



EMERGENCY COMMUNICATION FOR ELEVATORS

IP, digital and analogue systems by 2N





“For the last 24 years, our lift division has been in the vanguard of innovation and applies 2N’s expertise in IP technology to solve our elevator customers’ most pressing problems. Worldwide, we have made more than 500,000 lifts safer, smarter and more reliable.”

“AXIS Group including 2N have a common goal to contribute to a smarter and safer world. There is an increased customer demand for integrated solutions with open standards that deliver enhanced security. Together with 2N we can meet that demand.”



MICHAL KRATOCHVÍL
CEO, 2N Telekomunikace a.s.



MARTIN ANDERSEN
Vice President New Business, Axis Communications

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THREE CHALLENGES IN THE EMERGENCY COMMUNICATION

Reliable communication between a lift cabin and call center is mandatory in most of the countries. Usually, it is the only way how to contact the outside world and get help when you are trapped in the elevator. But many changes and exciting new challenges are coming in the field of lift emergency communication. Get ready for them.



TRANSITION TO 4G (LTE) NETWORKS

Soon, the whole elevator industry will face a technological change due to the too expensive PSTN network and shutdown of 2G (GSM) and 3G (UMTS) mobile networks. As a result, vast majority of installed gateways are going to stop working, so elevators will lose connectivity to call centers with all legal consequences. In reaction to that a transition to 4G (LTE) networks will be necessary.



RELIABLE TRANSMISSION OF DTMF CODES

DTMF is essential for identification of the lift devices and for their configuration. However, PSTN, 2G, 3G and even 4G (VoLTE) networks frequently distort the DTMF signal and its error-free transmission is not guaranteed. This is a crucial problem for elevator signalling protocols (CPC, P100). Therefore, the only future-proof option is to use SIP-enabled VoIP gateways that guarantee reliable transmission of DTMF.



REQUEST FOR ONLINE MONITORING

Elevator market is very competitive, and price is one of the crucial factors. However, significant part of the cost represents mainly post-warranty services, specifically human labor and site visits. That's why elevator companies are increasingly demanding to transform a regular lift into a smart, connected IP solution allowing remote maintenance and monitoring.

PROBLEM



DTMF distortion



Fixed lines unavailability



GSM & UMTS shutdown



Technicians IT skills



VoIP know-how



2N® EasyGate IP



2N® Elevator Center



2N® LiftIP 2.0



2N® LiftGate



2N® Lift8 LTE

SOLUTION

IP SOLUTION

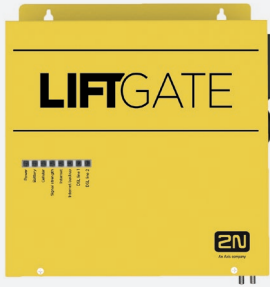
When people talk about a “smart building”, they usually think of modern technologies, remote 24/7 monitoring, and unified applications to control lights, doors, heating, etc. But they often forget about the elevator, which is an integral part of a smart living. With our solution, you only need one IoT gateway and two wires in the travelling cable to connect an IP communicator, camera, access reader and advertising panel in the lift cabin.



2N® LIFTGATE

2N® LiftGate is an IoT gateway that combines the functions of an LTE router, a backup power supply, a converter (2-wire to IP) and a switch. Using just 2 conductors in the traveling cable you get the IP connectivity right to the cabin. Then, you can connect and even power IP communicator, IP camera or IP access control directly from it.

A single SIM card provides you with both call and data connectivity, for example for an IP controller or access control system. This gateway also supports SIP protocol and ensures reliable transmission of DTMF codes to the dispatching center. Management is done locally or via 2N® Elevator Center.



