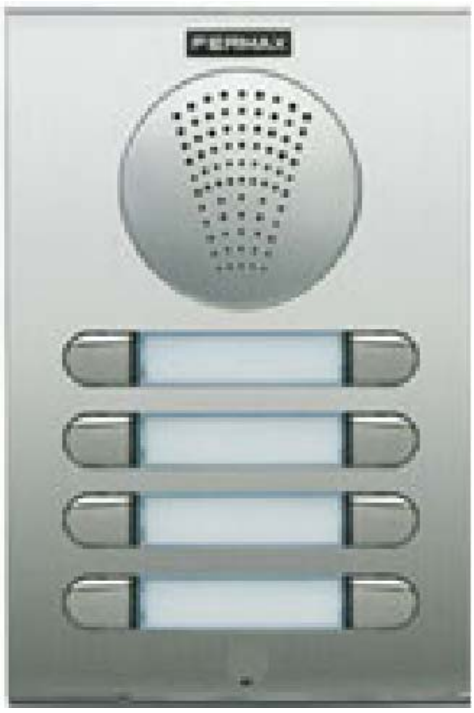
# Fermax PBX DP

analogue door phone panel

***Fermax PBX EXP***
***Fermax PBX KEY***
***Fermax PBX CAM***
***Fermax PBX EA***



User and installation guide

# *Welcome*

Congratulations on purchasing the door phone panel "**Fermax PBX D**oor **P**hone" **Fermax PBX DP**. This door phone can satisfy your need of communication with visitors at the entrance to the building, to your company or at the entrance of your house. Its use is universal, because it can be connected to an analog internal extension line of your PBX regardless on its type or on the producer. To each pushbutton you can program up to two 16-digit numbers in pulse or tone dialling incl. characters "*****", " # ", **Pause** and **Flash** in tone dialling.

The basic module of the door phone always contains 2 pushbuttons and optionally the first expansion, 8 pushbutton C module. The combination of Fermax New Cityline panels enable the sets of door phone with **1 to 10 pushbuttons** just by using the basic electronics module of **Fermax PBX DP**. You can also expand the whole system by the 8 pushbutton expansion module **Fermax PBX EXP** up to the limit of **64 pushbuttons**. The basic module can be expanded by **Fermax PBX CAM**, a module with IP colour camera, optionally there can be an add-on speaker module with an amplifier **Fermax PBX EA**, which is used for very noisy areas. The Fermax New Cityline panels are rich with an add ons. For example the panels offer installations on the surface or flush mounted, they can be used both indoors and outdoors, there can be add-on roofing used, etc.

The door phone panel is powered from the analog line of the PBX. The features of the door phone are similar to a hands-free telephone. Among basic features you can find the possibility of opening up to two doors via connected electrical locks (first 10 pushbuttons can be used for code lock function – opening the door via a pre-set code). Easy programming via serial line or USB from the computer, alternatively via tone dialling of a telephone. If programming via tone dialling, you can either ether the programming mode by calling to the door phone panel and enter the 4-digit service password or by connecting of programming jumper on the main board of the door phone panel. The second type of programming is used usually when you forget the service password.

# Contents

# *1 Basic description*

## 1.1 Features

- Modular system with 1 to 64 pushbuttons
- Two 16-digit numbers stored on each pushbutton
- It can be connected to any PBX via analog line
- PBX DP door phone works on any analog line
- Compatible with all analog and hybrid types of PBXs
- Panel is made of highly weather resistant anodized aluminium
- Waterproof pushbuttons with impregnation IP66, gold plated contacts
- Pushbuttons are manufactured in zamak and a natural chromed finish
- Card slot lighting by means of low consumption, max. duration LEDs
- Card slot lighting can be switched off to be less attractive for vandals
- Flush or surface mounting
- 2 relays for two independent electrical locks
- Codelock feature by using pushbuttons
- Up to six codelock numerical passwords (2-6 digits)
- Programming via PC USB cable
- Remote control and programming via DTMF
- Optional DECT GAP BOX for wireless connection to DECT GAP base station
- Integrated heating of the electronic cuircuit board

## 1.2 Assembly of panels

The building blocks of Fermax IP DP are the basic panels which differ by its size, number of pushbuttons, if the visit card has got two or one pushbuttons.

### *1.2.1 Terminology and orientation in panels*

**4 AP 204** (item number) as a representative of terminology. It is a panel with height of 199mm. It contains an audio module and two times 4 pushbuttons, i.e. 8 pushbuttons in total.

**first digit**: **1 - 9** defines **the height** of the whole panel, the width of all panels is 130mm.

**1** - 128mm
**2** - 151mm
**3** - 175mm
**4** - 199mm
**5** - 246mm
**6** - 294mm
**7** - 341mm
**8** - 389mm
**9** - 436mm

**group of letters**: defines basic HW features of panel :

**A** - audio panel
**C** - audio panel with a camera
**P** – panel with pushbuttons
**V** – panel with a window
**W**- panel with two windows

**first digit after letters**: **1 / 2** – defines number of pushbuttons at visit card 1 (on the right) or 2 (on the left or right)

**next two digits**: **01 - 15** – number of visit cards. If multiplied by the previous digit, then we get a number of pushbuttons on the panel

By this marking one compact panel is defined. The panel can be expanded by other panels vertically or more optimally, in a horizontal direction. In case of horizontal expansion, then it is necessary to use the same height of panels (defined by the first digit of the item number).

### *1.2.2 Examples of panels*

Fermax PBX DP 1 AP 201

Fermax PBX DP 1 AP 101

Fermax PBX EA 1 A

Fermax PBX KEY 1

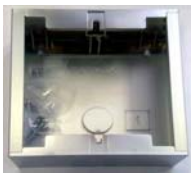
Fermax PBX DP 2 AP 202

Fermax PBX DP 2 AP 201

Fermax PBX EA 2 A

Fermax PBX CAM 2C

All panels can be mounted either on the surface or they can be flush mounted. In the latest catalogue of Fermax you can choose the correct New Cityline accessories incl. for example the protective roofing.



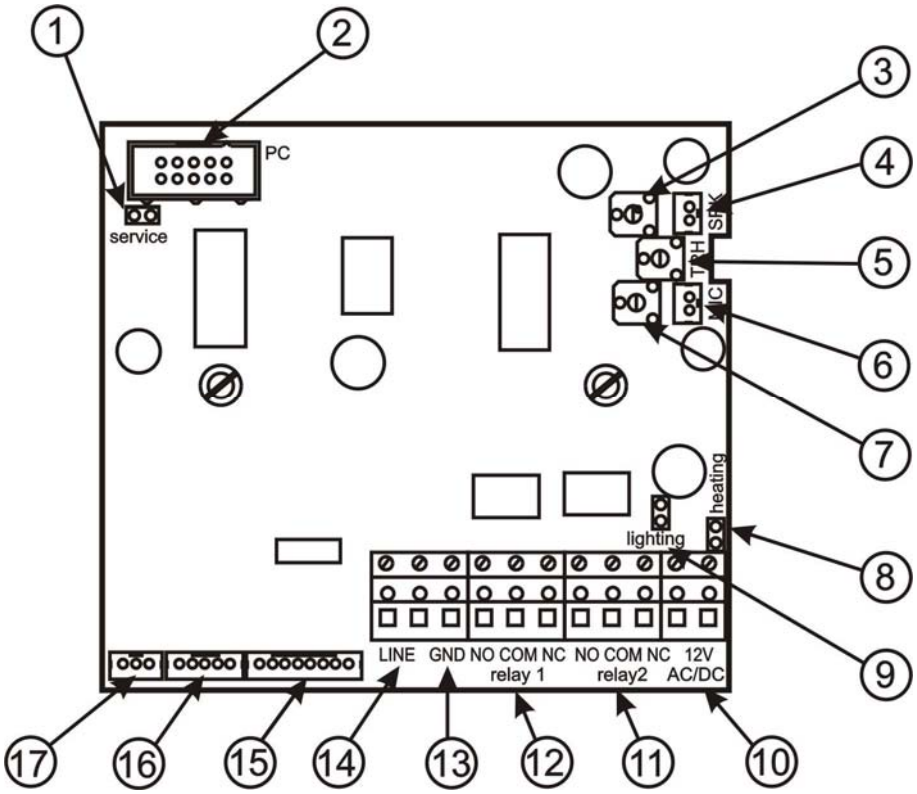
**Fermax PBX DP** panels can be equipped with an additional time switch called "**TimeRelay**". It is used for an expansion of the number of switches. It is programmable. Based on switching of one of the two switches in the Fermax IP DP panel, the TimeRelay can simulate e.g. sequent opening of the door or alternatively you can connect the exit button. You can also use an external DECT module called DistyBox. DistyBox can be registered to the base station operating in DECT GAP system. The DistyBox registers as another wireless phone.


