Display and control unit
"Lind-29"

Operating Manual

	Product Compatibility Table		
			Version
	Control Panel	Lun-11mod.3/4/5/6, Series Lun-25	

ORTUS Group

Contents

1. General information

"Lind-29" Display and control unit (DCU) is designed to control and indicate the status of "Lun-11mod.3/4/5/6" and "Lun-25" series Control Panels. When using DCU the next functions are available, namely:

- Arming and disarming of the group (including the "Stay at home" mode);
- View the status of the zones 1...16 of the selected group (including intrusion and zone fault);
- Activate or deactivate the zone bypass 1...16 of the selected group;
- Display arming state;
- Display status "Fire" & reset "Fire" state;
- Display faults of the main and back-up power;
- Display communication failure (either with the device, or with the monitoring station);
- Display all system failures by pressing one button;
- Display GSM signal strength;
- Wireless devices binding (up to 16 pcs per group) and its signal level displaying.

Product is not equipped with built-in cameras and microphones, devices and units for hidden video and audio recording.

2. Safety Precautions

Only the staff instructed on the safety arrangements, and having the permit to work with electrical installations with the capacity of up to 1000V shall be allowed to install, routinely maintain and repair the Control Panel.

The device has no open live parts posing the electrical shock hazard.

3. Technical characteristics

DCU has the following specifications (Table 1):

Table 1. DCU main technical parameters

Parameter name	Value
Number of displayed zones in the group	16
The total number of supported groups	16
"Lun-11" / "Lun-25" Control Panels connection Interface	MON / TAN
Power supply voltage, V	12
The current consumption of DCU, in stand-by mode / maximum, mA	25 / 60
Housing dimensions, WxHxD, mm	86x142x15
Device weight, g, max	125

4. Appearance and buttons assignment

Appearance of the device shown in Figure 1, the overall and mounting dimensions – Figure 2.
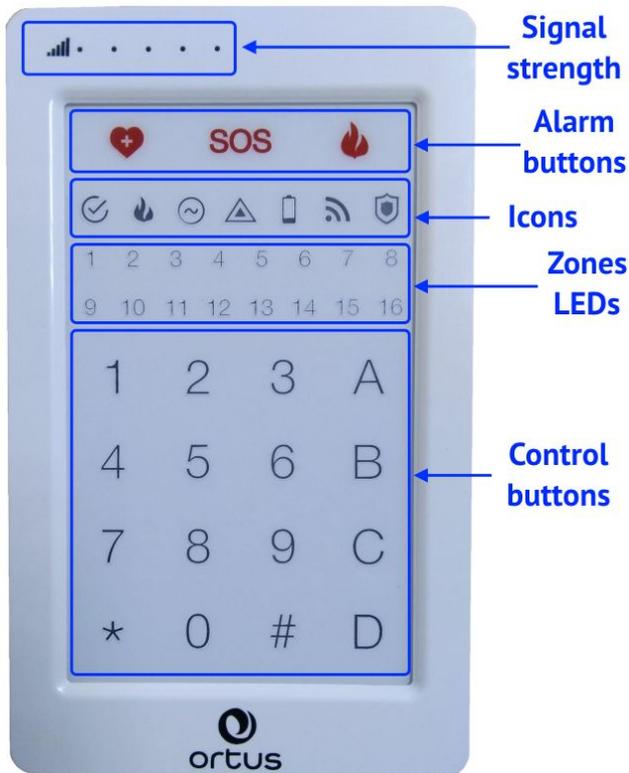
Figure 1. DCU "Lind-29"
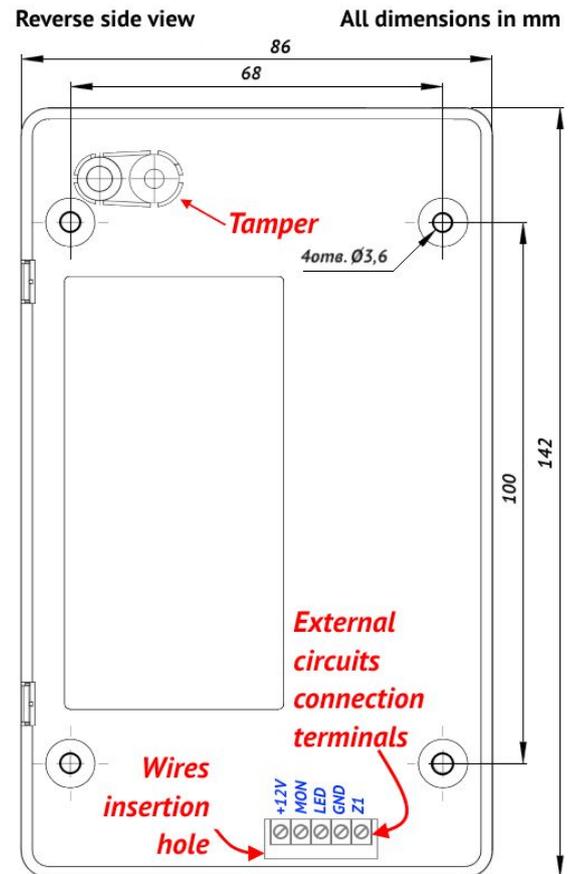
Figure 2. Overall and mounting dimensions

