



Central controller

DVC-POINT

Technical certificate

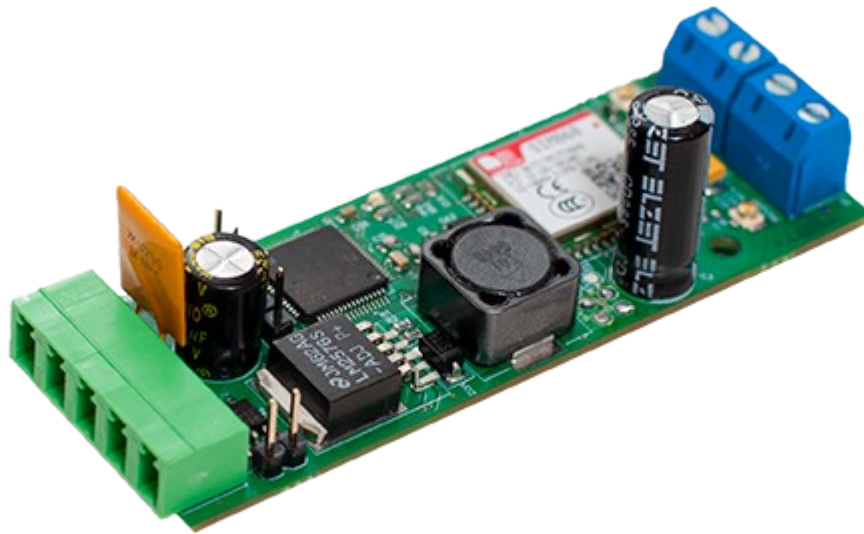
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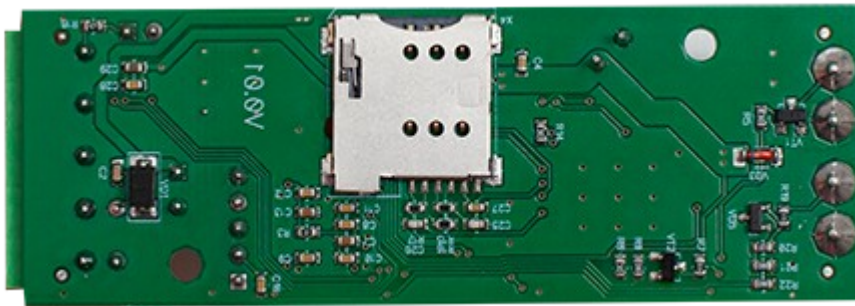
Purpose and scope

DVC-POINT is a central controller (hereinafter referred to as the controller) designed to control connected devices and transfer data from them. The controller can be used for small control systems, as well as for controlling third-party devices via the RS-485 interface.

The device is made in a standard housing for installation on a DIN rail (2 DIN). Controller Appearance DVC-POINT shown in Picture 1.



Pic. 1a - The front side of the controller.



Pic. 1b - Back side of the controller board.

The controller is available in two versions: with a SIM868 modem containing a built-in GPS module, and with a SIM800 modem that does not contain a GPS module. Controllers marked DVC-POINT-G contain a SIM868 modem, DVC-POINT (without the - G suffix) contain a SIM800 modem.

Functions performed by the controller

The main function of the controller is to provide a "through channel" between RS-485 and GPRS interfaces in both directions. The maximum message size is 1024 bytes. The minimum time between messages is 4 ms.

The controller has:

- interface (port) of the RS-485 standard for connecting peripheral lighting controllers, inputs/outputs, IR, addressable weather sensors, etc. (for more information about DIVISION controllers, see the link:<http://techno2000.ru/katalog/oborudovanie/dlja-umnogo-home/>);
- GSM modem;
- built-in GPS module*;
- one slot for installing miniSIM SIM cards (located on the reverse side of the board);
- connector for connecting a male U.FL GSM antenna;
- connector for connecting a male U.FL type GPS antenna;
- connector for powering the device from a 12 V source;
- digital output;
- discrete input.

