

Installation manual 2N® IP Vario



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1. Product Overview

Here is what you can find in this section:

- [1.1 Components and Associated Products](#)
- [1.2 Terms and Symbols](#)

Basic Features

2N® IP Vario is a highly reliable IP door access intercom provided with a lot of useful above-standard functions. Supporting the SIP standard and being compatible with the leading IP PBX and telephone suppliers, **2N® IP Vario** can make use of all VoIP services.

2N® IP Vario can be equipped with a colour camera, which displays the calling person on the called party's video telephone or PC monitor.

2N® IP Vario can be provided with up to 54 pre-programmed buttons. You can set up to three telephone numbers and time profiles for each of the buttons to increase the accessibility of the called party.

2N® IP Vario can be equipped with a numerical keypad to be used as a code lock for lock switch activating or telephone/subscriber number dialling.

2N® IP Vario is equipped with an electric lock switch. You can control the switch using a numerical keypad or, during a call, using any telephone set. An additional switch module can be installed if necessary. A wide range of settings allow for a variety of applications.

2N® IP Vario can also be provided with RFID card reader modules.

2N® IP Vario is very easy to install. All you have to do is connect the system into your LAN via a network cable and feed it from a 12 V power supply or your PoE supporting LAN.

Configure **2N® IP Vario** using your PC via any web browser. Use the **2N® Access Commander** to manage extensive **2N® IP Vario** systems easily and quickly.

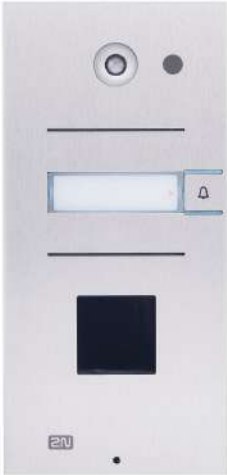
Advantages of Use

- Bidirectional communication – acoustic echo cancelling
- Integrated colour camera
- Optional dial buttons including name tags with backlight
- Optional numerical keypad with backlight
- Integrated electronic lock switches with wide setting options
- Optional integrated RFID card reader module
- LAN (PoE) or external 12 V power supply
- Configuration via web interface or dedicated PC application
- SIP 2.0 support
- Up to 54 buttons pre-programmed buttons

- Up to 1999 telephone directory positions
- Up to 20 user time profiles
- Video codecs (H.263, H.263+, H.264, MPEG-4, JPEG)
- Audio codecs (G.711, G.729, G.722, L16/16 kHz)
- HTTP server for configuration
- SNTP client for time synchronisation with server
- RTSP server for video streaming
- SMTP client for e-mail sending
- TFTP client for automatic configuration and firmware update

1.1 Components and Associated Products

Basic Units

2N Part No. 9137111(C)U Axis Part No. 01306-001, 01313-001 (C) 	• 1 button • control of one electric lock • possibility of connecting card reader, extenders or information panel or additional switch • available option with camera (C)
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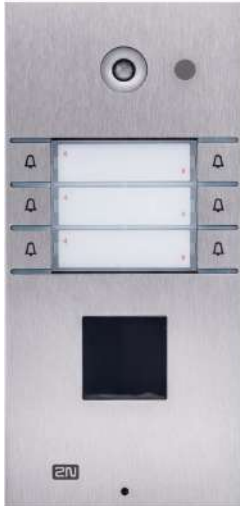
**2N Part No.
9137131(C)U**

**Axis Part No.
01307-001, 01314-001
(C)**



- 3 buttons
- control of one electric lock
- possibility of connecting card reader, extenders or information panel or additional switch
- available option with camera (C)

**2N Part No.
9137161(C)U**
**Axis Part No.
01308-001, 01315-001
(C)**



- 6 buttons
- control of one electric lock
- possibility of connecting card reader, extenders or information panel or additional switch
- available option with camera (C)

**2N Part No.
9137111(C)KU**

**Axis Part No.
01309-001, 01316-001
(C)**



- 1 button
- keypad
- control of one electric lock
- possibility of connecting card reader, extenders or information panel or additional switch
- available option with camera (C)

**2N Part No.
9137131(C)KU**

**Axis Part No.
01310-001, 01317-001
(C)**



- 3 buttons
- keypad
- control of one electric lock
- possibility of connecting card reader, extenders or information panel or additional switch
- available option with camera (C)

**2N Part No.
9137161(C)KU**

**Axis Part No.
01311-001, 01318-001
(C)**



- 6 buttons
- keypad
- control of one electric lock
- possibility of connecting card reader, extenders or information panel or additional switch
- available option with camera (C)

**2N Part No.
9137160(C)KDU**

**Axis Part No.
01312-001, 01319-001
(C)**



- 6 buttons
- graphic display
- keypad
- control of one electric lock
- possibility of connecting card reader, extenders or information panel or additional switch
- available option with camera (C)

(C) = Integrated camera

Extending Modules

**2N Part No.
9135181E**

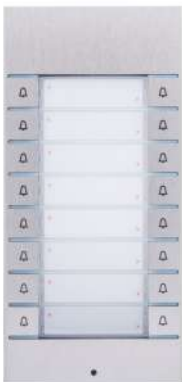
**Axis Part No.
01320-001**



- Extending module
- 8 buttons
- Dimension of the module 100 x 210 x 29 mm

**2N Part No.
9135182E**

**Axis Part No.
01321-001**



- Extending module
- 16 buttons
- Dimension of the module 100 x 210 x 29 mm

**2N Part No.
9135310E**

**Axis Part No.
01322-001**



- Info panel
- Backlit panel without buttons; used for insertion of a telephone directory, company logo, house number, etc.

Extenders

2N Part No. 9135301E

**Axis Part No.
01329-001**



- Spare button name plate

2N Part No. 9135311E Axis Part No. 01331-001 	• Info panel – name plate • Replacing cover for four name tags. • Helps you use a half of the extending module for insertion of a telephone directory, working hours, etc.
2N Part No. 9135302E Axis Part No. 01330-001 	• Spare double-button name plate

✓ **Tip**

- All units can be surface mounted without needing any additional accessories.

⚠ **Caution**

- For flush or outdoor mounting you need to use the accessories; see the Mounting Accessories subsection.

Mounting Accessories

2N Part No. 9135331E

Axis Part No. 01323-001



- Surface 1-module roof
- **Dimensions:** (103 x 218 x 60) mm (W x H x D)

2N Part No. 9135351E

Axis Part No. 01325-001



- Wall mounting box with 1-module frame
- **Dimensions:** (125 x 235 x 46) mm (W x H x D)
- **Wall hole:** (110 x 220 x 50) ±5 mm

2N Part No. 9135361E
Axis Part No. 01327-001



- Wall mounting box with 1-module roof
- **Roof dimensions:** (129 x 240 x 41) mm (W x H x D)
- **Wall hole:** (110 x 220 x 50) ±5 mm

2N Part No. 9135332E
Axis Part No. 01324-001



- **Part No. 9135332E**
- Surface 2-module roof
- **Dimensions:** (203 x 218 x 60) mm (W x H x D)

2N Part No. 9135352E
Axis Part No. 01326-001



- Wall mounting box with 2-module frame
- **Dimensions:** (225 x 235 x 46) mm (W x H x D)
- **Wall hole:** (210 x 220 x 50) ±5 mm

2N Part No. 9135362E
Axis Part No. 01328-001



- Wall mounting box with 2-module roof
- **Roof dimensions:** (229 x 240 x 41) mm (W x H x D)
- **Wall hole:** (210 x 220 x 50) ±5 mm

The mounting accessories are made of stainless steel. For outdoor applications, the use of the roof is required unless weather protection is provided otherwise. The box with frame (without roof) allows for installation of **2N® IP Vario** in indoor applications so that the unit does not practically stick out (up to 1 mm).

2N Internal Units and Accessories

Part Numbers:

2N Part No. 91378375

Axis Part No. 01668-001

2N Part No. 91378376

Axis Part No. 01670-001



- **2N® Indoor Touch 2.0** – black
- WiFi version (second part no.)
- The elegant internal touch panel, **2N® Indoor Touch 2.0**, is suitable for all **2N IP intercoms**. On the panel's display not only can you find out who is at the door, but also start a conversation with the visitor, open the lock or turn on the light in the entrance hall.

2N Part No. 91378382

Axis Part No. 01425-001



- **2N® Indoor Touch** desk stand black

Part Numbers:

2N part No. 91378375WH

Axis Part No. 01669-001

2N Part No. 91378376WH

Axis Part No. 01671-001



- **2N® Indoor Touch 2.0** – white
- WiFi version (second part no.)
- The elegant internal touch panel, **2N® Indoor Touch 2.0**, is suitable for all **2N IP intercoms**. On the panel's display not only can you find out who is at the door, but also start a conversation with the visitor, open the lock or turn on the light in the entrance hall.

2N Part No. 91378382W

Axis Part No. 01426-001



- **2N® Indoor Touch** desk stand white

**2N Part No.
1120101W**

**Axis Part No.
02518-001**



- **2N® IP Handset**
- answering unit
- white color

**2N Part No.
1120101B**

**Axis Part No.
02519-001**



- **2N® IP Handset**
- answering unit
- black color

IP Phones

2N Part No. 1120102

Axis Part No. 02660-001



- **2N® IP Phone D7A**
- simple operation
- HD quality video calls
- A display-equipped extender EXP50 (Part No. **91378363**) can be added to the phone delivery to make up to 60 speed dialings.

2N Part No. 1120111EU

Axis Part No. 02544-001



- **Grandstream GXV3350 IP video phone**
- Android 7.0 OS
- 5" touch display control
- HD quality video calls
- WiFi and Bluetooth support
- HDMI output and pan tilt zoom camera
- Easy integration with intercoms or PBXs via SIP

Electric Locks

Part No. 11202101



- **Mini electronic doorstrike series 5**
- electric opener designed for door frame installation
- intended for such narrow profiles as aluminum, wood or PVC in particular
- short sheet metal front cover version (130 mm)
- 16 mm width

Part No. 11202101-L 	• Mini electronic doorstrike series 5 – long • electric opener designed for door frame installation • intended for such narrow profiles as aluminum, wood or PVC in particular • long sheet metal front cover version (250 mm) • 16 mm width
Part No. 11202102 	• Mini electronic doorstrike series 5 – with momentum pin • electric opener designed for door frame installation • intended for such narrow profiles as aluminum, wood or PVC in particular • short sheet metal front cover version (130 mm) • 16 mm width
Part No. 11202102-L 	• Mini electronic doorstrike series 5 – with momentum pin, long • electric opener designed for door frame installation • intended for such narrow profiles as aluminum, wood or PVC in particular • long sheet metal front cover version (250 mm) • 16 mm width

Part No. 11202103 	• Mini electronic doorstrike series 5 – with mechanical blocking • electric opener designed for door frame installation • intended for such narrow profiles as aluminum, wood or PVC in particular • short sheet metal front cover version (130 mm) • 16 mm width
Part No. 11202103-L 	• Mini electronic doorstrike series 5 – with mechanical blocking, long • electric opener designed for door frame installation • intended for such narrow profiles as aluminum, wood or PVC in particular • long sheet metal front cover version (250 mm) • 16 mm width
Part No. 11202104 	• Mini electronic doorstrike series 5 – door signaling • electric opener designed for door frame installation • intended for such narrow profiles as aluminum, wood or PVC in particular • including a door state monitoring micro switch: open/closed • short sheet metal front cover version (130 mm) • 16 mm width

Part No. 11202104-L 	• Mini electronic doorstrike series 5 – door signaling, long • electric opener designed for door frame installation • intended for such narrow profiles as aluminum, wood or PVC in particular • including a door state monitoring micro switch: open/closed • long sheet metal front cover version (250 mm) • 16 mm width
Part No. 11202105 	• Mini electronic doorstrike series 5 – fail-safe • electric opener designed for door frame installation • intended for such narrow profiles as aluminum, wood or PVC in particular • under voltage: opener secured, blocked • at voltage interruption: opener unblocked, door can be opened • short sheet metal front cover version (130 mm) • 16 mm width
Part No. 11202105-L 	• Mini electronic doorstrike series 5 – fail-safe, long • electric opener designed for door frame installation • intended for such narrow profiles as aluminum, wood or PVC in particular • under voltage: opener secured, blocked • at voltage interruption: opener unblocked, door can be opened • long sheet metal front cover version (250 mm) • 16 mm width

Part No. 11202106 	• Mini electronic doorstrike series 5 – fail-safe and door signaling • electric opener designed for door frame installation • intended for such narrow profiles as aluminum, wood or PVC in particular • under voltage: opener secured, blocked • at voltage interruption: opener unblocked, door can be opened • short sheet metal front cover version (130 mm) • 16 mm width
Part No. 11202106-L 	• Mini electronic doorstrike series 5 – fail-safe and door signaling, long • electric opener designed for door frame installation • intended for such narrow profiles as aluminum, wood or PVC in particular • under voltage: opener secured, blocked • at voltage interruption: opener unblocked, door can be opened • long sheet metal front cover version (250 mm) • 16 mm width
Part No. 11202201 	• Electromechanical lock SAM 7255 • 72/55 self-locking lock with panic function • A key is necessary for door opening from the outside (or an electric pulse from a connected 2N IP intercom / reader). • convenient solution for emergency exits

Part No. 11202201-M 	• Electromechanical lock SAM 7255 with monitoring • 72/55 self-locking lock with panic function • A key is necessary for door opening from the outside (or an electric pulse from a connected 2N IP intercom / reader). • convenient solution for emergency exits
Part No. 11202202 	• Electromechanical lock SAM 9235 • 92/35 self-locking lock with panic function • A key is necessary for door opening from the outside (or an electric pulse from a connected 2N IP intercom / reader). • convenient solution for emergency exits
Part No. 11202202-M 	• Electromechanical lock SAM 9235 with monitoring • 92/35 self-locking lock with panic function • A key is necessary for door opening from the outside (or an electric pulse from a connected 2N IP intercom / reader). • convenient solution for emergency exits

Part No. 11202301 	• Cable protector FX290 • Provides secure passage and protection of the supply cable between the door frame and the door leaf. • 290 mm length
Part No. 11202302 	• Cable protector FX510 • Provides secure passage and protection of the supply cable between the door frame and the door leaf. • 510 mm length
Part No. 11202303 	• Cable protector FX300G • Provides secure passage and protection of the supply cable between the door frame and the door leaf. • 440 mm length

Part No. 11202304



- **Cable protector FX500G**
- Provides secure passage and protection of the supply cable between the door frame and the door leaf.
- 640 mm length

Part No. 11202107



- **Maglock MEX100**
- used as a door holding supplement, not replacing the lock
- consists of two parts: supplied part and counterpart
- under voltage: door cannot be opened
- at voltage interruption: magnets get disconnected, door opens

Part No. 11202501



- **Magnetic handle P300RP**
- fully replaces a mortise lock and handle
- under voltage: door cannot be opened
- at voltage interruption: magnets get disconnected, door opens
- suitable for wooden, metal and glass doors

Part No. 11202401



- **ED100**
- low energy simple door operator
- contactless operation
- can be interconnected with a motion sensor and electronic access control system
- applicable for right / left doors
- in / out opening versions



Tip

- FAQ: [Electric locks – Difference between locks in 2N IP intercoms accesories](#)

Power Supply

Part Numbers:

2N Part No. 91378100E

2N Part No. 91378100US

Axis Part No. 01403-001



- PoE injector – with EU cable
- PoE injector – with US cable
- For power supply of intercom via ethernet cable when PoE switch is not available.

