2N® Helios Uni

Door Access Intercom

Brief Installation Manual

Version: 1.0.0

www.2n.cz

1.1 Before You Start

Product Completeness Check

Please check the contents of your 2N® Helios Uni delivery:

1 2N® Helios Uni (selected model)

1 Torx 10 / Torx 20 double-ended wrench

1 2N® Helios Uni Installation Manual

1 mounting template

1 CD

1 A5 transparent name plate foil

1 spare name plate

1 brick flush mounting box

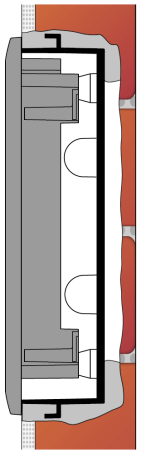
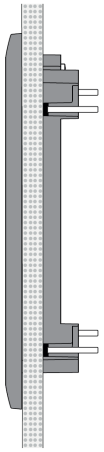
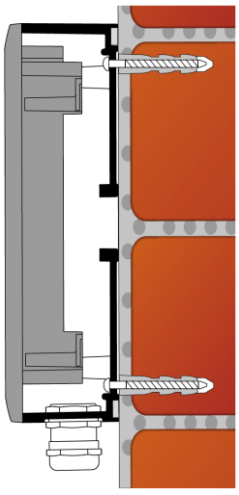
4 4x12 stainless steel screws for plastics

2 cable ties

1.2 Mechanical Installation

Mounting Type Overview

Refer to the table below for a list of mounting types and necessary components.

Flush mounting – classic bricks (including hollow bricks, thermally insulated walls, etc.) **What you need:** A properly cut hole Plaster, mounting glue, mounting foam or mortar as necessary	
Flush mounting – plasterboard **What you need:** Just a properly cut hole	
Wall mounting (concrete and steel structures, entry barrier columns, etc.) **What you need:** Wall mounting box Part No. **9153003**	

Caution

- 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!

Common Mounting Principles

Tip

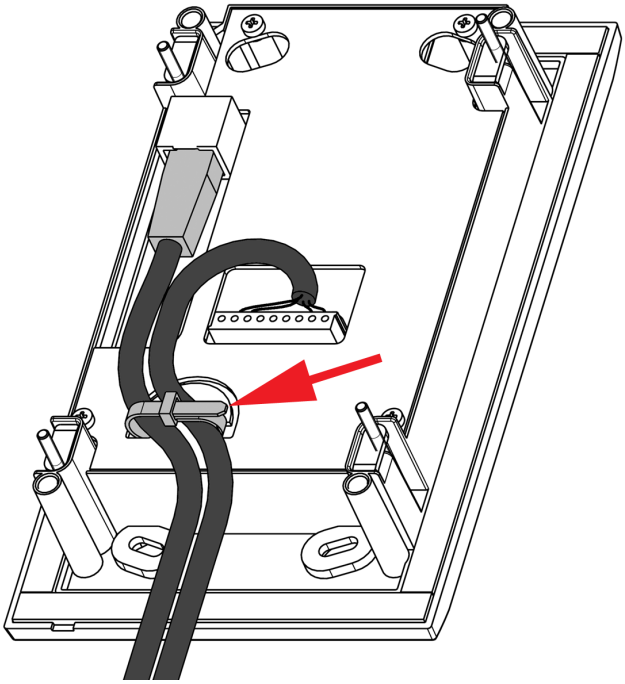
- Select flush mounting where possible to make your product elegant looking, more vandal resistant and more secure.

Caution

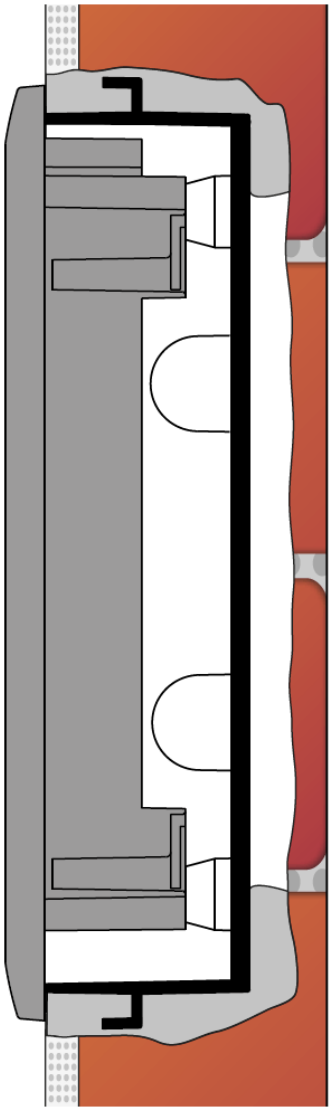
- Stainless steel screws are used for the 2N® Helios Uni assembly. Other screws than stainless steel ones corrode soon and may aesthetically deteriorate the surrounding environment!
- Having removed the front panel, make sure that no dirt gets inside the product (especially onto the sealing surface).

