ИСО 9001

BATTERY BACKED POWER SUPPLY

RIP-12 Mod.51
(RIP-12-3/17P1-R-RS)

User's Manual

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This User's Manual explains the principles of operating RIP-12 mod.51 (RIP-12-3/17P1-R-RS) Battery Backed Power Supply.

Only the personnel who have studied this manual are allowed to operation activities. All activities on mounting, start-up, programming, and testing shall be performed in compliance with the requirements of the regulatory documentation in force at the place of operation.

1 Description and Operation

1.1 Purpose

1.1.1 The battery backed power supply RIP-12 mod.51 (RIP-12-3/17P1-R-RS) (hereinafter referred to as the RIP) is designed to provide continuous operating power to a group of automatic fire-fighting equipment, detectors, control and indicating equipment of a fire / intrusion alarm system, and other devices that require power of 12 Volts dc.

1.1.2 The RIP provides round-the-clock operation with specified output parameters and automatic monitoring and recharging of the sealed backup battery. The RIP provides shutting off the battery from a load to avoid unacceptable discharge.

1.1.3 The RIP provides light and audible indication of current conditions including presence or absence of mains power voltage, battery charge, missed battery, shutting the battery off in case of its discharge, short circuit failures or overloads at the output.

1.1.4 The RIP protects its output against overvoltage and short circuit failures with recovering output voltage automatically after repairing the failures.

1.1.5 The RIP provides protection against short circuit failures of battery leads with keeping the output voltage provided that the RIP operates from mains power.

1.1.6 The RIP provides estimating mains voltage, output voltage, battery voltage, and output current (load current) (see Note in para 1.2.30).

1.1.7 The RIP provides transmitting measured values of voltage and current as well as messages about current conditions to the network controller (the connected S2000M panel or connected PC with installed Orion Pro software) via the RS-485 interface.

1.1.8 The RIP provides sending trouble messages to the output circuit of its solid state relay with galvanic isolation.

1.1.9 The RIP provides monitoring for conditions of the battery and battery connecting circuit (by comparing with maximum admissible internal resistance of this circuit).

1.1.10 The RIP shall be operated at locations where it is protected against atmospheric precipitations and mechanical damage. The design of the RIP doesn't provide operating it in explosion and fire hazardous premises.

1.1.11 The RIP is designed to be operated in residential, commercial, and industrial areas.

1.2 Specifications

Table 1

No.	Parameter		Value
1.2.1	Power inputs		2
1.2.2	Primary power supply: The mains utility AC power 230 V, 50/60 Hz, work range, V		150…253
1.2.3	Backup power supply: Bolid series battery AB 1217 (the type C or M)* or similar (12V, 17 A·h), pcs.		1
1.2.4	Output DC voltage:	while powered by the mains, V	13.6±0.6
		while powered by battery, V	13.6…10
1.2.5	Maximum power consumed from the mains, V·A / W		155 / 80

No.	Parameter	Value
1.2.6	Maximum current consumed from the mains, A	0.9
1.2.7	Current consumed from the battery by the RIP itself, mA, max	40
1.2.8	Ripples of the output voltage (peak-to-peak) at rated load current, mV, max	100
1.2.9	Low battery shutdown voltage,V	10.2 ± 0.6
1.2.10	Rated / maximum load current, A	3 / 4 **
1.2.11	Time to charge a fully discharged battery, hours, max	48
1.2.12	Maximum battery charge current, A	1.2
1.2.13	Interface (Orion Protocol)	RS-485
1.2.14	Trouble output (solid state relay), (80 V / 50 mA) max, pcs.	1
1.2.15	Electric shock protection class as per GOST 12.2.007.0-75	I
1.2.16	Enclosure protection degree as per GOST 14254-2015	IP30
1.2.17	Resistance to mechanical exposure as per OST 25 1099-83	Arrangement Category III
1.2.18	Vibration exposure: - Frequency range, Hz - Max acceleration, g	 1-35 0.5
1.2.19	Environmental category as per OST 25 1099-83	O3
1.2.20	Operating temperatures, °C	Minus 10 through +40
1.2.21	Relative humidity, %	93
1.2.22	RIP weight without battery / with battery, kg, max	1.5 / 8
1.2.23	Overall dimensions, mm	230×320×110
1.2.24	MTBF, hours	40,000
1.2.25	Survival probability after 1000 hours	0.975
1.2.26	Expected lifetime, years	10

* The letters C and M define the battery service life as 12 and 15 years respectively.

** The maximum load current is 4.0 A (for short-duration periods of up to 2 minutes at intervals of at least one hour provided that the mains power is available and the battery is connected). When the output current exceeds 3.5 A, the RIP disables the charger. If the output current exceeds the maximum value of 4.0 A, the RIP shuts output voltage off.

1.2.27 The RIP provides executing the following commands received via the RS-485 interface**:**

- Assigning a network address;
- Synchronizing the internal clock of the RIP.

1.2.28 The RIP sends the following event messages over the RS-485 interface:

- *Device Reboot* (on turning the RIP power on);
- *Mains Failed* (input AC voltage is less than 150 V or higher than 253 V);
- *Mains Restored* (input AC voltage has returned to a normal value between 150 V and 253 V);
- *Overload* (the output current of the RIP has exceeded 3.5 A);
- *Load Restored* (the output current of the RIP has dropped below 3.5 A);
- *Charger Failed* (the battery power charger doesn't provide the specified current and voltage values to charge the battery properly);

– *Charger Restored* (the battery power charger provides the specified current and voltage values to charge the battery properly);
– *Power Failed* (the RIP fails to supply power in accordance with para 1.2.4 when connected to the live AC);
– *Power Restored* (when connected to the mains, the RIP meets the requirements of para 1.2.4);
– *Battery Fault* (the battery voltage is below 7 V or no battery is connected);
– *Bat Test Error* (the internal resistance of the battery has exceeded an admissible limit value, so the battery shall be replaced or repaired, see Table 7);
– *Battery Low* (in case of an AC failure, the battery voltage has dropped below 11 V);
– *Service Required* (the battery age has exceeded the programmed value; the battery must be replaced);
– *Battery Restored* (the battery voltage has exceeded 10 V; the battery can be charged);
– *Tamper Alarm* (the RIP enclosure has been open);
– *Tamper Restored* (the RIP enclosure has been closed);
– *DC OFF* (the RIP has shut down its output power in case of mains failure and discharged battery);
– *Config Changed* (the RIP has exited from the configuration mode provided that the previous configuration has been updated);
– *Config Reset* (current configuration parameters of the RIP has been reset to their default values).

