Research and Development Center TEKO

CE

## CONTROL PANEL

# ASTRA-713

**Operating Manual**

# Table of Contents

This operating manual is intended for studying the operating principles, proper use, storage, and maintenance of the control panel Astra-713.

**Below is the list of abbreviations, used in this operating manual:**

| | |
|---|---|
| Equipment | Astra-713 Control Panel |
| Astra-Dozor | Astra-Dozor Control Panel |
| Astra-Z-8945 | Astra-Z-8945 Control Panel |
| Relay | Programmable “dry-contact”-type relay output |
| OC | Programmable “open collector”-type output |
| SA | Sound Alerter |
| LA | Light Alerter |
| BZ | Built-in Buzzer (beeper) |
| TM Key | Touch Memory identifier |
| Reader | TM key reader (for example, the Astra-TM reader) |
| Astra-RVC | Wireless receiver Astra-RVC ver. TM |
| Astra-TRC | Wireless transmitter Astra-TRC or Astra-TRC ver. M |
| Interface RS-485 | Data exchange interface among external devices (units) |
| Adapter Astra-984 | Interface adapter for connection to PC via RS-485 |
| PC | Personal (desktop) Computer |
| FW | Firmware |
| CSP | Central Surveillance Post |

| | |
|---|---|
| STD | Signal transmission Device |
| ALx | Alarm loop, where “x” is the alarm loop number (ranging from 1 to 8) |

# 1 Function

**1.1** The device is designed to protect facilities from unauthorized intrusion and fires in stand-alone mode, under the control of an Astra-Dozor control panel, or under the control of an Astra-Z-8945 control panel.

**1.2** In **stand-alone mode**, the device will monitor the state of 8 (eight) alarm loops with activated intrusion or fire detectors and output notifications to a CSP via relay outputs, to alerting equipment via “open collector” outputs, and to BZ.

**1.3** When **controlled by an Astra-Dozor control panel**, the device will monitor the state of 8 (eight) alarm loops with activated intrusion or fire detectors and transmit notifications to the Astra-Dozor control panel via an RS-485 interface.

**1.4** When **controlled by an Astra-Z-8945 control panel**, the device will monitor the state of 8 (eight) alarm loops with activated intrusion or fire detectors and transmit notifications and TM key codes to an Astra-Z-8945 control panel via an RS-485 interface, and also control relay and OC outputs in response to Astra-Z-8945 control panel commands.

# 2 Device Main Features and Functions

**2.1** The device is intended for stand-alone use or to combine up to 16 devices via an RS-485 interface into a network controlled by an Astra-Dozor control panel.

**2.2** Device operating mode settings for stand-alone use are configured using jumpers or a PC (using the Pconf-713 program).

To operate under the control of an Astra-Dozor control panel, the device firmware must be replaced using the Pconf-713 program (section 15).

**2.3** In **stand-alone** mode, the device performs arming/disarming functions as follows:

- using the button, connected to the TM key input;
- using TM keys or devices that generate a TM format code, for example, the Astra-RVC (the Astra-TRC is used as the TM key);
- using alarm loop indicator buttons.

**2.4** When **controlled by an Astra-Dozor control panel**, the device loops are distributed in partitions that are armed/disarmed in response to commands from the Astra-Dozor control panel. Control is performed from the Astra-Dozor control panel using PIN codes, TM keys, or devices that generate a code in TM format. The reader is connected to the TM device input and the TM codes are transmitted to the Astra-Dozor control panel via an RS-485 interface.

**2.5** The device has two basic alarm loop types: “Intrusion” and “Fire.”

A device with **intrusion** alarm loops monitors loop resistance using rigid “Normal” and “Violation” values. A “Failure” alarm loop state is not recognized.

A device with **fire** alarm loops monitors loop resistance using rigid “Normal,” “Violation,” “Failure,” and “Warning” values.

Device alarm loops may contain:

- detectors and control unit NO/NC output circuits of “dry-contact”-type;
- fire-type detectors, supplied with power by the alarm loop and capable of operating at supply voltages of 14–21 V.

**2.6** The device outputs alarm notifications to the CSP even if power to the device is completely turned off.

**2.7** The device can control external elements using programmable relay outputs and OC outputs.

**2.8** At supply voltages below 10 V, the device will enter “Sleep” mode, with minimum current consumption. In “Sleep” mode, the device turns off all outputs and does not monitor alarm loop state. Exit from “Sleep” mode occurs upon recovery of supply voltage, which also recovers alarm loop state.

**2.9** The device has a two-color indication of alarm loop and power circuit state.

**2.10** The device is protected against overloads and malfunctions in alarm loop circuits.

**2.11** The device is designed to operate on a continuous, around-the-clock basis.

**2.12** Device design is not designed to be operated in corrosive environments, dust, water, or in fire-hazardous spaces. The device is not intended to be used in an automatic fire-suppression control system.

# 3 Specifications

Power supply voltage, V ..... $12^{+3}_{-2}$
Current consumption, mA, maximum:
in standby mode ..... 180
in alarm mode ..... 230
Number of alarm loops connected to the device ..... 8
Number of relay outputs ..... 2
Number of OC outputs ..... 2
Power supply voltage at which indications are displayed
"Power supply below normal," V ..... 11±0.3
Power supply voltage at which the device transitions to
"Sleep" mode, V ..... 10±0,2

**Interface RS-485 (terminals 485A, 485B):**
Line length, m, maximum ..... 1000

Number of devices that can be connected to the Astra-Dozor control panel, pcs., maximum .....16

**Relays (RELAY 1, RELAY 2):**

Voltage, V, maximum .....100
Current, mA, maximum.....150
Mode selection ..... CSP alarm, warning light, arm/disarm, executive, alarm, siren, custom

