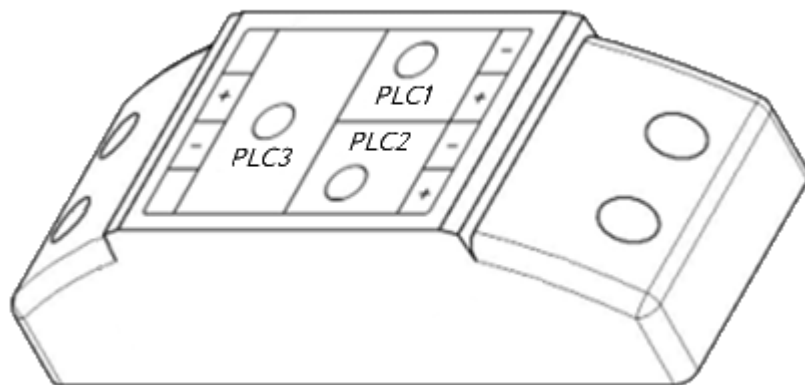


MANUAL

SHORT CIRCUIT ISOLATOR MODULE SCI-1 «RUBETEK»



Complies with:
EN 54-17
EN 54-18

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Introduction

This Manual is intended to describe the operating principle, configuration, installation and operation of the short circuit isolator module SCI-1 «RUBETEK» (hereinafter isolator module).

You must read the instructions in the Manual before linking, configuring, operating or maintaining the isolator module.

Installation and operation of the isolator module must be carried out by technical personnel after reading this Manual.

List of abbreviations used:

- SCI - short circuit isolator module SCI-1 «RUBETEK»;
- SC - short circuit;
- PLC - power line communication;
- CP - Addressable Fire Alarm Control Panel;
- FA - fire alarm;
- DEVs - alarm and notification devices.

1. Description and operation

1.1. Function

Isolator module is intended for use in power line communication (hereinafter PLC) of the fire alarm (hereinafter FA) in order to isolate short-circuited sections with subsequent automatic recovery of the PLC after elimination of the short circuit (hereinafter SC).



ATTENTION! When the isolator module is triggered and the shorted PLC line section is disconnected, all DEVs connected in this section will be displayed with the "No link" status. After the SC is eliminated and the PLC line is restored, the devices will go to the "Normal" status if they have no other statuses.

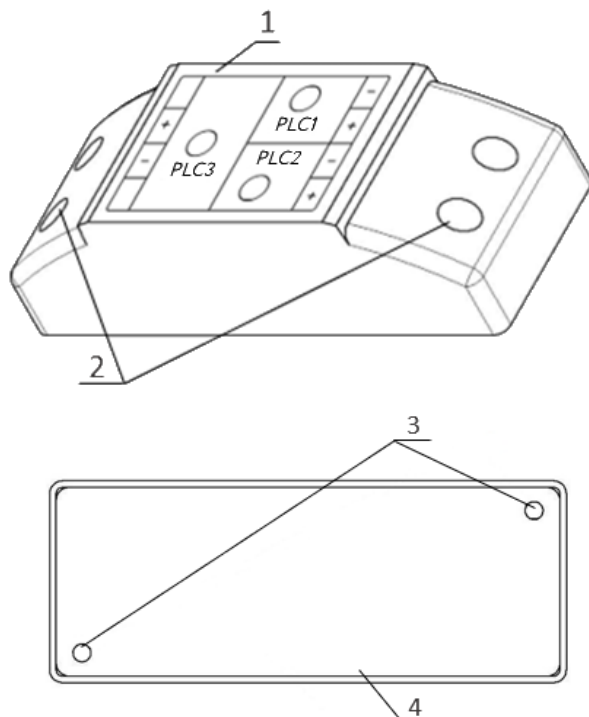
The isolator module is a non-addressable device and does not take up free slots on the CP.

