2N® Lift8 User Guide

2N

Content:

1. Product Introduction

In this section, we introduce the **2N® Lift8** product, outline its application options and highlight the advantages following from its use.

Here is what you can find in this section:

1.1 Product Description

Basic Features

- Up to 8-lift connectivity
- Lift cabin, shaft and machine room voice audio units
- Optimum acoustic properties
- Rechargeable built-in backup battery
- Easy control and configuration – voice response system
- Check Call function
- Lift blocking during connection failure
- Internal communication – Triphony
- Telephone/PC-based configuration (via USB or Internet)
- USB interface
- User message recording option
- Local control centre (Intercom)
- Fireman function

Basic Description

2N® Lift8 (**L8**) is a communication system with a function similar to an intercom. The system voice audio units are linked to a common bus (pair of wires), connected to a splitter. The splitter is always connected to a central unit (CU), which controls the system operation and provides connection with the control centre. It is possible to connect up to 40 audio units to the bus. The **CU** contains an internal splitter.

Each splitter is uniquely identified: by lift number 1 to 8. The audio units are connected to the splitters and located on the shaft bottom, in the cabin interior, on the cabin roof and in the machine room. The machine room audio unit can be shared by multiple lifts.

The **CU** contains an easily replaceable backup battery pack (lead rechargeable battery). The **CU** is responsible for battery charging and status monitoring. It indicates the charging state, signal strength, telephone line state, bus state core state via five colour LEDs. It is also equipped

with a USB interface for comfortable configuration, voice message recording and software upgrade.

The **CU** can be connected via: GSM, UMTS, PSTN or VoIP.

2N® **Lift8** meets the **TÜV** and **CE** certifications .

System Diagram
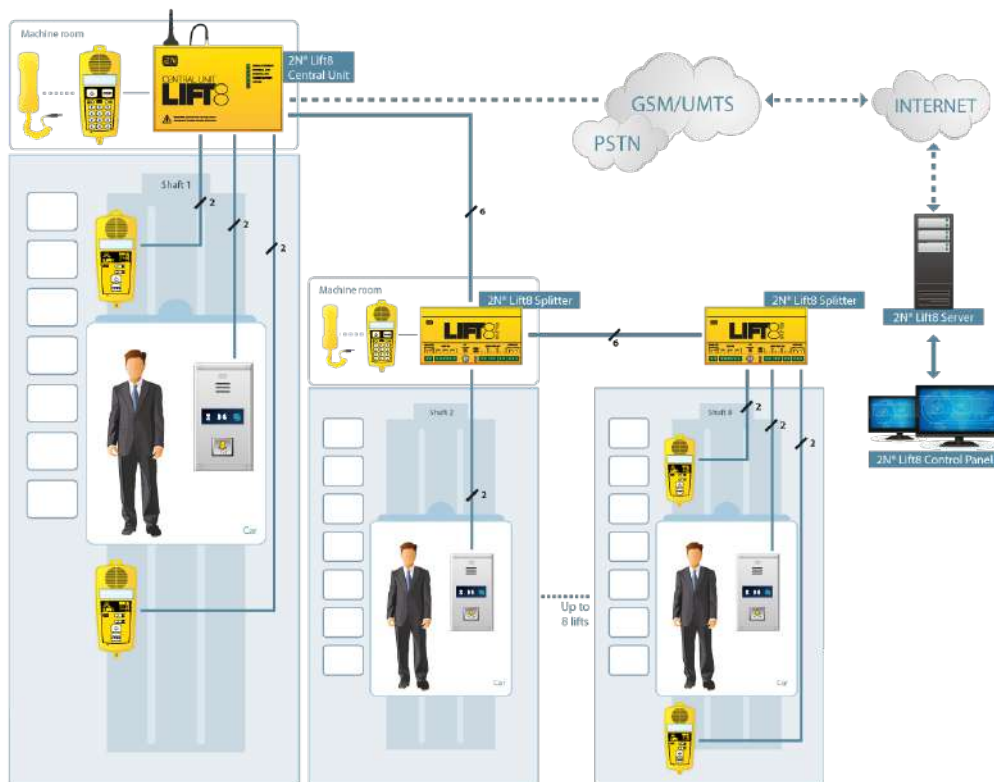
Example of **2N**® **Lift8** Central Unit, Splitter and Audio Unit Connection

Main bus

Audio unit bus
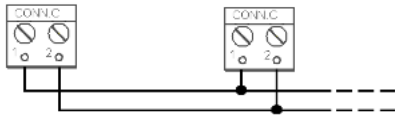
1.2 Components and Associated Products

2N® Lift8 System Components

> ⚠️ **Notification**
>
> - The components of the **2N® Lift8** system cannot be used outside this system.
> - The audio units cannot be connected to a telephone line **without the CU!**
> - When shared by multiple shafts, the audio units cannot be connected without the **CU** and splitters.

918600/E/D/AU/US

2N® Lift8 – Central Unit
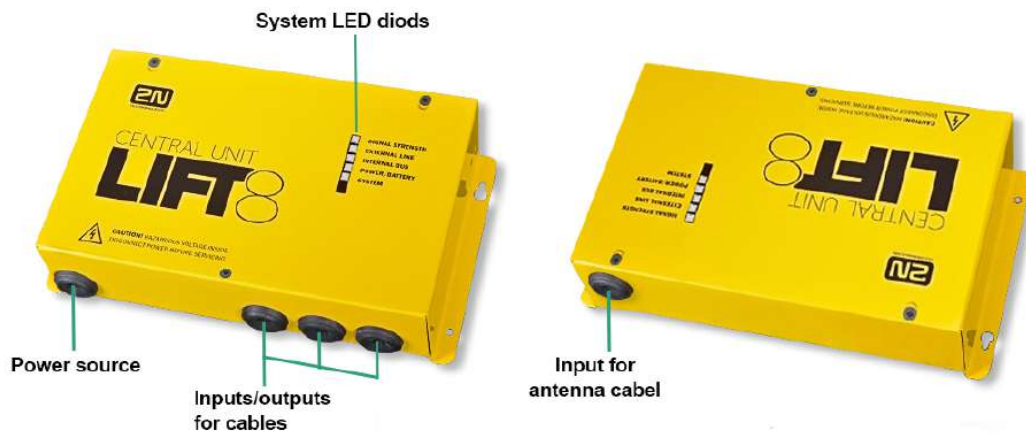
2N® **Lift8** – Central Unit

For connection of up to 8 lifts to a GSM/UMTS/PSTN line. Including a power EURO cable and rechargeable battery. USB interface for configuration.

918620E

2N® Lift8 – Splitter

2N® Lift8 – Splitter

For **CU** – lift audio unit interconnection.

918610E

2N® Lift8 – Audio Unit COP

(Normal version)

2N® Lift8 – Audio Unit COP

Audio unit electronics for lift cabin building in. Including speaker and microphone (HandsFree). Connection terminals for all prescribed elements and door opening signal input (optional).

918610EX

2N® Lift8 – Audio Unit COP, Cable version

Contains LED, microphone and speaker connected to cables.
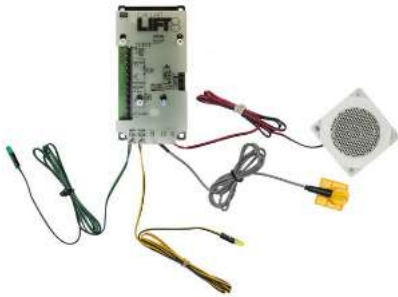
2N® Lift8 – Audio Unit COP, Cable version

918611E

2N® Lift8 – Audio Unit Machine Room

2N® Lift8 – Audio Unit Machine Room

Audio unit for the machine room/control centre. Contains receiver (optional) and keypad for easy control. Makes it possible to communicate with other system audio units and configure the **CU** without a PC. Equipped with an external siren connector. Can be shared by multiple lifts (shafts). Robust yellow cover.

918612E

2N® Lift8 – Audio Unit Shaft

2N® Lift8 – Audio Unit Shaft

Audio unit for cabin roof and shaft or cabin bottom. Robust yellow cover. HandsFree mode, ALARM button and Triphony, LED indicators. Not intended for use in the cabin.

918613E

2N® Lift8 – Audio Unit Compact, With button

2N® Lift8 – Audio Unit Compact, With button

Robust, heavy-duty design. Standard-sized ALARM button including signage for the blind and backlit pictograms (hardened glass). Easy cabin wall mounting. Easy 2-wire connection.

918613WBE

2N® Lift8 – Audio Unit Compact, Without button

2N® Lift8 – Audio Unit Compact, Without button

Robust, heavy-duty design. Easy cabin wall mounting. Easy 2-wire connection.

918613BE

2N® Lift8 – Audio Unit Flush, With button

2N® Lift8 – Audio Unit Flush, With Button

The electronics of the audio unit for installation in a lift cabin with a 1.5mm stainless steel cover in anti-vandal version. The stainless steel cover includes the required pictograms and instructions for operating the alarm button.

918613E

2N® Lift8 – Audio Unit Flush, Without button

2N® **Lift8** – Audio Unit Flush, Without button

The electronics of the audio unit for installation in a lift cabin with a 1.5mm stainless steel cover in anti-vandal version. The stainless steel cover includes the required pictograms.

918615E

2N® Lift8 – Audio Unit Fireman, Key (knob + 1 push-to-talk button)

2N® Lift8 – Audio Unit Fireman, Key

Used for fire fighting operations. Activates top priority calls.

918619E

2N® Lift8 – Audio Unit Fireman, PCB (knob + 1 push-to-talk button)

2N® Lift8 – Audio Unit Fireman, PCB

Used by fire fighting operations. Activates top priority calls.

918617E

2N® Lift8 – Audio Unit Shaft, Antivandal

2N® Lift8 – Audio Unit Shaft, Antivandal

A robust, highly resistant audio unit designed for installation on lift cabin roofs and shaft bottoms, under cabin floors and/or any other places that require communication, e.g. for lift maintenance purposes. This unit is designed for outdoor applications too.

918621E

2N® Lift8 – I/O Module

2N® Lift8 – I/O Module

Contains logical inputs and switch relays.

918622E

2N® Lift8 – Camera Module

2N® Lift8 – Camera Module

For camera connection (IP, RS232, RS485) to the lift cabin. Every cabin in each shaft can contain a camera module (up to 8 camera modules in **2N® Lift8).**

918654E

2N® Lift8 – RS232 Module
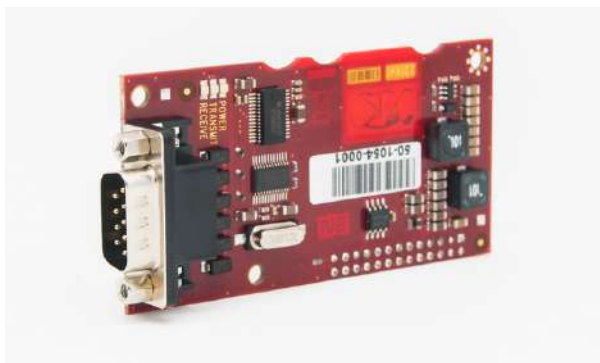
2N® Lift8 – RS232 Module

The RS232 module connects the **2N**® **Lift8** system with the lift control unit. The lift control unit transmits a command via RS232 to the Central Unit for processing and executing.

918650E

2N® Lift8 – GSM Module

2N® Lift8 – GSM Module

For Central Unit connection via a mobile network. Optional data connection for remote system configuration.

918651E

2N® Lift8 – UMTS Module

2N® Lift8 – UMTS Module

For Central Unit connection via a mobile network. Optional data connection for remote system configuration.

918652E 2N® Lift8 – PSTN Module
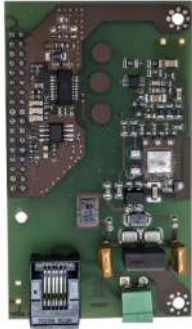
2N® Lift8 – PSTN Module

For Central Unit connection via an analogue line.

918653E

2N® Lift8 – VoIP Module

2N® Lift8 – VoIP Module

For Central Unit connection via a VoIP line.

22041579 Antenna GSM/UMTS/LTE

- 9 dB
- cable length: 10 m
- SMA connector

Cooperating 2N® Applications

918700E 2N® Lift8 Service Tool
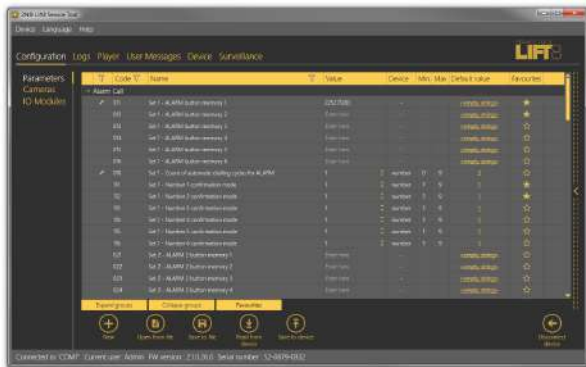
2N® Lift8 Service Tool

The **2N® Lift8 Service Tool** application is intended for remote supervision and configuration of the **2N® Lift8** communicators.

918700E 2N® Lift8 Control Panel

2N® Lift8 Control Panel

The **2N® Lift8 Control Panel** application is intended for administration of users, lifts and authorisations.

918700E 2N® Lift8 Communicator
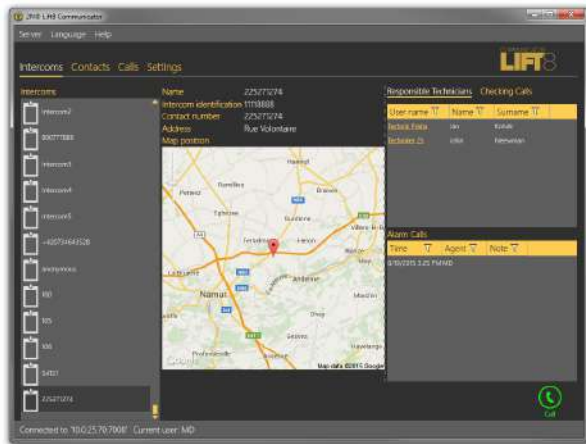
2N® Lift8 Communicator

The **2N® Lift8 Communicator** application is intended for receiving alarm calls by the dispatcher.

918700E 2N® Lift8 Server
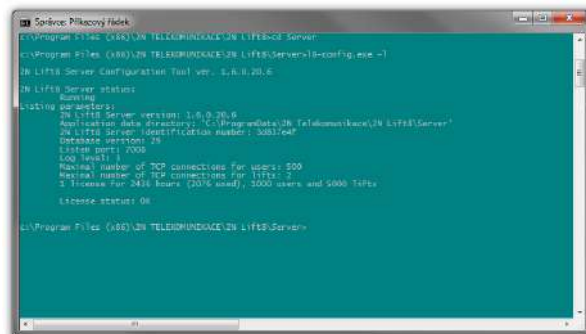
2N® Lift8 Server

The **2N® Lift8 Server** application processes check calls and mediates communication between the **CU**s and PC applications.

Associated 2N® Products

918655E

2N® Lift8 – External Pictogram Driver

2N® Lift8 – External Pictogram Driver

Transforms the **2N® Lift8** cabin LED outputs into universal pilot lamps.

1.3 Changes

The table below sums up the User Manual upgrade changes made so far.

Manual version	Description of changes
1.0.0	Firmware 1.0.0 • Basic version
1.5.0	Firmware 1.5.0 • VoIP parameters added • Internal splitter four-lift configuration option (up to four cabin units can be connected to one internal splitter with lift 1–4 identification)

Manual version	Description of changes
1.6.0	Firmware 1.6.0 • Fireman • I/O modules (inputs only) • Configurable rechargeable battery capacity • New alarm call protocols added (shaft/audio unit identification) • Dial-in option (for PSTN modules with non-standard tones) • CZ, EN, RU language support • Important warnings – Upgrade Server Database from ver. 1.5.x to ver. 1.6.x • Surveillance mode in the Control Panel • Improvements in applications
1.7.0	Firmware 1.7.0 • Camera module • New protocols: CPC Antenna/KONE 2N ext. and P100 2N ext. (shaft number and audio unit type identification) • DE language support • Auto-delete of archive records
1.8.0	Firmware 1.8.0 • Modified Groups menu in the Control Panel • PT language support
1.9.0	Firmware 1.9.0 • RS232 module • SMS configuration • System completeness check

Manual version	Description of changes
1.10.0	Firmware 1.10.0 • Audio test of audio units • Service Tool for Android • TLS/SRTP support • MJPG player in Service Tool • Audio unit – Shaft Antivandal • Camera module web interface
2.1.0	Firmware 2.1.0 • New processor type • Two-cabin lift extension (7 shaft/cabin audio unit location options) • Image downloading application (get-cam-image)
2.2.0	Firmware 2.2.0 • Event reporting • New actions and script commands • Monitoring of statistic data and a new character set on the server • New installers • In-band DMTF • Direct call (call to IP address)
2.3.0	Firmware 2.3.0 • Server – receiving of operational calls • Operational calls (jammed button, audio test error, battery error) • Get-cam-image – image loading option outside an active call
2.3.1	Firmware 2.3.1 • Change of module mounting spacers • New events (service tool)

Manual version	Description of changes
2.4.0	Firmware 2.4.0 • LAN module • Diagnostic package • Button 2 behaviour change • Current device state and device monitoring (ControlPanel) • Port forwarding (Service Tool)
2.5.0	Firmware 2.5.0 • CU restart via Service Tool • Current HW state monitoring (configure via the Service Tool or Control Panel – refer to Subs. 4.8 for details) • Audio unit audio test change • New parameter 029 (enable set 1 if set 2 is empty) • New parameter 987 (LED signalling according to EN81-28) • New parameter 810 (inter-checking call timeout) • New parameter 811 (manual checking call start) • New parameter 990 (allowed operational calls at events) • New parameter 963 (minimum button pressing time for forced/test alarm)

Manual version	Description of changes
2.6.0	Firmware 2.6.0 • New parameter 711 (Allowed 2G/3G bandwidths) • Change of parameter 983 range (1–100)
2.8.3	Firmware 2.7.0 • New parameter 919 (Machine room audio unit siren start)
2.8.5	Firmware 2.8.5 • Indication Elements of CU for LTE/VoIP modules

1.4 Terms and Symbols Used

Symbols Used

The following symbols and pictograms are used in the manual:

> ❗ **Safety**
>
> • **Always abide** by this information to prevent persons from injury.

> ❗ **Warning**
>
> • **Always abide** by this information to prevent damage to the device.

> ⚠ **Caution**
>
> • **Important information** for system functionality.

> ✅ **Tip**
>
> • **Useful information** for quick and efficient functionality.

> ⓘ **Note**
>
> - Routines or advice for efficient use of the device.

2. Description and Installation

The section is divided according to system components into the following subsections:

Each subsection includes:

- Description of Components
- Before You Start
- Fitting
- Electrical Wiring

2.1 PSTN/GSM/UMTS/VoIP Central Unit

Description
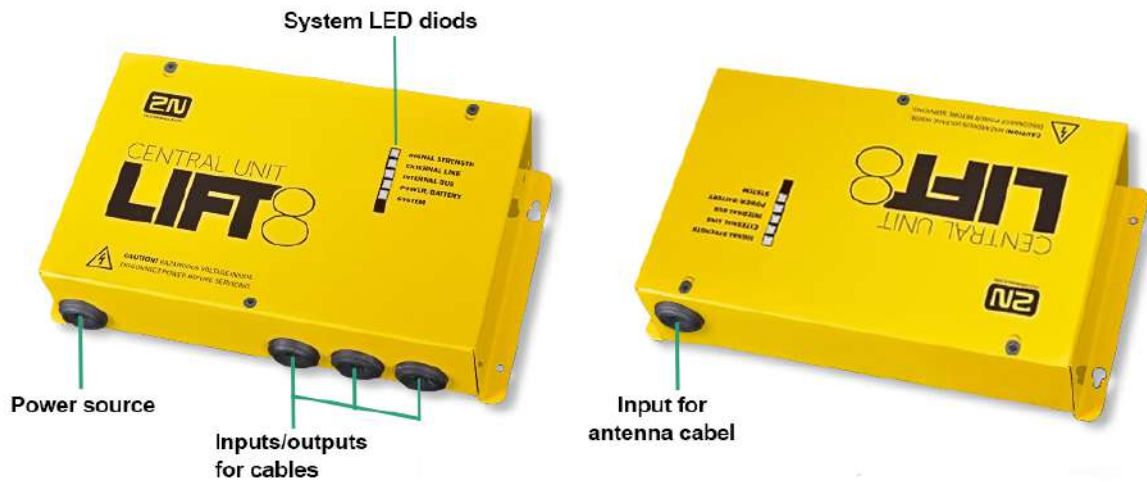
Central Unit

Indication Elements		
Signal strength	green	strong signal
	yellow	medium signal
	red	weak signal
	no light	in case of IP/PSTN
	According to mobile network (valid for modules with LTE/VoIP):	
	2G	light on
	3G	fast flashing
	4G	slow flashing
The signal can flicker between the individual bands (strong – medium, medium – weak).		
	Valid for modules without LTE:	
External line	green	line is all right and ready
	green flashing	call in progress

Indication Elements		
	yellow	line is all right but registered in ROAMING
	yellow flashing (quickly)	data transmission
	yellow flashing (long 3 s)	SMS in progress data – sending/receiving
	yellow – green	call and data at the same time (only GSM/UMTS version)
	red flashing (slowly)	SIM not inserted
	red flashing (quickly)	incorrect PIN, last attempt
	red permanently illuminated	• SIM inserted but not registered • fault in PSTN • VoIP not registered
Internal bus	**Valid for modules with LTE:**	
	Relax state:	
	Green, light on	4G + VoLTE available (IMS active)
	Yellow, light on	VoLTE unavailable and VoIP also inactive
	Yellow – green (1 s – 1 s)	active VoIP, i.e. SIP and 4G registration active at the same time
	Call:	
	Green, flashing (1 s – 1 s)	VoLTE
	Yellow, flashing (1 s – 1 s)	2G/3G voice channel
	Green – yellow – no light (0.5 s – 0.5 s – 1 s)	VoIP

Indication Elements		
	Call:	
	Green, flashing (1 s – 1 s)	VoLTE
	Yellow, flashing (1 s – 1 s)	2G/3G voice channel
	Green - yellow - no light (0.5 s – 0.5 s – 1 s)	VoIP
	Error states:	
	Red, slow flashing (1 s – 1 s)	SIM not inserted
	Red, fast flashing (0.5 s – 0.5 s – 0.5 s – 0.5 s)	Wrong PIN
	Red, light on	Call cannot be set up / device does not work as configured (e.g. unregistered module, SIP, etc.)
Power/battery	green	power OK, battery is charged
	green flashing	battery charging
	yellow	power failure, battery in operation
	yellow flashing	less than 1 hour battery operation
	red	battery disconnected
	red flashing	battery defected – replace
System	green	core OK
	green flashing	system is launching (other LEDs start to flash)
	yellow	bootloader launching
	yellow flashing	upgrade underway

Indication Elements		
	red	• HW activation (immediately after switching on) • error in core (logs can be downloaded)
	red flashing	HW must go for servicing (it is impossible to download logs and the bootloader has a fault)
	green – red	• checking call error • invalid configuration • system file missing
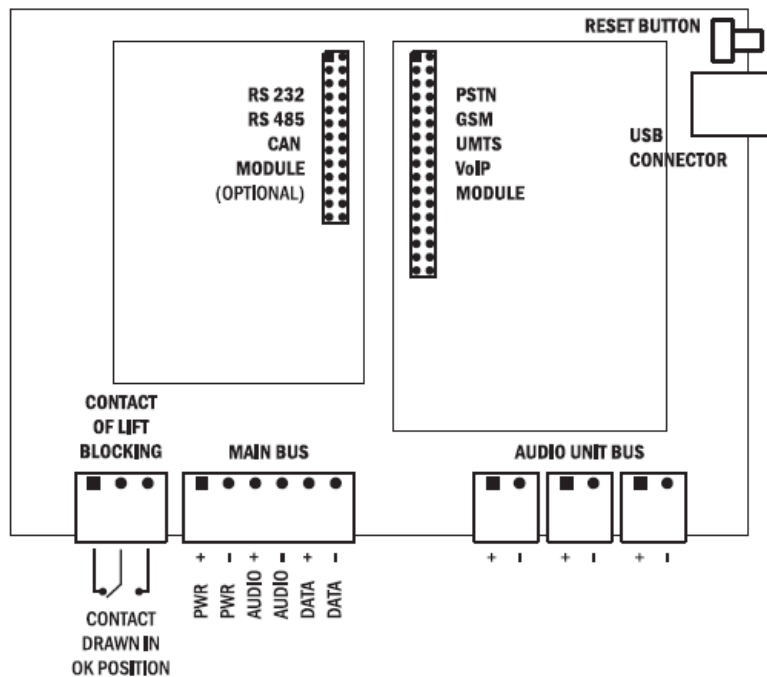
Central Unit Connectors

There are a USB connector and reset button to the right of the **CU** (see the figure below).
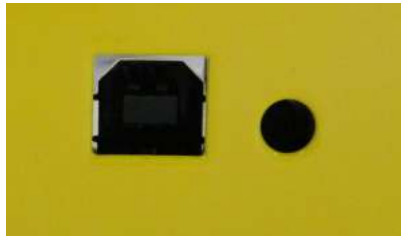
USB Connector and Reset Button

Reset Button Function

- **Reset equipment** – press the button quickly.
- **Restore factory values** – press and hold the button until all the LEDs turn red. Then release the button and wait until the SYSTEM LED flashes yellow. Now press the button quickly to delete all the user settings.
- **Zero backup rechargeable battery life counter** – press and hold the button until all the LEDs turn red. Then release the button and wait until the POWER/BATTERY LED flashes yellow. Now press the button quickly. Perform this function after replacing the backup rechargeable batteries with new ones only!
- **Check system completeness** – press and hold the button until all the LEDs turn red. Then release the button and wait until the INTERNAL BUS LED flashes yellow. Now press the button quickly to make the system supervise all the installed equipment (splitters, Audio Units etc.) for proper connection and function. Refer to S. 4.8.
- **Delete central unit software completely** – press and hold the button until all the LEDs turn red. Then release the button and wait until the SYSTEM LED flashes red. Now press the button quickly. CAUTION: after performing this function you can only restore the normal function of the device using a PC!

> ⬥ **Warning**
>
> - After the CU SW is deleted, value 13 (equivalent to 13A h) is set in parameter **600 Capacity of accumulator** regardless of the type of batteries. Adjust this value manually according to the battery type to make the charging procedure correct.

USB Port Connection

Recommendation

- Do not keep your PC connected for a long time unless necessary to reduce the computer damage due voltage surge from the telephone line during storms, for example.

Before You Start

CU Installation Conditions

- The **Central Unit** (hereinafter referred to as **CU**) is not intended for outdoor use.
- Do not install the **CU** onto vibration-producing machines.
- Install the **CU** vertically to allow air flow for cooling purposes (never cover the **CU** with any cloth or install it in another closed box).
- You may install the **CU** into the lift switchboard unless the temperature exceeds the acceptable limit. Remember that a higher ambient temperature reduces the life of backup rechargeable batteries in the **CU**.
- It is recommended that the **CU** should be operated in the upright position with the cable openings at the bottom. Such mounting position ensures the lowest temperatures and thus the longest life of the rechargeable batteries. Horizontal mounting is also possible. The upright position with the cable openings at the top (upside down) is forbidden!
- After mounting the **CU** check that the equipment is firmly fixed in place and cannot come loose and drop down into the shaft.

Product Completeness Check

Check whether the product package is complete before installation:

- 1 central unit
- 1 main bus terminal
- 4 bus connection terminals
- 4 wall plugs
- 4 wall plug screws
- 8 cable ties
- 1 battery connecting cables
- 1 brief manual
- 1 warranty sheet
- drilling template

CU Mounting

It is recommended to install the **CU** in a room that is secured against unauthorised persons, such as the lift machine room, switching station etc. On an easily accessible place there is a risk of telephone line misuse or SIM card misappropriation.

The **CU** is mounted on a wall with the included wall plugs and screws.

> ⚠ **Caution**
>
> - The **CU** is designed for multi-shaft building installations and cannot be shared by multiple buildings.

CU Electrical Installation

Putting in Operation

1. Keep the **CU** disconnected from the mains.
2. Loosen the three screws on the upper cover of the **CU.**
3. Move the upper cover of the **CU** in such a way that you can remove it.
4. When removing the cover, proceed with caution, be careful about the earth wire connecting the cover with the **CU** bottom part. Do not disconnect the wire unless there is a reason to do so!
5. Using the slide-on terminals supplied with the device, connect the Audio Units, splitters (if there are 2 and more lift shafts) and other components of the system with the **CU.** Adhere to polarity!
6. Install a PSTN, GSM or UMTS module unless installed on the **CU**. Abide by the instructions given in the Instructions for Use of the given module (refer to Subs. 2.7 or 2.8).
7. Connect an analogue telephone line to the PSTN module if used (use a telephone connector or the terminal board on the module). Do not forget to connect an antenna to the GSM/UMTS module is used and insert a SIM card!
8. Take the rechargeable batteries out of the package and place them into the CU as instructed. Fix them into the holder and use an 8 mm spanner for tightening. Interconnect the batteries using the included cables but do not connect them to the CU yet.
9. Connect the **CU** power cable to a 230 V socket.
10. Interconnect the battery cables with the CU motherboard.
11. Replace the upper cover on the **CU** and tighten the cover fitting screws. Doing so make sure that the earthing wire is connected to the cover!
12. Press the Reset button to execute the **Zero backup rechargeable battery life counter** (refer to the Reset Button Function subsection).
13. Connect the **CU** to the mains supply.

> ⚠ **Caution**
>
> - If you connect one lift shaft only, it is not necessary to connect the splitters. Use the splitters only if you want to connect 2 or more lift shafts.

> **⬥ Warning**
>
> - **WARNING! Live parts are exposed after the CU cover is removed!**
> - **Be very careful and do not touch dangerous live parts!**
> - **Never work with a switched-on CU with its protective cover off unless you are an authorised person duly trained according to Decree 50/1978 Coll.**
> - **Never insert damaged batteries.** Do not insert the batteries in the CU that might show electric or mechanical damage.
>
> - **Never use 2N® Lift8 without its protective cover** to avoid electric accident, malfunction due to wrong interconnection and/or **2N® Lift8** electronics damage or destruction as a result of electric short-circuit or adverse environmental conditions. It is because **2N® Lift8** is not protected against dangerous touch and water – **IP00**.
>
> - **Make sure before installation that the 2N® Lift8 board is not damaged!**
>
> - **Do not connect a power supply other than the allowed one** to avoid electric accident or device damage.

Power Supply

- The **CU** is powered by 100–240 V mains power.

> **⬥ Warning**
>
> - Never connect an AC source or unstabilised DC source to avoid **CU** damage.

Rechargeable Battery Connection and State Check

Procedure:

1. Keep the **CU** disconnected from the mains.
2. Loosen the three screws on the upper cover of the **CU**.
3. Move the upper cover of the **CU** in such a way that you can remove it.
4. Proceed with caution while removing the cover: be careful about the drain wire connecting the cover with the **CU** bottom part. Do not disconnect the wire unless there is a reason to do so!
5. Interconnect the rechargeable batteries, but do not connect them to the motherboard.
6. Plug in the **CU** supply cable into a 230 V socket.
7. Now interconnect the batteries with the motherboard using the FASTON cable (see the Fig. below). Maintain polarity.
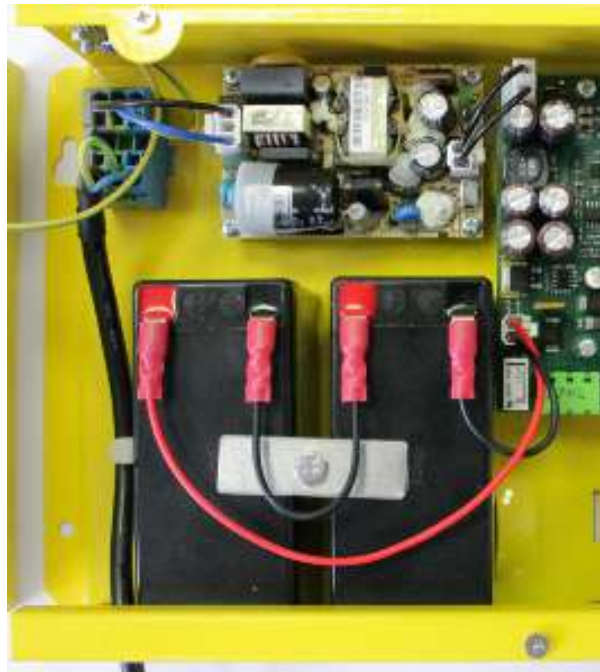
8. Replace the upper cover on the **CU** and tighten the cover fitting screws. Doing so make sure that the earthing wire is connected to the cover!

After plugging the **CU** into the socket, the LED (Power/battery) should start to flash (charging). The **CU** charges the rechargeable batteries until fully charged. After some time, the flashing green LED (charging) should change to a permanently illuminated green LED (battery charged).

> **⬥ Warning**
>
> - Adhere to the polarity of the rechargeable batteries! When the polarity of the batteries is reversed, there is a danger of fire or explosion or damage to the **CU** electronics.

Rechargeable Batteries

> **⚠ Caution**
>
> - If backup rechargeable batteries are used for the **2N® Lift8** power supply, the required backup of up to 1 h is guaranteed only if up to 20 audio units are connected in the system.
> - The required 1h backup is not guaranteed if more than 20 audio units are installed.
> - Remember to replace the batteries every two years.

Splitter – CU Bus Connection
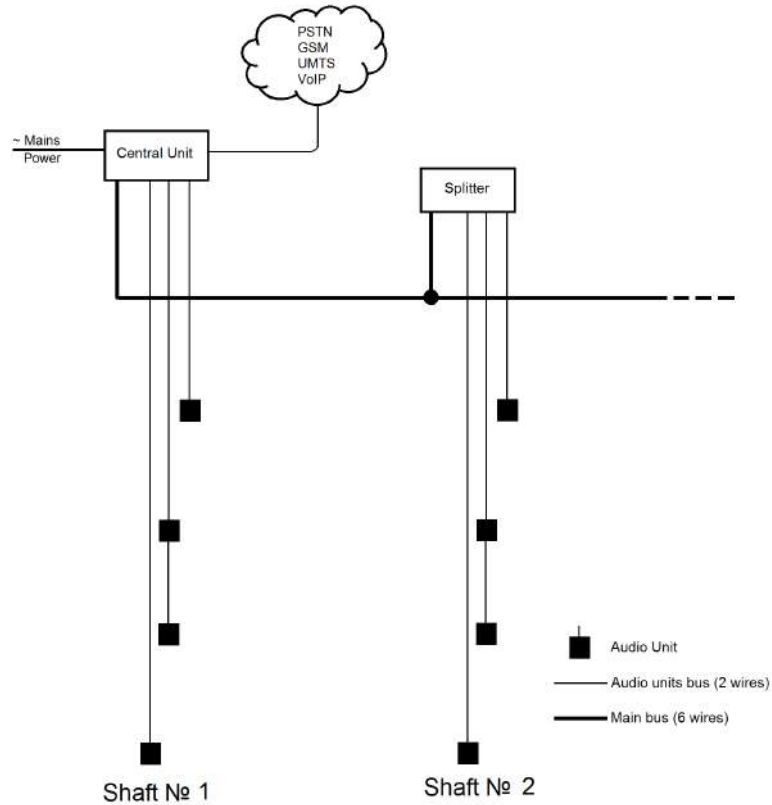
Interconnect the **CU** and splitter using a 6-wire main bus (power + − , audio + − , data +). Mind the polarity.
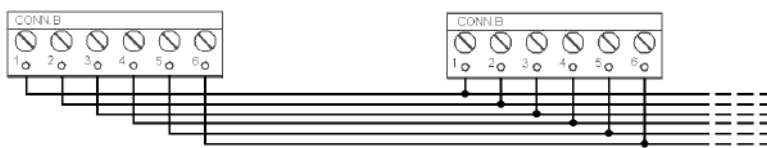
Main bus
1 … Main bus power +
2 … Main bus power −
3 … Main bus audio +

Main bus
4 … Main bus audio −
5 … Main bus data +
6 … Main bus data −

> ⚠ **Caution**
>
> - 6-wire
>   - Use unshielded wires of the cross-section of 0.75 mm^2.
>   - The maximum total cable length is 30 m with the cross-section of 0.75 mm^2.
>   - For higher lengths, enlarge the supply pair cross-section: PWR (60 m − 1.5 mm^2, or 100 m − 2.5 mm^2).

Audio Units – Splitter (CU) Bus Connection

(the **CU** is used if one lift shaft is connected)

Interconnect the Splitter (**CU**) and Audio Units using a two-wire bus. Mind the polarity.
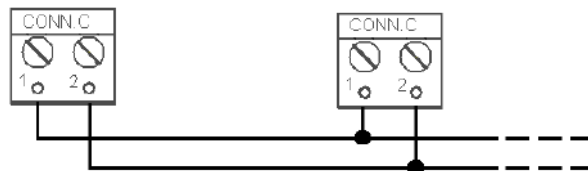
Audio unit bus
1 … Bus for Audio Units +
2 … Bus for Audio Units −

> ⚠️ **Caution**
>
> - 2-wire
>   - Use unshielded wires of the cross-section of 0.75 mm^2.
>   - The maximum total length per shaft is 600 m.
>   - With multi-strand cables, always use a pair of wires which match each other.
>   - With a tow cable, consider the cable length too.
>   - With special cables (to the cabin), use the neighbouring wires and make sure that the nearest surrounding wires do not radiate interference (power wire, video signal etc.).

> ✅ **Tip**
>
> - Do not lead the bus close to power cables, especially in long-distance sections.
> - Branch the bus to shorten the total length of sections.

> 🛑 **Safety**
>
> - The bus is electrically isolated from the telephone line circuits according to the EN60950 standard requirements and its low voltage cannot cause any electrical accident.

Termination Resistance

Connect the termination resistance connector to the first and last device connected to the bus: CU, splitter or I/O module.

> ⚠️ **Caution**
>
> - Find the 2-pin termination resistance connector between the main bus connector and audio unit connectors (see the figure below).
> - By default, the termination resistance is connected (jumper mounted).
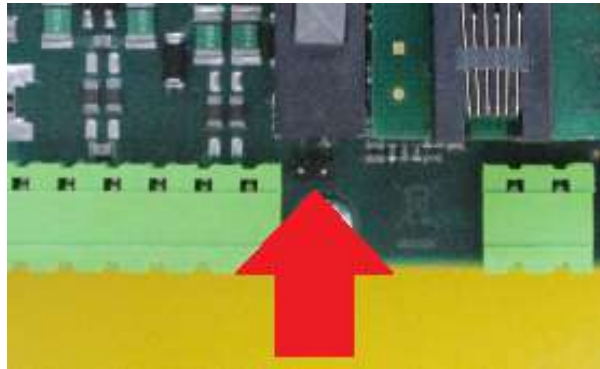
Examples of Connection:

Connect termination resistance to the splitter and the last IO module

Shaft № 1   Shaft № 2   Shaft № 3   Shaft № X

Audio Unit
Audio units bus (2
Main bus (6 wires)
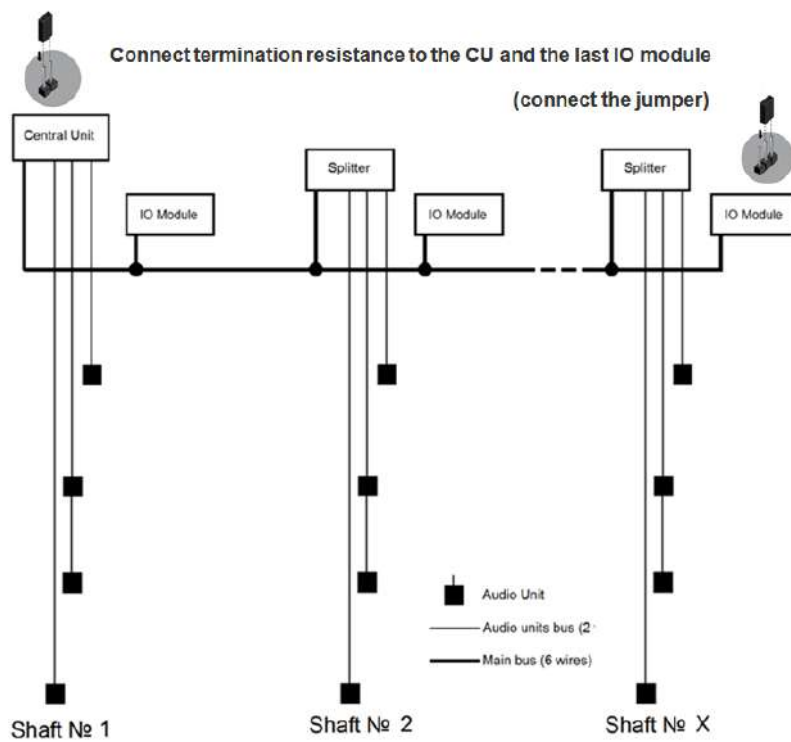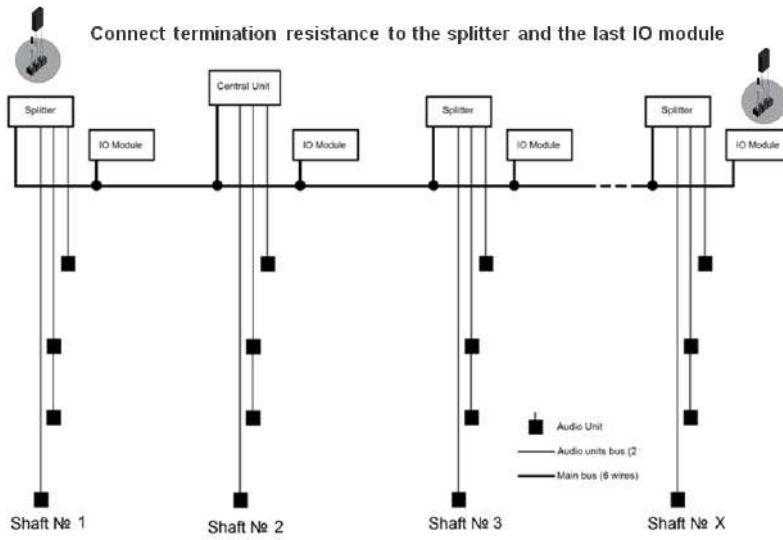
CU Connection to Telephone Network

You can connect the **CU** to any of the following telephone networks:

- PSTN
- PBX
- GSM
- UMTS
- VoIP

PSTN

2N® **Lift8** works in a broad band regardless of polarity and line parameters (refer to Technical Parameters). Connect it using the enclosed cable with an RJ–12 terminal. It is the most reliable and simplest connection. The disadvantage is the operating cost (fixed fee).

> ⚠ **Caution**
>
> - Only one **CU** may be connected to one telephone line and no other end telephone equipment may be connected to the line including a product through which the telephone line goes (so-called priority connection – electronic burglar alarm, e.g.).
> - No dual or party lines may be used.
> - No telephone "multiplugs" (adaptors), even the smart ones, may be used.
> - Never connect **2N**® **Lift8** to an ISDN line.

Telephone line requirements

- The line must not be a dual or party one.
- The telephone socket and its wiring are usually the network provider's property and may not be tampered with.

Other recommendations

- Notify the telephone network provider of your **2N**® **Lift8** installation and submit certification upon request.
- Your follow-up wiring must comply with the relevant safety regulations.
- You are recommended to secure your cabling against pirate connection (with a telephone lock, e.g.).

Connection via PBX (Private Branch Exchange)

- This is the least-cost solution where a PBX and an unused PBX line are available.

PBX line requirements

- The PBX to be used must work reliably even in the case of power outage. Large PBXs are mostly equipped with a back-up power supply, smaller PBXs usually use PSTN line redirection in the event of power failure. Consult the problem with the technician responsible for your PBX. An error during power outage may result in **2N**® **Lift8** calling an undesired station.
- Relevant call access rights have to be assigned to the PBX line to be used (use a standard telephone set to check whether the line can make outgoing calls to all the required numbers).
- While programming, enter the necessary PSTN code (typically a zero), or (preferably) make the PBX not require a prefix (so-called automatic connection to the provider's telephone line).
- To make the control room – lift calls, you have to know the extension number and how to get through to it (dial-in, DISA, operator).
- The control room – lift connection may not depend on the operator's presence; no call forwarding to a fax/answering machine in the night mode is allowed, etc.

Other recommendations

- Make an agreement with the PBX owner regarding operating costs (**2N**® **Lift8** outgoing calls are billed at the owner's expense with the exception of free calls via "green lines").

> ✅ **Tip**
>
> - If there is permanent manning in your building (security staff, receptionist), train the personnel how to rescue people and program **2N® Lift8** to call this service.

GSM

This is used in particular where no PSTN line is available.

Recommendation

- In places with a poor signal quality find an appropriate place or use a special (directional) antenna.
- Protect the SIM card from theft.
- If a prepaid SIM card is used, make sure that the credit is monitored and topped up in time.

UMTS

This is used in particular where no PSTN line is available. If **2N® Lift8** is connected via UMTS, the system can be configured remotely using the **2N® Lift8 Service Tool** application.

Recommendation

- In places with a poor signal quality find an appropriate place or use a special (directional) antenna.
- Protect the SIM card from theft.
- If a prepaid SIM card is used, make sure that the credit is monitored and topped up in time.

Operation without SIM card or PSTN line

- **2N® Lift8** can be used as an intercom without an inserted SIM card or connected PSTN line during the lift fitting time. In this case do not enable the lift blocking function until the telephone line is connected.

VoIP

VoIP is the cheapest solution where a reliable Internet connection is available.

2.2 Splitter

Description

The splitter helps extend installations by interconnecting audio units in multiple lift shafts (audio units can be connected directly to the **CU** in one-shaft installations). It is connected with the **CU** via six wires (power, audio, data). Audio units are connected to the splitter using a two-wire bus. The splitter also contains a make/break contact for the lift blocking function. There can be up to 7 splitters (according to the count of lift shafts).

