

Alarm Control Panels

VERSA

Firmware Version 1.01

Satel 
GDAŃSK

INSTALLER MANUAL





WARNINGS

For safety reasons, the security alarm system should only be installed by qualified personnel. In order to avoid the risk of electric shock, read carefully this manual before proceeding to the installation. Any electric connections may only be made in deenergized state, with power supply disconnected.

The control panel should only be used with **analog subscriber lines**. Connecting the telephone circuit directly to a digital network (e.g. ISDN) will cause damage to the equipment.

The alarm system may comprise hazard creating devices, therefore it is necessary that its components be kept so as to prevent unauthorized access to the equipment.

When carrying out service operations which consist in fuse replacement, it should only be done with supply voltage disconnected. Only fuses having identical parameters with the original ones can be used for the replacement.



It is recommended that the manufacturer's prescribed housings and power supply units be used.

Making any construction changes or performing unauthorized repairs is prohibited. This applies, in particular, to modification of assemblies and components.

CAUTION!

It is not allowed to connect a fully discharged battery (with voltage across unloaded terminals less than 11 V) to the alarm panel. In order to avoid any damage to the equipment, if the battery is fully discharged, precharge it by means of a suitable charger.

The batteries used in the alarm systems contain lead. When used-up, the batteries must not be thrown away, but disposed of as required by the existing regulations (European Directives 91/157/EEC and 93/86/EEC).

DECLARATION OF CONFORMITY		
Products: VERSA 5P, VERSA 10P, VERSA 15P – mainboards of VERSA control panels: - VERSA 5 - VERSA 10 - VERSA 15	Manufacturer: SATEL spółka z o.o. ul. Schuberta 79 80-172 Gdańsk, POLSKA tel. (+48) 58 320 94 00 fax. (+48) 58 320 94 01	
Product description: Mainboards for alarm control panels intended for use in intruder alarm systems.		
This product meet the essential requirements and is in conformity with following EU Directives: RTTE 1999/5/EC EMC 2004/108/EC LVD 2006/95/EC		
This product is compliant with the following harmonized standards: EN 50130-4:1995/A1:1998, EN 61000-6-1:2007, EN55022:2006/A1:2007, EN 61000-6-3:2007, EN 61000-3-2:2006, EN 60950-1:2006		
Gdańsk, Poland 2009-09-11	Head of Test Laboratory: Michał Konarski 	
The latest EC declaration of conformity and product certificates can be downloaded from our website www.satel.eu		

Changes made to firmware version 1.01

Keypads	Support for keypads with firmware version 1.01 (version recommended for the control panel with firmware version 1.01). Keypad restart does not exit the service mode.
Expansion modules	Support for the ACU-100 ABAX wireless system controller with firmware versions 1.08 and 2.01. Support for the ETHM-1 Ethernet module with firmware version 1.04. Support for the INT-TXM reporting interface.
ABAX wireless system	Support for new wireless devices: <ul style="list-style-type: none">– AMD-102 – wireless magnetic contact with input for roller shutter detector,– ARD-100 – wireless reorientation detector. Support for the APT-100 bidirectional remote control keyfobs.

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1. Introduction

This manual applies to the VERSA 5, VERSA 10 and VERSA 15 alarm control panels. The panels differ in the number of mainboard zones and the output current of switching power supply unit. Alarm systems based on the VERSA control panels feature the same functional properties. System development is allowed at any moment by using expansion modules. They make it possible i.a. to increase the number of zones and outputs in the system, use wireless components, operate the system by means of keyfobs or notify by phone about system events using voice messages.

The VERSA series alarm control panels meet the requirements of the following standards:

- EN 50131-1 Grade 2;
- EN 50131-3 Grade 2;
- EN 50131-6 Grade 2;
- EN 50130-4;
- EN 50130-5 Class II.

2. System specification

- Possibility to split the system into 2 partitions (partition = group of zones). The partitions can share some zones.
- Up to 30 programmable zones. 19 zone types to choose from.
- Up to 12 programmable outputs. 19 performed functions to choose from.
- Up to 6 LED/LCD keypads.
- 30 codes provided for the system users. Additionally, one service code.
- Reporting to two monitoring stations via telephone line or Ethernet network (with the ETHM-1 module connected). Support for nearly twenty event transmission formats (including Contact ID and SIA).
- 8 telephone numbers for messaging about system events in the form of:
 - voice messages played back by a voice synthesizer,
 - text messages (SMS messages sent by means of GSM modules manufactured by SATEL).
- Event log for 2047 events.
- 4 timers to enable control of armed mode or status of outputs based on time parameters.
- Automatic diagnostics of the essential components of the system (power supply, telephone line, zones, outputs, communication bus, etc.).
- System programming:
 - LED/LCD keypad,
 - computer with DLOADX program installed (locally through RS-232 (TTL) port, remotely through built-in modem via telephone line or remotely through ETHM-1 module via Ethernet network).
- Editable names of users and most of the security alarm elements (partitions, zones, outputs, modules, timers, etc.).

2.1 Mainboards

- 5 (VERSA 5), 10 (VERSA 10) or 15 (VERSA 15) individually programmable zones.
- Programmable resistor values for EOL and 2EOL zone wiring types.
- Additional tamper input, NC type.

- 4 individually programmable hard-wired outputs:
 - 2 high-current outputs, current-carrying capacity 1.1 A, with polymer fuses,
 - 2 low-current outputs, OC type, current-carrying capacity 50 mA, suitable for relay control, with support for PC-16 OUT format (capability to control radio reporting transmitter).
- 2 high-current outputs, current-carrying capacity 0.5 A, with polymer fuses, having power supply output functionality (the AUX output has two terminals).
- Electrical protection of all zones and outputs.
- Switching mode power supply, output current 1 A (VERSA 5) or 2 A (VERSA 10 and VERSA 15) with short-circuit protection, provided with battery status monitoring and low battery disconnection circuit.
- Communication bus designed for connecting keypads and expansion modules.
- Interface for connecting CA-64 SM voice synthesizer expander (or SM-2 synthesizer).
- Telephone dialer with monitoring, messaging and remote programming functionality (built-in 300 bps modem).
- Optical indication of telephone dialer status.
- RS-232 (TTL) port for programming and operating the security alarm system by using computer (DLOADX installer program).

2.2 Keypads

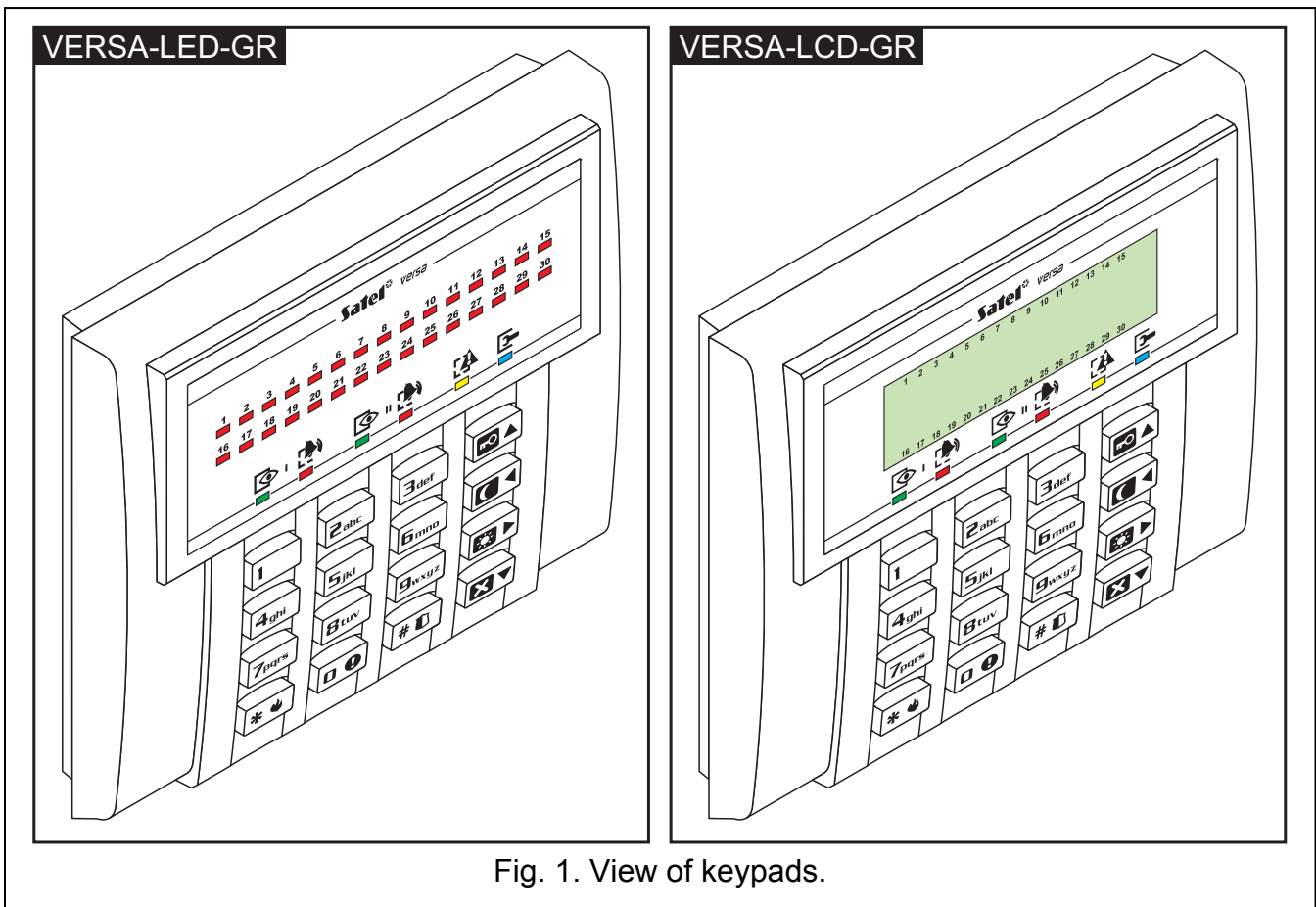


Fig. 1. View of keypads.

- Operation and programming of the alarm system.
- Easy to read 2 x 16 character display with permanent backlighting or temporary backlighting activated by pressing a key or violating a zone (VERSA-LCD-GR only).
- Indicator LEDs of zone status (VERSA-LED-GR only).

- Indicator LEDs of partition / system status.
- 12 keys, bearing designations according to telephone standard and intended for entering data.
- 4 additional keys for menu navigation and arming/disarming.
- Keys backlighting:
 - permanent,
 - temporary, on pressing a key or violating a zone.
- Tamper switch responding to housing opening/pull-off from the wall.

2.3 Other modules

ETHM-1. Ethernet module. Enables the alarm system to be remotely programmed via the Ethernet (TCP/IP) network by using the DLOADX program, and events to be reported to the monitoring station via the Ethernet (TCP/IP) network. **The VERSA family control panels support the module having firmware version 1.04 or newer.**

INT-TXM. Reporting interface. Enables a radio reporting (ESPRIT format) transmitter to be connected to the control panel.

INT-RX. 433 MHz keyfobs receiver. Enables assignment of keyfobs to the system users and control of the system by using the keyfobs.

ACU-100. ABAX wireless system controller. Enables expansion of the alarm system by adding wireless devices.

CA-64 E. Zone expander. Enables system expansion by 8 zones.

CA-64 EPS. Zone expander with power supply. Enables expansion of the system by 8 zones. Provided with a built-in switching mode power supply, output current 1.2 A.

CA-64 O-OC/CA-64 O-R/CA-64 O-ROC. Output expander. Enables expansion of the system by 8 outputs. Comes in three versions: 8 OC type outputs, 8 relay outputs and 4 relay outputs/4 OC outputs.

INT-ORS. DIN-rail output expander. Enables expansion of the system by 8 relay outputs. The relays are capable of controlling electrical devices supplied with 230 V AC voltage.

CA-64 OPS-OC/CA-64 OPS-R/CA-64 OPS-ROC. Output expander with power supply. Enables expansion of the system by 8 outputs. Comes in three versions: 8 OC type outputs, 8 relay outputs and 4 relay outputs/4 OC outputs. Provided with a built-in switching mode power supply, output current 2.2 A.

INT-IT. Proximity card reader. Permits arming / disarming and clearing alarms in partitions by means of cards, keyfobs and other passive transponders.

CA-64 SM. Voice synthesizer expander. Can remember up to 16 voice messages, 15 second duration each. The messages are sent during telephone notification.

3. System installation



All electric connections may only be made with power supply disconnected.

The following tools will be useful during installation:

- blade screwdriver 2.5 mm,
- Phillips screwdriver,
- precision pliers,
- flat nose pliers,
- drill with a set of drill bits.

3.1 Installation plan

Before proceeding to installation, you must draw up a plan of the security alarm system. It is advisable that you prepare a sketch of the premises, showing all the devices to be included in the system, i.e. the control panel, keypads, detectors, sirens, expansion modules, etc. The control panel and other security system components should be installed within the boundaries of the protected area.

3.2 Estimation of system current consumption

At the stage of the security system planning, you should sum up the currents consumed by all devices included in the system (control panel mainboard, keypads, additional modules, detectors, sirens, etc.). The calculation should also take into account the battery charging current. If the sum of currents exceeds the output current of control panel power supply, expanders with power supply or an extra power supply unit must be used in the system.

The sum of currents consumed by the devices connected to the power supply unit (expander with power supply) must not exceed the power supply output current.

When planning connection of devices to particular power outputs (control panel, expander with power supply, etc.), remember that the sum of currents consumed by these devices must not exceed the maximum current-carrying capacity of those outputs.

3.3 Cabling

It is recommended that straight unscreened cable be used for making electric connections between devices included in the system (using the twisted pair type of cable, e.g. UTP, STP, FTP is not advisable).

