

ICO 9001

EAC

ADDRESSABLE MANUAL CALL POINT

IPR 513-3AM-S

User's Manual

BOLID[®]

TABLE OF CONTENTS

1	Description and Operation.....	5
1.1	Purpose.....	5
1.2	Specifications	6
1.3	Scope of Delivery.....	7
1.4	Arrangement and Operation.....	7
1.5	Measuring Instruments, Tools, and Accessories.....	8
1.6	Marking and Sealing.....	8
1.7	Packing.....	8
2	Intended Use	8
2.1	Operating Restrictions	8
2.2	Preparing for Use.....	8
2.2.1	Safety Precautions During Preparation	8
2.2.2	Design.....	8
2.2.3	Mounting	10
2.2.4	Wiring.....	10
2.2.5	Settings.....	11
2.2.6	Usage	12
2.2.7	Testing Operability	13
2.2.8	Extreme Situation Actions.....	13
2.2.9	Troubleshooting	13
3	Maintenance.....	13
3.1	General.....	13
3.2	Safety Precautions	13
3.3	Maintenance Procedures	13
3.4	Testing Operability.....	14
3.5	Technical Examination	14
3.6	Preservation (Depreservation, Represervation)	14
4	Repair	15
5	Storage.....	15
6	Transporting.....	15
7	Disposal	15
8	Manufacturer Warranty	15
9	Certification Information.....	16
10	Compatibility	16

This user's manual explains the principles of operating IPR 513-3AM-S Addressable Manual Call Point (hereinafter referred to as the MCP, unit, equipment, or product) of 1.20 firmware version.

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

Abbreviations:

AD: Addressable Device;
LED: Light Emitting Diode;
MCP: Manual Call Point;
PL: Polling Loop;
SCI: Short Circuit Isolator.

1 Description and Operation

1.1 Purpose

IPR 513-3AM-S Addressable Manual Call Point is to be used in fire detection and fire alarm systems for manual activation of fire alarm signals.

The IPR is designed to operate under a polling loop controller such as S2000-KDL, S2000-KDL-2I, S2000-KDL-2I rev.01, S2000-KDL-S as a component of Orion ISS.

The MCP features a short circuit isolator built in.

The MCP functions as follows:

- Monitors the operating element for its conditions;
- Sends messages to the polling loop controller;
- Stores its polling loop address in the non-volatile memory;
- Measures values of the polling loop voltage at the point of MCP's location;
- Indicates operation conditions using its built-in LED;
- Disables the polling loop segment where a short circuit failure occurred.

The MCP features extended operating temperature range.

The MCP is intended for round-the-clock operation.

The MCP is classed as a repairable and periodically maintained item.

1.2 Specifications

Table 1.2.1

Parameter	Value
1.2.1 Power supply voltage (from the polling loop), V	8 through 11
1.2.2 Consumed current, mA, max	0.5
1.2.3 Current consumed on short circuit isolator tripping, mA, max	3.3
1.2.4 MCP units per a polling loop, pcs., max	127
1.2.5 Short circuit isolator, pcs.	1
1.2.6 Maximum effective resistance of the polling loop wires, ohms, max	100
1.2.7 Minimum insulation resistance between the polling loop wires, kilo-ohms, min	50
1.2.8 Start-up time, s, max	15
1.2.9 Enclosure protection degree as per GOST 14254-2015 (while mounted on the wall)	IP40
1.2.10 Resistance to mechanical exposure as per OST 25 1099-83	Arrangement Category III
1.2.11 Vibration exposure: - Frequency range, Hz; - Max acceleration, g	10 - 150; 0.5
1.2.12 Environmental category as per OST 25 1099-83	O3
1.2.13 Operating temperatures, °C	Minus 50 through plus 55
1.2.14 Relative humidity, %, at +40°C	Up to 93
1.2.15 Weight, kg, max	0.15
1.2.16 Overall dimensions, mm, max	95×91×34
1.2.17 Non-stop operation	24/7
1.2.18 MTBF in the quiescent mode, hours, min	80,000
1.2.19 Survival probability after 1,000 hours	0.98758
1.2.20 Maximum lifetime, years	10

1.2.21 As to immunity to man-made radio disturbance, the MCP meets the requirements for Test Severity Level III of the relevant standards listed in Appendix “B” of GOST 34698-2020.

