

The CA-64 PTSA mimic board can work in conjunction with SATEL made INTEGRA and CA-64 control panels (state visualization for the alarm system partitions and zones) or STAM-1 and STAM-2 monitoring stations (visualization of the monitored premises). The mimic board will automatically recognize the device with which it operates. It has a built-in 1.3 A switching mode power supply with battery backup.

This manual applies to the mimic board with electronics version 1.5 and firmware version 4.0 (or newer).

## 1. Description of the electronics board

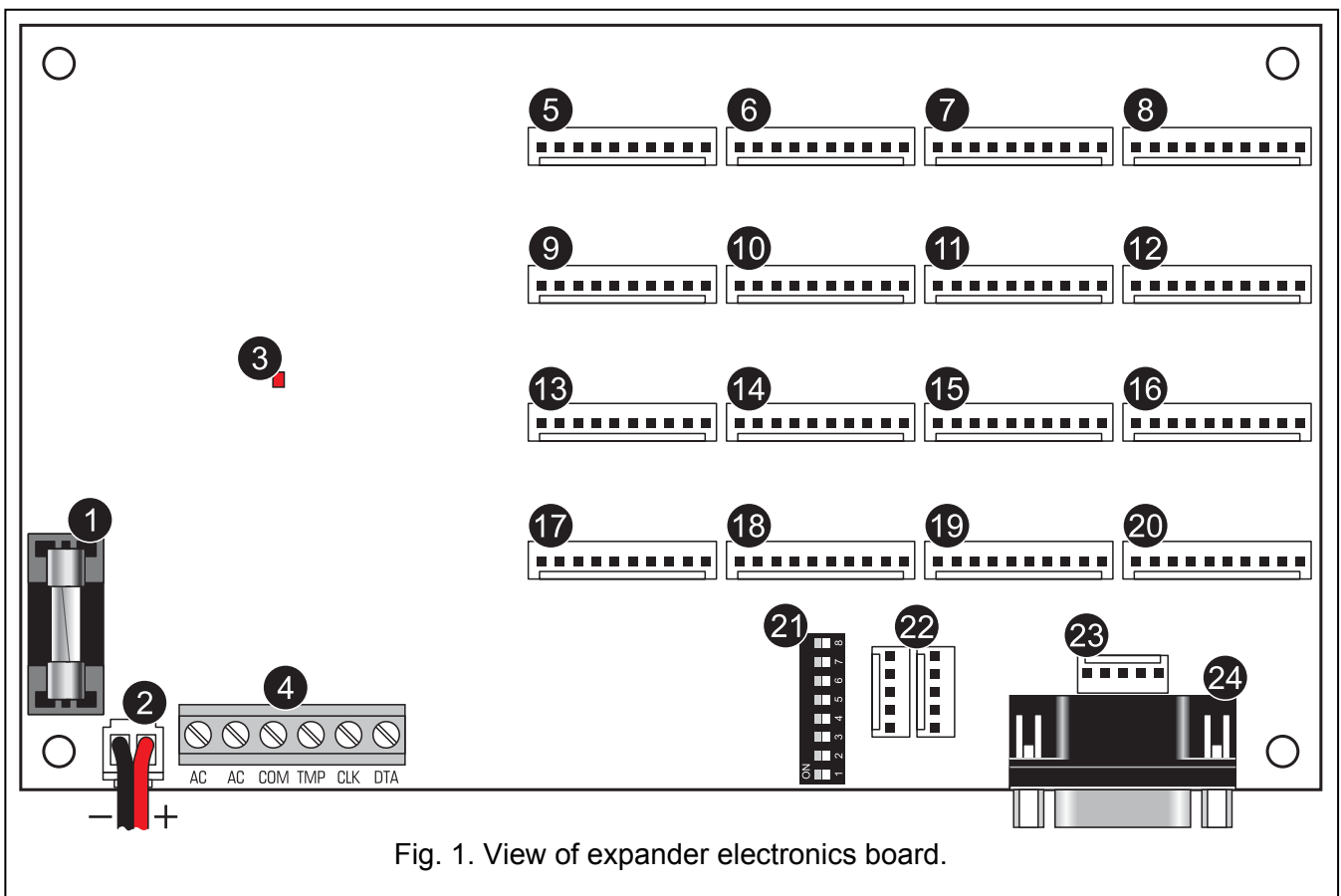


Fig. 1. View of expander electronics board.