Part No. 91341481E



- Stabilised 12 V / 2 A power supply needs to be used when no PoE is available.

Part No. 932928
Axis Part No. 02529-001



- 12 V transformer
- For 230 V mains voltage.
- For external power supply of the lock with 12 V AC voltage.

Additional Modules

2N Part No. 9137310E
Axis Part No. 01332-001



- Enables control of a secondary device, NO/NC passive contacts. Time unlimited switching up to 48 V / 2 A.

2N Part No. 9137430E
Axis Part No. 01333-001



- Card reader 125 kHz
- Internal RFID card reader for installation in the basic module of the **2N® IP Vario** intercom. Allows the use of EM4100 and EM4102 cards. Another two switches, two logical inputs and a Wiegand interface are available. It is compatible with all **2N® IP Vario** models.

2N Part No. 9154004
Axis Part No. 01479-001



- Water-proof metal button
- (suitable for Internal RFID card reader)

2N Part No. 9159010
Axis Part No. 01386-001



- **2N® Security Relay**
- A handy add-on that significantly enhances door entry security as it prevents tampering with the intercom and forced opening of the lock. To be installed between intercom and lock, powered by the intercom.

2N Part No. 9159011 Axis Part No. 01387-001 	• Wiegand Isolator • The 2N® Wiegand Isolator is designed for galvanic isolation of two devices separately power supplied and interconnected via the Wiegand bus. The 2N® Wiegand Isolator protects the interconnected devices against communication errors and/or damage.
2N Part No. 9137410E Axis Part No. 01397-001 	• External IP Relay – 1 output • Standalone IP device which can be controlled by HTTP commands sent by 2N IP intercom, which can thus control devices on unlimited distance.
2N Part No. 9137411E Axis Part No. 01398-001 	• External IP Relay – 4 outputs, PoE • Standalone IP device which can be controlled by HTTP commands sent by 2N IP intercom, which can thus control devices on unlimited distance.

2N Part No. 9134165E Axis Part No. 01395-001 	• RFID card, type EM4100, 125 kHz
2N Part No. 9134166E Axis Part No. 01396-001 	• RFID fob, type EM4100, 125 kHz
Part No. 9159013 	• Exit button • (suitable for Internal RFID card reader or Security relay) • A button for connection to a logic input for opening a door inside a building.

2N Part No. 9159012
Axis Part No. 01388-001



- Magnetic door contact
- (suitable for Internal RFID card reader)

Part No. 9159014EU/UK
Part No. 9159014US
Axis Part No. 01404-001



- **2N® 2Wire**
- (set of 2 adaptors and power source for EU/US/UK)
- The **2N® 2Wire** converter allows you to use existing wiring (2 wires) from your original door bell or door intercom to connect any IP device. You don't have to configure anything, and you only need one **2N® 2Wire** unit at each end of the cable and a power source connected to at least one of these units. The **2N® 2Wire** unit then provides PoE power not only to the second converter, but also to all other connected IP end devices.

2N Part No. 9159030
Axis Part No. 01389-001



- External 125 kHz RFID card reader
- Secondary reader for connection to an internal reader. Allows control of card entry from both sides of the door. IP67 cover, also suitable for exteriors. Reads EM4100 and EM4102 cards.

2N Part No. 9159031
Axis Part No. 01390-001



- External 13.56 MHz MIFARE RFID card reader, Wiegand
- Secondary reader for connection to an internal reader. Allows control of card entry from both sides of the door. IP68 cover, also suitable for exteriors. Reads MIFARE cards.

2N Part No. 9137420E
Axis Part No. 01399-001



- USB RFID card reader 125 kHz
- External RFID card reader for connection to a PC using a USB interface. Suitable for system management and the addition of EM41xx cards via the PC application, **2N® Access Commander**.

2N Part No. 9137421E
Axis Part No. 01400-001



- **Ext. RFID Reader 13.56 MHz, 125 kHz + NFC/HCE (USB interface)**
- External RFID card reader for connection to PC using a USB interface. Suitable for system administration and adding 13.56 MHz, 125 kHz cards and Android platform devices supporting NFC/HCE using **2N IP intercom** web interface or the **2N® Access Commander** application. It reads the same types of cards and devices as card readers in **2N IP intercoms**.
 - 13.56 MHz/ISO/IEC 14443A MIFARE Classic 1k & 4k, MIFARE DESFire EV1, Mini, Plus S&X, Ultralight, Ultralight C
 - 13.56 MHz/ISO/IEC 14443B CEPAS, HID iCLASS (CSN only)
 - 13.56 MHz/JIS X 6319 Felica
 - ISO/IEC 18092 SmartPhone with NFC/HCE support, since Android version 4.3 (**2N® Mobile Key** app required)
 - EMarine

2N Part No. 9159050
Axis Part No. 01391-001



- **2N® Induction Loop**
- An induction loop transmits sound wirelessly from the **2N IP intercom** to the earphones of people with hearing disabilities and enables them to hear and perceive sounds better.

2N Part No. 9159052
Axis Part No. 01393-001



- Power supply for **2N® Induction Loop**
- External power supply for the induction loop.
- Input 230 V AC
- Output 12 V DC

2N Part No. 9160501
Axis Part No. 0820-001



- AXIS A9188 Network I/O relay module
- Lift control relay module for up to 8 floors

License

2N Part No. 9137909	• Gold • Includes Enhanced Video, Enhanced Integration and Lift Control licenses
2N Part No. 9137910 Axis Part No. 01381-001	• InformaCast

 Tip

- Refer to the Configuration Manual for 2N IP intercoms, Subs. [3.2 Function Licensing](#) for details.

 Tip

- For more accessories and particular advice please contact your local distributor of 2N products.

1.2 Terms and Symbols

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

Here is what you can find in this section:

- [2.1 Before You Start](#)
- [2.2 Mechanical Installation](#)
- [2.3 Electric Installation](#)
- [2.4 Completion](#)
- [2.5 Extending Module Connection](#)

2.1 Before You Start

Product Completeness Check

Before you start please check whether the contents of the package of your new **2N® IP Vario** complies with the following list.

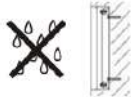
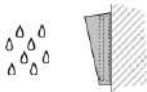
- 1x **2N® IP Vario**
- 1x spare seal
- 1x drilling template
- 1x hexagonal wrench
- 1x spare name plate
- 1x terminal block plug
- 2x screw
- 2x dowel
- 1x brief manual
- 1x Certificate of ownership

2.2 Mechanical Installation

Overview of Installation Types

An overview of the installation types and the list of the required components are provided in the table below.

Installation type	Symbol	What you need for installation
Indoor, on surface		• 2N® IP Vario only

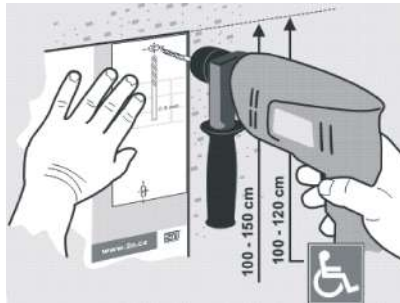
Installation type	Symbol	What you need for installation
Indoor, flush mounting		• 2N® IP Vario • Box with 1-module frame 9135351E or Box with 2-module frame 9135352E
Outdoor, on surface		• 2N® IP Vario • Surface 1-module roof 9135331E or Surface 2-module roof 9135332E
Outdoor, flush mounting		• 2N® IP Vario • Wall mounting box with 1-module roof 9135361E or Wall mounting box with 2-module roof 9135362E
Indoor application means		• Indoor areas with a low relative air humidity value (e.g., hallways, offices and other heated rooms). • Indoor areas where humidity condenses on walls but never flows down the walls (porches, storage areas, industrial areas, e.g.). • Outdoor areas where protection against rain and water flowing down the wall is provided (sheds, passages. e.g.).
Outdoor application means		• Environments where the product is exposed to rain or where water may flow down the walls (fence, outer wall of a building, e.g.).

 Caution

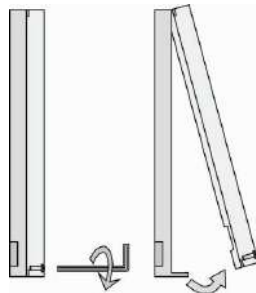
- Before starting the mechanical installation on a selected place, make sure carefully that the preparations connected with it (drilling, wall cutting) cannot damage the electrical, gas, water and other existing wires and pipes.
- The warranty does not apply to the product defects and failures arisen as a result of improper mounting (in contradiction herewith). The manufacturer is neither liable for damage caused by theft within an area that is accessible after the attached electric lock is switched. The product is not designed as a burglar protection device except when used in combination with a standard lock, which has the security function.
- When the proper mounting instructions are not met, water might get in and destroy the electronics. It is because the intercom circuits are under continuous voltage and water infiltration causes an electro-chemical reaction. The manufacturer's warranty shall be void for products damaged in this way!

Surface Mounting

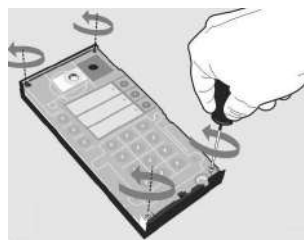
1. Drill holes according to the template included in the **2N® IP Vario** supply. Insert the included dowels in the wall holes.



2. Use the hexagon key wrench included in the supply and remove the **2N® IP Vario** metal cover. Remove the screw in the lower part of the metal cover and fold out the cover.



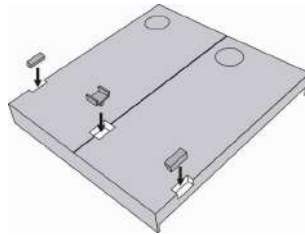
3. Use a cross-head screwdriver to remove the plastic cover and demount the cover.



Warning

- Never remove the main board or camera electronics from under the lower cover while installing **2N® IP Vario**. Do not disconnect the camera flat cable from the main board. Do not bend and press upon the flat cable either.

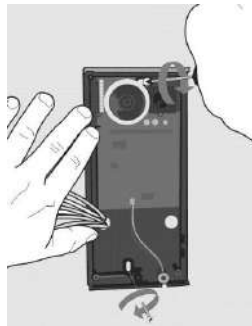
4. In multiple-module assemblies connect the boxes, placing the basic module to the left and the extending modules to the right. The interconnecting cable shall be connected later!



5. Install blank modules on the unused side holes as shown in Figure previous step.

6. If you are installing a roof module, put it on the wall now.

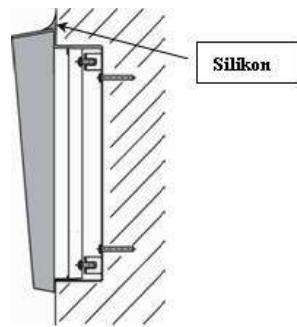
7. Fix **2N® IP Vario** on the wall with screws. Carry the supply cables (Ethernet, lock, power cables) to the basic module box through one of the holes. Seal the screw hole carefully with some cement or non-aggressive silicone to avoid water infiltration.



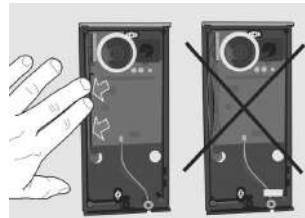
Warning

- Make sure that the mounting surface for the **2N® IP Vario** door communicator is perfectly flat. Avoid mechanical overload upon the bottom part of the cover. An incorrect installation on an uneven surface may lead to cover deformation and thus product malfunctions.

8. While installing a roof module, paste its top and side edges to the wall using silicone glue to prevent water from flowing into the box along or around the cables.



9. Connect the cables as described in subsection 2.4, Mounting – Electrical Installation. Make sure that the cables are not squeezed while installing the plastic cover. For the correct cable installation.



10. Remove the protective foil from the display (for display-equipped **2N® IP Vario** versions only).

11. Make sure that the cables are placed properly inside and that none of them obstructs a perfect cover closure.

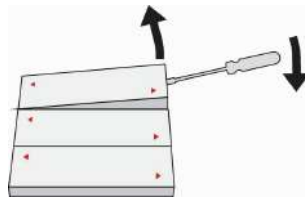
12. Make sure that the three loudspeaker holder feet fit into the board holes. Keep the required loudspeaker position to make the seal work properly.

13. Having mounted the unit on the wall and connected all cables, replace the plastic cover using cross-recessed screws.

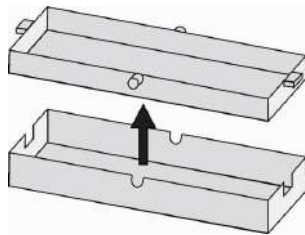
 Warning

- Remember to tighten all the four corner screws to fix the loudspeaker seal after electric installation to avoid water in-leak! A **PZ1** cross-head screwdriver is recommended.

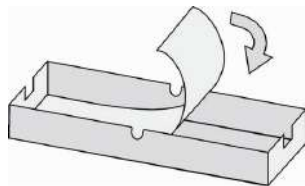
14. Take out the name plates from the plastic cover. Use a flat-bladed screwdriver, for example.



15. Remove the inserts from the name plates.



16. Insert the printed foil labels.



17. Put the inserts back in the name plates.

18. Replace the name plates, clicking them into position. The name plates hold the matt foil inserted underneath.

19. Check whether a silicone seal is inserted in the top groove of the plastic cover. A spare seal package is included.

20. Close the metal cover and fix it with screws.

Outdoor Installation Rules

- Always connect button backlighting – it is used for heating.
- The joint between the roof module and the wall must be filled with a waterproof cement to prevent water in-leak (see Figure 2.5).
- Water must not leak in along or around the cables.

Warning

- Make sure that all the holes are filled with a waterproof material – top, around the cables and screws - and that a side sealing is ensured.

Name Tag Material and Printing

Each **2N® IP Vario** package includes a sheet of transparent foil for laser printing. Cut the printed foil into pieces and insert the labels in the name plates. Do not use paper to avoid water in-leak and paper damage.

Red arrows are printed on the name plate. Make sure that the text and the arrow do not overlap. We recommend you to use a template (MS Word) available in section Downloads for printing.

Flush Mounting

Follow the installation instructions included in the flush mounting box delivery.

Caution

- The warranty shall not apply to product failures and defects caused by improper installation (contrary to these instructions). The manufacturer is neither liable for damages caused by theft within an area that is accessible after the attached electric lock is switched. The product is not designed as a burglar protection device except when used in combination with a standard lock, which has the security function.

2.3 Electric Installation

- Description of Printed Circuit Board Connectors
- Terminal Block X2 Connection
- Ethernet Connection
- Electric Lock Connection
- External Power Supply Connection

- Configuration Connector Connection
- Display Connector
- Card Reader Connection
- Grounding
- Available switches

2N® IP Vario is designed for connection in the Ethernet computer network (10/100BASE-T) using a UTP cable. Use a CAT 5e UTP cable at least for connection.

Caution

- The device must be part of the electrical system of the building.

2N® IP Vario is fed through the PoE (Power over Ethernet) technology. No additional cabling is therefore necessary. If your Ethernet is not equipped with the PoE technology, it is possible to use a PoE injector, Part No. 91378100. As an alternative, you can use a power adapter, Part No. 91341481E. **2N® IP Vario** is configured over an integrated administration web server, which can be controlled from any web browser, e.g., Mozilla Firefox.