1.2. Technical data

Table 1 - The main parameters of the SCI

Parameter	Value
Link interface	PLC
Power supply	from PLC
Current consumption, mA, max	Standby mode: 0,5 «SC on-line» mode: 7
Maximum voltage, V	24
Minimum voltage, V	12
Maximum current when the switch is closed, A	1
Maximum leakage current, mA	7
Isolator activation, V	2 ± 20 %
Recovery of the insulator, V	3 ± 20 %
Maximum impedance, Ohm	0,12
Number of PLC inputs, pcs.	3
Operation temperature range, °C	From -25 to + 55
Relative air humidity, %	Up to 93% at +40°C
The degree of protection for the case	IP 40
Dimensions, mm	80 × 32 × 21
Weight, g, max	30
Average lifetime, years	10
Average time between failures, h	60000

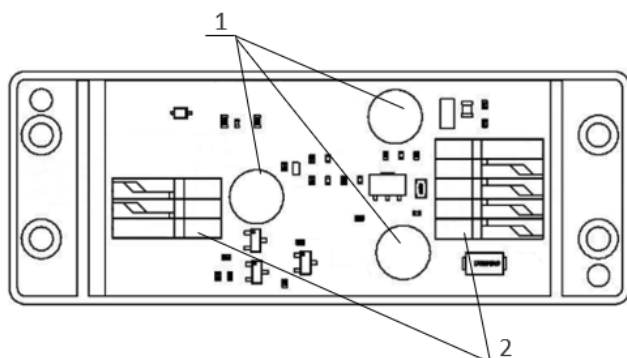
1.3. Appearance of the SCI



- 1 - Isolator module case
- 2 - holes for fixing the case to the isolator module base
- 3 - holes for fixing of the isolator module on the surface
- 4 - Isolator module base

Figure 1 - Appearance of the isolator module

1.4. Internal design of the SCI



- 1 - LED indicators
- 2 - Terminals to connect to the PLC

Figure 2 - Internal design of the isolator module

1.5. Complete set

Table 2 - Complete set of the isolator module

Item	Quantity, pcs	Remarks
SCI-1 Short circuit isolator module «RUBETEK»	1	
Mounting kit	1	
Datasheet	1	
Individual packing	1*	

* Per shipment

2. Intended use

2.1. Preparation for use



ATTENTION! If isolator module was in conditions of negative temperature, keep it at least 4 hours at room temperature (25 ± 10 °C) to prevent moisture condensation.

Open the package, make sure that the completeness of the isolator module corresponds to table 2.

Conduct an external visual inspection, make sure that there are no visible mechanical damages (chips, cracks, dents) and traces of moisture.

2.2. Location

Do not mount isolator module:

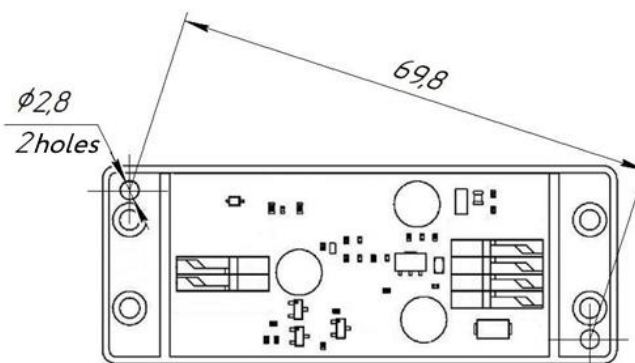
- outdoors, in places where there is a possibility of water getting on the isolator module case;
- in a room with a high content of dust, suspensions of building materials in the air, vapors and aerosols that cause corrosion;
- near high-frequency communications, power cables, routes.

2.3. Installation



ATTENTION! All PLC lines are connected prior to equipment installation.

