SAIO®

SCHIMA Sp. z o.o.

MODERN NURSE CALL SYSTEM

PRODUCT OF POLAND

SAIO is a modern, fully digital call system of Polish production, meeting the requirements of DIN VDE 0834 part 1 and 2.

It is an optical and acoustic digital call system, optionally with audio communication capability, designed to equip medical facilities, care homes and detention centres.

When creating **SAIO**, it was important to us to make the system simple and intuitive to use for the user and also to use advanced technology to implement various operating scenarios. Our solution is not "closed", which means that it is **constantly upgraded** and can be adapted to investment needs.

CONCEPT

The system is based on digitally controlled room modules, the so-called **NODES** , in the form of corridor lights and room terminals. The system's structure is based on a CAN bus connecting the individual NODES. Each NODE is a communication node for the different versions of the buttons placed in the room.

The system's basic version does not require a master unit (**BMC - bus main controller**), and all devices can be easily communicated with one another thanks to digital connectivity. However, by using the **BMC controller, we can register and archive events** with access to data via the **BMC web app** running in a web browser. In addition, we can manage the system via the BMC web app. It is possible to link wards to send events between wards, and to redirect alarms to the mobile phone. It is used to notify the staff via mobile phones (Android). Moreover, the BMC web app enables the system to be integrated with third-party software, e.g. from BMS manufacturers.

SYSTEM SIZE

Our system allows 50 rooms to be connected to a single Master NODE (Staff Room). If more alarm rooms are required in the same staff room, another Master NODE and a BMC controller must be used, ensuring information exchange between the Master NODES. If there is no need to connect more than 50 NODES to a single Master; separate systems can be built on wards/floors. **A maximum of 31 Master NODES can be connected together using a BMC controller, making it practically possible to build a system of any size.**

DEVICES

The system devices are freely configurable. The buttons have been designed in such a way that any button version can be built, e.g. a button equipped with an additional call socket for a second bed or for medical equipment. It is possible to create button combinations, suggestions for which are included in this brochure.

All system devices are made of antibacterial materials whose biocidal properties have been confirmed by laboratory tests. The housings are also UV-resistant and feature a modern design, with the flush-mounted version being only 10mm thick.

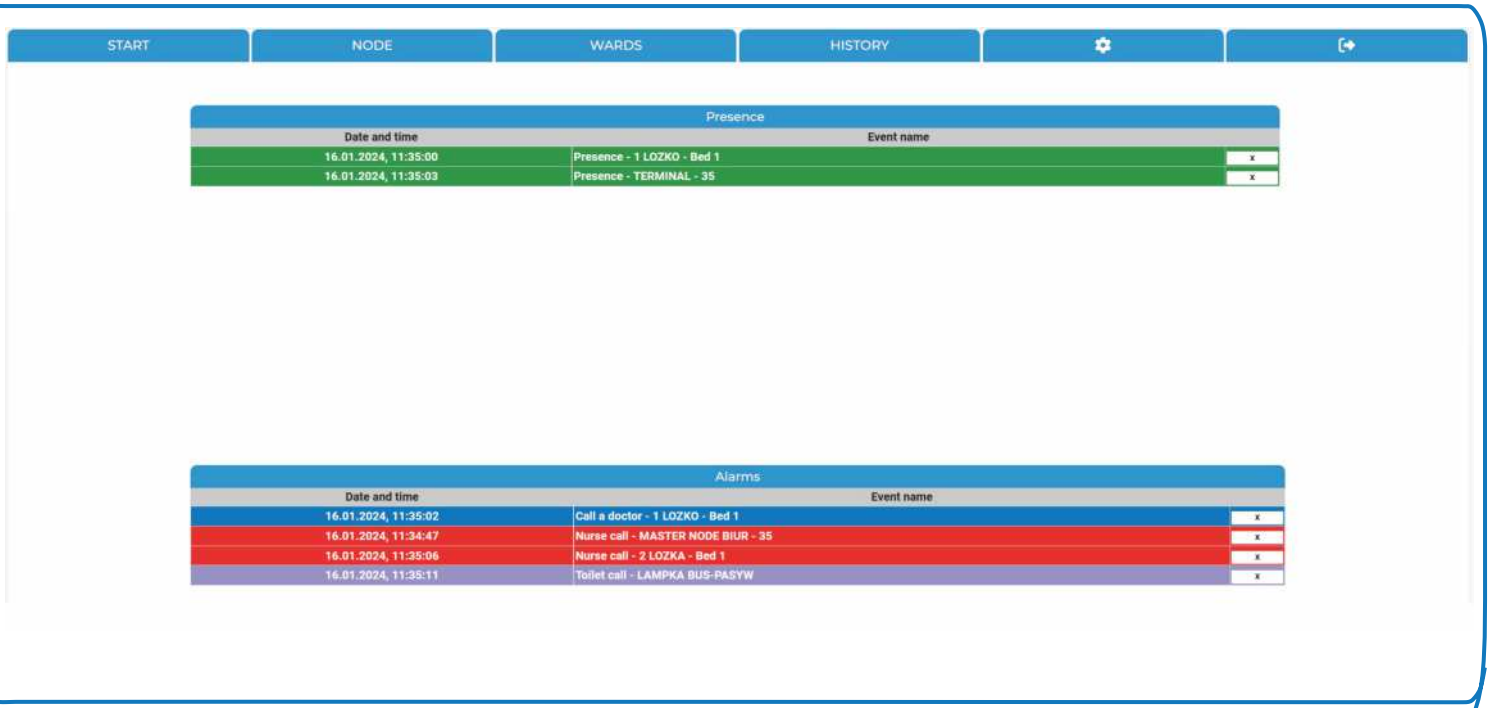
BMC Bus Main Controller

Article no. 8210020

- event registering and archiving tool
- controller operation via web interface in the **BMC web app**
- visualisation of all events (calls, attendances, failures)
- synchronisation of the time and date displayed on the NODE screens
- event history overview with filtering
- creation of back-up copies
- LIVE overview of any room in order to track online alarms only from that location
- ability to creating links between groups/wards at selected times - forwarding of alarms between wards

SOON

- forwarding of alarms to Android smartphones
- management of each NODE in the system - remote configuration
- ability to create advanced alarm groups linked to specific events
- integration with systems, e.g. BMS



