

Wireless keypad
INT-KWRL2

Firmware version 3.01

EN



CE

int-kwrl2_en 11/22

IMPORTANT

The device should be installed by qualified personnel.

Read carefully this manual before proceeding to installation.

Changes, modifications or repairs not authorized by the manufacturer shall void your rights under the warranty.

The rating plate of the device is located on the enclosure base.



The device meets the requirements of the applicable EU directives.



The device is designed for indoor installation.



The device must not be disposed of with other municipal waste. It should be disposed of in accordance with the existing rules for environment protection (the device was placed on the market after 13 August 2005).



The device meets the technical regulations of the Eurasian Customs Union.

SATEL aims to continually improve the quality of its products, which may result in changes in their technical specifications and software. Current information about the changes being introduced is available on our website.

Please visit us at:
<https://support.satel.pl>

Hereby, SATEL sp. z o.o. declares that the radio equipment type INT-KWRL2 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.satel.pl/ce

In the EU, this radio equipment is only permitted to operate in the 868 MHz frequency band.

The following symbols may be used in this manual:



- note,



- caution.

The INT-KWRL2 wireless keypad enables operation and programming of the INTEGRA and INTEGRA Plus control panels with firmware version 1.19 (or newer). The device is designed for work within the ABAX 2 / ABAX two-way wireless system. This manual applies to the keypad with electronics version 3.2 (or newer), which is supported by:

- ABAX 2: ACU-220 / ACU-280 controller (firmware version 6.05 or newer),
- ABAX: ACU-120 / ACU-270 controller (firmware version 5.04 or newer).



The ABAX 2 / ABAX controller must be connected to the expander bus (controller terminals CKE and DTE) and the keypad bus (controller terminals CKM and DTM) of the INTEGRA / INTEGRA Plus alarm control panel.

In the ACU-220 / ACU-280 controller, switches 9 and 10 must be set in OFF position.

In the ACU-120 / ACU-270 controller, switch 8 must be set in OFF position.

The keypad is not supported by the ARU-100 and ARU-200 radio signal repeaters or by the INTEGRA 128-WRL control panel.



Fig. 1. INT-KWRL2 keypad.

1. Features

- Display 2 x 16 characters with backlight.
- LEDs indicating the state of system.
- 12 keys, bearing designations according to telephone standard and intended for entering data.
- 4 additional keys for menu navigation.
- An extra key to confirm the data entered.
- Backlit keys.
- Built-in proximity card reader.
- Built-in sounder.
- Encrypted two-way radio communication in the 868 MHz / 915 MHz frequency band (AES standard for the ABAX 2 system).
- Transmission channel diversity – 4 channels for automatic selection of the one that will enable transmission without interference with other signals in the 868 MHz / 915 MHz frequency band (ABAX 2 system only).
- Remote update of keypad firmware (ABAX 2 system only).
- Tamper protection against enclosure opening and removal from mounting surface.
- Power supply:
 - two CR123A 3 V batteries (required),
 - SATEL APS-055 power supply (optional).

2. Description

Radio communication

The keypad connects to the controller every 4 minutes to give information about its state (periodical communication). Additional communication takes place:

- when the keypad is in use,
- in the case of keypad tamper,
- when the controller is sending commands to the keypad.

Operating modes

When the keypad is powered by the APS-055 power supply, it operates similarly to a wired LCD keypad. When the keypad is powered by the batteries, it operates in one of the two modes:

Wake-up – this mod is started by pressing any key. Additionally, the keypad can be woken up automatically when an alarm occurs or an entry delay, an exit delay or an auto-arming delay begins (see description of the “Wake-up” parameter, section “Settings stored in ABAX 2 / ABAX controller” p. 8). When the keypad is in the wake-up mode, it works in much the same way as the wired LCD keypad. The display is on. Backlight, LED indication and sound signaling are enabled.

Sleep – the mode is entered:

- after 20 seconds since the last key press,
- after preset time, if the keypad has been woken up automatically (see description of the “Wake-up” parameter, section “Settings stored in ABAX 2 / ABAX controller” p. 8).

The purpose of this mode is to save energy. The display is off. Backlight, LED indication and sound signaling are disabled (if a time different from 0 is preset for the „Wake-up” parameter, CHIME from zones will be signaled).

Support for proximity cards

The built-in proximity card reader enables the system to be operated by using proximity cards (any 125 kHz passive transponder in the form of a card, tag, etc.). Where the alarm system is not to be operated by proximity cards, the reader can be disabled (to prolong the battery life).

Power supply

You must install two CR123A 3 V batteries in the keypad. Optionally, you can connect the SATEL APS-055 power supply to the keypad (external power supply). The APS-055 is a flush-mounted 5 VDC / 0.5 A power supply. When the power supply is connected to the keypad, the batteries are used only in case of loss of external power supply.

Battery status control

If the voltage of any battery is lower than 2.75 V:

- low battery information is sent during periodical communication,
- a low battery message is displayed.



The battery life depends on how the keypad is used. When the keypad is powered by the batteries, the more frequently it is woken up, the quicker the batteries will be depleted.

3. Installation



Disconnect power before making any electrical connections.

There is a danger of battery explosion when using a different battery than recommended by the manufacturer, or handling the battery improperly. Do not crush the battery, cut it or expose it to high temperatures (throw it into the fire, put it in the oven, etc.).

Do not expose the battery to very low pressure due to the risk of battery explosion or leakage of flammable liquid or gas.

Be particularly careful during installation and replacement of the batteries. The manufacturer is not liable for the consequences of incorrect installation of the battery.

The used batteries must not be discarded, but should be disposed of in accordance with the existing rules for environment protection.

The keypad is designed for indoor installation. The place of installation should be readily accessible to the system users. When selecting the installation location, take into account the communication range of the ABAX 2 / ABAX system.

1. Open the keypad enclosure (Fig. 2). The enclosure opening tool, shown in the illustration, is included in the keypad delivery set.
2. Install the batteries and add the keypad to the wireless system (see “Adding the keypad to the wireless system”).
3. Put the cover on the catches and snap the enclosure shut.
4. Place the keypad in the location intended for its installation.

- i** If you want to hold the keypad in your hand when checking the radio signal level, grab the device from its left side (on its right side, there is the antenna, which must not be covered).
5. Check the level of signal received from the keypad by the ABAX 2 / ABAX controller. If the signal level is lower than 40%, select another place for installation. Sometimes, it is sufficient to shift the device ten or twenty centimeters.
- i** The ARF-200 tester makes it possible to check the radio signal strength at the place of future installation without having to put the keypad there.