1.2.22 The MCP passes the industrial interference standards prescribed for Class ‘B’ equipment as per GOST R 30805.22.

1.3 Scope of Delivery

The scope of delivery for MCP is shown in Table 1.3.1.

Table 1.3.1

Item		Q-ty
IPR 513-3AM-S Addressable Manual Call Point		10 pcs.
Accessory Kit:		
	Special housing key	10 pcs.
	Screw 1-4×30.20.019 GOST 1144-80	20 pcs.
	Wall plug 8×30	20 pcs.
Documentation:		
IPR 513-3AM-S Addressable Manual Call Point Operations Manual		1 pc.

1.4 Arrangement and Operation

1.4.1 The MCP is activated by pushing the operating element (actuator) manually, which causes a fire alarm to be generated. Travels of the operating element (pushing and / or raising) cause changes in the position of the electric micro switch contacts. The activated MCP (with pushed operating element) is restored to its original condition (with raised operating element) by means of the special housing key provided. The typical wiring diagram for the MCP is shown in Figure 2.2.4.1.

1.4.2 The MCP features a unique address, which is stored in the non-volatile memory and provides sending status messages from the relevant address in response to requests of the polling loop controller.

1.4.3 The MCP is supplied with power and communicates data over the polling loop from the polling loop controller. The MCP supports DPLS_v2.xx protocol and provides getting values of voltage of the addressable loop at the point the MCP is located.

1.4.4 In case of a single short circuit (single failure), a short circuit isolator built into the MCP provides disabling the failed polling loop segment from the MCP.

1.4.5 The MCP can operate in one of the three operation modes as follows:

- *Quiescent mode*: The operating element is armed (cocked / raised);
- *Fire alarm*: Actuating of the operating element (pushing) has been detected;
- *Setting address*: a *Set Address* command has been received from the polling loop controller via the polling loop, and an action with the MCP is being expected to assign the received address exactly to it (see para 2.2.5.2).

1.4.6 The MCP supports requests for information parameters shown in Table 1.4.5.1.

Table 1.4.5.1

Parameter	Description	Range	Factory Value
Device Type	The name of the MCP in the Orion system	IPR 513-3AM Rev.01	IPR 513-3AM Rev.01
Firmware Version	Current version of the MCP firmware	1.00... 2.55 ⁽¹⁾	1.20 ⁽¹⁾
Address	The address of the MCP within the polling loop	1 ... 127	127
ADC	ADC value of the MCP	0, 100	0, 100 ⁽²⁾

(1): When operating the MCP under an S2000-KDL of version below v.2.10 or under S2000-KDL-2I of version below v.1.10, the MCP firmware version is displayed as v.1.00.

(2): The value “0” means the operating element is cocked (the quiescent mode) while the value “100” means the operating element is activated (fire alarm).

1.5 Measuring Instruments, Tools, and Accessories

While mounting, commissioning, and maintaining the product, please use the instruments, tools, and accessories shown in Table 1.5.1.

Table 1.5.1

Instrument	Specifications
Digital multimeter	AC/DC voltage up to 500 V, AC/DC current up to 5 A, resistance up to 2M Ohm
Flat head screwdriver	3.0×50 mm
Cross slot screwdriver	2×100 mm
Side-cutting pliers	160 mm
Pliers	160 mm
S2000-APA	Standalone Addressable Device Programmer (optional)

1.6 Marking and Sealing

Every MCP has a marking applied inside its housing on the base shown in Figure 2.2.2.2.

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

The transparent protective flip cover can be sealed.