2N® LiftGate



2N® LiftGate
Cabin switch

For 1 or 2 shafts
ord. 5024101E

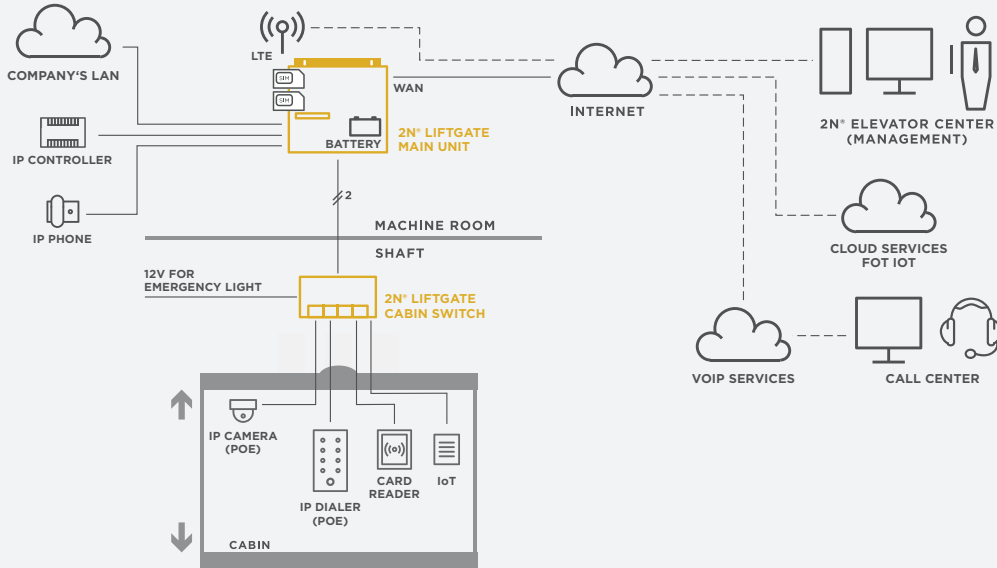
ord. 502460E

Auto configuration

IP to the cabin via 2 wires
in travelling cable

One SIM card for calling and
data connectivity

Installation



Technical Specifications

Data

LTE	LTE FDD: Max 10Mbps (DL)/Max 5Mbps (UL) LTE TDD: Max 8.96Mbps (DL)/Max 3.1Mbps (UL)
UMTS	DC-HSDPA: Max 42Mbps (DL) HSUPA: Max 5.76Mbps (UL) WCDMA: Max 384Kbps (DL)/Max 384Kbps (UL) EDGE: Max 296Kbps (DL)/Max 236.8Kbps (UL) GPRS: Max 107Kbps (DL)/Max 85.6Kbps (UL)
GSM	1Gbps
WAN	3 V and 1.8 V
SIM card	

Router

Network protocols	PPP, PPPoE, TCP, UDP, DHCP, ICMP, NAT, HTTP, HTTPS, DNS, ARP, RIP, OSPF, NTP, SMTP, Telnet, VLAN, SSH2, etc.
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LiftGate cabin switch

Number of ports	4x 10/100 Mbps (2x PoE)
DSL	IEEE B1901
Output voltage	12V

Antenna

Connector type	SMA
Impedance	50 Ohms

Power source

Backup power	internal 12 V 9Ah, external battery optionally
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USB Interface

Configuration and upgrade	none Web GUI, or My2N for lifts cloud
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Other

Dimensions	240 × 268 × 72 mm
IP coverage	IP30
Operating temperature	0°C to +45°C
Operational status signalling	8 LEDs (Power, Battery, Cellular, Signal, Internet, Internet backup, DSL line 1, DSL line 2)

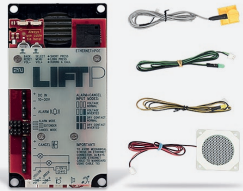
2N® LIFTIP 2.0

The 2N® LiftIP 2.0 is a unique product on the elevator communication systems market. This IP-based emergency communicator uses VoIP technology for transmitting call from a lift cabin to the alarm center. These calls can be tied to the video from the IP camera installed in the elevator cabin. This gives the operator an immediate overview of what's going on in the cabin and whether anyone is trapped.

Full duplex audio

Future proof, IP-based solution

Online monitoring and remote management



2N® LiftIP 2.0
COP UNIT

COP version - fixed
ord. 921640E
COP version - wired
ord. 921640XE



2N® LiftIP 2.0
COP UNIT
FLUSH MOUNT

With button
ord. 921618BE
Without button
ord. 921618E



2N® LiftIP 2.0
TOC UNIT

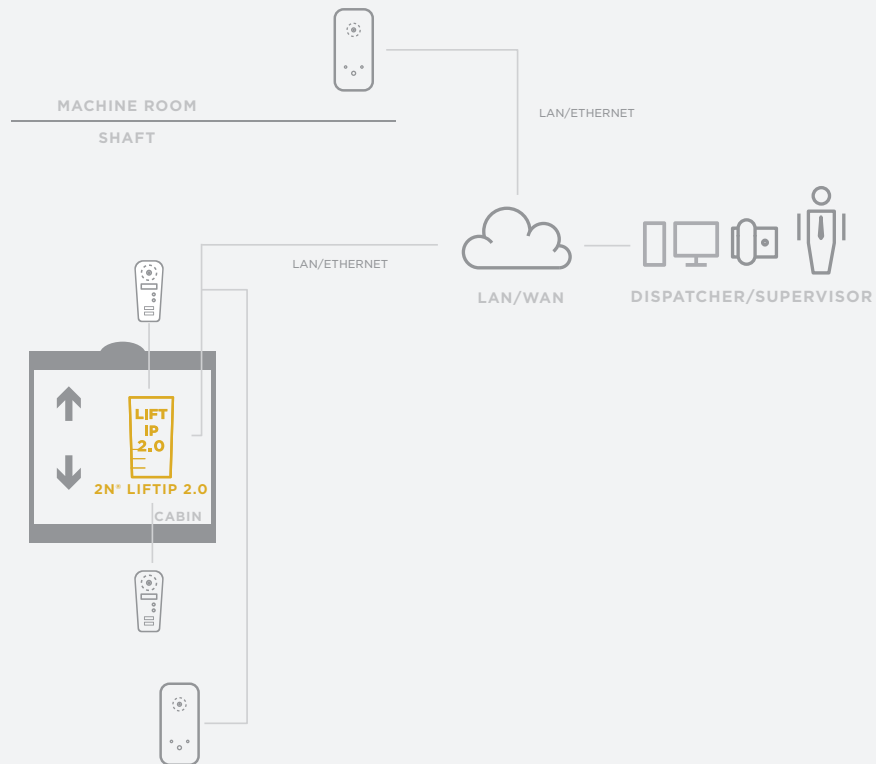
With Voice alarm station switch
ord. 921631E
Without Voice alarm station switch
ord. 921630E