WEB APP for SYSTEM MANAGEMENT

NODE terminal with an LCD 3,5" touch display

- STAFF ROOM EQUIPMENT
- 3,5" TOUCH SCREEN
- VARIOUS OPERATING MODES (DOCTOR, NURSE, IC, ROOM)
- ANTI-BACTERIAL SURFACE WITH AG+ SILVER IONS

- staff terminal
- 3 operating modes: STAFF ROOM, DOCTOR, ICU
- overview of current events in the ward
- direct call for doctor and nurse assistance
- overview of staff attendance (screen showing which rooms are currently occupied by nursing staff)
- separate colour and sound signalling of alarms
- prioritisation of calls from highest to lowest
- same type of alarms are scrolled automatically, but in parallel
- it is also possible to scroll through events manually by clicking the arrow
- ability to mute the active alarm for 60 seconds; in the event of
- a new alarm, the mute time is cancelled
- ability to set time reminders which, after a countdown, generate a reminder alarm from the indicated room
- alarm output to duplicate on-screen alarms
- programmable relay output
- anti-bacterial and UV-resistant housing
- surface-mounted or flush-mounted, no junction box is required for plasterboard walls, the housing fulfils this role, while a dedicated box is required for concrete*

Article no. 3211120

EXAMPLES OF CALLS SCREEN IN THE STAFF ROOM NODE

EC350C5

TECHNICAL DATA OF TERMINAL

U=24VDC, Imin/max=100mA,
Dimmensions 173x143x12mm (L x W x H)
Natynkowo: 173x143x45mm (L x W x H)

* The flush-mounted version requires using a box, EC350C5 model 160 x 130 x 70mm. The box must be entirely flush-mounted.

NODE lamp

- room NODE controller, the so-called "small NODE"
- room bus operation with full control of the connected devices
- remote management
- ROOM, GROUP LAMP mode operation
- optional beeper
- 180 degree visibility of emitted light
- device equipped with 12 RGB diodes; very good visibility even
- under strong artificial lighting conditions
- red call signalling (full illumination surface)
- red and white WC call signalling
- green signalling of staff attendance in the room
- blue signalling of doctor's call
- blue and red resuscitation signalling
- buzzer with a switch-off option
- each call signalled by a different buzzer frequency
- flush mount for fi60 junction box

Article no. 1110020

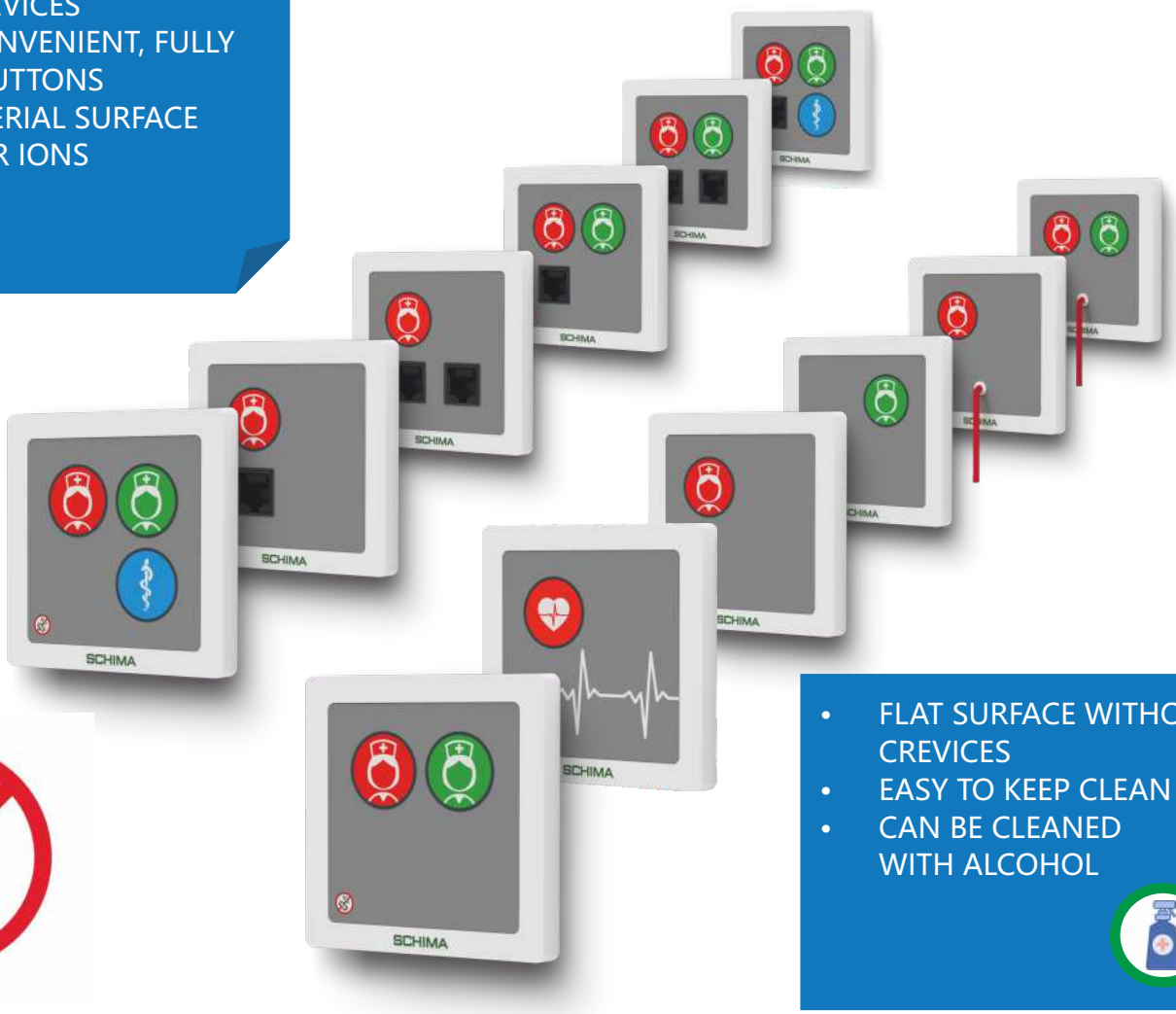
NODE MODULE Article no. 1100020
Version without LED section. Room controller. Can be combined with a lamp article no. 1210030

NODE LAMP TECHNICAL DATA
U=24VDC, Imin/max=30/80mA,
Dimmensions 82x82x31mm (L x W x H)