Explanations for Fig. 1:

- 1 - fuse element of battery charging system (3.15 A).
- 2 - battery connecting leads (red +, black -).
- 3 - LED indicator of battery testing/charging.
- 4 - terminals:
  - AC** - 18 V AC supply input (from secondary winding of the transformer).
  - COM** - common ground.
  - TMP** - module tamper circuit input (NC).
  - CLK** - clock.
  - DTA** - data.
- 5 - connector socket for LEDs 1-8.
- 6 - connector socket for LEDs 9-16.
- 7 - connector socket for LEDs 17-24.

- 8 - connector socket for LEDs 25-32.
- 9 - connector socket for LEDs 33-40.
- 10 - connector socket for LEDs 41-48.
- 11 - connector socket for LEDs 49-56.
- 12 - connector socket for LEDs 57-64.
- 13 - connector socket for LEDs 65-72.
- 14 - connector socket for LEDs 73-80.
- 15 - connector socket for LEDs 81-88.
- 16 - connector socket for LEDs 89-96.
- 17 - connector socket for LEDs 97-104.
- 18 - connector socket for LEDs 105-112.
- 19 - connector socket for LEDs 113-120.
- 20 - connector socket for LEDs 121-128.
- 21 - set of DIP-switches. The way in which they are used is described in respective sections below.
- 22 - connector sockets for extension boards (work in conjunction with monitoring station).
- 23 - RS-232 port for connection of the computer to GUARD64 or GUARDX program.
- 24 - RS-232 port for connection to the STAM-1 K card (termination receiver card).

## 2. Working with the control panel

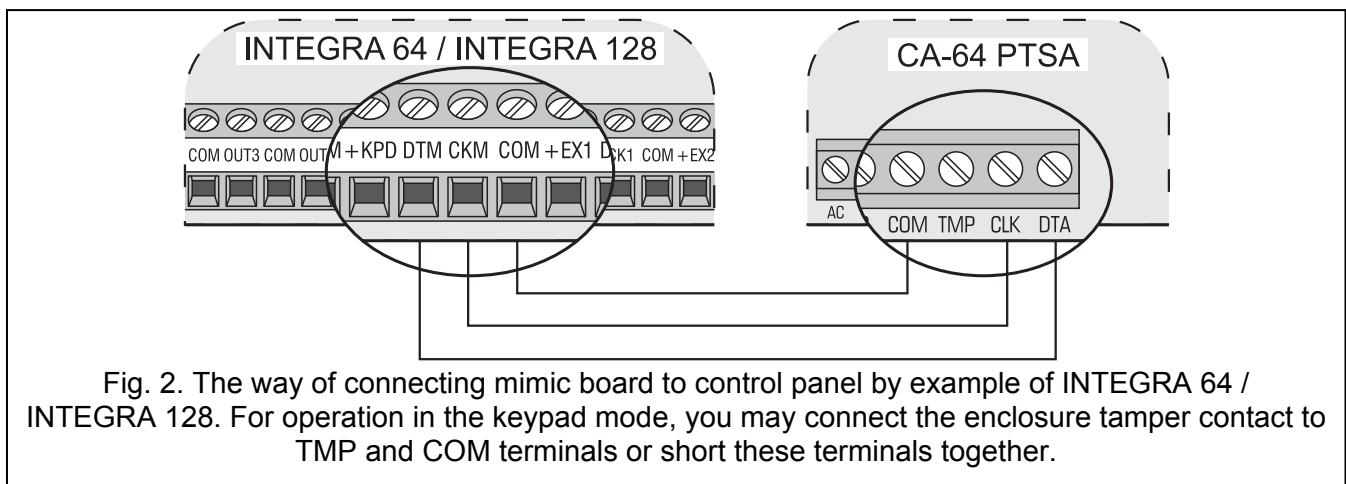
The mimic board can work together with the INTEGRA series or CA-64 control panels.

### 2.1 Connecting to the alarm panel



**Disconnect power before making any electrical connections.**

Connect the mimic board to the keypad bus of the control panel (see Fig. 2). The connections should be made with the typical unscreened straight-through cable (using the "twisted pair" type of cable is not recommended). The wires must be run in one cable. Permissible distance from the mimic board to the control panel is up to **300 m**.



