Scientific & Development Center TEKO

CONTROL PANEL

Astra-712/4(8)

Operation Manual

Content

The present operation manual is intended for description of operating principles, proper use, storage and technical maintenance of control panel **Astra-712/4** and **Astra-712/8** (hereinafter **Control panel**).

List of abbreviations:

CP – Control Panel
BAT – Rechargeable Battery
TRC - Wireless Transmitter Astra-TRC or Astra-TRC ver. M
TM – Touch Memory Identifier
Control button – Switch
LED «Zone-x» – Zone-x LED indicator, where x - is zone number
SA – Sound Alerter
BZ – Built-in Buzzer
LA – Light Alerter
SC – Short Circuit
LIN – Extension Line
TRB– Wireless Transmitter of Observer II System
RVB – Wireless Receiver of Observer II System
RVC ver. TM – Wireless Receiver Astra-RVC version TM
PC – personal computer
FW - Firmware
CSP– central surveillance post
NTS – Notification Transmitting System
Zone – signaling system loop

1 Function

The control panel provides for:
- Zone supervision with active intrusion- or fire-type detectors;
- SA and LA control;
- transmitting of alarm signals to CSP via relay outputs;
- Voltage supply for active detectors and other units.

Astra-712/4 and Astra-712/8 differ from each other by the following parameters:

	Astra-712/4	Astra-712/8
Number of zones:	4	8
Number of indicators:	5	9

2 Delivery Set

	Astra-712/4	Astra-712/8
Control panel	1 pcs	1 pcs
Push button switch	1 pcs	1 pcs
TM reader Astra-TM	1 pcs	1 pcs
Fuse 179120.016 IP 160 mA	1 pcs	1 pcs
Screw 3.9x32	4 pcs	4 pcs
Dowel 6x30	4 pcs	4 pcs
Operating manual	1 copy	1 copy

3 Labeling

3.1 The label at the bottom of the control panel housing contains the following information:
- trademark of the Manufacturer;
- abbreviated name of the device;
- firmware version;
- month and year of manufacture (last two digits);
- ingress protection level;
- conformity mark (if certificate is available);
- serial number;
- bar-code duplicating the textual information.

3.2 The label inside the control panel cover contains the following information:
- device name;
- power supply parameters;
- function of jumpers used for setting operating modes;
- information about zone status.

4 Safety Instructions

4.1 While operating the device one should observe «Maintenance and safety rules for electric installations up to 1000 V».

4.2 Electric terminals used for transformer power supply are considered dangerous voltage source.

4.3 Assembling-disassembling of the device should be performed with power switched off.

5 Device Key Data and Properties

5.1 Key Data

5.1.1 Control panel provides for arming/disarming the system by 2 methods:

- by means of TM identifiers or devices forming TM code, for instance, Astra-RVC (TRC is used as a TM identifier);

- by means of control button or other devices having output with two constant states.

5.1.2 The control panel provides for two types of zones: «Intrusion» and «Fire».

Control panel with **intrusion** type zones provides for zone resistance supervision by two fixed values «Norm», «Violation». «Failure» state is not identified.

Control panel with **fire** type zones provides for zone resistance supervision by four fixed values «Norm», «Violation», «Failure», «Warning».

The following devices can be connected to the control panel Zone:

- Detectors, control panel NO/NC relay outputs of «dry contact»-type;
- Fire-type detectors powered via Zone with minimal power supply voltage of 9 V, and maximal residual voltage on an activated detector of up to 6 V.

5.1.3 Control panel provides for sending an alarm message to CSP at complete cutoff of main and backup power supply.

5.1.4 **ARM_out** terminal of open collector type is intended for controlling peripheral equipment.

5.1.5 Control panel is designed for continuous 24-hours operation.

5.1.6 Control panel is not intended for application under exposure of corrosive environment, dust, water, as well as in fire dangerous areas. Device is not intended for application as a part of Automated Fire-Fighting Control Systems.

5.1.7 Control panel is protected against overheating of the transformer. Thermal protection actuating temperature is 85±10°C

5.2 Properties

- Flexibility in operating modes setting.
- Setting operating mode by means of jumpers or via PC.
- Easy to configure.
- Standard operating tactics and ways of notification transfer.
- Conspicuous intelligible two-color LED indication.
- Extension line for connection of peripheral Astra devices– devices of notification transfer (via radio channel 433,92 MHz, GSM channel, PC, etc), functional units (relay modules, indication modules).
- Power output for detectors and outer load DC supply (up to 0,75A).
- Overload protection, and protection against malfunctions in zone circuit, power circuit, battery circuit.
- Safety fuse-switch 220 V.
- Possibility to install Accumulator battery with higher capacity (7.2 A*h) providing long-term power reservation of the whole complex devices connected to the control panel.
- Additional terminal for load connection directly to accumulator battery (for instance, siren or radio channel transmitter).
- Permanent development of device firmware and upgradeability during installation and operation.

