2N
TELECOMMUNICATIONS

2N® Floor Annunciator

User Manual

The 2N TELEKOMUNIKACE a.s. joint-stock company is a Czech manufacturer and supplier of telecommunications equipment.

The product family developed by 2N TELEKOMUNIKACE a.s. includes intercoms, GSM and UMTS products, private branch exchanges (PBXs) and M2M solution.
2N TELEKOMUNIKACE a.s. has been ranked among the Czech top companies for years and represents a symbol of prosperity in the field of IP intercoms. Furthermore, the company dedicates significant attention to operator solutions as well as to effectively providing support for our distribution network and customer service. At present, we export our products into over 120 countries worldwide and have exclusive distributors on all continents.

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2N TELEKOMUNIKACE administers the FAQ database to help you quickly find information and to answer your questions about 2N products and services. On faq.2n.cz you can find information regarding products adjustment and instructions for optimum use and procedures „What to do if...".

Declaration of Conformity
2N TELEKOMUNIKACE a.s. hereby declares that the 2N® Floor Annunciator product complies with all basic requirements and other relevant provisions of the 1999/5/EC directive. For the full wording of the Declaration of Conformity see the CD-ROM enclosed and at www.2n.cz.

2N TELEKOMUNIKACE company is the owner of the ISO 9001:2008 certificate. All development, production and distribution processes of the company are managed by this standard and guarantee high quality, technical level and professional aspect of all our products.

CONTENTS

The history of the product

Version	Description of changes

2.0	• The manual was updated for new issue - PCB No. 033
	• Compared with the first issue (PCB No. 032) it has these benefits:
	   o Better FLASH memory usage - ADPCM compressing algorithm and recurrent parts of messages stored only once.
	   o Better voice quality - bigger bandwidth
	   o Serial interface to PC - allowing easy configuration, loading messages from PC and firmware upgrade.
	   o Changed function of configuration DIL-switch

2.5	• A new set of messages - English + German up to floor 24
2.6	• FLASH memory extended from 512 kB to 2 MB • Set of messages extended to floor 24
3.5	• New firmware – version 3.5 • New version of configuration SW for PC, many new functions • New „Serial multiple-byte interface" and „parallel 8-bit interface" • Extended configuration library on CD, more messages

1. Introduction

Dear customer, thank you for purchasing our product. We hope you will use 2N® Floor Annunciator *with long lasting benefits. As it is completely new design, and we are continuously improving is functionality, each your comment or suggestion is welcomed.*

Intention of the product

2N® Floor Annunciator is usually situated in a lift cabin, usually called "car". Its job is to report a floor number, when lift car stops. Optionally, some other information may be reported, e.g. run direction, opening and closing of the door, car overload, or any other message required by a customer. In some countries, this voice announcement may be mandatory, according to law or the other regulations. **2N® Floor Annunciator** is primarily necessary for sightless, but also useful for other lift users; sometimes its hard to watch a display, when the car is full. It is useful also for some owners; as it can cheer visitors, play up some advertisement etc.

2. Technical description

Messages

- Digitally stored human voice, ADPCM compression, 14.5 kHz .
- Messages are stored in FLASH memory (can be reprogrammed),
- Basic set of messages – English, German, see appendix for whole list.
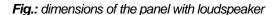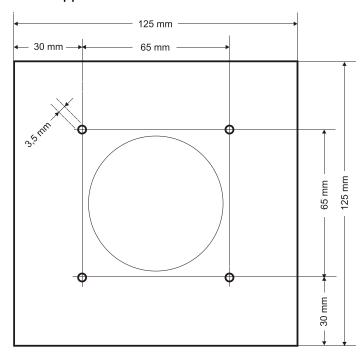- More languages, another messages etc. on request.

Interface

- Both serial and parallel interfaces, sufficiency of inputs (15), EMC protection.
- We are continuously adding new interface versions according to customer's requests.
- All finished interface versions are described in appendix and available for all customers.

Mechanics

Equipment consists from two parts – a panel with loudspeaker and electronics. The electronics as a printed circuit board with components, terminals etc., covered by bottom cover and top cover. Next we will describe mostly the printed circuit board.

Note: In case of bigger orders, manufacturer is ready to change mechanics by customer's needs (e.g. dimensions of the panel with loudspeaker, delivery without the loudspeaker, etc).

