external systems.
- Easy system maintenance thanks to central programming, configuration and maintenance using the state-of-the-art ConLog^{CARE} Management Software.

1.2 Support when organising nursing

- Coupling of groups, manually or time-controlled, organised into as much as 9 different shifts.
- Freely programmable night-time switch-over to external Telecare Monitoring Centres or telephones
- All devices feature symbols that can be understood in any country.
- Easily legible plain-text displays, plus text that can be configured to suit specific projects.
- State-of-the-art speech technology for system-wide communication with intercom.
- Staff can be accessed at all times through the addition of mobile telephone solutions for displaying and handling calls.
- Synthetic speech statements for call handling with telephones.
- Logging and documenting of all system events in the ConLog^{CARE} Management Software.
- One system platform suited to retirement homes, nursing facilities, assisted living facilities, and outpatient clinics.
- Uniform system solutions for applications with and without speech.
- In the event of future organisational or structural changes, function enhancements can be implemented without changing the existing system infrastructure for any of the bus components.
- For adaptation to architectural design, the room components are available in different designs.

1.3 Operational safety

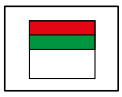
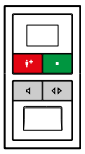
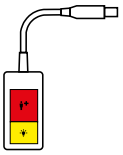
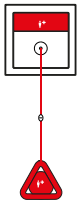
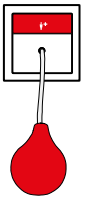
Maximum operational safety in line with DIN VDE 0834 thanks to an independent cable network and permanent function monitoring.

Maximum functional reliability thanks to modular system structure with decentralised system controllers.

1.4 Example of a ward

The next page shows an example of a ward.

1.4.1 Key of symbols

Symbol	Product		Symbol	Product
	Room lamp			Call switch insert with connector
	Display insert with intercom insert			Pear push switch
	Call switch insert			Cancel switch insert
	Pull cord switch insert			Pneumatic switch insert
	Corridor display			Group controller
	Power supply unit			

Tab. 1: Key of symbols

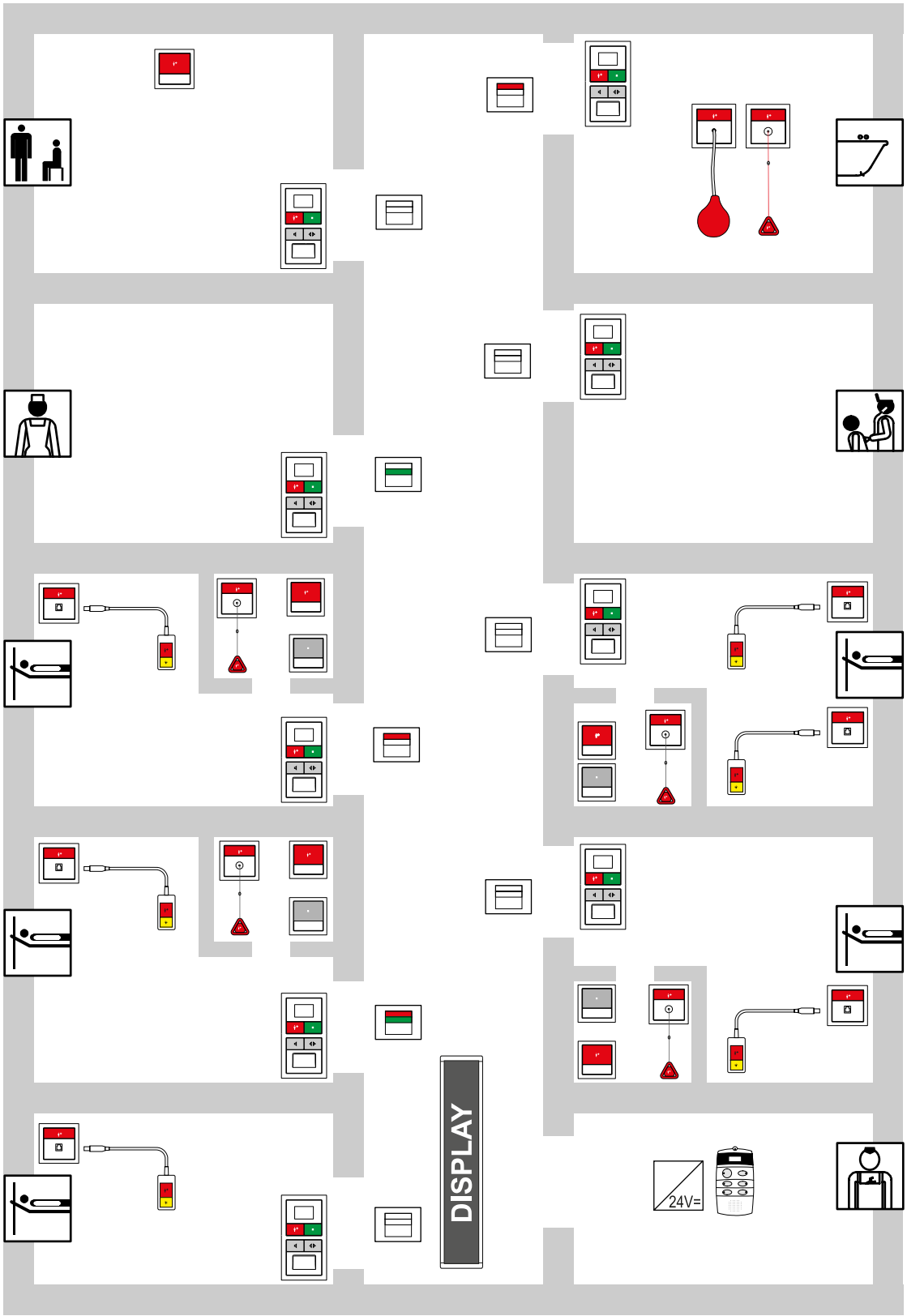


Fig. 1: Example of a ward

1.5 Climatic conditions

The nurse call system is suitable for operation under the following conditions:

1.5.1 Ambient temperature

+5 °C through +40 °C (+ 55 °C in medical supply units).

1.5.2 Relative humidity

Devices for patient rooms, staff rooms and living rooms

Up to 85% relative humidity (no condensation).

Devices for bathrooms and wet cells

Up to 95% relative humidity (condensation possible).

Pull cord switches can occasionally be exposed to dripping water.

1.6 Technical standards

Close observe the following standards which are applicable to nurse call systems

- DIN VDE 0834-1:2016-06, Call systems in hospitals, nursing homes and similar institutions - Part 1: Requirements for equipment, erection and operation
- DIN VDE 0834-2: Call systems in hospitals, nursing homes and similar institutions - Part 2: - Environmental conditions and electromagnetic compatibility
- DIN EN 60601-1:2013-12, Medical electrical equipment - Part 1: General requirements for basic safety and essential performance
- DIN EN 60601-1-8:2014-04, Medical electrical equipment - Part 1-8: General requirements for basic safety and essential performance - Collateral Standard: General requirements, tests and guidance for alarm systems in medical electrical equipment and medical electrical systems
- DIN EN 60669-2-2:2007-05, Switches for household and similar fixed electrical installations - Part 2-2: Particular requirements - Electromagnetic remote-control switches (RCS)
- DIN EN 62368-1:2016-05, Audio/video, information and communication technology equipment - Part 1: Safety requirements
- DIN EN 80001-1:2011-11, Application of risk management for IT-networks incorporating medical devices - Part 1: Roles, responsibilities and activities
- DIN EN ISO 11197:2009-09, Medical supply units
- DIN VDE 0100-200:2006-06, Low-voltage installations - Part 200: Definitions
- DIN VDE 0100-410:2007-06, Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock
- DIN VDE 0100-560:2013-10, Low-voltage electrical installations - Part 5-56: Selection and erection of electrical equipment - Safety services

In addition, observe all other applicable national and local installation guidelines.

2 Functions

2.1 Raising a call

2.1.1 Call devices

The call buttons on the devices are red and marked with a unique image. The following devices are used to raise calls:

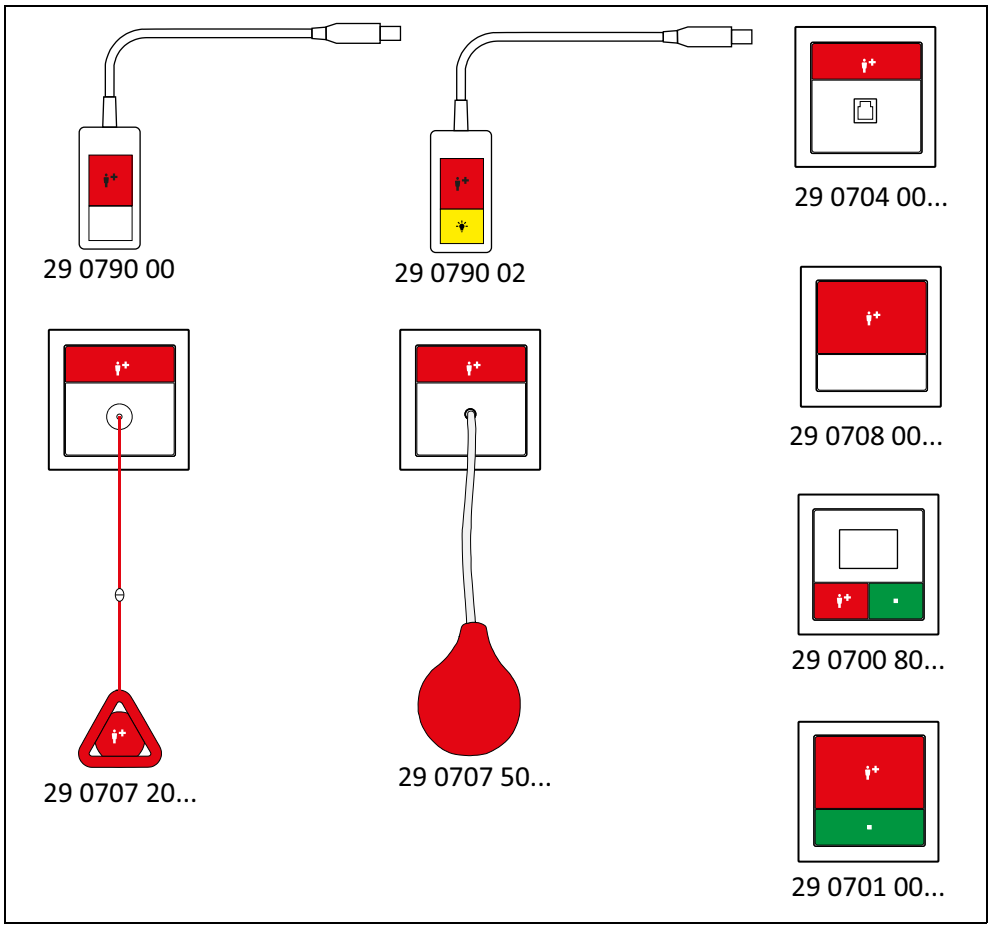


Fig. 2: Call devices

Product name	Order no.	Area of application
Pear push switch incl. call switch	29 0790 00	Hand-held device including call switch, 3 m connection cable. For use mainly in bed. Plug-in connection to call switch insert with connector.

Tab. 2: Areas where call devices are used

Product name	Order no.	Area of application
Pear push switch incl. call and light switch	29 0790 02	Hand-held device including call switch and light switch, 3 m connection cable. For use mainly in bed. Plug-in connection to call switch insert with connector.
Call switch insert with connector	29 0704 00...	Wall mounting or installation in a medical supply unit in the vicinity of the pear push switch, which is connected via the unit. Additional call button on the device.
Call switch insert	29 0708 00...	Mounted wherever a permanently installed call device is required, e.g. on a washbasin or in a sitting area in the room.
Pull cord switch insert	29 0707 20...	Call raised by pulling on the cord; can also be accessed by the person if he/she is lying on the floor. Additional call button on the device. For use in the shower or on the WC, for example.
Pneumatic switch insert	29 0707 50...	Call raised by squeezing the rubber ball, e.g. in the bathtub. Additional call button on the device.
Display insert	29 0700 80...	Mounted in the entrance area of the room; primarily for use by staff.
Call/presence insert	29 0701 00...	Mounted in the entrance area of the room; primarily for use by staff.

Tab. 2: (Continuation) Areas where call devices are used

2.1.2 Radio based call devices

In addition to wired call devices, radio based call devices can also be used.

NOTE! The radio transmission is not monitored. According to DIN VDE 0834, the radio transmitters may therefore only be used as additional call devices in connection with the nurse call system.

The signals of the radio based call devices are transmitted to the nurse call system via the following radio receivers:

Product name	Order no.	Area of application
Radio receiver-T	Z 00 8202 36	Radio receiver-T is a plug-in device. It is plugged into the socket for pear push switch of the call switch insert with connector (29 0704 00...).
Radio receiver-T UP	Z 00 8202 35	Radio receiver-T UP is intended for wall mounting. It is installed in a 1-gang back box together with the RAN interface (19 0840 00), which additionally required for this application.

Tab. 3: Radio receivers

These two radio receivers receive the signals from the MyAmie hand-held transmitter (P68007/02), the iVi fall detector (P68005/47) and other radio transmitters from the Tunstall Telecare portfolio, see Chapter "9.5 Radio based call devices" as of page 94.

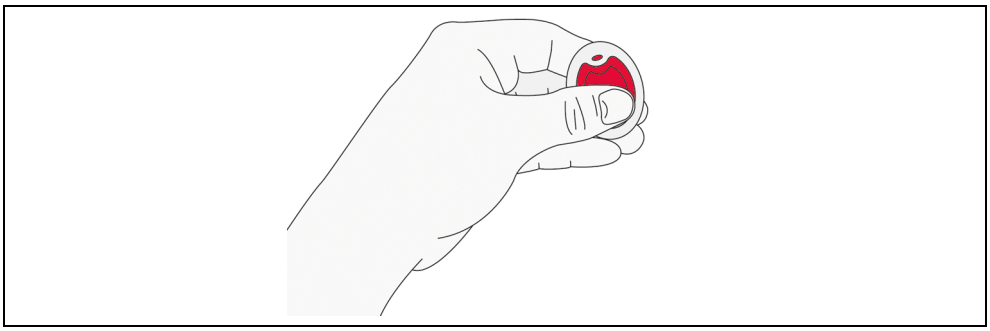


Fig. 3: Hand-held transmitter MyAmie (P68007/02)

2.2 Staff presence registration

An important prerequisite for correct operation of the system is the registration of presence by the staff. All rooms in which nursing staff can be present are equipped with green presence buttons in the entrance area.

When entering the room, the staff switch on presence and switch it off when they leave.

2.2.1 Presence buttons

Presence buttons are green and are integrated in the following devices:

- Display insert (29 0700 80...)
- Call/presence insert (29 0701 00...)
- Presence insert (29 0706 00...)

Fig. 4: Presence button

2.2.2 Presence switched on

- Notifies the system of the staff member's whereabouts.
- Acknowledges a call in this room, i.e. the call is no longer indicated acoustically in the system.
- Prepares for displaying calls. This means that calls from other rooms on the ward are displayed for the staff member at his or her location.
- Prepares for the initiation of emergency calls. This means that calls from rooms with presence switched on are signalled with a higher priority.
- Calls are cancelled when the staff member leaves the room later on and switches presence off (exception: Calls in the WC area, see page 23 and page 24).

2.2.3 Presence display

When presence is switched on:

- The LED (i.e. the reminder light) in the presence button is illuminated.
- The green light section in the room lamp on the corridor is illuminated.

2.3 Call types

A call is used to request assistance. It can be raised by residents/patients, staff or automatically by sensors. There is a range of call types available, depending on the call event in question. These call types are assigned to call categories. This ensures that high-priority calls are indicated with priority.

Call category	Call type	Call event
Calls (low priority)	Room Call	A call button has been pressed in the room. The call location is neither the WC nor the bed, however.
	Call Bed 1 … 6 (= Bed call)	The call button on a pear push switch or a call switch insert with connector has been pressed.
	WC Call	A call has been raised on a pull cord switch insert, pneumatic switch insert or call switch insert in the WC.
	Radio Call	A call was raised manually by the call button being pressed on a hand-held transmitter or automatically by a radio sensor.
	Inactivity	The resident has not executed his or her daily activity. Activity is determined by a day button being pressed or automatically actuated by sensors (movement detector, sensor mat, etc.), on a daily basis. Requirement: Inactivity alarm function active.
	Service Call*)	A special service button has been pressed. The resident/ patient is requesting a service (e.g. a bottle of water).
	Service Call Bed 1 … 6*)	
	Technical Call*)	A call has been raised automatically by a connected technical device, such as a window contact.
	Door Alarm*)	Automatic message from a door. This can be, for example, the message from a persons protection system for impaired persons that a door has been opened.

Tab. 4: Call types overview

Call category	Call type	Call event
Emergency calls (medium priority)	Emergency 1	A room call has been raised while presence is switched on.
	Emergency Bed 1 … 6	A bed call has been raised while presence is switched on.
	Emergency WC	A WC call has been raised while presence is switched on.
	Emergency Radio	A higher-priority radio call has been raised.
	Diagnostic Call	A medical monitoring device, such as a feeding pump, has raised a call.
Alarm calls (high priority)	Fire Alarm*)	A smoke detector is signalling smoke development or the fire alarm interface is signalling a fire alarm. Note: This call type is an additional message for dangerous situations. It is not designed to act as a replacement for a fire alarm system.
	Cardiac Alarm	Calls may be given a higher priority by making settings in the system; for example, so that resuscitation team can receive alarm notifications.

Tab. 4: Call types overview (Continuation)

*) These call types are only detected by external systems and are passed on to the CONCENTO^{CARE} nurse call system by the RAN interface (19 0840 00), see page 38.

2.4 Call signalling

2.4.1 Signalling at the room lamp

According to DIN VDE 0834:2000, a room lamp with call (red) and staff presence (green) indication – as a minimum – must be installed in the corridor next to the the entrance to each room.

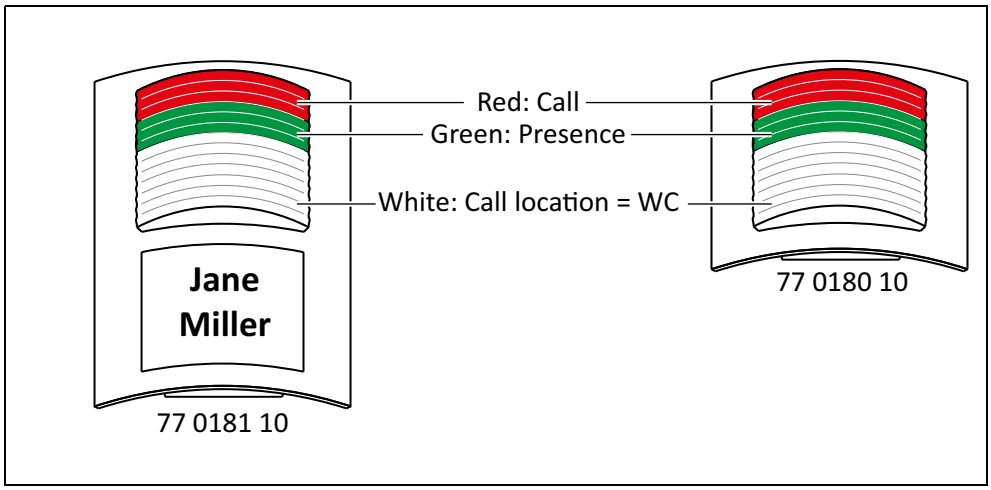


Fig. 5: Light sections of the room lamps

The call category is displayed in the red light section of the room lamp universal, 3 sections (77 0180 10) as well as of the room lamp universal, 3 sections, with door-plate (770181 00):

- Call category for calls: Permanent light.
- Call category for emergency calls: Flashing (1 sec./1 sec.).
- Call category for alarm calls: Rapid flashing (0.3 sec./0.3 sec.).

The white light section also flashes if calls are raised from WC rooms (WC call, WC emergency call). Presence is displayed in the green light section of the room lamp.

NOTE! If more than one call is active at the same time, the oldest call of the highest priority is displayed.

White light section

The white light section does not only indicate WC calls. It signals as follows:

- Permanent light: Service call
- Flashing (1 sec./1 sec.): Rufort = WC
- Rapid flashing (0.3 sec./0.3 sec.): Fire alarm

This configuration can be changed individually for each room by configuring the room controller.

2.4.2 Signalling on the corridor displays

On the corridor display, calls within the ward are displayed together with the call type and call location.

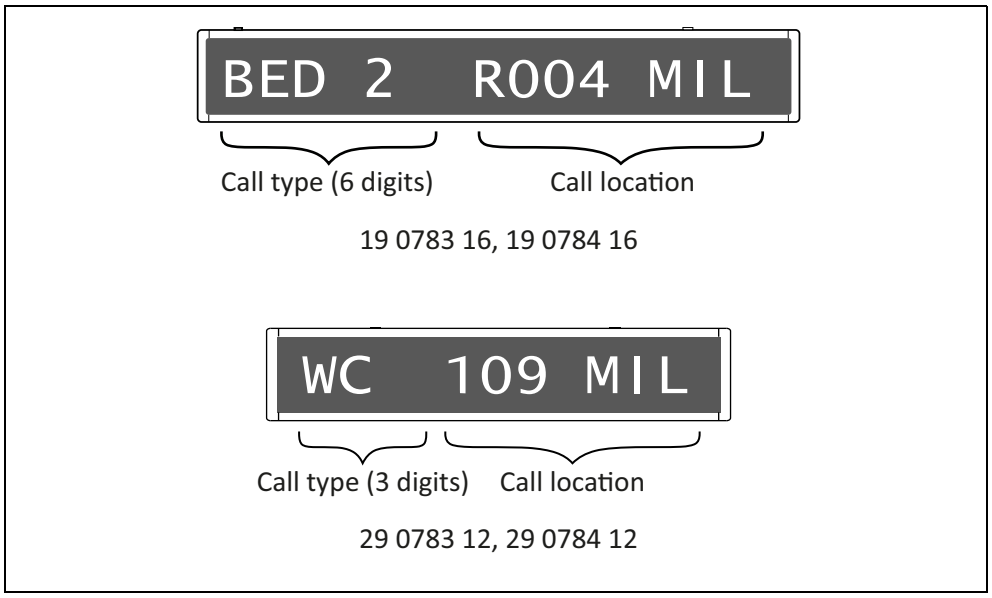


Fig. 6: Signalling on the corridor displays

16-digit and 12-digit corridor displays are available, in single-sided or double-sided versions. The call type is displayed as a short designation. The designation of the call location is defined in the ConLog^{CARE} Management Software when the nurse call system is set up. The designation of the call location can consist of a freely entered text with a maximum length of 25 characters. Texts with more than 9 characters for the 16-digit corridor displays or more than 8 characters for the 12-digit corridor displays are displayed as tickers. Alternatively, the call location can consist of the 3-digit logical group (ward) and the 4-digit room number

The display of answered calls can be disabled system-wide by configuration..

If there are several calls on the ward, the oldest call with the highest priority is displayed for 15 seconds. Then all further calls, the presence messages and any faults of the nurse call system are scrolled through according to their priority, i.e. each message is displayed for 5 seconds.

If there is no message, the date and time are shown on the 16-digit corridor display. Only the time is shown on the 12-digit corridor display.

2.4.3 Signalling on the call/presence insert

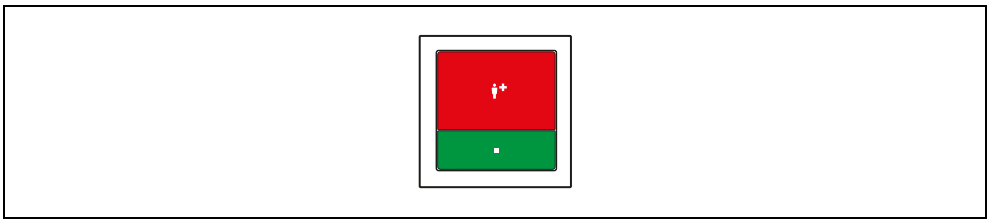


Fig. 7: Call/presence insert (29 0701 00...)

If presence is switched on at a call/presence insert, calls from the other rooms are signalled by a tone sequence. The higher the priority of the call, the faster the call tone sequence:

Call category	Call type	Call tone sequence
Calls (low priority)	Room Call	1 sec. tone signal/10 sec. pause 
	Call Bed 1 … 6 (= Bed Call)	
	WC Call	
	Radio Call	
	Inactivity	
	Service Call	
	Service Call Bed 1 … 6	
	Technical Call	
	Door Alarm	
Emergency calls (medium priority)	Emergency 1	1 sec. tone signal/1 sec. pause 
	Emergency Bed 1 … 6	
	Emergency WC	
	Emergency Radio	
	Diagnostic Call	
Alarm calls (high priority)	Fire Alarm	0.3 sec. tone signal/0.3 sec. pause 
	Cardiac Alarm	

Tab. 5: Call tone sequences on call/presence insert and on display insert

2.4.4 Signalling on the display insert

If presence is switched on at a display insert, calls from the other rooms are signalled by a tone sequence, as with the call/presence insert; see tab. 5 on page 21. Additionally, the calls are shown on the display of the display insert:

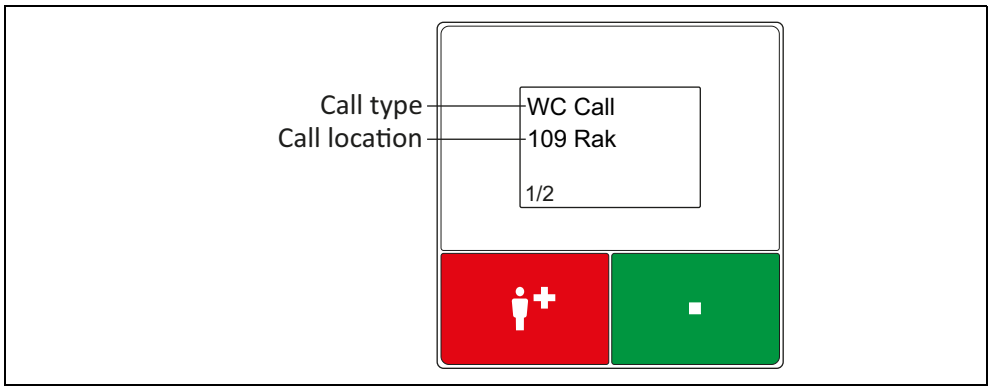


Fig. 8: Call display on the display insert (12 90700 80...)

The call type is indicated as a short designation. The call location information that is displayed is specified in the ConLog^{CARE} Management Software when the nurse call system is being set up. The call location information may consist of freely entered text (max. 25 characters). Text with more than 16 characters is displayed as ticker. Alternatively, the location information may consist of the 3-digit logical group (ward) and the 4-digit room number.

If several calls have been raised at the ward, the oldest call of the highest priority is displayed for 15 seconds first. Following this, all other calls, presence messages and any faults in the nurse call system are scrolled through in order of priority, with each displayed for 5 seconds.

If the display insert was installed with an intercom insert, it will not scroll through all the messages automatically. The user can scroll through them by pressing the double arrow button on the intercom insert.

2.4.5 Signalling on the buttons

Location light

Call buttons have location lights, which are lights that allow the call button to be found in the dark.

Reassurance light

RCall buttons have reassurance lights, which indicate that a call has been raised on this call device and help reassure the patient.

Reminder light

Presence buttons and cancel buttons (for WC calls) have reminder lights, which indicate that the button is switched on and therefore serve as a reminder to reset it.

2.5 Handling calls

2.5.1 Handling calls with speech

On all display inserts and call/presence inserts where presence is switched on, calls are signalled using a tone sequence and, in the case of display inserts, in the form of text. If the display insert is extended to include an intercom insert, speech communication between the call location and answer location is possible.

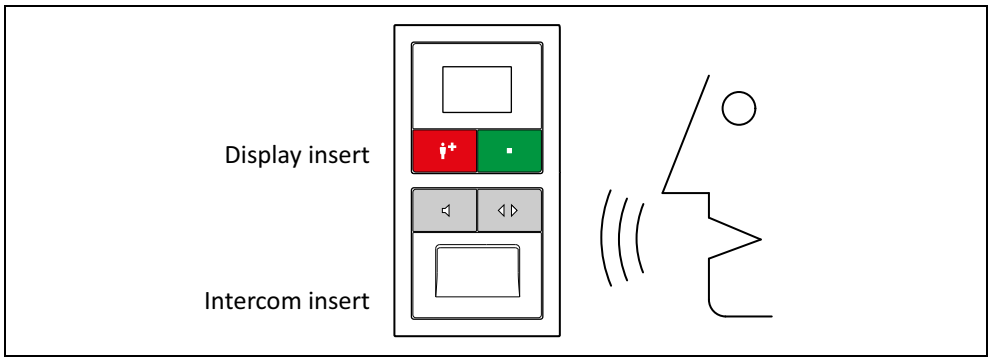


Fig. 9: Display insert with intercom insert

Answering calls where there is a speech option

1. Pressing the answer button (loudspeaker symbol) on the intercom insert establishes a speech connection to the call location for the nursing staff member. The staff member speaks to the person who has requested help to find out what kind of help he or she needs.
2. To end the speech connection, the nursing staff member presses the answer button (loudspeaker symbol) on the intercom insert again. The call is parked. The following call types can be cancelled remotely if it is not necessary to go to the call location: room call, bed call, inactivity alarm, radio call, service call. Rather than the answer button (loudspeaker symbol), the nursing staff member presses the remote cancel button (double arrow symbol) in this case.
3. The staff member goes to the call location and attends to the person requesting help.
4. Calls are automatically cancelled when presence is switched off at the call location. Exception: WC calls and WC emergency calls must be cancelled by pressing a grey WC cancel button in the WC room. This process complies with DIN VDE 0834, which states that rooms (such as WCs) that cannot be seen from the point where the presence button is mounted must have a separate call cancellation facility. For rooms (e.g. a nursing bathroom) where the call location can be seen from the room controller, WC calls can be cancelled from the room controller (this feature must be enabled by configuring the room controller).

When it is not possible to establish a speech connection to the call location?

It is not possible to establish a speech connection to the call location in the following cases:

- No intercom insert is installed at the call location.
- The type of call is one where no speech connection is established: WC call, WC emergency call, technical call or door alarm.
- The speech line is busy.