1.7 Packing

Units along with the accessory kit and the operations manual are packed into a cardboard box.

2 Intended Use

2.1 Operating Restrictions

The design of the MCP does not provide its operation in aggressive and/or dusty environments as well as in explosion hazardous and flammable premises.

Correct performance of the MCP cannot be guaranteed if electromagnetic environment does not meet the requirements defined in Section 1.2 of this manual.

2.2 Preparing for Use

2.2.1 Safety Precautions During Preparation

- The MCP design meets the requirements of electric and fire safety including emergency operation in accordance with Russian standards GOST 12.2.007.0-75 and GOST 12.1.004-91;
- The MCP has no circuits under a hazardous voltage;
- Do SHUT OFF power from the MCP before mounting, installing, and maintaining this one;
- Installation and maintenance of the MCP shall be carried out by professionals qualified for Accident Prevention of Class II or higher.

2.2.2 Design

The MCP appears as shown in Figure 2.2.2.1. The overall dimensions are 95 × 91 × 34 mm.



Figure 2.2.2.1. MCP View

The rear panel of the MCP with the mounting dimensions is represented in Figure 2.2.2.2. The PCB is shown schematically.

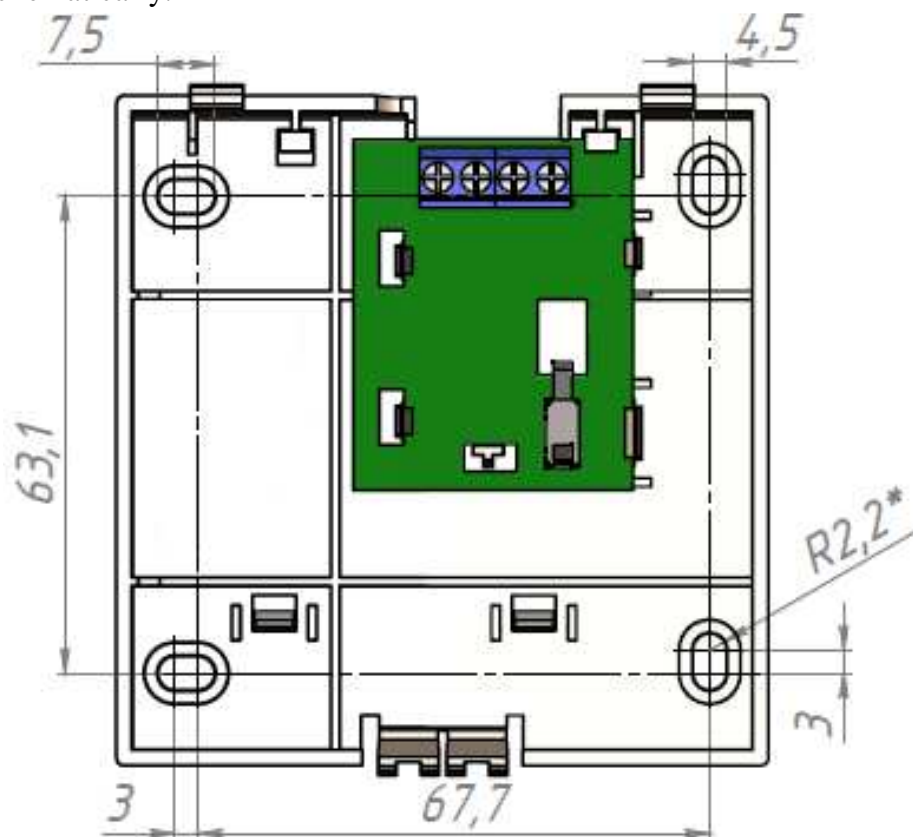


Figure 2.2.2.2. Mounting Dimensions of the MCP

2.2.3 Mounting

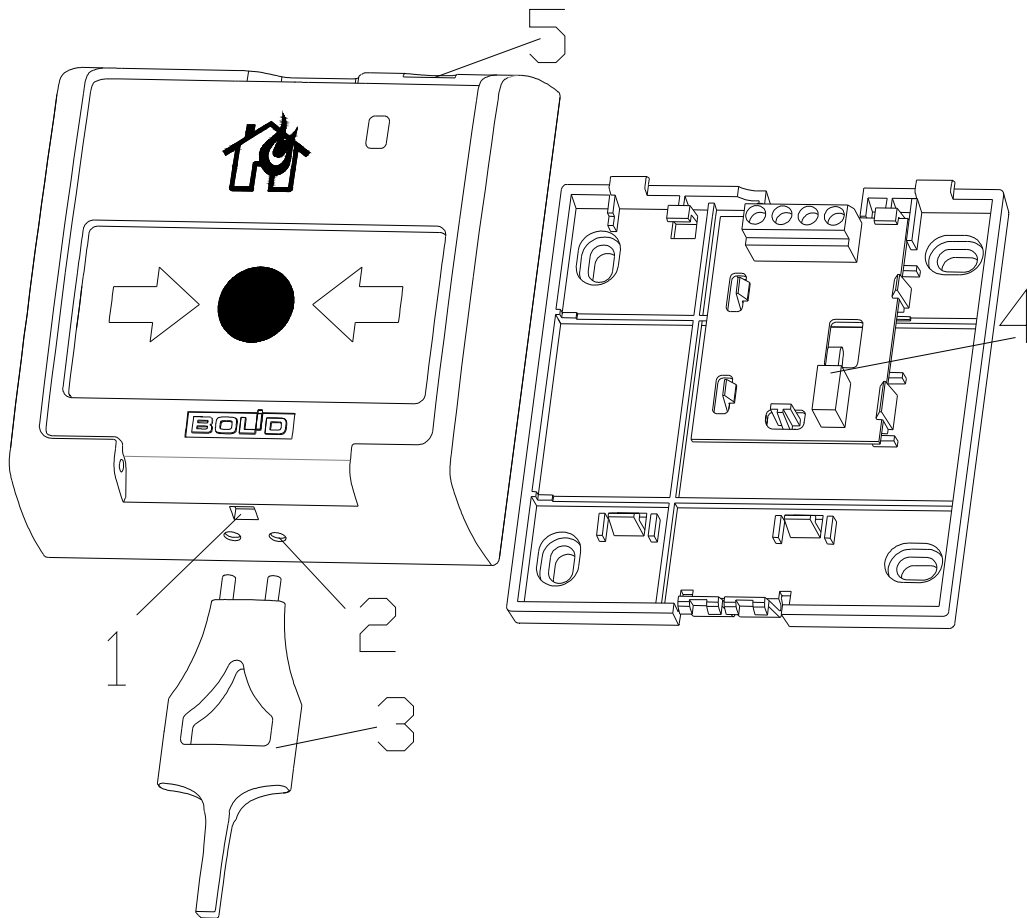
The MCP is to be mounted to a flat vertical surface in line with Buildings Codes and Regulations. The MCP rear panel (base) is attached to the wall with two screws. The front part of the housing is installed on the mounted base after connecting wires to the terminal block.

The wires behind the rear panel should pass freely without clamping by the MCP housing.

The MCP without transparent protective cover appears as shown in Figure 2.2.3.1.

The MCP can be used together with products that provide mechanical environmental protection.

Such products shall obstruct neither activation of the MCP, nor flipping the protective cover, nor reset of the activated MCP, nor opening of the MCP housing. The MCP shall be freely accessible from the front.



- 1: Hole to insert the key to reset the activated MCP;
- 2: Holes to insert the key to open the MCP housing;
- 3: Special key to reset the activated MCP / to open its housing;
- 4: Button for generating *Fire* messages;
- 5: Place for a seal.