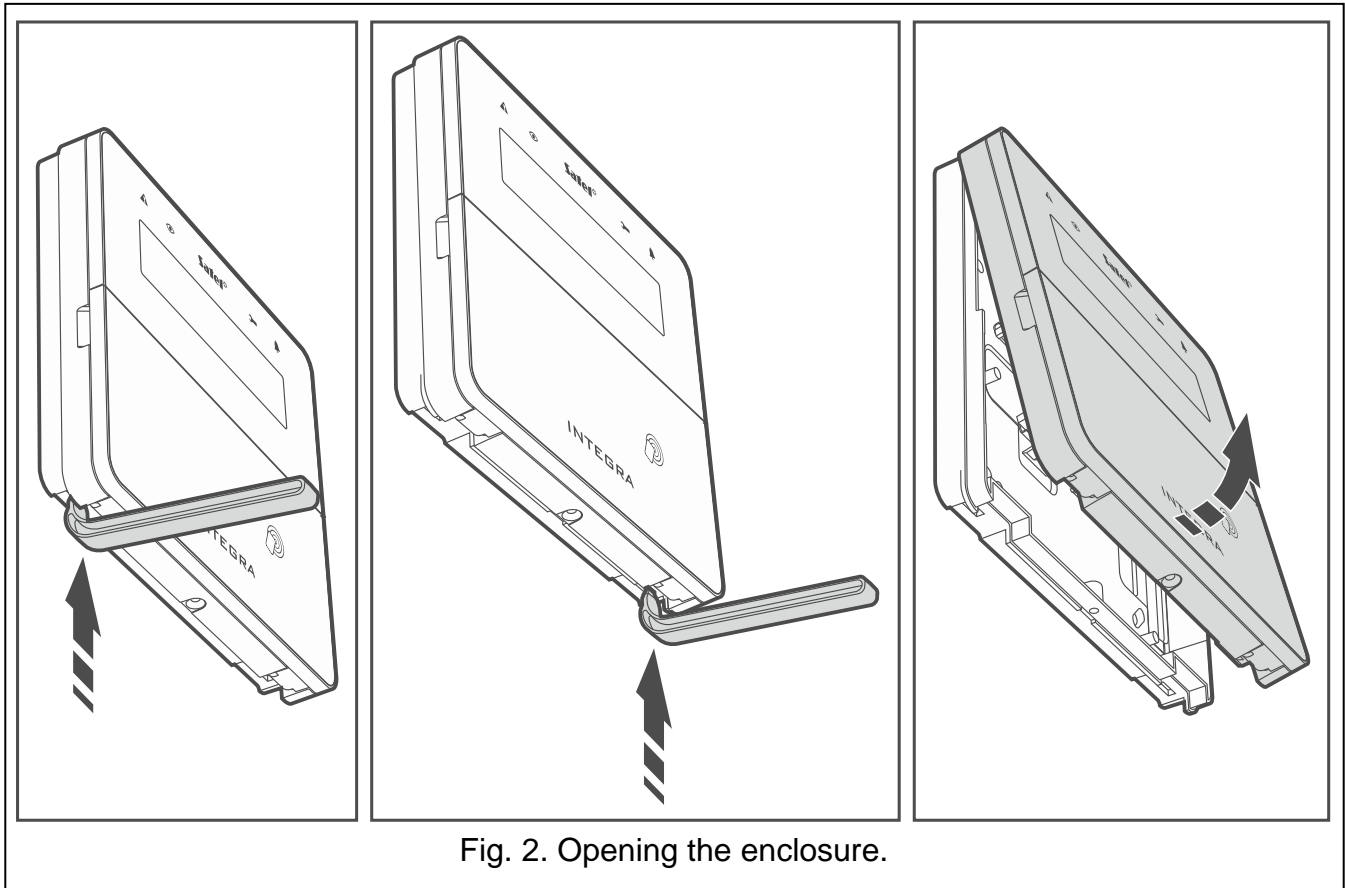


Fig. 2. Opening the enclosure.

6. Open the keypad enclosure (Fig. 2).
7. Place the enclosure base against the wall and mark location of the mounting holes.
8. Drill the holes in the wall for wall plugs (anchors).
9. If you want to connect the APS-055 power supply to the keypad, run the power wires through the opening in the enclosure base. Use flexible wires with a cross-section of $0.5-0.75 \text{ mm}^2$.
10. Using wall plugs (anchors) and screws, secure the enclosure base to the wall. Select wall plugs specifically intended for the mounting surface (different for concrete or brick wall, different for plaster wall, etc.). When installed, the device must withstand a pull-off force of at least 50 N.
11. If the APS-055 power supply is to be used, connect the power wires to the “+” and “-” terminals (Fig. 3). For how to connect the wires, see figure 4. Use a 1.8 mm flathead screwdriver.
12. Put the cover on the catches and snap the enclosure shut.
13. Lock the cover using screw.

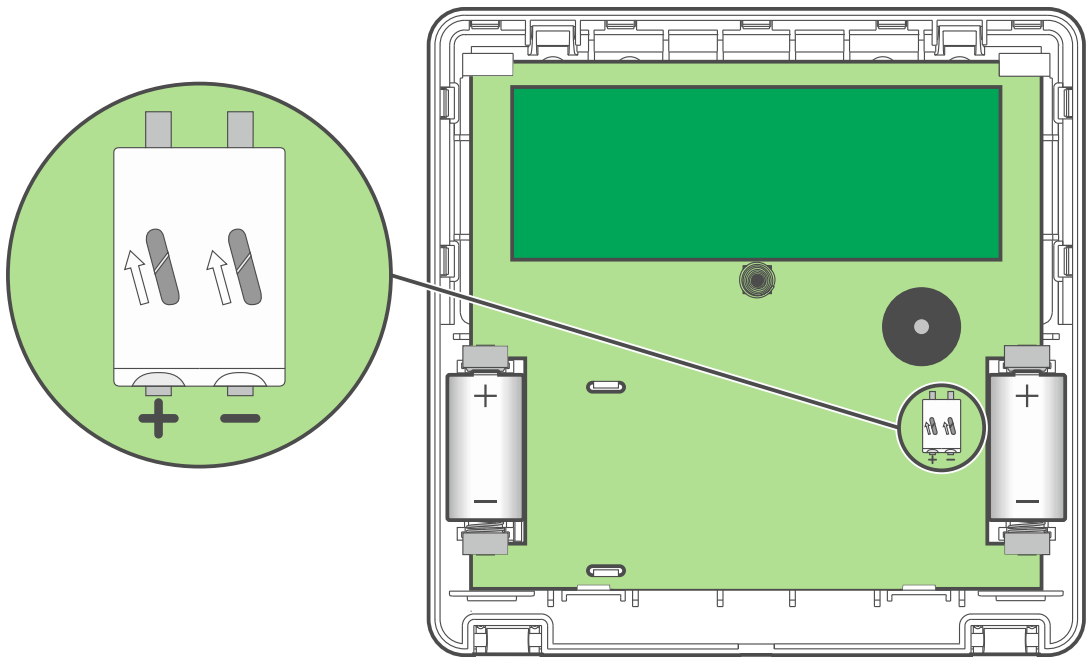


Fig. 3. Keypad enclosure inside with batteries installed.