When the nursing staff member presses the answer button (loudspeaker symbol) to answer a call in these cases, a warning sound is issued and "not possible" appears on the display. The staff member must then go directly to the call location.

Call category	Call type	Possible to establish a speech connection to the call location	Remote cancellation of the call possible
Calls (low priority)	Room Call	Yes	Yes
	Call Bed 1 … 6 (= Bed call)	Yes	Yes
	WC Call	No	No
	Radio Call	Yes	Yes
	Inactivity	Yes	Yes
	Service Call	Yes	Yes
	Service Call Bed 1 … 6	Yes	Yes
	Technical Call	No	No
	Door Alarm	No	No
Emergency calls (medium priority)	Emergency 1	Yes	No
	Emergency Bed 1 … 6	Yes	No
	Emergency WC	No	No
	Emergency Radio	Yes	No
	Diagnostic Call	Yes	No
Alarm calls (high priority)	Fire Alarm	Yes	No
	Cardiac Alarm	Yes	No

Tab. 6: Which call types have speech and remote cancellation options

2.5.2 Handling calls without speech

If no intercom inserts are installed in the nurse call system, speech communication via the nurse call system is not possible.

On all display inserts and call/presence inserts where presence is switched on, calls are signalled using a call tone and, in the case of display inserts, in the form of text.

The call is displayed on the room lamp of the call location. Pending calls are shown on the corridor display.

When a call is displayed, the staff member must go to the call location and attend to the person requesting help.

Calls are automatically cancelled when presence is later switched off at the call location. Exception: WC calls and WC emergency calls must be cancelled at the site of the WC room, by pressing the grey WC cancel button on the cancel switch insert. This process complies with DIN VDE 0834, which states that rooms (such as WCs) that cannot be seen from the point where the presence button is mounted must have a separate call cancellation facility. For rooms (e.g. a nursing bathroom) where the call location can be seen from the room controller, WC calls can be cancelled from the room controller (this feature must be enabled by configuring the room controller).

When planning the nurse call system, it is necessary to specify which rooms are to be equipped with a speech option and which rooms are not.

2.6 Announcements

It is possible to issue announcements from a display insert that is installed along with an intercom insert and set to the room type "Staff room".

Available announcements:

- To make an announcement to all rooms with presence switched on, in the own ward as well as in wards coupled with the own ward.
- To make an announcement to all rooms in the own ward as well as in wards coupled with the own ward.
- To make an announcement to all rooms in a selected ward.

2.7 Shift operation (time zones)

The nurse call system can be adapted to the shift operation of the nursing facility. In many cases, staff members' areas of responsibility change during the various shifts: while they might be responsible for one ward during the day, it is often the case that their responsibility then covers the entire building during the night shift. The nurse call system is organised in such a way that all the calls for a staff member's area of responsibility are displayed (on corridor displays, display inserts and call/presence inserts) and answered in this area of responsibility.

The system is organised using what are known as time zones. The system administrator can use the ConLog^{CARE} Management Software to set up a maximum of nine different time zones per nurse call system. Each time zone contains information concerning the area of responsibility that the staff member has during that time. The area of responsibility specifies which wards (= logical groups) are coupled with one another during this time zone.

Time zone	Designation		Areas of responsibility
1	Mon – Fri	Early shift	Ward 1, independent Ward 2, independent Ward 3, independent Ward 4, independent
2	Mon – Fri	Late shift	Ward 1 coupled with 2 Ward 3 coupled with 4
3	Mon – Fri	Night shift	Wards 1, 2, 3, 4 coupled
4	Saturday	Early shift	Ward 1, independent Ward 2, independent Ward 3, independent Ward 4, independent
5	Saturday	Late shift	Ward 1, independent Wards 2, 3, 4 coupled
6	Saturday	Night shift	Wards 1, 2, 3, 4 coupled
7	Sunday	Early shift	Ward 1 coupled with 2 Ward 3 coupled with 4
8	Sunday	Late shift	Wards 1, 2, 3, 4 coupled
9	Sunday	Night shift	Wards 1, 2, 3, 4 coupled

Tab. 7: Examples of time zones

NOTE! Cardiac alarms and fire alarms are displayed in all the nurse call system wards, regardless of the time zone.

2.7.1 Switching over the time zone

Depending on how the nurse call system is configured, either the time zones are switched over automatically on a time-controlled basis or the staff member switches over the zones manually using a special display insert ("Staff room HAB" setting). Only one display insert for this function may be activated in the nurse call system.

2.7.2 Setting the time zone temporarily

On display inserts that are set to the room type "Staff room", it is possible to set the time zone temporarily for this individual display insert. The setting is revoked the next time a system-wide switch-over of the time zone is carried out.

2.7.3 Displaying all the calls in the nurse call system

Individual display inserts that are set to the room type "Staff room" can be set permanently to "All calls". With this setting, all the calls in the nurse call system are displayed. This function is intended for porters or a central occupied point in the building, for example.

2.7.4 Displaying the current time zone

When there are no calls pending, the time zone that is currently active is shown on display units set to the room type "Staff room" or "Staff room HAB":

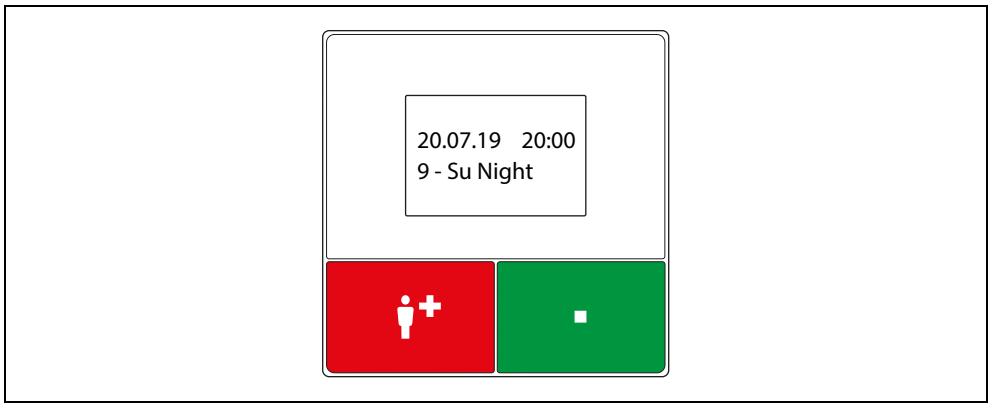
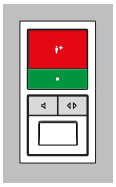
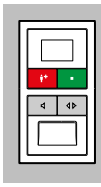


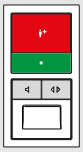
Fig. 10: Display insert in the staff room, standby display

2.7.5 Room controls – Function overview

				
Control of room bus and interface to ward bus (see page 36)	✘	✘	✘	✘
Call button	✘	✘	✘	✘
Presence button	✘	✘	✘	✘
Display		✘		✘
Speech communication possible			✘	✘
Display calls as call tone (if presence is switched on)	✘	✘	✘	✘
Display calls on the display (if presence is switched on)		✘		✘
Answer displayed call, i.e. establish speech connection to call location.			✘	✘
Cancel answered call remotely (if call type can be cancelled remotely)			✘	✘
Make announcements				✘
Activity monitoring function (inactivity)	✘	✘	✘	✘
Switch over time zone manually (only one device per nurse call system, room type: staff room HAB)		✘		✘
Switch over time zone temporarily (room type: staff room)		✘		✘
WC calls and WC emergency calls can be cancelled using the presence button (configurable). Caution! This function is not compliant with DIN VDE 0834!	✘	✘	✘	✘
Display nurse call system faults for the own ward (if presence is switched on)		✘		✘
Adjustable "All calls" function (see page 28)		✘		✘
Plug-and-play operation for simplified partial commissioning of the nurse call system without ConLog^{CARE} Management Software	✘	✘	✘	✘

Tab. 8: Room controllers – Function overview

Symbols used in the function overview

Symbol	Product	Order no.
	Call/presence insert	29 0701 00...
	Display insert	29 0700 80...
	Call/presence insert with intercom insert	29 0701 00... 29 0701 30...
	Display insert with intercom insert	29 0700 80... 29 0701 30...

3 Telephony connection

Calls in the nurse call system can be forwarded to telephones or telephone systems at the same time as they are being displayed on the nurse call system devices. Telephones, for example, can be used as DECT devices for on-site call handling or carried around as mobile phones for on-call service. Calls in the nurse call system can also be forwarded to a professional PNC Telecare Monitoring Centre: during nights, for example, when no staff are available on site.

3.1 Telephony connection options

3.1.1 Text display & synthetic speech announcement & call handling

When a call is raised, a text message is displayed on the telephone's display and the telephone rings, depending on the customer-specific setting and technical connection.

The user picks up the handset and hears a synthetic speech announcement which provides the call type and location and provides the user with operating support.

The user establishes a speech connection to the call location by pressing a key. He or she may cancel some call types remotely over the telephone, but must go to the call location in the other cases.

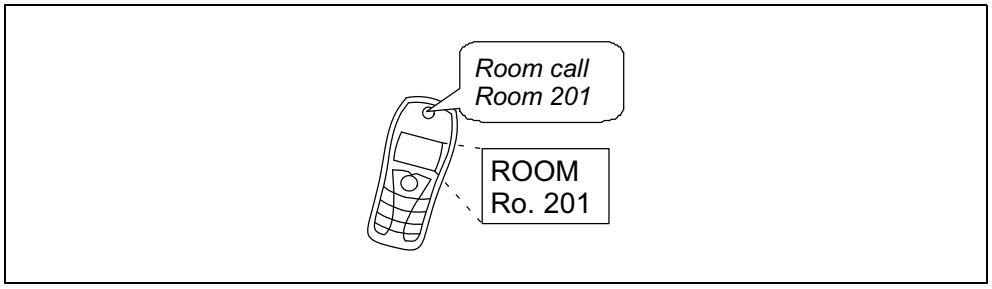


Fig. 11: Text display & synthetic speech announcement & call handling

For information on the call types for which a speech connection may be established and which call types may be cancelled remotely, please consult tab. 6 on page 24.

3.1.2 Synthetic speech announcement & call handling

When a call is raised, the telephone rings.

The user picks up the handset and hears a synthetic speech announcement, which provides the call type and location and provides the user with operating support. The user establishes a speech connection to the call location by pressing a key. He or she may cancel some call types remotely over the telephone, but must go to the call location in other cases.

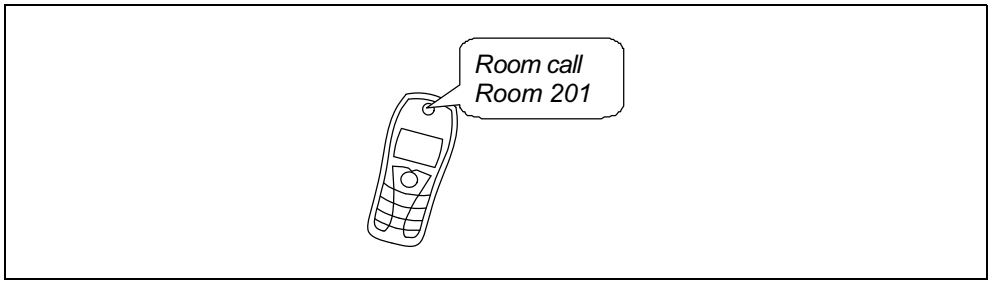


Fig. 12: Synthetic speech announcement & call handling

For information on the call types for which a speech connection may be established and which call types may be cancelled remotely, please consult tab. 6 on page 24.

3.1.3 Telecare monitoring centre

When a call is raised, the PNC Telecare monitoring centre is called. A staff member at the centre takes the call as though it were an emergency call from a home emergency telephone.

On the PC, he or she sees personal data about the resident. A speech connection to the call location is established. The staff member may cancel some call types remotely over the telephone, but someone must go to the call location in other cases.

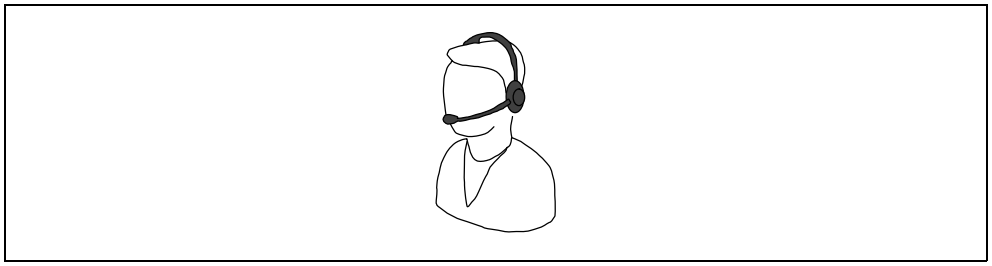


Fig. 13: Telecare monitoring centre

For information on the call types for which a speech connection may be established and which call types may be cancelled remotely, please consult tab. 6 on page 24.

3.2 Configuration

In the case of each ward (= logical group), the telephone that is called when a call is raised in the nurse call system is defined for each shift (= time zone). It is possible to store a call order in the event that the call is not picked up. These settings are made in the ConLog^{CARE} Management Software.

3.3 Telephony connection technology

NOTE! Nurse call systems with a telephony connection must be equipped with a Management Interface (29 0700 00). It is not possible to use the telephony connection with a system interface LAN (19 0700 05).

The CONCENTO^{CARE} nurse call system interface with the telephony devices forms the Management Interface. It is possible to connect a telephone system or connect the public telephone network (analogue) directly to the analogue a/b interface of the Management Interface.

Each Management Interface provides a speech channel for telephony purposes.

3.4 Text display on the phone's display

DECT telephones can also be used to simply show the call message in the display without establishing a speech connection, see chapter " Radio paging system, DECT system" as of page 38.

4 The technology

4.1 System overview

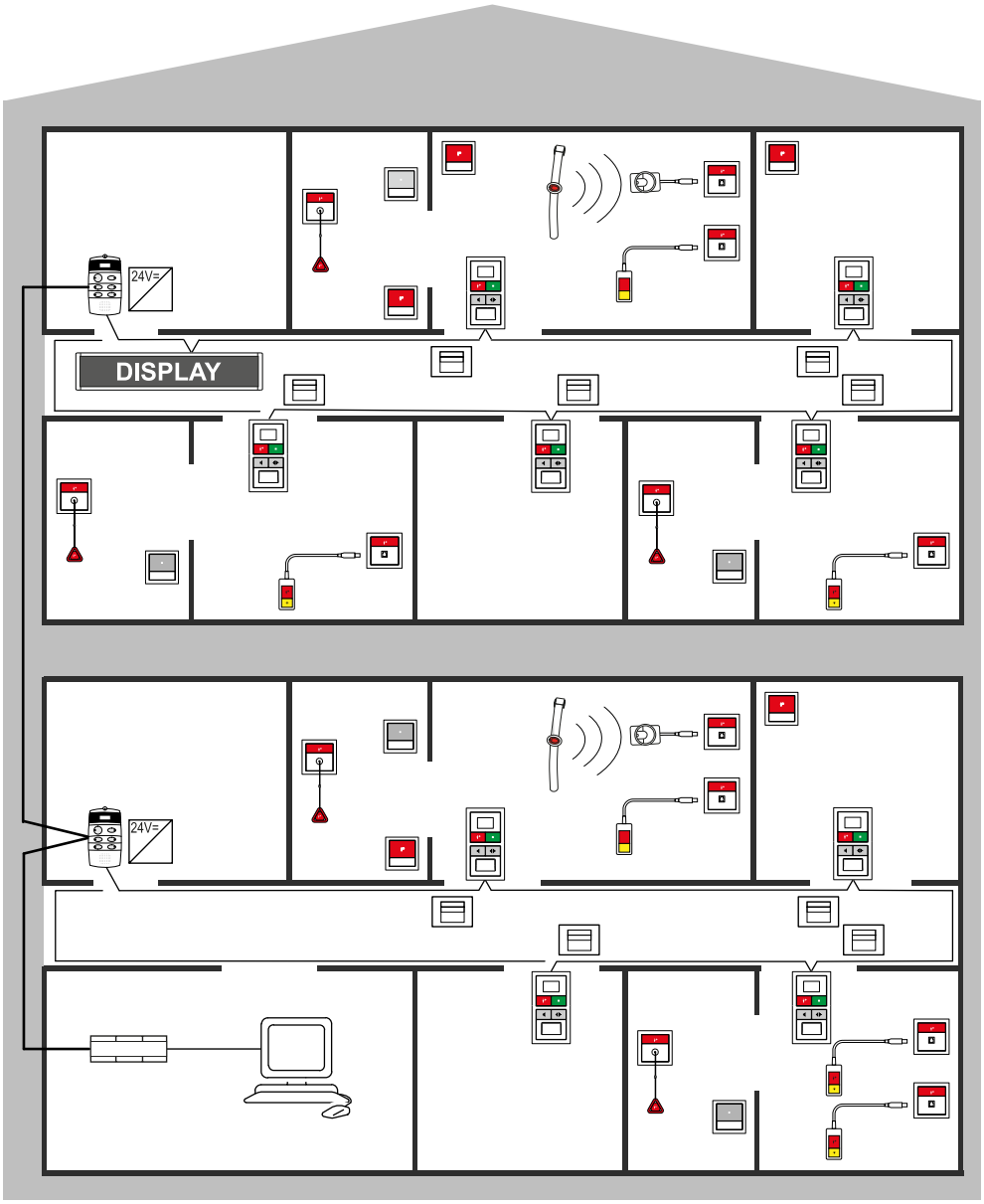


Fig. 14: System overview

4.2 System structure

The nurse call system is controlled decentrally by group controllers. Each group controller controls one ward bus; i.e. one physical group.

The nurse call system is based on a bus system made up of a group bus, ward buses and room buses. The group bus interconnects all the group controllers and the system interface LAN or the Management Interface of the nurse call system. The ward bus is connected to a group controller and interconnects all room controllers (display inserts and call/presence inserts) and corridor displays for a physical group. The room bus networks the devices in the room.

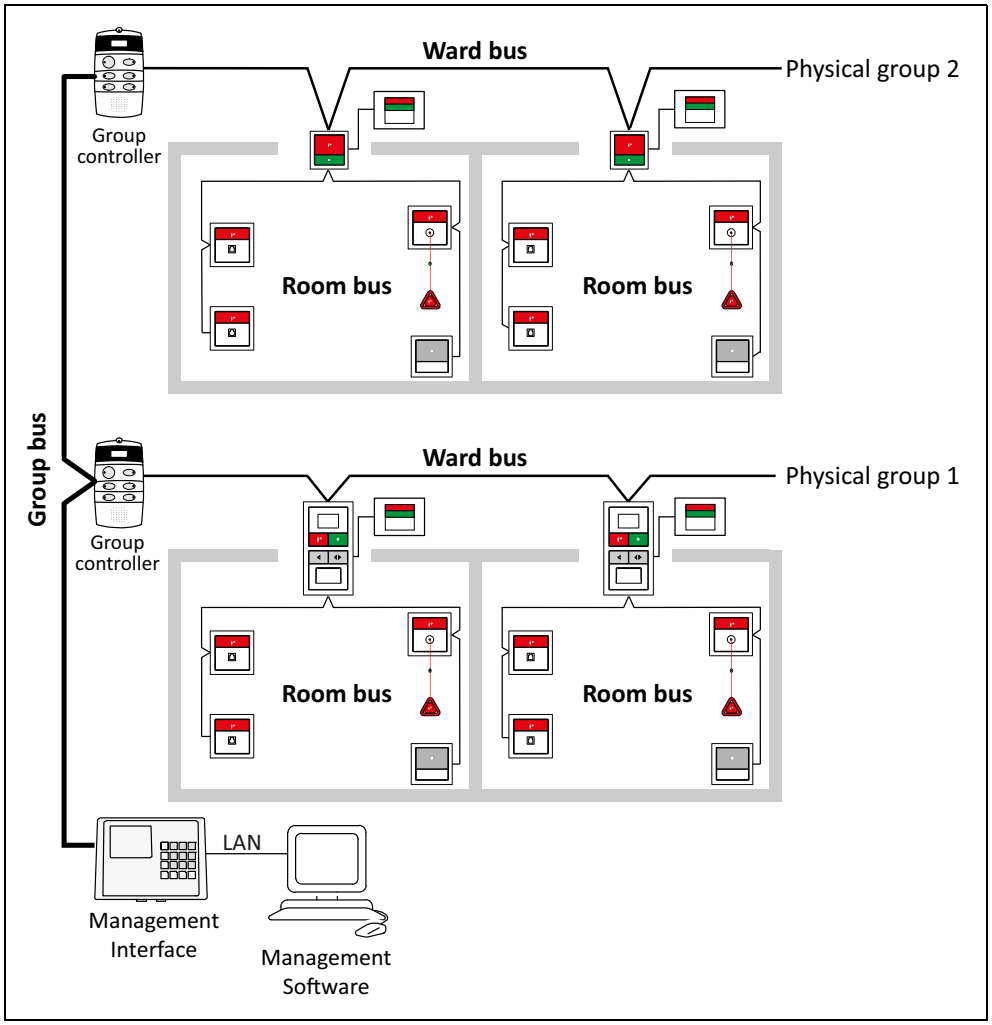


Fig. 15: Bus system

The power for the system is provided by power supply units that are installed at decentralised locations (77 3401 60 or 77 3400 60). The number of power supply units and where they are installed depend on the power required in each case.

The Management Interface (29 0700 00) or - as an option - the system interface LAN (19 0700 05) establishes the data connection between the group bus and the IP infra-structure available at the site. It allows programming and configuration, as

well as call logging for the nurse call system, to be carried out using the ConLog^{CARE} Management Software via this IP connection.

4.3 Interfaces with external systems

4.3.1 Management Interface / System interface LAN

The Management Interface and the system interface LAN provide the nurse call system interface with the ConLog^{CARE} Management Software. However, they also represent the central switching point for interfaces with external systems.

Radio paging system, DECT system

It is possible to connect an alarm server, a radio paging system or a DECT telephone system to the Management Interface or the system interface LAN. The protocol is based on ESPA 4.4.4. As a result, pending call messages from the nurse call system can be shown on the display of nursing staff's pagers or DECT telephones..

Telephony

As mentioned in Chapter "3 Telephony connection" as of page 31, a connection between a telephony system and a CONCENTO^{CARE} nurse call system is always established via the Management Interface. The Management Interface has an a/b interface for the purpose of connection to the analogue telephone network. Additionally, synthetic speech announcements are stored in the Management Interface; these guide the user through the call handling process on the telephone.

4.3.2 RAN interface

External call devices in the room must be connected via RAN interfaces (19 0840 00). The RAN interface is connected to the room bus (RAN). The following call types may be initiated by the RAN interface:

- Room call
- Radio call
- Inactivity alarm *)
- Service call
- Technical call
- Door alarm
- Fire alarm
- Further call types on request...

*) It is possible to connect a device that functions as an activity trigger for the "Inactivity alarm" call type.

For a description of the call types, refer to Chapter "2.3 Call types" as of page 17.

It is possible to connect a normally closed or normally open contact. Additionally, it is possible to make settings concerning whether the call is automatically cancelled when the call device is reset ("dynamic call") or whether the call has to be cancelled actively in the nurse call system ("static call").

4.4 Switching lighting using the pear push switch

In addition to the call button, the pear push switch incl. call and light switch (29 0790 02) has a light button that the resident/patient can use to switch on, switch off or dim a light source. This may be a room light or a reading light, for instance.

The call switch insert with connector (29 0704 00...) is equipped with an appropriate output for actuating a light. The output emits a 24 V signal for as long as the button is held down. The load capacity of the output is 50 mA.

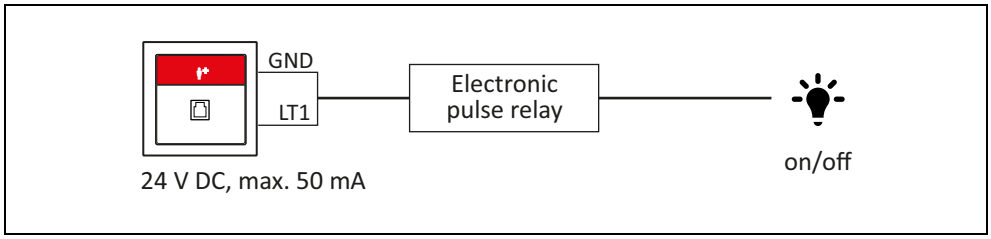


Fig. 16: Switching lighting on/off

A dimmable ballast is required to use the dimming function. The control voltage is 24 V DC. An electronic switching relay is connected upstream.

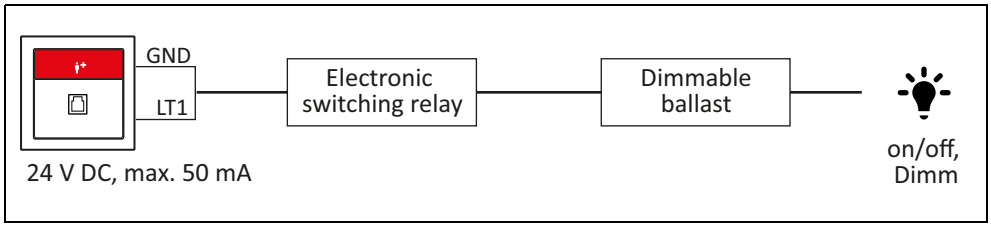
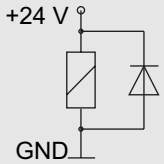


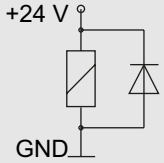
Fig. 17: Switching lighting on/off and dimming

When selecting the light relays, the technical connection conditions described in the following sections must be observed.

4.4.1 Application: Switching the light on/off (without dimming)

Requirements for light relays for use: Switching the light on/off		
Relay type	– Pulse relay (electronic) – recommended – Pulse relay (mechanical)	
Nominal control voltage	24 V DC	
Control voltage range	20 – 26 V DC	
Max. current consumption	50 mA	
Flyback diode		When using a mechanical relay a flyback diode must be connected (e.g. 1N4007) directly at the relay connectors.
Potential separation	When installing the galvanic separation of the electric circuits must be ensured. It is necessary to comply with the German standard DIN VDE 0834.	

4.4.2 Application: Dimming the light

Requirements for light relays for use: Dim light		
Relay type	– Switching relay (electronic) – recommended – Switching relay (mechanical)	
Nominal control voltage	24 V DC	
Control voltage range	20 – 26 V DC	
Max. current consumption	50 mA	
Flyback diode		When using a mechanical relay a flyback diode must be connected (e.g. 1N4007) directly at the relay connectors.
Potential separation	When installing the galvanic separation of the electric circuits must be ensured. It is necessary to comply with the German standard DIN VDE 0834.	
Ballast	An appropriate dimmable ballast is required to use the dimming function, e.g. OSRAM DALI.	

4.5 Speech communication

The speech communication and data transmission are separate from one another. This means that nurse call systems can be set up with or without speech communication; mixed operation can also be used without problems.

Speech communication is carried out using the intercom inserts. Each intercom insert is operated together with a display insert; they are mounted in neighbouring flush-mounted boxes. There is also the option of operating an intercom insert with a call/presence insert. This may make sense in assisted living facilities, for example.

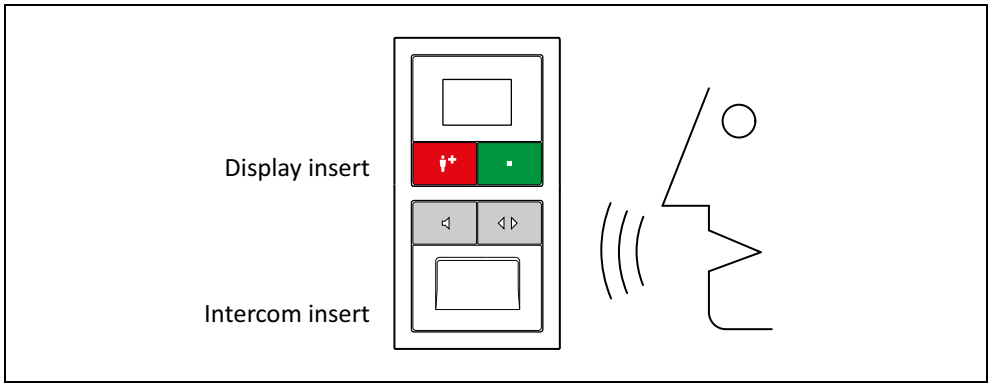


Fig. 18: Intercom insert

One speech channel is available per physical group.

In addition to speech communication within the nurse call system, it is also possible to use speech communication via telephony devices that are connected to the nurse call system via the analogue a/b interface of the Management Interface. See Chapter "3 Telephony connection" as of page 31.

4.6 Physical and logical groups

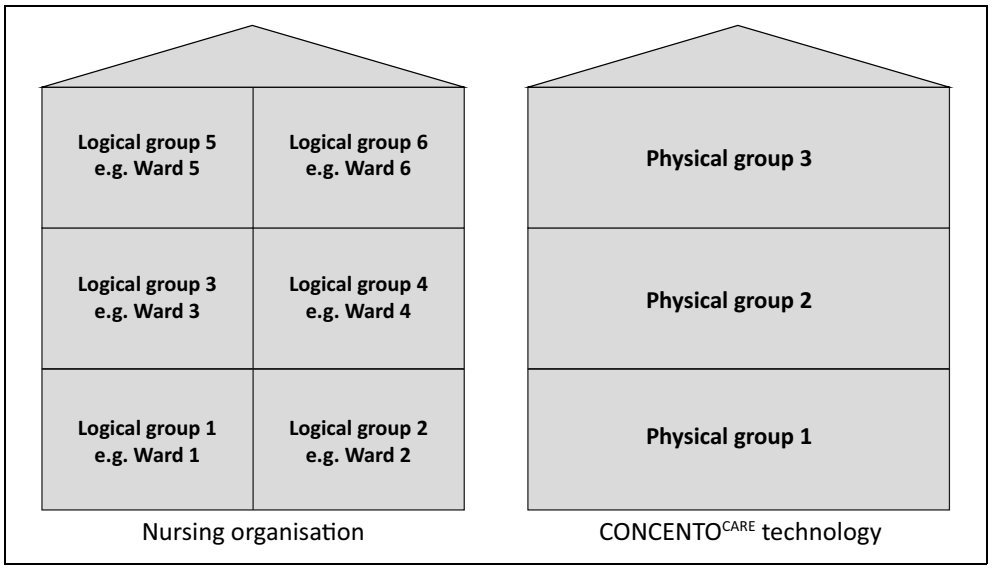


Fig. 19: Distribution of logical groups among physical groups

When configuring CONCENTO^{CARE} nurse call systems, the organisational structure of the institution is distinguished from the technical structure.