Flush Mounting – Classic Bricks

1. Cut a wall hole using the template enclosed. Make sure that all the required cables are available in the hole.
2. Unpack the plastic mounting box. Break out the cable holes as necessary and make sure that the wall hole is big enough for the box.
3. Wall up the mounting box making sure that the box is aligned with the wall surface. Wait until the plaster (mortar, mounting foam, etc.) sets.
4. Unscrew the front panel from the door intercom.
5. Connect the cables to the terminals or RJ connector as described in the **Electric Connection** subsection.
6. You can use the cable tie for connection as shown:



Suggested cable fixation



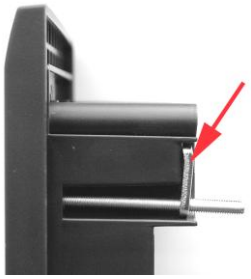
Mounting completion – after electric installation!

7. Insert the intercom in the mounting box in the wall.
8. Tighten the intercom with the stainless steel screws included in the delivery. As the screw holes are oval, you can perfect the vertical position before tightening.
9. We do not recommend you to insert the button tags now.
10. Replace the stainless steel front panel fixing it with the stainless steel screws you unscrewed in step 4 above.

Flush Mounting – Plasterboard

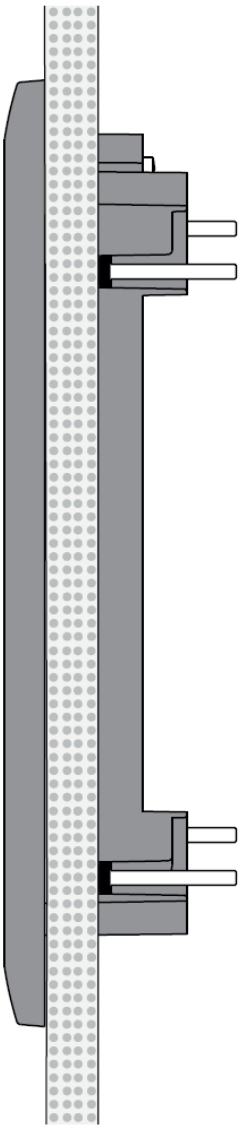
Tip

- If this is your first plasterboard installation, check the function of the intercom side clamps. Loosen and then re-tighten the clamp screw to see how it turns automatically and starts moving forwards in its slot. Remember to return the clamp into the original position after the check!



Caution

- Check the plasterboard wall and room interior pressure values (caused, e.g., by overpressure ventilation). If the difference between the values is too great, separate the intercom using, for example, the mounting box enclosed and seal the cable passage to avoid loudspeaker damage.



1. Cut a hole using the template enclosed (165 x 95 mm).
2. Unscrew the front panel from the door intercom.
3. Connect the cables in the hole to the terminals or RJ connector as described in the **Electric Connection** subsection**.**
4. You can use the cable tie for connection as shown on previous page.

Mounting completion – after electric installation!

5. Insert the intercom in the hole keeping it in the vertical position.
6. Loosen the four clamp screws one after another and then retighten them slowly. They will turn aside automatically and start moving forwards in their slots. You need about **10 turns** to tighten the clamps completely. You can perfect the vertical position before final tightening of the screws.
7. We do not recommend you to insert the button tags now.
8. Replace the stainless steel front panel fixing it with the stainless steel screws you unscrewed in step 2.

Wall Mounting

Use the wall (surface) mounting box, part No. **9153003**, and follow the instructions enclosed.