2N® LiftIP 2.0
I/O EXTENDER

Extends 2N® LiftIP 2.0 with
1 input and 2 outputs
ord. 921623E

Installation



Technical Specifications

Voltage	10 - 30V DC, PoE (48V)
Consumption	Maximum 6 W
Alarm/Cancel input	5-48 V DC
Speaker	Integrated 16Ω / 0.25W
Microphone	Integrated
Audio	Full duplex
Induction loop output	0,5V RMS / 75 Ω
Pictograms	12 - 24 V DC / 200mA
Dimensions	65x130x24 mm
Operating temperature	- 20 °C to +50°C



DIGITAL MODULAR SOLUTION

Are you looking for a modular, future-proof solution for multiple shafts? Do you want an IP communication from the lift but there is no ethernet cable to the cabin? Do you have a project that has to be compliant with strict standards such as EN 81-72? If you answered “yes” to any of these questions, then 2N® Lift8 is the right choice for you.

2N® LIFT8

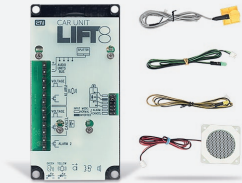
2N® Lift8 is highly modular lift communication system using just two-wire bus. It is an ideal solution for demanding high rise installations, projects requiring modularity and buildings with multiple shafts. The seamless hardware upgrade without the need to change the whole system provides flexibility and reduces TCO. 2N® Lift8 meets all the applicable EU standards.

Comprehensive, modular, expandable

Wide range of communication interfaces

Connection of up to 8 shafts

Various types of audio units:



2N® LIFT8 AUDIO
UNIT COP

COP version of the cabin unit
for installed behind the panel

COP version
ord. 918610E
COP version with cables
ord. 918610XE



2N® LIFT8 AUDIO UNIT
COMPACT

Surface-mounted
cabin unit

With button
ord. 918613E
Without button
ord. 918613WBE



2N® Lift8 AUDIO UNIT
FLUSH

Flush-mounted antivandal
version of the cabin unit

With button
ord. 918618BE
Without button
ord. 918618E

2N® Lift8 Central Unit, the main component of the system, provides the battery backup for all connected audio units and ensures audio communication.

2N® LIFT8



2N® Lift8
CENTRAL UNIT
ord. 918600E

Interfaces for communication with the operator
(outside calling)

