



Astra-RVC (with power relay)

Wireless receiver

Operation manual

This operating manual is intended to study the principle of operation, operating conditions and service of the wireless receiver Astra-RVC with power relay (Figure 1).

The manufacturer reserves the right to make changes to the design, firmware, circuit solutions and product packaging that do not worsen its technical specifications, do not violate mandatory regulatory requirements, without prior notice to the consumer.

The technical specifications of the product not specified in the operation manual in terms of design, firmware and circuit solutions are standard for the product, if they do not worsen the declared technical specifications. The customer, due to dissatisfaction with the technical features not specified in the operation manual or the changes made, has the right to return the product to the seller while maintaining the presentation of the product and within the time limits established by law, with a full refund of the previously paid money.

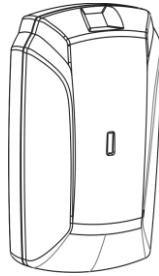


Figure 1

Abbreviation list:

RVC – Wireless receiver Astra-RVC;

TRC – wireless key fob Astra-TRC;

CP – control panel 'Astra-712/4' (where X - 1, 2, 4, 8) or analogue.

1 Function

1.1 RVC (receiver) is a stationary device designed for:
- receiving signals from TRC via a radio channel, decoding and identification of the signal received,

- generating of notifications by actuating a built-in relay,

1.2 Remote control of the mechanism – control of the built-in RVC relay for the programmed time or with fixed state upon receipt of a signal from the registered TRC.

1.3 RVC supports up to 99 TRCs in non-volatile memory.

1.4 RVC supplies with power relay.

1.5 It is possible to connect external antenna.

1.6 Powering from 12 V DC power supply.

1.7 Guaranteed wireless range:

a) **RVC to TRC** not less than 300m,

b) **RCV to TRC bracelet** not less than 50m

in the area with dry ground in the absence of strong radio interference, and objects interfering with and reflecting radio waves. The communication range can be cut down (to 30-60 m) inside concrete buildings and in presence of radio interference.

2 Specifications

Operating frequency, MHz434,62

Power supply voltage, V 10.5 to 15

Current consumption, mA, max75

Boot time, sec., not more10

Voltage switched by relay contacts with load current 1A, V, max ...250

Current consumption at 30 V load, A:

- NO terminal5

- NC terminal3

Overall dimensions, mm, not more 101 × 63 × 32

Weight, kg, not more0.07

Operating conditions

Temperature range, °C0 to + 50

Relative air humidity, % up to 95 at + 35 °C

without moisture condensation

3 Delivery set

Wireless receiver 1 pc.

Screw 2 pcs.

Dowel 2 pcs.

Operating manual 1 copy.

4 Structure

4.1 RVC is designed as a unit consisting of a base, a removable cover and an antenna. There is a printed circuit board with radio elements inside the unit (Figure 2).

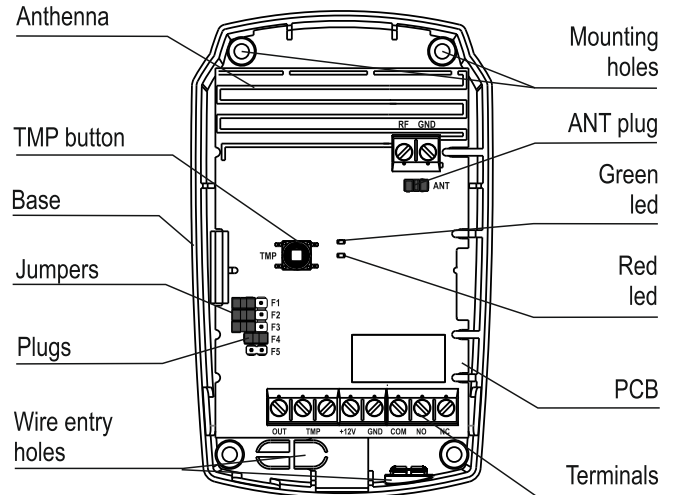


Figure 2

4.2 The printed circuit board contains a green and a red LEDs controlling RVC operation and indicating notifications.

4.3 The printed circuit board contains a **terminal** block:

Terminal	Function
TMP	Tampering control
+ 12V, GND	Power supply input
COM	Common relay contact
NC	Normally closed relay contact
NO	Normally open relay contact
RF, GND	Connection of an external antenna

4.4 There is a plug **ANT** on the PCB to connect an external antenna.

ATTENTION!