6 Specifications

Number of zones connected to the device:
- Astra-712/4.....4
- Astra-712/8.....8
Number of relay outputs 3
Power supply from:

- AC network with frequency (50 ± 1) Hz, V ..... 220 $^{+22}_{-33}$

- BAT 7,2 A/h, V..... 12 $^{+2}_{-2}$

Power consumption from AC network in stand-by mode
(without regard to outer load) and in alarm mode, Wt, max.....15
Current consumption from BAT, mA, max:
- Astra-712/4:
In Stand-by mode 150
In «Alarm» mode 170
- Astra-712/8:
In Stand-by mode 180
In «Alarm» mode 200

Peak Output Load Current:
- for SA, A, max:
а) with BAT (SND and «BAT_out» terminals) 1,5
б) without BAT (SND and «+12V» terminals).....0,1
- for LA (LHT and «+12V» terminals), mA, max 50
- control («ARM_out» and «+12V terminals»), мА, max.....50

- relay («Relay 1», «Relay 2», «Relay 2» terminals) with maximal switching voltage 100V, mA, max.....100

«+12V» output loading current, mA.....750±50
«+12V» output short-circuit current, mA, max 40
«+12V» output voltage ripple, mV, max 100

BAT-powered operating time in stand-by mode (without outer load powering), h, min
- Astra-712/4.....48
- Astra-712/8.....36

Battery discharge indication voltage (without mains voltage), V.....11,5±0,3
Battery voltage whereby device is switched to «sleep» mode (without mains voltage), V.....10,5±0,3
Battery voltage whereby device is turned OFF (without mains voltage), V.....10,0±0,3

Zones Parameters («Zone-x», «GND» terminals):
Zone terminal voltage in stand-by mode, V.....from 9 to 14
Zone short circuit current, mA, max 20
Zone Integration time, ms:
- intrusion .....70±10
- fire.....300±30

Zone wiring resistance (not including remote element), Ohm, max:
- intrusion 220
- fire.....150

Leakage resistance between Zone wires or each wire and «Ground», kOhm, min:
- intrusion 20
- fire.....50
Zone resistance, kOhm, in status:
- «Norm» ..... …from 3 to 5
- «Violation» intrusion .....from 0 to 3 or more than 5
- «Violation» fire.....from 1.5 to 3 or from 5 to 12
- «Failure» fire .....from 0 to 1.5 or more than 12

Fire-type Zone resistance* in **double event** mode, kOhm, in status:
- «Norm» .....from 3 to 5
- «Violation» .....from 0 to 1.5 or from 5 to 12
- «Warning».....from 1.5 to 3
- «Failure» .....more than 12

Zone current for detectors powering, mA, max 3
Number of TM identifiers, max.....28
Weight (without BAT), kg, max.....0.9
Overall dimensions, mm, max..... 165x190x79

Operation Conditions:

Temperature range, C°:
with BAT.....from -10 to +55**
without BAT.....from -30 to +55
Relative air humidity, % .....up to 93 at +40 C° without moisture condensation

* Permissible spread of resistance should not exceed 10%, for 12 kOhm – not more than ±2kOhm.

** At out-of-range temperatures from 0 up to +40 ºC charging period for completely discharged BAT is increased up to 1,5 times.

7 Structure

7.1 Control panel is designed as a block with a removable cover (Figure 1). Installed inside a block are printed circuit board (PCB) with radio elements, network transformer and fuse block for mains voltage switch.

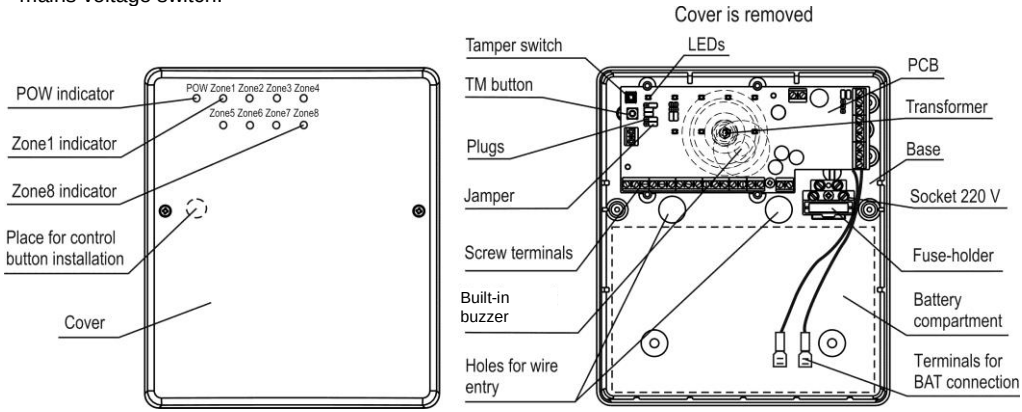

Figure 1

7.2 Mounted on PCB are plugs with jumpers for operating mode setting and two-color indicators for operability supervision and event indication.

7.3 Mounted on PCB is a tamper switch that generates a notification on BZ and relay operated in «CSP – control» mode when opening the cover.

7.4 Overall dimensions of battery compartment allow using **rechargeable battery** with capacity of up to 7,2 A/h.

BAT is a backup power supply unit in case of absence of AC voltage.

In case of battery discharge below **11,5 V** and absence of AC voltage POW LED indicates **«BAT discharge»,** and «Power failure» notification is transmitted to extension line.

In case of battery discharge below **10,5 V** and absence of AC voltage the device transmits an alarm notification to central surveillance post and switches to **«sleeping**» mode with minimal power consumption. In «sleeping» mode the device switches off all connected loads and doesn't control zone state. Running out of «sleeping» mode is performed after AC voltage recovery, with recovery of zone states.

In case of battery discharge below **10 V** and absence of AC voltage the device activates **self-shutdown** process without further recovery of zone states.

Attention! After BAT connection it is necessary to switch ON the power supply of 220V. Otherwise BAT will not be included into the circuit (safety interlock). Inclusion of BAT discharged below **9,5V** into the circuit is not possible.