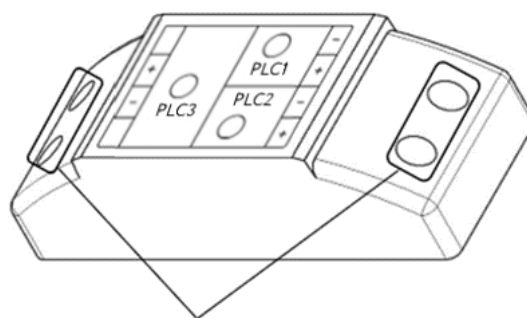
- Remove the top cover of the isolator module. To do this, unscrew 4 screws securing the case to the base, remove 2 covers above the terminal blocks, remove the latches of the case base from the grooves of the isolator module cover.
- Mark the surface for the mounting holes in the case at the selected installation location of the isolator module.



- Lead the PLC line to the installation site to connect the isolator module.
- Fix the isolator module case using the fixing kit from the accessory kit.
- Install the top cover of the isolator module and fix it with 4 screws with covers.

2.4. Connection

Remove the covers above the terminal blocks of the isolator module by unscrewing the 4 screws securing the case to the base.



Connect the PLC wires to the isolator module terminals in accordance with the terminals marking, observing the polarity. Connect the PLC to the isolator module terminals starting from the «negative» wire.

The terminals isolator module marking, location and purpose of the indicators are shown in Figure 3.



ATTENTION! If connected incorrectly, SCI may go out of order.

- 1 – PLC1 line status indicator;
- 2 – PLC2 line status indicator;
- 3 – PLC3 line status indicator;
- PLC1 - terminals of the PLC interface;
- PLC2 - terminals of the PLC interface;
- PLC3 - terminals of the PLC interface.



ATTENTION! Isolator module inputs: PLC1, PLC2 and PLC3 are equivalent.

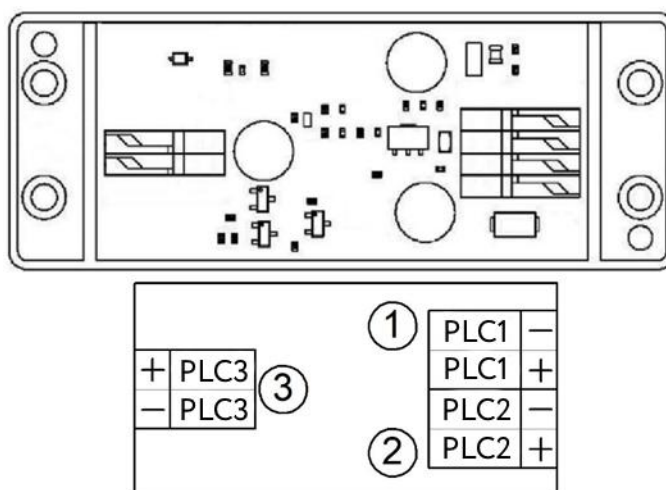


Figure 3 –terminals marking

Install the covers over the terminal blocks of the isolator module and secure them with 4 screws.

After powering up the CP, the isolator module will automatically enter the operating mode without any additional configuration.

After connecting the isolator module and supplying power to the CP, check the light indication of the isolator module according to table 3.

Table 3 – LED indication

LED №	Status	Value
1	continuous yellow light	SC in PLC1 section
	intermittent yellow flashing	PLC operating mode
	no yellow light	No PLC signal
2	continuous yellow light	SC in PLC2 section
	intermittent yellow flashing	PLC operating mode
	no yellow light	No PLC signal
3	continuous yellow light	SC in PLC3 section
	intermittent yellow flashing	PLC operating mode
	no yellow light	No PLC signal

2.5. PLC line connection

The PLC provides communication with the wired DEVS as well as their power supply. When organizing a PLC line, the topologies «Ring», «Tree» or «Mixed» are used. Connection diagrams for various topologies are shown in Figures 4 - 6.