**The lamp with RGB diode lights up its entire surface!
The only such product on the market with this technology**

RBUS System buttons SAIO®

- DIGITAL DEVICES
- LARGE, CONVENIENT, FULLY BACKLIT BUTTONS
- ANTIBACTERIAL SURFACE
- AG+ SILVER IONS



- FLAT SURFACE WITHOUT CREVICES
- EASY TO KEEP CLEAN
- CAN BE CLEANED WITH ALCOHOL

Description of the SAIO system`s buttons

Depending on the version, the system buttons differ in terms of equipment, the characteristic features of all devices are described below:

- large buttons: call, doctor, cancel
- the wole button area is illuminated
- red diode indicates button at night
- two LED diodes illuminate the buttons when acctivated

- audible call forwarding

- flat surface, no crevices, easy to keep clean
- cleaning with alcohol-based products permitted
- ability to adapt the background to the room design

In addition, the devices can be equipped with:

- an Rj45 socket for connecting a patient pear push button
- connection is made by an adapter for safe disconnection
- the pear push button plug has a special design for easy disconnection of devices when pulled too hard, generating an alarm in the system
- two outputs to control the lighting relay

- pull-cord mechanism in pull cord button installed in sanitary facilities
- the 2m long pull-cord is protected with a fuse that allows the pull-cord to be reconnected if pulled to hard

General technical data of buttons:

- Operating voltage U=12VDC
- Current consumption I=~30mA
- Housing dimmensions: 82x82x10mm
- Background elevation colour : pantone 429C
- Compatibility with all available SCHIMA systems
- ABS plastic, UV stabiliser (does not lose its colour)
- Flush-mounted (fi60 junction box), and surface mounted (adapter)

ANTI-BACTERIAL PROPERTIES - the Microban Additive IB14-2123-100 prepared by Microban Products Co., USA, was used in the production of ABS housings. It is a formula based on silver ions with a broad spectrum of action. The front elevations were made from LT Digital reflex film from Transcontinental Advanced Coatings, a global leader in advanced coatings. The anti-bacterial properties were achieved by using the SteriTouch silver-based additive.

IP66 water-proof buttons

Call button IP66
- large call button
- red diode indicates button at night
- LED diode illuminate the button when activated
- gasket guaranteering the Ip66 protection rating
- flush mounted, junction box

Cancel button IP66
- large cancel button
- red diode indicates button at night
- gasket guaranteeing the IP66 protection rating
- flush mounted, junction box

Pull-cord button IP66
- LED diode illuminate the button when activated
- 2m. pull-cord
- gasket guaranteering the Ip66 protection rating
- flush mounted, junction box

IP66

73509066

73508066

73510066

Anti-vandal buttons

Call button
- metal call button
- red diode indicates button at night
- LED diode illuminate the button when activated
- steel plate, stainless steel 80x80mm
- flush mounted, junction box

Cancel button
- metal call button
- LED diode illuminate the button when activated
- steel plate, stainless steel 80x80mm
- flush mounted, junction box

846103

846103

LED ceiling display

- digital communication
- colour LED display
- large, legible characters
- aluminium profile 700x200x80 mm
- LED resolution 128 x 32px
- surface-mounted

Code: FDN1 - one side article no. 8510000

Code: FDN2 - two-side article no. 8520000

Pear push button IP68

- button for call assistance
- red diode indicates button at night
- LED diode illuminating the button when activated
- waterproof
- anti-bacterial surface
- cleaning with alcohol-based products permitted
- ergonomic design
- plug with a safety disconnection mechanism to protect both the plug, and the socket in then event of sudden disconection
- twisted, elevation can be repaired, replaced
- neodymium magnet that allows the pear push button to be attached to a metal surface - optionally it can come without a magnet

VERSIONS:

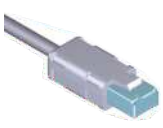
- Article no. 6100000 - call
- Article no. 6101000 - call + 1 lighting buttons control
- Article np. 6111000 - call + 2 lighting buttons control

- ANTI-BACTERIAL SURFACE
- IP68 RATING, WATERPROOF
- METAL SURFACE ATTACHMENT

Holder

- wall-mounted

Article no. 600002



Innovative plug

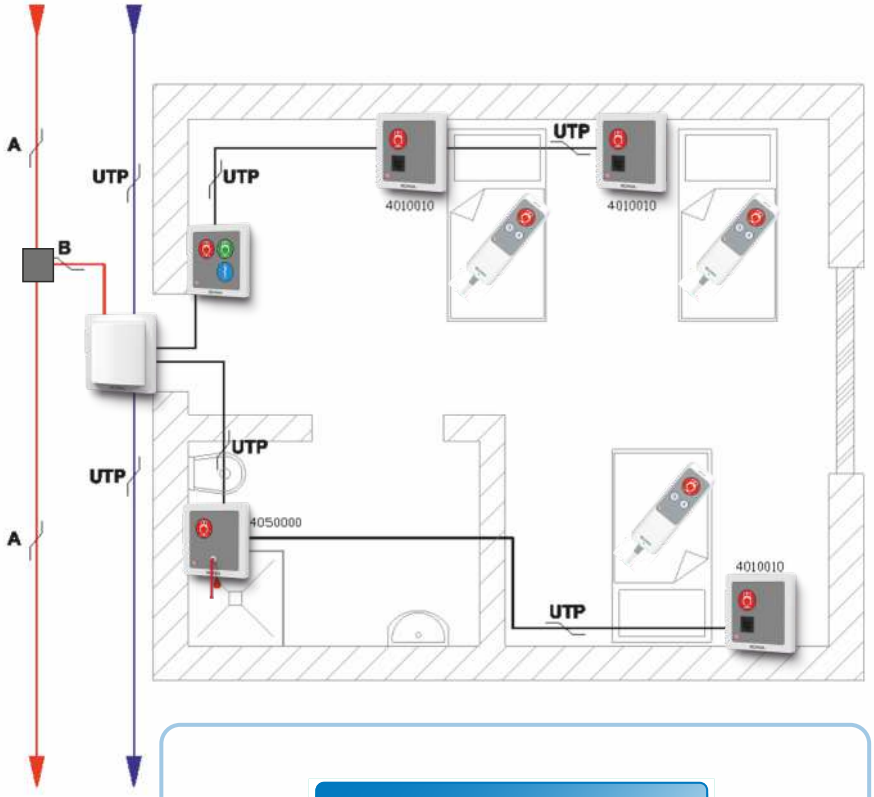
Room with 3 beds and a bathroom

CABLES

Type „A" YDY 2x2,5mm2 [+24VDC, 0V(GND)]
Type „B" YDY 2x0,8mm2 [+24VDC, 0V(GND)]
Type „UTP cat.6" [BUS, +24VDC, 0V(GND)]
Type „UTP cat.5/6" [RBUS, +12VDC, 0V(GND)]

