

BATTERY BACKED POWER SUPPLY

RIP-12 mod.56

(RIP-12-6/80M3-R-RS)

ICO 9001



INSTRUCTION MANUAL

1 TECHNICAL DATA

1.1 General

1.1.1 The battery backed power supply RIP-12 mod.56 (RIP-12-6/80M3-R-RS) (hereinafter referred to as the RIP) is designed to provide continuous operating power to a group of safety and security equipment, detectors and control and indicating equipment of a fire alarm system, access control equipment, and other devices that require backed 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 batteries (hereinafter referred to as the batteries). The RIP provides shutting off the batteries from a load to avoid their unacceptable discharge.

1.1.3 The RIP provides light and sound indication of current conditions, including conditions of mains power, the battery charge, missed battery, shutting the batteries off in case of their discharge, a short circuit failure, or an overload of the output.

1.1.4 The RIP provides protecting 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 keeping the output voltage if the RIP operates from mains power.

1.1.6 The RIP provides measuring mains voltage, output voltage, battery voltage, and output current (load current) (see Section 1.2.19).

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 the connected PC with installed Orion Pro software) via the RS-485 interface.

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

1.1.9 The RIP provides monitoring battery conditions and their connecting circuits (by comparing with maximum admissible internal resistance of these circuits).

1.1.10 The RIP should be operated at places protected against atmospheric fallouts and mechanical damage.

1.1.11 The RIP is designed for operating temperatures minus 10°C to +40°C and relative humidity up to 90 % at +25°C.

1.1.12 According to the resistance to mechanical shocks the RIP corresponds to the LX group in accordance with Russian Standard ГОСТ 12997-84 – vibration loads in the frequency range from 1 to 35 Hz at maximum acceleration of 4.9 m/s² (0.5 g).

1.2 Specifications

1.2.1 The main power supply is the mains power 150 V to 250 V, 50 Hz.

1.2.2 The backup power supply is two batteries Delta DTM1240L (12 V, 40 Ah), or DTM1226L (12 V, 26 Ah), or similar with equivalent parameters (see configuration parameters in Table 1). The RIP can operate if a single battery is connected (see configuration parameters in Table 1).

The batteries shall be marked with their types and a date of their production (or a code to specify the date of production).

Note: **The RIP is supplied with no batteries.**

1.2.3 The rated output voltage is:

- (13.6±0.6) V in case of powering by mains power;
- (9.5 ... 13.5) V in case of powering by batteries.

1.2.4 The rated load current is 6 A.

1.2.5 The maximum load current is 8 A (for short-duration periods of about 10 minutes once per an hour, in case of normal mains power and connected batteries). When an output current value exceeds 7.5 A the RIP disables the battery power charger. If an output current value exceeds 8 A, the RIP shuts off output voltage.

1.2.6 The maximum power consumed from the mains at 220 V voltage and rated load current is 225 V·A.

1.2.7 The maximum consumed input current at 150 V and rated load current doesn't exceed 1.5 A.

1.2.8 The current consumed by the RIP itself from the battery doesn't exceed 70 mA.

1.2.9 Ripples of the output voltage (peak-to-peak) at normal load current don't exceed 80 mV (Class VR1 according to ГОСТ P 51179-98).

1.2.10 The low battery shutdown voltage is (10.2±0.6) V.

1.2.11 The backup operating time of the RIP in case of two fully charged 12 V, 40 Ah batteries is at least 10 hours if the load current is 6 A and the ambient temperature is +25°C.

1.2.12 The time of full charging of two discharged batteries doesn't exceed 48 hours.

1.2.13 The pre-operation time of the RIP after its powering up doesn't exceed 6 s.

1.2.14 The parameters of the remote trouble output (solid state relay) are as follows:

- The maximum switched voltage and current are respectively 80 V and 50 mA;
- The maximum resistance of the closed circuit of the relay is 50 ohms;
- The maximum leakage current of the open circuit at 80 V is 1 µA.

1.2.15 The RIP provides monitoring against tampering its case by means of a tamper switch which contacts are closed when the RIP cover is closed and are open when the RIP case is open.