To connect an external antenna – remove jumper from the **ANT** plug.

To use internal antenna – install jumper on the **ANT** plug.

5 Defaults

RVC defaults:

– **Relay mode** – with time delay **2 sec**;

– **Internal antenna connected** (jumper installed on the **ANT** plug).

6 Informativity

6.1 Indication

Table 1 – RVC led indication

Notifications	Green led	Red led
No registered TRC	Flashes 1 time/sec	Off
Norm	On	Off
Powering on	Off	Turns on for 1 sec

Notifications	Green led	Red led
Registration mode on	Off	Turn on for 30 sec
Successful registration	On	Flashes 2 times/sec for 4 sec
TRC command	Off	On for programmed time (p 8.5) or until next command from TRC (p.9.1)
Tampering	Any	

6.2 Relay

When notification "No registered TRC", "Norm" relay contacts:

- **COM-NO** open,
- **COM-NC** closed.

When a notification is received from a registered TRC ("Command from TRC" notification), the states of the COM-NO and COM-NC relays change in accordance with the set operating mode of the relay, see p.9.

7 Operating modes



The operating modes of the RVC, set using the **F1-F3** plugs and buttons, are shown in Table 2.

ATTENTION!

1 When external circuits are connected to the TMP terminals, installation of jumpers on plugs F1, F2 is prohibited!

2 The jumper on the F4 plug is permanently installed.

Table 2

Operating mode		Plug			Position of the button when turning on RCV power supply
		F1	F2	F3	
TRC registering/ TRC removing		+	+	a	Not pushed
Relay mode	Trigger mode	-	-	+	Any
	with time delay	-	-	-	Any
Relay delay time programming		+	+	-/+	Pushed
«+» - jumper installed,  «-» - jumper not installed,  «-/+» - the jumper is set after a programmable time interval, «a» - any position of the jumper					

Notes

1 Jumpers are removed and installed with the power off, unless otherwise indicated.

2 F5 plug not used.

8 Подготовка к работе

8.1 After transportation under conditions different from the operating conditions, the RVC should be kept unpacked under operating conditions for at least 2 hours.

8.2 Radio mode check

Check the radio mode on all TRC that are planned to be registered in the RCV, according to the operating manual for the TRC (there should be mode 2).

8.3 RVC reset

Before registering the first TRC, it is necessary to reset the RVC.

- 1) Remove RVC cover (p. 10.2)
- 2) Disconnect external circuits from **TMP** if any
- 3) On the RVC with the power off, install jumpers on plugs **F1** and **F2**.

4) Turn on the power of the RVC. The red led will light up 1 time for 1 sec. The green led will turn on if there is at least one registered TRC in the RVC or it will blink at a frequency of 1 time per 1 sec if there are no registered TRCs.

5) **Push and hold TMP button** on the RVC until red led is off. Green led on the RVC starts to blink at a frequency 1 time/sec – **RVC has been reset.**

6) Turn off the RVC power.

Note – During RVC reset relay time is set as a factory defaults - **2 sec.**

8.4 Registering of TRC

TRC are registered one by one in any sequence. In case of successful registration, the RVC will "remember" in its non-volatile memory the unique serial number of the TRC and assign it a conditional serial number following the order of the registered TRC.

ATTENTION! The radio mode of the RVC and TRC must match! Check radio mode (p. 8.2).

- 1) Open **RVC** cover (see. p.10.2).
- 2) Disconnect **TMP** circuits if any.
- 3) Install **F1** and **F2** jumpers on **RVC**.
- 4) Power on the RVC.