Fig.: *dimensions of the panel with loudspeaker*

Power supply

D.C. power, recommended voltage 12 V DC to 24 V DC, current consumption ca. 250 mA, see technical parameters for details. Voltage doesn't need to be stabilized (It must not fall bellow 9 V only); and there are no hard requirements for power resistance. Current consumption depends on loudspeaker impedance and loudness. We presume, that D.C. power supply is available in a control unit of the lift, and we aren't offering any power supply unit.

Loudspeaker

Use of enclosed loudspeaker is not mandatory. It isn't allowed to use loudspeakers with impedance less than 16 Ω. It is not recommended to use too small loudspeakers (diameter 50 mm or less) and loudspeakers with maximal power less than 0,5 W. See chapter "Loudspeaker installation" for details.

Volume adjustment

Volume can be adjusted by trimming potentiometer; adjustment has a logarithmic law to cover a big range of volume *). Second trimming potentiometer can adjust treble (high frequencies can be amplified or suppressed). In the middle, a frequency characteristic is flat. This may be useful in the case if used loudspeaker frequency characteristic isn't good enough - it may be caused also by its mounting, car acoustics etc.).

*) Range is 40 dB; it means that output power can be adjusted in range 1 :10000. 40 dB is not volume in the cabin! It depends loudspeaker efficiency, cabin volume etc.

Configuration DIL-switch

Some settings may be done by DIL-switch. It has eight sections with numbers 1 to 8 from the left to the right. They have these functions:

Section 1 to 3	Lowest floor selection (offset)
Section 4	On/off switch for some messages
Section 5 to 7	Interface version – see appendix
Section 8	Diagnostic mode

Lowest floor selection

Section			Message
1	2	3	
On	**On**	**On**	**Subfloor three *)**
Off	On	On	Subfloor two
On	Off	On	Subfloor
Off	Off	On	Ground

Section			Message
1	2	3	
On	On	Off	First floor
Off	On	Off	Second floor
On	Off	Off	Third floor
Off	Off	Off	Fourth floor

*) **ATTENTION!** *Some configurations are not coded in ascending order; therefore these switches must stay in position* **On, On, On***!*

ON and OFF position is marked on the DIL-switch. Section 1 to 3 works the same as in previous issue.

Selection of the Language and other messages

Section 4	Switching on/off messages about opening / closing and up / down
Section 5	English
Section 6	German
Section 7	French

ATTENTION! Function of these sections may be **different**, according to used configuration!

If there are more languages **ON**, messages are played in order, which is defined by configuration. Configuration SW also has function "Change language order".

Example:
Instead of German, messages "garages", "supermarket" etc. may be recorded. Section 7 will then switch on / off these new messages. When both sections 6 and 7 will be of, messages will be played this way: "Subfloor. Garages."

Section 4 can be used (also after reconfiguration) for switching on / off some commercials. Also functionality of sections 5 - 7 can be changed.

Note: Switching all languages off together is useless in normal operation, but it is a part of interface change procedure.

Diagnostic mode

Section 8	Function
Off	Normal function
On	Diagnostics (10 minutes time-out)

Diagnostic mode is used for announcer checkup, setting volume and treble, and it allows checking correct position of sections 1 to 3 (offset) and 5 to 7 (language). In this mode, announcer repeats a massage of the lowest floor (according to selected offset) in all selected languages). By switching section 8 to Off (or after 10-minutes time-out), announcer returns to normal operation.

Interface change procedure

Interface change (list of all available interfaces see appendix) as usually practiced only once, during installation. Therefore the method if more complex, bit it saves all DIL-switch sections for more useful functions. Method of interface change is following:

1. Switch the announcer off (disconnect the power supply).
2. Set requested interface by sections 1 to 4 (see table in the appendix)
3. Set sections 5 to 8 to position **OFF**.
4. Switch the announcer on (connect the power supply).

5. Switch sections 5 to 8 to position **ON**, at latest 5 second after switching power on. Then switch sections 5 to 8 back to **OFF** position, at latest 5 second after switching them on.
6. You will hear a short beep; it is a confirmation, that interface was changed.
7. Requested interface is now stored in FLASH memory; switching power off will not erase it.
8. All DIL-switch sections are now in normal function. Switch them for requested offset and language.