Select cross-section of the power supply wires so that the supply voltage drop between the power supply and the supplied device should not exceed 1 V as against the output voltage.

In order to guarantee correct functioning of the system components it is important that resistance and capacitance of the signal wires be as low as possible. When the distances between the devices are greater, several wires connected in parallel may have to be used for each signal, in order to reduce conductor resistance. This, however, may lead in consequence to an increase in conductor capacitance. Too high resistance or capacitance of the cables connecting the control panel to keypads or expansion modules may make correct functioning of the devices impossible (e.g. the control panel may be unable to identify devices, absence of devices will be reported, etc.). When selecting the proper length of cables, follow recommendations set out in sections on connection of particular types of devices.

The signal wires of communication bus (CLK, DTA, COM) must be run in one cable (they must not be run in separate cables).

When making the cabling, remember that there must be sufficient distance between the low-voltage wires and the 230 V AC power supply wires. Avoid running the signal cables in parallel to the 230 V AC supply cables, in close vicinity of them.

3.4 Installation of control panel mainboard



The control panel mainboard contains electronic components sensitive to electric charges.

Before connecting the mainboard to power supply source (battery, alternating voltage from transformer), you must first complete all the installation work with hardwired devices (connection of keypads, expansion modules, detectors etc.).

The control panel should be installed indoors, in spaces with normal humidity of air. The control panel must be protected against unauthorized access.

A permanent (non-disconnectable) 230 V AC power supply circuit with protective grounding must be available at the control panel installation place.

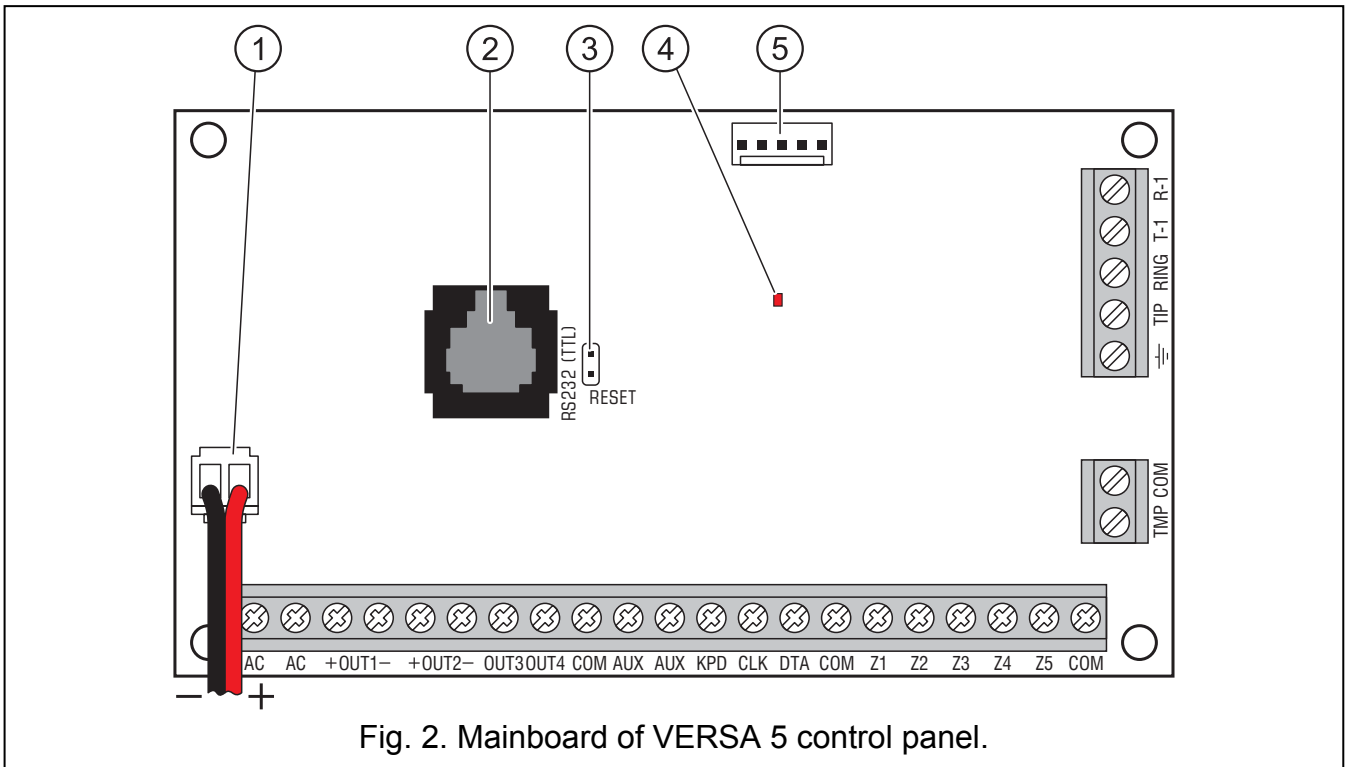


Fig. 2. Mainboard of VERSA 5 control panel.

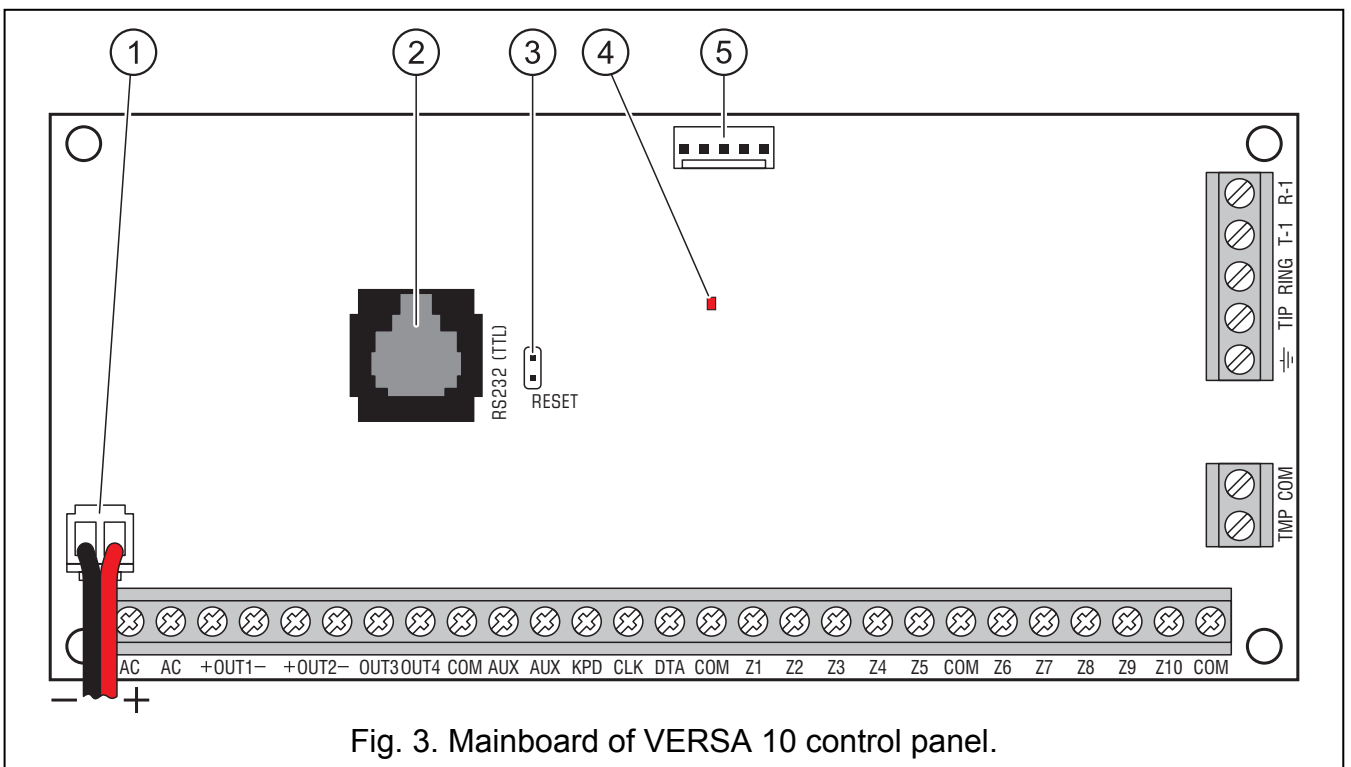


Fig. 3. Mainboard of VERSA 10 control panel.

Explanations for Figures 2, 3 and 4:

- 1 - **battery connection cables** (red +, black -).
- 2 - **port RS-232 (TTL)**. It enables local programming and management of the system by means of the DLOADX program (the cable for making connection between the RJ type

socket on the control panel mainboard and the DB9 socket on the computer is supplied by SATEL).

- 3 - **RESET pins.** In case of emergency, these pins make it possible to start local computer programming function or service mode (see PROGRAMMING manual).
- 4 - **DIALER LED.** Indicates status of the control panel telephone dialer.
- 5 - **voice synthesizer socket.**

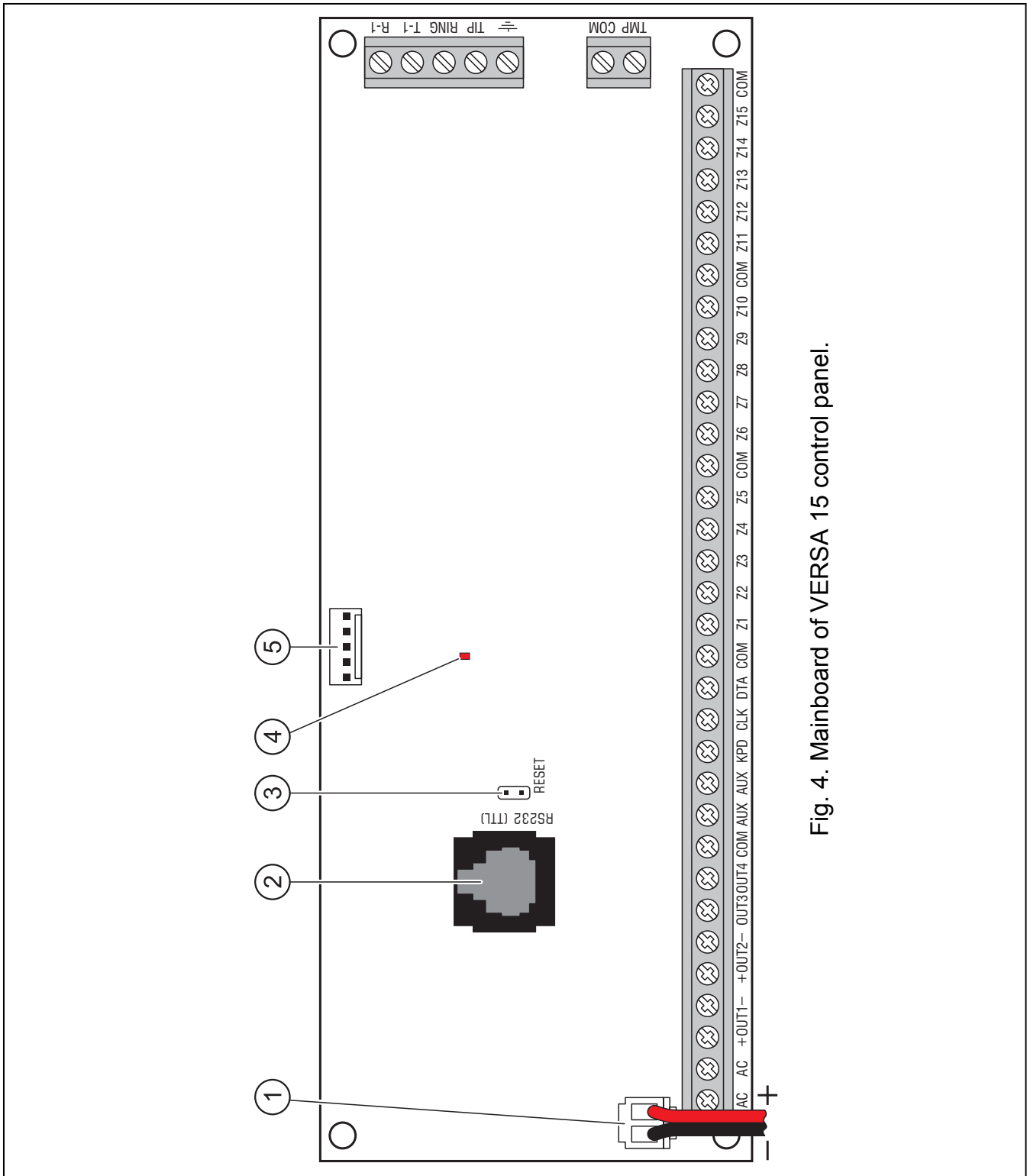



Fig. 4. Mainboard of VERSA 15 control panel.

Description of terminals:

- AC** - power supply inputs (18 V AC).
- COM** - common ground.

+OUT1-, +OUT2-	- programmable high-current outputs. +12 V DC $\pm 15\%$ voltage is always present at the "+" terminal. The "-" terminal is either shorted to or disconnected from the common ground, depending on the output status (active/inactive) and polarity.
OUT3 ... OUT4	- programmable low-current outputs, OC type.
AUX	- power supply output (+12 V DC $\pm 15\%$).
KPD	- dedicated power supply output for keypads (+12 V DC $\pm 15\%$).
CLK	- communication bus clock.
DTA	- communication bus data.
Zn	- zone (n=zone number).
TMP	- NC type input for connecting tamper circuit (housings, detectors, sirens, etc.). The TMP input is treated by the control panel as an additional system zone number 31. If not used, this input is to be shorted to ground.
	- protective terminal of the telephone dialer (connect to the protection circuit only).
T-1, R-1	- telephone line output (telephone set connection).
TIP, RING	- telephone line input (analog trunk line).