An organisational unit is a number of rooms for which the same staff are responsible. In most cases, this is a ward. The organisational unit is called the "logical group". Most logical groups are wards.

A physical unit is a number of rooms that are connected to a ward bus and controlled by a group controller. The physical unit is called "physical group".

A physical group can consist of several logical groups. A logical group can even be distributed over several physical groups.

NOTE! According to the failure safety required in DIN VDE 0834-1: 2016-06, only one group of rooms may be connected to a group controller, which can be looked after by one person with minimum occupation. This organisational unit is called an *organisation group*.

Logical group = organisational unit = (usually) ward

Physical group = physical unit

4.7 ConLog^{CARE} Management Software

The ConLog^{CARE} Management Software is used for the central configuration and programming of CONCENTO^{CARE} nurse call systems, and for logging and evaluating all system events associated with them. The ConLog^{CARE} Management Software has a modular structure.

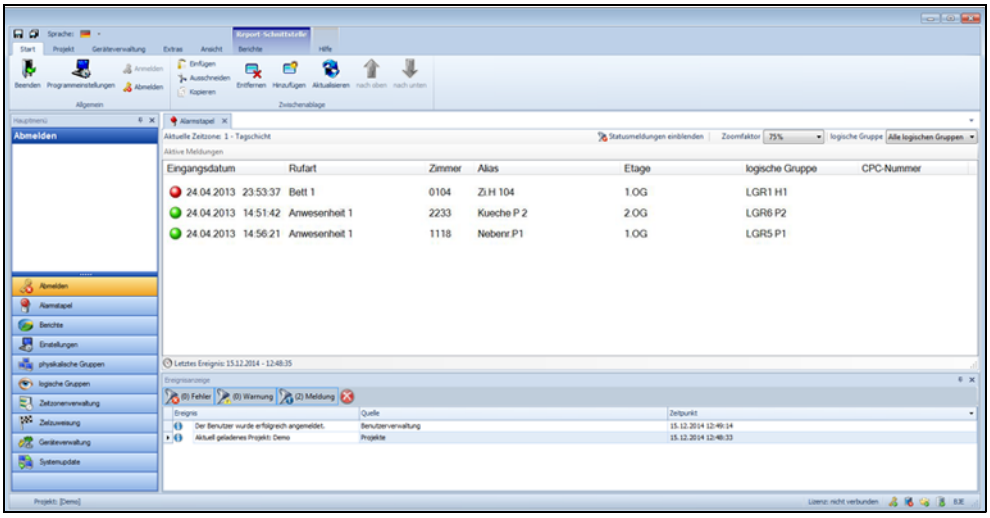


Fig. 20: ConLog^{CARE} Management Software "Call recording module"

4.8 System limits

4.8.1 Group bus

- Maximum cable length of group bus: 700 m
- Maximum of 40 users per group bus, consisting of: Management Interface or system interface LAN, group controllers, fire alarm interface.
- Maximum of1 Management Interface or system interface LAN per group bus.

4.8.2 Ward bus

- Maximum cable length per ward bus: 700 m
- Maximum of 40 users per ward bus, consisting of: Display inserts, call/presence inserts, corridor displays.

4.8.3 Room bus (RAN)

- Maximum cable length per room bus: (RAN): 50 m
- Maximum of 30 users per room bus (RAN), consisting of: Intercom inserts, presence switch inserts, call switch inserts with connector, call switch inserts, cancel switch inserts, pull cord switch inserts, pneumatic switch inserts, RAN interfaces.

4.8.4 Configuration options

- Maximum of 128 logical groups per nurse call system
- Maximum of 32 group couplings
- Maximum of 9 time zones (3 for Monday to Friday, 3 for Saturday, 3 for Sunday)
- A maximum of one display insert can be configured in such a way that it can be used to switch over the current time zone manually.

4.9 Installation work sequence

Step	
1	Defining the mounting positions
2	Installation of back boxes
3	Laying the cables
4	Mounting and connecting devices
5	Switching on and checking of power supply
6	Checking the room installation
7	Configuring the nurse call system using the ConLog^{CARE} Management Software
8	Commissioning the nurse call system
9	Functional check of the entire nurse call system

Tab. 9: Installation work sequence

5 ConLog^{CARE} Management Software

The ConLog^{CARE} Management Software is used for the central configuration and programming of CONCENTO^{CARE} nurse call systems, and for logging and evaluating all system events associated with them. The ConLog^{CARE} Management Software has a modular structure.

5.1 ConLog^{CARE} modules

5.1.1 ConLog^{CARE} Basic module

- Central configuration of the entire nurse call system
- Establishment of the logical structure of the nurse call system in logical groups (i.e. wards), zones, and shifts
- Entry of ward and room names
- Programming of the Management Interface, the system interface LAN, the group controllers, display inserts, call/presence inserts with the project-specific settings via the bus system through the Management Interface or the system interface LAN
- Firmware updates of the Management Interface, group controllers and room controllers
- Administration of the system interfaces for alarm servers / radio paging system and telephony
- Administration of call forwarding to Telecare monitoring centres

5.1.2 ConLog^{CARE} "Call recording" module

- Logging all events of the nurse call system with date time stamp
- Recording the raising of calls, call type, call location, call answering, acknowledgement, cancellation
- Distinguishing between remote cancellation and cancellation at call location
- Simple and effective reporting.

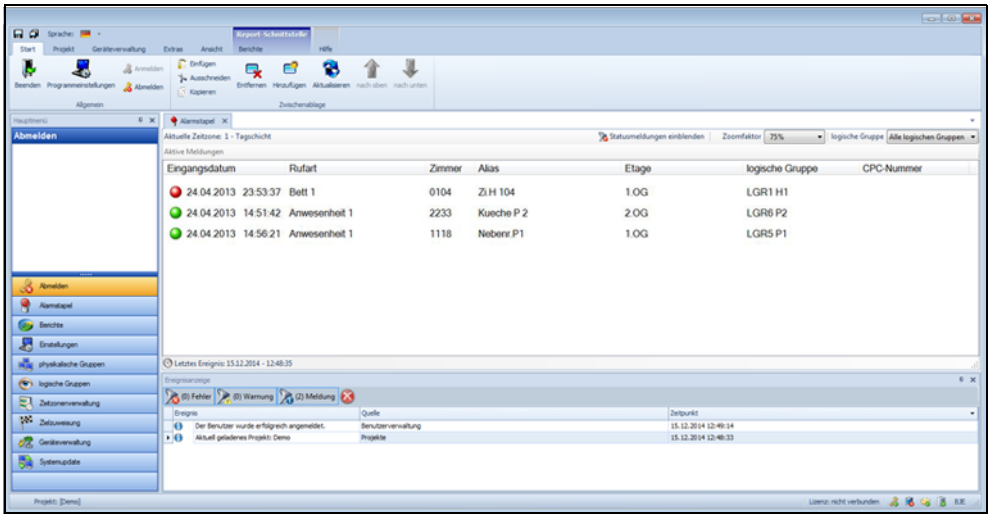


Fig. 21: ConLog^{CARE} Management Software "Call recording" module

5.1.3 Further modules

In addition to the basic module and the "call recording" module, further modules are available:

- The "Client" module is used for installation on a further PC and thus extends the basic module by a further workstation with the same range of functions.
- The "LiveUpdate" module extends the LiveUpdate contained in the basic module by another year.
- The module "additional project" enables the connection of another CONCENTOCARE call system to the basic module.

For details please refer to the product overview.

5.1.4 System requirements

- Microsoft® Windows® 10, 8, 7 (32 bit, 64 bit)
- 4 GB RAM
- 40 GB hard drive
- DVD drive
- Monitor (1280 x 1024 pixels)
- USB 2.0 or higher

5.2 Client/Server structure

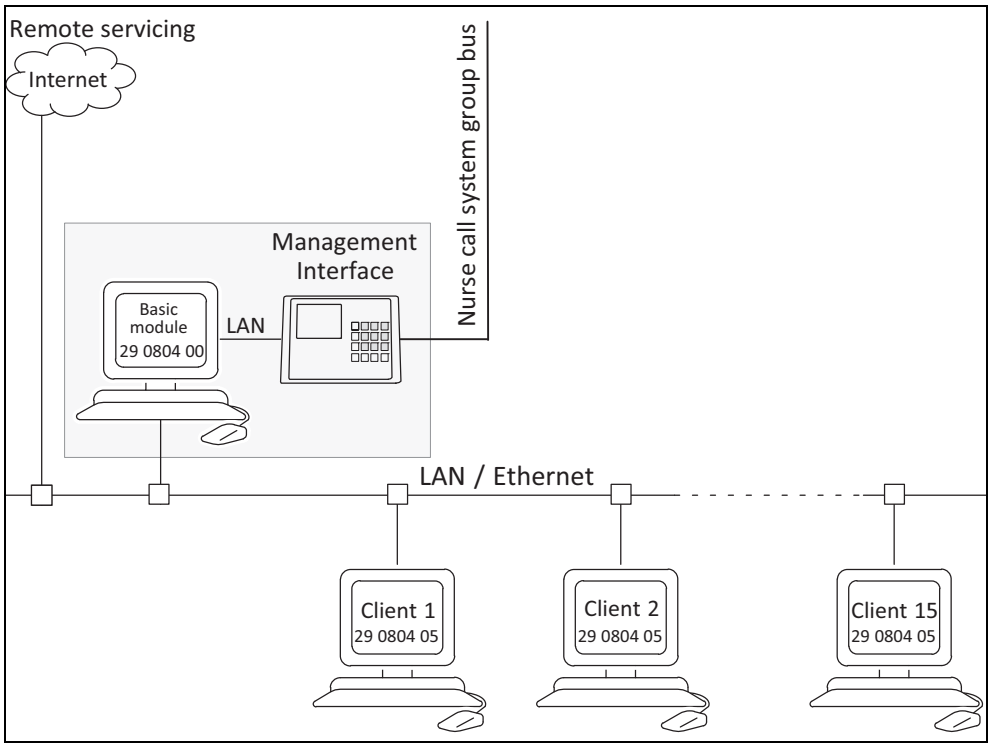


Fig. 22: Client/Server structure of the ConLog^{CARE} Management Software

5.3 Central call management

The server/client-capable ConLog^{CARE} Management Software is functionally subdivided into its components:

- ConLog^{CARE} server
- Microsoft SQL database
- ConLog^{CARE} client

The components can be installed at one central location or at centralised locations. Up to 15 projects can be managed in one ConLog^{CARE} installation environment. Up to 15 additional clients, i.e. client installations of ConLog^{CARE}, enable additional query stations or workstations.

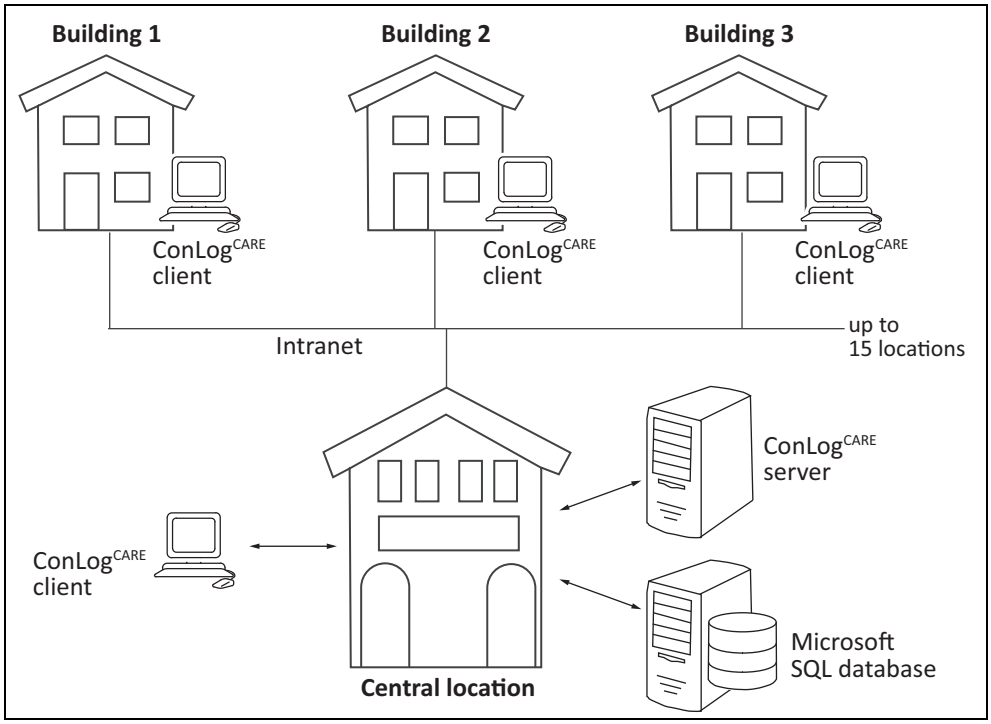


Fig. 23: Central call management

6 System security

6.1 Behaviour of the nurse call system in the event of a failure

6.1.1 Partial failure of the system

If individual group controllers fail, the remaining group controllers will continue to operate. The room functions will remain operational even if the controlling group controller fails. Any calls that are raised will continue to be displayed on the room lamp and as a reassurance light in the room.

All call-initiating elements and their transmission paths are monitored. Any failures or impairments in call transmission are immediately signalled to the nursing staff via the display devices that are still functional.

6.1.2 ConLog^{CARE} Management Software fail

If the connection of the Management Interface or the system interface LAN to the ConLog^{CARE} management software is interrupted, the function of the nurse call system is maintained. Only the call logging is suspended.

The failure of the connection is indicated as a fault message in the nurse call system.

6.1.3 Failure of connected systems

In many applications, the nurse call system is coupled with other systems. However, the nurse call system continues to run as a stand-alone system. This means that the nurse call system functions will remain autonomous even if telephone systems, IT networks or other interfaces fail.

A failure in the telephone connection or alarm server/radio paging system connection will be displayed as a fault message on the display devices of the nurse call system.

6.1.4 Power supply failure

In case of a failure of the power supply, existing calls and status information are saved and are not lost.

Emergency power supply

Normally, the nurse call system is connected to an emergency power supply. This maintains operation in the event of a failure of the general power supply.

In buildings without an emergency power supply, operation of the nurse call system must be maintained by other means. Power supply unit 6A UPV (77 3400 60)

with an emergency power supply of approx. 36 minutes is available for this purpose, refer to chapter "9.8 Power supply units" as of page 113.

For devices (e.g., PC with ConLog^{CARE} Management Software) that are not connected to the 24 V supply of the nurse call system, separate uninterruptible power supplies (UPS) are required.

For devices (e.g. PC with ConLog^{CARE} Management Software) that are not connected to the system power supply (24 V DC), separate uninterruptible power supplies are required, to be provided by the customer.

DIN VDE 0834-1:2016-06 requires the owner to guarantee save operation even after one hour has passed.

DIN VDE 0834-1:2016-06 requires the owner and planner to determine the power source for safety purposes before the planning of the nurse call system.

Fault signalling

The power supply units of the CONCENTO^{CARE} nurse call system indicate the failure of the mains power supply through the extinguishing of an LED display. At the same time, a potential free relay contact (NO) is switched. The contact can be loaded with a maximum of 30 V DC/1 A. This contact must be used for the clear indication of the failure of the mains power supply to a responsible party (e.g., through the connection of an acoustic fault indicator). The responsibility must be determined by the planner, owner and installer as early as the planning stage.

The mains power failure message of the power supply units can be displayed via an input of the group controller in the nurse call system. In addition, the message can be activated as a technical call via a RAN interface (19 0840 00).

6.2 Nurse call system fault displays

6.2.1 Fault displays on devices for nursing staff

Faults, along with their location, are shown on the displays of the following devices:

- Display insert (if presence is switched on)
- Corridor display

Faults are displayed in the same way as calls; this means that they initially only appear in the specific ward concerned or, in the case of group coupling, in the coupled wards. If the fault is not resolved within a specified time (which is set using the ConLog^{CARE} Management Software), it is displayed in all the wards of the building.

ConLog^{CARE} Management Software

All the nurse call system fault messages can be identified in the "Call recording" module of the Management Software by viewing and evaluating the call log for the pending messages.

6.2.2 Fault displays on devices for technicians

Management Interface

- Fault signalling relay (potential-free) switches in the following cases: fault at group bus, fault coming from the ConLog^{CARE} Management Software, fault of ESPA 4.4.4 connection, fault of telephone connection.
- Symbol indicators in the display show the status of the individual modules of the Management Interface and thus signal: fault at the group bus, connection to ConLog^{CARE} Management Software fault, ESPA 4.4.4 connection fault, telephone connection fault (analogue a/b).
- Fault messages forwarded to specific destinations (DECT, pagers, PNC)

System interface LAN

- Fault signalling relay (potential-free) switches in the following cases: fault at group bus, fault coming from the ConLog^{CARE} Management Software, fault of ESPA 4.4.4 connection
- Red LED "Error" signals parallel to the fault message relay, i.e. LED lights red when fault message relay switches.
- The green "Server" LED lights up when there is no connection to the ConLog^{CARE} Management Software.
- Yellow LED "RS232" and green LED "TxD" are off if there is no data traffic at the ESPA 4.4.4 interface.
- Fault messages forwarded to specific destinations (DECT, pagers)
- Web interface: Symbol indicators show the status of the individual modules of the system interface LAN and thus signal: fault at the group bus, connection to ConLog^{CARE} Management Software fault, ESPA 4.4.4 connection fault.

Group controller

- LED display for faults on group bus.
- LED display for faults at specific ward bus.
- Fault message relay (potential-free) switches when the group controller fails; fault message LED as well.
- Output to fault message lamp (24 V, 300 mA) switches when there is a fault at the specific ward bus.
- Input for fault message contact of power supply unit leads to mains supply failure message in the nurse call system.

7 Room types with speech communication

The pages that follow show types of rooms that are typically used in a nurse call system with speech communication, and examples of how these are set up.

7.1 Patient/resident room

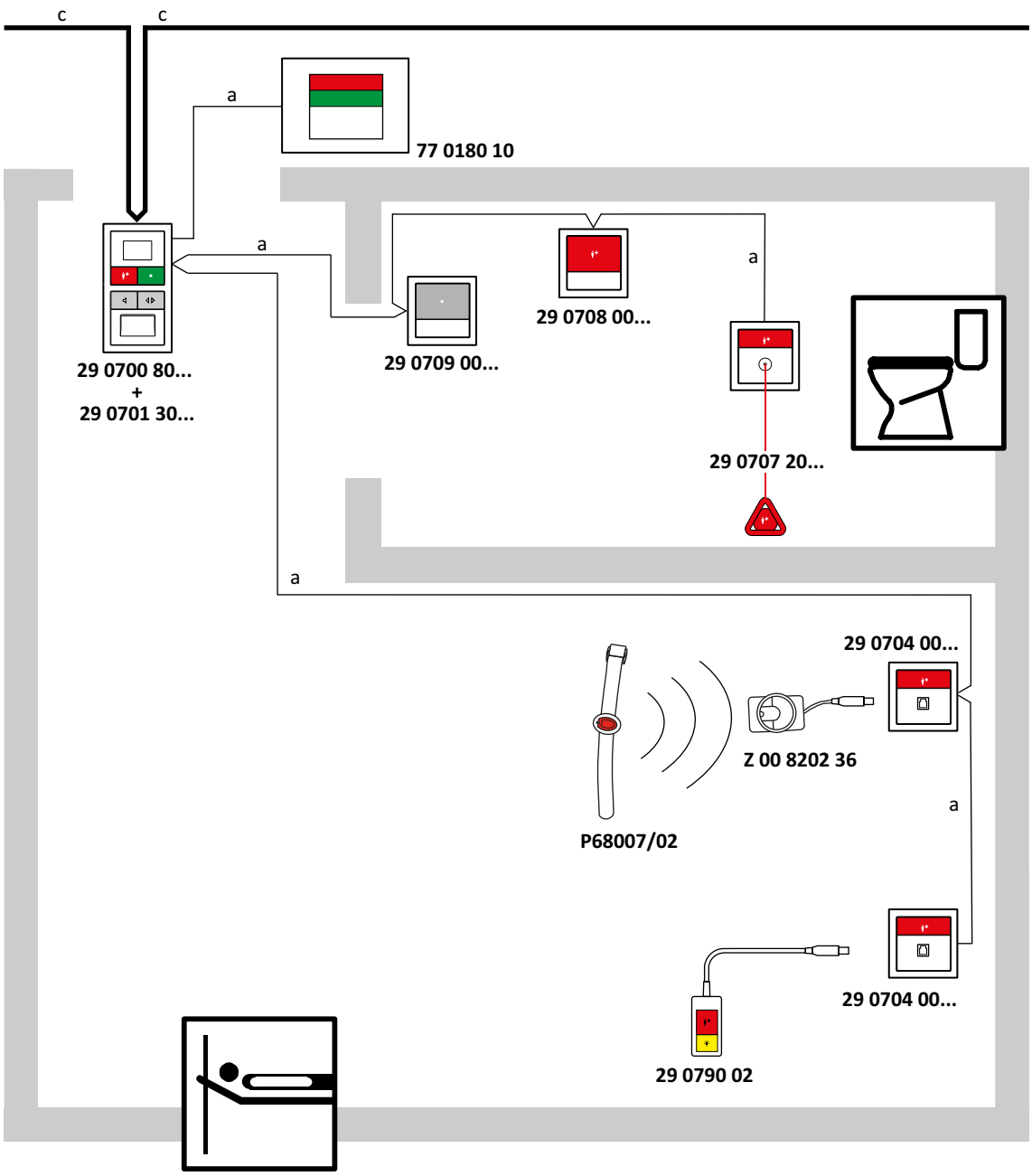
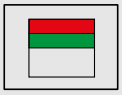
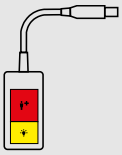
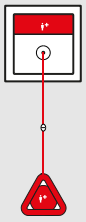


Fig. 24: Patient/resident room

Marker	Cable type	Area of use
a	J-Y(St)Y 2x2x0.8	■ Room bus ■ Room lamp connection (no room bus user!)
c	J-Y(St)Y 4x2x0.8	■ Ward bus

Per room		
	Display insert **and** Intercom insert **Alternative:** Call/presence insert **and** Intercom insert	29 0700 80... 29 0701 30... 29 0701 00... 29 0701 30...
	Room lamp universal, 3 sections **or** Room lamp universal, 3 sections, with doorplate	77 0180 10 77 0181 10

Per bed		
	Call switch insert with connector	29 0704 00...
	Pear push switch incl. call and light switch, 3 m **or** Pear push switch incl. call switch, 3 m Self-releasing adapter for pear push switch (optional) Extension cable for pear push switch (optional) Equipment and cable clamp (optional)	29 0790 02 29 0790 00 29 0790 04 29 0790 06 70 0361 00
	Radio receiver-T **or** Radio receiver-T UP with radio trigger MyAmie NOTE! The radio transmission is not monitored. According to DIN VDE 0834, the radio triggers may be used only as complementary call devices in combination with the nurse call system.	Z 00 8202 36 Z 00 8202 35 P68007/02

In the ensuite bathroom / WC		
	Cancel switch insert	29 0709 00...
	It must be possible to reach a call device from the washbasin, WC, shower and bathtub; selection: ■ Call switch insert ■ Pull cord switch insert ■ Pneumatic switch insert	 29 0708 00... 29 0707 20... 29 0707 50...

In the seat corner (optional)		
	Call device, e.g. call switch insert **or** Call switch insert with connector	29 0708 00... 29 0704 00...

7.2 Staff room

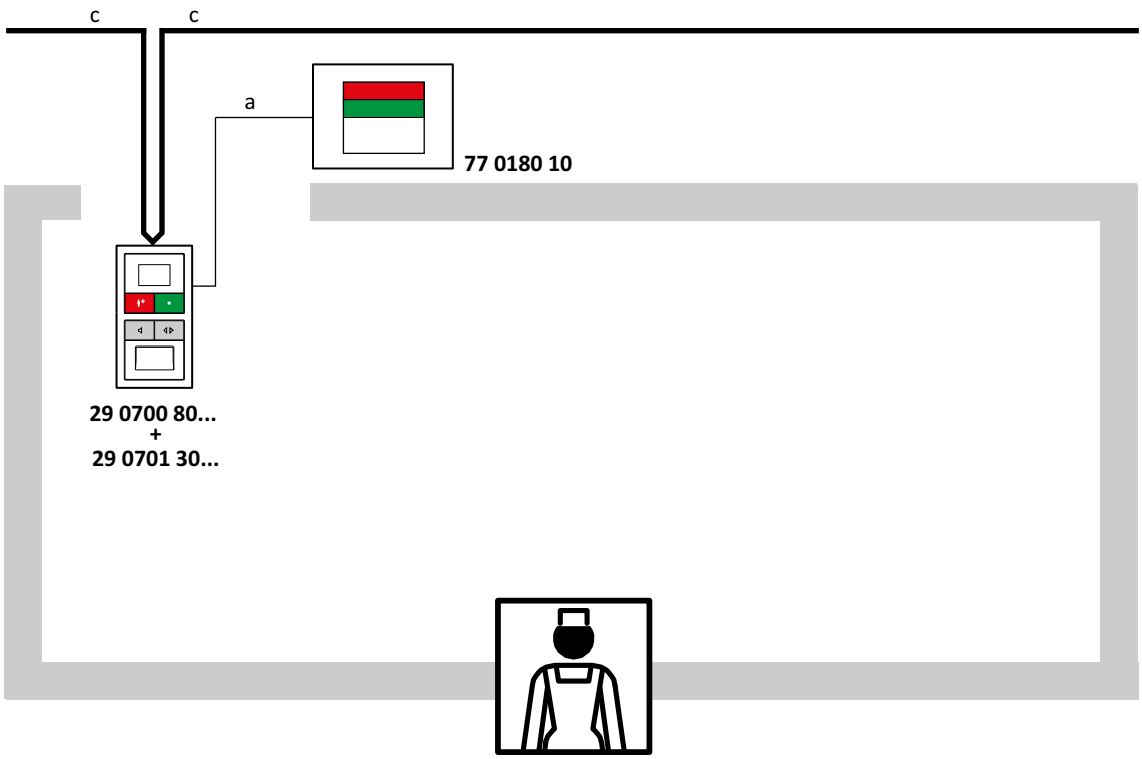
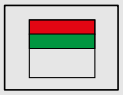


Fig. 25: Staff room

Marker	Cable type	Area of use
a	J-Y(St)Y 2x2x0.8	■ Room lamp connection (no room bus user!)
c	J-Y(St)Y 4x2x0.8	■ Ward bus

Per room		
	Display insert **and** Intercom insert	29 0700 80... 29 0701 30...
	Room lamp universal, 3 sections **or** Room lamp universal, 3 sections, with doorplate	77 0180 10 77 0181 10

7.3 Function room

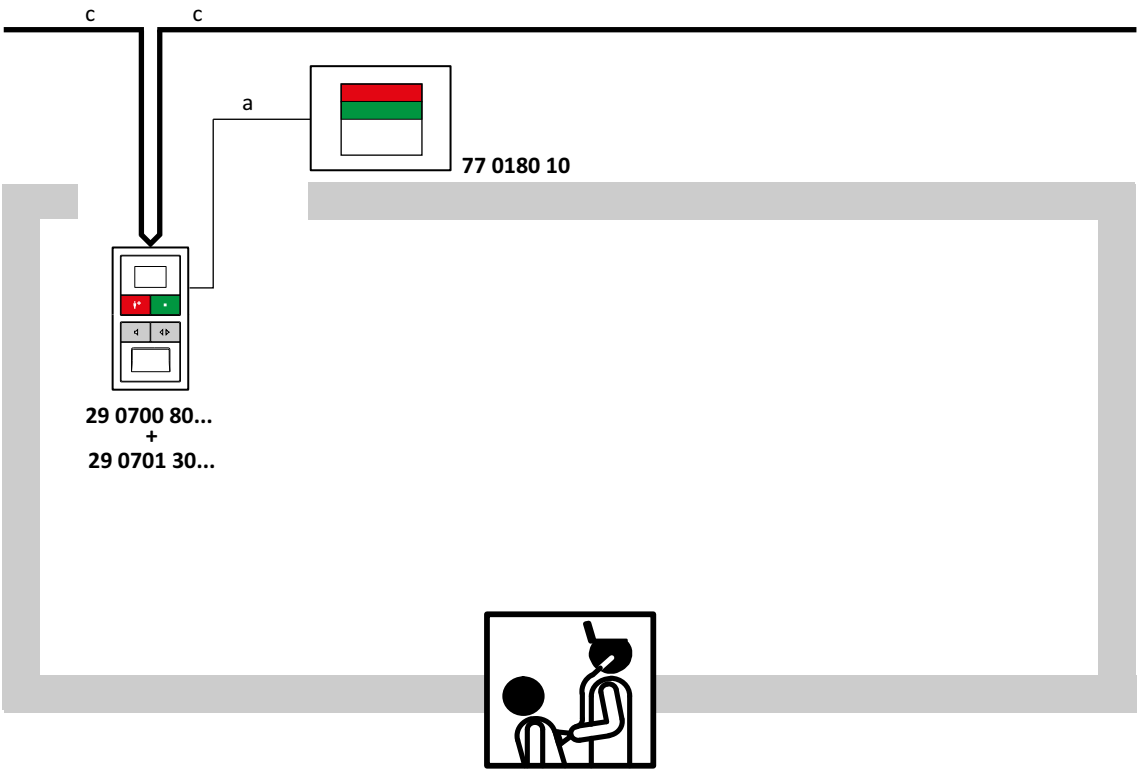
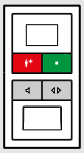


Fig. 26: Function room

Marker	Cable type	Area of use
a	J-Y(St)Y 2x2x0.8	■ Room bus ■ Room lamp connection (no room bus user!)
c	J-Y(St)Y 4x2x0.8	■ Ward bus

Per room		
	Display insert and Intercom insert **Alternative:** Call/presence insert **and** Intercom insert	29 0700 80... 29 0701 30... 29 0701 00... 29 0701 30...
	Room lamp universal, 3 sections **or** Room lamp universal, 3 sections, with doorplate	77 0180 10 77 0181 10

As required		
	Call switch insert with connector	29 0704 00...