The front side of the DCU located buttons and LEDs to display the current operating mode, status and zone faults.

LEDs assignment in the standby mode is shown in Table 3.

Alarm buttons assignment is shown in Table 2.

The buttons assignments is described in section 7.2.

Table 2. Alarm buttons assignment

Icon	Function	Description
♥	Medical alarm	A quick triple touch of the button generates a corresponding alarm (the function depends on the control panel configuration). The execution is accompanied by a flashing icon.
SOS	Burglary alarm	
🔥	Fire alarm	

The DCU contains one own zone (the terminal labeled "Z1"). This zone can be configured by the "Configurator 11" program — you can select the zone type, line type and group number where zone will be assigned to.

DCU zone types (it describes the response of the security system to a violation) show in Table 4. For any zone type, the "Silent" parameter can be set. If a zone is violated with the "Silent" parameter set, the siren does not turn on.

Following line types (method of physical connection) for the DCU own zone can be used (see Table 9):
- Normally open;
- With terminal resistor and alarm by short circuit;
- With terminal resistor and alarm by line break;
- With terminal resistor and alarm by short circuit or line break.

Table 3. DCU LEDs assignment

Icon	Name	Description
	Ready (green)	■ Lit if the group is ready to be armed
	Fire (red)	■ Lit if fire is detected in the group
	Main power (green)	■ Lit while the main power is on
	Fault (yellow)	■ Lit when there is a fault in the system ■ Flashes if the display is in the faults show mode
	Battery (yellow)	■ Lit when the battery is discharged or not installed
	CMS Connection (green/yellow)	■ Lit in **green** while the connection to CMS is established ■ Lit in **yellow** if isn't CMS connection
	Armed (red)	■ Lit when this group is armed; ■ Flashes when arming/disarming until the confirmation from the CMS is not received; ■ Turned off when group is disarmed
1 ... 16	Zones state (yellow/red)	■ Lit red if zone is violated; ■ Lit yellow if zone is faulted; ■ Turned off if zone is restored or not used
.ull · · · · ·	Signal level (white)	■ The signal level of the GSM/3G SIM-card channel currently used. It displayed as a bar of LEDs (increasing from left to right); ■ The WiFi signal level after # button pressed. It displayed while the keys backlight is flashing

Table 4. DCU zone types

Zone type	Description
"Delayed"	If this zone is violated, it is always caused by the time delay for exit, and for entrance. For example, touch-sensitive magnetic contact of entrance door. If the "Bypass" parameter is set, the system can be armed with a violated zone
"Interior delayed"	If this zone is violated, it is always caused by the time delay for exit, and for entrance if the delayed zone has already been violated previously. For example, motion detector in walk-through corridors. Also, this type of zone is not analyzed in the "Stay at Home" mode. If the "Bypass" parameter is set, the system can be armed with a violated zone
"Instant"	Burglary zone that operates while the Control Panel is armed. For example, window-mounted detectors.