Please do not use systems which do not support DTMF transmission during the call from the wireless DECT phone to the other wireless DECT phone (e.g. DTMF transmission is required when you need to use the DTMF command for opening the door). DistyBox has got its own power supply. it works as a DECT to analog line convertor. The door phone panel is connected to this analogue line.

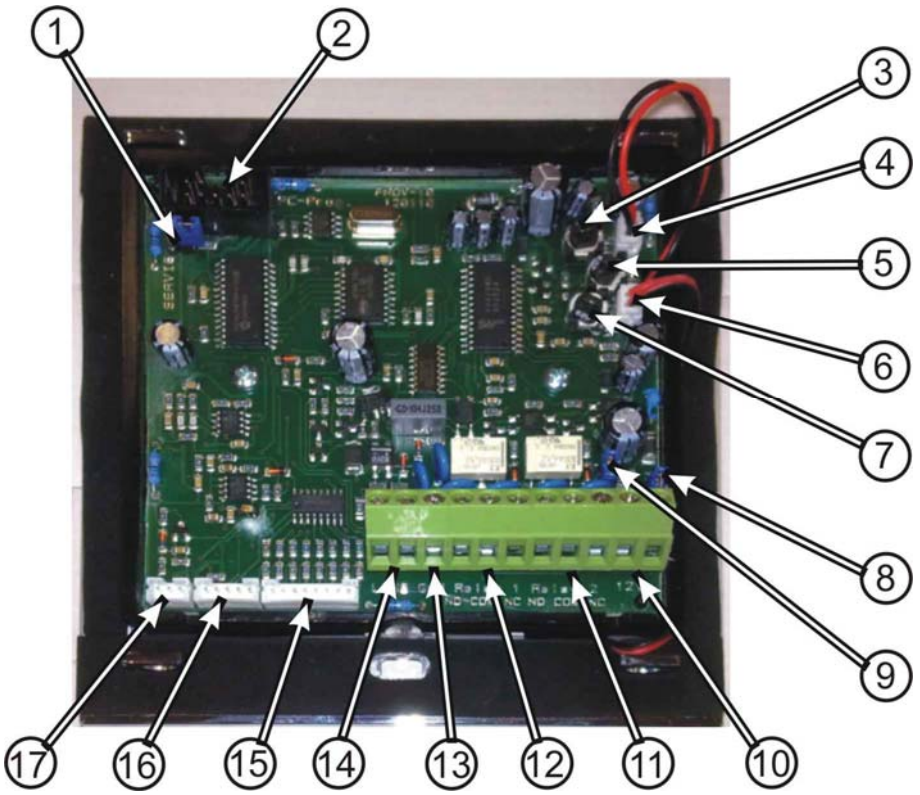
## 1.3 Characteristics of the modules

### *1.3.1 The basic module of electronics Fermax PBX DP*

The basic module of Fermax PBX DP panel is supplied in two versions – with two pushbuttons - Fermax PBX DP-2 (a version for 1 or 2 pushbuttons) and two pushbuttons with a possibility of expansion by additional 8 pushbuttons, i.e. each basic panel allows connection of up to 10 pushbuttons with no further accessories of Fermax PBX DP panel. The basic module can be further expanded by additional 8 pushbuttons via modules called Fermax PBX DP EXP and a keypad module called Fermax PBX KEY.




**Picture 1 Schematics of connection and set-up elements**




**Picture 2 The real image of connection and set-up elements**

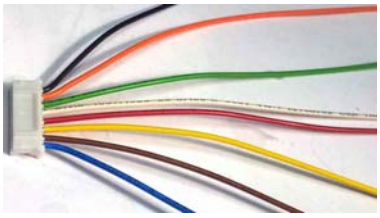
1. **Service jumper** is used usually in case when the user forgets the service password for entering into the programming mode. The standard way of entering into the programming mode is by calling the line where Fermax PBX DP is connected, the door phone answers the call and then you dial the service password #xxxx where xxxx is the password. In the default settings the service password is xxxx=0000. This way you can enter the programming mode. If the password is invalid, then you have the choice of using the service jumper. When you call the door phone, you are able to enter the programming mode directly and the forgotten password can be set to the new one again.
2. **PC conector** is used for connecting RS232 cable or USB cable to the PC. After installing Nset program, it is possible to program or check the settings of parameters of the program. Attention – if you use the programming cable and the PC connector is used (the black connector), the door phone is out of order – it can´t be used for normal operation.

3. Loudspeaker loudness **SPK** – you can set the desired loudspeaker loudness/volume with the trimmer. Attention – the louder the loudspeaker volume, the sharper the switching of echo cancellation (TRH settings). You can obtain approx. 25mW from the telephone line for the acoustic output of the Handsfree circuit, therefore further increasing of the loudness volume just leads to higher distortion. In case you need to increase the volume output, you can use an extrernal loudspeaker module with an amplifier Fermax PBX EA.
4. Connection of loudspeaker **SPK**
5. Settings of acoustic coupling **TRH** is used for balancing of direction on the telephone line (outgoing-incomming voice transmission). To avoid “hooting” of the door phone because of the acoustic coupling, the door phone chooses which direction (outgoing-incomming) has got the priority, if the priority will be given to the microphone direction or to the loudspeaker direction. The sound volume level of “swtching” the microphone direction of the door phone is set with the trimmer „**TRH**“. The settings of this trimmer is influenced by the level of surrounding noise and setting of microphone volume „**MIC**“ and loudspeaker volume **"SPK"**.
   Process of the set-up: please set the trimmers MIC and SPK to ¼ from the minimum sound volume (from the minimum value start turning to the left), the trimmer TRH needs to be set to the middle position. During the voice connection please speak softly and start turning the TRH trimmer to the left side until the other party on the phone side (inside the building) starts hearing you well. Increasing the volume of the loudspeaker or the microphone then can be set as required according to local conditions.
6. Please pay attention on the correct polority during the connection of a microphone **MIC**!
7. The loudness of microphone **MIC** is set by the trimmer. Please bear on mind that the louder the sound volume, the sharper the switching of echo cancellation (set-up of TRH).
8. Jumper **H**eat (marked as **H**) enables switching on/off the heating which is integrated on the main board for the door phone. The heating has got automatic regulation, therefore it works both at 12V or 24V power supply . The lower the temperature, the higher the output of the heating (max. 1,5W).
9. Jumper **L**ight (marked as **L**) enables switching on/off the illumination of visit cards.
10. Connection **12V** – the connector for connection of power supply, which is necessary just for the heating of the main board, for illumination of the visit cards or for controlling the coils of relay contacts. The coil of relay has got a consumption of 50mA, however the telephone line can supply e.g. 20mA only. Therefore the coils of relay are controlled from the external power supply of 12V by optrons (opto-isolators). If the power supply of 12V is not connected, then you can´t verify contacts making! The circuits inside the door phone have been designed for connection of 8V - 18VAC (alternating)

or for 12V - 24VDC (direct), max. cnsumption is 250mA (+ 3,5mA x number of visit cards).