NOTE: *Another way is to connect* 2N® Floor Annunciator *to PC and program it by configuration SW.*

Description of terminals

Door is closing	1
Door is opening	2
Emergency msg.	3
Car overloaded	4
Terminals for	5
the loudspeaker	6
+ Power supply	7
- Power (ground)	8
Serial input	9
Universal output	10

20	D5	Terminals for parallel code of floor
19	D4	
18	D3	
17	D2	
16	D1	
15	D0	
14	Start (floor message)	
13	Car is running up 1)	
12	Car is running down 2)	
11	*Universal input*	

DIL-switch

Notes:
1) **D6** *when 8-bit parallel configuration is selected*
2) **D7** *when 8-bit parallel configuration is selected*
- *Typical function of each terminal is suggested by its name, but its exact function depends on firmware and selected version of interface – see appendix. Each version of interface can use some terminals, more or less by customers need. Unused terminals may be omitted.*
- *Function of jumpers JP1 and JP2 is described in chapter "configuring and upgrade".*

3. Installation

3.1. Loudspeaker mounting

Usage of enclosed loudspeaker is not mandatory, but it isn't allowed to use loudspeakers with impedance less than 16 Ω. It is not recommended to use too small loudspeakers (diameter 50 mm or less) and loudspeakers with maximal power less than 0,5 W. Sometimes there is a loudspeaker in the car, which was dedicated for electronic gong. It can be used, if fulfills requirements above. It may save a mounting time.

How to mount loudspeaker correctly

- Loudspeaker front side has to head directly into car, through protecting grid only.
- Protecting grid must be fixed well to prevent rattling. Check it at higher volume, and if rattling, use some suitable damping material.
- If sound is transported from the loudspeaker to the car through some hollow, the loudspeaker is well protected against vandals, but voice quality is always poor.
- The best location is on the car roof or on the wall as high as possible.
- Loudspeaker back side has to head into some closed space (loudspeaker box). Its shape and volume is not very important, e.g. 0,5 dm^3 is enough. It is good if it is partly filled with some damping material – e.g. glass wool. This will make frequency characteristic smoother.
- Loudspeaker back side can also head into empty space (lift shaft). Sound quality will be very good, but if car is soundproof, voice from the shaft will leak through loudspeaker into the car. Loudspeaker can be also damaged by big air pressure difference between car and shaft.
- Prevent so-called acoustic short circuit. It is a situation, if there is a free, short path for voice between loudspeaker front and back side. Typically, if loudspeaker is mounted on grid, which has holes on too big area, i.e. also around loudspeaker. In this case, it is necessary to caulk all holes around; otherwise volume will be far less, especially on low frequencies.

3.2. Mounting of the electronics

The electronics is usually mounted in the car (i.e. closed to loudspeaker), but it is not mandatory. If located in machine room, and the loudspeaker in the car, loudspeaker wires will be long and closed to another power lines in the cable. In this case, there is some risk, because an audio amplifier output is not protected against overvoltage. Also some parasitic signals may penetrate into loudspeaker.

Keep required operating position – i.e. printed circuit board must be vertically, fuse and trimming potentiometers upstairs, DIL-switch downstairs. It must be a free space above and bellow the board, to allow free airflow. Fix all wires around to prevent any contact between them and the board, especially a power regulator on the top of board, because it may be hot and it may melt insulation on these wires.

The heat loss on the board depends on the loudspeaker impedance, adjusted volume, intensity of usage and power supply voltage. E.g. in case of 12V power supply and 25 Ω loudspeaker, board can be mounted in any position. But if powered by 24V, required operating position is mandatory!

The best and fastest mounting method is to use double-side adhesive tape. Glue bottom cover to a flat, clean surface.

3.3. Electric installation

Choose an interface version (see appendix) and see, which terminals will be used. If there are some wires alive during installation, connect all terminals in this sequence:
1. Ground (negative pole of power supply)
2. All used inputs
3. Loudspeaker
4. Power supply (positive pole)

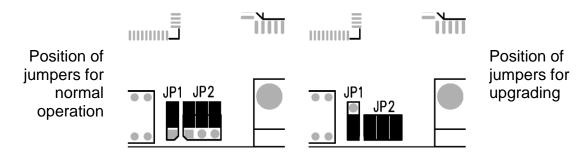## *3.4.* Setting up

1. Set DIL-switch as needed
2. Set volume and treble to the middle
3. Switch power on (or connect alive power supply to its terminal)
4. Check the function
5. Set volume, treble

3.5. Configuring and upgrade

Configuring software is delivered separately. It enables to set up announcer for special cases, such as buildings with mezzanines, or record custom messages. Some more messages are delivered together with this software on CD-ROM.

