I/O MODULE

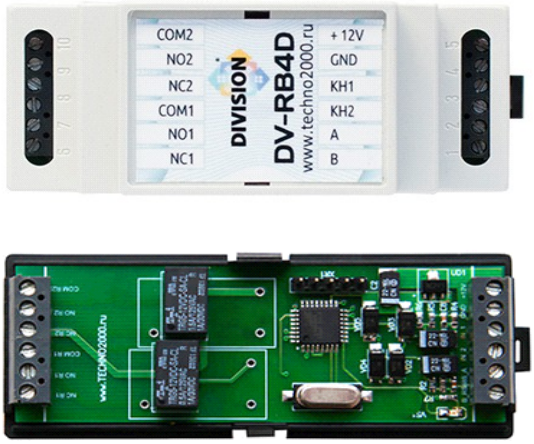
DV-RB4D

Manual

CONTENT

1. General description.

The DV-RB4D input/output module (hereinafter referred to as the module) is an electronic controller designed for status monitoring of 2 discrete inputs without galvanic isolation and load control using 2 powerful relays (optionally with a switching group of contacts). The discrete inputs of the controller receive a signal of the type "0" "1" from the buttons of the detectors, andvarious sensors.



The outputs of the module are designed to control the executive devices of the Smart Home system:electric barriers, gatesautomatic cornicemi, etc.

The module automatically makes its own settings when it is turned on.

The module is made in a standard housing for installation on a DIN rail. The appearance of the module and the board are shown in Picture 1.

Picture. 1 Appearance and board DV-RB4D

2. Specifications.

Table 1. Specification

Number of discrete inputs (non-isolated)	2
State input switching thresholds:	
"1"	3…5
"0"	0…0.8
Number of relays with groups for switching 0,5A ~250 V 10A~250 V (option)	 2 2
Serial port parameters:	
speed, baud	19200
number of bits	7
parity	even
stop bit	1
Control interface	RS485 half duplex
Control Protocol	ModBus ASCII
Supply voltage	V10…12
Consumed current, no more than, A	0.25
Overall dimensions (WxHxD), mm	35x86x57

Size	2 DIN
Device weight	79 g.

3. Composition of the product.

Delivery includes:
1) DV-RB4D input-output module – 1 pc.;
2) DV-RB4D operation manual - 1 pc.;

4.Description of the module.

4.1. Work algorithm.

When the power is turned on, the module performs its own settings (command reception rate, output status), after which it is ready to receive control commands from the head unit.

When a command is received, the module processes it and responds with a change in the state of the relay outputs, information about the current state of the discrete inputs. When receiving a command to write an address (working with the DIVISION Controllers program), it returns a response to the central controller with the current value of its own address.

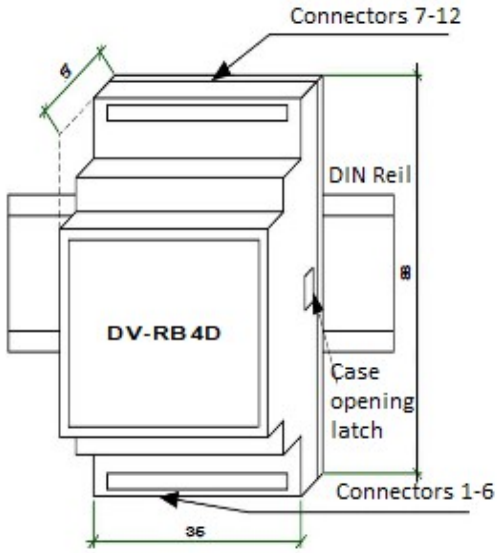
The operability of the module is indicated by the LED on the device board: “+12 V power supply” indicator (1 red LED). The "power" indicator starts glowing after the module performs self-testing and system settings when +12V power is applied. The absence of the indicator light indicates a malfunction of the device.

The controller has a mechanism that prevents the simultaneous closing of two relays at once.

Control inputs have priority over control commands.

Before using the module as part of the DIVISION Smart Home complex, you should write a new personal address to its internal memory. A new, unprogrammed module is supplied by the manufacturer with preset address 01.***Programming and testing of the module is carried out using the DIVISION Controllers service program.***

4.2. Appearance and installation of the module.



Structurally, the input-output module DV-RB4D is made in a housing for mounting on a DIN rail. dimensions35x86x57 mm (2 DIN).

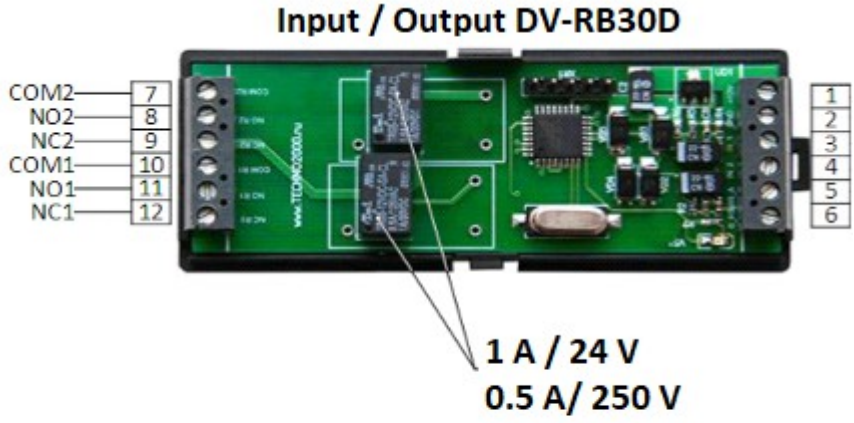
Standard installation on a DIN rail is carried out using a clip on the rear wall of the housing. The case is opened by pressing the latch on the side.