The controller is able to independently access the global network using the built-in GSM modem. If there is a GPS module, the device requests GPS coordinates before each sending information data to the server.

*only for devices with GSM/GPS modem SIM868.

Specifications

The controller is a complete device and can be used with devices connected to it. Technical characteristics of the controller are given in Table 1

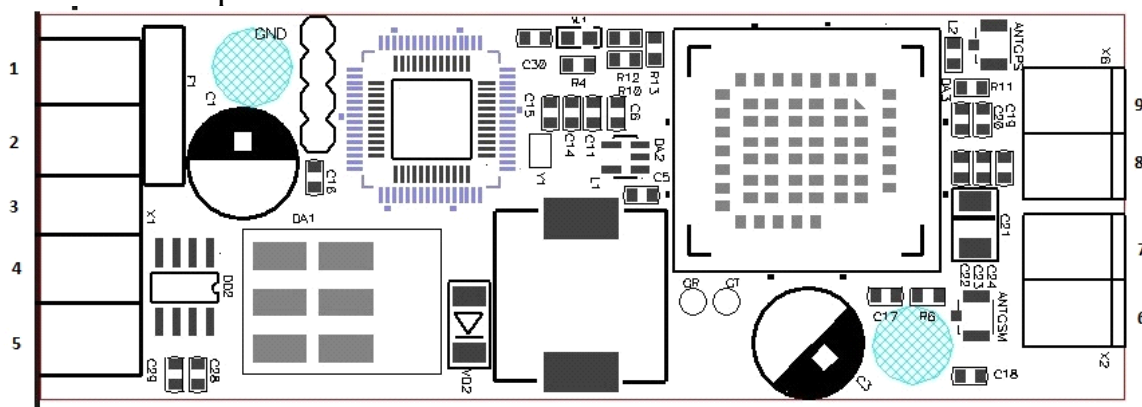
Table 1

Characteristic name	Unit rev.	Meaning
Supply voltage	V	5–14
Power consumption	VA	0.3
Communication interface type		ethernet
Number of RS-485 ports		one
RS-485 line length limit	m	1000
Permissible voltage measurement error	V	±0.1
Housing material		plastic
Case protection degree		IP20
Case dimensions	mm	80x30

Size		2 DIN
Ambient temperature range	°C	-20 .. +50
Relative humidity	%	30..80
Device weight	G	
Network connection type		client/server
Number of simultaneously connected network clients		8

Pin assignment

The diagram of connection to the controller is shown in Figure 2. Cables with copper stranded conductors are used for connection to screw contacts, the ends of which are crimped with sleeves.



Rice. 2

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

table 2

Number contact	Designation	Purpose
1	+12V	Power supply of the controller from the power supply 12V
2	GND	
3	GND	Common (GND)
4	RS-485 "B"	RS-485 interface port
5	RS-485 "A"	
6	AN	digital output
7	GND	
8	IN	Discrete input
9	GND	

Information data sent by the controller

Upon successful connection establishment via the GPRS channel, the controller sends a message with information data to the server with a period set in its configuration (see "Command protocol"). An example of an informational message:

#DIVISION_M2#867717031557938#17#00000#00000#00000#20211122062211#9188900036#

1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---

The data package contains:

- 1) the name of the controller;
- 2) IMEI number;
- 3) GSM signal quality (RSSI);
- GPS data:
- 4) latitude;
- 5) longitude;
- 6) height;
- 7) UTC-time - only if there is a built-in GPS-module;
- 8) telephone number of the SIM card inserted into the controller.

With built-in of the GPS module and the connected GPS antenna, the zeros in positions 4-6 are replaced by the GPS data.

The information data message is also sent out of turn when the digital input closes to zero.

Command protocol

The controller can be configured using the DV Controllers program, as well as by sending commands via GPRS or via SMS. The command system looks like this:

:CMD{COMMAND:PARAMETER;}CRC:1234<CR><LF> - when sending via RS-485;

:CMD{COMMAND:PARAMETER;}<CR><LF> - when sending commands via GPRS;

CMD{COMMAND:PARAMETER;} - when sending commands via SMS to the phone number of the SIM card inserted into the controller.

