Installation Manual

0.1g

Dear customer,

Congratulations on the purchase of 2N Helios IP. This new product was developed and manufactured with the aim to provide the maximum user value, quality and reliability. We hope 2N Helios IP will fully meet your satisfaction for a long time.

The manufacturer continuously improves the product firmware. The technology used allows you to upload to 2N Helios IP the latest version of the firmware any time using a standard computer. The latest version of the firmware is available at www.2n.cz. You will find the necessary instructions in chapter 7.18. of this manual. We recommend that you use the latest version of the firmware, which brings new functions and patches to the ever-improving product.

At www.2n.cz you will also find the latest version of the user documentation. The grey-marked text in this manual indicates functions that will be implemented with a newer version of the firmware.

Before you start installing the product please check whether your delivery is complete, using the packing list attached, and read the instructions specified in this manual. The manufacturer is not liable for any damage caused by incorrect use of the product, which is contrary to the user documentation. The warranty terms and conditions do not apply to product damage caused by improper handling, improper storage or exceeding the specified technical parameters.

The user documentation describes in detail the installation and functions of the product and includes also passages that are not necessary for the basic installation.

Packing List

Please check whether the contents of the package of your new 2N Helios IP corresponds with the following list.

Item	Quantity
Helios IP	1
Installation CD	1
Replacement seals	1
Drilling template	1
Hexagonal wrench	1
Reserve label	1
Terminal block plug	1
Screws	2
Plastic anchors	2

Table of Contents

List of illustrations

1. Basic Properties

1.1. Basic Properties

- Works in the Ethernet network
- Power supply over Ethernet - PoE
- SIP communication protocol
- Integrated web server for configuration
- Up to 54 quick dialing buttons
- Up to 500 users / user groups
- Integrated calendar with day/night/weekend modes
- Modular – up to 54 buttons + keypad
- Can be used as a standard VoIP telephone and a code lock (models with keypad)
- Select design, quality material – high-quality stainless steel
- Flat design – can be installed without having to make a hole in the wall
- Water resistant
  - Completely hermetic buttons
  - Electronic part completely separated from the nametags
- Switch for the electric lock – controlled directly from the VoIP telephone
- Quality white backlighting of buttons – white LEDs
- DTMF according to RFC2833, in-band
- High-quality acoustic characteristics
- Electronic volume setting and hands-free function – without opening the cover
- Electronic adjustment of the camera brightness and contrast
- Electronic adjustment of backlight

1.2. Intended Use

2N Helios IP door communicator is capable of replacing the traditional doorbell button panel with speakerphone and the entire system of wiring, bells and intercom installations in buildings where structured cabling is installed. The installation is very easy, all you need to do is

to connect it to the other elements of the data network using a twisted UTP cable.

By pressing any of the quick dial buttons 2N Helios IP will set up a call to the number that had been stored in the respective memory. The number of buttons is optional because 2N Helios IP is a kit.

Thanks to the integrated calendar it is possible to configure the individual buttons in such a way that the called party is always available.

It is possible to define for each of the buttons up to three telephone numbers, between which 2N Helios IP switches when absent.

Beside the buttons, you can also use the numeric keypad, which also serves as a code lock. With the use of this keypad you can use the system also as a button telephone. The keypad can be combined with buttons and unwanted functions can be banned.

2N Helios IP provides better and broader services than normal house intercom systems. Thanks to the integrated SIP protocol it can use all the services of VoIP networks. Redirecting when absent (to another office, to a voice mail or a cell phone) or switching (e.g., from the secretary's office to the required specific person).

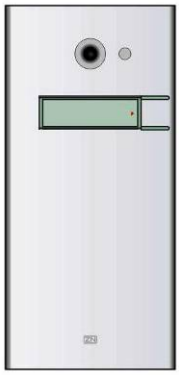
In addition, 2N Helios IP includes a switch, with which you can control the electric lock from any VoIP telephone (by entering the code using tone dialing).

1.3. Optional Accessories

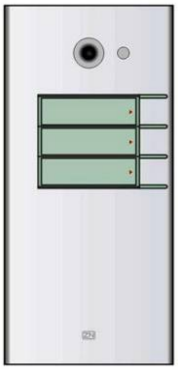
- "Anti-vandal" panel
  - Very strong metal cover for increased endurance against vandalism
  - The cover price includes a steel installation box for wall-mounting
  - It can also be purchased additionally
- Additional switch
  - Switching contact (relay)
  - Can be switched on for unlimited time

2. Overview of Available Product Versions

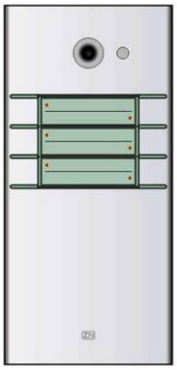
2.1. Basic Units and Extenders



Order No.
9137110(C)E
basic unit
1 button
(C=integrated camera)



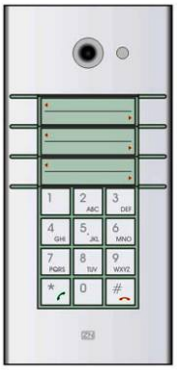
Order No.
9137130(C)E
basic unit
3 buttons
(C=integrated camera)



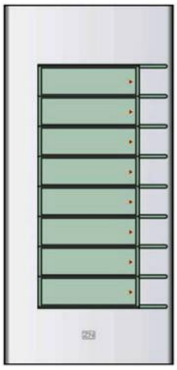
Order No.
9137160(C)E
basic unit
3x2 buttons
(C=integrated camera)

Order No.
9137110(C)KE
basic unit
1 button + keypad
(C=integrated camera)

Order No.
9137130(C)KE
basic unit
3 buttons + keypad
(C=integrated camera)

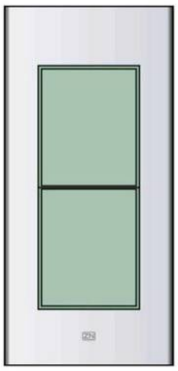


Order No.
9137160(C)KE
basic unit
3x2 buttons + keypad
(C=integrated camera)



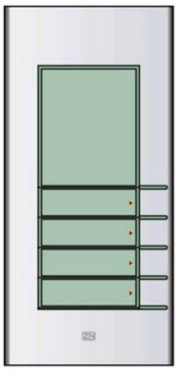
Order No. 9135181E
extending module
8 buttons

Order No. 913582E
extending module
8x2 buttons



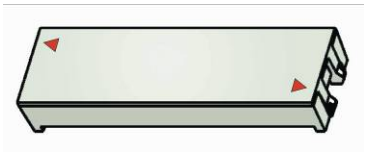
Order No. 9135310E
Info panel

Back-lit panel without buttons; used for insertion of a telephone number list, company logo, house number, etc.

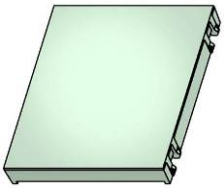


Order No. 9135320E
Info panel + 4 doorbell buttons
Independent product; it is not to be connected to a telephone line.
Combination of four doorbell buttons and an area where you can insert e.g., company name or list of departments or working hours

Order No. 9135301E
Replacement button nametag



Order No. 9135302E
replacement double-button nametag

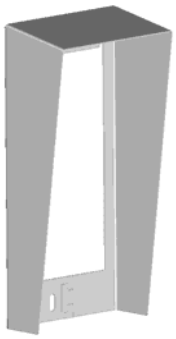


Order No. 9135311E
Info panel – name tag

Replacement for four nametags with one cover. It allows you to use a half of the extending module e.g., for insertion of a telephone number list, working hours, etc.

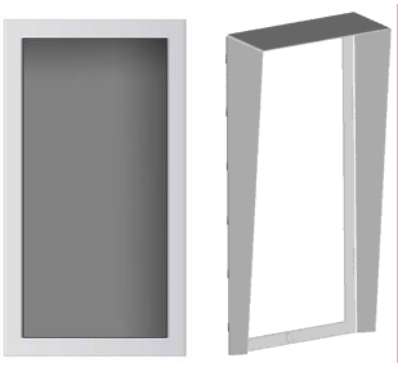
All units can be used also without additional accessories for surface installation. All units can be made more robust and resistant by using an anti-vandalism cover. To install a unit under wall coat or in outdoor applications you need to use the accessories; see chapter 2.2.

2.2. Accessories for Installation

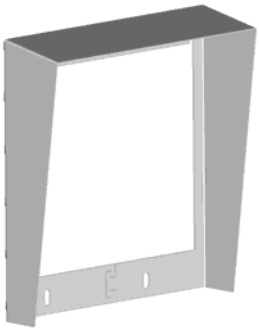


Order No. 9135331E
Surface top cover for 1 module
dimensions
(W x H x D):
103 x 218 x 60 mm

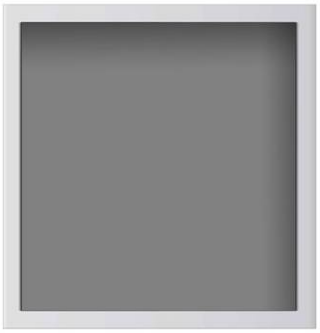
Order No. 9135351E
Box for installation in the wall with frame for 1 module
Dimensions:
(W x H x D):
125 x 235 x 46 mm
Hole in the wall:
110 x 220 x 50 +- 5mm



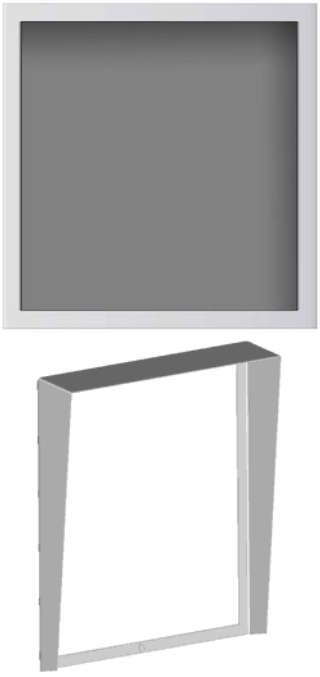
Order No. 9135361E
Box for installation in the wall with roof module for 1 module
Roof module dimensions
(W x H x D):
129 x 240 x 41 mm
Hole in the wall:
110 x 220 x 50 +- 5mm



Order No. 9135332E
Surface roof module for 2 modules
dimensions
(W x H x D):
203 x 218 x 60 mm



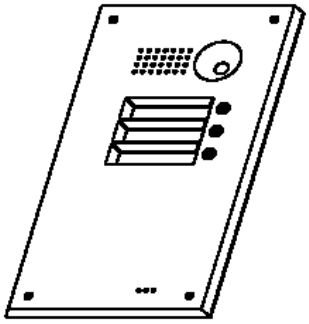
Order No. 9135352E
Box for installation in the wall with frame for 2 modules
Dimensions:
(W x H x D)
225 x 235 x 46 mm
Hole in the wall:
210 x 220 x 50 +- 5mm



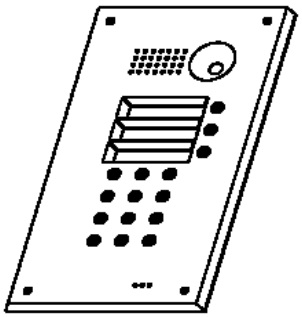
Order No. 9135362E
Box for installation in the wall with roof module for 2 modules
Roof module dimensions
(W x H x D)
229 x 240 x 41 mm
Hole in the wall:
210 x 220 x 50 +- 5mm

The accessories for installation are made of stainless steel. For outdoor applications the use of the roof module is required, unless protection against rain is provided otherwise. The box with frame (without roof module) allows for installation of Helios IP in indoor applications, so that it is almost does not protrude (1 mm).

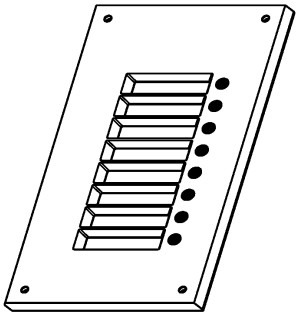
2.3. Accessories for Increased Endurance



Order No. 9135511E
anti-vandalism cover for the basic module + box for installation in the wall vandalism-resistant *)



Order No. 9135511KE
anti-vandalism cover for 1 basic module with keypad + box for installation in the wall, vandalism-resistant *)



Order No. 9135515E
anti-vandalism cover for 1 extending module + box for installation in the wall, vandalism-resistant *)

*) Warning! Box order No. 9135351E cannot be used!! For installation of vandalism-resistant covers you need to use a dedicated box!

These covers are used to make the basic unit or assemblies with up to 11 buttons more resistant. Greater assemblies can be provided upon individual request. More resistant version is always to be installed under the wall coat. No roof module is used for this version; outdoor use is possible without the roof module.

2.4. Accessories for GSM and UMTS Network Connection

Order No. 505004E
2N VoiceBlue Lite

Order No. 505214E
2N VoiceBlue Enterprise

Order No. 505612E
2N UMTS Office Route

2.5. Accessories for VoIP Network Connection

Order No. 91378100
PoE injector

Order No. 91378300
Grandstream VoIP telephone

Order No. 91378350
Grandstream VoIP video telephone

2.6. Electric Locks

Order No. 932070E
BEFO 1211 12V / 600 mA

Order No. 932080E
BEFO 1221 with momentum pin

Order No. 932090E
BEFO 1211MB with mechanical blocking

2.7. Other Accessories

Order No. 9137310E
Additional switch

Enables control of a second appliance, connecting and disconnecting contact option, connecting for unlimited time, max. 48 V / 2A

Order No. 91341481E, 91341481AU, 91341481GB, 91341481US
adaptor 12 V / 2 A

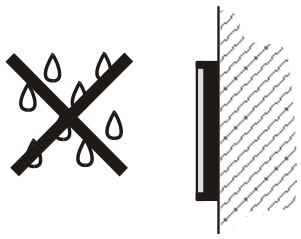
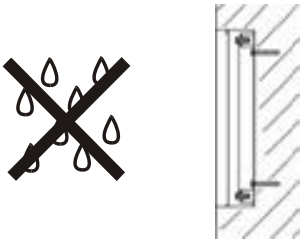
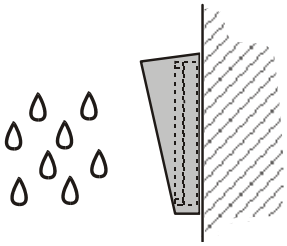
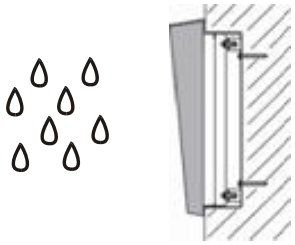
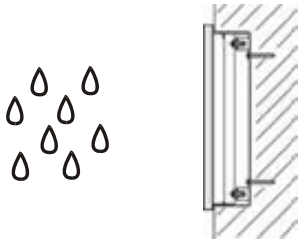
Stabilized power source needs to be used if power supply over Ethernet (PoE) is not used

Order No. 932928 12V transformer

3. Mechanical Installation

3.1. Overview of Installation Types

Overview of the installation types and the list of the required components is provided in the table below.

Overview of installation types		What you need for the installation
Indoor, on surface		- only **2N Helios IP**
Indoor, under wall coat		**2N Helios IP** box with frame for 1 module **Order No. 9135351E**, or box with frame for 2 modules **Order No. 9135352E**
Outdoor, on surface		**2N Helios IP** Surface roof module for 1 module **Order No. 9135331E**, or Surface roof module for 2 modules **Order No. 9135332E**
Outdoor, under wall coat		**2N Helios IP** Box for installation in the wall with roof module for 1 module **Order No. 9135361E** or Box for installation in the wall with roof module for 2 modules **Order No. 9135362E**
With increased resistance		**2N Helios IP** vandalism-resistant cover with box, version according to the assembly

Indoor application shall mean:
Indoor areas with low relative air humidity (e.g., hallways, offices and other heated rooms)
Indoor areas where **humidity condensates** on walls, **but does not ever flow down the walls** (e.g., porches, storage areas, industrial areas)
Outdoor areas, if **protection against rain and water flowing down the wall is provided** (e.g., sheds, passages)

Outdoor application shall mean:
Environment where the product is exposed to rain or where water may flow down the walls (e.g., fence, outer wall of a building).

The warranty shall not apply to product failures and defects caused improper installation (contrary to these instructions). The manufacturer is also not 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 burglar protection – only in combination with a standard lock, which has the security function.