**“Open collector” outputs (terminals OC1, OC2):**

Maximum loading current, mA .....500
Maximum loading voltage, V.....15
Mode selection ..... CSP alarm, warning light, arm/disarm, executive, alarm, siren, custom

**Alarm loop specifications (ZONEx, GND terminals):**

Alarm loop terminals voltage in standby mode, V.....from 14 to 21
Alarm loop current for power supply, mA, maximum .....5
Alarm loop short circuit current, mA, maximum .....20

Alarm loop resistance*, kOhm, in state:
- “Normal”..... …from 3 to 5
- “Violation” intrusion..... from 0 to 3, or over 5
- “Violation” fire .....from 1,5 to 3, or from 5 to 12
- “Failure” - fire.....from 0 to 1.5, or over 12

**Fire** alarm loop resistance in **double-event** mode*, kOhm, in status:
- “Normal” ..... from 3.0 to 5.0
- “Violation” ..... from 0 to 1.5, or from 5 to 12
- “Warning” ..... from 1.5 to 3
- “Failure” ..... over 12

Alarm loop integration time, ms:
- intrusion ..... 70±10
- fire ..... 300±30

Alarm loop wire resistance (without external elements), Ohm, maximum:
- intrusion ..... 220
- fire ..... 150

Leakage resistance between ZONE output wires
or wire and “Ground”, kOhm, minimum:
- intrusion ..... 20
- fire ..... 50

Number of registered TM keys, maximum ..... 28
Weight, kg, maximum ..... 0.12
Dimensions, mm, maximum ..... 120.5x79x30.5

**Allowable resistance variation is 10% maximum; for 12 kOhmm is ±2 kOhm maximum.*

**Operating conditions:**

Temperature range, C ..... from -30 up to +50
Relative air humidity, % ..... up to 93 at + 40 °C
without moisture condensation

# 4 Delivery Set

Astra-713 Control Panel ..... 1 pcs.
Resistor 3.9 ..... 8 pcs.
Screw 2.9 ×25 ..... 4 pcs.
Dowel 5 x 25 ..... 4 pcs.
Sticker ..... 1 pcs.
Operating Manual ..... 1 copy

# 5 Structure

**5.1** The unit's structure is a block consisting of a base and a removable cover. Inside the block is a circuit board with radio elements. (Figure 1).

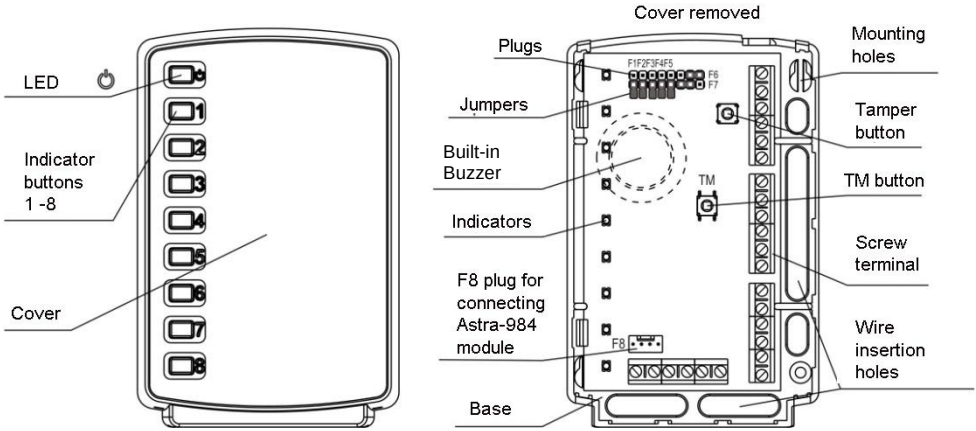



Figure 1

**5.2** Jumper plugs with pins are mounted on the device circuit board to permit selection of device operating mode and two-color indicators:

– "**1**"–"**8**" indicate the state of the corresponding alarm loop;

–  indicate the state of device supply voltage and the status of the RS-458 interface.

**5.3** Silicon indicator buttons "**1**"–"**8**" are mounted in the device's cover, and are used to arm/disarm the corresponding alarm loops.

**5.4** There is a tamper switch on the circuit board, which supplies a BZ when the cover is opened and, if required, supplies a message to the relay and OC outputs (set up with Pconf-713 software).

**5.5** The circuit board contains a built-in buzzer for audible notifications.

# 6 List of Terms and Definitions

**Auto-arming -** a function for one or group of intrusion-type ALs, assigned to one relay, is intended for automatic arming on expiry of defined time period after «Alarm» event on condition of recovery of one or group of ALs to «Norm» state.

**Silent alarm -** a function for one or group of intrusion-type ALs, assigned to one relay, is intended for quiet alarm notification transfer to CSP relay only.

**24-hour mode** – a function for one or group of ALs of intrusion or fire type, assigned to one relay, is intended for 24-hour protection. At that ALs at «Norm» state are armed automatically. Disarming function is blocked. Reset of alarm notification is required only.

**Double event** – a function for one or group of fire-type ALs, assigned to one relay, based on the following tactics: on alarm event of one fire-type detector «Warning» notification is transferred, at alarm event of two and more fire-type detectors ***in one Zone*** – «Fire» notification is transferred.

**Integration time** – time of AL violation where violation of longer duration is considered valid and violation of shorter duration is considered as an undesired signal.

**Exit delay time** – for AL1 and AL2 with entry/exit delay – is time from the moment of control panel arming till transition to armed mode. At that AL events during exit delay time are not registered.

**Entry delay time** – for AL1 and AL2 with entry/exit delay – is time from the moment of AL transition to «Violation» mode till beginning of «Alarm» notification transferring to SA and BZ.

**«Any door» tactics** - for AL1 and AL2 with exit delay time. Process of arming (exit delay time start) begins at any state of AL. At that arming occurs on expiry of preset exit delay time if AL is in «Norm» state.