Commands will be answered only if they are sent via RS-485.

Command list:

PERIOD – reading/writing the period of information data transmission via RS-485 in minutes. The range of values is from 1 to 60. Initially, the value 1 is written to the controller. An example of commands:

:CMD{PERIOD:10;}CRC:1234<CR><LF> - set data transmission period to 10 minutes;

:CMD{PERIOD:?;}CRC:1234<CR><LF>-request a set data transfer period.

DATETIME-reading/writing the internal time of the controller.

The recording format is dd.mm.yy/hh.mm.ss. It is recommended to set the time setting command each time the controller is started, as it is reset when the controller is disconnected from the network. Command example:

:CMD{DATETIME:19.10.21/09.00.00;}CRC:1234<CR><LF> -set the

internal date and time of the controller to 9:00:00 November 19, 2021;

:CMD{DATETIME:?;}CRC:1234<CR><LF> - request the current internal date and time of the controller.

ALARM — setting the device reboot time once a day in hh.mm format. The controller is initially set to 14:00. If the time is not set by the DATETIME command, then the reboot will occur every day from the time the device is turned on. Command example:

:CMD{ALARM:12.00;}CRC:1234<CR><LF> - set the controller reboot time once a day to 12:00;

:CMD{ALARM:?;}CRC:1234<CR><LF> - request the set controller restart time once a day.

IPADDRPORT - read/write the IP address and port of the server to which the device will connect. The entry format is “xxx.xxx.xxx.xxx”, “yyyy”, where x is the digits of the IP address, y is the port. Initially, the controller has the address 84.201.165.76, the port is 6001. Examples of commands:

:CMD{IPADDRPORT:”212.192.202.112”,”6001”;}CRC:1234<CR><LF> - set device IP address to 212.192.202.112 and port to 6001;

:CMD{IPADDRPORT:?;}CRC:1234<CR><LF> - request the set values of the IP address and port.

BAUDRATE - Read/Write RS-485 link speed in baud. Initially, the value 115200 is written to the controller. When a request to change this parameter is requested, the speed change occurs immediately after the command is executed, without the need to reboot the controller. Command examples:

:CMD{BAUDRATE :9600;}CRC:1234<CR><LF> - set RS-485 channel communication speed to 9600 baud;

:CMD{BAUDRATE :?;}CRC:1234<CR><LF> - request the set communication speed.

DOUT - request to close the digital output to zero for 2 seconds. This request also sends device data in an out-of-order message over a GPRS channel to the server to which the device is connected. Command type:

:CMD{DOUT :1;}CRC:1234<CR><LF> - close digital output to zero for 2 seconds.

Registering the controller on the server

After installing the controller and making all the necessary electrical connections, you must perform the initial initialization - register the controller on the server 84.201.165.76:6006. To do this, the user registers his account in his personal account and adds a new controller (the serial number of the controller is located on the back of the case)

Setting up the controller using the configurator

To set the controller configuration using the command protocol, the DV Controllers program is used (a description of how to work with this program can be found on the website:

DVC Technologies Website: <https://division.business>

Turning on the controller

After turning on the 12 V power supply, the controller initialization process starts. At the same time, the power indicator (green) on the controller board blinks. The initialization process takes about 30 seconds.

During the initialization of the device, messages about the passage of the initialization stages are sent to the RS-485 channel. After the last step - attempting to connect to the server - the device will display the message "INITIALIZATION SUCCESS" in case of successful connection, or "INITIALIZATION FAILED" if the connection to the server is not established.

If the connection is successfully established via the GPRS channel, the device responds to all commands, the indicator flashes once every 2 seconds. In case of loss of connection with the server for any reason (low signal level, socket closing, disconnection of the SIM card, insufficient balance on the account of the cellular provider) or incorrectly entered IP address or port, the device will attempt to restore the GPRS connection with the server every 30 seconds. In this case, the indicator will flash every 200ms, and the device will ignore all commands, except for the command to set the IP address and port. After successfully establishing a connection with the server, the device will enter the working mode again.