Tip

- Video Tutorial: [Door communication system 2N® IP Vario – Electrical Installation.](https://www.youtube.com/watch?v=1TNIPq9A_QI&list=UUL4rQtjCnq3cT5-A9N0Xr4Q)



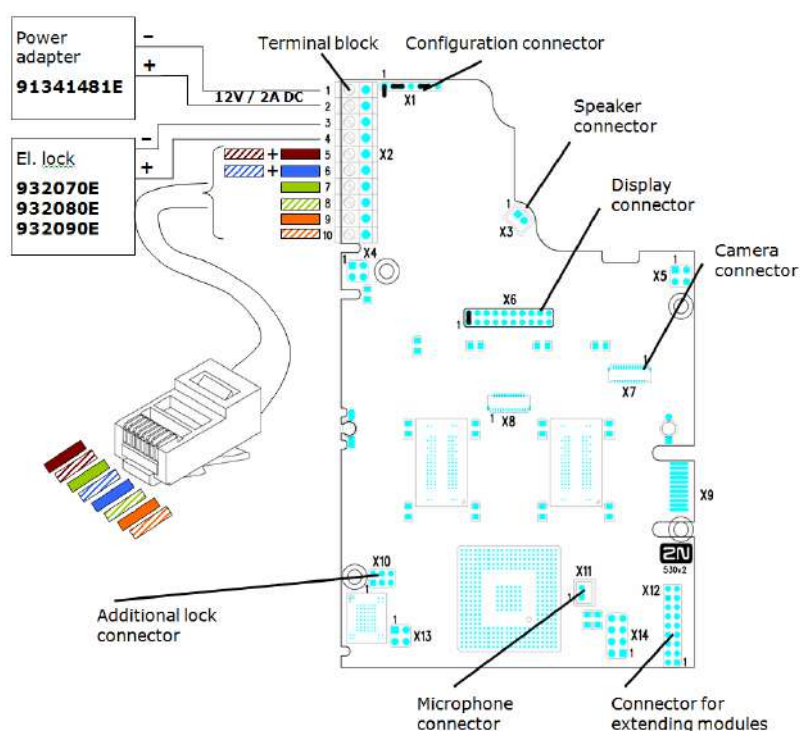
Sorry, the widget is not supported in this export.

But you can reach it using the following URL:

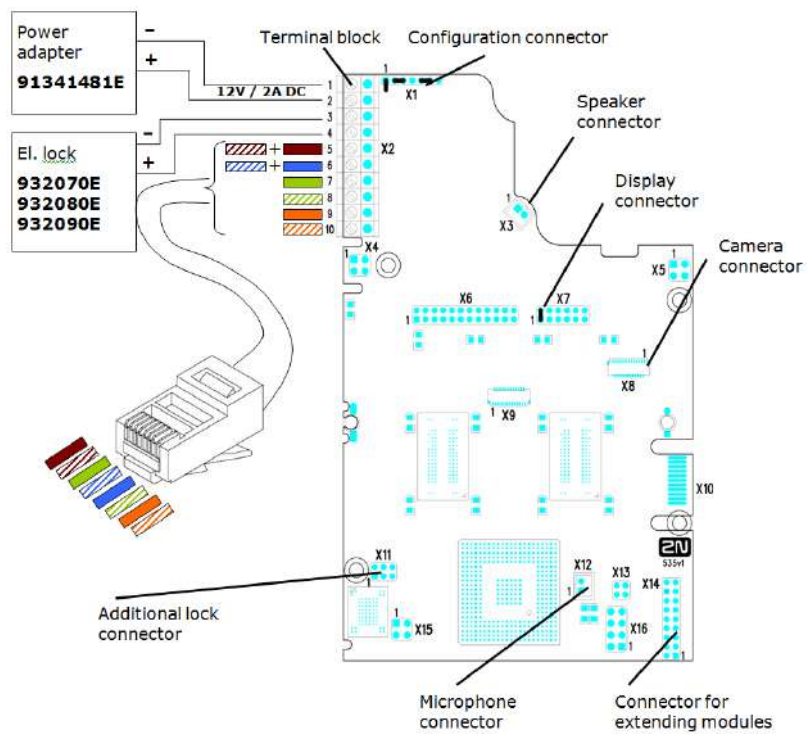
https://www.youtube.com/watch?v=1TNIPq9A_QI&list=UUL4rQtjCnq3cT5-A9N0Xr4Q

Description of Printed Circuit Board Connectors

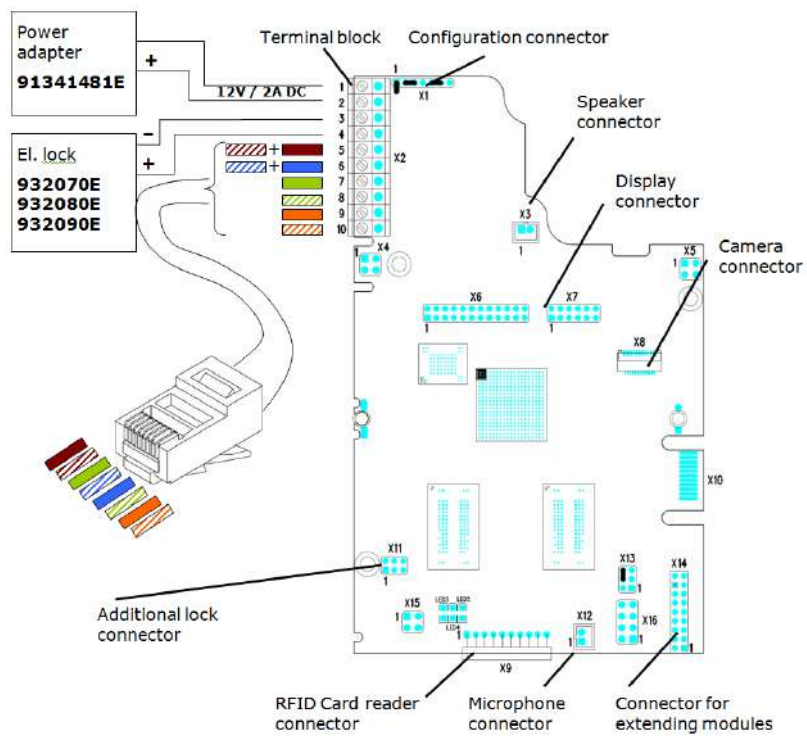
In figure below you can see the location of the printed circuit board (PCB) connectors. Connectors to which the accessories can be connected and connectors that serve for configuring **2N® IP Vario** are indicated on the board. The UTP cable for the Ethernet connection is to be connected to the terminal block X2 as shown in table below. The terminal block can be removed from the PCB. The connection of each of the connectors is described in the subsections below.



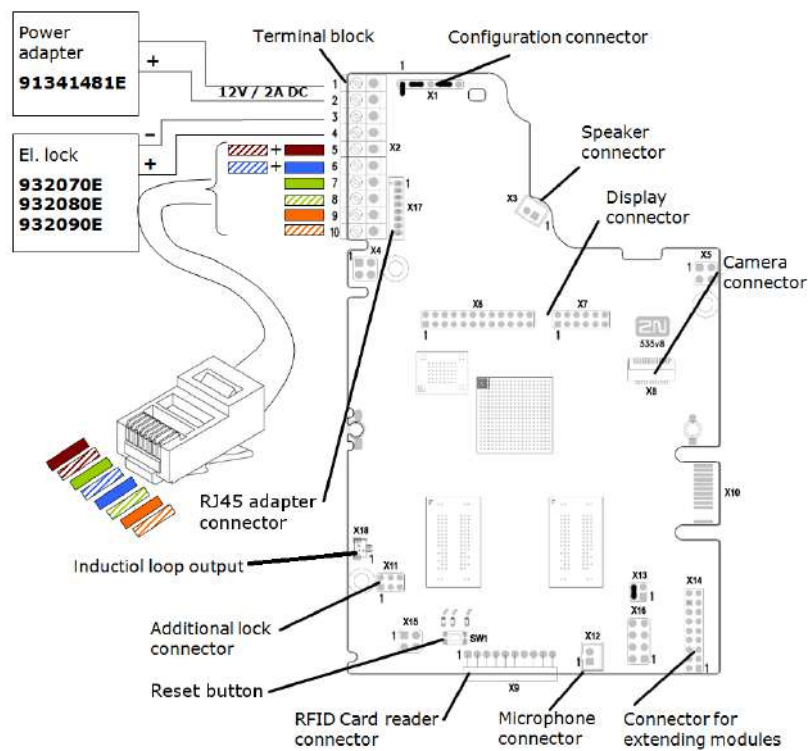
Description of Connectors, PCB Version 530v2



Description of Connectors, PCB Versions 535v1, 535v2



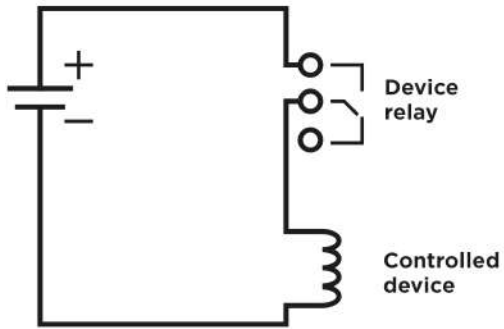
Description of Connectors, PCB Versions 535v5



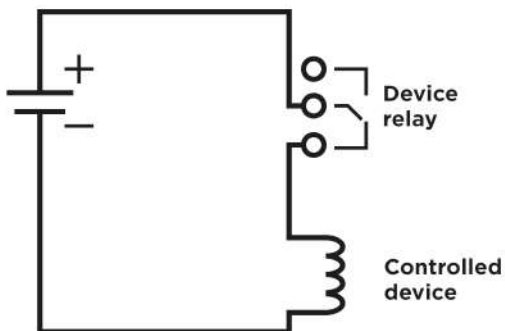
Description of Connectors, PCB Versions 535v8

✓ **Tip**

- Output wiring diagram for Relay terminals



Wiring diagram for the controlled device's electric circuit closing



Wiring diagram for the controlled device's electric circuit opening

Terminal Block X2 Connection

Terminal block X2 includes 10 terminals whose functions are distinguished by colour. Terminals 5–10 are used for connecting **2N® IP Vario** to the Ethernet. Terminals 3–4 are designed for connecting the electric lock and terminals 1–2 help connect an external 12 V / 2 A DC power supply if no PoE power supply is available.

1. The terminal block is included in the package. To adjust an already installed **2N® IP Vario**, disconnect it IP from the power supply. Then pull to remove the terminal block from the printed circuit board.
2. Insert the wires under the respective terminals.
3. Tighten the terminals using a flat screwdriver.
4. Replace the terminal block to the printed circuit board.

⚠ Caution

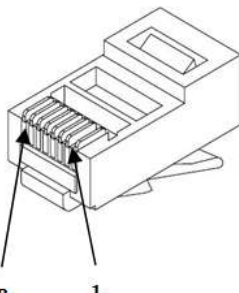
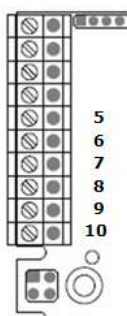
- Make sure that the cables leading through the **2N® IP Vario** cover bottom groove are installed properly. For the correct installation of the cables refer to Figure 2.7.

Induction loop connection

The JST SHR-02V-S connector type is required to connect the induction loop output.

Ethernet Connection

For the connections and meanings of the wires see the table below. Join UTP cable wires 4 (blue) and 5 (white-blue) and attach them under terminal 6 on **2N® IP Vario** in the same way. Join wires 7 and 8 and place them under terminal 5 of **2N® IP Vario**.

RJ-45		2N® Helios IP Vario			
	Pin No.	Marking	Colour	Terminal No.	
	1	Tx +		10	
	2	Tx -		9	
	3	Rx +		8	
	4	PoE -		6	
	5	PoE -		6	
	6	Rx -		7	
	7	PoE +		5	
	8	PoE +		5	

Terminal Block Connections

⚠ Caution

- We recommend the use of a LAN surge protection.
- We recommend the use of a shielded SSTP Ethernet cable.

Electric Lock Connection

The electric lock can be connected to terminals 3 and 4 of terminal block X2.

Electric lock	2N® Helios IP Vario			
	Marking	Colour	Terminal No	
 932070E 932080E 932090E	-		3	
	+		4	

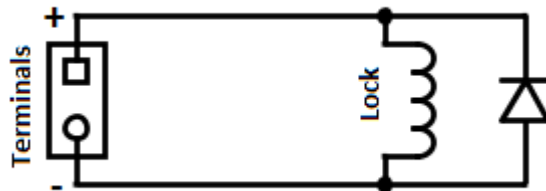
Terminal Block Connection for Electric Lock

Terminals 3 and 4 are connected to a relay on the **2N® IP Vario** board. The relay terminals may act as normally open or normally closed contacts. Configuration is performed through the configuration connector X1 as described in the

Configuration Connector Connection subsection. Set on the configuration connector whether the electric lock will be powered from an external or internal power supply.

Warning

When you connect a device containing a coil, such as a relay or an electromagnetic lock, it is necessary to protect the intercom against voltage peak while switching off the induction load. For this way of protection, we recommend a 1 A / 1000 V diode (e.g., 1N4007, 1N5407, 1N5408) connected antiparallel to the device.



External Power Supply Connection

If the Ethernet network is not equipped with the PoE technology, you have two alternative options how to supply power to **2N® IP Vario**.

1. Using a PoE injector, Part No. 91378100. **2N® IP Vario** is then powered through an Ethernet cable as shown in Tab. 1 above.
2. Using a power adapter, Part No. 91341481E.

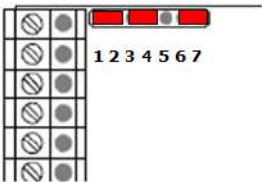
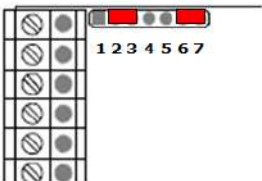
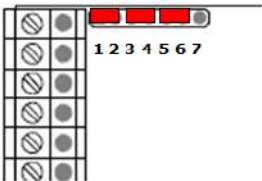
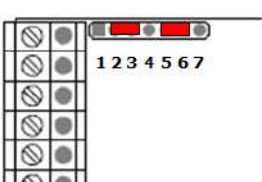
The external power supply from a power adapter can be connected to terminals 1 and 2.

Power supply	2N® Helios IP Vario			
	Marking	Marking	Terminal No.	
 91341481E	-		1	
	+		2	

Terminal Block Connection for Power Adapter

Configuration Connector Connection

The configuration connector is located in the upper part of the printed circuit board. Use the configuration jumpers to set whether the lock control relay should have a normally open or normally closed function and whether it should be powered internally or externally.

