



«Security Hub 4G» Controller

Technical passport

This document includes technical specifications, configurations, operating conditions and warranty obligations for the "Security Hub" controller (4g) (hereinafter referred to as the controller) (Figure 1).

The manufacturer reserves the right to make changes related to the improvement of the product without notice. All changes will be made in the new edition of the passport for the controller.

List of abbreviations:

Controller – controller «Security Hub» (4g);

Astra-AMS – professional desktop application for configuration and monitoring;

Cloud server TEKO – hardware and software complex "Astra", which consists of a server, controllers, professional software for the automated workstation of the central monitoring station and user Internet applications (mobile, web applications);

BAT – rechargeable battery installed in the controller;

Zone – alarm loop (input), hardwired zone.

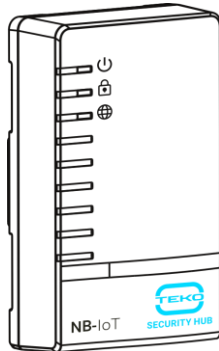


Figure 1

1 Purpose

1.1 Controller is intended for use as part of security, fire, emergency and other types of security system, as well as the controller of a smart home at the facility.

1.2 Controller is intended for:

- data exchange with wireless devices via 433 MHz radio channel,
- control of hardwired detectors connected to the hardwired **zones**,
- execution of up to 10 preset home automation scripts,
- data exchange between the protected object and the server through TCP / IP networks (Internet): cellular radio communication LTE Cat Nb1 (NB-IoT) and hardwired Ethernet communication **in encrypted form***.

2 Main features

2.1 Controller supports up to 32 wireless devices, which have the function of selecting a radio channel (Rmod) and a frequency channel (Lit).

2.2 Controller ensures the data exchange with the Internet applications through the server:

- via a wired internet channel (LAN), using an RJ45 connector (Ethernet 10 BASE-T) and the provider's network,
- via wireless channel, using a SIM card (NB-IoT) of cellular operators of the LTE Cat Nb1 standard.

The main data exchange channel is wired (LAN), followed by wireless (LTE).

2.3 Configuring and maintenance of the controller is performed using the Desktop App or Internet applications according to the user's instructions.

2.4 Power supply of the controller is carried out from three independent power supplies in any combination:

- from main power supply, 12 VDC, using **+12V-**,
- from backup power supply, 12 VDC, using **+12VR-**,
- from power network 110-250 VAC, 50-60 Hz using power adapter and **USB**-port, which is placed on the controller's PCB.

Continuous monitoring and notification of the current state of the power supply is carried out.

2.5 For backup power supply, the controller has a battery holder and a connector for connecting a 2/3 A lithium-ion (Li-Ion) battery with a rated voltage of 3.7 V, a capacity of 600 or 700 mAh (depending on the current configuration).

Notes

1 The backup battery is connected *immediately before* the external power supply to the controller. Turning on the controller from the battery is impossible.

2 When the controller switches to power from the backup battery:

- communication is provided only via a wireless LTE NB-IoT channel (communication via a wired channel(LAN) is provided only if there is access to the Internet);
- power supply of hardwired fire and security detectors is not provided when the F1 jumper on the controller's PCB is removed, the zone parameters are not monitored until the external power supply is restored.

3 Installing the F1 jumper on the controller's PCB ensures the operation of hardwired zones (intrusion type) from the battery, while the loop length should be no more than 10 m.

2.6 Controller has a **Touch Memory (TM)** input on the PCB for connecting a key reader of the "iButton" standard and / or an "Astra-KTM-S" keypad. iButtons are registered from the user applications.

2.7 Controller has two built-in signal relays **RELAY1, RELAY2** with programmable modes of operation. The relays are configured from the user applications.

2.8 Controller has 4 pairs of individually programmable +CONx- terminals allowing:

- in the "open collector" output mode CONx- connect the load, for manual or automatic control (connection diagram 4). Modes are configured from user applications;
- in the "intrusion" or "technological" zone mode, connect detectors that have a dry contact type output and operate for opening or closing (to the terminals + CONx, 12V- or 12VR-, connection diagram 1);
- in the "fire alarm" or "double event fire alarm" zone input mode, connect two-wire alarm loops with fire detectors powered by the loop (to the terminals + CONx, CONx-, wiring diagram 2).