Zone type	Description
"24hour"	Zone is always activated regardless of the Control Panel arming status. For example, the panic button.
"Arming"	Zone violation disarms the group; and zone restoring arms the group
"Arm stay"	Zone state is not analyzed, if the Control Panel is armed in "Stay at Home" mode. People can stay in the premise without causing an alarm, but violation of other zone types will cause a corresponding reaction of the Control Panel (e.g. glass brake will lead to the transmission of an alarm signal to CMS). To activate the "Stay at Home" mode, touch the $\boxed{A}$ button **before** entering a user password
"Delayed/Instant"	Type of zone identical to "Delayed" zone in the Armed Mode and to "Instant" zone in the "Stay at Home" mode
"Interior delayed/ Instant"	Type of zone identical to "Interior delayed" zone in the Armed Mode and to "Instant" zone in the "Stay at Home" mode
"General Alarm"	If the zone is violated, the Lun Control Panel sends the general alarm code to CMS immediately. It is used when some old Control Panel is mounted at the object and connected to CMS via telephone line, and "Lun" Control Panel is used as a reserve channel
"Arming by pulse"	Trigger type of zone – short violation of the zone (0.5...2 sec) switches the group arming status

5. DCU installing

Before installing the DCU, you should select a location convenient for subsequent use, installation and maintenance, located on a flat surface inside the protected object. It is recommended to install DCU on the inner wall of the facility.

The surface where the DCU will located should be smooth and provide a solid fit of DCU housing after installation.

To open the DCU (see Figure 3) press by a flat screwdriver onto the lower retainer (1) and slightly pull the front part of the housing (2) to unlock.

Repeat the operation with the second lower retainer (3, then 4). Continuing the movement in the direction (2, 4), the upper retainers will be released and the entire rear part of the casing will be removed.
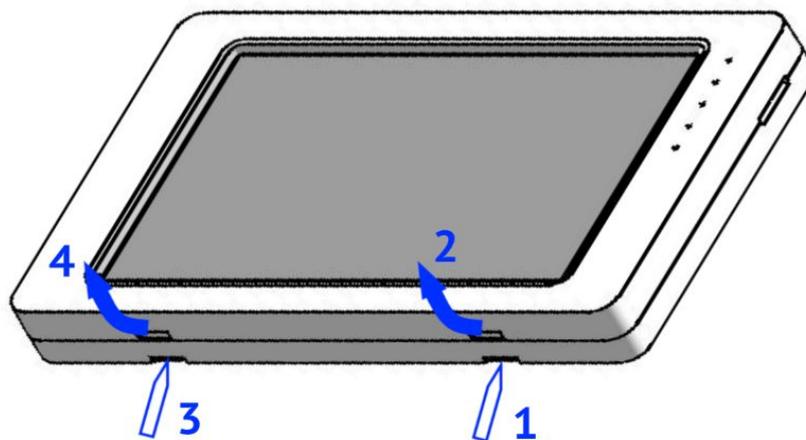
Figure 3. Opening of "Lind-15" DCU cover

Self-tapping screws with a diameter of 3...3.6 mm is recommended to fixing the housing back side on the wall. The installation dimensions are shown in Figure 2.

6. Wired connections

On the board "Lind-29" DCU placed terminals (Table 5) for connection in accordance with Figures 5, 6, 7. You need to remove the DCU back cover to access to the terminals.

Table 5. DCU terminals assignment

Terminal marking	Function
GND	Common contact (–) of the device
BUS	Connecting to the Control panel by shielded twisted pair CAT5/5e up to 150m of a total length. The next bus should be used: ◆ **MON** – to "Lun-11" Control Panels; ◆ **TAN** – to "Lun-25", Control Panels
+12V	Power supply +12V

Before connecting the "Lind-29" DCU to the MON/TAN bus you need to set the network address of DCU (see. Section 7.3).

Warning! Each DCU connected to a MON/TAN bus must have a unique network address in the range of 1...16. The new device comes preinstalled with address 1.