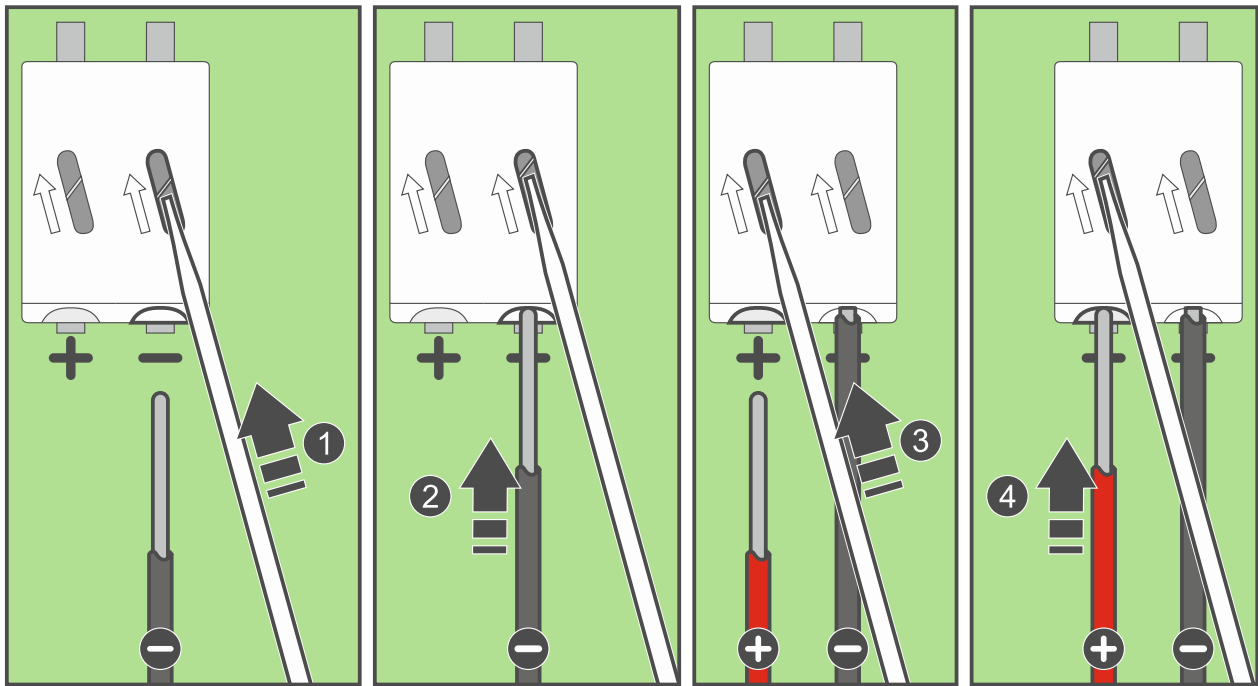


Fig. 4. Connecting the power wires.

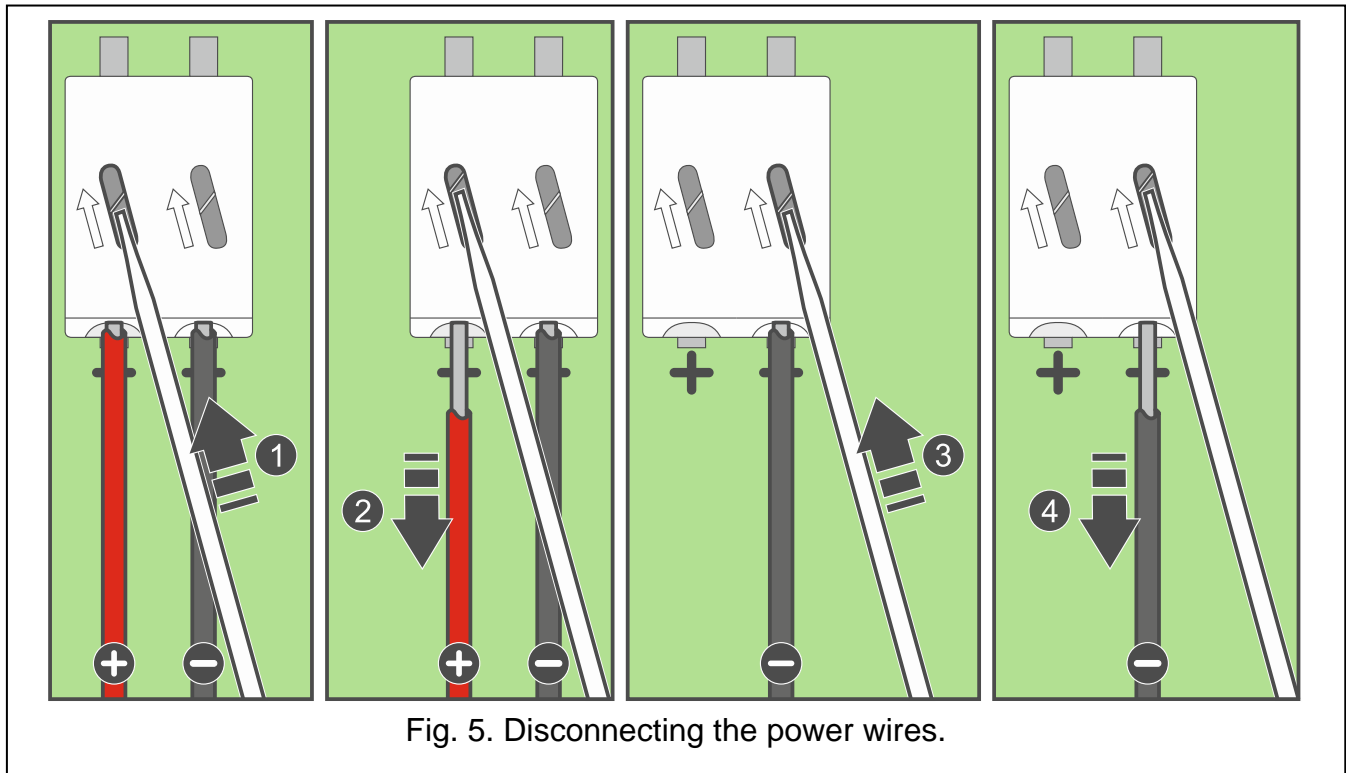


Fig. 5. Disconnecting the power wires.