Selected functions

- bed recognition
- NODE lamp, 4 colours + buzzer
- separate colour signalling of alarms on the room lamp
- all devices in anti-bacterial housings
- magnet pear push button
- pull-cord button with fuse in the bathroom
- *can be expanded to include voice communication at the bedside



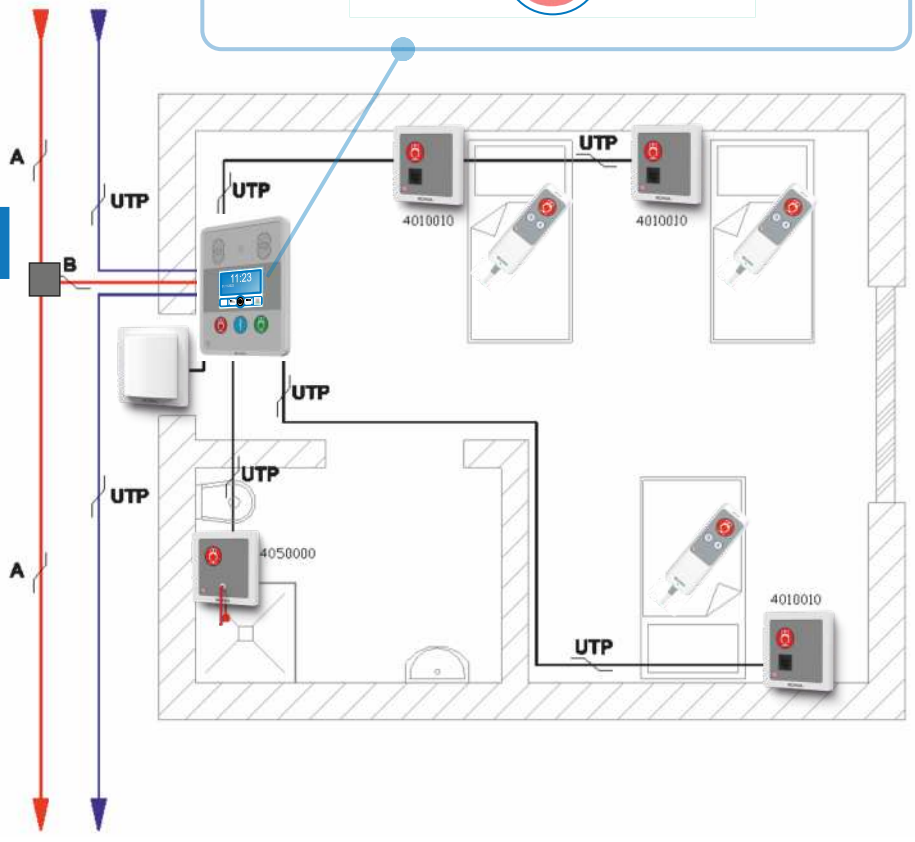
Room with 3 beds and a bathroom

CABLES

Type „A" YDY 2x2,5mm2 [+24VDC, 0V(GND)]
Type „B" YDY 2x0,8mm2 [+24VDC, 0V(GND)]
Type „UTP cat.6" [BUS, +24VDC, 0V(GND)]
Type „UTP cat.5/6" [RBUS, +12VDC, 0V(GND)]

Selected functions

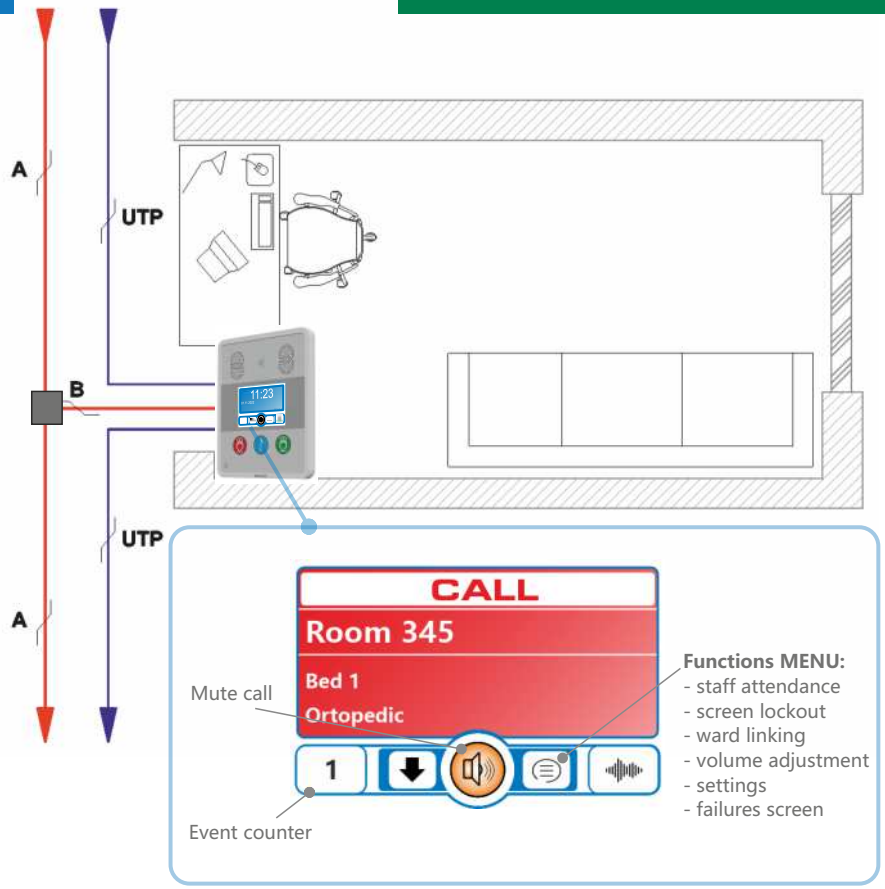
- bed recognition
- LCD touch display terminal with doctor`s call option
- alarm overview
- current time and date available for the patient on the display
- seprate colour signalling of alarms on the room lamp and in the terminal`s bottom backlighting
- ability to set reminders in the terminal to return to the patient
- all devices in anti-bacterial housings
- ability to activate other virtual function buttons