Note *– BAT is separately delivered.*

8 Terms and Definitions

Auto-arming – a function for one or group of intrusion-type zones, 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 zones to «Norm» state.

Silent alarm – a function for one or group of intrusion-type zones, 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 zones of intrusion or fire type, assigned to one relay, is intended for 24-hour protection. At that zones 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 zones, 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 zone violation where violation of longer duration is considered valid and violation of shorter duration is considered as an undesired signal.

Exit delay time – for Zone1 and Zone2 with entry/exit delay – is time from the moment of control panel arming till transition to armed mode. At that zone events during exit delay time are not registered.

Entry delay time – for Zone1 and Zone2 with entry/exit delay – is time from the moment of zone transition to «Violation» mode till beginning of «Alarm» notification transferring to SA and BZ.

«Any door» tactics - for Zone1 and Zone2 with exit delay time. Process of arming (exit delay time start) begins at any state of Zone. At that arming occurs on expiry of preset exit delay time if zone is in «Norm» state.

«Closed door» tactics - for Zone1 and Zone2 with exit delay time. Process of arming (exit delay time start) begins only if zone is in «Norm» state. At that arming occurs on expiry of preset exit delay time if zone is in «Norm» state.

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

Extension line – is 2-wired data line, where the following devices can be connected:
– Astra devices applied for the control panel enhancement;
– PC via Astra-982/Astra-983 interface adapter for operating mode setting or firmware updating.

«Master» mode – CP operating mode in conjunction with Astra products (Astra-821/Astra-822 relay modules, Astra-861 indication module, Astra-882 communicators, Astra-TRB, etc.) via extension line as a «master» device.

***Note** – For the control panel operating in **stand-alone mode** without connection of any Astra devices via extension line, it is recommended to set «master» mode.*

9 Information Capacity

Note *– Type and number of notifications depend on set operating modes of the control panel.*

Table 1 – Control panel information capacity

№	Notification type	Control panel response
		Relay (operating mode «CSP – alarm» by default)
1	Armed CSP	Relay is **closed** in «Armed» mode in condition of absence of any event in zones assigned to this relay.
2	Alarm CSP	Relay is **opened** in «Armed» mode at violation in zones 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 zones assigned to this relay

Continuation of table 1

№	Notification type	Control panel response
		LED Indicator «Zone-x»
4	Ready	Flashes **green 1 time per 1s** at «Norm» state in «Disarmed» mode
5	Not ready	**Does not light** at transition of Zone-x parameters to “Failure” state in “Disarmed” mode
6	Armed	**Lights green** at «Norm» state in «Armed» mode
7	Alarm (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 Zone-x
9	Fire danger	Flashes **green 2 times per 1s** at «Violation» state of one detector of fire-type Zone-x in double event mode

Continuation of table 1

№	Notification type	Control panel response
		LED Indicator «POW»
10	Power supply Norm	**Lights green** at presence of voltage 220 V and connected serviceable BAT
11	BAT-powered	Flashes **green 1 time per 1s** at absence of voltage 220V and normal BAT voltage
12	BAT discharge (power failure)	**Lights red** at absence of voltage 220 V and BAT discharge below 11,5 V
13	BAT failure	Flashes **red 1 time per 1s** at absence of BAT or disconnection by control panel for deep discharge protection, at polarity reverse or short circuit on connection terminals.
14	«+12V» terminal overload	Flashes **red 2 times per 1s** at overload in peripheral devices DC supply output

Continuation of table 1

№	Notification type	Control panel response
		BZ
15	Alarm[1)]	**Continuous** sound at «Violation» state of intrusion-type zone in «Armed» mode (on expiry of entry delay time for Zone1 and/or Zone2)
16	Fire[1)]	Intermittent sound **1 time per 2s** at «Violation» state of fire-type Zone
17	Failure[1)]	Intermittent sound **2 times per 1s** at «Failure» state of fire-type Zone
18	Fire danger[1)]	Intermittent sound **2 times per 1s** at «Warning» state of fire-type Zone in double-event mode
19	Power supply change	Intermittent sound 0.25s **1 time per 1s** at change of device power supply state (BAT powered and back). Continuance is 10 seconds
20	Tampering	Intermittent sound 0,25s **1 time per 1s** in case of opening or closing the control panel housing. Continuance is 10 seconds

Continuation of table 1

№	Notification type	Control panel response
		BZ
21	Zone Arming	**Single** sound impulse
22	Zone Disarming	**Double** sound impulse
23	TM Identifier cancellation	**Three** successive sound impulses at invalid TM identifier code
24	Delay	Intermittent sound **1 time per 1s** during entry/exit delay time
25	End of delay	**Short-time** activation for 0,15s on expiry of exit delay time

Continuation of table 1

№	Notification type	Control panel response
		SA
26	Alarm[1)]	**Continuous** sound at «Violation» state of intrusion-type zone in «Armed» mode (on expiry of entry delay time for Zone1 and/or Zone2)
27	Fire [1)]	Intermittent sound **1 time per 2s** at «Violation» state of fire-type Zone
28	Failure [1)]	**Continuous** sound at «Failure» state of at least one fire-type Zone
29	Fire danger [1)]	Intermittent sound **1 time per 1s** at «Warning» state of fire-type Zone in double-event mode
30	End of delay	**Short-time** activation for 0,15s at expiration of exit delay time
31	Zone Arming	**Single** sound impulse
32	Zone Disarming	**Double** sound impulse
33	TM identifier cancellation	**Three** successive sound impulses at invalid TM identifier code

Continuation of table 1

№	Notification type	Control panel response
		LA
34	Disarmed	**Not lit**, when at least one Zone is disarmed
35	Armed	**Lights constantly** at «Norm» state of Zone in «Armed» mode
36	Alarm, Fire, Failure, Fire danger	Flashes **1 time per 1s** at «Violation» state of at least one zone in «Armed» mode
		«ARM_out» output
37	Armed	Closed to «GND» in «Armed» mode for all Zones
38	Disarmed	Opened if at least one Zone is disarmed
[1)] *Notification duration can be changed from PC (default setting - 180 s).*		

10 Installation

10.1 Installation place selection

The device should be installed on walls or other structures of secure zone in places protected from exposure to atmospheric precipitations, mechanical damage and unauthorized persons access.