3.5 Connecting modules to communication bus

The modules should be connected to the communication bus (terminals CLK, DTA and COM) in parallel. The AUX and KPD outputs are dedicated for power supply to the modules. The modules can be directly powered from the control panel, if the distance between the control panel and the module does not exceed 300 m. Wherever the distance from the control panel is greater, the modules should be provided with an independent source of power supply.

Total length of the communication bus must not exceed **600 m**. Shown in Table 1 is the number of wires required for correct connection of the module to the communication bus, in case of using a 0.5 mm² cross-section straight-through cable.

distance between module and panel	number of wires for signal cable		
	CLK	DTA	COM
up to 300 m	1	1	1
300 – 600 m	2	2	2

Table 1.

Notes:

- *The signal wires (CLK, DTA and COM) must be run in one cable!*
- *When resistance of the cables connecting the module with the control panel (a large distance, insufficient number of wires on particular signal cables), identification of the module by the control panel may prove impossible.*

Each module to be connected to the communication bus must have its own individual address. The address in keypads is set by program means. In the other modules, special pins or the DIP-switches with numbers from 1 to 5 are used for setting the address. In case of some modules, the status of switches from 6 to 8 may affect the way by which the devices are identified in the system. The addresses may not repeat. For detailed information on addressing individual modules, see sections describing the method of their connection.

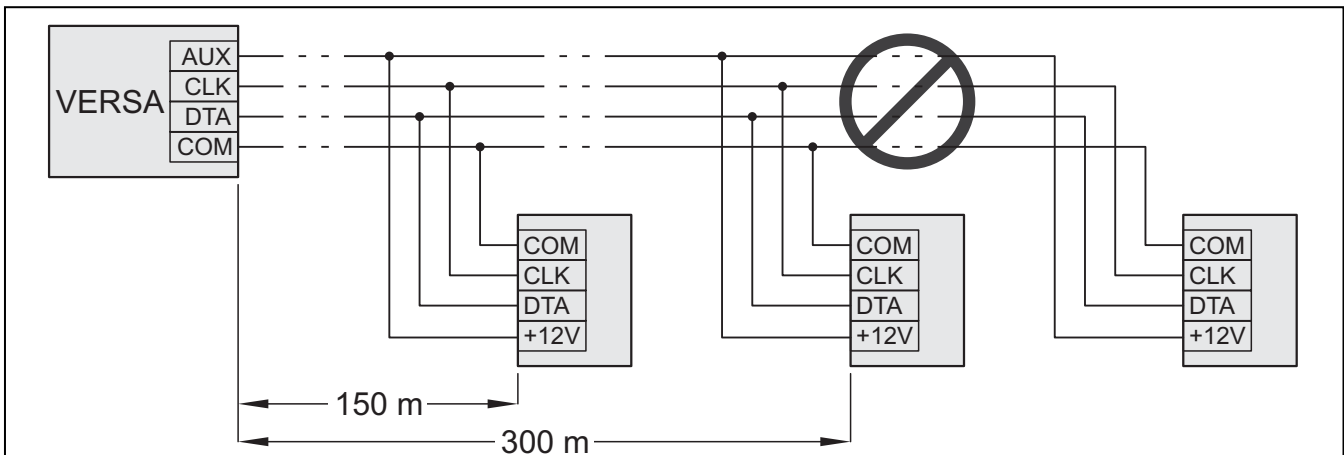


Fig. 5. Connection of modules without power supply where the distance between control panel and modules is up to 300 meters. The modules are power supplied from the control panel. A single 0.5 mm^2 cross-section wire is used for each signal (CLK, DTA, COM). Connecting the modules as shown in the picture is not recommended when the distance from the panel exceeds 300 meters.

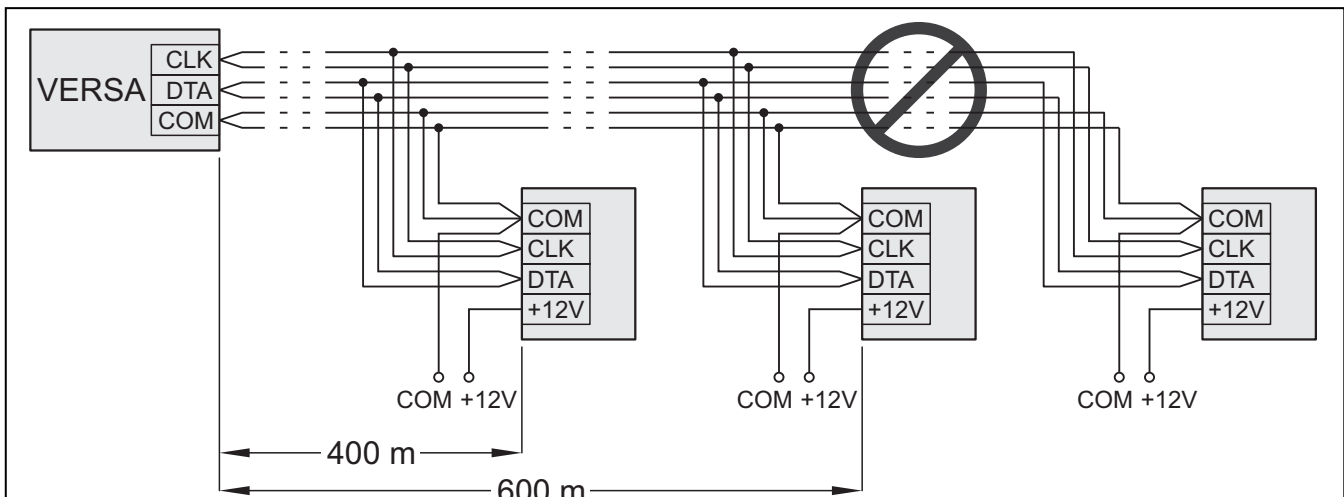


Fig. 6. Connection of modules without power supply where the distance between control panel and modules is from 300 to 600 meters. The modules are supplied from an independent 12 V DC power source. Two 0.5 mm^2 cross-section wires are used for each signal (CLK, DTA, COM). Connecting the modules as shown in the picture is not recommended when the distance from the panel exceeds 600 meters.

3.5.1 Connecting keypads

Note: To meet the EN 50131 standard requirements for Grade 2:

- keypads with firmware version 1.01 or newer must be connected to the control panel,
- at least one VERSA-LCD-GR keypad must be connected to the control panel.

This will allow the users to be informed about the system state, as required by the standard.

Up to 6 LED/LCD keypads can be installed in the system. The control panel KPD output is dedicated for powering the keypads. Addresses from the 0 to 5 range should be set by program means in the keypads. By default, address 0 is set in all keypads.

Note: Up to six keypads can be installed, if neither the ETHM-1 module (address 4) nor the INT-TXM module (address 5) is connected.

When the control panel is started with factory settings, it will support all keypads connected to the bus, irrespective of the addresses set in them. This will make it possible to set correct individual addresses in the keypads and carry out identification of all devices connected to the bus.

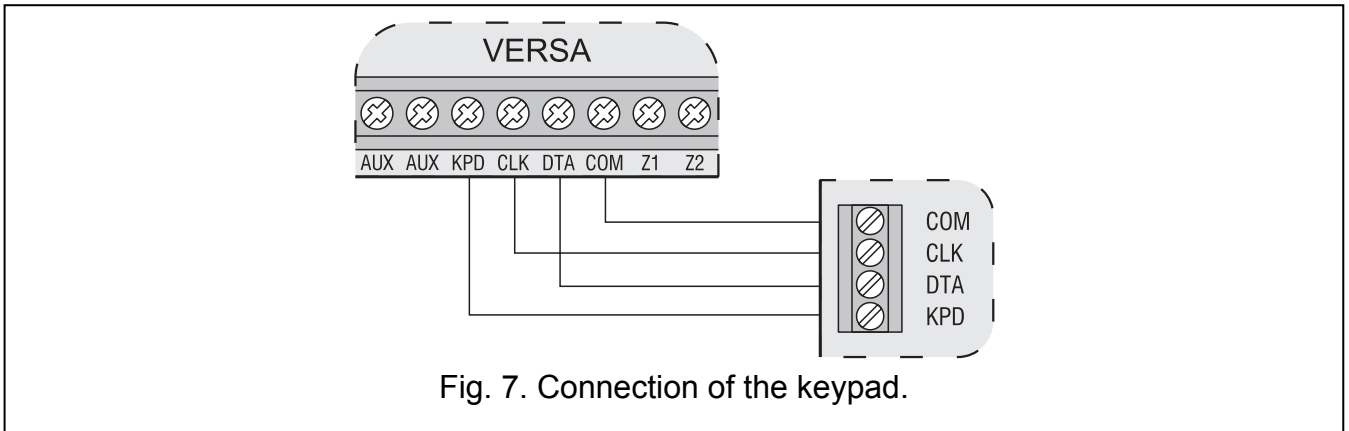


Fig. 7. Connection of the keypad.

Programming address by means of the service function

1. Enter the **service code** (by default: 12345) and press
2. Press successively the keys. The service mode will start.
3. Press successively the keys (to start the KEYPADS ADDR. function). All LEDs designated with icons will start blinking in all keypads connected to the control panel and information on the current address will be displayed:
 - for LCD keypads, the text shown in Fig. 8 will be displayed;
 - for LED keypads, the LED corresponding to the current address will start blinking rapidly (LED designated with number 30 for address 0; LED designated with number 1 for address 1; LED designated with 2 for address 2 etc. – see Fig. 9).

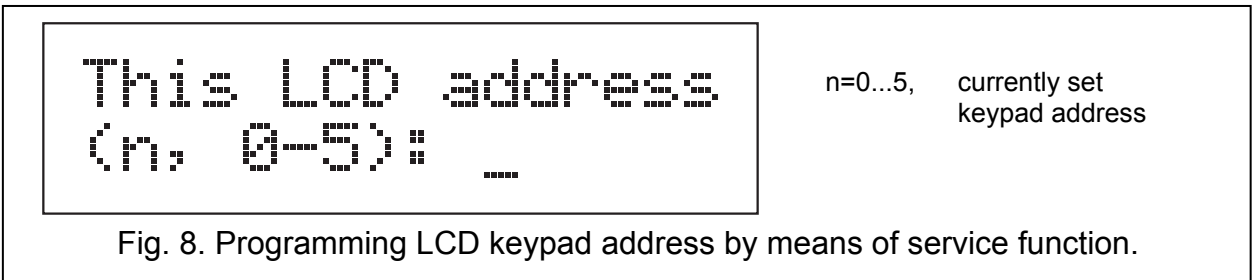


Fig. 8. Programming LCD keypad address by means of service function.

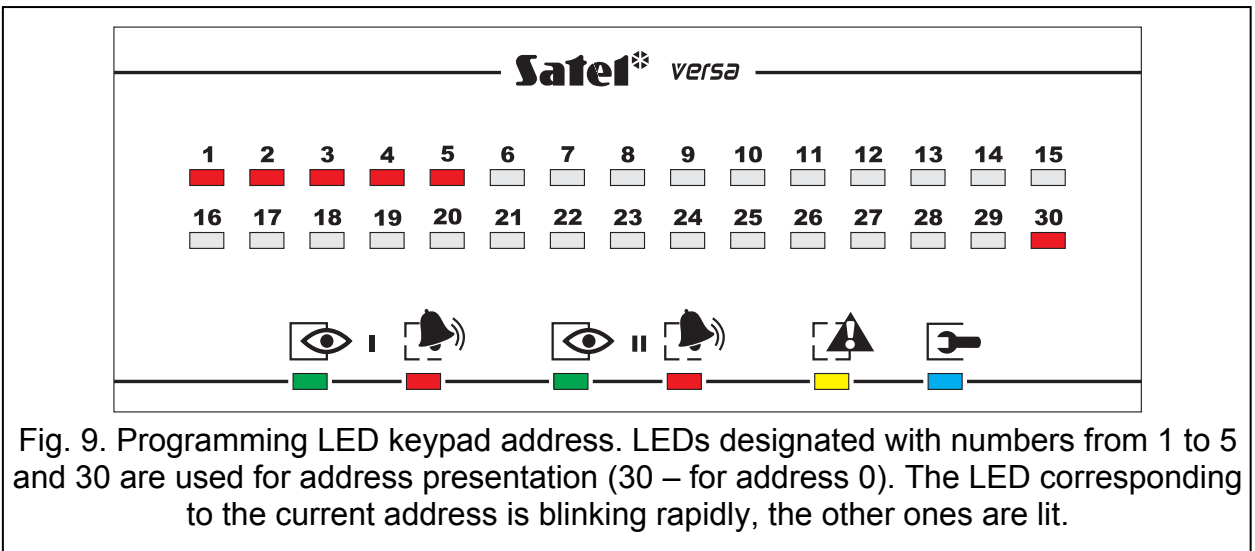




Fig. 9. Programming LED keypad address. LEDs designated with numbers from 1 to 5 and 30 are used for address presentation (30 – for address 0). The LED corresponding to the current address is blinking rapidly, the other ones are lit.

4. Press the key with the number corresponding to the new address in the selected keypad/keypads. The address change will be confirmed with four short beeps followed by a long one.
5. Press the  key to finish the function of address changing in the given keypad. The function will be finished automatically in all keypads after 2 minutes since it was launched. Ending the function is equivalent to exiting the service mode and restarting the keypad.

Programming address without entering the service mode

1. Disconnect the keypad power supply (KPD) and the CLK and DTA signal cables.
2. Short the CLK and DTA keypad terminals.
3. Connect the keypad power supply (KPD).
4. All the LEDs designated with icons will start blinking. For LCD keypads, the text shown in Fig. 10 will be displayed. For LED keypads, the LED corresponding to the current address will start blinking rapidly (LED designated with number 30 for address 0; LED designated with number 1 for address 1; LED designated with 2 for address 2 etc. – see Fig. 9).