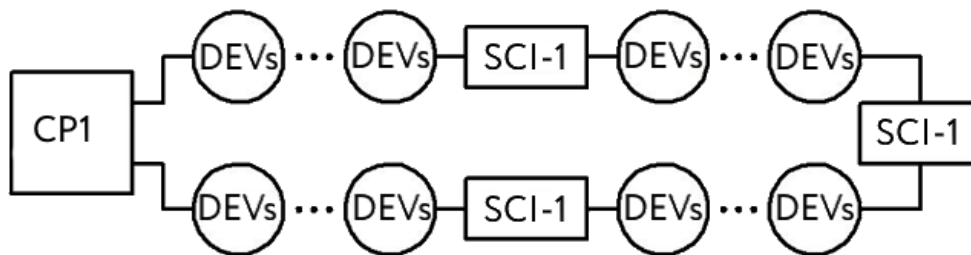


Figure 4 - «Ring» topology

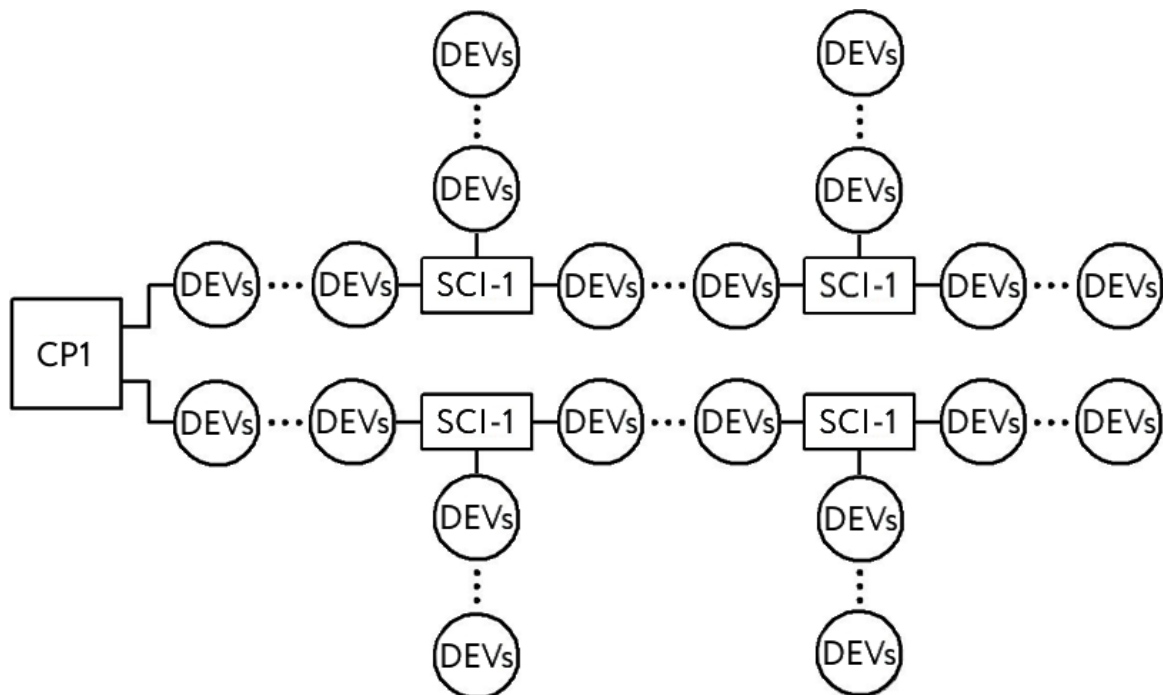


Figure 5 - «Tree» topology

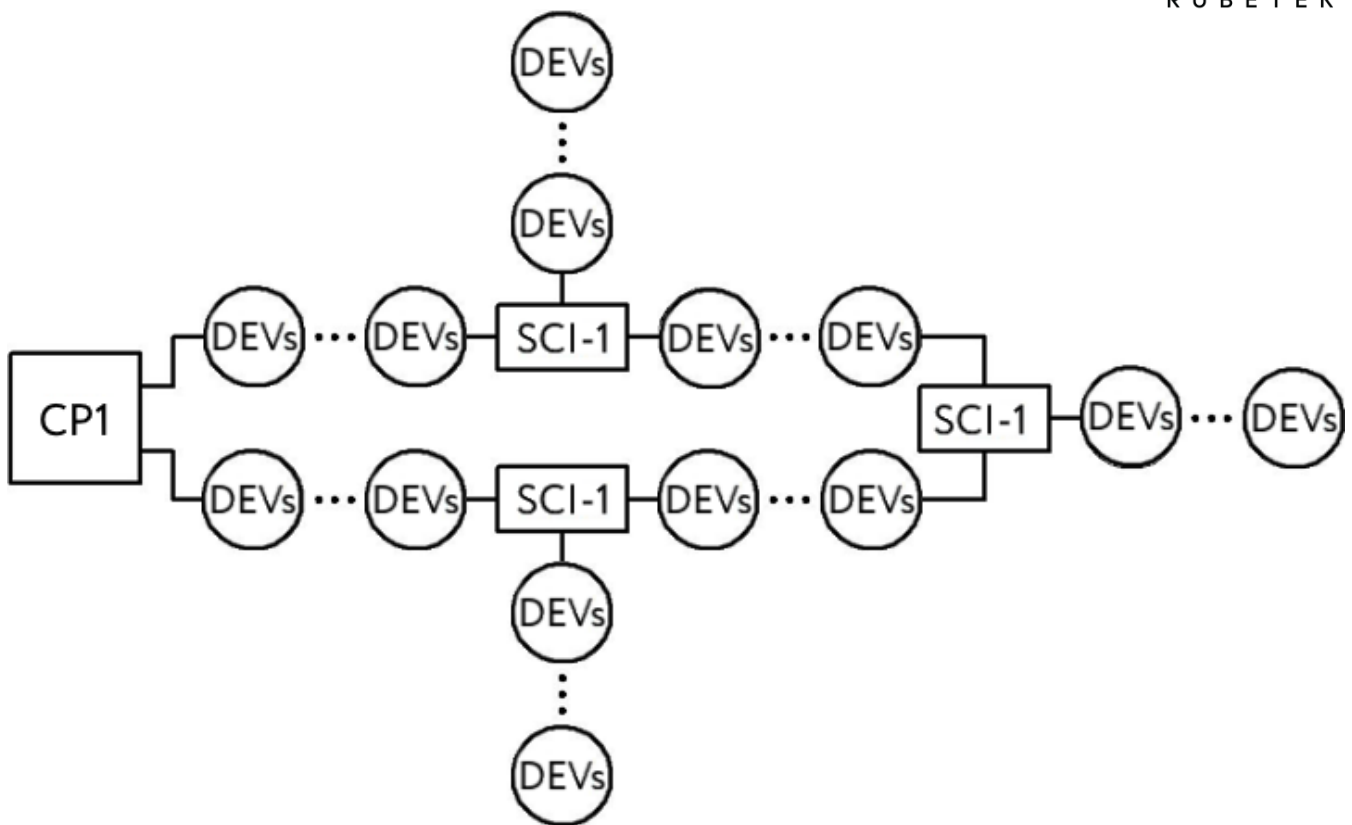


Figure 6 - «Mixed» topology



ATTENTION! All PLC lines are connected prior to equipment installation.

Basic requirements for a PLC organization

- flexible shielded FRLS cable is used;
- nominal wire section from 0.75 mm² to 1.5 mm²;
- connection to PLC of max 250 pcs. DEVS with equal distribution;
- the maximum line length from the CP to the end device must not exceed 1200 meters.



ATTENTION! At the connection stage form and mark the wires. Connection of the PLC line to the CP is carried out after completion of its installation and connection of the module.

3. Maintenance

3.1. Safety precautions

- 3.1.1. When operating the device, you must be guided by the requirements hereof.
- 3.1.2. During the repair work in the room where the isolator module is installed, protection against mechanical damage and ingress of building materials (whitewash, paint, dust, etc.) must be provided.