3.1 Adding the keypad to the wireless system



Before adding the keypad, make sure that the CKM and DTM terminals of the controller are connected to the control panel keypad bus. Also, depending on the controller:

- **ACU-220 / ACU-280:** check that the switches 9 and 10 are set in OFF position,
- **ACU-120 / ACU-270:** check that the switch 8 is set in OFF position.

You can add the wireless keypad to the ABAX 2 / ABAX system by using either a computer with DLOADX program installed, or an LCD keypad. The controller allows for registering of up to 4 INT-KWRL2 keypads. If no wired keypad is connected to the control panel, you can only add the first wireless keypad using the DLOADX program (to establish communication between the program and the control panel, you must start the service mode “from pins” – refer to the control panel programming manual).

When adding the device, its serial number is required. The serial number sticker can be found on the electronics board.




The keypad is identified as INT-KWRL.

Simultaneous operation of the keypad by the ABAX 2 and ABAX controller is not possible.

3.1.1 DLOADX program

You can add wireless keypad in the “Structure” window, “Hardware” tab, after clicking on the name of ABAX 2 / ABAX controller on the list of devices, and then on the “INT-KWRL” tab (see Fig. 6 p. 8).

1. Click on the “Read” button to read the data related to wireless keypads from the controller





(these data are not read after clicking on the  button in the main menu).

2. Click on the “New device” button.

3. The “New device” window will open.
4. In the “Serial number” field enter the serial number of the added keypad.
5. In the “Address” field, select which address is to be assigned to the keypad to be added.
6. Press any key on the keypad.
7. The message will confirm that a keypad has been added (unless you have entered an invalid serial number, of which you will be informed by a message). The name assigned to the keypad will be displayed. You can change it.
8. Click “OK” (to cancel adding the keypad, click on the “Quit” button).
9. The “New device” window will close.
10. The new keypad will appear in the table in “INT-KWRL” tab.
11. Click on the “Keypads identification” button (the new keypad must be identified by the control panel).

3.1.2 LCD keypad

You can add wireless keypad in the service mode by means of the “New device” function (►“Structure” ►“Hardware” ►“Expanders” ►“Settings” ►[*controller name*] ►“New device”).

1. Having started the function, enter the serial number of the added keypad.
2. Press .
3. When the “Open device tamper” message is displayed, press any key on the keypad.
4. Information on the added keypad will be displayed (if nothing happens, it can mean that you have entered an invalid serial number – if this is the case, press  to return to the submenu).
5. Press .
6. Use the ▼ and ▲ keys to select address for the keypad being added.
7. Press .
8. Identification function will start automatically (the new keypad must be identified by the control panel).

3.2 Removing the keypad from the wireless system

3.2.1 DLOADX program



You can remove the wireless keypads in the “Structure” window, “Hardware” tab, after clicking on the name of ABAX 2 / ABAX controller on the list of devices, and then on the “INT-KWRL” tab (see Fig. 6 p. 8).

1. Click on the “Read” button to read the data related to wireless keypads from the controller.
2. Click on the wireless keypad you want to remove.
3. Click on the “Remove device” button.
4. The “Confirm” window will open.
5. Click on the “Yes” button.
6. The “Confirm” window will close.

3.2.2 LCD keypad

You can remove wireless keypads in the service mode by means of the “Remove device” function (►“Structure” ►“Hardware” ►“Expanders” ►“Settings” ►[*controller name*] ►“Remove device”).

1. Having started the function, use the ▼ and ▲ keys to select the keypad you want to remove.

2. Press **#** .
3. A prompt will be displayed asking you whether to remove the keypad and the serial number of the keypad being removed.
4. Press **1** .

4. Configuring

You can configure the wireless keypad settings by using a computer with DLOADX program installed, or an LCD keypad.

4.1 Settings stored in ABAX 2 / ABAX controller

These settings you can configure:

- DLOADX program: →“Structure” window →“Hardware” tab →“Expansion modules” branch →*[controller name]* →“INT-KWRL” tab (see Fig. 6),
- LCD keypad: ►“Service mode” ►“Structure” ►“Hardware” ►“Expanders” ►“Settings” ►*[controller name]* ►“Settings” ►*[wireless keypad name]*.