Monitoring interface to lift controller



2N® Lift8 PSTN

2N® Lift8 GSM/UMTS

2N® Lift8 LTE

2N® Lift8 VOIP

2N® Lift8 RS232

2N® Lift8 IP

ord. 918652E

ord. 918650E
ord. 918651E

2G, 3G, VoLTE, VoIP
ord. 918658E

RJ-45 port (WAN);
SIP communication
ord. 918653E

ord. 918654E

RJ-45 port (LAN)
ord. 918655E

2N® LIFT8



2N® Lift8
MACHINE ROOM UNIT

MR unit + programming
ord. 918611E

PCB version: **ord. 918623E**



2N® Lift8
CAMERA MODULE

For visual alarm confirmation
ord. 918622E



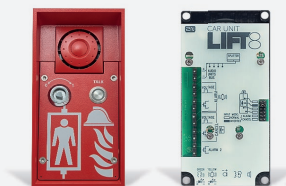
2N® Lift8 SPLITTER

Shaft extender
ord. 918620E



2N® Lift8 I/O MODUL

For easy lift monitoring
ord. 918621E



2N® LIFT8 AUDIO UNIT
FIREMAN

For fire fighter elevators
ord. 918615E
PCB version: **ord. 918619E**



2N® Lift8 SHAFT UNIT
ANTIVANDAL

For heavy duty environment
ord. 918617E



2N® Lift8
SHAFT UNIT

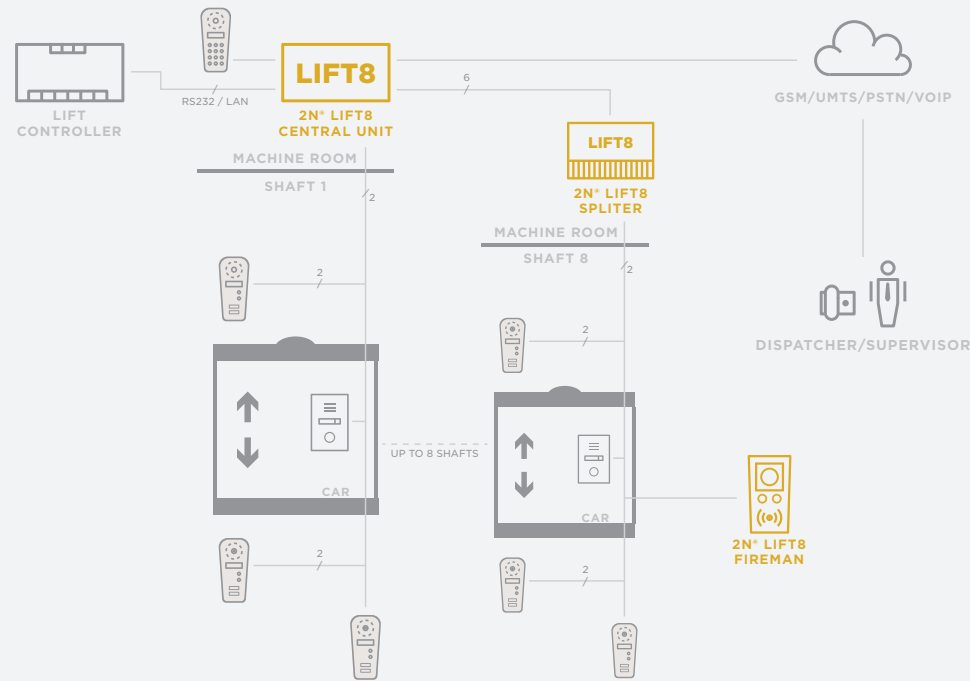
Top of, under cabin or pit
ord. 918612E



2N® Lift8 PICTOGRAM
CONTROLLER

External pictogram driver
ord. 918655E

Installation



Technical Specifications

Central unit

Power	100 - 240 V; 50/60 Hz; 0.75 A; 60 W max.
Backup power supply	Built-in lead acid battery
Connection options	4 reporting units + 7 splitters + 8 I/O modules
Maximum distance between the splitters	100 m
Control-room connection interface	Optional PSTN / GSM / UMTS / VoIP
Configuration and monitoring	Voice menu / USB / remote
Status indicators	5× LED, three-colour
Dimensions and weight	300×170×72 mm, 2.7 kg
Splitter	10 to 20 V, 25 to 50 Hz
Power	24 V from a central or local unit
Capacity	4 reporting units + camera module
Maximum total shaft cable length	600 m
Lift blocker output	Relay, NO and NC contacts
Dimensions	142×98×34 mm
Reporting units	9V AC or DC
Link to splitter	2 wires for power, voice and data
Inputs for buttons and signals	ALARM1, ALARM2, CANCEL
LED signalling	Connecting, Connection confirmed
Option to hook up an external microphone, speaker and LED	Yes, on the cabin reporting unit
Numeric keypad, system configuration option	Yes, on the machine room reporting unit
Option to connect an earpiece in noisy circumstances	Yes, in the machine room and shaft reporting units
In-shaft visibility	Yes, backlit buttons
I/O Module	200 mA
Power	24 V from a central or local unit
Capacity	4 inputs + 4 outputs
Inputs	Galvanically isolated, 12 - 24 V AC or DC
Outputs	Relay, contacts Normally-Open (NO), max. 250 V, 5 A
Dimensions	142×98×34 mm

ANALOGUE SOLUTION

PSTN lines are nearing their end or are extremely expensive. Connect an analogue communicator to a modern 2N analogue gateway and voice and data (VoIP) communication will take place over a mobile network. You will also be able to keep an eye on the lift.



2N® EASYGATE IP

2N® EasyGate IP turns your analogue communicators into a VoIP-enabled devices without making a single change to hardware in the cabin. This new generation of GSM/UMTS/VoLTE/LTE gateway supports SIP protocol to provide reliable transmission of DTMF codes to the dispatching centre. Device management can be done either locally, or via cloud-based 2N® Elevator Center portal. Monitored in-built battery backup fully complies with the latest elevator norms for emergency communication.

Supporting VoIP (SIP over LTE)

Auto configuration and online monitoring

Durable industrial mechanics (IP43)



2N® EasyGate IP



2N® EasyGate IP+

With modem
ord. 5023101E

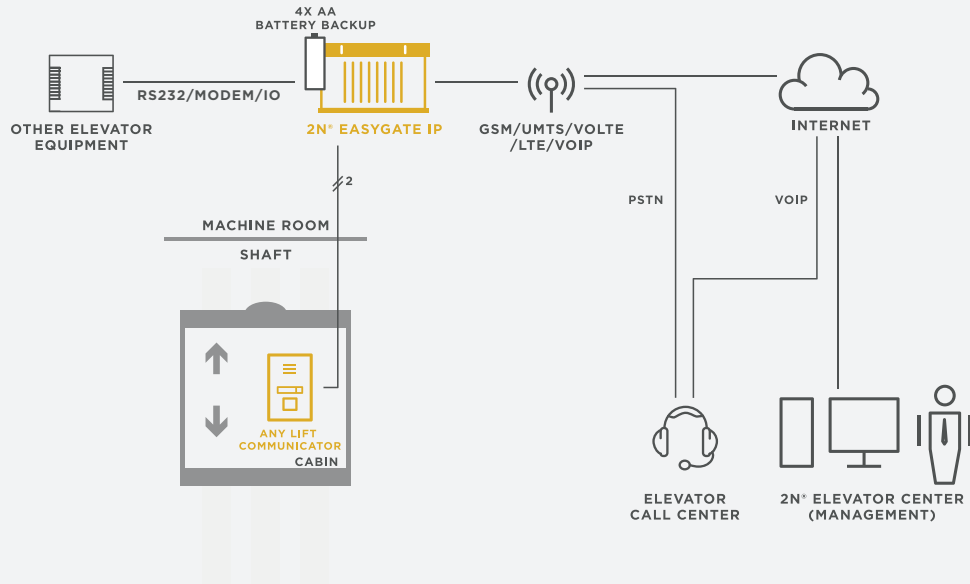
Without modem
ord. 5023001E

With modem
ord. 5025101E

Without modem
Ord. 5025001E

Available in 2023

Installation



Technical Specifications

Voice

GSM networks	850/900/1800/1900 Mhz
UMTS networks	900/2100 MHz (EU) 850/1900 MHz (US) 850/2100 MHz (JPN)
LTE networks (EU/NA/AU)	LTE FDD: B1/B3/B5/B7/B8/B20 WCDMA: B1/B5/B8 GSM: B3/B8 LTE FDD: B2/B4/B12 WCDMA: B2/B4/B5 LTE FDD: B1/B2/B3/B4/B5/B7/B8/B28 LTE TDD: B40 WCDMA: B1/B2/B5/B8 GSM: B2/B3/B5/B8