11. Switching contact of **2nd relay** (NO=normally open, NC=normally closed and COM= common terminal of the relay)
12. Switching contact of **1st relay** (NO=normally open, NC=normally closed and COM= common terminal of the relay)
13. Grounding connector **GND** – it is used for antistatic protection, especially for installation at places with marble floor, or if the plastering with polystyrene is used, then there is quite often the static electricity available. By grounding the door phone panel you will avoid unneccessary problems, so we strongly suggest to use the grounding connector!
14. Connection of the telephone line

15. **Connector 8** - for connecting 8 pushbuttons (integrated expansion). For connection please use an interconnection cable **Fermax PBX CC8**. Each colour of the cable is assigned exactly for a specific pushbutton – see picture 3.



**Picture 3 Cable Fermax PBX CC8**

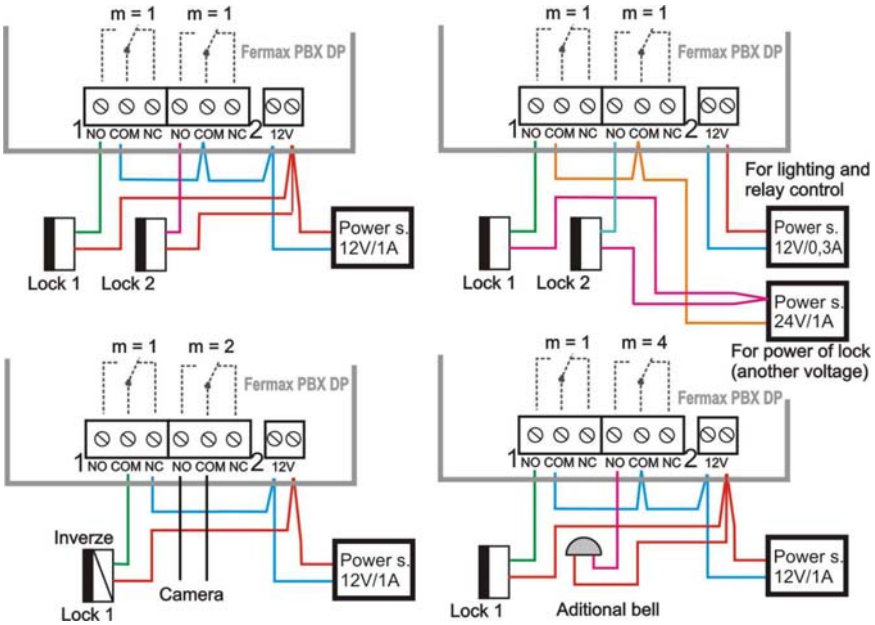
Connection of pushbuttons:

| | |
|---|---|
| blue | = 3rd pushbutton |
| brown | = 4th pushbutton |
| yellow | = 5th pushbutton |
| red | = 6th pushbutton |
| white | = 7th pushbutton |
| green | = 8th pushbutton |
| orange | = 9th pushbutton |
| black | = 10th pushbutton |

All numbers of pushbuttons are related to the setting of the door phone "6#0" (see more in the programming part of the manual). It means the basic panel with two pushbuttons is being used. These two pushbuttons are used pernamently on the main PCB board. In the table please deduct 1 from the number of the pushbuttons when set to 6#1 and please deduct 2 from the number of the pushbutton when set to 6#2.

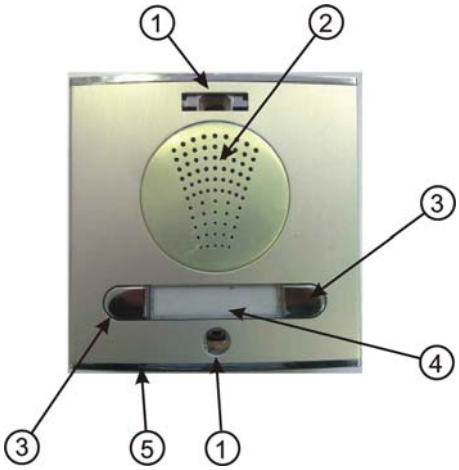
16. **Connector 5** – connection of the 8-pushbutton expansion **Fermax PBX EXP** or the keypad **Fermax PBX KEY**. The connection is done via **Fermax PBX CC5** cable. It is a data connection only. Power supply of illumination and the common output is on the **Connector 3.**
17. **Connector 3** - it is used for connection of the power supply and the common output of the pushbuttons. The original Fermax cable is used (Fermax PBX CC3).

### 1.3.2 Example of switches connection




The switching contact of relay is separated galvanically from other circuits of the door phone panel. Also 12V power supply is separated galvanically from the rest of the circuits.

### 1.3.3 Front panel




1. Assembly openings for mounting of the front panel. After installation of the top opening, please cover it with the plastic cover with Fermax logo. When bottom opening please cover with the grey, round plastic cover. Both covers incl. the screws are part of delivery as accessories.
2. Loudspeaker
3. Pushbuttons – these two pushbuttons are firmly attached on the main PCB board. In case of using a panel with no pushbuttons , these two pushbuttons are blocked by program (param. 6#0,6#1,6#2 – see more in programming part of the manual), other pushbutton numbers are moved.
4. Visit card. The exchange of visit card is described later on in the manual. The visit card is illuminated by white LEDs (they can be switched off). You

can also find a red LED under the visit card – it is used for signallisation of the door phone panel status.

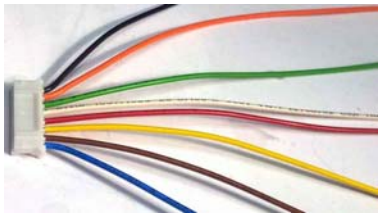
5. Microphone

### *1.3.4 Exchange of visit cards*

The visit cards are disassembled from the front of the door phone panel as shown on the picture. Please use a tool carefully, do not damage the front panel or the cover of visit cards. The cover of visit cards is a tub into which you place the paper with description (the visit card).

### *1.3.5 Expansion module Fermax PBX EXP*

The expansion module has got two connectors 5, one is used for connection towards the basic module (Fermax PBX DP) and the second one is used for connection of the following module. For interconnection please use cable **Fermax PBX CC5**. Besides connectors 5, you can also find on the expansion module the connector 8 for connection of the pushbuttons. For interconnection please use the cable **Fermax PBX CC8**. Each colour of the cable is assigned exactly to the specific pushbutton, see picture 4 for more details.