Lock power supply		Relay		Configuration connector
Internal	External	Normally closed	Normally open	Connection of jumpers
✓		✓		
	✓	✓		
✓			✓	
	✓		✓	

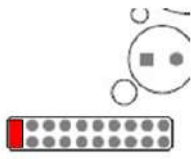
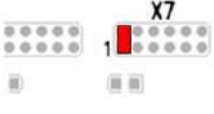
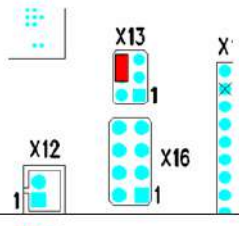
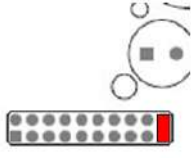
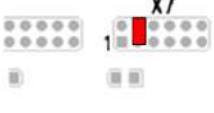
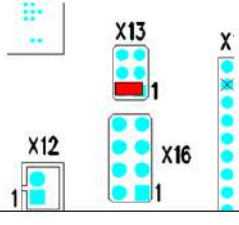
Connection of Configuration Connector Jumpers

Display Connector

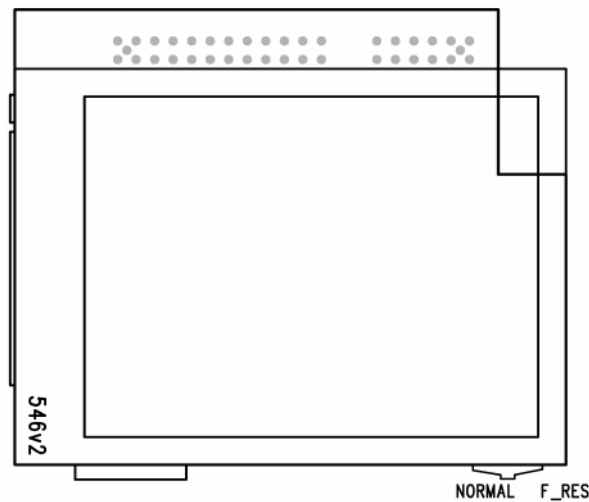
The display connector includes the name plate backlighting ON/OFF switching pins and **2N® IP Vario** resetting pins. The remaining pins are intended for display connection.

Resetting procedure (version 535v5 and earlier)

1. Switch **2N® IP Vario** off.
2. Connect the jumper into the resetting (default setting) position (put the display switch into the F_RES position in the display-equipped models with 535v1 and 535v2 board versions).
3. Switch **2N® IP Vario** on and wait for the acoustic start signal.
4. Switch **2N® IP Vario** off.
5. Remove the jumper from the resetting (default setting) position (put the display switch into the NORMAL position in the display-equipped models with 535v1 and 535v2 board versions).
6. Switch **2N® IP Vario** on.

Normal operation	Default settings	Display connector X6 PCB version 530v2	Display connector X7 PCB version 535v1, 535v2	Connector X13 PCB version 535v5
				
				

Configuration Jumpers on Display Connector



Resetting Procedure – Display Model (models with 535v1 and 535v2 board versions)

To reset the default values of a display-equipped **2N® IP Vario**, put the switch in the display right-hand bottom corner in position F_RES. This applies to modules with board versions 535v1 and 535v2 only. For 535v5 versions, use a jumper at connector X13.

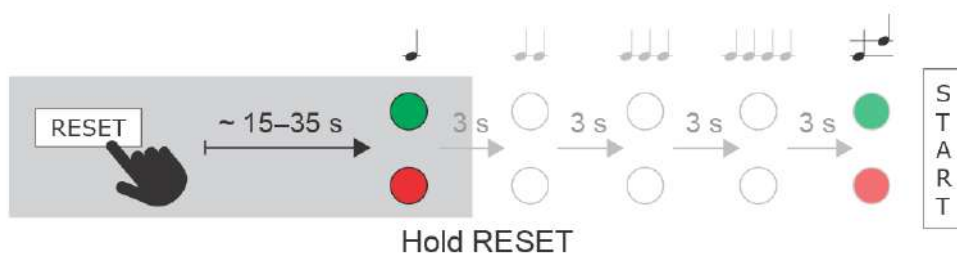
Reset Button

Located among the main unit connectors, the Reset button helps you reset the factory default values, restart the device, find the device IP address and switch the static/dynamic mode.

IP Address Finding

Follow the instructions below to **identify the current IP address**:

- Press and hold the RESET button.
- Wait until the red and green LEDs go on simultaneously on the device and the acoustic signal  can be heard (approx. 15–35 s).
- Release the RESET button.
- The device automatically announces the current IP address.



Note

- The delay after pressing RESET till the first light and sound signalling is set to 15–35 s depending on the 2N IP intercom/answering unit model used.
 - 24 s is the valid value for **2N® IP Vario** HW version 8.

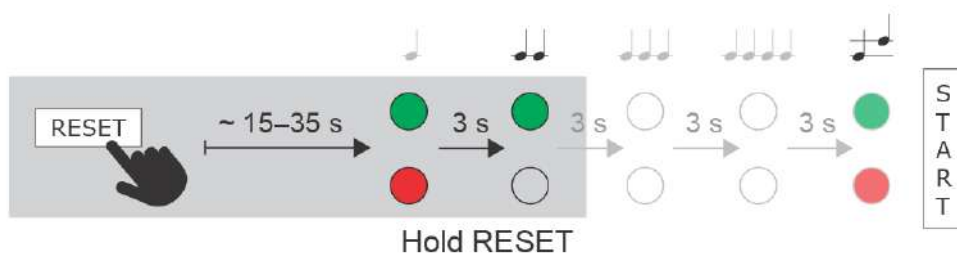
Static IP Address Setting

Follow the instructions below to switch on the **Static IP address** mode (DHCP OFF):

- Press and hold the RESET button.
- Wait until the red and green LEDs go on simultaneously on the device and the acoustic signal  can be heard (approx. 15–35 s).
- Wait until the red LED goes off and the acoustic signal  can be heard (approx. for another 3 s).
- Release the RESET button.

The following network parameters will be set after restart:

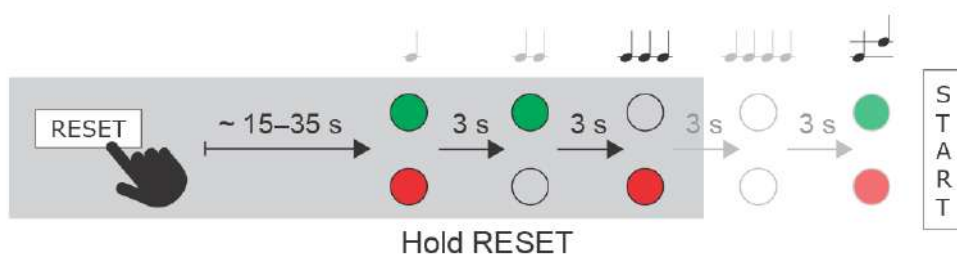
- IP address: 192.168.1.100
- Network mask: 255.255.255.0
- Default gateway: 192.168.1.1



Dynamic IP Address Setting

Follow the instructions below to switch on the **Dynamic IP address** mode (DCHP ON):

- Press and hold the RESET button.
- Wait until the red and green LEDs go on simultaneously on the device and the acoustic signal can be heard (approx. 15–35 s).
- Wait until the red LED goes off and the acoustic signal can be heard (approx. for another 3 s).
- Wait until the green LED goes off and the red LED goes on again and the acoustic signal can be heard (approx. for another 3 s).
- Release the RESET button.

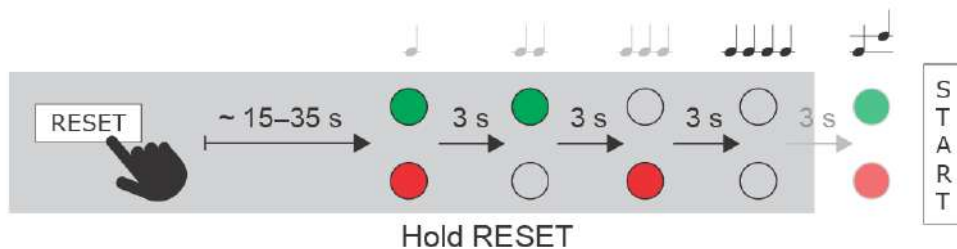


Factory Reset (version 535v8 and later)

Follow the instructions below to **reset the factory default values**:

- Press and hold the RESET button.

- Wait until the red and green LEDs go on simultaneously and the acoustic signal  can be heard (approx. 15–35 s).
- Wait until the red LED goes off and the acoustic signal  can be heard (approx. for another 3 s).
- Wait until the green LED goes off and the red LED goes on again and the acoustic signal  can be heard (approx. for another 3 s).
- Wait until the red LED goes off and the acoustic signal  can be heard (approx. for another 3 s).
- Release the RESET button.



Caution

- In case of resetting the factory default settings on a device with a version of firmware 2.18 or higher it is necessary to reprogram the **2N® Security Relay** using the instructions from section 2.4.

Device Restart

Press the RESET button shortly (< 1 s) to restart the system without changing configuration.

Note

- The time interval between the short press of RESET and reconnection after restart is 25–50 s for **2N® IP Vario** depending on the HW version.

Card Reader Connection

2N® IP Vario (Part Nos. 91371...U) can be equipped with an internal multifunction module including an RFID card reader (Part No. 9137430E).

This module enhances the **2N® IP Vario** functions with an EM41XX RFID card reader, two relays for external load switching, two logical inputs and Wiegand interface. The RS-485 interface is not supported in the current **2N® IP Vario** software version.

Caution

- The **2N® IP Vario** modules ending with U (i.e. 91371...U) can only be equipped with the card reader.

Card Reader Mounting

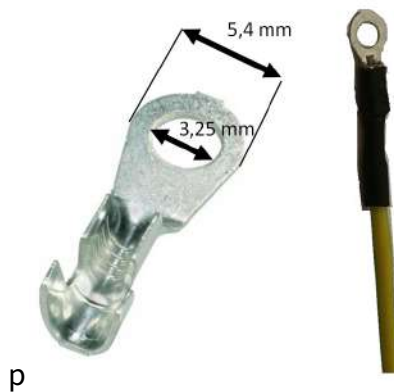
1. Power off **2N® IP Vario**.
2. Use a hexagonal wrench to unscrew and remove the metal cover.
3. Use a cross-head screwdriver to unscrew and remove the plastic cover.
4. Connect the reader module into the **2N® IP Vario** basic unit bottom connector making sure that the microphone cable lies under the module.
5. Use the enclosed screws to fix the reader module to the **2N® IP Vario** plastic base.
6. Connect the wires for the reader module interface(s) if necessary.

7. Replace and fix the plastic cover using cross-head screws.
8. Replace and screw back the metal cover.



Grounding

We recommend you to ground the intercom in order to improve the static electricity resistance. All you need for a proper grounding is a cable of the minimum cross-section of 4 mm² and a crimp eye.



Push the nut gently at the marked point to slide it downwards. Insert a sufficiently long M3 screw, e.g. Push the screw down to make a gap for the crimp eye.



Insert the crimped cable at the marked point.



Assemble the set and ground the cable.



Available Switches

Location	Name	Description
Basic Unit	Relay 1	Passive switch: NO and NC contacts, up to 30 V / 1 A AC/DC. Used for connection of non-critical devices only (lights, e.g.). Active switch output: 10 up to 12 V DC depending on power supply (PoE: approx. 12 V; adaptor: same voltage as power supply), max 600 mA
Additional Switch (Part No. 9137310 E)	Relay 2	Passive switch: NO and NC contacts, up to 30 V / 1 A AC/DC. Used for connection of non-critical devices only (lights, e.g.).
Internal RFID Card Reader 125 kHz (Part No. 9137430 E)	Relay 1 (Card Reader)	Passive switch: NO and NC contacts, up to 30 V / 1 A AC/DC
	Relay 2 (Card Reader)	Passive switch: NO and NC contacts, up to 30 V / 1 A AC/DC

2.3.1 Overvoltage Protection

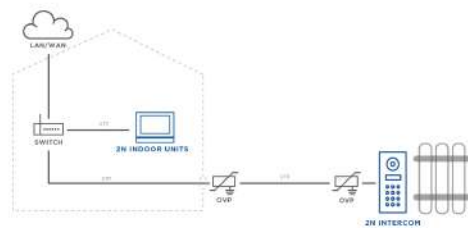
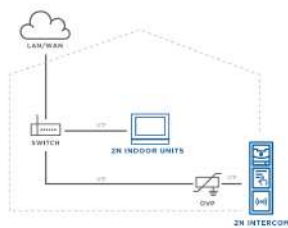
Recommendations for Additional Overvoltage Protection Installation

If running:

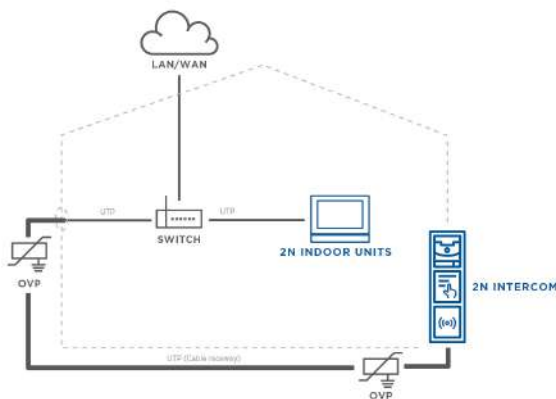
- a) outside a building,
- b) on/in an outer wall or roof,

the 2N device wiring may be exposed to atmospheric effects resulting in overvoltage that may subsequently damage any devices installed outside the building, on its outer wall or roof. Overvoltage may damage devices connected to these wires and installed inside the building as well. Therefore, we recommend that additional surge protectors be installed on all the wires leading outside buildings, on outer walls or roofs, namely:

- a) as close as possible to the device installed outside the building or on its outer wall/roof,
- b) as close as possible to the point where the wires leave the building.



OVP = overvoltage protection



2.4 Completion

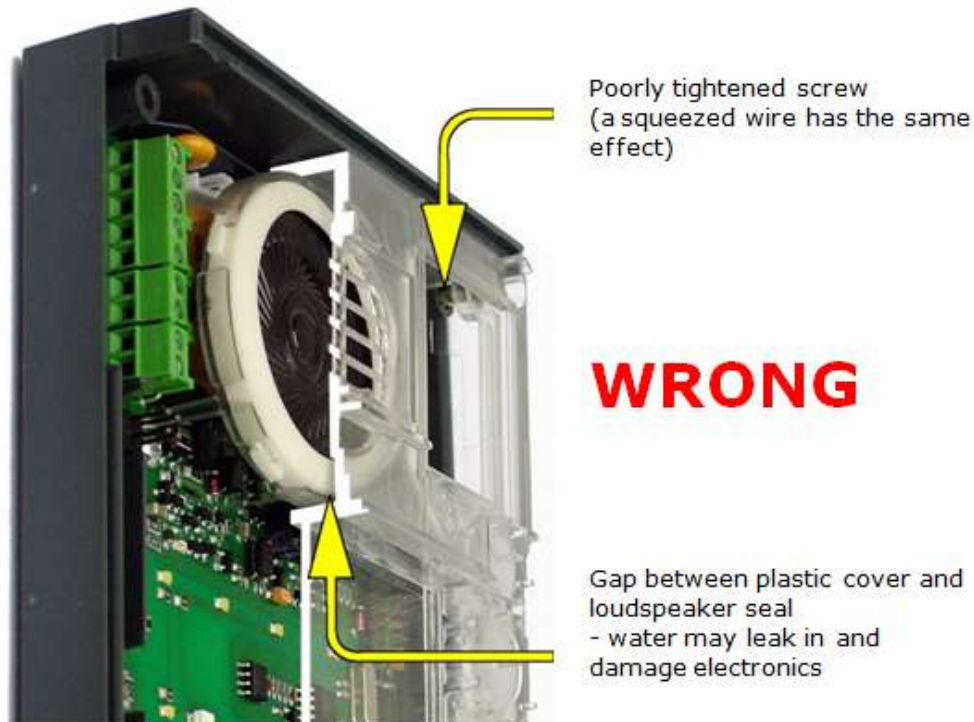
1. Remember to seal the **2N® IP Vario** cable passage hole properly to avoid moisture in-leak and damage to electronics due to condensation.
2. Make sure that the wires inside **2N® IP Vario** are not squeezed and insert the plastic top cover (a transparent plastic mould) carefully making its contacts plug into the electronics board connectors. Push the plastic cover into position moderately. If the part swings over an obstacle or one corner is higher than the others, remove the cover and find the obstacle. Then tighten the corner screws properly.
3. Mounting the metal sheet cover follow the steps included in the subsection dedicated to name plate removal. Make sure that the cover fits well and is perfectly flat. If its bottom part is loose, the mounting wall is probably uneven. Support the corners to avoid **2N® IP Vario** bending.