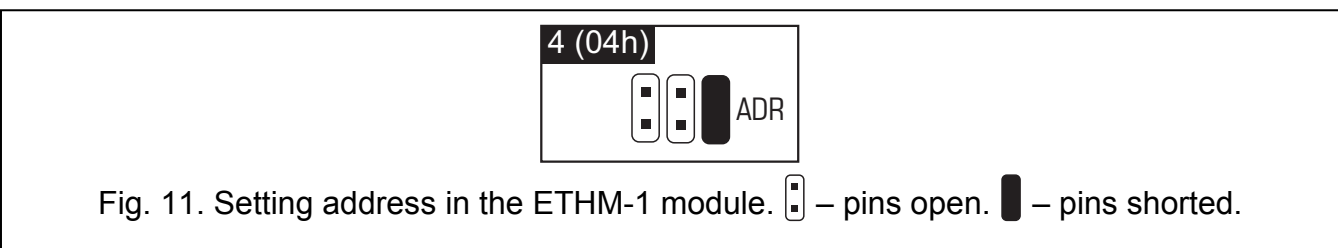


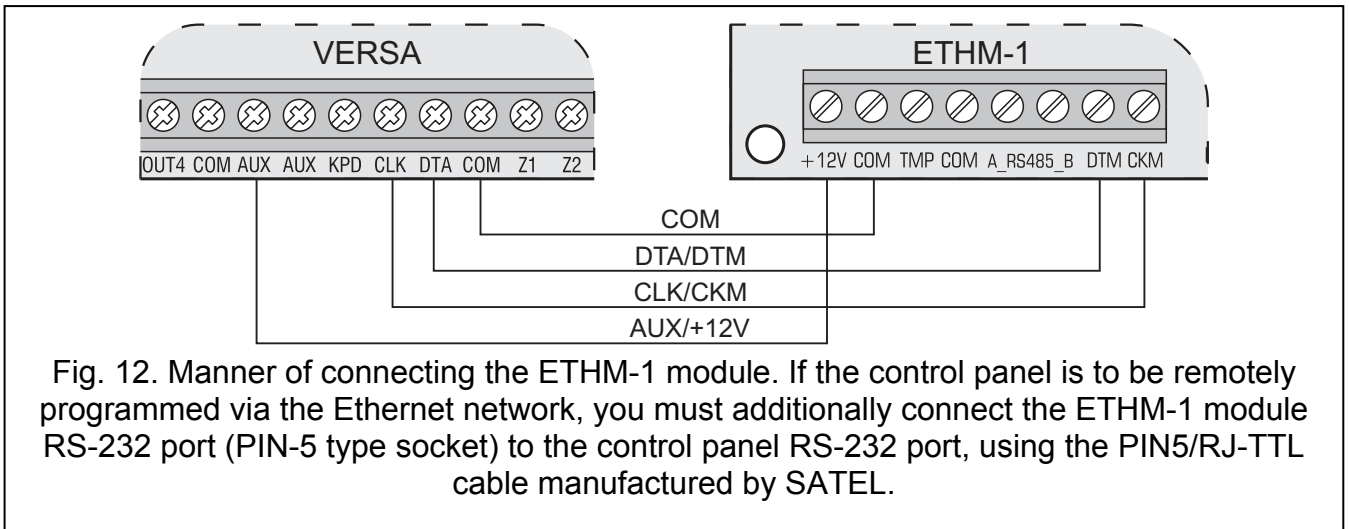
5. Press the key with the number corresponding to the new address. The keypad will confirm execution of the function with four short beeps and a long one. If necessary, press the  key to change the entered address (restart of the keypad and restoration of the status described in 4 will follow).
6. Disconnect the keypad power supply (KPD).
7. Open the CLK and DTA keypad terminals.
8. Connect keypad to the control panel in the correct manner.

3.5.2 Connecting Ethernet module

One ETHM-1 Ethernet module (firmware version 1.04 or newer) can be installed in the system. The alarm system in which an Ethernet module is installed can be monitored and remotely programmed by using the Ethernet (TCP/IP protocol) network.

Address 4 (04h) must be set in the module, which means that no keypad having address 4 may be connected to the control panel.



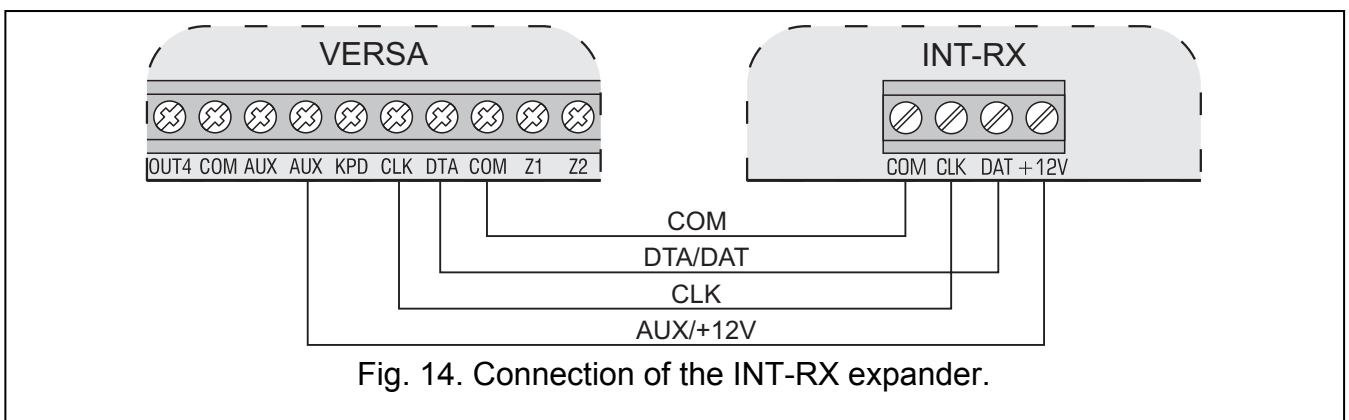
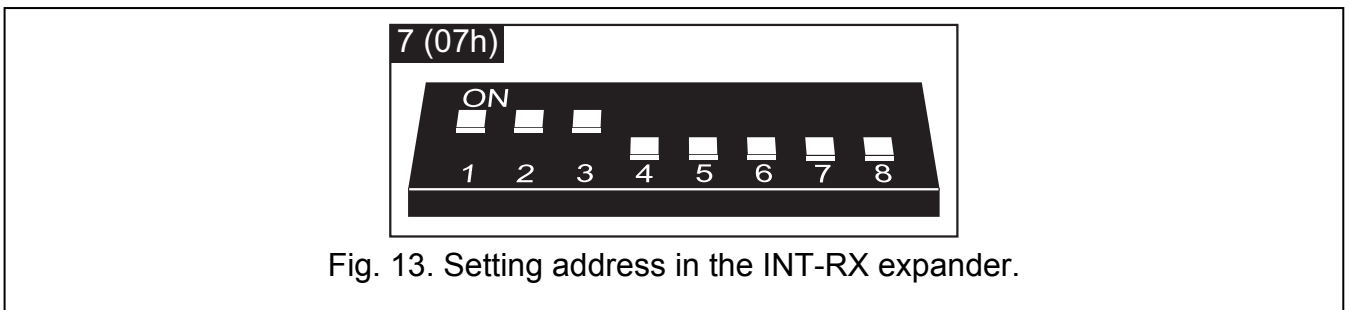


3.5.3 Connecting INT-TXM module

You can install in the system one INT-TXM reporting interface, to enable a radio reporting (ESPRIT format) transmitter to be connected to the control panel. Jumper must be removed from the J1 pins, and no keypad with address 5 may be connected to the control panel. After identification, the address 5 (05h) will be assigned to the module.

3.5.4 Connecting 433 MHz keyfobs receiver

One INT-RX expansion module can be installed in the system. It enables assignment of keyfobs to maximum thirty users of the system (no keyfob can be assigned to the service). Address 7 (07h) must be set in the expander. Position of the switches 6-8 is irrelevant.



3.5.5 Connecting ABAX wireless system controller

One ACU-100 controller can be installed in the system, which enables its expansion by up to 30 wireless zones and 12 wireless outputs. When the wireless zone number coincides with that of hard-wired zone (on mainboard or in expanders), it can be defined which zones are to

be supported (see: PROGRAMMING manual). Address 8 (08h) must be set in the expander, and the switches 7 and 8 must be in ON position. Position of the switch 6 is irrelevant.

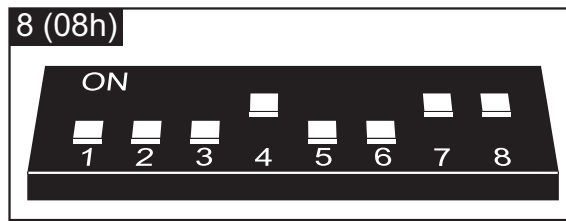


Fig. 15. Setting address in the ACU-100 controller.

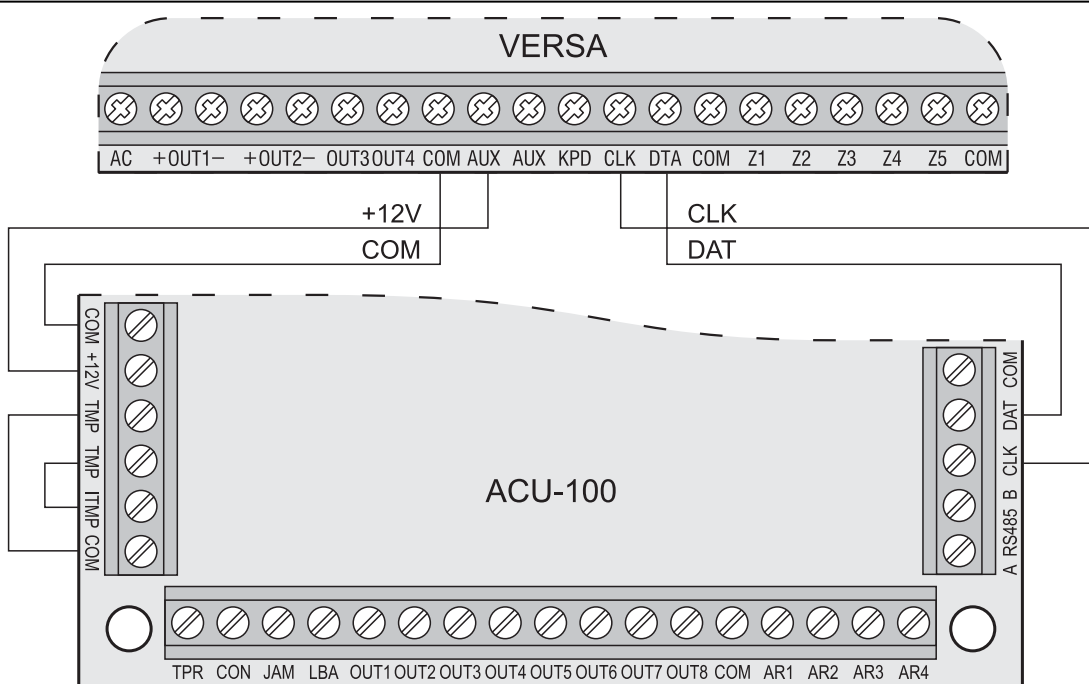


Fig. 16. Connection of the ACU-100 controller. TMP terminals of the controller tamper contact are connected to the controller tamper circuit (ITMP and COM terminals), thus information on violation of the tamper contact is transmitted to the control panel through the communication bus. If the TMP terminals are not connected to the controller tamper circuit, the ITMP terminal is to be shorted to ground.

3.5.6 Connecting zone expanders

Up to 3 zone expanders can be installed in the system, which enables it to be expanded by up to 24 hard-wired zones. Addresses from the 12 (0Ch) to 14 (0Eh) range should be set in the expanders. The switches 6 and 7 must be set in OFF position. In the CA-64 E expanders with electronics version 2.1 (or later) and in the CA-64 EPS expanders with electronics version 2.0 (or later), position of the eighth switch does have effect on how they are identified:

- switch in OFF position – the expander will be identified as CA-64 E or CA-64 EPS, respectively,
- switch in ON position – the expander will be identified as CA-64 Ei or CA-64 EPSi, respectively. The CA-64 Ei and CA-64 EPSi expanders support the vibration and roller shutter motion detectors. Additionally, the value of resistors used in EOL and 2EOL configurations is programmed for them.