### 2.2 Preview mode operation

Using the LEDs, the mimic board presents information on the state of zones and partitions. You may connect to the control panel any number of mimic boards working in the preview mode.

Set the mimic board DIP switches as recommended below:

- **set the switch 4 to OFF position;**
- the status of switches 1-3 and 7-8 is irrelevant;
- the switches 5-6 are only used when the mimic board is working with the INTEGRA 128 or INTEGRA 128-WRL control panel and are required to select the display mode acc. to Table 1.

Switches		Display mode	LED numbers		
5	6		1-64	65-96	97-128
OFF	OFF	Zones 1-64 and partitions	zones 1-64	partition 1-32 armed modes	partition 1-32 alarms
OFF	ON	Zones 65-128 and partitions	zones 65-128	partition 1-32 armed modes	partition 1-32 alarms
ON	OFF	Only zones 1-128	zones 1-64	zones 65-96	zones 97-128
ON	ON				

Table 1.

Presented below is the way of indicating the status of zones and partitions by means of LEDs. Each LED lighting scheme covers about 2 seconds and consists of 8 time segments, in which the LED is either ON or OFF (0 – LED OFF; 1 – LED ON).

**Zone statuses:**

Bypassed	11110000
Trouble – long violation:	10101000
Trouble – no violations:	10100000
Tamper alarm:	10000000
Alarm:	10101010
Tamper:	11111110
Violation:	11111111
Tamper alarm memory:	10000000
Alarm memory:	10101010
Zone OK:	00000000

**Partition armed modes:**

Entry delay:	11111110
Exit delay < 10 sec.:	10101010
Exit delay > 10 sec.:	11110000
Armed:	11111111
Disarmed:	00000000

**Partition alarms:**

Fire alarm:	11001100
Alarm:	11111111
Fire alarm memory:	10000000
Alarm memory:	11111110
No alarms:	00000000

### 2.3 Keypad mode operation

The mimic board, using LEDs, presents the status of zones and partitions, and informs control panel about any troubles and tampers. The LED lighting scheme can be modified, and computer with GUARDX or GUARD64 program can be connected to the mimic board. The number of mimic boards working in keypad mode that can be connected to the control panel is limited by specifications of the latter.

DIP-switches of the mimic board should be set as recommended below:

- using the switches 1-3, define the mimic board address. It must be selected from the range supported by the control panel and be different from addresses set in other devices connected to the keypad bus. Table 2 shows the values corresponding to the DIP switches (the address is a sum of values set on the switches).

DIP-switch number	1	2	3
Numerical value (for switch in ON position)	1	2	4

Table 2.

- set the switch 4 to ON position.
- the status of switches 5-8 is irrelevant.

## Programming the LED lighting scheme

The LED lighting scheme can be modified by using LCD keypad, DLOADX program (INTEGRA) or DLOAD64 (CA-64 control panel). To program the scheme, define the time segments in which the LED is to be either ON or OFF (the scheme, which lasts 2 seconds, consists of 8 time segments).



In the LCD keypad, select the state for which the LED scheme is to be changed (SERVICE MODE → STRUCTURE → HARDWARE → LCD KEYPADS → SETTINGS → *select mimic board* → *select state to be indicated*). After starting the selected function, the LED ON in time segment is indicated by symbol , and the LED OFF by symbol  (see Fig. 3). Hover your cursor over a time segment (you can move the cursor using the ► and ◀ keys) and press any number key to change the displayed symbol.



Fig. 3. An example of LED lighting scheme presented in LCD keypad.

To program the LED lighting scheme in DLOADX and DLOAD64 programs, open the "Structure" window and select the mimic board in the "Hardware" tab. The LED lighting schemes for particular states are presented graphically. The orange field means a segment in which the LED is ON, and the gray field – a segment in which the LED is OFF (see Fig. 4). Double click on the selected field to change its color.