7.4 Ward bathroom

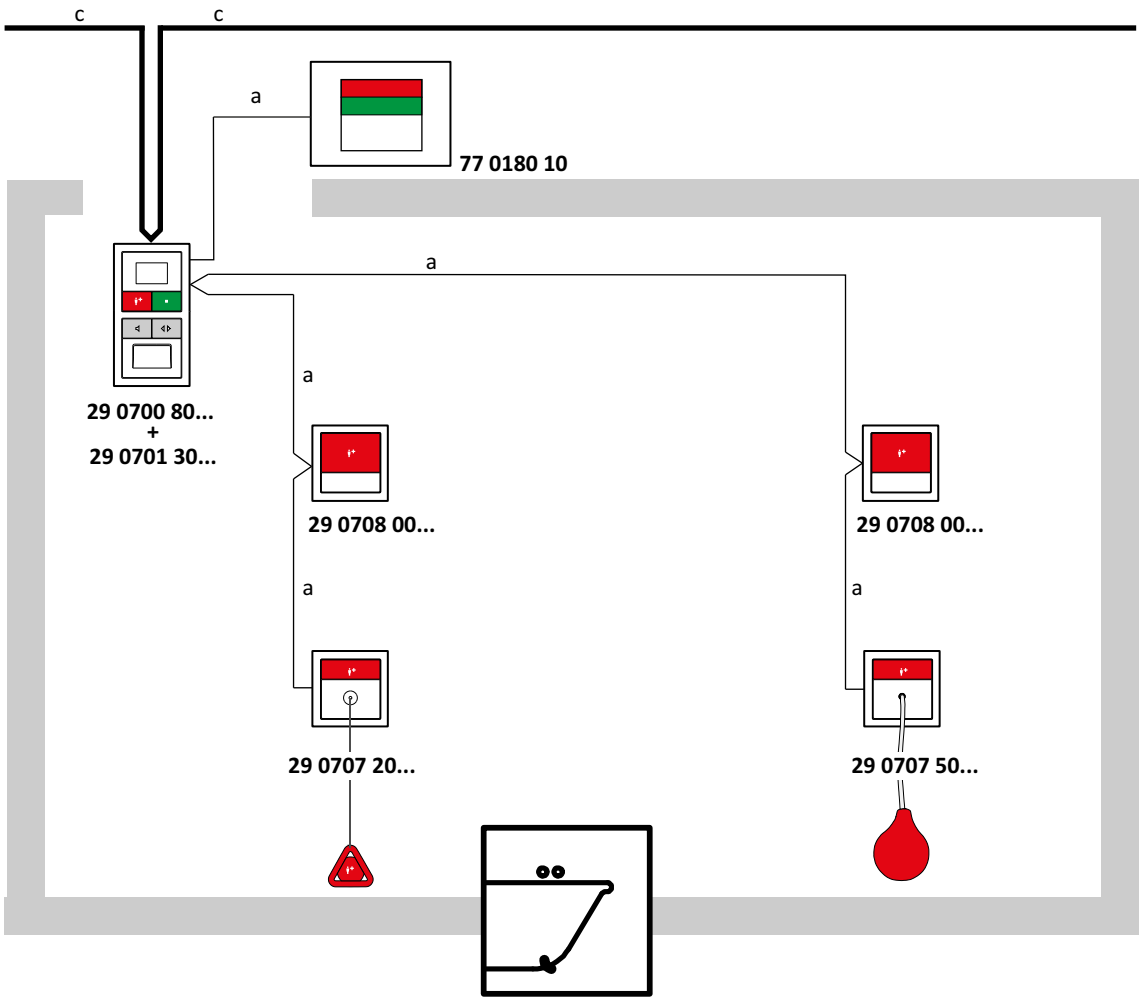
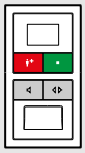
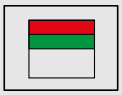
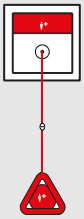


Fig. 27: Ward bathroom

Marker	Cable type	Area of use
a	J-Y(St)Y 2x2x0.8	■ Room bus ■ Room lamp connection (no room bus user!)
c	J-Y(St)Y 4x2x0.8	■ Ward bus

Per room		
	Display insert **and** Intercom insert	29 0700 80... 29 0701 30...
	Room lamp universal, 3 sections **or** Room lamp universal, 3 sections, with doorplate	77 0180 10 77 0181 10

Per bathroom/WC point		
	■ Call switch insert, suitable for washbasins ■ Pull cord switch insert, suitable for showers and WCs ■ Pneumatic switch insert, suitable for bathtubs	29 0708 00... 29 0707 20... 29 0707 50...

7.5 Common room/Dining room

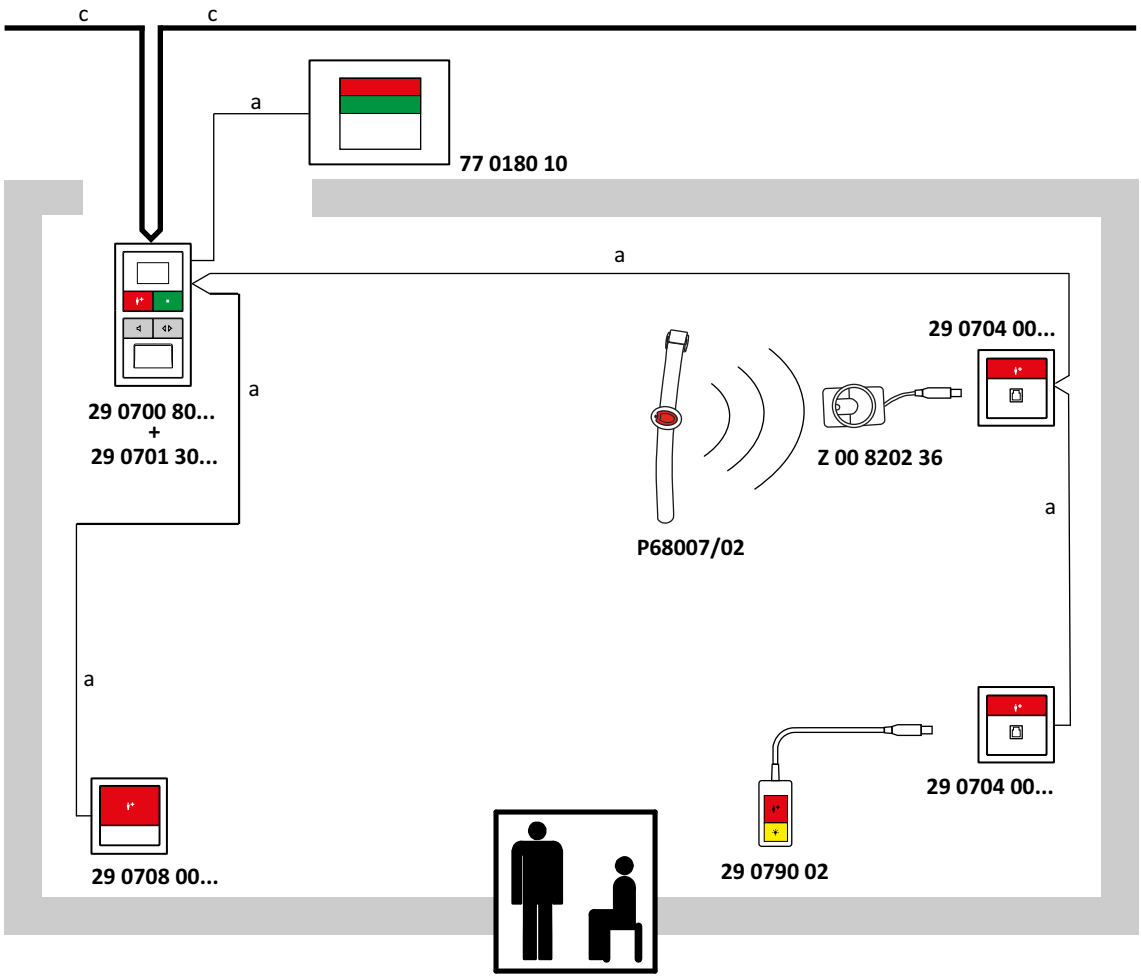
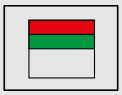
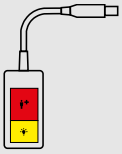


Fig. 28: Common room/Dining room

Marker	Cable type	Area of use
a	J-Y(St)Y 2x2x0.8	■ Room bus ■ Room lamp connection (no room bus user!)
c	J-Y(St)Y 4x2x0.8	■ Ward bus

Per room		
	Display insert **and** Intercom insert	29 0700 80... 29 0701 30...
	Room lamp universal, 3 sections **or** Room lamp universal, 3 sections, with doorplate	77 0180 10 77 0181 10

Per call initiation point with pear push switch		
	Call switch insert with connector	29 0704 00...
	Pear push switch incl. call and light switch, 3 m **or** Pear push switch incl. call switch, 3 m Self-releasing adapter for pear push switch (optional) Extension cable for pear push switch (optional) Equipment and cable clamp (optional)	29 0790 02 29 0790 00 29 0790 04 29 0790 06 70 0361 00
	Radio receiver-T **or** Radio receiver-T UP with radio trigger MyAmie NOTE! The radio transmission is not monitored. According to DIN VDE 0834, the radio triggers may be used only as complementary call devices in combination with the nurse call system.	Z 00 8202 36 Z 00 8202 35 P68007/02

Per call initiation point via call button only		
	Call switch insert	29 0708 00...

7.6 Apartment in assisted living facility

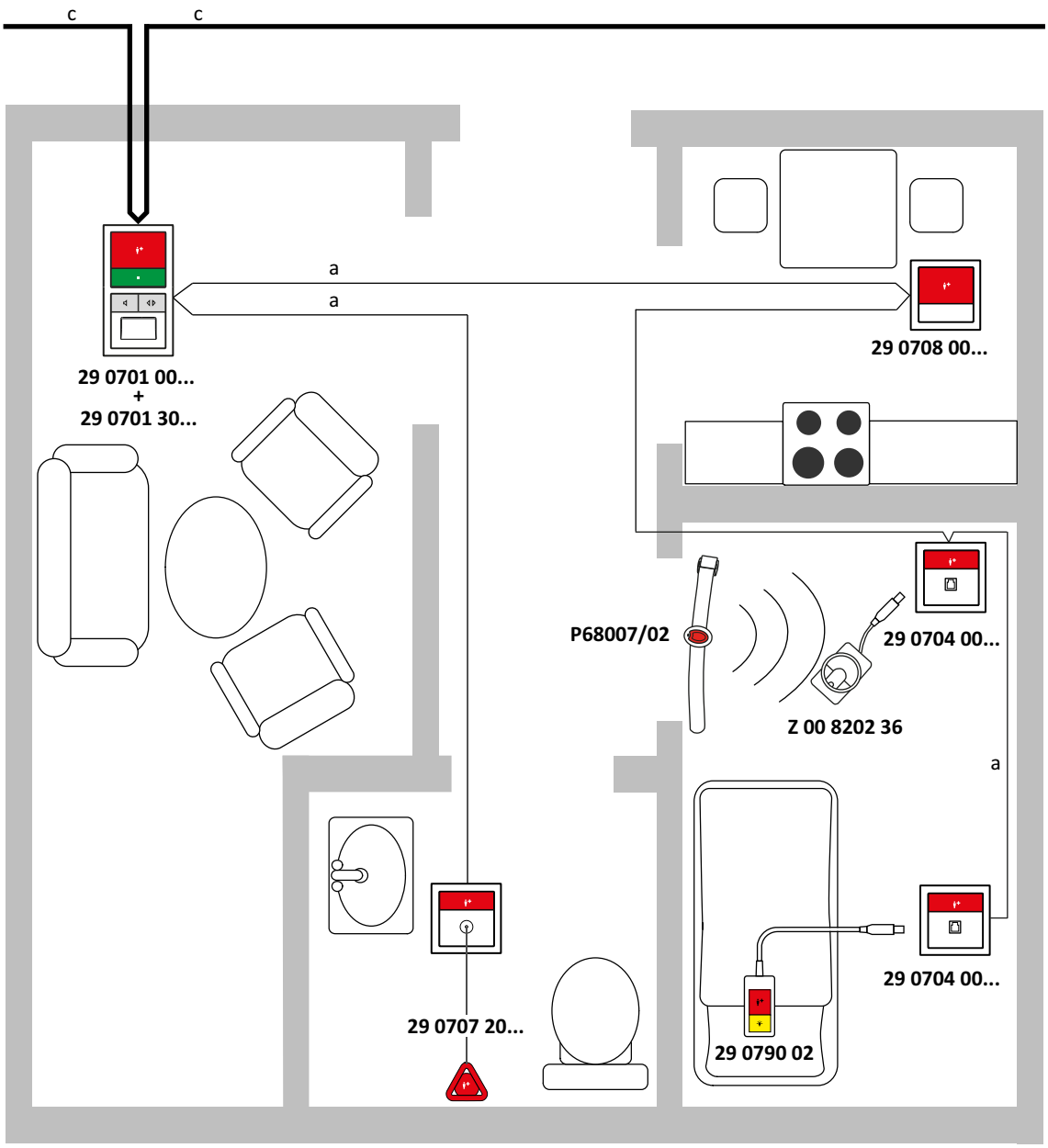
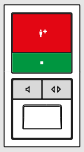
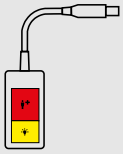
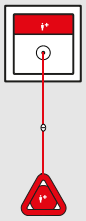


Fig. 29: Apartment in assisted living facility

Marker	Cable type	Area of use
a	J-Y(St)Y 2x2x0.8	■ Room bus
c	J-Y(St)Y 4x2x0.8	■ Ward bus

Per room		
	Call/presence insert **and** Intercom insert	29 0701 00... 29 0701 30...

Per bed		
	Call switch insert with connector	29 0704 00...
	Pear push switch incl. call and light switch, 3 m **or** Pear push switch incl. call switch, 3 m Self-releasing adapter for pear push switch (optional) Extension cable for pear push switch (optional) Equipment and cable clamp (optional)	29 0790 02 29 0790 00 29 0790 04 29 0790 06 70 0361 00
	Radio receiver-T **or** Radio receiver-T UP with radio trigger MyAmie NOTE! The radio transmission is not monitored. According to DIN VDE 0834, the radio triggers may be used only as complementary call devices in combination with the nurse call system.	Z 00 8202 36 Z 00 8202 35 P68007/02

In the bathroom / WC		
	Pull cord switch insert	29 0707 20...

In the seat corner (optional)		
	Call switch insert, e.g. in kitchen	29 0708 00...

8 Room types without speech communication

The pages that follow show types of rooms that are typically used in a nurse call system without speech communication, and examples of how these are set up.

8.1 Patient/resident room

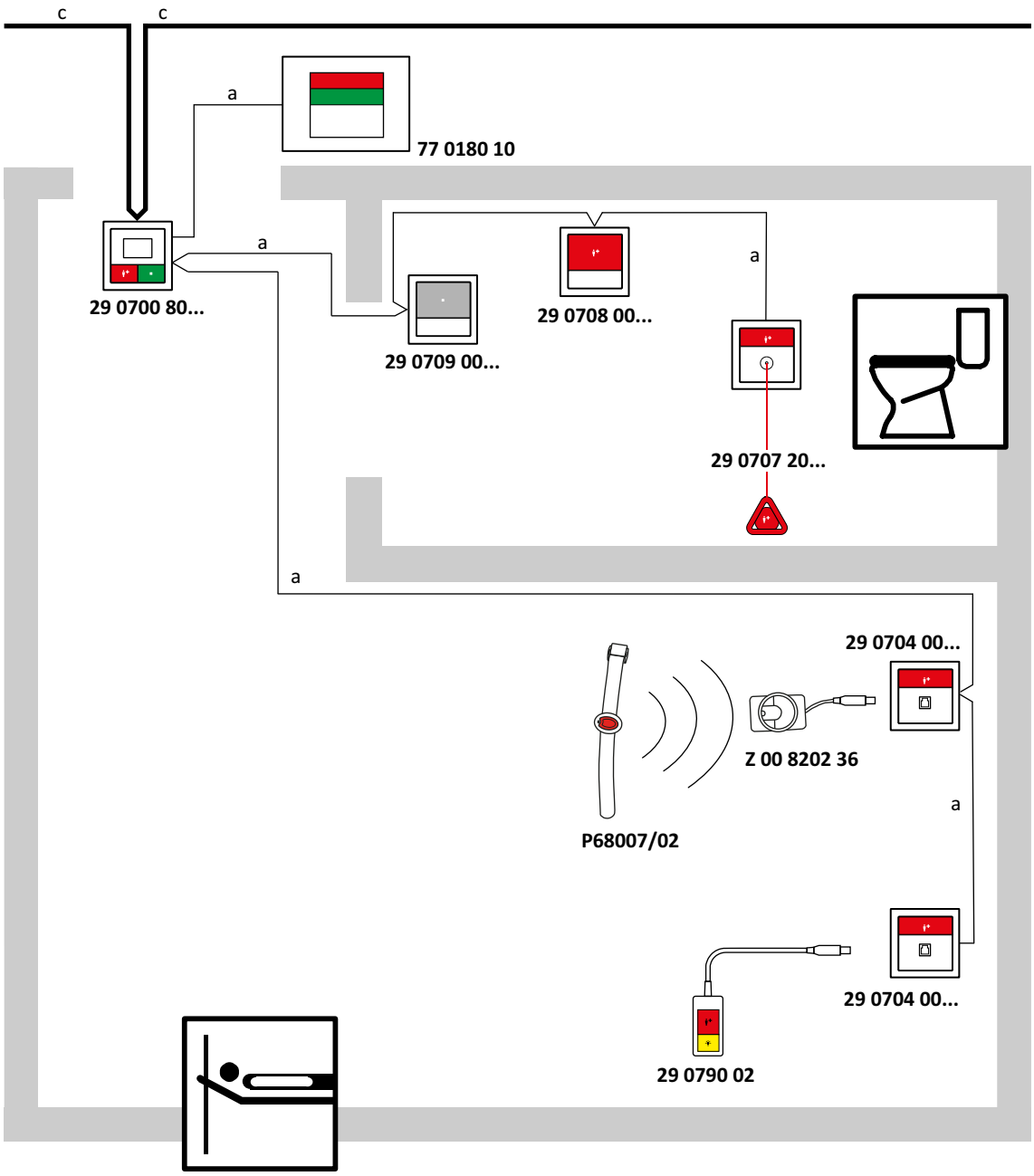
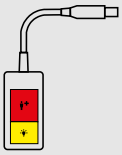
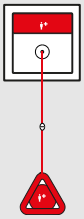


Fig. 30: Patient/resident room

Marker	Cable type	Area of use
a	J-Y(St)Y 2x2x0.8	■ Room bus ■ Room lamp connection (no room bus user!)
c	J-Y(St)Y 4x2x0.8	■ Ward bus

Per room		
	Display insert **or** Call/presence insert	29 0700 80... 29 0701 00...
	Room lamp universal, 3 sections **or** Room lamp universal, 3 sections, with doorplate	77 0180 10 77 0181 10

Per bed		
	Call switch insert with connector	29 0704 00...
	Pear push switch incl. call and light switch, 3 m **or** Pear push switch incl. call switch, 3 m Self-releasing adapter for pear push switch (optional) Extension cable for pear push switch (optional) Equipment and cable clamp (optional)	29 0790 02 29 0790 00 29 0790 04 29 0790 06 70 0361 00
	Radio receiver-T **or** Radio receiver-T UP with radio trigger MyAmie NOTE! The radio transmission is not monitored. According to DIN VDE 0834, the radio triggers may be used only as complementary call devices in combination with the nurse call system.	Z 00 8202 36 Z 00 8202 35 P68007/02

In the ensuite bathroom / WC		
	Cancel switch insert	29 0709 00...
	It must be possible to reach a call device from the washbasin, WC, shower and bathtub; selection: ■ Call switch insert ■ Pull cord switch insert ■ Pneumatic switch insert	 29 0708 00... 29 0707 20... 29 0707 50...

In the seat corner (optional)		
	Call device, e.g. Call switch insert **or** Call switch insert with connector	29 0708 00... 29 0704 00...

8.2 Staff room

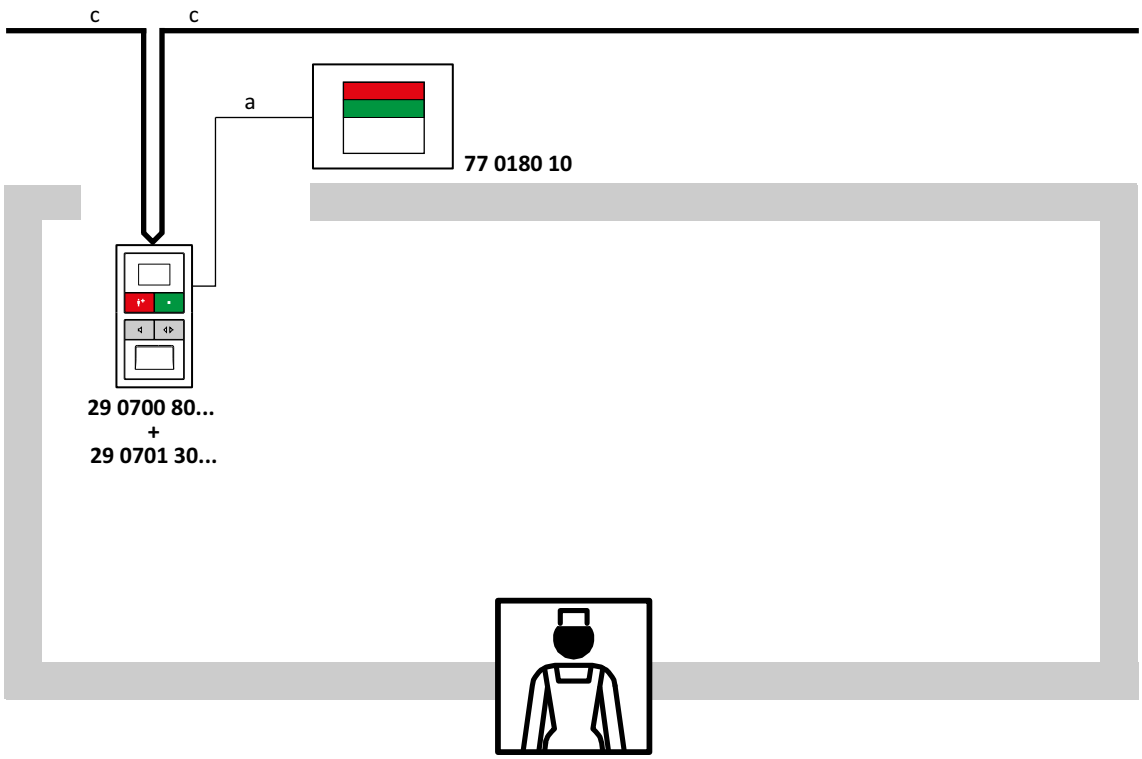
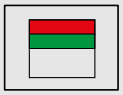


Fig. 31: Staff room

Marker	Cable type	Area of use
a	J-Y(St)Y 2x2x0.8	■ Room lamp connection (no room bus user!)
c	J-Y(St)Y 4x2x0.8	■ Ward bus

Per room		
	Display insert with Intercom insert for more operating comfort	29 0700 80... 29 0701 30...
	Room lamp universal, 3 sections **or** Room lamp universal, 3 sections, with doorplate	77 0180 10 77 0181 10

8.3 Function room

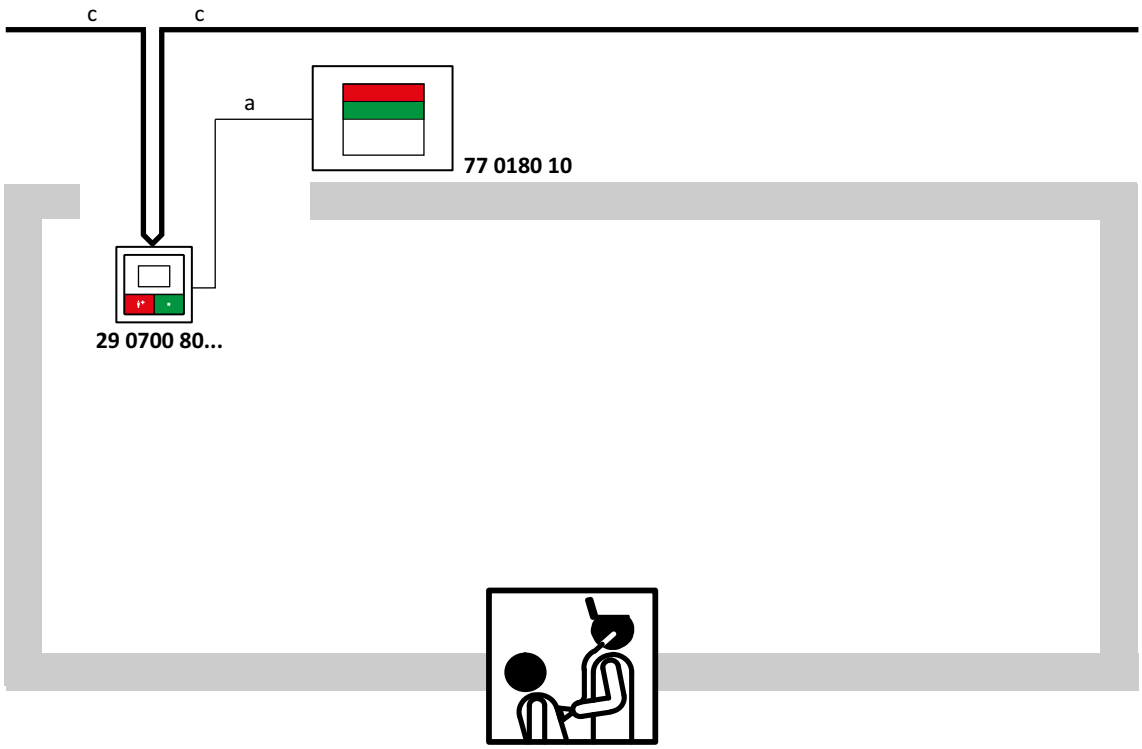
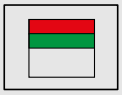


Fig. 32: Function room

Marker	Cable type	Area of use
a	J-Y(St)Y 2x2x0.8	■ Room bus ■ Room lamp connection (no room bus user!)
c	J-Y(St)Y 4x2x0.8	■ Ward bus

Per room		
	Display insert **or** Call/presence insert	29 0700 80... 29 0701 00...
	Room lamp universal, 3 sections **or** Room lamp universal, 3 sections, with doorplate	77 0180 10 77 0181 10

As required		
	Call switch insert with connector	29 0704 00...

8.4 Ward bathroom

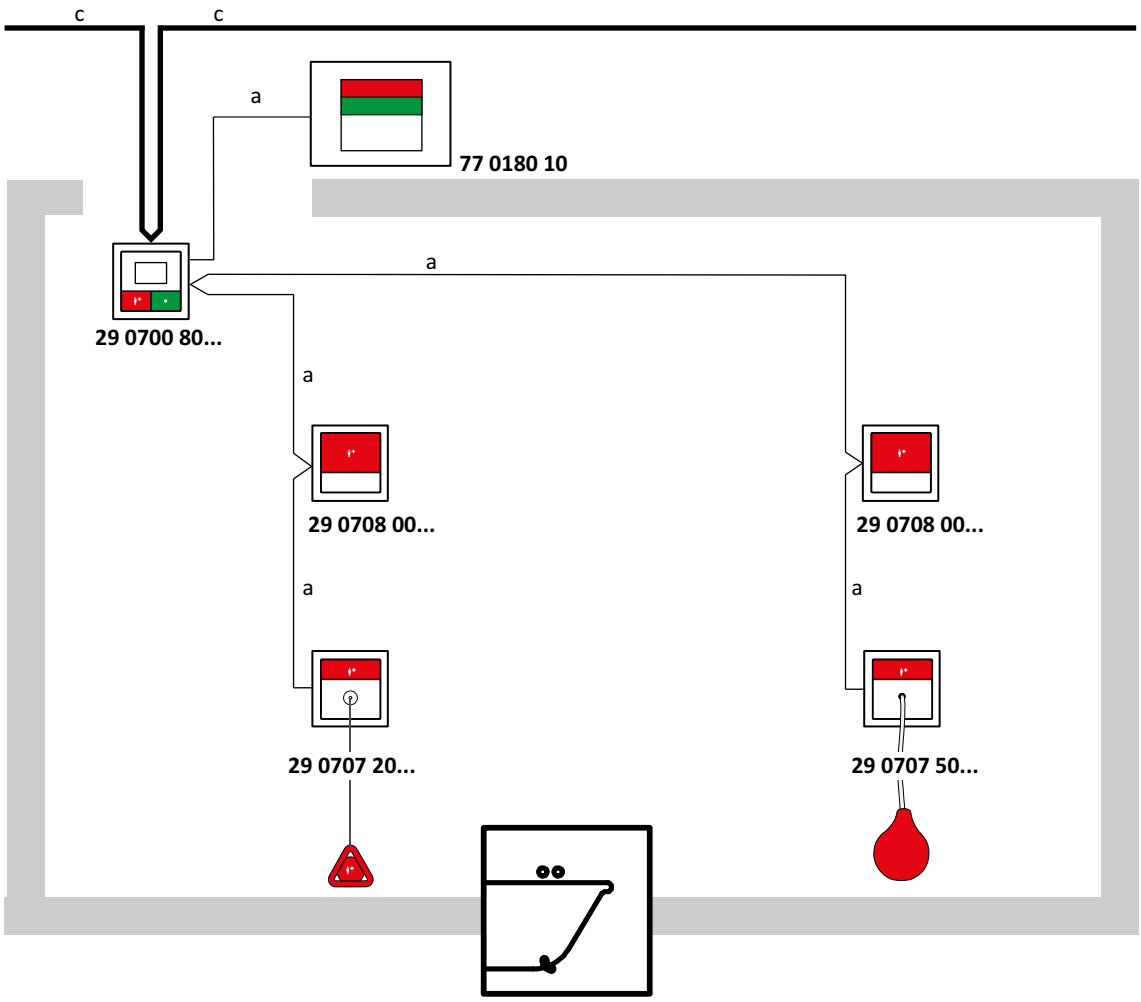
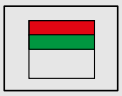
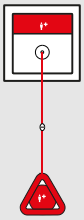


Fig. 33: Ward bathroom

Marker	Cable type	Area of use
a	J-Y(St)Y 2x2x0.8	■ Room bus ■ Room lamp connection (no room bus user!)
c	J-Y(St)Y 4x2x0.8	■ Ward bus

Per room		
	Display insert **or** Call/presence insert	29 0700 80... 29 0701 00...
	Room lamp universal, 3 sections **or** Room lamp universal, 3 sections, with doorplate	77 0180 10 77 0181 10

Per bathroom/WC point		
	■ Call switch insert, suitable for washbasins ■ Pull cord switch insert, suitable for showers and WCs ■ Pneumatic switch insert, suitable for bathtubs	29 0708 00... 29 0707 20... 29 0707 50...