For "Lun-25" series Control Panels you should use network addresses in the range 1...2 only.

7. How to use the DCU

After turning on the power, the DCU loads the firmware and establishes a connection with the Control Panel (~10 seconds). At this time, the zone status indicators display a "running light".

Interaction with the DCU is carried out by touching the images of the buttons. The firmware handles touch and generates a response. The sensitive layer of the screen responds only to touch with unprotected fingers. Don't use gloves or any other separating materials.

Pressing any button turns on the LED backlight for 40 seconds.

Every touches to any button is accompanied by sound signals. When the legal command executes it is confirmed by a "trill" beep (a few short beeps) and switching the color of some LEDs (it depends of the button you touch and context). Wrong command is accompanied by a long beep.

DCU is always in one of the input modes:

- Standby mode — waiting for a password to arming/disarming. In this mode, the icons and signal strength indicators **DO NOT BLINK**.
- Function management – used to control various functions of the DCU or Control Panel (see Section 7.3). In this mode, one of the LEDs/icons **BLINKS**.

7.1. Access levels

The user interacts with the DCU through a menu divided into access levels:

1. **User** – the lowest level of access. At this level, you can arm and disarm the group; view the status of zones, faults, GSM/WiFi signal level; switch zones bypass; edit the user's passwords. Every user has own password (it assigned by group administrator);
2. **Administrator** – to edit the keys and passwords in its group. Access to administrator functions is protected by a separate password;
3. **Fire system** – turn on/off the fire alarm, do a fire alarm reset. Access to this functions is protected by a separate password;
4. **Engineer (installer)** – to bind/unbind a wireless devices and to view its signal level, set the DCU bus address. Access to these functions is protected by a separate password.

7.2. Standby mode

The keyboard and control buttons located on the DCU front panel have the following purpose in standby mode:

0 ... **9** – to enter numbers in all cases when some digits is required;

✶ – confirmation button; to entry into the selected mode/group; to current group arming without code entering – by quick twice press;

– to cancel the information entered or to exit from the current mode. It can be used in conjunction with another button as a prefix for selecting an additional function;

A – "Stay at home" arming (with the people presence) by clicking before entering the password;

B – to display a faults map (Table 8). The △ is flashing yellow quickly (twice per second);

C – to control of the Control Panel 1…10 outputs – buttons 1…0, while the signal level LED **5** ⠿ · · · ☀ flashes.

The zone indicators 1…10 indicate the status of the corresponding outputs by color:
- **red** – on,
- **green** – off,
- **turned off** – not available in current group or missing;

To change the output's state, enter its number and confirm with the button **✶**.

D – reserved for future;

SOS – to send of burglary alarm to the CMS;

🔥 – to send of fire alarm to the CMS;

❤ – to send of medical alarm to the CMS.

7.3. Functions management

To select a function, button combinations starting with `#` are used (see Tables 6, 7; depend on the Control Panel type). After pressing the `#` button, the flashing backlight is turns on (once per second). While it is flashing, you need to enter the number of the required function. For most functions the corresponding password is required – enter it while the backlight blinks frequently (twice per second). Then some icon (or signal strength indicator) will be flashing as a corresponding mode confirmation.

System will return to the standby mode automatically – when the current function executes, or manually – by pressing the `#` button. In any case, the icons or signal strength indicators will stops flashing in the standby mode.

Note. In all further key combinations, the symbol "comma" means pressing the buttons consecutively without holding them down.