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

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

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

- *Device Reboot* (on turning on the RIP power);
- *Mains Failed* (input AC voltage is less than 150 V or higher than 250 V);
- *Mains Restored* (input AC voltage has returned to a normal value between 150 V and 250 V);
- *Overload* (the output current of the RIP has exceeded 7.5 A);
- *Load Restored* (the output current of the RIP has dropped below 7.5 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 Section 1.2.3 when connected to the live AC);

- *Power Restored* (when connected to the live AC, the RIP supplies power in accordance with Section 1.2.3);
- *Battery Fault* (the battery voltage is below 7 V or there is no battery connected);
- *Bat Test Error* (the internal resistance of the battery has exceeded an admissible limit value – the battery must be replaced or repaired, see Section 3 of Table 4);
- *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 case has been open);
- *Tamper Restored* (the RIP case has been closed);
- *DC OFF* (the RIP has shut down its output power in case of mains failure and discharged batteries);
- *DC ON* (The RIP has started providing output voltage on mains voltage having applied to the RIP).

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 communication along with the actual date of the event.

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

1.2.18 The RIP provides programming the following parameters stored in its non-volatile memory:

Table 1

Parameter	Description	Range	Factory Value
1 Network Address	The unique number of the RIP within the RS-485 interface bus	1...127	127
2 Mains Failed Message Delay	The time to delay transmission of this message when the mains power voltage has dropped below 150 V or has exceeded 250 V	4...255 s	4 s
3 Mains Restored Message Delay	The time to delay transmission of this message when the mains power voltage has returned to be within the normal range	4...255 s	4 s
4 Battery Operating Time	The battery age counter on elapsing which the RIP transmits Service Required messages	1...10 years	10 years
5 Repeat Service Required Message Every	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
6 Battery Capacity	The capacity of the battery / batteries in use (if two batteries are installed they must be of the same capacity)	26 Ah or 40 Ah	40 Ah
7 AC Voltmeter Readings Correction	Adds a programmed value to or subtracts its abs value from every reading of the AC voltmeter	± 20 V	0 V

Parameter	Description	Range	Factory Value
8 Battery Events Disabled	Bat Test Error messages are disabled or indication of a disconnected battery is disabled in case of using a single battery	On / Off	All events and indication are enabled

* If this parameter is set to zero, the event is to be sent once.

Following are the programmable parameters for the trouble relay:

Table 2

Parameter	Description	Values	Factory Value
1 Executive Program	The program to control the relay which is to be executed after powering the RIP on or resetting it	Switch On Switch Off Switch On for a Time Switch Off for a Time	Switch Off
2 Activation Time	The 'Time' value for the third and fourth executive programs (see above)	0...255 s	255 s
3 Relay Activation Events	The list of trouble events which can activate the relay to trigger remote indication of the trouble	All except RS-485 com. fault RS-485 communication fault Output overcurrent DC or charger fault Trouble/missing of batteries AC voltage is out of 150-250 V Tampering the case	All the events except RS-485 communication fault

1.2.19 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...255) 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...6) A.

Note: The 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.

1.2.20 The RIP is equipped with a tamper switch which contacts are closed when the RIP cover is closed.

1.2.21 The overall dimensions of the power supply are no more than 450 mm × 400 mm × 210 mm.

1.2.22 The weight of the power supply with two DTM1240 batteries doesn't exceed 36 kg.

1.2.23 The RIP provides immunity to electromagnetic interference of the third severity level according to Russian Standard GOST P 53325-2012.

1.2.24 Radio disturbances from the RIP operation do not exceed the values specified in GOST P 53325-2012.

1.2.25 The insulating strength of the live parts of the RIP is at least 1500 V (50 Hz) between circuits connected to mains 220 V and any circuits not connected with the mains.

1.2.26 The electrical insulation resistance between circuits mentioned above is at least 20 mega ohms (in normal conditions in accordance with Section 2.16.6 of ГOCT 12997-84).

1.2.27 The average lifetime of the RIP is at least 10 years.

1.2.28 The RIP is designed to provide its fire safety while emergency operating and on violations of operation rules in accordance with ГOCT 12.1.004-91.

1.2.29 The ingress protection rating of the RIP is IP30 in accordance with ГOCT 14254-96.

1.2.30 According to the content of precious materials the product does not require accounting for storage, writing-off, and/or disposal.

