BATTERY BACKED POWER SUPPLY
RIP-24 mod.56
(RIP-24-4/40M3-R-RS)

ИСО 9001

INSTRUCTION MANUAL

1 TECHNICAL DATA

1.1 General

1.1.1 The battery backed power supply RIP-24 mod.56 (RIP-24-4/40M3-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, intrusion alarm systems, access control equipment, and other devices that require backed power of 24 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 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 In terms of climate tolerance, the RIP meets the conditions of moderately cold climate, Installation Category III as per GOST 15150-69, but to be used within temperature ranges of 263 K to 313 K (-10°C to +40°C) and ambient humidity of up to 90 % at 298 K (25°C).

1.1.12 In terms of mechanical tolerance, the RIP corresponds to Category LX in accordance with GOST 12997-84 – vibration within 1Hz to 35 Hz when accelerated up to 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 DTM1240 (12 V, 40 Ah), or DTM1226 (12 V, 26 Ah), or similar with equivalent parameters and five-year life time at least (see configuration parameters in Table 1).

The batteries shall be marked with their types and dates 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:

- (27±0.6) V in case of powering by mains power;
- (19 … 27) V in case of powering by batteries.

1.2.4 The rated load current is 4 A.

1.2.5 The maximum load current is 5 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 4.5 A the RIP disables the battery power charger. If an output current value exceeds 5 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 80 mA.

1.2.9 Ripples of the output voltage (peak-to-peak) at normal load current don't exceed 200 mV.

1.2.10 The low battery shutdown voltage is (20.4±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 8 hours if the load current is 4 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 4.5 A);
- *Load Restored* (the output current of the RIP has dropped below 4.5 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 voltage of one or each battery 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 22 V);
– *Service Required* (the battery age has exceeded the programmed value; the battery must be replaced);
– *Battery Restored* (the battery voltage has exceeded 20 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 (see Appendix A):

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 Delay for Mains Fault Events	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 Delay for Mains Restored Events	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 Time before Service Required Messages	The battery age counter on elapsing which the RIP transmits Service Required messages	1…10 years	5 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 batteries in use	26 Ah or 40 Ah	40 Ah
7 Mains Voltmeter Adjustment	Changes every reading of the AC voltmeter by a programmed value	± 20 V	0 V
8 Disable Battery Event	Battery Test Error messages are disabled	On / Off	The event is 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 Control 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 below 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 (16…29) V dc;
3) Output voltage in the range of (16…29) V dc;
4) Output current (load current) in the range of (0.1...4) 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 R 53325-2012.

1.2.24 Radio disturbances from the RIP operation do not exceed the values specified in GOST R 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 GOST 12997-84).

1.2.27 The average lifetime of the RIP is at least 10 years provided that batteries are to be replaced at least once per 5 years.

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

1.2.29 The ingress protection rating of the RIP is IP30 as per GOST 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.

1.2.31 According to the content of non-ferrous metals the product does not require accounting for storage, writing-off, and/or disposal.

1.3 Standard Delivery

1) RIP-24 mod.56 (RIP-24-4/40M3-R RS)
   Battery Backed Power Supply – 1 pc.
2) Instruction Manual – 1 pc.
3) Woodscrew 5×70 – 4 pcs.
4) Wall Plug 10×60 K – 4 pcs.
5) Key – 2 pcs.
6) 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 GOST R IEC 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 and mounting dimensions are shown in Figure 1.

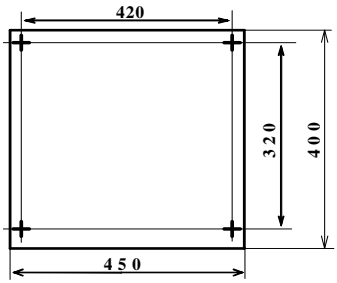


Figure 1

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-24 mod. 56 connection diagram:

а) **Ground the RIP** by connecting the **XT1** terminal block with the grounding circuit;

б) Connect the AC cable to the QF1 circuit breaker provided that the circuit breaker must be switched off;

в) 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 Line and Neutral. Connect the circuits as shown in Figure 2.

Note: The rated load current is 4 A. The RIP can operate at a load current up to 5 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 fixed fire-fighting equipment, or executive devices are activated. At this time the batteries are not being 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.

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 mm^2 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 mm^2 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.