Caution

- An improper mounting may significantly deteriorate the button function.
- A poor outdoor mounting may cause water in-leak and damage to the electronics.

Most Frequent Mounting Errors

For illustration, a part of the plastic cover is removed in the figures below to reveal the sealed loudspeaker and the cover-seal touch point. The cross section plane is marked white for better orientation.

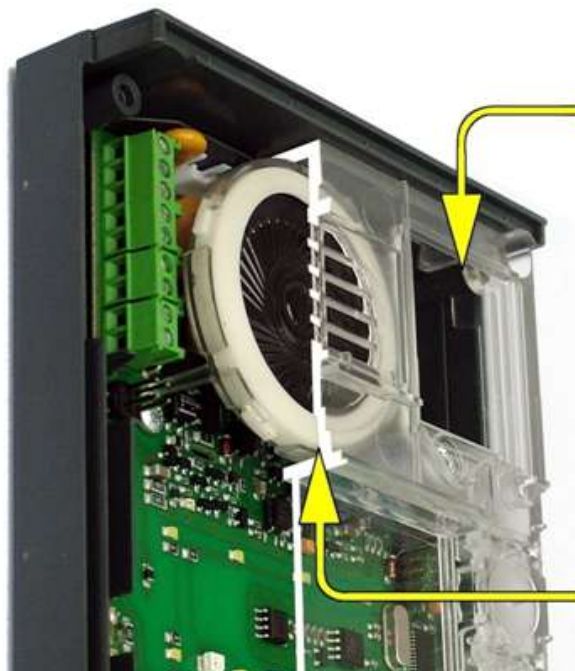




WRONG

Gap between plastic cover and loudspeaker seal
- water may leak in and damage electronics

If the loudspeaker support is in a wrong position, the plastic cover may catch the support brim (see the arrow) and, if treated roughly, lead to component deformations. Leakage may arise, see the upper arrow.



Properly tightened screw

RIGHT

The seal touches the plastic cover. Water flows out through a small hole (not shown in the figure).
Note: Water does not affect the loudspeaker Mylar membrane.

2.5 Extending Module Connection

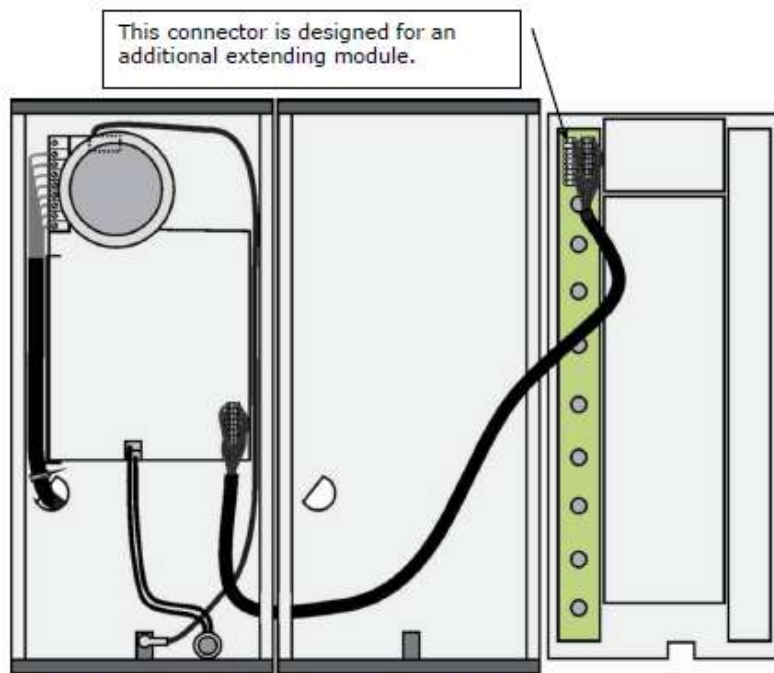
2N® IP Vario allows to connect following extending modules:

- [Extending button modules](#)

- [Additional Switch](#)
- [Internal RFID Card Reader 125 kHz](#)
- [Security Relay](#)
- [Wiegand Isolator](#)
- [Induction Loop](#)

Extending button modules

2N® IP Vario features an easy installation of extending button modules. Extending modules are connected using a single cable (included in every extender delivery) in a chain pattern (every additional unit is connected with the previous one). Each extending module has two connectors – an input connector (for connection towards the **2N® IP Vario** basic unit) and an output connector (for connection of another, more remote unit). Be sure to maintain the correct orientation of the units and avoid connector mismatch to ensure a proper function of the device!



Connection of One-Row-Button Extending Modules

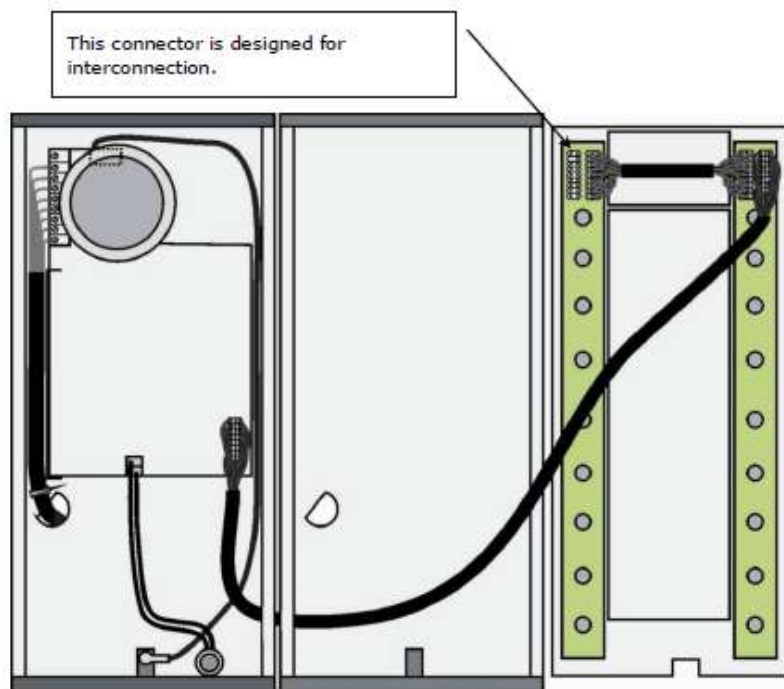
Maximum Count of Extenders

9135181E (1× 8 buttons)	6	5	4	3	2	1	0
9135182E (2× 8 buttons)	0	0	1	1	2	2	3

The table above shows how to combine modules with single (whole) and double buttons.

Module Cable Interconnection

- The cable is included in every extending module delivery. Both its ends are the same. Configuration is 1:1. Connectors cannot be shifted or inserted conversely because they are equipped with a so-called key.
- The basic unit is always on the left. Extenders are chain-connected, i.e. each is linked with its neighbour.
- The cable cannot be driven through the box interconnecting holes until the boxes have been connected (see subsection 2.3 Mounting – Mechanical Installation).



Connection of Two-Button-Row Extending Module

⚠ Caution

- The extending modules must be connected mutually and with the basic unit by means of a formed piece supplied with the extending module!!!

Button Numbering

Button numbering – one-button with a whole-button set

Also applies to keypad sets		7		15		23
		8		16		24
		9		17		25
		10		18		26
		11		19		27
		12		20		28
		13		21		29
		14		22		30
	1					

is possible to continue to 54

Button numbering – whole-button sets

Also applies to keypad sets		7		15		23
		8		16		24
		9		17		25
		10		18		26
		11		19		27
		12		20		28
		13		21		29
		14		22		30
	1					
	2					
	3					

is possible to continue to 54

Button numbering – double-button set

			7		15	23		31	39		47
1		4	8		16	24		32	40		48
2		5	9		17	25		33	41		49
3		6	10		18	26		34	42		50
Also applies to keypad sets			11		19	27		35	43		51
			12		20	28		36	44		52
			13		21	29		37	45		53
			14		22	30		38	46		54

Button Numbering – Info Panel Sets

Installing the info panel name plate, Part No. 9135311E, into any of the extending modules will not change the numbering system (the buttons on the info panel sides will remain functional). Connecting the info panel module, Part No. 9135310E, will result in omission of eight numbers.

Additional Switch

The **2N® Additional Switch** (Part No. 9137310 E) is used to extend the **2N® IP Vario** door communicator with another switch. **2N® Additional Switch** is suitable for e.g. electric door lock or low voltage logical inputs of e.g. gate and barrier control systems.



Function:

The **2N® IP Vario Additional Switch** adds one additional switch to the **2N® IP Vario** basic unit.

Specifications:

- Passive switch: NO and NC contacts, up to 30 V / 1 A AC/DC

⚠ Caution

- Before installing the module, make sure that the current and voltage limits of the module will not be exceeded in your application (refer to the Technical Parameters chapter). **In no case use this module for mains voltage switching!**

Module mounting:

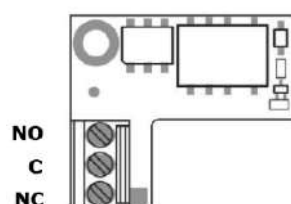
Switch off the intercom before module installation.



Module settings:

Refer to the **Configuration manual for 2N IP intercoms** for details.

Connection:



Switch	Connection
Normally opened	NO – C
Normally closed	NC – C

Internal RFID Card Reader 125 kHz

The **Internal RFID Card Reader** (Part No. 9137430 E) is used for reading RFID card IDs in the 125 kHz band. This module is intended for mounting into the **2N® IP Vario** model 91371....U.



Function:

The **2N® IP Vario** Internal RFID Card Reader adds these features

- RFID card reader
- 2 relay outputs
- 2 digital inputs
- WIEGAND interface
- Signalling outputs (LED / buzzer)

Specifications:

Card reader

- Compatible with EM4100 / EM4102 cards
- Working frequency: 125 KHz
- Minimum reading distance: 10 mm above **2N® IP Vario** cover

Relay outputs

- Switching contact
- 30 V / 1 A AC / DC

Logical inputs

Active mode – requires external voltage (JP2 jumper OFF)

- $U_{IN-ON} = \min +2.5 \text{ V}$
- $U_{IN-OFF} = \max +1.5 \text{ V}$
- $U_{IN \max} = +48 \text{ V}$
- $I_{IN} (U_{IN} +48 \text{ V}) = \max 1 \text{ mA}$

Passive mode – requires external contact only (JP2 jumper ON)

- $U_{OUT} = \text{approx. } 8.3 \text{ V}$
- $I_{LOOP} = \text{approx. } 0.5 \text{ mA}$

Signalling outputs

- 5 V or 12V DC voltage
- 270 ohm current limiter

WIEGAND interface

- Input / Output (as programmed)

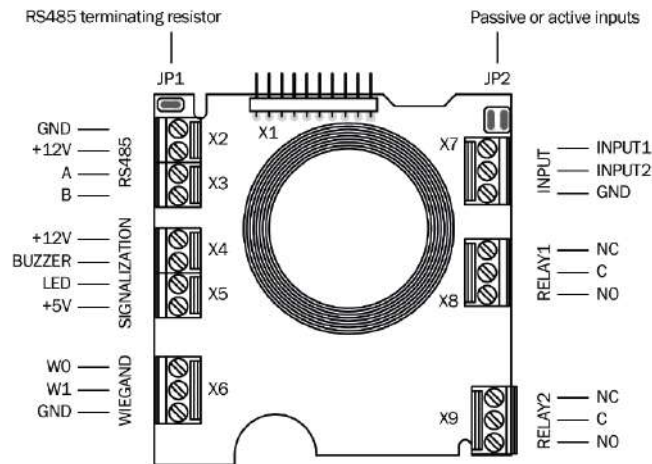
Module mounting:

- Power off **2N® IP Vario**.
- Use a hexagonal wrench to unscrew and remove the metal cover.
- Use a cross-head screwdriver to unscrew and remove the plastic cover.
- Connect the reader module into the **2N® IP Vario** basic unit bottom connector making sure that the microphone cable lies under the module.
- Use the enclosed screws to fix the reader module to the **2N® IP Vario** plastic base.
- Connect the wires for the reader module interface(s) if necessary.
- Replace and fix the plastic cover using cross-head screws.
- Replace and screw back the metal cover.

Module settings:

Refer to the **Configuration manual for 2N IP intercoms** for details.

Connection:



Security Relay

The **2N® Security Relay** (Part No. 9159010) is used for enhancing security between the intercom and the connected electric lock. The **2N® Security Relay** is designed for any **2N IP intercom** model with firmware versions 1.15 and higher. It significantly enhances security of the connected electric lock as it prevents lock opening by forced intercom tampering.



Function:

The **2N® Security Relay** is a device installed between an intercom (outside the secured area) and the electric lock (inside the secured area). The **2N® Security Relay** includes a relay that can only be activated if the valid opening code is received from the intercom.

Specifications:

Passive switch: NO and NC contacts, up to 30 V / 1 A AC/DC

Switched output:

- Where the security relay is fed from the intercom, 9 to 13 V DC is available on the output depending on the power supply (PoE: 9 V; adapter: source voltage of minus 1 V) / 400 mA DC.
- Where the security relay is fed from an external power supply, 12 V / 700 mA DC is available on the output.

Dimensions: (56 x 31 x 24) mm

Weight: 20 g

Installation:

Install the **2N® Security Relay** onto a two-wire cable between the intercom and the electric lock inside the area to be secured (typically behind the door). The device is powered and controlled via this two-wire cable and so can be added to an existing installation. Thanks to its compact dimensions, the device can be installed into a standard mounting box.

Connection:

Connect the **2N® Security Relay** to the intercom as follows:

- To the intercom active output (OUT1)

Connect the electric lock to the **2N® Security Relay** output as follows:

- To the switched output.
- To the passive output in series with the external power supply.

The device also supports a Departure button connected between the 'PB' and '- HeliosIP/IP Intercom' terminals. Press the Departure button to activate the output for 5 seconds.