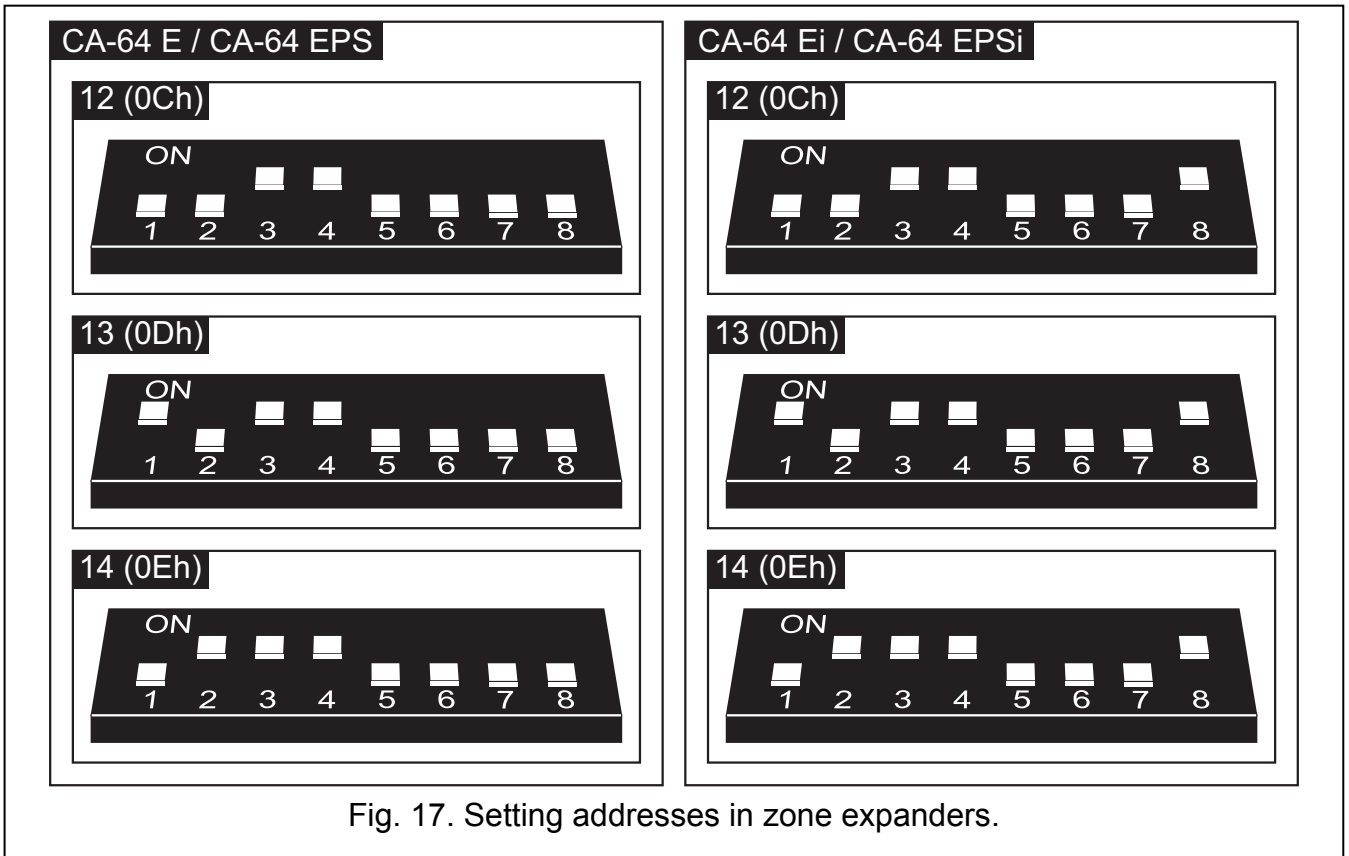


Fig. 17. Setting addresses in zone expanders.

Table 2 illustrates dependences between the expander address and the numeration of expander zones in the system. When the expander zones coincide with those on the mainboard, it is possible to define which of the zones will be supported by the mainboard and which ones through the expander (see: PROGRAMMING manual).

Expander address		Numbers of system zones
decimally	hexadecimally	
12	0C	7-14
13	0D	15-22
14	0E	23-30

Table 2.

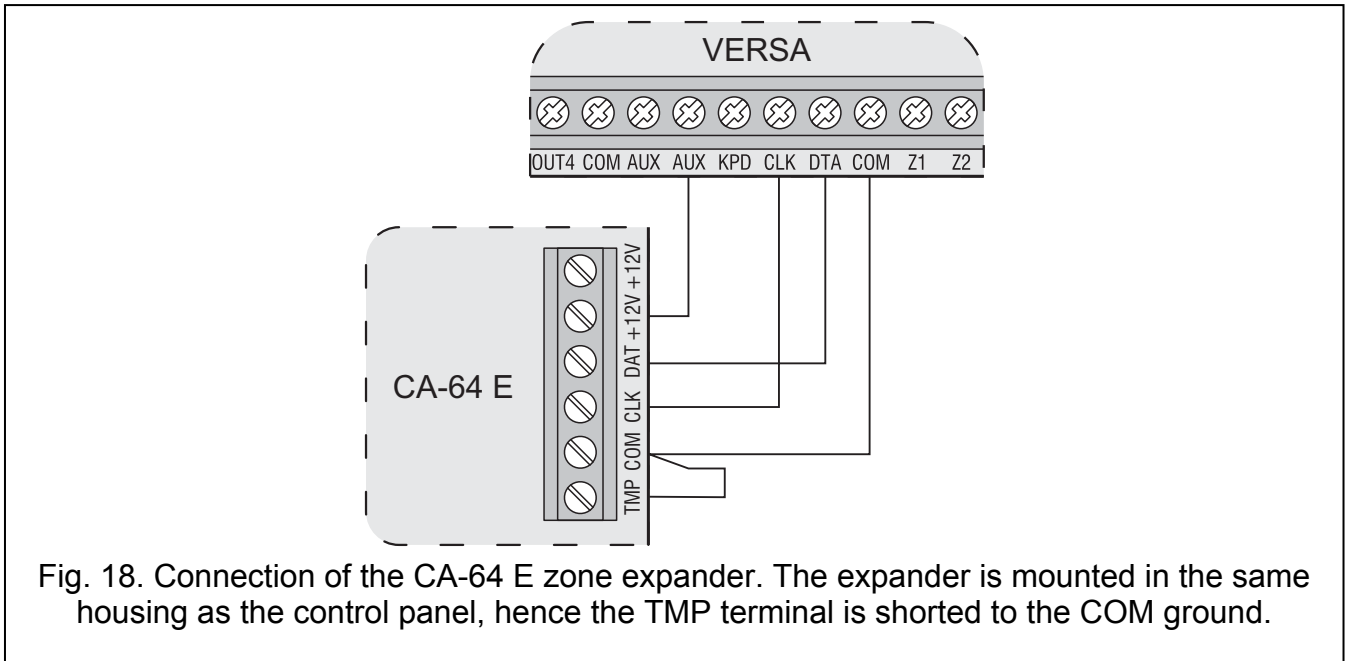


Fig. 18. Connection of the CA-64 E zone expander. The expander is mounted in the same housing as the control panel, hence the TMP terminal is shorted to the COM ground.

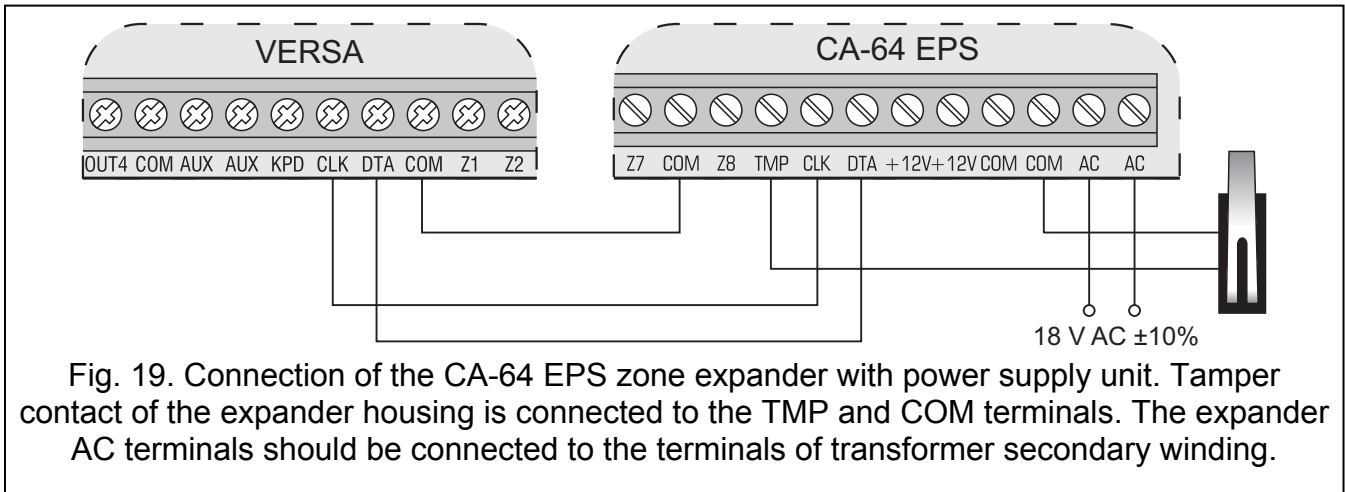


Fig. 19. Connection of the CA-64 EPS zone expander with power supply unit. Tamper contact of the expander housing is connected to the TMP and COM terminals. The expander AC terminals should be connected to the terminals of transformer secondary winding.

3.5.7 Connecting output expander

One output expander can be installed in the system, thus enabling the system to be expanded by 8 hardwired outputs. The outputs will have numbers from 5 to 12 in the system. Address 15 (0Fh) must be set in the expander. For the INT-ORS expander, if the sixth switch is set in ON position, the expander will be identified by the control panel as CA-64 O, which however does not affect its functionality. For the other output expanders, position of the switches 6 to 8 is irrelevant.

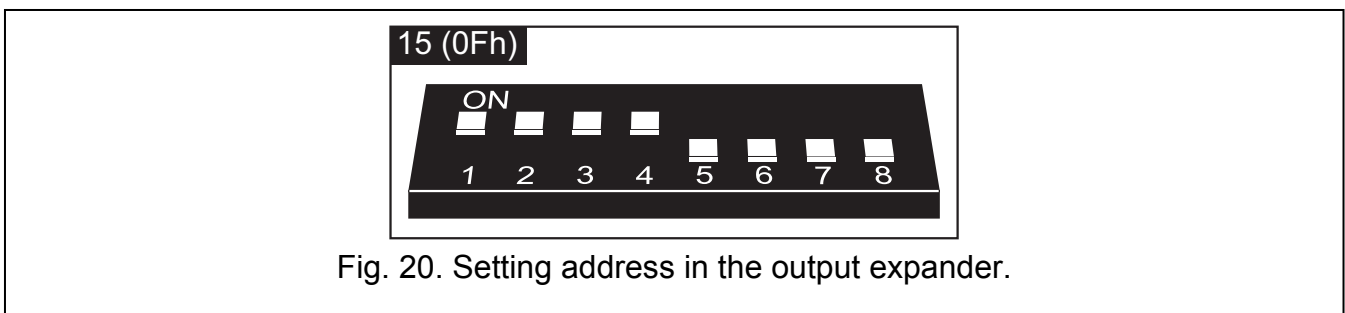


Fig. 20. Setting address in the output expander.

The connection should be done in the same way as described in section on connecting the zone expanders (output expander without power supply – see Fig. 18, output expander with power supply – see Fig. 19).

3.5.8 Connecting proximity card readers

Up to 6 INT-IT readers can be installed in the system. Addresses from the 16 (10h) to 21 (15h) range should be set in the readers.

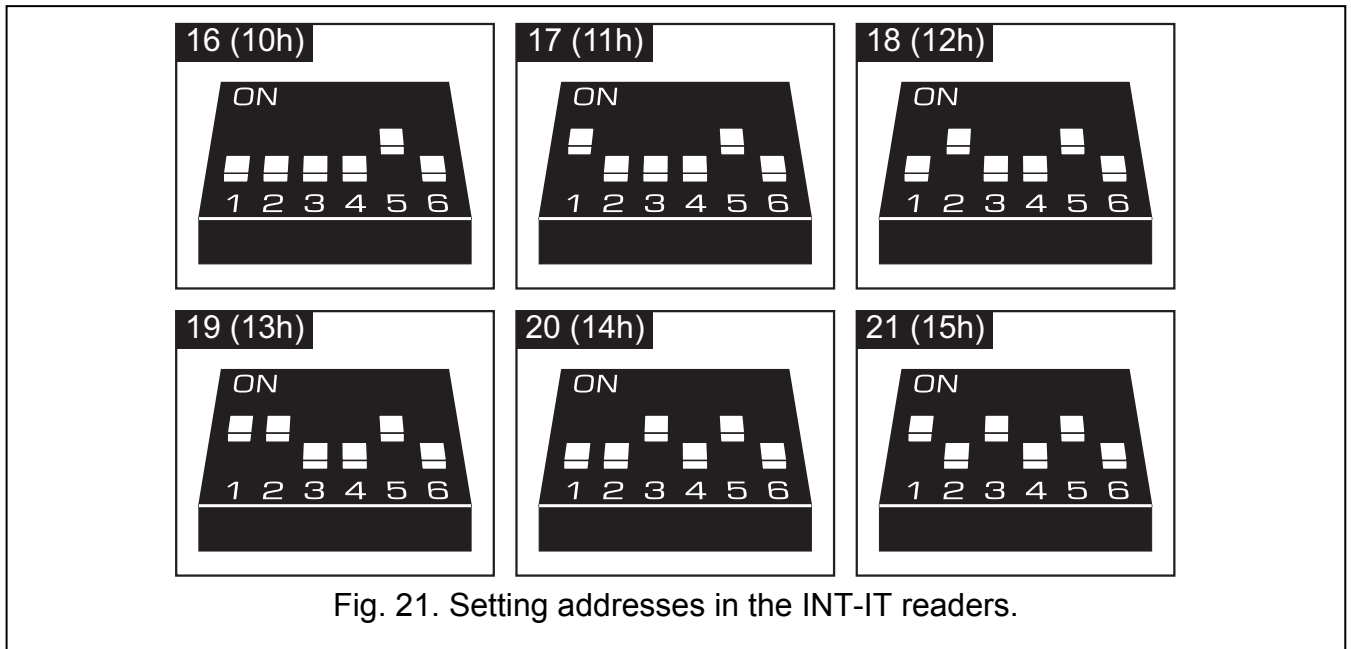


Fig. 21. Setting addresses in the INT-IT readers.

3.5.9 Connecting voice synthesizer expander

One CA-64 SM expander can be installed in the system. Connect the CLK and DTA expander wires to the control panel communication bus, and the plug to the dedicated socket. The CA-64 SM synthesizer requires address 23 (17h) to be set. Position of the switches 6 and 7 is irrelevant. The switch 8 disables / enables the function of recording voice messages.