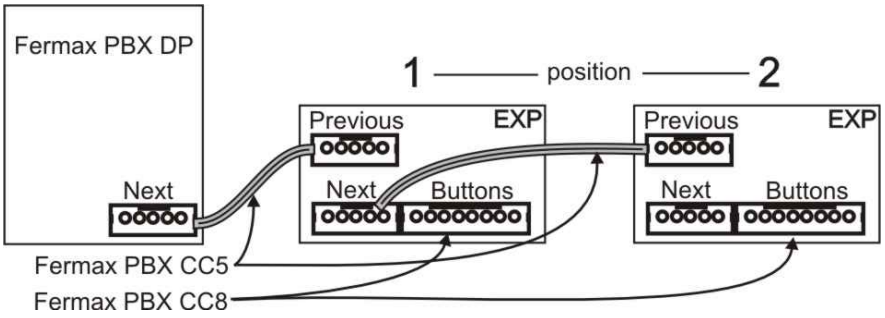


**Picture 4 Cable Fermax PBX CC8**

Connection of pushbuttons:

| Colour of wire | Position number on Fermax PBX EXP | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Blue | 11 | 19 | 27 | 35 | 43 | 51 | 59 |
| Brown | 12 | 20 | 28 | 36 | 44 | 52 | 60 |
| Yellow | 13 | 21 | 29 | 37 | 45 | 53 | 61 |
| Red | 14 | 22 | 30 | 38 | 46 | 54 | 62 |
| White | 15 | 23 | 31 | 39 | 47 | 55 | 63 |
| Green | 16 | 24 | 32 | 40 | 48 | 56 | 64 |
| Orange | 17 | 25 | 33 | 41 | 49 | 57 | |
| Black | 18 | 26 | 34 | 42 | 50 | 58 | |

The numbering of positions is shown on the picture 5. All numbers of pushbuttons refer to the settings of the door phone panel (see more in the programming section). All numbers are related to setting of the door phone "6#0" (see the programming part of the manual). It means the basic panel uses two firmly mounted pushbuttons on the main PCB board. In the table above one is deducted from the number of the pushbbuton when setting 6#1, two is deducted from the number of pushbutton when setting 6#2.




**Picture 5 Connection of expansion modules**

### *1.3.6 Keypad module Fermax PBX KEY*

The keypad module is connected via a cable Fermax PBX CC5 and a cable Fermax PBX CC3. The connection is similar to the connection of the expansion module. The difference is that the keypad module is always the last in the row (you cannot connect to the keypad module any other module). The keypad module can be only connected to the second position (i.e. directly to the basic module) or to the third position (to the output of the first Fermax PBX EXP module). **Attention – 1st position can´t be used because the first position is occupied by the fixed expansion on the basic module (pushbuttons 3-10).** This means that besides the keypad you can use 0 – 18 pushbuttons with the direct dialling (depends on the specific configuration).

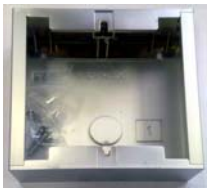
Please pay attention during programming – you need to specify correctly to which position the keypad is connected (parameter **48**).


Dialling is realised by a sequent pushing of number pushbuttons. When entering a password, you need to press the **B** pushbutton. To hang up, please press the pushbutton **A** and the door phone panel hangs up. By parameter **40** you can also enable dialling during the call.

### *1.3.7 Other modules (panels)*

All other panels can be found in the offer of your local partner.

## 1.4 Assembly of the door phone panel

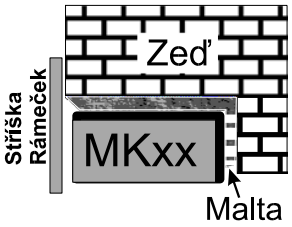


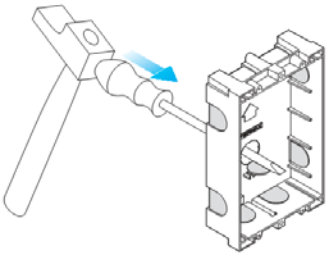
### *1.4.1 Surface mounting*

For surface mounting we offer a compact installation box. The installation box is mounted with screws with plugs to the wall. On the picture you can find an installation box, size 1.

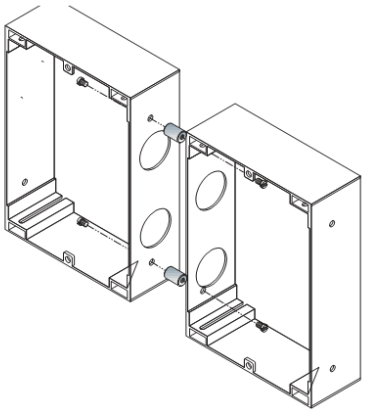
### *1.4.2 Flush mounting*


Flush mounted installation boxes are refered to as “MKxx” or simply “flush mount installation boxes”. When using the nearly square flush mount installation box MK1, please pay attention on the correct orientation of the mounting holes – they need to be on the vertical axis. The correctly mounted installation box is shown on the picture.

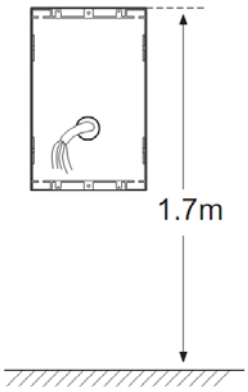


1. Preparing installation box
2. Principle of connecting installation boxes next to each other



3. Placing the installation box above the ground



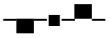
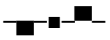
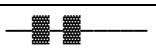
When installing the door phone panel in the environment where water may be condensing (temperature changes) or where it may be raining on the door phpje panel, we suggest to use the jumper on the main PCB board – turn on the heating.

**Main PCB board heating** has got two positive functions. Firstly it warms up the electronics during winter when temperatures drop below -20°C (most components have got guaranteed parameters for temperatures up to -20°C). Secondly if you use the heating of the main PCB board, there are **no water condensations** on the main PCB board in case the door phone panel is installed outdoors. If the heating is used, we can guarantee correct functionality. The heating protects the main PCB board against quick changes in temperatures or when there is a higher humidity of air.

# 2 Door Phone NUDV (Fermax PBX DP) Operation

## 2.1 Signaling Overview

The Door Phone NUDV (Fermax PBX DP) signals an acoustic conditions they may occur during operation. Another signaling can be done by means of red LED (placed under microphone hole). You can listen the signaling samples in Nset setting program.

| Condition | Tones | Tone frequency | LED |
|---|---|---|---|
| Line lifting up |  | 425-850-1275 | glows |
| Line hanging up |  | 1275-850-425 | goes out |
| Report after calling |  | 425-850-1275 | glows |
| Command confirmation from phone |  | 425 | |
| Dialing | DTMF/Pulse | | goes out |
| Call | | | glows |
| Notice about call end |  | 1275 | glows |
| Entry to programming from phone |  | 850 | glows |
| Programming from phone |  | mod. 850 | glows |
| Parameter confirmation |  | | glows |
| Entry to programming from PC |  | 850 | glows |
| Programming from PC | | | blinks |
| Connection to line (Reset) |  | 1275-850-1275 | blinks |
| Error (anything, if unsuitable) |  | 425…. | |
| Empty memory (no progr. numb.) |  | 850-1275-1700… | |

## 2.2 Visitor at Door

The Door Phone NUDV function is influenced partly by used guard assembly (with keyboard or without it) and partly by setting of guard parameters (see chapter “Parameter Overview”).

### *2.2.1 Guard without Keyboard*

The guard **buttons** are provided by nameplates or positions of persons inside the object. The incoming person will press the corresponding button, the

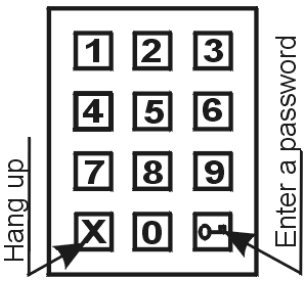
guard will lift up the line neither immediately (the button is not the first number from code lock), or with delay (*parameter 53)* and after period given by *parameter 55* will dial the programmed phone number. The dialing number differs by choice mode, which is set in the guard (*parameter 47*):

- **Day/night** mode = being the guard in Day mode, so it is always dialing a number set in *parameter 1*, in Night mode, it is always dialing a number set in *parameter 2*. The mode switchover is set in *parameters 45,46*.
- mode of second number group = first press – it always dials a number set in *parameter 1*. By repeated press of the same button or detection of busy tone after dialing the guard will select the number from the second group (*parameter 2*). The next press of the same button again selects a number of the first group, etc..……

If a visitor presses the button after guard lifting up, so the guard will hang up for a period given by *parameter 54,* lift up the line and dial a new number. The number choice is carried out both tone (DTMF), and pulse dialing according to *parameter 41* setting.