Software is also available to write a new firmware into the announcer. For this, jumpers must be switched as shown below.

Position of jumpers for normal operation

JP1 JP2

JP1

JP2

Position of jumpers for upgrading

4. Technical parameters

Power supply voltage:		9 – 30 V DC, 12V DC to 24V DC recommended
Current consumption: (Depends on volume)		Max. 300 mA with 16 Ω loudspeaker
Fuse		T 400 mA
Output power:		0,4W / 16 Ω
Voice adjustment		Volume, min. logarithmic law Treble – flat characteristics in the middle position
Voice storing:		Digital, ADPCM, 14500 samples/sec, 300 – 6000 Hz*)
Memory		Basic: Data FLASH, 2 MB, ca. 280 sec *) Big: Data FLASH, 8 MB, ca. 19 min.
Serial interface for PC:		RS232C, speed up to 115200 bps, auto baud function
Operating position		Vertical, fuse and trimming potentiometers upstairs
Dimensions:		80 x 90 x 25 mm
Enclosed loudspeaker:		16 Ω / 0,5 W, diameter 76 mm, + panel with grid, 1,5 mm thick, 125 x 125 mm.
Other loudspeaker:		Minimum impedance is 16 Ω. Minimum power 0,5W
Parallel inputs	Logic levels 0 a 1	„0" = 0 to 2 V „1" = 10 to 24 V
	"Pull up" resistors	6,8 kΩ to the positive power supply
	Driven by a contact	„0" – resistance to ground less than 800 Ω @ 24 V „1" – resistance to ground more than 10 kΩ @24 V
	Max. input voltage:	+/- 40V respective to positive power supply.
Serial input		To be driven by open collector respective to ground. On-state current is approx. 3 mA, from positive power.

*) The announcer with default content in the FLASH memory is using a little trick; recurrent parts of messages are stored only once. This way, ca. half of needed memory space is saved. The value listed above is the total length of messages without this trick. A total length of all messages (with this trick) is twice as much.

5. Appendix – list of messages

English		German	French
Floor messages	Subfloor three	Das Kellergeschoss minus drei	le troisieme sous-sol
	Subfloor two	Das Kellergeschoss minus zwei	le deuxieme sous-sol
	Subfloor	Kellergeschoss	le sous-sol
	Ground	Erdgeschoss	le rez-de-chaussée
	First floor	Erster Stock	le premier étage
	Second floor	Zweiter Stock	le deuxieme étage
	Third floor	Dritter Stock	le troisieme étage
	Fourth floor	Vierter Stock	le quatrieme étage
	Fifth floor	Fünfter Stock	le cinquieme étage
	Sixth floor	Sechster Stock	le sixieme étage
	Seventh floor	Siebenter Stock	le septieme étage
	Eighth floor	Achter Stock	le huitieme étage
	Ninth floor	Neunter Stock	le neuvieme étage
	Tenth floor	Zehnter Stock	le dixieme étage
	Eleventh floor	Elfter Stock	le onzieme étage
	Twelfth floor	Zwölfter Stock	le douzieme étage
	Thirteenth floor	Dreizehnter Stock	le treizieme étage
	Fourteenth floor	Vierzehnter Stock	le quatorzieme étage
	Fifteenth floor	Fünfzehnter Stock	le quinzieme étage
	Sixteenth floor	Sechzehnter Stock	le seizieme étage
	Seventeenth floor	Siebzehnter Stock	le dix-septieme étage
	Eighteenth floor	Achtzehnter Stock	le dix-huitieme étage
	Nineteenth floor	Neunzehnter Stock	le dix-neuvieme étage
	Twentieth floor	Zwanzigster Stock	le vingtieme étage
	Twenty first floor	Einundzwanzigster Stock	le vingt et unieme étage
	Twenty second floor	Zweiundzwanzigster Stock	le vingt-deuxieme étage
	Twenty third floor	Dreiundzwanzigster Stock	le vingt-troisieme étage
	Twenty fourth floor *)	Vierundzwanzigster stock *)	le vingt-quatrieme étage
Other	Car is running up	Die Kabine fährt nach oben	la cabine de l´ascenseur va monter
	Car is running down	Die Kabine fährt nach unten	la cabine de l´ascenseur va descendre
	Door is opening	Die Türen öffnen sich	la porte va ouvrir
	Door is closing	Die Türen Schließen sich	la porte va fermer
	Elevator is in the fire service	der Fahrstuhl hat eine Brandvorrichtung	l´ascenseur est en régime d´incendie
	Car is overloaded	Die Kabine ist überlastet	la cabine est surchargée

If requested floor message is over this range, highest available floor message is used. If customer really needs more floor messages, he can program FLASH memory by another set of messages – e.g. only one language.