Controller Installation and Maintenance Instructions

Measures security

Directions on exploitation and technical service

The controller must be operated within the parameters specified in the technical data.

Avoid rough mechanical impacts on the body of the product, as well as contact with acids, alkalis and solvents. Keep the controller clean, do not allow dirt, liquids, insects to enter the product.

Recommendations on installation

To ensure the reliability of electrical connections, it is recommended to use cables with stranded copper conductors with a cross section of 0.5 - 1.0 mm², the ends of which should be stripped and crimped with sleeves before connection so that their bare ends after connecting to the controller do not protrude beyond the terminal block.

When laying RS-485 lines, they should be separated into an independent route separately from power cables, as well as cables that create high-frequency and impulse noise.

Controller mounting:

- fasten the housing base to the DIN-rail of the switching cabinet;
- connect all necessary cables to the controller terminals;

Connection peripheral controllers

Peripheral controllers are connected to the ports RS-485 No. one - No.9 according to the following recommendations:

- port No.1 is dedicated to connecting only small panels (LPU) of DV-IPS controllers;
- port No.2 - combined for connecting peripheral DV controllers and for sending commands to third-party devices (*);
- to reduce the response time of the controllers and increase the system performance, they should be distributed as evenly as possible between the ports.

Contents of delivery

No.	Name	Unit of measure.	Qty
	Central Controller DVC-POINT	PC	1
	Mounting screw kit	PC	1
	Technical certificate	PC	1
	Package	PC	1

Storage and transportation conditions

Conservation

The term of protection without re-preservation is 10 years.

Disposal

Warranty

The manufacturer guarantees that the product complies with safety requirements, provided that the consumer observes the rules for use, transportation, storage, installation and operation. The warranty covers all defects caused by the manufacturer. The warranty period of the product is 36 months from the date of commissioning, but not more than 40 months from the date of shipment.

The warranty does not cover defects arising from:

- violations of passport modes of storage, installation, testing, operation and maintenance of the product;
- improper transportation and loading and unloading operations;
- the presence of traces of exposure to substances aggressive to the materials of the product;
- the presence of damage caused by fire, natural disaster, force majeure;
- damage caused by incorrect actions of the consumer;
- the presence of traces of foreign interference in the design of the product.

The manufacturer reserves the right to make changes to the design that improve the quality of the product while maintaining the basic performance characteristics.

Warranty Terms

Claims to the quality of the goods can be made during the warranty period.

Defective products are repaired or exchanged for new ones free of charge during the warranty period. The decision to replace or repair the product is made by the service center. The replaced product or its parts obtained as a result of repair become the property of the service center

The costs associated with the dismantling, installation and transportation of a defective product during the warranty period are not reimbursed to the Buyer.

If the claim is unfounded, the costs of diagnostics and examination of the product are paid by the Buyer.

Products are accepted for warranty repair (as well as for return) fully equipped.

Manufacturer information

DVC Technologies Website: <https://division.business>

Warranty card No. _____

Name of product
DVC-POINT CENTRAL CONTROLLER

No	Brand	Quantity
.		
1		
2		

Controller serial number _____

Name and address of the trading organization _____

Date of sale _____ Seller's signature _____

Print Acceptance stamp

I AGREE WITH THE WARRANTY TERMS:

BUYER _____ (signature)
Warranty period - Thirty-six months from the date of sale

For warranty repairs, complaints and quality claims, contact the service center at the address: Russian Federation, 344000, Rostov-on-Don, Krasnoarmeyskaya st., build 7/97 of. 16, tel. (863) 283-09-00.

When making a claim to the quality of the goods, the buyer submits the following documents:

1. An application in any form, which indicates:
 - name of the organization or full name buyer, actual address and contact numbers;
 - name and address of the organization that carried out the installation;
 - the main parameters of the system in which the product was used;
 - a brief description of the defect.
2. A document confirming the purchase of the product (invoice, receipt).
3. This completed warranty card.

Return or exchange note:

Date: " __ " _____ 20__ Signature _____