3.2. Surface Installation

1) Drill holes according to the template included in the Helios IP supply. Insert the included plastic anchors in the holes in the wall.
2) Use a hexagonal wrench, which is included in the supply, remove the metal cover of Helios IP. In the

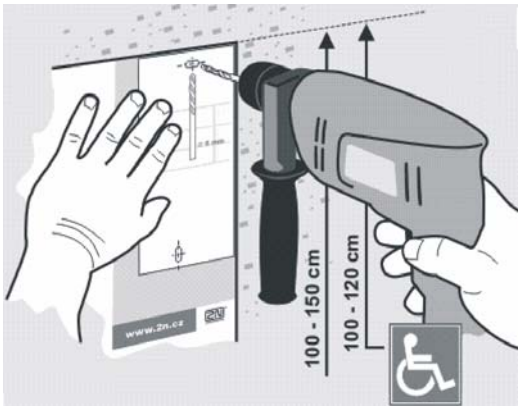


Figure 1 – Drilling holes

lower part of the metal cover remove the screw and fold out the cover as shown on Figure 2.

3) Use a screwdriver for cross-recess screws to remove the plastic cover and remove the cover.
4) In assemblies with multiple modules connect the boxes according to Figure 4. The basic module on the left, the extending modules on the right. The connecting cable is to be connected later!
5) Install plugs on unused side holes, as shown on Figure 4.
6) If you are installing a roof module, put it against the wall now.
7) Fix Helios IP on the wall with screws, as shown on Figure 6. The incoming cables (Ethernet, lock, power) are to be led through one of the holes to the basic module box.
8) If you are installing a roof module, apply now silicon paste on the top and side edges touching the wall, as shown on Figure 5.
9) Connect the cables as described in chapter 4. Make sure that the cables are not squeezed when installing the plastic cover. Correct installation of the cables is shown on Figure 7

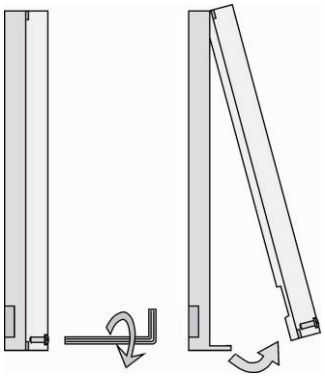


Figure 2 – Removing the cover

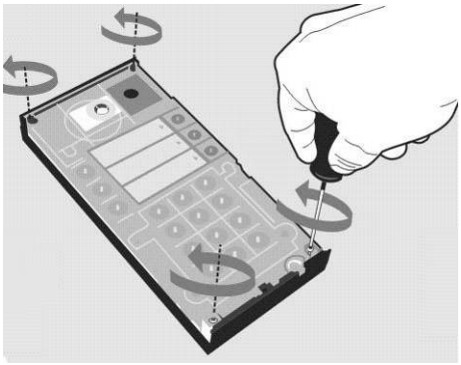


Figure 3 – Removing the plastic cover

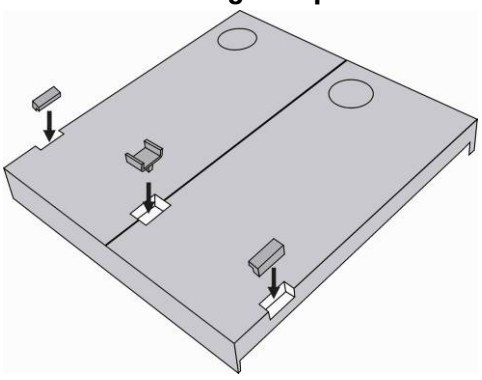


Figure 4 – Assembly of multiple modules

10) After having mounted the unit on the wall and after having connected all cables re-attach the plastic cover using cross-recessed screws.
11) Take out the name plates from the plastic cover, as shown on Figure 8. Use for example a screwdriver.
12) Remove the inserts from the nametags.
13) Insert the labels printed on the foil.
14) Insert the inserts back into the nametags.
15) Put the name plates back to the recess, snap all the way. The name labels hold the matt foil inserted underneath.

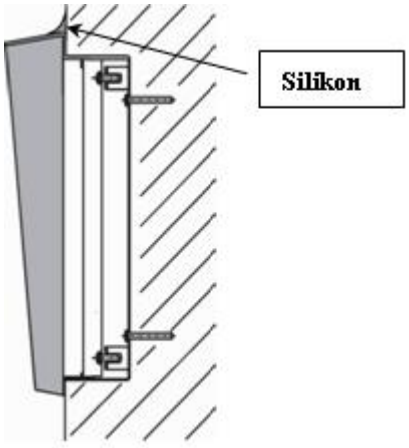


Figure 5 – Mounting of the roof module

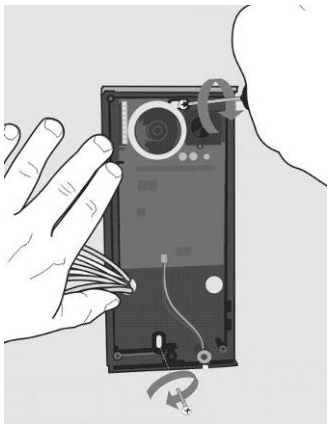


Figure 6 – Installation on the wall

16) Check whether silicon seal is inserted in the top groove of the plastic cover. Replacement seal is included.
17) Close the metal cover and fix it with screws.

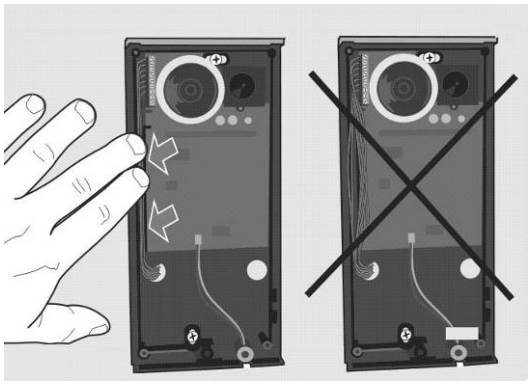


Figure 7 – Cabling

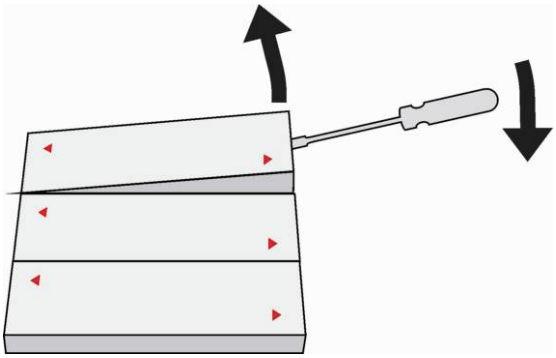


Figure 8 – Removing name plates

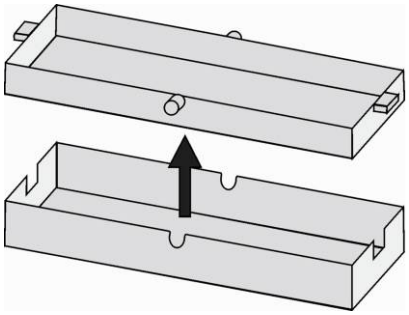


Figure 9 – Removing the inserts

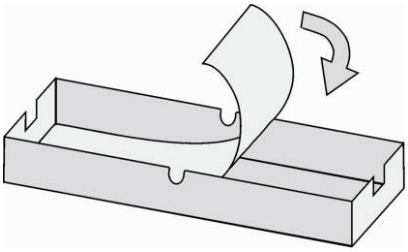


Figure 10 – Inserting the labels

Principles to be followed during outdoor installation:

- Always connect button backlighting – it is used for heating
- The joint between the roof module and the wall must be filled with waterproof c to prevent water leaking into the box (see figure 5).
- Water must not leak in on the cables or around them.

Material and label print

Each Helios IP package includes a sheet of transparent foil, which can be used for printing in a laser printer. Cut the printed foil in tje pieces, and insert the labels in the name plates. **Do not use paper** – water may leak in and the paper may be damaged.

The red arrows are printed on the name label itself. Make sure the text and the arrow do not overlap. We recommend printing on the transparency using a template (MS Word), which is available at www.2n.cz .

Whole button	Horizontally divided
Name 01	Name 01 / Name 04
Name 02	Name 02 / Name 05
Name 03	Name 03 / Name 06

3.3. Flush mouting

Use the instllation instructions included in the flush mouting box delivery.

3.4. Installation of Increased Resistance Version

Use the instllation instructions included in the fanti-vandal box delivery.

4. Electrical Installation

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

Helios IP receives power 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, order No. **91378100**. As an alternative power supply you can use a power adaptor, Order No. 91341481E. Helios IP is configured over an integrated web server, which can be controlled from any web browser, e.g., Mozilla Firefox.

4.1. Description of the Printed Circuit Board Connectors

On Figure 11 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 Helios IP are indicated on the board. UTP cable for the Ethernet connection is to be connected to the terminal box as shown in Tab. 1. The terminal box can be removed from the PCB. Connection of the individual connectors will be described in the following chapters.

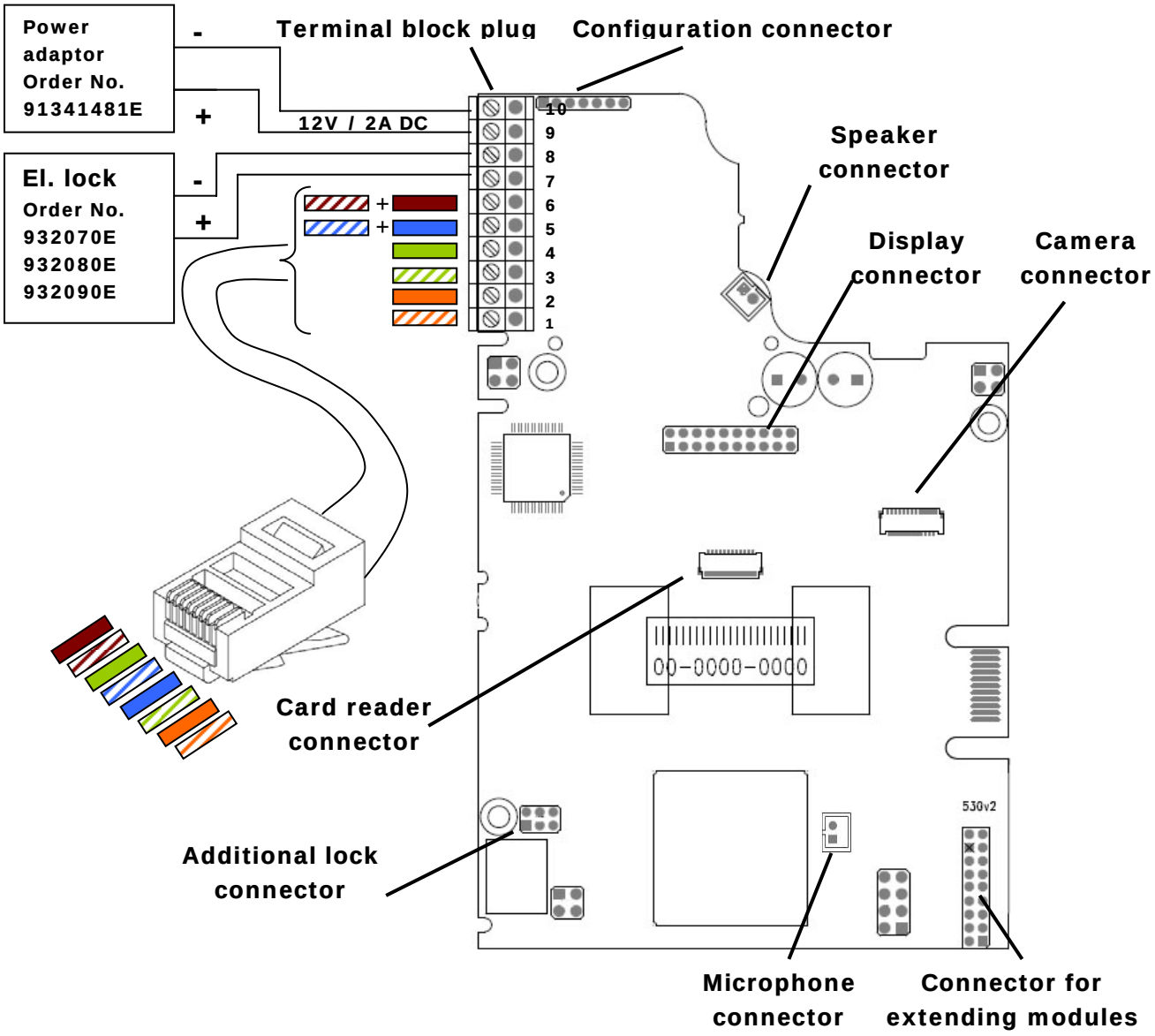


Figure 11 – description of Helios IP connectors

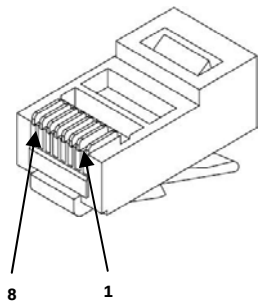
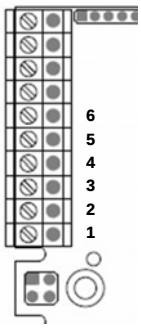
4.2. Terminal Block Plug Connections

Terminal bock plug includes several terminals whose function is distinguished by color. Terminals 1-6 serve for connecting Helios IP to the Ethernet. Terminals 7-8 are designed for connecting the electric lock and terminals 9-10 for connecting external power supply 12V / 2A DC, if power supply using the Power over Ethernet technology is not provided.

1) Prior to the connecting of the terminal block plug remove the block by pulling it from the printed circuit board.
2) Insert the individual wires under the terminals.
3) Tighten the terminals using a flat screwdriver to prevent the cables from falling out.
4) Replace the terminal block plug back to the printed circuit board.

Ethernet connection

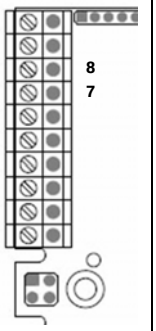
Connections and meaning of the individual wires are specified in the table below. Join wires 4 (blue) and 5 (white-blue) from the cable and attach under terminal 5 on Helios IP. In the same way, join wires 7 and 8 and place under terminal 6 of Helios IP.

RJ-45				Helios IP	
	Pin No.	Marking	Color	Terminal No.	
	1	Tx+		1	
	2	Tx-		2	
	3	Rx+		3	
	4	PoE -		5	
	5	PoE -		5	
	6	Rx-		4	
	7	PoE +		6	
	8	PoE +		6	

Tab. 1 – terminal block plug connections

Connecting the electric lock

The electric lock can be connected to terminals 7 and 8 of the terminal box.

El. lock	Helios IP			
	Marking	Color	Terminal No.	
 **Order No.** **932070E** **932080E** **932090E**	+		7	
	-		8	

Tab. 2 - terminal block plug connection for the el. lock

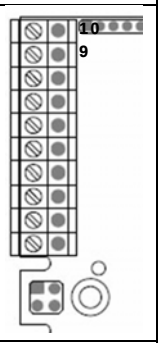
Terminals 7 and 8 are connected on the board of Helios IP to the relay, whose terminals can act as connecting as well as disconnecting terminals. Configuration is performed through the configuration connector, which is described in chapter 4.3. On the configuration connector you can set whether the electric lock will be powered from an external or internal power source.

Connecting external power supply

If the Ethernet is not equipped with the PoE technology it is possible to use two alternative ways to supply power to Helios IP.

1) Using PoE injector, order No. 91378100; Helios IP is then powered through an Ethernet cable as shown above.
2) Using a power adaptor, order No. 91341481E.

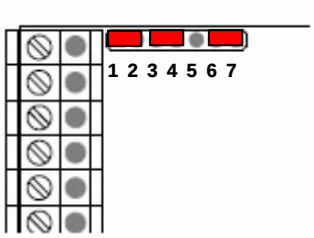
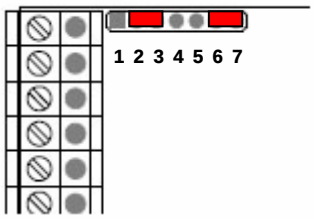
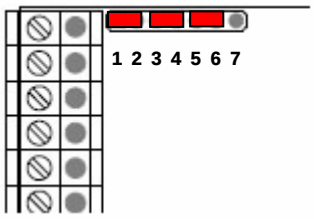
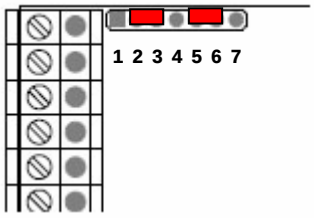
External power supply from the power adaptor can be connected to terminals 9 and 10.