Data

LTE	LTE FDD: Max 10Mbps (DL)/Max 5Mbps (UL) LTE TDD: Max 8.96Mbps (DL)/Max 3.1Mbps (UL) DC-HSDPA: Max 42Mbps (DL) HSUPA: Max 5.76Mbps (UL) WCDMA: Max 384Kbps (DL)/Max 384Kbps (UL)
UMTS	EDGE: Max 296Kbps (DL)/Max 236.8Kbps (UL) GPRS: Max 107Kbps (DL)/Max 85.6Kbps (UL)
GSM	RS232 3 V and 1.8 V

Serial Interface

SIM cards

Antenna

Connector type

Impedance

Line interface

Interface type

Connector type

Supported modes

Power source

Power unit supplied with the gateway

Backup power using 4xAA batteries

USB Interface

Configuration and upgrade

Other

Dimensions

IP coverage

Operating temperature

Operational status signalling

SMA

50 Ohms

Two-wire, FXS for phone or external PBX line

Terminal

DTMF

(12 V/1 A), Option to connect an external 10 to 16 V DC power source

16/12 kHz

Web GUI, or My2N for lifts cloud

195 × 119 × 61 mm

IP43

-40°C to +85°C

4xLED (ON, GSM network, line, data), LED indicator - signal strength/
battery status

2N® EASYGATE PRO

2N® EasyGate PRO is a full featured land-line replacement. An analogue GSM/UMTS/VoLTE gateway suited for a lift environment. Connect to it any lift emergency communication system, or use it as an instant replacement of fixed lines via mobile (cellular) solution. In addition, the gateway can make a call for transferring data and SMS messages. Also available as dual SIM.

Land-line replacement

Trouble-free installation

Lift monitoring by SMS report



2N® EasyGate GSM

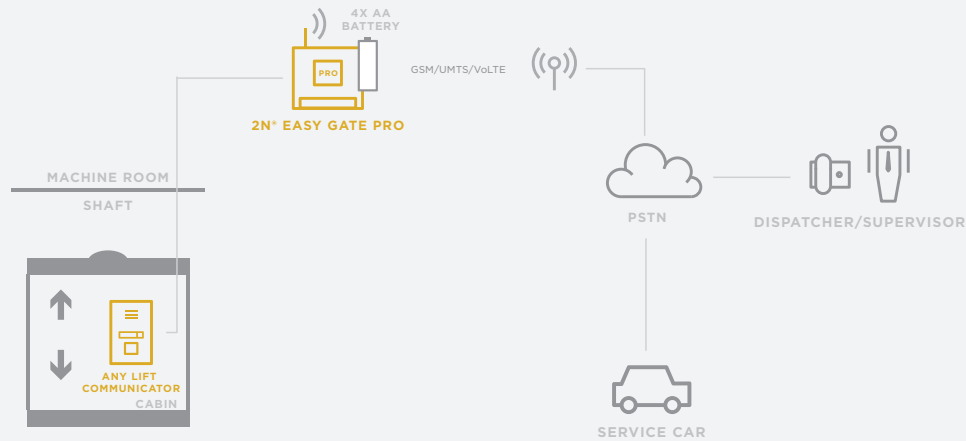
1x UMTS, FXS port,
Aku+, EU plug
ord. 5013321LE



2N® EasyGate LTE

1x LTE, FXS port, Aku+
ord. 5013391LAU
ord. 5013391LUS

Installation



Technical Specifications

GSM model

GSM networks	850/900/1800/1900 Mhz
GSM modules	Cinterion MC55i-w
Data	CSD (up to 14.4 kbit/s), GPRS Class 10
SIM card	3 V and 1.8 V

GSM/LTE model

GSM networks	850/900/1800/1900 Mhz
LTE networks	700/1700/1900 MHz (US version), 700/850/900/1700/1800/2100/2300/2600 MHz (AU+MZ version)
Data	HSDPA 3.6 Mbps, WCDMA, EDGE, GPRS
SIM card	3 V and 1.8 V

Antenna

Connector type	SMA
Impedance	50 Ohms

Line interface

Interface type	Two-wire, FXS for phone or external PBX line
Connector type	RJ12, 6/2, or terminal
Supported modes	DTMF and pulse

Power source

Power unit supplied with the gateway	(12 V/1 A)
Option to connect an external 10 to 16 V DC power source	DTMF and pulse
Backup power using 4×AA batteries	16/12 kHz

USB Interface

Configuration and upgrade using 2N® PC Manager UNI	200 mA
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Other

Dimensions	163×157×38 mm
Operating temperature	0°C - 45°C
Operational status signalling	4×LED (on, GSM network, line, data), LED indicator - signal strength/battery status
Operational status signalling	4×LED (on, GSM network, line, data)
LED indicator	signal strength/battery status

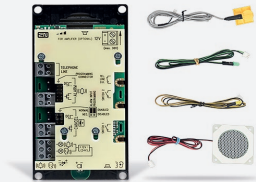
2N® LIFT1

The 2N® Lift1 is a cost-effective analog solution designed for two-way emergency communication in the elevators. Its typical use is for the communication between the cabin and the control centre or machine room. Configuration can be done locally using the software, via voice menu (in call) or using SMS service.