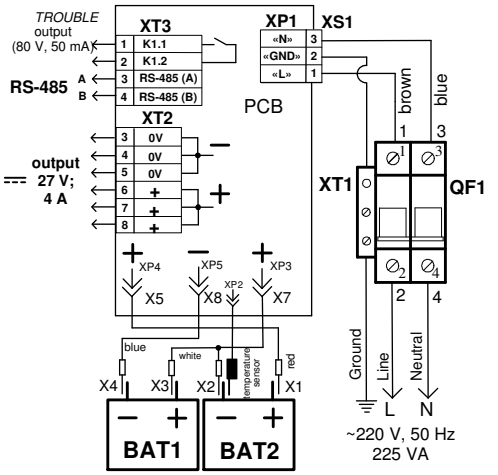


Figure 2

3.2.2 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

WARNING: Before turning the RIP on be sure the RIP is mounted in accordance with Figure 2!

3.3.1 Connect the batteries 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).

Connect the O-shape terminal of the temperature sensor to the battery lead which is closer to the center of the RIP enclosure as shown in Figure 3 (the terminal of the temperature sensor is isolated from the electric circuits of the RIP).

WARNING: To provide specifications stated please operate the RIP with the batteries being connected and operable. If batteries are connected and the RIP sends Battery Test Error messages while operating then the batteries must be replaces immediately. Also the batteries of the type specified in 1.2.2 must be replaced after five years of operation.

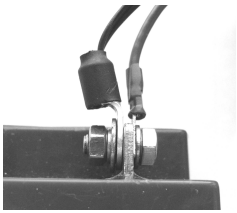


Figure 3

The RIP provides setting Battery Life counter (see 1.2.18). The time set by user should not exceed the operation time specified by manufacturer of the batteries. In any circumstances, the batteries must be replaced after five years of operation.

While connecting each of the batteries avoid coupling of unconnected terminals together or with other parts of the RIP.

For quick disconnection of the batteries use detachable joints provided.

3.3.2 Switch mains power 220 V, 50 Hz on.

3.3.3 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 If necessary, change other parameters 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 panel of version 1.20 or higher which is switched to the interface converter mode. The program window is shown in Appendix A.

The last version of the UProg Configuration Tool is available in the Internet at the address of: **http://bolid.ru.**

3.4.1.3 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 of 0.1 s to 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 when new batteries are installed): (● ● ● — —).

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

3.4.1.5 Unless the RIP is the first or last device in the RS-485 interface bus, remove the jumper XP8 from the pins located closely to the output bus contacts A and B (see Figure 4).

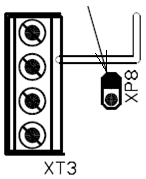


Figure 4

3.4.2 Operation of the RIP

3.4.2.1 After powering on, the RIP checks whether batteries are connected and whether data are communicated over the RS-485 interface. If batteries are available and charged (the batteries are charged 100% as per charge scale of the RIP) 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 the battery voltage is below 7 V) then the BATTERY LED pulses once per second. If the batteries are unhealthy (need to be replaced) 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.

While operating, the RIP periodically inspects:

- Input and output voltage;
- 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; 24 V LED is on. The RIP transmits a Mains Failed message after a programmed delay (see Table 1, Parameter 2).

3.4.2.3 If the battery voltage has dropped down to 22 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 down to 20 V, the RIP shuts the batteries down to avoid their deep discharge. The 24 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, disconnect the RIP from mains power to avoid battery discharge.

The sounder can be disabled by pressing on the tamper switch (see Section 3.4.1.3). 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 22 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 batteries falls down 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 actual 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	24 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]	+	—

Current RIP conditions	Indicators					Internal Sounder
	POWER	BATTERY	TROUBLE	RS-485	24 V	
	green	*green*	*amber*	*green*	*green*	
4. DC Output overcurrent (battery is available)	+	+	+/— 2 Hz	+ [1]	ON/10s	ON/0.8s
5. Mains power is disabled, the bat.voltage exceeds 22 V	—	+	—	+ [1]	+	ON/5s
6. Mains power is disabled, the battery voltage is below 22 V	—	+	—	+ [1]	+	ON/0.4 s
7. Mains power is disabled, the battery voltage has dropped below 20.4 V (two first hours)	—	+/— 1 Hz	—	+ [1]	—	+
8. Mains power is shut down, the battery voltage has dropped below 20.4 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 "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 condition
4: Battery charger
5: Mains voltage