The module case is shown in Picture 2.

Picture 2. I/O module housing DV-RB4D

4.3.Assigning contacts.

The module board with the pin assignment is shown in Picture 3.



Picture 3. I/O module board DV-RB4D

The purpose of the terminal contacts is given in table 2.

Table 2. Assignment of terminal contacts.

Contact numbers	Pin assignment
1	Module power input +(10 - 16) V.
2	Common power wire

3	Button input 1
4	Button input 2
5	Channel A RS485
6	Channel B RS485
7	Relay No. 2 Contact "Som"
8	Relay #2 Normally open contact
9	Relay #2 Normally closed contact
10	Relay No. 1 Contact "Som"
11	Relay #1 Normally open contact
12	Relay #1 Normally closed contact

4.4. Operating modes.

The DV-RB4D module has two modes of operation:

- testing and addressing,
- as a part of the DIVISION system.

The testing and addressing mode is used when checking the module's operability, as well as writing a personal address into it. Setting the address is necessary for further identification of the module in the DIVISION system.

The DV-RB4D module is designed to work as part of the DIVISION system under the control of a central controller.

Instructions for setting up and connecting the module for each mode of operation are given in section 5 of this manual.

5. Operation of the module.

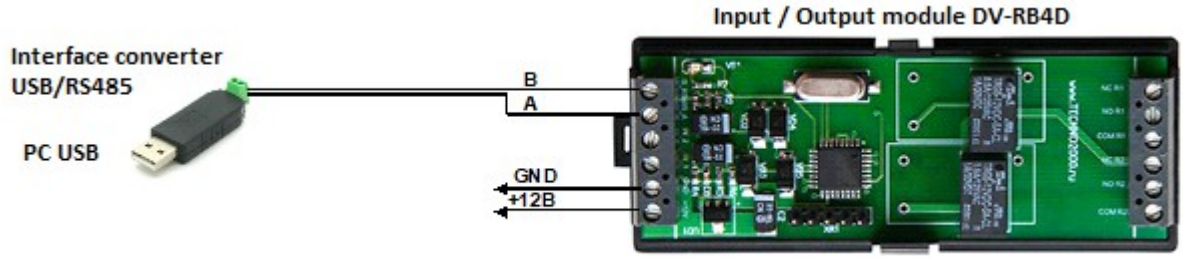
5.1. Testing and addressing mode.

This mode is used to check the functionality of the module and assign an address to it.

The following equipment is required for operation:

- DC source 12V, 1A;
- USB/RS485 interface converter;
- personal computer with Windows 7 and above;
- DIVISION Controllers testing and addressing program;
- connecting wires.

In the test mode, the module is connected to a personal computer and a power source according to the diagram shown in Picture 4.



Picture 4. Connecting the DV-RB4D input/output module to a personal computer in test and addressing mode

The DIVISION Controllers program is installed on a personal computer, which can be downloaded from the website of the Techno Group of Companies: ***division.business*→ *Shop*** → *Hardware and software → Software → DIVISION controllers. In the same section of the site is a description of the program. Please read this manual before using DIVISION Controllers.*

5.2. The procedure for performing a health check.

Connect the I/O module using an interface converter (USB-RS485) toUSB inputpersonal computer and to a 12V power supply, observing the polarity, according to the diagram shown in Picture 4.

Turn on the power supply, while the red LED on the module board will light up - power indication.The absence of the power indicator on the module board indicates a device malfunction.

Install on a personal computer and run the DIVISION Controllers program.

In the program, in the "COM port" window, select the desired port or "Auto Search" andPress the "Search device" button.

After the device is detected, the program allows you to close all relay outputs one by one.

When delivered by the manufacturer, address 01 is set on the device. To write a new address, you need to click the “Address to be set” button in the drop-down menu, select the address to be set, for example 02, click “write address”. Search for the device again, make sure that the device responds to the newly set address.