**«Closed door» tactics** - for AL1 and AL2 with exit delay time. Process of arming (exit delay time start) begins only if AL is in «Norm» state. At that arming occurs on expiry of preset exit delay time if AL is in «Norm» state.

**Passageway area** – a function for one or several intrusion-type ALs assigned to one relay with group of independently controlled ALs. Arming occurs **automatically** when the last zone of the group is armed. Disarming occurs **automatically** when at least one AL of the group is disarmed.

**«Slave» operating mode -** The device operating mode with Control panel Astra-Dozor.

**«Master» operating mode -** The device stand-alone operating mode.

# 7 System Information Capacity

The type and quantity of notifications depend on specified device operating modes.

Table 1 - Device information capacity

| No. | Notification type | Device reaction |
|---|---|---|
| | | **Relay 1, Relay 2 outputs (**CSP Alarm mode)<br>*(default settings)* |
| 1 | “Armed CSP” | Relay is **closed** in «Armed» mode in condition of absence of any event in AL assigned to this relay. |
| 2 | “Alarm CSP” | Relay is **opened** in «Armed» mode at violation in ALs assigned to this relay, or in case of full power failure of the control panel. |
| 3 | “Disarmed CSP” | Relay is **opened** at disarming of one of ALs assigned to this relay. |

Table 1 (cont.)

| No. | Message type | Device reaction |
|---|---|---|
| | | **LED "X"** (where "X" from **"1"** to **"8"**) |
| 4 | "Ready" | Flashes **green 1 time per 1s** at «Norm» state in «Disarmed» mode |
| 5 | "Not ready" | **Not lit** at «Violation» state in «Disarmed» mode |
| 6 | “Armed” | **Lights green** at «Norm» state in «Armed» mode |
| 7 | “Alarm“<br>( “Fire”) | Flashes **red 1 time per 1s** at «Violation» state in «Armed» mode |
| 8 | "Failure" | Flashes **red 2 times per 1s** at «Failure» state of fire-type AL-x |
| 9 | “Warning” | Flashes **green 2 times per 1s** at «Violation» state of one detector of fire-type AL-x in double event mode |

Table 1 (cont.)

| No. | Message type | Device reaction |
|---|---|---|
| | | **LED** |
| 10 | "Power normal" | **Lights up with a continuous green light**, provided there is adequate power supply and communications with the master device when operating in the slave mode. |
| 11 | "Power failure" | **Lights up with a continuous red light**, if supply voltage is too low (11.0±0.3 V). |
| 12 | “Communications interface failure" | Blinks **green once per 1 second** when there is no communication via RS-485 interface under Control panel Astra-Dozor control |

Table 1 (cont.)

| No. | Message type | Device reaction |
|---|---|---|
| | | **BZ** |
| 13 | "Alarm" [1)] | **Continuous** sound at «Violation» state of intrusion-type AL in «Armed» mode (on expiry of entry delay time for AL1 and/or AL2) |
| 14 | "Fire" [1)] | Intermittent sound **1 time per 2s** at «Violation» state of fire-type AL |
| 15 | "Failure"[1)] | Intermittent sound **2 times per 1s** at «Failure» state of fire-type AL |
| 16 | "Warning"[1)] | Intermittent sound **2 times per 1s** at «Warning» state of fire-type AL in double-event mode |
| 17 | "Tampering" | Intermittent sound 0,25s **1 time per 1s** in case of opening or closing the control panel housing. Continuance is 10 seconds |

Table 1 (cont.)

| No. | Message type | Device reaction |
|---|---|---|
| | | **BZ** |
| 18 | “Alarm loop armed” | **Single** sound impulse |
| 19 | “Alarm loop disarmed” | **Double** sound impulse |
| 20 | “TM Key cancellation” | **Three** successive sound impulses at invalid TM identifier code |
| 21 | “Delay” | Intermittent sound **1 time per 1s** during entry/exit delay time |
| 22 | “End of delay” | **Short-time** activation for 0,15s on expiry of exit delay time |

Table 1 (cont.)

| No. | Message type | Device reaction |
|---|---|---|
| | | **OC1 output** (“Siren” operating mode) *(default settings)* |
| 23 | “Disarmed”, “Armed” | Deactivated |
| 24 | “Alarm”, “Fire” [1)] | **Continuous** sound at «Violation» state of intrusion- or fire-type AL in «Armed» mode (on expiry of entry delay time for intrusion-type AL1 and/or AL2) |
| | | **OC2 output** (“Warning light” operating mode) *(default settings)* |
| 25 | "Disarmed" | **Not lit** if even one AL is disarmed |
| 26 | “Armed” | **Lights constantly** at «Norm» state in «Armed» mode |
| 27 | "Alarm", "Fire" | Blinks **1 time per 1s** at «Violation» state of at least one AL in «Armed» mode |

[1)] *The duration of the notification may be changed using the PC (the default setting is 180 sec).*

# 8 Installation

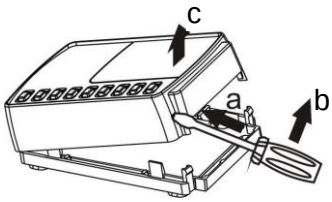
The device shall be mounted per RD.78.145-93, “Rules for work performance and acceptance. Installation of security, fire, and security–fire alarm systems”.

## 8.1 Mounting location selection

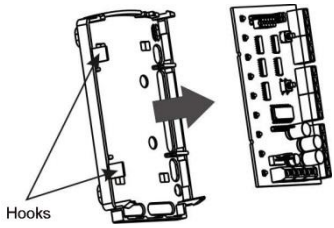
The device must be mounted on walls or other surfaces at premises, protected from rain, snow, mechanical damage and unauthorized access.