4.1.1 Description of parameters and options

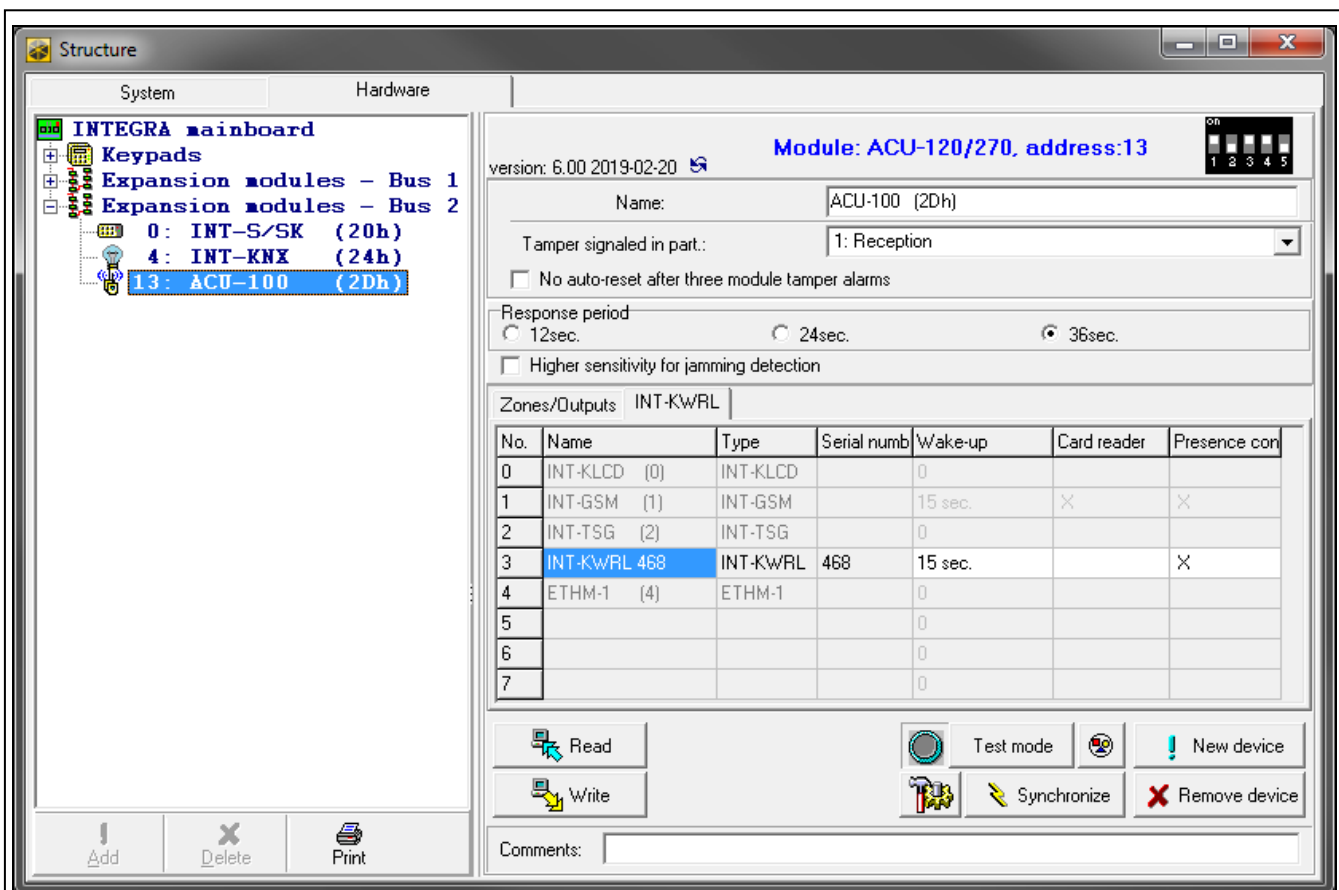


Fig. 6. DLOADX program: keypad settings stored in the ABAX 2 / ABAX controller.

Given in the square brackets are the names of parameters and options presented on the keypad display.

Wake-up [Wake up] – the maximum time period for which the keypad can be woken up automatically (applies to the keypad powered by the batteries). If you enter a value different from 0:

- the keypad will be woken up automatically when an alarm occurs or an entry delay, an exit delay or an auto-arming delay begins,
- the CHIME from zones will also be signaled when the keypad is in the sleep mode.

If you enter 0, the keypad will not be woken up automatically.



If a value different from 0 is preset for the “Wake-up” parameter, the keypad will be awaiting for transmissions with information on events. As a result, the energy consumption will be growing and the battery life will be considerably reduced.



The keypad is woken up not more frequently than every 30 seconds. If the event that is to wake up the keypad occurs before the 30 seconds have elapsed since the last automatic wake-up, the keypad will stay asleep.

It may take a few seconds for the keypad to wake up after the event occurred.

If the event signaling is over before the end of the preset maximum time, the sleep mode will be resumed in the keypad earlier.

Card reader [Reader] – if this option is enabled, the card reader is supported.

Presence contr. [Test] – if this option is enabled, the keypad presence is being monitored. If there is no transmission from the keypad for 20 minutes, missing keypad will be reported.

4.2 Settings stored in the control panel

These settings you can configure:

- DLOADX program: →“Structure” window →“Hardware” tab →“Expansion modules” branch →[keypad name] (see Fig. 7),
- LCD keypad: ►“Service mode” ►“Structure” ►“Hardware” ►“LCD keypads” ►“Settings” ►[keypad name].

4.2.1 Description of parameters and options

Given in the square brackets are the names of parameters and options presented on the keypad display.

Keypad

Name – individual name of the keypad (up to 16 characters).

Partitions managed by keypad [Partitions] – partitions which can be armed/disarmed or alarm in which may be cancelled from the keypad. These functions are available to the users having appropriate rights and access to these partitions.



Using the service code you can operate all partitions, irrespective of which partitions are operated by the keypad.

Show alarms of partitions [Alarms] – the keypad can inform on burglary alarms in selected partitions.

Show fire alarms of partitions [Fire alarms] – the keypad can inform on fire alarms in selected partitions.