Red led turns on **1 time for 1 sec.**

Green led turns on if at least one TRC is registered or will flash **1 time/sec** if there is no registered TRC.

5) Briefly press the **TMP** button on the RVC, while the red led lights up. The RVC will enter the registration mode for 30 seconds.

6) Push the **button** on the registered **TRC**.

RVC's red led starts to flash **2 times/sec** during **4 sec** – successful registration.

If there is no indication on the RVC within 30 sec of successful TRC registration – unsuccessful registration.

Possible **reasons for refusal** of registration:

- TRC already registered (added);
- discrepancy between the radio mode on the RVC and the registered TRC (see p.8.2);
- the registration procedure is violated - repeat the registration according to p. 8.4.

At the end of registration, the green led will light up if there is at least one registered TRC in the RVC or it will flash 1 time/sec if there are no registered TRCs.

To register the second and subsequent TRCs, repeat steps 5) - 6).

7) Power off the RVC.

8) Remove jumpers from **F1** and **F2** plugs.

9) Close RCV cover.

8.5 Relay time programming

8.5.1 Programming the relay time from 2 sec to 4 min

- 1) Remove RVC cover (see p. 10.2).
- 2) Disconnect all circuits from **TMP**, if any.
- 3) Install jumpers **F1** and **F2**, remove jumper from **F3** plug.
- 4) Push and hold the **TMP** button on the RVC, then power it on, **red led turns on**.
- 5) Release **TMP**, **red led turns off**.
- 6) Wait for the required (programmable) time interval (from 2 sec to 4 min) and install a jumper on the **F3** plug. The **red** indicator of the RVC will light up for 1 sec.

The **green led** lights up if there is at least one registered TRC in the RVC or it will flash 1 time/sec if there are no registered TRCs.

7) Power off the RVC.

8) Remove jumpers from **F1** - **F3** plugs.

9) Close RVC cover.

8.5.2 Faster programming of relay time from 20 sec to 30 min

With faster programming, the relay time is reduced by 10 times, the programming step is 10 sec.

- 1) Remove RVC cover (see p. 10.2).
- 2) Disconnect **TMP** circuits, if any.
- 3) Install jumpers on **F1** and **F2** plugs, remove jumper from **F3** plug.
- 4) Push **TMP** button on the RVC and holding it power on the RVC, **red led turns on**.
- 5) Release RCV button, **red led turns off**.
- 6) Press the button again for 1-2 seconds, the red led of the RVC will light up.

- 7) Wait for the required (programmable) time interval, reduced by 10 times (from 2 sec to 3 min), and install a jumper on the F3 plug. The red RVC led will turn off. The **green led** lights up if there is at least one registered TRC in the RVC or it will flash 1 time/sec if there are no registered TRCs.
- 8) Power off the RVC.
- 9) Remove jumpers from **F1- F3** plugs.
- 10) Close RVC cover.

9 Operability test

ATTENTION! The radio mode of the RVC and the TRC must match; the TRC must be registered in the RVC.

9.1 Trigger mode

- 1) Open RVC cover (see p. 10.2).
- 2) Remove jumpers from **F1, F2** plugs. Install jumper on the **F3** plug.
- 3) Connect power supply to the **+ 12V, GND** terminals.
- 4) Turn on the power supply of the RVC. The **red led** of the RVC will light up 1 time for 1 sec.
- 5) Push TRC button.

Red led turns on.

Normally open relay contacts (COM-NO) will close, normally closed relay contacts (COM-NC) will open.

Press the button on the TRC. The red led on the handheld unit will turn off. The relays will return to their original state: normally-open relay contacts (COM-NO) will open, normally-closed relay contacts (COM-NC) will close. Each time the button on the TRC is pressed, the state of the relay and the red led on the RVC changes.

- 6) Power off the RVC.

9.2 Programmable relay time mode

- 1) Open RVC cover (see p. 10.2).
- 2) Remove **F1-F3** plugs.
- 3) Connect power supply to the **+ 12V, GND** terminals.
- 4) Turn on the power supply of the RVC. The red led of the RVC will light up 1 time for 1 sec.
- 5) Push TRC button.