## 8.2 Installation procedure

**Step-1** Push clips from the cover slots. Remove cover

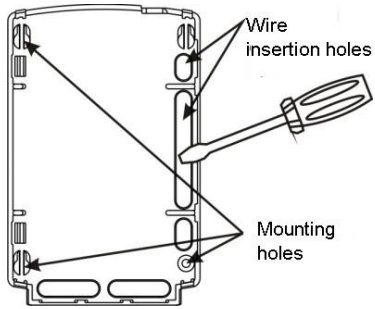



**Step-2** Unbend hooks on the base and remove the circuit board.



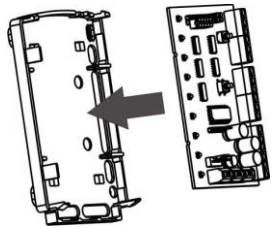
## Step-3

- Make marks at a level selected location for mounting holes by using holes on the detached base as a template.
- Pull out the plugs out of selected wire input holes in the device base.
- Run wires from the power supply unit, alarm loop, RS-485 interface, relays, OC, Astra-TM reader (if TM keys are being used) and Astra-RVC (if Astra-TRC key fobs are being used) through the wire insertion holes.
- Affix the device base.

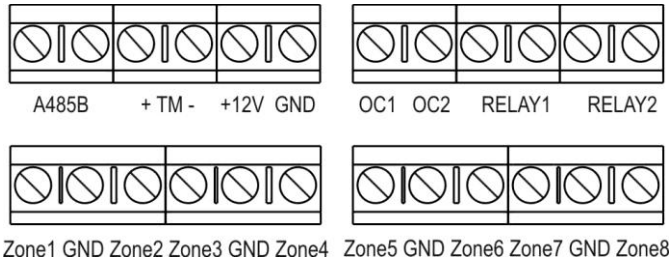



## Step-4

Install the circuit board into place.

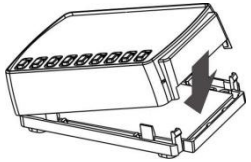


**Step-5** Electric wiring to the output terminals of the device is to be carried out in accordance with selected wiring diagrams in **Appendices A and B.**




## Step-6

Replace the device cover in its position, until a click is heard.
If necessary, apply a label from the delivery kit to the device cover.



# 9 Default Settings

The firmware of the delivered device is for **stand-alone** use with **default settings** in memory, which are shown in Table 2. To use the device with default settings, install the jumper on **one** pin of plug **F7;** positions of the remaining jumpers are ignored.

Table 2

| Operating mode | Parameters |
|---|---|
| AL1 - AL4 | Intrusion, instant, 70 ms integration time |
| AL5 - AL8 | Fire |
| Entry delay (for AL1 and AL2)<br>Exit delay (for AL1 and AL2) | 0 sec.<br>0 sec. |
| Operating mode via RS-485 interface | Stand-alone |
| Arming | TM Key |
| Locking AL buttons | Forbidden |
| “Auto-arming” function | Forbidden |
| AL1 and AL2 operation tactics | “Closed door” |
| “Silent alarm” function | Forbidden |

| Operating mode | Parameters |
|---|---|
| “Passageway area” function | Forbidden |
| Relay operating modes | CSP alarm |
| Relay assignment to AL | AL1 –AL4– relay 1, AL5-AL8 – relay 2 |
| OC1 output operating mode | Siren |
| OC1 output assignment to AL | Al1 - AL8 |
| OC2 output operating mode | Warning light |
| OC2 output assignment to AL | Al1 - AL8 |
| Relay delay for AL1 and AL2 | No |
| Notification duration processed by the BZ and OC1 output in “Siren” mode | 180 sec |
| Notifications processed by the BZ | Complete set per Table 1 |

# 10 Setting Operating Mode by Jumpers

When the device is operating in **stand-alone** mode, the device may be configured using jumpers. Jumper-specifiable operating modes (Fig. 2) are shown in Table 3.

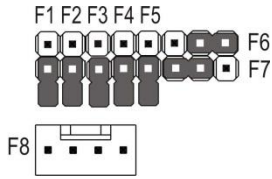



Figure 2

**ATTENTION!** Device power must be **off** when installing or removing jumpers.

Table 3

| Plug | Plug Name | Jumper Position | Operating mode |
|---|---|---|---|
| **F1** | Arming method | – | With TM keys |
| | | + | With control button |

| Plug | Plug Name | Jumper Position | | Operating mode |
|---|---|---|---|---|
| **F2** | Limit sound notifications to BZ and SA | – | | All messages |
| | | + | | Alarm, Fire |
| **F3** | Auto-arming mode | – | | Forbidden |
| | | + | | Valid |
| **F4, F5** | AL Operating mode | **F4** | **F5** | All ALs are of intrusion type<br>AL1 with delay<br>Remaining ALs are instant |
| | | – | – | |
| | | + | – | AL1 intrusion-type with delay<br>AL2 –AL4 intrusion-type, instant<br>AL5–AL8 fire-type, without double-event |
| | | – | + | All ALs are of intrusion type<br>AL1 with delay<br>AL2, 24-h, silent alarm<br>Remaining ALs are instant |
| | | + | + | All ALs are of fire type |
| **F6** | Entry/exit delay (for AL1) | – | | Deactivated (AL1 - instant) |
| | | + to right two pins | | 1 min for entry, 2 min for exit |
| | | + to left two pins | | 30 sec for entry, 1 min for exit |

| Plug | Plug Name | Jumper Position | Operating mode |
|---|---|---|---|
| **F7** | Setup and FW updating mode | – | Use operating modes from device memory (the position of remaining jumpers is ignored) |
| | | When jumper is installed on **F1** plug and **TM** button is pressed | Setting up operation modes using computer |
| | | + to left two pins | Setting up operation modes using jumpers |
| | | + to right two pins | Firmware update |
| **F8** | Astra-984 or Terminal resistor connection | Astra-984 connected | |
| | | – | Resistor switched off |
| | | + to left two pins | The resistor is connected (for an interface line length of more than 200 m in expanded mode) |

"–" - jumper is removed (or installed on one plug pin)
"+" - jumper is installed on two plug pins

# 11 Setting Operating Mode Via PC (Stand-Alone Mode)

The most convenient way of changing the device operating mode is with a PC. To do this, the following are required:

- personal computer;
- **Astra-984 i**nterface adapter (supplied separately);
- **Pconf-713** software for the PC (distributed freely from **www.controlex.eu** ).