Each splitter must be configured for a different address (lift shaft number) for the system to work. The addresses are 2–8 (lift 2–8). Lift 1 is the **CU**.

The splitters are connected in series, i.e. one after another (never in parallel), to avoid system instability. The termination resistance (jumper) is mounted on the last splitter or IO module (furthest from the **CU**).
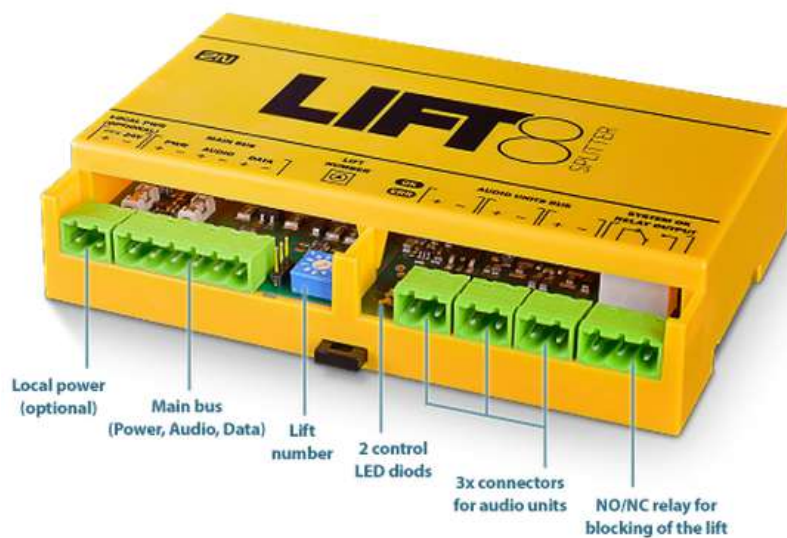
2N® Lift8 Splitter

> ⚠ **Caution – upgrade**
>
> - Set the splitters to odd addresses (lift/shaft number) for 1.x.x to 2.x.x upgrade as even addresses cannot be upgraded. Example: First upgrade the odd address splitters. Then disconnect these splitters and change the even address splitters to odd ones. After upgrade, change the odd addresses back to even ones.
> - The upgrading process is indicated by green and red flashing LEDs (OK and ERR respectively).

> ⚠ **Caution**
>
> - Local power supply is not supported yet.

Electrical Installation

Main Bus Connection

Remove the push-in terminal board from the main bus connector and connect six wires from the **CU** maintaining the polarity (power + −, audio + −, data + −). See the printed figure on the splitter cover.

Main bus
1 … Main bus power +
2 … Main bus power −
3 … Main bus audio +
4 … Main bus audio −
5 … Main bus data +
6 … Main bus data −
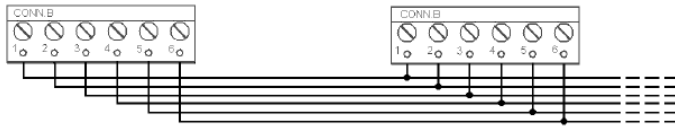
> **⬤ Warning**
>
> - Maintain the connection polarity to avoid a **2N**® **Lift8** error.

Bus Connection between Audio Units and Splitter

Interconnect the splitter and audio units using a two-wire bus maintaining polarity.
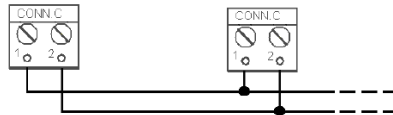
Audio unit bus
1 … Bus for Audio Units +
2 … Bus for Audio Units −

Address Configuration

Configure the splitter address for the given lift using a 10-position switch 0–9 (see the figure).

Configure lift 2–8 as 2–8 (set the switch to position 5 for lift 5, e.g.).

> **⬤ Warning**
>
> - Do not configure the splitter address as 0, 1 and 9 or the system will report a fault
> - Address 1 is used by the central unit

Audio Unit Connection

Connect up to 5 audio units to each splitter. As the splitter has only 3 audio unit terminals, connect 1–2 audio unit in parallel. Remove the slide-on terminals from the audio unit connectors and connect the twin-wire. Adhere to polarity to avoid the audio unit error. Refer to the schemes printed on the splitter and audio unit for connection polarity.

Requirements

- Connect up to 2 audio units to one terminal.
- With multi-strand cables, always use a pair of wires which match each other. In standard UTP cables the paired wires are twisted around each other.
- With special cables (to the cabin), use the neighbouring wires and make sure that the nearest surrounding wires do not radiate interference (power wire, video signal etc.).

Recommendation

- Do not run the bus near power wires, especially long sections.
- Branch the bus to shorten the total length of sections.

> ⬤ **Warning**
>
> - The bus is electrically isolated from the telephone line circuits according to the EN60950 standard requirements and its low voltage cannot cause any electrical accident.

Lift Blocking Function Connection

Lift blocking is enabled by the contact breaking (opening) when there is a telephone line (PSTN, GSM, UMTS, VoIP) fault or if the **2N®** **Lift8** rechargeable batteries are almost flat. Connect the contact to the relevant input of the control electronics of the lift/group of lifts. The control electronics must ensure that, after the contact opening, the lifts in operation go down to the nearest station and the doors open.

> ⚠ **Caution**
>
> - This function may be mandatory depending on the regulations applicable for the given country and time of installation.

Termination Resistance

> ⚠ **Caution**
>
> - Find the 3-pin termination resistance setting jumper between the main bus connector and the lift number switch.
> - Connect the jumper to the first and last devices (CJ, splitter or IO module) connected to the bus in the termination resistance switching position, see the figure below.
> - Refer to the CU describing section for more details on termination resistance mounting.
> - The device that is not at the first/last bus position must be equipped with a 3-pin jumper in the off position.
> - By default, the termination resistance jumper is off.

Termination Resistance ON   Termination Resistance OFF

Termination Resistance ON

Mounting Types

See below for the mounting types and necessary components. Install the device on sites not exposed to water leakage or condensation.

Wall Mounting

Use appropriate wall plugs and screws for mounting (not included in the delivery). Hang the device using the pre-drilled holes on the device bottom.
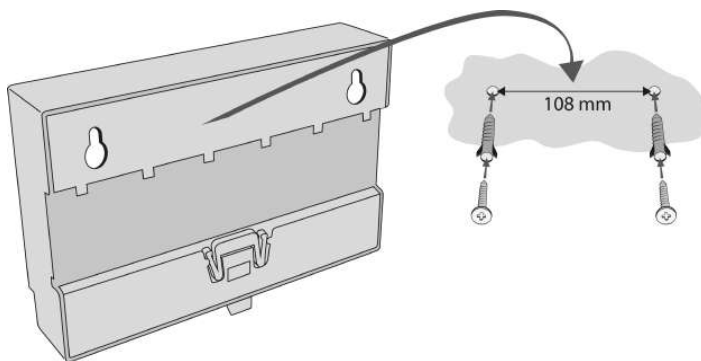
Wall Mounting

DIN Rail Mounting

Its possible to mount device on standard DIN rail TS 35. Min. rail length is 14 cm.
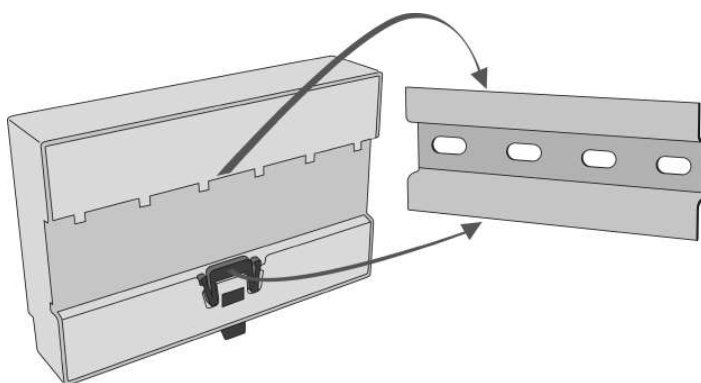
DIN Rail Mounting

> ⚠ **Caution**
>
> - The warranty does not cover any defects or failures of the product arisen as a result of improper mounting in contradiction to these instructions.
> - A wrong mounting procedure may lead to damage to the electronics due to water infiltration. The splitter circuits are constantly under voltage and water leakage causes electrochemical reaction. No warranty can be claimed for products damaged in this manner!

2.3 Audio Unit - COP

Description

The user does not come into a direct contact with this product. The control and indication elements depend on the specific installation. The functions of the indication elements correspond to the applicable standards

Figure: Audio Unit – COP

> ⚠ **Caution – diodes**
>
> **Alarm call**
> - The yellow LED is illuminated to indicate the call setup progress (request received).
> - The green LED is on to indicate call confirmation (connection confirmed).
> - The yellow LED starts flashing when the call has been confirmed to indicate camera image downloading.
>
> **Upgrade**
> - The yellow and green LEDs are on (request received and connection confirmed) and the red LED is illuminated on the back side to indicate audio unit initialisation.

- The yellow and green LEDs flash to indicate audio unit upgrading. The red LED on the back side is permanently on.
- No LED is illuminated upon upgrade and the audio unit is ready for use.

Before You Start

Installation Conditions

- The panel has to be installation-ready, including speaker perforation.
- The panel has to be equipped with the following obligatory elements:

- ALARM button;
- illuminated pictogram "Request received";
- illuminated pictogram "Connection made".

- The above mentioned elements have been located as required by the applicable regulations.
- There must be free space of at least 65 x 130 x 20 mm behind the panel.

Product Completeness Check

Check the product for completeness before installation.

The cabin audio unit package contains (assembled):

- 1 electronics board
- 4 terminals slid onto the board; see the photo
- 1 jumper slid onto the board; see the cover printing
- 1 mounting panel
- 1 speaker connected directly or by cable
- 1 microphone connected directly or by cable
- 1 cover with printing
- 5 tightening straps

Mounting

Electronics Mounting

This audio unit is intended for mounting behind the lift control panel. Typically, the panel is ready for installation as shown in the drawing below:
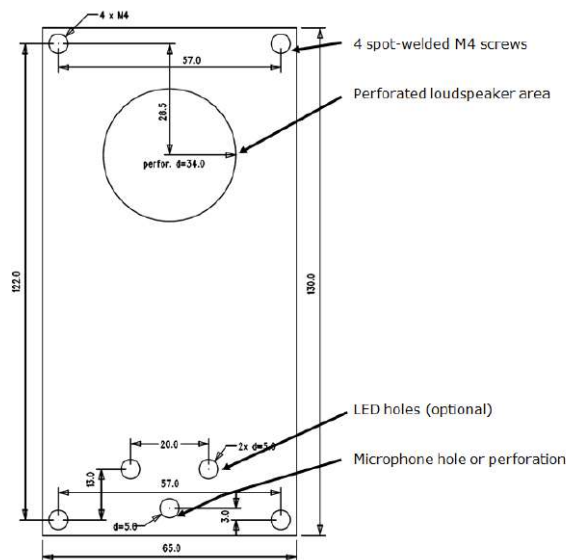
Figure: Mounting Hole Dimensions for Audio Unit – COP

To mount the audio unit, you need 4 electrically spot welded **M3** or **M4** screws, a sufficiently perforated speaker area and a microphone hole. In emergency, you can fix the audio unit on a perfectly degreased surface with a high-quality double-sided foam self-adhesive tape.

> ⬢ **Safety**
>
> - **Leave no gap** between the lift control panel and the audio unit surface to avoid acoustic speaker fault and acoustic speaker-microphone feedback.
> - **Do not use** this type of audio unit in a position other than mounted on a sufficiently large board. The acoustic properties of an uninstalled audio unit cannot be guaranteed.

Separate Microphone Mounting

If the microphone is supplied separately with a cable on a 25 x 25 mm large board with self-adhesive foil, just glue it directly behind any hole in the panel (one hole must have the minimum diameter of 5 mm, a group of smaller holes must have the same total area). Be sure to degrease and clean the surface carefully before!

Requirements

- **The minimum distance between the loudspeaker and microphone centres is 90 mm.** A lower distance may lead to acoustic feedback. A greater distance (within the available 1m cable) does not matter.

- The microphone must be stuck on so that it does not pick up (even in part!) the acoustic pressure from the space behind the control panel. Such sensing might result in acoustic feedback since the speaker strongly radiates sound into the cavity.

Separate Speaker Mounting

The speaker is equipped with a cable and can be separated from the electronics (simply pulled out) within the reach of the cables delivered (1m). This option is useful where there is not enough space for the whole electronic equipment. Fit the speaker according to the instructions below:

- While gluing the speaker choose such procedures or adhesives that prevent membrane damage by adhesives and volatile substances or heat.
- We recommend you to keep the speaker sealed to eliminate vibrations and provide electrical insulation.

Frequently Asked Questions about Speaker

- *Is it possible to use a common speaker for the communicator and floor announcer?*

No, it is not possible.

- *May I use a speaker of my own?*

Yes, but make sure that the impedance is 64 Ω. By doing this you assume responsibility for sufficient volume and frequency range.

- *May I place the speaker on the cabin ceiling?*

This placement is not recommended.

- *May I use a longer cable to the speaker?*

For the speaker yes, but we do not recommend it for the microphone.

Electrical Installation

Description of Terminals, Connectors and Jumpers
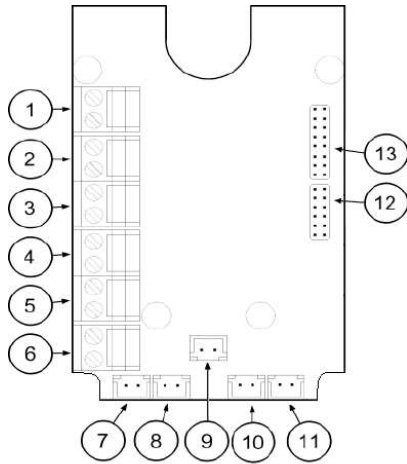
Figure: Terminals, Connectors and Jumpers on Audio Unit – COP

Terminals		Connectors	
1	Audio unit bus	**7**	"Connection made" LED
2	ALARM, voltage activation	**8**	"Request received" LED
3	ALARM, contact activation	**9**	Microphone connector (optionally)
4	CANCEL, voltage activation	**10**	Induction loop connector
5	CANCEL, contact activation	**11**	Speaker connector
6	Alarm 2 (set 2)	13	Servicing connector
Configuration jumpers		**Two LED signal lamps (other side)**	
12	Audio unit position	**1.** (yellow)	Request received
12	ALARM and CANCEL negation	**2.** (green)	Connection confirmed

> ⓘ **Note**
>
> - If external LEDs are connected to connectors 7 and 8, LED indicators 1 and 2 will not be shining.

Audio Unit Location Configuration

The audio unit is configured as a cabin audio unit by default and so it is not necessary to change the configuration. To use the audio unit in a room other than the lift cabin, proceed as follows.

Procedure

1. Reconfigure the jumper on configuration jumper 12.
2. If there is poor access to the pins, you can remove the electronics cover. Slightly loosen the four screws and shift the cover downwards. Now you can remove the cover.
3. The first 4 pins help set the audio unit location (1 – cabin ceiling, 2 – cabin, default, 3 – under cabin, 4 – shaft bottom, 1+ 4 – cabin 2 roof, 2+ 4 – cabin 2, 3 + 4 under cabin 2). Use the jumpers for 1–4 settings. In cabin 2 setting, set one jumper to the shaft bottom position (4) and then select the position with the other jumper (1 – cabin 2 roof , 2 – cabin 2, 3 – under cabin 2).
4. Configure the required changes as printed on the electronics cover.
5. If you have removed the cover, put it back in the original position and tighten the screw.
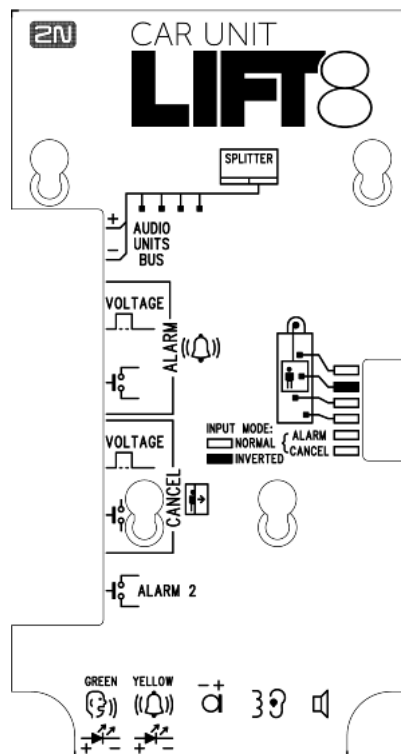

Figure: Address Configuration for Audio Unit – COP

> **⚠ Caution**
>
> - In versions 2.0.0 and higher, up to 7 audio unit positions can be configured for two-cabin lifts (1 – cabin roof, 2 – cabin = default, 3 – under cabin, 4 – shaft bottom, 5 – cabin 2 roof, 6 – cabin 2, 7 – under cabin 2).
> - Up to 5 audio units including the Fireman unit and module camera can be connected to one shaft.

> **ⓘ Note**
>
> - Make sure that no two audio units have an identical address to avoid system error.
> - The position-setting jumpers are employed exceptionally, e.g. where a certain audio unit type is used in a position other than normally intended.
> - To recover the initial address setting, follow the drawing on the cover.

Bus Connection

Pull the terminal out of connector 1 – Audio units bus, connect the bus audio units wires and replace the terminal to connector 1. Mind the polarity.

> **⬣ Warning**
>
> - The audio unit is intended for **2N® Lift8** audio unit bus connection exclusively. Do not connect it to other wires to avoid its damage or destruction.
> - Maintain polarity while connecting the audio unit to avoid audio unit error.

> **⚠ Caution**
>
> - The audio unit is powered via a 2-wire bus. Disconnection of these wires results in the audio unit switch-off.
> - Avoid the audio unit address duplicity.

ALARM Button Connection

Requirements

- The ALARM button design (colour, symbol, keypad surface, mechanical operation) and location have to meet the requirements of the particular installation.

Button control

Requirements

- The ALARM button has to be equipped with a make or break (NO/NC) contact that is not connected with any other circuit.
- None of the ALARM button terminals may be connected electrically with any other electrical circuit and no voltage source other than the NO/NC contact may be connected to them.
- If one of the ALARM contacts is connected to another circuit, an appropriate isolation strength according to the applicable standards has to be ensured between the contacts.

Procedure

1. Leave the ALARM terminal in the lower position (3).
2. If you use a make contact, leave the jumper as it is (5th pin on jumper 12) – ALARM without jumper fitted (factory setting).
3. If you use a break contact, fit the jumper (5th pin on jumper 12) – ALARM inverted – jumper fitted.

Voltage control

Requirements

- DC 12 to 48 V voltage
- The voltage signal must be active even during a power failure.

Procedure

1. Move the ALARM terminal two pins up into position (2).
2. For activation by voltage connection, leave the jumper as it is (5th pin on jumper 12) – ALARM without jumper fitted (factory setting).
3. For activation by voltage disconnection, fit the jumper (5th pin on jumper 12) – ALARM inverted – jumper fitted.

> ⬥ **Warning**
>
> - Ignoring the instructions above may lead to product damage.

> ⚠ **Caution button ALARM 2**
>
> - The ALARM 2 button has the N/O contact only.
> - Delayed call (914) and Minimum ALARM 1 pressing time (962) do not relate to the ALARM 2 button.
> - A short button press (100 ms) sets up a call to the other set of numbers (021–026). If the other set is empty, the call is set up to the first set of numbers (011–016).
> - A long button press (3,000 ms) cancels the rescue process if parameter 966 is set.

CANCEL Input Connection (Door Contact, Optional)

This input helps cancel a rescue request if the lift is fully functional. When the ALARM button is pressed, the system waits for a pre-programmed period of time, which is a little longer than the maximum lift running time. If the lift is functional, it arrives in the required station within this timeout and opens the door. In that case, the rescue request is cancelled. If the door does not open, the request is accepted.

Find out before installation whether the door opening signal is available in the lift cabin.

Requirements

- If the lift has a double door, the signal must be active only if both the door sets are open, i.e., if it is really possible to leave the cabin.
- The door position signal has to work even in the case of power outage.

Contact control

Requirements

- None of the contact outlets terminals may be connected electrically with any other electrical circuit and no voltage source other than the NO/NC contact may be connected to the CANCEL terminals.

Procedure

1. Leave the CANCEL terminal in the lower position (5).
2. f you use a make contact, leave the jumper as it is (6th pin on jumper 12) – CANCEL without jumper fitted (factory setting).
3. If you use a break contact, fit the jumper (6th pin on jumper 12) – CANCEL inverted – jumper fitted.

Voltage control

Requirements

- DC 12 to 48V voltage

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Procedure

1. Move the CANCEL terminal two pins up into position (4).
2. For activation by voltage connection, leave the jumper as it is (6th pin on jumper 12) – CANCEL without jumper fitted (factory setting).
3. For activation by voltage disconnection, fit the jumper (6th pin on jumper 12) – CANCEL inverted – jumper fitted.

> ⊘ **Warning**
>
> - Ignoring the instructions above may lead to product damage.
> - The CANCEL function only works when the cabin audio unit is set to the cabin position (default).

> ⚠ **Caution**
>
> - Remember to program delayed calling to make the CANCEL connection work successfully.
> - Refer to the electronics cover for the ALARM and CANCEL configuration scheme.

LED Indicator Connection

The current LED technology makes it possible to achieve a relatively good light intensity with a small current. If the lift indicators are illuminated with a sufficiently efficient LED requiring a current of approx. 5 mA (with diode loss of about 2 V), no power supply is needed. See the figure below for the connection.
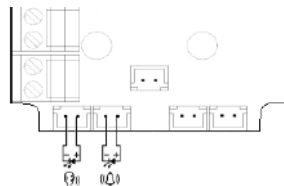
Figure: Alternative LED Connection for Audio Unit – COP

> ⓘ **Note**
>
> - The cables required for this configuration are not part of the standard delivery but are available upon agreement.
> - In this configuration, the auxiliary indicators on the PCB are not illuminated.

External Pictogram Driver

Description

The device transforms the **2N® Lift8** Car Unit LED outputs into a universal pilot lamp, whose outputs are capable of driving two lamps rated at the maximum of 36 Volts, 0.5 Amps. The outputs are galvanically isolated from the Car Unit. Since the lamp outputs are polarity independent, both AC and DC power supplies can be used for powering the lamps. To protect the Car Unit and Pictogram Driver against damage caused by shorts, **always use the included isolating tube when installing the device!**

Wiring diagram
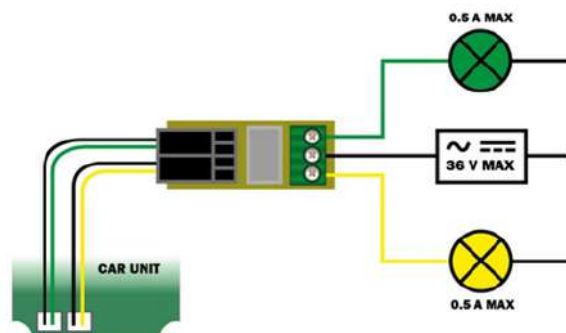
> ⚠️ **Caution**
> - External pictograms are connected to connectors 7 and 8 on the cabin audio unit.
> - The manufacturer, 2N TELEKOMUNIKACE a.s., hereby declares that the **2N® Lift8** External Pictogram Driver is in compliance with the essential requirements and other relevant provisions of the 1999/5/EC Directive. The Declaration of Conformity is attached to the basic module of **2N® Lift8** and also available at www.2n.cz.

Volume Configuration

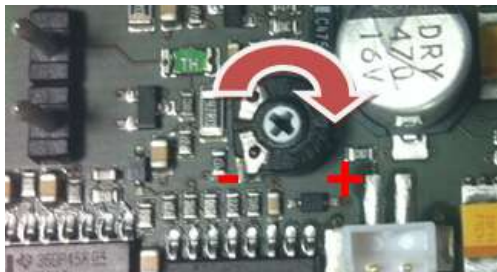Slightly loosen the four screws and shift the cover downwards. Now you can remove the cover. Use the trimmer located in the bottom part of the electronics to set the required volume level (see the figure below).

> ⚠️ **Caution**
> - Use the trimmer to set the best acoustic properties eliminating feedback.

Induction Loop Connection

The regulations that apply to communicator installations may require a mandatory loop for persons with defective hearing in the lift cabin. In that case, connect the loop to connector (10) with any polarity. The loop including a 1m long cable can be part of your delivery if agreed so.

Requirements

- The induction loop has to be placed behind a non-metal, non-magnetic cover in the control panel as the magnetic field of the induction loop cannot go through a metal control panel.
- The induction loop has to be labelled with an appropriate symbol (ear) placed according to the applicable standards.

Rescue Process

- The rescue (extrication) process is activated after the alarm call end.

- The yellow LED keeps shining on the audio unit.
- The service technician enters a valid password via the **2N® Lift8** voice menu to terminate the process.
- When the rescue password is entered via the voice menu, the yellow LED goes off on the audio unit and the 'Rescue process was terminated' is played.

> ⚠ **Caution**
>
> - Access the voice menu (during an incoming call to L8 or from the machine room) to terminate the rescue process. Enter the administration menu (9) and press (2) to terminate the rescue process. Enter the shaft number (only if multiple audio units are involved in the rescue process) and enter the rescue terminating password.

> ⊗ **Warning**
>
> - Remember to set the rescue password (parameter 992) to activate the rescue function.
> - The rescue process can only be activated on a cabin audio unit configured as the cabin (default audio unit setting).

2.4 Audio Unit - Machine Room

Description

The machine room audio unit is intended for installation in the machine room or as an intercom solution located in the reception. It has some **distinctive** features compared with the other types:

- The audio unit is equipped with a keypad.
- The keypad helps you select various functions and **program the system.**
- You can connect a handset to the audio unit for better acoustic properties in noisy environments.
- You can connect an external siren to the audio unit for incoming call signalling.
- You can configure the machine room audio unit to be shared by multiple lifts.
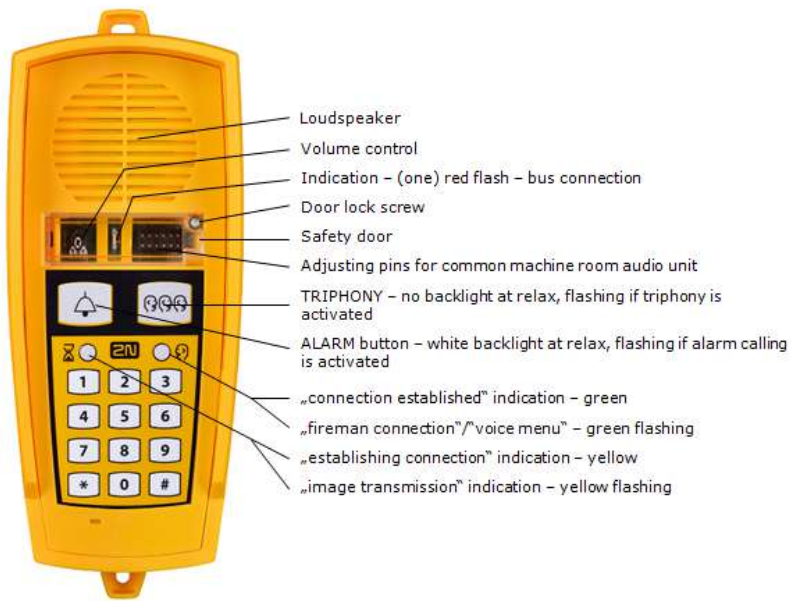
Loudspeaker

Volume control

Indication – (one) red flash – bus connection

Door lock screw

Safety door

Adjusting pins for common machine room audio unit

TRIPHONY – no backlight at relax, flashing if triphony is activated

ALARM button – white backlight at relax, flashing if alarm calling is activated

„connection established" indication – green

„fireman connection"/"voice menu" – green flashing

„establishing connection" indication – yellow

„image transmission" indication – yellow flashing

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> ⚠️ **Caution - upgrade**
>
> - The yellow, green and red LEDs are on (request received, connection confirmed and red LED under the glass) to indicate audio unit initialisation.
> - The yellow and green LEDs flash to indicate audio unit upgrading. The red LED is permanently on.
> - The ALARM pictogram (bell symbol) goes on upon upgrade and the audio unit is ready for use.

Operation

1. This type of audio unit is operated by qualified people (lift maintenance staff, e.g.).
2. Push the TRIPHONY button to activate voice communication with the other audio units of the same lift. Push and hold the button for over 2 seconds to activate communication with another lift (to display a voice menu and select the required lift number).
3. Push the ALARM button to call the control centre, for example. The audio unit calls the numbers configured in the ALARM memory – set 2 (021–026). The ALARM button illumination (not required by default) helps you find and activate the audio unit easily in the dark.
4. When you press the ALARM or TRIPHONY button, the function is called up immediately. Speak HandsFree or use a handset for better acoustic properties.
5. Press ⊠ for more than 2 s to display the voice menu.

> ⚠️ **Caution**
>
> - If no number is specified in the ALARM memory – set 2 (021–026), the audio unit dials the numbers defined in the ALARM memory – set 1 (011–016).
> - Push the ALARM button to call the control room or machine room audio unit configured as an intercom.
> - The ALARM and TRIPHONY buttons shine even at relax.

Before You Start

Requirements

- Connect a handset supplied by the manufacturer to the audio unit to avoid handset operation error.

Product Completeness Check

Check the product for completeness before installation.

- 1 audio unit

- 2 wall plugs
- 2 wall plug screws
- 7–8 jumpers for common machine room configuration

Mounting

The audio unit is typically mounted on a wall using the wall plugs and screws included in the delivery.

Electrical Installation

Description of Connectors
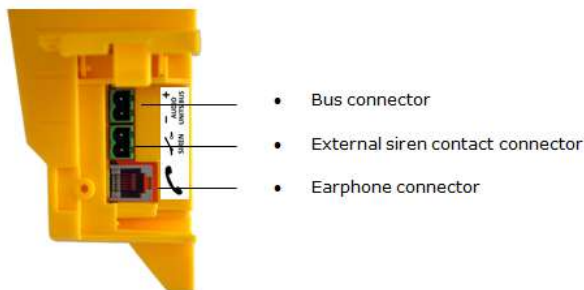
There are 3 connectors to the right under the cover:

- Bus connector
- External siren contact connector
- Earphone connector

Figure: Machine Room Audio Unit Connectors

> ✅ **Tip**
>
> - Set the siren function in parameter 919, refer to Subs. 3.2 Table of Parameters (FW 2.1.0).

Address Configuration

There is a group of jumpers under the transparent front cover. Do not use any of them if the machine room is only intended for the given lift. The audio unit identifies itself as the machine room for the given lift.

If the machine room is to be shared by multiple lifts, configure the corresponding pins 1–8 for the lifts to share the machine room (numbered 1–8 from left to right 1–8).

> ⓘ **Note**
>
> - This audio unit is always configured as the machine room and cannot have a different location.

- Group of 8 jumpers for address configuration: If the machine room is shared by multiple lifts, use one audio unit and configure several addresses using the included jumpers. **The other audio unit types do not have this possibility!**

> ⓘ **Note**
>
> - Having set more addresses for the audio unit, press the TRIPHONY button to activate communication of the lift audio units with the lowest of the configured addresses.

> ⚠ **Caution**
>
> - Avoid the audio unit address duplicity.

Bus Connection

Loosen the screws to the right and open the connector cover. There is just one connector under the cover: a bus connector. Pull out the terminal from the connector, connect the wires and replace the terminal. Make sure that the polarity is maintained.

> 🔴 **Warning**
>
> - The audio unit is intended for **2N® Lift8** audio unit bus connection exclusively. Do not connect it to other wires to avoid its damage or destruction.
> - Maintain polarity while connecting the audio unit to avoid audio unit error.

> **⚠ Caution**
>
> - The audio unit is powered via a 2-wire bus. Disconnection of these wires results in the audio unit switch-off.

Handset Connection

Order an additional handset for your audio unit. The handset is delivered including a cable with telephone end pieces.

> **⚠ Caution**
>
> - If the handset is not connected, the audio unit works in the HandsFree mode.
> - A handset of a type other than that supplied by the manufacturer may not work.

Testing

Connect a handset and push and hold for over 2 s ⊞ to display the voice menu for the function test. If the handset does not work, the voice menu will be played from the audio unit speaker.
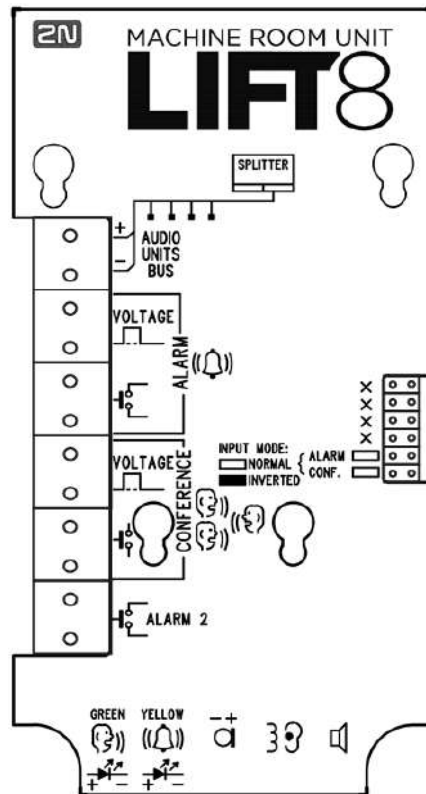
Volume Configuration

Open the protective door on the audio unit and adjust the volume using the trimmer.

> ⚠ **Caution**
>
> - Use the trimmer to set the best acoustic properties eliminating feedback.
> - Volume configuration only works in the HandsFree mode.

2.4.1 2N® Lift8 Machine Room Unit

2N® Lift8 Machine Room (Part No. **918623E**) is an audio unit designed for machine room installation for one lift shaft or the Intercom solution. The user does not come into direct contact with this product.

Product Completeness Check

Check the product package for completeness before installation.
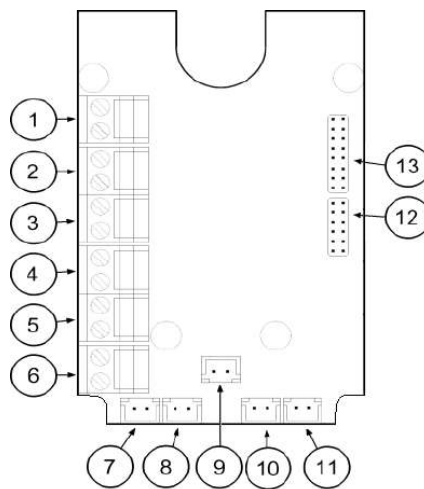
The cabin audio unit includes (assembled):

- 1 electronics board,
- 4 terminals,
- 1 mounting panel,
- 1 cover with printing,

- 1 directly or cable connected speaker,
- 1 directly or cable connected microphone,
- 1 declaration of conformity,
- 1 update notification,
- 10 cable ties.

Electric Installation

Description of Terminals, Connectors and Jumpers

Button controlled audio unit

Terminals		Connectors	
1	Audio unit bus	**7**	"Connection established" LED
2	ALARM, voltage activation	**8**	"Request received" LED
3	ALARM, contact activation	**9**	Microphone connector (optional)
4	CONFERENCE, voltage activation	**10**	Induction loop connector
5	CONFERENCE, contact activation	**11**	Speaker connector
6	ALARM 2 (set 2)		
Configuration jumpers		**Two LEDs (from the other side)**	

1 2	ALARM and CONFERENCE input negation	1. (yellow)	Request accepted
1 3	unused pins	2. (green)	Connection confirmed

Operation

The audio unit is controlled via a button or voltage.

A call is set up from the numbers defined in the **2N® Lift8** parameters. The first ALARM memory set includes parameters 011–016. The second ALARM memory set includes parameters 021–026. If set 2 is empty, the call is set up according to the set 1 parameters. This is set in parameter 029. If set 2 is empty and parameter 029 is not set, the call is not set up.

- If configured as an intercom, the audio unit can join a TRIPHONY call. Press the ALARM button to set the function. Connection is made to the audio unit that was the last to generate the ALARM function.

Bus Connection

Remove the terminal from the audio unit bus connector 1, connect the audio unit bus wires and replace the terminal. Keep the polarity.

> ❗ **Varování**
>
> - The audio unit is exclusively designed for the **2N® Lift8** audio unit bus connection. Connecting the audio unit other wires may lead to the audio unit damage or destruction.
> - Be sure to keep the polarity to avoid malfunction.

> ⚠ **Upozornění**
>
> - The audio unit is fed via a 2-wire bus. By disconnecting the wires you turn the audio unit off.
> - Watch out for duplicate settings of the audio unit location.

ALARM and CONFERENCE Button Function

Machine room mode

The ALARM button in the machine room mode activates an alarm call to the selected parameter.

The CONFERENCE button activates connection with the other audio unit of one and the same elevator, which is indicated by a shining green LED. A repeated press ends the connection.

ALARM 2 helps end the rescue process.

Intercom mode

Set also the following to activate an audio unit in the intercom mode:

- ALARM parameter: "#" and the number (1–8) of the shaft in which the audio unit is located, e.g. "#1",
- Call confirmation by pick-up.

If another audio unit has activated the ALARM function to an audio unit in the intercom mode, the ALARM button can be pressed to pick up the call and repressed to terminate the call.

If the audio unit in the intercom mode has already been called, the ALARM button calls back (to the last called audio unit). Otherwise, the call will not be set up. The CONFERENCE button ends the call.

The CONFERENCE button activates connection with the other audio unit of one and the same elevator, which is indicated by a shining green LED. A repeated press ends the connection.

ALARM 2 helps end the rescue process and receive a Fireman call.

ALARM and CONFERENCE Connection

Button Control

Requirements

- The buttons must have a N/O or N/C contact that is not connected with any other circuits.
- None of the button outlets may be galvanically connected with any other electric circuit, no voltage may be connected to the terminals – only the contact can be connected.
- If the buttons have multiple contacts and one of them is connected to another circuit, the required standard insulation strength between the contacts must be maintained.

Voltage Control

Requirements

- DC voltage between 12 and 48 V.
- The voltage signal must be functional even at power outages.

> ⚠ **Upozornění**
>
> - The yellow LED is on while the connection is being established (Request accepted).
> - The green LED is on when the call has been confirmed (Connection confirmed).

> ⚠ **Upozornění**
>
> - The audio unit cannot be configured for calling to the machine room audio unit of any shaft (1–8).

- Alarm 2 (021–026) is only used for ending the rescue process and receiving Fireman calls.
- **The control room audio unit must be of the machine room type.**

Induction Loop Connection

Installing the communicator, obey the applicable regulations in which it can be stipulated that the induction loop for deaf persons is a mandatory part of the lift cabin communicator. Insert the loop in the connector (10) with arbitrary polarity. Upon agreement, the loop can be part of the delivery including a 1 m long cable.

Requirements

- The induction loop must be placed behind a non-metal, non-magnetic cover in the control panel because the loop's magnetic field does not go through the non-metal lift panel.
- The induction loop must be marked with an appropriate pictogram (ear) and located as specified in applicable standards.
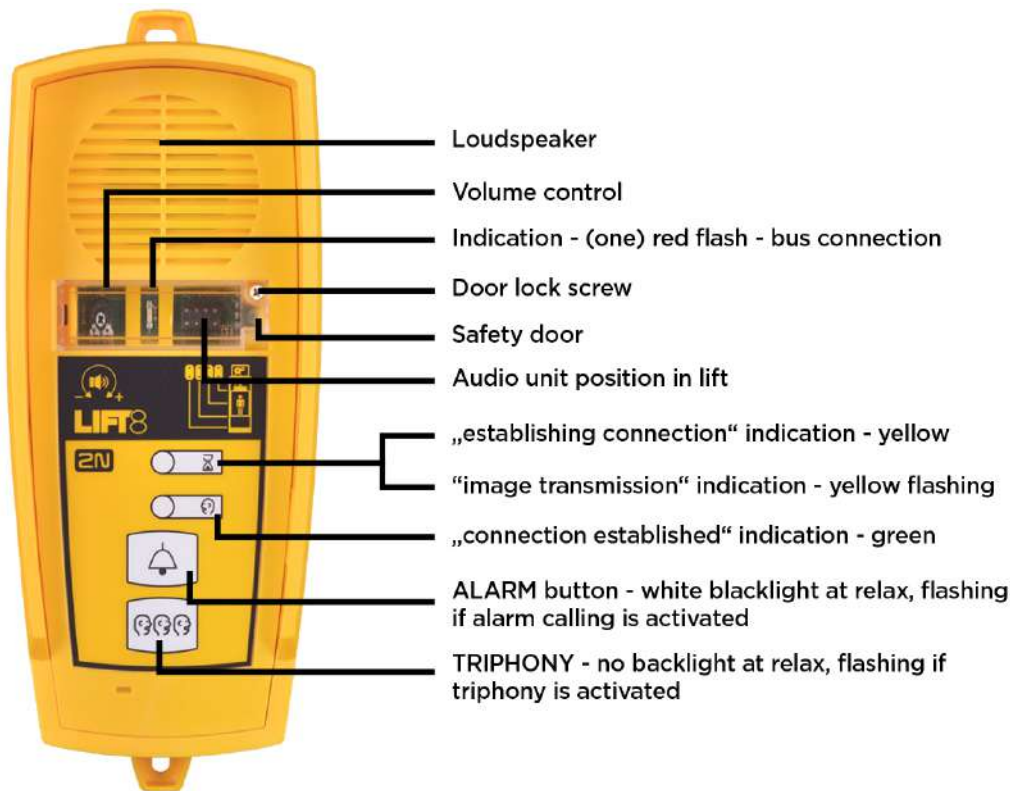
Rescue Process End

Press and hold the Alarm button for 3 s to end the rescue process.

2.5 Audio Unit - Shaft

Description

This audio unit is designed for installation on the lift shaft bottom or lift cabin roof, or wherever it is necessary to communicate (during lift maintenance, e.g.). The audio unit is enclosed in a robust yellow cover. It is not intended for outdoor use but perfectly tolerates the conditions in lift shafts: is resistant against fall of small objects, dripping oil, etc. The ALARM button activates the control centre connection, the TRIPHONY bottom enables conference connection with the other audio units of one and the same lift. The audio unit contains a built-in microphone and a speaker. A handset can be connected for better acoustic properties. Thanks to its size and robustness, the audio unit has a very good, strong sound.

Loudspeaker

Volume control

Indication - (one) red flash - bus connection

Door lock screw

Safety door

Audio unit position in lift

„establishing connection" indication - yellow

"image transmission" indication - yellow flashing

„connection established" indication - green

ALARM button - white blacklight at relax, flashing if alarm calling is activated

TRIPHONY - no backlight at relax, flashing if triphony is activated

⚠ **Caution – upgrade**

- The yellow, green and red LEDs are on (request received, connection confirmed and red LED under the glass) to indicate audio unit initialisation.
- The yellow and green LEDs flash to indicate audio unit upgrading. The red LED is permanently on.
- The ALARM pictogram (bell symbol) goes on upon upgrade and the audio unit is ready for use.

Operation

1. This type of audio unit is operated by qualified people (lift maintenance staff, e.g.).
2. Push the TRIPHONY button to activate voice communication with the other audio units of the same lift.
3. Push the ALARM button, for example, when someone falls down the shaft.
4. The audio unit calls the numbers configured in the ALARM memory – set 2 (021–026).
5. The ALARM button illumination (not required by default) helps you find and activate the audio unit easily in the dark.

> ⚠ **Caution**
>
> - If no number is specified in the ALARM memory – set 2 (021–026), the audio unit dials the numbers defined in the ALARM memory – set 1 (011–016).
> - Push the ALARM button to call the control room or machine room audio unit configured as an intercom.
> - The ALARM and TRIPHONY buttons shine even at relax.

Before You Start

Product Completeness Check

Check the product for completeness before installation.

- 1 audio unit
- 2 wall plugs
- 2 wall plug screws

Requirements

- This type of audio unit has no specific requirements.

Mounting

The audio unit is typically mounted on a wall using the supplied wall plugs and screws. There is a drilling template in the product package.
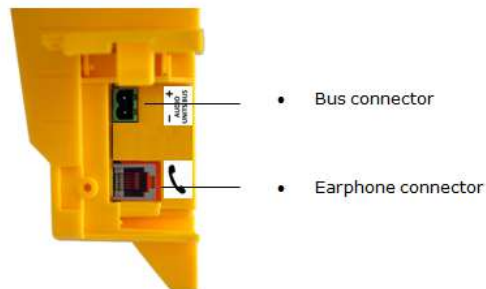
> ⚠ **Caution**
>
> - The audio unit is not intended for outdoor installations.

Electrical Installation

Connectors

The audio unit has one connector for bus connection. The second RJ-11 connector is used for handset connection. Both the connectors are under the side doors.

- Bus connector
- Earphone connector

Audio Unit Location Configuration

Audio unit location means configuration of jumpers (see the cover print). You do not have to change the jumper configuration if you are installing the audio unit at the shaft bottom. Otherwise, proceed as follows:

Procedure

1. Loosen the screws on the jumper-protecting door and open the door.
2. Set the audio unit location. See the printed label under the door for one-cabin configuration. To set the cabin 2 audio unit, insert the jumper to the shaft bottom position (left jumper) and then select the audio unit position with the other jumper (cabin 2 roof, cabin 2, under cabin 2).
3. Close the door and tighten the screw.

> ⚠️ **Caution**
>
> - In versions 2.0.0 and higher, up to 7 audio unit positions can be configured for two-cabin lifts (1 – cabin roof, 2 – cabin = default, 3 – under cabin, 4 – shaft bottom, 5 – cabin 2 roof, 6 – cabin 2, 7 – under cabin 2).
> - Connect up to 5 audio units to one shaft including the Fireman audio unit and camera modules.
> - Avoid the audio unit address duplicity.
> - This audio unit **cannot** be configured as common for multiple lifts.

Bus Connection

Loosen the screws to the right and open the connector cover. There is just one connector under the cover: a bus connector. Pull out the terminal from the connector, connect the wires and replace the terminal. Make sure that the polarity is maintained.

> 🛑 **Warning**
>
> - The audio unit is intended for **2N® Lift8** audio unit bus connection exclusively. Do not connect it to other wires to avoid its damage or destruction.
> - Maintain polarity while connecting the audio unit to avoid audio unit error.