10.2 Installation procedure

1) Unscrew two fixing screws; take off the cover of the device.
2) Perform mounting marking as per figure 2.
3) Mount fixation elements.
4) Fix device base to bearing area by screws.
5) **Connect control button** (if it is used):

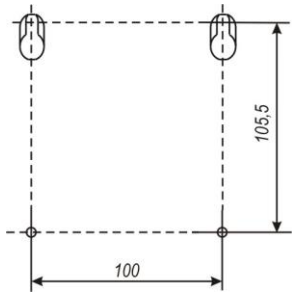

Figure 2

- Drill out a hole in the cover at the place where control button is installed;
- Install control button on the cover of the control panel;
- connect wires from control button to «+TM», «–TM» terminals.

6) Lead connection wires through wire insertion holes.
7) Electric wiring to output terminals of the device (figure 3) should be performed in accordance with selected connection diagram (Appendix A).

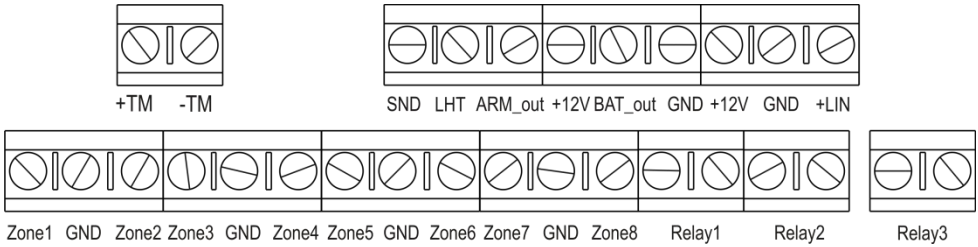

Figure 3

8) Connect 220V voltage wires to free terminals of the socket 220V.

9) Install BAT (if it is used), connect terminals of red and blue wires to corresponding pole terminals of BAT.

10) Insert fuse-holder into socket jack.

11) Apply voltage 220V. «**POW**» indicator lights up **green**.

12) Install cover of the control panel on its place, tighten screws.

11 Default Settings

Control panel is delivered with default settings shown in table 2. To use control panel with default settings install jumper on **one** pin of **F7** plug. Herewith position of other jumpers is ignored by the device.

Table 2

Operating mode	Parameters
Zone-x	Intrusion, instant, integration time – 70 ms
Entry delay (for Zone1 and Zone2) Exit delay (for Zone1 and Zone2)	0 s 0 s
Extension line mode	Master
Data exchange rate	4800 b/s
Arming	with TM identifier
«Auto-arming» Function	Allowed
Time for automatic arming	240 s
Zone1 and Zone2 operating tactics	«Any door»
«Silent alarm» Function	Disabled
«By-pass zone» Function	Disabled
Relay operating modes	CSP alarm
Relay assigning to Zones	Zone1 – relay1; Zone2 – relay2; Zone3-Zone8 – relay3
Relay delay for Zone1 and Zone2	None
Alarm delay on Extension line for Zone1 and Zone2	None
SA and BZ turn-on time	180s
SA and BZ notifications	Complete set (table1)

12 Setting Operating Mode by Jumpers

WARNING! Remove and install jumpers **at the control panel switched off only**.
Operating modes set by jumpers (Figure 4) are given in the Table 3

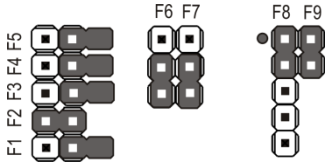

Figure 4

Table 3

Plug	Name of plug	Jumper position	Operating mode
F1	Way of arming	–	with TM identifiers
		+	with control button
F2	Extension line mode Mater/slave	–	Slave
		+	Master
F3	Auto-arming mode	–	Disabled
		+	Enabled

Continuation of table 3

Plug	Name of plug	Jumper position		Operating mode
F4, F5	Zone Operating mode	F4	F5	All Zones are of intrusion-type Zone1 - delayed Other Zones - instant
		–	–	
		+	–	Zone1 – intrusion-type, delayed Zone2- fire-type without double-event Other Zones – intrusion-type, instant
		–	+	All Zones are of intrusion-type Zone1- delayed Zone2 - 24-hours, silent alarm Other Zones - instant
		+	+	All Zones are of fire-type without double-event
F6	Entry/exit delay (for Zone1)	–		Deactivated (Zone1 - instant)
		On two lower plug pins		entry – 30s, exit - 1 min
		On two upper plug pins		entry – 1 min., exit - 2 min
F7	Setup mode	–		Loading operating modes out of the device memory (position of other jumpers are ignored)
		On two lower plug pins		Operating mode setting by jumpers

Continuation of table 3

Plug	Name of plug	Jumper position	Operating mode
F7	Setup mode	On two upper plug pins	Operating mode setting via PC or firmware update
F8	Connection of Astra-982/983 interface adapters or extension line	–	Connection of Astra-982/983 interface adapters
		On two upper plug pins	Extension line connection
F9	Connection of terminal resistor	–	Resistor is disconnected (for «Slave» mode)
		+	Resistor is connected (for «Master» mode)
"–" - jumper is removed or installed on one plug pin "+" - jumper is installed on two plug pins 			

13 Setting Operating Mode via PC

The following accessorizes is required for setting operating modes via PC:
- PC;
- Astra-982/983 interface adapter (is not included into delivery set);
- **Pconf-712** software (available for free downloading from www.controlex.eu).