8.5 Common room/Dining room

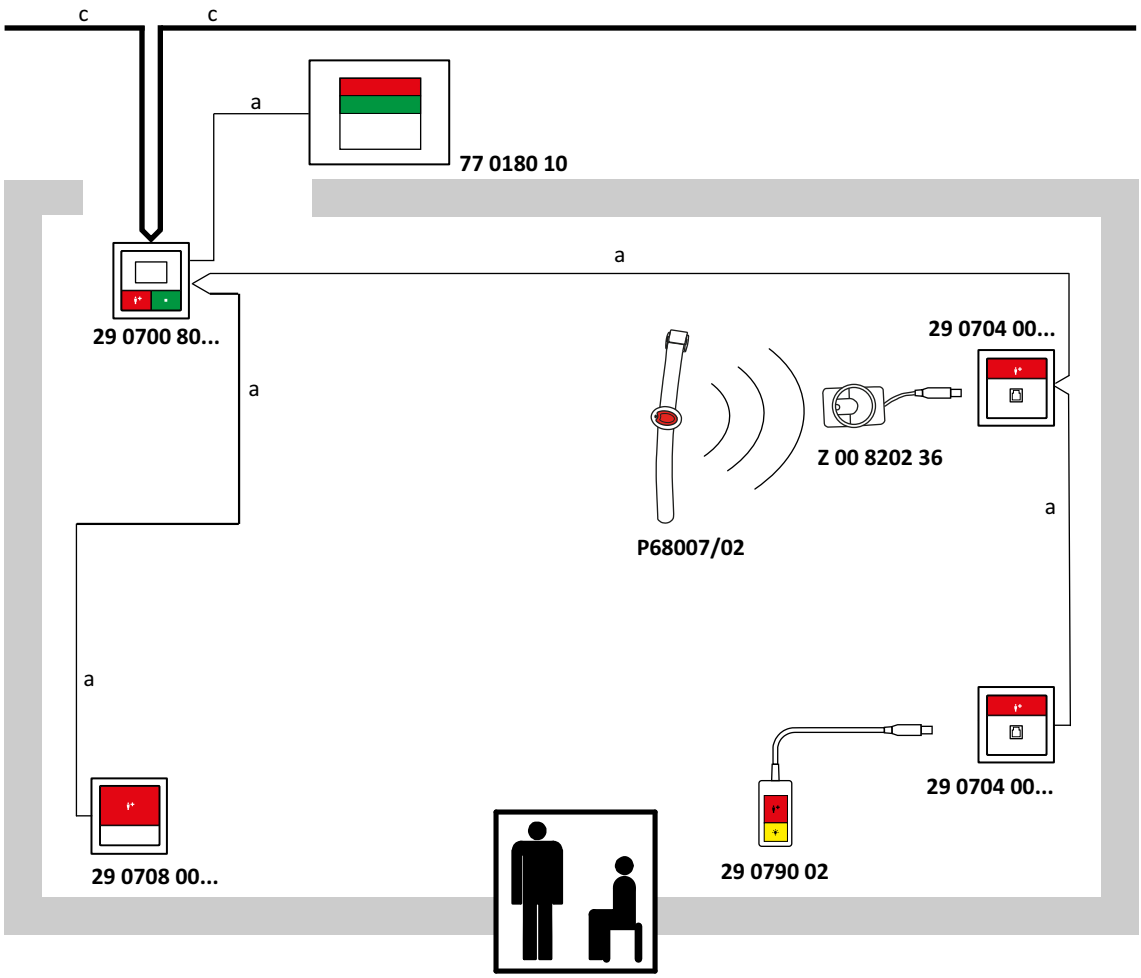
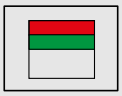
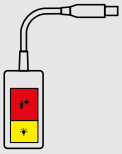


Fig. 34: Common room/Dining room

Marker	Cable type	Area of use
a	J-Y(St)Y 2x2x0.8	■ Room bus ■ Room lamp connection (no room bus user!)
c	J-Y(St)Y 4x2x0.8	■ Ward bus

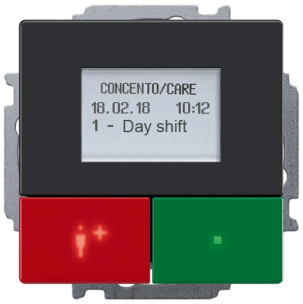
Per room		
	Display insert **or** Call/presence insert	29 0700 80... 29 0701 00...
	Room lamp universal, 3 sections **or** Room lamp universal, 3 sections, with doorplate	77 0180 10 77 0181 10

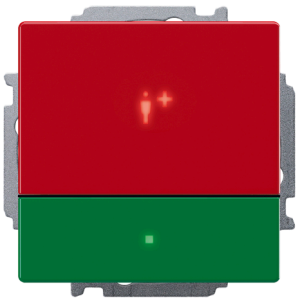
Per call initiation point with pear push switch		
	Call switch insert with connector	29 0704 00...
	Pear push switch incl. call and light switch, 3 m **or** Pear push switch incl. call switch, 3 m Self-releasing adapter for pear push switch (optional) Extension cable for pear push switch (optional) Equipment and cable clamp (optional)	29 0790 02 29 0790 00 29 0790 04 29 0790 06 70 0361 00

Per call initiation point via call button only		
	Call switch insert	29 0708 00...

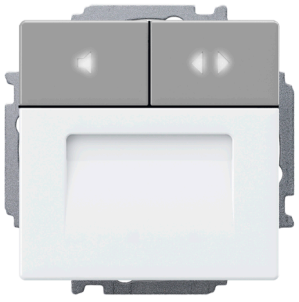
9 Product overview

9.1 Room controllers

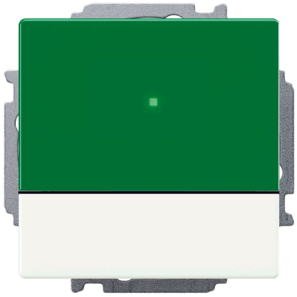
Functions	Order no.	
Display insert *Room controller with display, without frame* The display insert controls and monitors all room functions in compliance with DIN VDE 0834 and is a bus user on the ward bus. If the ward bus fails, the display insert continues to work autonomously for the room. The display insert is used for operation by the staff with presence button and call button. Display and beeper for signalling forwarded calls, when presence switch is activated. – 4-line, 16-digit dot matrix display with back-light – Red call button with reassurance light and integrated location light – Green presence button with reminder light for switching on and off the presence – When presence is switched on, calls, presences and potential faults in the ward are shown on the display – In addition to the indication in the display, calls are signalled by a tone sequence. Tone sequence depends on the call category. – Several messages are automatically displayed in alternation for 5 seconds – Connection to the ward bus – The room bus (RAN) and the room lamp are connected to the display insert – Wall mounting in deep 1-gang back box – Programming of the display insert via the two buttons *Dimensions (HxW): 71 x 71 mm*	29 0700 80...	 29 0700 80F
Design Reflex SI	29 0700 80RS	
Design future® linear	29 0700 80F	
Design Busch-balance® SI	29 0700 80BS	

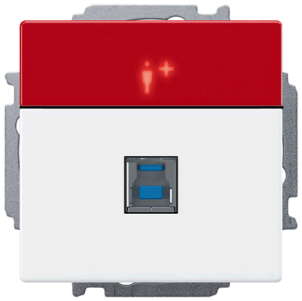
Functions	Order no.	
Call/presence insert *Room controller, without frame* The call presence insert controls and monitors all room functions in compliance with DIN VDE 0834 and is a bus user on the ward bus. If the ward bus fails, the call/presence insert continues to work autonomously for the room. The call/presence insert is used for operation by the staff with presence button and call button. Beeper for signalling forwarded calls, when presence switch is activated. – Red call button with reassurance light and integrated location light – Green presence button with reminder light for switching on and off the presence – When presence is switched on, calls are signalled by a tone sequence. Tone sequence depends on the call category. – Connection to the ward bus – The room bus (RAN) and the room lamp are connected to the call/presence insert – Wall mounting in deep 1-gang back box – Programming of the call switch insert with a room programming interface, to be ordered separately *Dimensions (HxW): 71 x 71 mm*	29 0701 00...	 29 0701 00F
Design Reflex SI	29 0701 00RS	
Design future® linear	29 0701 00F	
Design Busch-balance® SI	29 0701 00BS	

Functions	Order no.	
Intercom insert *Speech module, without frame* The intercom insert is intended for connection to a display insert or a call/presence insert. The intercom insert supplements this with the function of speech communication between patients or residents and staff. Furthermore, the Intercom insert adds comfort functions to the display insert. – Microphone and loudspeaker – Grey answer button ("speaker" symbol) to answer calls by establishing a speech connection to the call location. – Grey remote cancel button ("double arrow" symbol) for remote cancelling of answered, remote cancelable calls – Use for inactivity monitoring possible. Loudspeaker button = day button for the resident, double arrow button = away button for the resident. – Wall mounting in deep 1-gang back box, which is connected to the back box of the display insert or call/presence insert. **Comfort functions available with display insert** – If several messages are present, the double arrow button can be used to scroll through the messages. – Talk to staff in other rooms possible. – In the staff room, announcements can be made to a ward or rooms within the ward with presence switched on. – In one staff room per nurse call system, ward coupling can be set manually *Continuation ...*	29 0701 30...	 29 0701 30F

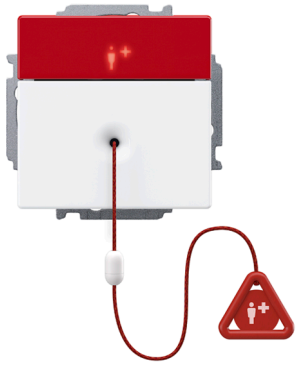
Functions	Order no.	
Intercom insert *Speech module, without frame* *... Continuation:* *Dimensions (HxW): 71 x 71 mm*	29 0701 30...	 29 0701 30F
Design Reflex SI	29 0701 30RS	
Design future® linear	29 0701 30F	
Design Busch-balance® SI	29 0701 30BS	

9.2 Switches

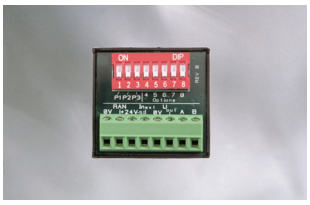
Functions	Order no.	
Presence switch insert *without frame* Switch insert with a presence button with reminder light for extending the display insert or call/presence switch insert to enable the presence to be switched on and off at another door. – Green presence button with reminder light for switching on and off the presence – Connection to the room bus (RAN) – Wall mounting in 1-gang back box *Dimensions (HxW): 71 x 71 mm*	29 0706 00...	 29 07060 00F
Design Reflex SI	29 0706 00RS	
Design future® linear	29 0706 00F	
Design Busch-balance® SI	29 0706 00BS	

Functions	Order no.	
Call switch insert with connector *without frame* Switch insert with a red call button with reassurance light for triggering calls and a connection socket for connecting a pluggable call device, e.g. a pear push switch, order no. 29 0790 00 or 29 0790 02. – Red call button with reassurance light and integrated location light – USB socket with plug monitoring for a pear push switch or other pluggable call device – Bed number (1 - 6) can be set to identify the call location in a multi-bed room – Switching output for light switching by the pear push switch, order no. 29 0790 02; 24 V DC signal for the duration of the button press; output current max. 50 mA – Disconnection call – Connection to the room bus (RAN) – Wall mounting in 1-gang back box. *Dimensions (HxW): 71 x 71 mm*	29 0704 00...	 29 0704 00F
Design Reflex SI	29 0704 00RS	
Design future® linear	29 0704 00F	
Design Busch-balance® SI	29 0704 00BS	

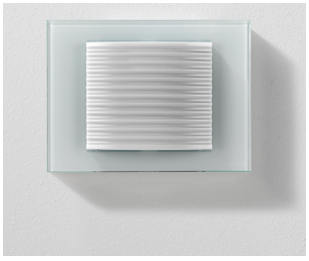
Functions	Order no.	
Call switch insert *without frame* Switch insert with a red call button. – Red call button with reassurance light and integrated location light – Usable for call (factory setting) or WC call – Bed 1 - 6 can be set to identify the call location in a multi-bed room – Connection to the room bus (RAN) – Wall mounting in 1-gang back box *Dimensions (HxW): 71 x 71 mm*	29 0708 00...	 29 0708 00F
Design Reflex SI	29 0708 00RS	
Design future® linear	29 0708 00F	
Design Busch-balance® SI	29 0708 00BS	
Cancel switch insert *without frame* Switch insert with a grey cancel button with reminder light for cancelling WC calls and emergency calls WC in the WC area. – Grey cancel button with reminder light for cancelling WC calls and emergency calls WC – Connection to the room bus (RAN) – Wall mounting in 1-gang back box *Dimensions (HxW): 71 x 71 mm*	29 0709 00...	 29 0709 00F
Design Reflex SI	29 0709 00RS	
Design future® linear	29 0709 00F	
Design Busch-balance® SI	29 0709 00BS	

Functions	Order no.	
Pull cord switch insert *without frame* Switch insert with a pull cord at the end of which a call handle is attached, for triggering calls or WC calls by pull actuation. Another call option is a red call button. Particularly suitable for triggering calls in the shower or next to the WC. – 2.50 m long pull cord incl. call handle with symbol and safety release – Safety release in the pull cord opens when the pull force exceeds a limit value (strangulation protection). The safety release is closed again by simply plugging it together. – Red call button with reassurance light and integrated location light – Acoustic feedback for call activation – Usable for call (factory setting) or WC call – Connection to the room bus (RAN) – Wall mounting or ceiling mounting in 1-gang back box *Dimensions (HxW): 71 x 71 mm*	29 0707 20...	 29 0707 20F
Design Reflex SI	29 0707 20RS	
Design future® linear	29 0707 20F	
Design Busch-balance® SI	29 0707 20BS	

Functions	Order no.	
Pneumatic switch insert *without frame* Switch insert with an air hose at the end of which a red rubber ball is attached, for triggering calls or WC calls by pressing the rubber ball. Another call option is a red call button. Particularly suitable for triggering calls in the bathtub. – 2 m long air hose with red rubber ball – Red call button with reassurance light and integrated location light – Acoustic feedback for call activation – Usable for call (factory setting) or WC call – Connection to the room bus (RAN) – Wall mounting in 1-gang back box *Dimensions (HxW): 71 x 71 mm*	29 0707 50...	 29 0707 50F
Design Reflex SI	29 0707 50RS	
Design future® linear	29 0707 50F	
Design Busch-balance® SI	29 0707 50BS	

Functions	Order no.	
RAN interface The interface is used to connect an external trigger device (normally closed or normally open contact) to the room bus (RAN). The trigger device thus triggers a call in the nurse call system. In addition, an LED of the trigger device can be connected to the RAN interface. The LED lights up as soon as the trigger unit is triggered (reassurance light). – Use e.g. for room call, radio call, service call, technical call, door alarm, fire alarm, activity sensor for inactivity monitoring – Normally closed / normally open contact can be connected – Call cancellation automatically after resetting the call device or by cancellation in the nurse call system – Installation in 1-gang back box or top hat rail mounting *Dimensions (HxWxD): 32 x 34 x 16 mm*	19 0840 00	

9.3 Room lamps, corridor displays

Functions	Order no.	
Room lamp universal, 3 sections Signal lamp with 3 light sections for optical signalling of calls (red), staff presence (green), and for WC call (white) as single display. – Connection to display insert or staff presence insert – Wall mounting on 1-gang back box *Dimensions (HxWxD): 110 x 150 x 40 mm*	77 0180 10	
Room lamp universal, 3 sections, with doorplate Signal lamp with 3 light sections for optical signalling of calls (red), staff presence (green), and for WC call (white) as single display. Doorplate as label field for room designation. – Connection to display insert or staff presence insert – Wall mounting on 1-gang back box *Dimensions (HxWxD): 190 x 150 x 40 mm* *Label field (HxW): approx. 70 x 92 mm*	77 0181 10	
Room lamp universal, 3 sections, glass decor Signal lamp with 3 light sections for optical signalling of calls (red), staff presence (green), and for WC call (white) as single display. – Connection to display insert or staff presence insert – Wall mounting on 1-gang back box *Dimensions (HxWxD): 110 x 150 x 40 mm*	77 0185 10	

Functions	Order no.	
Corridor display, 16-digit Display for alphanumeric display of calls and general system information. Wall mounting. – 16-digit text display – Luminous colour: Red – Single-sided version – Connection to the room bus (data line), connection cable approx. 1.2 m – Power supply via separate stub line to the power supply unit of the ward – In idle state display of date and time, date can be omitted if required – "Keyholes" for wall mounting *Dimensions (HxWxD): 125 x 785 x 55 mm*	19 0783 16	
Corridor display, 16-digit, double-sided Display for alphanumeric display of calls and general system information. Ceiling mounting. – 16-digit text display – Luminous colour: Red – Double-sided version – Connection to the room bus (data line), connection cable approx. 1.2 m – Power supply via separate stub line to the power supply unit of the ward – In idle state display of date and time, date can be omitted if required – Incl. ceiling suspension, 50 cm long, variable adjustment *Dimensions (HxWxD): 145 x 785 x 55 mm*	19 0784 16	

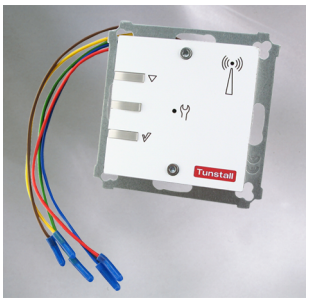
Functions	Order no.	
Corridor display, 12-digit Display for alphanumeric display of calls and general system information. Wall mounting. – 12-digit text display – Luminous colour: Red – Single-sided version – Connection to the room bus (data line), connection cable approx. 1.2 m – Power supply via separate stub line to the power supply unit of the ward – In idle state display of date and time, date can be omitted if required – "Keyholes" for wall mounting *Dimensions (HxWxD): 125 x 604 x 55 mm*	29 0783 12	
Corridor display, 12-digit, double-sided Display for alphanumeric display of calls and general system information. Ceiling mounting. – 12-digit text display – Luminous colour: Red – Double-sided version – Connection to the room bus (data line), connection cable approx. 1.2 m – Power supply via separate stub line to the power supply unit of the ward – In idle state display of date and time, date can be omitted if required – Incl. ceiling suspension, 50 cm long, variable adjustment *Dimensions (HxWxD): 145 x 604 x 55 mm*	29 0784 12	

9.4 Plug-in call devices

Functions	Order no.	
Pear push switch incl. call and light switch, 3 m *for connection to connection socket* Handy, water-protected (IP67) switch with flexible connection cable (3 m) with a red call switch for call triggering and a yellow light switch for switching a light source. – Plug-in connection to call switch insert with connector (29 0704 00...) *Dimensions (HxWxD) 70 x 35 x 10 mm*	29 0790 02	
Pear push switch incl. call switch, 3 m *for connection to connection socket* Handy, water-protected (IP67) switch with flexible connection cable (3 m) with a red call switch for call triggering. – Plug-in connection to call switch insert with connector (29 0704 00...) *Dimensions (HxWxD) 70 x 35 x 10 mm*	29 0790 00	

9.5 Radio based call devices

Functions	Order no.	
Radio receiver-T *for connection to connection socket* Radio receiver on operating frequency 869.2125 MHz (social alarm frequency) for receiving the signals from assigned radio transmitters. Plug-in connection to a call switch insert with connector (29 0704 00...). Activating the radio trigger generates the same call type that would be generated by a pear push switch connected to the same socket. **NOTE!** The radio transmission is not monitored. According to DIN VDE 0834, the transmitters may be used only as complementary call devices in combination with a nurse call system. – Integrated antenna – 64 radio transmitters programmable – Master mode can be activated to receive any number of radio transmitters – If the battery of the assigned radio trigger is low, the LED on the radio receiver is flashing red – In the event of reception blockage, fault indication on the radio receiver and call initiation – Care mode available, deactivates selected transmitters for a set time at the touch of a key – Daily message monitoring available with MyAmie, iVi™ and universal sensor, corresponds to the auto presence feature of Telecare devices – Vital monitoring available e.g. with radio sensor mat, corresponds to inactivity monitoring of Telecare devices – Radio range dependent on the spatial conditions, up to 30 m – Short connection cable with plug, approx. 16 cm *Dimensions (HxWxD) 66 x 46 x 18 mm*	Z 00 8202 36	

Functions	Order no.	
Radio receiver-T UP *with free wire ends* Radio receiver on operating frequency 869.2125 MHz (social alarm frequency) for receiving the signals from assigned radio transmitters. **NOTE!** The radio transmission is not monitored. According to DIN VDE 0834, the transmitters may be used only as complementary call devices in combination with a nurse call system. – Flush mounting on 1-gang back box – Potential-free connection as normally closed or normally open contact – Integrated antenna – 64 radio transmitters programmable – Master mode can be activated to receive any number of radio transmitters – If the battery of the assigned radio trigger is low, the LED on the radio receiver is flashing red – In the event of reception blockage, fault indication on the radio receiver and call initiation – Care mode available, deactivates selected transmitters for a set time at the touch of a key – Daily message monitoring available with MyAmie, iVi™ and universal sensor, corresponds to the auto presence feature of Telecare devices – Vital monitoring available e.g. with radio sensor mat, corresponds to inactivity monitoring of Telecare devices – Radio range dependent on the spatial conditions, up to 30 m – Connection to the room bus (RAN) via RAN interface (19 0840 00), to be ordered separately – Frame with 55 mm internal dimension required, not included in scope of delivery *Dimensions (HxWxD) 66 x 46 x 18 mm*	Z 00 8202 35	

Functions	Order no.	
MyAmie *for use with radio receiver-T and -T UP* A small and waterproof personal radio trigger for wireless initiation of calls. It is light weight and provides different wearing options. A wrist strap and a neckcord are included with scope of delivery. – Red call button – Control LED lights up red, if call button is pressed – Radio coverage in connection with radio receiver-T or -T UP depending on structural conditions of the building, up to 30 m – Neckcord, wrist strap – Lithium battery, prognosticated battery life: 7 years – When the battery is low, the LED on the radio receiver flashes red – Dust tight and protected against ingress of water when MyAmie is immersed in water under defined conditions of pressure and time (IP67) *Dimensions (HxWxD) 14 x 27 x 36 mm*	P68007/02	

Functions	Order no.	
iVi™ *for use with radio receiver-T and -T UP* A call button is used for manual triggering of calls. An integrated, intelligent fall detection technology automatically triggers calls in the event of a fall – Call button – Automatic call initiation in the event of a fall – Sensitivity for fall detection adjustable – Radio coverage in connection with radio receiver-T or -T UP depending on structural conditions of the building, up to 30 m – Lithium battery, replaceable, service life approx. 9 to 12 months – When the battery is low, the LED on the radio receiver flashes red – Dust tight and protected against ingress of water when MyAmie is immersed in water under defined conditions of pressure and time (IP67) – Brooch clip, neckcord, belt clip *Dimensions (HxWxD) 58 x 38 x 14 mm*	P68005/47	

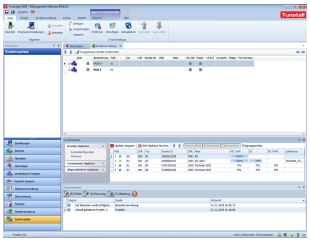
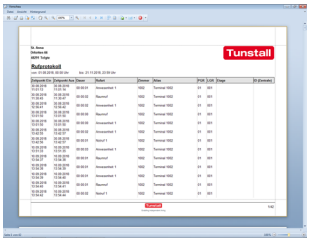
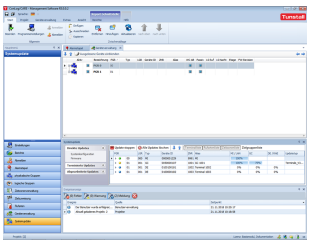
Functions	Order no.	
Universal sensor *for use with radio receiver-T and -T UP* Universal sensor for forwarding of alarm messages from wired Telecare sensors to the nurse call system. – Four buttons and LCD display for easy configuration – Normally closed or normally open contact (potential-free) can be connected – Connection to the free cable ends of the 200 cm long connection cable with RJ11 plug. Optional connection to the 3.5 mm jack socket. – Radio coverage in connection with radio receiver-T or -T UP depending on structural conditions of the building, up to 30 m – Estimated lifetime of the replaceable battery approx. 5 years under normal conditions – When the battery is low, the LED on the radio receiver flashes red *Dimensions (HxWxD) 80 x 50 x 25 mm*	61005/30	
Large-surface pneumatic radio switch *for use with radio receiver-T and -T UP* Wireless large-surface pneumatic switch. Only a very slight actuation force is required in order to activate the switch. – Red triggering surface, round, Ø 90 mm – Optical reassurance indicator that lights up all around as well as vibration when the button is pressed. – Radio coverage in connection with radio receiver-T or -T UP depending on structural conditions of the building, up to 30 m – 3 V battery (CR2450), replaceable – When the battery is low, the LED on the radio receiver flashes red *Dimensions (HxØ): 40 x 110 mm*	Z 00 8202 15	

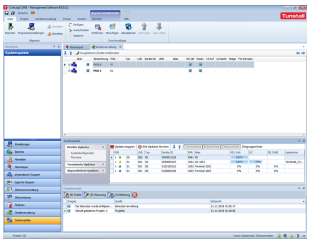
Functions	Order no.	
Wireless sensor mat *for use with radio receiver-T and -T UP* Mat for triggering of calls. The mat is positioned e.g. by the bed. A call is raised when the patient gets out of bed or falls out of bed and onto the mat. – Soft PVC, easy to clean – Radio coverage in connection with radio receiver-T or -T UP depending on structural conditions of the building, up to 30 m – Battery operation - no wiring – When the battery is low, the LED on the radio receiver flashes red *Dimensions (W x D): 1200 x 500 mm* *Stepping area thickness: 4 mm*	Z 00 8002 01	
Wireless step-on sensor mat CM *for use with radio receiver-T and -T UP* Sturdy, step-, slip- and stumble-proof mat with bevelled edges and surface in nap structure for triggering of calls. The mat is positioned e.g. by the bed. A call is raised when the patient gets out of bed or falls out of bed and onto the mat. – Rectangular shape – Polyurethane (PU), easy to clean – Radio coverage in connection with radio receiver-T or -T UP depending on structural conditions of the building, up to 30 m – Battery operation - no wiring – When the battery is low, the LED on the radio receiver flashes red – Battery (CR 2032) changeable *Dimensions (W x D): 1100 x 700 mm* *Stepping area thickness: 9 mm*	Z 00 8003 01	

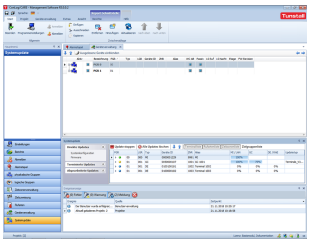
Functions	Order no.	
Wireless step-on sensor mat NM *for use with radio receiver-T and -T UP* Sturdy, step-, slip- and stumble-proof mat with bevelled edges and surface in nap structure for triggering of calls. The mat is positioned e.g. by the bed. A call is raised when the patient gets out of bed or falls out of bed and onto the mat. – Semicircular shape – Polyurethane (PU), easy to clean – Radio coverage in connection with radio receiver-T or -T UP depending on structural conditions of the building, up to 30 m – Battery operation - no wiring – When the battery is low, the LED on the radio receiver flashes red – Battery (CR 2032) changeable *Dimensions (W x D): 1100 x 700 mm* *Stepping area thickness: 9 mm*	Z 00 8003 02	
Optical 869 Smoke Alarm *for use with radio receiver-T and -T UP* Smoke alarm for wireless triggering of calls in case of smoke development. Smoke detection is based on the scattered light principle. The smoke alarm transmits the smoke alarm by radio to the assigned radio receiver-T or -T UP and emits an acoustic signal in parallel. – Loud acoustic signal for smoke detection – Radio coverage in connection with radio receiver-T or -T UP depending on structural conditions of the building, up to 30 m – Built-in 3V lithium battery for 10 years long-term power supply – When the battery is low, the LED on the radio receiver flashes red Dimensions (HxØ): 51 x 100 mm	68005/70	

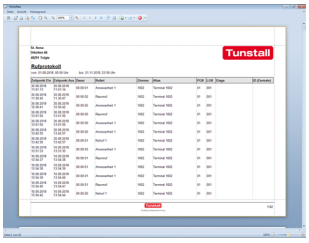
Functions	Order no.	
Heat Alarm 869 *for use with radio receiver-T and -T UP* Heat alarm for wireless triggering of calls as soon as the room temperature in the detection zone of the heat alarm has reached 58 °C. The heat alarm transmits the alarm by radio to the assigned radio receiver-T or -T UP and emits an acoustic signal in parallel. – Loud acoustic signal for heat detection – Radio coverage in connection with radio receiver-T or -T UP depending on structural conditions of the building, up to 30 m – Built-in 9V lithium battery for 10 years long-term power supply – When the battery is low, the LED on the radio receiver flashes red Dimensions (HxØ): 55 x 115 mm	68005/71	