1.3 Standard Delivery

- | | |
|---------------------------------------|----------|
| 1) RIP-12 mod.56 (RIP-12-6/80M3-R RS) | |
| Battery Backed Power Supply | – 1 pc. |
| 2) Instruction Manual | – 1 pc. |
| 3) RBS-41-BK Rubber Cushion | – 4 pcs. |
| 4) Woodscrew | – 4 pcs. |
| 5) Wall Plug 12×60 | – 4 pcs. |
| 6) Key | – 2 pcs. |
| 7) Package | – 1 pc. |

Note: No battery is included into the standard delivery

2 SAFETY

2.1 Safety Precautions

2.1.1 The current carrying circuits connected with mains power 220 V are a source of potential hazard. These circuits are covered by a protective housing on the RIP printed circuit board.

Also hazardous things are the resettable fuses within the battery circuits which are located at the bottom left corner of the PCB and which temperature in “tripped” state exceeds 100°C.

2.1.2 Please follow the safety precautions below:

DO NOT operate the RIP without connecting to a grounding bus.

- 1) Verify proper grounding of the RIP;
- 2) Do always shut off mains utility power before opening the RIP;
- 3) Never remove the protective housing;
- 4) Never touch the resettable fuses.

While operating, the RIP must be grounded properly in accordance with protection class I in accordance with ГOCT P MЭК 60950-2002.

2.1.3 Do always shut off mains utility power before mounting, wiring, and maintaining the RIP.

2.1.4 Only qualified staff certified with the third or higher safety qualification level can mount and maintain the RIP.

3 MOUNTING AND GETTING STARTED

3.1 Mounting

3.1.1 The RIP should be operated at places protected against atmospheric fallouts, mechanical damage, and unauthorized access (see Section 1.1.10).

3.1.2 The RIP is to be attached to a wall or another construction which is capable of withstanding the weight of the RIP along with batteries.

3.1.3 Securely attach the RIP at a suitable place. The overall dimensions and the locations to stick the cushions are shown in Figure 1.

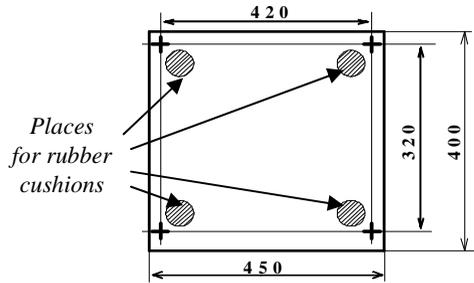


Figure 1

WARNING

The weight of the RIP along with the batteries is about 36 kg.

3.2 Connecting

3.2.1 In accordance with the RIP-12 mod. 56 connection diagram:

- Ground the RIP** by connecting the **XT1** terminal block with the grounding circuit;
- Connect the AC cable to the **QF1** circuit breaker provided that the circuit breaker must be switched off;
- Connect the load to the output terminal block **XT2** at the PCB observing proper polarity (by the interconnected terminals **XT2/6,7,8** to «+» and by interconnected terminals **XT2/3,4,5** to «-»).

WARNING:

While connecting mains power 220 V to the QF1 circuit breaker it is necessary to observe polarity of connecting the circuits Live and Neutral. Connect the circuits as shown in Figure 2.

Note: The rated load current is 6 A. The RIP can operate at a load current up 8 A for a short time (2 minutes once per an hour provided that mains power is applied and batteries are connected) when sound alarms, the foxed fire-fighting equipment, executive devices are activated. At this time the batteries are not charged.

WARNING: If the RIP operates at a load current above the rated value for a long time, it stops charging the batteries and the batteries begin to be discharged even if the mains power is applied and operative.

3.2.2 Following are the recommended cross section areas of the wires connected to the RIP:

1) To connect the RIP to mains power 220 V (QF1 circuit breaker): 0.75...2.5 mm² for stranded wires or 1...2 mm in diameter for solid wires;

2) To connect the load (the XT2 terminal block): 0.75...2.5 mm² for stranded wires or 1...2 mm in diameter for solid wires taking into account the maximum voltage drop on wires at maximum load current (the minimum allowable voltage at the load).