A comprehensive solution
for single lift

Fully powered over phone line

Supports CPC and P100 protocols



2N® Lift1
CABIN UNIT COP

COP version - fixed
ord. 919640E
COP version - wired
ord. 919640XE



2N® Lift1
CABIN UNIT
SURFACE MOUNT

With button
ord. 919645E
Without button
ord. 919645WBE



2N® Lift1
CABIN UNIT
FLUSH MOUNT

With button
ord. 919618BE
Without button
ord. 919618E



2N® Lift1
CABIN UNIT TOC

With Voice alarm station switch
ord. 919631E
Without Voice alarm station switch
ord. 919630E



2N® Lift1 VOICE ALARM STATION SET

Intended for installation on top of and under an elevator cabin
ord. 913661ESET



2N® Lift1 MACHINE ROOM STATION SET

Ensures communication to the elevator cabin
ord. 919654ESET



2N® Lift1 USB PROGRAMMING TOOL

Mandatory USB tool for Lift1 configuration from PC
ord. 919680E

2N® Lift1 Switch module

DTMF remote controlled universal switch
ord. 913648E

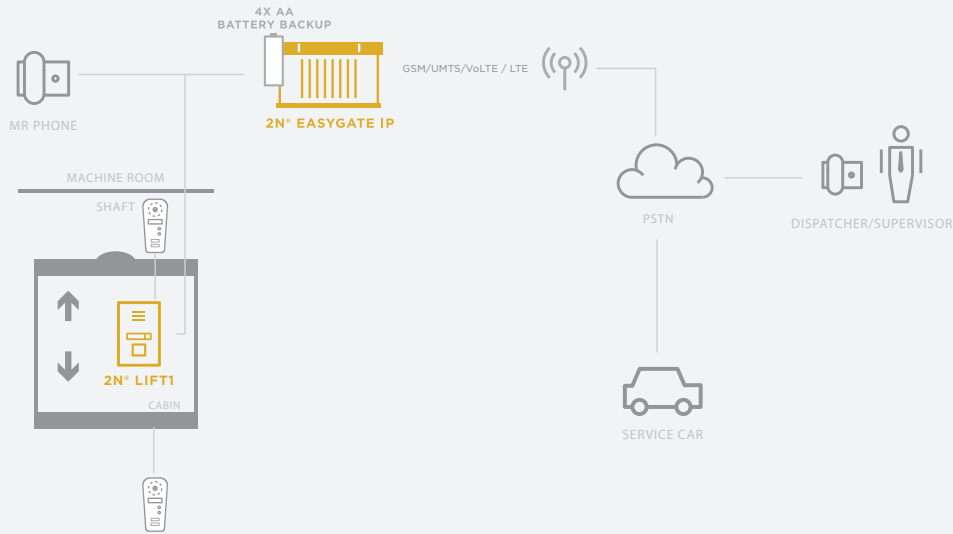
2N® Lift1 Blocking module

Blocks the lift in case of telephone line failure
ord. 913649E

2N® Lift1 Amplifier module

Speaker amplifier for noisy environment
ord. 913650E

Installation



Technical Specifications

Electrical parameters

Minimum line current	15 mA, off the hook
Minimum line voltage	22 V, on the hook
DC voltage drop in the off the hook state	< 9 V, I = 20 mA, < 12 V, I = 50 mA
Resistance on the hook	1 M Ω >, U = 25..100 V
Impedance off the hook	220 Ω + 820 Ω paral. 115 nF, 15 to 60 mA
Attenuation	> 14 dB, 15 to 60 mA
Bandwidth	300 to 3500 Hz, 15 to 60 mA
Impedance while ringing	> 2 k Ω C = 0.47 μ F, 25 to 50 Hz
Ringtone detection sensitivity	10 to 20 V, 25 to 50 Hz
Pulse dialling	40 / 60 ms
Tone-dial levels	-9.0 +2.0/-2.5 dB and -11.0 dB +2.5/-2.0 dB, 15 to 60 mA
Power surge protection - differential between A, B leads	1000 V (8 / 20 μ s)