> ⚠️ **Caution**
>
> - The audio unit is powered via a 2-wire bus. Disconnection of these wires results in the audio unit switch-off.

Handset Connection

Use the handset supplied with the audio unit and the included cable with telephone terminals.

> ⚠ **Caution**
>
> - If the handset is not connected, the audio unit works in the HandsFree mode.
> - A handset other than that supplied by the manufacturer may not work.

Volume Configuration

Open the protective door on the audio unit and adjust the volume using the trimmer.

> ⚠ **Caution**
>
> - Use the trimmer to set the best acoustic properties eliminating feedback.
> - Volume configuration only works in the HandsFree mode.

2.6 Audio Unit - Compact

Description

Robust, heavy-duty design. Standard-sized ALARM button including signage for the blind and backlit pictograms (hardened glass). Designed for cabin wall mounting. No drilling is required as the device is to be wall-mounted.
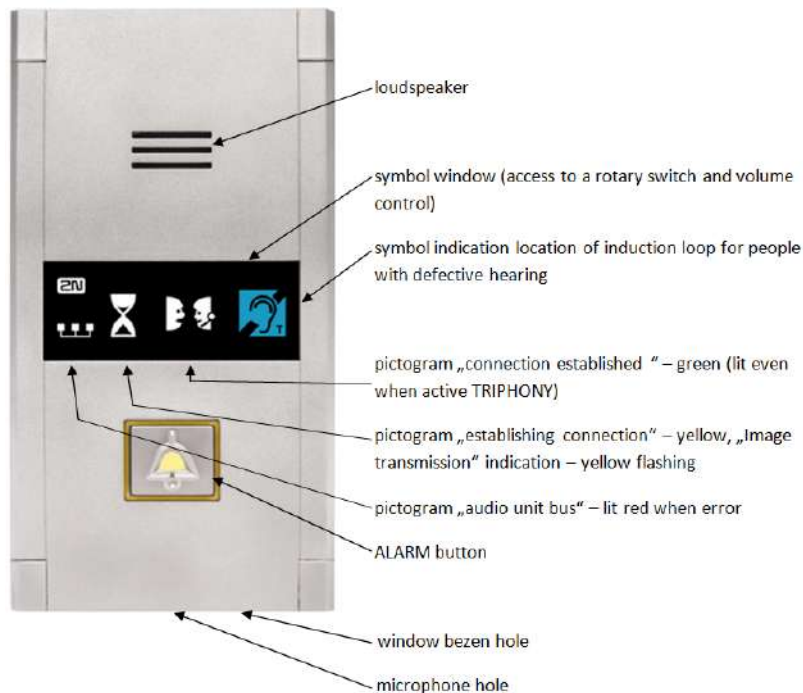
Figure: Description of Audio Unit – Cabin Compact

Operation

- Push the ALARM button to activate the audio unit. The 'Establishing connection' symbol goes on. The 'Connection established' symbol goes on when communication is set up.

Before You Start

Requirements

- Make sure that the lift wall is even.
- Make sure that the installation meets the standard requirements (ALARM button height and distance from the other lift buttons, e.g.).

Product Completeness Check

Check the product for completeness before installation.

- 1 Compact audio unit including: one long, 2 mm ballpoint hexagon key wrench4 M4×8 screws
    - symbol window
    - 3 terminals slid on the backside connector
- 4 M4 x 30 worm screws
- 4 M4 nuts

- 4 fan washers

Mounting

Just drill holes into the cabin wall as shown in the figure below (also see the 1:1 figure on the product box). The larger hole is intended for cabling. Round the hole edges to avoid cable damage!
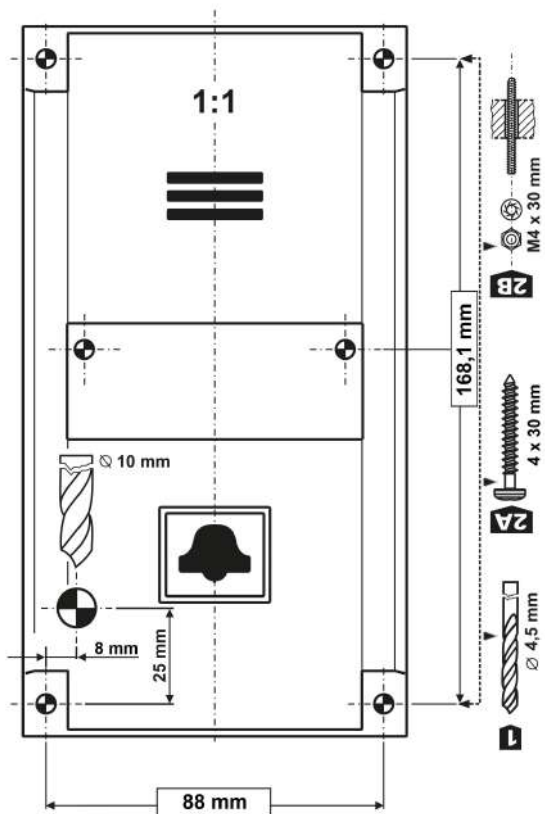

Figure: Mounting Hole Dimensions for Audio Unit – Cabin Compact

> ⓘ **Note**
>
> Two 2.5 mm holes in the symbol window are intended for installations without access to the back side of the installation panel. The 2.5 diameter is suitable for plywood wall mounting (chipboard, laminated plastic, etc.) with the screws included in the delivery. Drill M4-threaded holes for metal panel mounting from the front side.

Do not complete the mounting procedure until connecting the device electrically (see below).

Electrical Installation

> ⚠️ **Caution**
>
> - Connect the wires before mounting the audio unit on the lift cabin wall. The connectors are separable – remove them, connect the wires, tighten the screws and replace the connectors.

Description of Terminals

Terminals		Description	
AUDIO UNIT BUS		Audio unit bus (2-wire) connection, polarity must be maintained.	
ALARM terminals	**Voltage** = voltage control (on/off)	6–24 V DC, any polarity *)	Alarm call activation
	Contact = contact control (on/off)	NO/NC contact *)	
CANCEL terminals	**Voltage** = voltage control (on/off)	6–24 V DC, any polarity **)	Alarm call deactivation by door opening
	Contact = contact control (on/off)	NO/NC contact **)	
ALARM 2 terminal	**Contact** = contact control (closing)	NO contact	Alarm call activation from Alarm set 2

*) By default, ALARM is activated by voltage connection or contact closing. Use a rotary switch to apply voltage disconnection and contact opening.

**) By default, ALARM is deactivated by voltage connection or contact closing. Use a rotary switch to apply voltage disconnection and contact opening.

> ⚠ **Caution button ALARM 2**
>
> - The ALARM 2 button has the N/O contact only.
> - Delayed call (914) and Minimum ALARM 1 pressing time (962) do not relate to the ALARM 2 button.
> - A short button press (100 ms) sets up a call to the other set of numbers (021–026). If the other set is empty, the call is set up to the first set of numbers (011–016).
> - A long button press (3,000 ms) cancels the rescue process if parameter 966 is set.

Bus Connection

Pull the **AUDIO UNIT BUS** connector out of the terminal board. Connect the audio unit bus (keep polarity as shown on the audio unit cover) and replace the connector.

> ❗ **Warning**
>
> - The audio unit is intended for **2N® Lift8** audio unit bus connection exclusively. Do not connect it to other wires to avoid its damage or destruction.
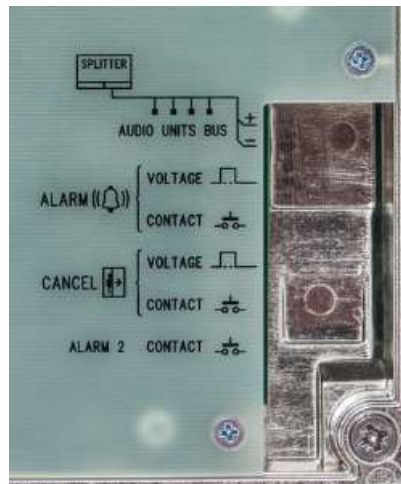
Connectors

Figure: Connectors on Audio Unit – Cabin Compact (New Type)

> ⬢ **Safety**
>
> - Make sure that the minimum button isolation distance is 1.5 mm and breakdown voltage is 1,500 V. The button contacts may not be connected to any other circuits. If you cannot meet these conditions, use voltage control.
> - You can use the switch on the audio unit front side or closing/opening button connected to the ALARM CONTACT connector or both of them if necessary.

> ⓘ **Note**
>
> - The ALARM button on the cover keeps functional even if an external button is connected.

Rotary Switch

There is a glass-covered rotary switch on the audio unit front side. Use the switch to set ALARM/CANCEL (normal/inverted input) and audio unit type (cabin, cabin roof, cabin bottom, shaft bottom).
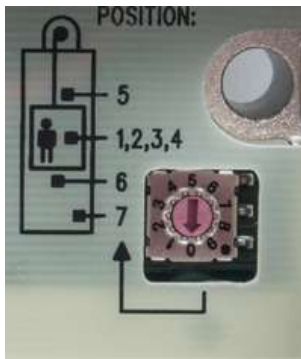
Procedure	Rotary switch position
1. Insert the hexagonal spanner (included) in the hole on the product bottom edge (window lock screw) and turn left (about 10 times) until you feel resistance.	Position 1 – ALARM normal, CANCEL normal, cabin
2. The window slides down by itself or with a slight aid, revealing its upper brim.	Position 2 – ALARM inverted, CANCEL normal, cabin
3. Tilt the window forward and remove it.	Position 3 – ALARM normal, CANCEL inverted, cabin
4. Set the required address.	Position 4 – ALARM inverted, CANCEL inverted, cabin
5. Replace the window.	Position 5 – cabin roof

Procedure	Rotary switch position
6. Insert the hexagonal spanner (included) in the hole on the product bottom edge (window lock screw) and turn right (about 10 times) until the window slides under the panel edge. Tighten slightly.	Position 6 – cabin bottom
	Position 7 – shaft bottom
	Positions 8, 9, 0 / not used (red bus LED flashing)

ALARM and CANCEL Setting (Rotary Switch)

Contact closing/voltage connection control of ALARM and CANCEL

- Set the rotary switch (under the front glass) to position 1 to make ALARM/CANCEL be controlled by contact closing or voltage connection.

Contact opening/voltage disconnection control of ALARM, contact closing/voltage connection control of CANCEL

- Set the rotary switch (under the front glass) to position 2 to make ALARM be controlled by contact opening or voltage disconnection and CANCEL be controlled by contact closing or voltage connection.

Contact closing/voltage connection control of ALARM, contact opening/voltage disconnection control of CANCEL

- Set the rotary switch (under the front glass) to position 3 to make ALARM be controlled by contact closing or voltage connection and CANCEL be controlled by contact opening or voltage disconnection.

Contact opening/voltage disconnection control of ALARM and CANCEL

- Set the rotary switch (under the front glass) to position 4 to make ALARM and CANCEL be controlled by contact opening or voltage disconnection.

> ⚠ **Caution**
>
> - Use 6 to 24 V DC of any polarity. However, make sure that the power supply is backed up against power outage.
> - Combine the control with buttons if you need to activate ALARM and CANCEL from more sites.

CANCEL input connection (door contact, optional)

This input helps you cancel the rescue request if the lift is fully functional. Press ALARM to make the system wait for a defined period of time, which slightly longer than the maximum lift ride. If functional, the lift reaches the required station and opens the door within the timeout, thus cancelling the rescue request. If the lift door does not open, the rescue request is accepted. Make sure before installation that the door opening signal is available in the lift cabin.

Requirements

- If the lift is equipped with a double door, the signal must be active only if both the door parts are open and the people can leave the cabin safely.
- The door opening signal must be active even during power outage.

> ⓘ **Note**
>
> - Make sure that delayed calling is configured to make the CANCEL input connection effective.

Volume Setting

1. Insert the hexagon key wrench (included in the delivery) in the hole on the product bottom edge (window lock screw) and turn **left** (about 10 times) until you feel resistance.
2. The window slides down by itself or with a slight aid, revealing its upper brim.
3. Tilt the window forward and remove it.
4. Set the required volume level using a trimmer.
5. Replace the window.

6. Insert the hexagon key wrench (included) in the hole on the product bottom edge (window lock screw) and turn **right** (about 10 times) until the window slides under the panel edge. Tighten slightly.


> ⚠ **Caution**
>
> • Use the trimmer to set the best acoustic properties eliminating feedback.

Mounting Completion

Having connected the wires, you can complete the **2N® Lift8** wall mounting. If you can access the cabin wall from the outside, use the mounting type that prevents dismantling and unauthorised tampering from the cabin. Mounting procedure:

• Where access from the outside is possible, use the four pre-drilled M4 holes in the corners.
• Remove the corner covers fitted with four M4 screws from behind.
• Screw the 30 mm long M4 headless grub screws included in the audio unit package in place of the corner cover screws removed. Tighten the screws with an internal hexagon key wrench.
• Put the audio unit on the holes, apply the serrated lock washers from the outside and screw the M4 nuts (both included in the delivery).
• This type of mounting is suitable for lift cabin wall thickness of up to 20 mm.
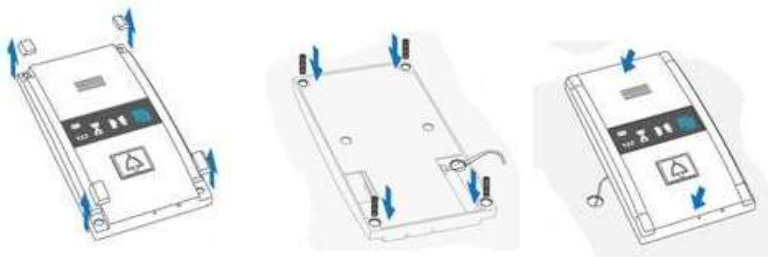
If you cannot access the cabin wall from the outside, use the screws under the pictogram glass:

- Insert the hex key wrench (included in the package) in the hole on the product bottom edge and turn it left (about 10 times) until it puts up resistance.
- The window slides down by itself or with little assistance, showing its upper brim.
- Tilt the window forwards and remove it.
- Now you have access to two holes in the window corners. Put **2N® Lift8** on the pre-drilled lift cabin wall holes and fit it with the included screws, which are suitable for plywood, chipboard, laminated plastic etc. walls. For other materials, use appropriate screws or M4 screws in the pre-drilled M4 threaded holes.
- Replace the window and insert the hex key wrench in the bottom edge hole turning it right about 10 times until the window slides under the panel edge. Tighten the window applying a moderate force.
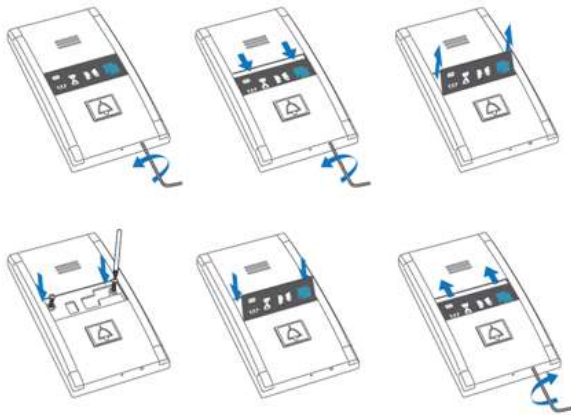
Connection of induction loop for hearing-impaired persons

The induction loop for people with impaired hearing is part of the Compact cabin audio unit. No more accessories are required for the given case.

2.7 PSTN Module

Description of Connection

The module should be part of the Central Unit (hereinafter referred to as **CU**). If the **CU** does not contain the PSTN module, proceed as follows:

1. Disconnect the **CU** from the mains supply.
2. Loosen the three screws on the **CU** upper cover.
3. Move the **CU** upper cover in such a way that you can remove it.
4. Proceed with caution while removing the cover: be careful about the drain wire connecting the cover with the CU bottom part. Do not disconnect the wire unless there is a reason to do so!

5. Disconnect the back-up rechargeable batteries if available using the battery – **CU** cable FASTON terminals.
6. Mount the module on the externally threaded spacers (2) and connect it to the motherboard connector (1).
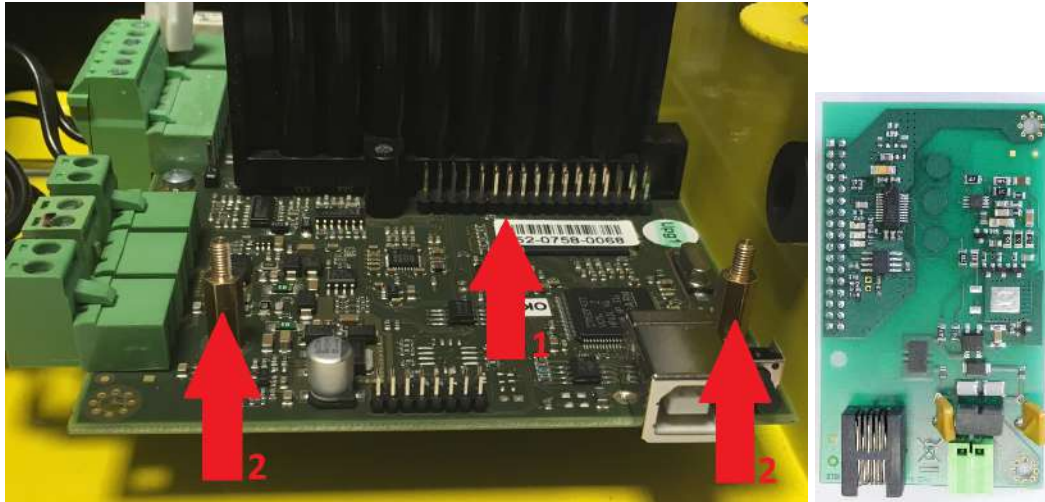
7. Be careful while putting the module on the pins. Make sure that you have connected all the pins to the module connector.
8. If you have mounted the connector pins correctly, use 1 bolt spacer (3) and 2 threaded spacers (4) to fit the module. Use a 5mm hex socket wrench to fit the spacers.
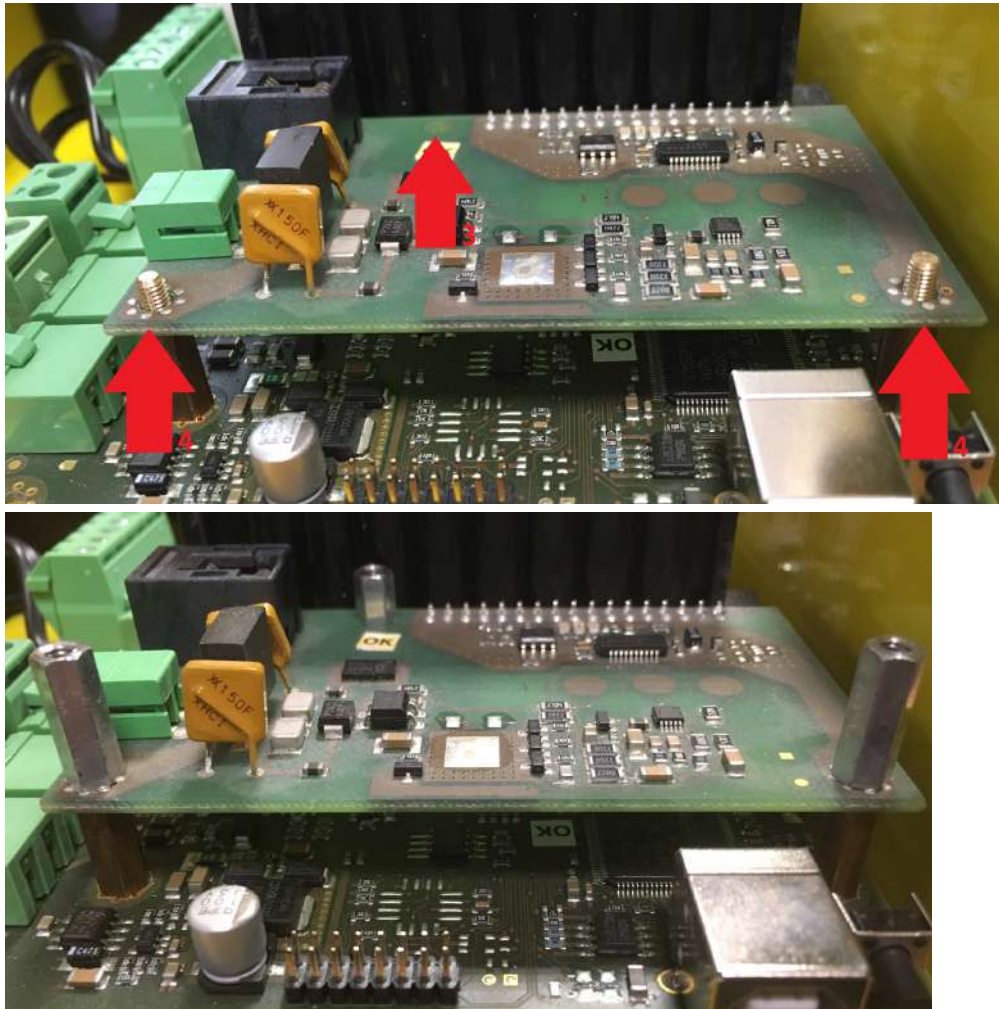
9. Now connect the PSTN line. There are 2 options:
    a. using an RJ 11 connector
    b. using a slide-on terminal board
10. Connect the rechargeable batteries and replace the **CU** cover. Tighten the 3 screws to fit the cover.
11. Connect the **CU** to the mains supply.

> ❗ **Warning**
>
> - While mounting the module, make sure that all the pins are fitted correctly into the connector to avoid module damage.

> ⓘ **Note**

- A non-standard behavior of the module results in the module restarting automatically to make its functions right. In case the error re-appears after the restart, the restart timeout start to double gradually. The increasing restart timeout ensures that no instantaneous restart upon power up happens repeatedly. If the error is not eliminated even within 63 minutes after the last restart, the Central Unit is restarted.
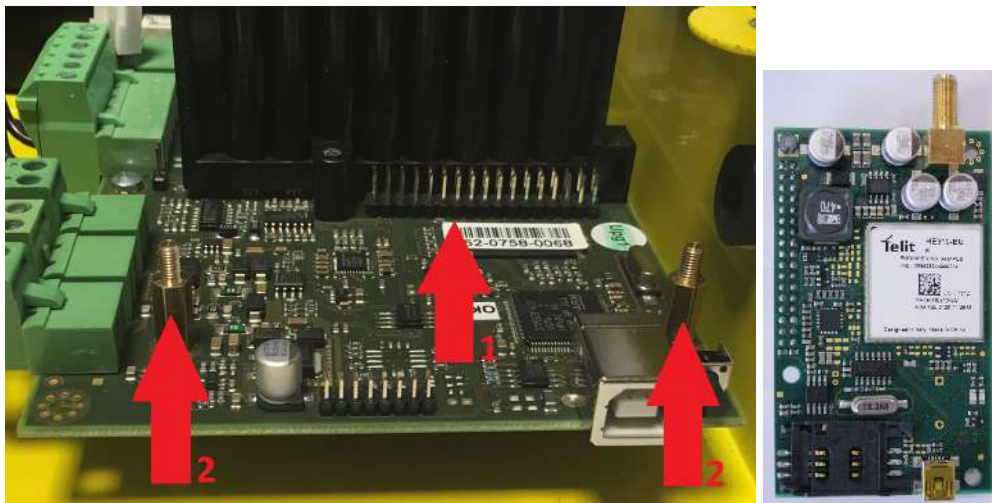
2.8 GSM/UMTS Module

Description of Connection

The module should be part of the Central Unit (hereinafter referred to as **CU**). If the **CU** does not contain the GSM/UMTS module, proceed as follows:

1. Disconnect the **CU** from the mains supply.
2. Loosen the three screws on the **CU** upper cover.
3. Move the **CU** upper cover in such a way that you can remove it.
4. Proceed with caution while removing the cover: be careful about the drain wire connecting the cover with the CU bottom part. Do not disconnect the wire unless there is a reason to do so!
5. Disconnect the back-up rechargeable batteries if available using the battery – **CU** connecting cable FASTON terminals.
6. Remove the sealing ring from the **CU** cover.

7. Be careful while mounting the module: push the antenna connector through the **CU** cover.
8. Mount the module onto the externally threaded spacers (2) and connect it to the motherboard connector (1).

9. Be careful while putting the module on the pins. Make sure that you have connected all the pins to the module connector.
10. If you have mounted the connector pins correctly, use 1 bolt spacer (3) and 2 threaded spacers (4) to fit the module. Use a 5mm hex socket wrench to fit the spacers.
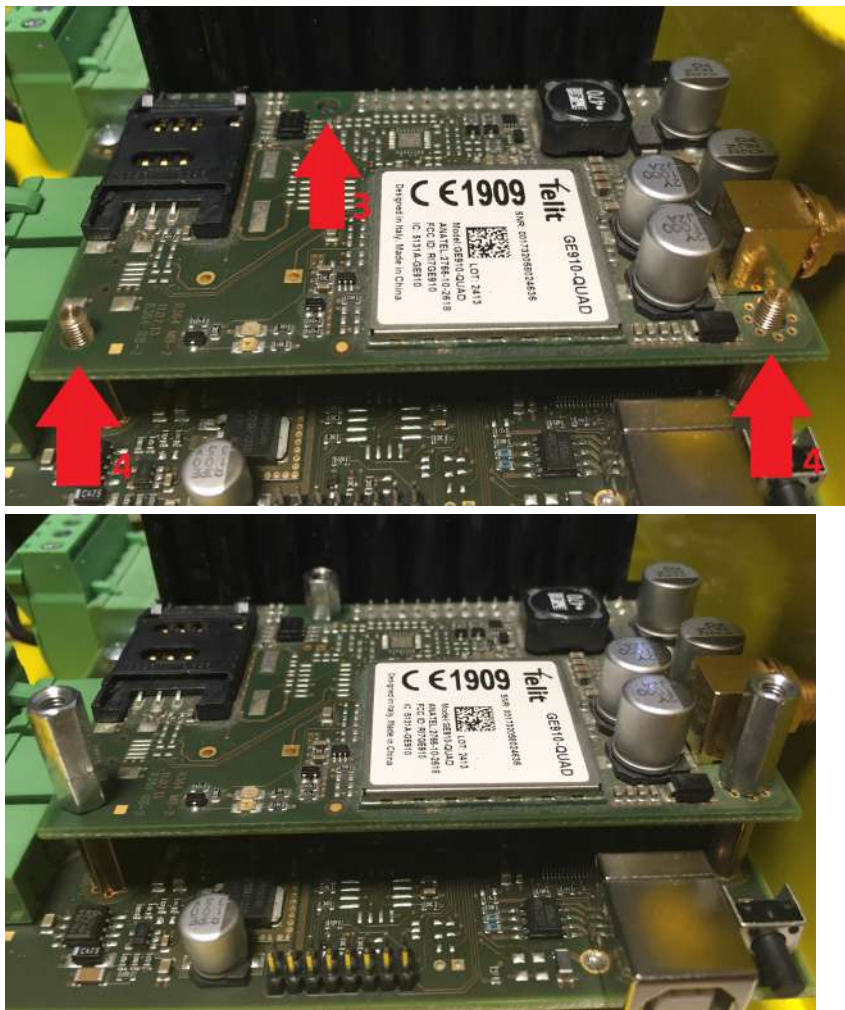
11. Now insert the SIM card and connect the antenna.
    a. Slide and release the SIM card holder (Fig. 1).
    b. Tilt out the SIM card holder (Fig. 2).
    c. Insert the SIM card (Fig. 3).
    d. Replace the SIM card holder and lock it into position (Fig. 4).
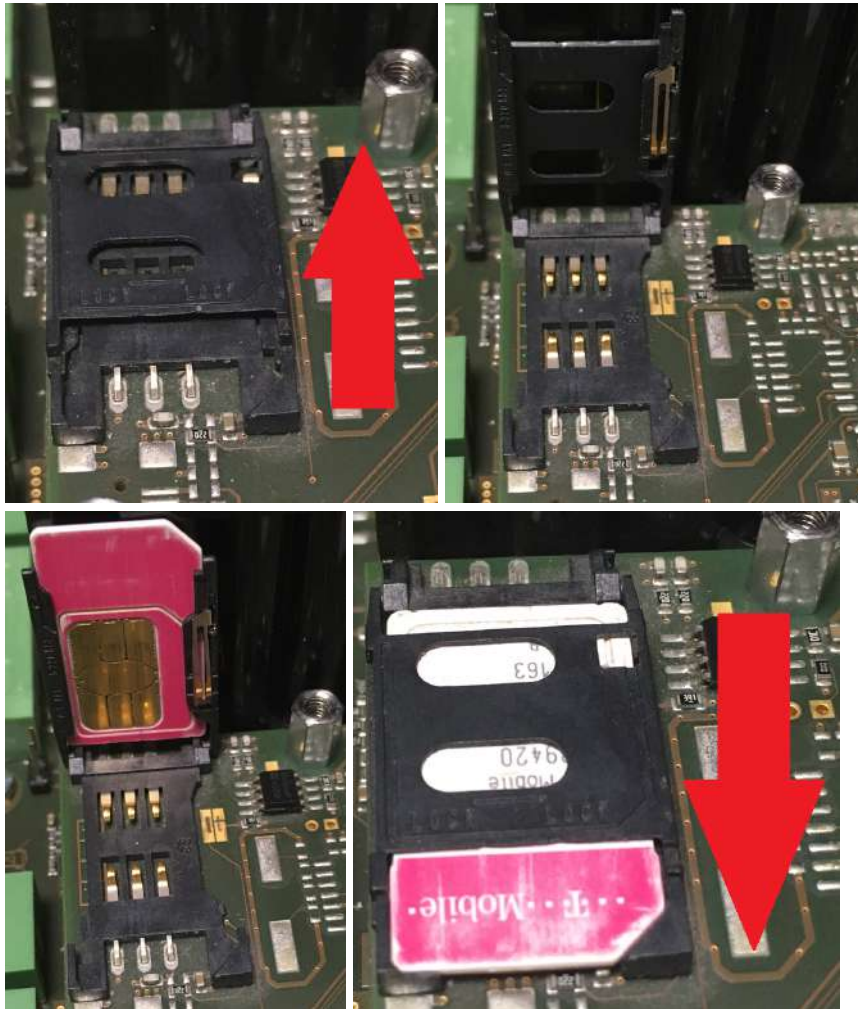
12. Connect the antenna.
13. Connect the rechargeable batteries. Reconnect the cover – **CU** bottom connecting drain wire if disconnected. Replace the cover and tighten the 3 screws.
14. Connect the **CU** to the mains supply.

> ⚠️ **Warning**
>
> • While fitting the module, make sure that all the pins are fitted correctly into the connector to avoid module damage.

> ⚠ **Caution**
>
> - In places with a poor signal quality find an appropriate place or use a special (directional) antenna.
> - Should you have DTMF transmission problems, set parameter 710 to 1 (for GSM modules only).

Signal Strength Levels

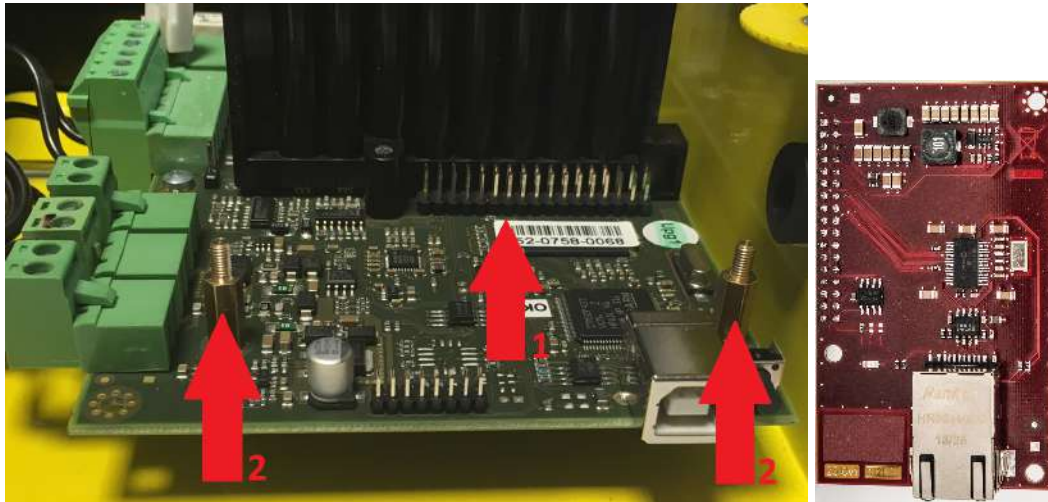| LED colour	red	red – yellow	yellow	yellow – green	green
Signal level	> -96dBm	-96dBm <-> -90dBm	-90dBm <-> -74dBm	-74dBm <-> -69dBm	< -69dBm

> ⚠ **Caution**
>
> - From version 2.6.0 it is possible to select the preferred network (2G / 3G) for the UMTS module using parameter 711.

2.9 LTE/UMTS/GSM Module

Description of Connection

The module is not part of the Central Unit.

1. Disconnect the **CU** from the mains supply.
2. Loosen the three screws on the **CU** upper cover.
3. Move the **CU** upper cover in such a way that you can remove it.
4. Proceed with caution while removing the cover: be careful about the drain wire connecting the cover with the CU bottom part. Do not disconnect the wire unless there is a reason to do so!
5. Disconnect the back-up rechargeable batteries if available using the battery – **CU** connecting cable FASTON terminals.
6. Remove the sealing ring from the **CU** cover.
7. Be careful while mounting the module: push the antenna connector through the **CU** cover.
8. Mount the module onto the externally threaded spacers and connect it to the motherboard connector.
9. Be careful while putting the module on the pins. Make sure that you have connected all the pins to the module connector.
10. If you have mounted the connector pins correctly, use 1 bolt spacer and 2 threaded spacers to fit the module. Use a 5mm hex socket wrench to fit the spacers.
11. Now insert the SIM card and connect the antenna.
    Connect the antenna.

12. Connect the rechargeable batteries. Reconnect the cover – **CU** bottom connecting drain wire if disconnected. Replace the cover and tighten the 3 screws.
13. Connect the **CU** to the mains supply.

> ⚠️ **Warning**
>
> - While fitting the module, make sure that all the pins are fitted correctly into the connector to avoid module damage.

> ⚠ **Caution**
>
> - In places with a poor signal quality find an appropriate place or use a special (directional) antenna.

Signal Strength Levels

LED colour	red	yellow	green
Signal level	> −93 dBm	−92 dBm <−> −72 dBm	< −72 dBm

> ⚠ **Caution**
>
> - From version 2.6.0 it is possible to select the preferred network (2G / 3G) for the UMTS module using parameter 711. It is possible to force the preferred network type (2G/3G/4G) using parameter 711.
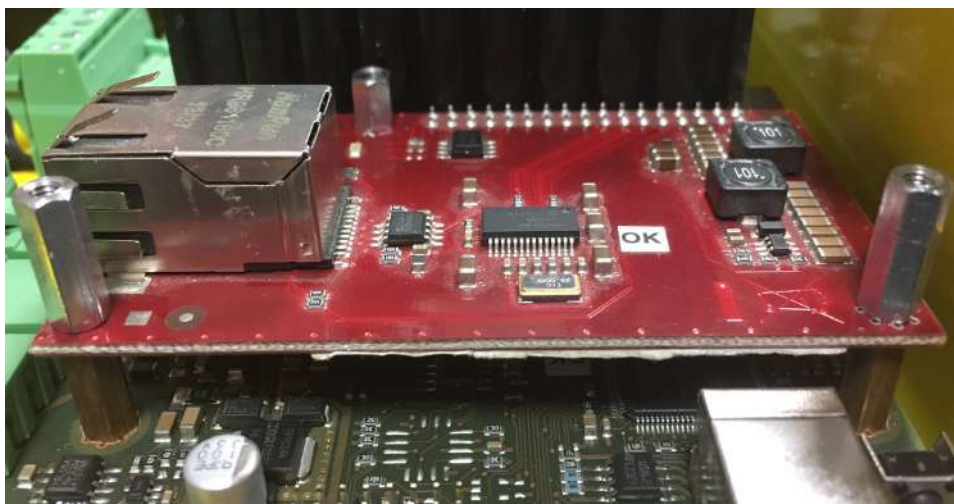
2.10 VoIP Module

Description of Connection

The module should be part of the Central Unit (hereinafter referred to as **CU**). If the **CU** does not contain the VoIP module, proceed as follows:

1. Disconnect the **CU** from the mains supply.
2. Loosen the three screws on the **CU** upper cover.
3. Move the **CU** upper cover in such a way that you can remove it.
4. Proceed with caution while removing the cover: be careful about the drain wire connecting the cover with the CU bottom part. Do not disconnect the wire unless there is a reason to do so!
5. Disconnect the back-up rechargeable batteries if available using the battery – **CU** cable FASTON terminals.
6. Mount the module onto the externally threaded spacers (2) and connect it to the motherboard connector (1).

7. Be careful while putting the module on the pins. Make sure that you have connected all the pins to the module connector.
8. If you have mounted the connector pins correctly, use 1 bolt spacer (3) and 2 threaded spacers (4) to fit the module. Use a 5mm hex socket wrench to fit the spacers.

9. Now connect the VoIP line via the RJ-45 connector.
10. Connect the rechargeable batteries. Reconnect the cover – **CU** bottom connecting drain wire if disconnected. Replace the cover and tighten the 3 screws.
11. Connect the CU to the mains supply.

> 🔶 **Warning**
>
> - While fitting the module, make sure that all the pins are fitted correctly into the connector to avoid module damage.

> ⚠ **Caution**
>
> - The A-Law codec is only supported in **2N® Lift8**.

2.11 Audio Unit – Fireman

The Fireman audio unit is available in two versions.

2.11.1 Fireman PCB

Description: 1-Button Version

The Fireman audio unit improves the fire fighting operations by setting up top priority calls between the Fireman audio unit and the cabin and machine room audio units in one and the same lift shaft. If any of the machine room audio units is configured as the control centre (intercom), you can join in the Fireman call.

Install the Fireman audio unit in a dedicated space that can be easily accessed by firemen.

The Fireman call has the highest priority, suspending all the other calls (refer to Function Description). It is connected with the cabin audio unit in one and the same shaft.

Press the button to set up the call. The call duration is infinite. Repress the button to stop the call.

The Fireman call setup is signalled by the Fireman audio unit LED (mounted on the PCB or carried externally from connector 8).

If the control-centre configured machine room audio unit is used, the Fireman call is signalled by a green LED flashing on the audio unit. Push ⊠ (for longer than 2 s) on the audio unit keypad to join in the call. Push ⌗ (for longer than 2 s) on the audio unit keypad to leave the call without terminating it.

> ⚠ **Caution**
>
> - The Fireman calls has the highest priority and suspends all the other calls except for the Fireman call set up in another shaft.
> - The Fireman call is set up by the cabin audio unit in one and the same shaft.
> - You can join in the Fireman call from a machine room audio unit configured as the intercom.
> - Button is not included.

Description: Knob+Button Version (Push-To-Talk)

The Fireman audio unit improves the fire fighting operations by setting up top priority calls between the Fireman audio unit and the cabin and machine room audio units in one and the same lift shaft. If any of the machine room audio units is configured as the control centre (intercom), you can join in the Fireman call.

Install the Fireman audio unit in a dedicated space that can be easily accessed by firemen.

The Fireman call has the highest priority, suspending all the other calls (refer to Function Description).

Press the detent button switch or turn the knob (0 > 1) to set up the Fireman call. The call duration is infinite. Repress the button or return the knob to stop the call. (The detent button switch or knob is connected to terminal 3).

The Fireman call setup is signalled by the Fireman audio unit LED (mounted on the electronics board or carried externally from connector 8). Push the button switch (Push to talk) to activate the audio unit microphone and speak to the other audio units (the LED starts flashing). While the button is pushed, no sound is transmitted from the other audio units. Release the button to allow the persons at the other audio units (cabin, machine room or machine room as intercom) to talk.

If the control-room (intercom) configured machine room audio unit is used, the Fireman call is signalled by a green LED flashing on the audio unit. Push ⊠ (for longer than 2s) on the audio unit keypad (green LED shining) to join in the call. Push ⌗ (for longer than 2 s) on the audio unit keypad (green LED flashing) to leave the call without terminating it.

> ⚠ **Caution**
>
> - The Fireman calls has the highest priority and suspends all the other calls except for the Fireman call set up in another shaft.
> - The Fireman call is set up to the cabin and machine audio units in one and the same shaft.
> - You can join in the Fireman call from a machine room audio unit configured as the intercom.
> - Button is not included.

Before You Start

Installation Conditions

- Make sure that the panel is ready for installation, check the speaker perforation area.
- Make sure that there is 65×130×20 mm of free space behind the panel.

Product Completeness Check

Please check the product package for completeness before starting installation.

- Cabin audio unit package contents:
    - 5 straps
    - 1 electronics board
    - 3 board-slid terminals, see the photo
    - 1 board-mounted jumper (defining the button version)
    - 1 mounting panel
    - 1 speaker (directly or cable connected)
    - 1 microphone (directly or cable connected)
    - 1 printed cover

Mounting

Electronic Installation

This audio unit is designed for mounting behind the lift control panel. Prepare the panel for installation as shown below:
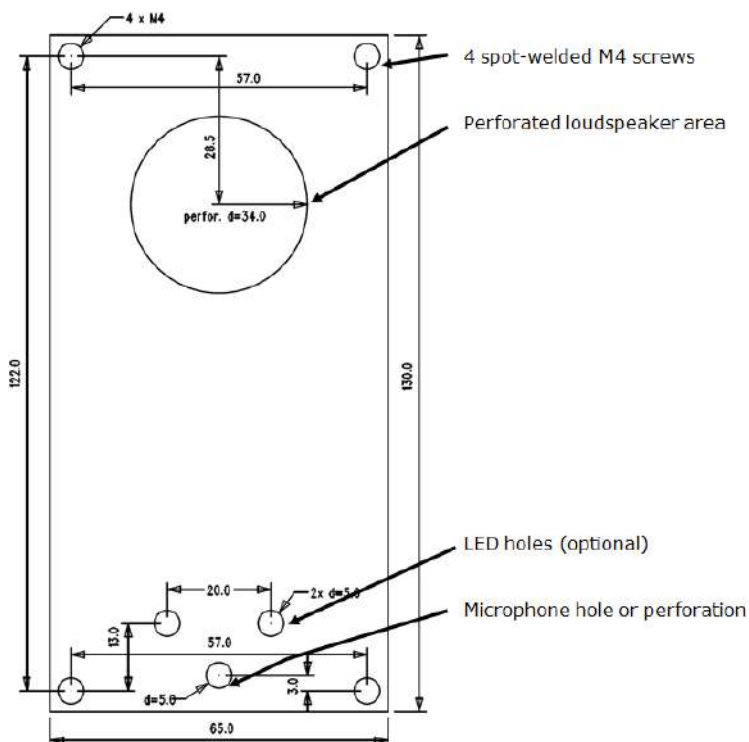

Figure: Cabin Audio Unit – Universal Mounting Hole Dimensions

To mount the unit, you need 4 electrically spot-welded (from the inner panel side) **M3** or **M4** screws, a sufficiently perforated speaker area and a microphone hole. If needed, a high-quality double-sided foam self-adhesive tape can be used for installation on a perfectly degreased surface.

> ⚠ **Warning**
>
> - **Leave no gap** between the lift control panel and the audio unit surface to avoid acoustic speaker fault and acoustic speaker-microphone feedback.
> - **Do not use this type of audio unit** otherwise than mounted on a sufficiently large board. The acoustic properties of an uninstalled audio unit cannot be guaranteed.

Separate Microphone Mounting

If the microphone is supplied separately on a 25 x 25 mm large board with self-adhesive foil and with a cable, you can mount it easily behind any hole in the panel (keep the minimum hole diameter of 5 mm or a group of smaller holes of the same total area). Just glue the microphone directly onto the required place from behind (be sure to degrease and clean the surface carefully before mounting!).

Requirements

- **The minimum distance between the speaker and microphone centres is 90 mm.** A lower distance may lead to acoustic feedback. A greater distance (within the available 1m cable) does not matter.
- Make sure that the glued-on microphone does not pick up (even partially!) the acoustic pressure from the space behind the panel. Such sensing might result in acoustic feedback since the speaker strongly radiates sound into the cavity

Separate Speaker Mounting

The speaker is equipped with a cable and can be separated from the electronics by simply being slid out within the reach of the cables delivered (1 m). This option is useful where there is not enough space for the whole electronic equipment. Fit the loudspeaker according to the instructions below:

- While gluing choose such procedures or adhesives that prevent membrane damage by adhesives and volatile substances, or heat.

- We recommend you to keep the speaker sealed to eliminate vibrations and ensure electric insulation.

Frequently Asked Questions Concerning Speaker

- *Can I use a speaker of my own?*

Yes, but keep the impedance of 64 Ω. Doing this, however, you assume responsibility for sufficient volume and frequency range.

- *Can I use a longer cable for the speaker?*

You can use a longer cable for the speaker, but not for the microphone.

Electric Installation

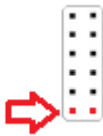## Description of Terminals, Connectors and Jumpers
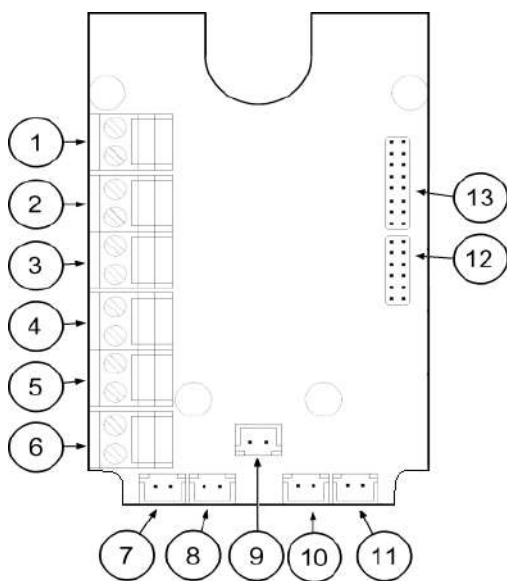
Figure: Terminals, Connectors and Jumpers on Cabin Audio Unit – Universal Board

	Terminals			Connectors
1	Audio unit bus		**7**	Unconnected
2	Unconnected		**8**	LED
3	Unconnected (1-button version) Fireman call activation – with detent (2-button version)		**9**	Microphone connector (optional)
4	Unconnected		**10**	Induction loop connector
5	Activation/Deactivation – without detent (1-button version) Push to talk – without detent (2-button version)		**11**	Speaker connector
6	Unconnected		**13**	Servicing connector
	Configuration Jumpers			**Two LED Indicators (from the other side)**
1 2	 The lower pin defines the button count • jumper connected – 1 button • jumper unconnected – 2 buttons		**1. (yel low)**	Shining – active Fireman call Flashing – Push to talk (for 2-button versions only)
			2. (gr ee n)	

ⓘ **Note**

- If an external LED is connected to connector 8, the LED 1 indicator will not be shining.