Another available set of messages

Code	English	German
1	First floor	Erster Stock
2	Second floor	Zweiter Stock
3	Third floor	Dritter Stock
4	Fourth floor	Vierter Stock
5	Fifth floor	Fünfter Stock
6	Sixth floor	Sechster Stock
7	Seventh floor	Siebter Stock
8	Eighth floor	Achter Stock
9	Ninth floor	Neunter Stock
10	Tenth floor	Zehnter Stock
11	Eleventh floor	Elfter Stock
12	Twelfth floor	Zwölfter Stock
13	Thirteenth floor	Dreizehnter Stock
14	Fourteenth floor	Vierzehnter Stock
15	Fifteenth floor	Fünfzehnter Stock
16	Sixteenth floor	Sechzehnter Stock
17	Seventeenth floor	Siebzehnter Stock
18	Eighteenth floor	Achtzehnter Stock
19	Nineteenth floor	Neunzehnter Stock
20	Twentieth floor	Zwanzigster Stock
21	Twenty first floor	Einundzwanzigster Stock
22	Twenty second floor	Zweiundzwanzigster Stock
23	Twenty third floor	Dreiundzwanzigster Stock
24	Twenty fourth floor	Vierundzwanzigster Stock
25	Twenty fifth floor	Fünfundzwanzigster Stock
26	Twenty sixth floor	Sechsundzwanzigster Stock
27	Twenty seventh floor	Siebenundzwanzigster Stock
28	Twenty eighth floor	Achtundzwanzigster Stock
29	Twenty ninth floor	Neunundzwanzigster Stock
30	Thirtieth floor	Dreißigster Stock
31	Thirty first floor	Einunddreißigster Stock
32	Thirty second floor	Zweiunddreißigster Stock
46	Side entrance	Seiteneingang
47	Rear entrance	Hintereingang
48	Main entrance	Haupteingang
49	Restaurant	Restaurant
50	Reception	Die Rezeption
51	Street level	Strasse
52	Exit level	Ausgang
53	Mezzanine floor	Mezzanin
54	Upper ground floor	Oberes Erdgeschoss
55	Ground floor	Erdgeschoss
56	Lower ground floor	Unteres Erdgeschoss
57	Basement	Kellergeschoss
58	Sub basement	Untergeschoss
59	Floor minus four	Geschoss minus vier
60	Floor minus three	Geschoss minus drei
61	Floor minus two	Geschoss minus zwei
62	Floor minus one	Geschoss minus eins
63	Floor zero	Geschoss null
65	Elevator overload	Der Fahrstuhl ist überbelastet
66	Going up	Nach oben
67	Going down	Nach unten
68	Please remove obstruction from door	Bitte die Türen nicht blockieren
70	Elevator required for an emergency, please leave when the elevator doors open	Fahrstuhl wird für einen Notfall gebraucht, bitte steigen sie aus, wenn sich die Türen öffnen
71	Elevator required for a service drive, please leave when the elevator doors open	Fahrstuhl wird für eine Dienstfahrt gebraucht, bitte steigen sie aus, wenn sich die Türen öffnen
72	Power failure, please leave when the elevator doors open	Stromausfall, bitte verlassen sie den Fahrstuhl, wenn sich die Türen öffnen
73	Fire, please leave when the elevator doors open	Feuer, bitte verlassen sie den Fahrstuhl, wenn sich die Türen öffnen
77	Door is closing	Türen schließen sich
78	Doors opening	Türen öffnen sich

6. Appendix – description of interface versions

6.1. Common attributes

- **Voltage levels:** See technical parameters. If requested, voltage levels may be changed to match customer's needs.
- **Active level:** can be defined separately for each interface version, even for each input separately. Active level "0" is recommended; because it can be done by closed switch to ground and unused inputs will be inactive.
- **Speed:** parallel inputs are hardware and software protected against EMC, so they are insensitive to short peaks and they have some delay. Recommended minimal time of active input signal is 150 ms.