Staff room

CABLES

Type „A" YDY 2x2,5mm2 [+24VDC, 0V(GND)]
Type „B" YDY 2x0,8mm2 [+24VDC, 0V(GND)]
Type „UTP cat.6" [BUS, +24VDC, 0V(GND)]



Selected functions

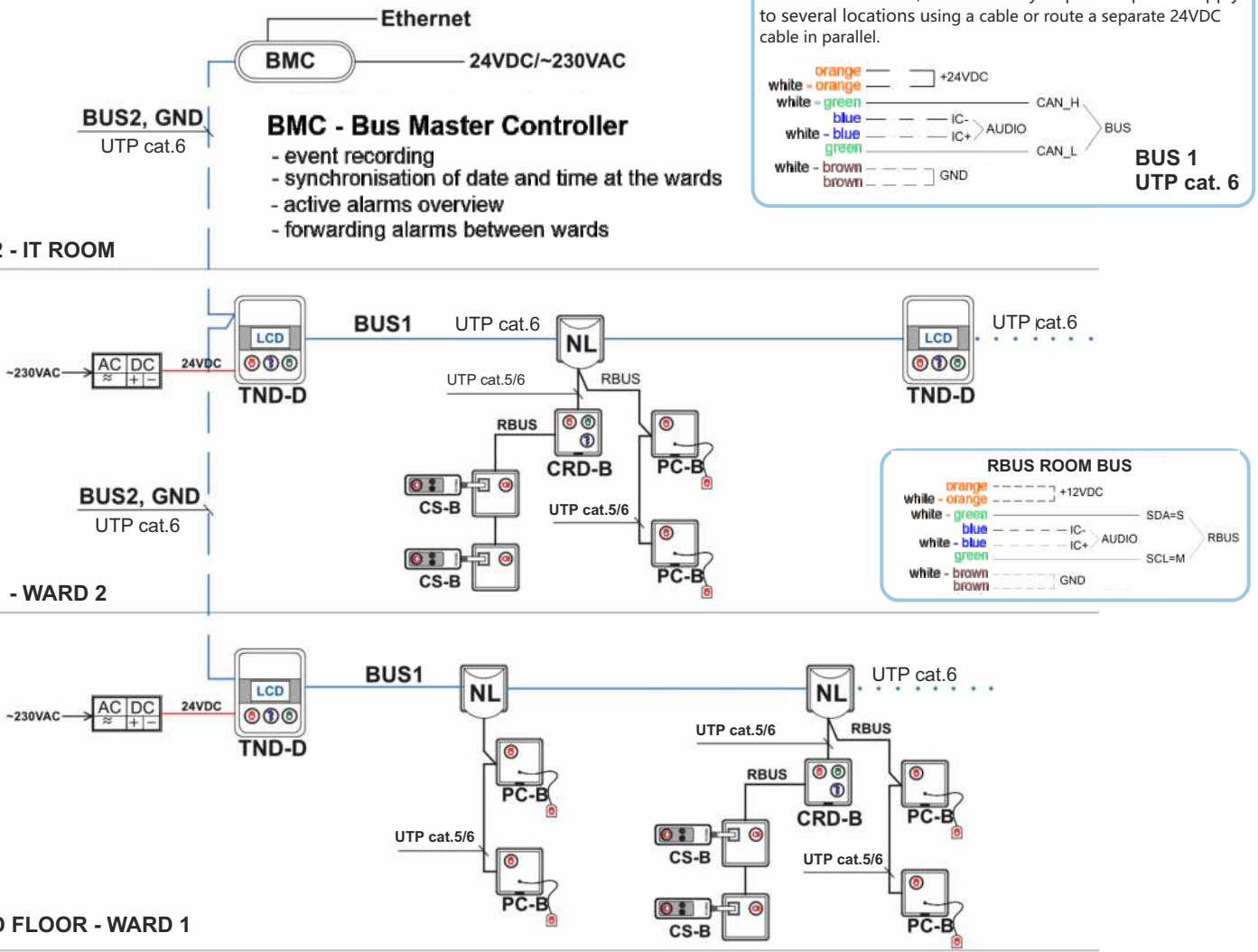
- separate colour and sound signaling of each type of event
- alarm signaling muting option
- LCD 3,5" touch display
- date and time displayed if no call is made
- staff attendance overview
- ability to scroll through lower-priority events
- automatic scroling of the same-level events
- ability to manage other NODES
- 3 buttons to call the Nurse or Doctor
- ability to add virtual buttons

SAIO system schematic diagram

BUS 1 max. length 500m

The max. number of NODES, due to power supply, linked with a single UTP cable is 16pcs. If more NODE controllers are used in the BUS, it is necessary to provide power supply to several locations using a cable or route a separate 24VDC cable in parallel.

BUS 1
UTP cat. 6



SAIO interkom ensures digital voice communication between the patient and staff

Our intercom system provides one two-way conversation per ward at a time. It also allows a message to be broadcast simultaneously to a selected room or to an entire ward.

CONCEPT

The two-way conversation takes place in discreet mode through the patient and staff handset. When staff calls or responds to a patient's call, the conversation on the patient's side is one-way using a speaker. The sound preceding the call, which comes out of the audio module, either mounted on the wall or in the bed head units, is played.

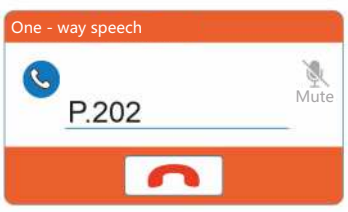
A staff voice can be heard after the audio signal has finished playing. The patient's microphone is still muted. When the patient hears the staff message, they can be asked to press the red button on the handset, then put the handset to their ear. Using the handset like a telephone handset, the patient can have a two-way conversation with the staff.

COMPATIBILITY

The basic SAIO system (hardware version 2.0, as of January 2023) can be expanded to include voice communication without the need to disassemble any device. Only the voice system needs to be equipped with digital handsets with voice communication. It is not necessary to lay additional cables, but it is worthwhile to provide for an additional power supply cable for the system in case the voice function is expanded. A standard UTP cat. 6 cable includes a free pair (blue) provided for voice communication.