1.3 Electric Installation

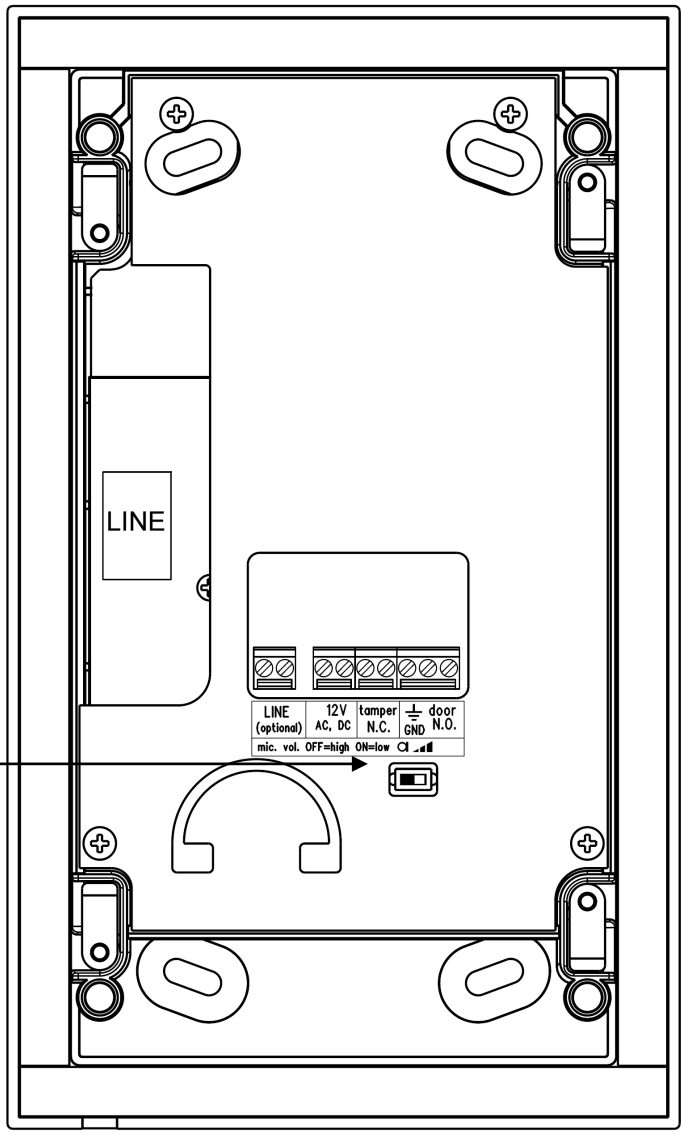
This subsection describes how to connect 2N® Helios Uni into your Local Area Network (LAN) and how to connect supply voltage and the electric lock.

PCB Connectors

Description of Connectors

LINE	An analogue telephone line with any polarity, or an RJ connector or terminals
12V AC, DC	AC/DC backlight or additional amplifier supply (DC must be used for the amplifier)
tamper N.C.	Open cover signalling contact (N/C)
GND	ground (mandatory)
door N.O.	Electric lock switch (N/O)

Microphone level low switch



Compatibility

2N® Helios Uni is designed for conventional, analogue telephone lines and works regardless of polarity and line parameters.(Refer to the Technical Parameters) and uses tone (DTMF) or pulse dialling to be programmed. Normally, it is connected to a PBX line however It can also be connected to an analogue line or the GSM interface providing a wireless installation.

Connection to Telephone Line

Connect **2N® Helios Uni** simply using LINE terminals. The advantage is that **2N® Helios Uni** requires no power supply because all power is fed from the telephone line – except for the button backlight and electric lock, if connected. Nevertheless, **2N® Helios Uni** can work without these circuits too and sends an acoustic signal on having been connected to a line (or after having been disconnected from the line for a defined period of time).

External power Supply and Electric Lock Connection

2N® Helios Uni requires 12V supply for:

1. Name tag backlight – current draw of up to 5 mA, AC or DC
2. Electric lock – current draw according to the lock type*)
3. Additional amplifier if available – current draw of up to 100 mA, DC only!

*) The electric lock can be fed from the same source as the intercom or another supply.

2N® Helios Uni contains a solid-state switch equipped with V-MOS transistors, which is able to switch both AC and DC regardless of polarity. Make sure that the current and voltage values do not exceed limits (refer to the Technical Data) and that the technical parameters of the lock and power supply are compatible.