Procedure:

1) Unscrew two fixing screws and take the cover off;

2) Switch the control panel OFF (remove fuse-holder out of socket jack and disconnect BAT by removing terminal from one of its poles);

3) Disconnect extension line wires from the control panel;

4) Connect Astra-982 or Astra-983 interface adapter to control panel terminals in accordance with Figure 5, 6 or 7;

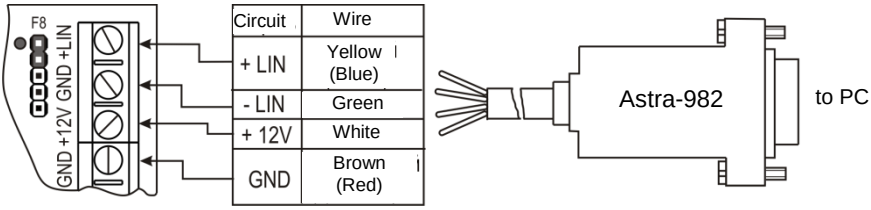

Figure 5

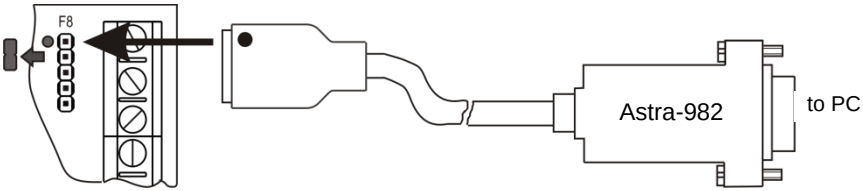

Figure 6

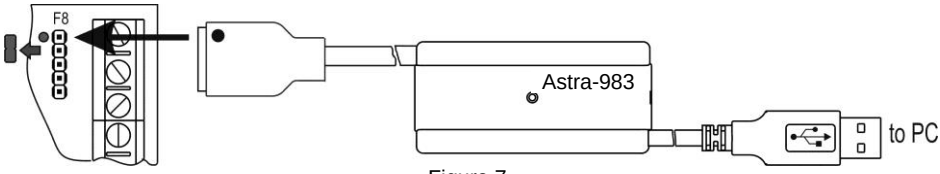

Figure 7

5) Install jumpers on two upper pins of **F7** plug;
6) Switch the control panel ON (insert fuse-holder to socket jack), at that **POW** indicator lights up **green**;
7) Run **Pconf-712** software, select «on-line» mode;
8) Establish connection with the control panel («Connect» button);
9) Set required operating modes in accordance with software instructions;
10) Save settings into the control panel memory («Record» button);
11) Break connection with the control panel («Disconnect» button);
12) Close **Pconf-712** software;
13) Switch the control panel OFF (remove fuse-holder out of socket jack);
14) Install jumper on one pin of **F7** plug;
15) Disconnect Astra-982/983 interface adapter;
16) Connect extension line wires to the control panel;
17) Switch the control panel ON (insert fuse-holder to socket jack and connect BAT);
18) Check operability of the control panel according to set operating modes;
19) Install cover on its place, tighten screws.

Control panel operating modes that can be changed via PC:

- any/closed door tactics (for Zone1 and Zone2);
- entry delay time, exit delay time (for Zone1 and Zone2);
- auto-arming (for intrusion-type zones);
- time for rearming;
- silent alarm (for intrusion-type zones);
- passageway area (for intrusion-type zones);
- 24-hours mode (for intrusion-type zones);
- double event (for fire-type zones);
- integration time 70/300 ms (for intrusion-type zones);
- way of arming/disarming: TM/button switch;
- registration of new TM identifiers and rights assignment for them;
- zones assignment to relay;
- relay operating mode (table 4);
- relay delay for Zone1 and Zone2;
- alarm delay via extension line for Zone1 and Zone2;
- SA and BZ turn on time;
- SA and BZ notifications restriction (only «Alarm» and «Fire»);
- Setting of data exchange rate via extension line.

Table 4 – **Relay operating modes**

Mode name	Mode description
CSP – Alarm	Relay is closed at arming, opened at alarm or disarming
Warning light	Relay is closed at arming (on expiry of exit delay time), switched over at alarm, closed at disarming
CSP – Control	Relay is closed at arming, opened at alarm or disarming with tamper switch closed (additional tampering control). At absence of Zone assignment to the given type of relay, it duplicates the state of tamper switch
Sound	Relay is closed at alarm; opened in the absence of alarm
Alarm	Relay is closed in armed / disarmed state and if device is powered; opened at alarm in armed state only
Executive	Relay is closed for 10s at arming/disarming of Zones assigned to this relay
Special	User-set relay operation mode

14 TM Registration and Deletion

TM code recording (deletion) to control panel memory can be performed:

- using TM button on printed circuit board;
- via PC (refer to section 12).