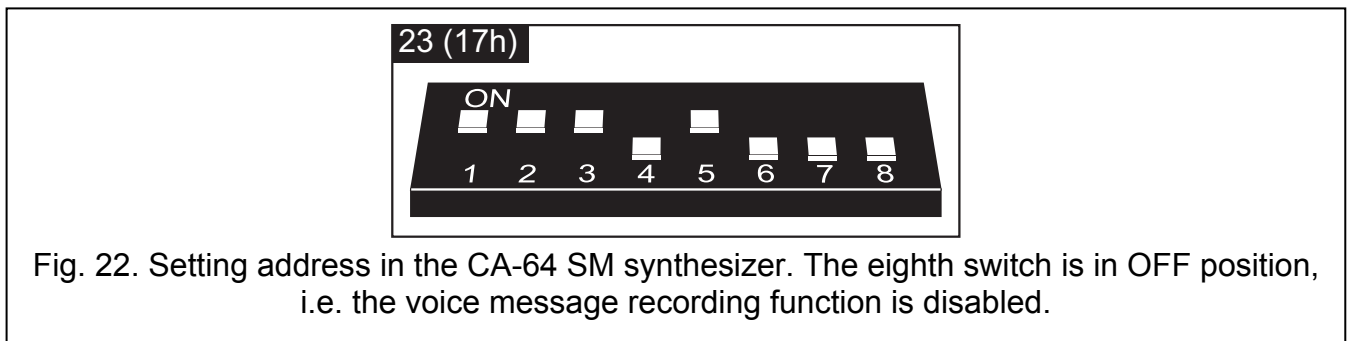



Fig. 22. Setting address in the CA-64 SM synthesizer. The eighth switch is in OFF position, i.e. the voice message recording function is disabled.

3.5.10 Identification of keypads and expanders


Devices connected to the communication bus can be properly supported only after running the identification function. The function will check what kind of modules are connected to the control panel. It should be launched after the first start of the control panel and each time after a new device is added or an address changed in the device supported by the control panel. Disconnecting the identified module from the communication bus will trigger the tamper alarm.

1. Enter the **service code** (by default: 12345) and press the key.
2. Press in turn the keys to enter the service mode.
3. Press in turn the keys (IDENTIFICATION function will start). Completion of the identification will be signaled with three short beeps and information on

the identified devices will be shown (on the display in LCD keypads and by means of indicator LEDs in LED keypads).

4. Press the  key to quit the identification function.

Notes:

- *Two long beeps at the end of the identification function mean that an invalid address is set in the device connected to the communication bus (i.e. an address incorrect for this type of device or the same address for at least two devices). A displayed message (LCD keypad) or blinking of the LED corresponding to the address of the device (LED keypad) will be helpful in diagnosing the trouble. Press the  key, set the correct address and then restart the IDENTIFICATION function.*
- *Address 0 in the LED keypad is presented by means of the LED with number 30.*

3.6 Connecting hardwired detectors

Each zone in the system can supervise one of the following loops:

- NC (normally closed),
- NO (normally open),
- EOL (end of line),
- 2EOL/NC (double end of line, NC type detector),
- 2EOL/NO (double end of line, NO type detector).

Value of the resistors used in EOL and 2EOL loops is programmable within the range from 500 Ω to 15 k Ω for the zones:

- on the control panel mainboard – value of the R1, R2 resistors is programmed individually for 2EOL wiring type (see Fig. 26). Value of the resistor for EOL wiring type is the sum of values programmed as R1 and R2.
- in the zone expanders identified by the control panel as CA-64 Ei and CA-64 EPSi (see section CONNECTING ZONE EXPANDERS) – depending on the expander firmware version, the following is to be configured:
 - **version 4.00** – value of the R1, R2 resistors for 2EOL wiring type (see Fig. 26). Value of the resistor for EOL wiring type is the sum of values programmed as R1 and R2.
 - **version 2.00 or 2.01** – value of the resistor for EOL wiring type. For 2EOL wiring type, the value of a single resistor is half the defined value.

For the zones in expanders identified by the control panel as CA-64 E and CA-64 EPS (see section CONNECTING ZONE EXPANDERS), a 2.2 k Ω resistor is to be used in EOL configuration and two 1.1 k Ω resistors in 2EOL configuration to close the circuit.

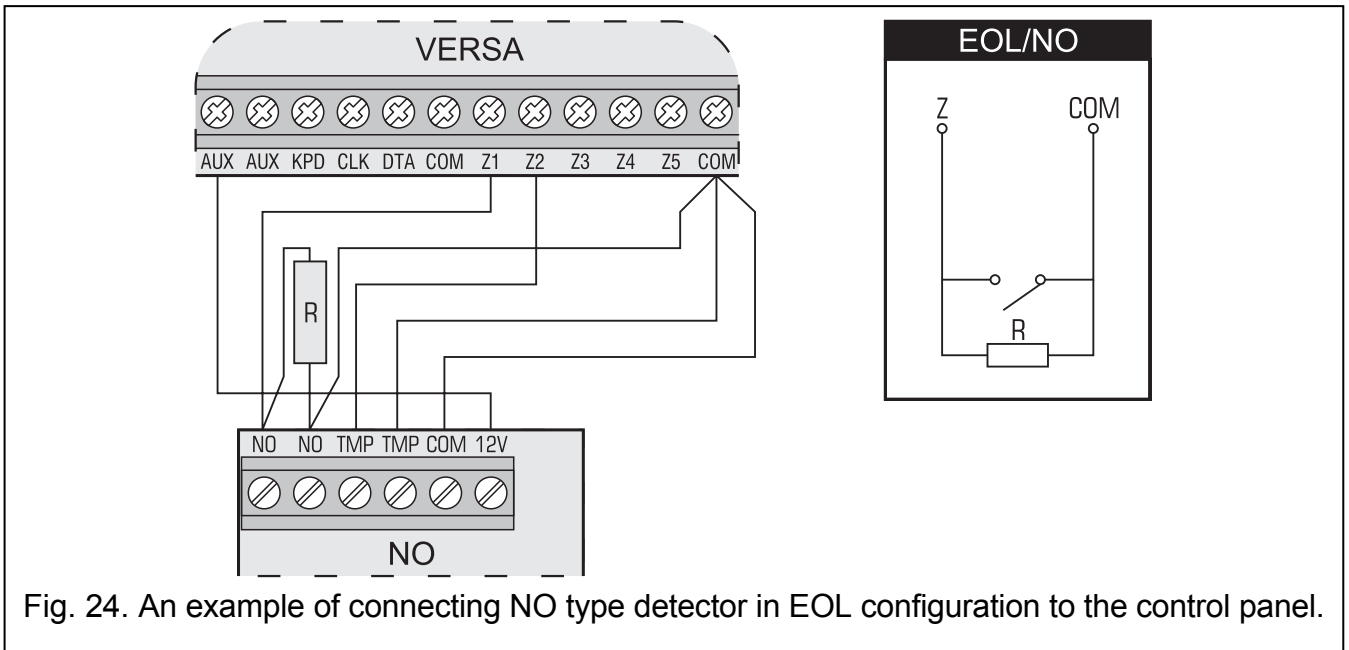
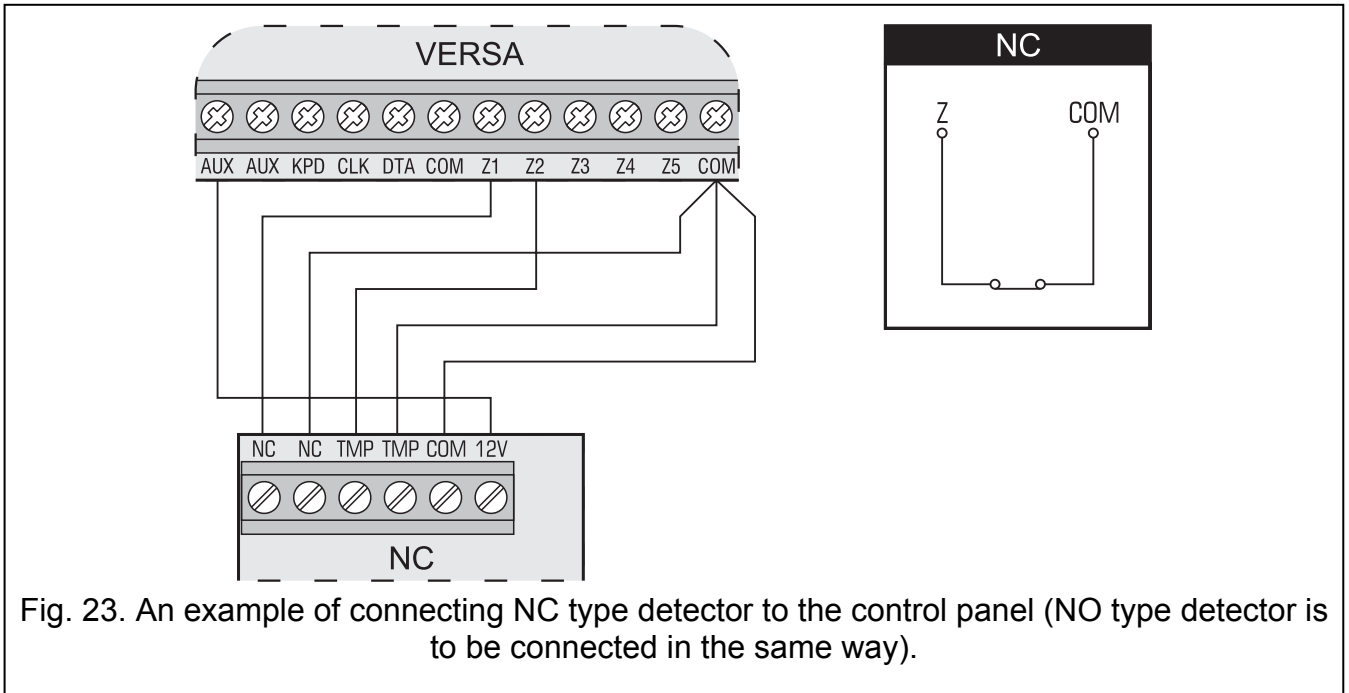
The mainboard zones (all zones in the VERSA 5 control panel and the first 8 zones in the VERSA 10 and VERSA 15 control panels) and the zones in expanders identified by the control panel as CA-64 Ei and CA-64 EPSi can additionally work in the following configurations:

- roller (dedicated for connecting the roller shutter motion detector),
- vibration (normally closed, dedicated for connecting the vibration detector; an NC type detector, e.g. magnetic contact, can be connected in series with the vibration detector).

The detectors may be power supplied directly from the control panel (AUX outputs), from the expanders provided with power supply or from auxiliary power supply units. The choice of the detector power supply source should be made conditional upon the previous estimation of current consumption by devices installed in the system.

Figures 23, 24, 25 and 26 illustrate how detectors in different configurations should be connected to the control panel. The detector is power supplied from the AUX output. The

signal from detector is supplied to the control panel zone Z1. Zone Z2 in the examples in Figures 23, 24 and 25 has been programmed as tamper zone (type 6: 24H TAMPER).



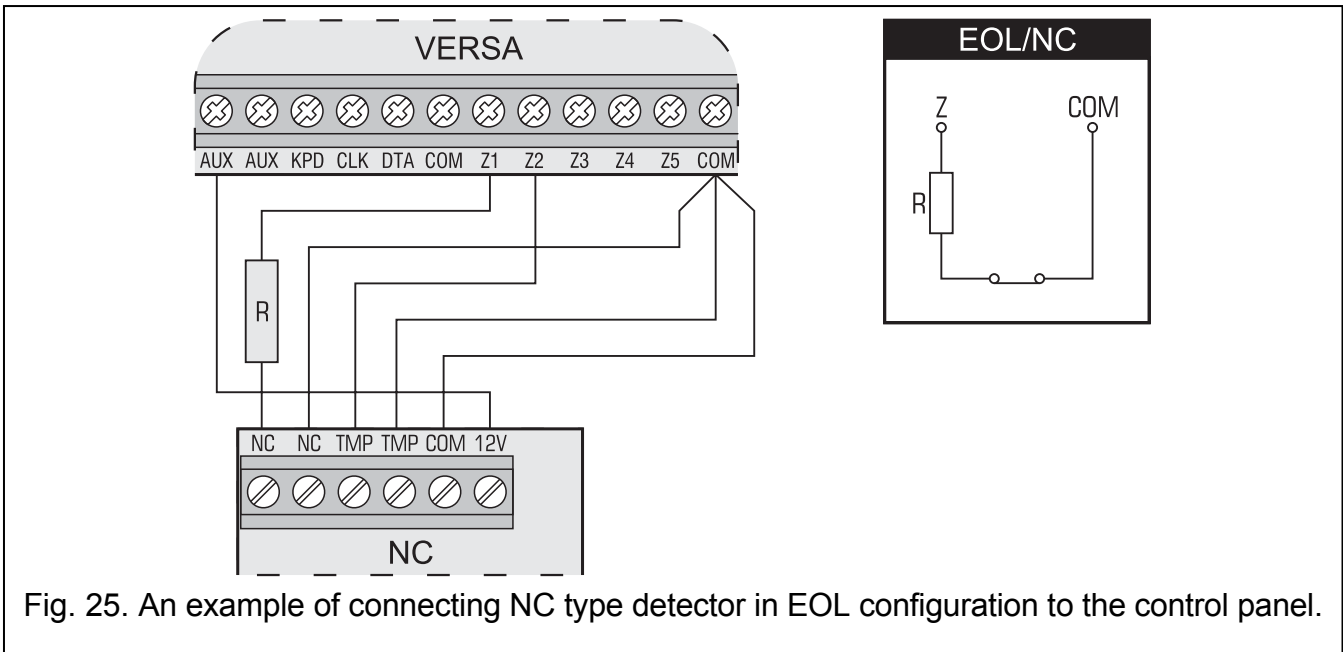


Fig. 25. An example of connecting NC type detector in EOL configuration to the control panel.