Connection diagrams are in **Appendix 1**.

* Encryption is used to protect the transmitted data from unauthorized access in the listed communication channels. The encryption functions cannot be changed by the user in a simple way.

2.9 Controller has three built-in LEDs (see. table 1).

Table 1 – Controller indication

⏻	POWER LED	Power Supply State
	On	External power supply, BAT charged
	Flashing 1 time every 2.5 sec.	No external power, switching to BAT power
	Double flash every 2.5 sec.	No external power, BAT critical discharge (less than 2 hours of operation left)
	Flashing 1 time every 0.7 sec.	External power supply, BAT missing or should be replaced.
	Turns off every 2.5 sec.	External power supply, BAT charge mode
🔒	SECURITY LED	Facility State
	Green flash every 2.5 sec.	Ready for arming
	Red flash every 2.5 sec.	Not ready for arming
	Double red flash every 2.5 sec.	Low battery of the detector
	Green flash 1 time every 0.7 sec.	Countdown of entry or exit delay
	Green light on	All partitions armed
	Red flash 1 time every 0.7 sec.	Alarm in partition
	Switching green-red (not more than 60 sec.)	Registration mode of a detector or iButton key
	Off	There are no detectors in controller's memory
🌐	INTERNET LED	Server connection status
	Green light on	Connected to the server (both channels are active)
	Flashes green	Data transferring
	Red flash every 2.5 s	Wired internet (LAN) unavailable
	Double red flash every 2.5 sec.	LTE unavailable
	Red light on	No connection to the server

2.10 The controller is designed for installation by the user without further substantial support by the supplier (manufacturer).

3 Specifications

Radio channel parameters

Operating frequency, MHz 433,42 (lit «1»)

Wireless coverage range (line of sight), m** 100

** The wireless coverage largely depends on the design features of the room, the interference environment. The maximum range parameters are provided when the best conditions for the installation of the controller and the detector are met.

General technical parameters

Power from an external power supply of 12 V:

- main (terminals **+12V-**) and backup (terminals **+12VR-**) power supply voltage, V..... from 10,2 to 13,8
 - maximum current consumption, mA 300
 - rated current consumption, mA, not more 150
 Mains voltage, V from 110 to 240
 Power consumption, W, not more..... 5

Power from USB:

- supply voltage, V 5±5%
 - maximum current consumption, mA 500
 - rated current consumption, mA, not more 200

Power from BAT:

- supply voltage from BAT, V from 3,3 to 4,2
 - BAT life time, hr from 4 to 8
 - threshold for information transfer of BAT discharge, V 3,5
 - charge time of fully discharged battery, hr, not more 10
 Boot time, sec, not more..... 60

Relay 1, Relay 2 (terminals RELAY 1, RELAY 2):

- maximum load voltage, V 100
 - maximum load current, A..... 0,1

Terminals + CONx- (x = 1, 2, 3, 4):

Parameters in open collector output mode:

(terminals CONx-):

- maximum load voltage, V 24
 - maximum load current, A..... 0,25

Parameters in hardwire zone mode:

(terminals +CONx, 12V- or 12VR- for intrusion/emergency zone type, terminals +CONx- for fire alarm zone type):

- terminal voltage on duty mode, V:
 - 12 VDC power from 9,3 to 12,4
 - 5 VDC power from 3,8 to 4,0
 - current on the terminals, mA, not more 3
 - short-circuit current, mA, not more:
 - 12 VDC power 24
 - 5 VDC power 10
 - time of hardwire zone integration, msec..... 40±10
 - zones wires resistance, Ohm, not more 220
 - leakage resistance between wires or each wire and the ground, kOhm, not less 50

Resistance*** for intrusion/emergency type of hardwired zone, kOhm, in the state:

- "Normal" from 3 to 5
 - «Alarm» from 0 to 3 or more than 5

Resistance*** for fire type of hardwired zone, kOhm, in the state:

- "Normal" from 3 to 5
 - "Fire" from 1,5 to 3 and from 5 to 12
 - "Failure" from 0 to 1,5 and more than 12

Resistance*** for fire type hardwired zone in double event mode, kOhm, in the state:

- "Normal" from 3 to 5
 - "Fire" from 0 to 1,5 and from 5 to 12
 - "Fire danger" (with Radd resistor)..... from 1,5 to 3
 - "Failure" more than 12

*** The permissible range of resistance values is no more than 10%, for a value of 12 kOhm - no more than ± 2 kOhm.

Touch Memory input (terminals +TM-)

Maximum length of the interface line, m 15

Overall dimensions, mm, not more than 136 × 86 × 38

Weight without BAT, kg, not more 0.14

Operating conditions:

Temperature range, °C from - 10 to + 50

Relative humidity of air, % up to 98 at +40°C
without moisture condensation

4 Delivery set

Controller «Security Hub 4G» 1 pcs.

Rechargeable battery 2/3 A (Li-Ion),

3.7V, 600 (700) mAh 1 pcs. (installed)

Resistor C1-4-0,25-3,9 kOhm±5% 4 pcs.

Power adapter 1 pcs.

USB 2.0 AM-BM cable 1 pcs.

UTP cable 1 pcs.

Screw 3×30 4 pcs.

Dowel 6×30 4 pcs.

Label 2 pcs.

Technical passport 1 copy.

5 Marking

The label glued to the body of the controller indicates:

- manufacturer's trademark;
- name of the controller;
- firmware version;
- date of manufacturing;
- conformity mark;
- serial factory number;
- barcode duplicating text information.

6 Conformity to standards

6.1 The design of the controller provides the degree of protection by the enclosure IP31.

7 Disposal

7.1 The kit poses no hazard to life, human health, and the environment; after the expiry of its service life, its disposal is carried out without taking special measures of environment protection.

8 Transport and storage conditions

8.1 Controller in the manufacturer's packaging should be transported at any distance by any type of transport in covered vehicles in accordance with the rules for the carriage of goods in force for the respective mode of transport.

8.2 The storage room should be free of conductive dust, acid and alkali vapors, as well as gases that cause corrosion and destroy insulation.

8.3 The storage period of the controller in a transport or consumer container, according to storage conditions, should not exceed 12 months.

8.4 Controller is not intended for transportation in unheated, unpressurized aircraft cabins.

9 Warranty

9.1 The quality management system is certified for compliance with ISO 9001.

9.2 The manufacturer guarantees the compliance of the controller with the technical conditions, provided that the consumer observes the conditions of transportation, storage, installation and operation.

9.3 Warranty period – 12 months from the date of manufacture.

9.4 Average service life - 8 years.

9.5 The manufacturer is obliged to repair or replace the controller during the warranty period.

9.6 The warranty does not come into force in the following cases:

- non-compliance with requirements of technical passport;
- mechanical damage of the controller;
- repair of the controller by another.

9.7 The warranty applies only to the controller. All third party equipment used in conjunction with the controller is subject to their own warranties. The warranty does not apply to batteries, connecting cables used in conjunction with the controller.

The manufacturer is not liable for any damage to health, property or other accidental or intentional loss, direct or indirect damage based on the user's statement that the kit has not fulfilled its functions, or as a result of misuse, failure, or temporary inoperability of the kit devices.