The switch (**code lock**) can be controlled by first 10 buttons of guard. If the visitor at door presses buttons in such combination that meet the preprogrammed code (*parameters 32-34*) and the time among presses is not bigger than the set point (*parameter 53*), then the guard will lift up and close the corresponding switch (if set in m=1 or m=5 modes) to the period given by *parameter 36 event. 38*. Then it will hang up.

### *2.2.2 Guard with Keyboard*




The guard with keyboard can also include besides the keyboard up to 18 buttons of direct dialing always behaving as to be mentioned in Chapter 2.2.1 except the code lock. This one is always situated on keyboard. After keyboard is connected, the position, where the keyboard is connected to, should be set (*parameter 48*).

The keyboard has two functional buttons – **key symbol** = once pressing the numerical combination is considered as the combination for control of the switches. The second button –**X symbol** = when pressing the guard immediately will hang up.

The number selection on keyboard can be executed in two ways (*parameter 49*):

- The incoming person is dialing number as to be done on phone – the period among button presses should be lower than the value given by *parameter 53*. After this period the guard will lift up and dial the given number.
- On buttons the incoming person is dialing a two-digit number (from 01 to 64), which represents the memory number, where the 16-digit

number is stored (same as for buttons). The number dialing is managed by Day/Night setting or mode for two groups of numbers (as described in Chapter 2.2.1).

- Version of firmware 7.8 makes it possible dial DTMF dialing during talk from keyboard. This feature it is possible switch on only by programming from phone, from PC program this feature isn't accessible and after programming door phone possibility dial from keyboard during talk is OFF. Parameter 40d - d=0 switch off (default), d=1-3 switch on dialling during talk,1= buton key dial *, 2=button key dial # and 3=button key dial “A”.

## 2.3 Person Inside Object

The person inside object is considered a person that is in phone contact with Door Phone NUDV.

### *2.3.1 Outgoing Call*

The outgoing call is the call from guard (caused by visitor). After guard choice the telephone is ringing inside object and the lifting up will allow speaking to the visitor at door. The code choice can close the switch (*parameter 35*), if set to m=1 or m=5 modes, change over the Day/Night modes (*parameters 45,46*) and hang up (*parameter 43*). The guard in 10 seconds before call end (*parameter 52*) will send a notice about call end and the call may be extended by sign selection (*parameter 42*). The telephone hanging up will end the call (the exchange is sending a busy tone on guard’s line and the guard also will hang up).

### *2.3.2 Incoming Call*

The incoming call is the call from guard (caused by person inside object). After exchange number selection, where the guard is connected, the guard’s line is ringing and when set number of rings is over (*parameter 51*), the guard will lift up and it is possible to speak. The possibilities are the same as with outgoing call (Chapter 2.3.1).

- Except the first 10 seconds, where extra "# and service password" (*parameter 44*) can be entered, the guard then will proceed with programming mode.
- The other exception of incoming call is by connected “SERVICE” jumper. The guard after line lifting up proceeds then with programming mode (without service password).

# 3 Programming of Parameters

## 3.1 Programming through Phone

### 3.1.1 Entry to Programming

The New Door Phone NUDV will be set to programming mode in two ways:

1. **by password** – only incoming call! – answer the telephone and dial a number, where the guard is lined *(either branch number, if connected to branch exchange or number of state line to object, where the guard is placed and let you put through to branch directly connected with guard)*. The guard will answer (you hear tone for answering – see Chapter 2.1 page 20) up to 10 sec dial **#xxxx**, where xxxx is the service number for entry to programming and if O.K., the registration tone to programming will sound and afterwards the programming tone is heard (see Chapter 20 page 20). *In basic setting is* ***xxxx = 0000***.
2. **by** "SERVICE" **jumper** – only incoming call! – you will realize the connection with guard in the same way as in art. 1, but when the SERVICE jumper is connected, then the guard after answering directly comes to programming mode – you hear tone for answering, registration tone to programming and afterwards the programming tone is heard. (see Chapter 2.1 page 20).

### 3.1.2 Programming of parameters

The initial state for programming is signaled by programming tone and the guard will come back to this state always after time expiration (5 seconds) even you started to program anything.

When programming two types of parameters will occur. Partly they are parameters with **fixed length –** the majority of them they are, then the programming is affirmed and the parameter is always recorded immediately after mandatory length fulfillment by acknowledge tone and partly the parameters **with variable length** (*parameter 1,2,32,33,34*), followed with **confirmation** and the recording of the parameter after inactivity period expires (5 sec). The only case with immediate recording of parameters is the fulfillment of max. number of recorded signs (numbers) – by parameters 1 and 2 it is 16, by parameters 32,33,34 it is 6.

If during programming you enter number (sign) not allowable by its extent then the guard immediately emits an **error tone**, the parameter will not be recorded nor changed, the guard will come to initial state and it is possible to repeat the parameter setting or program another parameter.

The guard stays inactive in programming mode for 34 seconds, then he will automatically hang up. By every dialing of DTMF tone this period is set up repeatedly. The selection of parameter 9 can also end the programming mode.

***Note 1***. *if you wish to keep the connection (extend the 34 seconds period) than the customer will think over the other setting, so pressing e.g.. 7, 0, * or # form time to time*

*will be sufficient and the guard immediately responds by error tone, but he will extend the period to hanging up..*

***Note 2.*** *The # sign is not used by entering of 32,33,34 parameters can be used for immediate parameter entering.*

## 3.2 Programming from PC – Program Nset

To guard's setup by means of personal computer (PC) the special KAB cable to serial port and Nset program should be available and the guard has to be connected to telephone line.

Procedure:

- Connect the NUDV to the line
- Line the guard with PC by KAB cable (if PC serial port absent, the USB-COM reduction is to be used). The guard will answer and LED light on the front panel will light.
- Run the Nset program – the guard will report the his conversion to PC programming mode (viz. chapter 2.1 page 20). After Nset program being run the guard is in this mode – this status is indicated by LED light on front panel by 1 second flashing. By loss of connection it is necessary to disconnect the cable from guard and connect it again – the guar will answer and if Nset program runs he will report his conversion to programming mode.

For details of setup refer to program help and on producer's pages www.alphatech.cz.

# 4 Description of Parameters

## 4.1 Direct Dialing – Memories

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **1** | **tt nn…** | No. nn under button tt | - |

**tt** – Button number (memory), always set in two-digit manner [01-64]

**nn** – telephone number up to 16 digits, we want to store. To store other choice flags the assignment given in table is used.

| mean. | choice |
|---|---|
| 0 - 9 | 0 - 9 |
| # | # |
| * | * * |
| Flash | * # |
| Pause | * 0 |

The numbers stored in parameter 1 are the number of the **first group** or numbers of **Day** mode.

Neither basic setting do not change or delete the stored numbers.

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **2** | **tt nn…** | No. **nn** under button **tt** | - |

**tt** – Button number (memory), always set in two-digit manner [01-64]

**nn** – telephone number up to 16 digits, we want to store. To store other choice flags the assignment given in table is used..

| mean. | choice |
|---|---|
| 0 - 9 | 0 - 9 |
| # | # |
| * | * * |
| Flash | * # |
| Pause | * 0 |

The numbers stored in parameter 2 are the number of the **second group** or numbers of **Night** mode.

Neither basic setting do not change or delete the stored numbers.