Figure 2.2.3.1 Parts of the MCP Structure

2.2.4 Wiring

Figure 2.2.4.1 represents a typical schematic for wiring the MCP into the polling loop. The built-in short circuit isolator is symmetrical. Terminal 2 and Terminal 4 («+PL») are seal off from each other, but Terminal 1 and Terminal 3 («-PL») are coupled.

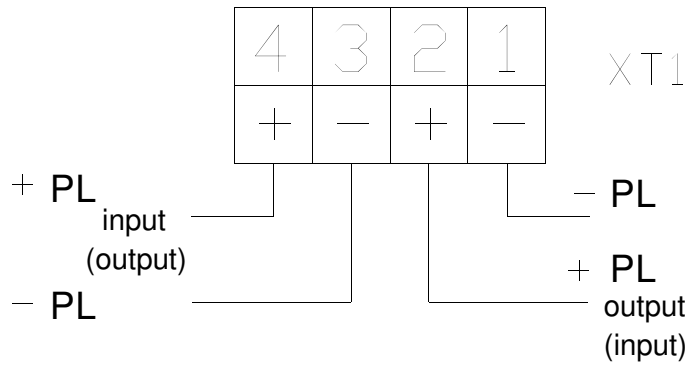
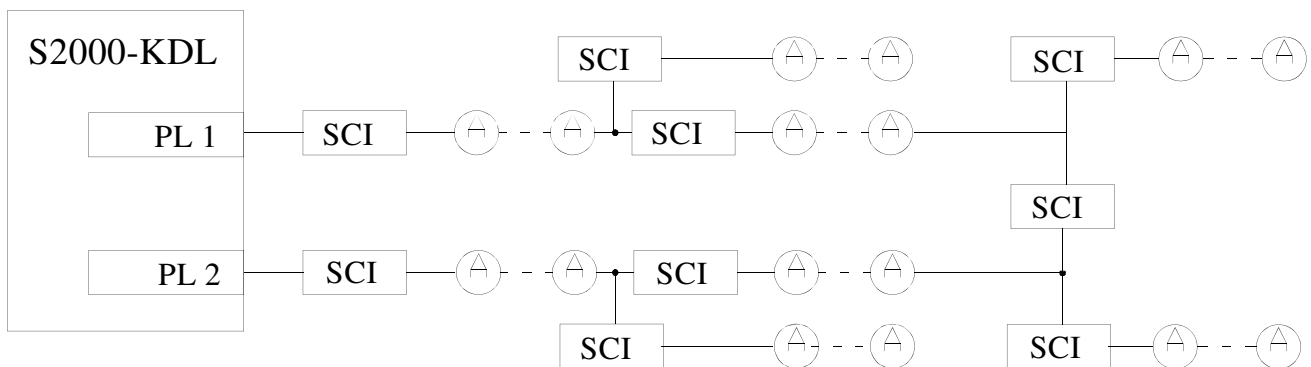


Figure 2.2.4.1. Wiring Diagram

Figure 2.2.4.2 shows an example of bringing the MCP into the polling loop, this example corresponding to a combination of ring topology and tree topology.



A: for an addressable device

SCI: for a short circuit isolator of an addressable device with short circuit isolator.

Figure 2.2.4.2. Diagram for Connecting the MCP into the PL

2.2.5 Settings

2.2.5.1 Configuring

The MCP is compatible with the following input types:

- **3: Heat;**
- **6: Auxiliary;**
- **16: Fire Manual;**
- **21: Fire;**

To use the MCP in fire suppression systems, one should select for it the input type *21: Fire* along with the value *Algorithm A* for the parameter *Algorithm*. Selection of the input type 21 provides operation in line with Russian code of practice ‘CII 484.1311500.2020’.

Input types **3: Heat** and **16: Fire Manual** are used for compatibility with old systems. See Section 10 for explanation on types of inputs to be set.

To get more detailed information about input types and setting them in the controller configuration, please refer to the operating documentation for the polling loop controller and UProg Configuration Tool utility.

2.2.5.2 Setting Address

The MCP provides storage of polling loop communication address in its non-volatile memory. Addresses range from 1 to 127. The factory value of the address is 127.