If several load circuits are to be connected, it is recommended to use Bolid manufactured BZK rev.01 or BZK rev.02 power distribution modules.

3.2.3 The external circuit breaker must feature the rating current at least 3 A and tripping characteristic of the Type C.

3.3 Switching the RIP On

- Ensure the RIP is mounted correctly.
- Connect the terminals to the batteries observing polarity (the red wires are to be connected to the positive leads of the batteries) and tighten the bolts securely.

Connecting each of the batteries avoid coupling of unconnected terminals between each other or with other parts of the RIP. Unused wires can be disconnected from the RIP's printed circuit board.

For quick disconnection of the batteries detachable disconnectors are available.

- Switch mains power 220 V, 50 Hz on.
- Switch the QF1 circuit breaker on.

3.4 Operating the RIP

3.4.1 Preparation for Use

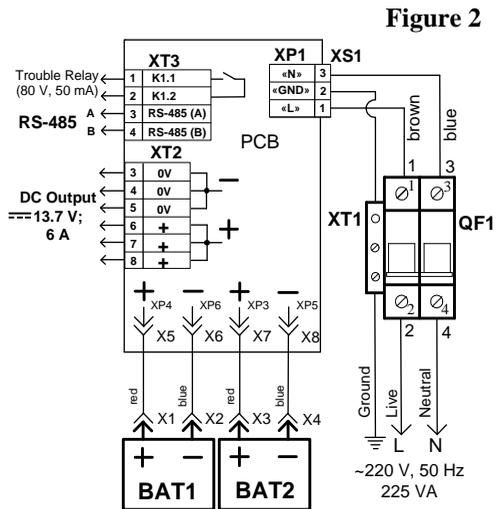
3.4.1.1 Assign a proper network address to the RIP. This address must not be the same as the address of any device connected to the same RS-485 interface bus as the RIP (that is, the address must be unique; the factory value of the address is 127).

3.4.1.2 The RIP can operate with a single connected battery of 26 Ah or 40 Ah capacity (see Table 1 for configuring).

Note for operating the RIP with a single battery: If in the RIP configuration events and indication from a disconnected battery are disabled then on connecting a second battery the events, monitoring status, and indication are enable automatically.

3.4.1.3 If necessary, change other parameter of the RIP in accordance with the way the power supply is used (see Table 1 and Table 2).

To program the RIP, use an IBM compatible PC. Run the **UProg Configuration Tool** and connect the RIP to a COM port of the PC via one of the Bolid manufactured interface converters such as RS-232/RS-485 PI-GR or S2000-PI, or via an S2000 console of version 1.20 or higher which is switched to the interface converter mode.



The last version of the UProg Configuration Tool is available in the Internet at the address of: <http://bold.ru>.

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

- **Turn off 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 between 0.1 s and 1 s.

- **Reset the network address** (set the factory value 127): (— — — ●);
- **Reset the counter of the battery age and the measured capacity of the batteries** (in case of changing the batteries): (● ● ● — —).

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

3.4.1.6 Unless the RIP is the first or last device in the RS-485 interface bus, remove the jumper from the XP1 terminal block located on the RIP PCB closely to the output bus contacts A and B.

3.4.2 Operation of the RIP

3.4.2.1 After powering on, the RIP checks whether a battery is connected and whether data are communicated over the RS-485 interface. If batteries are available and charged (the batteries are charged 100% of their capacity) the BATTERY indicator shows solid light. If batteries are not charged the RIP charges them up to the required level, the BATTERY indicator switching off for a short time once per 5 s. If one of the batteries is not connected (or battery voltage is below 7 V) then the BATTERY LED pulses once per second. If the batteries are unhealthy (need to be changed) the sounder issues five beeps while BATTERY and TROUBLE pulse once per second. If the battery charger has failed (within 15 minutes after failure occurring) the RIP transmits a Charger Failed message and indicates the trouble as shown in Table 2.

When operating, the RIP periodically inspects:

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

3.4.2.2 In case of an outage of mains power the backup batteries are activated to supply power to the load circuit; an interrupted sound signal goes off warning about discharge of the batteries; POWER LED is off; 12 V LED is on. The RIP transmits a Mains Failed message after a programmed delay (see Table 1, Str. 2).