***Note:*** The switchover to Day/Night mode remains set in guard even after line disconnection.

List of related parameters: ***41 45 46 47 48 49 57 58 59 50 81 82***

## 4.2 Switches

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **31** | **r m** | switch **r** works in **m** mode | 11 21 |

**r** – switch number [1-2]

**m** – switch mode [for **r**=1 1-4 , for **r**=2 1-5]

**m=1** **switch** mode – it will close on command or password for **ss** period (used for electrical locks, gate opening etc.)

**m=2** **camera** mode – it will close by guard lifting up and open by hanging up.

**m=3** **lighting** mode – it will close by guard lifting up and stay closed even for **ss** period after guard hanging up (the line is engaged for this period).

**m=4** **switch** mode – it will close after button pressing and open after **ss** period (used for e.g. external bell or horn connections).

**m=5** **gradual opening** mode – in this mode the only switch 2 will be set together with switch 1 set to mode 1. The switch 1 is activated for **ss** period, then the time **xx** is proceeding before switch 2 closing. Then the switch 2 is activated for **ss** period and afterwards the guard hangs up.

***Note:*** *The only switch 1 can be activated from phone and all sequence started. Besides that the switch 2 can be separately activated from buttons by password.*

List of related parameters: ***32 33 34 35 36 37 38 8# 83***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **32** | **r hhhhhh** | passw. **hhhhhh** for switch **r** in **DAY + NIGHT** mode | - |
| **33** | **r hhhhhh** | passw. **hhhhhh** for switch **r** in **DAY** mode | - |
| **34** | **r hhhhhh** | passw. **hhhhhh** for switch **r** in **NIGHT** mode | - |

**r** – switch number [1-2]

**hhhhhh** – password for switch closing from buttons or keyboard [2 to 6 digits]

Total 6 passwords, they are controlled by Day/Night; the combination is entered either by guard buttons (first 10 buttons) or from attached keyboard (after pressing of key symbol). The switch closing influences the set switch **mode** and **Day/Night** switchover. By setting of choice mode of **2 number groups** the guard is permanently in **DAY** mode.

By password choice some rules have to be observed:

- Select passwords in way not to find its combination out from wear of certain buttons by frequent use.
- Select the first password button from frequentless button for direct dialing (-extends choice time)(-not valid for keyboard).
- Pay attention to congruity of password numbers when one password includes other one, e.g. switch 1 has 1234 and switch 2 has 12345. Then after pressing button 4 the only switch 1 is called, but password choice 234 for switch 2 can call both switches after pressing switch 4.

***Note:*** The switchover to Day/Night mode remains set in guard even after line disconnection.

List of related parameters: ***31 35 36 37 38 45 46 47 48 49 53 8# 83***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **35** | **r aa** | command **aa** from phone after **r** switch closing | 155 266 |

**r** – switch number [1-2]

**aa** – command from phone after switch closing [2 digits]

The same command can be set for both switches, then they are activated at the same time. The advantage is to set the same command both for switch closing and command to guard hanging up (*parameter 43*) **aa=bb**.
List of related parameters: ***31 36 37 38 43 8# 83***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **36** | **r ss** | **ss** period [sec] of **r** switch closing | 105 205 |

**r** – switch number [1-2]
**ss** – duration of switch closing [2 digits 01-99]
List of related parameters: ***31 32 33 34 35 37 38 8# 83***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **37** | **r p** | **r** switch control by incoming call | 11 21 |

**r** – switch number [1-2]
**p** – parameter, if **p=1** allowed or **p=0** prohibited to control the switch during incoming call.
To prohibit the control during incoming call is important e.g. when using switch 2 in mode 1 for control of garage gate opening, when the electronics opens the gate and the gate is closed by car passage. Then the control from phone could undesirably cause the permanent gate opening (not closed – no car passage).
List of related parameters: ***31 35 8# 83***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **38** | **xx** | **xx** period [sec] between switches 1 and 2 closing | 10 |

**xx** – time between close switches 1 and 2 by **m=5** mode setting (gradual opening) [2 digits 01-99]
List of related parameters: ***31 32 33 34 35 36 37 8# 83***

## 4.3 Basic Parameters

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **41** | **v** | choice type **v** – tone / pulse | 0 |

**v** – choice type **v=0** is DTMF tone choice, **v=1** is pulse choice
List of related parameters: ***1 2 8# 84***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **42** | **z** | sign for call extension | * |

**z** – sign for call extension * or **#** (10sec before call end the guard will send a notice, then the call may be extended)
List of related parameters: ***52 8# 84***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **43** | **g bb** | command for guard hanging up from phone | 155 266 |

**g** – command order [1-2] (two commands in order to hang up the guard using both switches)
**bb** – command for guard hanging up from phone [2 digits]
The advantage is to set the same command both for switch closing (*parameter 35*) and command to guard hanging up **aa=bb**.
List of related parameters: ***35 8# 84***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **44** | **xxxx** | service password | 0000 |

**xxxx** – service password for entry to programming
List of related parameters: ***8# 84***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **45** | **dd** | command for **DAY** switching | 11 |
| **46** | **nn** | command for **NIGHT** switching | 10 |

**dd** – command for **DAY** mode switching [2 digits]
**nn** – command for **NIGHT** mode switching [2 digits]
***Note:*** The switchover to Day/Night mode remains set in guard even after line disconnection.
List of related parameters: ***1 2 33 34 47 8# 84***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **47** | **e** | mode of guard choice | 1 |

**e** – mode of guard choice **e=0** selects numbers of the first and second groups, **e=1** selects number per **Day/Night** guard mode.
List of related parameters: ***1 2 8# 84***
***ATTENTION !!*** This parameter setting will sharply influence the dialing.

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **48** | **c** | keyboard connection | 0 |

**c** – **c=0** only NC-mode connected to the basic module
**c=1** the keyboard connected on the first position
**c=2** the keyboard connected on the second position
**c=3** the keyboard connected on the third position

***ATTENTION !!*** This parameter setting will sharply influence whole guard function.

List of related parameters: ***1 2 32 33 34 47 49 53 8# 84***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **49** | **o** | keyboard mode | 0 |

**o** – **o=0** dialing as on normal telephone (all number of called person should be pressed on keyboard).
**o=1** Only 2-digit memory number is entered on keyboard by which the number of called person is stored (memory number corresponds to button number with respect to Day/Night switchover).

***ATTENTION !!*** This parameter setting will sharply influence keyboard function.

List of related parameters: ***1 2 47 48 53 8# 84***

***This parameter is avalaible only in version firmware 7.8***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **40** | **d** | dialing DTMF from keyboard during talk | 0 |

**d** – **d=0** dialing DTMF from keyboard during talk is disabled
**d=1** dialing DTMF from keyboard during talk is enabled and key=*
**d=2** dialing DTMF from keyboard during talk is enabled and key=#
**d=3** dialing DTMF from keyboard during talk is enabled and key=A

## 4.4 Time Parameters

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **51** | **q** | number of rings before guard call lifting up | 2 |

**q** – Number of incoming call rings, the guard lifts up among rings namely 2 sec. after detection **q** – times rings. The number can be set from 1 to 9.

List of related parameters: ***44 8# 85***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **52** | **d** | max. call time | 2 |

**d** – max. time, for which the guard is hanging up, this time can be extended during call by sign choice from telephone (* or #). Time setting is per table.

| time [min] | choice |
|---|---|
| 0,5 | 0 |
| 1 - 9 | 1 - 9 |
| 15 | * |
| 30 | # |

List of related parameters: ***42 8# 85***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **53** | **w** | time among button presses | 2 |

**w** – max. time [sec] among button presses [range 1-9]

- ***normal buttons***
  - **switch closing** – if time between two next presses is bigger than **w** time, the code is not evaluated correctly.
  - **dialing** – if the button, we are pressing, is the first password number for switch closing, so the choice is delayed by this **w** time**.**
- ***keyboard***
  - **switch closing** – if time between two next presses is bigger than **w** time, the code is not evaluated correctly.
  - **dialing**
    - dialing the same as of phone, if time after the last pressed button is bigger than **w** time, then the dialing starts. If the number is incomplete, it is necessary to hang up (**X** button) and the dialing will be repeated.
    - dialing from memory, if time following the first pressed button is longer than **w** time, then the entry of memory number has to be repeated.

