



# ASTRA-863 Indication unit

## User guide

This operating manual is intended to study the principle of operation, proper use, storage and maintenance of the indication unit "Astra-863" version A (hereinafter referred to as BI) (Pic. 1). The manufacturer reserves the right to make changes to the design, firmware, circuit solutions and product packaging that do not worsen its technical characteristics, do not violate mandatory regulatory requirements, without prior notice to the consumer.

### Abbreviations:

**IU** – indication unit ASTRA-863 version A;

**Instruction** – Instructions built into the PKM program Astra Pro, Pconf-Pro or Pconf-RR, or Astra-812 Pro setup instructions from the keyboard or User instructions on Wireless extender (available on the website [www.teko.biz](http://www.teko.biz));

**Buzzer** – built-in sound signaling device;;

**Control panel** – control panel and fire control device "Astra-8945 Pro" or "Astra-812 Pro";

**Wireless extender** – radio expander "Astra-RI-M RR" in autonomous mode;

**Control device** – Control device (Control panel; Wireless extender);

**RS-485** – wired interface Astra-RS-485»;

**PKM ASTRA Pro** – monitoring firmware package "Astra Pro" for configuring and monitoring the Control Panel (see on the website [www.teko.biz](http://www.teko.biz));

**Pconf-Pro** - program for configuring Control panel (located on the website [www.teko.biz](http://www.teko.biz));

**Pconf-RR** – computer program "Pconf-RR" for configuring and monitoring RR (see on the website [www.teko.biz](http://www.teko.biz)); **PC** – personal computer;

**PO** – firmware;

**Wireless device** – radio channel devices (detectors, relay blocks, annunciators, etc.) of the Astra-RI-M system

## 1 FUNCTION

### 1.1 IU is for:

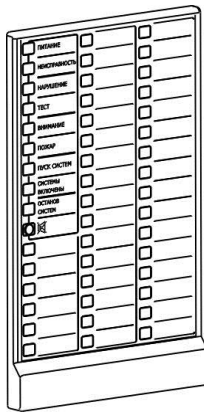
- receiving notifications from the control device via the wired interface RS-485 CONTROL DEVICE,
- displaying the generalized state of the system based on the CONTROL PANEL or WIRELESS EXTENDER on 8 system indicators,- displaying the states of CONTROL PANEL logical partitions or Wireless devices registered in WIRELESS EXTENDER on 38 indicators,
- sound signaling of incoming notifications,
- accepting Touch Memory identifiers from the TM input and transferring them to the CONTROL PANEL.

**1.2** Binding of indicators to partitions or Wireless device is done from a PC through the program Pconf-Pro, ZL Astra Pro or Pconf-RR in accordance with the Instructions for CONTROL DEVICE.

**1.3** IU has two independent power inputs (main and backup) in accordance with **GOST R 53325**.

**1.4** The IU has an input for monitoring the health of external power sources (terminals ZONE).)

**1.5** IU has the ability to connect to the RS-485 CONTROL PANEL ring interface using Astra-A ILS short circuit isolators. The IU is powered by external redundant DC sources with a nominal voltage of 12 V or 24 V.



Pic. 1

## 2 SPECIFICATION

Vltage, V ..... from 10 to 27  
Average current consumption\* at 12 (24) V, mA, .....62 (55)  
Increase in current consumption at voltage power supply 12 (24) V:

- with each additional indicator, not more, mA .....4 (2)
  - when the buzzer is turned on, not more, mA .....2 (3)
- Maximum current consumption at 12 (24) V, mA .....236 (144)

### Input ZONE parameters:

Zone terminal voltage in standby mode, V5Short circuit current at ZONE terminals, mA,

not more ..... 20 Resistance of wires connected to the ZONE input (excluding external element), Ohm, no more220Leakage resistance between ZONE input wires or each wire and "Earth", kOhm, not less than..... 20

ZONE input resistance, kOhm:

- in "Normal" state ..... from 3 to 5
  - in "Violation" state ..... from 0 to 3 or more than 5
- ZONE input integration time, ms ..... 300±30

### OUT parameters:

Maximum load current, mA, not more ..... 100  
Output voltage, V, not more ..... 27

RS-485 interface range, m, not more ..... 1000

TM interface range, m, not more ..... 25

Overall dimensions, mm, not more ..... 225×145×23

Weight, kg, not more ..... 0,3

### Operating conditions

Temperature range, °C ..... from -10 to + 55

Relative humidity, % ..... до 93 при + 40 °C  
without moisture condensation

\* When using only one partition/Wireless device/valve status indicator

## 3 DELIVERY SET

IU ASTRA-863 version A .....	1 pc.
Screw.....	3 pc.
Dowel.....	3 pc.
Resistor C1-4-0.25 W 3.9 kOhm ± 5%.....	1 pc.
Manual.....	1 copy.
Sticker.....	2 pc.