In case of a loss of communication with the network controller over the RS-485 interface at the moment of generating a message, the message is stored in the non-volatile memory of the RIP and will be transmitted on restoring communications along with the actual date of the event.

The capacity of the buffer in the RIP non-volatile memory is 95 events.

1.2.29 The RIP provides programming the following parameters stored in its non-volatile memory (see *Appendix A. UProg Window for Programming the RIP*):

Table 2

Parameter	Description	Range	Default Value (when Delivered)
Network Address	The unique number of the RIP within the RS-485 interface bus	1…127	127
'Mains Failed' Delay	The time to delay sending of this message over RS-485	4…255 s	4 s
'Mains Restored' Delay	The time to delay sending of this message over RS-485	4…255 s	4 s
Battery Life Counter before 'Battery Change Required' Event	The battery age counter on elapsing which the RIP transmits *Service Required* messages	1…15 years	10 years
Repeat Time for 'Battery Change Required' Event	The time after elapsing which *Service Required* messages will be repeated in case of the battery age counter has finished	1…255 hours*	255 hours

* To make this event sent once, set this parameter to zero.

Following are the programmable parameters for the trouble relay:

Table 3

Parameter	Description	Value	Default Value (when Delivered)
Control Program	The program to control the relay which is to be executed after powering the RIP on (or resetting it)	Turn On Turn Off Turn On for a Time Turn Off for a Time	Turn Off
Operation Time	The 'Time' value for the third and fourth executive programs (see above)	0…8191.875 s	8191.875 s
Select Relay Control Options	The list of trouble events which can activate the relay to trigger remote indication of the trouble	1. All events but for communications fault 2. RS-485 communications fault 3. Output overcurrent 4. DC power or charger fault 5. Backup battery fault or missing 6. Mains voltage is lower than 150 V or exceeds 250 V 7. Tamper alarm	All events but for communications fault

1.2.30 The RIP provides measuring the following values and transmitting the measured values on a request of the network controller:

1) AC voltage in the range of (150…260) V;
2) Battery voltage in the range of (8…14.5) V dc;
3) Output voltage in the range of (8…14.5) V dc;
4) Output current (load current) in the range of (0.1...4) A.

Note – *Engineers tried to provide high precision of measurements but the values measured by the RIP are only the estimated ones; neither absolute nor relative error of measurements is normalized. Please use certified instruments for precise measurements.*

1.2.31 The RIP provides an option of muting sounds by means of its tamper switch.

1.2.32 The RIP becomes ready for operation within 10 s max after applying power to it.

1.2.33 As to immunity to man-made radio disturbance, the RIP meets the requirements of the third severity level as per relevant standards listed in Appendix 'Б' to GOST R 53325-2012.

Note. Correct performance of the RIP cannot be guaranteed if electromagnetic environment at the location it is installed does not meet the operative conditions stated in this document.

1.2.34 The RIP passes the industrial interference standards prescribed for Class '*Б*' equipment as per GOST R 30805.22

1.2.35 The RIP is equipped with no external controls.

1.2.36 The RIP provides monitoring for tampering its enclosure by means of a tamper switch. The tamper switch contacts are closed when the RIP cover is closed and they are open when the RIP cover is open. The tamper switch is located inside the enclosure on the PC board.

1.2.37 The RIP is designed to provide its fire safety while emergency operating and in case of violations of operation rules as per GOST 12.1.004-91.

1.2.38 The insulating strength of the live parts of the RIP is at least 2000 V (50 Hz) between circuits connected to mains 230 V and any circuits not connected with the mains.

1.2.39 The electrical insulation resistance between circuits mentioned above in para 1.2.38 is at least 20 mega ohms (in normal conditions in accordance with Section 5.14.6 of GOST 52931-2008).

1.3 Scope of Delivery

The scope of delivery for the RIP is as shown in Table 4.

Table 4

Item		Q-ty, pcs.
RIP-12 mod.51 (RIP-12-3/17P1-R-RS)		1
Accessory Kit:		
	Fasteners: (screw and wall plug)	4
	Grommet	2
	Fuse 218 002 (similar to 'ВПТ6-10 2,0А')	1
Documentation		
RIP-12 mod.51 (RIP-12-3/17P1-R-RS) Operations Manual		1

Note. **No battery is included in the standard delivery!**

1.4 Measuring Instruments, Tools, and Accessories

While mounting, commissioning, and maintaining the product please use the instruments, tools, and accessories shown in Table 5.

Table 5

Instrument	Specifications
Digital multimeter	AC/DC voltage up to 500 V, AC/DC current up to 10 A, resistance up to 20M Ohm
Flat head insulated screwdriver	SL2,5 × 75 mm
Cross slot insulated screwdriver	PH1 × 75 mm
Side-cutting pliers	160 mm
Pliers	160 mm

1.5 Marking

Every RIP has a marking applied inside its enclosure.

The marking contains the name of the product, its decimal number, factory number, the year and quarter of production, and conformity marks.

1.6 Packaging

The RIP along with accessory kit and operation documentation is packaged in a separate cardboard box.

2 Intended Use

2.1 Operating Restrictions

The RIP shall be operated at places protected against atmospheric precipitations and mechanical damage. The design of the RIP doesn't provide its operation in explosion and fire hazardous premises.

2.2 Preparing for Use

2.2.1 Safety Precautions During Preparation

2.2.1.1 A source of potential hazard in the RIP is current carrying circuits connected with mains power 230 V. These circuits are covered by a protective casing on the RIP printed circuit board.

Also the resettable fuse in the battery circuit is the other source of potential hazard. This fuse is located in the lower right corner of the board, with its temperature being above 100°C when the fuse tripped.

2.2.1.2 Safety Precautions:

Operating the RIP without prior connecting to a grounding bus is strictly prohibited.

a) Regularly verify proper grounding of the RIP.

b) Be sure the rating of the fuse is the same as stated in the operation documentation.

c) Opening the RIP without prior shutting it off from the mains utility power is strictly prohibited.

d) Removing the protective casing from the PCB is strictly prohibited.

e) When the 230 V power voltage is turned on, hardware setting of light and sound indication modes by means of the tamper switch is strictly prohibited.