3.2. Functional test

- 3.2.1. Isolator module functional test should be carried out during scheduled or other functional checks, but at least once every 6 months.
- 3.2.2. Functional test includes:
 - External inspection of the isolator module for traces of moisture and mechanical damage.
 - Checking the reliability of the contact and the integrity of the insulation of the wires. If necessary, reconnect wires and replace wires with damaged insulation.
 - Indication control (see table 3).
- 3.3. SCI replacement



ATTENTION! Before replacing the isolator module, you must prepare a new device for connection and make sure that it works according to the user manual.

- 3.3.1. Remove the isolator module case cover. To do this, unscrew the case screws from the cover slots and remove 2 covers above the terminal blocks.
- 3.3.2. Disconnect device from the PLC line.
- 3.3.3. Connect a new device, according to the algorithm as described in p.2.4.

4. Storage

- 4.1. Storage conditions of the isolator module:
 - ambient temperature from plus 5 °C to plus 40 °C;
 - relative air humidity up to 60% at a temperature of plus 20 °C.
- 4.2. Store the isolator module on racks in a packaged form.
- 4.3. The distance from the walls and floor of the storage to the isolator module packages must be at least 0.1 m.
- 4.4. The distance between the heaters and the isolator module packages must be at least 0.5 m.
- 4.5. The room must be free of vapors of aggressive substances and conductive dust.

5. Transportation

- 5.1. The packaged isolator module can be transported by all means of transport in covered vehicles and in pressurized aircraft compartments.
- 5.2. The conditions of transportation:
 - ambient air temperature from minus 50 °C to plus 50 °C;
 - relative air humidity up to 95% at a temperature of plus 40 °C.
- 5.3. The period of transportation and intermediate storage should not exceed 3 months. It is allowed to increase the period of transportation and intermediate storage of the isolator module during transportation due to the storability time in stationary conditions.

6. Disposal

- 6.1. The isolator module when there are no toxic components in it.
- 6.2. The content of precious materials does not require record during storage, issue, disposal.

7. Manufacturer's warranty

- 7.1. The manufacturer guarantees the compliance of the isolator module with the technical specifications, provided that the consumer observes the rules of transportation, storage, installation and operation.
- 7.2. Warranty period of operation is 12 months from the date of commissioning, but not more

than 24 months from the date of manufacture.

- 7.3. During the warranty period, the replacement of failed isolator modules is carried out by the manufacturer free of charge, provided that the consumer observes the instructions for installation and operation.
- 7.4. When sending the isolator module for repair, it must be accompanied by an act describing its malfunctions.
- 7.5. The warranty does not take effect in the following cases:
 - non-compliance with this User Manual;
 - mechanical damage of the isolator module;
 - repair of the isolator module by a person other than Manufacturer.
- 7.6. The warranty applies only to the isolator module. All third-party equipment used in conjunction with the isolator module is covered by their own warranties.

8. Claims

- 8.1. Warranty claims are made to the supplier in case the defects and malfunctions are detected which lead to the failure of the isolator module within the warranty period.
- 8.2. In the certificate of defect indicate: device type, defects and malfunctions, conditions under which they were detected, time since the start of operation of the isolator module.
- 8.3. A copy of the payment document for the isolator module must be attached to the act.

9. Certification

- 9.1. Short circuit isolator module SCI-1 «RUBETEK» complies with the European standard EN 54-17 «Fire detection and fire alarm systems. Part 17: Short-circuit isolators», EN 54-18 «Fire detection and fire alarm systems. Part 18: Input/output devices».

10. Manufacturer

- 10.1. Name of the manufacturer's organization: DEVICE FACTORY L.L.C
- 10.2. Legal address: 302020, Ippodromny ln 9/24, Orel, Russian Federation
- 10.3. Phone: +7 (4862) 51-10-91
- 10.4. Email: info@zavodpriborov.com