Connect TM reader or Astra-RVC ver.TM to control panel «+TM» and «–TM» terminals (Appendix A).

TM Registration (deletion) by TM button

Procedure:

1) Unscrew two fixing screws and take the control panel cover off;

2) Switch the control panel OFF (remove fuse-holder out of socket jack and disconnect BAT by removing terminal from one of its poles);

3) Install jumper on one pin of **F1 plug** (arming by TM identifiers mode);

4) Press **TM button** and switch the control panel ON (insert fuse-holder into socket jack). **«Zone1»** indicator lights up **red**;

5) Release **TM button**. **«Zone1»** indicator **flashes green** –registration (deletion) mode starts;

6) To delete previously registered TM identifiers:

– press TM button, «Zone1» indicator lights up red,

– hold TM button till «Zone1» indicator turns OFF (all codes of previously registered TM identifiers is deleted from the device memory),

– release TM button;

To register new TM identifiers:

– **Shortly** press **TM** button, **«Zone1»** indicator flashes green (if «Zone1» indicator starts flashing red, the limit of possible quantity of registered TM is reached – 28 pcs),

– bring TM identifier to TM reader or press a button on the TRC.

- In case of **successful** registration **«Zone1»** indicator lights up **green**. Rights for arm/disarm all Zones are assigned to this TM.
- In case of **failed** registration or presence of the given TM identifier in control panel memory, «**Zone1»** indicator lights up **red**.

7) If necessary, repeat registration / deletion procedure;

8) Switch the control panel OFF (remove fuse-holder from socket jack);

9) Install jumpers in accordance with required operating mode (table 3);

10) Switch the control panel ON (insert fuse-holder into socket jack and connect BAT);

11) Install cover on its place, tighten screws.

15 Extension Line Connections

The following units can be connected to the control panel through the extension line (up to 200m length):

- **Astra-TRB** wireless transmitter– for transmitting notifications via radio channel (433,92 MHz) at a distance of up to 2500 m within the line-of-sight;
- **Astra-882** GSM communicator– for transmitting notifications via GSM network in form of SMS, voice and/or tonal message;
- **Astra-861** indication panel – for remote indication availability;
- **Astra-821, Astra-822** relay modules– for extension of device capabilities by means of additional relay outputs.

Peculiarities of connection and operation:

- The following parameters should be provided for extension line: active wires resistance not exceeding 100 Ohm, the capacity formed by signal line and ground wire not exceeding 0,033 μF.
- Connect control panel «+LIN» and «GND» terminals by wires with appropriate terminals on the device being connected.
- Set required mode by jumper of **F2** plug: **«Master»** mode to operate with Astra-TRB ver.02; **«Slave»** mode to operate with other external devices.
- For **«Master»** mode install jumper on **F9** plug to connect terminal resistor, for **«Slave»** mode remove jumper from **F9** plug to disconnect terminal resistor**.**
- Set on Control panel and device being connected to it the same data exchange rate via extension line.

16 Pre-Starting Procedure. Operability Test

1) Unscrew two fixing screws and take the control panel cover off.

2) Check accuracy of wiring.

3) Set operating modes if necessary (sections 10 – 14).

4) Perform **operability test**:

a) Switch the control panel OFF (remove fuse-holder out of socket jack and disconnect BAT by removing terminals from one of its poles);

b) Connect terminal to BAT; the control panel will not turn on;

c) Insert fuse-holder into socket jack, apply 220V AC. After device activation test **POW** indicator lights up **green**;

d) Disconnect terminal from one of BAT poles. In 5s **POW** indicator starts flashing **red** 1 time per 1s, **BZ** generates short signals during 10s;

e) Connect the terminal back;

f) Wait till control panel Zone-x switches to **«Ready»** state («**Zone-x**» indicator flashes **green 1 time per 1s**). In case Zone-x is not ready («Zone-x» indicator does not light) check Zone-x;

Note –*Zone-x of fire or 24-hours intrusion type automatically switches to «Armed» state («Ready» state is absent).*

g) Switch the device to «Armed» state;

h) Make sure notifications on BZ, «Zone-x» indicators, SA, LA, relay, «Arm_out» terminal in «Norm» and «Failure» state for Zone-x corresponds to those described in table1;

i) Disarm the control panel;

j) Check reset and subsequent restoration of power supply in 10s on the terminal of fire-type Zone;

k) Check notification conformance on BZ, «Zone-x» indicators, SA, LA, relay, «Arm_out» terminal;

17 Control Panel Application

17.1 Intrusion Detection Application

- **Arming**

– By control button:

1) Close all windows, air vents, doors, etc.;

2) Close control button;

3) Leave secure zone and close entrance door;

4) On expiry of exit delay time make sure LA switches ON and SA shortly switches ON (if LA and SA are used). The control panel switches to «Armed» operation mode.

- By means of TM identifier (TM reader is installed outside the room) and TRC:

1) Close all windows, air vents, doors, etc.;

2) Leave secure zone and close entrance door;

3) Bring TM identifier to TM reader or press button on TRC;

4) Make sure LA switches ON and SA shortly switches ON (if LA and SA are used). The control panel switches to «Armed» operation mode.

- **Disarming**

– By control button:

1) Open entrance door.

Zone violation and switching to «Alarm» mode occurs. Zone indicator and LA issue «Alarm» notification (Zone indicator flashes red 1 time per 1s, LA flashes 1 time per 1s), and BZ issues «Delay» notification (intermittent sound 1 time per 1 s during entry delay time);

2) Open control button during set entry delay time.