Bus Connection

Pull the terminal out of connector 1 – Audio units bus, connect the bus audio units wires and replace the terminal to connector 1. Mind the polarity.

> ⬣ **Warning**
>
> - The audio unit is intended for **2N®** **Lift8** audio unit bus connection exclusively. Do not connect it to other wires to avoid its damage or destruction.
> - Maintain polarity while connecting the audio unit to avoid audio unit error.

> ⚠ **Caution**
>
> - The audio unit is powered via a 2-wire bus. Disconnection of these wires results in the audio unit switch-off.
> - Proper polarity (+ -) is shown on the cover of audio unit.

Volume Setting

Loosen the four screws slightly and move the cover downwards. Remove the cover. Use the trimmer in the lower part of the electronics to adjust the volume (see the figure below).
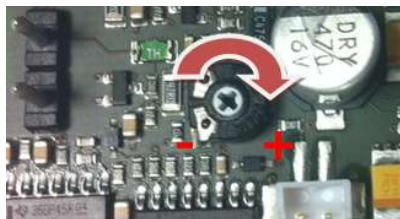
> ⚠ **Caution**
>
> - Use the trimmer to set the best acoustic properties while eliminating feedback.

2.11.2 Fireman

Description: 1-Button Version

The Fireman audio unit improves the fire fighting operations by setting up top priority calls to the cabin audio unit in one and the same lift shaft. If any of the machine room audio units is configured as the control centre (intercom), you can join in the Fireman call.

Install the Fireman audio unit in a dedicated space that can be easily accessed by firemen.

The Fireman call has the highest priority, suspending all the other calls (refer to Function Description).

Press the button (without detent) to set up the call. The call duration is infinite. Repress the button to stop the call.

The Fireman call setup is signalled by the Fireman audio unit LED (blue LED shining around the button).

If the control-centre (intercom) configured machine room audio unit is used, the Fireman call is signalled by a green LED flashing on the audio unit. Push ✳ (for longer than 2 s) on the audio unit keypad (green LED shining) to join in the call. Push # (for longer than 2 s) on the audio unit keypad (green LED flashing) to leave the call without terminating it.

> ⚠️ **Caution**
>
> - The Fireman calls has the highest priority and suspends all the other calls except for the Fireman call set up in another shaft.
> - You can join in the Fireman call from a machine room audio unit configured as the intercom.
> - The audio unit is fed from the CU or splitter via a two-wire bus. By disconnecting the audio unit from the bus you turn the audio unit off.

Description: Knob+Button (Push-To-Talk)

The Fireman audio unit improves the fire fighting operations by setting up top priority calls between the Fireman audio unit and the cabin and machine room audio units in one and the same lift shaft. If any of the machine room audio units is configured as the control centre (intercom), you can join in the Fireman call.

Install the Fireman audio unit in a dedicated space that can be easily accessed by firemen.

The Fireman call has the highest priority, suspending all the other calls (refer to Function Description).

Turn the knob (0 > 1) to activate the Fireman call. The call duration is infinite. Return the knob to stop the call. Press and hold the PTT button for a required period of time to turn off the other call party's speakerphone. Release the PTT button to turn the speakerphone on again.

The Fireman call setup is signalled by the Fireman audio unit LED (blue LED shining around the button). Push the button (Push to talk) to activate the audio unit microphone and speak to the other audio units (the blue LED around the button starts flashing). While the button is pushed, no sound is transmitted from the other audio units. Release the button to allow the persons at the other audio units (cabin, machine room or machine room as intercom) to talk.

If the control-room (intercom) configured machine room audio unit is used, the Fireman call is signalled by a green LED flashing on the audio unit. Push ⊞ (for longer than 2 s) on the audio

unit keypad (green LED shining) to join in the call. Push [#] (for longer than 2 s) on the audio unit keypad (green LED flashing) to leave the call without terminating it.

> ⚠ **Caution**
>
> - The Fireman calls has the highest priority and suspends all the other calls except for the Fireman call set up in another shaft.
> - The Fireman call is set up to the cabin and machine audio units in one and the same shaft.
> - You can join in the Fireman call from a machine room audio unit configured as the intercom.
> - The audio unit is fed from the CJ or splitter via a two-wire bus. By disconnecting the audio unit from the bus you turn the audio unit off.

Before You Start

## Product Completeness Check

Please check the **2N® Lift8 Fireman** package for completeness before starting installation:

- 1 **2N® Lift8 Fireman**
- 1 double Torx 10 / Torx 20

    Bushings (in package insert): 1x **2N® Lift8 Fireman** short manual1 mounting template
    - 1 big two-hole sealed bushing with nut
    - 1 replaceable one-hole sealing for big bushing for thick cables
    - 1 big blind with nut
    - 1 small bushing with nut
    - 1 big bushing packing
    - 2 small bushing packings
- 4 (5 x 90) mm screws
- 4 "intelligent" (8 x 50) mm wall plugs

Electrical Installation

Use the Torx 20 spanner included in the delivery to loosen the 4 screws and remove the audio unit front cover. Find the board with electronics under the cover.

Description of Terminals, Connectors and Jumpers
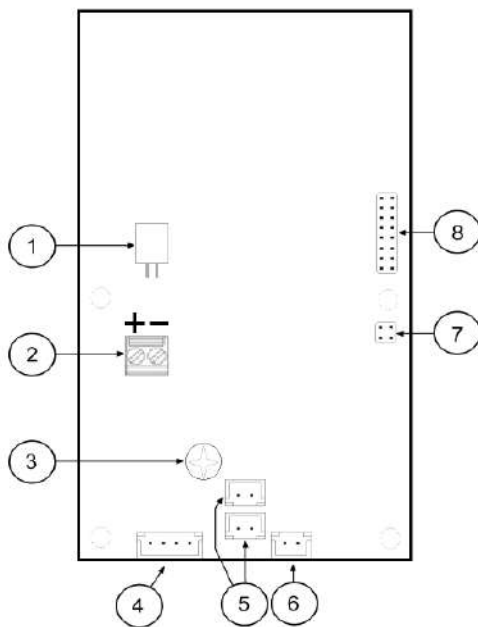
Terminals, Connectors and Jumpers on Fireman Audio Unit Board

Terminals and Connectors			
1	Speaker connector	**5**	2 microphone connectors
2	Audio unit bus	**6**	Detent button (knob) connector
3	Volume setting (trimmer)	**7**	Configuration jumper
4	Button connector (Push to talk)	**8**	Servicing connector

Bus Connection

Remove the audio unit cover and unplug terminal 2 (audio unit bus). Connect the bus and replace the terminal keeping polarity.

> ⬦ **Warning**
>
> - The audio unit is intended for **2N® Lift8** audio unit bus connection exclusively. Do not connect it to other wires to avoid its damage or destruction.
> - Keep polarity while connecting the audio unit to make the audio unit work properly.

> ⚠ **Caution**
>
> - The audio unit is fed via a two-wire bus. By disconnecting the audio unit from the bus you turn the audio unit off.

Volume Setting

Use the trimmer on the electronics board to adjust the volume (refer to the Description of Terminals, Connectors and Jumpers above).

> ⚠ **Caution**
>
> - Use the trimmer to set the best acoustic properties while eliminating feedback.

Mounting Completion

1. Having connected all the wires, check the bushings if employed for tightness.
2. Install the front panel carefully. Make sure that the wires inside the device are placed so that there is space for the front panel. Tighten the four screws again with the enclosed Torx 20 spanner, for example, to fit the panel into position on the metal chassis.

> ⚠ **Caution**
>
> - A wrong mounting procedure may deteriorate the Fireman's water resistance and damage the electronics due to water leakage.
> - **2N® Lift8 Fireman** is assembled with stainless steel screws. Using different, lower-quality screws may lead to screw and surface corrosion!

2.11.3 Fireman - Mechanical Mounting

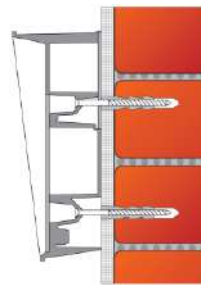## Mechanical Mounting – Mounting Types

See below for an overview of mounting types and list of necessary components.

Wall Mounting

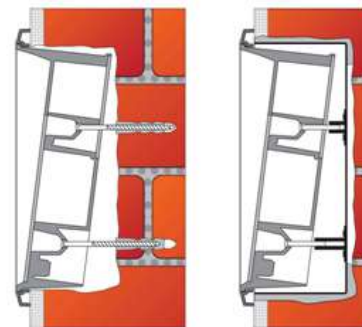- For concrete and steel structures, etc.

What you need for installation:

- **2N® Lift8 Fireman** only (no need for covering frame)

Flush Mounting – Classic Bricks
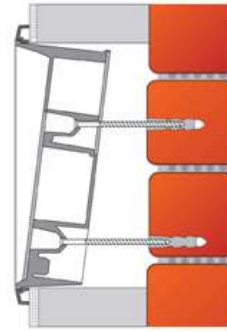
What you need for installation:

- Properly cut-out hole or, optionally, a flush mounting kit, Part No. **9151001**

- For **2N® Lift8 Fireman**:
  - Covering frame: contact your distributor

Flush Mounting – Thermally Insulated Wall
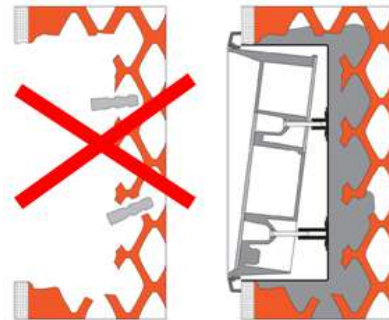
What you need for installation:

- Longer screws (depending on the thermal insulation thickness)
- For **2N® Lift8 Fireman**:
  - Covering frame: contact your distributor

Flush Mounting – Hollow Bricks
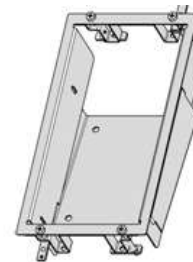
What you need for installation:

- Flush mounting kit, Part No. **9151001**
- For **2N® Lift8 Fireman**:
    - Covering frame: contact your distributor

Flush Mounting – Plasterboard

What you need for installation:

- Flush mounting kit for plasterboard, Part No. **9151002**
- Pro **2N® Lift8 Fireman**:
    - Covering frame: contact your distributor

> ⚠ **Caution**
>
> - The warranty does not cover any defects or failures of the product arisen as a result of improper mounting in contradiction to these instructions.
> - A wrong mounting procedure may lead to damage to the electronics due to water infiltration. The circuits are constantly under voltage and water leakage causes electrochemical reaction. No warranty can be claimed for products damaged in this manner!

Common Mounting Principles

> ✅ **Tip**
>
> - Choose flush mounting where possible to make your product more elegant, vandal-resistant and safer.
> - You can buy the flush mounting kit in advance and commission a specialised firm to install the device. Moreover, the flush mounting kit helps you level the audio unit properly (with a maximum vertical position deviation of 2°).

> ⚠ **Caution**
>
> - Check the diameter of the plug holes. If the holes are too large, the plugs may come loose! Use a building glue for fixing if necessary.
> - Check the depth of the plug holes! The plug length is 50 mm, the screw length is 90 mm.
> - Do not use lower-quality plugs to avoid their pulling out of the wall!
> - **2N® Lift8 Fireman** is assembled with stainless steel screws. Using different, lower-quality screws may lead to screw and surface corrosion!
> - Make sure that no impurities get into the device (especially on the sealing and microphone sound guides) after removing the front panel.

> ⓘ **Note**
>
> - The microphone sound guides are loose after the front panel is removed. This not a defect as the fitting screw only protects the guides against falling out during installation.

Wall Mounting

Wall (surface) mounting is used wherever flush mounting is not applicable – in concrete and steel structures, for example. The frame is not used.

> 🛑 **Warning**
>
> - Eliminate the risk of injury! Wall mounting is not suitable for narrow passages and places where people pay attention to something else. The manufacturer shall not be held liable for injuries caused by such negligence!

> ⚠️ **Caution**
>
> - Wall mounting is a problem where the device may be damaged by vandals. In that case, use steel fitting elements instead of the plugs and screws included in the delivery.
> - Seal all unused bushing holes with packings to avoid water leakage (during wall washing, e.g.). Do not leave the holes open even for a short time (between mounting and wire connection, e.g.).

1. Choose the audio unit position according to the supply cables too. If the cables lead inside a structure or wall, use the holes on the audio unit bottom.
2. Drill plug holes of the depth of 70 mm (as shown in the figure below) into concrete and similar walls. Push or hammer the supplied plugs into the holes. If the plugs are too loose, use a mounting glue. Use fitting elements of your own for steel structures – metric screws and nuts, for example.
3. Remove the front panel from the audio unit.
4. Select the holes for the cables. Choose and mount the enclosed bushing depending on the count of cables: two-hole, one-hole or both types of bushings. Fill the other holes with the packing included.
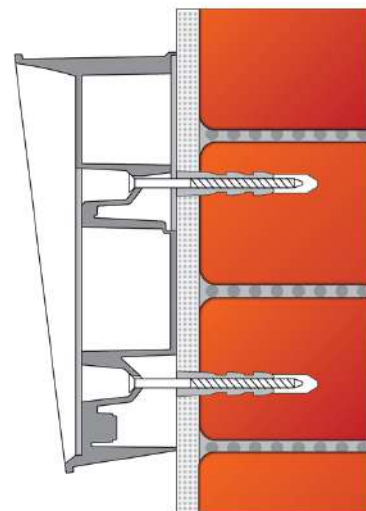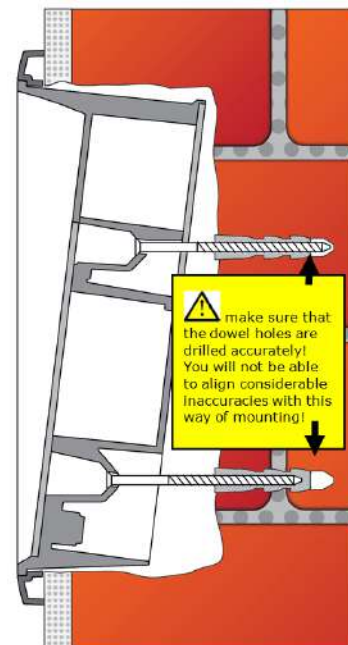
5. Fit the audio unit to the wall or structure and lead in the cables leaving a small reserve inside. Insert the packings into the unused bushings and tighten the bushing nuts.

6. Do not complete the mounting procedure until you have connected the audio unit electrically – refer to Electric Installation. If the cables lead on the surface, use the bushings included in the delivery.

Flush Mounting – Classic Bricks

Follow the instructions for the flush mounting kit if used. Follow the instructions below if you do not use the flush mounting kit.

1. Drill a hole using the template included for all the necessary cables. Be careful while drilling as this type of mounting does not allow to balance rather great deviations later!

2. Unpack the frame, put the audio unit onto it and put this set on the hole to test whether the hole is deep enough and its uneven edge is completely covered by the frame.

3. Push or hammer the supplied plugs into the holes. If the plugs are too loose, use a mounting glue.

4. Remove the front panel from the audio unit.

5. Select the holes for the cables. Insert the packings in the other holes. Use the cable bushings or some sealing to avoid insect or water penetration. Mount a small bushing into the audio unit bottom hole too.

6. Put a frame on the audio unit.

7. Insert the audio unit in the hole and put the cables in at the same time. Leave a small cable reserve inside keeping the excessive cables under the audio unit bottom.

8. Insert the screw in the plugs in the holes on both the audio unit sides. Tighten all the screws carefully. Caution: the screw tightening sequence may affect the audio unit position.

9. Seal the frame against the wall if necessary with some silicon or other cement. Although unnecessary for the audio unit function, the

make sure that the dowel holes are drilled accurately! You will not be able to align considerable inaccuracies with this way of mounting!

sealing helps protect the wall against dampening due to water leakage.
10. Do not complete the mounting procedure until you have connected the audio unit electrically – refer to Electric Installation.

Flush Mounting – Thermally Insulated Wall

Cut out a hole in the insulation layer with the aid of the template (like with classic bricks).

> ⚠ **Caution**
>
> - As the hole depth depends on the insulation layer thickness, you may need longer screws! If there are hollow bricks under the insulation layer, the screws must be long enough to fill in the whole plug (50 mm)! Otherwise, the plug will come loose.
> - Check the diameter of the plug holes. If the holes are too large, the plugs may come loose! Use a building glue for fixing if necessary.
> - Check the depth of the plug holes! The plug length is 50 mm, the screw length is 90 mm.

It is assumed that all the necessary cables lead to the predrilled hole. Now follow the instructions for classic brick mounting yet respect a lower strength of thermally insulated walls while tightening the screws.
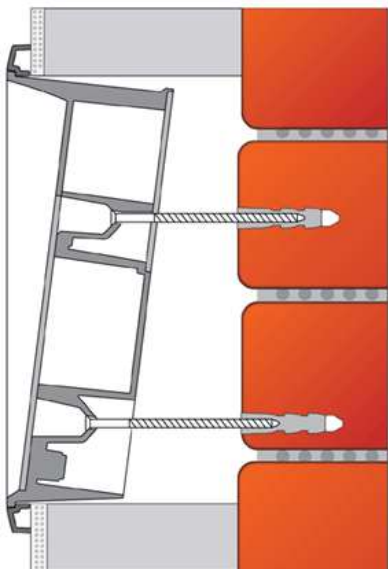
Flush Mounting – Hollow Bricks

It is practically impossible to fit plugs into hollow bricks because the inner brick walls are too thin for drilling. Therefore, use the flush mounting kit and follow the instructions included therein.
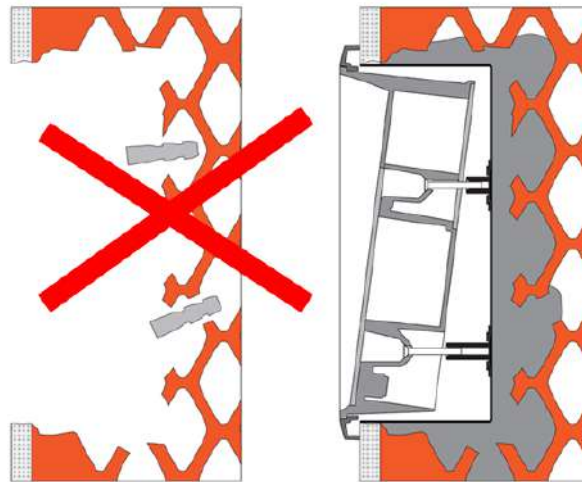
Flush Mounting – Plasterboard

Use the flush mounting kit for plasterboard walls and follow the instructions included therein.
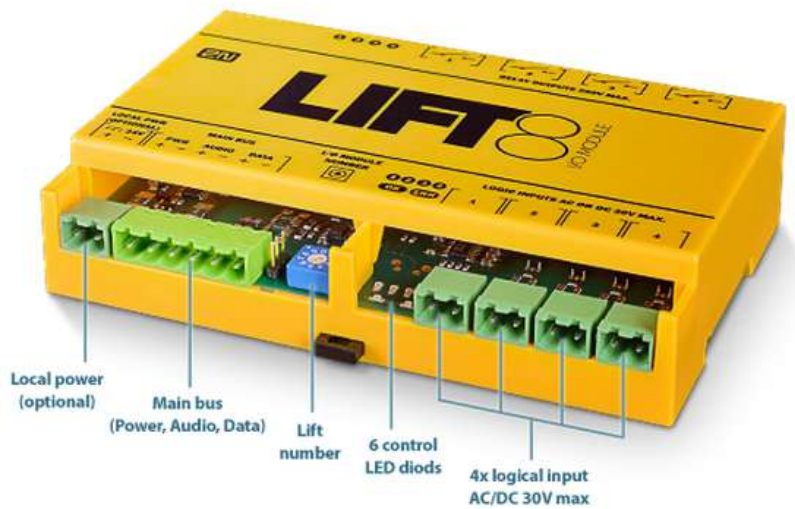
2.12 I/O Module

Description

The purpose of the I/O Module is to interconnect the Central Unit (CU) with the lift signalling. It is designed for usage of binary inputs or switching of relay inputs. It is connected to the CU via 6 wires (power, audio, data). The inputs/outputs are connected to the I/O Module via 2-pin slide-on terminals.

The I/O Module detects status changes on 4 galvanically isolated logical inputs, whose nominal voltage ranges between 12 and 24V AC/DC (refer to the table below for the minimum and maximum voltage values). The I/O Module also contains 4 output NO contacts equipped with bistable relays (refer to the table below for the maximum closing values). There may be up to 8 I/O Modules (depending on the count of lift shafts available).

Remember to set a different address (lift shaft number) for each I/O Module to make the system work properly. A collision of addresses is signalled by the ERR LED. Set the address manually using the rotary switch (position 1–8 according to lift shaft 1–8). Addresses 9 and 0 are not used. If you set one of them, the ERR LED will indicate an error.

The I/O Modules are connected serially (in line). Do not use parallel connection to avoid system instability. Connect the termination resistance connecting jumper to the last device (Splitter or I/O Module furthest from the CU). See the figures below for terminal layout details.

I/O Module – Lower Side

I/O Module – Upper Side

Electrical Installation

> ⚠ **Caution**
>
> - Local power is not supported. Do not connect any local power supply.
> - The main bus power is sufficient for the I/O Module.

Main Bus Connection

Take the 6-pin main bus connector from the package and connect 6 wires from the CU maintaining polarity (power + -, audio + -, data + -) – see the I/O Module cover. Connect the devices serially (in line). Parallel connection is not allowed. Refer to the CU section for more details.
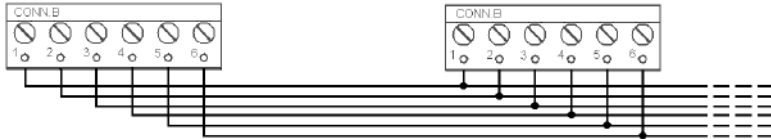
Main bus
1 … Main bus power +
2 … Main bus power -
3 … Main bus audio +
4 … Main bus audio -
5 … Main bus data +
6 … Main bus data -

> ⬥ **Warning**
>
> - Maintain the connection polarity to make the **2N®** **Lift8** system work correctly.

> ⬥ **Warning**
>
> - The bus is electrically isolated from the telephone line circuits according to the EN60950 requirements and its low voltage cannot cause any electrical accident.

Termination Resistance

> ⚠ **Caution**
>
> - Find the 3-pin termination resistance connecting jumper between the main bus connector and lift number switch.
> - Connect the jumper to the first and last device (CU, splitter or I/O module) on the bus. Refer to the CU section for more details.
> - By default, the termination resistance jumper is off.

Termination Resistance Off

Address Setting

Use a 10-pin rotary switch 0–9 (see the figure above) to set the I/O Module address for a lift. Set 1–8 like the shaft number for the splitter (set 5 for lift 5, e.g.).

> ⬥ **Warning**
>
>   • Do not set address 0 and 9 to avoid system error.

LED Indicators

The I/O Module is equipped with ten LED indicators: two I/O Module status signalling LEDs, four input status signalling LEDs and four output status signalling LEDs. Refer to the table for details.

Name	Colour	Description
OK	Green	If everything is OK, the power supply and bus are connected, the I/O Module is communicating with the CU, the LED is flashing.
ERR	Red	If the red LED is on, the bus is not connected or there is an address collision with another I/O Module in the system.
Logic Input 1–4	Orange	This LED is on when the given input is active, i.e. nominal voltage for detection of logic 1 is detected on it.
Logic Output 1–4	Orange	This LED is on when the given input is active, i.e. the given relay is closed.

Logic Input Connection

Up to 4 galvanically isolated logic inputs can be connected to each I/O Module. The nominal voltage of these inputs is 12–24 V. The minimum detectable level is 8 V and the maximum level may not exceed 30 V. Otherwise, the I/O Module input circuits will get damaged. Transition to state 1 occurs with the logic signal rising edge and transition to state 0 with the falling edge.

Every transition is detected and displayed in the **2N**® **Service Tool** application. At the same time, every status change is recorded in the system log for later use and the user is informed via a pop-up window. See the figure below for an example of input circuit connection.
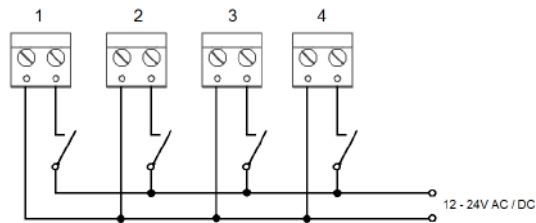
Example of Input Circuit Connection

Output Relay Connection

Every I/O Module is equipped with 4 bistable relays with the maximum load of 250 V / 5 A per contact. Never exceed this limit to avoid system damage. When the relay is closed, the respective LED signals this state. You can configure the relay function in the **2N**® **Service Tool** application.
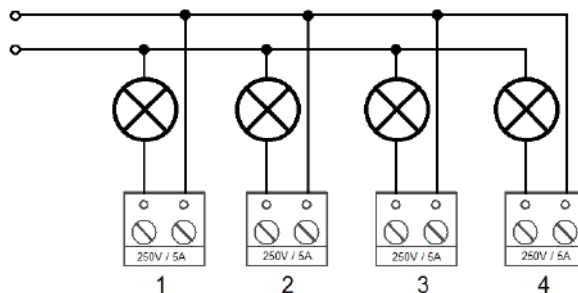
Example of Output Relay Connection

> ⊕ **Warning**
>
> - Never exceed the voltage and current limits specified in the Technical Parameters for the load applied to the relay contacts to avoid system damage.
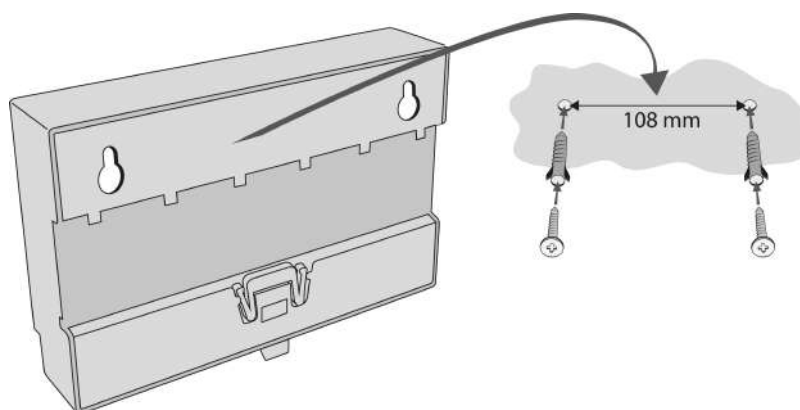
> ⊕ **Warning**
>
> - Never connect any important structural devices such as brakes, door locks, security equipment, etc. to the relay outputs. **The I/O Module is not designed and must not be used for such installations.** Connect only the devices that will not be damaged by unexpected relay contact disconnection (CU remote upgrade, bus restart, etc.) such as unimportant signalling lamps, ventilators, shaft lights, etc.).
> - **The manufacturer shall not be held liable for damage incurred as a result of improper installations on the relay contact.**

Mounting Types

See below for the mounting types and necessary components. Install the device on sites not exposed to water leakage or condensation.
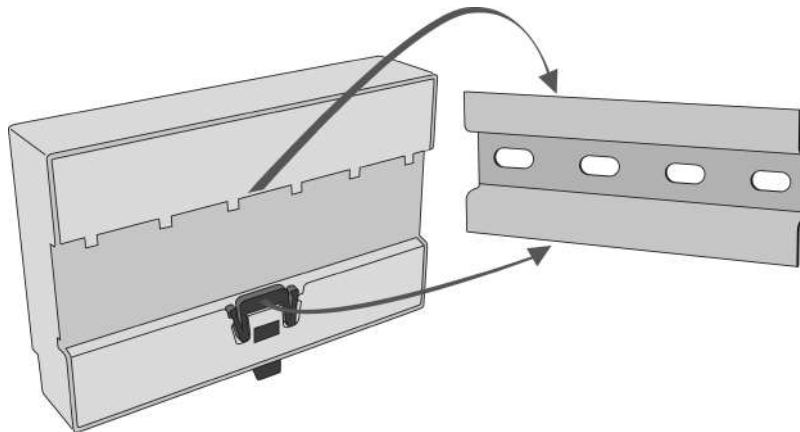
Wall Mounting

Use appropriate wall plugs and screws for mounting (not included in the delivery). Hang the device using the pre-drilled holes on the device bottom.

Wall Mounting

DIN Rail Mounting

Mount the device on a standard TS 35 DIN rail. The recommended DIN rail length is 14 cm.


DIN Rail Mounting

> ⚠️ **Caution**
>
> - The warranty does not cover any defects or failures of the product arisen as a result of improper mounting in contradiction to these instructions.
> - A wrong mounting procedure may lead to damage to the electronics due to water infiltration. The splitter circuits are constantly under voltage and water leakage causes electrochemical reaction. No warranty can be claimed for products damaged in this manner!

2.13 Camera Module

Description

The camera module helps you connect a lift cabin camera of the IP, RS-232 and RS-485 type. The camera module can work with the Central Unit (CU), or autonomously. It contains a microSD card slot for recording images in variable intervals.
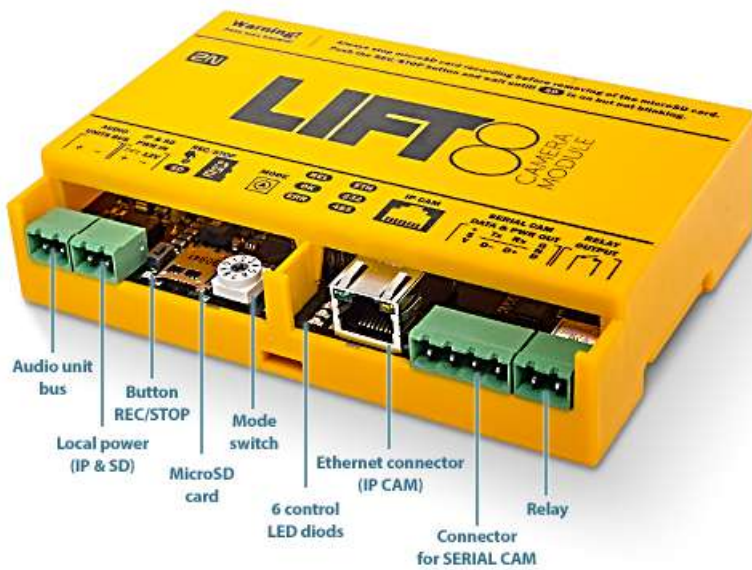
Connect the camera module to the CU or splitter via a 2-wire bus to support the **2N**® **Lift8** communication.

Connect a local power supply to record images on the microSD card.

> ⚠ **Caution - upgrade**
>
> - The red ERR LED is illuminated, the green OK LED flashes quickly and the yellow REL LED flashes slowly to indicate the upgrading process.

> ⚠ **Caution**
>
> - Local power is supported.
> - Connect the local power supply if:
>   - an IP camera communicating with the CU is connected to the camera module;
>   - images are recorded on the microSD card in certain intervals;
>   - the camera module works autonomously without bus connection.

Electric Installation

Bus Connection

Connect the camera module via a 2-wire bus (audio unit bus) to the CU or splitter maintaining polarity.
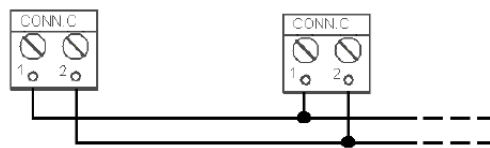
Audio unit bus
1... Audio unit bus +
2... Audio unit bus –

> ⬥ **Warning**
>
> - Maintain the connection polarity to make the **2N® Lift8** system work correctly.

> ⬢ **Safety**
>
> - The bus is electrically isolated from the telephone line circuits according to the EN60950 requirements and its low voltage cannot cause any electrical accident.

Mode Switch

Set the camera module connection mode with a 10-position switch 0–9:

0 – the camera module works within the **2N**® **Lift8** system (connected to the CU/splitter via a 2-wire bus);

1 – the camera module works autonomously (see below for details);

2–9 – no setting (the red ERR LED is flashing).

IP Camera Connection

There are two IP camera connection options.

1. Connect the IP camera directly to the camera module.
2. Connect the camera module to the LAN if the IP camera is installed in the LAN.

If the camera module is connected to the Lift8 system, use the Service Tool for configuration (refer to Subs. 5.3 – Service Tool – Use for more details).

Refer to the Autonomous Camera Module Connection Subs. for more setting details.

Direct IP camera - camera module connection
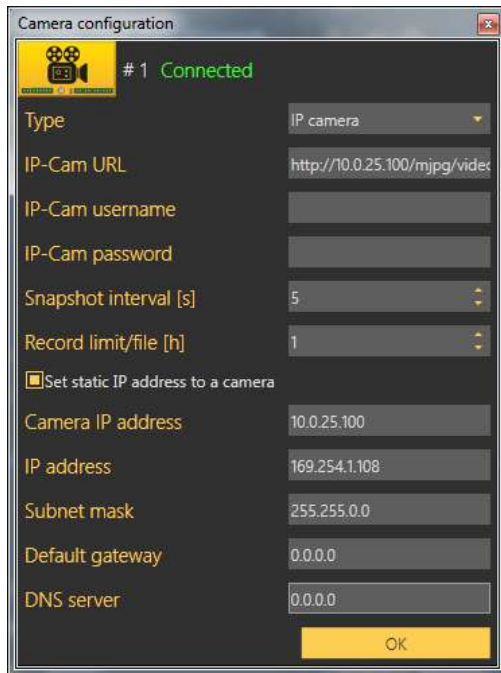
IP camera LAN connection
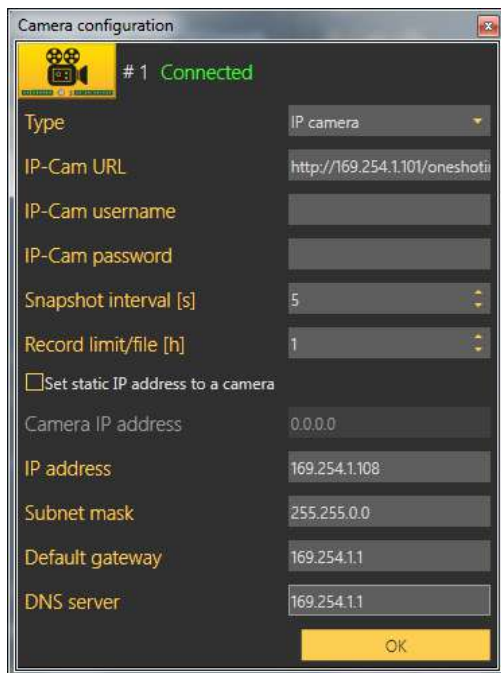
Select Set static IP address to a camera to activate the DHCP server to assign the defined address to the camera. If the static IP address is already set for the IP camera, it is unnecessary to enable the server.

> ⚠ **Caution**
>
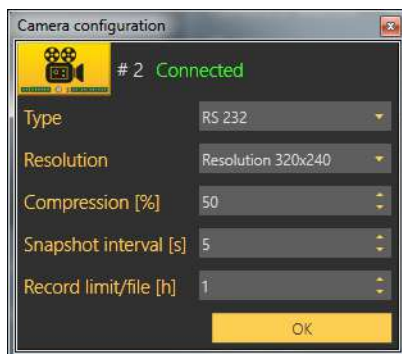> - To retrieve the IP address from the DHCP server, make sure that the Retrieve IP address from DHCP server option is enabled for the camera.
> - Switch on the local power supply.

RS-232/RS-485 Camera Connection

Set only the resolution, compression, snapshot interval and Record limit/file parameters for the RS232 and RS485 cameras.

Connect the camera to the SERIAL CAM connector using a push-on terminal board.

See the table below for connector details.

+5 V	TX/D	RX/D+	GND
+UCC	data transmitted	data received	signal ground

> ⚠ **Caution**
>
> - The RS232 and RS485 cameras work without a local power supply too in the Lift8 system only if they have a low current consumption.
> - Saving files to an SD card does not work without a local power supply.

> ✅ **Tip**
>
> - We recommend you to switch on a local power supply because cameras usually take more current in the night mode (for infrared illumination).

LED Indicators

The camera module is equipped with seven LED indicators; see the table below.

Name	Colour	Description
SD	Orange	The LED flashes to indicate recording. However, the camera type must flash at the same time (ETH, 232, 485). When the LED is on, you can slide the microSD card out by pressing the REC/STOP button.
REL	Orange	The LED is illuminated to indicate a closed relay.
OK	Green	The LED flashes (slowly) to indicate that the bus is connected and the camera module is communicating with the CU. The LED flashes (quickly) to indicate image download. The LED is illuminated permanently to indicate that the module is connected in the autonomous mode and is OK.
ERR	Red	The LED flashes to indicate an error in the camera module or Ethernet cable connection. The LED is illuminated to indicate address collision. Make sure that one camera module is only connected in the shaft.
ETH	Orange	The LED is on when the camera is connected and configured properly. The LED flashes to indicate active recording.
232	Orange	The LED is on when the camera is connected and configured properly. The LED flashes to indicate active recording.
485	Orange	The LED is on when the camera is connected and configured properly. The LED flashes to indicate active recording.

> ⚠ **Caution**
>
> - The OK LED is flashing and ERR LED is illuminated when the unit is being upgraded.

> ⚠ **Caution**
>
> - Use the **2N®** **Lift8 Service Tool** application to set the camera type and other parameters.

Camera Module Setting

Set the **2N®** **Lift8** camera module via the **2N®** **Lift8 Service Tool**. Refer to 5.3 Use for details.

Autonomous Camera Module Connection

The camera module can be used autonomously without being connected to **2N®** **Lift8**.
To make the module work autonomously, change the connection mode to autonomous
(no **2N®** **Lift8** connection) using a rotary switch (switch to 1), connect a local power supply,
insert a microSD card and make basic configuration.
There are two IP camera connection options.

1. Connect the IP camera directly with the camera module.
2. Connect the camera module to the LAN if the IP camera is installed in the LAN.

Refer to the camera.cfg, network.cfg, password.cfg a time.cfg files on the microSD card for basic settings. These files are created automatically when you insert a new microSD card. Modify the configuration file slightly with respect to the camera type used.

> ⚠️ **Caution**
>
> - You are recommended to format the microSD card before inserting it in the camera module (FAT32).
> - You are recommended to connect the camera module to a backup power supply to avoid recording errors at power outage. Connect the IP camera to the backup power supply too.

Camera Module Settings (network.cfg)

Parameter name	Default value	Note
IP address	10.0.0.254	Camera module IP address
Gateway	0.0.0.0	Gateway IP address
DNS	0.0.0.0	DNS server IP address
Netmask	255.0.0.0	Network mask
DHCP camera ip address	0.0.0.0	0.0.0.0 = disabled Ip address = DHCP server enabled on camera module. Used only if the IP camera is directly connected with the camera module.

> ⚠️ **Caution**
>
> - Set Camera IP address to enable the DHCP server and assign the selected address to the IP camera. Make sure that the Retrieve IP address from DHCP server option is enabled for the camera.
> - Refer to network.cfg for more setting details.
> - Having set the network parameters, you can open the Internet browser to go on configuring via the web interface (see the Web Interface below).

IP Camera Settings (camera.cfg)

Parameter name	Value range	Default value	Note
Camera type	1–3	3	1 = RS-232 2 = RS-485 3 = IP camera
Resolution	1–3	2	1 = 160 x 80 2 = 320 x 240 3 = 640 x 480
Compression ratio	10–100 %	60 %	Image compression
Camera URL IP		http://10.0.0.1/jpg/image.jpg	Each camera has a different URL.
Record interval	1–3600 s	5 s	Camera recording interval
Record rotate file interval [1h]	1–24h	1 h	MicroSD card file creation interval
Username		admin	IP camera access user name (login)
Password		2n	IP camera access password

> ⚠ **Caution - IP camera**
> - Set resolution and compression in your IP camera configuration.
> - Each IP camera has a different URL.

> ⚠ **Caution**
>
> - Refer to camera.cfg for more setting details.

Date and Time Settings (time.cfg)

Parameter name	Default value	Note
Coordinated Universal Time	0	Set the time zone in which the camera module is located.
Date (dd:mm:yyyy)	01.01.1970	
Time (hh:mm:ss)	00:00:00	

> ⚠ **Caution**
>
> - Refer to time.cfg for more setting details.

Password Setting (password.cfg)

Parameter name	Default value	Note
password	2n	The password set via password.cfg is encrypted when an SD card is inserted in the camera module.

> ⚠ **Upozornění**
>
> - The user name is always **Admin** (not respecting the upper/lower case).

Standalone Camera Module Upgrade

Refer to 2N® Lift8 Camera Module at www.2n.cz for the latest firmware (ln_app_camera.bin). Download the file to a microSD root directory. When you insert the microSD card, the file (ln_app_camera.bin) will be loaded onto the dataflash (yellow LEDs flashing) and then the module will get restarted. Upon restart, the new FW will be loaded to the camera module. The ln_app_camera.bin file will be renamed to OFF_ln_app_camera.bin.

MicroSD Card

Insert the microSD card in the slot. If the card is loaded correctly and the camera module is configured properly, the orange **SD** LED will start flashing to indicate that images are recorded onto the microSD card in the selected intervals. Press REC/STOP to remove the microSD card and wait until the LED stops flashing.

> ⚠ **Caution**
>
> - Support of microSD cards up to 32 GB.
> - Saving files to an SD card does not work without a local power supply.

Web Interface

Enter the camera module IP address into the Internet browser to display the camera module web menu in English.

There are 3 menus:

1. Configuration – set the same camera module (available in the autonomous mode only) parameters as in the SD card files (camera.cfg, network.cfg, password.cfg and time.cfg).
2. Video files – display the video files recorded.
3. Relay control – set the camera module relay control.

User name: Admin

Password: 2n

> ⚠ **Caution**
>
> - You can only change the web access password via the web and password.cfg. The username is always the same (Admin, regardless of lower/upper case).
> - If the RS232 and RS485 cameras are connected, you cannot get connected to the camera module web interface.

> ✅ **Tip**
>
> - Download the recorded files in the Video files section. As the download rate is very slow, you are recommended to remove the SD card and load the files directly from the card to get the files more quickly.

Relay Control HTTP Commands

You can also use http commands to close/open the relay.

Function	HTTP command
Relay state	http://10.0.0.1/relay_get
Close relay	http://10.0.0.1/relay_set?value=1
Open relay	http://10.0.0.1/relay_set?value= 0

Mounting Types

See below for the mounting types and necessary components. Install the device on sites not exposed to water leakage or condensation.

Wall Mounting

Use appropriate wall plugs and screws for mounting (not included in the delivery). Hang the device using the pre-drilled holes on the device bottom.

Wall Mounting

DIN Rail Mounting

Mount the device on a standard TS 35 DIN rail. The recommended DIN rail length is 14 cm.

DIN Rail Mounting

> ⚠ **Caution**
>
> - The warranty does not cover any defects or failures of the product arisen as a result of improper mounting in contradiction to these instructions.
> - A wrong mounting procedure may lead to damage to the electronics due to water infiltration. The Camera Module circuits are under constant voltage and water leakage causes electrochemical reaction. No warranty can be claimed for products damaged in this manner!

2N® Lift8 User Guide

2.14 RS232 Module

Description

The RS232 module helps you receive AT commands from the lift Central Unit (CU). Some AT commands are supported only. Use the **2N® Service Tool** to set the transmission rate (115200 by default).

Before You Start

Product Completeness Check

Check whether the product package is complete before installation.

The RS232 module package contains:

- 1 electronics board (RS232 module)
- 2 long threaded spacers, 1 short screwed spacer
- 1 screw
- RS232 cable
- cable bushing

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Description of Connection

1. Keep the **CU** disconnected from the mains.
2. Loosen the three screws on the upper cover of the **CU**.
3. Move the **CU** upper cover in such a way that you can remove it.
4. While removing the cover, proceed with caution - be careful about the earth wire connecting the cover with the **CU** bottom part. Do not disconnect the wire unless there is a reason to do so!
5. Disconnect the back-up rechargeable batteries if connected (using the FASTON cable end pieces connecting the rechargeable batteries with the motherboard).
6. Unscrew 2 screws (1) and replace them with 2 threaded spacers. Fit the screwed spacer (2) into the LED plastic cover (see Fig.).

> ✅ **Tip**
>
> To make your spacer mounting easier, turn the screw until it stops and use a cross-point screwdriver to fit the spacer. Having tightened the spacer in the LED plastic cover, use flat-nose pliers to secure the spacer against spinning and remove the screw.

7. Now mount the RS232 module. Be careful while putting the module on the pins. Make sure that you have connected all the pins to the module connector.
8. Having fitted the pins into the connector correctly, you can fix the module using 3 screws (see Fig.).

9. To mount the RS232 cable, remove the blank module on the CU bottom edge. Put a cable bushing on the RS232 cable and insert it in the empty space (the cable bushing is factory-cut in one point for easier handling).
10. Replace the rechargeable batteries and **CU** cover and tighten the 3 screws to fit the cover.

Supported AT Commands

AT Command	Example	AT Command Use	Note
AT+CMGS=	AT+CMGS="+420 603123456",145<CR>sms text<Ctrl+z> or without apostrophes AT+CMGS=+420 603123456,145<CR>sms text<Ctrl+z>	Send SMS	<CR> = Enter 145 – international number (including +) 129 – national number
AT+CMGF=	AT+CMGF=1	Select SMS mode	
ATE1	ATE1	Enable echo	Returns the typed characters to the terminal.