El. lock	Helios IP			
	Marking	Color	Terminal No.	
 Order No. 91341481E	+		9	
	-		10	

Tab. 3 – terminal block plug connection for power adaptor

4.3. Configuration Connector Connection

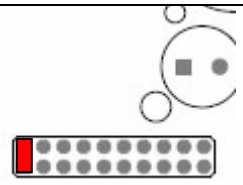
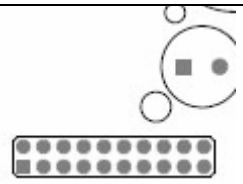
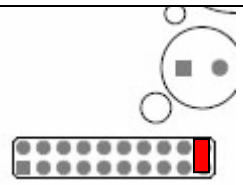
The configuration connector is located in the upper part of the printed circuit board. With the configuration jumpers you can set whether the lock control relay should have connecting or disconnecting function and whether the electric lock will be powered internally or externally.

Lock power supply		Relay		Configuration connector
Internal	External	Disconnecting	Connecting	Connection of jumpers
✓		✓		
	✓	✓		
✓			✓	
	✓		✓	

Tab. 4 – Connection of jumpers of the configuration connector

4.4. Display Connector

The display connector includes pins for switching-on and switching-off of the name labels backlighting and also pins whose interconnection will result in switching Helios IP to the default settings. The remaining pins are designed for display connection.

Nametag backlighting	Default settings	Jumpers of the display connector
✓		
		
	✓	

Tab. 5 – Configuration jumpers on the display connector

5. Connection of Extender Units

The benefit of Helios IP is easy installation of extending button units. It cannot be easier – they can be connected with a single cable (it is included with every extender delivery) – in chain pattern (each additional unit is connected with the previous one). Each extender unit has two connectors, input connector (for connection toward the basic unit of Helios IP) and output connector (for connection of another, more remote unit). For correct function and sequence of buttons it is necessary to comply with the correct orientation of the units and avoid interchanging these connectors!

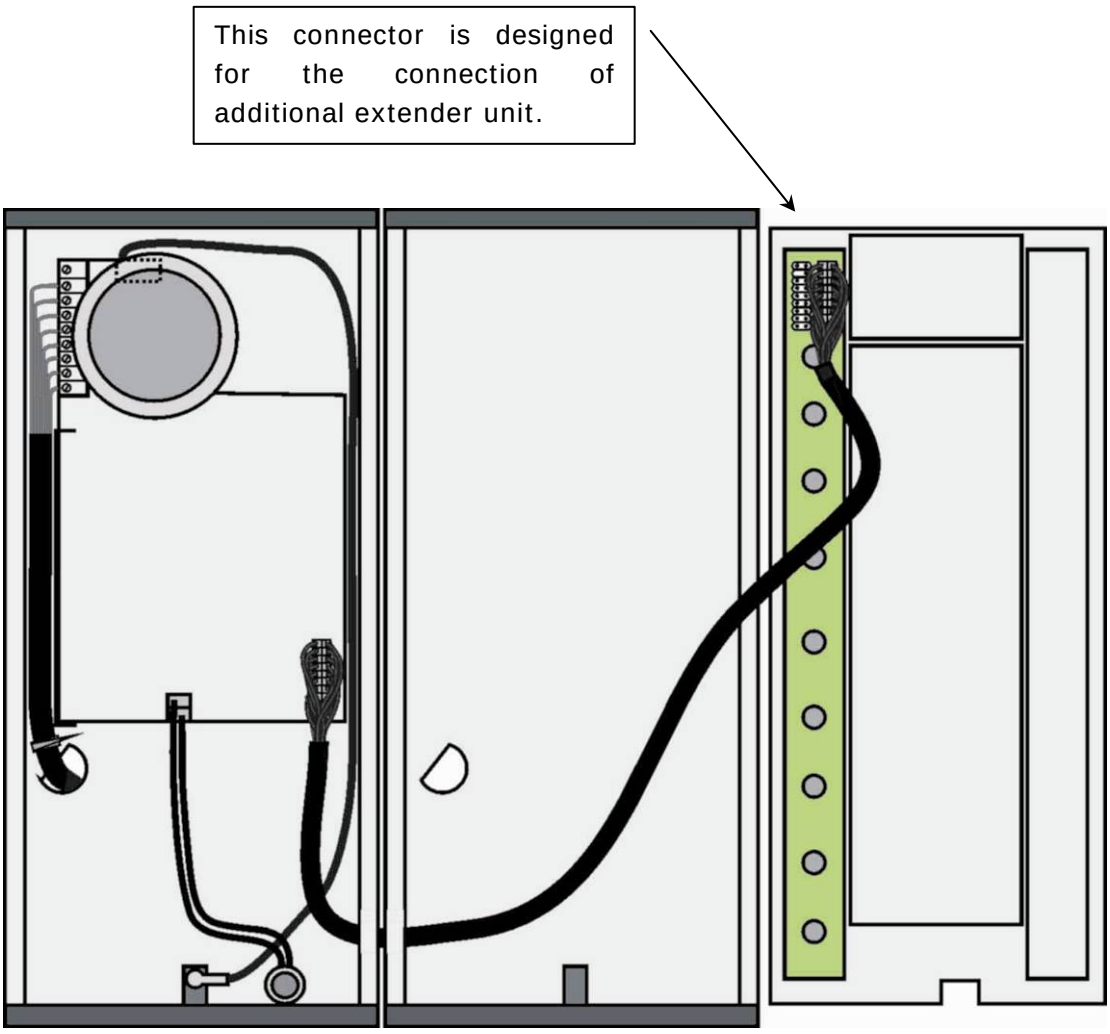


Figure 12 – Connection of extender units with one row of buttons

5.1. Maximum Count of Extender Units

Order No. 9135181 (1x8 buttons)	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Order No. 9135182 (2x8 buttons)	**0**	**0**	**1**	**1**	**2**	**2**	**3**

Tab. 6 – Optional extension of Helios IP by extending modules

The above table shows that units with whole buttons and double buttons can be combined.

5.2. Interconnecting Modules with Cable

- The cable is supplied with every extender unit delivery. Both ends are the same. Connection is 1:1. Connectors cannot be inserted shifted or reversed because they are equipped with a so-called key.
- The basic unit is to be on the left always. Units are to be connected in “chain pattern”, i.e., each is connected with its neighbor.
- The cable can be driven through the connecting opening between boxes after connecting (see chapter 3).

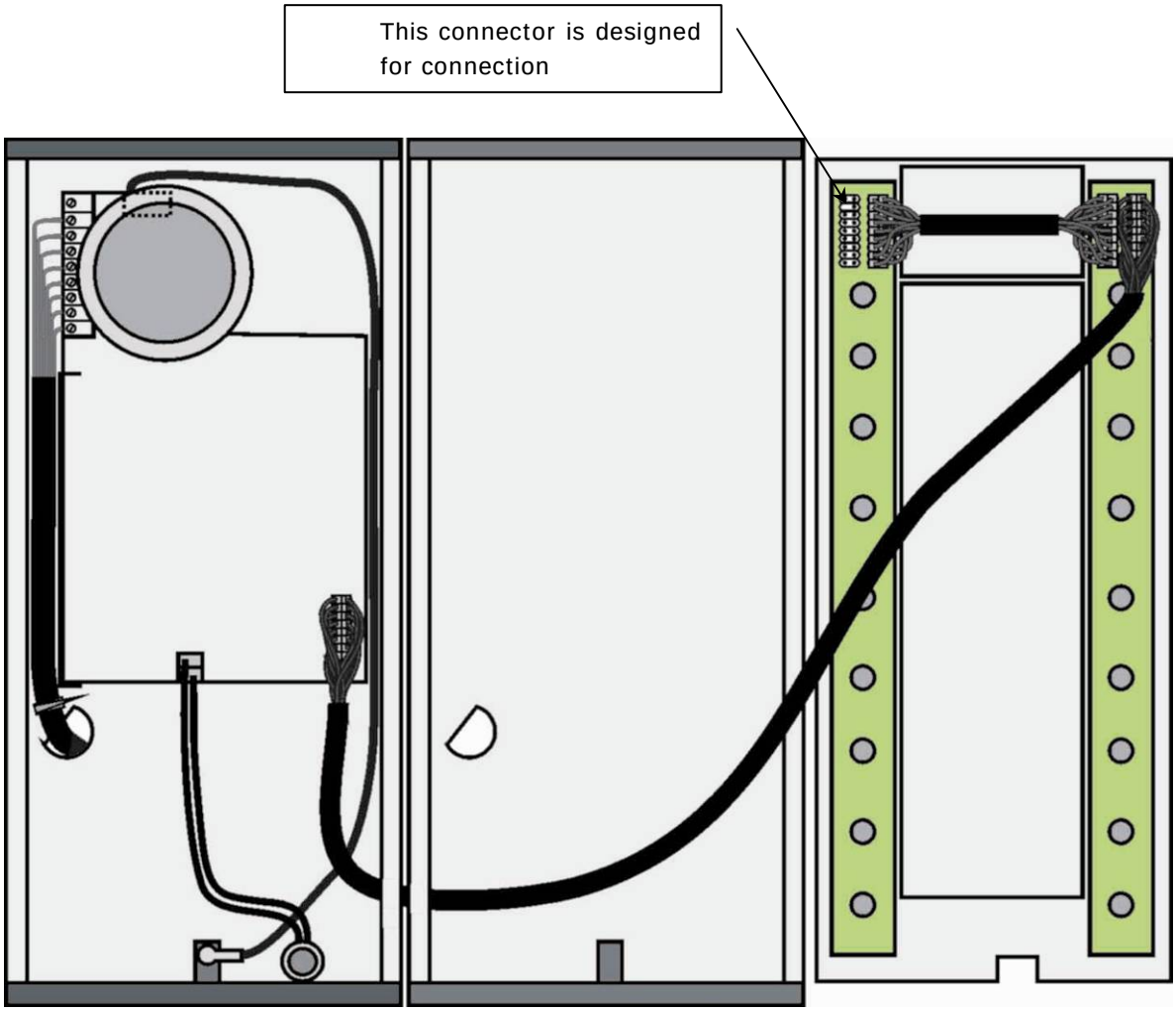


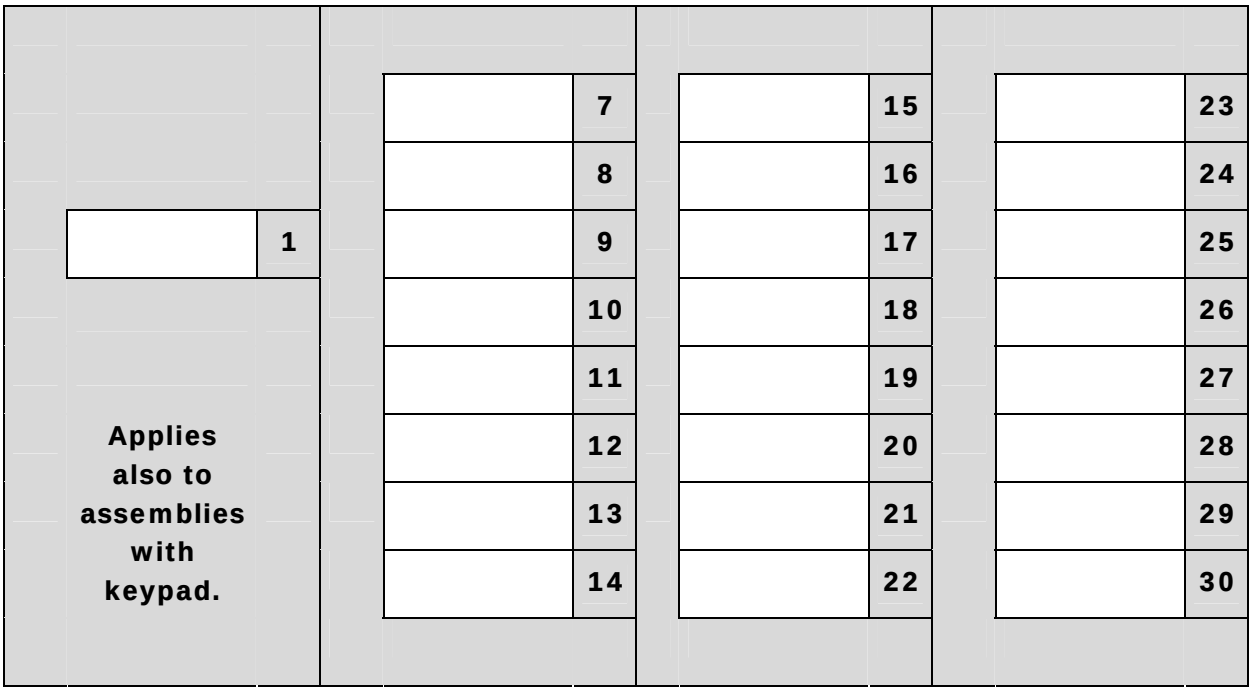
Figure 13 – Connection of an extender unit with two rows of buttons

Warning!

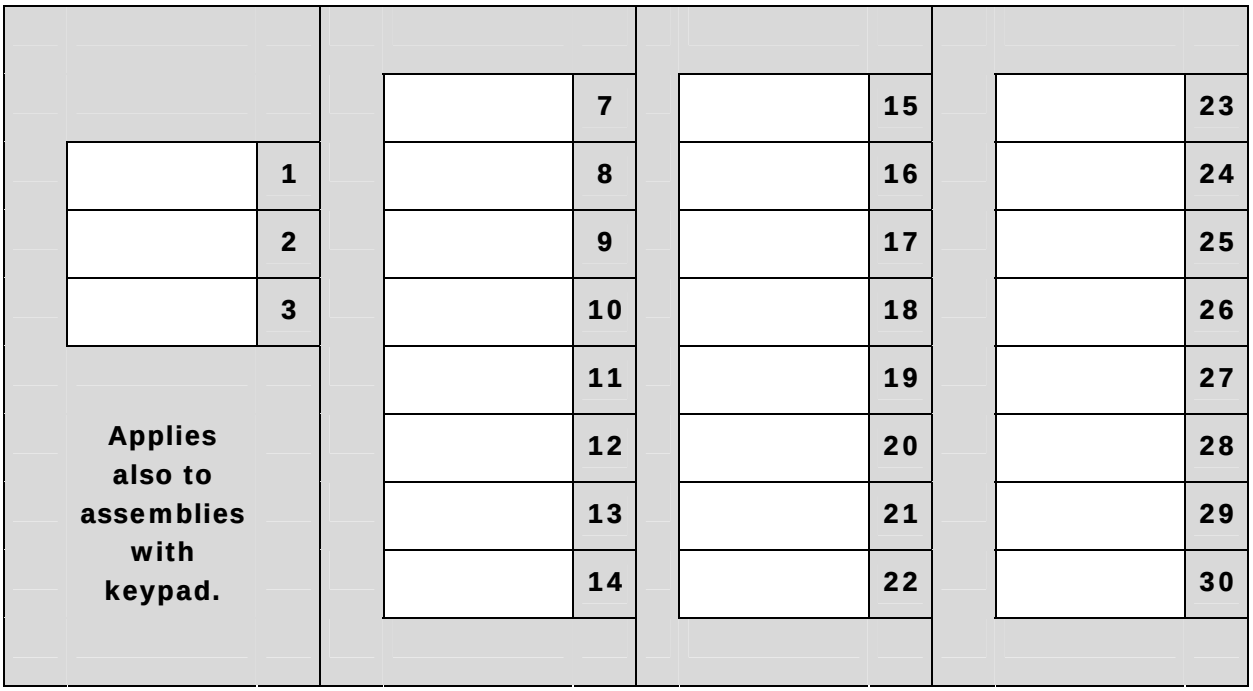
The extending modules must be connected mutually and also with the basic unit by means of a connection – formed piece, which is supplied with the extending module!!!

5.3. Button Numbering

Button numbering – Helios IP with one button with an assembly with whole buttons



Button numbering – assemblies with whole buttons



Button numbering – assemblies with double buttons

			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
Applies also to assemblies with keypad.			11		19	27		35	43		51
			12		20	28		36	44		52
			13		21	29		37	45		53
			14		22	30		38	46		54

L It is possible to continue to 54

Warning:

For the time being, anti-vandalism panels are available only for assemblies with whole buttons and with one extending module.