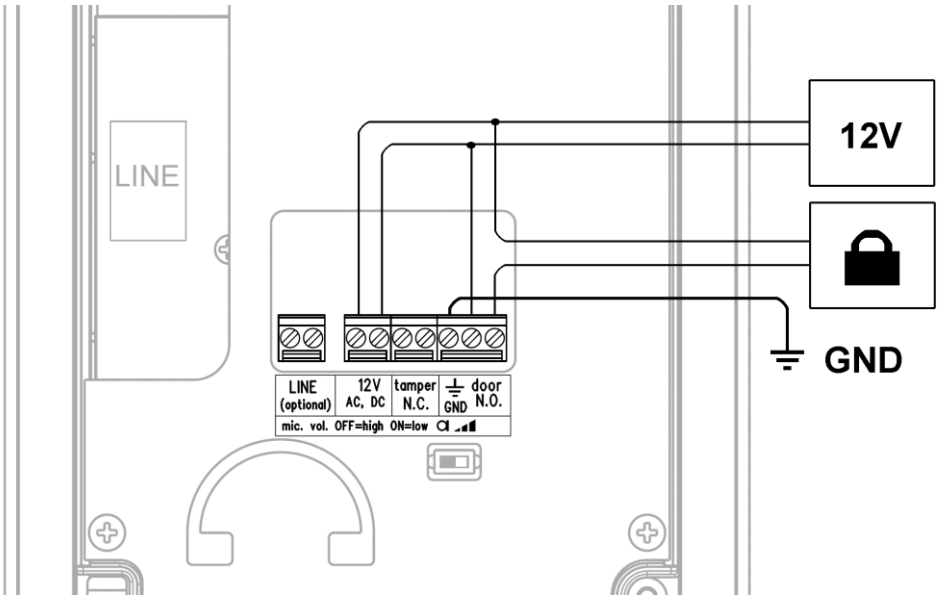
Danger!

- Never switch 230 or 120 V mains voltage directly!!!

Caution

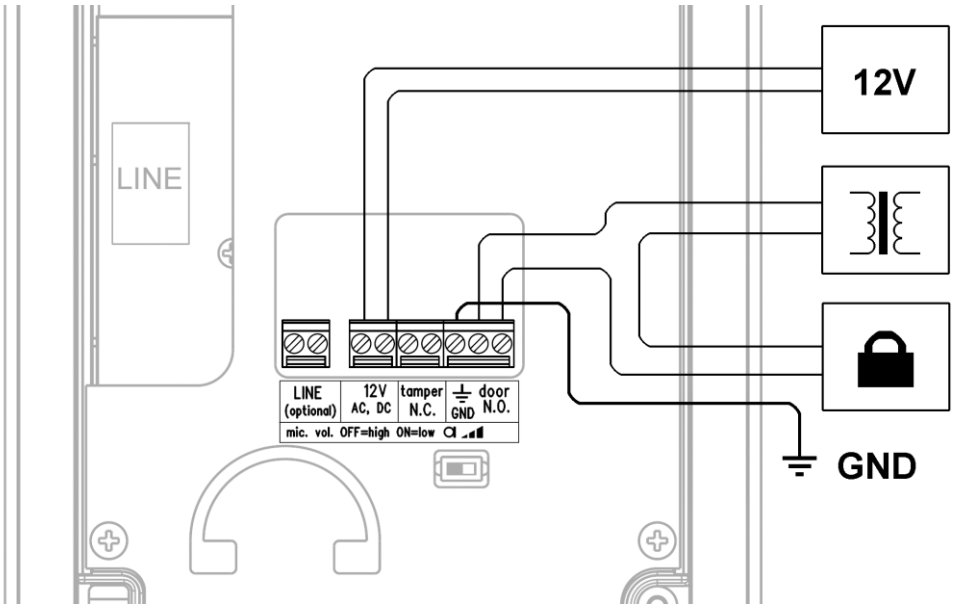
- If the lock power supply fails and the telephone system carries on working, the intercom is unaware of the failure the switch will be password-activated and the activation is acoustically signalled, but the electric lock will not work because of the lack of power.
- Ground connection is mandatory. If used power supply output is grounded, you can connect GND terminal to it.