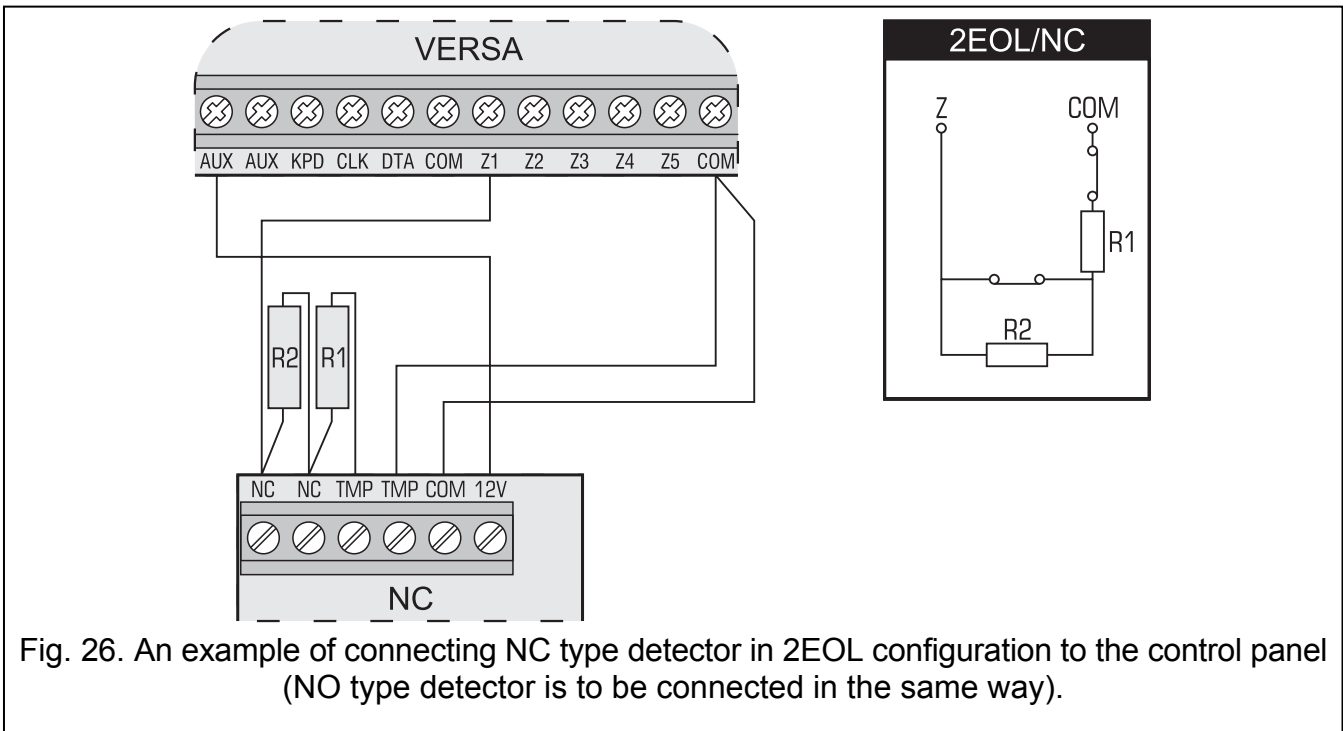


Fig. 26. An example of connecting NC type detector in 2EOL configuration to the control panel (NO type detector is to be connected in the same way).

3.7 Connecting sirens

The way of connection depends on the type of output (high- or low-current). The high-current outputs are more suitable for controlling the sirens without their own power supply and the low-current outputs for the sirens provided with their own power supply. The outputs must be programmed as required.

Figures 27 and 28 illustrate the way of connecting the sirens to the control panel. In both cases, an outdoor siren is shown. The cut-off time programmed for the output which controls the optical signaling (OUT1 in Fig. 27 and OUT3 in Fig. 28) is 0 seconds, i.e. until cleared. Zone Z1 is programmed as tamper one (line type NC, zone type 6. 24H TAMPER).

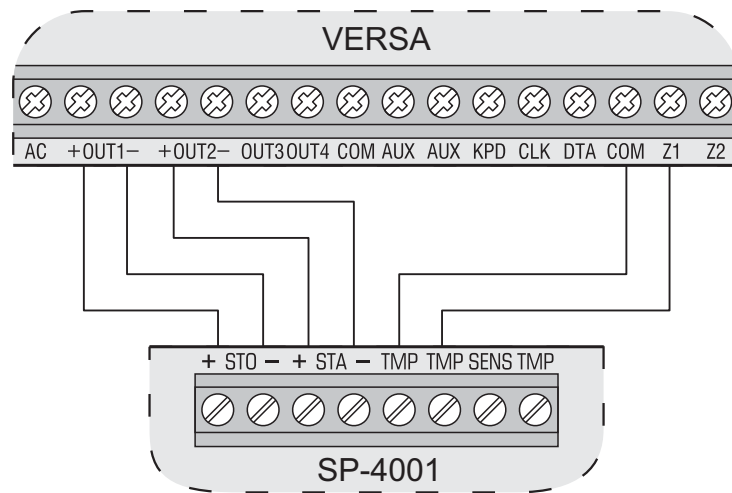


Fig. 27. Connection of the siren without own power supply to control panel (by example of SP-4001).

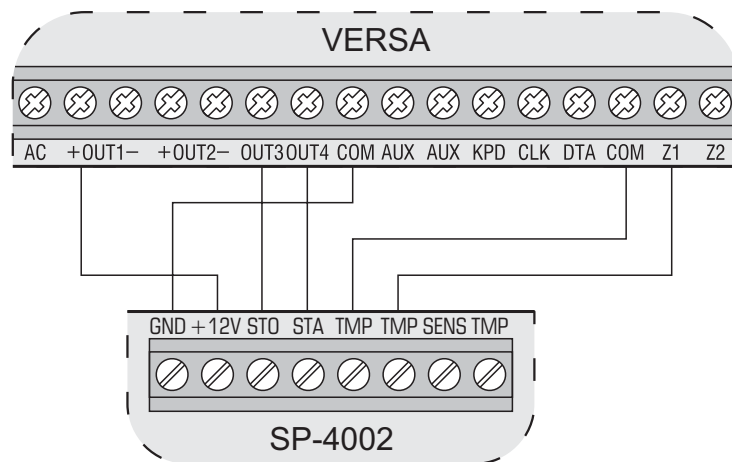


Fig. 28. Connection of the siren with own power supply to control panel (by example of SP-4002). Reversed polarity must be programmed for the OUT3 and OUT4 outputs. The siren PLO and PLA pins must be shorted (alarm triggered if common ground is cut off).

Note: It is recommended that the control panel be started without connected sirens. This will prevent accidental triggering of the alarm after the control panel is started.

3.8 Connecting radio monitoring transmitter

The OUT3, OUT4 outputs of the VERSA series control panels can be used for control of the NR2-DSC radio monitoring transmitter (NEMROD system – format PC-16 OUT) manufactured by NOKTON. In such a case, the SERIAL DATA ON OUT 3/4 global option must be enabled in the control panel (see PROGRAMMING manual, section GLOBAL OPTIONS).

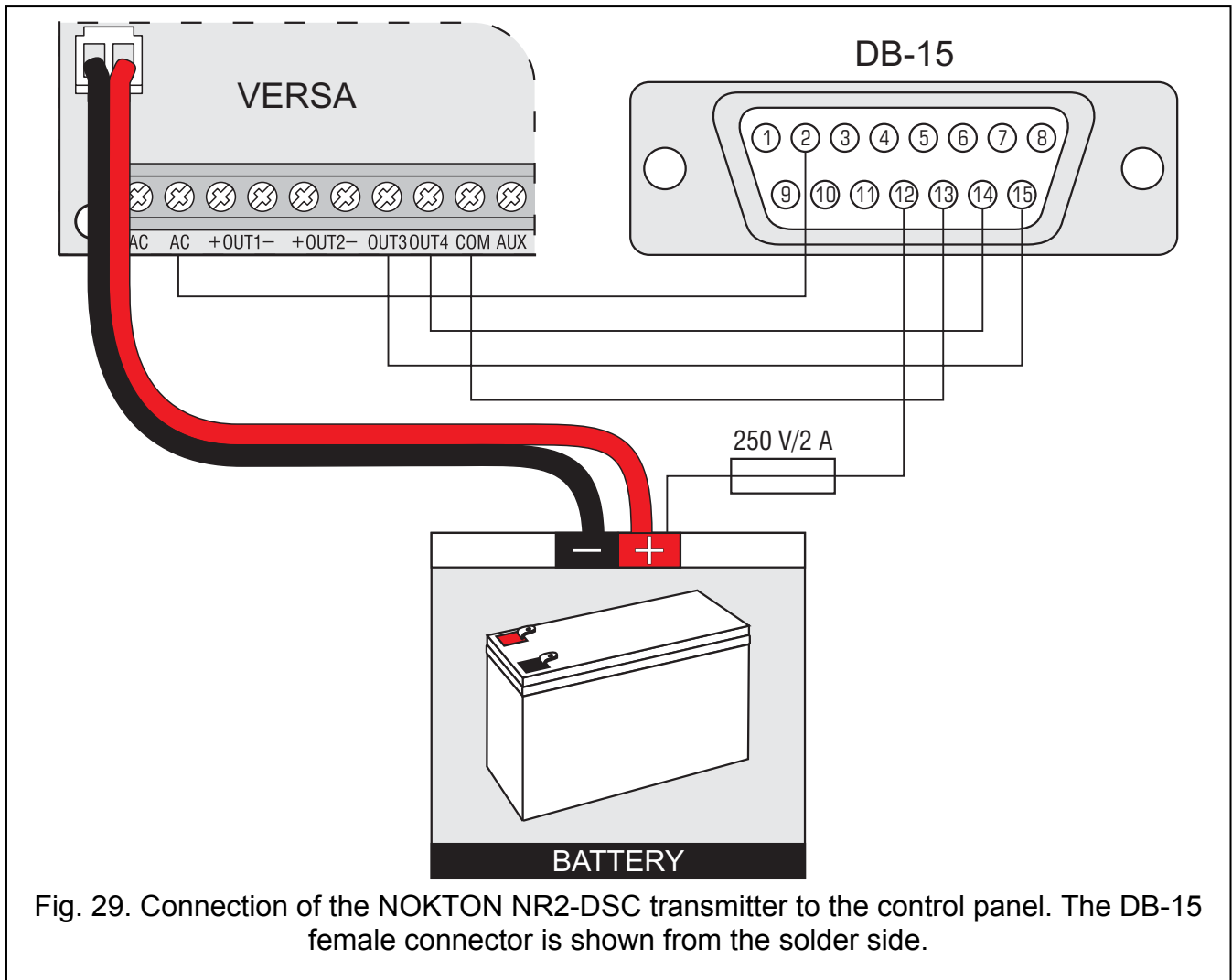


Fig. 29. Connection of the NOKTON NR2-DSC transmitter to the control panel. The DB-15 female connector is shown from the solder side.

Contact number	Description	Connection method
2	alternating voltage check	connect to control panel AC terminal
12	power supply	connect directly to battery "+" through 2 A fuse
13	common ground	connect to control panel COM terminal
14	TAKT	connect to control panel OUT3 terminal
15	PGM	connect to control panel OUT4 terminal

Table 3. Description of the connector contacts in NOKTON NR2-DSC transmitter to be used for connection to the VERSA series control panels.



Never connect the contact 13 (common ground) of the NR2-DSC transmitter connector to the battery "-". Connecting the transmitter common ground to the battery "-" may not only cause quick discharge of the battery, but even damage to the control panel.

Never connect the contact 13 (common ground) of the NR2-DSC transmitter connector to the control panel COM terminal and the battery "-", as it may cause damage to the control panel.

3.9 Connecting telephone line



The telephone signals and the alarm system signals should not be sent through one multi-core cable. Such a situation poses a threat of system damage in case of a high-voltage disruptive discharge from the telephone line.

The control panel should only be used with analog subscriber lines. Connecting the telephone circuit directly to a digital network (e.g. ISDN) will cause damage to the equipment.

The installer is obliged to inform the user about the way of connecting the control panel to the telephone network.

If the control panel telephone dialer is to be used in the security alarm system (monitoring, messaging or remote programming), it will be necessary to connect the analog telephone line to the control panel.