2.2.1.3 While operated, the RIP shall be properly grounded as per GOST 12.2.007.0-75 to provide protection against electric shock. Protection Class I as per GOST 2.006.0-87.

2.2.2 RIP Design

2.2.2.1 The RIP is assembled into a plastic enclosure. On the cover there are LEDs for indicating RIP conditions. Within the RIP enclosure there are the PC board and 230 V mains terminal block with F1 fuse holder embedded. The space at the bottom part of the RIP enclosure is meant for housing the battery.

2.2.2.2 To remove the RIP front cover, do the following:

1) Unscrew the bolt fastening the cover on the top side of the RIP enclosure;
2) Press on the notches on the top side of the RIP enclosure and open the cover (Appendix B).

2.2.3 Mounting

Installing, wiring, and maintenance can be carried out only when the RIP is disconnected from the mains. The equipment shall be mounted and maintained by persons qualified for Electric Safety Level of III or higher.

2.2.4 Installing and Preparing for Use

The RIP is to be installed on a wall or another structure of the protected premises at places protected against exposure to atmospheric precipitation and mechanical damage.

To remove the RIP front cover, do the following:

a) Unscrew the bolt fastening the cover on the top side of the RIP enclosure;
b) Press on the notches on the top side of the RIP enclosure and open the cover (see *Appendix B. Overall and Mounting Dimensions*).

Attach the RIP to a wall at a convenient place. Overall and mounting dimensions are shown in Appendix B.

2.2.5 Connecting the RIP

Warning!

While connecting mains power 230 V wires to the input power terminal block, please connect the wires Line, Neutral, and Earth properly. Connect the circuits to the RIP as shown in the figure in Appendix C.

2.2.6 RIP Operation

2.2.6.1 The mains power having applied, the RIP checks the presence of a battery and proper communications over the RS-485 interface.

If the battery is available and 100% charged, the BAT indicator shows solid light.

If the battery is not charged, the RIP will charge it until its voltage reaches the required value, the BAT indicator switching off for a short time once every 5 s.

If no battery is connected (or battery's output voltage is less than 7 V) then the BAT indicator turns on once per second.

If the battery is unhealthy (shall be replaced) then the sounder turns on for a short time five times while the BAT and TROUBLE indicators flash twice per second.

In case of charger malfunction, within 15 minutes after the fault detected the RIP sends *Charger Failed* event and indicates the fault as stated in Table 6.

While operating, the RIP periodically inspects:

- Input and output voltage;
- Battery availability (at least once per minute);
- Battery conditions (at least once per 15 minutes);
- Operability of the battery charger (at least once per 15 minutes).

2.2.6.2 If the mains power occurred to be off the battery starts to feed the load, with the buzzer periodically emitting low battery warning beeps, POWER LED being off, and 12 V LED

illuminating. After a delay given in the configuration, the RIP sends a *Mains Failed* event (see Table 2).

2.2.6.3 In case the battery voltage has dropped down to 11 V, the periodical sound signals start to be emitted 10 – 15 times more frequently. The RIP sends a *Battery Low* event. In this case, urgent measures shall be taken to restore the mains voltage.

2.2.6.4 In case the battery voltage has dropped down to 10 V, the RIP disconnects the battery from the load to avoid deep discharge. In this case, the 12 V indicator switches off while the buzzer sounds continuously within two first hours. The RIP sends a *DC OFF* event. Upon expiration of two hours, the RIP starts consuming from the battery in low-power mode: RS-485 transceiver is turned off, and the buzzer and TROUBLE LED turns on for a short time every 10 s.

Warning!

If mains power 230 V is expected to be off for more than 7 days, disconnect the battery from the RIP board to avoid deep battery discharge

The buzzer can be disabled by pressing on the tamper switch (see 2.2.8.3). Turning the buzzer on is performed by repeating the same combination of presses on the tamper switch.

2.2.6.5 If mains power is off and the battery is charged more than 80 % of its available capacity, the RIP runs the procedure of measuring the capacity of the battery. If the battery is discharged below 11 V, the RIP estimates the capacity of the battery, the operation time in the backup mode, and an approximate time of measuring battery capacity. If the charge of the battery falls below 80 % of their available capacity less, the procedure of measuring the capacity is not run. If during operation time of the RIP the battery capacity has not been measured, then on receiving a request for the time of operation in the backup mode and the time for measuring the battery capacity the RIP will estimate the time based on the battery capacity of 17 Ah and the actual value of the output current.

2.2.6.6 If an inadmissible overcurrent in the load circuit or a short circuit failure in the output circuit of the operating RIP has happened, the RIP starts applying voltage to the DC output only for a short time every 10 seconds until the trouble is repaired. TROUBLE indicator turns on twice per second, while the buzzer sounds in interrupted mode. The RIP automatically puts itself into normal operation within 15 seconds after having the malfunction repaired.

2.2.7 Switching the RIP On

2.2.7.1 Verify the RIP is wired properly as per the connection diagram for RIP-12 mod.51 (see *Appendix C. RIP Connection Diagram*).

2.2.7.2 Connect the battery to the terminals observing polarity (the red wire is to be connected to the positive lead of the battery, and the blue wire is to be connected to the negative lead of the battery).

Warning!

To provide specifications stated, please operate the RIP with the connected and operable battery. If the battery is connected, but the RIP sends *Battery Test Error* messages while operating then the battery must be replaces. Also the battery of the type specified in 1.2.3 shall be replaced upon expiration of its service life.

The RIP provides the option of setting a Battery Life counter (see 2.2.8.2). The time set by user shall not exceed service life specified by manufacturer of the battery.

2.2.7.3 Insert the F1 fuse.

2.2.7.4 Apply mains power 230 V, 50/60 Hz.

Note. The rated load current is 3.0 A. The RIP can be operated at a load current up to 4.0 A (see 1.2.10) for a short-duration time in case of turning on sound alarms, fire suppression system, actuating units etc.

Warning!
If the RIP operates at a load current above the rated value for a long time, it stops charging the battery, and the battery begins to be discharged even if the mains power is applied.

2.2.8 Programming

2.2.8.1 Change the network address of the RIP. This address must not be the same as the address of any device connected to the same RS-485 interface bus as the RIP (that is, the address must be unique; the factory value of the address is 127).