Make sure that the power supply is able to supply the required current. Connect the supply and lock as shown in the figure below:



Separate Backlight and Electric Lock Supply

Separate power supplies are necessary e.g. where the lock requires voltage higher than 12 V. In this case, an additional power supply (12V) must be used to illuminate the button backlight - see the figure below:



1.4 Button Tags – Insertion, Replacement

Tag Printing

1. Every name plate includes a piece of foil, which can be written over manually, using a waterproof permanent marker.

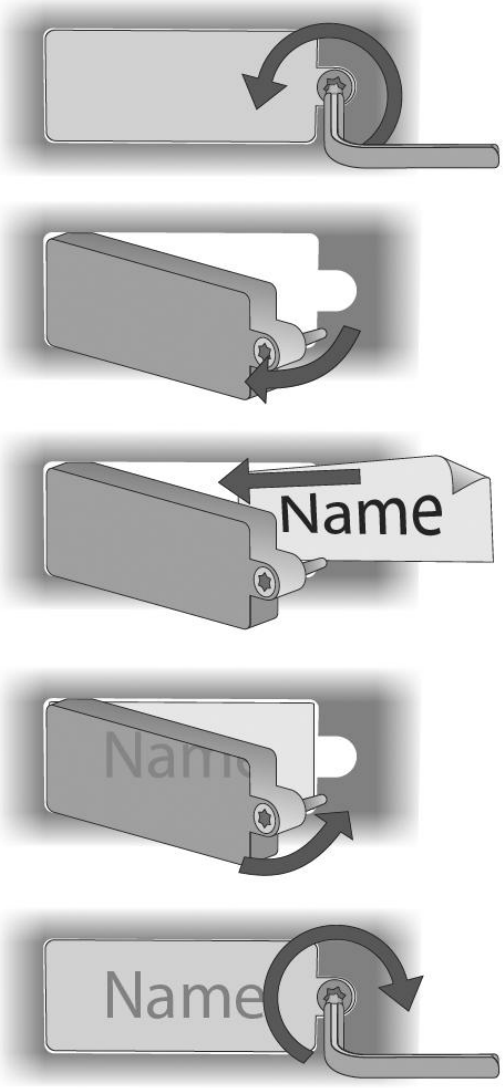
Note

- Always use waterproof foil (enclosed or other) for the tags. Never use paper or ink jet printing to avoid damage due to water leakage!

Tag Inserting / Replacing

2N® Helios Uni provides an intuitive, easy access to the name plates. The tags are easy to insert and replace even without a manual. You need not remove the front panel and thus are not exposed to the risk of loss of components while replacing the tags.

1. Loosen the name plate screw using the wrench enclosed, for example. You can open the name plate window like a door without losing the tightened screw.
2. Remove the used or blank name tag and insert a new tag.
3. Close the name plate window and tighten the screw appropriately.
4. Check the click effect of the buttons: if the button fails to click properly when pressed (when moved by approx. 0.5 mm), the tag is too thick or thin. Make sure that the button clicks when you press it on either end.



1.5 Programming

All the intercom parameters, including the keypad ones, are set remotely using any tone-dialling telephone set (or a mobile phone). First call the intercom and enter the programming mode. The access to this mode is service password protected.

A voice menu is available in the programming mode and so you need not use this manual to program standard parameters. The menu is stored in the intercom memory in the default language. Having entered the full parameter or memory number, you can hear how the parameter has been programmed, thus checking the programmed numbers for correctness.

All parameters are stored safely in the non-volatile EEPROM memory.

Tip – Before You Start Programming

- Write or print the values to be programmed to minimise the risk of error. Moreover, this gives you an idea of what you have programmed. Make sure that programming is not barred (JP1 jumper) – refer to the PCB Description subsection.

Entering Programming Mode

You can enter the programming mode only during an incoming call (telephone – intercom call). The programming barring jumper must not be mounted. To get into the programming mode, enter the service password in the format * **password** * (do not forget to enter the asterisks before and behind the password!). The service password is 12345 by default and can be changed. If you enter the password correctly, the voice menu is launched. Now you can start programming.

Programming Procedure

You can set parameters in any order and as many times as you wish. To change a parameter use the following command:

Parameter number * parameter value *

A three-digit **parameter number** is assigned to every parameter to be programmed and to every memory (refer to the Programming Chart). This number indicates to the intercom which parameter to change, and * is used as "Enter". When it is entered, the intercom repeats the parameter (or memory) number and reads the current contents (excluding passwords). Now you can enter new data – of variable meaning and length depending on the parameter selected (refer to the Full Parameter Chart). Finally, press * again for confirmation. The intercom confirms the data saving. Repeat this procedure for each parameter.