## 4 DESIGN

**4.1** Structurally, the IU is made in the form of a block consisting of a base and a removable cover. A printed circuit board with radio elements is mounted inside the block (Pic. 2).

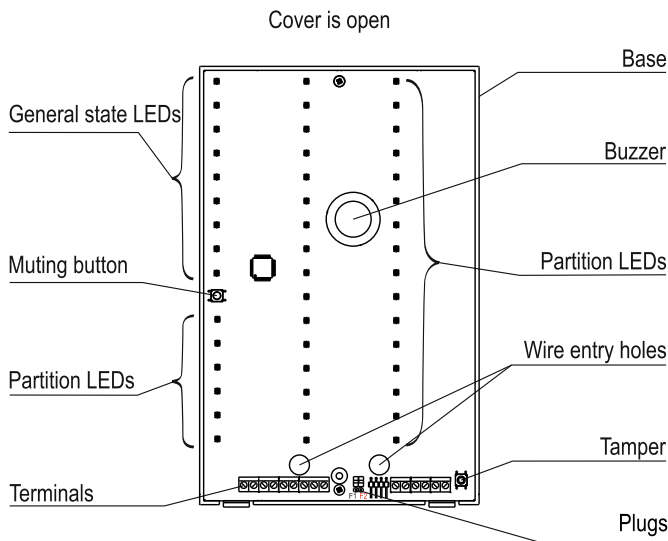
**4.2** The board has three-color (red-green-yellow) indicators:

- POWER indicator to show IU power status,- **8 indicators for displaying the generalized current status of all partitions or Wireless device of the system bound to the IU,**

- **38 indicators to display the status of a section/valve or group of sections when working with the CONTROL PANEL or to show the status of the Wireless device when working with the WIRELESS EXTENDER.**

**4.3** Installed on the board: a buzzer for sound notifications and a mute button.

**4.4** The board has an opening button, which, when the cover is removed, generates a "Tamper" notification, and is also used to restore factory settings.



Pic. 2

4.5 Screw terminals are installed on the board:

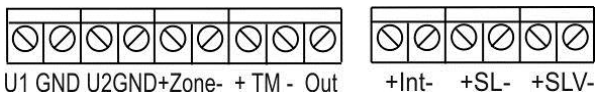


Table 1

Terminal	Terminal function
U1, GND	Input for connecting the main power supply
U2, GND	Input for connecting a backup power supply
+Zone-	Control input of the generalized signal "Fault" of the power supply
+TM-	Input for connecting the TM reader
Out	Output for connecting the TM reader LED
+Int-	Input for RS-485 interface connection
+SL-, +SLV-	Not used

5 NOTIFICATION

Notification when working with CONTROL PANEL Table 2 - Notifications to general status indicators

Name	Notification	LED
Power	Power is norm	Solid green
	Backup power	1 time green flash per sec.
	Failure backup power	two times yellow flashes per sec.
	Failure power	1 time yellow flash per sec.
Failure	Norm	Solid green
	Failure	Solid yellow
	Sabotage	
Alarm	not used	He горит
	not ready/ready	1 time green flash per 2 sec.
	Taken into custody	Solid green

Name	Notification	LED
Test	Violation/Alarm	2 times red flashes per sec.
	Standby mode	is off
	Test	4 times green and yellow flashes during testing period
Fire danger	not used	is off
	norm	is off
	attention	1 time red flash per sec.
Fire	not used	is off
	norm	is off
	Fire1/ Fire2	solid red

**Note** – In this version of the system, the indicators START SYSTEMS, SYSTEMS ON, STOP SYSTEMS are not used and are off