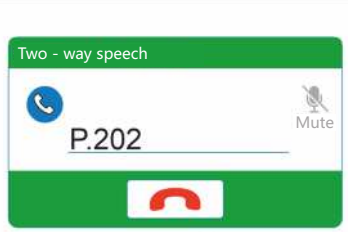
STAFF ROOM SCREENS DURING A CONVERSATION

Orange screen during a one-way conversation



- Staff established a conversation with the patient`s bed
- The conversation is one-way, the nurse does not hear the patient, the aptient hears the nurses`s voice in the audio modules`s speaker
- Staff can ent the conversation on the message given, or ask the patient to push the red call button on the handset and put the handset to the ear

Green screen during a two-way conversation



- Staff and patient have an active two-way conversation
- If the conversation is a result of a patient alarm, the alarm is automatically canceled at this point - the red light in front of the room goes out
- the information on the alarm from display terminals disappears
- " ATTENDANCE" is marked automatically - a green light is illuminated in front of the patient`s room where the conversation is under way
- At the end of the conversation, the patient hears the end of call tone from audio module`s speaker, the green light in front of the room goes out

INTERCOM ADVANTAGES AND APLLICATION

- ability to call the patient to the staff room or treatment room
- ability to communicate to the whole ward that a round is approaching
- ability to find a patient through a message in the entire ward
- ability to call staff present on the ward
- tow-way communication, especially on isolation wards, in sickrooms
- improving the work of staff who can find out the reason for the call before intervening
- quick communication between staff

BEDSIDE CALL AND INTERCOM SETS

Items: (1) 4010003 + (2) 8410010 + (3) 6011000
- (1) Call button with output for panel light control
- (2) Audio module with patient handset input
- (3) Digital patient handset with Audio

Set requires two junction boxes/mounting holes

Items: (1) 4011003 + (2) 8410010 + (3) 6011000
- (1) Call and canel button with output for panel light control
- (2) Audio module with patient handset input
- (3) Digital patient handset with Audio

Set reguires two junction boxes/mounting holes

Items: (1) 4011103 + (2) 8410010 + (3) 6011000
- (1) Call and cancel button with output for panel light control
- (2) Audio module with the patient handset input
- (3) Digital patient handset with Audio

Set requires two junction boxes/mounting holes

Audio NODE terminal with a handset

- staff terminal
- equipped with an audio module and a handset
- two-way digital voice communication
- ability to broadcast messages to a bed/room/ward
- ability to call any bed
- intuitive audio interface
- 3 operating modes: NURSE, DOCTOR, ICU
- overview of current events in the ward
- direct call for doctor and nurse assitance
- separate colour and sound signalling of alarms
- prioritisation of calls from highest to towest
- same-type alarms are scrolled automatically, but events can be scrolled manually at the same time by clicking the arrow
- ability to mute the active alarm for 60 seconds
- alarm output to duplicate on-screen alarms
- anti-bacterial and UV-resistant housing
- surface-mounted or flush-mounted; no junction box required on plasterboard walls, this role is fullfilled by the housing, while a dedicated box is required for concrete*

Article no: 3411120

Mounting notes:
The set requires the preparation of two boxes in the wall, fi60 box for the „saio interkom" audio distributor and an EC350C5 box for the terminal. The handset is mounted in a holder that is screwed to the wall with screws.

Patient audio handset

- button to call for assistance
- the red button has protrusions to easy locate a call button
- digital audio communication
- red diode indicates button atnight
- LED diode illuminating the button when acctivated
- anti-bacterial surface
- cleaning with alcohol-based products permitted
- ergonomic design
- plug with safety disconnection mechanism to protect both the plug and the socket in the event of sudden disconnection
- screwed, elevation can be repaired, replaced
- neodymium magnet that allows the handset to be attached to a metal surface - optionally it can be without magnet

VERSIONS:

- Article no. 6000000 - call
- Article no. 6001000 - call + 1 lighting button control
- Article no. 6011000 - call + 2 lighting buttons control

- ANTI-BACTERIAL COATING
- AUDIO COMMUNICATION
- METAL SURFACE ATTACHMENT

Bedside Audio module

- digital two-way voice communication between the patient`s bed and the audio terminal
- speaker for general messages and incoming call announcements
- input to connect the handset to the audio function
- The Audio module must always be combined with the call button in any equipment version
- connected handset control

Article no. 8410010

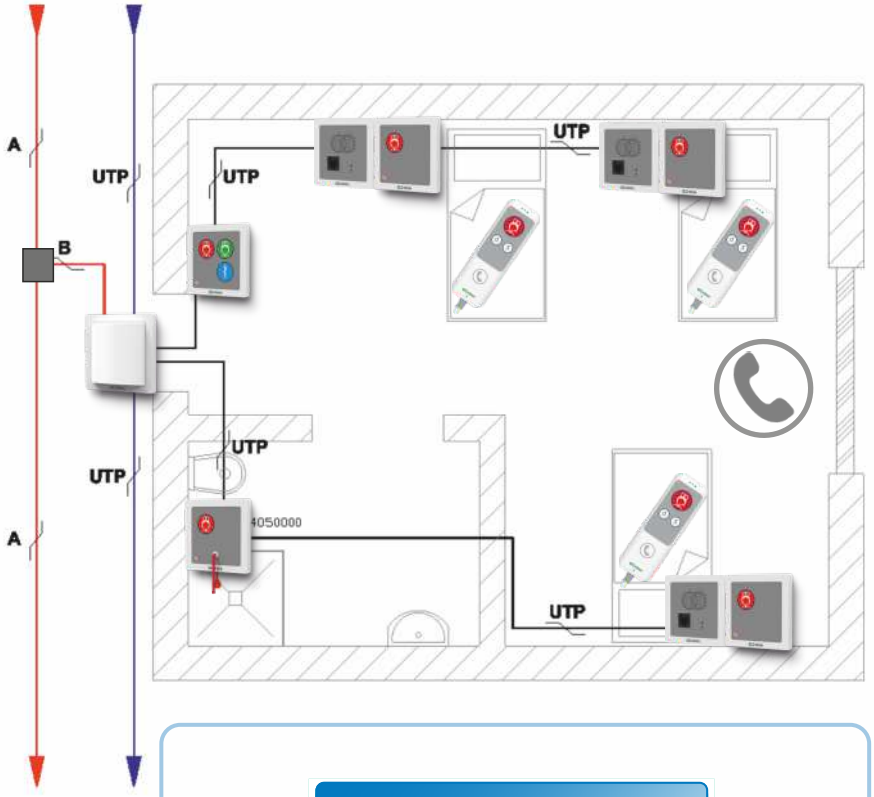
Audio room with 3 beds and a bathroom

CABLES

Type „A" YDY 2x2,5mm2 [+24VDC, 0V(GND)]
Type „B" YDY 2x0,8mm2 [+24VDC, 0V(GND)]
Type „UTP cat.6" [BUS, +24VDC, 0V(GND), AUDIO]
Type „UTP cat.5" [RBUS, +12VDC, 0V(GND)]