Table 6. Additional functions

Function	Keys	Password / Icon flashing	Description
DCU Settings	`#` , `1`	--- / *installer* `A` ---	Touch A...D to select parameter: `A` –**device address** on the interface bus (see Section 6) – (an *installer password* is required), current address flashes in **red**. Next, enter the new address in range 1...16 and confirm by `✱` . `B` – to set the **sound volume**, enter 1...8 (indicated as a bar of zone LEDs 1...8). `C` – to set the **backlight brightness**, enter 1...8 (indicated as a bar of zone LEDs 1...8). `D` – to turn the **backlight off/on** enter **0/1**
Lun-11mod.3/4 Lun-25 **"Normal" passwords**	`#` , `3`	*admin* (full access) or *user* (access to this user only) LED **1**	**Full access**. Zones LEDs in **red** indicate the user's passwords presence. Then: ● **To manage system passwords**: `C` – for fire system password; `D` – for admin password. ● **To manage user's password** – while the backlight flashes, enter the user password number 1...16 and confirm by `✱` . It will flash in **green**. Exit from the password – `#` . Then select the action for user's password: `A` , `✱` – **delete** user's password; `B` , `✱` – **edit** user's password. **User access**. Enter new password for current user
Lun-11mod.3/4 Lun-25 **"Under duress" passwords**	`#` , `4`	*admin* (full access) or *user* (access to this user only) LED **2**	The zone LEDs in **red** indicate the of user's passwords presence (with full access). All actions are similar to the previous function

Function	Keys	Password / Icon flashing	Description
Fire system	`#` , `5`	*fire* 🔥	Select action: `A` – the fire siren **turns on**; `B` – the fire siren **turns off**; `C` – **reset** the fire state. Then the system returns to standby mode
Lun-11mod.3/4 Lun-25 **Keys**	`#` , `6`	*admin* LED **3** 📶 · · 🔆 · · ·	Zones LEDs in **red** indicate the user's keys presence. ● Enter the user **key number 1...16** and confirm by `✱`. It will flash in **green**. Exit from the key – `#`. Then select the action for user's key: `A` , `✱` – **delete** user's key; `B` , `✱` – **edit** key (and touch the key to the reader)
Wireless sensors binding	`#` , `7`	*installer* 📶 in **red**	Zones LEDs in **red** indicate the radiozones numbers with binded wireless sensors, and the **green** ones indicate free radiozones. Then: ● Enter **radiozone number 1...16** and confirm by `✱`. It will flash in **red**. ● Select action: `A` , `✱` – **delete** wireless sensor; `B` , `✱` – **add** wireless sensor. `C` – sensor signal level (bar by zones LEDs 1...3) in the last communication session
Zones bypass	`#` , `8`	user ✓ in **green**	Zones LEDs in **red** indicate the bypass zone numbers. ● Enter **zone number 1...16** and confirm by `✱` to switch zone bypass.
Wireless sirens binding	`#` , `9`	installer 📶 in **green**	Zones LEDs in **red** indicate the binded wireless sirens numbers, and the **green** ones indicate free numbers. All actions are similar to the function `#` , `7`

Extra info	`#` , `0`	---
		 LED **4**
		 📶 · · · 🔆 ·
			Select info to show by zone LEDs:
			`A` – DCU firmware version in binary:
			   App – in **green** LEDs 8...1 (8 – LSB);
			   Boot – in **red** LEDS 16...9 (16 – LSB).
			`B` – Control Panel firmware version in binary:
			   App – in **green** LEDs 8...1 (8 – LSB);
			   Boot – in **red** LEDS 16...9 (16 – LSB).
			`C` – flashes **green 1...8** – **doorbell** is turned on. To turn **on/off** use the **1/0** button.
			`D` – DCU LEDs and buzzer turn on for test (10 sec)