2.2.8.2 If necessary, change other parameters of the RIP as per the specific way the power supply is used in field (see Table 2).

To program the RIP, use an IBM compatible PC. Parameters can be given by means of the **UProg** utility (of version 4.1.0.32+); the RIP is to be connected to a COM port of the PC via RS-232/RS-485 PI-GR or S2000-PI interface converter, or via an S2000 panel of version 1.20 or higher which is switched to the interface converter mode. The program window is shown in *Appendix A. UProg Window for Programming the RIP*.
The last version of the UProg Configuration Tool is available online at the address of: **http://bolid.ru**.
The UProg window interface comprises a new configuration parameter, *Low Capacity (Alarm) Threshold*. This parameter can be ranged from 0 up to 17 inclusive in increments of 1 A·h. After testing is completed, the RIP compares the measured battery capacity with the defined threshold value. If the measured value is below the defined threshold, the RIP sends *Bat Test Error* and indicates *Dead Battery (Must Be Replaced)* – see Table 6 of this manual. When the threshold value is set to zero, the RIP does not analyze the measured value of the battery capacity. Next time the capacity can be measured after the battery is more than 80% charged. The RIP can exit from the error condition, if in the next tests the measured value will be higher than the given value of the threshold. On disabling the battery, the error is reset.

2.2.8.3 When the RIP cover is open, by means of the tamper switch you can:

- **Disable the sounder**: perform three short-duration presses and one long-duration press on the tamper switch (● ● ● ▬);
  Note: A long-duration press («▬») means pressing the tamper switch and keeping it pressed for 1.5 – 3 s. A short-duration press («●») means pressing the tamper switch and keeping it pressed for 0.1 s to 0.5 s. Pauses between presses should be of 0.1 s to 1 s.
- **Reset the network address** (set the factory value 127): (▬ ▬ ▬ ●);
- **Reset the counter of the battery age, the measured capacity of the batteries,**
- **and the time to repeat *Battery Change Required*** (when a new battery is installed): (● ● ● ▬ ▬).
- **Reset configuration to the default values (● ● ● ▬ ▬ ▬ ● ● ●).** The combination of presses is supported by the RIP within the first 30 seconds after turning the power on.

2.2.8.4 If the network controller is connected to another power supply then couple the circuits 0 V of the RIP and the network controller.

2.2.8.5 Unless the RIP is the first or last device in the RS-485 interface bus, remove the jumper XP9 from the pins located closely to the output bus contacts A and B.

2.2.8.6 The RIP provides updating its firmware. The list of available firmware files, their general features, and recommended updates can be found at http://bolid.ru in the section Products on the page of RIP-12 mod.51.

Firmware is to be updated with the help of UProg, Orion Pro Suite, S2000M panel. The updating procedures are described in the relevant manuals.
While updating firmware of version 2.00 and higher, the RIP disables output voltage (XT2).

2.2.9 **Operation of the RIP**

To be admitted to work with the product, the personnel are obliged to have studied this manual and to have a certificate of verification of knowledge of safety regulations.

In 3-5 s after power is applied to the RIP, the indicators POWER, BAT, and 12 V turns on, and sound signaling shall be off.

Note. The BAT LED turns on when the battery is charged (battery voltage is higher than 13.6 V).

Indicator and sounder performance is described in Table 6.

Following is the list of notations used in Table 6:
«+»: Turned on, «—»: Turned off;
«+/—» 1 Hz: Turns on and then off once per second;
«ON/5 s»: Turns on for a short time once every 5 s;
«OFF/3 s»: Turns off for a short time every 3 s;
«ON 10 s»: Turns on for a short time within 10 s.

Table 6

Current RIP Conditions	Indicators					Internal Sounder
	POWER	**BATTERY**	**TROUBLE**	**RS-485**	**12 V**	
	green	***green***	***amber***	***green***	***green***	
1. Mains utility power is starting up, no battery is connected	+	+/— 1 Hz	—	+ [1]	+	ON/0.4 s 8 times
2. Mains power is OK; the battery is not charged	+	OFF/5 s	—	+ [1]	+	—
3. Mains power is OK; the battery is charged	+	+	—	+ [1]	+	—
4. DC Output overcurrent (battery is available)	+	+	+/— 2 Hz	+ [1]	ON/ 10 s	ON/ 0.8 s
5. Mains power is off; the battery voltage exceeds 11 V	—	+	—	+ [1]	+	ON/ 5 s
6. Mains power is off; the battery voltage is below 11 V	—	+	—	+ [1]	+	ON/ 0.4 s
7. Mains power is off; the battery voltage has dropped below 10.2 V (for the first two hours)	—	+/— 1 Hz	—	+ [1]	—	+
8. Mains power is off; the battery voltage has been still below 10.2 V (upon the expire of two hours)	—	—	ON/ 8 s	—	—	ON/ 8 s
9. The mains power voltage has dropped below 150 V	+/— 1 Hz	+	—	+ [1]	+	ON/ 2 s
10. The mains power voltage has exceeded 253 V	+/— 1 Hz	+	—	+ [1]	+	ON/ 1 s
11. Dead battery (must be replaced)	+	+/— 1 Hz	+/— 1 Hz	+ [1]	+	ON 5 times
12. Charger fault	+	+/— 4 Hz	+/— 4 Hz	+ [1]	+	ON/ 0.8 s
13. Overvoltage at the RIP output	+/— 1 Hz	+/— 1 Hz	+/— 1 Hz	+/— 1 Hz	—	—
14. Measuring capacity of the battery	ON 1s		—	+ [1]	+	—

[1] In case of normal communication over the RS-485 interface. In case of a communication loss this one is off. If communication over the RS-485 interface was established but has been broken during operation then after elapsing 30 s since the loss the RS-485 LED flashes once per second.

2.2.9.1 To request for the conditions of the RIP from the S2000M panel (please see Section “Direct Control Functions” of S2000M User’s Manual):

ENTER CODE:_	Enter your password.
▲▼5 VIEW INPUT STATUS	Select *View Input Status* by the « ▸ » or « ◂ » panel button and press «ENT», or use the «5» panel button as a hot key.
▲▼51 INPUR STATUS	Select *Input Status* by the « ▸ » or « ◂ » panel button and press «ENT», or press the «1» panel button as a hot key.
ADDRESS:_	Enter the RIP address (permissible value is in the range of 1 to 127) or select its valid value by the « ▸ and « ◂ » panel buttons and press «ENT».
INPUT#:_	Type the input number or select the required value with « ▸ », « ◂ » and press «ENT».