9.6 ConLog^{CARE} Management Software

Functions	Order no.	
ConLog^{CARE} Management Software *Basic module + call recording* Bundle, consisting of: – Basic module, order no. 29 0804 00 – "Call recording" module, order no 29 0804 10 *The details are to be found in the descriptions of the two articles in the bundle.*	29 0804 90	 
ConLog^{CARE} Basic module *for system configuration* The Basic module of the ConLog^{CARE} Management Software is used for central configuration and programming of CONCENTO^{CARE} nurse call systems. **Basic properties of the software** – Basic module incl. dongle and product key – The PC with ConLog^{CARE} Management Software is connected to the Management Interface or the system interface LAN of the nurse call system – Freely definable user management – Project-based data administration – Automatic daily back-up of the database with time – Online back-up possible – Network-capable: Can be used as a stand-alone solution or allows networking of several PCs to form a client/server structure – Incl. 1 year LiveUpdate (Internet access required), further to be ordered separately – Software in English and German *Continuation ...*	29 0804 00	

Functions	Order no.	
ConLog^{CARE} Basic module *for system configuration* *Continuation:* **System configuration and programming** – Central configuration of the entire nurse call system – Establishment of the logical structure of the nurse call system in wards, zones, and shifts – Entry of ward and room names – Programming of the Management Interface, the system interface LAN, the group controllers, and room controllers with the project-specific settings via the bus system through the Management Interface or the system interface LAN – Firmware updates of the Management Interface, group controllers and room controllers – Administration of the system interfaces for alarm servers / radio paging and telephony – Administration of call forwarding to Telecare monitoring centres **System requirements** – Microsoft Windows® 10, 8, 7 (32 Bit, 64 Bit) – 4 GB RAM, 40 GB hard drive, DVD drive, Monitor (1280 x 1024 Pixel), USB 2.0 or higher	29 0804 00	

Functions	Order no.	
ConLog^{CARE} "Client" module *for an additional workstation* The Client module extends the basic module of the ConLog^{CARE} management software by an additional workstation with the same scope of functions. – 1 Client module incl. product key – Connection of the PC with ConLog^{CARE} Management Software client module to the PC with ConLog^{CARE} Management Software basic module in a client/server structure – Software in English and German – Maximum 15 client modules can be used with one basic module **System requirements** – Microsoft Windows® 10, 8, 7 (32 Bit, 64 Bit) – ConLog^{CARE}, Basic module – 4 GB RAM, 40 GB hard drive, DVD drive, Monitor (1280 x 1024 Pixel), USB 2.0 or higher	29 0804 05	

Functions	Order no.	
ConLog^{CARE} "Call recording" module *for call logging & evaluation* The call recording module supplements the basic module of the ConLog^{CARE} Management Software by logging and evaluating all system events in CONCENTO^{CARE} nurse call systems. **Basic properties of the software** – Call recording module incl. product key – The call recording module can only be installed if the basic module has already been installed. **Call logging and reporting** – Logging all events of the nurse call system with date time stamp – Recording the raising of calls, call type, call location, call answering, acknowledgement, cancellation – Distinguishing between remote cancellation and cancellation at call location – Active alarm stack, status messages, event display – SQL database format – Simple and effective reporting – Reports can be configured according to the parameters, e.g. according to call type, date, room number, floor – Export to PDF, RTF, XLS, CSV, TXT – Software in English and German **System requirements** – Microsoft Windows® 10, 8, 7 (32 Bit, 64 Bit) – ConLog^{CARE}, Basic module – 4 GB RAM, 40 GB hard drive, DVD drive, Monitor (1280 x 1024 Pixel), USB 2.0 or higher	29 0804 10	

Functions	Order no.
ConLog^{CARE} "LiveUpdate" module *for one additional year LiveUpdate* The LiveUpdate module extends the basic module of the ConLog^{CARE} Management Software by another year of LiveUpdate **Basic properties of the software** – LiveUpdate module incl. product key – The module can only be installed if the basic module has already been installed – Via the LiveUpdate all ConLog^{CARE} modules installed on the PC as well as available firmware versions can be updated. – Internet access and the dongle of the basic module are required for this – Software in English and German **System requirements** – Microsoft Windows® 10, 8, 7 (32 Bit, 64 Bit) – Dongle of ConLog^{CARE}, Basic module – 4 GB RAM, 40 GB hard drive, DVD drive, Monitor (1280 x 1024 Pixel), USB 2.0 or higher	29 0804 20

Functions	Order no.
ConLog^{CARE} "Additional project" module *for connection of additional nurse call systems* The additional project module extends the basic module of the ConLog^{CARE} Management Software by the connection of an additional CONCENTO^{CARE} nurse call system. **Basic properties of the software** – Additional project module incl. product key – The module can only be installed if the basic module has already been installed. – Up to 14 additional projects can be set up – Software in English and German **System requirements** – Microsoft Windows® 10, 8, 7 (32 Bit, 64 Bit) – ConLog^{CARE}, Basic module – 4 GB RAM, 40 GB hard drive, DVD drive, Monitor (1280 x 1024 Pixel), USB 2.0 or higher	29 0804 30

Functions	Order no.	
Interface for remote maintenance Service for remote control of the computer to diagnose faults, install updates or provide support during operation. A Tunstall GmbH system technician accesses the PC for this purpose. Reliable security functions protect against unauthorized access. **Performance features** – Efficient troubleshooting on remote systems – File transfer in the background – Encryption of data traffic as for home banking sessions using RSA 1024-bit (asymmetric encryption and session encoding via AES 256-bit) – Command prompt, task manager, services and regedit can be started directly from the user interface **System requirements (not included)** – Microsoft® Windows® 7, 8, 10 (all 32 bit, 64 bit) – Internet connection – 1 GHz processor, 1 GB RAM, DVD drive, USB connection	19 8000 20	

9.7 System control

Functions	Order no.	
Management Interface *e.g. to alarm/pager server, PBX, PC* Interface for CONCENTO^{CARE} nurse call systems for the transmission of call and system messages, voice messages and connections for speech communication via telephone systems. Additional interfaces are available for system administration and for transferring logging data. **Performance features** – Convenient programming with ConLog^{CARE} Management Software – Call forwarding to Telecare monitoring centres (PNC) – Fixed-phrase voice messages for call type and call location (ward and room number) as well as to support operation – Intelligent status displays: Data bus, ConLog^{CARE} connection, ESPA 4.4.4 and telephone connection – Information display: Date, time, IP address, ID – Wall mounting on one-gang back box or cable duct **Interfaces** – IP interface to PC with ConLog^{CARE} Management Software via LAN for configuration and logging, RJ45 – RS232, interface, ESPA 4.4.4 protocol – RJ11, telephone connection – Fault message output, potential free (NO/NC), configurable – Connection to group bus *Dimensions (HxWxD) 135 x 190 x 90 mm*	29 0700 00	

Functions	Order no.	
System interface LAN *e.g. to alarm/pager server, PC* Interface for transmission of call and system messages. Additional interfaces for system administration and for forwarding of logging data. **Interfaces** – IP interface to PC with ConLog^{CARE} Management Software via LAN for configuration and logging, RJ45 – RS232 interface to DECT system or alarm server/radio paging system (ESPA 4.4.4) for transmission of call and system messages – Socket for ESPA 4.4.4: Sub-D, 9-pin, maximum cable length: 10 m – Interface to fault signalling devices (fault message relay output) – Connection to group bus – Mounting on 35 mm top hat rail *Dimensions (HxWxD) 90 x 160 x 58 mm*	19 0700 05	

Functions	Order no.	
Group controller *for max. 40 ward bus users* The group controller monitors and controls the complete data traffic as well as the speech communication of all bus users on a ward bus All group controllers are interconnected via the group bus. The group bus is controlled by all connected group controllers according to the master-slave method – Control of the ward bus as well as the functions between wards – 2-line display for status indication: Time zone, active messages on the ward bus (calls, presences, faults) – Group lamp can be connected for display of calls of the specific physical group – Stand-alone operation without group bus possible – Wall mounting on 2-gang back box *Dimensions incl. mounting plate and connectors (HxWxD): 190 x 102 x 50 mm*	29 0700 10	
Fire alarm interface *for coupling of alarms from FAS* Interface for connecting a fire alarm system (FAS) via ESPA protocol 4.4.4 to the CONCENTO^{CARE} nurse call system. The fire alarm interface is connected via the data protocol for the fire brigade display panel FAT 2002 of the manufacturer IFAM. NOTE: This system does not replace the alarming of a fire alarm system according to DIN VDE 0833. – Connection to group bus – RS232, interface to fire alarm system *Dimensions (HxWxD) 190 x 116 x 63 mm*	19 0800 84	

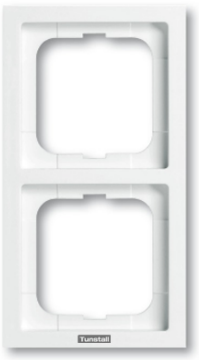
9.8 Power supply units

Functions	Order no.	
Power supply unit 6A UPS Power supply unit for supplying the nurse call system with safety extra-low voltage (SELV), compliant with EN 62368-1. The number of rooms, that can be connected, is project specific. Integrated batteries for uninterruptible operation with approx. 36 minutes backup power supply. Wide range input for international use. Short-circuit and overload protected. Control LEDs and contact outputs for transmission of status information: operation, battery operation, battery low, fault message.. – Closed housing in protection class I – Testing voltage PRI - SEC: 4 kV – Certified acc. 2x MOPP, 60601-1, 3rd – Degree of protection: IP20 – Designed for wall mounting in rooms **Input** – Nominal voltage: 115 – 230 V AC – Nominal voltage range: 90 – 264 V AC – Input frequency: 47 – 63 Hz **Output** – Nominal current: 6 A DC – Output voltage in mains operation: 24 V DC +/- 3% – Output voltage in battery operation: typ. 27 – 20 V DC – Rated output power: 144 W – Battery capacity: 7 Ah – Bridging time for nominal current: approx. 36 minutes *Weight: 7.6 kg* *Dimensions (HxWxD) 244 x 325 x 178 mm*	77 3400 60	

Functions	Order no.	
Power supply unit 6A Power supply unit for supplying the nurse call system with safety extra-low voltage (SELV), compliant with EN 62368-1. The number of rooms, that can be connected, is project specific. Wide range input for international use. Short-circuit and overload protected. Control LEDs and contact output for transmission of the active operation status. – Closed housing in protection class I – Testing voltage PRI - SEC: 4 kV – Certified acc. 2x MOPP, 60601-1, 3rd – Degree of protection: IP20 – Designed for wall mounting in rooms **Input** – Nominal voltage: 115 – 230 V AC – Nominal voltage range: 90 – 264 V AC – Input frequency: 47 – 63 Hz **Output** – Nominal current: 6 A DC – Output voltage: 24 V DC +/- 3% – Rated output power: 144 W *Weight: 2.5 kg* *Dimensions (HxWxD) 244 x 325 x 178 mm*	77 3401 60	

9.9 Frames and surface mounting boxes

Functions	Order no.	
Frame-T RS, 1-gang – Design Reflex SI – Colour: Alpine white *Dimensions (HxWxD) 81 x 81 x 11 mm*	29 9200 01RS	
Frame-T RS, 2-gang, v – Design Reflex SI – Colour: Alpine white – Vertical mounting *Dimensions (HxWxD) 152 x 81 x 11 mm*	29 9200 02RS	
Frame-T RS, 2-gang, h – Design Reflex SI – Colour: Alpine white – Horizontal mounting *Dimensions (HxWxD) 81 x 152 x 11 mm*	29 9200 12RS	
Surface mounting box, 1-gang, for frame RS – Design Reflex SI – Colour: Alpine white *Dimensions (HxWxD) 80 x 80 x 42 mm*	29 9201 01RS	

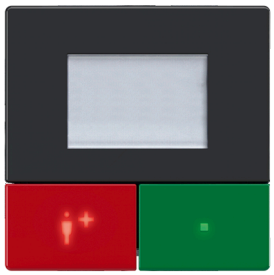
Functions	Order no.	
Surface mounting box, 2-gang, for frame RS – Design Reflex SI – Colour: Alpine white *Dimensions (HxWxD) 152 x 80 x 42 mm*	29 9201 02RS	
Frame-T F, 1-gang – Design future® linear – Colour: Studio white *Dimensions (HxWxD) 80 x 80 x 11 mm* future® linear is a registered trademark of Busch-Jaeger	29 9200 01F	
Frame-T F, 2-gang, v – Design future® linear – Colour: Studio white – Vertical mounting *Dimensions (HxWxD) 151 x 80 x 11 mm* future® linear is a registered trademark of Busch-Jaeger	29 9200 02F	
Frame-T F, 2-gang, h – Design future® linear – Colour: Studio white – Horizontal mounting *Dimensions (HxWxD) 80 x 151 x 11 mm* future® linear is a registered trademark of Busch-Jaeger	29 9200 12F	

Functions	Order no.	
Surface mounting box, 1-gang, for frame F – Design future® linear – Colour: Studio white *Dimensions (HxWxD) 80 x 80 x 42 mm* future® linear is a registered trademark of Busch-Jaeger	77 0210 55	
Surface mounting box, 2-gang, for frame F – Design future® linear – Colour: Studio white *Dimensions (HxWxD) 151 x 80 x 42 mm* future® linear is a registered trademark of Busch-Jaeger	77 0210 61	
Frame-T BS, 1-gang – Design Busch-balance® SI – Colour: Alpine white *Dimensions (HxWxD) 81 x 81 x 12 mm* Busch-balance® SI is a registered trademark of Busch-Jaeger	29 9200 01BS	
Frame-T BS, 2-gang, v – Design Busch-balance® SI – Colour: Alpine white – Vertical mounting *Dimensions (HxWxD) 152 x 81 x 12 mm* *Busch-balance® SI is a registered trademark of Busch-Jaeger*	29 9200 02BS	

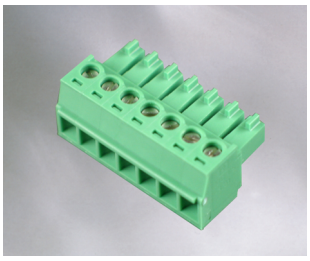
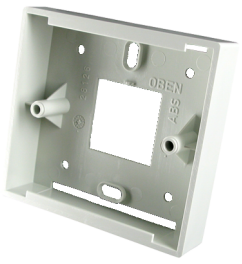
Functions	Order no.	
Frame-T BS, 2-gang, h – Design Busch-balance® SI – Colour: Alpine white – Horizontal mounting *Dimensions (HxWxD) 81 x 152 x 12 mm* Busch-balance® SI is a registered trademark of Busch-Jaeger	29 9200 12BS	
Surface mounting box, 1-gang, for frame BS – Design Busch-balance® SI – Colour: Alpine white *Dimensions (HxWxD) 80 x 80 x 42 mm* Busch-balance® SI is a registered trademark of Busch-Jaeger	29 9201 01BS	
Surface mounting box, 2-gang, for frame BS – Design Busch-balance® SI – Colour: Alpine white *Dimensions (HxWxD) 151 x 80 x 42 mm* Busch-balance® SI is a registered trademark of Busch-Jaeger	29 9201 02BS	

9.10 Accessories

9.10.1 Accessories for call/presence insert

Functions	Order no.	
Room programming interface *without frame* Programming module including two buttons an a display for configuring call/presence inserts.	29 0701 80...	 29 0701 80F
Design Reflex SI	29 0701 80RS	
Design future® linear	29 0701 80F	
Design Busch-balance® SI	29 0701 80BS	

9.10.2 Accessories for room lamps

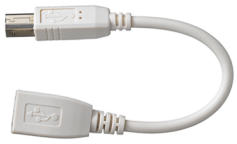
Functions	Order no.	
Connector, 7-pole *e.g. for room lamps universal* Plug-in screw clamp e.g. for the connection of room lamps universal. – Plug-in screw connection up to 1.5 mm² *Dimensions (HxWxD) 10 x 28 x 15 mm*	70 0807 07	
Surface mounting frame *for room lamps 77... and 78...* Material: ABS *Dimensions (HxWxD) 80 x 86 x 21 mm*	00 0281 26	

Functions	Order no.	
Doorplate universal Doorplate without light sections, universally applicable. *Dimensions (HxWxD) 190 x 150 x 40 mm* *Beschriftungsfeld (HxB): approx. 70 x 92 mm*	77 0189 00	

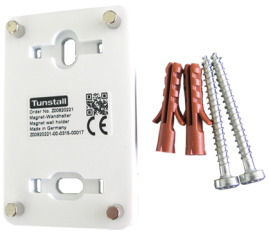
9.10.3 Accessories for corridor displays

Functions	Order no.	
Extension set ceiling suspension 0.5 m *for corridor displays 19078416, 29078412* For extending the ceiling suspension by 50 cm. – 2 rope connectors, on both sides with wire rope holder for rope diameter 1.0 to 1.5 mm – 2 extension ropes, 50 cm	19 0780 05	

9.10.4 Accessories for pear push switches

Functions	Order no.	
Extension cable for pear push switch, 3 m 3 m extension cable for a pear push switch 29 0790 02 or 29 0790 00.	29 0790 06	
Self-releasing adapter for pear push switch The self-releasing adapter is inserted between the plug of the pear push switch 29 0790 02 or 29 0790 00 and the connection socket. The connection is automatically disconnected when pulled and thus protected against damage. *Length: approx. 20 cm*	29 0790 04	
Equipment and cable clamp *Packing unit: 10 pieces* Protective function for all patient devices, e.g. pear push switches. Exact guidance of all cables and equipment along the bed supporting rod or the "bed gallows". The equipment and cable clamp automatically detaches itself from the bar under tensile load. *Dimensions: max. height: 160 mm, max. thickness: 18 mm, width: 70 mm*	70 0361 00	

9.10.5 Accessories for wireless call devices

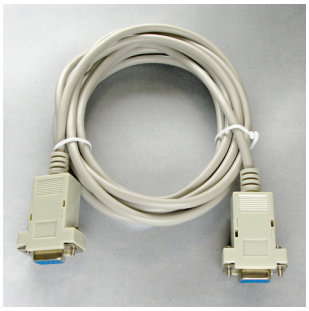
Functions	Order no.	
Magnetic wall bracket *für radio receiver-T* Bracket for magnetic fixing a radio receiver-T to the wall next to the connection socket. *Dimensions (HxWxD) 64 x 40 x 12 mm*	Z 00 8202 21	

9.10.6 Accessories to ConLog^{CARE} Management Software

Functions	Order no.
Personal Computer, English Personal Computer e.g. for ConLog^{CARE} Management Software. Minimum equipment compatible to: – Hard disk – RAM: 4 GB DDR3 – Optical drive: DVD burner – Network card – USB keyboard, USB mouse – Operating system: Windows 7 Professional 32 Bit (or successor), English – 19 inch TFT monitor – Supply voltage: 230 V AC / 50 Hz The specification will be the standard specification at the time of delivery. Further details on request.	19 8001 00
Personal Computer, German as 19 800 00, but German version	19 8000 00

Functions	Order no.	
Patch cable CAT5, 5 m – RJ45 plug – Length: 5 m	00 0241 53	
DCF77 radio clock module for PC For synchronizing the CONCENTO^{CARE} nurse call system with the standard time of the DCF77 time signal transmitter. – LED display red/green – USB connection for the PC – CD with driver software – Cable length: 2 m *Dimensions (HxWxD) 80 x 40 x 20 mm*	19 0800 22	 Similar to image
UPS 500 VA / 300 W UPS system with overvoltage protection for electronic devices and computers – Output capacity: 500 VA / 300 W – 3 battery-powered connection sockets – Additional plug only with overvoltage protection – Ambient temperature range Operation: 0 °C – +40 °C *Dimensions (HxWxD) 165 x 91 x 284 mm* *Weight: 6.32 kg*	21 9150 00	 Similar to image

9.10.7 Miscellaneous installation material

Functions	Order no.	
Null modem cable e.g. for connecting the Management Interface to an alarm server or radio paging system.. ■ Sub-D, 9-pole, socket/socket ■ Length: 3 m	19 0800 14	
Interface converter RS232 to RS485 for converting from RS 232 to RS-422/485 interfaces – DTE/DCE selector switch – Bidirectional converting – Monitor for TXD/RXD diagnostics – Asynchronous transmission – Full/half duplex DCE/DTE mode – Transmission rate: 128 kbps – Range: 1.3 km – Device can be configured via three switches – Plastic housing – lug-in power supply 9 V DC in scope of supply – 25-pin D-sub socket **Note for ordering** Two RS232 to RS485 interface converters (19 1990 12) and two Sub-D adapter cables (19 1990 55) as well as an J-(St)Y 2x2x0.8 mm are required to extend an RS232 interface	19 1990 12	

Functions	Order no.	
Sub-D adapter cable – 9-pin Sub-D socket – 25-pin Sub-D plug – Length: 25 cm	19 1990 55	
Over-voltage protection circuit 230 V AC	70 0890 97	
Network isolator LAN External network isolator for galvanic network separation according to EN 60601-1. – Dielectric strength of signal and shielding: 5 kV – Operating mode: Continuous operation – Data throughput: 10/100/1000 MBit/s – Ports: 2x RJ45 – Conformity: IEEE 802.3 – Standards: Safety: EN / IEC 60601-1 3rd EMC: EN / IEC 60601-1-2 *Dimensions (HxWxD) 23 x 29 x 65 mm* *Weight: approx. 50 g*	76 5000 00	

Functions	Order no.	
Interface isolator RS232 Isolator provides effective protection against external influences and fulfils the standard IEC 61850-3. – 4 kV RSM galvanic separation – 15 kV ESD protection – Supply voltage: 24 V DC (from the nurse call system), max. 1 W – Diagnostic LEDs – Standard: IEC 61850-3 – Mounting on top-hat rail (35 mm) *Dimensions (HxWxD) 99 x 22.5 x 92 mm* *Weight: approx. 100 g*	76 5010 00	
SPD module base part BXT BAS Base part, for use as feed-through terminal for supporting SPD modules for speech and data lines. Modules pluggable without interruption, for 4 single wires or 2 double wires. Width 12 mm (2/3 DU). – Mounting on 35 mm top hat rail acc. to EN 60715 – Connection cross section finely stranded: 0.08 - 2.5 mm² – Earthing via 35 mm top hat rail acc. to EN 60715	77 4900 00	

Functions	Order no.	
SPD module for speech and data wires BXT ML4 BD HF 5 Combined Lightning Current and Surge Arrester Module SPD class TYPE 1 / P1 tested acc. to EN 61643-21 and energy-coordinated acc. to IEC 61643-22 for protection of 2 pairs of IT systems. For use with high data transmission rates due to its low self impedance – For plugging into base part type BXT BAS. – SPD monitoring system: LifeCheck – Max. continuous operating DC voltage: 6.0 V – Nominal current for 45 °C: 1.0 A – D1 Total lightning impulse current (10/350): 10 kA – Series impedance per wire:: 1.0 Ohm – Shock test: EN 60068-2-27 (Ea test) – Examination of vibration performance (sinusoidal): EN 60068-2-6 (Fc test) – Test for vibration performance (coincidental): EN 60068-2-64 (Fh test)	77 4900 01	

9.10.8 Back boxes

Functions	Order no.	
Back box solid wall, deep, 1-gang *Installation opening: Ø 60 mm* Depth: 66 mm	17 0100 20	
Back box solid wall, 1-gang *Installation opening: Ø 60 mm* Depth: 46 mm	17 0100 00	
Back box solid wall, 2-gang *Installation opening: 140 x 60 x 42 mm, oval* without divider	17 0410 00	
Back box partition wall, deep, 1-gang *Burr hole: Ø 68 mm* Depth: 61 mm	17 5100 20	
Back box partition wall, 1-gang *Burr hole: Ø 68 mm* Depth: 47 mm	17 5100 00	

Functions	Order no.	
Back box partition wall, 2-gang *Burr hole: Ø 2 x 68 mm, oval* Depth: 47 mm, centre distance: 71 mm, without divider	17 5400 00	

10 Mounting positions

10.1 Room controllers

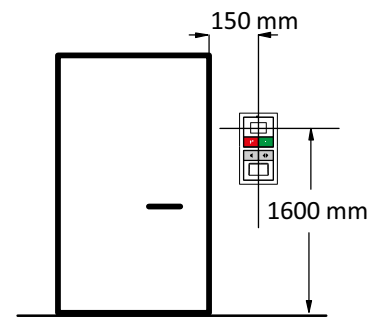
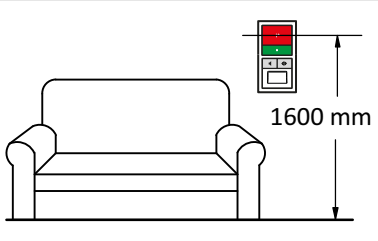
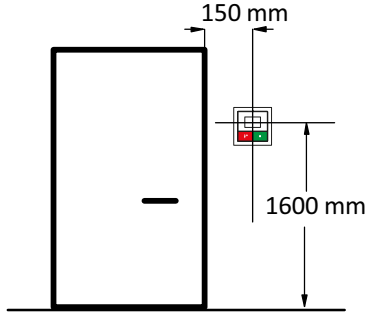
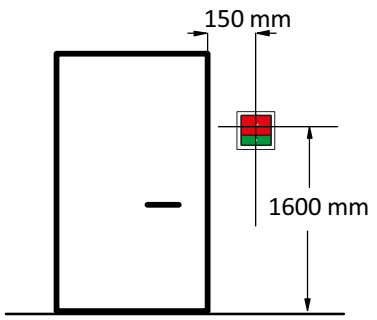
Figure	Description
	**Display insert with intercom insert** *Order no. 29 0700 80... + 29 0701 30...* – Mounting on two connected vertically arranged deep back boxes – Installation preferably in the entrance area to allow nursing staff easy access to the presence button when they are entering and leaving the room. – Unobstructed view of the display must be ensured. – To ensure the display remains legible, the device must not be exposed to direct sunlight. – Mounting height above floor level according to DIN VDE 0834-1 = 150 – 170 cm.
	**Call/presence insert with intercom insert in an apartment** *Order no. 29 0701 00... + 29 0701 30...* – Wall mounting on a deep 1-gang back box – In an apartment of assisted living the room controller should be installed in an acoustically suitable position from where speech contact is possible throughout the entire apartment, for example in the living room. – Mounting height above floor level = 150 – 170 cm.
	**Display insert** *Order no. 29 0700 80...* – Wall mounting on a deep 1-gang back box – Installation preferably in the entrance area to allow nursing staff easy access to the presence button when they are entering and leaving the room. – Unobstructed view of the display must be ensured. – To ensure the display remains legible, the device must not be exposed to direct sunlight. – Mounting height above floor level according to DIN VDE 0834-1 = 150 – 170 cm.

Figure	Description
	**Call/presence insert** *Order no. 29 0701 00...* – Wall mounting on a deep 1-gang back box – Installation preferably in the entrance area to allow nursing staff easy access to the presence button when they are entering and leaving the room. – Mounting height above floor level = 150 – 170 cm. This mounting height allows a later upgrade to a display insert.

10.2 Room lamps, corridor displays

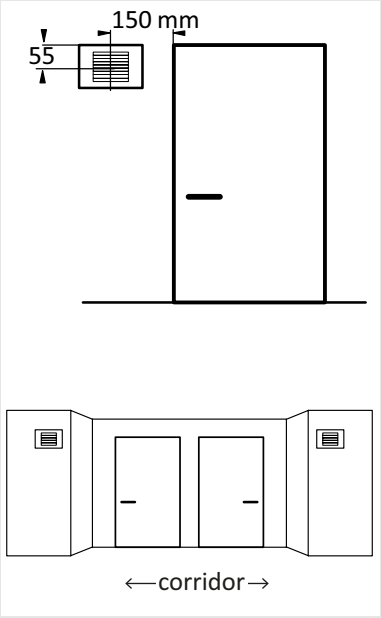
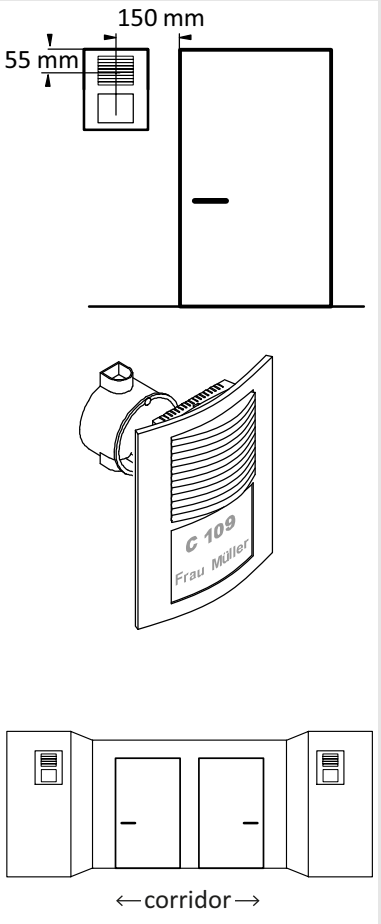
Figure	Description
	**Room lamp universal, 3 sections** *Order no. 77 0180 10, 77 0185 10* – Mounting on a 1-gang back box. – The room lamp must be easily assignable to the room. – If the room door is located in a niche that cannot be seen from the corridor, it is advisable to install the room lamp separately in the corridor. – External sources of light must not prevent the room lamp from being identified. – Mounting height above floor level according to DIN VDE 0834-1 = 150 – 250 cm.
	**Room lamp universal, 3 sections, with doorplate** *Order no. 77 0181 10* – Mounting on a 1-gang back box. Note! The back box is installed behind the lamp and not behind the doorplate. – The room lamp with door plate must be easily assignable to the room – If the room door is located in a niche that cannot be seen from the corridor, it is advisable to install the room lamp separately in the corridor. – External sources of light must not prevent the room lamp from with doorplate being identified. – Mounting height above floor level according to DIN VDE 0834-1 = 150 – 250 cm.