AT Command	Example	AT Command Use	Note
ATE0	ATE0	Disable echo	
ATE	ATE	See ATE0	
AT	AT	Start command row	

See here for details on AT commands.

> ⚠ **Caution**
>
> - Use a **CU** with the GSM/UMTS module for sending SMS.

Serial Port Configuration

You can only set the transmission rate of 9600–115200 bauds for the serial port.

The other parameters are preset:

Bits per word	8 bits
Parity	no parity
Stop bits	1 stop bit

2.15 Audio Unit - Shaft Antivandal

Description

Typically, this audio unit is installed on lift shaft bottoms, cabin floors and roofs and/or any other places that require communication, e.g. for lift maintenance purposes. The audio unit features an orange robust aluminium case and is thus highly resistant against small falling objects, dripping oil and other hardships that might occur in lift shafts. This unit is designed for outdoor applications too. Press the ALARM button to establish connection with the control centre. The audio unit is equipped with an integrated microphone and speaker and, thanks to its dimensions and strength, provides a good and strong sound.

> ⚠ **Caution - diods**
>
> **Alarm call**
> - The button is blue-backlit to indicate alarm call setup.
> - The button blue backlight flashes to indicate image download from a camera module.
>
> **Upgrade**
> - The audio unit is initialised first – the ALARM button is blue-backlit.
> - The ALARM button blue backlight flashes to indicate an upgrading process.
> - The audio unit stops shining after upgrade and is ready for use.

Operation Staff

1. This audio unit type is operated by well-trained persons (lift maintenance staff, e.g.).
2. Use the ALARM button whenever a person falls into the shaft, for example.
3. The audio unit dials the numbers stored in the ALARM button memory – set 2 (021–026).

> ⚠ **Caution**
>
> - If set 2 (021/026) is not stored in the ALARM memory, the audio unit dials set 1 (011–016) stored in the ALARM memory.
> - Use the ALARM button to call the control centre or machine room audio unit configured as an intercom.
> - The ALARM button is not illuminated at relax.

Before You Start

Product Completeness Check

Check the product package for completeness before installation:

- 1 **2N® Lift8 Shaft Antivandal**
- 1 Torx 10 / Torx 20 double-ended spanner
  Bushings (extra package):
    - 1x big two-hole, sealed bushing with nut
    - 1x replaceable big one-hole bushing seal for thick cables
    - 1x big blank module with nut
    - 1x small bushing with nut
    - 1x big bushing packing
    - 2x small bushing packings
- 1x **2N® Lift8 Shaft Antivandal** brief manual
- 1x mounting template
- 1x bus connector
- 4x screws (5 x 90 mm)
- 4x "intelligent" mounting wall plugs (8 x 50 mm)

The audio unit is typically mounted on a wall using the wall plugs and screws included in the delivery. Find the drilling template in an extra package.

> ⚠ **Caution**
>
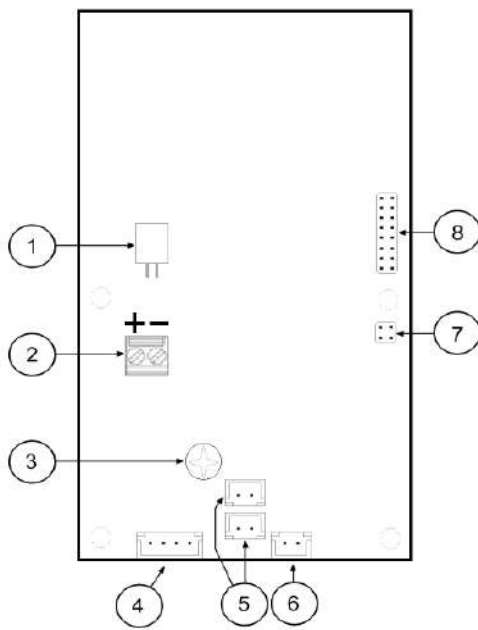> - The audio unit is designed for outdoor applications too.
> - Refer to Subs. 2.10.3 (Fireman – Mechanical Mounting) for more mounting details.

Electric Installation

Unscrew the 4 screws using the Torx 20 spanner enclosed and remove the audio unit front cover to reveal the electronics board.

Desription of Terminals, Connectors and Jumpers

Audio Unit – Fireman Terminals, Connectors and Jumpers

Terminals and Connectors			
1	speaker connector	**5**	2 microphone connectors
2	audio unit bus	**6**	lockable button connector (knob)
3	volume control	**7**	configuration jumper
4	button connector (push to talk)	**8**	servicing connector

Audio Unit Location

The audio unit is designed for shaft bottom installations by default.

In other cases, follow the instructions below:

Procedure

1. Unscrew the 4 screws using the Torx 20 spanner enclosed and remove the audio unit front cover.
2. Set the audio unit location using the configuration jumper (7).

Jumper setting	Audio unit location
no jumper	shaft bottom
jumper up	over the cabin
jumper down	under the cabin

3. Replace the cover and tighten the 4 screws.

> ⚠ **Caution**
>
> 1. Avoid duplicate audio unit settings.

Bus Connection

Remove the audio unit cover. Pull the bus through the bushing and put it on terminal 2 using the connector enclosed. Maintain polarity (see the Audio Unit – Fireman Terminals, Connectors and Jumpers figure above).

> 🔴 **Warning**
>
> 1. The audio unit is intended for **2N® Lift8** audio unit bus connection exclusively. Do not connect it to other wires to avoid its damage or destruction.
> 2. Maintain polarity while connecting the audio unit to avoid audio unit error.

> ⚠ **Caution**
>
> 1. The audio unit is powered via a 2-wire bus. Disconnection of these wires results in the audio unit switch-off.

Volume Control

Set the required volume using the trimmer (refer to the Description of Terminals, Connectors and Jumpers above) on the electronics board.

> ⚠ **Caution**
>
> 1. Use the trimmer to set the best acoustic properties eliminating feedback.

Mounting Completion

1. Having connected all the wires, check the bushings if used for proper tightening.
2. Replace the front cover carefully. Make sure that the wire arrangement inside the device provides enough space for front panel insertion. Tighten the 4 screws thoroughly to push the panel by 1 mm further to the metal chassis. Use the Torx 20 spanner for tightening, for example.

> ⚠ **Caution**
>
> 1. An improper mounting may result in the audio unit not being waterproof. Water leakage may damage the electronics.
> 2. **2N® Lift8 Shaft Antivandal** is assembled with stainless steel screws. If you lose them, never use other screws to avoid corrosion and screw appearance deterioration!

2.16 LAN Module

Description

The main purpose of the LAN module is to connect the ETH supporting lift controller. Like the serial module, it can support the Internet connection via the Central Unit WAN interface. Here the VoIP or GSM/UMTS module can be mounted. In general, it is an interface providing connection to a network. Set the LAN module address as the default gateway on the devices connected. Then you can get connected to the Internet via the Central Unit. Set the LAN module parameters, such as IP address and subnet mask, using the Service Tool in the LAN Data module section (parameters 1500 and 1501). Port forwarding is closely associated with the Data module and ensures that communication directed to a certain WAN port is forwarded to the selected port and IP address in the LAN Data module network.

Before You Start

Product Completeness Check

Check whether the product package is complete before installation.

The LAN module package contains:

- 1 electronics board (Ethernet level)
- 2 long threaded spacers
- 1 short screwed spacer
- 1 screw

Description of Connection

1. Disconnect the CU from the mains supply.
2. Loosen the three screws on the upper cover of the **CU**.
3. Move the **CU** upper cover in such a way that you can remove it.
4. While removing the cover, proceed with caution - be careful about the earth wire connecting the cover with the **CU** bottom part. Do not disconnect the wire unless there is a reason to do so!
5. Disconnect the back-up rechargeable batteries if connected (using the FASTON cable end pieces connecting the rechargeable batteries with the motherboard).
6. Unscrew 2 screws (1) and replace them with 2 threaded spacers. Fit the screwed spacer (2) into the LED plastic cover (see Fig.).

> ✅ **Tip**
>
> To make your spacer mounting easier, turn the screw until it stops and use a cross-point screwdriver to fit the spacer. Having tightened the spacer in the LED plastic cover, use flat-nose pliers to secure the spacer against spinning and remove the screw.

7. Now mount the Ethernet level. Be careful while putting the module on the pins. Make sure that you have connected all the pins to the module connector.
8. Having fitted the pins into the connector correctly, you can fix the module using 3 screws (see Fig.).
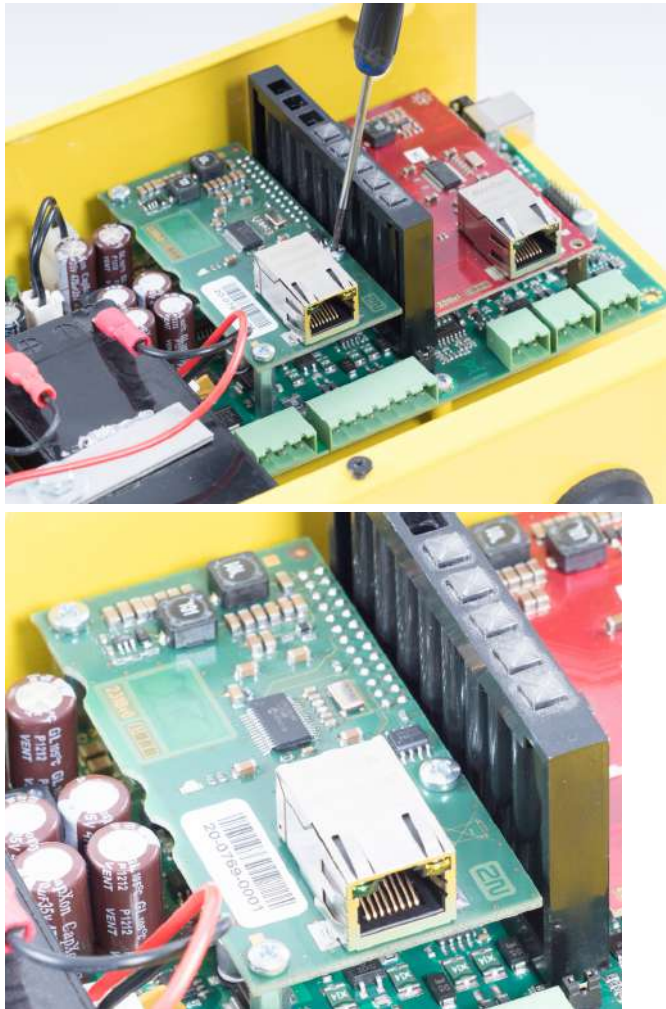
9. Now connect the Ethernet cable via RJ-45.
10. Replace the rechargeable batteries and **CU** cover and tighten the 3 screws to fit the cover.
11. Reconnect the **CU** to the mains supply.

3. System Configuration

The system is supplied pre-configured.

This section describes the **2N®** **Lift8** configuration. There are three ways how to program **2N®** **Lift8**.

3.1 Lift8 Programming

The advantage of the **2N®** **Lift8** (hereinafter referred to as **L8**) system is that it is programmed via the **CU** where all the parameters are stored. Hence, you do not have to reconfigure anything to replace an Audio Unit and you can program just one **CU** in multiple lift systems, for example. The memory is independent of the **CU** power.

Before You Start

- Fill in all the values to be changed in the prepared form with a clear table of basic functions.
- If the **L8** is not brand new, make sure that you have the correct servicing password, and if you are not completely sure of your **L8** configuration, execute full initialisation (Warning: The servicing password is also initialised!).
- **L8** can be programmed in 3 ways: remotely via a telephone (telephone number), using the machine room Audio Unit and/or using the service tool program (connection via USB/IP address).
- Make sure that your telephone supports tone dialling (key phones may cause problems in some PBXs).

> ⚠ **Caution**
>
> - Warning: The servicing password is also initialised!

Access to Programming Mode

You can enter the programming mode during an incoming call (calling the **L8** number) or using the machine room Audio Unit (press ✳ for over 2 seconds).

Use the voice menu (press 9 for administration and 1 for access to the programming).

Upon request, enter the servicing password as follows: **servicing password** ⊞ (do not forget to put an asterisk after the password).

If the password is correct, **L8** announces: **"You have entered the programming menu, select a parameter".**

The factory password is 12345 but you are recommended to enter a different password to protect your device against unauthorised persons.

> ⓘ **Note**
>
> - The factory password is 12345 but you are recommended to enter a different password to protect your device against unauthorised persons.
> - While entering the password, keep a limit of 60 seconds (or any other value configured in the range between 10 and 1000 seconds) for each character to avoid **L8** hang-up.

Programming Procedure

Having entered the programming mode, you can change any programmable value(s) in any order. Proceed as follows: enter the function number and then the value. Use an asterisk as a separator or Enter. In general, the function has the following format:

function number ⊞ **value** ⊞

The function number has three digits (see the table). After you enter the function number and an asterisk, **L8** reports the number or name, current value and potential range of the parameter to be programmed. After you enter the value and another asterisk, **L8** reports "New value stored", or "Invalid value, new value not stored" if the value is beyond the allowed range.

L8 reads out the parameter number and the newly configured value for checking purposes.

> ◆ **Warning**
>
> - A drawback of some telephone sets is that, after you press a button, i.e. send a DTMF signal, they go "deaf" for a fraction of a second. In that case, you cannot hear the whole text and are recommended to use another telephone.

Programming Error

- If you make a mistake during entering (the function number or value) and have not entered an asterisk yet, you can cancel the whole number by pressing ⌗ and re-enter the number.
- If **L8** rejects the parameter number or value you have entered, go on programming but re-enter the function number even if only the value was wrong.
- If you have programmed and stored a value other than the required one, you can re-enter the value of course.

Programming End

- If you are calling **L8** via a telephone number, hang up to terminate programming.
- If you are programming via the machine room Audio Unit, press and hold over 2 s ⌗ to terminate programming and put the Audio Unit in the standby mode.

- If you only want to go one menu back, press ⌗ .

> ✅ **Tip**
>
> - If you are not quite sure of how **L8** will behave after programming, save the filled-in form for later check.

Troubleshooting

L8 *fails to respond correctly to DTMF commands, e.g. the programming mode cannot be entered.*

Today, voice transmission is prevailingly digital, using variable compression algorithms. Therefore, the DTMF signal to be transmitted is often distorted. Moreover, it may, in some cases, be transmitted through the so-called command channel, whose delay may differ from that of the speech channel.

> ⚠ **Caution**
>
> - Experience shows that, especially recently, it is practically impossible to recover the DTMF signal in GSM networks!

In such cases, try some other equipment (a digital PBX, e.g.) or the machine room telephone set. If the machine room or PSTN programming attempts fail too, you have probably entered an invalid password.

Programming via Service Tool

Refer to the **2N® Service Tool** section (Section 5) for details.

3.3 Table of Parameters

Table of Parameters

Par. No	Parameter name	Range of values	Default value	Note	Info
011	Set 1 – ALARM button memory 1	up to 30 digits: 0–9	empty	Entering characters ⊠, # and '**p'** for a 1-second pause while programming is possible via a PC (use the **2N**® **Service Tool**).	
012	Set 1 – ALARM button memory 2	up to 30 digits: 0–9	empty		
013	Set 1 – ALARM button memory 3	up to 30 digits: 0–9	empty		
014	Set 1 – ALARM button memory 4	up to 30 digits: 0–9	empty		
015	Set 1 – ALARM button memory 5	up to 30 digits: 0–9	empty		

Par. No	Paramet er name	Range of values	Default value	Note	Info
016	Set 1 – ALARM button memory 6	up to 30 digits: 0–9	empty		
017	Insert specific character in ALARM memory set 1	Entering format: X X 7 ⊠ X X XX ⊠ Button number, 01 1 = ⊠ 2 = # 3 = space Button memory number, 1 – 6 Character position, 01 - 16 Note: The digits behind this position are shifted automatically.		

Par. No	Parameter name	Range of values	Default value	Note	Info
018	Set 1 – count of automatic dialling cycles for ALARM	0–9	3	If 0 is configured, only the first number in the memory is called regardless of the count of saved numbers.	
111–116	Set 1 – confirmation mode for number 1–6	1–9	1	1 = with confirmation DTMF (1) 2 = confirmation of picking up (supported only for GSM/UMTS/VoIP) 3 = CPC Antenna 4= CPC KONE 5 = P100 6 = autodetection DTMF protocol (CPC Antenna/P100) 7 = CPC Antenna 2N Ext 8 = CPC KONE 2N Ext 9 = P100 2N Ext 2N Ext is a protocol that transmits the shaft number and audio unit position together with the ID (to be displayed in **2N® Lift8**). If there is no guarantee of a problem-free transfer of DTMF, do not set 6 for autodetection CPC Antenna/P100, but precisely specify the protocol to be used (3 or 5).	1.6.0 – Range change

Par. No	Parameter name	Range of values	Default value	Note	Info
0 2 1	Set 2 – ALARM button memory 1	up to 30 digits: 0–9		Entering characters ⊛ , ⌗ and **'p'** for a 1-second pause while programming is possible via a PC (use the **2N® Service Tool**). If set 2 of the ALARM memories is completely empty, use set 1. If parameter 029 = 0, the call is not made.	
0 2 2	Set 2 – ALARM button memory 2	up to 30 digits: 0–9			
0 2 3	Set 2 – ALARM button memory 3	up to 30 digits: 0–9			
0 2 4	Set 2 – ALARM button memory 4	up to 30 digits: 0–9			
0 2 5	Set 2 – ALARM button memory 5	up to 30 digits: 0–9			
0 2 6	Set 2 – ALARM button memory 6	up to 30 digits: 0–9			

Par. No	Paramet er name	Range of values	Default value	Note	Info
027	Insert specific charact er in ALARM memor y set 2			Entering format: X X 7 ⊠ X X XX ⊠ Button number, 02 1 = ⊠ 2 = # 3 = space Button memory number, 1 – 6 Character position, 01 - 16 Note: The digits behind this position are shifted automatically.	
028	Set 2 – count of autom atic dialling cycles for ALARM	0–9	3	If 0 is configured, only the first number in the memory is called regardless of the count of saved numbers.	

Par. No	Parameter name	Range of values	Default value	Note	Info
029	Allow usage of alarm set 1 when set 2 is empty	0–1	1	The alarm set 2 is used when pressing the alarm button on non-car units. If set 2 is empty and this parameter set to 0, the call request is ignored.	
121 – 126	Set 2 – confirmation mode for number 1–6	1–9	1	1 = with confirmation DTMF (1) 2 = pick-up confirmation (supported for GSM/UMTS/VoIP only) 3 = CPC Antenna 4= CPC KONE 5 = P100 6 = autodetection DTMF protocol (CPC Antenna/P100) 7 = CPC Antenna 2N Ext 8 = CPC KONE 2N Ext 9 = P100 2N Ext 2N Ext is a protocol that transmits the shaft number and audio unit position together with the ID (to be displayed in **2N® Lift8**). If there is no guarantee of problem-free transfer of DTMF, do not set 6 for autodetection CPC Antenna/P100, but precisely specify the protocol to be used (3 or 5).	

P a r. N o	Paramet er name	Range of values	Default value	Note	Info
0 7 1	Checki ng call memor y 1	up to 30 digits: 0–9	empty	Entering characters ⊞ , ⊞ and **'p'** for a 1-second pause while programming is possible via a PC (use the **2N® Service Tool**).	
0 7 2	Checki ng call memor y 2	up to 30 digits: 0–9	empty	If the set of checking **call** memories is completely empty, use the set of **ALARM** memories.	
0 7 3	Checki ng call memor y 3	up to 30 digits: 0–9	empty	Caution: Be sure to set the checking call number to route the call to the **2N® Lift8 server**. The call may not be confirmed properly if it falls to set 011–016.	
0 7 4	Checki ng call memor y 4	up to 30 digits: 0–9	empty		
0 7 5	Checki ng call memor y 5	up to 30 digits: 0–9	empty		
0 7 6	Checki ng call memor y 6	up to 30 digits: 0–9	empty		

Par. No	Parameter name	Range of values	Default value	Note	Info
077	Insert a character in checking call memory			**Entering format:** X X 7 ⊠ X X XX ⊠ First two digits of parameter number, 08 1 = ⊠ 2 = # 3 = space Button memory number, 1 – 6 Character position, 01 - 16 Note: The digits behind this position are shifted automatically.	
078	Count of automatic dialling cycles for checking call	0–9	3		

Par. No	Parameter name	Range of values	Default value	Note	Info
				If 0 is configured, only the first number in the memory is called regardless of the count of saved numbers.	
1 7 1 – 1 7 6	Confirmation mode for checking call memory 1–6	1–6	1	1 = with confirmation DTMF (1) 2 = pick-up confirmation (supported for GSM/UMTS/VoIP only) 3 = CPC Antenna 4= CPC KONE 5 = P100 6 = autodetection DTMF protocol (CPC Antenna/P100) If there is no guarantee of a problem-free transfer of DTMF, do not set 6 for autodetection CPC Antenna/P100, but precisely specify the protocol to be used (3 or 5).	
0 8 1	Operational call memory 1	up to 30 digits: 0–9	empty	Entering characters ⊠ , ⌗ and 'p' for a 1-second pause while programming is possible via a PC (use the 2N® Service Tool).	
0 8 2	Operational call memory 2	up to 30 digits: 0–9	empty	Caution: Be sure to set the checking call number to route the call to the 2N® Lift8 server. The call may not be confirmed properly if it falls to set 011–016.	
0 8 3	Operational call memory 3	up to 30 digits: 0–9	empty		

Par. No	Parameter name	Range of values	Default value	Note	Info
084	Operational call memory 4	up to 30 digits: 0–9	empty		
085	Operational call memory 5	up to 30 digits: 0–9	empty		
086	Operational call memory 6	up to 30 digits: 0–9	empty		
087	Insert specific character in fault reporting memory			**Entering format:** X X 7 ⊠ X X XX ⊠ First two digits of parameter number, 08 1 = ⊠ 2 = # 3 = space Button memory number, 1 – 6 Character position, 01 - 16 Note: The digits behind this position are shifted automatically.	

Par. No	Parameter name	Range of values	Default value	Note	Info
088	Count of automatic dialling cycles for ERROR	0–9	3	If 0 is configured, only the first number in the memory is called regardless of the count of saved numbers.	
181–186	Confirmation mode for number 1–6	3–9	5	3 = CPC Antenna 4= CPC KONE 5 = P100 6 = autodetection DTMF protocol (CPC Antenna/P100) 7 = CPC Antenna 2N Ext 8 = CPC KONE 2N Ext 9 = P100 2N Ext 2N Ext is a protocol that transmits the shaft number and audio unit position together with the ID. In version 2.4.0 and higher it is used for announcing new events (Battery replaced, Button fixed, Audio fixed).	

Par. No	Parameter name	Range of values	Default value	Note	Info
501	Default output state of IO module 1	ABCD	empty	The value defines the state of the I/O modules after the system start: A= output 1 B= output 2 C= output 3 D= output 4 0= output off 1= output on Example: 1001= outputs 1 and 4 will be on after the system start. Set parameters 501–508 via the voice menu. Find these parameters in the Configuration / IO modules / Basic menu in the **2N® Service Tool**.	From version 1.6.0

P a r. N o	Paramet er name	Range of values	Default value	Note	Info
5 0 2	Default output state of IO modul e 2	ABCD	empty		
5 0 3	Default output state of IO modul e 3	ABCD	empty		
5 0 4	Default output state of IO modul e 4	ABCD	empty		
5 0 5	Default output state of IO modul e 5	ABCD	empty		
5 0 6	Default output state of IO modul e 6	ABCD	empty		

Par. No	Parameter name	Range of values	Default value	Note	Info
5 0 7	Default output state of IO module 7	ABCD	empty		
5 0 8	Default output state of IO module 8	ABCD	empty		
6 0 0	Battery capacity	1–740	13	In 100 mAh units (x*100 mAh "13=1.3 Ah, 740 = 74 Ah")	From version 1.6.0
7 0 0	SIM PIN	up to 16 digits: 0–9	0000		
7 1 0	DTMF transfer enhanced mode enabled	0–1	0	0 = disabled, 1 = enabled If there is a DTMF transfer problem in the GSM network, enable this parameter.	1.9.0 Default value change
7 1 1	Allowed bands	1–3	3	Preferred mobile network (only applies to UMTS module) 1 – 2G 2 – 3G 3 – Auto	From version 2.6.0

Par. No	Parameter name	Range of values	Default value	Note	Info
800	Set time	hhmm		Read the current time setting and configure a new one if necessary. *	
801	Set date	RRMMDD		Read the current date setting and configure a new one if necessary. *	
810	Time until the next checking call is activated	hhhmmss		The voice menu reads the value in the hour/minute/second (hhhmmss) format to indicate the next checking call activation time.	From version 2.5.0

Par. No	Parameter name	Range of values	Default value	Note	Info
811	Manual activation of checking call			Remember to press * for confirmation after entering the service. The checking call is set up the moment programming is completed.	From version 2.5.0
890	Restart CU			Re-enter the valid servicing password. *	From version 2.0.0
898	Cancel working configuration			Cancel all the changes performed during this configuration call except for the date/time setting – confirm this by an asterisk. *	
899	Complete initialisation (including servicing password!)			Re-enter the valid servicing password to protect the system against unintentional deletion during incorrect function number entering. * (Parameters 1100–1110 are not deleted after complete initialisation).	

Par. No	Parameter name	Range of values	Default value	Note	Info
901	Dial prefix	up to 30 digits: 0–9	empty	Dial-in is used for calling via the PSTN module. When a call is answered, the dial-in is sent and only then the dialling or constant tone is awaited. When the tone is detected, a number is dialled from a memory (common dial-in for all memories: 011–016, 021–026, 071–076, 081–086).	
902	Enable dial tone detection	0–1	1	0 = do not perform dial tone detection. A call is set up with any line tone. 1 = perform dial tone detection. No call is set up if the dial tone is not detected.	From version 1.9.0
909	Time for tone detection after hang-up	1000–9999 ms	5000 ms	**2N® Lift8** waits for the constant or dialling tone. If none is detected, there is a fault on the line (PSTN only).	

Par. No	Parameter name	Range of values	Default value	Note	Info
911	Count of rings before incoming call pick-up	1–9	2	Define the moment of line pick-up during ringing (if there is an incoming call from PSTN).	
912	Max. call time	0–1000 s	120 s	The call can be extended by a call-extending command (DTMF 4). 0 = disabled (never-ending call).	
913	Login time limit	10–1000 s	60 s	The maximum time limit for the control centre staff to answer the call and send confirmation to avoid **2N® Lift8** hanging up and dialling the next number. Counted from the end of dialling.	
914	Delayed call	0–1000 s	0 s	Used only with connected CANCEL input on the cabin audio unit.	
915	Max. TRIPHONY time	10–9999 s	7200 s	Maximum TRIPHONY period after which TRIPHONY is terminated automatically.	
917	Hang-up time between calls	500–9999 ms	5000 ms	For PSTN lines only.	

Par. No	Parameter name	Range of values	Default value	Note	Info
918	Max. telephone line test time	1–20 s	5 s	This applies to PSTN modules only. If the line is OK, the test is carried out every hour. **2N® Lift8** seizes the line and tries to detect the dialtone. If no dialtone is detected, the line test is carried out every two minutes (the line will pass into ERROR in 6 minutes and the lift will be blocked in another 5 minutes). If the dialtone is detected again, **2N® Lift8** will pass into the "Line OK" state.	
919	Siren start on machine room audio unit	1–1000 s	0	The alarm call starts the machine room siren for a predefined period of time. 0 = function disabled	From version 2.7.6
940	Min dialtone period	200–2000 ms	400 ms	The tone must be longer than a half-period of the busy tone!	
942	Min busy tone period	100–500 ms	200 ms	These parameters control the busy tone detection.	
944	Max tone – gap difference	10–400 ms	50 ms		

Par. No	Parameter name	Range of values	Default value	Note	Info
945	Min busy tone period count	2–50	4		1.6.0 Default value change
948	Min ringback tone time	50–2000 ms	200 ms	The ringtone time is the length of the section just before the long gap.	

Par. No	Parameter name	Range of values	Default value	Note	Info
949	Min long space time of ringback tone	100–5000 ms	2000 ms	The longest gap in the ringing period must be in an interval between parameters 949 and 950.	
950	Max long space time of ringback tone	500–9999 ms	5500 ms	The longest gap in the ringing period must be in an interval between parameters 949 and 950.	
951	Min ringing signal time	50–2000 ms	200 ms	Incoming call detection: The ringtone time is the sum of sections between which there is no long gap. The longest gap in the ringing period must be in the interval between parameters 952 and 953. **CAUTION!** Parameters 951–953 (default values) work for incoming ringing.	
952	Min long space time of ringing signal	100–5000 ms	1000 ms		
953	Max long space time of ringing signal	500–9999 ms	6000 ms		

Par. No	Parameter name	Range of values	Default value	Note	Info
961	Max next digit pressing time	15–120 s	60 s	Counted from the transition to a new state (NOT after the end of announcement).	
962	Min cabin ALARM button pressing time	10–9999 ms	3000 ms	A low value is recommended for comfortable product testing.	

P a r. N o	Paramet er name	Range of values	Default value	Note	Info
9 6 3	Min time of pressin g button to trigger forced/ test alarm	0–30 s	0 s	The minimum time limit in seconds for the alarm button to be pressed to activate the forced/test alarm. This alarm bypasses the cancel contact status. 0 = disabled	
9 6 5	Private mode	0–25	0	Private mode allows muting of the **2N®** **Lift8** microphone. Setting options when the rescue mode is used: 0 = Two way audio enabled only when the rescue mode is active. 1–24 = Two way audio enabled when the rescue mode is active and during a time window after a successful alarm call. After this time, the microphone on the unit is muted. 25 = Two way audio enabled always.	

Par. No	Parameter name	Range of values	Default value	Note	Info
966	Rescue process	0–3	0	0 = Disabled 1 = End of the rescue process by Button 2 2 = End of the rescue process by rescue password 3 = End of the rescue process by Button 2 or rescue password	
969	ALARM button test	0–9999 s	0	0 = no test 1–9999 = closing time after which a button is considered jammed If a button is detected as jammed, any of the following events can be generated: IO module activation/deactivation, operational call setup, SMS sending (for GSM and UMTS only). Use the **2N® Service Tool** Events menu for configuration. Refer to Subs. 5.3 for details.	
972	New shaft number announcement	16 digits	1	Two identical digits mean a new shaft number. E.g. 1122334455667788, where 33 announces the audio unit in shaft 3.	
973	Language for numeric messages	0–1	1	0 = user recorded, 1 = voice menu language User-recorded digits are played only if values 11, 12 or 13 are set in parameters 975–979 or 971.	

P a r. N o	Paramet er name	Range of values	Default value	Note	Info
9 7 4	Interco m identifi cation numbe r	up to 16 digits: 0–9	empty	Provide lift identification for foreigners, for example. If not filled in, the serial number is used.	

Par. No	Parameter name	Range of values	Default value	Note	Info
9 7 5	Local (cabin) message sequence (Alarm)	up to 10 announcements in sequence		Start announcements in more languages in a defined sequence, including the identification number, etc. Message list: 01 = User message 1 02 = User message 2 03 = User message 3 04 = User message 4 05 = User message 5 06 = User message 6 07 = User message 7 08 = User message 8 09 = User message 9 10 = User message 10 11 = Serial number 12 = Lift identification number (par. 974) 13 = Lift shaft number (1–8) 14 = Pause (2 s) 15 = Confirmation tone ♪♪ **Cautions:** User messages **1** to **10** are recorded into the **CU** with the aid of the **2N**® **Service Tool**.	
9 7 6	Control centre (outgoing) message sequence (before confirmation by 1)	up to 10 announcements in sequence			
9 7 7	Checking call message sequence	up to 10 announcements in sequence			

Par. No	Parameter name	Range of values	Default value	Note	Info
978	Call confirmation message sequence	up to 10 announcements in sequence			
979	Control centre (outgoing) message sequence by pressing 3 after call confirmation	up to 10 announcements in sequence			
971	Call end sequence	up to 10 announcements in sequence			

Par. No	Parameter name	Range of values	Default value	Note	Info
981	Checking call	0–6	0	0 = disabled 1 = enabled, the first call in 3 minutes and then as set in parameter 983, no call is made according to parameter 982 2 = enabled, the first call in 2 hours and then as set in parameter 983, no call is made according to parameter 982 3 = enabled, the first call is made as specified in parameter 982 and then periodically as set in parameter 983 4 = enabled, the call on the nearest day set in parameter 986 5 = enabled, the first call in 3 minutes and then as set in parameter 986 6 = enabled, the first call in 3 minutes and then according to the server	1.8.0 Range change
982	Checking call interval	hhmmhhmm	00002359	Set announcements into lower traffic (lower tariff) time, generated at random in the time interval. The value of par. 982 is used only if par. 981 is set to 3 or 4.	
983	Checking call period	1–100 days	3 days	0 = disabled (0 in parameter 981 has the same effect), the value is applied if parameter 981 is set to 1–6.	

Par. No	Parameter name	Range of values	Default value	Note	Info
986	Weekdays for checking call	MTWTFSS	0000000	Values for Mon, Tue, Wed, Thu, Fri, Sat, Sun: 0 = do not call 1 = call Example: 1000100 = the checking call will be made on Mondays and Fridays.	
987	LED signalling according to EN 81-28	0–1	1	Yellow LED permanently on during an Alarm Call Yellow and green LED flashing alternately after an unsuccessful checking call	From version 2.5.0
988	Activation of the output on the I/O module for the button test.	0-8	0	The four numbers form a logical whole, the quartet can be 0-8. E.g. 1340 activates the 3rd output on the I/O module 1 and expect 1 and expects the activation of the button in shaft 4 in position 0 (CAR).	

Par. No	Parameter name	Range of values	Default value	Note	Info
990	Enable notification operational calls	xxxxxxx	0000000	Define whether or not to trigger an operational call. Each digits corresponds to a notification in the following order (0 = disable, 1 = enabled): Rescue end, Button stuck, Button unstuck, Audio error, Audio fixed, Replace battery, Battery replaced. Do not use in combination with notification scripts!	From version 2.5.0

Par. No	Parameter name	Range of values	Default value	Note	Info
991	Servicing password	up to 16 digits: 0–9	12345	Change the default servicing password for access to programming via the voice menu and for full initialisation.	
992	Rescue password	up to 16 digits: 0–9	empty	Set the rescue terminating password.	
993	Enable audio unit self-test	0–1	0	0 = disabled 1 = An audio test of selected audio units is carried out after a check call.	From version 1.10.0
994	Enable 4-lift version	0–1	0	0 = standard connection, 1 = connect up to 4 cabin Audio Units to the **CU** internal splitter as lifts 1–4 (refer to Subs. 4.5 for details).	
995	Enable outgoing machine room call	0–1	0	0 = disabled, 1 = enabled (if the parameter is enabled, the machine room Audio Unit can be used for outgoing public network calls).	

Par. No	Parameter name	Range of values	Default value	Note	Info
10001	Enable data	0–1	0	Permit the use of the GSM/UMTS module connection to the provider's data network. **	
10002	APN			Configure the mobile provider's access APN server. **	
10003	Login			Configure the username for authentication in the provider's APN server. **	
10004	Password			Configure the authorisation password in the provider's APN server. **	
11000	Enable DHCP client	0–1	1	The DHCP server assigns devices in particular the IP address, net mask, gateway and DNS server address via the DHCP. ** 0 = disabled 1 = enabled	
11001	IP Address			IP address defined for the Ethernet interface (VoIP module). **	

Par. No	Parameter name	Range of values	Default value	Note	Info
1102	Netmask			Set the subnet bit mask. **	

Par. No	Parameter name	Range of values	Default value	Note	Info
11103	Default gateway			Set the IP address of the router/PC via which communication outside the internal net is made. **	
11104	DNS server			Set the DNS server IP address. **	
11105	SIP registrar			Set the IP address for connection to the counterparty (PBX, operator). ** • Mandatory parameter	
11106	User	up to 64 characters		Set the user name for connection to the counterparty (PBX, operator). ** • Mandatory parameter	1.9.1 Chars count increased to 64
11107	Password	up to 32 characters		Set the password for connection to the counterparty (PBX, operator). **	
11108	Enable in-band DTMF detector	0–1	0	If you enable an in-band DTMF detector, all the other DTMF detectors will be disabled.**	
11109	SIP server port	1–65535	5060	Set the PBX (operator) port via which the SIP Proxy communicates with the terminals connected. **	

Par. No	Parameter name	Range of values	Default value	Note	Info
1110	Registration expires	0–3600	0	0 = registration validity is not sent (is assigned by the opponent). **	
1111	Authentication name			Set the name used for authentication. If the name is not set, the value User is used instead (parameter 1106).	
1112	Display name			Set the name displayed on the peers device. Use #A to generate the calling unit address, #S to generate the calling unit shaft.	
1113	Domain			If the domain is not set, the registrar is used instead.	
1114	Outgoing Proxy			Outgoing Proxy address. The registrar address is used, if not set.	
1115	Outgoing Proxy port	1–65535	5060	Outgoing Proxy port. The registrar port is used, if the outgoing Proxy is not set.	

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Par. No	Parameter name	Range of values	Default value	Note	Info
11500	Time zone	−12–12	1	Set the time zone (UTC) in which **2N® Lift8** is installed. **	From version 1.7.2 1.8.0 Change value
11511	Synchronisation period	60–86400	3600	Define how often **2N® Lift8** shall synchronise with the SNTP server. **	From version 1.7.2
11600	SNTP enabled	0–1	1	Enable SNTP synchronisation. ** 0 = disabled 1 = enabled	From version 1.7.2
11611	Primary SNTP server address		212.51.144.44	**	From version 1.7.2
11622	Secondary SNTP server address		81.95.103.173	**	From version 1.7.2
11655	Communication speed	9600–115200	115200	Baud rate RS232 module. **	From version 1.8.0

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Par. No	Parameter name	Range of values	Default value	Note	Info
1166	Controller Driver		AT SMS		
12220	Camera type	0–2	1	not implemented	
12221	Resolution	0–4	2	not implemented	
12222	Compression ratio	1–100	60	not implemented	
12300	Client enabled	0–1	0	Enable the data client (refer to 7.1 Control Panel for details). **	From version 1.6.0 1.7.2 Range change
12311	Server address		empty	Set the **2N® Lift8** Server IP address. **	From version 1.6.0

Par. No	Parameter name	Range of values	Default value	Note	Info
1 2 3 2	Server port	1–65535	7008	Specify the ports where the data client operates. **	From version 1.6.0
1 2 3 4	Password		empty	The password must match the intercom password preset in the Control Panel. **	From version 1.6.0
1 5 0 0	IP Adress	0.0.0.0–255.255.255.255	0.0.0.0	IP adress LAN module.	From version 2.4.0
1 5 0 1	Subnet mask	0.0.0.0–255.255.255.255	0.0.0.0	Subnet mask LAN module.	From version 2.4.0

* This parameter can only be configured via the voice menu (incoming call to **2N**® **Lift8** or via the machine room audio unit).

** This parameter can only be configured via the **2N**® **Service Tool**.

> ⚠ **Caution**
>
> - Parameters 1003 and 1004 are used for username and password configuration for verification at the provider's. Most providers do not use any verification. If the your provider requires verification, it must give you the necessary access data.

Configuration by Computer

Install the **2N**® **Service Tool** to configure **2N**® **Lift8** connected to a PC via the USB or the Internet using the **2N**® **Lift8** IP address (UMTS version only). You can also upgrade the firmware.

Install and launch the **2N**® **Service Tool** from the included CD for more details. Find the current **2N**® **Service Tool** version at www.2n.cz/Lift8.

How to Record Announcement

From PC

Apply the **2N®** **Service Tool** to record user announcements and numerals to **2N®** **Lift8**. Refer to Subs. 5.3, **2N®** **Service Tool** – Use, for details.

3.4 SMS Configuration

This subsection describes how to configure **2N®** **Lift8** via the Short Message Service (**SMS**). Short text messages can help you configure the Central Unit (CU) easily without using a PC. See below for their use. You need to know the phone number of the **SIM** card inserted in the **2N®** **Lift8** CU to use this function.

> ⬥ **Warning**
>
> - The SMS configuration function is supported only on condition that the CU is equipped with a **GSM** (918650E **2N®** **Lift8** GSM Module) or **UMTS** (918651E **2N®** **Lift8** UMTS Module) module.
> - This function is not available with the **PSTN** (918652E **2N®** **Lift8** PSTN Module) or **VoIP** (918653E **2N®** **Lift8** VoIP Module) modules!

> ⚠ **Caution**
>
> - Every SMS must meet the conditions listed below to be sent to **2N®** **Lift8** successfully. If not, the SMS will be ignored, no changes will be made.

Function Description

You can configure **2N® Lift8** with the aid of SMS messages. Send the SMS to the CU SIM card phone number. Make sure that the used parameters are correct to avoid SMS processing failure and an error reply.

> ⬥ **Warning**
>
> **Make sure that every configuration SMS includes the correct parameters!**
> - Device name: L8
> - Correct command format (CNF, RST, etc.)
> - CU service password
> - Correct parameter format (see the command parameters)
> - Space separated parameters

> ⓘ **Note**
>
> **Maximum length of command SMS**
> - Modern GSM devices support long SMS, i.e. several normal SMS messages recognised as a single message. A common SMS may have up to 160 characters according to the GSM standard, which permits a total of 1120 bits, i.e. 140 bytes, per SMS. As 7-bit encoding is used by default, 20 characters are saved in every 140 bytes. Therefore, 160 characters are the maximum SMS text length. GSM 03.38 is used as the character set. If non-ASCII characters (chars with diacritics) are used, 16-bit UCS-2 encoding is applied and the SMS contains 70 characters only. Information on all fragments of long SMS are written in the UDH (User Data Header) and so the maximum fragment length is 153 characters with 7-bit encoding. On principle, long SMS may consist of up to 255 fragments, but mobile devices support 6–8 fragments in practice.
> - It implies from what is said above that the maximum message length is **918–1224** characters with 7-bit encoding depending on the device used. The UCS-2 calculation is analogous.

Basic Configuration with CNF Command

You can set the **2N® Lift8** CU parameters via configuration SMS messages, including those requiring a string (word, IP address, etc.). The CNF command cannot be used for setting parameters 810, 890, 898 and 899. Use the SMS commands below to set parameters 890 (reset) and 899 (factory reset).

Every configuration SMS message must include the following parts: L8 header for unique identification of the **2N® Lift8** CU, a CNF command for identification of the function to be

performed, i.e. configuration in this case, and a valid service password, which is 12345 by default. Now you can enter the CU setting data in the parameter=value format. The SMS syntax is as follows:

```
<header> <CNF> <service password> <par1>=<val1> <par2>=<val2>
```

A complete SMS can be as follows, for example:

```
L8 CNF 12345 011=734523352 941=99 012=602874321 914=105 111=5 112=1
```

If everything is OK, you will receive the following confirmation SMS:

```
L8 CNF OK
```

Enter an empty value to delete the parameter values. The SMS for deletion of parameters 011 and 012 is as follows:

```
L8 CNF 12345 011= 012=
```

> ✅ **Tip**
>
> - Commonly, the bus or GSM/UMTS module may get restarted during configuration. In this case, the configuration confirming message is not sent until re-login.

> ⚠ **Caution**
>
> - SMS-based configuration obeys the same rules and limitations as configuration via an application or a phone (maximum length, value range, two-digit limitation, etc.). If any of these rules is not met, **2N® Lift8** shall not set the parameters and shall send an error SMS specifying the wrong parameter.

Factory RESET

Use the DEF command to reset the CU factory values remotely. Once the command is received, the CU is factory reset immediately. The message syntax is as follows:

```
<header> <DEF> <service password>
```

A complete SMS can be as follows, for example:

```
L8 DEF 12345
```

If everything is OK, you will receive the following confirmation SMS:

```
L8 DEF OK
```

RESET Command

Use the RST command to restart the CU remotely. When the command is received, the CU is restarted immediately. A confirmation SMS is sent before the CU restarts.. The message syntax is as follows:

```
<header> <RST> <service password>
```

A complete SMS can be as follows, for example:

```
L8 RST 12345
```

If everything is OK, you will receive the following confirmation SMS:

```
L8 RST OK
```

Profile Changing Command

Profile configuration is customised in **2N® Lift8**. Use the SET command to set a selected profile and send a confirmation SMS. The message syntax is as follows:

```
<header> <SET> <service password> <profil number>
```

A complete SMS can be as follows, for example:

```
L8 SET 12345 4
```

If everything is OK, you will receive the following confirmation SMS:

```
L8 SET OK
```

Error Replies

Should there be an error in the configuration SMS or command processing procedures, **2N**® **Lift8** transmits an error reply notifying that the command has not been executed!

2N® **Lift8** sends error replies until all the configuration SMS parameters are correct and the command can be executed.

The following errors can be specified:

L8 ERR Unknown Command – An unknown command has been entered. The CNF and RESET commands are only allowed.

L8 ERR Invalid Message – The received SMS has an invalid format. The L8 header is probably missing.

L8 ERR Invalid Syntax – There is a syntactic error in the SMS. Most probably, the password/ command sequence is wrong or there is a redundant text at the end.

L8 ERR Invalid Password – The Service password is absent or invalid.

L8 ERR Invalid Parameters – Some command parameters fail to match the CU parameters or the parameter value is beyond the allowed limits.

> ⓘ **Note**
>
> - The language localization of the SMS reply is based on the voice menu recorded.
> - Cs and en texts are available at present. Slovak uses cs, the other languages use en.

3.5 Used Ports

Služba	Port	Protokol	Směr	Nastavitelné	Nastavení
RTP	9 000	UDP	In/Out	NO	
DHCP	68	UDP	In/Out	NO	
DNS	53	TCP/UDP	In/Out	NO	

Služba	Port	Protokol	Směr	Nastavitelné	Nastavení
2N® Service Tool	7 007	TCP	In/Out	NO	
Data Client	7008	TCP	In/Out	YES	Port **2N® Call Center server**
SIP Registration	5060	UDP	In/Out	YES	–
SIP Outgoing Proxy	5060	UDP	In/Out	YES	

4. Function and Use

In this section there is a description of the basic and expanded functions of the product.