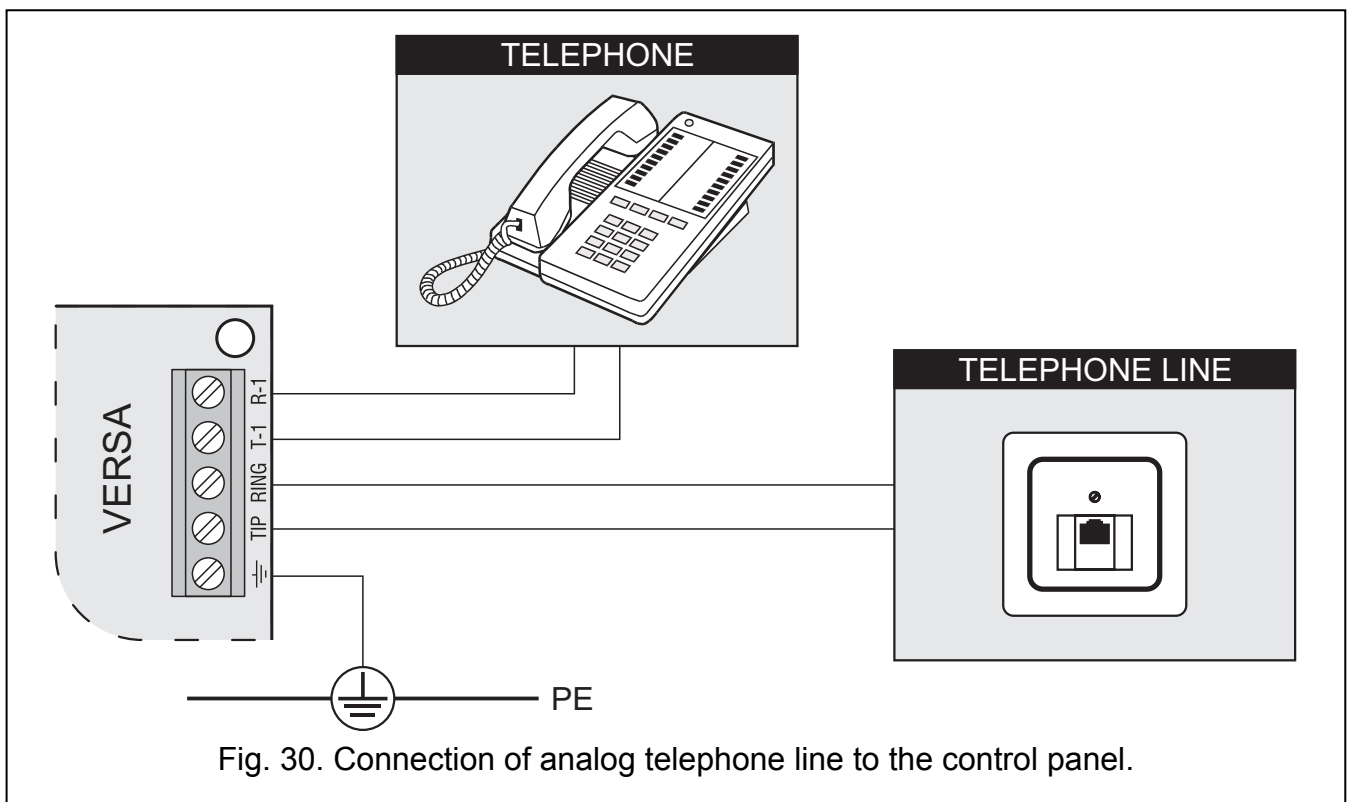


Fig. 30. Connection of analog telephone line to the control panel.

The control panel must be directly connected to the telephone line (terminals designated TIP, RING). Other devices using the telephone line (e.g. telephone, fax) should be connected after the control panel (terminals designated T-1, R-1). When connected in this manner, the control panel will be able to completely capture the line for the time of making a call. This will prevent the control panel telephone dialer from being blocked, e.g. by lifting the telephone receiver (such a situation would take place, if the control panel was connected to the telephone line after the telephone set).

If the ADSL service is used on the premises where the control panel is installed, the control panel should be connected after the ADSL filter, and the other devices using the analog telephone line should be connected to the control panel.

For protection of the telephone dialer against voltage surges, the \perp terminal should be connected to the 230 V AC network protective conductor (PE). Never connect the \perp terminal to the neutral conductor (N).

3.10 Connecting power supply and starting the control panel



Before connecting power supply, make sure that all connection operations in the system are completed.

Never connect two devices with power supply unit to one transformer.

Before adding transformer to a circuit from which it will be powered, make sure the circuit is de-energized.

It is not allowed to connect a fully discharged battery (with voltage across unloaded terminals less than 11 V) to the alarm panel. In order to avoid any damage to the equipment, if the battery is fully discharged, precharge it by means of a suitable charger.

The VERSA control panels must be supplied with 18 V ($\pm 10\%$) alternating voltage. It is recommended that a transformer with at least 40 VA output current be used. The transformer should be permanently connected to the 230 V AC mains. Before you begin the cabling work, make yourself familiar with the electric system in the building. A circuit which is always alive should be selected for power supply. The power supply circuit should be protected with a proper safety device. Let the owner / user of the security system to know how the transformer should be disconnected from the mains supply (e.g. by indicating the fuse which protects the control panel supply circuit).

A 12 V lead-acid sealed battery should be connected to the control panel as an emergency power source. The battery capacity must be adequately selected to match current consumption in the system. According to CLC/TS 50131-1 Grade 2, the battery must ensure operation of the system without mains supply for 12 hours.

Note: *If the battery voltage drops below 11 V for longer than 12 minutes (3 battery tests), the control panel will indicate battery failure. When the voltage goes down to approx. 10.5 V, the battery will be disconnected.*

3.10.1 Control panel power-up / start-up procedure

1. Deenergize the 230 V AC circuit to which the transformer is to be connected.
2. Connect the 230 V alternating voltage wires to the terminals of transformer primary winding.
3. Connect the terminals of transformer secondary winding to the AC terminals on control panel electronics board.
4. Connect the battery to the dedicated leads (red one to the battery “plus”, black one to “minus”). **The control panel will not start after connecting the battery alone.** The battery cable ends must not be cut off.
5. Turn on 230 V AC power supply in the circuit to which the transformer is connected. The control panel will start operating.

The above mentioned power-up sequence (battery first, 230 V AC mains after) will permit proper operation of the power supply unit and control panel electronic protection circuits, thus preventing defects of the alarm system components which might be caused by possible installation errors. Modules fitted with their own power supply should be started in the same way.

Note: *Should a situation occur when total disconnection of control panel power supply is necessary, disconnect the mains first and then the battery. When reconnecting the power supply, follow the reversed sequence (i.e. the battery first and the 230 V AC mains afterwards).*

3.11 First start-up of the control panel

The control panel with factory settings (a new one or one after restart of settings) supports all keypads connected to the bus. It does not, however, control the status of keypad tamper contacts, and does not provide for programming the security system parameters.

Prior to programming the system, you should:

1. Set individual, correct addresses in keypads (see section CONNECTING KEYPADS p. 10).
2. Start the keypad identification function (see section IDENTIFICATION OF KEYPADS AND EXPANDERS p. 17).

3.12 Installation of wireless devices



The battery in battery-operated wireless devices should be installed just before registration in the system. If the wireless device has no communication with the control panel for more than 10 minutes, it consumes more energy, which reduces the battery life.

Proceed to installation of the wireless devices only after starting the control panel, when it is possible to check the level of radio signal received by the ACU-100 controller from various devices and, vice versa, by the devices from the controller. A helpful tool for checking the signal level is the ARF-100 tester, manufactured by SATEL. The level of signal received by the device / controller must not be lower than 40%. If the radio signal level at the anticipated installation place is too low, another place should be selected for installation. Sometimes, it is sufficient to move the device ten to twenty centimeters to achieve a considerable improvement in the signal quality. The device may only be permanently installed after optimal radio signal level is obtained.

It is recommended that the wireless devices be installed high. This will permit to obtain a better range of radio communication and avoid the risk of the devices being accidentally obstructed by people moving around the site.

3.12.1 Adding new wireless devices

When adding the wireless devices, keep in mind the following rules:

- The control panel can support up to 30 wireless devices, provided that each of them occupies only one zone/output.
- If the device occupies more than one zone/output, its addition will respectively decrease the number of wireless devices which it will still be possible to register (for example, after adding to the system of the ACX-200 expander, which takes up 4 zones/outputs in the system, the control panel will still be able to accept 26 other wireless devices).
- Even if the device takes up several zones in the system, only the first of them is to be indicated during the device adding procedure. The next zones will be assigned automatically (following successively the selected one).
- If the device occupies an output as well, its number will be the same as the number of zone selected during the device adding procedure.
- The control panel does not support wireless outputs with numbers from 13 to 30.

DLOADX program

Wireless devices are added in the "Versa – Structure" window, "Hardware" tab, after having selected the ACU-100 controller from the list. Before you proceed to adding a new device, click your mouse on the "Read" button to download data from the controller.


1. Click on the zone to which the new wireless is to be assigned (you can also select the zone after clicking on the "New device" button, in the "New wireless dev." window).
2. Click on the "New device" button. The "New wireless dev." window will open.
3. Enter the 7-digit serial number of the device being added. The serial number can be found on the electronics board or on the housing. The serial number of each ARF-100 radio signal level tester is 0000500.
4. Depending on what kind of device is to be added to the system:
 - turn on power supply of the ACX-200 or ACX-201 expander,
 - switch on the ARF-100 tester,
 - insert the ASW-100 E/ASW-100 F wireless controller into 230 V socket,
 - insert battery into the ASD-100 detector,
 - violate (open) the tamper contact in case of the other devices.

Note: *If a wrong serial number is entered, a corresponding message will be displayed. In such a case, enter the correct serial number and repeat the above-mentioned operation.*








5. Addition of the new device will be confirmed by a message. Click on the "OK" button to finish the new device adding procedure.

LCD keypad

The wireless devices are added in the service mode by means of the NEW DEVICE function (SERVICE MODE ►2. HARDWARE ►1. KPDS. & EXPS. ►3. ACU-100 ►1. NEW DEVICE).

1. Having started the function, enter the 7-digit serial number of the device and press the  key. The serial number can be found on the electronics board or on the housing. The serial number of each ARF-100 radio signal level tester is 0000500.
2. When the "Open device tamper" message is displayed on the keypad:
 - turn on power supply of the ACX-200 or ACX-201 expander,
 - switch on the ARF-100 tester,
 - insert the ASW-100 E/ASW-100 F wireless controller into 230 V socket,
 - insert battery into the ASD-100 detector,
 - violate (open) the tamper contact in case of the other devices.

Notes:

- *If a device with the entered serial number is already registered, the keypad will signal it with two long beeps and a corresponding message and will not go over to the next step of the procedure. Press the  key to restart the procedure.*
 - *If the serial number of the device to be added is inconsistent with that entered previously, the keypad will do nothing (it will be waiting for signal from the correct device). Press the  key to restart the procedure.*
3. The name and serial number of the new device will be displayed. Press  to proceed to the next step of the procedure (or press another key to cancel the addition of a new device).
 4. A list of system zones to which the device can be assigned will be displayed. Select one of them (use the  and  keys to scroll through the list) and press the  key (or press the  key to cancel the addition of a new device).

5. A suggested name for the zone to which the device is assigned will appear on the display. You can change this name. Press the **#** **U** key to save the new name. If the device occupies several zones or, additionally, outputs, the procedure is repeated for each of them. You can press the ***** **U** key to terminate the name giving procedure and exit the function, but the device will be added.
6. At next steps, the device working parameters are to be programmed (see PROGRAMMING manual, section ABAX WIRELESS SYSTEM CONTROLLER).

3.12.2 Removing wireless devices

DLOADX program

Wireless devices are removed in the "Versa – Structure" window, "Hardware" tab, after having selected the ACU-100 controller from the list. Before you proceed to removing a device, click your mouse on the "Read" button to download data from the controller.

1. Click on the device you want to be deleted.
2. Click your mouse on the "Delete" button. The "Confirm" window will open.
3. Click on the "Yes" button, to confirm your intention to remove the device. The device will be removed.

LCD keypad

Wireless devices are removed in the service mode by means of the REMOVE DEVICE function (SERVICE MODE ►2. HARDWARE ►1. KPDS. & EXPS. ►3. ACU-100 ►3. REMOVE DEVICE).

1. Select in the list the device to be removed from the system and press **#** **U**.
2. Press the key with number **1** to confirm removal of the device.

4. Technical data

4.1 Control panel mainboard

Security grade.....		2
Supply voltage		18 V AC \pm 10%, 50–60 Hz
Current consumption, standby	VERSA 5	70 mA
	VERSA 10	100 mA
	VERSA 15	135 mA
Current consumption, maximum	VERSA 5	90 mA
	VERSA 10	125 mA
	VERSA 15	160 mA
Type of control panel power supply		A
Power supply output voltage.....		12 V DC \pm 15%
Output voltage range		10.5 V...14 V DC
Battery failure voltage threshold		11 V \pm 10%
Battery cut-off voltage		10.5 V \pm 10%
Power supply output current	VERSA 5	1 A
	VERSA 10	2 A
	VERSA 15	2 A
High-current programmable output load		1.1 A
Low-current programmable output load		50 mA

KPD output load		500 mA
AUX outputs load		500 mA
Battery charging current		350 mA
Environmental class		II
Working temperature range		-10 °C...+55 °C
Maximum humidity		93±3%
Electronics board dimensions	VERSA 5	120 x 68 mm
	VERSA 10	150 x 68 mm
	VERSA 15	180 x 68 mm
Weight	VERSA 5	100 g
	VERSA 10	114 g
	VERSA 15	131 g

4.2 VERSA-LCD-GR keypad

Supply voltage	12 V DC ±15%
Current consumption, standby	36 mA
Current consumption, maximum	110 mA
Environmental class	II
Working temperature range	-10°C...+55°C
Maximum humidity	93±3%
Housing dimensions	114.5 x 95 x 22.5 mm
Weight.....	123 g

4.3 VERSA-LED-GR keypad

Supply voltage	12 V DC ±15%
Current consumption, standby	33 mA
Current consumption, maximum	110 mA
Environmental class	II
Working temperature range	-10°C...+55°C
Maximum humidity	93±3%
Housing dimensions	114.5 x 95 x 22.5 mm
Weight.....	97 g

5. History of changes to the manual

DATE	FIRMWARE VERSION	CHANGES MADE
2010-03	1.01	<ul style="list-style-type: none">• Information has been added regarding optional ETHM-1 module connection and new functions available once the module is connected (pages 3, 3, 5 and 12).• Information has been added regarding optional INT-TXM module connection and new functions available once the module is connected (pages 5 and 13).• A note has been added regarding the keypad firmware version, which is needed, if the system is to meet EN 50131 standard requirements for Grade 2 (p. 10).• A note has been added regarding the impact of EHM-1 or INT-TXM module connection on the number of keypads supported by the system (p. 10).• Some figures have been modified.

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