Note Any ringing sequence is acceptable

Switch parameters

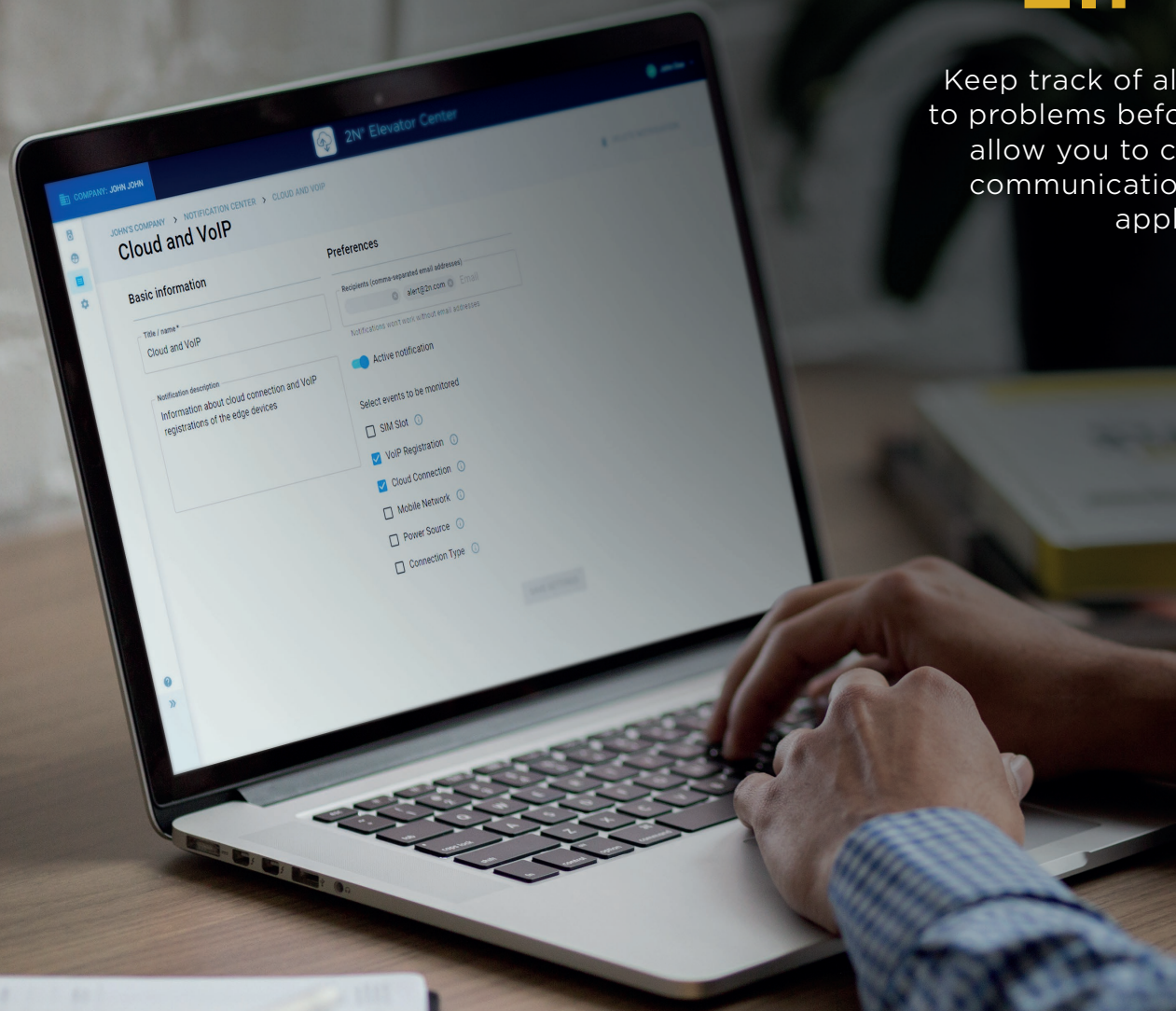
Minimum voltage	9 V AC or DC
Minimum voltage	24 V AC or DC
Maximum current	1 A AC or DC
Resistance - open	min 400 k Ω
Resistance - closed	approx. 0.5 Ω
Fuse	resettable
Connection of external indicator elements	
Power supply voltage	12-24 V DC, external source
Maximum switching current	200 mA

Other parameters

Dimensions of the Universal implementation	65×130×24 mm
Dimensions of the Compact implementation	100×185×16 mm
Operating temperature range	-20°C to 70°C

LIFT SOFTWARE

Keep track of all your installations, save time and respond to problems before the customer even finds out. 2N's tools allow you to configure, manage and monitor emergency communication products remotely. You can also use the application to manage control and alarm calls.



2N® ELEVATOR CENTER

The 2N® Elevator Center gives you non-stop control over all installed elevator devices. Manage and monitor your IP communicators, gateways and routers from your office. You don't need any IT skills. A technician will install the device and it will automatically connect to the portal in just a few seconds. 2N® Elevator Center will safely and reliably usher you to the world of smart elevators with modern functions.

All connected 2N IP devices provide operational data like signal strength, battery status, network registration, error states and outages immediately to the portal. System administrators also have a possibility to access connected devices remotely which reduces maintenance cost and simplifies troubleshooting, implementation of new features or configuration changes.