List of related parameters: ***1 2 32 33 34 47 48 49 8# 85***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **54** | **z** | time of hanging up when dialing repeated | 2 |

**z** – time [sec] for which the guard will hang up, before repeated dialing (button pressing during call or dialing, busy tone detection) [range 1-5]

List of related parameters: ***8# 85***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **55** | **z** | time before dialing | 1 |

**z** – time [sec] after guard lifting up before dialing [range 1-5]. This time is different for each exchange, but most central exchanges usually manage to process dialing up to 2 seconds after line lifting up.

List of related parameters: ***8# 85***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **56** | **hh** | number of rings before hanging up | 12 |

**h** – after finishing the dialing it calculates number of KVT (ringing tones). If the number exceeds **h** value, it will hang up [range 04-99]. The dialing is repeated in case, when the dialing mode of 2 groups is set.

List of related parameters: ***47 8# 85***

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **57** | **t** | DTMF tone duration (tone) choice | 5 (100ms) |
| **58** | **m** | gap duration among DTMF tones | 5 (100ms) |
| **59** | **f** | Flash duration | 1 (100ms) |
| **50** | **p** | pause duration / interdigit gap | 8 (800ms) |

**t** – DTMF tone duration is determined per formula:
***(entered number + 5) x 10 = tone duration*** [ms]
[range 1-0 i.e. 60-150ms]

**m** – gap duration among DTMF tones is determined per formula:
***(entered number + 5) x 10 = gap duration*** [ms]
[range 1-0 i.e. 60-150ms]

**f** – Flash duration is determined per formula:
***entered number x 100 = Flash duration*** [ms]
[range 1-6 i.e. 100-600ms]

**p** – pause duration is determined per formula:
***entered number x 100 = pause duration*** [ms]
[range 5-0 i.e. 500-1000ms]

– **p** time is simultaneously the duration of interdigit gap at pulse dialing.

List of related parameters: ***1 2 41 8# 85***

## 4.5 Presetting and Deleting

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **8#** | # | basic setting | executes |

This setting does not influence **1** and **2** (numbers stored in memory)

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **81** | | deletes all numbers in group 1 (Day mode) | |
| **82** | | deletes all numbers in group 2 (Night mode) | |
| **83** | | basic setting only for parameters 3x | only 3.. |
| **84** | | basic setting only for parameters 4x | only 4.. |
| **85** | | basic setting only for parameters 5x | only 5.. |

The parameters 81 and 82 will execute deleting of all numbers stored in memories for buttons.
The parameters 83 – 85 will execute a selective basic setting only for parameters starting with 3.. – 5..
***ATTENTION !!!*** the deleting is non-reversible !!!, It is then necessary to program it again.

## 4.6 Programming Termination

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **9** | | E N D of programming | |

After dialing **9** to programming tone the guard will hang up.

## 4.7 System Setting

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **6#** | **s** | number of non-fitted buttons of basic module | |

The basic module is fitted with 2 buttons as standard, i.e. s = 0, s = 1 is set up for basic module with one button and s = 2 for module without buttons. This setting is a factory one, no service can change it and so it is recommended not to change this parameter.

*Note: Connecting. to the line the value of this parameter is checked and if not satisfactory form unknown reasons, so it is set up to s = 0 (fitted with 2 buttons).*

**Atention !!! This parameter does not basically affect the correct function of guard.**

| Parametr | Value | Description | Basic |
|---|---|---|---|
| **6** | **z** | Switching off acoustic signalization | **3** |

In default is status of Door phone signalling acoustically. It can cause a problem of incorrect detection of tones by PBX. By parametr „**z"** you can switch off this acoustic signalization. The values are

z=0 – all signalling is switched off
z=1 – pick up and hang up tones are active only
z=2 – other tones active only (except pick up and hang up)
z=3 – all tones are active **– default**

| Parametr | Value | Description | Basic |
|---|---|---|---|
| **6*** | **t** | Delay of line connection ( Siemens PBX) | **1** |

The delay of line picks up ( OFF HOOK) for new PBX types (particularly Siemens) is:

t=1 – standard operation
t=0 – delayed start

## 4.8 Overview of Parameters

| Parameter | Value | Meaning | Basic |
|---|---|---|---|
| **1** | **tt nn…** | No. nn under button tt | - |
| **2** | **tt nn…** | No. **nn** under button **tt** | - |
| **31** | **r m** | switch **r** works in **m** mode | 11 21 |
| **32** | **r hhhhhh** | pasw. **hhhhhh** for **r** switch in **DAY + NIGHT** mode | - |
| **33** | **r hhhhhh** | pasw. **hhhhhh** for **r** in **DAY** mode | - |
| **34** | **r hhhhhh** | pasw. **hhhhhh** for **r** in **NIGHT** mode | - |
| **35** | **r aa** | command **aa** from phone after **r** switch closing | 155 266 |
| **36** | **r ss** | **ss** period [sec] of **r** switch closing | 105 205 |
| **37** | **r p** | **r** switch control by incoming call | 11 21 |
| **38** | **xx** | **xx** period [sec] between switches 1 and 2 closing | 10 |
| **41** | **v** | choice type **v** – tone / pulse | 0 |
| **42** | **z** | sign for call extension | * |
| **43** | **g bb** | command for guard hanging up from phone | 155 266 |
| **44** | **xxxx** | service password | 0000 |
| **45** | **dd** | command for **DAY** switching | 11 |
| **46** | **nn** | command for **NIGHT** switching | 10 |
| **47** | **e** | mode of guard choice | 1 |
| **48** | **c** | keyboard connection | 0 |
| **49** | **o** | keyboard mode | 0 |
| **40** | **d** | dialing during talk | 0 |
| **51** | **q** | number of rings before guard call lifting up | 2 |
| **52** | **d** | maximum call time | 2 |
| **53** | **w** | time among button presses | 2 |
| **54** | **z** | time of hanging up when dialing repeated | 2 |
| **55** | **z** | time before dialing | 1 |
| **56** | **hh** | number of rings before hanging up | 12 |

| | | | |
|---|---|---|---|
| **57** | **t** | DTMF tone duration (tone) choice | 5 (100ms) |
| **58** | **m** | gap duration among DTMF tones | 5 (100ms) |
| **59** | **f** | Flash duration | 1 (100ms) |
| **50** | **p** | pause duration / interdigit gap | 8 (800ms) |
| **8#** | # | basic setting | executes |
| **81** | | deletes all numbers in group 1 (Day mode) | |
| **82** | | deletes all numbers in group 2 (Night mode) | |
| **83** | | basic setting only for parameters 3x | only 3.. |
| **84** | | basic setting only for parameters 4x | only 4.. |
| **85** | | basic setting only for parameters 5x | only 5.. |
| **9** | | E N D | |