Status signalling:

Green LED	Red LED	Status
blinking	off	Operational mode
on	off	Activated output
blinking	blinking	Programming mode – waiting for initialisation
on	blinking	Error – wrong code received

Configuration:

- Connect the **2N® Security Relay** to the properly set intercom switch output; refer to the **Configuration manual for 2N IP intercoms**. Make sure that one LED at least on the **2N® Security Relay** is on or blinking.
- Press and hold the **2N® Security Relay** Reset button for 5 seconds to put the device in the programming mode (both the red and green LEDs are blinking).
- Activate the intercom switch using the keypad, telephone, etc. The first code sent from the intercom will be stored in the memory and considered valid. After code initialisation, the **2N® IP Security Relay** will pass into the operational mode (the green LED is blinking).

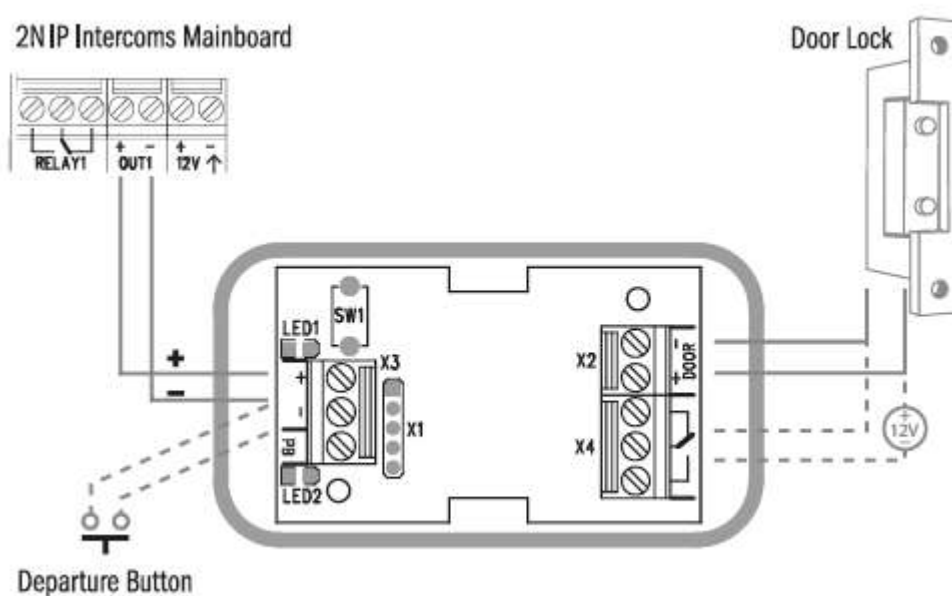
 Caution

- In case of resetting the factory default settings on a device with a version of firmware 2.18 or higher it is necessary to reprogram the **2N® Security Relay** using the instructions above.

✓ **Tip**

- FAQ: 2N® Security Relay – what it is and how to use it with 2N IP intercom?

Connection:



✓ **Tip**

Video Tutorial: Security Relay Installation and Configuration



Sorry, the widget is not supported in this export.
But you can reach it using the following URL:
<https://www.youtube.com/watch?v=ardukvQzw5A>

Wiegand Isolator

The **2N® Wiegand Isolator** (Part No. 9159011) is used for galvanic isolation of the Wiegand bus.

The **2N® Wiegand Isolator** is designed for galvanic isolation of two devices with separate power supply and interconnected via the Wiegand bus.

The **2N® Wiegand Isolator** protects the interconnected devices against communication errors and/or damage.

Connection of the **2N® Card Reader** to a security system unit is a typical example of application.



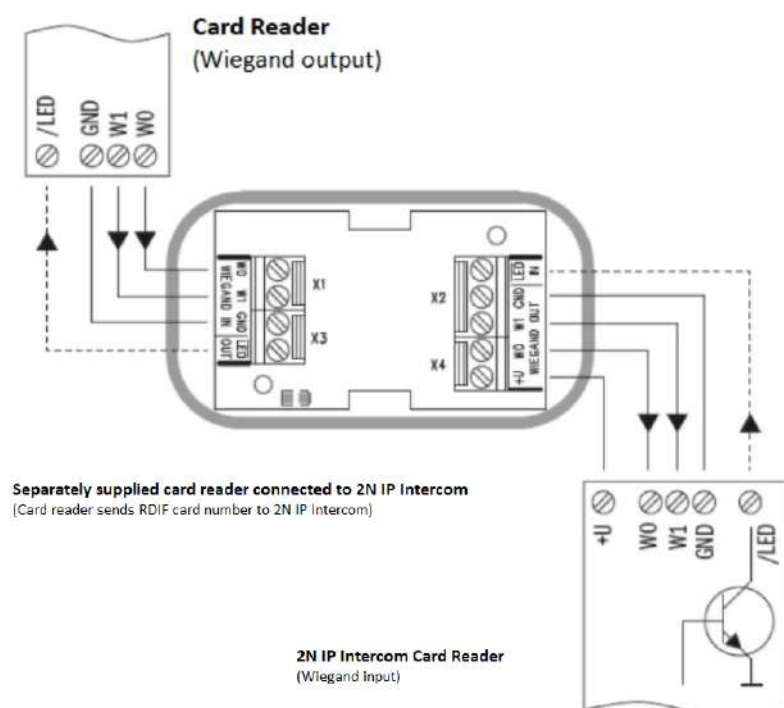
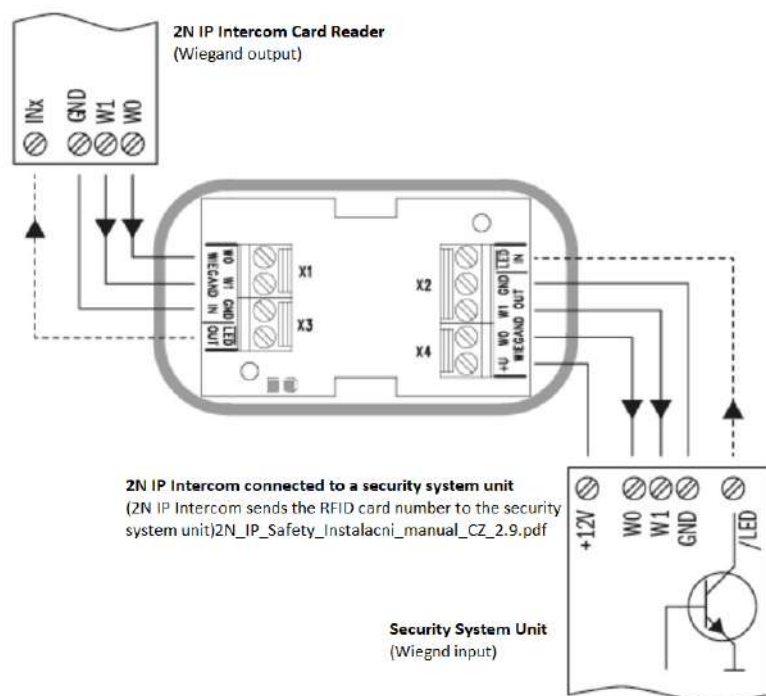
Function:

The **2N® Wiegand Isolator** separates galvanically a two-wire Wiegand bus in one direction and a status LED signal in the other direction. The module is power supplied from the Wiegand bus receiver side.

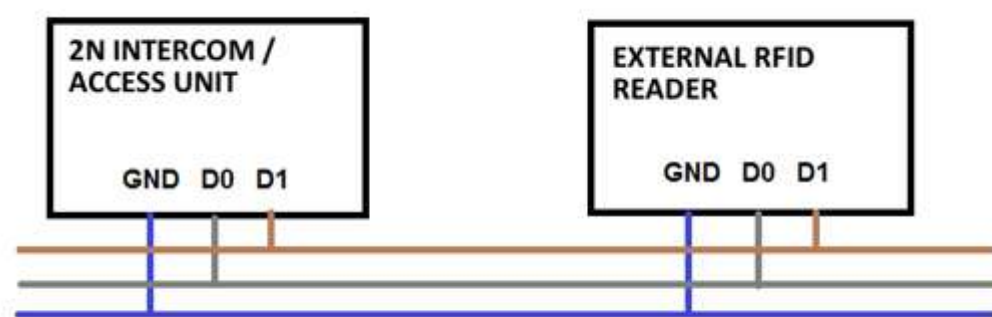
Specifications:

- 2-wire WIEGAND IN
- 2-wire WIEGAND OUT
- LED IN switched against GND on WIEGAND OUT side
- Open LED OUT switched against GND on WIEGAND IN side (up to 24 V / 50 mA)
- 5 to 16 V / 10 mA power supply from Wiegand bus receiver side
- 500 V DC isolation strength

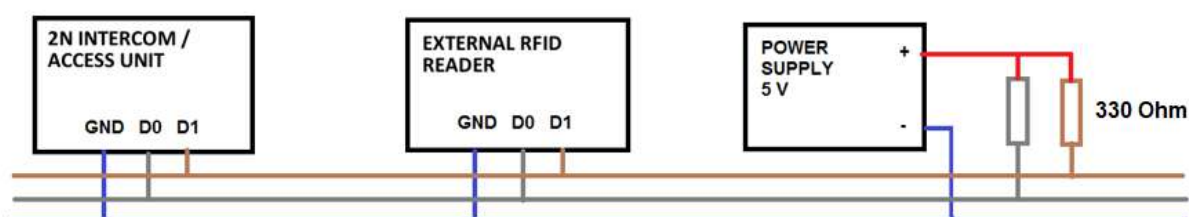
Connection:



Wiegand Input Technical Parameters	
Current	5 mA
Input resistance	680 Ohm
Pulse length	50 µs
Delay between pulses	approx. 2 ms



Recommended Wiring Diagram for Reader with Bus Driver



Recommended Wiring Diagram for Reader with Open Collector (OC) Output

Induction Loop

2N ® Induction Loop (Part No. 9159050 – Induction loop amplifier for **2N IP intercom**, Part No. 9159054 – Induction loop amplifier without 2N IP intercom accessory, Part No. 9159052 - 12 V DC power adapter) is part of sound system installations for hearing impaired persons that are equipped with a special hearing aid capable of receiving reproduced sound via a magnetic field receiver. The system is defined by the IEC 60118-4 standard.

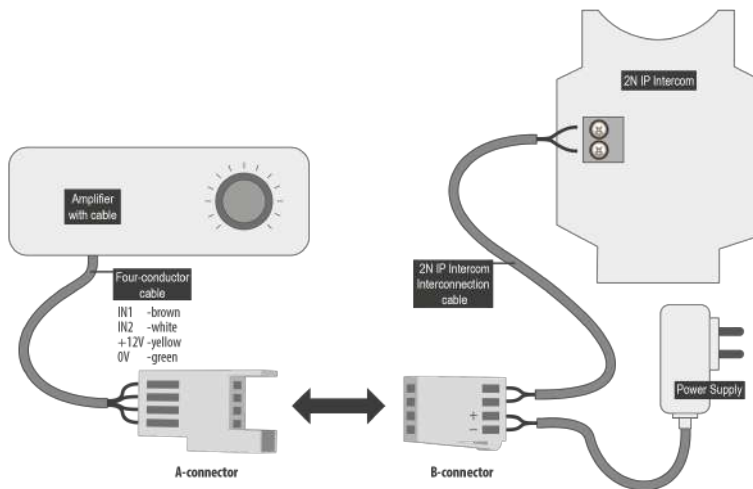
Installation:

The induction loop amplifier can be wall mounted with the use of an internal induction loop where a signal covering is requested. Outdoor use is possible thanks to the IP65 covering. A four-wire cable of the length of one meter is mounted to the supplied product for easier connection to the intercom. In the cable are two wires for 12 V DC supply and two wires for signal input, the wires are connected into interconnection connector. If you shorten the cable, follow the colour marking.

Before wall mounting run the cable through the hole that you have prepared. Then mark two mounting holes on the wall, through the amplifier front. Remove the amplifier and drill the mounting holes. Use the plugs and screws included in the delivery. Use a drill of the diameter of 6 mm. After fastening, cover the screws with the blanks supplied.

Use the supplied connectors to connect the amplifier to the intercom and power supply. The A connector is connected to the amplifier four-wire cable. Insert a special intercom-connecting cable supplied with the amplifier and 12 V power supply outlets to the B connector. Connect the special cable to the intercom and connect the power supply to the mains. You can place the mated A and B connectors into the **2N IP intercom** cover. The connectors help you connect stripped cables. Open the connector by pushing a thin screwdriver onto the white spots at its front and close the connector by sliding the movable part through a side gap.

Finally, test the amplifier function using a suitable receiver for hearing impaired persons or magnetic field communication tester. No other settings are required.



Specifications:

- Supply voltage: 8–18 V DC
- Supply current at 12 V supply:
 - 1 Ω load, full power output; 1.4 A, sine wave signal; 1 A, pink noise signal
 - 8 Ω load, half power output; 550 mA, sine wave signal; 400 mA, pink noise signal
 - standby, up to 10 mA
 - no signal, 100 mA
- Transition to standby w/o signal: 10 s
- Input level – basic: 100 mV – 6 V_{rms}
- Input level – increased: 1 V – 35 V_{rms}
- Input impedance: 2 k Ω parallel with 0.3 H
- Output current, 1 Ω load: 2.2 A_{rms} (sine wave)
- Full power output: 1.6 A_{rms} (pink noise)
- Output current, 8 Ω load: 730 mA_{rms} sine wave signal
- Half power output: 520 mA_{rms} pink noise signal
- Output short-circuit resistance: unlimited time
- Frequency characteristics: 100 Hz – 5 KHz ± 3 dB
- Temperature range: -20 – +50 °C
- Covering: IP65 (with round cable of 5–10 mm diameter)
- Dimensions: 144 x 100 x 31 mm
- Weight: 0.3 kg

3. Function and Use

This section describes the basic and extending functions of the the **2N® IP Vario** product.

Here is what you can find in this section:

- [3.1 Configuration](#)
- [3.2 Intercom Control as Viewed by External User](#)
- [3.3 Display-Equipped Intercom as Viewed by External User](#)
- [3.4 Intercom Control as Viewed by Internal User](#)
- [3.5 Maintenance](#)
- [3.6 Downloads](#)

3.1 Configuration

Use a PC equipped with any web browser to configure **2N® IP Vario**:

- Launch your web browser (Internet Explorer, Firefox, etc.).
- Enter the IP address of your intercom (<http://192.168.1.100/>, e.g.).
- Log in using the **Admin** user name and **2n** password.

You have to know the IP address of your device to log in to the integrated web server. By default, **2N® IP Vario** is switched into the dynamic IP address mode, i.e. it obtains the IP address automatically if a properly set DHCP server is available in your LAN. If no such DHCP server is available, you can operate **2N® IP Vario** in the static IP address mode.

IP Address Retrieval

If your device remains inaccessible (you have forgotten the IP address, or the LAN configuration has changed, for example), change the LAN settings using the buttons on the device.

Take the following steps to retrieve the **2N® IP Vario** IP address:

- Connect (or, if connected, disconnect and reconnect) **2N® IP Vario** to the power supply.
- Wait for the second sound signal .
 - 1-button models: Press the quick dial button on the basic unit five times.



- 3-buttons models: Press the second quick dial button on the basic unit five times.



- 6-buttons models: Press the fifth quick dial button on the basic unit five times.
- **2N® IP Vario** will read its IP address.
- If the address is 0.0.0.0, it means that the intercom has not obtained the IP address from the DHCP server.