The red led will light up and the relay will operate for the programmed time interval: normally open relay contacts (COM-NO) will close, normally closed relay contacts (COM-NC) will open.

Note – If, during the actuated state of the relay, the button on the registered TRC is pressed, then the time of the actuated state will be extended by the programmed time interval from the moment of pressing.

- 6) Power off the RVC.

ATTENTION! If the button on the TRC was pressed more than 15 times outside the range of the RVC, the synchronization of the RVC and TRC occurs, and identification will not occur. To restore synchronization, return to the range of the RVC and press the button on the TRC 2 times.

10 Installation

10.1 Installation place

10.1.1 The receiver performs best for optimum coverage when installed at a maximum height (minimum 2m).

10.1.2 Avoid running power supply cables and the interface line of the receiver close to heavy duty power lines and high –frequency cables.

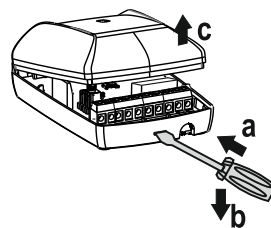
10.1.3 Avoid the following locations for the receiver:

- massive metal constructions or closer than 1m from them;
- closer than 1 m from power mains and metal water or gas pipes which may cause radio interference;
- lower than 1,5 m above the floor;
- inside metal constructions.

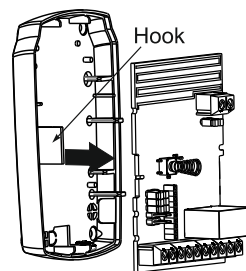
WARNING! Do not place the receiver at a distance less than 10 m from another wireless unit (including its antennas), which is a source of interference for the receiver. Do not place the receiver at a distance less than 5 m from the computer (system block and display), uninterruptible power supply unit and other power equipment.

10.2 Порядок установки РПУ

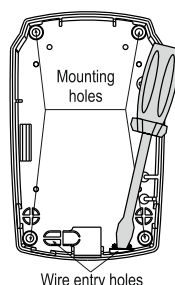
- 1) Push the base lock from the cover slot. Remove the cover.



- 2) Carefully unbend hooks on the base. Remove PCB.

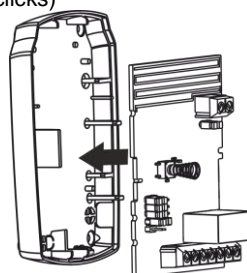


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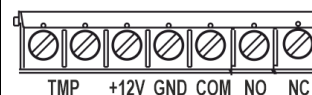


- Mark mounting holes on a flat surface using bottom base of the receiver as a template.
- Insert wires from the power supply unit and the interface line through the wire access hole.
- Mount the receiver base.

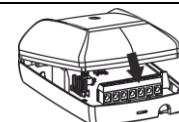
- 4) Place the PCB, aligning the notches on the PCB with the guide tabs on the base. Press on the board until it stops (until it clicks)



- 5) Wiring to the receiver output terminals must be performed as shown in Figure 3. If necessary, connect TMP terminals to the alarm loop of CP.



- 6) Replace the cover (until the closing click is heard).



11 Warranty

13.1 The quality management system is certified for compliance ISO 9001-2015.

13.2 The warranted shelf life is 5 years 6 months from the manufacturing date.

13.3 The warranted service life is 5 years from the commissioning date, but not more than 5 years 6 months from manufacturing date.

13.4 The manufacturer must repair or replace the receiver within the warranty period.

13.5 The warranty does not become effective in the following cases:

- failure to comply with this Operation Manual;
- mechanic damage of the receiver;
- if receiver is repaired by anyone other than the manufacturer.

13.6 The warranty applies only to the receiver. All other equipment of other manufacturers used with the receiver is subject to other manufacturer's warranties.

In no case shall the manufacturer be liable for any death, physical injury or property damage, or any other accidental or intentional loss based on claim that the receiver failed to perform its functions.

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