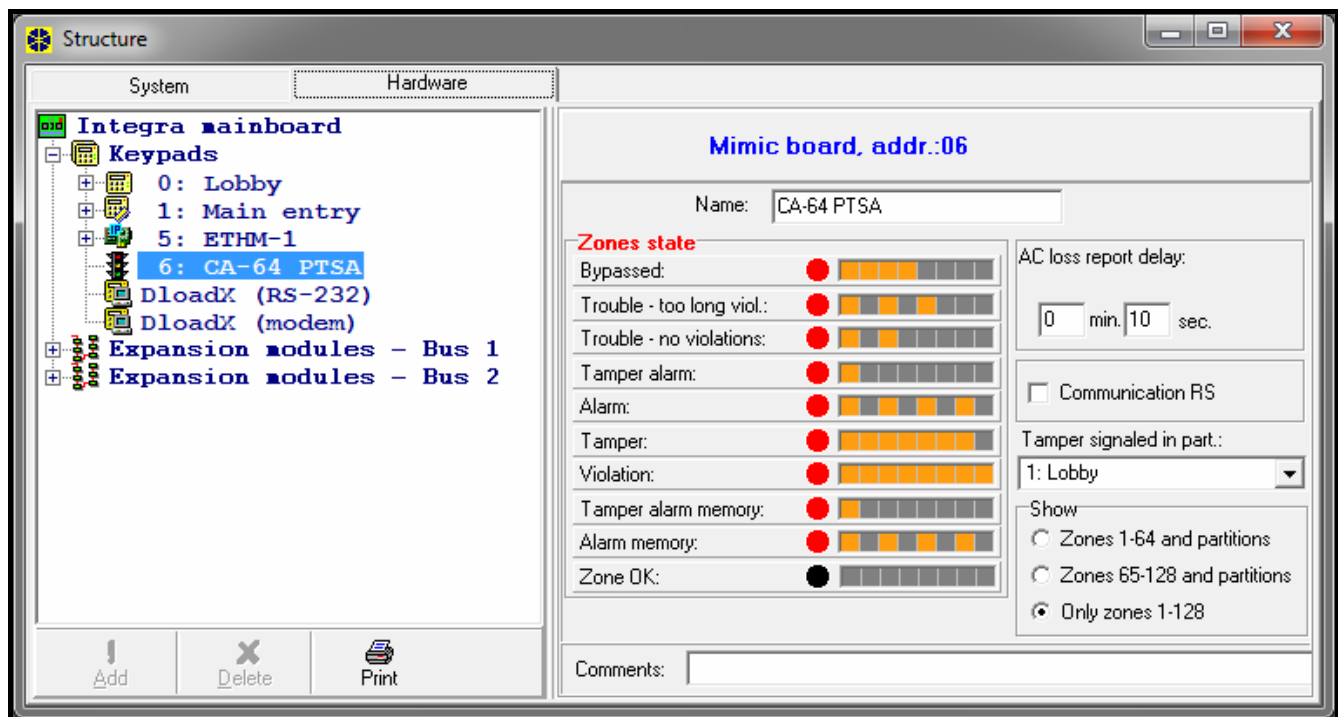


Fig. 4. Programming the mimic board settings in DLOADX program for INTEGRA 128 control panel.

## 3. Working with the monitoring station

The mimic board can work together with the STAM-1 (firmware version 3.17 or later) or STAM-2 monitoring station. A single mimic board enables visualization of the state of up to 64 objects (two LEDs for each object). In case of a greater number of objects, additional mimic boards can be connected (only the first mimic board is directly connected to the monitoring station – the extension boards are connected to each other). Up to 63 mimic boards can be used, which enables the state of 4032 objects to be presented. Use the monitoring station program to configure the LED lighting template.

### 3.1 Connecting the main mimic board to monitoring station

The mimic board can only be connected to the STAM-1 K card (i.e. the termination receiver card). The dedicated RS-232 port of the mimic board (see Fig. 1) and the port of the STAM-1 K card should be connected with the cable prepared as shown in Fig. 5.

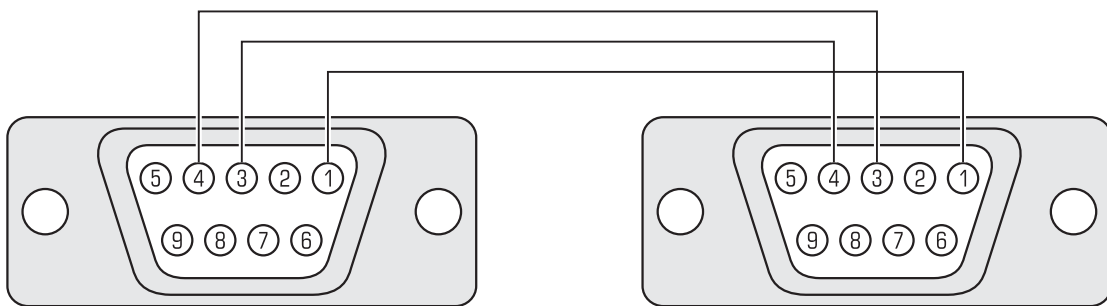


Fig. 5. The way of making connections between DB9 male connectors in the cable connecting the mimic board to the STAM-1 K card. The connectors are shown from the solder side.