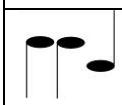
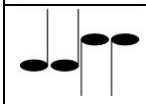
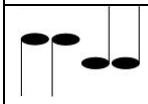
5.4. Button Numbering – Assemblies with Info Panels:

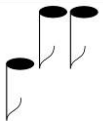
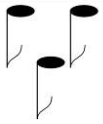
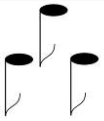
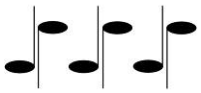
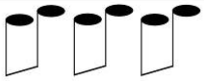
Numbering will not change (buttons on the sides of the info panel will remain functional) by installing a name labels of the info panel, Order No. 9135311E, in one of the extending units. Connecting the info panel module, Order No. 9135310E, will result in omission of eight numbers.

6. Sound Signaling and Configuration using the Keypad

Helios IP allows configuration and setup using the keypad and quick dialing buttons. For checking purposes Helios IP signals status changes. There are different types of signals for each type of status change. List of the individual signals is provided in Tab. 7

6.1. Tone Signaling

Tones	Meaning
	User activated – after entering the user activation code. The activation code is used to get an overview whether a user is active and whether his/her VoIP telephone should ring, or whether the call should therefore be routed directly to another telephone number. Setup of the activation code is described in chapter 7.5.
	User deactivated – after entering the user deactivation code. The deactivation code is used to get an overview whether a user is inactive and whether the call should therefore be routed directly to another telephone number. Setup of the deactivation code is described in chapter 7.5.
	Calendar activated – used for activating the calendar. It can be used, for example, to switch on the ringing of an entire group of users at telephone numbers directly in the office. Setup of the activation code is described in chapter 7.6
	Calendar deactivated – used for deactivating the calendar. It can be used, for example, to switch off ringing at telephone numbers in the office and routing, if applicable, to one telephone number, e.g., at the reception or a cell phone. Setup of the deactivation code is described in chapter 7.6
	Signaling of confirmation of call prolongation – Due to protection blocking, Helios IP has a set maximum

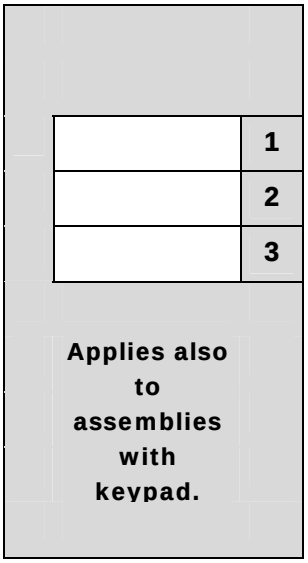
	call duration, see chapter 7.10
	Internal application launched – after turning on the power or restarting of Helios IP, the internal application of Helios IP is launched. Successful launch of the internal application is signaled by this tone combination.
	Connected to internal network, IP address received – After the launch of the internal application Helios IP signs in the internal network. Successful sign-up to VoIP network is signaled by this tone combination.
	Disconnected from the internal network, IP address lost – in the event that the UTP cable is disconnected from Helios IP, this status is signaled by this tone combination.
	Invalid telephone number or invalid code for unlocking – Helios IP allows you to dial a branch telephone number or enter the code to open the door using the keypad. If this code is invalid this status is signaled by this tone combination.
	Switching to default network parameters – after launching of internal application a time limit of 30 is set for entering the code for switching to default network parameters. Switching to default network parameters is described in chapter 6.2a 6.3.
	Signaling of approaching end of call – Helios IP allows you to set a time limit after which a call is terminated. The call can be prolonged by pressing a key from the VoIP telephone. The time limit is set due to protection against call blocking.
	Connected call when calling from VoIP telephone at Helios IP – When calling from VoIP telephone at Helios IP a short tone is played to signal the call connecting.

Tab. 7 – List of tone signals

6.2. Switching to Default Network Parameters – Static IP Address

Switching to default network parameters with static IP address can be done in two ways. Either through a web interface, as described in chapter 7.11 or by pressing a combination of quick dialing buttons.

If required, it is possible to switch on default settings with static IP address using quick dialing buttons of the basic module of Helios IP. Upon switching, the web server is automatically switched on. Switching on default network parameters is possible by pressing a combination of buttons described on Figure 14 to Figure 16. The combination of buttons needs to be entered within 30 seconds after launching of internal application. Maximum delay between the buttons is 2 s.



- 1) 3x
- 2) 2x
- 3) 1x

Figure 14 - Switching to default network parameters - static (Order No. 9173130E, 9173130CE, 9137130CKE)

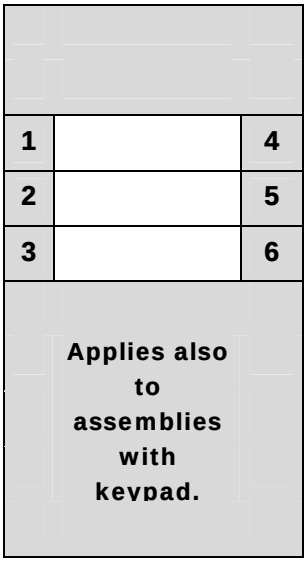


Figure 15 - Switching to default network parameters – static (Order No. 9173160E, 9173160CE, 9137160CKE)

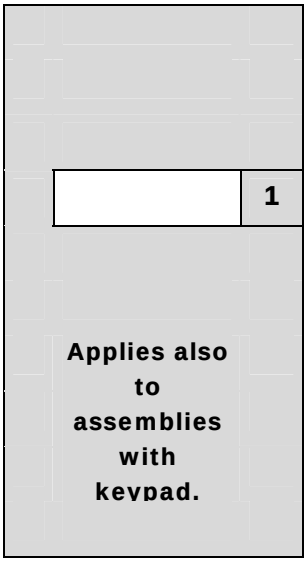


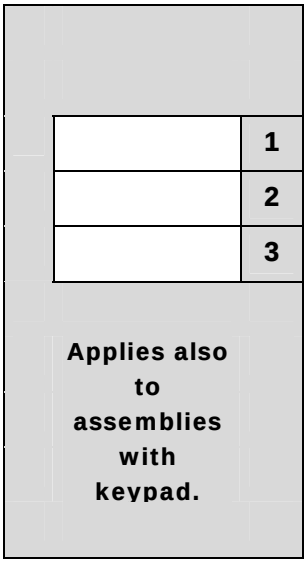
Figure 16 - Switching to default network parameters – static (Order No. 9173110E, 9173110CE, 9137110CKE)

For Helios IP with one button (Order No. 9137110E, 9137110CE and 9137110CKE), pressing key 1 15 times within 30 seconds after launching of internal application will result in turning on of the web server and switching the network parameters from DHCP to default static IP address and vice versa.

6.3. Switching to Default Network Parameters – Dynamic IP Address

Switching to default network parameters with dynamic IP address can be done in two ways. Either through a web interface, as described in chapter 7.11 or by pressing a combination of quick dialing buttons.

If required, it is possible to switch on default settings with dynamic IP address using quick dialing buttons of the basic module of Helios IP. Upon switching, the web server is automatically switched on. Switching on default network parameters is possible by pressing a combination of buttons described on Figure 17 to Figure 19. The combination of buttons needs to be entered within 30 seconds after launching of internal application. Maximum delay between the buttons is 2 s.



- 2) 2x

- 1) 1x -3) 2x

- 4) 1x

Figure 17 - Switching to default network parameters - DHCP (Order No. 9173130E, 9173130CE, 9137130CKE)

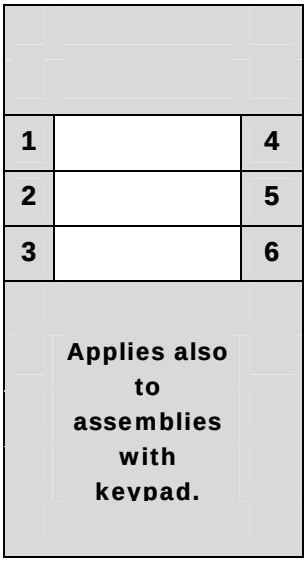


Figure 18 - Switching to default network parameters - DHCP (Order No. 9173160E, 9173160CE, 9137160CKE)

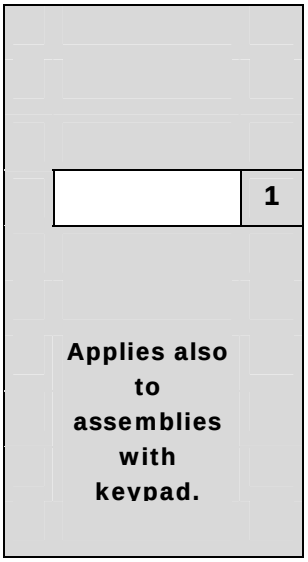
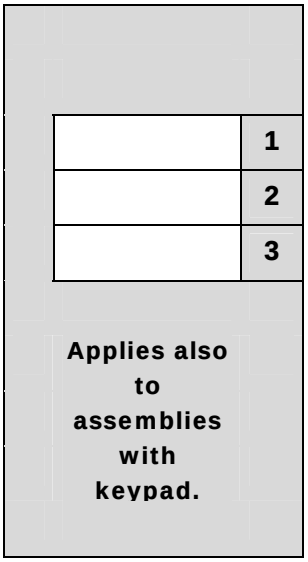


Figure 19 - Switching to default network parameters - DHCP (Order No. 9173110E, 9173110CE, 9137110CKE)

For Helios IP with one button (Order No. 9137110E, 9137110CE and 9137110CKE), pressing key 1 15 times within 30 seconds after launching of internal application will result in turning on of the web server and switching the network parameters from default static IP address to dynamic address and vice versa.

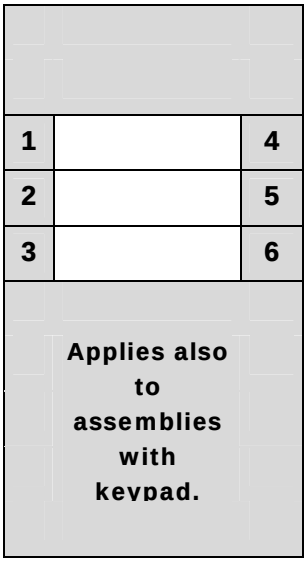
6.4. Switching on the Web Server

If the web server was switched off from the web interface it is possible to switch it back on using quick dialing buttons of the Helios IP basic module. Web server can be switched on by pressing a combination of buttons as described on Figure 20 to Figure 22. The combination of buttons needs to be entered within 30 seconds launching of internal application. Maximum delay between the buttons is 2 s.



- 2) 2x
- 3) 2x
- 1) 1x -4) 1x

Figure 20 – Switching on the web server using quick dialing buttons (Order No. 9173130E, 9173130CE, 9137130CKE)



- 2) 2x
- 3) 2x
- 1) 1x -4) 1x

Figure 21 - Switching on the web server using quick dialing buttons (Order No. 9173160E, 9173160CE, 9137160CKE)

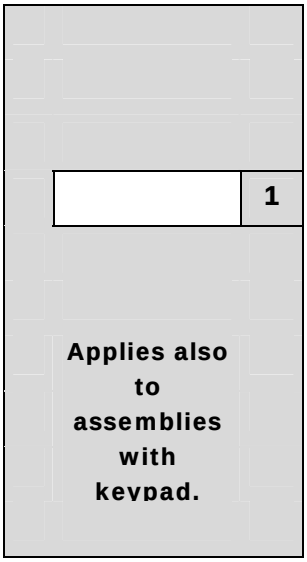


Figure 22 - Switching on the web server using quick dialing buttons (Order No. 9173110E, 9173110CE, 9137110CKE)

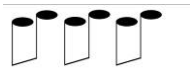
For Helios IP with one button (Order No. 9137110E, 9137110CE and 9137110CKE), pressing key 1 15 times within 30 seconds after launching of internal application will result in turning on of the web server and switching the network parameters from default static IP address to dynamic address and vice versa.

7. Configuration

Helios IP is configured through an integrated web server. Connect Helios IP to the IP network. Make sure that Helios IP is powered.

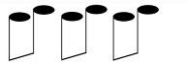
Obtaining the IP address from the DHCP server

In default settings, Helios IP has receiving of IP address from the DHCP server turned on. After start, Helios IP will automatically receive IP address from the DHCP server. If you do not have access to the DHCP server you can find the IP address received with the HeliosIPNetScanner program, which is included on the installation CD. If Helios IP is switched to the static IP address mode switch it to the mode for obtaining address from the DHCP server as follows:

1) Switch on the power of Helios IP
2) Wait until Helios IP ends the booting process. The end is signaled by a sequence of tones: 
3) Within 30 seconds press buttons in the order described in chapter 6.3.
4) Switching to the mode for obtaining address from the DHCP server is signaled by a sequence of tones: 

Manual setup of the IP address

If DHCP server is not available it is possible to set up a default static IP address on Helios IP. Proceed as follows.

1) Switch on the power of Helios IP
2) Wait until Helios IP ends the booting process. The end is signaled by a sequence of tones: 
3) Within 30 seconds press buttons in the order described in chapter 6.2.
4) Switching to the default static IP address mode is signaled by a sequence of tones: 

5) Helios IP now has the following network parameters set

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

7.1. Login

In web browser enter the IP address of Helios IP. After you enter this address a login screen will be displayed. The default login username and password are:

Username:	admin
Password:	admin

If the login screen does not appear an incorrect IP address was entered in the web browser or the configuration web server of Helios IP was turned off. Switching on of the configuration web server is described in chapter 6.4 Please check the IP address entered, or, if applicable, check the way the IP address was obtained as described at the beginning of chapter 6.

7.2. Quick Configuration for Calling

This chapter describes the most common and fastest configuration. The following paragraphs describe the individual parameters of the configuration in more detail.

Network settings

If you have not set obtaining IP address from DHCP server you need to change the default IP address of Helios IP. You can set the IP address in “Advanced settings -> Network”, as shown in Figure 32.

Static parameter settings

Static IP address

Set the static IP address that Helios IP should have set.

Network mask

Set the network mask.

For Windows users: You will find out the network mask if you enter *ipconfig –all* in the command line.

Default gateway

Enter the default network gateway.

For Windows users: You will find out the default gateway if you enter *ipconfig –all* in the command line.

Primary DNS

Set the IP address of the primary Domain Name Server used in your computer network.

For Windows users: You will find out the default gateway if you enter *ipconfig –all* in the command line.

Secondary DNS

Set the IP address of the secondary Domain Name Server used in your computer network.

For Windows users: You will find out the default gateway if you enter *ipconfig –all* in the command line.

External IP address

Set the external IP address of the gateway of your local network, with which it presents itself to the Internet. This parameter does not have to be entered if using Helios IP calling within the local network only.

SIP parameter settings

In order to set up calls from Helios IP it is necessary set up the parameters of your VoIP network. Setup is made in “Advanced settings -> SIP settings”

Display name

Fill out the name that will be displayed on the called party’s IP telephone display. This information will be entered in the message INVITE in the “Contact – SIP display info” field.

User ID

Identification, with which Helios IP will present itself. When calling Helios IP this number is dialed from an IP telephone. This number is included in the message INVITE in the “Contact – SIP contact address” field as “*user_id@user_domain:port*”. For calling Helios IP the User ID is included in the message INVITE in the “From” field and specifies the logical address of the caller, in this case Helios IP. For calls routed to Helios IP the User ID is included in the “To” field and specifies the logical address of the called party, in this case Helios IP.

Domain

Enter the domain name of SIP proxy, to which Helios IP will be registered. The domain name will subsequently be included in URI Helios IP.

Use Auth. ID

Sets whether Helios IP should register to SIP proxy using authentication information or only with User ID.

Auth ID

Authentication name, with which Helios IP registers to SIP proxy.

Password

Password for authentication in the registration of Helios IP with SIP proxy.

Register phone

Sets whether Helios IP should register with SIP proxy. The parameter is dependent on the settings of the SIP proxy server, whether SIP proxy server requires registration or not.

Registration expires

Sets the time which Helios IP has to set in SIP proxy for renewal of registration.

Proxy address

IP address of SIP proxy, to which Helios IP should be registered

Proxy port

Communication port of SIP signaling to SIP proxy, to which Helios IP registers

Phone book settings

Phone book is used for configuration of quick dialing buttons. Configuration of the phone book is done in "*Basic settings -> Phone book*". Phone book includes 54 positions, same as the maximum number of quick dialing buttons of Helios IP including all extenders (see chapter 5). To select a quick dialing button use the upper bar with the numbers of the individual buttons. Numbering of the individual buttons on Helios IP including the extending modules is described in chapter 5.3. You can move between the individual buttons with the arrow, or by quick dialing, which is located in the upper right corner, as indicated in Figure 23.