For the RIP, conditions of the inputs are related to:

0: Tamper switch
1: DC output voltage
2: DC output current
3: Battery voltage
4: Battery charger
5: Mains voltage

2.2.9.2 To receive measured values of voltage and current (please refer to S2000M User’s Manual):

ENTER CODE:_	Enter your password.
▲▼5 VIEW INPUT STATUS	Select the View Input Status command by the « ▸ » and « ◂ » buttons and press «ENT» or use the «5» panel button as the hot key.
▲▼52 INPUT ADC	Select the Input ADC command by the « ▸ » and « ◂ » panel buttons and press «ENT» or use the «2» panel button as the hot key.
ADDRESS:_	Enter the network address of the RIP (in the range of 1 to 127) or select the valid value by the « ▸ » and « ◂ » buttons and press «ENT».
INPUT#:_	Type the number of the input in accordance with the value to be requested or select the valid value by the « ▸ » and « ◂ » buttons and press «ENT».

The data are given as a text string and specific ATD values:

a) The battery is available:

0: Трезерв = 02 ч 42 мин
(load 3.0 A, battery capacity 17 A·h)

0`: Ёмкость не изм.
(the battery capacity was not measured) **or**
0`: Ёмкость 17,00 А·ч
(the measured value of the capacity)

0``: Тнар_ост = 87600 ч (**10 years**)

1: Uout = 8…14,5 V **(ADC 114…208)**

2: Iout = 0,1…4,0 A **(ADC 5…204)**

3: Uакк = 8…14,5 V **(ADC 114…208)**

3`: Трезерв = 03 ч 50 мин
(load 3.0 A, battery capacity 17 A·h)

3``: Ёмкость не изм.
(the battery capacity was not measured) **or**
3``: Ёмкость 17,00 А·ч
(the measured value of the capacity)

3```: Тнар_ост = 87600 ч (**10 years**)

4: Заряд АКБ 100 % (Charger Norm)

5: Uсети = 150…255 V **(ADC 249…0)**

The other parameters measured at the input (e.g. # 0` or # 0``) can be viewed using the «◀ » and «▶» buttons.

b) No battery is available:

# 0: АКБ ОТКЛЮЧЕН	# 0`: Тнар_ост = 87600 ч (**10 years**)
# 1: Uout = 8…14,5 V **(ADC 114…208)**	# 2: Iout = 0,1…4,0 A **(ADC 5…204)**
# 3: Uакк = 00,00 V **(no battery is connected)**	# 3`: Тнар_ост = 87600 ч (**10 years**)
# 4: ЗУ_НОРМА (for the charger)	# 5 – Uсети = 150…255 V **(ADC 249…0)**

To get more information, please refer to S2000M User's Manual.

Note: * When operating the RIP, the value of 230 V mains voltage measured by the RIP can differ from the value measured with the help of an rms-voltmeter. This can be concerned with phase voltage distortions in mains power network and so on. The RIP provides a capability to correct measured values of mains power in increments of 1 V (in the range of ±20 V). To introduce a correction, run UProg and select "RIP-12 mod.50/51 (12V, 3A)" with the relevant network address. Then select the proper adjustment value in the dialog window. The new configuration having been written to the RIP memory and the RIP being reset, the last one applies this adjustment to the readings of the AC voltmeter.

2.2.10 Turning the RIP Off

a) Turn off the mains power 230 V.
b) Take the F1 fuse out.
c) Disconnect the battery.
d) Disconnect the load.

2.2.11 Extreme Situation Actions

Warning!
If sparks, fire, smoke, or smell of burning is found at the installation site of the product, the product must be de-energized and sent for repair

2.2.12 Troubleshooting

Table 7

Symptom	Possible Cause	Solutions
The RIP failed to be turned on while being powered by mains	1. The fuse F1 has blown. 2. Wiring is faulty. 3. Long-term overload at the RIP DC output	1. Measure the voltage on XT1 terminal block before and after the F1 fuse, replace the F1 fuse. 2. Repair wiring faults. 3. Shut down the RIP. Wait for at least 2 min and then turn the RIP on again.
The RIP failed to be turned on being powered by batteries	The battery voltage has dropped below 10 V	Measure the battery voltage, and charge or replace the battery
The RIP transmits *Battery Test Error*	1. The battery has significantly lost its capacity. 2. Battery leads oxidation or loosened battery contacts	1. Replace the battery. 2. Clean leads; tighten wire connections of the battery.
The RIP issues the *Service Required* message	Battery lifetime expired	Replace the battery and reset the lifetime counter

Symptom	Possible Cause	Solutions
Lost communications between the RIP and the network controller	1. Failed connection between the RIP and the controller. 2. Wrong connection of transmission path to A and B interface contacts	1. Repair the connection, meet the requirements stated in paras 2.2.8.4, 2.2.8.5 of this manual. 2. Swap the transmission path wires connected to A and B contacts of the RS-485 interface
The controller transmits *Communication Lost*	1. Open-circuit failure on the transmission path. 2. The RIP has disabled the transceiver due to low battery charge	1. Reconnect the RIP. 2. Take measures to repair mains voltage

3 Maintenance

3.1 General

The RIP shall be maintained under the following schedule:

Table 8

Task Description	Frequency
Visual checking of the RIP and the battery	Monthly
Check for operability of the RIP from every of two power sources	Six-monthly

3.2 Safety Precautions

The product shall be maintained by personnel qualified for the Electrical Safety of Level III or higher.

3.3 Maintenance Procedures

3.3.1 Visual checking of the RIP and the battery includes checks for no mechanical damages, fastening reliability, for conditions of connecting wires and contact joints, for battery deformations, and for electrolyte leakage.

3.3.2 The RIP is to be inspected for proper functioning from both power supplies as described in paras 3.4-2) - 3.4-4).

Note: *Operating temperatures above 25 degrees C dramatically reduce battery service life (see specifications stated by the manufacturer of the battery installed).*

3.4 Testing Operability

Full testing of the RIP performance is carried out only by the manufacturer or in special labs.