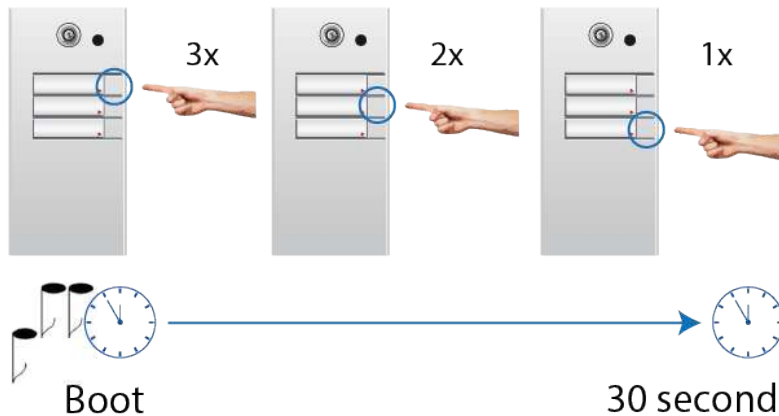
Note

- Be sure to press the button sequence within thirty seconds after the sound signal for security reasons. Up to 2 s intervals are allowed between the presses.

Static IP Address Setting

Follow the instructions below to enable the static IP address mode:

- Connect **2N® IP Vario** to the power supply (or, disconnect and reconnect it if already connected).
- Wait for the first acoustic signal .
- Press following buttons sequentially:
 - 1, 1, 1, 2, 2, 3 for 3-buttons models



Switching to static IP address

- 4, 4, 4, 5, 5, 6 for 6-buttons models
- The acoustic signal  indicates mode switching.
- Wait until the device is restarted automatically.

Note

- The 1, 1, 1, 2, 2, 3 sequence must be entered within 30 seconds after the first sound signal for security reasons. The inter-digit delay may be 2 s at most.

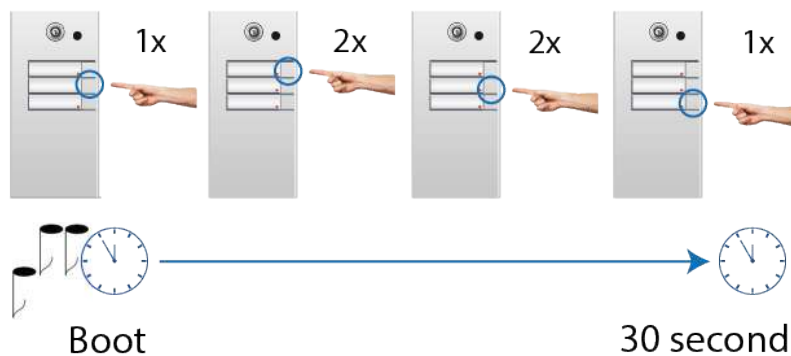
The device will have the following network parameters after restart:

- IP address – 192.168.1.100
- Network mask – 255.255.255.0
- Default gateway – 192.168.1.1

Dynamic IP Address Setting

Connect **2N® IP Vario** to the power supply (or, disconnect and reconnect it if already connected). Follow the instructions below to enable automatic getting of network parameters from the DHCP server:

- Wait for the first acoustic signal 
- Press following buttons sequentially:
 - 2, 1, 1, 2, 2, 3 for 3-buttons models



- 5, 4, 4, 5, 5, 6 for 6-buttons models
- The acoustic signal  indicates mode switching.
- Wait until the device is restarted automatically.

Note

- The 2, 1, 1, 2, 2, 3 sequence must be entered within 30 seconds after the first sound signal for security reasons. The inter-digit delay may be 2 s at most.

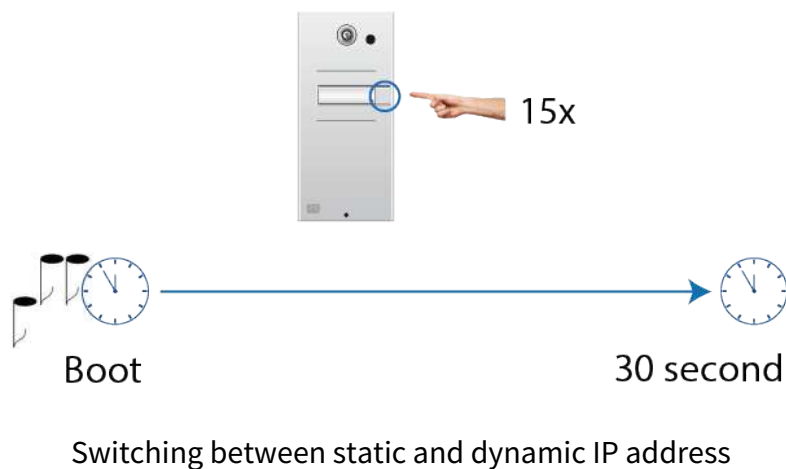
2N® IP Vario gets the IP address upon restart only if the DHCP server is configured properly.

Mode Switching with 1-Button Models

Connect **2N® IP Vario** to the power supply (or, disconnect and reconnect it if already connected). In case your **2N® IP Vario** device is equipped with 1 button, you can switch the modes using one button only.

- Wait for the first sound signal .
- Press the quick dial button on the main unit 15 times.

- Network parameter reset and DHCP switch are signaled by the  sound.
- For devices with FW versions 2.33 and lower, wait until the device is automatically restarted.
 - After restart, the static IP address mode is switched into the dynamic IP address and vice versa.
- Simultaneously, all the **System / Network** parameters are reset to default values. This is useful where it is impossible to connect to the device due to wrong VPN configuration, for example.



Note

- The 15 times 1 sequence must be entered within 30 seconds after the first sound signal for security reasons. The inter-digit delay may be 2 s at most.

The static IP address mode will be switched into the dynamic IP address mode and vice versa upon restart.

3.2 Intercom Control as Viewed by External User

Quick Dialling Buttons

By pushing a quick dialling button on the basic unit you can call to positions 1, 3...6 of the telephone directory (depending on the model type). With extending modules you can use up to 54 quick dialling options.

By pushing a quick dialling button you call the telephone number assigned to the selected telephone directory position. A call set-up is signalled by a long discontinuous tone or any other tone as defined in the attached PBX configuration.

By re-pushing the same button during calling or setting up you can hang up, hang up and call to another telephone number, or activate nothing as defined in the Intercom Configuration / Hardware / Keypad subsection of Configuration Manual.

You can also hang up the call any time by pushing  if the **Hang-up by #** button is enabled; refer to Intercom Configuration / Hardware / Keypad subsection of Configuration Manual.

Calling to Phone Book Position

The **2N® IP Vario** telephone directory may contain up to 1999 pre-programmed positions. You can use the quick dialling buttons for positions 1 to 54 only. To retrieve the remaining positions, use the numeric keypad if **Dial Users by Phonebook Position** is enabled; refer to the Intercom Configuration / Hardware / Keypad subsection of Configuration Manual.

Procedure:

- Enter the position number using the numeric keypad (e.g. 05, 15, 200, 1759 – two digits at least and four digits at most) and push  for confirmation.
- You can also hang up the call any time by pushing  if the **Hang-up by #** button is enabled; refer to Intercom Configuration / Hardware / Keypad subsection of Configuration Manual.

Calling to User-Defined Telephone Number

If the **Telephone function enable** (refer to the Intercom Configuration / Hardware / Keypad subsection of Configuration Manual) is selected, you can call the user-defined telephone number using the **2N® IP Vario** numeric keypad.

Procedure:

1. Push .
2. You can hear the continuous tone from the loudspeaker.
3. Enter the telephone number using the numeric keypad and push  again for confirmation.
4. You can also hang up the call any time by pushing  if the **Hang-up by #** button is enabled; refer to the Intercom Configuration / Hardware / Keypad subsection of Configuration Manual.

Incoming Call Answer and Reject

If the automatic incoming call answer is disabled (refer to the Intercom Configuration / Services / Phone / Calls subsection of Configuration Manual), a call coming to

2N® IP Vario is signalled with loud ringing. Push  to answer and  to reject the call.

Code Door Opening (Switch Activation)

2N® IP Vario is equipped with a door unlocking switch. To activate the switch enter the valid code (refer to the Intercom Configuration / Hardware / Switches subsection of Configuration Manual) on the numeric keypad.

Procedure:

- Enter the lock 1 or lock 2 activating code using the numeric keypad and push .
- A valid code is signalled by a continuous switch activation (lock opening) signalling tone.
An invalid code is announced by acoustic signalling .

Profile Activation and Deactivation

You can activate or deactivate a profile and define call routing to the telephone numbers assigned to the profile using the numeric keypad. For more details refer to the Intercom Configuration / Directory / Time Profiles subsection of Configuration Manual subsection.

Procedure:

- Enter the profile activation or deactivation code using the numeric keypad and push  for confirmation.

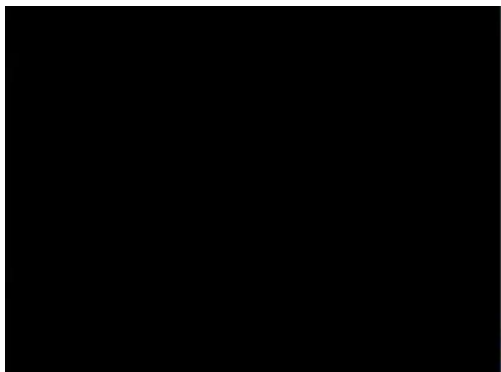
- A valid code is announced by acoustic signalling  or  depending on the code type. An invalid code is announced by acoustic signalling .

3.3 Display-Equipped Intercom as Viewed by External User

Until the display program is uploaded to **2N® IP Vario**, the display shows the **2N** logo; refer to the figure below. In this state, **2N® IP Vario** behaves and is controlled like no-display models, see Display-Equipped **2N® IP Vario** Control as Viewed by External User.



Display with enabled function without configuration



Display with disabled function

With the proper display configuration, the advertisement or electronic name tag mode is displayed upon the **2N® IP Vario** power on as pre-programmed.

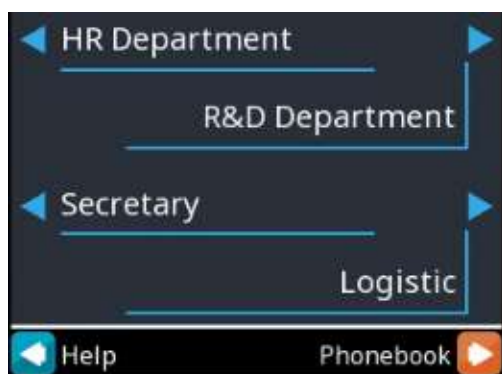
The display-equipped **2N® IP Vario** model is controlled using the numeric keypad and quick dialling buttons. Buttons 2, 4, 6 and 8 are cursor keys in the telephone directory mode. Buttons 3 and 6 are functional keys and initiate the action displayed in the right-hand and left-hand screen corners.

Advertisement Mode

One or more images defined in the display program are displayed in the advertisement mode. To quit the ad mode and move to the electronic name tag mode, push any quick dialling button or numeric keypad key.

Electronic Name Tags

1, 2 or 4 name tags emulating the paper name tags can be displayed in the electronic name tag mode. Push one of the 1, 2, 4 and 5 quick dialling buttons to call the user assigned.



You can also enter the door lock opening codes and activate or deactivate a user or profile in this mode. For steps refer to the no-display **2N® IP Vario** subsection. Push the quick dialling button 6 to move to the Telephone directory mode and the  button to move to the **Calling to number** mode (only if the telephone function is enabled, see **Miscellaneous**).

Calling to Number

If the **Telephone function enable** is selected (see **Miscellaneous**), **2N® IP Vario** can be used for calling to selected telephone numbers in a standard way. Push  in the **Electronic name tag** mode to move to this mode.



Push the quick dialling button 3 or the  button to return to the electronic name tag mode. To dial and display the number to be called, use the numeric keypad and push  for confirmation. Push the quick dialling button 6 to delete and re-enter the last-dialled number if necessary.

Phone Book

A structured phone book as defined by the display program is displayed in the telephone directory mode. To browse through the telephone directory use the numeric keypad arrow keys (i.e. keys 2, 4, 6 and 8). Use the up and down arrows to move between the items. Push the right arrow to establish a call or move to a subgroup. The  key and quick dialling buttons 4 and 5 have the same function as the right arrow. Use the left arrow to return to the superior group.



4-line phone book

You can also use the telephone directory for retrieving contacts. Push the quick dialling button 6 to switch on the phone directory searching mode.

To retrieve a text, use the numeric keypad. The text to be searched is displayed in the centre of the status line. To delete the last character push the quick dialling button 3.



Entering the text to be searched



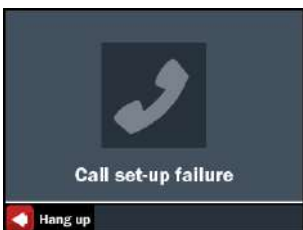
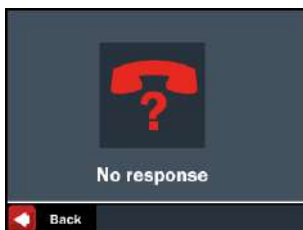
Selecting one of the contacts found

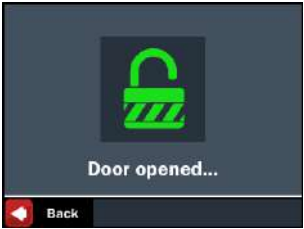
The text string is retrieved on the current level and all sublevels of the telephone directory. The count of contacts found is displayed on the top line. The first 3 (or 4) found contacts are displayed in the central part of the window.

To browse through the contacts found and select the required one, push the quick dialling button 6, thus recovering the arrow function of the numeric keypad.

Status Information

In addition to the above described modes, the **2N® IP Vario** display indicates various device statuses:

	
Call being set up	Ringing – outgoing call
	
Call connected	Call terminated
	
Call set-up failure	No response

	
Incoming call	Door opened/unlocked

3.4 Intercom Control as Viewed by Internal User

Call answering

Incoming calls from **2N® IP Vario** can be received like any other call. You can open the lock and activate or deactivate a user or profile during the call using your telephone numeric keypad. The call duration is limited to avoid unintentional **2N® IP Vario** line blocking. Use the Call time limit parameter to set the maximum call duration (refer to the Intercom Configuration / Services / Phone / Calls subsection of Configuration Manual). To prolong a call push the # button on your telephone any time. A short beep 10 s before the call end signals an automatic all termination.

Calling to 2N® IP Vario

2N® IP Vario allows to answer an incoming call too. To set the required parameters use the Incoming calls item, refer to the Intercom Configuration / Services / Phone / Calls subsection of Configuration Manual.

Code Door Opening (Switch Activation)

2N® IP Vario is equipped with a door unlocking switch. To activate the switch enter the valid code (refer to the Intercom Configuration / Hardware / Switches subsection of Configuration Manual) on the numeric keypad.

Procedure:

- Enter the lock 1 or lock 2 activating code using your telephone numeric keypad and push  (confirmation is unnecessary if the Lock code without confirmation option is selected, refer to the Intercom Configuration / Hardware / Switches / Advanced subsection of Configuration Manual).
- A valid code is announced by acoustic signalling . An invalid code is announced by acoustic signalling .

Profile Activation and Deactivation

You can activate or deactivate a profile and define call routing to the telephone numbers assigned to the profile using the numeric keypad. For more details refer to the Intercom Configuration / Directory / Time Profiles subsection of Configuration Manual.