## 4.9 List of Presetting Parameters

| parameter | basic presettings |
|---|---|
| switch 1 mode | lock m=1 |
| switch 2 mode | lock m=1 |
| passw.Day+Night switch 1 | not |
| passw. Day+Night switch 2 | not |
| passw.Day switch 1 | not |
| passw.Day switch 2 | not |
| passw. Night switch 1 | not |
| passw. Night switch 2 | not |
| switch 1 activ. from phone | 55 |
| switch 2 activ. from phone | 66 |
| closing time of switch 1 and 2 | 5 sec |
| con. by incoming call | allowed |
| delay among ap. during oper. | 10 sec |
| choice | DTMF |
| sign of call extension | * |
| hanging up from phone 1 / 2 | 55 / 66 |
| service password | 0000 |
| switching to day mode | 11 |
| switching to night mode | 10 |
| guard choice mode | Day/Night |
| keyboard connection | no |
| keyboard mode | dialing |
| number of rings of incoming call | 2 |
| max. call time | 2 min |
| time among button presses | 2 sec |
| time of hanging up when dialing repeated | 2 sec |
| time before dialing | 1 sec |
| number of rings before hanging up | 12 |
| DTMF tone duration (tone) choice | 100ms |
| gap duration among DTMF tones | 100ms |
| Flash duration | 100ms |
| pause duration / interdigit gap | 800ms |

***Note:*** The minimum default setting can be customized by expected purchase of min. 10pcs of NUDV.

# *5 Technical Parameters*

## 5.1 Electrical Parameters

| Parameter | Value | Conditions |
|---|---|---|
| Minimum line current | 18mA | line answered |
| Minimum line voltage | 18V | line hang up |
| Voltage on line while guard answers (VA characteristics) | < 8V<br>< 12V | I = 20mA<br>I = 60 mA |
| Leakage in hang up status | < 50uA | U = 60V |
| Impedance of line termination | 130R +<br>820R paral. 220n | line answered |
| Band width | 300Hz – 3400 Hz | 20 - 60mA |
| Impedance of ringing | > 2Kohm | 25 – 60 Hz |
| Sensitivity of ringing detector | min. 10 – 25 V | |
| Pulse choice | 40 / 60 ms | |
| Tone choice level | 4 a 6 dB | 20 – 60 mA |
| Tone choice sensitivity | 40 dB | 20 – 60 mA |
| Sensitivity of tone detector | 30 dB | 20 – 60 mA |
| Power supply of lighting through, switches and heating | 12Vss ± 2V , 10-12Vst ± 2V | |
| Max. consumption of lighting through and heating | 300mA | 12Vss |
| Max. voltage of switch contact | 48V | at I < 1A |
| Max. current of switch contact | 2A | at U < 30 V |
| Operational temperature | - 20 to + 50°C | |

## 5.2 Mechanical dimensions

# 6 Table for Easy Programming

Complete the values in empty part of table you want to program. In double-frame part there are whole programming commands, so the programming is very simple and without errors. Furthermore such programmed values will be available for next changes in manual.

| Meaning | | Programming sequence | | num. of point |
|---|---|---|---|---|
| **Description** | **Spec.** | **par.** | **Complete your values** | |
| Number under button **1** | Day/1gr. | **101** | | 16 |
| Number under button **2** | Day/1gr. | **102** | | 16 |
| Number under button **3** | Day/1gr. | **103** | | 16 |
| Number under button **4** | Day/1gr. | **104** | | 16 |
| Number under button **5** | Day/1gr. | **105** | | 16 |
| Number under button **6** | Day/1gr. | **106** | | 16 |
| Number under button **7** | Day/1gr. | **107** | | 16 |
| Number under button **8** | Day/1gr. | **108** | | 16 |
| Number under button **9** | Day/1gr. | **109** | | 16 |
| Number under button **10** | Day/1gr. | **110** | | 16 |
| Number under button **11** | Day/1gr. | **111** | | 16 |
| Number under button **12** | Day/1gr. | **112** | | 16 |
| Number under button **1** | Night/2gr. | **201** | | 16 |
| Number under button **2** | Night/2gr. | **202** | | 16 |
| Number under button **3** | Night/2gr. | **203** | | 16 |
| Number under button **4** | Night/2gr. | **204** | | 16 |
| Number under button **5** | Night/2gr. | **205** | | 16 |
| Number under button **6** | Night/2gr. | **206** | | 16 |
| Number under button **7** | Night/2gr. | **207** | | 16 |
| Number under button **8** | Night/2gr. | **208** | | 16 |
| Number under button **9** | Night/2gr. | **209** | | 16 |
| Number under button **10** | Night/2gr. | **210** | | 16 |
| Number under button **11** | Night/2gr. | **211** | | 16 |
| Number under button **12** | Night/2gr. | **212** | | 16 |
| Switch **1** works in mode | m=1 - 4 | **311** | | 1 |
| Switch **2** works in mode | m=1 - 5 | **312** | | 1 |

| | | | | |
|---|---|---|---|---|
| Password for switch **1** | Day+Night | **321** | | 6 |
| Password for switch **2** | Day+Night | **322** | | 6 |
| Password for switch **1** | Day | **331** | | 6 |
| Password for switch **2** | Day | **332** | | 6 |
| Password for switch **1** | Night | **341** | | 6 |
| Password for switch **2** | Night | **342** | | 6 |
| Clos. of switch **1** fr. phone | | **351** | | 2 |
| Clos. of switch **2** fr. phone | | **352** | | 2 |
| Closing time of switch **1** | [sec] | **361** | | 2 |
| Closing time of switch **2** | [sec] | **362** | | 2 |
| Sw. cont.**1** by incoming call | 1 / 0 | **371** | | 1 |
| Sw. cont.**2** by incoming call | 1 / 0 | **372** | | 1 |
| Time between 1 and 2 switch closing | [sec] | **38** | | 2 |
| Tone/pulse tone choice | 1 / 0 | **41** | | 1 |
| Sign of call extension | * / # | **42** | | 1 |
| Guard hang. up from phone | 1. | **431** | | 2 |
| Guard hang. up from phone | 2. | **432** | | 2 |
| Service password | | **44** | | 4 |
| Comm. to **DAY** switching | | **45** | | 2 |
| Comm. to **NIGHT** switching | | **46** | | 2 |
| Guard choice mode | 1 / 0 | **47** | | 1 |
| Keyboard connection | 0/1/2/3 | **48** | | 1 |
| Keyboard mode | 1 / 0 | **49** | | 1 |
| DTMF during talk | 0/1/2/3 | **40** | | 1 |
| Number of rings for ringing | | **51** | | 1 |
| Maximum call duration | [min] | **52** | | 1 |
| Time among button press. | [sec] | **53** | | 1 |
| Hang. up time when dialing repeated | [sec] | **54** | | 2 |
| Time before dialing start | [sec] | **55** | | 1 |
| Num. of rings bef. hang. up | | **56** | | 2 |
| Duration of dialing tone | (n+5)x10 | **57** | ms | 1 |
| Gap among DTMF tones | (n+5)x10 | **58** | ms | 1 |
| Flash duration | nx100 | **59** | ms | 1 |

| | | | | |
|---|---|---|---|---|
| Pause durat. / interdigit gap | nx100 | **50** | ms | 1 |

**Guarantee conditions:**

The product was shop-checked. The producer guarantees that this product will keep the features described in these operating instructions in the course of guarantee provided that the user will be handled with it as described in the operating manual. The guarantee will be extended by period of possible guarantee repair.

When claiming in guarantee period please contact your dealer. The producer only will make the guarantee repairs. Attach the description of claim reason, proof of purchase and your exact address to the product.

**The guarantee does not include:**

- mechanical, thermal, chemical and other damages caused by user's activities
- defects caused by natural disasters
- defects caused by repair or changes carried out by user or other unauthorized person
- willful damage of product
- incorrect use of product caused by other use than specified in operating manual (e.g. installation, programming)
- damages caused during product transport to customer and from supplier

| |
|---|
| Producer: |
| Dealer: |
| Date of sale: |