1) Turn the RIP on as discussed in 2.2.7.
2) Check operation of the RIP, its indicators and its buzzer against Table 6. Measure the output voltage of the RIP and verify it falls in the range stated in 1.2.4.
3) Shut off the mains power for at least 5 minutes. Be sure that the RIP has started to be powered by the battery. Verify that the indicators and the buzzer operate as stated in 1.2.4.
4) Turn the mains on and verify that the indicators and the buzzer operate as stated in Table 6.

The RIP is considered to be operable if the requirements of paras 3.4-2) – 3.4-4).

3.5 Measuing Capacity of the Battery

To measure the capacity of the installed battery, the battery charge shall be higher than 80%.

Note. If the battery charge is below 80%, the RIP doesn't measure capacity of the battery installed within it.

3.5.1 To measure the battery capacity by means of the S2000M panel, use the Test System Components function (see Section 3.18.5, "Test System Components" of S2000M User's Manual). Send a command to run testing with «0» for the component number and «0» for the test time. If the command was received and executed successfully the RIP sends a Test ON

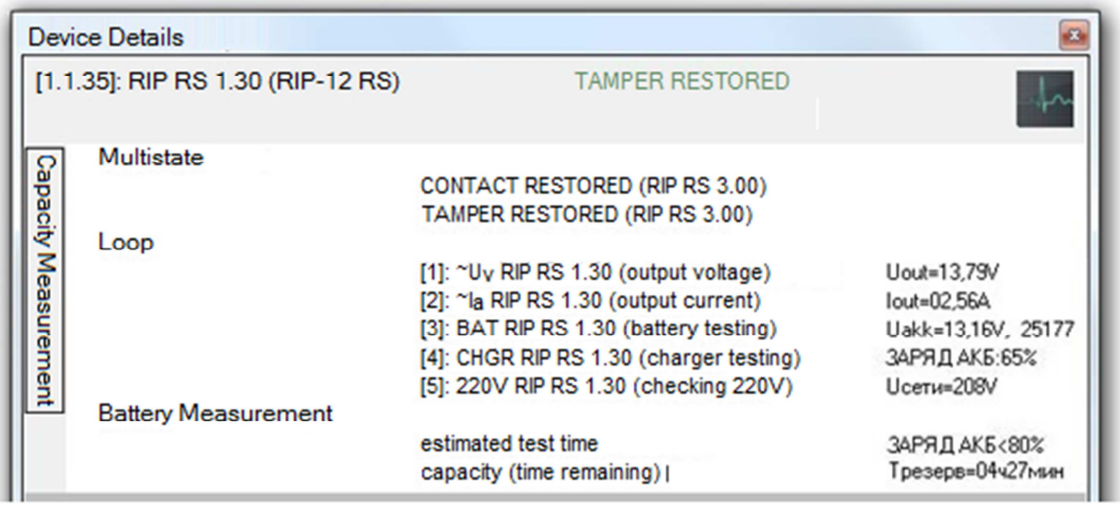
message. The battery test is completed automatically. After completing the test the RIP sends a Test OFF message.

The test mode can be initiated / terminated by the following commands:

ENTER CODE:_	Enter your password.
▲▼6 SERVICE	Select *Service* in the panel menu by « ▸ » or « ◂ » and press «ENT», or use «6» panel button as a hot key.
▲▼63 TEST SYSTEM COMPONENTS	Select *Test System Components* in the panel menu by « ▸ » or « ◂ » and press «ENT», or use «3» panel button as a hot key.
▲▼TEST ON	To initiate testing, select *Test ON* in the panel menu by « ▸ » or « ◂ » and press «ENT».
ADDRESS:_	Type the address of the RIP (in the range of 1 to127) or select the required value by « ▸ » or « ◂ » and press «ENT».
COMPONENT#:_	Type «0» for the component number and press «ENT».
TIME, min:_	Type «0» for the test time and press «ENT».
▲▼TEST OFF	To complete the mode of measuring the battery capacity, select *Test OFF* by « ▸ » and « ◂ » and press «ENT».
ADDRESS:_	Enter the RIP address (in the range of 1 to 127) or select the proper value by « ▸ » and « ◂ » and press «ENT».
COMPONENT#:_	Enter «0» for the number of the component and press «ENT».

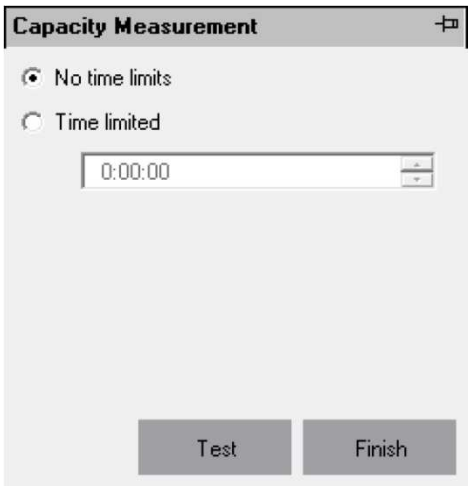
3.5.2 To measure the battery capacity using Orion Pro software (see Section “Obtaining Power Supply Details” of Part of Orion Pro User’s Manual), run Monitor and click on the RIP icon on the map by left or right mouse button. Then select the string marked by in the context menu (this string contains the address and the name of the RIP):

Note. ***The icon of RIP-12 RS shall be already added to the map.***
A window with information about the RIP shall be open.



This information window also provides tools for testing the battery of the RIP.

Click on the Capacity Measurement button at the left side of the window, and a panel for test starting /completing shall appear.



Then, select the way for testing:

1. *No Time Limits*: The test on completing which the RIP transmits measured value of the capacity of the batteries. The estimated time of test duration is shown in the information window. The test will be completed automatically.
   Note. ***The test duration depends on the current in the RIP load circuit.***
2. *Time Limited*: The test will be completed after elapsing of the time set below. This test is recommended to be performed for estimation of RIP operability in the backup mode for the given time. If, during the test, the batteries are more than 80% discharged, the RIP will estimate the actual capacity of the batteries.

Finally, press the button Test to start the test. If you then press the button Finish the test will be interrupted.

3.5.3 To measure the capacity of the RIP battery without sending commands over the RS-485 interface, do the following:

1) Ensure the batteries are more than 80% charged (the BATTERY LED shows solid light);
2) Turn off the AC power of the RIP;
3) After receiving a *Battery Low* message, turn on the AC power, and the RIP will estimate the resulting capacity of the installed battery.