Manufacturer:

ZAO NTC TEKO

420108, Russia, Kazan,
Gafuri str., 71

Tel.: +7 (843) 528-03-69

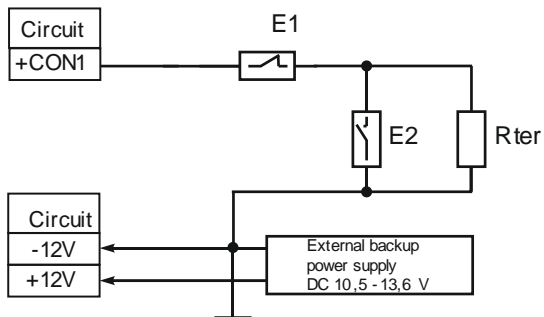
Email: export@teko.biz

Web: www.teko.biz

Made in Russia

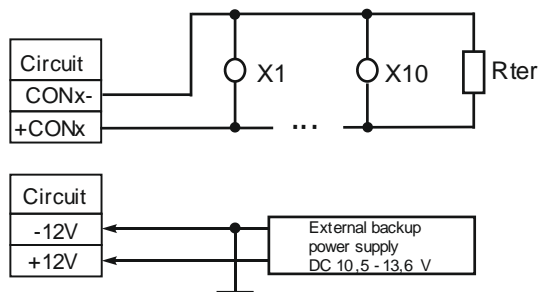
Connection diagrams

1) Connection of intrusion, panic and emergency type hardwired zone



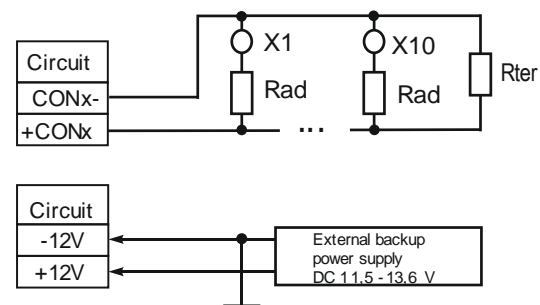
E1 - detector with normally closed contacts (intrusion, panic or emergency)
E2 - detector with normally open contacts (intrusion, panic or emergency)
Rter - terminal resistor 3.9 kOhm

2) Connection of the fire type hardwire zone



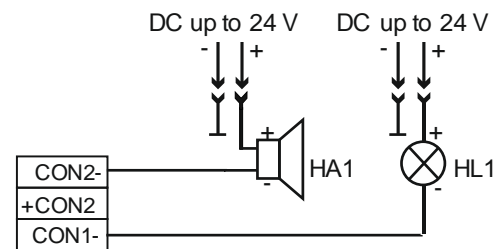
X1 ... X10 - active detector (smoke detector)
Rter - terminal resistor 3.9 kOhm

3) Connecting a fire alarm with double event hardwire zone



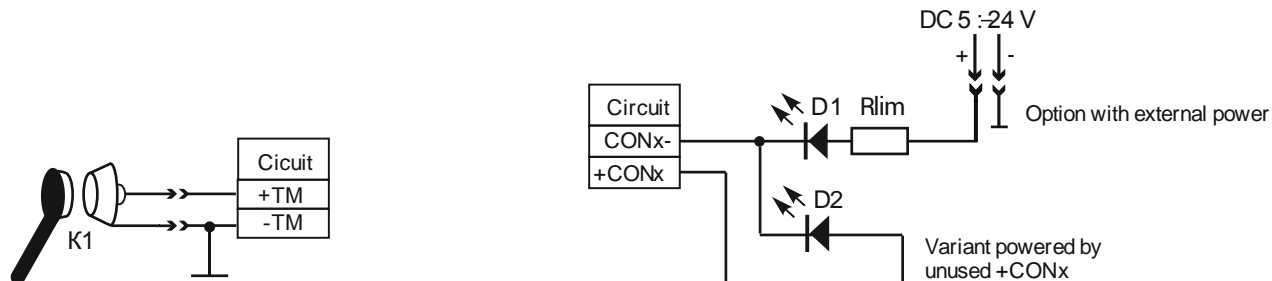
X1 ... X10 - active detector (smoke detector)
Rad - is an additional resistor whose nominal value should be recommended by manual of selected hardwired detector
Rter - terminal resistor 3.9 kOhm

4) Connection of light indicator and siren



HA1 – siren
HL1 – light indicator

5) Connecting the iButton key reader and the reader indicator



K1 - a reader of Touch Memory or other technology with the provision of information on

Dallas Identifier 1990A

D1, D2 – led indicator of the iButton reader kOhm