3.4.2.8 To receive measured values of voltage and current (please see Section "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" (16…29V)
2 – "Iout = …A" (0.1…4 A)
3 – "Ubat = …V" (16…29V)
4 – "Bat.charge 100%" (the charger is OK)
5 – "Uin = …V" (150…255 V)*
6 – "Not measured" (capacity was not measured)
or
6 – "Cap. 40.00 Ah" (capacity after measuring)
7 – "Tbat = 08 h 45 m" (4 A load current, 40 Ah battery capacity)
8 – "Ttest = 07 h 00 m" (4 A load current, 40 Ah battery capacity)
or
8 – "Bat.charge <80%" (if the battery charge is less than 80%)
9 – "Trem.= 43800 h" (**5 years**)
10 – "40 Ah/est.40.00 Ah" (capacity was not measured)
or
10 – "40 Ah/meas.40.00 Ah" (the measured capacity value)

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

11 – "Ubat1 = 7…14V"
12 – "Ubat2 = 7…14V"

b) *If no battery is available:*

0 – "TEMPERATURE…°C" (the temperature inside the RIP case)
1 – "Uout = …V" (16…29V) # 2 – "Iout = …A" (0.1…4 A)
3 – "Ubat = 00.00 V" **(no battery is connected)**
4 – "Charger Norm" # 5 – "Uin = …V" (150…255 V)*
6 – "No battery" # 7 – "No battery"
8 – "No battery" # 9 – "No battery"
10 – "No battery"
11 – "No battery 1" # 12 – "No battery 2"

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-24 mod.56» 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.

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.

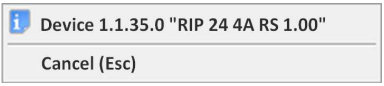
4.2.2 To measure the battery capacity by means of the S2000M panel use the Test System Components function (see Section 3.18.5, "Test System Components" of S2000M User's Manual). Send a command to run testing with «0» for the component number and «0» for the test time. If the command was received and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

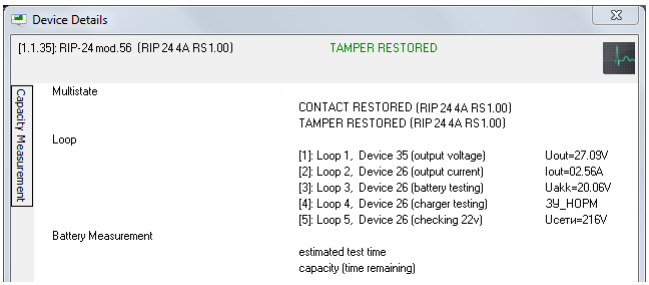
▲▼ **6 Service**	Select *Service* in the panel menu by « ▶ » or « ◀ » button and press «ENT», or use «6» panel button as a hot key.
▲▼ **63 Test System Components**	Select *Test System Components* in the panel menu by « ▶ » or « ◀ » button and press «ENT», or use «3» panel button as a hot key.
▲▼ **Test ON**	To initiate testing, select *Test ON* in the panel menu by « ▶ » or « ◀ » button and press «ENT».
Address:_	Type the address of the RIP (in the range of 1 to127), 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):



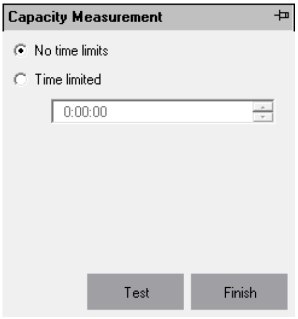
Note: ***The icon of the device RIP-24 4A RS must be added on the map, this corresponds to RIP-24 mod.56 (RIP-24-4/40M3-R-RS).***

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 Measurement 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 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***
- *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.

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.

4.3 Maintenance works for fire alarm systems and voice-based fire alarm systems of Types 1 and 2 powered by RIP-24 mod.56 (RIP-24-4/40M3-R-RS) should be carried out in accordance with the relevant Method Book formulated in the Bolid Company.

5 TROUBLESHOOTING

Table 4

No.	Symptom	Reason	Human Action
1	The RIP failed to be turned on, the mains power is on	1. The QF1 circuit breaker is out of service. 2. Faulty wiring. 3. Long-duration overload at the RIP DC output	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.