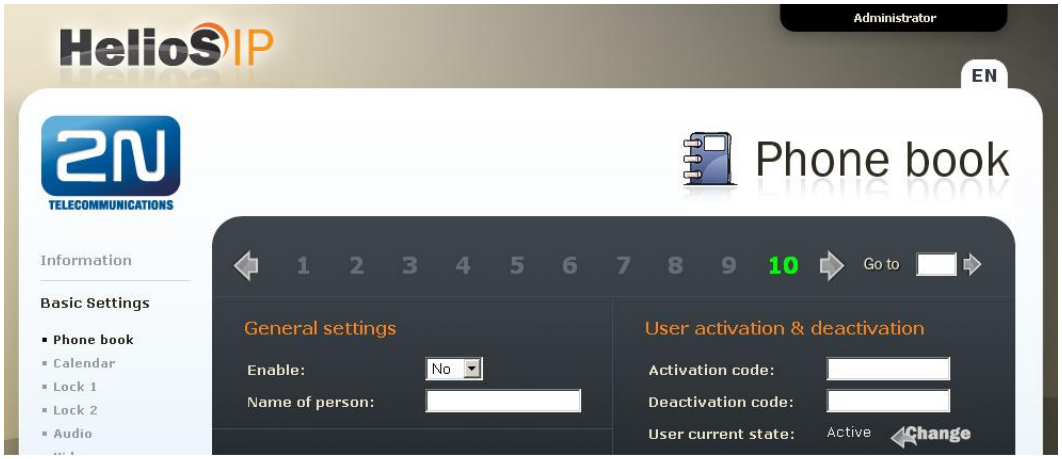


Figure 23 – Navigation bar of the telephone book

Enable

Sets whether the respective quick dialing button is active or not.

Name of person

Used to fill in the name of the person who will be called when the button is pressed.

Phone numbers

Used to set up to three phone numbers that will be called one after another when the button is pressed.

Number x:

Enter the phone number of the station to which the call is to be routed. If the call is not accepted by the station with the phone number specified under **Number 1** it will be redirected automatically to the phone number specified under **Number 2,** and so on. Setup of the time for switching to the next phone number is described in chapter 7.10.

Calendar

Used for setting the calendar, person hidden under the specific telephone number. It does not have to be set for quick configuration of calling.

The remaining parameters need not be set for the easiest configuration. For detailed configuration, the remaining parameters are described in the following chapters.

Setup of Lock 1

The code for lock 1 switching (terminal block plug – terminals 7 and 8 see chapter 4.2) can be set in the following menu: "*Basic Settings -> Lock 1*"

Lock Setting

Sets whether the lock is to be active and for how long it should be connected when the correct code for opening has been entered.

Lock Codes

In the individual fields write the codes, with which the Helios IP lock can be opened. If the codes are identical with other codes already entered in Helios IP the following mark will appear with the respective codes: ✖.

Helios IP is now ready to make calls.

7.3. Language Selection

You can select the language using the tab menu in the upper right corner, as displayed in Figure 24.

Figure 24 – Language selection

7.4. Information

In this section it is possible to find the basic statistics on the respective Helios IP.

Figure 25 – basic information

Product name – name of the product Helios IP
Software version – version of the firmware in Helios IP
Hardware version – Helios IP hardware version
Serial number – product serial number
MAC address – Ethernet interface address
Up time – time, over which Helios IP is on
Registration status – Helios IP k SIP proxy registration status

- **in progress** – registration of Helios IP to SIP proxy in progress
- **registered** – Helios IP is registered to SIP proxy
- **not registered** – Helios IP is not registered to SIP proxy

Registration at – IP address or domain name of SIP proxy, at which Helios IP is registered
Registration time – registration date and time
Call state – current call status

- **Inactive** – system inactive
- **Call setup** – call being set up
- **Ringing** – ringing at VoIP phone
- **Incoming** – setup call from VoIP phone to Helios IP
- **Outgoing** – Call from Helios IP to VoIP phone

Opponent – displays the caller phone number at Helios IP
Call duration – duration of the current call
Audio codec – displays the audio codec used for the current call
Video codec - displays the video codec used for the current call
DHCP status – displays whether the function of obtaining IP address from DHCP server is on.
IP address – set IP address
Net mask – set subnet mask
Default gateway – set default gateway of the network
Primary DNS – set primary Domain Name Server
Secondary DNS – set secondary Domain Name Server
Ethernet frames transmitted – number of Ethernet frames transmitted
Ethernet frames received – number of Ethernet frames received
Ethernet frames dropped – number of Ethernet frames dropped due to damage
UDP packet transmitted – number of UDP packets transmitted
UDP packet received – number of UDP packets received
UDP packet dropped – number of UDP packets dropped due to damage
TCP packet transmitted – number of TCP packets transmitted
TCP packet received – number of TCP packets received
TCP packet dropped – number of TCP packets dropped due to damage

7.5. Phone book

Phone book can be set up in the tabs: "*Basic settings -> Phone book*". In the phone book you can set up to three phone numbers for each of all the 54 quick dialing numbers that Helios IP can have with all extending modules.

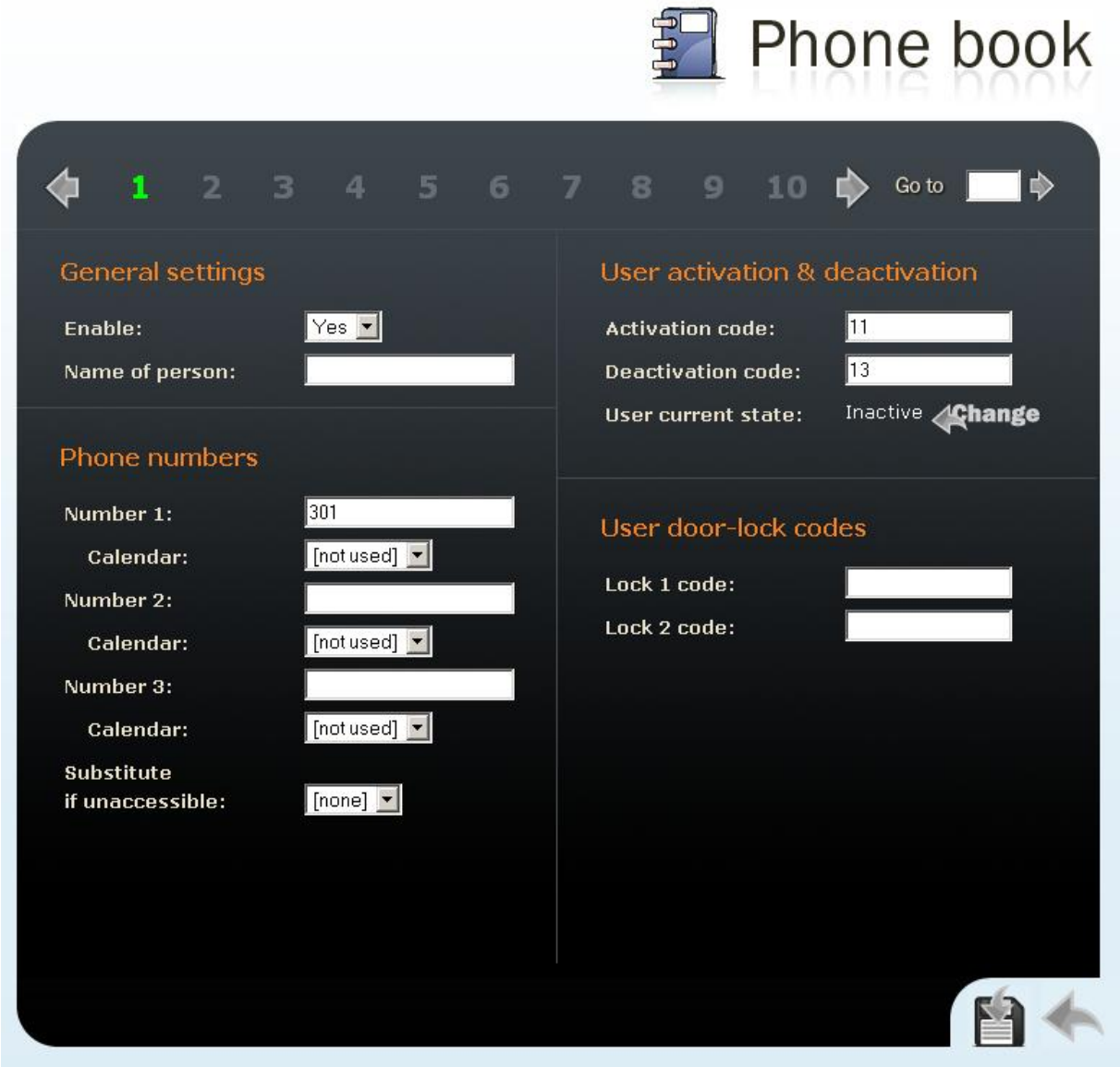


Figure 26 – Telephone book

To select a quick dialing button use the upper bar with the numbers of the individual buttons. Numbering of the individual buttons on Helios IP including the extending modules is described in chapter 5.3. You can move between the individual buttons with the arrow, or by

quick dialing, which is located in the upper right corner, as indicated in.

Enable

Sets whether the respective quick dialing button is active or not.

Name of person

Used to fill in the name of the person who will be called when the button is pressed.

Phone numbers

Used to set up to three phone numbers that will be called one after another when the button is pressed.

User activation & deactivation

Sets user activation and deactivation DTMF codes. The user can activate or deactivate him/herself using the Helios IP keypad. Activation and deactivation in combination with the calendar settings determines whether a call will be set up to the respective the phone number.

Number x:

Enter the phone number of the station to which the call is to be routed. If the call is not accepted by the station with the phone number specified under **Number 1** it will be redirected automatically to the phone number specified under **Number 2,** and so on.

Calendar

Used for setting the calendar, person hidden under the specific phone number. It does not have to be set for quick configuration of calling.

The remaining parameters need not be set for the easiest configuration.

User door lock codes

Setup of the code for activating lock 1 (terminal block plug – terminals 7 and 8 see chapter 4.2) can be set in the following menu: "*Basic Settings -> Lock 1*"

Lock Code

In the individual fields write the codes, with which the Helios IP lock can be activated. If the codes are identical with other codes already entered in Helios IP the following mark will appear with the respective codes: ✖.

7.6. Calendar

Calendar helps to plan calling to the individual users. In the event that a user is not present it is not necessary for Helios IP to set up a call to his or her telephone number but it can automatically call other telephone numbers in the book or the successor number. Total number of calendars is 20, and they can be mutually shared among the individual users. The condition of calendar validity is possible in two ways. Time condition, by setting Time schedule, or manually by setting the calendar activation and deactivation codes. If it is necessary to use both functions at the same time both conditions must be met at the same time.

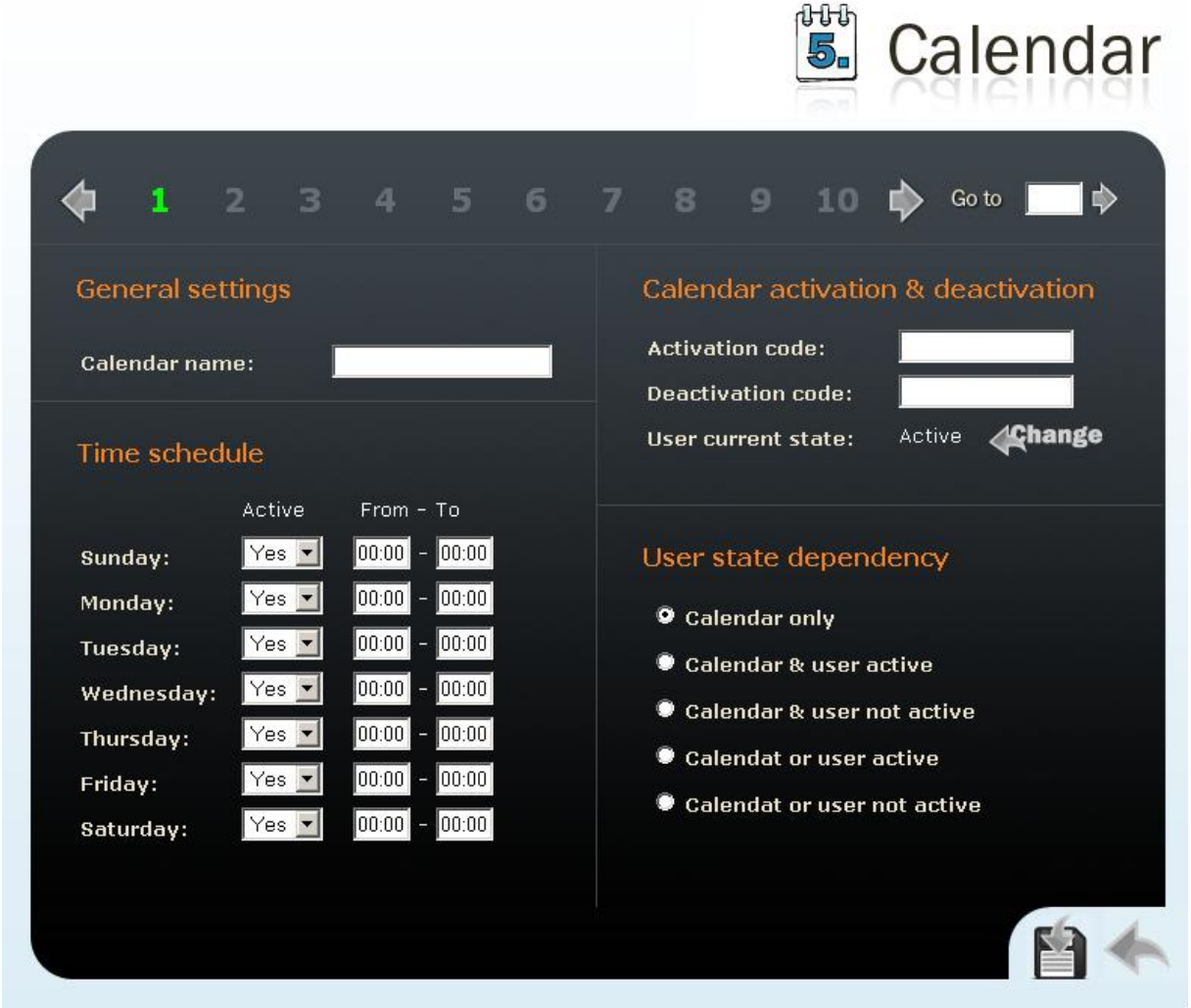


Figure 27 - Calendar setup

Calendar name

Name of the calendar for better orientation

Time schedule

Sets presence or absence of the user during the week.

Calendar activation & deactivation

Used to set up DTMF codes for activation and deactivation of the respective calendar.

User state dependency

Sets how the respective calendar should be used in combination with the user settings in the phone book. Whether the phone number will be called or not shall be governed by the claim logic rules.

Calendar only

If this is selected the calls to the specific phone number is governed by this calendar only. It is not affected by user activation or deactivation.

Calendar & user active

The phone number complemented with this calendar is only called at the time specified according to the calendar validity (see above) and when the respective user is active. User activation and deactivation can be changed by DTMF codes.

Calendar & user not active

The phone number complemented with this calendar is only called at the time specified according to the calendar validity (see above) and when the respective user is not active. User activation and deactivation can be changed by DTMF codes.

Calendar or user active

The phone number complemented with this calendar is only called at the time specified according to the calendar validity (see above) or when the respective user is in the active status. It can be used if the user is present at the respective telephone number at the time when he/she usually is not present

Calendar or user not active

The telephone number complemented with this calendar is only called at the time specified according to the calendar validity (see above) or when the respective user is in the inactive status. It can be used, for example, when routing calls to the user's cell phone.

7.7. Lock

This menu sets whether locks can be activated and with which DTMF codes from the keypad of Helios IP they can be activated.