**Operating procedure:**

**1)** turn off power supply;
**2)** remove the cover by inserting a flat screwdriver blade into the cover slot (section 8);
**3)** remove jumper from **F7** plug,
**4)** install jumper on **F1** plug;
**5)** connect interface adapter Astra-984 to a USB port on the PC (Fig. 3);

**ATTENTION!** A driver must be installed the first time Astra-984 interface adapter is connected to the PC USB port, see the section “Installing the Astra-984 interface adapter driver” in the Pconf-713 user manual.

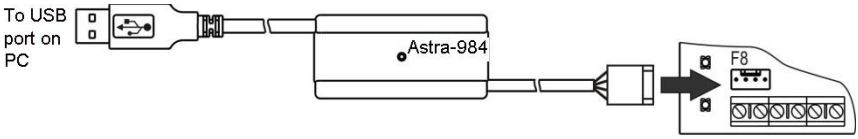



Figure 3

**6)** press and hold **TM** button on the device, connect the Interface Adapter RS-485 to the device and the PC, then the LED indicator will light up with **green** light; Release **TM** button;

**7)** run the Pconf-713.exe program on the PC;

**8)** select “Settings” in the “Operating mode” window;

**9)** connect to the device (“Connect" button);

**10)** specify the required device operating modes per the instructions in the Pconf-713 user manual (opens upon clicking the “Help” button in the program window or pressing the F1 button on the computer keyboard);

**11)** record settings to the device memory ("Write to device” button);

**12)** unlink the device ("Unlink" button);

**13)** close the Pconf-713.exe program;

**14)** disconnect the Interface Adapter Astra-984 from the device;

**15)** install jumper on one pin of **F1** plug**;**

**16)** replace the cover;

**17)** turn on power supply;

**18)** check device operability per the specified operating modes.

**Device operating modes, accessible from the PC:**

- any/closed door tactics (for AL1 and AL2);
- entry delay time, exit delay time (for AL1 and AL2);
- auto-arming (for intrusion-type ALs);
- time for rearming;
- silent alarm (for intrusion-type ALs);
- passageway area (for intrusion-type ALs);
- 24-h mode (for intrusion-type ALs);
- double event (for fire-type ALs);
- integration time 70/300 ms (for intrusion-type ALs);
- way of arming/disarming: TM key/buttons;
- registration of new TM identifiers and rights assignment for them;
- disable button control;
- ALs assignment to relay and OC;
- Relay and OC operating modes (table 4);
- relay delay for AL1 and AL2;
- SA and BZ turn on time;
- SA and BZ notifications restriction (only «Alarm» and «Fire»);

Table 4 - **Relay and OC outputs operating modes**

| Mode name | Mode description |
|---|---|
| CSP - Alarm | The relay (OC output) is closed when armed, and opened when there is an alarm or when disarmed |
| Warning light | The relay (OC output) is closed when armed (after the exit delay time is over), switched when there is an alarm and opened when disarmed |
| Armed/disarmed (for intrusion AL) | The relay (OC output) is closed when all ALs connected to this relay or OC are armed; and opened when any of the ALs connected to this relay or OC is disarmed |
| Siren | The relay closes when there is an alarm and opens when there is no alarm. The OC output closes when there is an alarm for a PC-specified duration (the default setting is 3 min), and opens when there are no alarms |
| Alarm | The relay (OC output) is closed in the armed and disarmed state when power is present, and opens only when there is an alarm in the armed state |
| Executive (for intrusion AL) | The relay (OC output) is closed for 10 sec when the AL connected to this relay is armed or disarmed |
| Custom | Creates new relay (OC output) operating mode |

# 12 Registering and Deleting TM Keys for Stand-Alone Operating Mode

TM key codes can be recorded to (deleted from) memory by:
- using the TM button on the circuit board;
- using PC (Pconf-713 program) (see section **11**).

Connect the TM key reader or the Astra-RVC to +TM and –TM terminals of the device (Appendix **A**).

**Using the TM button to register (deletion) the TM key**

Operating procedure:
**1)** turn off power supply;
**2)** remove the cover by inserting a flat screwdriver blade into the cover slot (section 8);
**3)** install jumper on one pin of **F1** plug (arming mode while using TM keys);
**4)** press **TM button** and turn on power supply. Indicator **1** will light up **red**;
**5)** release the **TM button.** Indicator **1** will **blink green**, indicating the device is in TM key registration (deletion) standby mode;
**6)** to delete a previously registered TM key:
- press the **TM** button (indicator **1** will light up red) and keep the **TM** button pressed until indicator **1** goes out automatically. All codes of previously registered TM keys will be deleted from device memory,

- release the **TM button;**

to register new TM keys:

- **briefly** press the **TM** button. Indicator **1** will **blink green**, indicating the device is ready for registration (if indicator **1** starts to blink red, this means the maximum number of TM keys that can be registered, i.e., 28, has been reached).
- bring the TM key near the reader or press the button on the Astra-TRC key fob.