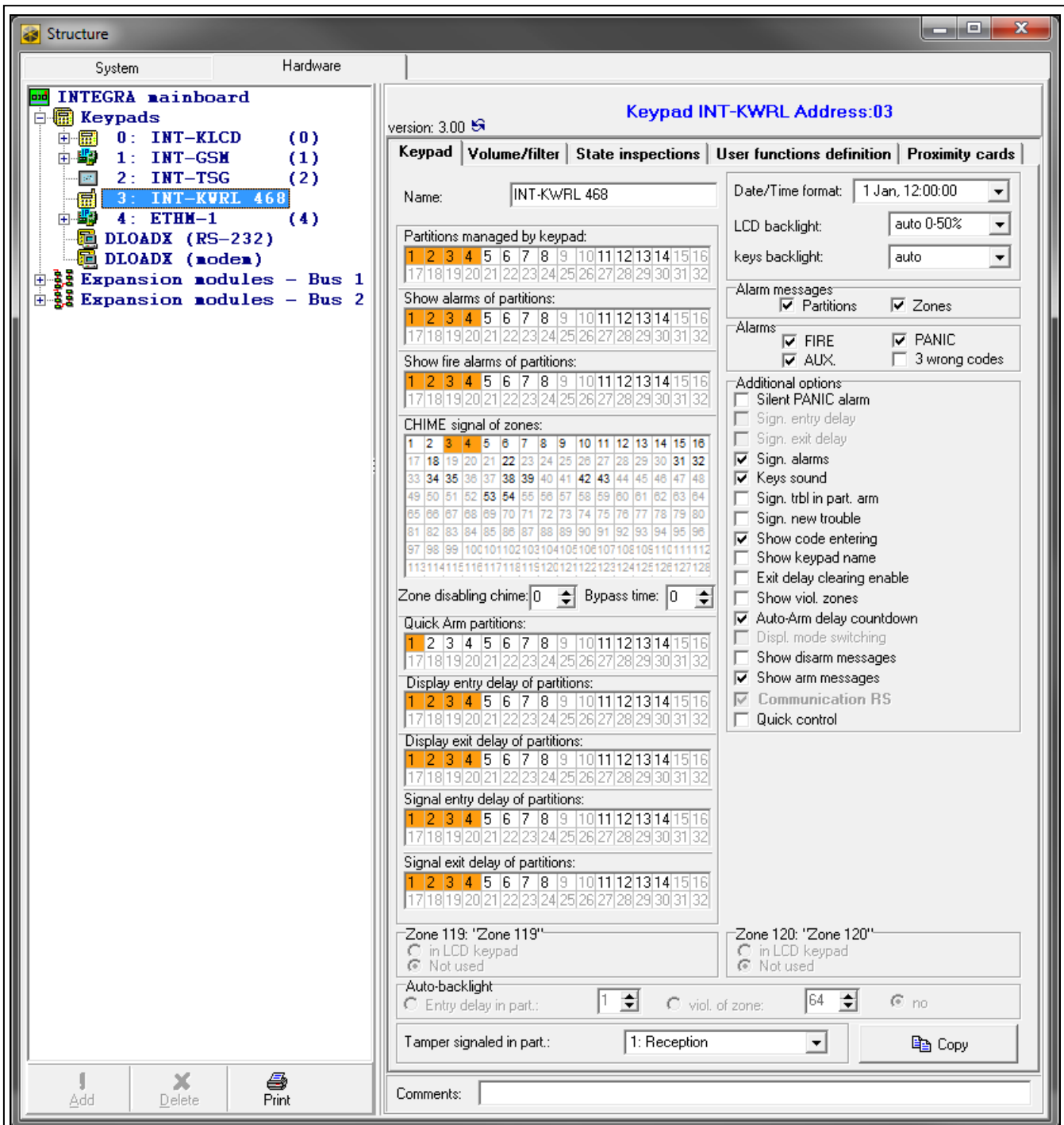


Fig. 7. DLOADX program: keypad settings stored in the control panel – “Keypad” tab.

CHIME signal of zones [Chime zones] – zones the violation of which is audibly signaled by the keypad.



When the wireless keypad is powered by the batteries:

- the CHIME signaling is enabled no more than once every 30 seconds,
- the keypad in the sleep mode signals the CHIME if a value different from 0 is preset for the “Wake-up” parameter.

Zone disabling CHIME [Chime bps. zone] – zone, which, if violated, will disable the CHIME feature for specified time.



The zone 256 cannot disable the CHIME feature.

Bypass time [Chime bps. time] – time during which the CHIME signal will be disabled after violation of the zone which disables the signaling (time is counted from the zone restore). If you enter 0, the signaling will not be disabled.

Quick Arm partitions [Quickarm part.] – partitions which will be armed in case of the quick arming.

Display entry delay of partitions [Show entry del.] – the keypad displays information about entry delay countdown in selected partitions.

Display exit delay of partitions [Show exit delay] – the keypad displays information about exit delay countdown in selected partitions.

Signal entry delay of partitions [Sign.entry del.] – the keypad audibly signals the entry delay countdown in selected partitions.

Signal exit delay of partitions [Sign.exit delay] – the keypad audibly signals the exit delay countdown in selected partitions.

Date/Time format [DateTime format] – the way how date and time will be presented on the display.

LCD backlight – the way how the display backlight will work. If the keypad is powered by the batteries, the backlight will work only when the keypad is woken up, and the available settings should be interpreted as follows:

not present – disabled,

permanent 50% – enabled: brightness 50%,

permanent 100% – enabled: brightness 100%,

auto 0-50% – enabled: brightness 50%,

auto 0-100% – enabled: brightness 100%,

auto 50%-100% – enabled: brightness 100%.

Keys backlight – the way how the keys backlight will work. If the keypad is powered by the batteries, the backlight will work only when the keypad is woken up, and the available settings should be interpreted as follows:

not present – disabled,

auto – enabled,



permanent – enabled.



Alarm messages



Partitions [Part.al.msg.] – if this option is enabled, messages on partition alarms are displayed (they contain the name of partition).

Zones [Zone al.msg.] – if this option is enabled, messages on alarms from zones are displayed (they contain the name of zone). The zone alarm messages have the priority.

Alarms

FIRE [Fire alarm] – if this option is enabled, pressing the   key for approx. 3 seconds will generate the fire alarm.

PANIC [Panic alarm] – if this option is enabled, pressing the   key for approx. 3 seconds will generate the panic alarm.

AUX. [Medical alarm] – if this option is enabled, pressing the   key for approx. 3 seconds will generate the medical alarm.


3 wrong codes [3 wrong codes] – if this option is enabled, entering incorrect code three times will generate the alarm.

Additional options

Silent PANIC alarm [Silent panic] – if this option is enabled, the panic alarm generated from the keypad will be a silent one, i.e. the keypad will not indicate it, there will be no audible signal, but the alarm will be reported to the monitoring station. The silent panic alarm is useful when the control panel is sending events to the monitoring station, but unauthorized persons should not be aware of the alarm being generated. This option is available if the PANIC option is enabled.

Sign. alarms [Alarm signal.] – if this option is enabled, the keypad will signal the alarms audibly.




Key sounds [Key sound] – if this option is enabled, pressing the keypad keys is confirmed by beeps.

Sign. trbl. in part. arm [Trbl.in p.arm.] – if this option is enabled, the  LED goes off after all managed by keypad partitions are armed (if the option is disabled, the LED goes off after just one of the partitions is armed).

Sign. new trouble [New trbl.sign.] – if this option is enabled, the keypad can audibly signal the occurrence of a new trouble (if the “Trouble memory until review” option is enabled). New trouble signaling is cleared after the troubles have been reviewed by the user.

Show code entering [Show code ent.] – if this option is enabled, entering the code is presented on the keypad display by asterisks.

Show keypad name [Name (2nd row)] – if this option is enabled, the keypad name is presented in the lower line of the display.

Exit delay clearing enable [Fin.exit delay] – if this option is enabled, the exit delay time in partitions with the “Exit delay clearing” option enabled can be shortened after pressing in turn the    keys.

Show viol. zones [Zone violation] – if this option is enabled, violating the CHIME signal generating zone results additionally in the zone name being displayed (the name is not displayed when the keypad is in the sleep mode).

Auto-Arm delay countdown [Auto-arm delay] – if this option is enabled, the auto-arm delay countdown in partition is indicated by beeps.

Show disarm messages [Show disarming] – if this option is enabled, the keypad displays the disarming message irrespective of how the system has been disarmed. If this option is disabled, the keypad displays the disarming message only when the system has been disarmed from this keypad.

Show arm messages [Show arm] – if this option is enabled, the keypad displays the arming message. If the option is disabled, the arming message is not displayed.

Quick control [Control (8#)] – if this option is enabled, the “Outs control” user function can be started by pressing in turn the    keys (without the need to enter the user code).

Tamper signaled in part. [Tamper in part.] – partition where alarm will be generated in the event of keypad tamper, generating the alarm from keypad etc.