Selected functions

- bed recognition
- voice communication with the nurse room
- palying voice messages in the room
- NODE lamp, 4 colours + buzzer
- separate colour signalling of alarms on the room lamp
- all devices in anti-bacterial housings
- magnet handsets
- pull-cord button with fuse in the bathroom
- * can be expanded to include voice communication at the bedside



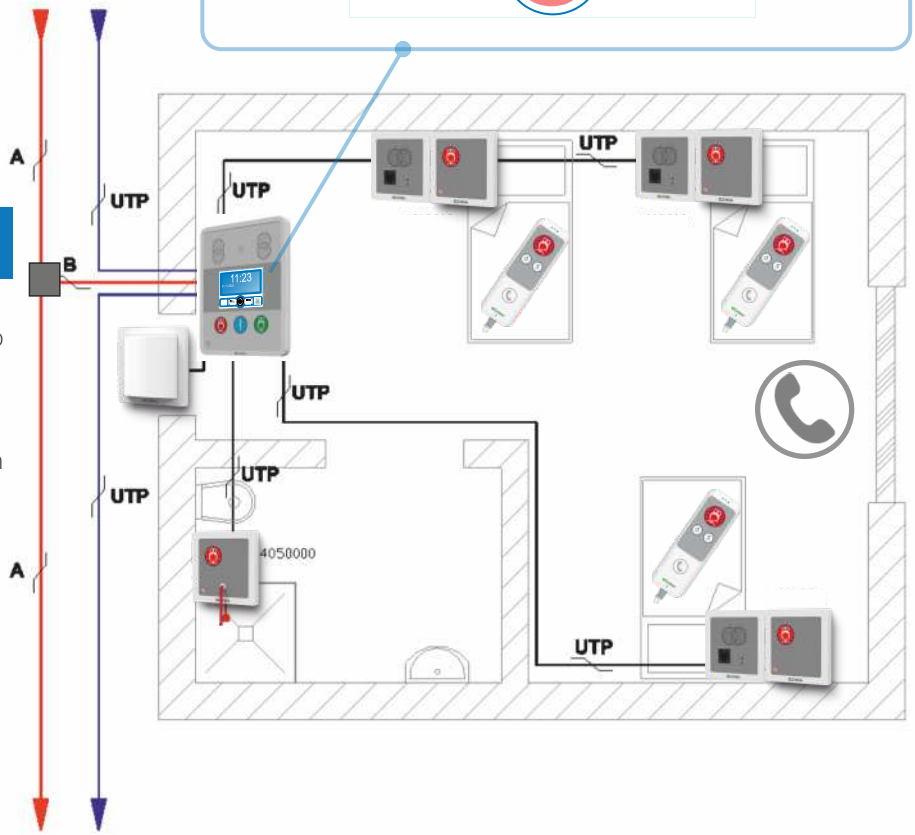
Audio room with 3 beds and a bathroom

CABLES

Type „A" YDY 2x2,5mm2 [+24VDC, 0V(GND)]
Type „B" YDY 2x0,8mm2 [+24VDC, 0V(GND)]
Type „UTP cat.6" [BUS, +24VDC, 0V(GND), AUDIO]
Type „UTP cat.5" [RBUS, +12VDC, 0V(GND)]

Selected functions

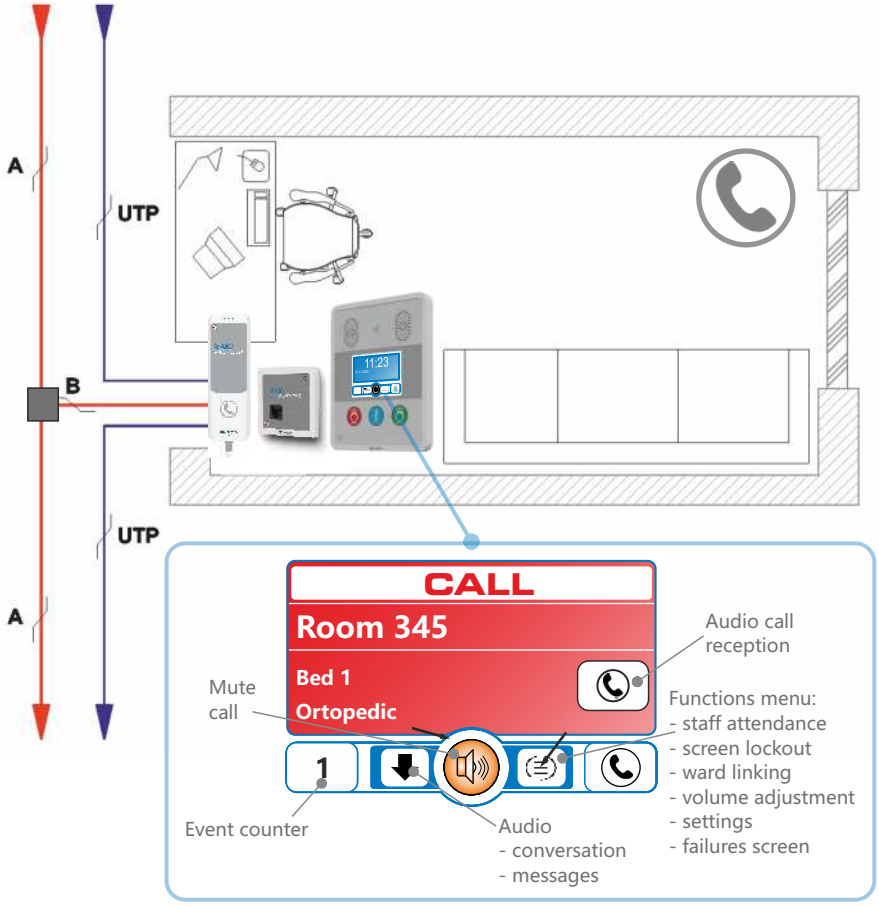
- bed recognition
- voice communication with the nurse room ability to answer the call from the terminal ability to call the selected room
- playing voice messages in the room
- LCD touch display terminal with doctor`s call option
- alarms overview
- current time and date available for the patient on the display
- alarms overview
- separate colour signalling of alarms on the room lamp and in the terminal`s bottom backlighting
- ability to set reminders in the terminal to return to the patient
- all devices in anti-bacterial housings
- ability to activate other virtual function buttons