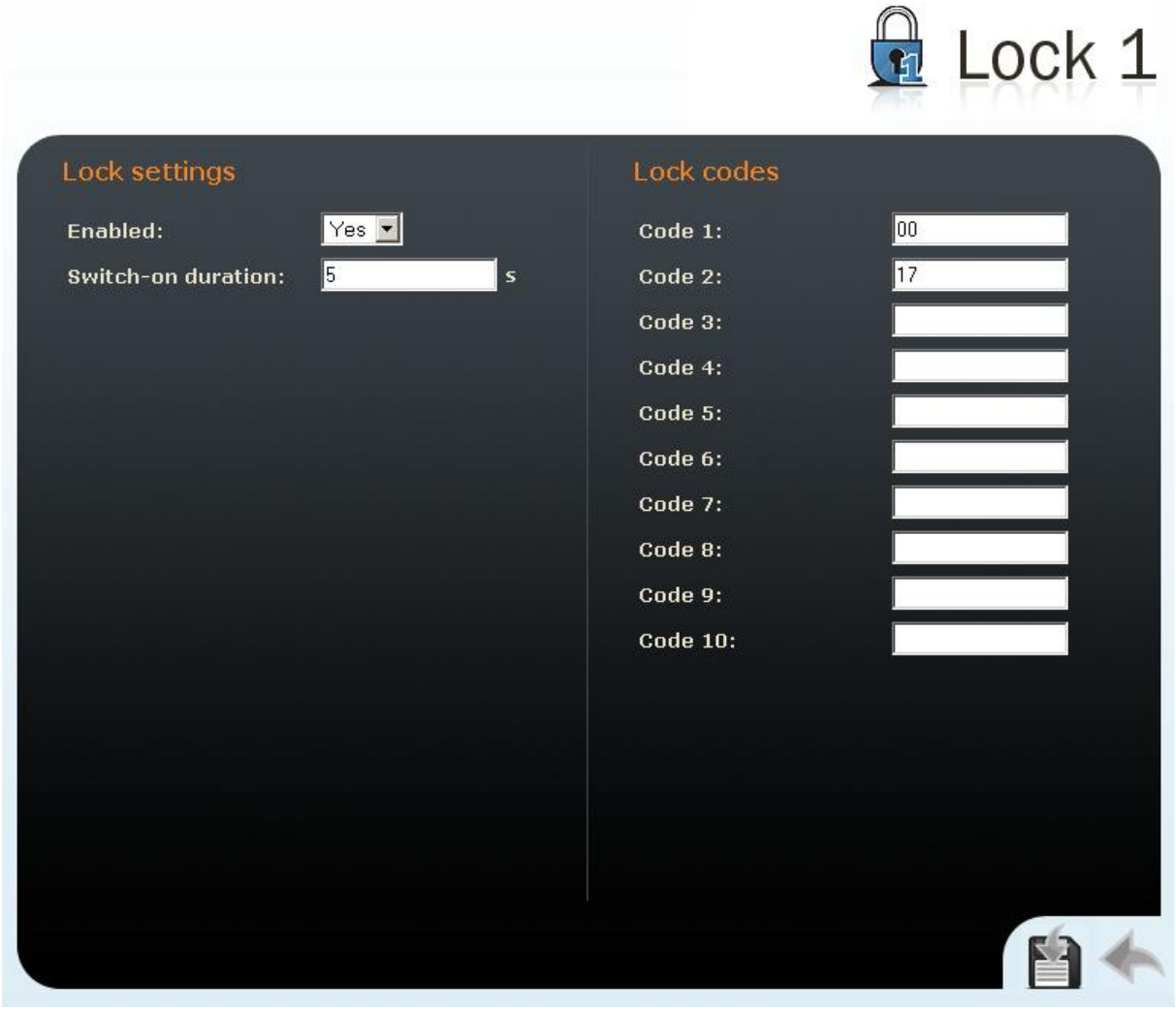


Figure 28 - Locks settings

Enabled

Sets whether lock control should be active or not.

Switch-on-duration

Sets the duration of the lock switch-on if the correct DTMF code has been entered on the Helios IP keypad

Lock codes

List of the individual DTMF codes that activate the lock switching. These codes are meant for global use. It means that each user can

activate the lock with these codes. In addition to these ten codes, each user owns a code for lock opening.

7.8. Audio

This menu is used to set audio parameters of Helios IP. It allows you to set the gain of the speaker and microphone. To set audio codecs use the following menu: "*Advanced Settings -> Audio Codecs*"

Figure 29 - Audio parrametres settings

Speaker settings

Master volume

Used to turn up the speaker volume. This affects all audio parameters

Audio volume

Used to turn up the speaker volume for a call

Warning volume

Helios IP generates tones with which it signals configuration changes. The list of the tones is provided in chapter 6.1. Warning volume sets the volume of these signal tones.

Key beep volume

Sets the volume of the tones generated when a key is pressed

Lock open volume

Sets the volume of the tone signaling that the lock is open.

DTMF volume

Sets the volume of the DTMF playback when pressing buttons on VoIP telephone.

Microphone settings

Sensitivity

Sets the sensitivity of the microphone

AGC (Automatic Gain Control)

This function allows you to control automatically the microphone sensitivity depending on the noise of the environment where Helios IP is located.

7.9. Video

This menu is used to set up the videocamera. To set the codec properties use the following menu: "*Advances Settings -> Video codecs*" see chapter 7.16.

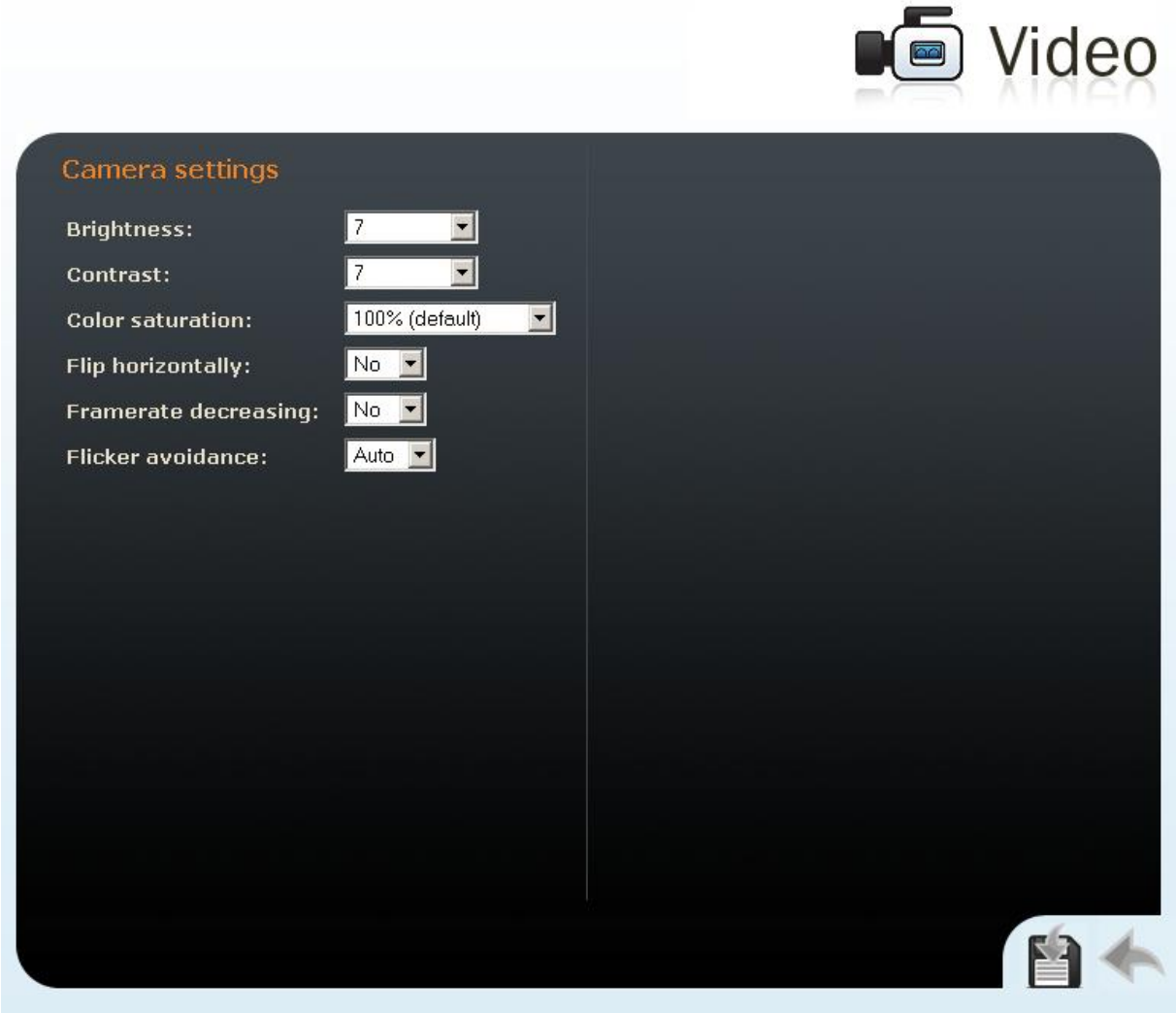


Figure 30 - Video parameters settings

Brightness

Sets the brightness of the videocamera stream.

Contrast

Sets the contrast of the videocamera stream .

Color saturation

Sets color saturation of the videocamera stream.

Flip horizontally

Sets whether the picture is to be flipped horizontally.

Frame rate decreasing

Allows you to reduce the frame rate in the case of low transmission speed of the network.

Flicker avoidance

Allows you to eliminate “flickering”, e.g., of a TV screen that could be captured by the Helios IP camera.

7.10. Miscellaneous

Sets additional parameters of Helios IP that were not included in the above-described menus.

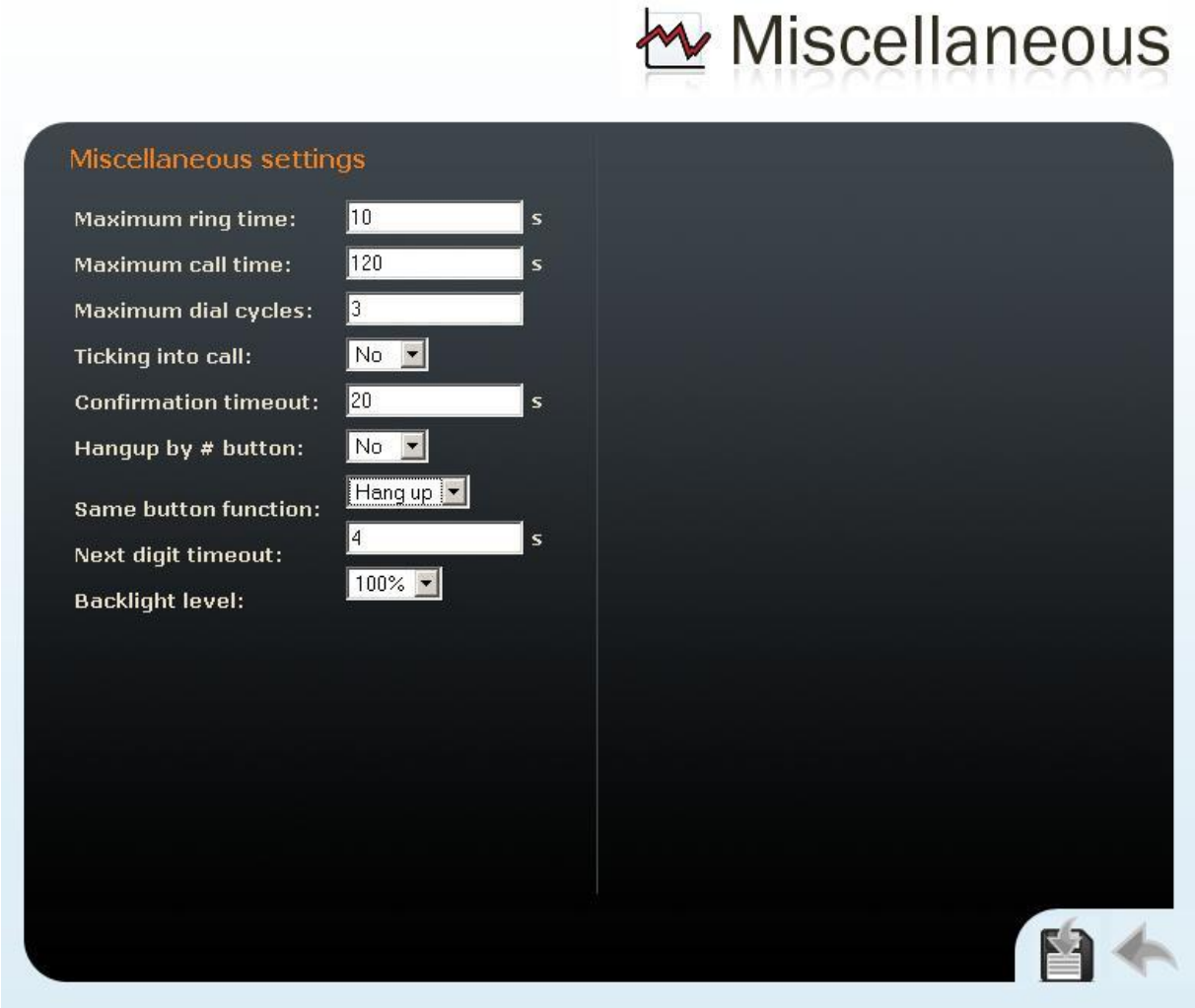


Figure 31 - Miscellaneous settings

Maximum ring time

Sets the maximum ringing time at the respective branch. If calls are routed through GSM gateways, order No. 505004E, 505214E or 505612E to GSM network it is advisable to set the time at longer than 20 s.

Maximum call time

Sets the maximum call duration. When the end of call is approaching Helios IP starts generating tones signaling the approaching end of the call. The call can be prolonged by pressing a key on the keypad of Helios IP or VoIP phone. Signaling is placed in the call if this function is permitted. Switching on and off is set by the 'Ticking into call' parameter.

Maximum dial cycles

Sets the maximum number of repeated call setup to the individual numbers in the phone book.

Hangup by # button

Sets whether the # key ends the call or not

Same button function

Sets the function of repeated pressing of the quick dialing button.

- **none** – repeated pressing of the quick dialing button will not affect the set-up or connected call
- **Hang-up** – repeated pressing of the quick dialing button ends the set-up or active call
- **Dial next** – repeated pressing of the quick dialing button allows you to skip an attempt to set up the respective call and switch to setting up a call to the next telephone number in the telephone book

Next digit timeout

Sets the delay between two digits when dialing a telephone number using the Helios IP keypad

Backlight level

Sets the level of keypad backlight.

7.11. Network

This menu is used to set the network parameters of Helios IP. In default settings, obtaining IP address from DHCP server is switched on. To find the IP address of Helios IP use the program included on the CD. With it you can log in Helios IP and edit network parameters of Helios IP. If you do not want to obtain IP address from DHCP server you must switch off this function and change the default IP address of Helios IP.

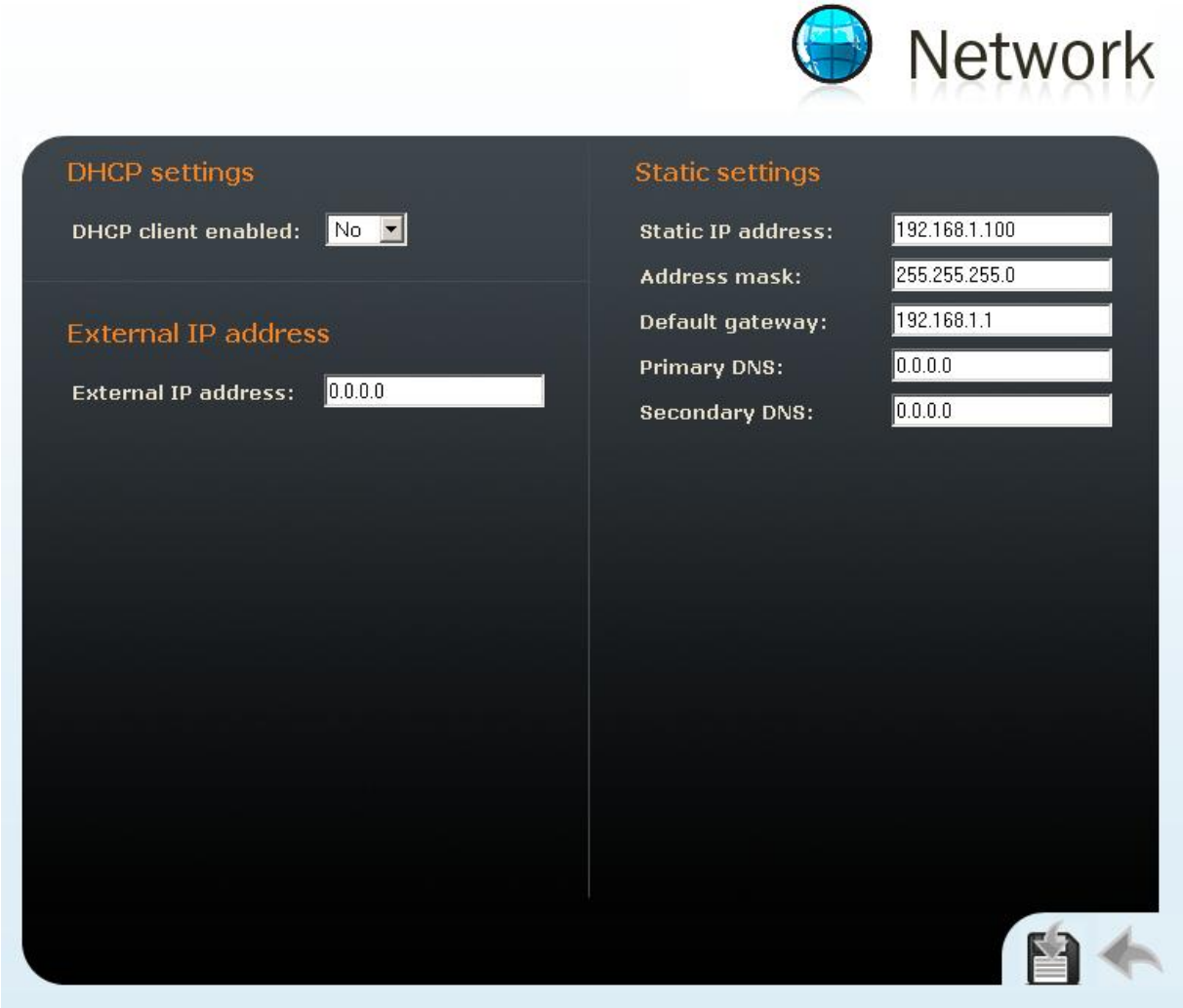


Figure 32 – Setting up network parameters

DHCP client enabled

Switches on the function of obtaining IP address from DHCP server

External IP address

Setup of external IP address of the gateway of your local network, with which it presents itself to the Internet.