Table 7. Additional functions with Lun-11mod.5/6 and Lun-25mod.2 Control Panels

Function	Keys	Password / Icon flashing	Description
Lun-11mod.5/6 (Lun-25mod.2) **"Normal" passwords**	`#`, `3`	***admin*** (full access) or ***user*** (access to this user only) LED **1** (icon flashing)	**Full access**. Zones LEDs 1…8 flash **red** inviting to select the user number or to manage system passwords. ● To manage system passwords: `C` – for **fire system** password; `D` – for **admin** password. ● To manage user's, enter his number 1…512 (1…256) and confirm by `✶`. The number is displayed by zone LED 1…10 in binary (1 – LSB). Group membership and passwords/key presence are indicated by zone LED:s <table><tr><th>User is a member of</th><th>User has a</th></tr><tr><td>**11** – current group **12** – another group</td><td>**14** – "normal" password **15** – "under duress" password **16** – key</td></tr></table> ● To manage user's password, the user must be a member of the current group. Possible actions: `A`, `✶` – **delete** user's password; `B`, `✶` – **edit** user's password. `D` – **add/exclude** user to current group. If the user is already in another group, then you will need to enter his password or attach his key to the reader. Exit from the current user – `#`. **User access**. Enter new password for current user
Lun-11mod.5/6 (Lun-25mod.2) **"Under duress" passwords**	`#`, `4`	***admin*** (full access) or ***user*** (access to this user only) LED **2** (icon flashing)	Indication and all actions are similar to function `#`, `3` applied to passwords "under duress"
Lun-11mod.5/6 (Lun-25mod.2) **Keys**	`#`, `6`	***admin*** LED **3** (icon flashing)	Indication and all actions are similar to function `#`, `3` applied to user's keys. Use the reader of the current group to touch by the key.

Table 8. Faults Display

Fault	ZONE LEDs		Fault
Main power	1	9	Arming disabled by the CMS command
Battery	2	10	Communication with CMS
Sirens	3	11	Connection to wireless receiver
Connection to Lind-11TM	4	12	Connection to Dozor
Connection to AM-11	5	13	Connection to LanCom
Connection to Lind-11/15/11LED/9M	6	14	Connection to MPB-8M
Connection to Lun-11E/H	7	15	Connection to WiFi module
Connection to cameras	8	16	GSM signal jamming

7.4. Assigning to a group

Once the DCU is powered it is automatically assigned to the first available group for it.

The number of the currently assigned group is displayed by flashing zone LED after pressing the button ✱ .

The color of the flashing digit indicates the group readiness for arming: **green** – the group is ready for arming, **yellow** – the group is not ready.

Luminous zone LEDs indicate the groups available for this DCU.

Select another group by pressing the keys

✱ , *group_number*, ✱

7.5. Display zones status

Status of the first Control Panel's 16 zones assigned to the group is displayed by the DCU 1...16 zone LEDs. Violation of the zone displays by **red** LED. Zone fault is displayed by **yellow** LED. When the zone will be restored – corresponding zone LED will **turns off**.

Note: DCU displays the status of the first 16 zones in group. When you try to arm the group with violated zone with a number greater than 16, all zones LED will flash three times.

7.6. Reset the "Fire" state

To reset the "Fire" state you must switches to the fire control subsystem level (by typing the key combination # , 5), enter the *fire subsystem password*, and then press C .

8. Arming

- For current group **quick arm** without code entering – when the DCU is in the stand-by mode, quickly twice press the button ✱ .
- For current group **arm** by code – when the DCU is in the stand-by mode, enter a 4-digit user password. If the group can be armed (all group zones is restored, the green ⊘ LED is lit) – arming will start.

Note: To activate the arming mode "Stay at home" the A button must be pressed shortly before entering of 4-digit user password. The "Interior delayed" and "Arm stay" zone types does not analyze in this mode.

Using intermittent beeps (1 per second) and the LED 🛡, DCU will report about the arming process:

- 🛡 flashing and beeps (once per second) – the arming event is sent to the CMS;
- Sound signals (1 per second) and 🛡 is lit – confirmation for arming received from CMS;
- beeps have stopped – exit delay has ended.

Icon 🛡 color displays the arming mode: **red** – for away arming, **yellow** – for "Stay at Home".

If an incorrect password entered, a "trill" will sound, the 🛡 icon will remain its color, and the group will not armed.

All zones in the group should be restored for arming. Some "master" groups must be ready for arming so that their "dependent" groups can be armed (one "master" group – with a scheme **OR**, all "master" groups – if the scheme is **AND**). Arming is impossible while the firmware of the Control Panel is updating or its configuration is writing remotely.

9. Disarming

When the entrance (delayed) zone is violated, the entry delay countdown starts with the buzzer beeps. The first press any DCU button stops the beeps (although the countdown continues). Enter a 4-digit user password to disarm the group until the countdown ends.

If the correct user password is entered, the 🛡 icon turned off (or change color to green) and the group will be disarmed.