Table 3 Partition indicator notifications

Notification	LED
Armed	Solid green
Disarmed	1 time green flash every 2 sec
Entry/Exit Delay	1 time green flash per sec.
No connection with Control Panel	All indicators, except for the power indicator, turn on synchronously in yellow 1 time per sec.
Fire1	Solid red
Fire2	Solid red
Attention	1 time red flash per sec.
Alarm	2 times red flashes per sec.
Failure	1 time yellow flash per sec.
Sabotage	2 times yellow flashes per sec.
Test	Flashing alternately green and yellow, turning on 4 times per sec. during the entire test time

Table 4 - Notifications for partition indicators when working with a valve

Notification/ Valve state	LED
Valve in operation	2 times red flashes per sec.
Valve in initial state	Solid green
Failure valve	1 time yellow flash per sec.
Sabotage	2 times yellow flash per sec.
Switching the valve to operation / initial state	1 time green flash per sec.

Notification/ Valve state	LED
Required service	not used
Test	Flashing green and yellow alternately when turning on 4 times / sec during the entire testing time

Table 5 – Buzzer notifications

Notification	Buzzer
Alarm/Violation	Sounds continuously for 10 minutes or until manual shutdown
Fire	Turns on 1 time per sec. until manual shutdown
Fire danger	Turns on 1 time in 2 sec. until manual shutdown
Failure	Turns on once every 4 seconds for 10 minutes or until manual shutdown

## 5.2 Indication with WIRELESS EXTENDER

Table 6 - Notifications for general indicators

Name	Notification	LED
Failure	Norm	Solid green
	Radio channel blocking	Solid yellow
	No communication with Wireless device or general fault	1 time yellow flash per sec.
	Opening	2 times yellow flashes per sec.
Violation	No alarm	Solid green
	Violation/ Alarm	2 times red flashes per sec.
Test	Standby mode	Solid green
	Test	Flashing yellow/green alternately 4 times per sec. during the entire time of testing
Attention	Required service	8 times yellow flashes per sec.
	Service is not required	Solid green
Fire	Norm	Solid green
	Fire	1 time green flash per sec.

Table 7 - Notifications for single indicators

Notification	LED
Norm	Solid green
Fire	1 time red flash per sec.
Alarm/Violation	2 times red flash per sec.
Test	Flashes yellow and green alternately 4 times per sec. during the entire testing time
Opening	2 times yellow flashes per sec.
Wireless device malfunction	1 time yellow flash per sec.
No connection with wireless device	
Failure power supply	8 times yellow flashes per sec.

Table 8 – Buzzer notifications

Notification	Buzzer
Alarm	Sounds continuously for 10 minutes or until manual shutdown
Fire	Turns on 1 time / sec until manual shutdown
Tampering	Turns on once every 4 seconds for 10 minutes or until manual shutdown

## 6 TEST modes, firmware change and restore factory settings

**6.1** The IU provides the operating modes "Test at power on", "Change firmware" and "Restore factory settings". The Power-On Test mode is designed to check the operation of the IU and is activated when the IU is powered on. The duration of testing is no more than 10 sec., while all indicators (except for the TEST indicator) during the testing time flash at a frequency of 1 time per sec., sequentially changing color: green-red-yellow-green (the TEST indicator lights up yellow continuously). Buzzer in test mode turns on at a frequency of 4 times per sec.

### 6.2 Firmware update mode

The firmware is changed through the Astra-984 interface device with a PC using the Firmware Change Module from the Pconf-Pro, PKM Astra Pro or Pconf-RR firmware package. Actions order:

- 1) Switch off the power supply of the IU.
- 2) Disconnect RS-485 interface wires from IU.
- 3) Install a jumper in IU on plug F2.
- 4) Switch on the power supply of the IU.
- 5) Connect the Astra-984 interface device to the IU, then to the PC USB port
- 6) On the PC, launch the Firmware Changer from the Pconf-Pro firmware package, PKM Astra Pro or Pconf-RR .
- 7) Select the firmware version for IU from those offered in the Firmware change module.
- 8) Write new firmware to the IU, during the firmware change, the POWER indicator on the IU is red. Wait for the program's message about the successful recording.
- 9) Close the program.
- 10) Switch off the power supply of the IU.
- 11) Remove jumper from plug F2.
- 12) Disconnect the Astra-984 interface device from the PC and IU..