### 3.2 Connecting the extension boards

The dedicated ports for connection of the extension cards are shown in Fig. 1. The connection must be made using cables prepared exactly in the same way as those for connecting the extension cards of the monitoring station.

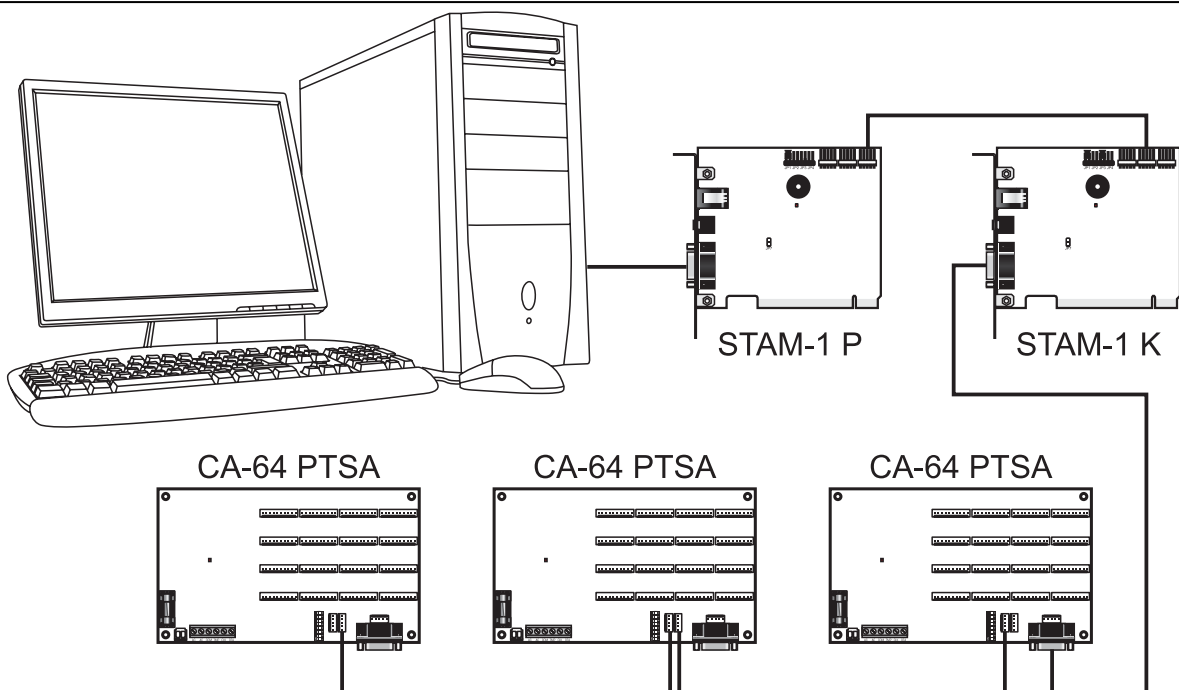


Fig. 6. Diagram for connection of several mimic boards to the monitoring station.

### 3.3 Setting address

Each of the boards connected to the monitoring station must have its individual address, which should be set using the DIP switches. Use the switches 1-6 to set the address (the switches 7 and 8 must be set in OFF position). Table 3 shows the values corresponding to the DIP switches (the address is a sum of values set on the switches).

<b>DIP-switch number</b>	1	2	3	4	5	6
<b>Numerical value</b> (for switch in ON position)	1	2	4	8	16	32

Table 3.