Here is what you can find in this section:

4.1 User Instructions

Cabin

The cabin audio unit is intended for an untrained user. Nevertheless, the instructions can be placed in the lift cabin, e.g., to help the people trapped in the lift communicate with the control centre.

Meaning of pictograms (icons)

- The yellow Wait icon is illuminated while connection with the control centre is being set up.
- The green icon lights up when connection has been set up and confirmed by the control centre.
- The green icon lights up whenever TRIPHONY is in progress.
- The blue icon does not shine, but marks the place where a signal is radiated during the call for people with defective hearing equipped with hearing aids.

Shaft, Cabin Roof

- Press the ALARM button to call the control centre using the ALARM 2 numbers (parameters 021–026). If the parameter is not filled in, it calls the ALARM numbers (parameters 011–016) like the cabin.
- Pressing the TRIPHONY button to call the other audio units in the same lift (shaft).
- Hold the TRIPHONY button (for approximately 2 s) to retrieve the voice menu to call the other shafts via TRIPHONY.

- Re-press the TRIPHONY button to terminate this connection.
- The ALARM button is illuminated in the standby mode.
- The ALARM button flashes when a calling is being set up.
- The TRIPHONY button is not illuminated in the standby mode.
- The TRIPHONY button flashes and the green LED indicator is illuminated if TRIPHONY is active between the lifts.
- The yellow LED indicator is illuminated if connection is being made with the control centre.
- The green LED indicator is illuminated if connection has been made and confirmed by the control centre.

Machine Room

Everything that refers to the shaft audio unit applies here too. Press ⊠ (for longer than 2 s) to display the **machine room voice menu**. You can use the HandsFree mode or connect a handset to achieve better acoustic properties.

Having entered the voice menu, you can select the following functions using the audio unit keypad.

Press 0 to dial the public telephone network
Enter lift number X to dial the lift
• Press 1 to dial the lift cabin
• Press 2 to dial the cabin roof
• Press 3 to dial the lift cabin bottom
• Press 4 to dial the shaft bottom
• Press 5 to dial the machine room
• Press 6 to dial the lift cabin 2
• Press 7 to dial the cabin 2 roof
• Press 8 to dial the lift cabin 2 bottom
• Press # to return to the main menu

Press 9 for administration
• Press 1 to enter the programming menu
• Press 2 to terminate the rescue process
• Press 3 for communicator info
• Press 4 for IO module administration
• Press # to return to the main menu
Press # to end the call

> ⓘ **Note**
>
> - The **9** selection serves primarily for the **L8** configuration – refer to S. 3 – Configuration.

4.2 Control Centre Instructions

ALARM Call

1. Press the ALARM button on any audio unit to make **2N**® **Lift8** call the control centre (refer to Automatic Dialling for details).
2. A received call is either confirmed as configured (parameters 111–116 > Confirmation mode for memory 1–6 ALARM call – set 1). By default, confirmation of DTMF 1 is set in **2N**® **Lift8**.
3. If the control centre is equipped with the **2N**® **Communicator** application, you can configure automatic sending of DTMF 1 after call pick-up.
4. The call is time limited (press button 4 upon warning announcement "Caution, the call is ending" to extend the call).
5. You are recommended to end the by pressing 5 or #.

Control Room-to-Lift Calling

The control centre can also call back to the communicator. The **CU** automatically receives every incoming call, identifies itself and, via a voice menu (DISA), offers you another function to get through to the required audio unit. Incoming calls are time limited as outgoing calls and are processed in the same way (extension, termination).

Incoming Call Voice Menu

Welcome, this is a 2N® Lift 8 communicator
Press 0 to dial the last-calling audio unit
Enter lift number X to dial another audio unit
• Press 1 to dial the lift cabin
• Press 2 to dial the cabin roof
• Press 3 to dial the lift cabin bottom
• Press 4 to dial the shaft bottom
• Press 5 to dial the machine room
• Press 6 to dial the lift cabin 2
• Press 7 to dial the cabin 2 roof
• Press 8 to dial the lift cabin 2 bottom
• Press # to return to the main menu
Press 9 for administration
• Press 1 to enter the programming menu
• Press 2 to terminate the rescue process
• Press 3 for communicator info
• Press 4 for IO module administration
• Press # to return to the main menu
Press # to end the call

The menu above makes it possible to call the selected audio unit.

> ⚠ **Caution**
>
> - Press # to go one level back in the voice menu.
> - You can also terminate a call using #, but only on the highest voice menu level: Press 0 for connection with the last-calling audio unit, Enter the lift number X for connection with another audio unit, Press 9 for administration, information or rescue process, and Press # to end the call.

> ⚠ **Calling to lift which was the last to call Alarm**
>
> - Having entered the voice menu, press 0 to call the lift was the last to dial the Alarm function.
> - This function operates only if you are calling **2N® Lift8** via a PSTN, GSM, UMTS or VoIP network.

> ⓘ **Note**
>
> - The **9** selection serves primarily for **2N® Lift8** configuration – refer to S. 3 – Configuration.

Tone Dialling Control during Call – Long Command List

Where automatic dialling with confirmation is used, it is possible to use tone dialling for **2N**® **Lift8** control during the call according to the table below. For simplification, commands 1 to 5 are arranged in the sequence they are usually used in.

DTMF symbol	Description of function
①	Only where automatic dialling repetition is enabled (with confirmation DTMF 1). This symbol is used to **confirm** a successful call to **2N**® **Lift8**. **2N**® **Lift8** mutes the played-back announcement and, optionally, sends the identification code (DTMF). The call goes on until the timeout end and any of the following commands may be used.
②	Announcement playing end.
③	Repeated voice module **playback** for one replaying of the announcement.
④	**Call extension.** The call is extended as defined in parameter 912 (120 seconds by default) upon this command. Can be used repeatedly.
⑤ or #	**Call termination** (does not work until the call is confirmed).

This table applies to the Automatic voice dialling with confirmation mode.

> ⬣ **Warning**
>
> - Rarely, **2N**® **Lift8** may not identify the above listed commands reliably during message playing or voice communication. This is due to the essential principle of the telephone line function where DTMF signalling is mixed with the call and thus may be masked by certain speech tones or noise. This, however, is not a defect of the product.

4.3 Function Description (for Advanced Users)

Purpose of Section

The purpose of this section is to help technicians solve problems if any. If the system fails to work properly and a well-trained technician, who monitors its operation step by step according to the description included herein, gets to a point where the description and reality are in contradiction, he or she describes the contradiction, thus facilitating troubleshooting. This procedure often reveals that the system works properly but the user had a different idea of how to use it.

Outgoing Call

The process starts whenever the ALARM button is pressed on any audio unit (in the lift cabin audio units, the CANCEL input may delay or block calling, refer to parameter 914). After the ALARM button is pressed, **2N® Lift8** establishes connection with the control office (refer to Automatic Dialling for details). **2N® Lift8** plays the following announcements "Wait pleased, connection is being made" to the person in the lift and "Press 1 for confirmation" to the control centre (if DTMF 1 confirmation is used). The received call has to be confirmed manually or automatically. The call is time-limited ("Caution, the call is ending", but can be extended.

Refer to the Control Centre Instructions subsection for details for DTMF control during the call.

> ⚠️ **Caution**
>
> - The ALARM buttons on the shaft and machine room audio units are always illuminated in the standby mode.

Outgoing Machine Room Calls

You can call any audio unit of the same **2N® Lift8** from the machine room (i.e. from the machine room audio unit, Part No. 918611E), activate functions and configure the **2N® Lift8** parameters. Press and hold for over 2 s ⊠ to activate the machine room voice menu. Press the TRIPHONY button to enter the machine room voice menu get through to the other audio units of the same lift and set up triphony with the other shafts.

Machine Room Voice Menu

Press 0 to dial the public telephone network
Press lift number X to dial the lift
• Press 1 to dial the lift cabin

- Press 2 to dial the cabin roof

- Press 3 to dial the lift cabin bottom

- Press 4 to dial the shaft bottom

- Press 5 to dial the machine room

- Press 6 to dial the lift cabin 2

- Press 7 to dial the cabin 2 roof

- Press 8 to dial the lift cabin 2 bottom

- Press # to return to the main menu

Press 9 for administration
• Press 1 to enter the programming menu
• Press 2 to terminate the rescue process
• Press 3 for communicator info
• Press 4 for IO module administration
Press # to end the call

> ⚠ **Caution**
>
> - Press # to go one level back in the voice menu.
> - Press and hold # (for longer than 2 s) or move to the top menu and press # to quit the voice menu.

Triphony

Triphony provides interconnection of audio units within one shaft. Press the TRIPHONY button in the machine room to set up triphony with another shaft.

This mode features a different setting of the automatic HandsFree mode: the microphones of active audio units are less sensitive than those operating in the ALARM mode.

Triphony termination options

- re-pressing of the TRIPHONY button
- expiry of the time limit
- incoming call/ALARM – processed preferentially

Check Call

A check call is an automatically made outgoing call (typically every 3 days). The purpose is to check the correct function of the system. This call is usually processed automatically in the control centre.

A check call can be sent to the control centre via PSTN, GSM, UMTS or VoIP. Set the values in parameters 071–076 and 981 (refer to Subs. 3.2, Table of Parameters).

> ⚠ **Caution**

- Make sure that parameter 974 is completed where the lift Id is evaluated in the checking call transmission (applies to CPC and P100).
- If the set of checking **call** memories is completely empty, use the set of **ALARM** memories.

> ⬣ **Warning**
>
> - With CPC or P100, be sure the set the checking call number to route the call to the **2N® Lift8 server**. The call may not be confirmed and evaluated properly if it falls to sets 011–016.

> ⚠ **Caution**
>
> - Use parameter 811 to manually start a checking call without affecting the current checking call timing.

Operational Call

An operational call is made automatically when an event is executed (stuck button, battery replacement, rescue end, audio error). Use the Service Tool Configuration – Events menu for configuration. Refer to Subs. 5.3 for details.

These calls can be set up via the CPC or P100 protocols only (OK confirmation can only be made via CPC 2N ext or P100 2N ext).

If the operational call number is not entered, the call is set up via memories 011–016.

> ❗ **Warning**
>
> - Be sure to set the checking call number to route the call to the **2N® Lift8 server**. The call may not be confirmed and evaluated properly if it falls to sets 011-016.

> ✅ **Tip**
>
> - For operational calls set the CPC Antenna 2N ext, CPC KONE 2N ext and P100 2N ext protocols, which allow the OK confirmations to be sent (batteries replaced, button repaired, audio repaired). You cannot set up these operational calls using protocols without 2N ext.

Incoming Call

The control centre can also call back to the communicator. The **CU** automatically receives every incoming call, identifies itself and, via a voice menu (DISA), offers you another function to get through to the required audio unit. Incoming calls are time limited as outgoing calls and are processed in the same way (extension, termination).

Press 0 in the voice menu for connection with the last-calling audio unit.

Incoming Call Voice Menu

Welcome, this is a 2N® Lift8 communicator
Press 0 to dial the last-calling audio unit
Enter the lift number X to dial another audio unit
• Press 1 to dial the lift cabin
• Press 2 to dial the cabin roof

• Press 3 to dial the lift cabin bottom
• Press 4 to dial the shaft bottom
• Press 5 to dial the machine room
• Press 6 to dial the lift cabin 2
• Press 7 to dial the cabin 2 roof
• Press 8 to dial the lift cabin 2 bottom
• Press # to return to the main menu
Press 9 for administration
• Press 1 to enter the programming menu
• Press 2 to terminate the rescue process
• Press 3 for communicator info
• Press # to return to the main menu
Press # to end the call

Call Sequencing

If another request arises during communication, the calls are ordered according to priorities: Fireman has the highest priority, followed by Alarm. These calls suspend any lower-priority call. Calls with identical priorities are queued and processed one after another. Having done that, **2N® Lift8** recovers the suspended activity if possible.

Ongoing: new event	Incoming call	Programming	Check call	ALARM	Triphony	Fireman
Incoming call	na	ns	na	na/ns	S	ns
Check call time	q	q	na	q	q	q

Entering voice menu from machine room audio unit	ns	ns	ns	ns	ns	ns*
TRIPHONY button press	ns	ns	ns	ns	ns	ns
ALARM button press	S	S	q	q	S	q
Fireman function	S	S	S	S	S	na

Explanations:

- na = not applicable
- ns = not served (ns* for machine room configured as the control centre: the Fireman call is entered whenever the phone is answered)
- q = put in queue
- S = suspends ongoing activity

Automatic Check Call Answering

A control centre with a PC workplace with the **2N®️ Lift8 Server** receives calls automatically as configured. Configure the server using the **2N®️ Lift8 Control Panel**.

> ⚠️ **Caution**
>
> - If the checking call number (071-076) is not set, the call is made to the numbers in memories 011-016. Therefore, we advise you to always set the checking call number. If the CPC or P100 protocols are used and the call is directed to **2N®️ Lift8 Communicator,** the call will not be evaluated correctly.
> - Operational calls can only be made via the CPC or P100 protocols. If memories 081-086 are empty, the call falls to the alarm numbers if the CPC or P100 confirmation mode is available. **2N®️ Lift8 Communicator** cannot evaluate such calls.

> 🔶 **Warning**
>
> - Once fallen to the alarm numbers, the call may be confirmed incorrectly and evaluated as error if the checking call number is not entered.
> - If the operational call number is not entered, the call to **2N®️ Lift8 Communicator** is evaluated as alarm. Therefore, set the right number to direct the call to the **2N®️ Lift8 server** for proper evaluation and display in the **2N®️ Lift8 Control Panel.**

Overview of Announcements

Announcement	Meaning
"Please wait for connection"	The announcement is played to the lift user when the call is being set up (before confirmation).
"This is an emergency call, to confirm connection press 1"	The announcement is played to the control centre before call confirmation.
"Connection confirmed"	The announcement is played after call confirmation.
"This is communicator with …."	The announcement is played only if the control centre presses DTMF 3 after call confirmation. The communicator sends information on its product number or Id if available (parameter 974).

Announcement	Meaning
"Attention, the call will end the soon, to extended the call press 4"	The announcement signals during an outgoing/incoming call that the maximum call duration shall expire in 10 seconds.
"End of call"	The announcement is sent before hang-up.
"This is a checking call, to confirm connection press 1"	The announcement is sent to the control centre only (if DTMF 1 confirmation is enabled).

Call End (Outgoing/Incoming)

A call is terminated (line hang-up occurs) if any of the following cases happens:

- The busy or continuous tone has been detected*) (call end on PBXs).
- The timeout for call confirmation expired (see parameter 913 setting).
- The configured maximum call time has been exceeded (parameter 912). 10 seconds before the expiry, **2N® Lift8** plays "Caution, the call is ending" for you to extend the call with ④ .
- The ⑤ or ⌗ symbol has been received.
- The time limit has expired during programming.
- A higher-priority call request has arrived.

4.4 Call Confirmation Types

The settings included in this subsection apply to alarm calls (sets 1, 2), check calls and trouble reports.

1. With DTMF Confirmation

Up to 6 telephone numbers plus the count of repetitions can be stored for control centre dialling. **2N® Lift8** then tries to call all the numbers stored. Tone dialling (DTMF) is the most reliable service for confirmation of successful calls. Having received a call manually, the control centre officer has to press the ① button on its tone-dialling phone. If the called line is busy or unanswered within a timeout, or the call is not confirmed, **2N® Lift8** dials the next number in the sequence until it exhausts all the pre-set attempts. The procedure is the same for check calls or failure reports but a separate group of six numbers can be used.

Evaluation of Situations in Dialling with Confirmation

Situation	2N® Lift8 activity
No dialtone on the line (PSTN line only)	**L8** hangs up.
Busy tone after dialling end	**L8** hangs up and dials the next number.
Call or silence (after dialling end)	**L8** waits for the defined time (parameter 913).
Ringing tone	**L8** waits for the defined time (parameter 913).
Continuous tone (on PBX line, e.g.)	**L8** hangs up and dials the next number.
DTMF char ⑤ or #	**L8** hangs up immediately and dials the next number.
DTMF char ①	**L8** confirms receipt ("Connection confirmed") and mutes the currently played announcement. The call goes on for the maximum call time as configured.
① ② ③ ④ ⑤	These digits are interpreted as control characters (refer to Subs. 4.2 , Tone Dialling Control during Call).

> ⓘ **Note**
>
> - The PSTN connection quality is not so high as to identify the above mentioned situations reliably in all cases. Moreover, excessive noise in the lift cabin may decelerate automatic dialling (due to inability to recognise the busy tone, e.g.). In general, DTMF is the most reliable type of signalling and so is used for confirmation. Thus, the connection is established (yet for a shorter time than usual) even in extreme cases, e.g. when **2N® Lift8** cannot identify the DTMF.

2. Automatic Redialling of Multiple Numbers without Confirmation (GSM/UMTS/VoIP Only)

This mode is useful where no trained personnel for automatic dialling with confirmation are available. The called party does not have to press any button. The two modes share a set of numbers and count of cycles, respond identically to the busy tone, etc.

The only difference is that the confirmation-less mode detects the ringing tone and recognises that the called party is off-hook (i.e. answers the call) when the ringing tone terminates before the timeout end.

The message speaker **cannot** be controlled using buttons ⬚ to ⑤ .

Evaluation of Situations in Voice Dialling without Confirmation

Situation	2N® Lift8 activity
Busy tone	**L8** hangs up in approx. 2 seconds and dials the next number.
Call/silence	**L8** waits for the defined time (answering timeout), then hangs-up and dials the next number.
Ringing tone	**L8** waits for the defined time (answering timeout), then hangs-up and dials the next number.

> ⬥ **Warning**
>
> - Make sure in this mode that no VoiceMail box, FAX or any other equipment are assigned to the numbers to be dialled that might answer the call before the pre-programmed timeout end and thus terminate automatic dialling.

3 and 4. CPC (Antenna and KONE)

Used wherever the counterparty is equipped with the required SW. When the line is answered, a DTMF string is sent and the lift is identified. The call is either switched to voice communication (alarm call) or confirmed automatically and terminated (check call), as the case may be.

5. P100

Used wherever the counterparty is equipped with the required SW. When the line is answered, a DTMF character is sent and the lift is identified. The call is either switched to voice communication (alarm call) or confirmed automatically and terminated (check call), as the case may be.

6. DTMF Protocol AutoDetection (CPC/P100)

Having received a DTMF string, the lift recognises the protocol used and responds accordingly.

> ⬤ **Warning**
>
> - **2N® Lift8** may have troubles detecting DTMF characters and recognising the protocol in places with a poor signal quality.
> - If such troubles occur, we recommend you to change the CPC Antenna/P100 (3/5) settings.

7, 8, 9. CPC (Antenna a KONE), P100 2N ext

These protocols work as CPC in items 3 and 4 and P100 in item 5 above for emergency calls. The only difference is that the shaft number and audio unit type are transmitted too.

With 2N ext, error states OK can be transmitted too in operational calls (battery replaced, audio repaired, button repaired).

4.5 Lift Blocking Function

Blocking Procedure

The contact closes/opens whenever an alarm call cannot be set up. Connect the contact to the appropriate controller input of the lift/group of lifts. The control electronics shall ensure that, upon contact opening, the lifts that are in operation arrive in the nearest station and open the door.

Every **CU** and every splitter are equipped with the lift blocking contact. Refer to Subs. 2.1, PSTN/ GSM/UMTS/VoIP Central Unit – Lift Blocking Contact Connector.

The lift blocking function will be enabled if:

- no number is defined in the ALARM memory – the lift gets blocked immediately.
- a number to a non-existent machine room (intercom) is defined – the lift gets blocked in 2 minutes.
- a PSTN number is defined but no module is inserted – the lift gets blocked immediately.
- the external line (PSTN, VoIP) is not functional – the lift gets blocked in 5 minutes.
- the dialtone is not detected – the lift gets blocked in ca. 10 minutes (after the PSTN line test which does not detect the dialtone).
- no SIM (GSM/UMTS) is inserted – the lift gets blocked in 5 minutes.
- there is no signal (GSM/UMTS) – the lift gets blocked in 5 minutes (a very low signal does not cause blocking).
- the capacity of the device feeding battery so low that the internal buses (audio units) get disconnected – the lift gets blocked when the internal bus gets disconnected.
- **2N® Lift8** is off – the lift gets blocked immediately.

> ⚠ **Caution**
>
> - The PSTN line test is carried out every hour. If an error is detected, the line test is repeated every 2 minutes until the line is evaluated OK again.
>
> - If parameter 902 is set to 0, the line test is not performed and the line is not blocked when the dial tone is not detected.

The lift blocking function will be disabled if:

- the line works for 1 minute at least (PSTN, VoIP).
- a power supply is connected to recharge the battery.

> ⚠ **Caution**
>
> - This function may be mandatory if the applicable regulations valid for the country and time of installation require so.

4.6 Intercom Function

ALARM – Intercom Calls

1. Press the ⌂ ALARM button on any audio unit (except for the machine room audio unit set as the control centre) to start the process. Upon the press, **2N® Lift8** calls the pre-set machine room – control centre audio unit.

2. Press ⌂ or ⊠ (for longer than 2 s) to answer an incoming call.

3. When the call is answered by the operator, the **2N® Lift8** system announcement will be played.Then, voice connection with the calling audio unit is activated.

4. Press 1 on the machine room audio unit keypad to confirm the received call manually. If Confirmation by pick-up (011–016=2) is configured, it is unnecessary to confirm the call with DTMF1 (refer to Tone Dialling Control during Call - Long Command List for details).

5. The call is time-limited (by the "Caution, the call is ending" message), but can be prolonged using button 4.

6. Press ⌂, 5 or # to terminate the call.

> ⚠ **Caution**
>
> - You cannot set up an alarm call to another control centre from the machine room audio unit that is configured as the control centre. The call is made to the audio unit that is the last to activate the alarm call. If no alarm call was activated on any audio unit, the machine room audio unit will not call any unit.
> - Press [🔔] on the control centre audio unit to set up a call to the audio unit that is the last to activate the ALARM function. Such a call is processed as TRIPHONY and can be terminated by pressing the TRIPHONY [👤👤👤] button on any of the two audio units or pressing and holding the [#] button for longer than 2 s on the machine audio unit.
> - If a call is set up to a non-existent machine room audio unit, the Alarm function will not be activated (valid for settings #9, #0). If more numbers than one are pre-programmed, the non-existent audio unit is skipped.

Number Setting for Machine Room – Control Centre Calls

Enter **#** before the shaft number to set the machine room number.
For example, 011 – #8 means that a call to the machine room audio unit in the shaft of lift 8 is set in ALARM button memory 1.

Setting options:

1. Service Tool – enter # and the shaft number into parameters 011–016.

Code ▼	Name	▼	Value
⌃ Alarm call			
011	Set 1 - ALARM button memory 1		#8

2. Enter the programming mode via the voice menu (incoming call or machine room audio unit) and set the shaft number to the ALARM memory (011–016). Then choose parameter 017 (refer to the Table of Parameters) and add the required character (#) to one of the ALARM memories.

> ⚠ **Caution**
>
> - Configure the alarm-intercom connection for calls to the machine room audio unit of any shaft (1–8).
> - Identically, configure the machine room – control centre connection for ALARM set 2.
> - **Make sure that the control centre audio unit is of the machine room type.**
> - You can use confirmation mode 1 or 2 for calling to a machine room audio unit. With the other options (3–9), the call is processed as if 1 was selected.

> ⓘ **Note**
>
> - It is possible to combine calling to the machine room (control centre) audio unit with calling via the PSTN, GSM, UMTS and VoIP networks (depending on the module used).
> - To set up a check call to a machine room audio unit, you can set the number as described in the Alarm – Intercom subsection above.

4.7 System Completeness Check and Audio Unit Test

Function

The system only checks the cabin and Fireman audio units added during RESET configuration. Use the RESET button again to make the system monitor all the audio units added later to the system.

Such audio units are displayed in the Supervision - Added units menu in the **2N® Service Tool**.
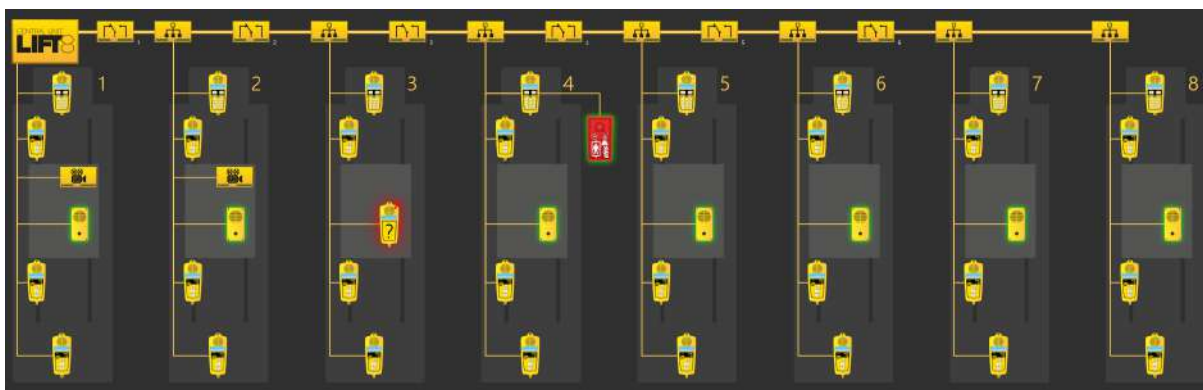
Display of Audio Units to Be Checked in **2N® Service Tool**.

- The connected cabin and Fireman audio units that are checked and OK are flashing green.
- Defective/missing audio units are flashing red (see the cabin in shaft 3).

If an audio unit is missing in the system, no check call is made and the INTERNAL BUS LED red light flashes.

> ⓘ **Note**
>
> - If no audio units, splitters, etc. are connected in the **2N® Lift8** system, the INTERNAL BUS LED red light is flashing even if no system completeness check is being performed.

System Completeness Check Enable

Use the RESET button to set the function.

Press and hold the button until all the LEDs light up red. Release the button and wait until the INTERNAL BUS LED lights up yellow. Now push the button shortly to make the system check all the audio units (cabin, Fireman) for proper connection and function.

> ⓘ **Note**
>
> - You can set the audio units to be checked via the Service Tool or Control Panel in versions 2.5.0 and higher.

Audio Unit Audio Test

Use parameter 993 to enable the audio test for audio units. The selected audio units (cabin, Fireman) are tested after a check call . If all the audio units are OK, the next check call will be made. If an audio error is detected in one or more audio units, the next check call will not be made.

The INTERNAL BUS LED flashes red to indicate an audio test failure.

> ⚠ **Caution**
>
> - The audio unit audio test is active only if the system completeness check is enabled and checking calls are active.

> ⓘ **Note**
>
> - An audio test is considered unsuccessful if it fails three times.
> - The test is carried out three times in 1-hour intervals.
> - Repeated tests are only made for the audio units that failed the previous audio tests.
> - All the checked audio units are re-checked after a checking call.

Audio Error Event

In versions 2.3 and higher an event can inform of an unsuccessful audio test. Use the **2N® Service Tool** Events menu for audio error configuration. When an audio test error is detected, any of the following events is executed.

The following options are available:

- IO module output activation
- IO module output deactivation

- Send SMS – set the phone number and text (for GSM/UMTS module only)
- Send system SMS – set the phone number (for GSM/UMTS module only)
- Operational call – this call is set up to the number defined in parameters 081–088 (Operational call) and uses CPC Antenna, CPC KONE or P100 for transmissions

> ⚠ **Caution**
>
> - The event is not executed until the audio test fails three times.
> - SMS can be sent only if the GSM/UMTS module is installed.

From version 2.4.0 up, an event can be executed if the audio test is OK. The events related to an audio error (IO module output activation/deactivation, send SMS or operational call) can be executed. Set the parameters via the Service Tool again (Configuration – Events – Stuck button).

Operational calls are possible with this event only if CPC Antenna/KONE and P100 2N Ext are set in parameters 181-186. Make sure that the settings match the Control Panel values. Be sure to set 2N Ext in the Control Panel for CPC Antenna 2N Ext. CPC KONE or P100 will do for the other protocols (CPC KONE 2N Ext, P100 2N Ext).

System Completeness Check Disable

Disconnect all the audio units (mainly cabin and Fireman) by disconnecting the main bus and audio unit bus on the CU. It takes CU some time (several tens of seconds) to find out that all the units have been disconnected. Therefore, use the **2N® Service Tool** to check whether all the units have logged out. Then press and hold RESET until all the LEDs light up red. Release the button and wait until the INTERNAL BUS LED lights up yellow. Now push the button shortly to make the system check no audio units.

Parameter 990

In versions 2.5.0 and higher, you can set the operational call (audio error, audio repaired) via parameter 990. Refer to Subs. 3.2 (Table of Parameters) for details.

> ⚠ **Caution**
>
> - If you set the operational call via parameter 990 and Events menu (script), the call will be set up twice.

4.8 ALARM Button Test

This function informs that the ALARM button got stuck in the lift cabin.

Set the timeout in seconds after which the button shall be considered jammed in parameter 969 (ALARM button test). Then, the event defined via the **2N**® **Service Tool** Events menu (Jammed button) will be executed.

The following options are available:

- IO module output activation
- IO module output deactivation
- Send SMS – set the phone number and text (for GSM/UMTS module only)
- Send system SMS – set the phone number (for GSM/UMTS module only)
- Operational call – this call is set up to the number defined in parameters 081–088 (Operational call) and uses CPC Antenna, CPC KONE or P100 for transmissions

> ⚠ **Caution**
>
> - Multiple events can be set up (output activation + operational call, e.g.).
> - SMS can be sent only if the GSM/UMTS module is installed.
> - If you set the operational call option and CPC/P100 2N ext confirmation, the audio unit type (cabin 1 or 2) and shaft number is displayed for the stuck button (if the call is received via the **2N**® **Lift8** server).
> - Set the IO module activation/deactivation timeout to 1 s at least. If you set 0, the function will not work.

From version 2.4.0 up, an event can be executed if the button has been repaired. The events related to a stuck button (IO module output activation/deactivation, send SMS or operational call) can be executed. Set the parameters via the Service Tool again (Configuration – Events – Stuck button).

Operational calls are possible with this event only if CPC Antenna/KONE and P100 2N Ext are set in parameters 181–186. Make sure that the settings match the Control Panel values. Be sure to set 2N Ext in the Control Panel for CPC Antenna 2N Ext. CPC KONE or P100 will do for the other protocols (CPC KONE 2N Ext, P100 2N Ext).

> ⚠ **Caution**
>
> - We recommend you to set a rather long interval in parameter 969 to avoid unintentional event generation.
> - Recommended value: 300 s.

Parameter 990

In versions 2.5.0 and higher, you can set the operational call (stuck button, button repaired) via parameter 990. Refer to Subs. 3.2 (Table of Parameters) for details.

> ⚠ **Caution**
>
> - If you set the operational call via parameter 990 and Events menu (script), the call will be set up twice.

4.9 Rescue Activation and End

Rescue Process Activation

Set parameter 992 (Rescue password) to activate the rescue process. If an alarm call is set up, the yellow LED will keep shining on the audio unit after the call end to indicate an active rescue process.

Rescue Process End

There two ways how to end a rescue process.

- Call **2N® Lift8** (**9** for administration – **2** for rescue end – select the shaft – enter the password- press *).
- Set the IO module input (via **2N® Service Tool** – IO modules – create the "rescue end" action and assign it to one of the IO modules).

When the rescue process has been ended, the active audio unit will report: "Rescue process ended".

Event after Rescue Process End

When the rescue process has been completed, any of the following events can be executed:

- IO module output activation
- IO module output deactivation
- Send SMS – set the phone number and text (for the GSM/UMTS module only)
- Send system SMS – set the phone number (for the GSM/UMTS module only)

- Operational call – this call is set up to the number defined in parameters 081–088 (Operational call) and uses CPC Antenna, CPC KONE or P100 for transmissions

Use the **2N® Service Tool** Events menu (Rescue end) for configuration.

> ⚠ **Caution**
>
> - Multiple events can be set up (output activation + operational call, e.g.).
> - SMS can be sent only if the GSM/UMTS module is installed.
> - If you set the operational call option and CPC/P100 2N ext confirmation, the audio unit type (cabin 1 or 2) and shaft number is displayed for the rescue process (if the call is received via the **2N® Lift8** server).

Parameter 990

In versions 2.5.0 and higher, you can set the operational call (rescue end) via parameter 990. Refer to Subs. 3.2 (Table of Parameters) for details.

> ⚠ **Caution**
>
> - If you set the operational call via parameter 990 and Events menu (script), the call will be set up twice.

4.10 Battery Replacement

2N® Lift8 monitors the rechargeable battery state. If the battery capacity is low or the batteries are older than 2 years, the red Power/battery LED will start flashing on the CU.

An event can be executed to inform the user of the battery replacement need.

The following options are available:

- IO module output activation
- IO module output deactivation
- Send SMS – set the phone number and text (for the GSM/UMTS module only)
- Send system SMS – set the phone number (for the GSM/UMTS module only)
- Operational call – this call is set up to the number defined in parameters 081–088 (Operational call) and uses CPC Antenna, CPC KONE or P100 for transmissions

> ⚠ **Caution**
>
> - SMS can be sent only if the GSM/UMTS module is installed.

From version 2.4.0 up, the Battery replaced event can be executed. The events related to battery replacement (IO module output activation/deactivation, send SMS or operational call) can be executed. Set the parameters via the Service Tool again (Configuration – Events – Battery replaced).

Operational calls are possible with this event only if CPC Antenna/KONE and P100 2N Ext are set in parameters 181–186. Make sure that the settings match the Control Panel values. Be sure to set 2N Ext in the Control Panel for CPC Antenna 2N Ext. CPC KONE or P100 will do for the other protocols (CPC KONE 2N Ext, P100 2N Ext).

Parameter 990

In versions 2.5.0 and higher, you can set the operational call (replace battery, battery replaced) via parameter 990. Refer to Subs. 3.2 (Table of Parameters) for details.

> ⚠️ **Caution**
>
> - If you set the operational call via parameter 990 and Events menu (script), the call will be set up twice.

2N® Lift8 User Guide

4.11 CPC and P100

CPC

The are two CPC protocols: KONE and Antenna. These protocols can include 2N Ext, which completes the DATA (error) information with the shaft number and audio unit type.

The data message consists of:

Command – Call type – DATA – ID (974) – Axx (for 2N Ext only)

CPC KONE 2N Ext					
Call type	**Command**	**Call type**	**Data**	**ID (974)**	**2N Ext**
Alarm	04	10	000000000000	parameter 974	Axx
Alarm 2	04	10	000000000000	parameter 974	Axx
Checking call	04	21	000000000000	parameter 974	
Rescue process ended	04	84	000000000000	parameter 974	Ax
Button stuck	04	90	000000000000	parameter 974	Axx
Button repaired	04	90	000000000001	parameter 974	Axx
Replace battery	04	31	151007000000	parameter 974	
Battery replaced	04	31	151007000001	parameter 974	
Audio error	04	91	000000000000	parameter 974	Axx
Audio repaired	04	91	000000000001	parameter 974	Axx

Note Axx:

A – shaft and audio unit extension

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Xx – shaft number

x**X** – audio unit type (0 – cabin, 1 – machine room, 2 – shaft, 3 – cabin roof, 4 – cabin bottom, 5 – cabin 2, 6 – cabin 2 roof, 7 – cabin 2 bottom, 8 – fireman)

> ⓘ **Example**
>
> **This is only a part of the data message, excluding the beginning, checksum and end.**
> - 04900000000000000187654321A50 – Button repaired, identification number (parameter 974) 87654321, shaft 5, cabin audio unit

> ⚠ **Warning**
>
> - The Button repaired, Battery replaced and Audio repaired information is only transmitted via the 2N Ext protocol.
> - If the 2N Ext mode is not set, the operational call will not be established.

CPC Antenna 2N Ext					
Call type	Command	Call type	Data	ID (974)	2N Ext
Alarm	04	27	00000	parameter 974	Axx
Alarm 2	04	27	00000	parameter 974	Axx
Checking call	04	26	00000	parameter 974	
Rescue process ended	04	84	00000	parameter 974	Ax
Button stuck	04	90	00000	parameter 974	Axx
Button repaired	04	90	00001	parameter 974	Axx
Replace battery	04	17	00000	parameter 974	
Battery replaced	04	17	00001	parameter 974	
Audio error	04	91	00000	parameter 974	Axx
Audio repaired	04	91	00001	parameter 974	Axx

Note Axx:

A – shaft and audio unit extension

Xx – shaft number

x**X** – audio unit type (0 – cabin, 1 – machine room, 2 – shaft, 3 – cabin roof, 4 – cabin bottom, 5 – cabin 2, 6 – cabin 2 roof, 7 – cabin 2 bottom, 8 – fireman)

> ⓘ **Example**
>
> **This is only a part of the data message, excluding the beginning, checksum and end.**
> - 04910000087654321A45 – Audio error, identification number (parameter 974) 87654321, shaft 4, cabin 2 audio unit

> ⚠ **Caution**
>
> - The Button repaired, Battery replaced and Audio repaired information is only transmitted via the 2N Ext protocol.
> - If the 2N Ext mode is not set, the operational call will not be established.

P100

This protocol can also include 2N Ext, which completes the DATA (error) information with the shaft number and audio unit type.

The data message consists of:

Call type – ID (974) – DATA – Axx (for 2N Ext only)

P100				
Call type	**Call type**	**ID (974)**	**DATA**	**2N Ext**
Alarm	1	parameter 974		Axx
Alarm 2	1	parameter 974		Axx
Checking call	3	parameter 974		
Rescue process ended	2	parameter 974	500	Ax
Button stuck	2	parameter 974	800	Axx
Button repaired	2	parameter 974	801	Axx

P100				
Call type	**Call type**	**ID (974)**	**DATA**	**2N Ext**
Replace battery	2	parameter 974	100	
Battery replaced	2	parameter 974	101	
Audio error	2	parameter 974	200	Axx
Audio repaired	2	parameter 974	201	Axx

Note Axx:

A – shaft and audio unit extension

Xx – shaft number

x**X** – audio unit type (0 – cabin, 1 – machine room, 2 – shaft, 3 – cabin roof, 4 – cabin bottom, 5 – cabin 2, 6 – cabin 2 roof, 7 – cabin 2 bottom, 8 – fireman)

> ⓘ **Example**
>
> **This is only a part of the data message, excluding the beginning, checksum and end.**
> - 287654321500A3 – Rescue process ended, identification number (parameter 974) 87654321, shaft 3

> ⚠ **Caution**
>
> - The Button repaired, Battery replaced and Audio repaired information is only transmitted via the 2N Ext protocol.
> - If the 2N Ext mode is not set, the operational call will not be established.

5. Service Tool

Here is what you can find in this section:

Refer to the **2N® Lift8** product pages at www.2n.com, download section, for the latest FW version.

5.1 Installation and Login

After the installation is launched, the installation program will scan your PC for another **2N® Lift8 Service Tool** version and ask you to uninstall the currently available version if identical with the new one. Use the system control panel Add or Remove programs to uninstall the existing product version for reinstallation or reconfiguration. If the versions are not identical, the original version will be uninstalled and a new application version will be installed. Then you will also be asked whether the configuration files should be removed and the whole application with a new, empty database should be installed.
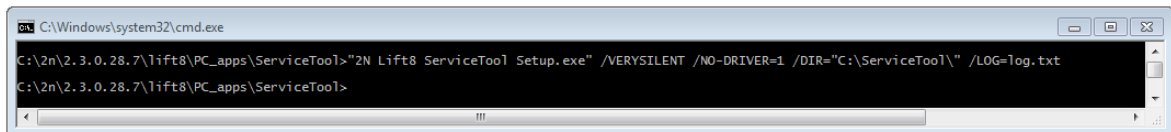
Now the **2N® Lift8 Service Tool Setup Wizard** has been launched. Follow the wizard instructions. Then select the installation location for the **2N® Lift8 Service Tool**. **C:\Program Files (x86)\2N TELEKOMUNIKACE\2N Lift8** is used by default. Now the application will ask you to enable transmission of system data and software use surveys to help the 2N TELEKOMUNIKACE a.s. company improve the software quality, availability and performance. No confidential data shall be sent. You can participate in this effort voluntarily and cancel sending statistic data any time. Confirm or decline this cooperation and click Next to continue.

Now the wizard is ready to install the **2N® Lift8 Service Tool**. Confirm user account administration notification to the Windows system if necessary. Another Start item and the application shortcut icon will be added automatically. Once installed, the application will start automatically.

Alternatively, use the command line for installation: select the installer file and define the manner and location parameters. See below for command explanation.

Command	Description
/VERYSILENT	Installation runs on the background, no installer is open to the user.
/DIR="C:\..."	Set the installation location.
/NO-DRIVER=1	No driver is installed for **2N® Lift8**.

Command	Description
/LOG=file_name.txt	Create an installation course log to be displayed in the installer directory.

Application Installation Command

> ⚠️ **Caution**
>
> - Make sure that the command line is started by admin. If it is started by a user, the editor authenticating window will pop up.

> ⬢ **Warning**
>
> - There is an installer change in version 2.2.0. The installer is unable to remove the original application versions (up to 2.1.x) correctly and an installation error may occur. To avoid this, remove the original applications manually if you use versions lower than 2.2.0.
> - Use the Start/Control panels/Programs/Uninstall program Windows menu to remove the application (this path applies to Windows 7 but can probably be used for other systems too). Select the application to be removed and click the right button to uninstall the program from your PC. Finally, you will be asked whether you really want to delete the existing configuration files. If you click NO, your configuration will be preserved.

> ⓘ **Note**
>
> - The **2N® Lift8 Service Tool** installation requires **500 MB** of free disk space at least.

Now the **2N® Lift8 Service Tool** is ready for use. Click the shortcut item on the desktop (see the figure below) or select the Start item to start the application.

2N® **Lift8** Service Tool Icon

After the application launch, the splashscreen gets displayed to inform you of the application manufacturer and current version. After the launch, you will be in the basic screen and Configuration / Parameters menu. Here an offline table of parameters can be prepared for you to export the data or view the diagnostic packages. Click Connect device to connect the **CU** in the Connect to device menu. Select the login mode: TCP or USB. TCP is selected by default. If you choose the Advanced settings, the list of all available connections to the **2N**® **Lift8 Central Unit** will be displayed to the left in a clearly arranged tree structure. If you have installed the application for the first time, the default connection will be created automatically. This connection cannot be removed. Click New server and New group to create a tree structure of your own. The settings are saved by a successful **CU** connection. Select a connection and click Delete selected to remove a connection. Be sure to complete the connection parameters correctly to make the **CU** connection successful. Enter the connection name and the **2N**® **Lift8 Central Unit** or **2N**® **Lift8 Server** IP address in the public network. Use the DNS terms if available. Fill in the **CU** listening port (7007) or the **Server** port (7008). Ask your network administrator for the proper setting. Now enter your **CU** or **Server** Username and Password; see the figure below for an example. Select the connection from the **CU** list and press Connect or double click the selected **CU** with the left mouse button. The application will log you in to the **2N**® **Lift8 Central Unit**. Take analogous steps to connect to the **2N**® **Lift8 Server**. However, you cannot use double click in this case. Just select a connection and click Connect to server.
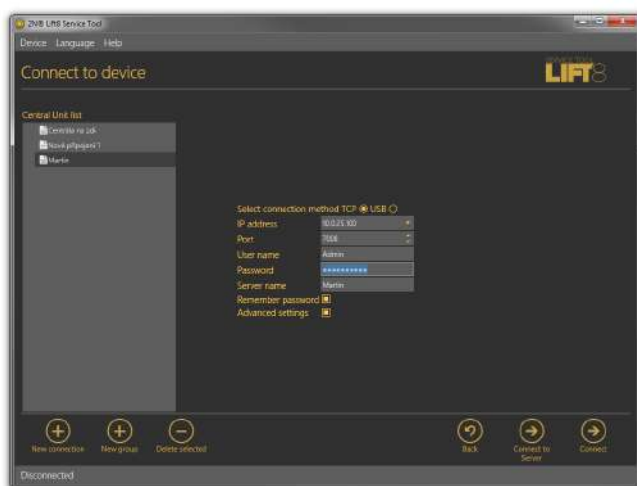
Application Window

Once connected to the Server, you can log in and go to the list of **2N® Lift8 Central Units** connected to the Server. The **2N® Lift8 Central Unit** list as configured on the given Server will be displayed including the following activity symbols: the red chain under the lift signals the **Disconnected** state between the Server and the Central Unit. The blue chain under the lift signals **Connection established** between the Server and the Central Unit and indicates that it is possible to get connected to the Central Unit. The green chain under the lift signals **File transmission** between the Server and the Central Unit. Click the Connect button or double click the selected unit to get connected to the CU.
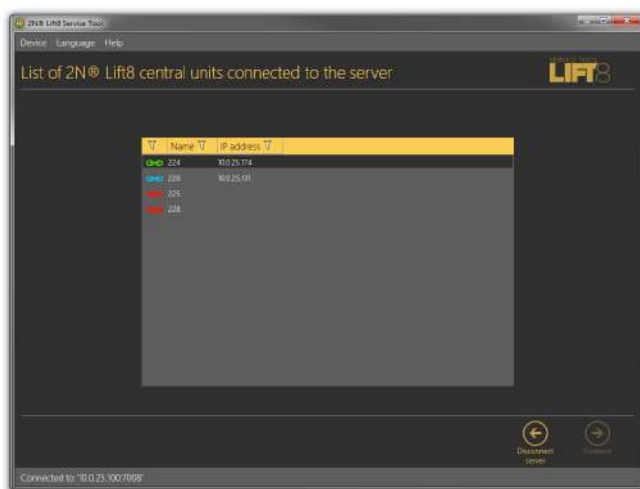
List of Central Units Connected to Server

If you use a USB cable for **CU** connection, select the USB connection type. The screen will change and the login name and password will only be visible. Enter the correct values. Refer to the text below for the default values. Now connect the **CU** and click Connect. The **2N® Lift8 Service Tool** automatically finds the connected **CU** on the PC and starts downloading parameters and logs. Having completing the download, the **2N® Lift8 Service Tool** is ready for work.