3.4.2.3 If the battery voltage has dropped to 11 V, the RIP begins to play interrupted sounds 10 to 15 times more frequently. The RIP transmits a Battery Low message. Immediate actions must be taken to provide mains power voltage.

3.4.2.4 If the battery voltage has dropped to 10 V, the RIP shuts the batteries down to avoid their deep discharge. The 12 V LED is off; the RIP sounds continuously within two first hours. The RIP transmits a DC OFF message. After two hours the RIP begins to operate in the economy mode: the RS-485 transceiver is off, the sounder and TROUBLE LED turn on for a short time every 10 s.

WARNING:

If mains power 220 V is expected to be off for more than 10 days then disconnect the RIP from mains power to avoid battery discharge.

The sounder can be disabled by pressing on the tamper switch (see Section 3.4.1.4). You can activate sound signaling by repeated press on the tamper.

3.4.2.5 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 battery charge falls to 80 % of their available capacity or 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 80 Ah and the current value of the output current.

3.4.2.6 If an inadmissible overcurrent in the load circuit or a short circuit failure in the output circuit of the 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 once per two seconds, the sounder sounds in interrupted mode. The RIP automatically puts itself into normal operation within 15 seconds after having the malfunction repaired.

Table 3 describes the performance of the RIP indicators and the sounder for various conditions of the RIP.

Following is the list of notations used in Table 3:

«+»: Switched on; «—»: Switched off;

«+/- 1 Hz»: Switches on and off alternately every second;

«+/- 2 Hz»: Switched on and off alternately twice per second;

«+/- 4 Hz»: Switched on and off alternately four times per second;

«ON/0.4 s 3 times»: Turns on every 0.4 seconds three times;

«OFF/5 s»: Turns off every 5 seconds;

«ON/...s»: Turns on every ... seconds.

Table 3

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 3 times
2. Mains power is OK, the batteries are not charged	+	OFF/5 s	—	+ ¹	+	—
3. Mains power is OK, the batteries are charged	+	+	—	+ ¹	+	—
4. DC Output overcurrent (battery is available)	+	+	+/- 2 Hz	+ ¹	ON/10s	ON/0.8s
5. Mains power is disabled, the bat.voltage exceeds 11 V	—	+	—	+ ¹	+	ON/5s
6. Mains power is disabled, the battery voltage is below 11 V	—	+	—	+ ¹	+	ON/0.4 s
7. Mains power is disabled, the battery voltage has dropped below 10.2 V (two first hours)	—	+/- 1 Hz	—	+ ¹	—	+

Current RIP conditions	Indicators					Internal Sounder
	POWER	BATTERY	TROUBLE	RS-485	12 V	
	<i>green</i>	<i>green</i>	<i>amber</i>	<i>green</i>	<i>green</i>	
8. Mains power is shut down, the battery voltage has dropped below 10.2 V (upon the expiry of two hours)	—	—	ON/10s	—	—	ON/10s
9. Mains power voltage has dropped below 150 V or exceeded 260 V	+/- 1 Hz	+	—	+ ¹	+	ON/0.8s
10. Dead batteries (must be replaced)	+	+/- 1 Hz	+/- 1 Hz	+ ¹	+	5 beeps
11. Battery power charger has hailed	+	+/- 4 Hz	+/- 4 Hz	+ ¹	+	ON/0.8s
12. Output overvoltage	+/- 1 Hz	+/- 1 Hz	+/- 1 Hz	+/- 1 Hz	—	—

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 RS-485 LED flashes once per second.

3.4.2.7 To request for the conditions of the RIP from the S2000M panel (please see Section 3.13 “Direct Control Functions of S2000M User’s Manual):

Enter Code: _

Enter your password.

◆ 5 View Input Status

Select *View Input Status* by «**▶**» or «**◀**» panel button and press «ENT», or use «5» panel button as a hot key.

◆ 51 Input Status

Select *Input Status* by «**▶**» or «**◀**» panel button and press «ENT», or press «1» panel button as a hot key.

Address: _

Enter the network address of the RIP or select its valid value by «**▶**» and «**◀**» panel buttons and press «ENT».