- If registration is **successful**, indicator **1** will light up **green.** The TM key can be authorized to arm/disarm all alarm loops.
- If the TM key is **already present** in device memory, indicator **1** will light up **red;**

**7)** if necessary, repeat the registration or deletion procedure;
**8)** turn off power to the device;
**9)** install jumpers per the required operating mode (Table 3);
**10)** replace the cover;
**11)** turn on power to the device.

**Attention!** Registered TM keys are only authorized for stand-alone device operating mode.

# 13 Pre-Starting Procedure and Operability Test in Stand-Alone Mode

Operating procedure:

**1)** Turn off power supply.

**2)** Remove the cover by inserting a flat screwdriver blade into the cover slot (section 8);

**3)** Check correct wiring during installation.

**4)** If necessary, set device operating modes (sections 9–12).

**5) Perform device operability test**:

a) wait until device **ALx** are **Ready** (indicator **X** will blink **green once per second**). If ALx are not ready (indicator **X** is not lit), check ALx;

***Note.*** *If an ALx is defined to be fire or 24-hr intrusion, the AL will not have a "Ready" state, and ALx will automatically transition to the "Armed" state.*

b) bring the device to the "Armed" state by pressing the control button, bringing the TM key to the reader (pressing the Astra-TRC key fob button when the Astra-RVC is connected), or pressing AL buttons on the device corresponding to the protected facility or part of it;

c) check correspondence of notifications to BZ, indicators **1**–**8**, OC and relay outputs in the "Normal" and "Violation" states for ALx (Table 1);

d) disarm the device by releasing the control button, bringing the TM key to the reader, pressing the Astra-TRC key fob button, or pressing AL buttons on the device corresponding to the protected facility or part of it;

e) remove power, wait 10 sec, and restore power to the fire AL terminal;

f) check correspondence of notifications to BZ, indicators **1–8**, OC and relay outputs.

# 14 Using the Device in Stand-Alone Mode

"Operating instructions and safety rules for electrical installations of up to 1000 V" should be followed when operating the device.

## 14.1 Using the device for intrusion protection

- **Arming**

- by using the control button or AL buttons on the device:

1) Close all windows, vents, doors etc.
2) Press the control button or the AL button of the corresponding protected facility or part of it;
3) Exit the premises being secured and close the entrance door;
4) At the expiration of the exit time, make sure LA is activated (if LA is present). The device enters the "Armed" operating mode.

- using a TM key (the TM key reader is mounted outside the premises) and Astra-TRC;

1) Close all windows, vents, doors etc.
2) Exit the premises being secured and close the entrance door;
3) Touch the TM key to the reader or press the button on the Astra-TRC;
4) Make sure LA is activated (if LA is present). The device enters the "Armed" operating mode.

- **Disarming**

- by using the control button or AL buttons:

1) Open the entrance door;

This will cause an AL violation and a transition to the “Alarm” state. The AL indicator and LA (if present) should output an “Alarm” notification (the AL indicator should blink red once per second; the LA blinks once per second), while BZ outputs a “Delay” notification (an intermittent tone, once per second, during the entry delay period);

2) Within the specified delay time, release the control button or press the AL button.

If the time from the moment the door opens (the AL violation occurs) to device disarming exceeds the specified entry delay, then the SA (if present) will turn on for the time configured during setup.

The “CSP Alarm” message to the relay is transmitted immediately after the AL violation if there is no relay delay, or after the specified entry delay if a relay delay is specified.

- by using a TM key (a TM key reader is mounted outside the premises) and Astra-TRC:

1) Touch the TM key to the reader or press the button on the Astra-TRC;

2) Open the entrance door.

## 14.2 Using the device for fire protection

- **Arming**

Fire alarm loops have **a 24-h operating mode**. After power is applied, the alarm loop is armed **automatically**, upon transition of AL parameters to the “Normal” state.

Make sure of AL indicators (lit green) and the LA (lit continuously, if present) are activated.

The device has assumed the “Armed” state and is monitoring the alarm loops.

- **Reset “Fire” notification**

Release the control button, touch the TM key to the reader, press the Astra-TRC button, or press the AL button on the device corresponding to the protected facility or part of it.

The device will turn off (reset) power to the AL for 10 sec. During this time, “Not ready” notification is output to the AL indicator (the AL indicator is not lit).

Upon recovery of AL power and transition of fire-type detectors connected to the AL to operating mode, the device will assume the “Armed” state and output an appropriate notification to the AL indicator and LA (if present).

# 15 Firmware Update

The firmware update function allows the user to update device firmware, if necessary, to a newer version, or to change the firmware to enable operation under the control of Astra-Dozor control panel.

The following are required to update firmware:

- computer (PC);
- **Astra-984** interface adapter (supplied separately);
- **Pconf-713** software for PC (distributed freely from **www.controlex.eu** ).

**Operating procedure:**

**1)** turn off power supply;

**2)** remove the device cover;

**3)** disconnect the RS-485 interface wires from the device;

**4)** install jumper on the right two pins of **F7** plug**;**

**5)** connect the Interface adapter RS-485 to the device and PC, as shown on Figure 3; then the LED indicator will light up with **green** light;

***ATTENTION!*** *A driver must be installed the first time the Astra-984 interface adapter is connected to PC USB port, see the section "Installing Astra-984 interface adapter driver" in the Pconf-713 user manual.*

**6)** run the Pconf-713.exe program on PC;

**7)** select “Update firmware” in the “Operating mode” window;

**8)** connect to the device (“Connect" button), indicator ⏻ will be turned off;

**9)** load the required firmware version (“Read from the file” button). Firmware versions **713-v1_x** are intended for stand-alone mode; firmware versions **713-v2_x** are intended for operation with an Astra-Dozor control panel;

**10)** start the firmware update procedure (the “Write to device” button), whereupon indicator ⏻ lights up **red**.

- If the firmware update procedure is **successful**, a short sound tone will be heard, indicator ⏻ will change color **from red to green**, and a corresponding message will appear on the computer screen.
- If the firmware update procedure is **not successful**, a corresponding message will appear on the computer screen and the device will emit a continuous sound tone until it is reinitialized by the program.