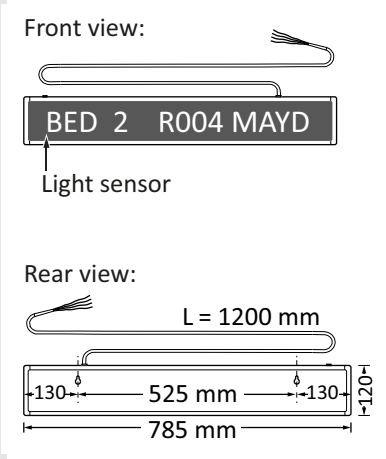
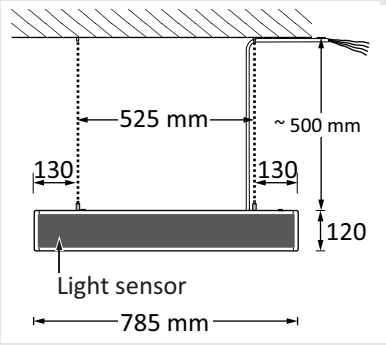
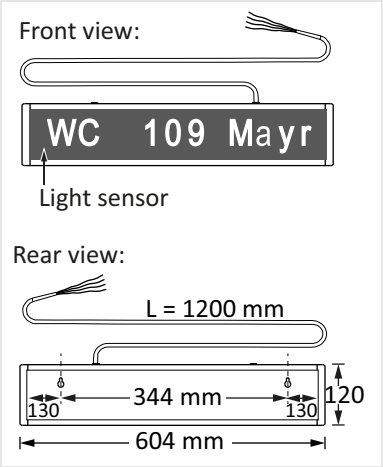
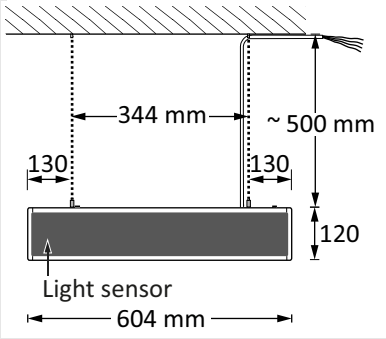
Figure	Description
	**Corridor display, 16-digit** *Order no.: 19 0783 16* – Wall fixing with the help of the keyhole-shaped openings on the back. – Distance to junction box < 1m. – Unobstructed view of the corridor display must be ensured. – External sources of light must not prevent the corridor display from being identified. – Observe the position of the light sensor. The light sensor automatically adjusts the brightness of the corridor display. – Mounting height above floor level according to DIN VDE 0834-1 = 150 – 250 cm.
	**Corridor display, 16-digit, double-sided** *Order no.: 19 0784 16* – Unobstructed view of the corridor display must be ensured. – External sources of light must not prevent the corridor display from being identified. – Observe the position of the light sensor. The light sensor automatically adjusts the brightness of the corridor display. – Attention! A light sensor is only present on the side of the double-sided corridor display shown in the illustration. – Extension set ceiling suspension 0.5 m if required: 19 0780 05 – Mounting height above floor level according to DIN VDE 0834-1 = 150 – 250 cm.

Figure	Description
	**Corridor display, 12-digit** *Order no.: 29 0783 12* – Wall fixing with the help of the keyhole-shaped openings on the back. – Distance to junction box < 1m. – Unobstructed view of the corridor display must be ensured. – External sources of light must not prevent the corridor display from being identified. – Observe the position of the light sensor. The light sensor automatically adjusts the brightness of the corridor display. – Mounting height above floor level according to DIN VDE 0834-1 = 150 – 250 cm.
	**Corridor display, 12-digit, double-sided** *Order no.: 29 0784 12* – Unobstructed view of the corridor display must be ensured. – External sources of light must not prevent the corridor display from being identified. – Observe the position of the light sensor. The light sensor automatically adjusts the brightness of the corridor display. – Attention! A light sensor is only present on the side of the double-sided corridor display shown in the illustration. – Extension set ceiling suspension 0.5 m if required: 19 0780 05 – Mounting height above floor level according to DIN VDE 0834-1 = 150 – 250 cm.

10.3 Switch inserts

For all switch inserts, the following applies:

- In case more than one switch shall be installed one above the other, multi-frames are available.
- Devices of the nurse call system and low-voltage system (e.g., switches or sockets) must not be covered with the same cover plate. A common cover is permissible if the function of insulation and contact protection are retained after the external cover is removed.

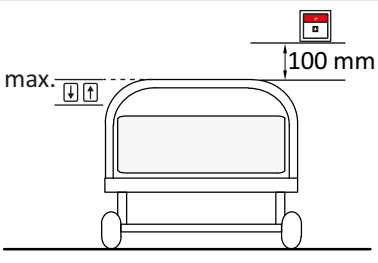
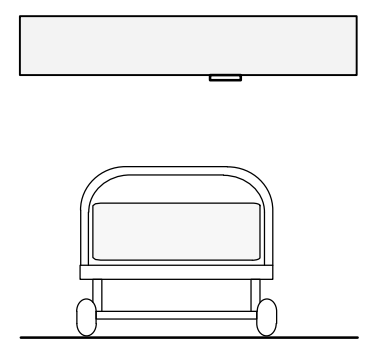
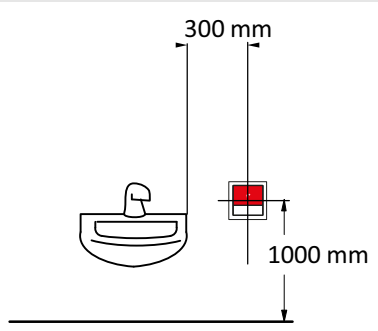
Figure	Description
	**Call switch insert with connector (wall mounting)** *Order no. 29 0704 00...* – Mounting on a 1-gang back box. – Mounting above the highest bed frame setting so that the call button can be easily reached and the bed cannot come into contact with the call switch with connector when moving. – Mounting height above floor level according to DIN VDE 0834-1 = 70 – 150 cm.
	**Call switch insert with connector (mounting in medical supply unit)** *Order no. 29 0704 00...* – Common practice is that the connection sockets are installed by the supplier of the medical supply units. – Mounting height above floor level according to DIN VDE 0834-1 = 160 – 180 cm.
	**Call switch insert** *Order no. 29 0708 00...* – Mounting on a 1-gang back box. – The call switch must be in a place that is easy for the resident/patient to access; e.g. next to the washbasin. – The specific provisions of DIN VDE 0100 must be observed in WC and wet rooms. – Mounting height above floor level according to DIN VDE 0834-1 = 70 – 150 cm.

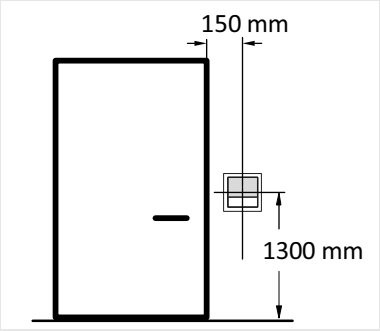
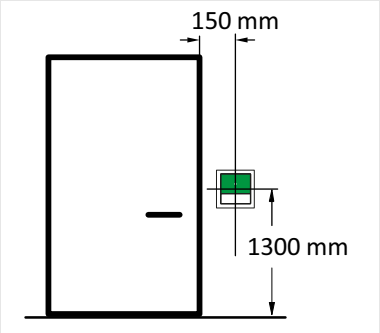
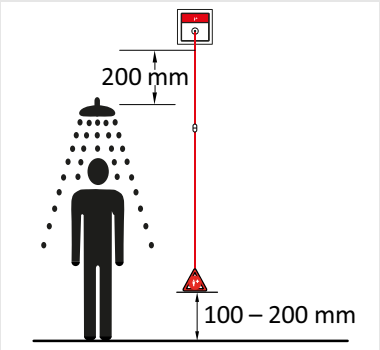
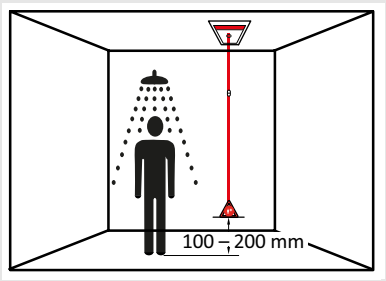
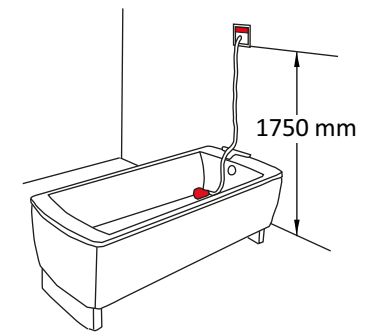
Figure	Description
	**Cancel switch insert** *Order no. 29 0709 00...* – Mounting on a 1-gang back box. – Mounting next to the door in the WC; i.e. in the same room where the WC call is triggered, which must be cancelled with this cancel switch. – The specific provisions of DIN VDE 0100 must be observed in WC and wet rooms. – Mounting height above floor level according to DIN VDE 0834-1 = 70 – 150 cm.
	**Presence switch insert** *Order no. 29 0706 00...* – Mounting on a 1-gang back box. – Installation preferably in the entrance area to allow nursing staff easy access to the presence button when they are entering and leaving the room. – Mounting height above floor level according to DIN VDE 0834-1 = 70 – 150 cm.
	**Pull cord switch insert in bathroom/WC (wall mounting)** *Order no. 29 0707 20...* – Mounting on a 1-gang back box. – The specific provisions of DIN VDE 0100 must be observed in WC and wet rooms. – Pull cord switches in shower stalls must be installed at least 200 mm above the highest possible position of the shower head. – The call handle must be in a place that is easy for the patient to access. – It must also be possible for people lying on the floor to access the pull cord. Therefore, the call handle must be between 100 mm and 200 mm above the floor.

Figure	Description
	**Pull cord switch insert in bathroom/WC (ceiling mounting)** *Order no. 29 0707 20...* – Mounting on a 1-gang back box. – The specific provisions of DIN VDE 0100 must be observed in WC and wet rooms. – The call handle must be in a place that is easy for the patient to access. – It must also be possible for people lying on the floor to access the pull cord. Therefore, the call handle must be between 100 mm and 200 mm above the floor.
	**Pneumatic switch insert** *Order no. 29 0707 50...* – Mounting on a 1-gang back box. – The specific provisions of DIN VDE 0100 must be observed in WC and wet rooms. – The rubber ball must be in a place that is easy for the patient to access.

10.4 System control

10.4.1 Management Interface

- Only in dry rooms, ideally in a distributor (not in patient/resident rooms).
- Always easily accessible to authorised persons (access space at least 60 cm wide).
- The display and operating keys must be accessible.
- Heat dissipation must not be hindered.

10.4.2 System interface LAN

- Only in dry rooms, ideally in a distributor (not in patient/resident rooms).
- Mounting on top-hat rail.
- Always easily accessible to authorised persons (access space at least 60 cm wide).
- Heat dissipation must not be hindered.

10.4.3 Group controller

- Only in dry rooms, ideally in a distributor (not in patient/resident rooms).
- Always easily accessible to authorised persons (access space at least 60 cm wide).
- The display and operating buttons must be accessible.
- Heat dissipation must not be hindered.

10.4.4 Fire alarm interface

- Only in dry rooms, ideally in a distributor (not in patient/resident rooms) or together with the fire alarm system.
- Always easily accessible to authorised persons (access space at least 60 cm wide).
- Heat dissipation must not be hindered.

10.4.5 Distributor for the nurse call system

Distributors for the nurse call system must not also be used for the low-voltage system. A separation between the nurse call system and low-voltage system in one housing does not suffice.

Mounting height above floor level according to DIN VDE 0834-1 = 70 – 220 cm, except switch cabinets.

10.5 Power supply units

The following requirements apply to the power supplies: Power supply unit 6A UPS (77 3400 60), Power supply unit 6A (77 3401 60).

- Wall mounting through keyholes on the rear of the device.
- Dimensions of all devices (HxWxD): 244 x 325 x 178 mm.
- Weight of the power supply units: 77 3400 60: 7,6 kg; 77 3401 60): 2.5 kg.
- Use in an operating area with restricted access.
- Accessible for authorised persons at all times (access space at least 60 cm).
- Mounting above a non-combustible surface only
- Installation only at a height of max. 2 m.
- Installation only in dry rooms.
- Permissible ambient temperature during operation: 0 – +40°C. If this value is exceeded, there is a risk of the device overheating
- A sufficient air circulation must be provided above and below the device. For this reason, the distance to other devices or walls above and below the power supply unit must be at least 50 mm.
- In case of installation into switch cabinets or similar equipment, the heat loss must be dissipated by forced-air ventilation.
- All-pole switch gear must be provided on site for the deactivation of the system.
- A safe separation of the alternating and direct current supply circuits must be observed on site!
- Observe the country-specific regulations (e.g., VDE).

11 Power supply

The system is supplied with 24 V of direct voltage by means of power supply units installed at decentralised locations: Power supply unit 6A UPS (77 3400 60) or power supply unit 6A (77 3401 60). The power supply line is housed in the ward bus cable. An installation cable of type J-Y(St)Y 4x2x0.8 is used for the ward bus; see page 149. The power supply line is laid in the cable in such a way that it is doubled; this ensures a larger conductor cross section.

The power supply for the ward bus must take the form of a closed ring. An additional mid-feed from the power supply unit is recommended.

The power for the corridor displays is supplied not via the ward bus but instead via a separate stub cable from the power supply unit.

You must ensure that it is not possible to mix up the cables for the extra-low voltage and the low voltage system: use appropriate colour-coding, mark the cables as necessary, and use the appropriate laying method for each case.

In all cases, the power supply unit must be connected to the mains supply (230 V AC) via a dedicated safeguard and using a permanent connection.

The electricity balance must be calculated in order to determine the number of power supply units that are required. The output of a power supply unit should be calculated using a coincidence factor of 20% for active calls and presences.

11.1 Backup power supply

DIN VDE 0834 requires a backup power supply to be used. If there is no backup system in place, measures that achieve the same effect must be implemented. The power supply unit 6A UPS (77 3400 60) with approx. 36 minutes backup supply (at 6 A load) is designed to serve this purpose.

DIN VDE 0834-1:2016-06 requires the owner to guarantee save operation even after one hour has passed.

11.2 Potential equalization

All group bus users, in other words, Management Interface (29 0700 00) or system interface LAN (19 0700 05), group controllers (29 0700 10) and fire alarm interface (19 0800 84), must be connected via GND connections (= twisted pair in group bus cable).

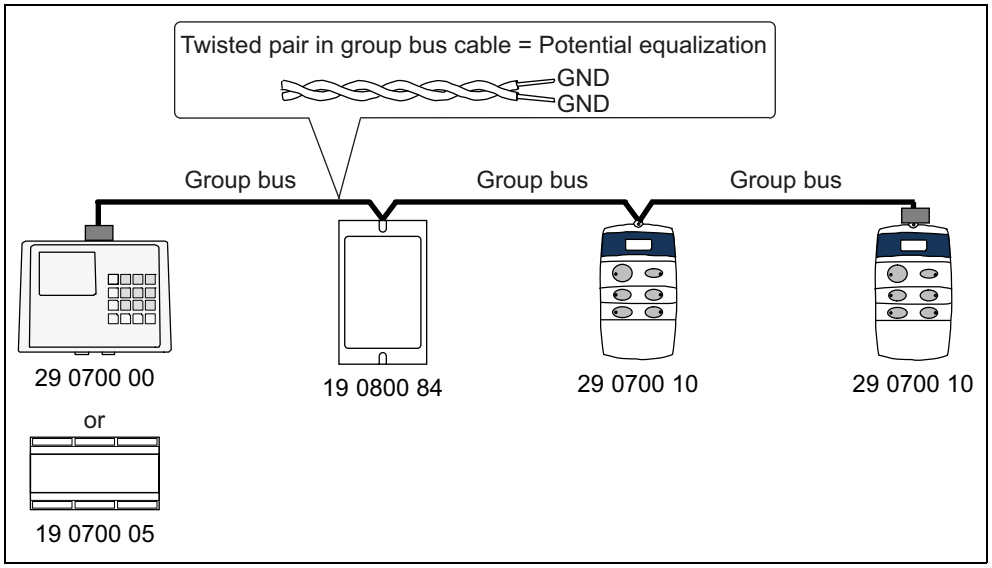


Fig. 35: Potential equalization

11.3 Voltage surge protection

If the group bus of the nurse call system is to be installed between two buildings, it must be equipped with overvoltage protection at the transition points of both buildings; see chapter "Voltage surge protection" as of page 159.

11.4 Dimensioning the power supply

When planning the power supply lines and the number of power supply units required (77 3400 60 or 77 3401 60), note the following points:

- The operating voltage of the devices to be supplied must not be any lower than 16 V DC at 20% call utilisation.
- A maximum of 80% of the power supply unit's capacity may be utilised. As the power supply units have a maximum utilisation capacity of 6 A, 80% utilisation equates to 4 .8 .
- The maximum cable length per power supply ring is 300 m.
- The corridor displays must not be connected to the power supply ring, but instead via a separate stub cable at the power supply unit (77 3400 60 or 77 3401 60).
- A maximum of 30 room controllers with speech communication (i.e. with intercom inserts) or 40 room controllers without speech communication may be connected to a power supply unit (77 3400 60 or 77 3401 60). A mid-feed is recommended in both cases.

11.5 Installing two power supply units per ward bus

If two power supply units are required at a ward bus for supplying the devices, a second power supply ring must be installed. The data and speech line may continue to up to 40 ward bus users and a line length of 700 m.

The GND connection points of the power supply units must be connected using a type "k" cable.

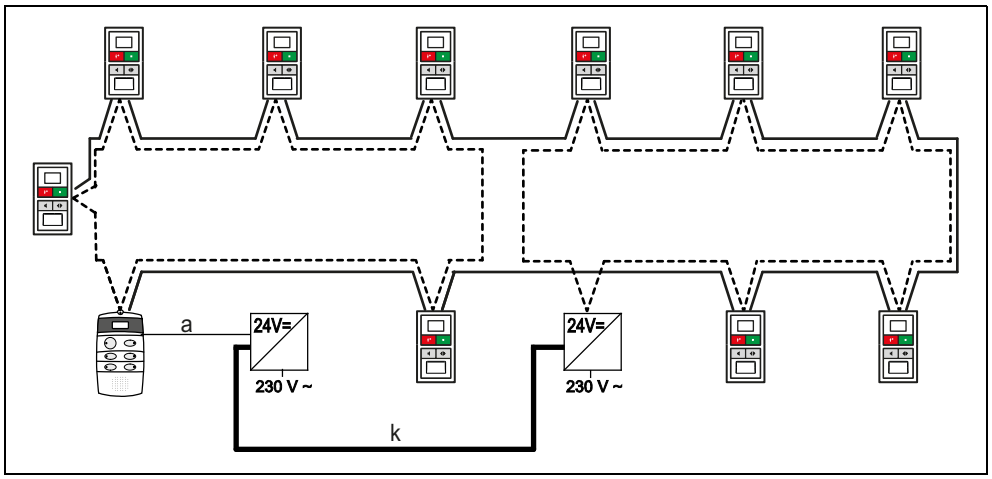


Fig. 36: Two power supply units per ward bus

Ward bus cable consisting of power supply line and data line + speech line (cable type "c"), see page 147.	
Data line + speech line	
Power supply line	
Connection between two power supply units (cable type "k"), see page 147.	

11.6 Current demand

The overview below has been produced as a guide to calculating current demand in the CONCENTO^{CARE} system. The values are average values and may differ slightly from case to case. The total power consumption of the system will fluctuate according to the functions that are being used.

Order no.	Product name	Standby current consump-tion	Additional current deman
29 0700 80...	Display insert	38 mA	10 mA for display lighting
29 0701 00...	Call/presence insert	36 mA	
29 0701 30...	Intercom insert	35 mA	
29 0706 00...	Presence switch insert	8 mA	23 mA for presence
29 0704 00...	Call switch insert with connector	9 mA	24 mA after call initiation
29 0708 00...	Call switch insert	9 mA	23 mA after call initiation
29 0709 00...	Cancel switch insert	8 mA	23 mA after call initiation
29 0707 20...	Pull cord switch insert	9 mA	23 mA after call initiation
29 0707 50...	Pneumatic switch insert	14 mA	24 mA after call initiation
19 0840 00	RAN interface	8 mA	
77 0180 10	Room lamp universal, 3 sections	0 mA	30 mA per light section switched on
77 0181 10	Room lamp universal, 3 sections, with doorplate	0 mA	30 mA per light section switched on
77 0185 10	Room lamp universal, 3 sections, glass decor	0 mA	30 mA per light section switched on
19 0783 16	Corridor display, 16-digit	60 mA	240 mA (for call))
19 0784 16	Corridor display, 16-digit, double-sided	80 mA	270 mA (for call))
29 0783 12	Corridor display, 12-digit	50 mA	250 mA (for call))
29 0784 12	Corridor display, 12-digit, double-sided	60 mA	290 mA (for call))
29 0790 02	Pear push switch incl. call and light switch, 3 m	5 mA	

Tab. 10: Current demand

Order no.	Product name	Standby current consump-tion	Additional current deman
29 0790 00	Birntaster incl. call switch, 3 m	5 mA	
Z 00 8202 36	Radio receiver-T	12 mA	
Z 00 8202 35	Radio receiver-T UP	12 mA	
29 0700 00	Management Interface	240 mA	
19 0700 05	System interface LAN	150 mA	
29 0700 10	Group controller	60 mA	20 mA for display lighting
19 0800 84	Fire alarm interface	40 mA	

Tab. 10: Current demand

12 Cables

12.1 Cable legend

A cable guide for CONCENTO^{CARE} has been created with the aim of making it easier to work with installation plans

Marker	Cable type	Area of use
a	J-Y(St)Y 2x2x0.8	– Room bus (RAN) – Room lamp connection (not a room bus user) – Connection between power supply unit and group controller
c	J-Y(St)Y 4x2x0.8	– Group bus – Ward bus
k	NYM-J 3x1,5	– Stub cable to power supply unit, e.g. for supplying power to the corridor display – Connection between two power supply devices at a ward bus – Mid-feed

Tab. 11: Cable legend

12.2 Group bus

12.2.1 Group bus properties

Property	Group bus
Cable type	J-Y(St)Y 4x2x0.8
Maximum cable length	700 m
Maximum number of group bus users	40 users
Group bus users	– 1 Management Interface (29 0700 00) or 1 system interface LAN (19 0700 05) – 1 Gruppencontroller (29 0700 10) per physical group – 1 Fire alarm interface (19 0800 84)

Tab. 12: Group bus – Properties

12.2.2 Group bus cable

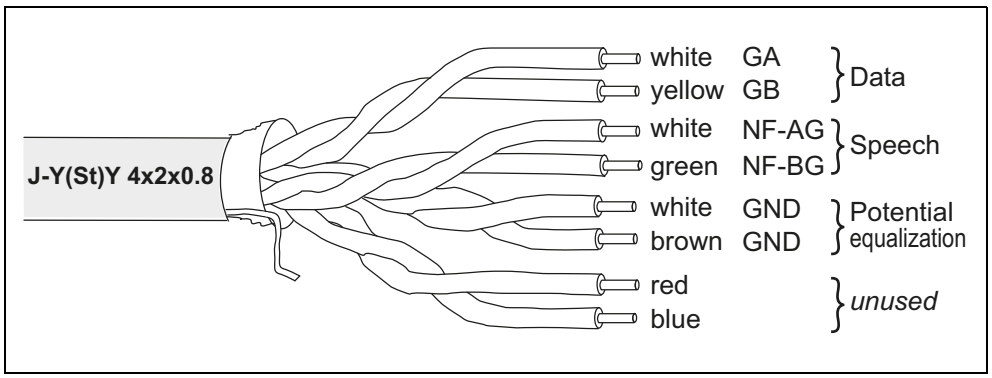


Fig. 37: Group bus wires

The group bus is made up of:

- Data line (1 twisted pair)
- Speech line (1 twisted pair) – in systems without speech unused
- GND line for potential equalization (twice) (1 twisted pair)

NOTE! The group bus must be cabled as a line (bus) configuration. Stub lines **must not** be used for the group bus. All devices must be directly at the bus.

Equipment in place at the site (distributors, cable ducts) should be used when installing the group bus.

12.3 Ward bus

12.3.1 Ward bus properties

Property	Ward bus
Cable type	J-Y(St)Y 4x2x0.8
Maximum cable length	700 m (NOTE! The ward bus also contains the power supply line. Please note the restrictions described on page 144)
Maximum number of ward bus users	40 users
Ward bus users	– Display insert (29 0700 80...) – Call/presence insert (29 0701 00...) – Corridor display (29 0783 12, 9 0784 12, 19 0783 16, 19 0784 16)

Tab. 13: Ward bus – Properties

12.3.2 Ward bus cable

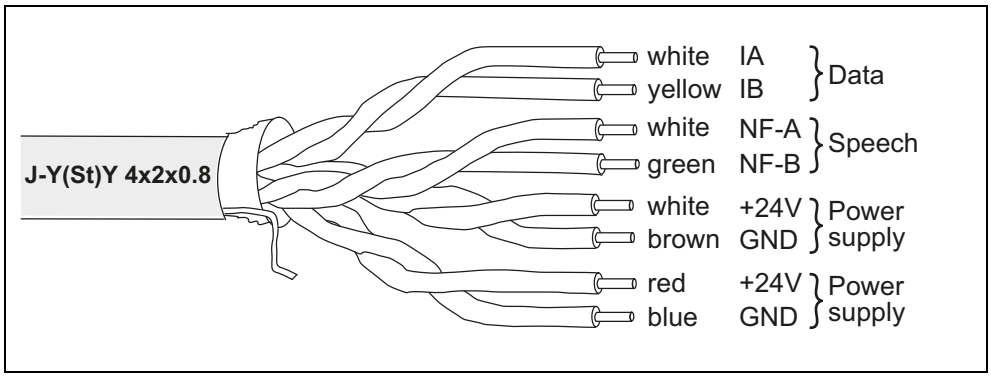


Fig. 38: Ward bus wires

The ward bus is made up of:

- Power supply line (twice, i.e. 2 twisted pairs)
- Data line (1 twisted pair)
- Speech line (1 twisted pair) – in systems without speech unused

NOTE! Stub lines **must not** be used for the ward bus. All devices must be directly at the bus.

The power supply line must be installed in a ring configuration. The data line and speech line must be installed in a line (bus) configuration. The data line and speech line must not have a ring closing point.

This means that the ward bus cable is installed as a ring. Between the first and last bus user, however, only the power supply line is connected.

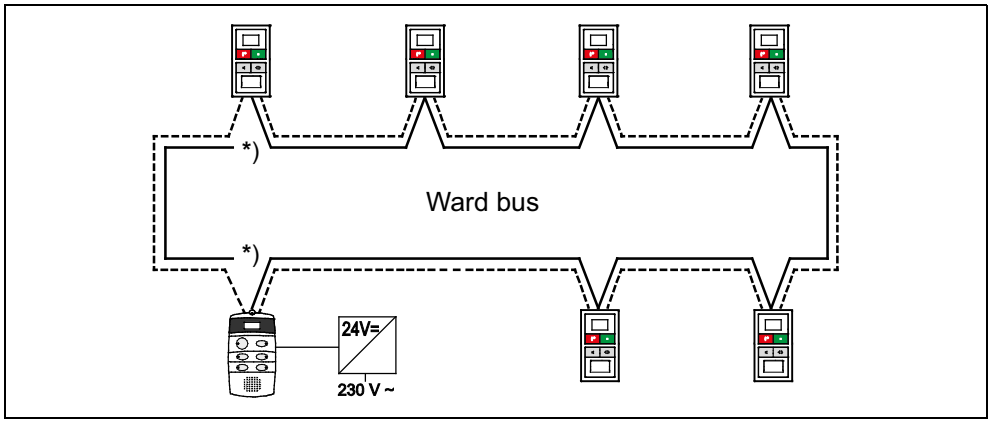


Fig. 39: Ward bus lines

----------	Ward bus cable consisting of power supply line and data line + speech line
————	Data line + speech line
----------	Power supply line
*)	Only connect the power supply line between the first and last bus user. No ring closing point in the data line and speech line.

12.4 Room bus (RAN)

12.4.1 Room bus (RAN) properties

Property	Room bus
Cable type	J-Y(St)Y 2x2x0.8
Maximum cable length	The total length of all RAN lines connected to a display insert or call/presence insert may not exceed 50 m.
Maximum number of room bus users	30 users
Room bus users	– Intercom insert (29 0701 30...) – Call switch insert with connector (29 0704 00...) – Call switch insert (29 0708 00...) – Cancel switch insert (29 0709 00...) – Presence switch insert (29 0706 00...) – Pull cord switch insert (29 0707 20...) – Pneumatic switch insert (29 0707 50...) – RAN interface (19 0840 00)

Tab. 14: Room bus (RAN) – Properties

NOTE! The room lamp is not a room bus user and is connected directly to the display insert or the call/presence insert.

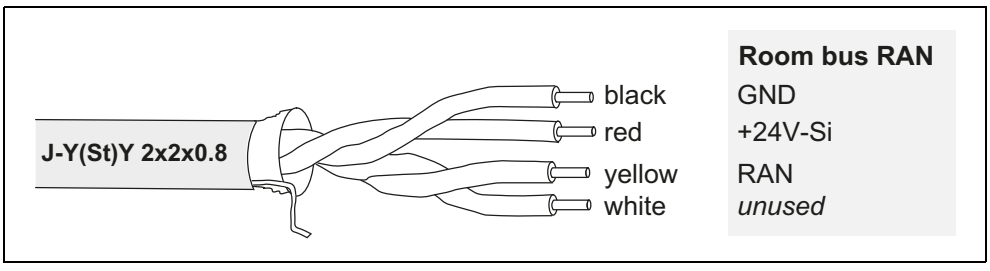


Fig. 40: Room bus (RAN)

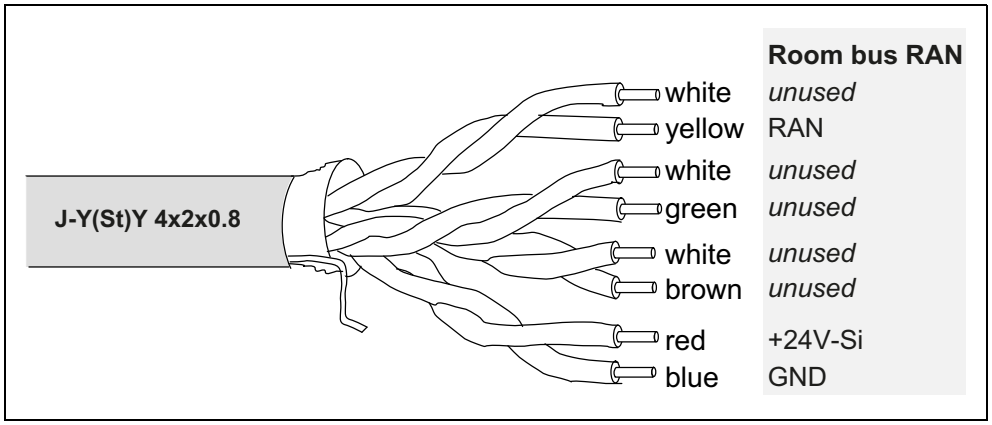


Fig. 41: Room bus (RAN) when using J-Y(St)Y 4x2x0.8 instead of J-Y(St)Y 2x2x0.8

All of the room bus users may be wired using any configuration (star, bus or mesh). Subsequent extensions to the line network may be made from any device, regardless of the function of these extensions.