Input#: _

Enter the input number (loop number) in accordance with the parameter to be requested or select the proper value by «**▶**» and «**◀**» panel buttons and press «ENT».

The RIP responds to the remote condition requests from the panel by transmitting the conditions of the inputs which are defined as follows:

- | | |
|------------------------|------------------------|
| # 0: Tamper switch | # 1: DC output voltage |
| # 2: DC output current | # 3: Battery 1 voltage |
| # 4: Battery 2 voltage | # 5: Battery charger |
| # 6: AC input voltage | |

3.4.2.8 To receive measured values of voltage and current (please see Section 3.13 “Direct Control Functions of S2000M User’s Manual):

Enter Code: _

Enter your password.

◆ 5 View Input Status

Select the View Input Status command by «**▶**» and «**◀**» buttons and press «**ENT**» or use «**5**» panel button as the hot key.

◆ 52 Input ADC

Select the Input ADC command by «**▶**» and «**◀**» panel buttons and press «**ENT**» or use «**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 «**▶**» 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 «**▶**» and «**◀**» buttons and press «**ENT**».

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

a) *If batteries are available:*

0 – “TEMPERATURE...°C” (the temperature inside the RIP case)

1 – “Uout = ...V” (8...14.5V)

2 – “Iout = ...A” (0.1...6 A)

3 – “Ubat = ...V” (8...14.5V)

4 – “Ubat = ...V” (8...14.5V)

5 – “Bat.charge 100%” (the charger is OK) # 6 – “Uin = ...V” (150...255 V)*

7 – “Not measured” (capacity was not measured)

or

7 – “Cap. 80.00 Ah” (The value of battery capacity after measuring, two 40 Ah bat.)

8 – “Tbat = 12 h 01 m” (6 A load current, 80 Ah battery capacity, two 40 Ah batteries)

9 – “Ttest = 09 h 40 m” (6 A load current, 80 Ah battery capacity, two 40 Ah batteries)

or

9 – “Bat.charge <80%” (if the battery charge is less than 80%)

10 – “Trem.= 87600 h” (**10 years**)

11 – “80 Ah/est.80.00 Ah” (capacity was not measured, configuration 40 Ah)

or

11 – “80 Ah/meas.80.00 Ah” (the measured capacity value).

The first value (80 Ah) means the original capacity of the installed batteries (in configuration of two 40 Ah batteries) while the second value is estimated based on the grade of the charge of the batteries and their operation time.

Note: If the RIP is operated with a single installed battery the capacity is estimated based on the capacity of the installed battery (see configuration parameters in Table 1).

b) *If no battery is available:*

0 – “TEMPERATURE...°C” (the temperature inside the RIP case)

1 – “Uout = ...V” (8...14.5V)

2 – “Iout = ...A” (0.1...6 A)

3 – “Ubat = 00.00 V”

4 – “Ubat = 00.00 V” (**no battery is connected**)

5 – “Charger Norm”

6 – “Uin = ...V” (150...255 V)*

7 – “No battery”

8 – “No battery”

9 – “No battery”

10 – “No battery”

11 – “No battery”

Note: * When operating the RIP, the value of 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). For correcting run UProg and select «RIP-12-6A RS» with the relevant network address. Then

select the value of correction in the dialog window. After the new configuration has been written to the RIP memory and the RIP is reset it applies this correction to the readings of the AC voltmeter.

3.4.3 How to Switch the RIP Off

- 3.4.3.1 Switch the QF1 circuit breaker off.
- 3.4.3.2 Shut down the external power 220 V.
- 3.4.3.3 Disconnect the batteries.
- 3.4.3.4 Disconnect the load.

4 MAINTENANCE

4.1 Preventive maintenance of the RIP should be carried out at least annually. Maintenance works are to be performed by a service company employee and include:

- 1) Inspection of exterior condition of the RIP;
- 2) Measuring the output voltage in accordance with Section 1.2.3 of this Manual;
- 3) Inspecting operation of the indicators and the sounder in accordance with Table 2 of this Manual;
- 4) Verifying the RIP for secure mounting, wire condition, and contact condition.

4.2 Measuring Capacity of the Batteries within the RIP.

4.2.1 The capacity of the batteries installed within the RIP can be measured only if the batteries are charged more than 80%.