> ⬥ **Warning**
>
> - Make sure that the USB port driver for the **2N® Lift8 Central Unit** has been installed properly on the PC to avoid identification and login failures.

- If a problem with non-compatible version of .NET occurs during installation, you should download the new .NETFX4.0 version from www.2n.com. You can use this link from the online manual.
- Minimum operating system requirements: **Windows Vista**, **7**, **8**.

> ✅ **Tip**
>
> - Some **Windows Vista** versions may have problems while detecting a connected device. If a system message keeps announcing you that the device has not been recognised and driver installation has failed, follow the instructions below to solve the situation manually:
>
> a. Open the device manager and find the undetected hardware (marked with a yellow triangle).
> b. Display a menu for this device with the right mouse click and select Update driver.
> c. Click the option to find the driver in the PC.
> d. Click the option to select a driver from a list and select a **2N®Lift8** model instead of Complex USB device. Now the driver starts working and, whenever you connect the Central Unit to the same PC USB port, the device will be detected correctly.
>   i. If there is no **2N® Lift8** selection, go one step back.
>   ii. Here enter the path to the driver file on the local disk and get the driver installed.
>   iii. The typical path is C:\Program Files (x86)\2N ... \ServiceTool\inf

> **ⓘ Note**
>
> - **Recommended hardware requirements**
>
> | OS | Microsoft Windows 10, Microsoft Windows 8 / 8.1 CZ, Microsoft Windows 7 SP1 CZ, Microsoft Windows Vista SP2 CZ |
> |---|---|
> | CPU | Equivalent Intel Quad Core i7 3.4 GHz |
> | RAM | 8 GB |
> | HDD | 500 GB |
> | LAN | 100 Mbps Ethernet (**LAN**) |
> | Other | - **Dedicated Sound card** (User sound record)
 - Dedicated Graphics card |

> **⚠ Caution**
>
> - Default values for **CU** connection:
> - **TCP**
>   - Password: **2n**
>   - Port: **7007**
> - **USB**
>   - Password: **2n**

5.2 Introduction to Application

In this subsection, we will show you the application menu layout and basic controls. The application is divided into three menu levels. The first screen upon start includes Configuration / Parameter/ Basic (see the figure below), which displays all of the three menu levels. The horizontal Main menu (Configuration and Logs) helps you select whether to configure the **2N® Lift8** system or supervise the history of logged events. The vertical menus (Parameters, Cameras, IO Modules) help you select the area to be administered. The third menu level, if meaningful, gets displayed horizontally in the right-hand upper corner and includes a list of parameter setting forms.
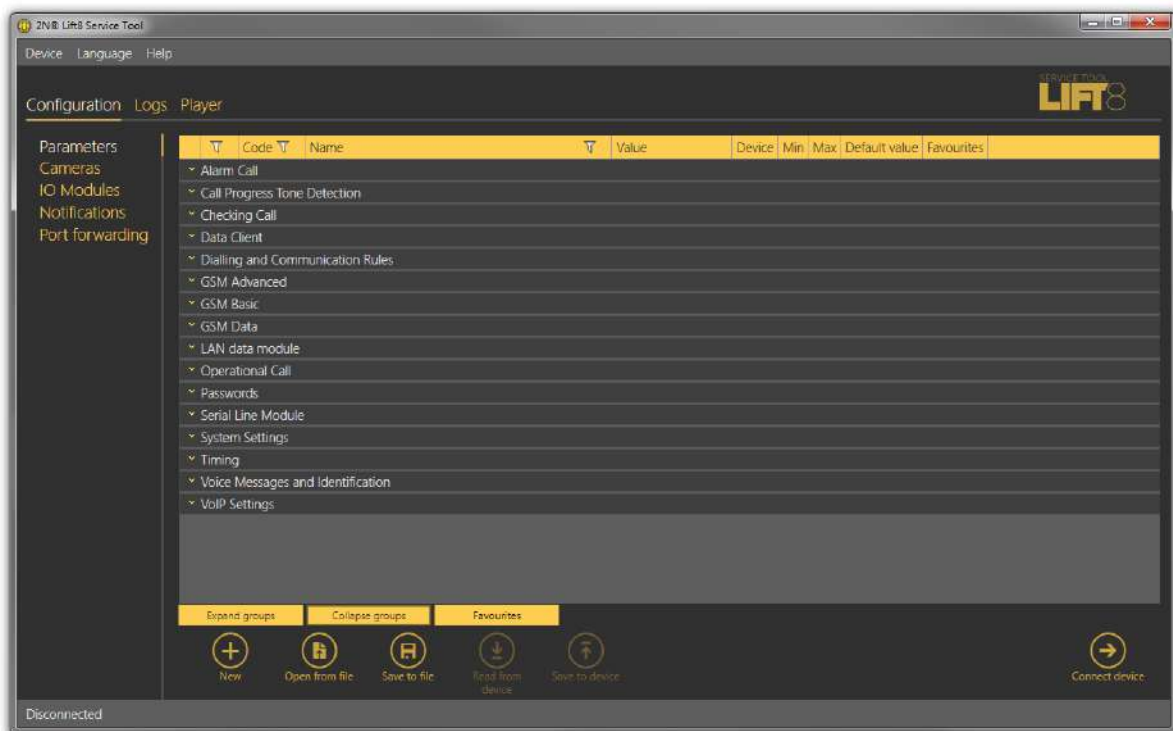
2N® Lift8 Service Tool Window

The application main menu consists of three pop-up menus. The Device menu helps you disconnect from/connect to the CU and quit the program. The Setting submenu includes a Statistics window: confirm the request to enable transmission of your system data and software use surveys to help the 2N TELEKOMUNIKACE a.s. company improve the software quality, availability and performance within the applicable law. You can participate in this cooperation voluntarily and cancel your prior approval any time. The Diagnostic package submenu helps you download a package including information relevant for troubleshooting: device state, bus operations and control centre communication. Log in to the CU to get access to this package. Change the language mutation in the Language menu: CZ and EN are available for the time being. Click on Help to find a link to the latest manual and information on the application manufacturer. You will always be warned before logging out or quitting the application in order not to lose unsaved data.

You will be warned against data loss before loading a new configuration and overwriting the current set of parameters. Confirm your intention to avoid unintentional loss of unsaved parameters.

> ⓘ **Note**
>
> - The language change will not be executed until the application restart.

The Status line displays connection information. From the left: 'Connected to' includes the name of the server to which you are currently connected, 'COM port' specifies your PC COM port if you use a USB cable for connection, 'Current user' displays the currently logged in user, 'FW version' specifies the current CU FW version and 'Serial number' gives the CU serial number.

Upon login to the CU, the **Real-time device state** keeps displayed to the right in the whole application. Hide and redisplay the window any time with the arrow in its left upper corner (see below). The information is grouped logically: **Link properties** defines the Link state (idle or calling) and Link type (PSTN, GSM or IP communication level in the CU), **GSM network** provides information on the GSM / UMTS network to which the SIM card is logged in such as Signal strength in the form of a clear scale and numerical value in dBm, Operator (Provider) name and IP address assigned by the provider's APN server to the SIM card if UMTS / GSM data transmission is allowed and configured. If data flow is disallowed, incorrectly configured or not supported by the SIM, the address will be 0.0.0.0.
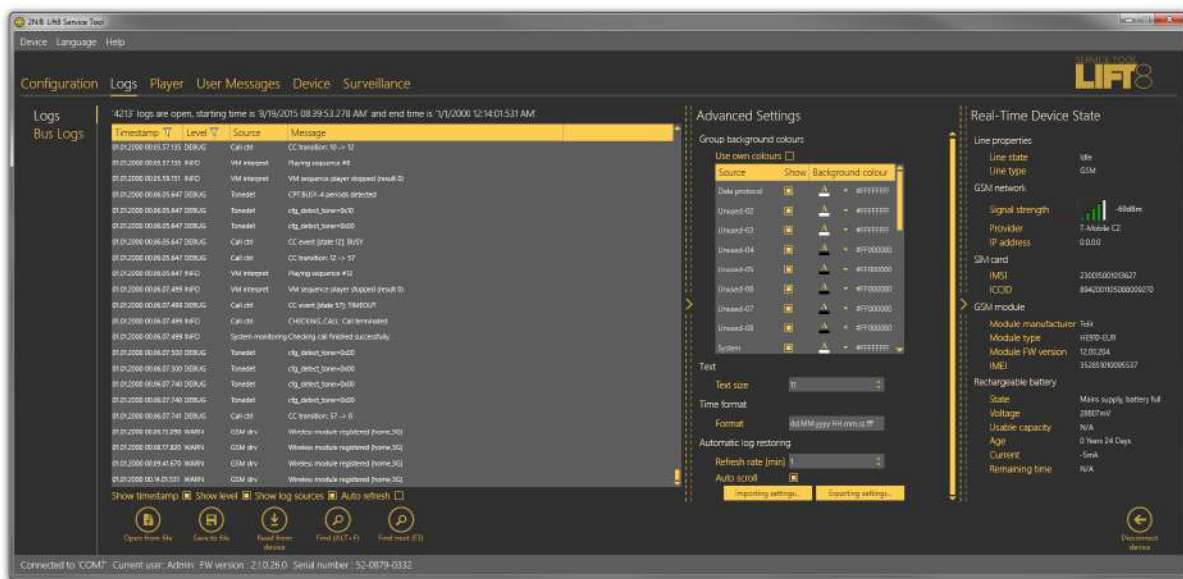
Maximum Application Display with Real-Time Device State

The SIM card section specifies the SIM card state and IMSI and ICCID identifiers. The GSM Module section displays the GSM/UMTS module information: Module manufacturer, Module type, Module FW version and IMEI. **Battery** is devoted to the rechargeable batteries. State simply describes the current state of the batteries: "Mains power, no battery" means that the CU is supplied from the mains, for example. Voltage measures and displays the current battery

voltage value in mV. If the value is very low (hundreds of mV), the batteries are disconnected. Usable capacity specifies the battery charging percentage. Age defines the maximum battery life and the age counter has to be reset whenever new batteries are inserted. When the battery life is exhausted, the CU reports an error and the batteries have to be changed. This helps you find out how long your batteries have been used in the device. Current measures the current flow through the batteries: either the charging current when the batteries are being charged or discharging current when the CU is disconnected from the mains and fed from the batteries.

If your CU is equipped with a VoIP module, the Real-time device state section displays the relevant parameters; see the figure below. The section informs you of the line state and type, IP module parameters, IP address or address obtained from the DHC server, network mask, default gateway and DNS server. Finally, like with the GSM / UMTS module, you can see the current battery and charger states. If you use a PSTN module, the line state and battery charging state will only be displayed.

Real-Time Device State for VoIP Module

> ⚠ **Caution**
>
> - The Real-time device state only displays the Link properties and Battery. The other parts are displayed automatically depending on the HW connected.

The lower part of the application includes the Logout button (to the right) and other important controls, which may be different in different menus. The table below describes all the buttons available in the application.

Basic Controls

(+) New	**New** helps you create a new table of parameters. The existing table will be replaced after a warning.
Open from a file	**Open from file** helps you read the table of parameters from a disk file.
Save to a file	**Save to file** helps you save the current table of parameters into a disk file.
(→) Connect device	**Connect device** switches the user into the 'Connect to device' menu.
(+) New group	**New group** helps you create a new **CU** connection group in the Connect to device screen.
(+) New server	**New server** helps you create a new **CU** connection in the Connect to device screen.
(−) Delete selected	**Delete selected** deletes the currently selected objects from the list in the Connect to device screen.

(Back icon)	**Back** is only available in the Connect to device menu and helps you return to the Configuration / Parameters menu if you do not want to get connected to any **CU**.
(Connect icon)	**Connect** logs in the user to the configured **CU**.
(Connect to Server icon)	**Connect to server** connects the user to **2N® Lift8 Server** and displays the list of set and active **Central Units** to be connected to. Connect is always used for **CU** connection.
(Connect to another Lift icon)	**Connect to another lift** disconnects the user from the current intercom and displays the list of connected **2N® Lift8 Server** devices.
(Disconnect server icon)	**Disconnect server** disconnects the user from the server and displays the Connect to device screen.
(Disconnect device icon)	**Disconnect device** logs out the currently logged-in user from the **CU**.

Find (ALT+F)	**Find** helps you activate log searching. The Find window is displayed for you to set a string (word) to be found.
Find next (F3)	**Find next** helps you find another occurrence of the set string (word).
Read from device	**Read from device** downloads the current settings and logs from the **CU**.
Save to device	**Save to device** helps you save new parameters into the **CU** memory.
Get new image	**Get new image** helps you download a preview from the camera connected to the selected camera module.
Rotation to left	**Rotation to left** turns the image left by 90°.
Rotation to right	**Rotation to right** turns the image right by 90°.

Add action	**Add action** adds a new IO module action.
Delete action	**Delete action** deletes the selected action.
Verify	Click **Verify** to verify the validity of the LUA script for IO module control before loading to the **CU**.
Save script	Click **Save script** to save the current script into a file for backup and later use if necessary.
Load script	Click **Load script** to load a script from the backup file and delete the original script.
Open directory	Click **Open directory** to load video files from a disk/SD card.

⊕ New set	**New set** helps you create a new set of user voice messages.
⊥ From device	**From device** helps you download user messages from the **CU**.
⊼ To device	**To device** helps you upload new user messages into the **CU** memory.
Load from directory	**Load from directory** helps you load the list of user messages from a directory to a disk.
Save to directory	**Save to directory** saves the list of user messages into a selected folder onto a disk.
Print HW Setup as Schema	**Print HW setup – diagram** helps you print out the current **2N® Lift8** HW settings as an image.

Print HW Setup as Text	**Print HW setup – text** helps you print out the current **2N**® **Lift8** HW settings as a text.
Upgrade	**Upgrade** starts FW uploading to the **CU**.
Refresh	**Refresh** updates the list of connected communicators and the **CU** bus.
Zoom In	**Zoom in** helps you get a close-up view of the diagram displayed.
Zoom Out	**Zoom out** helps you see more of the diagram displayed at a reduced size.
Delete all in device	**Delete all in device** erases all user-recorded messages from a set. After all the parameters are saved, the messages will be deleted from the CU too.

Open from file and save to device opens a file viewer for you to select the licence file for your **CU**.	
	This file will be downloaded to the **CU** upon confirmation.

	Start watching connected units activates the function like the Reset button on the CU. It makes the system check the audio units (cabin, fireman only) for proper connection and function. Refer to Subs. 4.8 for details.

|	
	End watching units deactivates the unit watching function.

5.3 Use

Upon the application launch, you get to the Configuration main menu and then the Parameters – Basic menu, where you can find almost all the **2N® Lift8 Central Unit** settings. You are in the offline configuration, which you can modify, save into a file and prepare for download into the **CU** any time later. The offline mode helps you view the **CU** settings, logs. You have access to the Configuration and Logs menus. The other menus are meaningful only if the **CU** is connected. The meaning and description of the parameters and controls are the same as in the online mode (i.e. with the **CU** connected); see below for details. Follow the **CU** login instructions in Subs. 5.1. Now let us explain what the menus are used for.

Configuration

Parameters

Having logged in to the **CU** as described in the preceding subsection, you get into the main configuration menu. The **Parameters – Basic** menu includes the table of all the **2N® Lift8** parameters including their codes. Refer to Subs. 3.2. for the list of parameters and their meanings. All the parameters are arranged in associated groups for convenience. Moreover, each table row is equipped with a hint, which describes the parameter purpose and setting options. The table includes the following items: Code corresponds to the parameter number in the **CU** voice menu, Name displays the parameter name, Value shows the currently set parameter value and Unit specifies the parameter unit (if no unit is specified in this column,

the value is just a number). Maximum and Minimum define the permitted range of the values to be set. Default value displays the factory value of the parameter (which also appears after the factory reset). Click this value to add it to the value column.
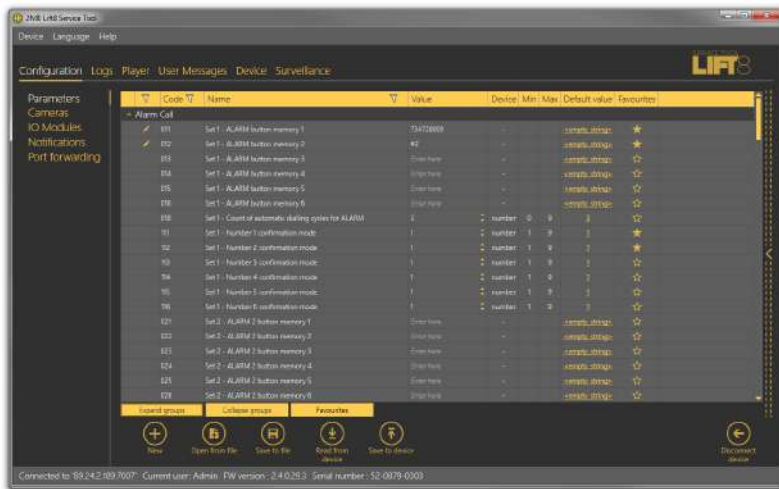
Parameters – Basic Menu

The menu also includes the Expand groups/Collapse group buttons for you to expand the sections and display all the required parameters quickly. Click the Favorites next to the Collapse group button to display your favourite items in the table. Click on the empty star symbol behind a parameter in the Favorites column to select a new favourite item. Similarly, c lick on a filled-in star symbol to unselect a favourite item. Use the Expand groups/Collapse groups buttons also for displaying your favourite items and filtering. A yellow-to-orange colour change of the Favorites button means that the favourite items are only active. **Push Open from file to read the** back-up data. The Read from device button helps you read the current set of parameters from the **CU**. Having completed the settings, click Save to device to save the changes into the **CU** memory. Filtration is a convenient searching tool. Set the filter for each column separately and combine the filters to find the required data as quickly as possible. Click the funnel symbol in the selected column to activate the filter. Activation is indicated by a colour change of the funnel symbol; see the figure below.
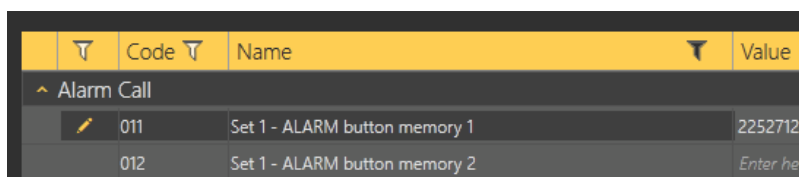
Left – Inactive Filter, Right – Active Filter

Each column with the funnel symbol includes filter settings; see the figure below. The Contains function finds the searched string in all the column items and returns all the occurrences. Enter a text into the string field and click Filter to activate the filter and find all the searched items in

the column. Use another filter to make your search more precise and efficient. Having completed filtering, click Delete filter in the used columns to delete all the active filters. If you did not delete the setting, the filtration settings would keep active even upon the **CU** logout and you would obtain filtration results instead of complete information in your next search.

> ✅ **Tip**
> - You can also delete the active filters using a context menu displayed by clicking the right mouse button anywhere in the table or pressing the **Alt+R** hot key.

Filtration Setting Result

The pencil symbol is displayed whenever a default parameter is changed to highlight the parameters that have been changed in the configuration.

> ✅ **Tip**
> - Each table row is equipped with a hint including parameter description for convenience.

Cameras

Switch to the **Cameras** menu to configure the camera modules. There are 8 frames in the window, one for each camera module on the given address. Each frame includes a camera module icon, which symbolises the module state, plus the module number and state description. A grey icon and greyish 'Not connected' description indicate an unconnected camera module. A yellow-highlighted icon plus a green 'Connected' text indicate that the camera module is connected to the CU and the camera is online. See the figure below.

Cameras Menu

The two buttons in the right-hand upper corner of the frame are active when the camera module is online. The pencil icon (Edit) is active even if the camera module is disconnected. Use Edit to switch to the camera module configuration menu. The camera icon helps you get the current image from the camera. Click camera editing to open a new window - Camera configuration. The window can be different for different cameras as those parameters are only displayed that are valid for the given camera type. For example: with an IP camera the image web link is specified instead of image parameters. Make sure that the resolution and compression parameters are set in the camera before connecting the camera to the camera module. Now let us describe all the parameters to be configured. Type selects one of the three available camera types: IP camera, RS 232 and RS 485. None is selected by default. Having selected the camera type, you can define the other parameters: Resolution, which defines the image size to be sent by the camera: 640 x 480, 320 x 240 and 160 x 80, Compression (only for RS232), which defines how to compress an image from the original bitmap to the .JPEG format, and IP camera URL, which defines the image path to be entered into the browser. IP-Cam username is IP camera access user name (login). IP-Cam password is IP camera access password. The DHCP server in the camera module ensures that the connected camera should always get the same address (10.0.0.1). Add the image address in the device as shown in the figure below. Enter a value in seconds in the Snapshot interval to define the image loading interval in case the camera saves its images on a memory card. Define the maximum size of the .mjpg file in hours in the Record limit/ file parameter for memory card saving. The IP camera configuration section also includes DHCP settings and camera module IP configuration. Refer to Subs. 2.12. for more setting and function details.
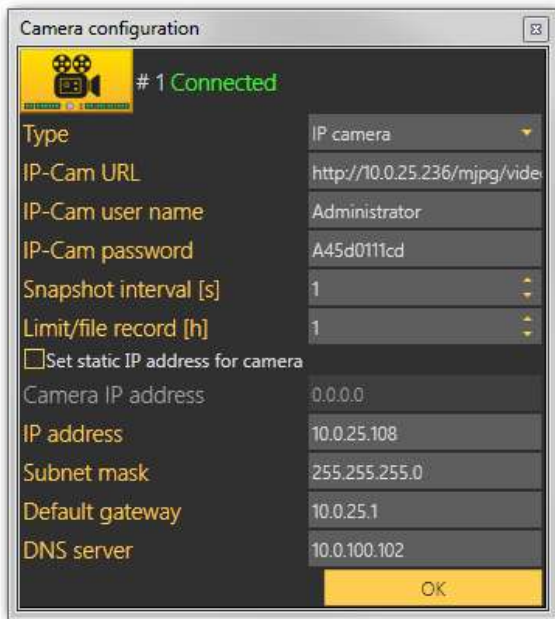
IP Camera Configuration
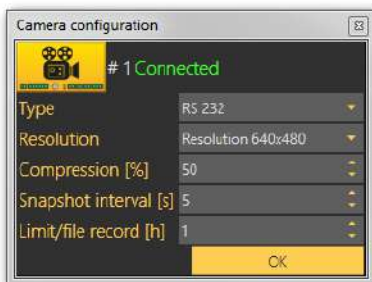
RS232 Camera Configuration

Press OK to confirm the settings and add the values to the table. Click Save to device to store the data in the memory and use it in the CU.

> **⚠ Caution**
>
> - Caution! Whenever you click Save to device, the whole configuration table will be overwritten. Make sure that you have loaded the valid parameters to avoid data loss.

Click the Camera button to open a camera preview. Three controls are available in this window. Click Get new image to start loading an image from the camera module. Image loading via a 2-wire bus is a rather time-consuming process depending on the image size: transmission of a serial camera image of the resolution of 640 x 480 and with the minimum compression takes a few tens of seconds. The other two buttons help turn the image left or right to optimise the view if the camera scans under the angle of 90°, for example. Close the window to quit the preview.

Camera Window

IO Modules - Basic

Open the **IO Modules** menu to configure the IO modules. There are 8 frames in the window, one for each IO module on the given address. Each frame includes an IO module icon, which symbolises the module state, plus the module number and state description. A grey icon and greyish 'Not connected' description indicate an unconnected IO module. A yellow-highlighted icon plus a green 'Connected' text indicate that the IO module is connected to the CU and the camera is online. See the figure below.

IO Modules – Basic Menu

The pencil icon (Edit) in the right-hand upper corner of the frame is active even if the camera module is disconnected. Click Edit to open a new window – IO module configuration. Like in the overview, the IO module state is displayed in the upper part of the window. The IO module input states are displayed below the IO module state.

Name is the first parameter in the window. Select a brief name for the input sensor characterising its type and location: Smoke sensor on shaft ceiling, for example. Activation mode is a negation of the input circuit: if you set 1, the input is active if logic 1 is set on it, and if you set 0, the input is active at logic 0. Activation/Deactivation colour defines the colour of an active/inactive input to be displayed next to the input in the **Surveillance** menu. Activation action specifies the action to be executed whenever the input becomes active and Deactivation action defines the action after the input passes into the inactive state. See the **Action** menu below for how to set the actions. Set the outputs similarly: enter the function name (Ventilator 4, e.g.), set the output relay negation in the Activation mode and specify the output colours for the Surveillance menu.

IO Module Configuration Window

Select/unselect the checkboxes to the right to enable/disable display of relevant information. Select Display inputs to display information on all the IO module inputs. Check off Display outputs to display the outputs. Select Notification to enable/disable the notification pop-up window. Tick Beep to enable sending of the dialtone to your system output (speakers/headset) whenever a new notification message arrives. Find Custom beep in the left-hand bottom corner. Click Select to select an audio file from your disk to be played as notification, or press Remove to remove the user file and start using the default sound again.

IO Modules - Actions

The **Actions** menu helps you set the actions/commands to be executed. These actions are initiated by changes on the IO module inputs and set as shown above. Click Add action to create a new action. In the settings to the right rename the new action, specify a list of tasks (Behaviour) to be performed: Activation, Deactivation, Send SMS and Rescue end. Activation activates the relay contacts. Select more parameters in the extended settings to the right: module number on which the relay state change occurs, output number including description for better orientation and task duration. Deactivation deactivates the relay and is configured similarly. The only difference is Send SMS, where you enter a phone number and SMS text of the maximum length of 160 or 70 characters depending on the encoding type. Use GSM 03.38 or UCS 2 for diacritics and non-standard character sets. One SMS is sent at a time. Long, multipart SMS are not supported. Rescue end helps you select the shaft(s) for which the rescue mode shall be terminated. With this option you terminate the rescue mode in all the selected shafts. Click Load configuration to save the actions to the device on the Basic tab.

> **✔ Tip**
> - If you keep the default value 0 in the Duration parameter, the relay will keep closed/open during the input activation time.
> - Example: if input 1 keeps 10 s at logic 1, the associated relay 1 will keep closed for 10 s too.
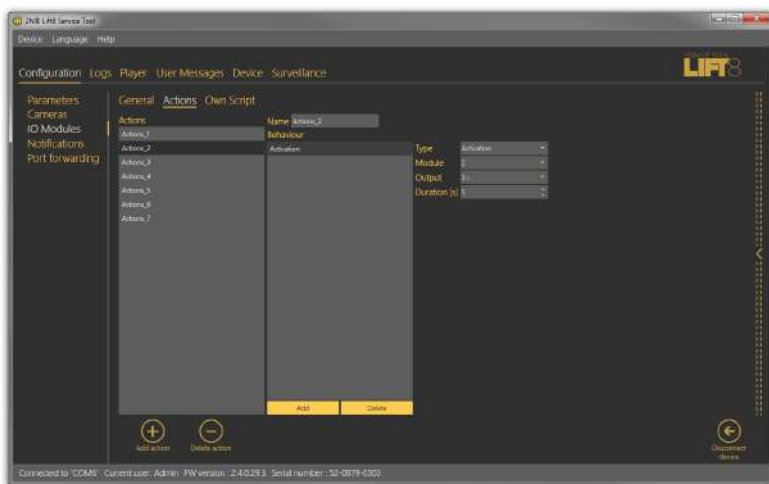
IO Modules - Actions Menu

IO Modules – Own Script

The **Own Script** menu enables advanced users to edit scripts with own installation logic instead of using graphical action settings. This solution is useful for installations where identical parameters are defined and can be simply copied to multiple central units. The LUA open-source programming language is used for the script. Refer to www.lua.org for more details.
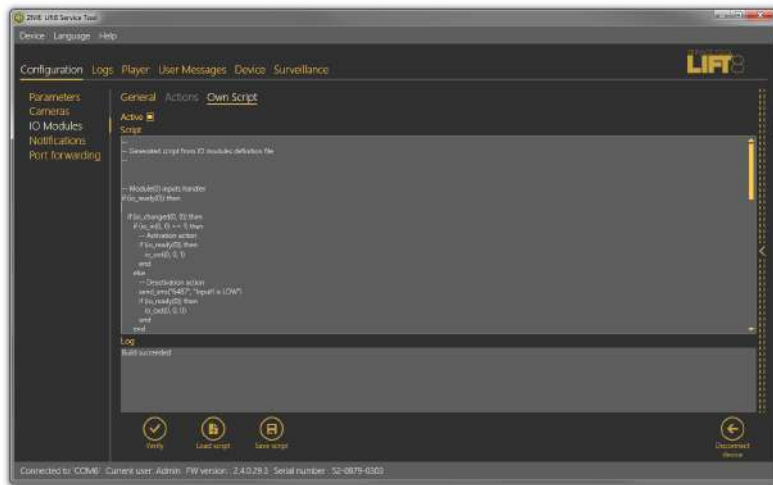
IO Modules – Own Script Menu

To edit a script of your own, first select the Active checkbox to disable the current graphical parameters and enable your own script settings. Programming should be made by a duly trained person. Refer to faq.2n.com for examples. Having completed editing, click Verify to check the code entered. Click Save script to save the properly verified code onto your PC disk. Click Load script to load a file from the disk and add it to the script editing field. Click Load configuration on the Basic tab to save the completed script to the device. The functions below are available.

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Functions	Description	Parameters
io_out(m,a,s)	Set module output state	m=module_pos a=output_addr s=output_state
io_in(m,i)	Get module input state	m=module_pos i=input_addr return input state
io_changed(m,i)	Checking module input was changed	m=module_pos i=input_addr return true if input changed
io_ready(m)	Checking module is ready	m=module_pos
send_sms(p,s)	Send SMS	p=phone_num s=sms text
rescue_end(<shaft_list>)	Rescue mode end	shaft_list=shaft numbers separated with a comma The rescue mode is terminated in the shafts where no alarm call is active.
io_out_get(m,a)	Output value	m=module_pos a=output_addr

Events

The Events menu helps you configure how the CU shall behave when an event is detected. The events are mostly pre-defined system events and you just choose the type of response to them. Four events are defined at present.

- Replace battery – the event is activated automatically when the set battery life expires or the battery capacity is too low. Refer to Subs. 4.11 for more details.
- Button stuck – use parameter 969 (ALARM button test) for configuration. Refer to Subs. 4.9 for more details.
- Rescue end – the event is executed when the rescue process has been completed. Refer to Subs. 4.10 for more details.
- Audio error – the event is activated when the audio test fails for three times. Refer to Subs. 4.8 for more details.
- Battery replaced – OK state to Battery replace.
- Button fixed – OK state to Button stuck.
- Audio fixed – OK state to Audio error.
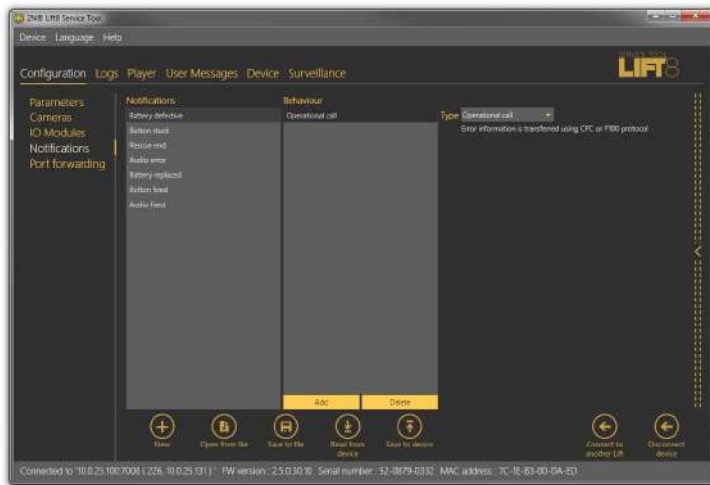
Events Menu

When an event is detected, you can specify a list of tasks to be performed: Activation, Deactivation, Send SMS, Send system SMS and Error call. **Activation** activates the relay contacts. Select more parameters in the extended settings to the right: module number on which the relay state change occurs, output number including description for better orientation and task duration. When set to zero, the output state change is permanent. **Deactivation** deactivates the relay and is configured similarly. The only difference is **Send SMS**, where you enter a phone number and SMS text of the maximum length of 160 or 70 characters depending on the encoding type. Use GSM 03.38 or UCS 2 for diacritics and non-standard character sets. One SMS is sent at a time. Long, multipart SMS are not supported. **Send system SMS** means that the message text is pre-defined in the system and the only parameter to be completed is the phone number. If you select **Error call**, the CU shall make a call to the number defined in the error call set: parameters 081–086. The error information is then transmitted via CPC or P100. Click Save to device to save the actions into the device.

> ⚠ **Caution**
>
> - You can send SMS only if your CU is equipped with a GSM or UMTS module.
> - Make sure that communication via CPC or P100 is set correctly in parameters 181 - 186 to make successful error calls.

Port Forwarding

Port forwarding helps you get connected to devices located in the LAN. It is because such devices are hidden behind the WAN IP address to the public internet users. This service can only be used via a VoIP or UMTS/GSM module as the PSTN module does not support this type of data transmission. The user gets connected to the external WAN address and a defined port and then

is automatically forwarded to the LAN IP address behind the LAN module or another port as defined by the user.
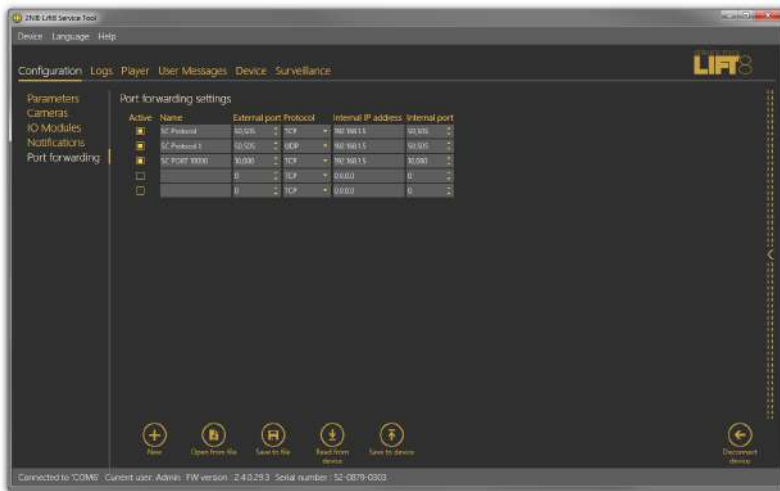
Port Forwarding Menu

You can define up to five ports to be forwarded to selected IP addresses. Specify the following parameters: select Active and then define Name, External port, Protocol (TCP/UDP), Internal address (depending on the LAN module range) and Internal port (LAN port to which communication is to be forwarded).

> ⚠ **Caution**
>
> - Port forwarding is only available if a **VoIP**, **UMTS** or **GSM** module is mounted in the **WAN** interface!
> - **Make sure that a LAN module is mounted to make this service work!**
> - Never forward Lift8 system ports used for communication, namely:
>   - **7007** – Service Tool communication port
>   - **7008** – Lift8 Server default communication port. To change this port, refer to parameter 1232.
>   - **5060** – SIP PROXY default communication port. To change this port, refer to parameter 1109.

Logs

The **Logs** section helps you view the diagnostic reports included in the log files. No logs are displayed upon the application launch. Download the current logs from a file or the **CU** upon login.

Logs – Basic

The **Logs – Basic** menu includes a table with necessary data. Use the checkboxes below the table to select the table columns. Select the parameters to display the required information: display/hide the timestamp, log level and log group. Click Auto refresh to enable automatic screen update in selected time intervals. Press Read from device to read the current logs from the **CU** connected. The following items are displayed in the table: Timestamp, which defines the date/time in which the event was captured, and Level and Source, which define the log type and source respectively. Message includes the information itself. The State parameter above the table specifies how many logs (rows) have been read and the log start/end time.
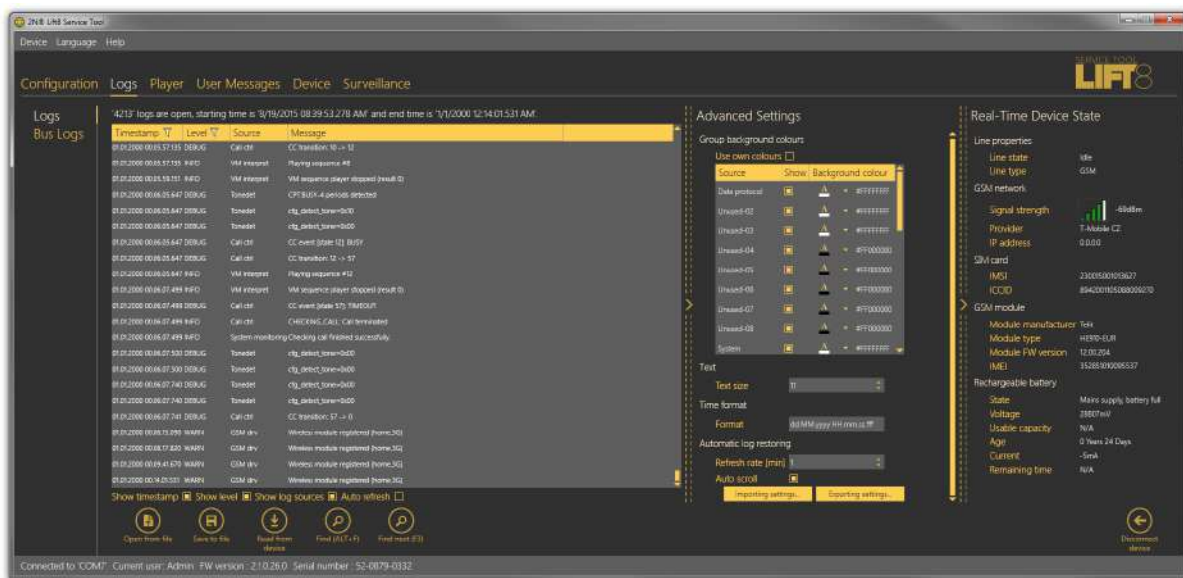
Logs Menu

Save the captured log for later analysis in the left-hand bottom part. Click Find to find a message in the log. Enter the string to be searched in the dialogue window. Click Filter to find the first occurrence and Find next to find the next occurrence. Use Advanced settings to enable/disable message types and assign colours for easier log displaying and other advanced options. See below for details.

> ✅ **Tip**
>
> - The logs should only be analysed by duly trained persons or your Technical Support department.

Log Finding
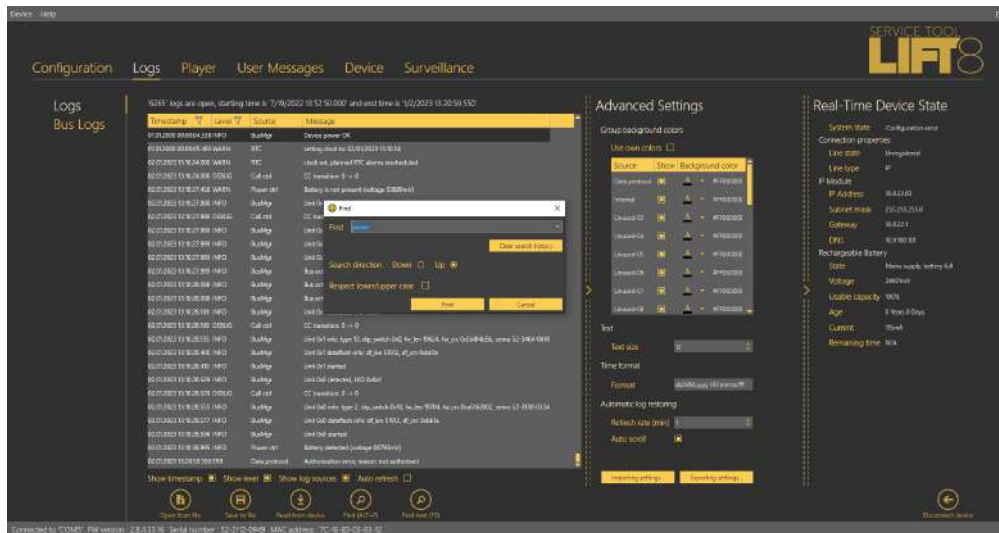
Find Function

Use the Alt + F combination to find the logs in **2N® Lift8 Service Tool**. In the Find browser, you can also use the Delete history function to delete all strings left in the Find field. Use Upper/Lower case for search facilitation if necessary.

Logs – Advanced Settings

Logs – Advanced settings is displayed to the right in a hideable form. The **Group background colours** table helps you set specific background colours for the selected messages. Select the **Use specific colours** checkbox to activate the user background colour settings for the log groups located below. The change will occur immediately after check-off. **Text** helps you modify the text size. Moreover, you can configure the **Time format**: either use the system date/time format or define a format of your own (dd.MM.yyyy HH.mm.ss.fff). Not all values have to be completed, you can also arrange them as you wish respecting the general Custom Date and Time Format Strings rules (see here for details, e.g.). **Auto refresh logs** is the last option. Set the Refresh rate in minutes a tick off Autoscroll to display the latest log row all the time.
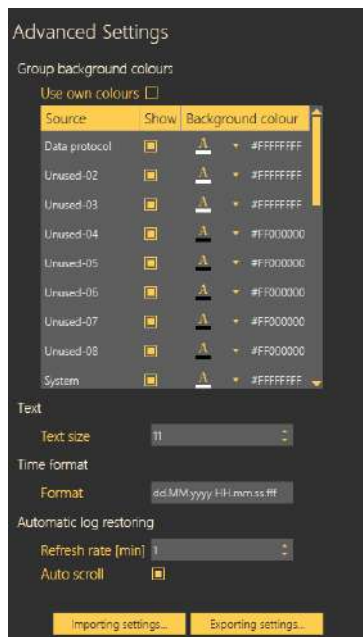
Advanced Settings Menu

Save configuration and Upload configuration help you save and load your advanced settings respectively onto your PC disk for later use.

Bus Logs

This menu has been introduced specifically for monitoring all communication along the bus between the bus-connected devices and the Central Unit. Each row symbolises one device connected. The table columns specify the device, bus, address (for later search in the Logs menu) and communication parameters.
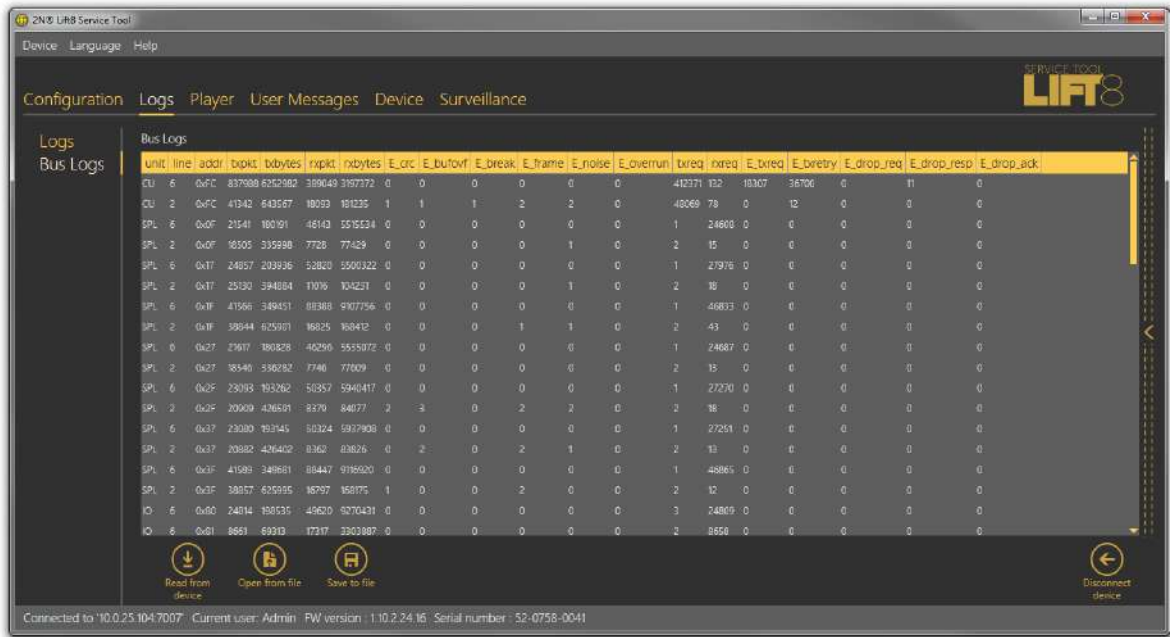
Bus Logs

Click Save to a file to save a log for later use. Click Open from a file to open the statistical data offline. See the table below for the columns.

unit	Unit name (CU = Central Unit, AU = audio unit, SPL = splitter, CAM = camera module, IO = I/O module)
line	Line type (6 = 6-wire, 2 = 2-wire)
addr	Unit address
txpkt	Count of packets sent
txbytes	Count of bytes sent
rxpkt	Count of packets received
rxbytes	Count of bytes received
E_crc	Count of CRC errors
E_bufovf	Count of UART errors – buffer overflow

E_break	Count of UART errors – incorrectly received break
E_frame	Count of UART errors – incorrectly received frame
E_noise	Count of UART errors – incorrectly received bit
E_overrun	Count of UART errors – received byte overwritten with a new value
txreq	Count of requests sent
rxreq	Count of requests received
E_txreq	Count of incorrectly sent requests
E_txretry	Count of incorrectly received requests
E_drop_req	Count of discarded requests (duplicate requests)
E_drop_resp	Count of discarded replies (duplicate replies)
E_drop_ack	Count of discarded reply confirmations (duplicate confirmations)

Player

The **Player** menu helps save records of the cameras connected to the **2N® Lift8** camera modules onto SD cards inserted in the camera modules. You have three options how to play a video record. The simplest is to remove the SD card from the camera module respecting the SD card connection/disconnection rules described in Subs. 2.12., connect the SD card to your PC and copy the data to a local disk directory.

> ⓘ **Note**
>
> - Or, start the video from the SD card without copying provided you use a high-quality card with a high transmission rate.
> - Or, download the video file from the camera module web interface in case your camera module is connected to the LAN.