12.5 Electromagnetic compatibility (EMC)

All the nurse call system components are significantly below the specified limit values for electromagnetic compatibility (EMC). In isolated cases and under certain conditions, however, faults in the nurse call system may occur as a result of insufficient interference suppression for fluorescent lamps, e.g. in medical supply units.

At the site, appropriate precautions must be taken to prevent these external faults. In some cases, it may be possible to prevent external faults of this kind by installing interference suppressors (varistor circuits). The varistor circuits must be purchased from the manufacturers. Tunstall therefore offers the over-voltage protection circuit 230 V AC (70 0890 97).

The EMC behaviour of different medical supply units may vary significantly. Even two supply units of the same type may behave differently if they are cabled in different ways.

Nurse call systems are usually wide-ranging structures whose EMC behaviour is heavily influenced by the configuration of the cable network.

You should also remember this when retrofitting or modifying existing medical supply units

12.5.1 Spacing to cables with dangerous voltage

Cables for the nurse call system must not be laid along with the cables of the low-voltage system or with cables of other systems of dangerous voltage in common cables, conduits or cable trays.

Cables for the nurse call system and cables of the low-voltage system must be placed at a minimum spacing of 30 cm. For shorter distances of less than 10 m the spacing may be reduced to 10 cm.

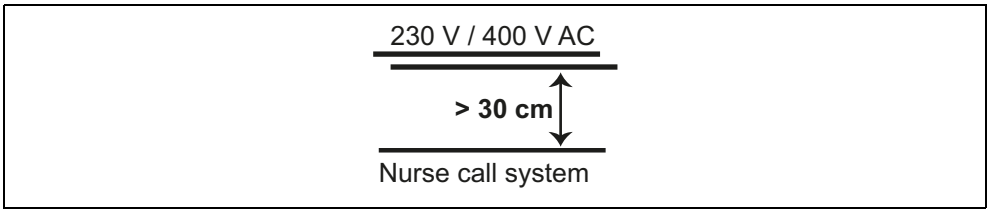


Fig. 42: Spacing to cables of the low-voltage system

For laying nurse call system cables in medical supply units the regulations of ISO 11197 have to be observed

13 Electrical safety

13.1 System separation

DIN VDE 0834:2016-06 stipulates that nurse call systems must meet the requirements of EN 60601-1 (2 x MOPP) with regard to electrical safety. MOPP (Means of Patient Protection) is a protective measure designed to reduce the risk of electric shock to the patient. 2 x MOPP corresponds to 4 kV isolation.

The CONCENTO^{CARE} nurse call systems are constructed according to the principle of system separation, i.e. the entire nurse call system is constructed according to EN 60601-1. The power supply units are equipped with a 4 kV isolation. External devices may only be connected to the nurse call system via a safe separation (2 x MOPP) according to EN 60601-1. If such a separation point is not located in the device, a separate separator must be inserted between them.

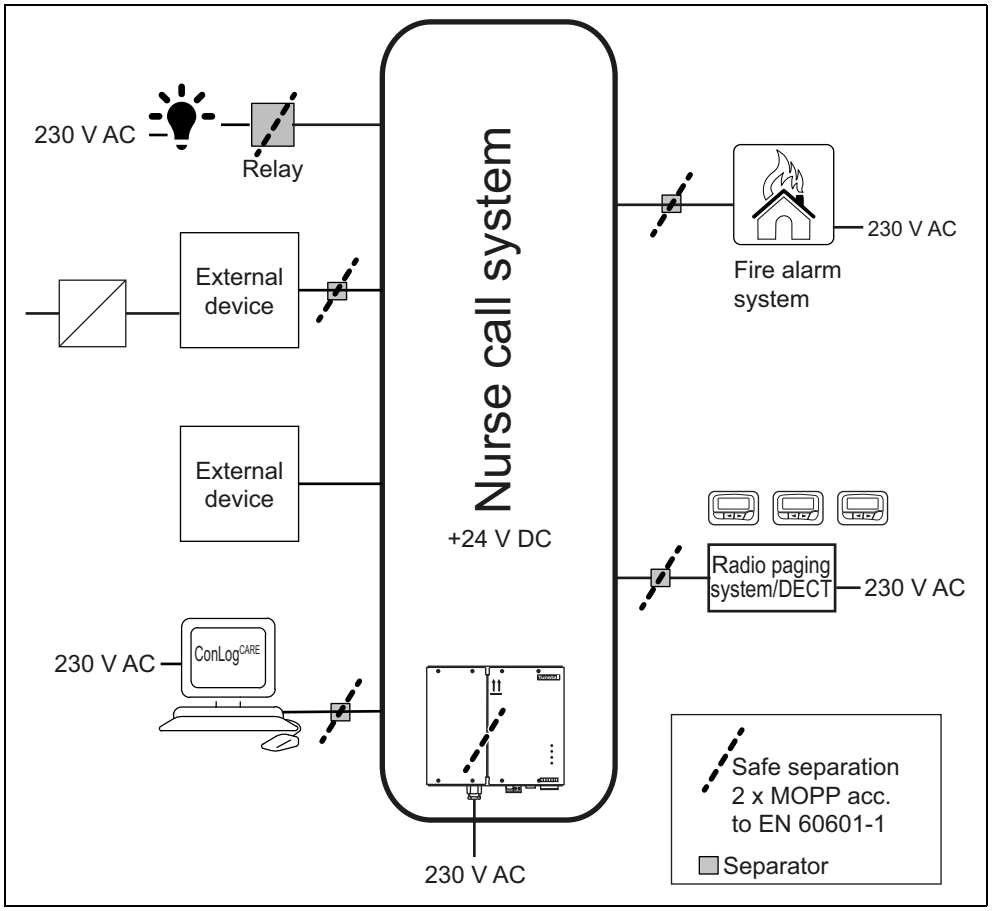


Fig. 43: System separation principle

13.2 Connection of system-external devices

System-external device must be connected to the nurse call system only through interfaces that guarantee safe separation according to EN 60601-1 (2 x MOPP).

13.2.1 Light control relays

When selecting the light control relays, safe separation according to EN 60601-1 (2 x MOPP) must be observed. For details refer to Chapter "4.4 Switching lighting using the pear push switch" as of page 39.

13.2.2 RAN interface

If an external device is connected to a RAN interface (19 0840 00), a separator according to EN 60601-1 (2 x MOPP) must be inserted between the device and the interface.

13.2.3 Management Interface / System interface LAN

LAN connection

If the Management Interface or the system interface LAN is connected via the LAN connection to the PC of the ConLog^{CARE} Management Software or to the building network, a separator in accordance with EN 60601-1 (2 x MOPP) must be inserted between them. The network isolator LAN (76 5000 00) is suitable as a separator.

RS-232

If a radio paging system or a DECT system is connected to the Management Interface or system interface LAN, a separator in accordance with EN 60601-1 (2 x MOPP) must be inserted between them. The interface isolator RS232 (76 5010 00) is suitable as a separator.

a/b connection (Management Interface only)

If the a/b connection of the Management Interface is used to connect to the analogue telephone network or to connect a PBX, a separator in accordance with EN 60601-1 (2 x MOPP) must be inserted between them.

Fault message output

If a device not supplied with power from the nurse call system is connected to the fault message output of the Management Interface or the system interface LAN, a separator according to EN 60601-1 (2 x MOPP) must be inserted.

13.2.4 Group controller

Fault message output

If a device not supplied with power from the nurse call system is connected to the fault message output of the group controller, a separator according to EN 60601-1 (2 x MOPP) must be inserted.

13.2.5 Fire alarm interface

A separator according to EN 60601-1 must be connected between the fire alarm system and the nurse call system. If the fire alarm system does not provide a separator, the interface isolator RS232 (76 5010 00) is suitable as the separator.

14 Voltage surge protection

The German standard DIN VDE 0834-1 regulates that all cables of the nurse call system which are to emerge from the building shall be provided with voltage surge protection according to EN 50468 at the emerging point.

For the voltage surge protection you have especially to follow:

EN 61663-2: Lightning protection - Telecommunication lines - Part 2 Lines using metallic conductors (IEC 61663-2: 2001).

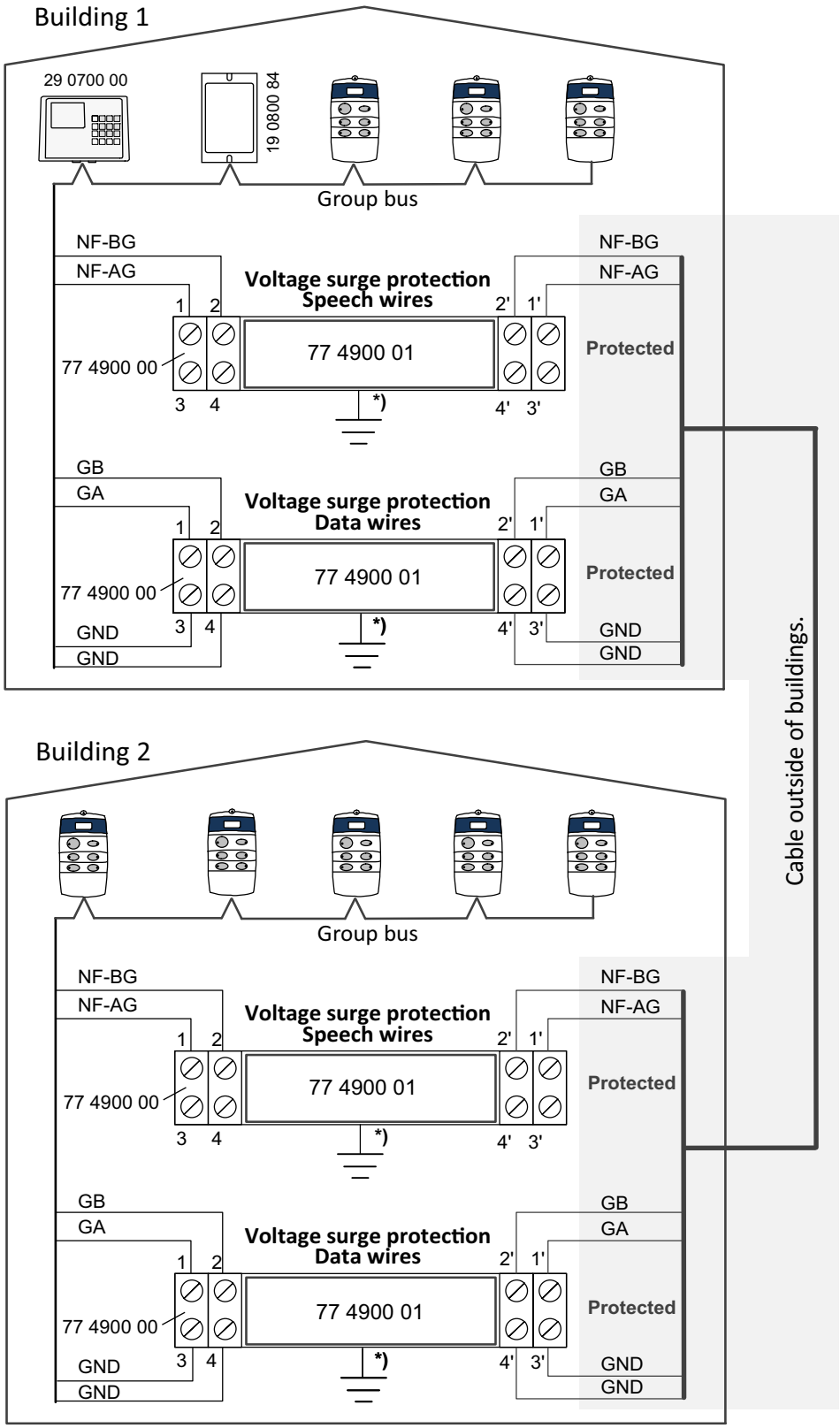
In the following the structure of the voltage surge protection is presented for cables of the CONCENTO^{CARE} nurse call system, which are laid between two buildings.

NOTE! For the described fine protection of the CONCENTO^{CARE} nurse call system it is provided that a basic surge protection to absorb the higher energies has been completed according to the valid regulations. The installation of a fine protection would be useless without this upstream protection.

The voltage surge protection has to be installed in the main building connection point. This should be installed directly where the cables enter the building.

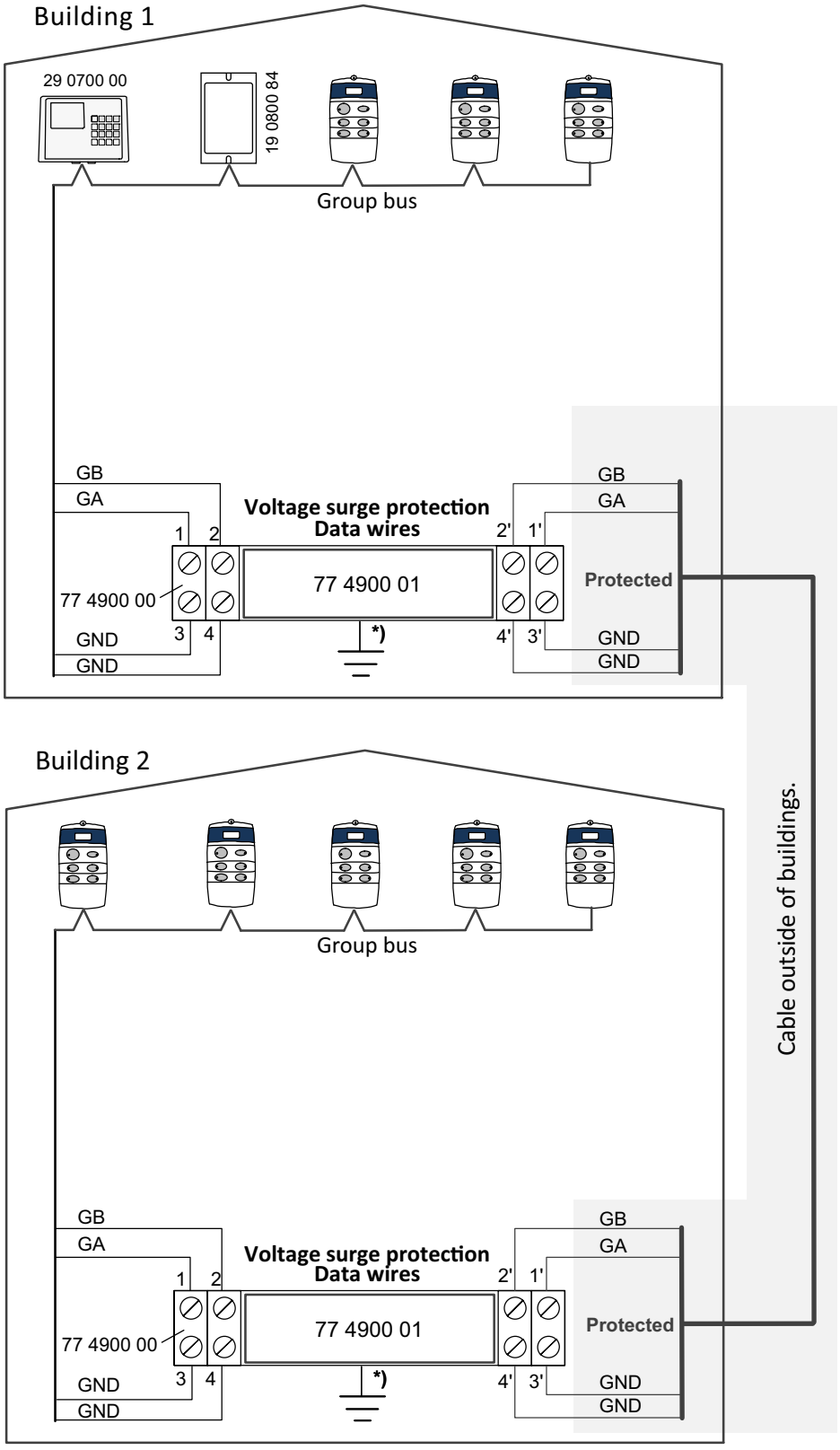
The voltage surge protection is required in the buildings between which the cables are laid.

On the following pages, the structure of the voltage surge protection is shown in diagrams. Note: The modules shown are examples; modules from other manufacturers can also be used.



*) Mounting on earthed top hat rail

Fig. 44: Voltage surge protection in nurse call systems with speech

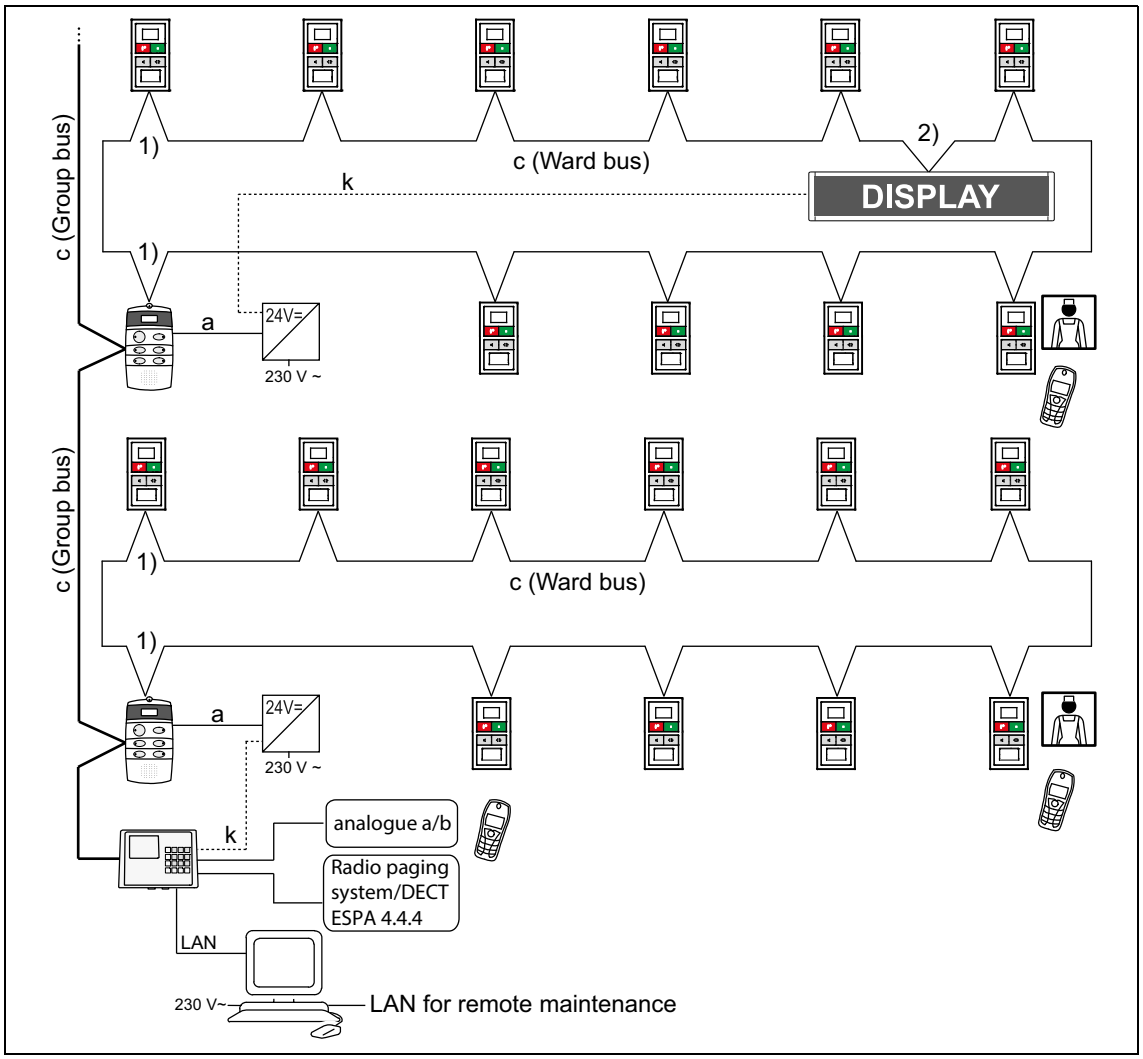


*) Mounting on earthed top hat rail.

Fig. 45: Voltage surge protection in nurse call systems without speech

15 Installation examples

15.1 System with speech communication



Display insert(29 0700 80...) with intercom insert (29 0701 30...)

DISPLAY Corridor display (19 0783 16, 19 0784 16, 29 0783 12 or 29 0784 12)

24V= 230 V ~ Power supply unit (77 3400 60 or 77 3401 60)

Management Interface (29 0700 00)

Group controller (29 0700 10)

Guide to cables:

a J-Y(St)Y 2x2x0.8 **c** J-Y(St)Y 4x2x0.8 **k** NYM-J 3x1,5

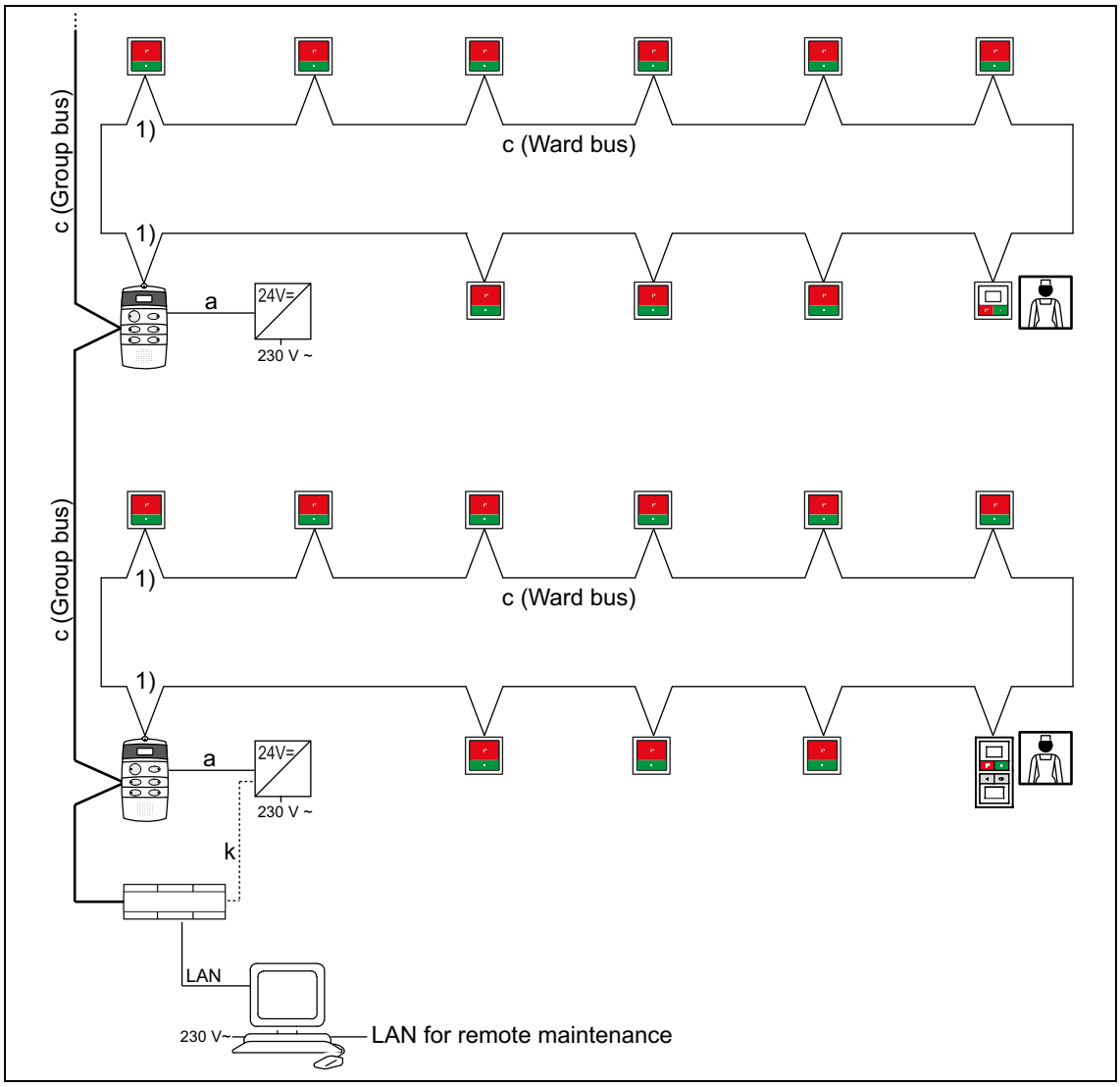
Guide to numbers:

1) Start/end of ward bus. No ring closing point in data line. No ring closing point in speech line.

2) Loop through at the corridor display +24V and GND wires of the ward bus (c). The power is supplied via a stub cable (k) to the power supply unit

Fig. 46: Installation example – System with speech communication

15.2 System without speech communication



Call/presence insert (29 0701 00...)

Power supply unit (77 3400 60 or 77 3401 60)

Display insert (29 0700 80...)

System interface LAN (19 0700 05)

Display insert (29 0700 80...) with Intercom insert (29 0701 30...)

Group controller (29 0700 10)

Guide to cables:

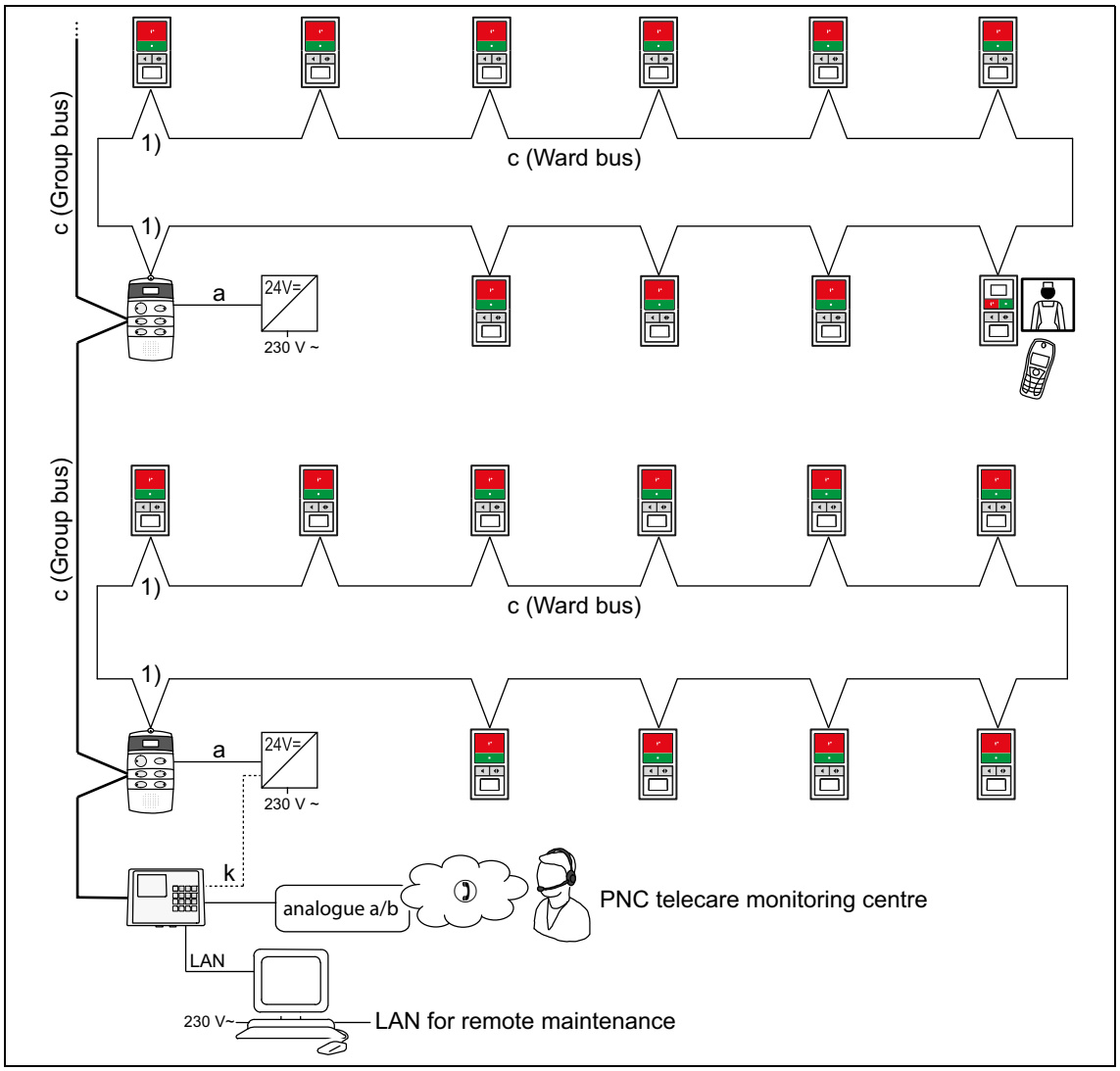
a J-Y(St)Y 2x2x0.8 **c** J-Y(St)Y 4x2x0.8 **k** NYM-J 3x1,5

Guide to numbers:

1) Start/end of ward bus. No ring closing point in data line.

Fig. 47: Installation example – System without speech communication

15.3 Assisted living



Call/presence insert (29 0701 00...) with intercom insert (29 0701 30...)

Display insert (29 0700 80...) with Intercom insert (29 0701 30...)

Power supply unit (77 3400 60 or 77 3401 60)

Management Interface (29 0700 00)

Group controller (29 0700 10)

Guide to cables:

a J-Y(St)Y 2x2x0.8 **c** J-Y(St)Y 4x2x0.8 **k** NYM-J 3x1,5

Guide to numbers:

1) Start/end of ward bus. No ring closing point in data line. No ring closing point in speech line.

Fig. 48: Installation example – Assisted living

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