**11)** unlink the device ("Unlink" button);

**12)** close the Pconf-713 program;

**13)** disconnect Interface Adapter Astra-984;

**14)** install jumper on **F7** plug in the necessary position (Table 3);

**15)** connect the RS-485 interface wires to the device (if necessary),

**16)** replace the cover;

**17)** turn on power supply;

**18)** perform device operability test per the specified operating modes;

***Notes***

*1 Updating firmware version does not impact previously established operating modes or registered TM keys (unless there are special instructions in the firmware release notes).*

*2 After updating firmware version* (from *713dozor_v2_0.tsk to standard version 713-v1_3.tsk), *device default settings must be configured using the Pconf-713 program.*

# 16 Configuring and Using the Device With Astra-Dozor Control Panel

**16.1** To operate with Astra-Dozor control panel, device firmware must be updated to version **713dozor** using the Pconf-713 program, per section **15**.

**16.2** The device (up to 16 pcs.) is connected to the Astra-Dozor control panel via **RS-485** interface.

**16.3** AL types and operating modes are set using the procedure described in the Quick Start Guide (part of the Astra-Dozor control panel set) or in the Astra-Dozor Control Panel user manual (available for free downloading from www.controlex.eu).

**16.4** Device alarm loops are distributed in partitions that are armed / disarmed in response to commands from the Astra-Dozor control panel. Control is exercised using PIN codes from the Astra-Dozor control panel, TM keys, or devices that generate a code in TM format. The reader is connected to the TM input and the TM codes are transmitted to the Astra-Dozor control panel via RS-485 interface.

# 17 Configuring and Using the Device With Astra-Z 8945 Control Panel

**17.1.** In order to be used as part of **Astra-Zitadel** system, device firmware must be updated to **713-v3_0_0** version using the **Firmware Update Module** that is a part of **Astra-Z Monitiring Software Suite.** The firmware is used from among the built-in collection of firmware versions. Update the firmware using the procedure described in section 8.4 of the **Astra-Zitadel System based on Astra-Z-8945 ver. A Control Panel Quick Start Guide** (hereinafter, Quick Start Guide), supplied with Control Panel Astra-Z-8945 ver. A.

**17.2.** After updating firmware the device exhibits the properties of a **hardwired extender** in the Astra-Zitadel system. AL properties are specified in the system settings, which are configured using the **Setup Module** that is a part of the **Astra-Z MSS.**

**17.3.** Any equipment that outputs 64-bit identification codes per Dallas Semiconductor specification DS1990A(r) may be connected to the device's Touch memory (**TM**) interface input. The code may received from iButton units inserted into MicroCans, or from identification devices that generate such identification codes while operating using other identification principles (e.g., Proximity, biometrics, etc.). TM codes are registered and used in the system per the settings configured using the **Setup Module** that is a part of the **Astra-Z MSS.**

**17.4** Device outputs exhibit the properties of system outputs and are configured using the **Setup Module** that is a part of the **Astra-Z MSS.** If the **Relay1** output is not designated as a system output in

the **Setup Module**, then its default indicator setting is preserved, i.e., a short-duration closure upon acceptance of a TM identification code.

**17.5.** The function of **F1–F6** plugs changes:

**F1** restores default settings and deletes registration attributes. It is used in the procedure described in section 8.5 of the **Quick Start Guide**;

**F2**–**F6** are not used;

**F7** is used to activate the firmware update mode when the jumper is installed on the right-hand two pins while power is off.

Devices are connected to the Astra-Zitadel system in accordance with section 4 of the **Quick Start Guide.**

# 18 Maintenance

**18.1** Maintenance of the device must be carried out in accordance with an annual maintenance schedule. Annual maintenance is to be carried out by a specialist of a servicing organization and include:

a) inspection of the device external condition;

b) inspection of reliability of fixtures, condition of its external mounting wires and contact connections;

c) inspection of conformity with technical parameters and operability in accordance with this manual.

**18.2** Inspection of the technical condition of this device should be arranged by laboratories and repair shops of security departments, and should be carried out by service personnel who are aware of the operating principles of this device and this operating manual, and who are hold qualifications not lower than fire and security alarm electrician 3rd grade.

***Note.*** *Additional equipment should be connected and disconnected only with device power turned off.*

# 19 Labeling

**19.1** The label attached to the base on the underside of the device displays:
- the manufacturer's trade mark;
- the abbreviated name or identifying code of the device;
- the firmware version;
- the month and year (last two digits) of manufacture;
- conformity marks (if the certificate of conformity is present);
- a bar code, duplicating the textual information.

**19.2** The label situated inside the device cover displays:
- the device name;
- jumpers function for device operating mode setting;
- information on AL status.

# 20 Recycling

The device does not represent any hazards to life, health or environment; after the end of their service life, they can be disposed without special environmental protection measures.

# 21 Manufacturer Warranty

**21.1** The manufacturer guarantees conformity of the device with requirements of the technical specifications, provided that the user observes the specified technical standard of operating, transportation, storage and installation.

**21.2** The guaranteed shelf life of the indicator – 5 years and 6 months from the date of manufacture.

**21.3** Guaranteed service life – 5 years from the date of putting into operation, but not more than 5 years and 6 months from the date of manufacture.

**21.4** The manufacturer is required to perform repairs or replace the device during their warranty period.

**21.5 The warranty is not applicable in the following situations:**

- nonobservance of this operating manual;
- mechanical damage;
- repair by any third-party service.

**21.6** The warranty is only applicable to the device. All equipment from other manufacturers that are used in conjunction with the device, including batteries, is subject to their own safeguards.