Note: If an "Under duress" password is used to disarm, the alarm will be sent to the CMS at the same time that the group is disarmed.

10. Transmitting alarms

10.1. Burglary alarm

Note: This function depends on the Control Panel configuration

1. To send a burglary alarm, quick press the **SOS** button triple.
2. An alarm event sent to the CMS, the **SOS** icon flashes for 5 seconds.

10.2. Fire alarm

Note: This function depends on the Control Panel configuration

1. To send an fire alarm, quick press the 🔥 button triple.
2. The fire siren will turned on, 🔥 icon flashes for 5 seconds. The fire alarm sent to the CMS.

10.3. Medical alarm

Note: This function depends on the Control Panel configuration

1. To send a burglary alarm, quick press the 💗 button triple.
2. An alarm event sent to the CMS, the 💗 icon flashes for 5 seconds.

11. Configuring the DCU

Configuring of the DCU is performed in two steps:

1. By "Configurator 11" program in the "**Keyboard**" section (for Control Panel type you need) – choose the total number of connected DCUs and specify the group numbers where each DCU related to. A detailed description of the configuration process and using the configuration software and other individual parameters can be found in the "Configurator 11 Operation manual", available on the www.ortus.io website.
2. Set the network address for each DCU in accordance with the values selected in the first step. To do this, use the $\boxed{\#}$ + $\boxed{1}$ keys (Section 7.3).

12. Firmware update

DCU supports the firmware update. Updating is done locally (when connected to a computer with a 2-wire "USB Config" cable) or remotely (by GPRS/3G/WiFi communication channel).

The "USB Config" cable contact marked as **"Δ"** should be connected to the **XP2** connector contact marked as "**Δ**" on the DCU board (see Figure 4), having previously disconnected the wire from the BUS terminal until the update is complete.

"Configurator 11" software commands are used for local firmware updating. Remote update is produced by "Phoenix 4" software (by CMS operator command). All Control Panel's groups should be disarmed to update the firmware.
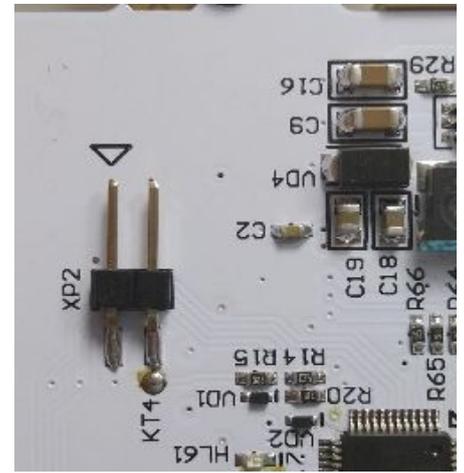
Figure 4. Port for software update

13. Maintenance

The product does not require any maintenance.

14. Operating conditions

The product shall be used at the temperature of −5°C to +40°C and relative humidity of 5% to 85%.

15. Storage

1. Storage temperature shall be of -50°C...+40°C at the relative humidity of 5% up to 98%.
2. During handling operations, transportation and storage in warehouses, boxes with the product shall not be exposed to sharp bows. Stacking and fixing of the boxes to the transporter shall not include their movement.
3. Product shall be stored in the manufacturer's package.

16. Transportation

1. Product transportation shall be carried out in the manufacturer's package.
2. Product is allowed to be transported by all types of enclosed transporters, subject to observing the shipping rules applicable for each type of transport.
3. Transportation temperature shall be of -50°C to +50°C at the relative humidity of 5% up to 98%.

17. Disposal

Product disposal shall be carried out according to electronic household appliance disposal rules established by the legislation of the State, where the product is operated.