Switch Password Programming

Each switch can be controlled with up to 10 different passwords that are listed in the intercom memory. Passwords can be added to the list using function 811 and deleted with function 812 individually. The default status is a single password in the list,

namely **00** for switch 1. This special password cannot be entered from the intercom keypad. To cancel them, you have to remove them from the list:

8 1 2 * 0 0 *

Function 997 deletes the entire password list including the password 00. Function 999 deletes the entire password list too but recovers the password 00 and the service password 12345.

Password Selection Restrictions

Controlling the switch by phone, you can enter the password without any starting and terminating characters and the password length is not limited. The intercom has to verify after every character received whether the password is complete or not.

Therefore: **make sure that no password is identical with the beginning of another password.**

- Should you use such confusing passwords for switch control, you have to enter the longer password (by phone) with asterisks at the beginning and end.
- If the intercom refuses to store a password, it means that the switch password list is full, or the password has already been entered.
- The switch password may not be identical with any Arrival/Departure, Day/Night, or service password.
- For password selection tips see the Instructions for Keypad Use.

Programming Error

- Any wrong value can be re-programmed by another command (immediately or any time later).
- If you make a typing error, cancel the entered value with #. Then you can re-enter the whole number.
- If you enter an incorrect parameter number or parameter value, the intercom sends a refusal signal and you have to start with the parameter number again.
- If you do not press any button within a predefined timeout, the intercom sends a hang-up signal and hangs up. The timeout is 5 seconds; every * character is followed by 30 seconds for you to think over your setting. The 5-second limit starts when the intercom has read all that relates to the current user position in the programming menu. The timeout can be prolonged – see the chart.

Tip

- **To check programmed values**: enter parameter number and *, listen the parameter value and press # for return to the main menu.

Deleting All Passwords, All Memories, Complete Initialisation

The following three functions facilitate your programming by clearing all previous settings:

- **997**
  deletes the entire password list for switch including password 00.
- **998**
  deletes memories of all buttons (01 - 02) plus Arrival/Departure and Day/Night passwords.
- **999**
  clears the whole memory and resets the default values (see the chart).

Protection against Unintentional Deletion

The above functions need no special "value" but must be protected against unintentional initiation. Therefore, enter the service password as the value. Warning: Full initialisation takes a few seconds, the intercom sends a continuous tone while memory clearing. Functions 997 and 998 take a little less time and are signalled by a continuous tone too.

The button memories can be deleted individually too – just enter a "blank" while programming. For example: 0 1 1 * * clears memory 1 of button 01.

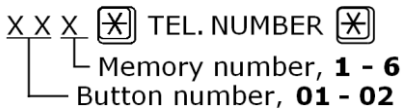
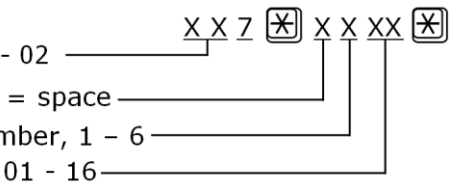
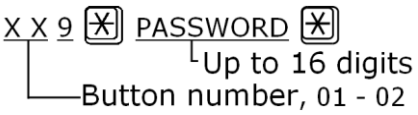
If You Forget the Service Password

If you forget the service password, contact the manufacturer. The manufacturer can change your service password to 12345 remotely without altering any other parameter.

Password Selection Tip

- Keyboard letters facilitate password remembering. For example, it is easier to remember a 9-letter word (e.g. crocodile) than a 9-digit number (276263453).