Static IP address

Setup of static IP address, which Helios IP should have set if the function of obtaining IP address from DHCP server is not switched on.

Network mask

Network mask setup. For Windows users: Find out the network mask by entering *ipconfig –all* in the command line.

Default gateway

Default network gateway setup.

For Windows users: Find out the default gateway by entering: *ipconfig –all* in the command line.

Primary DNS

Setup of IP address of the primary Domain Name Server used in your network.

For Windows users: Find out the default gateway by entering: *ipconfig –all* in the command line.

Secondary DNS

Setup of IP address of the secondary Domain Name Server used in your network.

For Windows users: Find out the default gateway by entering: *ipconfig –all* in the command line.

7.12. Date and Time

This menu allows you to set the date and time of Helios IP. Time setup is important for correct function of calendars and accurate diagnostic reports. Time can be set in three ways: manually, by synchronization with PC, from which Helios IP is configured, or through the NTP protocol.

Figure 33 - Date and time settings

Local time offset

Sets the time offset at the place of installation relative to GMT - Greenwich Mean Time

Use NTP server

Sets whether Helios IP should synchronize from NTP server (Network Time Protocol server).

NTP server address

Sets the http address of the NTP server for synchronization of Helios IP.

Local date & time

Date and time setting in the following format: yyyy-mm-dd hh:mm:ss (year-month-day hour:minute:second). It is used in the case synchronization using NTP is not switched on.
The icon located next to this field is used for synchronizing the current time with PC, from which Helios IP is configured.

7.13. SIP Settings

In order to set up calls from Helios IP it is necessary to set up the parameters of your VoIP network. Setup is done in the following menu: “Advanced settings -> SIP settings”

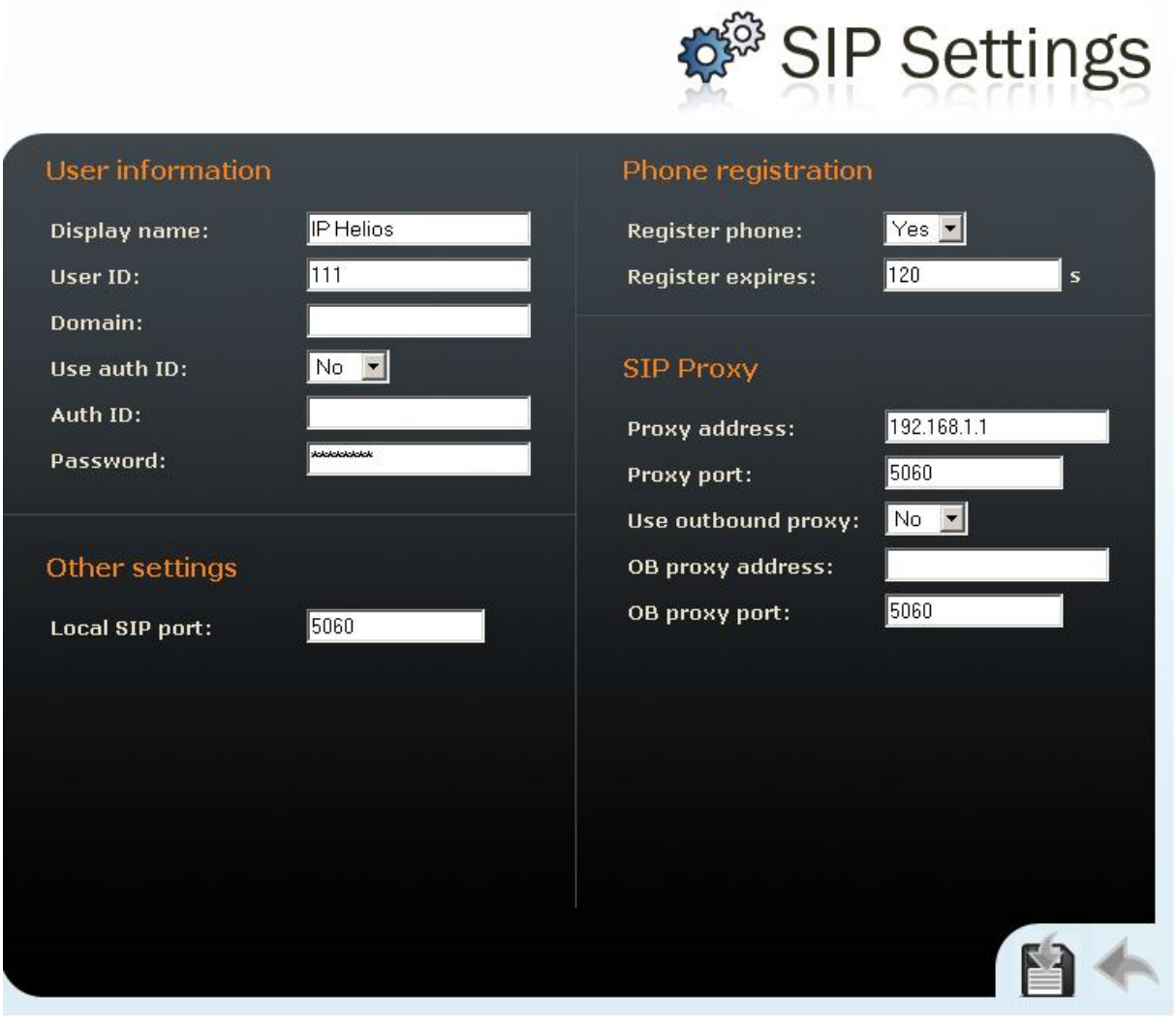


Figure 34 - SIP settings

Display name

Name that will be displayed on the called party's IP phone display. This information will be entered in the message INVITE in the "Contact – SIP display info" field.

User ID

Identification, with which Helios IP will present itself. When calling Helios IP this number is dialed from an IP phone. This number is included in the message INVITE in the "Contact – SIP contact address" field as "*user_id@user_domain:port*". For calling Helios IP the User ID is included in the message INVITE in the "From" field and specifies the logical address of the caller, in this case Helios IP. For calls routed to Helios IP the User ID is included in the "To" field and specifies the logical address of the called party, in this case Helios IP.

Domain

Enter the domain name of SIP proxy, to which Helios IP will be registered. The domain name will subsequently be included in URI Helios IP.

Use Auth. ID

Sets whether Helios IP should register to SIP proxy using authentication information or only with User ID.

Auth ID

Authentication name, with which Helios IP registers to SIP proxy.

Password

Password for authentication in the registration of Helios IP with SIP proxy.

Register phone

Sets whether Helios IP should register with SIP proxy. The parameter is dependent on the settings of the SIP proxy server, whether SIP proxy server requires registration or not.

Registration expires

Sets the time which Helios IP has to set in SIP proxy for renewal of registration.

Proxy address

IP address of SIP proxy, to which Helios IP should be registered

Proxy port

Communication port of SIP signaling to SIP proxy, to which Helios IP registers

Use outbound proxy

Sets whether to use outbound proxy or not

OB proxy address

IP address for call routing from Helios IP outside of the LAN, It is mainly used for routing SIP signalization and RTP stream through firewall.

OB Proxy port

Signaling port of SIP protocol on the outbound proxy server.

7.14. Web server

This menu is used for configuration of the administration web server. Web server can be switched on and off in Helios IP, with respect to the network security. It is also possible to configure the port, on which the web server listens in, and the password for access to Helios IP.

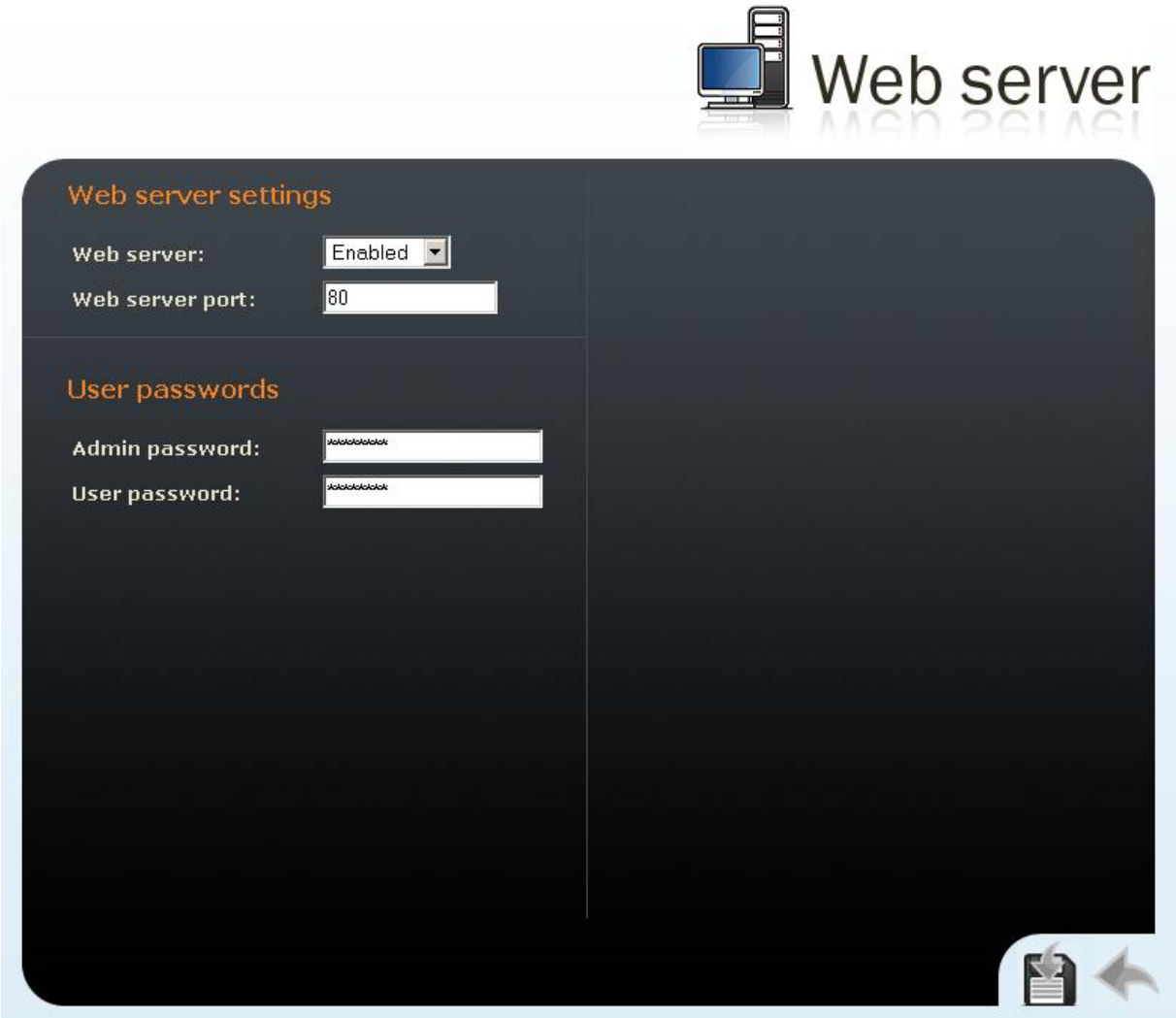


Figure 35 - Web server confguration

Web server

Sets whether the web server in Helios IP should be launched or not.

Web server port

Sets the communication port for the web server running in Helios IP

Admin password

Sets the administrator password for configuration of Helios IP through the web server.

7.15. Audio Codecs

This tab is used for configuration of the priorities of using the individual audio codecs.

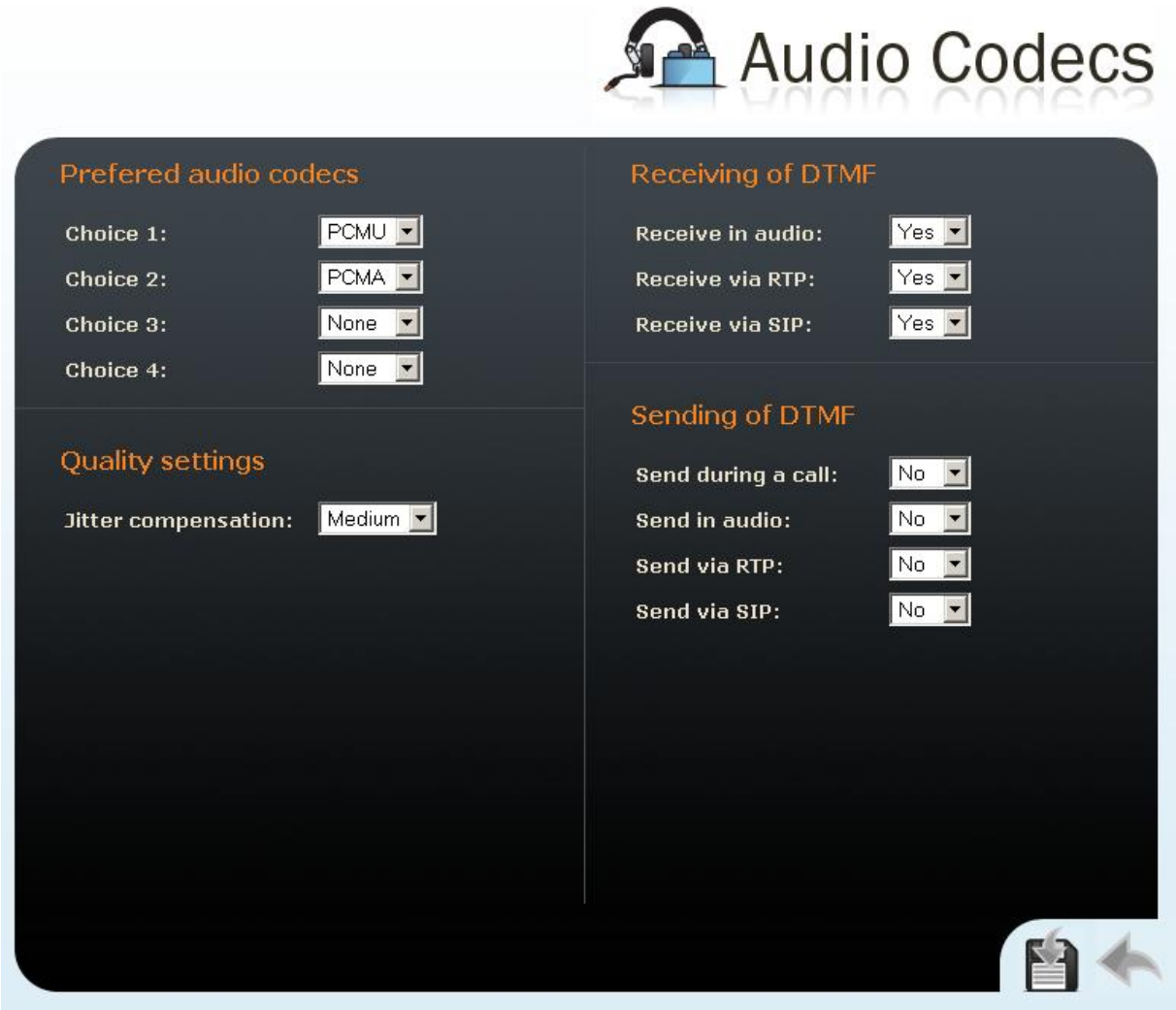


Figure 36 - Audio codecs settings

Preferred audio codecs

Sets the priority of audio codecs for the set-up call. In order to set up a call the IP phone must support at least one of these codecs.