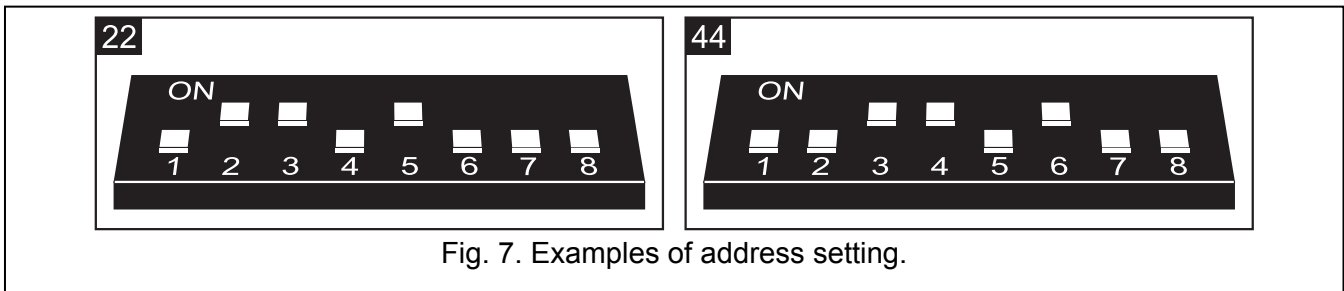


Fig. 7. Examples of address setting.

Depending on the address set in the mimic board, the following subscriber objects are presented on the LEDs:

- 0** - subscribers with numbers from 1 to 64 (subscriber no. 1 on LEDs 1 and 2, subscriber no. 2 on LEDs 3 and 4, etc.);
- 1** - subscribers with numbers from 65 to 128 (subscriber no. 65 on LEDs 1 and 2, subscriber no. 66 on LEDs 3 and 4, etc.);
- ...
- 63** - subscribers with numbers from 3969 to 4032 (subscriber no. 3969 on LEDs 1 and 2, subscriber no. 4032 on LEDs 3 and 4, etc.).

#### 4. Connecting the LEDs

The mimic board is designed for connecting the typical LED diodes with current consumption approx. 7 mA. The LEDs are connected to the mimic board by means of 10-pin plug connectors (the connectors are included in the delivery set). Each connector enables connecting up to 8 LEDs.