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

4.2.2 To measure the battery capacity by means of the S2000M panel use the Test System Components function (see Section 3.13 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 <i>Service</i> in the panel menu by «▶» or «◀» button and press «ENT», or use «6» panel button as a hot key.
◆ 63 Test System Components	Select <i>Test System Components</i> in the panel menu by «▶» or «◀» button and press «ENT», or use «3» panel button as a hot key.
◆ Test ON	To initiate testing, select <i>Test ON</i> in the panel menu by «▶» or «◀» button and press «ENT».
Address: _	Type the address of the RIP (in the range of 1 to 127), or select the required value by «▶» or «◀» button 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 «◀» buttons and press «ENT».

Address: _

Enter the RIP address (in the range of 1 to 127) or select the proper value by «▶» and «◀» buttons and press «ENT».

Component#: _

Enter «0» for the number of the component and press «ENT».

4.2.3 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 the “i” sign in the context menu (this string contains the address and the name of the RIP):



Note: The icon of the device RIP-12 6A RS must be added on the map, this corresponds to RIP-12 mod.56 (RIP-12-6/80M3-R-RS).

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 Test button at the left side of the window, and a panel for starting /completing testing shall appear.

Then, select the way for testing:

- *No Time Limitations*: 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 load current of the RIP

- *Test Duration*: 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 Test button to start the test. If you then press Cancel, the test will be interrupted.

4.2.4 To measure the capacity of the batteries of the RIP locally, without sending commands over the RS-485 interface do the following:

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

5 TROUBLESHOOTING

Table 4

No.	Symptom	Reason	Human Action
1	The RIP failed to be turned on, the mains power is on	<ol style="list-style-type: none"> 1. The QF1 circuit breaker is out of service. 2. Faulty wiring. 3. Long-duration overload at the RIP DC output 	<ol style="list-style-type: none"> 1. Check the mains power voltage prior to QF1 and after it. 2. Repair the wiring. 3. Shut down the RIP. Wait for at least 2 min and then turn the RIP on again.
2	The RIP failed to be turned on being powered by batteries	The battery voltage has dropped below 10 V	Measure the battery voltage, charge or replace the batteries
3	The RIP sends a Bat Test Error	<ol style="list-style-type: none"> 1. The batteries have essentially lost their capacity. 2. The battery leads are corroded or connections between the batteries and wire terminals are loosened 	<ol style="list-style-type: none"> 1. Replace the batteries. 2. Clean the battery leads and re-tighten hardware
4	RIP sends Service Required messages	Battery Operating Time has been elapsed	Replace the batteries and reset the Battery Operating Time counter
5	Loss of communication between the RIP and the network controller	<ol style="list-style-type: none"> 1. The RIP is disconnected from the network controller. 2. The communication line is connected to the contacts A and B improperly 	<ol style="list-style-type: none"> 1. Re-establish the connection complying with the requirements of Sections 3.4.1.5, 3.4.1.6 of this Manual. 2. Swap the wires connected to the contacts A and B of the RS-485 interface
6	The network controller indicates loss of communication with the RIP	<ol style="list-style-type: none"> 1. Communication line breakdown. 2. The RIP switched off the transceiver after discharge of the batteries 	<ol style="list-style-type: none"> 1. Re-establish connection. 2. Take measures to recover mains power

6 CERTIFICATES

6.1 Conformity Certificate No. C-RU.ЧС13.B.00603 approves that RIP-12 mod.56 (RIP-12-6/80M3-R-RS) Battery Backed Power Supply meets the requirements of Federal Law of the Russian Federation of July 22, 2008 No.123-FZ, ГОСТ Р 53325-2012.

6.2 Conformity Declaration EAЭС № RU Д-RU.МЛ166.B.02301 certifies that RIP-12 mod.56 (RIP-12-6/80M3-R-RS) Battery Backed Power Supply meets the requirements of Technical Reglaments of Custom Union TR CU 004/2011, TR CU 020/2011.

6.3 Manufacture of RIP-12 mod.56 (RIP-12-6/80M3-R-RS) is approved by Conformity Certificate ГОСТ ISO 9001-2011 № РОСС RU.ИК32.К00153.



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