In case time from the moment of door opening (Zone violation) till control panel disarming exceeds preset entry delay time, SA turns ON for the period specified during device setting.

«Alarm CSP» message is transmitted to relay immediately after Zone violation at relay delay time cancelled or on expiry of delay time if relay delay time is set.

- By TM identifier (TM reader is installed outside the room) and TRC:

1) Bring TM identifier to TM reader or press the button on TRC;

2) open entrance door.

17.2 Fire Detection Application

- **Arming**

Fire-type Zones are in **24-hours mode** by default. After powering up Zones are armed automatically when all Zone parameters are in «Norm» state.

Make sure Zone indicators light green, and LA lights constantly.

The device is switched to «Armed» mode and supervises Zones.

- **«Fire» notification reset**

Open control button, bring TM identifier to TM reader or press the button on the TRC.

The device performs switching off (reset) Zone power supply for 10s. During this time a notification «Not ready» is indicated on Zone indicator (Zone indicator not lit).

After Zone power supply restoration and switching of fire-type detectors connected to Zone to operating mode, the control panel switches to «Armed» mode and transmits corresponding notification to Zone indicator and LA.

18 Firmware Update

Control panel firmware is continuously improved and available for free downloading from www.controlex.eu .

The following accessories are **necessary** to firmware update:

– PC;
– Astra-982/983 interface adapter (is not included into delivery set);
– **Flasher.exe** software (available for free downloading from www.controlex.eu).

Procedure:

1) Unscrew two fixing screws and take the control panel cover off;

2) Switch the control panel OFF (remove fuse-holder out of socket jack and disconnect BAT by removal of terminals from one of its poles);

3) Disconnect extension line wires from «LIN+», «GND» terminals;

4) Connect Astra-982 or Astra-983 interface adapter to control panel terminals in accordance with Figure 5, 6 or 7;

5) Install jumper on two upper pins of **F7** plug;

6) Switch the control panel ON (insert fuse-holder into socket jack), at that **POW** indicator light up **green**;

7) **Flasher.exe** software on PC;

8) Establish connection with the control panel («Connect» button), **POW** indicator turns OFF;

9) Select the file with device firmware;

10) Run firmware update procedure, **POW** indicator lights up **red**.

- In case of **successful** completion of firmware update short-duration sound signal occurs, **POW** indicator changes **from red to green**, corresponding message is displayed on PC screen.
- In case firmware update procedure is **failed** corresponding message is displayed on PC screen. On repeated attempt to turn on, the control panel generates steady sound signal till the moment of repeated initialization with the program.

11) Break connection with the control panel («Disconnect» button);

12) Close **Flasher.exe** software;

13) Switch the control panel OFF (remove fuse-holder from socket jack);

14) Install jumper on **F7** plug on required position (table 3);

15) Disconnect Astra-982/983 interface adapter;

16) Connect extension line wires;

17) Switch the control panel ON (insert fuse-holder into socket jack and connect BAT);

18) Carry out control panel operability test in accordance with set operating modes;

19) Install cover on its place, tighten screws.

Note *- Firmware update does not affect previously set operating modes and registered TM identifiers (unless there are no special instructions in firmware history).*

19 Maintenance

19.1 In order to ensure reliable operation of the control panel annual **maintenance** of the control panel is recommended as follows:

- verify control panel housing integrity;
- ensure reliability of its mounting, wiring;
- verify conformance of specification and operability to this manual.

19.2 Technical maintenance should be performed by qualified specialist.

***Note** – Connect/disconnect auxiliary devices at control panel power is OFF.*

20 EC Conformity Declarations

This product is in conformity with the provisions of:

LVD 73/23/EEC+93/68/EEC.

EMC 89/336/EEC.

EN 61000-6-3:2005 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments.

EN 50130-4:1995 + A1:1998 + A2:2003 + Corrig. 2003 Alarm systems - Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder and social alarm systems.

EN 60950-1: 2001+A11:2004+Corrig.2004 Safety of information technology equipment.

21 Recycling

Control panel does not represent a danger to life, health and the environment, out-of-service utilization is carried out without taking special measures to protect the environment.

22 Warranty Terms

22.1 The Quality Management System meets provisions of ISO 9001-2011.

22.2 The manufacturer guarantees the compliance of the control panel to specifications if the user observes required conditions of transportation, storage, installation and operation.

22.3 The storage warranty period is 2 years and 6 months from the date of manufacturing.

22.4 The operation warranty period is 2 years from the date of operation startup but no longer than 2 years 6 months from the date of manufacturing.

22.5 The manufacturer commits to replace or repair the product during the warranty period.

22.6 The warranty does not come into effect in the following cases:

- not adherence to instructions of the operation manual;
- mechanical damage to the product;
- repair of the control panel by third-party service apart from manufacturer.

22.7 This warranty applies to the control panel only. All equipment from third-party manufacturers used in conjunction with the device is subject to their own warranty terms and.

The manufacturer bears no responsibility for death, injury, damage of property or any other kinds of accidental or premeditated damages, based on user's statement that device failed to implement its functions.