You can rest assured that all data transfers are absolutely secure. The 2N® Elevator Center is part of the My2N platform, which has been operating without interruption since 2016, is regularly audited and as a company we are also ISO 27001 certified

KEY CHARACTERISTICS:

- Device status monitoring
- Remote management
- Auto configuration
- Reliable DTMF transmission
- Trusted and verified platform
- Partner API for easy integration

Central device management

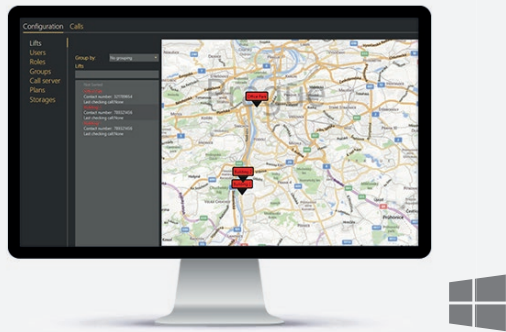
Remote monitoring

Fully reliable and secure platform



2N® CALL CENTER

Call Center for Lifts is a software solution for the comprehensive management of emergency lift communicators. The software will even allow you to handle alarms and control calls. You get not only a detailed overview of all your calls from the lift, but the option to archive them or export the data e.g. for customer reports preparation.



2N® CALL CENTER FOR LIFTS

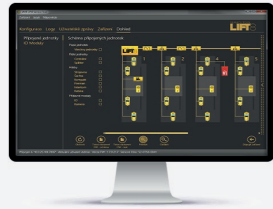
ord. 918700E

Management of control and alarm calls

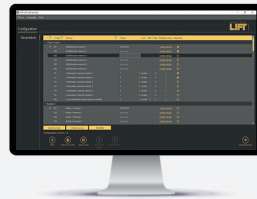
No extra hardware required

Support for CPC and P100 protocols

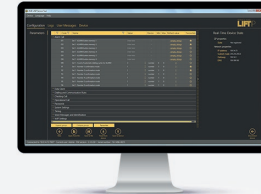
2N LIFT SOFTWARE



2N® Lift8 SERVICE TOOL



2N® Lift1 SERVICE TOOL



2N® LiftIP SERVICE TOOL

The 2N® Lift8 Service Tool is software used for local (USB) or remote (IP) configuration of one complete 2N® Lift8 communication system (audio messages, additional modules, splitters and I/O modules).

With the aid of 2N® Lift1 Service Tool software, you will be able to completely set up the 2N® Lift1 communicator. In addition to this, the software application can, apart from configuration, also be used to perform an upgrade and to change the language version.

With the 2N® LiftIP Service Tool, you will be able to fully configure the 2N® LiftIP lift communicator yourself. The tool will also help you update the software or switch between languages for audio announcements played back in the lift cabin or used during configuration.

LIFT ACCESSORIES

2N® 2Wire - Ethernet 2 wire convertor	9159014E
2N® Emergency button under/or top of the cabin	918690E
2N® Floor annunciator	913305E
2N® External microphone 1 m	913627E
2N® External microphone 3 m	9136273E
2N® External speaker 1 m	913625E
2N® External speaker 3 m	9136253E
2N® External LED's 1 m	913620E
2N® External LED's 3 m	9136203E
2N® High gain 9dB antenna 10m for GSM or UMTS	22041567
2N® High gain 9dB antenna 10m for LTE	22041579
2N® Induction Loop Amplifier with Antenna	919622E



TÜV SÜD Certified

All emergency communication products are certified by TÜV SÜD Czech. The TÜV certificates confirm compliance with EN81-28, EN 81-70, EN81-72 and EN81-80.



NGN Ready

The world is switching from analog lines to IP technologies, particularly among fixed-line operators, who are upgrading their original analog lines. Always striving to provide the most reliable services, our 2N® Lift1, 2N® Lift8 and 2N® LiftIP 2.0 elevator communicators comply with this trend. We tested the 2N® Lift1, 2N® Lift8 a 2N® LiftIP 2.0w on these new connections in a special Deutsche Telekom laboratory in Bonn.

ELEVATOR NORMS

EN

81-28

EN 81-28 – Emergency calls. The purpose of this standard is to improve communication in emergency situations in elevators. It eliminates the risk of passengers being entrapped due to malfunctions in elevator installation. This is accomplished by fitting all elevators with an emergency call system, which connects lift cabin with remote emergency service.

EN

81-70

EN 81-70 – Barrier free elevators. This standard allows people with reduced mobility (pushchairs, wheelchairs, walking aids, etc.) or other disabilities (mental disability, sight and hearing impairment, etc.) to enter elevator cabins easily and operate elevators without limitations.

EN

81-72

EN 81-72 – Firefighting elevator. The standard deals with the significant hazards, hazardous situations and events relevant to firefighter elevators installed mostly in new buildings. They are primarily intended for use by passengers and thus may be used for firefighting and evacuation purposes under direct control of firefighters.

EN
81-20

EN 81-20 – Requirements for construction. This standard replaces the EN 81-1 standard and specifies the emergency call system requirements in greater detail. Lifts must now be equipped with additional communication units that must be installed with the ALARM system under the EN 81-28 standard to allow a person trapped in the shaft to place an emergency call.

EN
81-71

EN 81-71 – Vandal resistant elevators. The EN 81-71 standard defines the testing methodology and classification of elevators according to their vandal resistance. Furthermore, this standard provides guidance to building designers, customers, etc., and requirements for design in projects requiring additional security in order to protect against the risk of vandalism.

EN
81-80

EN 81-80 – Elevator modernization / hazard analysis. EN81-80 SNEL (Safety Norm for Existing Lifts) improves the security of existing passenger and goods passenger elevators. This standard defines rules for improving safety of existing elevators based on risk assessment and categorises various hazards and hazardous situations.

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