6.2. Selection of interface version

DIL-switch section				Interface version No.
1	2	3	4	
On	On	On	On	1 – serial, 8 bit
Off	On	On	On	2 – serial, 9 bit
On	Off	On	On	3 – parallel, binary code
Off	Off	On	On	4 – parallel, Gray code
On	On	Off	On	5 - parallel, 8-bit
Off	On	Off	On	6 - serial multiple-byte
On	Off	Off	On	Reserved
⋮	⋮	⋮	⋮	Reserved
Off	Off	Off	On	Reserved

6.3. Interface version No. 1 – serial, 8 bit

- Baud rate: 1200 bit/s
- Format 1: 8 bits without parity, see drawing

Format:

1	0	D0	D1	D2	D3	D4	D5	D6	D7	1

Floor (binary)   Dir. ▲ ▼

Serial interface was originally intended for display. Bits D4 and D5 are controlling "up" and "down" arrows of the display. Active level is 0. Floor message starts, when both arrows are inactive, i.e. when D4, D5 = 1, 1.

Protection against interferences: Data stream is periodic, so there are two following data bytes compared and used only when they are the same.
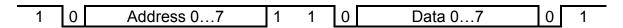
6.4. Interface version No. 2 – serial, 9 bit

- Baud rate: 1200 bit/s
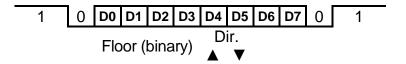- Format: 9 bits without parity, see drawings.
- Addressing: 8 bits

Format:

1	0	Address 0…7	1	1	0	Data 0…7	0	1

In this format, 9th bit is transmitted which value 1 tells, that bits 0…7 contains an address and value 0 tells, that 0…7 contains data. Address and data alternates periodically – one byte is address, one byte data. 2N® Floor Annunciator receives only data byte, following upon address 01. Data byte format is the same, ad interface version 1:

Data byte format:

1	0	D0	D1	D2	D3	D4	D5	D6	D7	0	1

Floor (binary)   Dir. ▲ ▼

Serial interface was originally intended for display. Bits D4 and D5 are controlling "up" and "down" arrows of the display. Active level is 0. Floor message starts, when both arrows are inactive, i.e. when D4, D5 = 1, 1.

Protection against interferences: Only one data byte, following upon address 01 is received. Data stream is periodic, so this event comes a few times per second. Two following received data bytes are compared and used only when they are the same.

6.5. Interface version No. 3 – parallel, binary code

- 5 bits
- Active input level = "0" (low voltage)
- Binary code

List of used terminals

No.	Function or "Message"		Notes	
1	"Door is opening"		Active level of these inputs is "0", i.e. message starts, when level changes from "1" to "0".	1)
2	"Door is closing"			
3	"Elevator is in the fire service"			2)
4	"Car is overloaded"			
12	"Car is running down"			1)
13	"Car is running up".			
14	Start floor message			1) 3)
15	D0	Terminals for parallel code of the floor	Binary code, active level is "0" (grounded input), i.e. 11111 is the lowest floor and 00000 is the highest floor	
16	D1			
17	D2			
18	D3			
19	D4			
20	*D5*		Reserved	

Notes:
1) Message is played once, and when level "0" remains on the input, it has no influence to function. All other inputs remain active.
2) When level "0" remains on the input, message repeats each 10 seconds for the duration of 10 minutes. All other inputs remain active.
3) Binary code is converted to required floor message – code offset, i.e. " Lowest floor selection" is added. The result is delimited according to the set of messages in FLASH memory.

Binary code table

D4	D3	D2	D1	D0	Floor
1	1	1	1	1	0
1	1	1	1	0	1
1	1	1	0	1	2
1	1	1	0	0	3
1	1	0	1	1	4
1	1	0	1	0	5
1	1	0	0	1	6
1	1	0	0	0	7
1	0	1	1	1	8
1	0	1	1	0	9
1	0	1	0	1	10
1	0	1	0	0	11
1	0	0	1	1	12
1	0	0	1	0	13
1	0	0	0	1	14
1	0	0	0	0	15

D4	D3	D2	D1	D0	Floor
0	1	1	1	1	16
0	1	1	1	0	17
0	1	1	0	1	18
0	1	1	0	0	19
0	1	0	1	1	20
0	1	0	1	0	21
0	1	0	0	1	22
0	1	0	0	0	23
0	0	1	1	1	24
0	0	1	1	0	25
0	0	1	0	1	26
0	0	1	0	0	27
0	0	0	1	1	28
0	0	0	1	0	29
0	0	0	0	1	30
0	0	0	0	0	31