Jitter compensation

Allows you to set in what way Helios IP will compensate jitter caused by the various delay between incoming RTP packets. In general, the higher jitter compensation the more packets must be received to the buffer and the more the delay of packet processing in Helios IP increases.

Receiving of DTMF

Helios IP allows DTMF digit receiving in three ways. The first is transmission through RTP audio packets. This method is not suitable

in the case of codecs with high compression level where DTMF audio may not be reproduced correctly on the receiving end. The second way is creating DTMF RTP packet according to RFC2833 recommendation. This method is one of the common ways to transmit DTMF tones. The third way is to transmit DTMF digits directly by SIP protocol in NOTIFY messages.

Sending of DTMF

The function of sending DTMF from Helios IP during a call can be switched on and off. Helios IP allows DTMF sending in three ways. The first is traditional transmission through RTP audio packets. This method is not suitable in the case of codecs with high compression level where DTMF audio may not be reproduced correctly on the receiving end. The second way is creating DTMF RTP packet according to RFC2833 recommendation. This method is one of the common ways to transmit DTMF tones. The third way is to transmit DTMF digits directly by SIP protocol in NOTIFY messages. For correct function check the ways of receiving DTMF on the receiving end.

7.16. Video Codecs

Helios IP uses video codec H.264. With its configuration you can set the parameters in such manner, that the video transmitted conform to the needs of the users on the receiving end. The settings of the video codec allow you for example to reduce the size of the frames in order to increase continuity.

Figure 37 - Video codecs settings

Video resolution

Sets the individual picture formats of the video transmitted. The resolution selection ranges from QCIF (176x144) to VGA (640 x 480).

Frame rate

Sets the frame rate for frames that Helios IP is to send to the VoIP network.

Video bitrate

Sets the transmission rate for video transmission from Helios IP. The higher the bitrate the greater picture compression is necessary. This results in lower picture quality on the receiving end. High bitrate does not have to mean significant improvement of transmission as a whole because the network may get overloaded, resulting in greater packet loss rate or delay.

Video packet size

Sets how large the video transmitting packet should be.

7.17. System log

This menu is used for configuration of storing of system messages and reports. Normally it is not necessary to use or configure this menu. This menu is important when looking for errors and upon contact with technical support of 2N TELEKOMUNIKACE a.s.

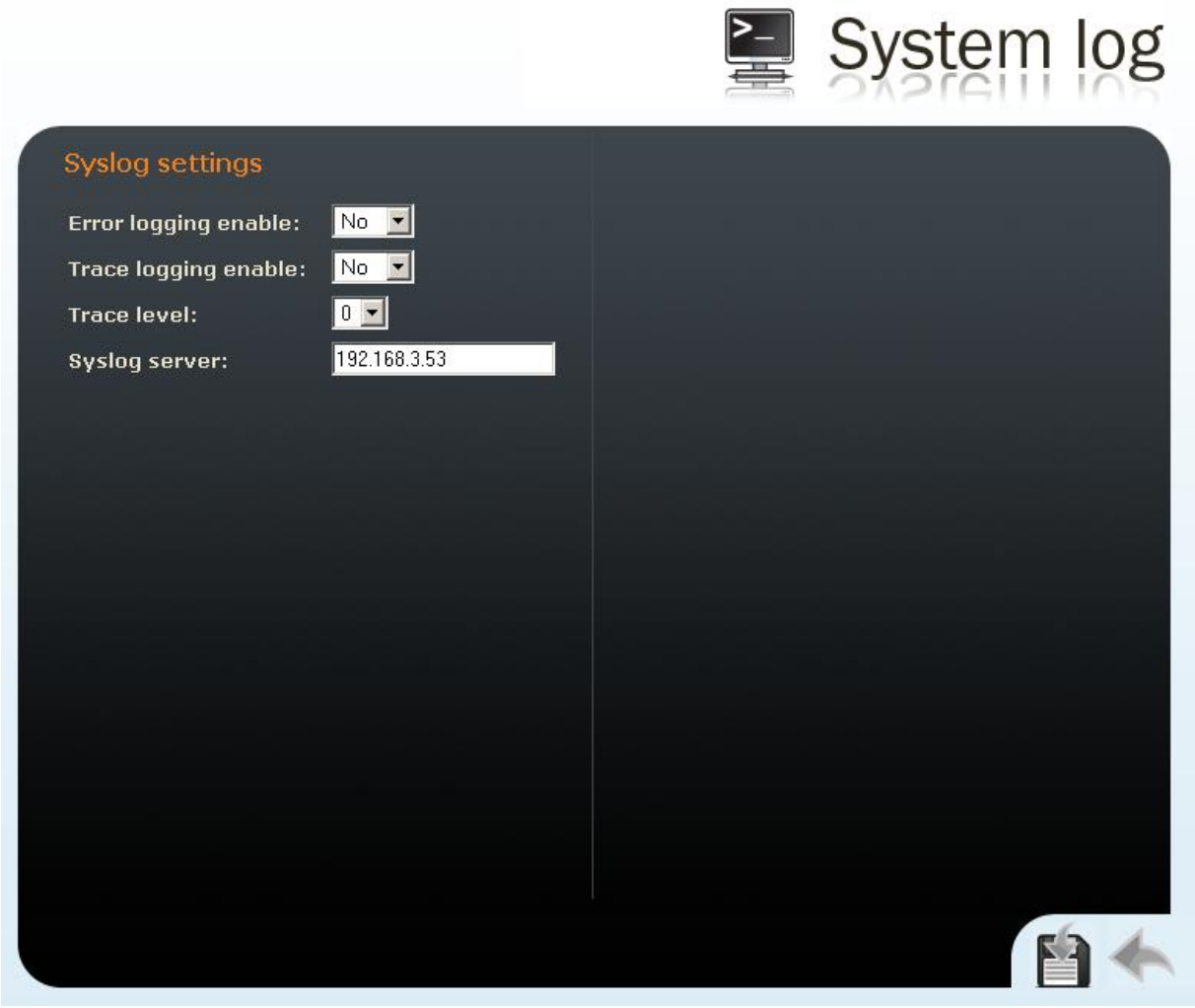


Figure 38 - System log

Error logging enable

Sets whether error logging is enabled or not.

Trace logging enable

Sets whether all communication should be traced or not

Trace level

Sets the level of detail of the reports from Helios IP

Syslog server

IP address of the server, on which the system log application is running.

7.18. Firmware update

Helios IP allows firmware updating using the configuration web interface or through a TFTP server.

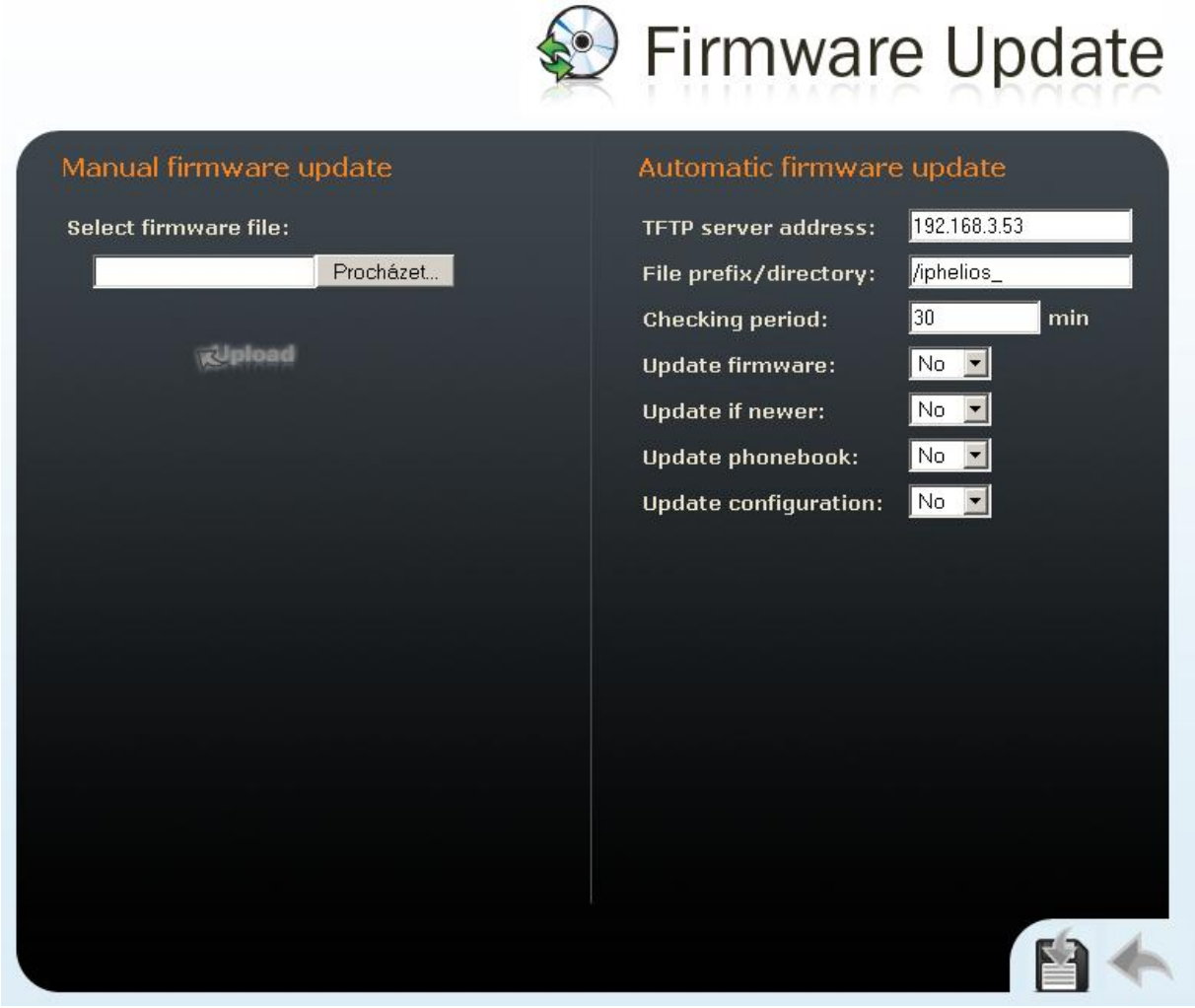


Figure 39 - Firmware update

Manual firmware update

Used for manual firmware uploading through the configuration web interface. Use the browse button to find the file with the respective firmware, with extension **.bin**. You will upload this to Helios IP.

Automatic firmware update

Used for automatic firmware uploading from TFTP server. This option is suitable for buildings with greater number of Helios IP door communicators.

TFTP server address

IP address of the TFTP server where firmware is located.

File prefix / directory

Directory on the TFTP server where firmware for Helios IP is located.

Checking period

Sets the time interval after which Helios IP connects to the TFTP server, from which it uploads a newer version of the firmware.

Update firmware

Sets whether the firmware should be always uploaded to Helios IP or not.

Update if newer

Sets whether the newer version of the firmware should be downloaded from the TFTP server to Helios IP or not.

Update phonebook

Sets whether the phone book stored on the TFTP server should be uploaded to Helios IP. This setting is suitable in the case of multiple Helios IPs installed in the building for synchronizing.

Update configuration

Sets whether the configuration of Helios IP through the TFTP server should be changed. This function is suitable if all Helios IPs in the building are to be set identically.

7.19. Tools

This menu is used for restarting Helios IP, deleting configuration and switching to default settings, downloading and uploading configuration.

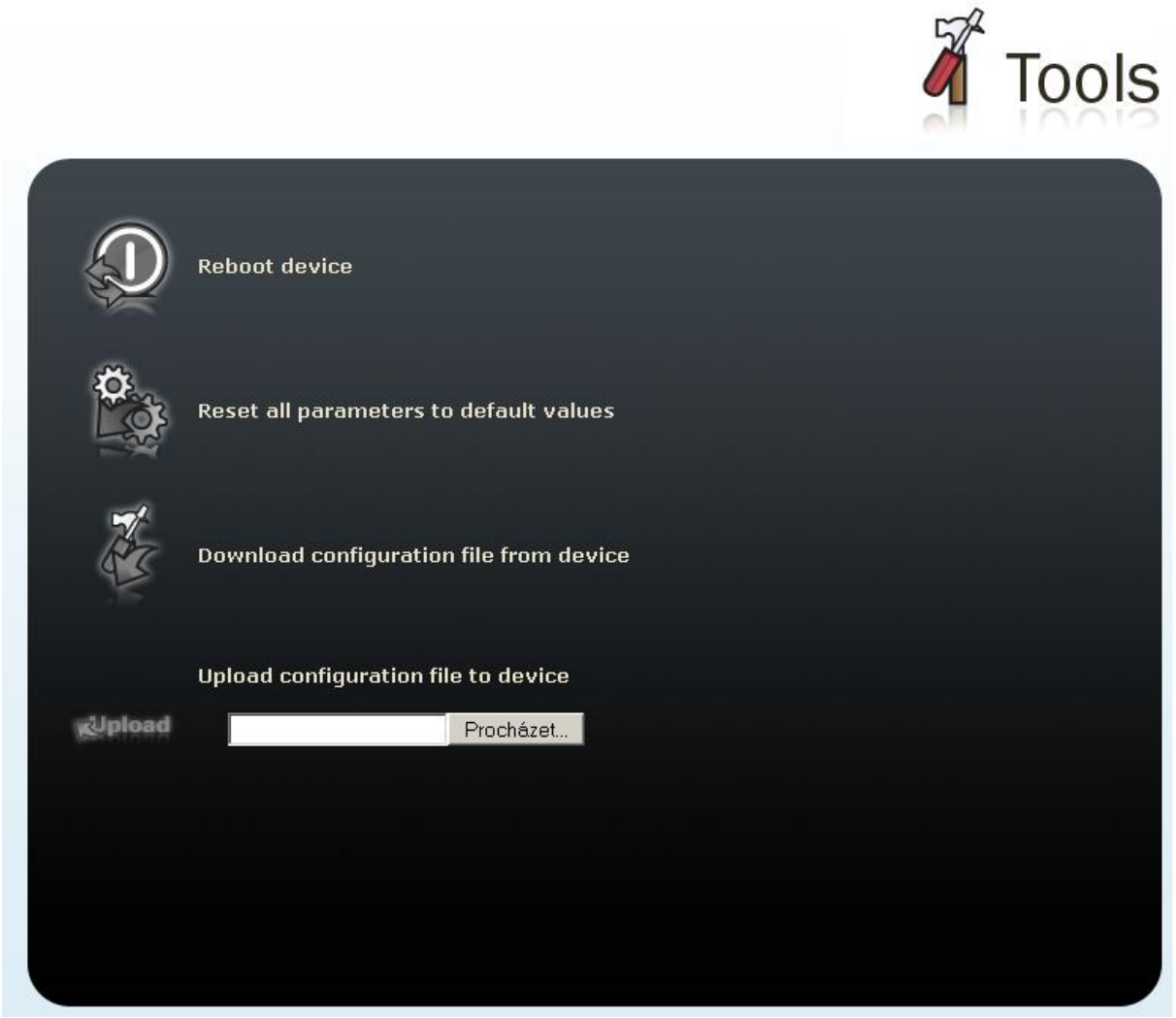


Figure 40 - Tools

8. Technical Parameters

Power supply:

PoE 802.11af	48 V / 380 mA DC

or

Power supply adapter	230 V±10%, 50/60 Hz / 12V DC
DC power supply	12 V / 1A DC

VoIP:

Signalling	SIP
Count of channels	2
Audio codecs	G.711 PCM, 64 kbps
Video codecs	H. 264, 64 - 2048 kbit/s

Interfaces:

Ethernet	
Connector	Terminal block plug
Network type	10/100 BASE-T
Reley outputs	
Maximal voltage	30 V DC
Maximal current	1 A DC

Others:

Dimensions	210x100x29 mm (v x š x h)
Weight	max. 500 g
Oerational temperature range	-30 až + 55 ºC
Coverage	