18. Appendix. Wired connections

Table 9. Types of burglary zones

Connection diagram	Event for short circuit	Event for circuit break
1. Zone type - "Normally open"		
	Alarm	norm
3. Zone type – "With EOL resistor and alarm on the disruption"		
	zone fault	**Alarm**
4. Zone type – "With EOL resistor and alarm on short-circuit"		
	Alarm	*zone fault*
5. Zone type – "With EOL resistor and alarm on the disruption and short-circuit"		
	Alarm	**Alarm**
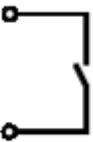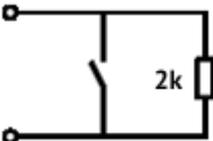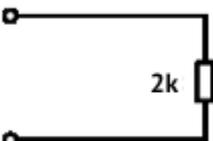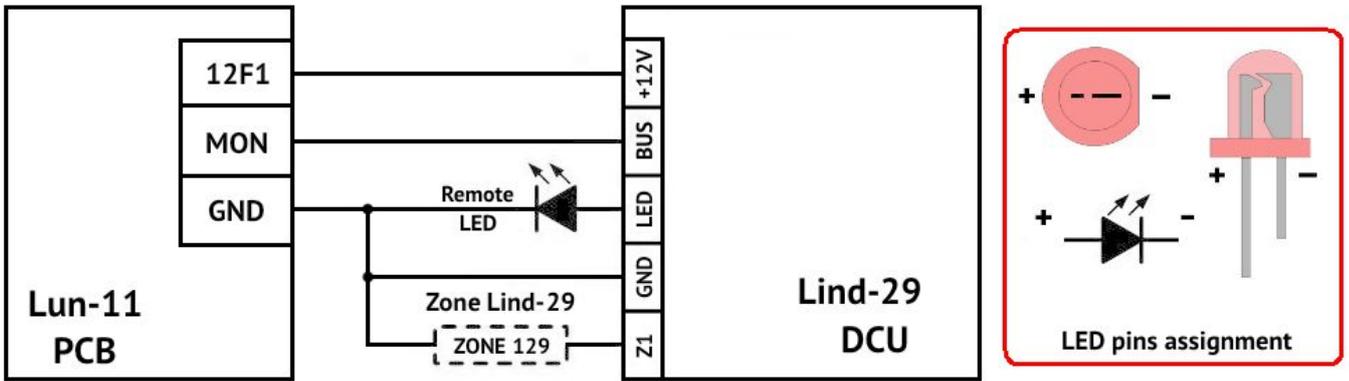
Figure 5. DCU wired connections to the "Lun-11" Control Panel
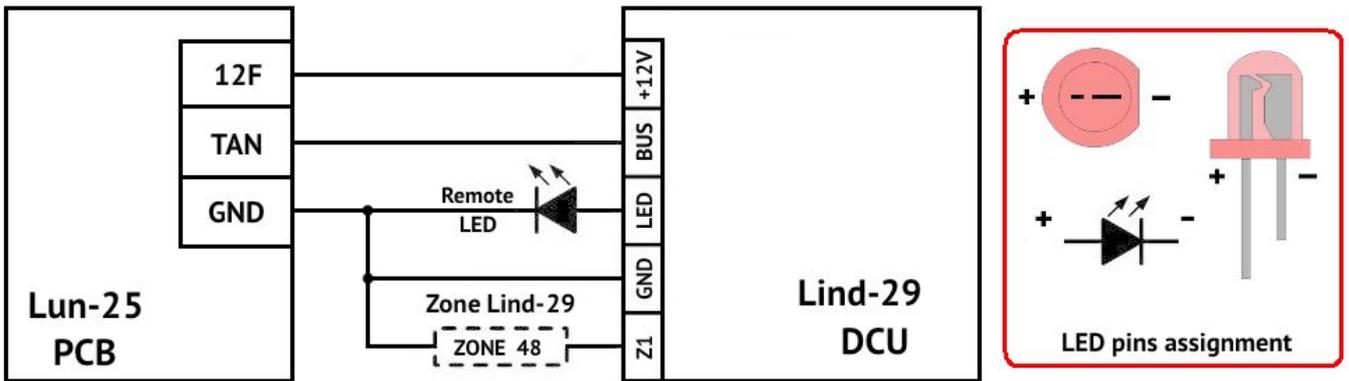
Figure 6. DCU wired connection to the "Lun-25" Control Panel

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