3.6 Technical Examination

Technical examination is not applicable for this equipment.

3.7 Preservation

Preservation is not applicable for this equipment.

4 Repair

Warning!

The manufacturer accepts no claims unless a malfunction report is applied.

4.1. A RIP failure resulted from consumer's not observing rules of mounting and operation is not a reason for claims and warranty repair.

Warning!

Removing the RIP's PC board from the housing automatically voids the manufacturer's warranty.

4.2. Repair of a defective product and updating firmware are to be performed by the manufacturer or in authorized repair centers. Sending the product for repair shall be formalized in line with established procedures.

Warning!

The equipment shall be submitted for repair being assembled and clean and along with all the parts listed in the documentation.
Claims are accepted only if a reclamation report describing the failure is applied to the submitted equipment.

4.3. An equipment fault resulted from consumer's not observing rules of mounting and operation is not a reason for claims and warranty repair.

4.4. Claims shall be submitted to the following address:

NVP BOLID, #4 Pionerskaya Str., Korolyov, Moscow Region, 141070, Russia

Phone: +7 (495) 775-71-55, E-mail: info@bolid.ru.

4.5. In case of any issue related to use of the product, please contact the technical support +7 (495) 775-71-55 or email support@bolid.ru.

5 Storage

5.1. Storage in a transport container is permitted in unheated warehouses at ambient temperatures minus 30°C through plus 50°C and relative humidity up to 95% at plus 35°C.

5.2. Storage in the consumer package is permitted only in heated warehouses at temperatures plus 5°C through plus 40°C and relative humidity up to 80 % at plus 20°C.

5.3. Batteries shall be stored as per the rules and storage conditions established by the battery manufacturer.

6 Transporting

6.1. The RIP can be transported in a transport container at ambient temperatures minus 30°C through plus 50°C and relative humidity up to 95 % at plus 35°C.

7 Disposal

7.1. The RIP is to be disposed of considering that there are no toxic components in it. Batteries are subject to be taken to special waste collection points for further recycling.

7.2. The content of precious materials: doesn't require accountability for storage, retirement, and disposal (Clause 1.2 of GOST 2.608-78).

7.3. The content of non-ferrous metals: does not require accountability for retirement and further disposal.

8 Manufacturer Warranty

8.1. The manufacturer guaranties the RIP meets with the technical requirements if the user follows the instructions for transportation, storage, installation, and usage.

8.2. The warranty period is 18 months since putting the product into operation but no more than 24 months from the manufacturer's date of production.

9 Certification Information

9.1. RIP-12 mod.51 (RIP-12-3/17P1-R-RS) Battery Backed Power Supply meets the requirements of EAEU TR 043/2017 'On Requirements for Fire Safety and Fire Extinguishing Equipment' and is covered by the conformity certificate No. RU C-RU.ПБ68.В.01370/22.

9.2. RIP-12 mod.51 (RIP-12-3/17P1-R-RS) Battery Backed Power Supply meets the requirements of Technical Regulations of Custom Union CU TR 004/2011 'On Safety of Low-Voltage Equipment', CU TR 020/2011 'Electromagnetic Compatibility of Technical Equipment' and is covered by the conformity declaration ЕАЭС No. RU Д-RU.PA03.B.09179/22.

9.3. RIP-12 mod.51 (RIP-12-3/17P1-R-RS) Battery Backed Power Supply is a component of Intrusion and Panic Alarm System, which is covered by the certificate of conformity of transport safety technical arrangements with requirements for their functional properties No. МВД

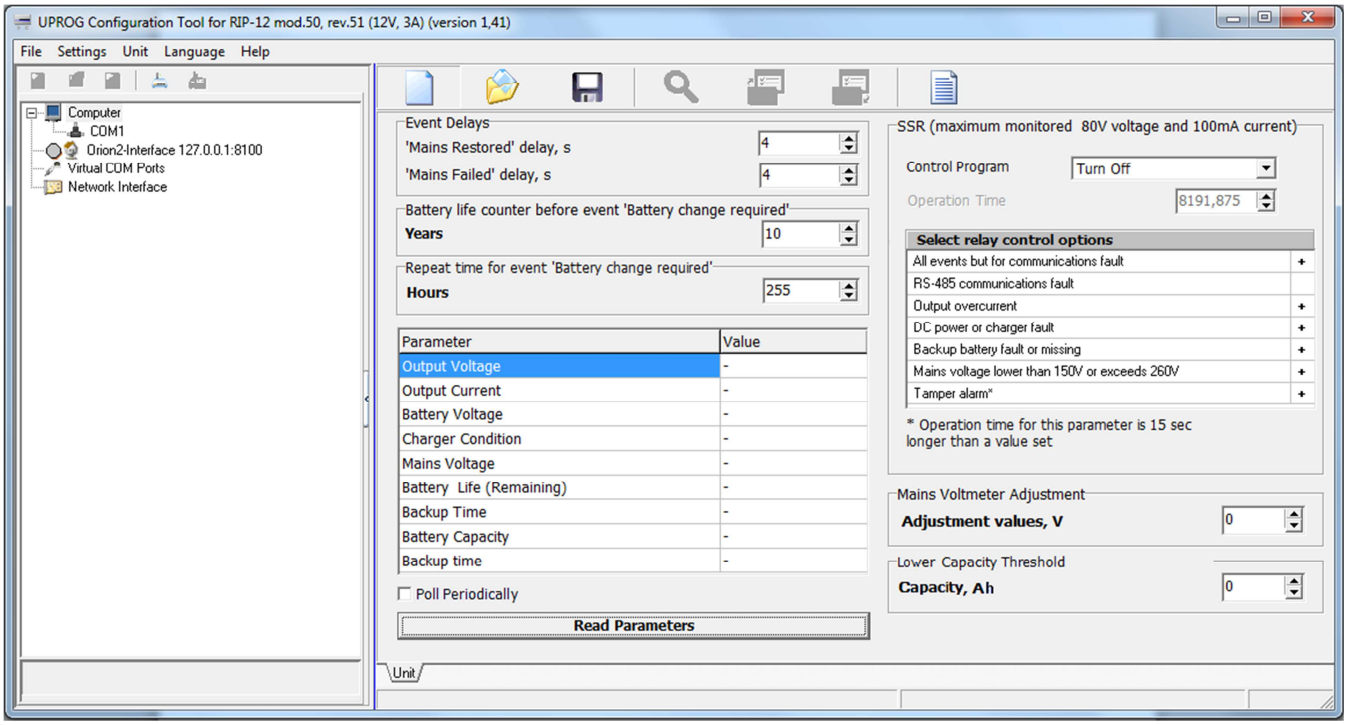
РФ.03.000971, issued by Federal Scientific-Production Association “Special Equipment and Communications” of the Ministry of Internal Affairs of the Russian Federation.