Volume/filter

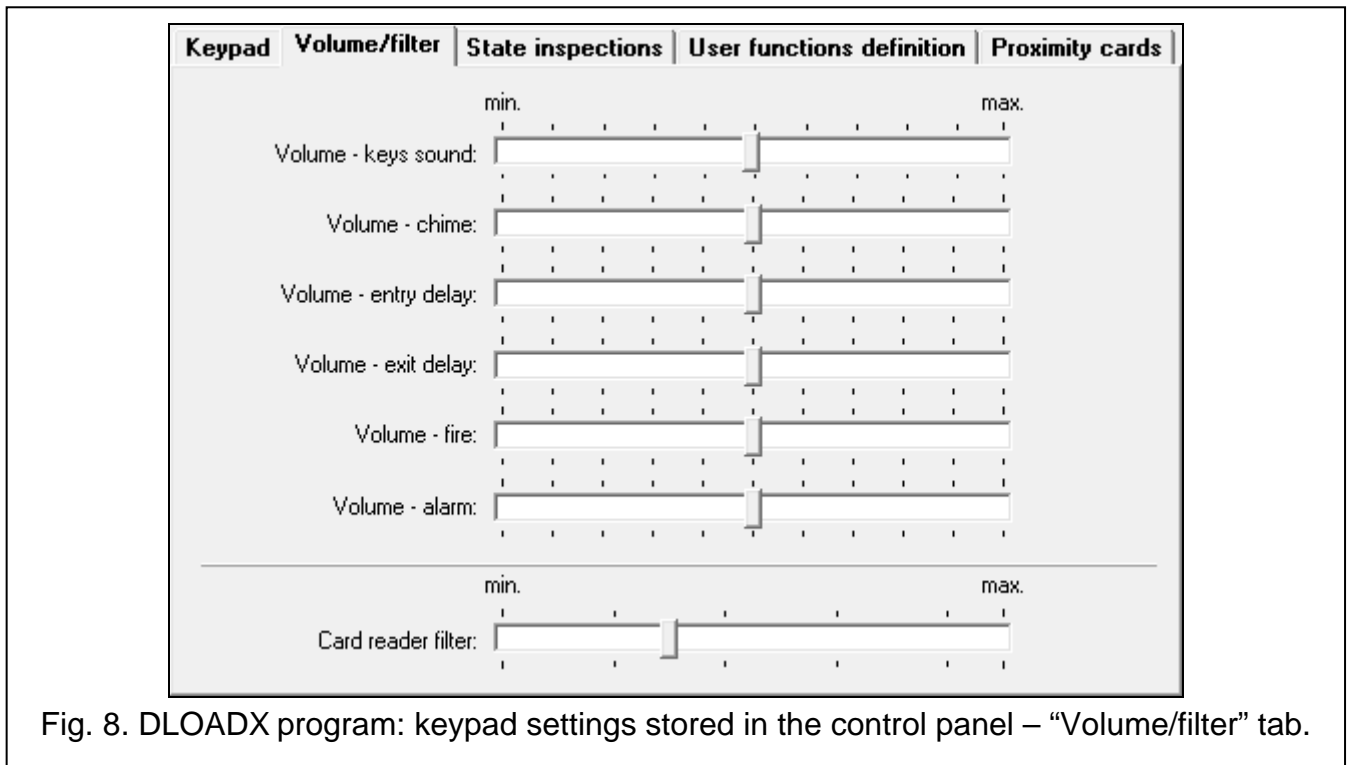


Fig. 8. DLOADX program: keypad settings stored in the control panel – “Volume/filter” tab.

Volume – volume level of the beeps generated during keypad operation (key pressing, confirmation of performed operation, etc.).

Volume – chime – volume level of the beeps generated after zone violation (CHIME).

Volume – entry delay – volume level of the entry delay beeps.

Volume – exit delay – volume level of the exit delay beeps.

Volume – fire – volume level of the fire alarm beeps.

Volume – alarm – volume level when signaling burglar, panic and medical alarms.

Card reader filter [Sensitivity] – the level of signal filtering by the proximity card reader (when programming from the keypad: 1 – minimal filtering, 10 – maximal filtering). Higher filtering level is useful where noise occurs, causing the reader to malfunction.