### 6.3 Restoring factory settings

Performed before re-registration to CONTROL DEVICE or registration to another CONTROL DEVICE.

Runs with power on.

Sequence of actions (perform within 1 min):

- 1) close plug F1 for at least 1 second, but no more than 2 seconds;
- 2) press the opening button and hold it pressed for at least 5, but not more than 10 sec..

If the factory settings are successfully restored, only one indicator remains on - POWER (see Table 2), the rest of the indicators are off.

## 7 UNDERWORK PROCEDURE

**7.1** IU after transportation in conditions different from operating conditions, keep unpacked in operating conditions for at least 4 hours.

### 7.2 Registering IU in CONTROL PANEL

It is performed through the Configuration Module from the Astra Pro PKM kit, the Pconf-Pro program, Pconf-RR or through the Astra-812 Pro CONTROL PANEL menu when the IU is under its control.

<b>1</b> Push the base latches out of the grooves of the cover with a screwdriver, remove the cover
<b>2</b> Connect IU to CONTROL DEVICE via RS-485 line (see table 1)
<b>3</b> Connect power wires to terminals U1, GND and U2, GND IU. Power on.

**4** Run a program on the PC (Configuration module from the Astra Pro, Pconf-Pro or Pconf-RR PKM kit) designed to configure the CONTROL DEVICE with which the IU should work, or go to the Astra-812 Pro CONTROL PANEL engineer menu. From the program menu or CONTROL PANEL, start the Register device mode on the CONTROL DEVICE

**5** Testing:

- In case of successful registration, the abbreviated name "IU" will appear in the program window or on the CONTROL PANEL screen of Astra-812 Pro.

**6** At the end of the registration, if it is necessary to store the IU for a long time before using it at the facility, it is allowed to turn off the power. When the power is turned on, re-registration in the same CONTROL DEVICE is not required if the IU has not been forcibly deleted through the program or using the F1 plug on the IU board (see paragraph 6.3)

## 8 INSTALLATION

**8.1** It is recommended to mount the IU on the wall in a convenient place for observation..

**8.2** When installing, it is allowed to use mounting devices (cabinets, boxes, etc.).

### 8.3 Installation order

**1** On the surface chosen for mounting the IU, mark the two upper holes according to the figure, drill the holes, install the dowels, tighten the screws

**2** Push the base latches out of the grooves of the cover with a screwdriver, remove the cover



**3** Hang the IU on the screwed screws in the place chosen for installation and mark the bottom hole. Remove IU, drill hole, install dowel.

**4** Insert wires through the wire entry holes on the base and the IU board to connect the power supply (main and back-up), RS-485 interface, TM, expansion line

**5** Hang the IU on the top screwed-in screws in the place chosen for installation, screw in the bottom fixing screw fixing the IU to the wall

**6** Connect the wires to the screw terminals on the board

**7** Close the lid until it clicks

**8** Run the PKM program Astra Pro, Pconf-Pro or Pconf-RR, designed to configure the CONTROL DEVICE with which the IU should work, and configure the IU in accordance with the Instruction.

The IU indicators are configured from the "System outputs" menu item of the PKM Astra Pro configuration module or from the "Indicators and AP" window of the Pconf-Pro program.

## 9 MAINTENANCE

**9.1** To ensure reliable operation of the alarm system, it is necessary to carry out IU maintenance at least once every 12 months.

### Actions order:

- inspection of the integrity of the IU case, reliability of fastening, contact connections,

- cleaning the IU case from contamination,
- performance check according to the method of p. 6.1.

**9.2** Maintenance of the IU must be carried out by trained personnel..

**9.3** IU repairs are made at the factory.

## 10 WARRANTY

The operation warranty period is 5 years from the date of operation start-up, but no longer than 5 years 6 months from the date of manufacturing subject to the requirements of User guide .

### Note!

*For detailed information about the product, please refer to the instruction manual on the website [www.teko.biz](http://www.teko.biz), which is an integral part of the operating documentation. This instruction manual supplied with the product does not contain information about labelling, compliance with standards, disposal, transportation and storage.*

**Manufacturer:**  
ZAO NTC TEKO  
420108, Russia, Kazan,  
Gafuri str., 71  
Tel.: +7(843) 528-03-69  
export@teko.biz  
[www.teko.biz](http://www.teko.biz)

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