Appendix A

Astra-712/4, Astra-712/8 Control Panel Connection Diagram

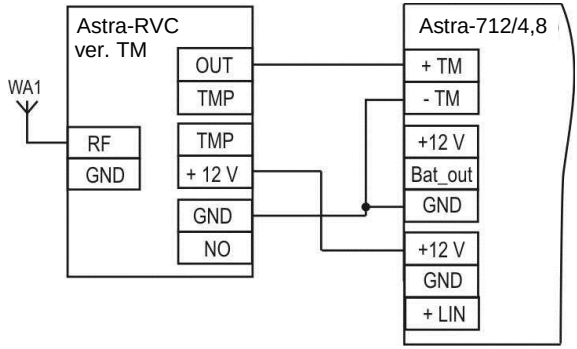

Figure A.1. Astra-RVC ver. TM connection diagram

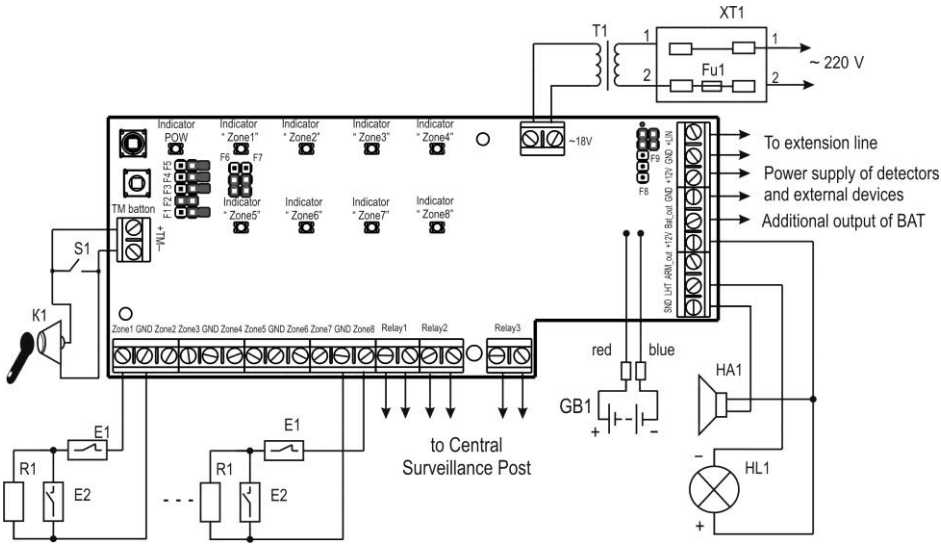

Figure A.2. Connection diagram for detectors with NO/NC relay outputs of «dry contact»-type

Where:
E1 – is a detector with NC outputs;
E2 – is a detector with NO outputs;
GB1 – accumulator battery 12 V, 7,2 A/h;
HA1 – sound alerter;
HL1 – light alerter;
K1 – TM reader;
R1 – resistor 3,9 KOhm;
S1 – control button;
T1 – transformer;
XT1 – socket with fuse-holder FU1.

WARNING! When installing TM reader with metal housing on metal surface use sealing material to ensure device protection of lightning discharge

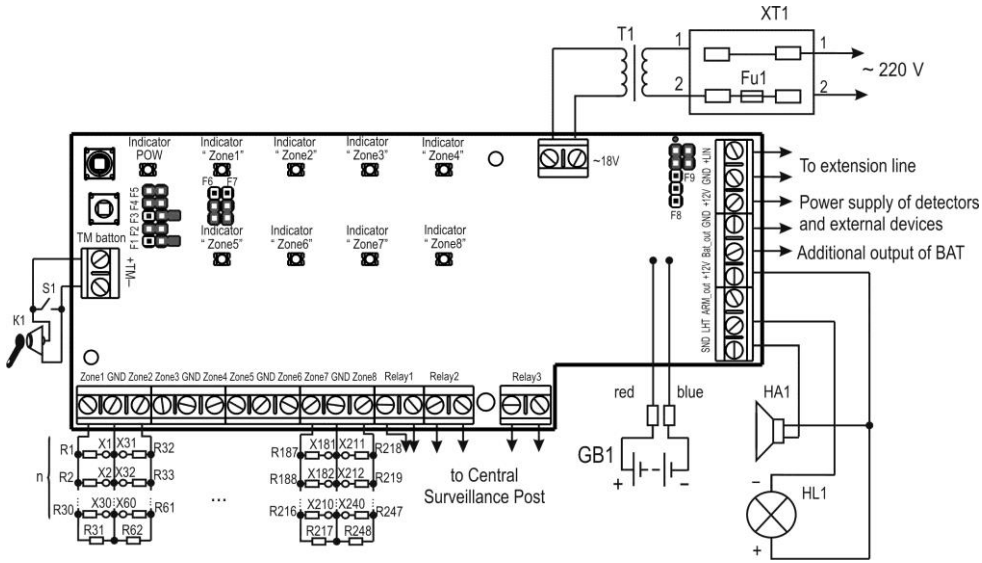

Figure A.3 Connection diagram for active detectors.

Where:

GB1 –accumulator battery 12 V, 7,2 A/h;

HA1 – sound alerter;

HL1 – light alerter;

K1 – TM reader;

n – number of detectors (n ≤ 30);

R1…R30, R32…R61, R63…R92, R94…R123, R125…R154, R156…R185, R187…R216, R218…R247 – resistor 2 KOhm;

R31, R62, R93, R124, R155, R186, R217, R248 – for rating value see table A.1;

S1 – control button;

T1 – transformer;

X1…X120 – active detector;

XT1 – socket with fuse-holder FU1.

Table A.1

Number of detectors, n	Rating value of resistors, KOhm
Less than 10	3,9
from 10 to 15	4,7
from 16 to 20	6,2
from 21 to 25	8,2
from 26 to 30	10

Note *– The values were rated for fire smoke detectors with average current consumption from alarm loop in standby mode 70-90 μA.*

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