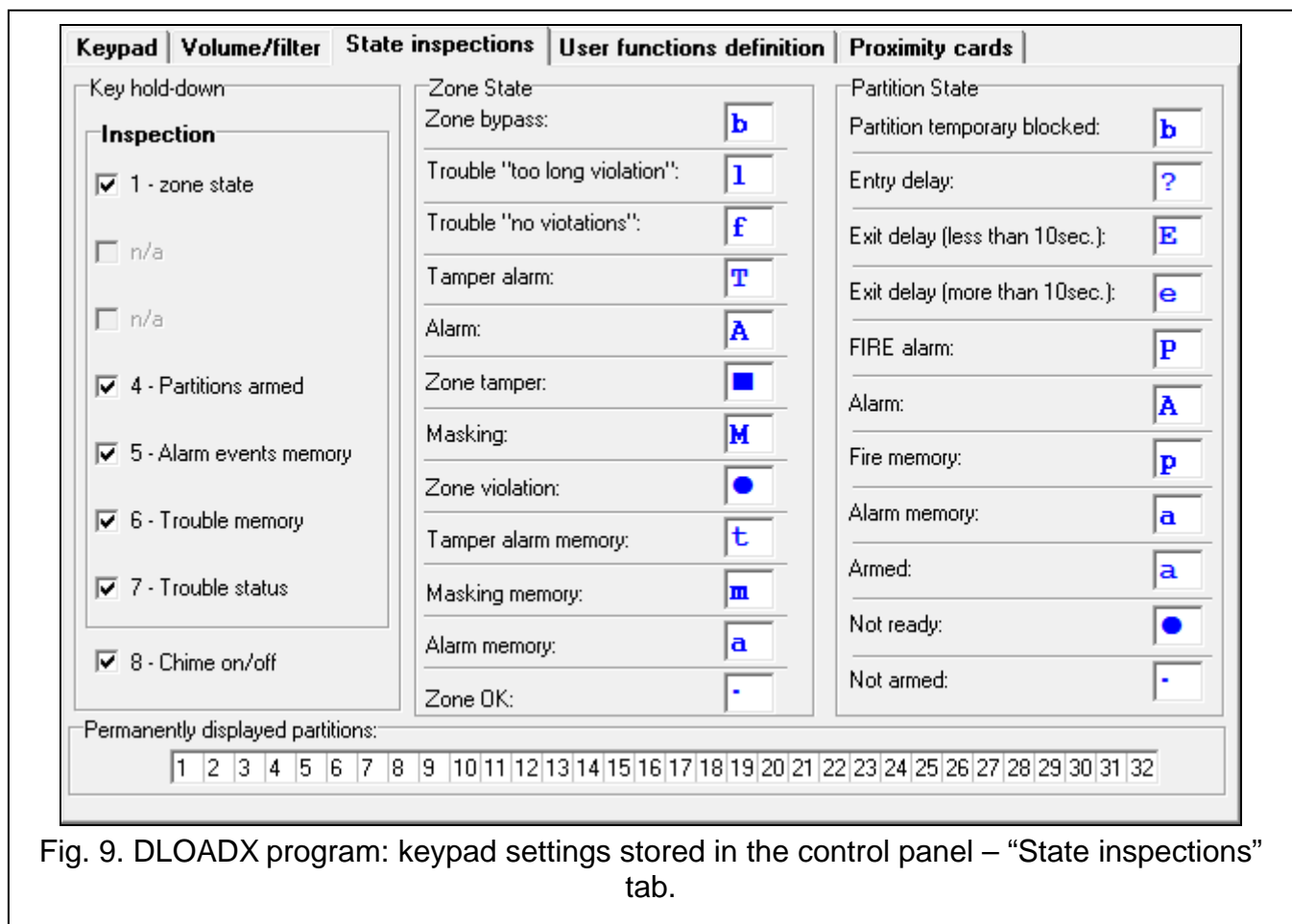
State inspections

Key hold-down

Some functions can be run by the users without having to enter the code.

- 1 – zone state** [Zones] – if this option is enabled, the user can press and hold down the **1** key for 3 seconds to check the state of zones.
- 4 – partitions armed** [Partitions] – if this option is enabled, the user can press and hold down the **4** GHI key for 3 seconds to check the state of partitions.
- 5 – alarm events memory** [Alarms log] – if this option is enabled, the user can press and hold down the **5** JKL key for 3 seconds to view the alarms log (based on the event log).
- 6 – trouble memory** [Troubles log] – if this option is enabled, the user can press and hold down the **6** MNO key for 3 seconds to view the troubles log (based on the event log).
- 7 – trouble status** [Troubles] – if this option is enabled, the user can press and hold down the **7** PQRS key for 3 seconds to view the troubles.

8 – chime on/off [Chime changing] – if this option is enabled, the user can press and hold down the **8** TUV key for 3 seconds to enable / disable the CHIME signal in the keypad.



Zone state [Zone characters]

You can define the symbols which will be used to illustrate the state of zones on the display.

Partition state [Part.characters]

You can define the symbols which will be used to illustrate the state of partitions on the display.

Permanently displayed partitions [State part.]

You can select the partitions whose state will be permanently presented in the lower line of the display. Up to 16 partitions can be selected. The partitions are displayed successively: for example, if the partitions 3, 6 and 7 are selected, their state will be displayed in the first, second and third position of the display.

User functions definition

Code+[arrow] [Code+arrows] – you can define which functions will be started on entering the code and pressing the selected arrow key.

The screenshot shows the 'User functions definition' tab in the DLOADX program. It contains four keypad code entries, each with a 'Code +' label and a dropdown menu. The first dropdown menu is open, showing a list of functions: 'Not used', 'Arming (full)', 'Arming (without interior zones)', 'Arming (without interior zones, no delays)', 'Disarming', 'Alarm clearing', 'Zones bypassing (inhibit)', 'Bypass clearing', 'Output MONO ON', 'Output BI switch state', 'Output BI ON', 'Output BI OFF', and 'Full arm with bypass'. To the right of the keypad codes are several empty grids for proximity cards.

Fig. 10. DLOADX program: keypad settings stored in the control panel – “User functions definition” tab.

Proximity cards

Card function

Card read [Card close] – you can select the function executed after presenting the card.

Card holddown [Card close long] – you can select the function executed after holding the card.

Door [Door to open] – if presenting the card or holding it is to open a door, you must indicate the door supervised by the access control module or the “101. Card read – expander” type output.

The screenshot shows the 'Proximity cards' tab in the DLOADX program. It contains several sections: 'Card function' with dropdowns for 'Card read' (set to 'as access code + *') and 'Card hold-down' (set to 'as access code + #'), and a 'Door' dropdown (set to 'not present'); 'Wrong card' with checkboxes for 'Signal on wrong card' (checked), 'Event after 3 readings', and 'Alarm after 3 readings'; and 'Code+card' with radio buttons for 'Code OR card' (selected), 'Code AND card', and 'Follow output:'. There is also a dropdown for 'Follow output:'.

Fig. 11. DLOADX program: keypad settings stored in the control panel – “Proximity cards” tab.

Wrong card

Signal on wrong card [Unkn.card sig.] – if this option is enabled, reading in an unknown card will be signaled by two long beeps.

Event after 3 readings [Ev.3 unk.cards] – if this option is enabled, reading in an unknown card three times will save the event.

Alarm after 3 readings [Al.3 unk.cards] – if this option is enabled, reading in an unknown card three times will generate an alarm. The option is available, if the “Event after 3 readings” option is enabled.

Code+card

Code OR card – the user can use code or card for authentication.

Code AND card – the user must use code and card for authentication.

Follow output – the authentication method depends on the status of selected output (the output active – code and card; the output inactive – code or card).



In case of the authentication using code and card, the executed function depends on the second identifier.

The outputs 255 and 256 cannot be used for controlling the authentication method.

5. Operation

You can use the wireless keypad in the same way as the wired LCD keypad.



If the wireless keypad is powered by the batteries, first press any key to wake up the keypad. In addition to waking up the keypad from sleep, pressing a key will also have other consequences, as appropriate for the given key. The keypad will treat each key pressing exactly in the same way.

For instructions on how to use the keypad, refer to the control panel manuals. The manuals are available on the www.satel.pl website.

6. Specifications

Operating frequency band.....868.0 MHz ÷ 868.6 MHz / 915 MHz – 928 MHz

Radio communication range (in open area)

ABAX 2

ACU-220 up to 800 m

ACU-280 up to 800 m

ABAX

ACU-120 up to 800 m

ACU-270 up to 400 m

Batteries..... 2 x CR123A 3 V

Standby current consumption from battery 11 µA

Maximum current consumption from battery (card reader disabled)50 mA

Maximum current consumption from battery (card reader enabled).....60 mA

Power supply voltage (external power supply)..... 5 VDC

Standby current consumption from power supply22 mA

Maximum current consumption from power supply (card reader disabled)38 mA

Maximum current consumption from power supply (card reader enabled).....48 mA

Environmental class according to EN50130-5 II

Operating temperature range.....-10°C...+55°C

Maximum humidity93±3%

Enclosure dimensions.....	145 x 143 x 25 mm
Weight.....	374 g