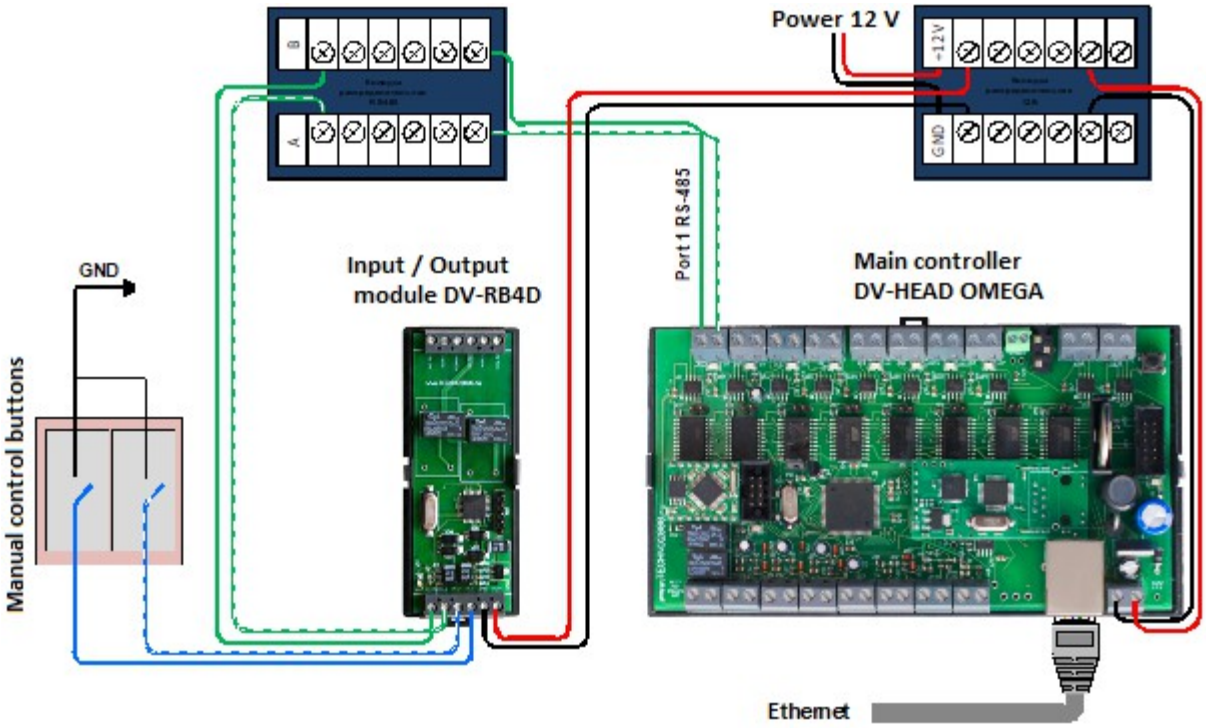
5.3. Work in the system DIVISION.

The input-output module is designed to work as part of the DIVISION Smart Home system. In the system, the module performs the functions of controlling actuators using output switching contacts, and also receives information about the state of discrete inputs.

When using the module as part of the Smart Home complex, first you should write down the selected address of the device in the testing and addressing mode (according to clause 5.1 of this manual). The address of each system device is selected when programming the Smart Home complex in the DIVISION Constructor editor. The DIVISION Constructor also describes the assignments of discrete inputs, sets program scripts for controlling the module outputs, and determines the

possibility of control from touch panels. The unprogrammed module is supplied by the manufacturer with preset address 01.

After addressing, the module is connected to the central controller via a serial interfaceRS-485 in half duplex mode.



Picture 5. Standard scheme for connecting the DV-RB4D I/O module to RS-485 of the DV-HEAD OMEGA central controller

When connecting several devices to one line, the requirements for load capacity and line matching must be observed.

1. The I/O module connects directly to the DV-HEAD OMEGAvia RS485 interface.
2. The DIVISION configuration installed on the central controller automatically recognizes the module by the address written to it.
3. Peripheral devices are connected to the terminal blocks of the I/O module using screw connectors. The purpose of the connectors is given in section 4.3 of this manual.
4. ModuleI/O DV-RB4D specializes in controlling the drives of automatic cornices, curtains, gates.
5. Switching contacts are used to prevent failure of actuators: automatic cornices, curtains, gates.
6. Devices connected to the inputs and outputs of the module are determined by the installer when creating the system configuration in the DIVISION Constructor program.

5.4. Maintenance.

Maintenance of the module is carried out according to a preventive system. Maintenance work includes:

- checking the external state of the device;
- performance check in accordance with clause 5.1 of this manual;
- checking the reliability of the module fastening, the condition of external mounting wires and contact connections.

6. Storage.

Module storage temperature range from -40^{0}C to +50^{0}C
When storing the module in rooms with a negative temperature range, it is necessary to keep the device at room temperature (+20$^{0C).}$

The module storage rooms must be free of acid vapors, alkalis, corrosive gases and other harmful impurities that cause corrosion.

7. Manufacturer's warranties.

The manufacturer guarantees the operability of the device provided that the consumer observes the rules of transportation, storage, installation and operation.

The warranty period of operation is 36 months from the date of commissioning, but not more than 40 months from the date of shipment.

When sending the product for repair, an act with a description of a possible malfunction must be attached to it.

8. Information about the manufacturer.

DVC Technologies
Website:http://www.division.business

9. Certificate of acceptance and packaging.

I/O module DV-RB4Dmade andaccepted in accordance with the current technical documentation, recognized as fit for use and packed by DVC Technologies

Responsible for receiving and packaging

OTK

MP _____ _____

FULL NAME. year, day, month