In order to assign a polling loop address to the MCP, send the polling loop controller one of the following commands from the network controller:

- *Set Device Address*;
- *Change Device Address*.

A *Set Device Address* command assigns an address to an MCP without regard to what address it is assigned to at the time. This option can be used when the same address is erroneously assigned to two or more devices. For doing so, issue a command for programming the MCP with the required address from the control panel or the PC. In 20 s the MCP LED will operate in the relevant mode (see Table 2.2.6.1). Within 5 minutes max open the MCP enclosure and press on the button for generating fire alarms (see Figure 2.2.3.1, position 4) three times for a long time each (between 1 s and 3 s) and then press it once quickly (less than a half of second), the pause between presses being a half of second max. The network controller shall display events about loss of communication with the device with the old address and connecting with a device with the new address. For the case of two or more devices which have the same address, there will be no messages about missing the device with an old address. If *Setting Address* mode is canceled or the address is received by another addressable device, the MCP proceeds to the quiescent mode in 5 seconds.

If you need to change the MCP address which is known, send the *Change Device Address* command from the control panel or the PC specifying the current address and the new address as the parameters. The network controller shall display messages about disconnecting the device with the old address and then detecting the device with newly programmed address.

To assign the address to the MCP, one can also use an S2000-APA standalone addressable device programmer.

2.2.6 Usage

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

The MCP is used under a polling loop controller within an Orion Integrated Security System. For more detailed description of operating the system, please refer to documentation for S2000M Control Panel, Orion Pro Software Suite, Sirius Fire Alarm Control Panel, and the polling loop controller.

Operation modes of the MCP with correspondent indication are shown in Table 2.2.6.1.

Table 2.2.6.1

MCP Operation Mode	Description	Indication
Quiescent Mode	The operating element is cocked (raised)	Blinks every 4 s
Alarm Mode	Press on the operating element has been detected	Blinks twice every 4 s
Setting Address	A <i>Set Address</i> command has been given	Blinks four times every 4 s
Indication test	An <i>Indication Test</i> command has been given	Blinks five times every 4 s
Polling loop initialization	Waiting for establishment of communications with the polling loop controller	Solid light

To have more information about light indication, please refer to operational documents for the polling loop controller.

2.2.7 Testing Operability

Perform functional testing as described in Section 3.4 of this manual.

2.2.8 Extreme Situation Actions



Warning!

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

2.2.9 Troubleshooting

Table 2.2.9.1

Fault	Possible Cause	Solution
The indicator is off	No power voltage	Check the voltage at the MCP contacts “+PL”
No communications over the polling loop	The MCP has no connection with the polling loop controller	Check the integrity of cable and contact joints
	The MCP is too far from the polling loop controller	Reduce the polling loop distance to the MCP. Use the cable type as per the required polling loop length (see documentation for the polling loop controller)
	Two or more addressable devices have the same polling loop address	Check addresses
Operating element has been activated but no fire alarm message is received	The MCP has no connection with the polling loop controller	Check the integrity of cable and contact joints
	MCP internal circuitry malfunction	Send the MCP for repair
	MCP structural failure	

3 Maintenance

3.1 General

Maintenance works are to be carried out subject to the following schedule:

Table 3.1.1

Task Description	Frequency
Visual check	Six-monthly
Inspecting for proper operation	Annually

3.2 Safety Precautions

The MCP should be maintained by personnel qualified for the Electrical Safety of Level II or higher.

3.3 Maintenance Procedures

3.3.1 Visual checking of the MCP includes checks for no mechanical damages, fastening reliability, and proper condition of connecting wires and contact joints.

3.3.2 Operability of the MCP is to be tested in line with Section 3.4 of this manual.



Warning!

Removing the device's PC board from the device enclosure automatically voids the manufacturer's warranty.