No.	Symptom	Reason	Human Action
2	The RIP failed to be turned on being powered by batteries	The battery voltage has dropped below 22 V	Measure the battery voltage, charge or replace the batteries
3	The RIP sends a Bat Test Error	1. The batteries have essentially lost their capacity. 2. The battery leads are corroded or connections between the batteries and wire terminals are loosened	1. Replace the batteries. 2. Clean the battery leads and re-tighten hardware
4	RIP sends Service Required messages	Time before Service Required Messages has been elapsed	Replace the batteries and reset the Battery Life counter
5	Loss of communication between the RIP and the network controller	1. The RIP is disconnected from the network controller. 2. The communication line is connected to the contacts A and B improperly	1. Re-establish the connection complying with the requirements of Sections 3.4.1.4, 3.4.1.5 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	1. Communication line breakdown. 2. The RIP switched off the transceiver after discharge of the batteries	1. Re-establish connection. 2. Take measures to recover mains power

6 WARRANTY

The manufacturer guarantees that the RIP-24 mod.56 meets technical requirements specified in the manuals if the user follows the instructions for shipment, storage, installation, and usage.

Warranty period is 18 months since putting the product into operation but no more than 24 months from the manufacturer's date of issue.

In case of any issue related to setting and use of the product, please contact with the technical support: (495) 775-71-55 or e-mail: support@bolid.ru.

A product submitted for repair shall be accompanied with descriptions of possible fault.

Claims shall be submitted to the following address:

NVP BOLID CJSC, Pionerskaya #4, Korolyov city, Moscow region, Russia, 141070.

Phone/fax: (495) 775-71-55 (multiline), 516-93-72.

E-mail: info@bolid.ru; Support : support@bolid.ru, http://bolid.ru.

7 CERTIFICATES

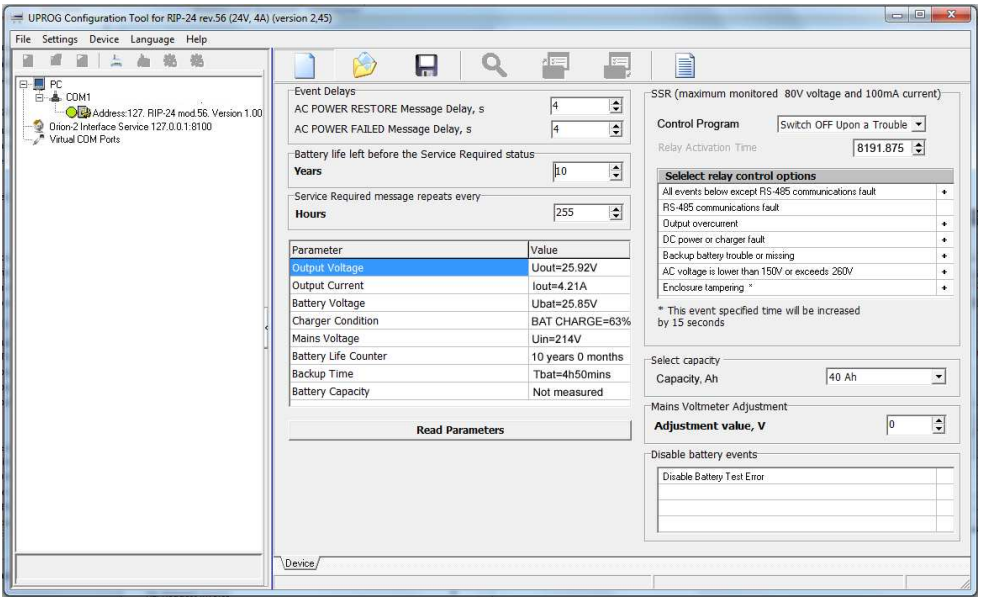
7.1 Conformity Certificate No. C-RU.ЧС13.В.00603 approves that RIP-24 mod.56 (RIP-24-4/40M3-R-RS) Battery Backed Power Supply meets the requirements of Federal Law of the Russian Federation of July 22, 2008 No.123-FZ, ГОСТ Р 53325-2012.

7.2 Conformity Declaration ЕАЭС № RU Д-RU.МЛ66.В.02301 certifies that RIP-24 mod.56 (RIP-24-4/40M3-R-RS) Battery Backed Power Supply meets the requirements of Technical Regulations of Custom Union TR CU 004/2011, TR CU 020/2011.

7.3 Manufacture of RIP-24 mod.56 (RIP-24-4/40M3-R-RS) is approved by Conformity Certificate ГОСТ ISO 9001-2011 № РОСС RU.ИК32.К00153.

APPENDIX A (for reference)

Programming RIP-24 mod.56 in UProg



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