**The manufacturer is not responsible for death, injury, property damage or other incidental or premeditated loss based on the user's statement that the device has failed to fulfill its functions.**

# Appendix A

## Astra-713 connection schematic

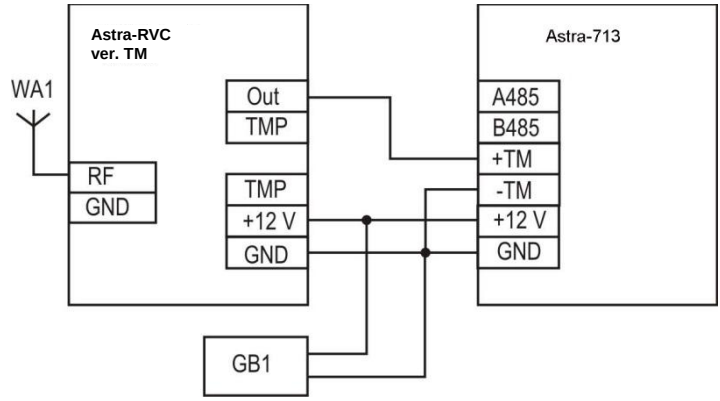



Fig. **A.1.** Astra-RVC ver. TM wiring diagram

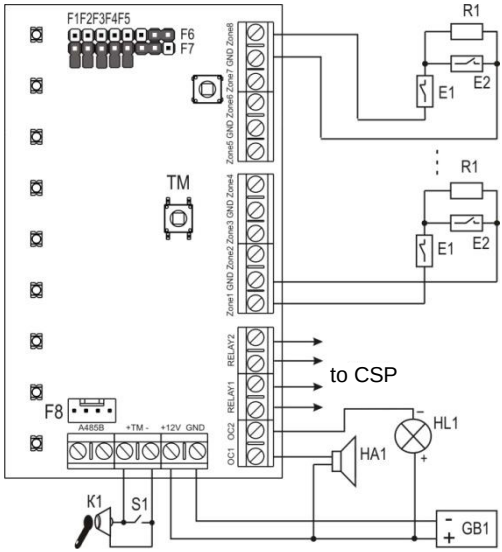



Fig. **A.2.** Wiring diagram for detectors with NO/NC outputs of “dry contact”-type;

Where:
E1: detector with NC contacts;
E2: detector with NO contacts;
GB1 – 12V power supply unit;
HA1 – sound alerter;
HL1 – light alerter;
K1 – TM key reader;
R1 – resistor, 3.9 kOhm;
S1 – control button.

**ATTENTION!** When a TM key reader is mounted in a metal housing on a metal surface (for example, at a garage), an insulating gasket must be used to ensure the device is shielded against lightning discharges.

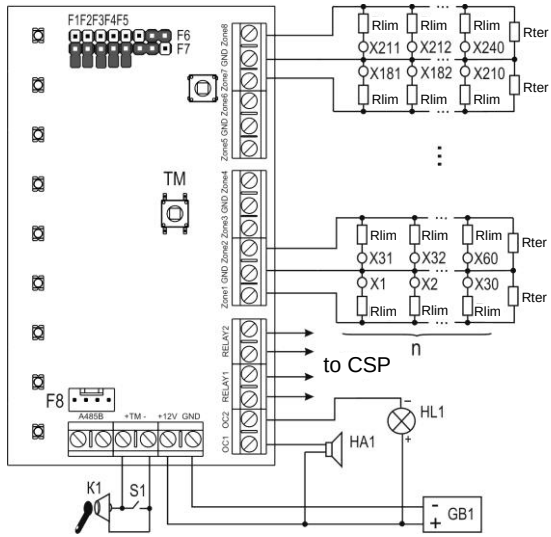



Fig. **A.3**. Active detector connection schematic

Where:
GB1 – 12V power supply unit;
HA1 – sound alerter;
HL1 –light alerter;
K1 – TM key reader;
n – number of detectors (n ≤ 30);
Rlim – resistor 2 kOhm;
Rter – rating, see Table A.3;
S1 – control button;
X1…X240 - active detector

Table A.3

| Number of detectors, n | Resistor rating, kOhm |
|---|---|
| less than 5 | 3.9 |
| from 6 to 10 | 4.7 |
| from 11 to 20 | 5.1 |
| from 21 to 30 | 6.2 |
| ***Note.*** *This rating calculation has been made for detectors with an average AL current consumption of 70–90 uA in standby mode.* | |

# Appendix B
## Astra-Dozor control panel connection schematic

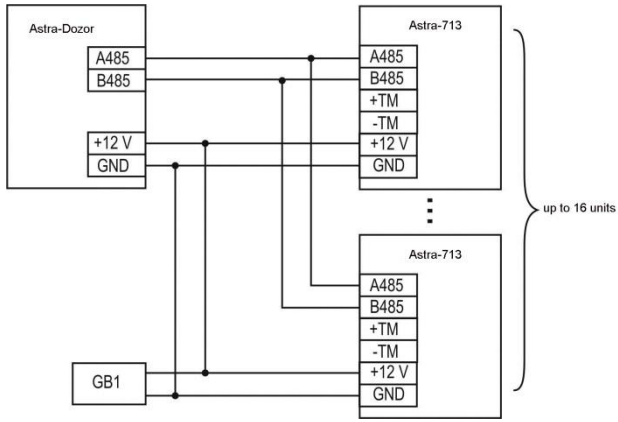



Fig. **B.1**.

***Sales, technical support and warranty service:***
**TEKO-TD, LLC**

Prospekt Pobedy str. 19
420138 Kazan, Russia
Phone: +7 (843) 261-55-75
Fax: +7 (843) 261-58-08
E-mail: info@teko.biz
support@teko.biz
Web: www.teko.biz

Made in Russia

Revision 713-v1_6_en