3.4 Testing Operability

3.4.1 For the time of testing the MCP, disable the outputs of control and indicating equipment and actuators that control fixed fire suppression systems and notify the proper authorities.

3.4.2 By means of the network controller enable the input with the same number as the address assigned to the MCP.

3.4.3 By means of the network controller arm the input with the number equal to the address assigned to the MCP provided that the MCP is in the Norm conditions and its light indication meets standard.

3.4.4 Trigger the MCP by pushing the operating element. A fire alarm on the input with the connected MCP shall be generated, and the MCP shall indicate the fire alarm conditions.

3.4.5 Reset the MCP to the normal conditions by raising (arming, cocking) the operating element using the special key. Be sure the MCP has changed indication mode for indication of the normal conditions. Issue a comand to reset the alarm sent by the MCP.

3.4.6 Perform steps 3.4.3 – 3.4.5 at least triply.

3.4.7 If the input with the connected MCP failed to be armed or normal / fire alarm conditions are not observed depending on the travelling the operating element and light indication of the MCP, then the MCP is defective and needs to be replaced.

3.4.8 Check operation of the built-in short circuit isolator.

Couple the –PL and +PL No.2 terminals of the MCP XT1 terminal block (see Figure 2.2.4.1). In case of the tree network topology, the message about disabling addressable devices following the MCP shall appear. But if the polling loop is arranged in line with the ring topology, the message about disabling addressable devices connected between the MCP and the next device with SCI function shall appear, with the MCP itself being not disabled.

Then open the output contacts +PL No.2 and –PL. Observe the message about restoring the addressable devices which were disabled before.

Repeat this test with terminals +PL No.4 and –PL.

3.4.9 When testing is finished make sure the MCP is ready for normal operation. Restore all links between outputs of control devices and actuators with automated fire-fighting equipment and notify the proper authorities that the system is back in operation.

Conduct all tests with equipment known to be in good conditions!

3.5 Technical Examination

Technical examination is not applicable for this equipment.

3.6 Preservation (Depreservation, Represervation)

Preservation is not applicable for this equipment.

4 Repair

Repair of faulty equipment is to be conducted by the manufacturer or in authorized repair centers. The product shall be sent for repair in compliance with Company Standard QMS 8.5.3-2015, which can be found online at our website <https://bolid.ru/support/remont/>.



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.

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

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.

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

5 Storage

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

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

6 Transporting

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

7 Disposal

The unit is to be disposed of considering that there are no toxic components in it.

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

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

8 Manufacturer Warranty

The manufacturer guaranties the product meets the technical specifications stated in this manual if the user follows the instructions for transportation, storage, installation, and usage.

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

IPR 513-3AM-S meets the requirements of Technical Regulations of Custom Union CU TR 020/2011 ‘Electromagnetic Compatibility of Technical Equipment’ and is covered by the conformity declaration EAЭC N RU Д-РУ.PA02.B.28335/24.

IPR 513-3AM-S meets the requirements of Technical Regulations EAEU TR 037/2016 ‘On the restriction of the use of certain hazardous substances in electrical and electronic equipment’ and is covered by the conformity declaration EAЭC N RU Д-РУ.PA02.B.28332/24.

Production of IPR 513-3AM-S is awarded with the conformity certificate GOST R ISO 9001. The certificate can be found online at the website <https://bolid.ru> in the section ABOUT COMPANY.

10 Compatibility

Compatibility of Versions of MCP and Polling Loop Controllers		
Type of Polling Loop Controller	Controller Version	Input Types
S2000-KDL	≤ 2.05	3, 6
	2.10 ... 2.27	6, 16
	≥ 2.30	6, 16, 21
S2000-KDL-2I	≤ 1.05	3, 6
	1.10 ... 1.27	6, 16
	≥ 1.30	6, 16, 21
S2000-KDL-2I Rev.01	≤ 1.28	6, 16
	≥ 1.30	6, 16, 21
S2000-KDL-S	1.28	6, 16
	≥ 1.30	6, 16, 21