6.6. Interface version No. 4 – parallel, Gray code

- 4 bits
- Active input level = "0" (low voltage)
- Gray code

List of used terminals

No.	Function or "Message"		Notes	
1	"Door is opening"		Active level of these inputs is "0", i.e. message starts, when level changes from "1" to "0".	1)
2	"Door is closing"			
3	"Elevator is in the fire service"			2)
4	"Car is overloaded"			
12	"Car is running down"			1)
13	"Car is running up"			
14	Start floor message			1) 3)
15	D0	Terminals for parallel code of the floor	Gray code, see the table	
16	D1			
17	D2			
18	D3			
19	*D4*		Reserved	
20	*D5*			

Notes:

1) Message is played once, and when level "0" remains on the input, it has no influence to function. All other inputs remain active.

2) When level "0" remains on the input, message repeats each 10 seconds for the duration of 10 minutes. All other inputs remain active.

3) Binary code is converted to required floor message – code offset, i.e. " Lowest floor selection" is added. The result is delimited according to the set of messages in FLASH memory.

Gray code table

D3	D2	D1	D0	Floor
1	1	1	1	0
1	1	1	0	1
1	1	0	0	2
1	1	0	1	3
1	0	0	1	4
1	0	0	0	5
1	0	1	0	6
1	0	1	1	7

D3	D2	D1	D0	Floor
0	0	1	1	8
0	0	1	0	9
0	0	0	0	10
0	0	0	1	11
0	1	0	1	12
0	1	0	0	13
0	1	1	0	14
0	1	1	1	15

Note: If inputs are driven by switches to ground, then closed switch is corresponding with "0" and opened switch is "1"

6.7. Interface version No. 5 – parallel, 8-bit, binary code

- Attention to different function of terminals – D6, D7
- Active input level = "0" (low voltage)
- Less than 8 bits can be used, keep unused bits open
- Start message input is used to start messages
- Separate inputs may be also used to start general sequences

This interface be used e.g. when floor information as available only at display. Configuration for this use is on installation CD. Connect 2N® Floor Annunciator to the display as shown:

Door is closing	1	
Door is opening	2	
Emergency msg.	3	
Car overloaded	4	
Terminals for	5	
the loudspeaker	6	
+ Power supply	7	
- Power (ground)	8	
Serial input	9	
Universal output	10	

20	b10	
19	g1	
18	f1	**Connect**
17	e1	**to display**
16	b1	
15	a1	
14	Start (floor message)	
13	d10	**Connect**
12	g10	**to display**
11	*Universal input*	

Notes:
1) *Message is played once, and when level "0" remains on the input, it has no influence to function. All other inputs remain active.*
2) *When level "0" remains on the input, message repeats each 10 seconds for the duration of 10 minutes. All other inputs remain active.*
3) *Binary code is converted to required floor message – code offset, i.e. " Lowest floor selection" is added. The result is delimited according to the set of messages in FLASH memory.*
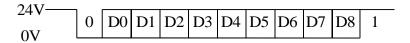
ATTENTION! *Configuration for display requires DIL-switches 1-3 „lowest floor selection" in position „ON"!*

6.8. Interface version No. 6 – serial, multiple-byte

Data rate: 300 b/s
Frame: 5 byte
Byte format: start, 9bbits, stop, no parity. Address (1. byte) have bit nr.9 (D8) = "1", all other bytes (2 to 5) has bit nr.9 (D8) = "0".

```
24V
        0 | D0 | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | 1
0V
```

1st byte: address   01 H

2nd byte: floor   xxx**PPPPP** B   (xxx – reserved, PPPPP – binary code)

3rd byte: state 01

Total bit position	Bit position in byte	Function (message)	Note
15	7	**Door is opening**	
14	6	**Door is closing**	
13	5	Reserved	
12	4	Reserved	
11	3	**Floor message start**	
10	2		
9	1	No function	
8	0		

4th byte: state 02

Total bit position	Bit position in byte	Function (message)	Note
23	7	**Car is going down**	
22	6	**Car is going up**	
21	5	**Next direction: down**	
20	4	**Next direction: up**	
19	3	**Gong**	
18	2	**Fire**	Automatic repeating, each 10 sec.
17	1	**Car is overloaded**	
16	0	**Out of use**	

5th byte: CRC8. If matching O.K. frame is used, otherwise ignored.