Player Menu

Having loaded the files onto your PC disk, click Open directory. Find the proper file directory in the list and select Open to load the video files from the directory into the file list including the file name, size and record date and time. To play a video, select the file in the file list to activate the player to the right. A standard set of video controls is available here. Use the scroll bar or set the playing rate to view the video more quickly (1 to 10 times). Find the count of images in the file and the currently displayed picture in the menu.

> ⚠ **Caution**
>
> - The player only supports .mjpg files recorded by a camera module. No other formats can be played.

User Messages

User Messages helps you replace the default system announcements with user messages. Load these messages from a file or, in the correct format, via the **2N® Lift8 Service Tool.** Use the microphone connected to your PC to record the messages.

Messages

The **Messages** menu includes a list of user message, which can be replaced with own records. Having entered the menu, you will find no item. Choose one of the following three methods how to fill in the menu: click New set to display an empty list and fill in your own messages, press From device to download the current set of messages used in the **CU**, or push Load from directory to load a message set saved on your PC. Select the folder with the message set and confirm your selection to load the selected set into the application.

User Messages – Messages Menu

The message list includes the message duration and two action buttons: Import message from file and Delete. If a message is not recorded, its total time is 0:00. The total time is displayed for each message recorded. Click on the import button to open a file viewer on the disk to replace the selected message with a new, properly formatted one. If you just select a message, a message player will become accessible to the right for you to play the message. Standard player functions are available too. Press Play to play the message. To record new messages, select the input source. When the microphone icon shines red, start recording a new message, thus deleting the old one.

> ⓘ **Note**
>
> - The correct format for a message to be added is .WAV. No other files can be recorded.
> - A message cannot be recorded until the input device is selected in the recording settings.

The menu is faded during message recording. The player displays the name, total time and current state of the selected message, thus signalling active recording, playing or recording stop. Click the 'Stop' icon to stop recording, Click 'Play' to check the recorded or imported messages. If the message volume level is too low, adjust the input device volume. If the volume is still very low, try to record the message using another device. Having completed message editing, click To device to load the message set into the CU connected. Click Save to directory to save the current set onto your PC disk. Select a message and click the Trash icon to delete the message.

> ⚠ **Caution**
>
> - The output volume value in the application does not affect the master volume of the record to be saved into the **CU**. Thus, if the recorded volume is too low, record the message once again and louder.

> ✅ **Tip**
>
> - Use high-quality microphones and properly noise-insulated rooms with good acoustic properties for recording to avoid noise and interference in your records.

Recording Settings

Find the **Recording settings** to the left. Select one of the available input devices in Select source: integrated or external microphone or line input. Mic level defines the microphone input drive level. Mic gain defines the input gain. The total memory capacity for all the messages to be saved into the **CU** is 8 minutes. The time left for message editing is displayed in the Time left parameter.

> ⓘ **Note**
>
> - If the microphone input is overdriven during recording, turn down the mic input gain. If the record is too silent, turn up the mic input.
> - In case the application gain setting is not sufficient, use the system controllers or an external amplifier.
> - When the maximum message time (8 minutes) is exhausted, no more messages can be added. Thus, optimise the message time to record all of your messages.

Device

The **Device** menu provides information on the **2N® Lift8 Central Unit** connected: basic parameters and text/graphic diagram of available Audio Units and splitters. In addition, you can upgrade the **CU** here too.

Info

The **Info** menu provides basic information on the state of the device connected: **CU** FW version, serial number, voice menu language and time. The Time in device parameter displays the current time read from the **CU**. This parameter is not read online and has to be updated using the Read from device parameter. Set time in device helps you record a time setting of your own. Click on the calendar to set the date/time in hours manually. This value can be overwritten and different time can be set for a different time zone. Click Confirm to confirm the new setting. Click Save current time from PC to device to synchronise the **CU** time with your PC time value and load the new setting into the **CU** automatically.
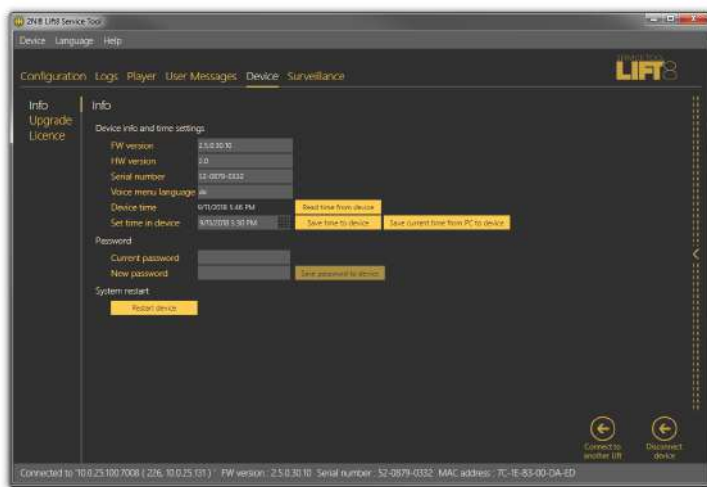
Devices – Information Menu

The Password section helps you change the administrator password for the **CU** connected. Enter the existing password into the Current password and the new password into the New password. Click Save password to device to confirm and save the new setting. Or, click the button to restart the device if necessary and log out automatically.

> ⓘ **Note**
>
> - Remember to change the password in the **2N® Lift8 Service Tool** configuration too for future connections.

Upgrade

The **Upgrade** menu helps you upgrade the **CU** firmware via two menus: List of applicable parameters and List of applicable voice menus. Click on the appropriate name to select the FW version and voice menu type to be loaded to the **CU**. Having selected the items, click Upgrade to make the **2N® Lift8 Service Tool** load the new FW and voice menu into the **CU**. The menu provides a list of upgrade licences.

> ⚠ **Caution**
>
> - Having upgraded the FW you will be notified of the **CU** restart. After confirmation, the restart will be made and the application will be disconnected. Reconnection will not be possible until the system upgrades the Audio Units and restarts. This process may take a few minutes in extensive systems.
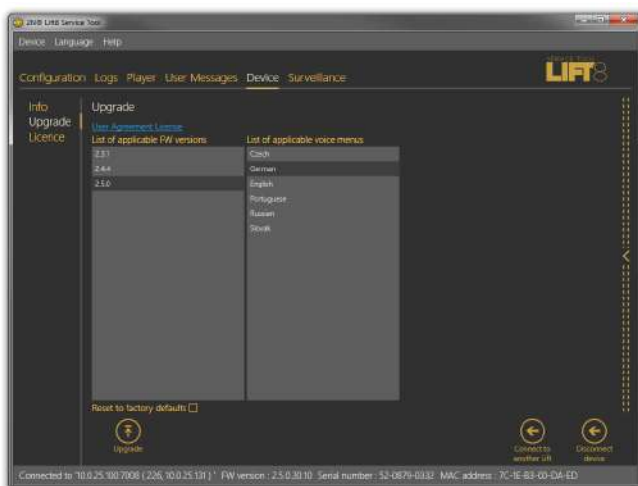
Menu Device / Upgrade

Select Reset to factory defaults to delete all user edited changes and restart the audio unit with the factory default values. Select this option and click Upgrade to reset factory default values upon upgrade. This action will only be performed together with new FW, Bootloader or Voice menu loading. To reset the default values only, use the Configuration menu.

> ⚠ **Caution**
>
> - If you select **Reset to factory defaults**, parameters 1100 ~ 1110 (VOIP settings) will not be deleted for security reasons.

Licences

The **Licences** menu is used for adding licence files. The licences to be added to the **CU** are only applicable in the UMTS/GSM module versions. The licence enables/disables the network (provider) to which the device shall log in. Enter the IMSI code into the licence: particularly the MCC and MNC to define the country and provider permitted for the **CU**. Enter a greater portion of the IMSI code to specify the SIM cards to be used in one network. You can add up to 10 IMSI codes to the licence. Contact your **2N® Lift8** supplier or the manufacturer's Technical Support department (sales@2n.cz) for the licence file.

Having acquired the licence file, click Open from file and Load to device to open a file browser with the licence location and click Confirm. The program will notify you of the licence change and necessary device restart. Confirm your selection. Re-log in and check the licence. The Allowed IMSI item will display the IMSI codes permitted by the new licence.

> ⚠ **Caution**
>
> - Any attempt to load licences for another serial number into the **CU** will be rejected.
> - If you fail to log in to a GSM/UMTS network, it is possible that the licence permits a different IMSI range, which does not match the currently inserted SIM card. This state is indicated as follows: the GSM/UMTS module has a sufficiently strong signal, but the EXT. line LED is shining red. Insert the correct SIM card or change the licence file.
> - The licence features only apply to the **CU**s equipped with a GSM/UMTS module.
> - There is no limitation as to the other PSTN/VoIP communication interfaces even if the licence is added to the **CU**.
> - If your **CU** does not include any licence file, its function is not limited and the inserted SIM card can log in to the provider's network, yet with some limitations (roaming, e.g.).

Surveillance

Connected Units

The **Connected units** menu provides a graphic diagram of all the units connected to **2N® Lift8.** The following controls are available: Refresh to update the display, Press HW setting (diagram/text) to print out the diagram/text of all the Audio Units and splitters

connected to the given CU. The diagram displays the units like in the application and the text provides the same information as the diagram in the XML format. Click these buttons to export the diagram/text to the printer. Zoom in and Zoom out help you get a closer (more detailed) and more distant view (whole structure) of the diagram/text respectively. The unit watching buttons help you enable/disable the function. The system behaves like with the Reset button. All the units to be watched are green-highlighted and an error is detected and displayed if there is a loss of connection; see the figure below.
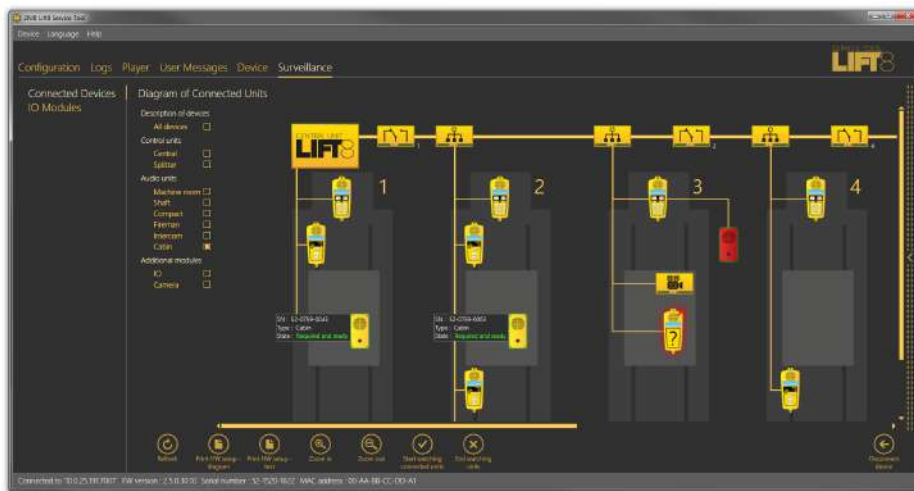
Surveillance Menu

Diagram of Connected Units

The diagram displays graphically all the devices connected to the selected **CU**: buses, shafts and Audio Units. Tick off the checkboxes in the Unit description to display details on the audio units and select the audio unit type as shown in the figure below. The brief description to the left of the audio unit includes the Audio Unit serial number, type and current state.

If you use the system completeness check, the audio units to be monitored (cabin, Fireman) are marked either green or red. Green means that the audio unit works properly. Red means that the audio unit is in the error state, fails to communicate or is disconnected. Get the audio unit repaired as soon as possible to make your system complete. Or, remove the audio unit from checking in the system completeness check configuration; refer to Subs. 2.1.

IO Modules

IO Modules Menu

The **IO Modules** menu helps you monitor the states of the IO modules connected. The **IO modules** section displays all the modules connected to the bus. Each module is identified with a number, which corresponds to its HW address set on the DPS. Furthermore, states of all the inputs and outputs are included. The inputs and outputs are set to 0 by default upon the system startup. Logic 0 is on the input and the relay is open. Use the settings in the Configuration / IO Modules menu to change the relay position upon startup. A change of the input signal level or setting the relay into the open state will change the signal from 0 to 1 and the user will be notified of the change by a LED colour change and text notification, which provides information on the module, input and signal value that initiated the event. This notification is displayed in a special pop-up window, which is not closed automatically but closing has to be confirmed with a cross. In this way, the user is always duly informed and cannot miss any input change. Disable notification in the Setting / Configuration menu. You can also choose a module to be listed. If you do not enable module displaying in the Configuration menu, the module will not be visible here.
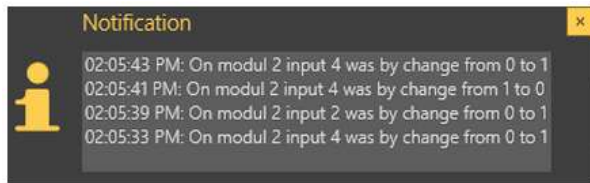
Notification Pop-Up Window

Each IO module is identified with a number and an overview of inputs and outputs. Use the Configuration / IO Modules menu to add a brief description to an input/output. You can also select the active/inactive input/output state colour in the same menu to simplify the visual state identification. The logic state of the given object (input/output) is signalled with digits 0/1 in a colour ring.

6. Service Tool for Android

Here is what you can find in this section:

- 6.1 Installation and Licensing
- 6.2 Use

Refer to the Lift8 Download section at the 2N TELEKOMUNIKACE official web sites for the latest application versions. Use the following link or Google Play mobile application to view the online manual.

6.1 Installation and Licensing

The application is available at Google Play or 2N TELEKOMUNIKACE web sites, Download of Lift8 products. Use the following link to view the online manual.

> ✅ **Tip**
>
> - The application can be used for connection of Central Units with FW versions 1.10.0 and higher.

> ⚠️ **Caution**
>
> - The application can only work on a device that supports the USB Host as it uses USB for CU communication! Otherwise, the CU cannot be connected.

> ⓘ **Note**
>
> - The application language is based on the local Android configuration. A language change in the system results in a language change in the application.

Google Play Installation

Use Google Play to install the package. If you do not have your Google Play account, simply create a new one. Now select Google Play in the application list, confirm the licence terms and conditions and get access to hundreds of thousands of applications. Google Play provides both free applications as well as paid applications that require a payment card assigned to the Google account. Now a standard procedurecan start.

Search and select the application and click Install. A list will get displayed with authorised accesses that the application requires (USB control and SD card writing, see the figure). Confirm the authorisations to make the application get installed. Confirmation will be displayed after a successful installation and you can start the new application. The application will be displayed in the menu and can be used.
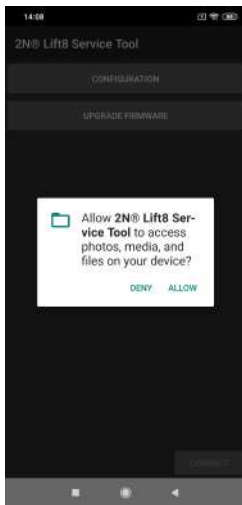
Service Tool Access Requirements

If you have a Google account connected with your phone or tablet, you can install the application via the web interface. All you have to do is log in to Google and select Play in the upper toolbar. Or, enter market.android.com or play.google.com/apps into your browser to display your application installations or updates. The web interface allows you to view applications more comfortably. If you like any of the applications, proceed like with a phone: click Install, confirm authorisation, let the application get installed and start using it.
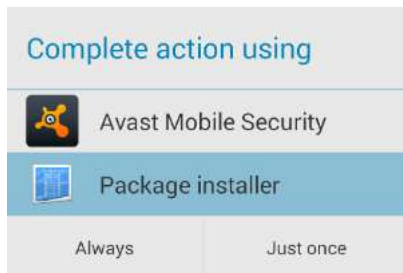
Application Installation Confirmation

.APK Package Installation

You can also download an installation package and install the application manually. APK is an application ending for Android like EXE for Windows. Enable installations from Unknown sources to make this option work: MENU/SETTING/SECURITY/UNKNOWN SOURCES. Select the

package in the loaded files or application location and open it using the package installation tool.

Package Installation Tool

Now the installation proceeds like with Google Play. After installation, the Service Tool icon will be added to the menu. Click on the icon to open the application and display the login screen.
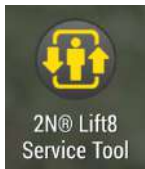
Application Icon in Menu

Central Unit Connection

The USB port driver is installed together with the application. Connect the Central Unit before login using a USB cable (USB A → USB B) or a proper gender changer corresponding to your device USB port (MicroUSB A → USB B). After starting the service tool and connecting, the message "Do you want to open the **2N® Lift8 Service Tool** when connecting this USB device?"

> ⚠ **Caution**
>
>   - Make sure that your device supports the USB Host standard to avoid CU connection error!
>   - Make sure that your mobile device (SmartPhone/Tablet) supports this function. Refer to the technical parameters or manufacturer's advise for information.

🏆 **2N® Lift8 Service Tool**

Allow the app 2N® Lift8 Service Tool to access the USB device?

☐ Use by default for this USB device

CANCEL   OK

USB Connection Setting

6.2 Use

Central Unit Login

Having launched the application, press Login (right-hand bottom corner) to display the password entering menu. Enter the CU password, which has up to 15 characters.

> ⓘ **Note**
>
>   - The CU default password is **2n** unless specified otherwise by the customer. Refer to the CU package for the correct password.
>   - A window pops up for you to get access to the USB device upon every login.
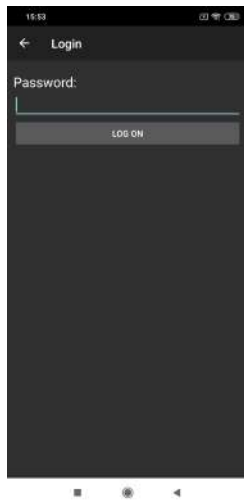
Login Screen

Enter the correct password and click Log in to log in to the Central Unit connected. The application warns you of any typing error and allows you to re-enter the password. Upon login, you get into the Main menu and its submenus. The Configuration and upgrade menu is only available at present. Other menus known from the **2N® Lift8 Service Tool** PC application will be available in the future.
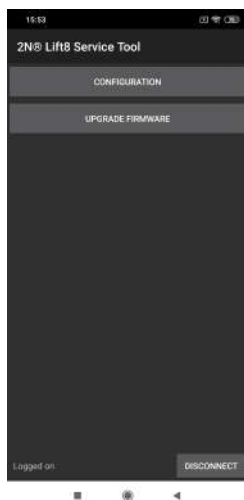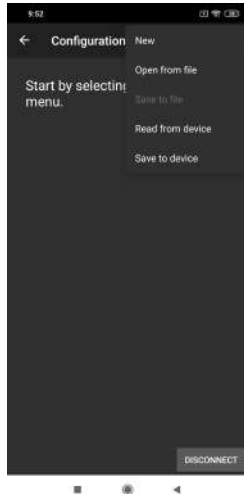

Configuration Menu

Configuration

Click on the menu name, i.e. Configuration, to open the menu. No data are available yet. The informative message **Start by selecting menu is only displayed. Click the pop-down menu in**

the right-hand upper corner to display five options: New, Open from file, Save to file, Read from device and Save to device.

> ✅ **Tip**
>
> - The control design may be different in different Android versions. Yet, the location and operation of the system control elements are almost the same.

Read Configuration

New – create a new configuration file.
Open from file – upload configuration from a file (saved on a phone or Google disk).

Save to file – save configuration (read from a phone or Google disk).

Read from device – read configuration from the connected Central Unit. The "Upload has started" message is displayed. When the parameter table has been uploaded, a dialog window is displayed to inform you that the configuration has been read successfully.

Save to device – save configuration to the Central Unit. The "Saving has started" message is displayed. When the parameter table has been uploaded, a dialog window is displayed to inform you that the configuration has been saved successfully.

When the parameter table is loaded, a dialogue window gets displayed confirming that the configuration has been read successfully and that you can view and edit the data. The loading time depends on your hardware power output. In general, loading takes a few seconds. If it takes more, press the Back button and repeat the operation.
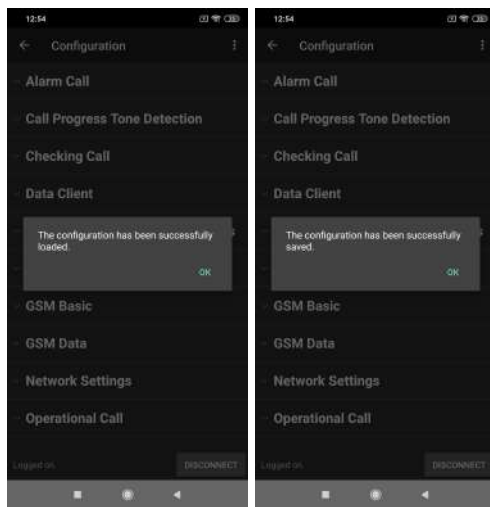
Configuration Download Confirmation

Parameter Editing

When the configuration has been read, parameter blocks are displayed in the alphabetical order like in the PC application. Click on the selected block to open the list of related parameters. Every parameter includes a numeric code, name and current value.
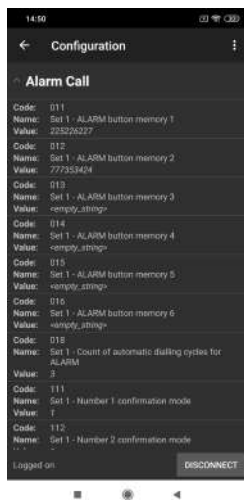
List of Parameters

Click on the parameter to be modified. The dialogue window includes the Numeric code, Name and Unit of the parameter. Click the question mark to know the parameter function. The Value parameter defines the range of values, which can be modified. If you use numeric or hourly values, you can use the system scroll bar to set the required value. With wide-range values, however, we recommend you to click the value and enter the new value via a keypad. The same applies to string (password) entering. Or, you can use a combobox to modify parameters with pre-defined values.

Parameter Setting

There are three controls in the lower part of the dialogue window. Click Cancel to quit editing and save the original setting. Click Default to set the default value and OK to confirm the new setting. If you make a typing mistake (set a value beyond the limits or exceed the character limit), you will be warned by the validator.
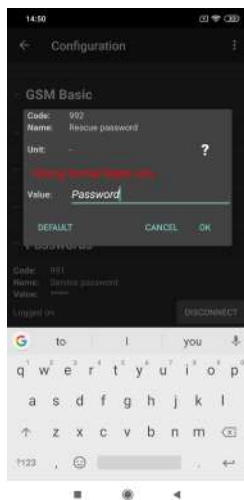
Value Validator Function

Having set all the parameters correctly, select the Save configuration option in the right-hand upper corner of the menu to save the settings into the CU database. Click Back to return to the preceding menu. If you click Back in the Main menu, you will log out. Click the system Home button to quit the application and press Last used programs to terminate the application.

Upgrade firmware

Click Upgrade firmware to display a menu to select the required firmware and voice menu. While upgrading, you can reset the Central Unit to the factory values using a checkbox. Having pressed Upgrade, wait for the firmware and voice menu to be upgraded. Then a message pops up and the applications disconnects. You cannot reconnect to the CU until the upgrade process has been completed.
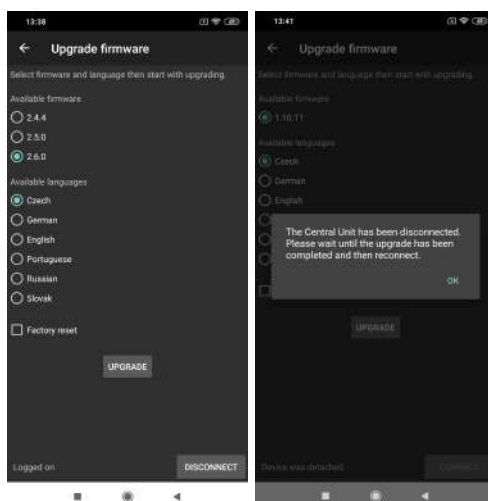
> ⓘ **Note**
>
> - Upon connection, the application recognizes the hardware and offers compatible firmware.

7. Get-cam-image

2N® Lift8 get-cam-image is used for remote image downloads from camera modules during a call where the **2N® Lift8 Communicator** software is not installed.

You can download images in version 2.3 and higher. Remember to enter the number of the shaft where the required camera module is installed.
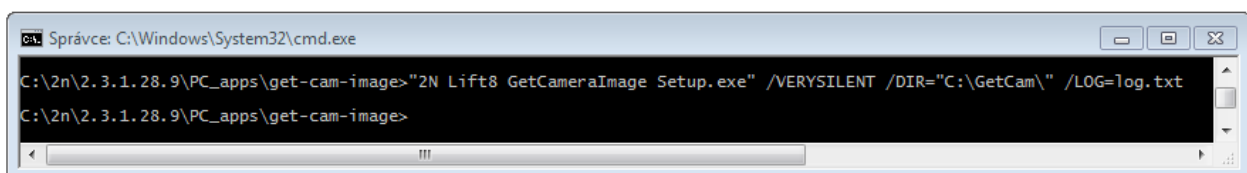
Installation

When the installation is started, the installation program will scan your PC. If it finds another **2N® Lift8 get-cam-image** installation, it will ask you whether to uninstall the existing version. If you do not want to uninstall, the installer will be terminated. If you answer yes, the original version will be removed and replaced with the current version. Now the **2N® Lift8 get-cam-image Setup Wizard** is launched. Follow the wizard instructions. Select the location for your **2N® Lift8 get-cam-image** installation. By default, C:\Program Files (x86)\2N TELEKOMUNIKACE\2N Lift8\get-cam-image is used. Click Next to make the wizard install **2N® Lift8 get-cam-image.**

Once installed, the application is ready for use.

Alternatively, use the command line for installation: select the installer file and define the manner and location parameters. See below for command explanation.

Command	Description
/VERYSILENT	Installation runs on the background, no installer is open to the user.
/DIR="C:\..."	Set the installation location.
/LOG=file_name.txt	Create an installation course log to be displayed in the installer directory.

Application Installation Command

> ⚠ **Caution**
>
> - Make sure that the command line is started by admin. If it is started by a user, the editor authenticating window will pop up.

> ⓘ **Note**
>
> - **2N® Lift8 get-cam-image** requires **250 MB** of free disk space at least for installation.

> ⓘ **Note**
>
> - **Recommended software requirements**
>
> | OS | Microsoft Windows 8 / 8.1 CZ, Microsoft Windows 7 SP1 CZ, Microsoft Windows Vista SP2 CZ, Microsoft Windows Server 2012 (R2) Standard, Microsoft Windows Server 2008 R2 SP1 Standard |
> | --- | --- |
> | LAN/WAN | **2N® Lift8 Server** connection |

> ⬥ **Warning**
>
> - If you see 'incompatible version .NET' upon the wizard launch, download the current redistribution .NETFX4.0 from the 2N TELEKOMUNIKACE web sites or click here .
> - The minimum OS requirements are **Windows Vista**, **Windows 7**, **Windows 8**.

Use

If you do not use the **2N® Lift8 Communicator**, you can download an image from a camera module during a call via the command line (**cmd**).

Start the command line in the directory where **2N® Lift8 get-cam-image** is installed. Enter get-cam-image.exe to display the Help.

> **⚠ Caution**
>
> - To download an image successfully, configure the selected intercom in the **2N® Lift8 Control Panel** application. Make sure that the data tunnel is enabled (refer to Subs. 7.3 for details).
> - Also make sure that a user is created in the **2N® Lift8 Control Panel**.

To download an image, enter the following into the command line:

Get-cam-image.exe [Options] intercom contact number

Options

```
-o
```

- Output file name (test.jpg, e.g.)

```
-n
```

- Number of the shaft where the camera module is installed (1–8)

```
-s
```

- **2N® Lift8 Server** IP address

```
-p
```

- **2N® Lift8 Server** port

```
-u
```

- User (must be created via the **2N® Lift8 Control Panel**)

```
-w
```

- User password

```
-v
```

- User listing (optional)

```
-d
```

- Developer listing (optional)

```
Example: Get-cam-image.exe -o test.jpg -s 89.24.1.180 -p 7008 -u novak -w 1234
603123456
```

The application downloads the image from the intercom camera in shaft 3 whose contact number is 603123456 and gets connected to the server on the address 89.24.1.180 and port 7008 using user novak and password 1234 for login. The image is saved into the default directory under the name of test.jpg.

> ⚠ **Caution**
>
> Complete all of the following information to download an image successfully:
> - Output file (image) name – save the name into the directory where GetCameraImage is installed. If no name is completed, the default name (camera-image.jpg) will be used.
> - Options (server IP address, user, user password)
> - Intercom contact number
> - If you fail to define the shaft number -n (1–8), you can only download an image during an active call with the shaft.

Should there be a problem during downloading, the user obtains the error number and description.

Error number	Description
1	Server version not found
2	Incompatible server version
3	Authentication error
4	Incompatible protocol version
5	Server connection failed
6	Connection terminated by server
11	Loading file on disk failed
12	No intercom selected
13	Selected intercom is not in database
14	Connection with intercom failed (tunnel)
15	Timeout expired
16	Intercom is busy
17	Camera module not found
18	Camera error

Error number	Description
19	Image cannot be downloaded now (rescue function enabled yet inactive)

8. Maintenance

This section describes the product maintenance and FW upgrade.

- 8.1 Operation Interruption and Battery Replacement
- 8.2 Firmware Upgrade

8.1 Operation Interruption and Battery Replacement

Operation Interruption and Battery Replacement

Disconnection and replacement of rechargeable batteries:

1. Disconnect the **CU** from the mains power. Remove the upper cover (see the preceding subsection – **CU** Electrical Installation, Operational Start).
2. Disconnect the battery interconnecting cable (see the figure) to disconnect the backup rechargeable batteries.

3. Disconnect the FASTON terminals of the motherboard - battery connecting cable too to replace the rechargeable batteries.
4. Remove the rechargeable battery holder using a No. 8 spanner.
5. Replace the rechargeable batteries and fix the holder again using a No. 8 spanner.
6. Interconnect the rechargeable batteries, but do not connect them to the motherboard.
7. Plug in the CU supply cable into a 230V socket.
8. Put the upper cover back on the **CU** and tighten the cover-fitting screws. Make sure that the earthing wire is connected with the cover before replacing the cover!
9. By reset button proceed the **Zero backup rechargeable battery life counter** (see chapter: 2.1)

> ⚠️ **Warning**
>
> - Always disconnect the mains power before you start installing, maintaining or checking the **CU**.
> - Always use the rechargeable batteries supplied or approved by the manufacturer for replacement! If an correct type of rechargeable batteries is used, there is a danger of fire or explosion or damage to the **CU** electronics.
> - Adhere to the polarity of the rechargeable batteries! When their polarity is reversed, there is a danger of fire or explosion or damage to the **CU** electronics.
> - Replace both the rechargeable batteries in the equipment at the same time, never mix old and new rechargeable batteries! Make sure that the rechargeable batteries in the device are of the same type and age!
> - **Retired rechargeable batteries contain dangerous chemicals and so must be disposed of ecologically in compliance with the applicable regulations!**

> ⚠️ **Warning**
>
> - **WARNING! Live parts are exposed after the CU cover is removed!**
> - **Be very careful and do not touch dangerous live parts!**
> - **Never work with a switched-on CU with its protective cover off unless you are an authorised person duly trained according to Decree 50 / 1978 Coll.**
> - **Never insert damaged batteries.** Do not insert the batteries in the CU that might show electric or mechanical damage.
>
> - **Never use 2N® Lift8 without its protective cover** to avoid electric accident, malfunction due to wrong interconnection and/or **2N® Lift8** electronics damage or destruction as a result of electric short-circuit or adverse environmental conditions. It is because **2N® Lift8** is not protected against dangerous touch and water – **IP00**.
>
> - **Make sure before installation that the 2N® Lift8 board is not damaged!**
>
> - **Do not connect a power supply other than the allowed one** to avoid electric accident or device damage.

> ⚠ **Caution**
>
> - Remember to put the product in operation in time after **disconnecting the battery interconnecting cable**.
> - The product can be stored for a maximum **of 1 week without recharging and for 1 month after full charging**.
> - **Never** leave the rechargeable batteries flat longer than needed.
> - If the battery is completely flat, **recharge it as soon as possible**.
> - Remember to replace the rechargeable batteries every 2 years to provide backup in the case of power outage.

Always remember that the state of the batteries is essential for the system operation.

8.2 Firmware Upgrade

Use the **2N**® **Service Tool** to upgrade **2N**® **Lift8** including the **CU** and audio units connected.

Procedure

1. Start the **2N**® **Service Tool** and connect the **CU** (USB, TCP).
2. Select the Device – Upgrade menu.
3. Select the required firmware version.
4. Select the voice menu language version.
5. Choose whether to keep the configuration or reset the parameters to the factory values (via the checkbox).
6. Launch upgrade.
7. First the new FW is loaded to the **CU** (the Service Tool will log out from the **CU** upon the load). Then the upgrading process starts: first the **CU** (the yellow SYSTEM LED is flashing, the audio units are disconnected) and then the audio units (first the red, yellow and green LEDs are shining – the audio unit is waiting for upgrade, then the yellow and green LEDs are flashing – the audio unit is being upgraded).
8. Set date and time (Device > Date/Time setting).

> ⚠ **Caution**
>
> - You are recommended to factory reset the parameters to set new ranges and default values in the new FW version.

> ✅ **Tip**
>
> - Back up your configuration, execute upgrade and factory default reset and upload the configuration into the device (new ranges and default values will be used in the new FW version).
> - Check the device time after upgrade.

Splitter Upgrade from 1.x.x to 2.x.x

Set the splitters to odd addresses (lift/shaft number) for 1.x.x to 2.x.x upgrade as even addresses cannot be upgraded.

Example: First upgrade the odd address splitters. Then disconnect these spliters and change the even address splitters to odd ones. After upgrade, change the odd addresses back to even ones.

9. Technical Parameters

Central unit

- **Power supply:** 100–240 V; 50/60 Hz; 0.75 A; up to 60 W
- **Backup power supply:** 1.3 Ah / 3 Ah Internal Lead Acid Battery
- **Maximum distance between CU and last splitter:** 30 m with the cross-section of 0.75 mm2 (60 m – 1.5 mm2 , or 100 m – 2.5 mm2)
- **Interface for connection with lift service centre:** PSTN / GSM / UMTS / VoIP
- **Configuration and monitoring:** voice menu / USB / remote
- **Indicators:** 5 LEDs, three-colour
- **Dimensions and weight:** 300 x 170 x 72 mm, 2.7 kg

Splitter

- **Power supply:** 24 V from central unit or local
- **Capacity:** 5 audio units + camera module
- **Maximum overall length of cable in shaft:** 600 m
- **Lift block pulse:** relay, both NO and NC contacts
- **Dimensions:** 142 x 98 x 34mm

IO module

- **Power supply:** 24 V from central unit or local
- **Capacity:** 4 inputs + 4 outputs
- **Inputs:** galvanic isolation, 12–24 V AC or DC
- **Outputs:** relay, NO contacts, up to 250 V, 5 A
- **Dimensions:** 142 x 98 x 34 mm

Fireman

- **Cover:** robust aluminium cast product
- **Working temperature:** -25 °C to +55 °C
- **Working relative humidity:** 10–95 % (non-condensing)
- **Storing temperature:** -40 °C to 70 °C
- **Dimensions:** (217 x 109 x 83) mm, (242 x 136 x 83) mm incl. frame
- **Weight:** netto max 2 kg, brutto max 2,5 kg
- **Covering level:** IP65

Audio unit – Shaft Antivandal

- **Cover:** robust aluminium cast product
- **Working temperature:** -25 °C to +55 °C
- **Working relative humidity:** 10–95 % (non-condensing)
- **Storing temperature:** -40 °C to 70 °C
- **Dimensions:** (217 x 109 x 83) mm, (242 x 136 x 83) mm incl. frame
- **Weight:** netto max. 2 kg, brutto max. 2,5 kg
- **Covering level:** IP65

Telephone Parameters (PSTN)

Parameter	Value	Conditions
Minimum line current	15 mA	off-hook
Minimum line voltage	22 V	on-hook
Off-hook DC voltage drop	< 8 V < 16 V	I = 25 mA I = 50 mA
Off-hook resistance	>1MΩ	U = 25..100 V
Off-hook impedance	220 Ω + 820 Ω paral. 115 nF	20 to 60 mA
Return loss	> 14 dB	20 to 60 mA
Bandwidth	300 to 3500 Hz	20 to 60 mA
Ringing impedance	> 2 kΩC = 1 μF	25 to 50 Hz
Ringing detector sensitivity	10 to 20 V	25 to 50 Hz
Pulse dialling	40 / 60 ms	
DTMF dialling level	6 a 8 dB ± 2 dB	20 to 60 mA
Dial-tone detector sensitivity	approx. 43 dB	
Overvoltage protection – between A, B	1000 V	8 / 20 μs

> ⓘ **Notes**
>
> - All the product parameters comply with TBR-21 on condition that the product is to be operated as a single line terminal, i.e. no parallel connection with any other equipment is allowed.
> - Line interference and noise picked up by the **L8** microphone are relevant factors.

Telephone Parameters (GSM/UMTS)

Telit HE-910, GE-910

- **Bandwidth:**
  - GSM 850/900/1800/1900 MHz
  - UMTS 800/850/900 MHz/2100 MHz
- **GSM:** Telit GE-910(EU,QUAD)
- **UMST:** Telit HE-910EUR
- **USIM/SIM card:** Small plug-in 3 V
- **Antenna:** One external antenna SMA FEMALE connector
- **Size:** 28.2 x 28.2 x 2.2 mm
- **Working temperature range**: -40 °C to +85 °C

VoIP

- **speed:** 10Mbps
- **full duplex**

Other Parameters

Unit type

- **918600, Central unit:** 300 x 170 x 72 mm
- **918601, Central unit Maxi:** 353 x 200 x 80 mm
- **918610E(XE), Audio unit – lift cabin, universal:** 65 x 130 x 22 mm
- **918611E, Audio unit – machine room:** 225 x 87 x 67 mm
- **918612E, Audio unit – shaft:** 225 x 87 x 67 mm
- **918613E, Audio unit – compact:** 185 x 100 x 22 mm
- **918620E, Splitter:** 142 x 98 x 34 mm
- **918620E, IO module:** 142 x 98 x 34 mm
- **918622E, Camera module:** 142 x 98 x 34 mm

- **Working temperature range:** 0–40 °C
- **Power supply:** 100–240 V; 50/60 Hz; 0.75 A; up to 60 W
- **Accumulator battery:** two 12 V, 1.3 Ah or 3 Ah lead-acid batteries
- **Weight:** 2.7 kg

The manufacturer reserves the right to modify the product in order to improve its qualities.

The product contains no environmentally harmful components. When the product's service life is exhausted, dispose of it in accordance with the applicable legal regulations.

10. Supplementary Information

This section provides supplementary information on the **2N® Lift8** product.

Here is what you can find in this section:

10.1 Troubleshooting

For the most frequently asked questions refer to faq.2n.cz.

- A separate cable is recommended for each audio unit in a high-interference environment
- DTMF transmission problem on GSM module > change parameter 710 to 1

- SIP errors

  i. SIP_ERR_REGISTER_SERVER_ADDR_RESOLVE = 10 (IP address could not be obtained)
  ii. SIP_ERR_REGISTER = 11 (general error)
  iii. SIP_ERR_REGISTER_FORBIDDEN_ACCESS = 12
  iv. SIP_ERR_REGISTER_RCVTIMEOUT = 13
  v. SIP_ERR_INVITE_ADDR_RESOLVE = 20
  vi. SIP_ERR_INVITE = 21
  vii. SIP_ERR_INVITE_USER_NOTFOUND = 22 (SIP 404 – User Not Found)
  viii. SIP_ERR_INVITE_FORBIDDEN_ACCESS = 23
  ix. SIP_ERR_INVITE_RCVTIMEOUT = 24

     - In the case of SIP_ERR_INVITE_RCVTIMEOUT, information is added defining the part of the process in which the error happened

       /** SIP register states */

       SIPCON_STATE_UNREGISTERED = 0,
       SIPCON_STATE_REGISTER_AFTER_IPADDR_RESOLVED,
       SIPCON_STATE_REGISTER,
       SIPCON_STATE_REGISTERING,
       SIPCON_STATE_REGISTERED,
       SIPCON_STATE_UNREGISTER,
       SIPCON_STATE_UNREGISTERING

       /** SIP invite states */

```
SIPCON_STATE_NOINVITED = 100,
SIPCON_STATE_INVITE_AFTER_IPADDR_RESOLVED,
SIPCON_STATE_INVITE,
SIPCON_STATE_INVITING,
SIPCON_STATE_INVPENDING,
SIPCON_STATE_RINGING,
SIPCON_STATE_INVITED,
SIPCON_STATE_HANGUP,
SIPCON_STATE_HANGUPING,
SIPCON_STATE_DECLINE,
SIPCON_STATE_DECLINING,
SIPCON_STATE_INCOMING_INVITE,
SIPCON_STATE_INCOMING_ACCEPT,
SIPCON_STATE_INCOMING_ACCEPTING,
SIPCON_STATE_INCOMING_DECLINE,
SIPCON_STATE_REINVITE,
SIPCON_STATE_REINVITENING,
SIPCON_STATE_REINVPENDING
```

10.2 List of Abbreviations

L8	2N® Lift8
CU	System central unit, typically shared by multiple lifts in one building.
Splitter	Interconnects audio units and the CU. Each lift shaft has a splitter of its own.
Audio unit	Audio unit used for voice communication with the control centre or another system unit.
System	CU connected with a splitter and group of audio unit.
Main bus	6 wires (power, audio, data) connecting the CU with splitters.
Bus	Double wire connecting the splitter with lift audio unit.
Incoming call	Call from the control centre to the CU.
Outgoing call	Call from the CU to the control centre.

L8	2N® Lift8
Check call	Call from the CU to the check call line registered in **2N®** **Server** or another number defined.
Triphony	Inter-audio unit communication, typically between all audio units of one lift, during repairs or rescue operations, for example.
Control centre	Workplace receiving alarm calls. There can also be separate workplaces for various call types or just the staff mobile telephones.
DISA	Automatic voice menu for incoming call routing to the required audio unit or function activation, remote programming, e.g.
PBX	Private branch exchange (equipped with PSTN connection and analogue local lines).

L8	2N® Lift8
PSTN	Public telephone network. For simplicity, it is assumed that the CU is connected to the PSTN but works identically on the PBX line too.
GSM	Global System for Mobile Communications
UMTS	Universal Mobile Telecommunications System
TCP	Transmission Control Protocol is one of the set of Internet protocols.
ST	The **2N® Service Tool** application is intended for remote supervision and configuration of **2N® Lift8** communicators.
CP	The **2N® Control Panel** application is intended for the administration of users, lifts and authorisations.
CM (Comm)	The **2N® Communicator** application is intended for receiving alarm calls by the dispatcher.
SRV	The **2N® Server** application processes check calls and mediates communication between the **CU**s and PC applications.
Validator	This code monitors the values entered in the applications, and in the event of an error such as excessive length, forbidden character, incorrect format etc., warns the user.

10.3 Regulations

2N® Lift8 conforms to the following directives and regulations:

- 2014/35/EU for electrical equipment designed for use within certain voltage limits
- 2014/30/EU for electromagnetic compatibility
- 2014/33/EU for lifts and safety components for lifts
- 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment

- 2012/19/EU on waste electrical and electronic equipment

Directive 2014/33/EU of the European Parliament and Council Directive of 26 February 2014 on the harmonisation of the laws of the Member States relating to lifts and safety components for lifts

European Parliament and Council Directive 95/16/EC of 29 June 1995 on the approximation of the laws of the Member States relating to lifts

ČSN EN 81-28

ČSN EN 81-72

10.4 General Instructions and Cautions

Please read this User Manual carefully before using the product. Follow all instructions and recommendations included herein.

Any use of the product that is in contradiction with the instructions provided herein may result in malfunction, damage or destruction of the product.

The manufacturer shall not be liable and responsible for any damage incurred as a result of a use of the product other than that included herein, namely undue application and disobedience of the recommendations and warnings in contradiction herewith.

Any use or connection of the product other than those included herein shall be considered undue and the manufacturer shall not be liable for any consequences arisen as a result of such misconduct.

Moreover, the manufacturer shall not be liable for any damage or destruction of the product incurred as a result of misplacement, incompetent installation and/or undue operation and use of the product in contradiction herewith.

The manufacturer assumes no responsibility for any malfunction, damage or destruction of the product caused by incompetent replacement of parts or due to the use of reproduction parts or components.

The manufacturer shall not be liable and responsible for any loss or damage incurred as a result of a natural disaster or any other unfavourable natural condition.

The manufacturer shall not be held liable for any damage of the product arising during the shipping thereof.

The manufacturer shall not make any warrant with regard to data loss or damage.

The manufacturer shall not be liable and responsible for any direct or indirect damage incurred as a result of a use of the product in contradiction herewith or a failure of the product due to a use in contradiction herewith.

All applicable legal regulations concerning the product installation and use as well as provisions of technical standards on electric installations have to be obeyed. The manufacturer shall not be liable and responsible for damage or destruction of the product or damage incurred by the

consumer in case the product is used and handled contrary to the said regulations and provisions.

The consumer shall, at its own expense, obtain software protection of the product. The manufacturer shall not be held liable and responsible for any damage incurred as a result of the use of deficient or substandard security software.

The consumer shall, without delay, change the access password for the product after installation. The manufacturer shall not be held liable or responsible for any damage incurred by the consumer in connection with the use of the original password.

The manufacturer also assumes no responsibility for additional costs incurred by the consumer as a result of making calls using a line with an increased tariff.

Electric Waste and Used Battery Pack Handling

Do not place used electric devices and battery packs into municipal waste containers. An undue disposal thereof might impair the environment!

Deliver your expired electric appliances and battery packs removed from them to dedicated dumpsites or containers or give them back to the dealer or manufacturer for environmental-friendly disposal. The dealer or manufacturer shall take the product back free of charge and without requiring another purchase. Make sure that the devices to be disposed of are complete.

Do not throw battery packs into fire. Battery packs may not be taken into parts or short-circuited either.