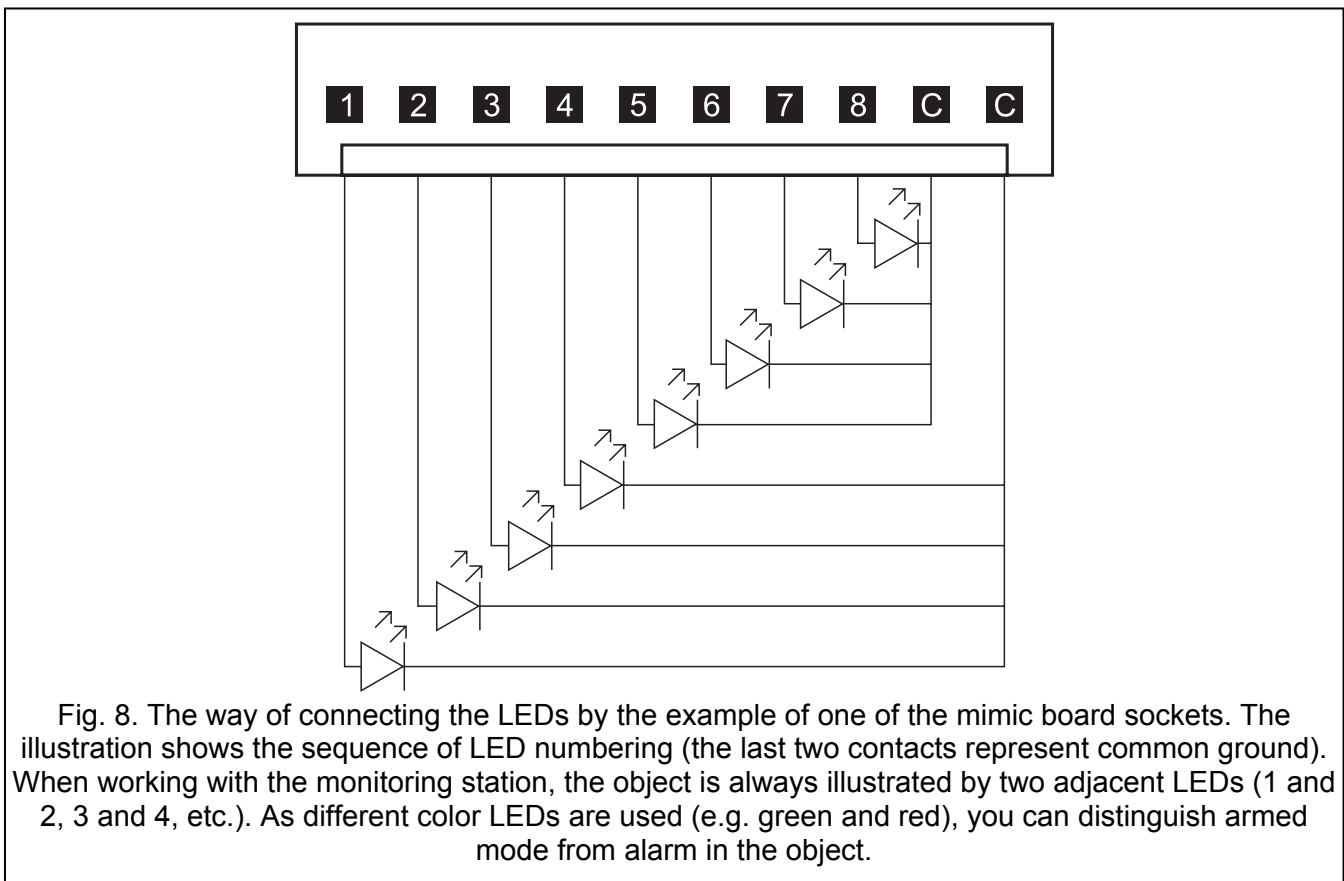


Fig. 8. The way of connecting the LEDs by the example of one of the mimic board sockets. The illustration shows the sequence of LED numbering (the last two contacts represent common ground). When working with the monitoring station, the object is always illustrated by two adjacent LEDs (1 and 2, 3 and 4, etc.). As different color LEDs are used (e.g. green and red), you can distinguish armed mode from alarm in the object.

## 5. Connecting power supply



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

**Prior to connecting transformer to the circuit from which it will be supplied, the circuit must be deenergized.**

**It is not permissible to connect a fully discharged battery to the mimic board (when the voltage across battery terminals with no load connected drops below 11 V). To avoid damage to the equipment, the battery, if deeply discharged or not used for a long time, must be pre-charged with a suitable charger.**

The mimic board requires 18 V AC ( $\pm 10\%$ ) supply. It is recommended that at least 40 VA capacity transformer be used. The transformer should be permanently connected to the 230 V AC mains. Before you proceed to making cable connections, familiarize yourself with the electrical system in the facility. To supply the device, you should choose a circuit which is always alive and properly protected. Instruct the user of the device on how the transformer should be disconnected from the mains (e.g. by showing him/her the fuse protecting the supply circuit).

For a backup power supply, use a 12 V sealed lead-acid battery.

**Note:** *If the battery voltage drops below 11 V for more than 12 minutes (3 battery tests), the mimic board will signal a battery trouble alarm. After the voltage goes down to abt. 9,5 V, the battery will be disconnected.*

### 5.1 Power connection procedure

1. Deenergize the 230 V AC circuit to which the transformer is to be connected.
2. Connect the 230 V AC cables to the terminals of transformer primary winding.
3. Connect the terminals of transformer secondary winding to the AC terminals on the electronics board of CA-64 PTSA device.
4. Connect the battery to the dedicated leads (the red one to battery plus, the black one to minus). **The mimic board will not start when the battery alone is connected.** Do not cut off the terminals of battery cables.
5. To start the mimic board, turn on 230 V AC power supply in the circuit to which the transformer is connected.

The above power-up sequence (first the battery, then 230 V AC) will enable proper operation of the power supply unit and electronic protection circuits of the mimic board.

**Note:** *If it is necessary to disconnect power supply from the mimic board, disconnect the mains first and the battery after that. To re-connect power supply, follow the procedure described above.*

## 6. Specifications

Supply voltage .....	18 V AC $\pm 10\%$ , 50–60 Hz
Standby current consumption* .....	25 mA
Maximum current consumption* .....	40 mA
* without battery charging current and connected LEDs	
Type of power supply unit .....	A
Power supply output current .....	1,3 A
Battery trouble reporting voltage .....	11 V $\pm 10\%$
Battery cut-off voltage .....	9.5 V $\pm 10\%$
Battery charging current .....	350 mA
Environmental class .....	II
Working temperature range .....	-10 °C...+55 °C
Maximum humidity .....	93 $\pm$ 3%
Electronics board dimensions .....	173x102x37 mm
Weight .....	202 g

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