9.4. RIP-12 mod.51 (RIP-12-3/17P1-R-RS) Battery Backed Power Supply is a component of Access Control System, which is covered by the certificate of conformity of transport safety technical arrangements with requirements for their functional properties No. МВД РФ.03.000972, issued by Federal Scientific-Production Association “Special Equipment and Communications” of the Ministry of Internal Affairs of the Russian Federation.

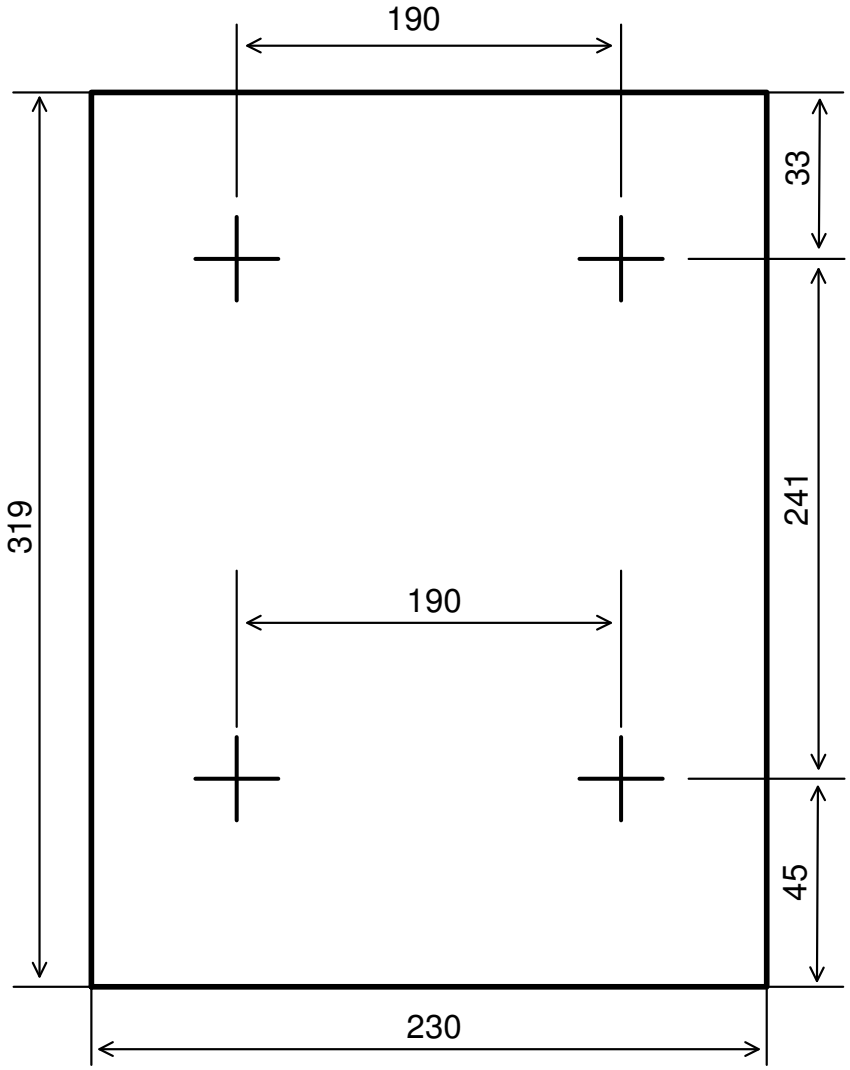
9.5. RIP-12 mod.51 (RIP-12-3/17P1-R-RS) Battery Backed Power Supply is a component of Closed Circuit Television System, which is covered by the certificate of conformity of transport safety technical arrangements with requirements for their functional properties No. МВД РФ.03.000973, issued by Federal Scientific-Production Association “Special Equipment and Communications” of the Ministry of Internal Affairs of the Russian Federation.

9.6. Production of RIP-12 mod.51 (RIP-12-3/17P1-R-RS) is awarded with the conformity certificate GOST R ISO 9001. The certificate can be found online at the website http://bolid.ru in the section ABOUT COMPANY.

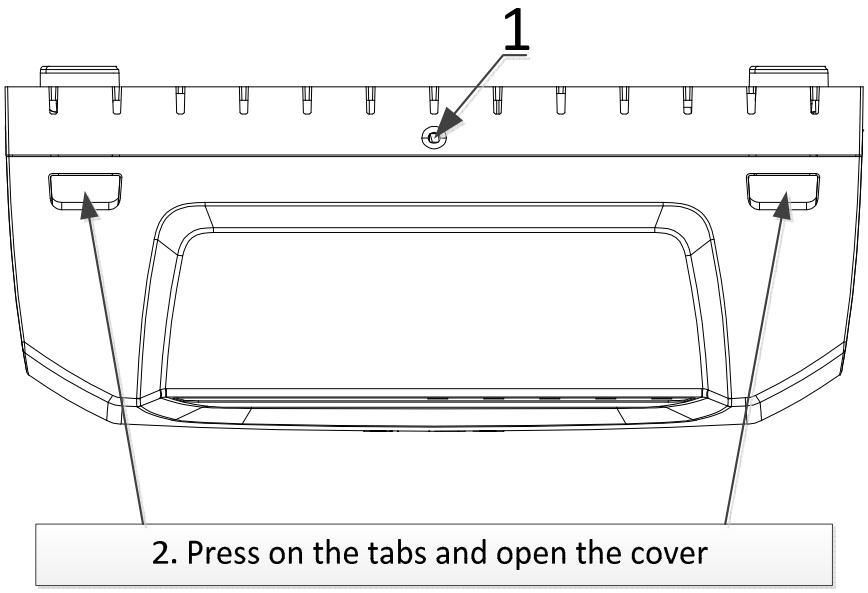
Appendix A. UProg Window for Programming the RIP



Appendix B. Overall and Mounting Dimensions



Top View



Appendix C. RIP Connection Diagram