Staff room audio

CABLES

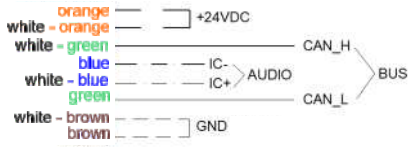
Type „A" YDY 2x2,5mm2 [+24VDC, 0V(GND)]
Type „B" YDY 2x0,8mm2 [+24VDC, 0V(GND)]
Type „UTP" [BUS, +24VDC, 0V(GND), AUDIO]



Selected functions

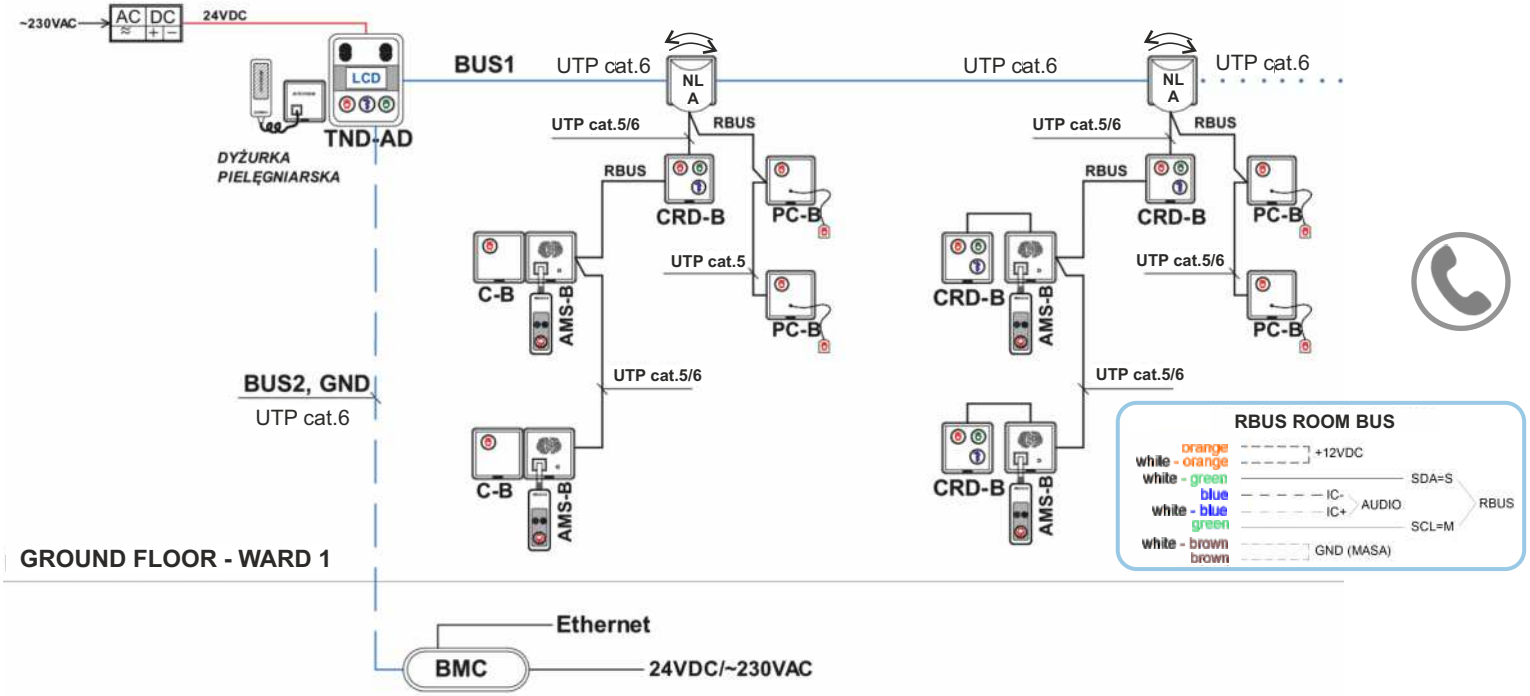
- separate colour and sound signalling of each type of event
- voice communication option
- broadcasting voice messages
- alarm signaling multing option
- LCD 3,5" touch display
- date and time displayed if no call is made
- staff attendance overview
- ability to scroll through lower-priority events
- automatic scrolling of the same-level-events
- ability to manage other NODES
- 3 buttons to call the Nurse or Doctor
- ability to add virtual buttons

BUS1 max. length 500m
The max number of NODES, due to power supply, linked with a single UTP cable is 16. If more NODE controllers are used in the BUS, it is necessary to provide power supply to several locations using a cable or route a separate 24VDC cable in parallel.



BUS 1
UTP cat.6

Schematic diagram of the AUDIO system



	CODE	CATALOGUE NO.	NAME
	CRD-B	4011100	Doctor`s call and call and cancel button
	CR-B	4011000	Call and cancel button
	C-B	4010000	Call button
	R-B	4001000	Cancel button
	EM-B	4020000	Resuscitation button - EMERGENCY
	PC-B	4050000	Call and pull-cord button
	PCR-B	4051000	Call and pull cord button and cancel button
	CS-B	4010010	Call button with socket
	CRS-B	4011010	Call and cancel button with socket
	CR2S-B	4011210	Call and cancel button with two sockets
	C2S-B	4010210	Call button with two sockets
	CRDS-B	4011110	Doctor`s call and call and cancel button with socket
		6100000 6110000 6111000	Pear push button Pear push button with 1 lighting button Pear push button with 2 lighting button
		6000000 6010000 6011000	Audio pear push button Audio pear push button with 1 lighting button Audio pear push button with 2 lighting button
		8410010	Bedside Audio module
		8410010	NODE terminal with audio and handset - TND-AD
	NL-A	1410020	NODE lamp with Audio repeater
	NL	1110020	NODE lamp
	RL	1210030	Room lamp, 4 colours with a buzzer
	TND-D	3211120	NODE Terminal with a 3,5" display
		8210020	Bus Main Controller - BMC

TECHNICAL DATA

INSTRUKCJA