1.6 Full Parameter Chart

Parameter (function)	Parameter Name	Range	Default	Note
011 to 016	Button 01 memories	Up to 16 digits	blank	
011 to 026	Button 02 memories	Up to 16 digits	blank	
Digits 0-9 can only be entered directly into the memories. Special characters are entered additionally using function XX7:				
01**7** **or** 02**7**	Enter special chars *, #, and pause	**Entering format:** Button number, 01 - 02 1 = * 2 = # 3 = space Button memory number, 1 – 6 Character position, 01 - 16 *Note: The digits behind this position are shifted automatically.*		
01**8** **or** 02**8**	Button 01 or 02 count of automatic dialling cycles	0-9	0 = off	
01**9** **or** 02**9**	Button 01 or 02 Arrival/Departure password	up to 16 digits	blank	
559	Day/Night password	up to 16 digits	blank	The same as for Arrival/ Departure, identical for all buttons
811	Enter up to 10 switch passwords	up to 16 digits	00	Password 00 cannot be entered from the keypad! Up to 10 switch passwords Delete passwords using function 812
812	Delete valid switch passwords	Valid pass-word		Deletes individual valid switch passwords.
813	Switch closing time	0-9 s	5s	0 = switch disabled
901	Dialling type	0-1	0 = tone	1=pulse 40/60
902	Dialling timeout after pick-up	5-99	8 = 0.8s	Range of 0.5 - 9.9s
903	DTMF transmitting level	0-12	6	1 step = 1 dB

Parameter (function)	Parameter Name	Range	Default	Note
904	Automatic Multiple Number Dialling type	0-3	0 = disabled for all buttons	1 = loud with confirmation 2 = silent with confirmation 3 = SP without confirmation [1]) 4 = SP without confirmation [1])
906	Ticking into call	0-12	0 = off	The called party recognises better that the incoming call is from the intercom.
911	Count of rings before incoming call answering	1-99	2 	Warning!!! No connection is established if a higher value is entered than as allowed in the PBX ringing timeout!!!
912	Max. call duration	1-99	12 = 120s	Range of 10s-990s
913	Log-in timeout	1-99	3	3 = 30 seconds
915	Hang-up time between calls	5-99	15 = 1.5 s	
931	Microphone power-up level	0-3	2	0 = Maximum microphone sensitivity
932	Automatic response speed	0-3	2	3 = Maximum response speed
933	Reception volume	0-15	7	15 = Maximum reception volume
934	Transmission volume	0-15	7	15 = Maximum transmission volume
935	Message volume	0-15	7	15 = Maximum message volume
936	Beeping volume	0-12	12	12 = Maximum tone volume
937	DTMF hearing (side tone) volume	0-3	3	3 = Maximum DTMF volume
938	Loudspeaker volume	0-15	7	15 = Maximum loudspeaker volume
941	Minimum continuous tone time	10 - 99	20 = 2s	If the tone is longer, the intercom hangs up.
942	Minimum busy tone or pause duration	0-255	8 = 0.08s	These parameters control the busy tone detection. They are used for call termination and automatic dialling.
943	Maximum busy tone or pause duration	0-255	70 = 0.7s	
944	Maximum tone-pause difference	0-255	10 = 0.1s	
945	Minimum count of busy tone periods	2-9	4	

Parameter (function)	Parameter Name	Range	Default	Note
946	Dual tone detection setting	0 – 10	4 = 440 Hz	All continuous, busy and ringing tones are detected. Dual tones are detected if one of their components is between 400 and 500 Hz. If both components are in this range, set a lower detection value. Set 0 for 400 Hz and 10 for 500 Hz. *This setting does not affect the single tone detection, which always works between 300 and 550 Hz.*
951	Minimum ringing tone time	1 - 200	50 = 0,5 s [2])	The longest ringing period pause must be in the interval between parameters 952 and 953. ⚠ Warning! As these parameters also detect incoming calls, an incorrect setting may result in the intercom not answering the call!
952	Minimum long pause time	5 - 100	10 = 1 s	
953	Maximum long pause time	10 - 100	60 = 6 s	
954	Count of ringing periods	1 - 99	10	If the preset count of periods is exceeded, the call is terminated.
	If the preset count of periods is exceeded and automatic dialling is enabled, another attempt follows. In the event of Automatic Dialling <u>without Confirmation</u>, the ringing tone is recognised and ends before the preset count of periods is exhausted; the call is regarded as successful.			
961	Maximum timeout for pressing the next digit	1-9	5 s	During password entering, etc.
963	Possibility to hang up by pressing the same button	0 = no 1 = yes	1	
964	Possibility to dial the next number by pressing 2nd button	0 = no 1 = yes	1	
971	Count of message repetitions	0 - 9	3	There is a 3-second pause between every two messages.
974	Intercom identification number	16 digits	-	The number enables intercom identification.
975	Message options for automatic multiple number dialling	2 digits	55	**1st digit** = type of message repeated after dialling. **2nd digit** = type of message after confirmation. The following digits are used: 2 = identification (974) - loud speaking 4 = identification (974) - DTMF 5 = message as defined in par. 977 (after confirmation by par. 976) 7 = confirming tone (after