Procedure:

- Enter the profile activation or deactivation code using the numeric keypad and push  for confirmation.
- A valid code is announced by acoustic signalling  or  depending on the code type. An invalid code is announced by acoustic signalling .

3.5 Maintenance

Cleaning

If used frequently, the device surface, the keypad in particular, gets dirty. To clean it, use a piece of soft cloth moistened with clean water. We recommend you to follow these principles while cleaning:

- Never use aggressive detergents (such as abrasives or strong disinfectants).
- Use suitable cleaning agents for glass lens cleaning (cleaners for glasses, optic devices screens, etc.).
- Alcohol-based cleaners may be applied.
- Clean the device in dry weather in order to make waste water evaporate quickly.
- We recommend using cleaning wipes designed for IT / electronic items.

Warning

- Avoid peroxide-based cleaners.

Future Tag Replacement, Programming Changes

For necessary steps refer to the preceding subsections. Keep the following for future changes:

- This manual
- Unused transparent foil strips for button tags

 Caution

- Always use the product for the purpose it was designed and manufactured for, in compliance herewith.
- The manufacturer reserves the right to modify the product in order to improve its qualities.
- **2N® IP Vario** contains no environmentally harmful components. When the product's service life is exhausted and you would like to dispose of it please do so in accordance with applicable legal regulations.

3.6 Downloads

Templates

[Nametags](#)

Software

[2N® USB driver](#)

[2N® IP Eye](#)

[2N® Network Scanner](#)

4. Technical Parameters

Signalling protocol

- **SIP (UDP, TCP, TLS)**

Buttons

- **Button design:** stainless-steel push buttons
- **Count of buttons:** 1, 3 or 6
- **Button extension:** up to 54 buttons
- **Numerical keypad:** optional

Audio

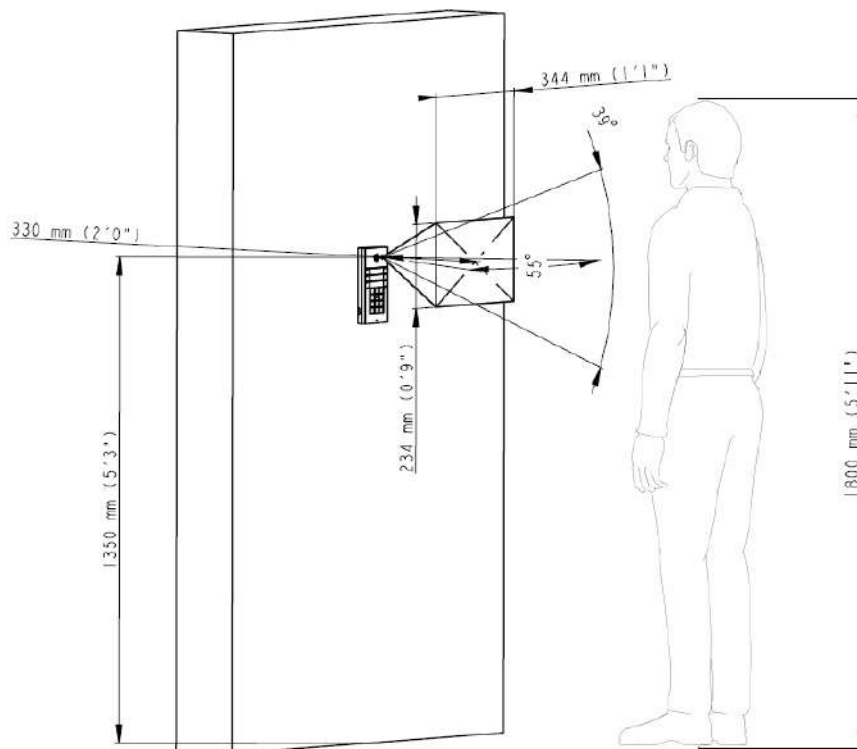
- **Volume control:** adjustable
- **Full duplex:** Yes (AEC)
- **Sound pressure level (SPL max):** 61.5 dB (for 1 kHz, distance 1 m)
- **Speech transmission index (STI):** 0.88

Audio stream

- **Protocols:** RTP / RTSP
- **Codecs:** G.711, G.729, G.722, L16/16kHz

Camera

- **Sensor:** 1/4" colour CMOS
- **Resolution:** 640 (H) x 480 (V)
- **Picture frequency:** Up to 30 snaps/s
- **Sensitivity:** 1.9 V/lux-sec (550 nm)
- **Viewing angle:** 55° (H), 39° (V)
- **Focal length:** 3.11 mm



Video stream

- **Protocols:** RTP / RTSP / HTTP
- **Codecs:** H.263, H.263+, H.264, MPEG-4, M-JPEG
- **IP camera function:** Yes, ONVIF v2.4 profile S compatible

Bandwidth

- **Audio codecs**
 - PCMA, PCMU – 64 kbps (with 85.6 kbps headers)
 - G.729 – 16 kbps (with 29.6 kbps headers)
 - G.722 – 64 kbps (with 85.6 kbps headers)
 - L16 / 16 kHz – 256 kbps (with 277.6 kbps headers)

- **Video codecs**

Set the video codec data flows in the Services / Phone / Video menu for calls and in the Services / Streaming / RTSP menu for streaming. The set bandwidth represents the value that the codec has to approach on a long-time average. The data flows can vary depending on the scene to be scanned.

The measured data flow values correspond to the test view of a person standing in front of the intercom.

- **H.264**

- Low quality: QVGA (320 x 240), 10 fps, 256 kbps: 181 kbps (with 190 kbps headers)
- Medium quality: VGA (640 x 480), 15 fps, 768 kbps: 600 kbps (with 661 kbps headers)
- High quality: VGA (640 x 480), 30 fps, 2048 kbps: 1319 kbps (with 1372 kbps headers)

- **MJPEG**

- Low quality: QVGA (320 x 240), 10 fps, quality 70: 435 kbps with headers
- Medium quality: VGA (640 x 480), 15 fps, quality 85: 506 kbps

Interface

- **Power supply:** 12 V $\pm$ 15 % / 2 A DC or PoE
- **PoE:** PoE 802.3af (Class 0 - 12.95 W)
- **LAN:** 10/100BASE-TX s Auto-MDIX
- **Recommended cabling:** Cat-5e or higher
- **Supported protocols:** SIP2.0, DHCP opt. 66, SMTP, 802.1x, RTSP, RTP, TFTP, HTTP, HTTPS, Syslog, ONVIF
- **Passive switch:** NO and NC contacts, up to 30 V / 1 A AC/DC
- **Active switch output:** 10 up to 12 V DC depending on power supply (PoE: approx. 12 V; adaptor: same voltage as power supply), max 600 mA

RFID card reader

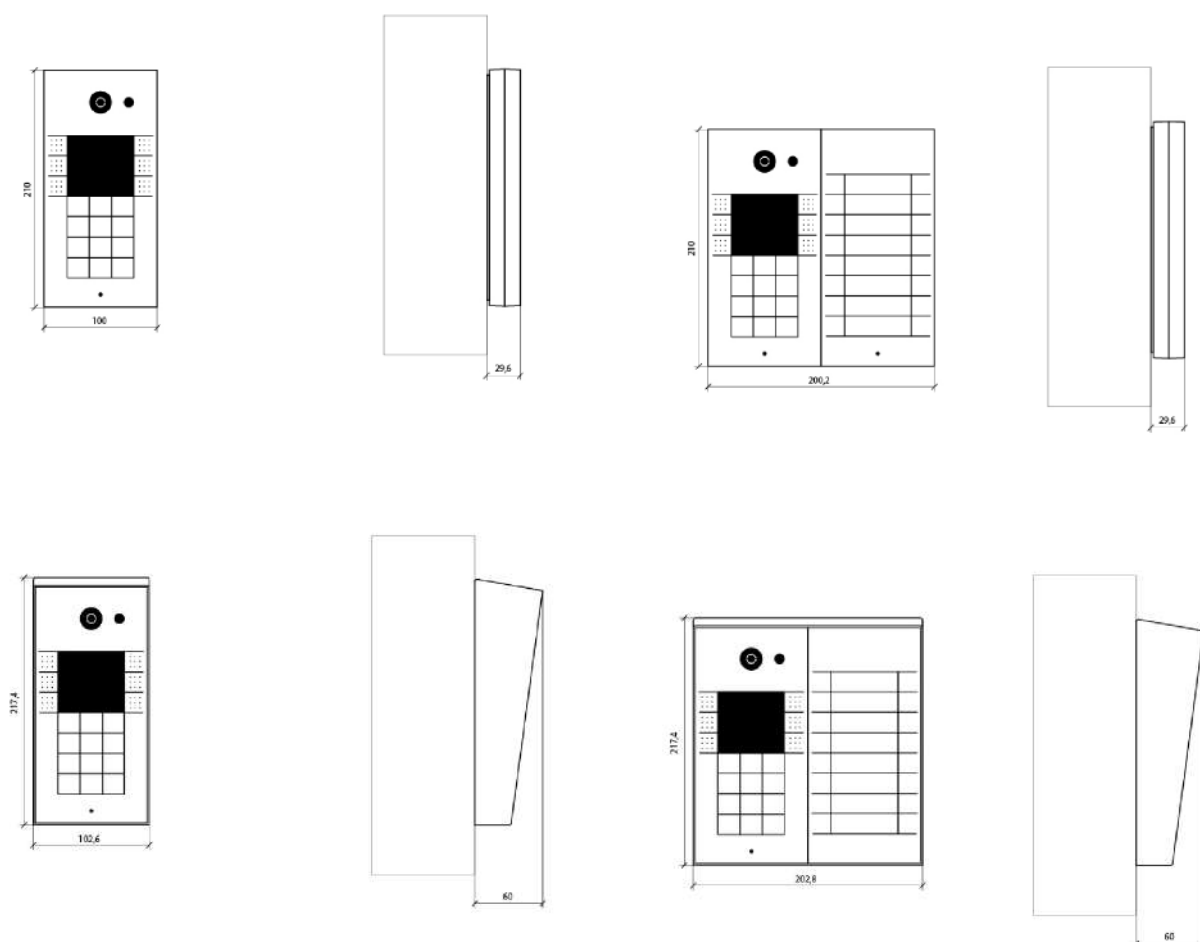
- **Optional (Part No. 9137430E)**
 - Equipped with two relay outputs, two inputs and Wiegand interface
- **Supported cards 125 kHz:**
 - EM4100, EM4102

Mechanical properties

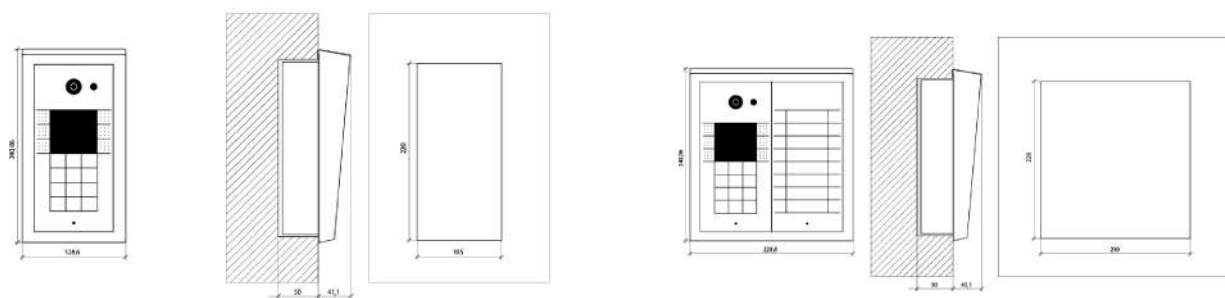
- **Working temperature:** -20 °C to 55 °C
- **Working relative humidity:** 10 % – 95 % (non-condensing)
- **Storing temperature:** -40 °C to 70 °C
- **Dimensions:** (210 x 100 x 29) mm
- **Weight:** 500 g
- **Covering level:**
 - IP53 when the roof is used (see Mounting Accessories)
 - IP50 when the roof is not used
- **Resistance level:** IK08

4.1 General drawings

Surface mounting



Flush mounting



5. Supplementary Information

Here is what you can find in this section:

- [5.1 Troubleshooting](#)
- [5.2 Directives, Laws and Regulations](#)
- [5.3 Other Countries Legislation](#)
- [5.4 General Instructions and Cautions](#)

5.1 Troubleshooting



For the most frequently asked questions refer to faq.2n.cz.

5.2 Directives, Laws and Regulations

2N® IP Vario conforms to the following directives and regulations:

- 2014/53/EU for radio equipment
- 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

Industry Canada

This Class B digital apparatus complies with Canadian ICES-003/NMB-003.

FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

NOTE: These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

DDA compliance:

2N TELEKOMUNIKACE intercoms comply with the Disability Discrimination Act 2005 (DDA) under the following conditions:

1. The intercoms are mounted so that their lower edge is between 100 and 120 centimeters above the floor.
2. The intercoms use a keyboard that has a mechanical protrusion on number 5.
3. The intercoms use electromagnetic loop as a hearing aid.

Caution

Warning

In order to ensure the full functionality and guaranteed performance, we strongly recommend that the topicality of the product / device version in use be verified as early as in the installation process. The customer hereby acknowledges that the product / device can achieve the guaranteed performance and full functionality pursuant to the manufacturer's instructions only if the latest product / device version is used after having been tested for full interoperability and not having been determined by the manufacturer as incompatible with certain versions of other products, and only in conformity with the manufacturer's instructions, guidelines or recommendations and in conjunction with suitable products and devices of other suppliers. The latest versions are available at https://www.2n.com/cs_CZ/ or can be updated via the configuration interface if the devices are adequately technically equipped. Should the customer use a product / device version other than the latest one or a version determined by the manufacturer as incompatible with certain versions of other products, or should the customer use the product / device in contradiction to the manufacturer's instructions, guidelines or recommendations or in conjunction with unsuitable products / devices of other suppliers, the customer is aware of and agrees with all functionality limitations of such a product / device if any as well as with all consequences incurred as a result thereof. Using a product / device version other than the latest one or a version determined by the manufacturer as incompatible with certain versions of other products, or using the product / device in contradiction to the manufacturer's instructions, guidelines or recommendations or in conjunction with unsuitable products / devices of other suppliers, the customer agrees that the 2N TELEKOMUNIKACE a.s. company shall not be held liable for any functionality limitation of such a product or any damage, loss or injury related to this potential functionality limitation.

5.3 Other Countries Legislation

Thailand	เครื่องโทรคมนาคมและอุปกรณ์นี้ มีความสอดคล้องตามมาตรฐานหรือขอ กำหนดทางเทคนิคของ กสทช.  เครื่องวิทยุคมนาคมนี้ ได้รับยกเว้น ไม่ต้องได้ รับใบอนุญาตให้มี ใช้ซึ่งเครื่องวิทยุคมนาคม หรือตั้งสถานีวิทยุคมนาคมตามประกาศ กสทช. เรื่อง เครื่องวิทยุคมนาคม และสถานีวิทยุ คอมพิวเตอร์ที่ได้รับยกเว้นไม่ต้องได้รับใบอนุญาต วิทยุคมนาคมตามพระราชบัญญัติวิทยุคมนาคม พ.ศ. 2498  nans. โทรคมนาคม กำกับดูแลเพื่อประชาชน Call Center 1200 (InSW5)
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5.4 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.