Parameter (function)	Parameter Name	Range	Default	Note
				confirmation only)
976	language selection for a message	0 - 8	1	0 = ♪♪ 1 = English 2 - 3 = ♪♪ 4 = German 5 - 7 = ♪♪ 8 = Portuguese 9 = Dutch 10 ... 99 = silence Note: See **Survey of messages** in Subs. 4.2 ***Caution!*** *Czech version has language order: 1 = Czech, 2 = English*
977	language selection for "wait, please" message	0 - 8	1	
991	Service password		12345	12345 by default
995	Software version identification	-		This function reads out the current software version. Format: year-month-day. Writing disable.
997	Deletion of all switch passwords	Service password	12345	Deletes password 00 too.
998	Clearing of all memories		12345	Clears memories 01 to 55.
999	Full initialisation		12345	Warning! Changes the service password too (setting the default value of 12345).

Notes

- Terminology: For the purpose hereof, **parameter** means a **value** that is stored in the intercom memory and can be re-programmed. **Function** is a means of execution of another service such as initialisation, software version identification and so on.
- [1]) Types 3 and 4 of Automatic Dialling without Confirmation differ from each other in how they process very short calls (a few seconds). Dialling type 4 regards a call as successful in all cases, type 3 only if the door was opened.

1.7 Maintenance

Cleaning

If used frequently, the intercom gets dirty. To clean it, use a piece of soft cloth moistened with clean water. We recommend you to obey the following principles while cleaning:

- Never use aggressive detergents (such as abrasives or strong disinfectants).
- Alcohol-based cleaners may be applied.
- Clean the device in dry weather in order to make waste water evaporate quickly.

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

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® Helios Uni 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.

1.8 Technical Parameters

Telephone Parameters	Value	Conditions
Minimum required off-hook line current	15 mA	Off-hook
Minimum required on-hook line voltage	20 V	Hang-up
DC voltage drop (off-hook)	< 8 V < 16 V	I = 25 mA I = 50 mA
Lead current while hang-up	< 25 µA	U = 60 V
Off-hook AC impedance	220 Ω + 820 Ω 115 nF parallel	20 to 60 mA
Return loss	> 10 dB	20 to 60 mA
Bandwidth	300 to 3500 Hz	20 to 60 mA
Ringing impedance	> 2 kΩ C = 1 µF	25 to 50 Hz
Ringing detector sensitivity	10 to 20 V	25 to 50 Hz
Time of response to ringing	Variable	
Pulse dialling	40 / 60 ms	20 to 60 mA
DTMF level	-6 and -8 dB ± 2 dB	20 to 60 mA
DTMF detector sensitivity	Min. -40 dB	20 to 60 mA
Dial tone detector sensitivity	Min. -40 dB	350 - 500 Hz
Busy tone detection speed	Variable	350 - 500 Hz
Continuous tone detection speed	Variable	350 - 500 Hz
Ringing tone detection speed	Variable	350 - 500 Hz
Overvoltage protection – common mode	1000 V	8 / 20 µs
Overvoltage protection – between A, B conductors	1000 V	8 / 20 µs

Other Electric Parameters		
	Switch – max. voltage	48 V AC, DC
	Switch – min. voltage	9 V AC, DC
	Switch – max. current	2 A AC, DC
	Backlight – rated voltage	12 V
	Backlight – max. voltage	14 V
	Backlight – current consumption	Up to 5 mA

Buttons		
	Button design	Transparent, white backlit buttons with easily replaceable name tags
	Button count	1 or 2

Audio		
	Microphone	1 integrated microphone
	Amplifier	Optional – additional 0.5 W amplifier

Physical Properties		
	Cover	ABS plastic, high-quality stainless steel
	Working temperature	-25°C to +55°C
	Working relative humidity	10% - 95% (non-condensing)
	Storing temperature	-40°C - 70°C
	Dimensions	193 x 115 x 39 mm 197 x 119 x 47 mm flush box 193 x 115 x 57 mm for wall mounting
	Weight	Net product weight ....500 g Flush box ....135 g Total weight incl. package ... 800 g
	Protection level	IP54

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