RS02 module of the BITREK CONNECT system

Device assignment

The RS02 module (firmware “CAN-Log”) of the Bitrek Connect system is a communication device and is designed for providing communication with the universal programmable controller CAN-Bus “CAN-Log” P145/U245.

Package Contents

The RS02 module of the Bitrek Connect system is delivered in the following configuration:

- RS02 module - 1 pc;
- Data sheet - 1 pc;
- Warranty card - 1 pc;
- Packing box - 1 pc;
- Micro Fit 4-pin cable - 1 pc;
- Micro Fit 6-pin cable - 1pc;
- Rubber gasket - 3pc.

Device specifications

Technical characteristics of the device are presented in Table 1.

Table 1: Technical specifications of the device

№	Parameters	Characteristics
1	Power supply voltage	from 9 V to 36 V
2	Consumption current	20 mA
3	connection interface	CAN-Log RS-232
4	Operating temperature range	-30°C to +80°C
5	Allowable humidity	80 ± 15%
6	Dimensions	(W × D × H) 78 × 83 × 30 mm
7	Weight	130 g
8	housing protection class	IP44

Appearance and dimensions of the device

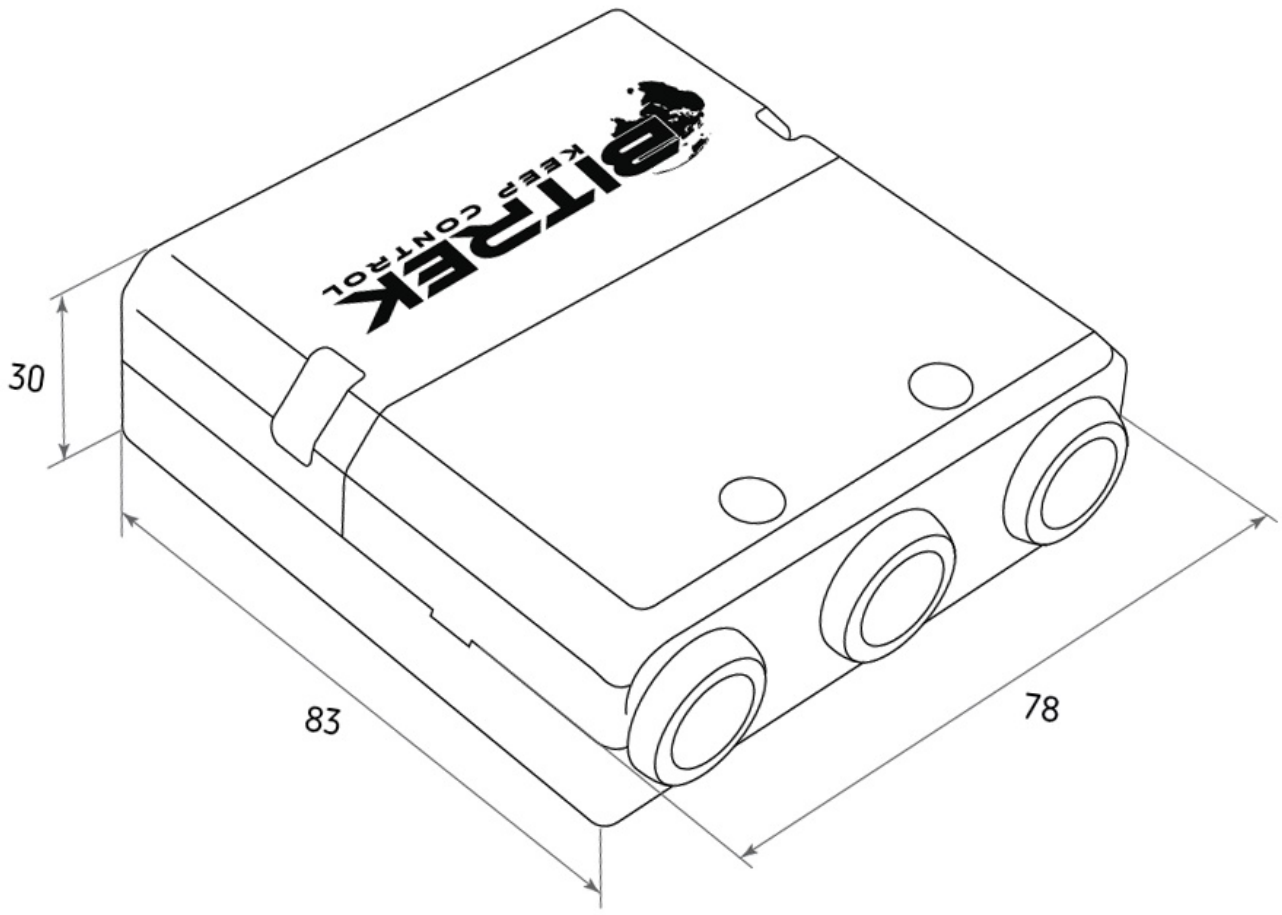

Fig.1. Appearance and dimensions

Pin assignment

The CN03 module is equipped with three Micro-Fit connectors (Fig. 2).

Fig.2. The appearance of the connectors

The four-pin connectors (Fig. 3) are Connect-Bus connectors, which have the power outputs of the module and the outputs signal lines of the bus.

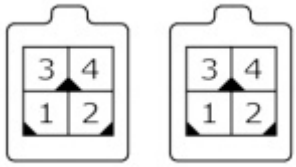

Fig.3. Connect-Bus connectors #1 and #2

The pinout of the Connect-Bus connectors is shown in Table 2.

Table 2 The pin-out of the Connect-Bus connectors No.1 and No.2

№	Pin name	Signal type	Pin assignment
1	GND	Power supply	General lead (ground)
2	CAN L	Input/output	Signal “CAN_L” of the CAN bus
3	+ Vin	Power supply	“+” On-board power supply (nominal voltage 12 V or 24 V)
4	CAN H	input/output	signal “CAN_H” on the CAN bus

The six-pin connector (Fig.4) is the connector for the “CAN-Log” connector. It has power outputs and signal lines of the RS-232.

Fig.4. Connector for connecting “CAN-Log”

The connector pinout for connecting “CAN-Log” is presented in of the “CAN-Log” connector is presented in Table 3.

Table 3: Connector pinout for connecting “CAN-Log”.

№	Contact name	Signal type	Pin assignment
1	RX D	Input/Output	RS-232 interface RX signal
2	+ Vin	Power	“+” output of onboard power supply (for power supply to external devices)

№	Contact name	Signal type	Pin assignment
3	GND	power supply	common wire (ground)
4	TX D	input/output	RS-232 TX interface signal
5	+ Vin	power supply	output “+” on-board power supply (for power supply to external devices)
6	GND	power supply	common wire (ground)

Description of indications

On the front panel of the module on the connector side there are two LEDs on the connector side of the front panel indicate the current status of the device. **Red LED** - Illuminates when the connection to the Connect-Bus connection is active;* **Green LED** - blinks when RS-232 communication is active.

Module Algorithm

The RS02 module of the Bitrek Connect system communicates via the RS-232 interface the module communicates with the “CAN-Log” device. The module receives data from the device and transmits them to the Connect-Bus.

A total of 29 predefined PGNs are sent to the bus. The list of all variables broadcast to the bus is presented in the Addendum 2.

Some of the variables that are translated to the bus can contain zeros. This situation is possible if:

- The set interrogation period of the sensor is longer than the sending period of the variable containing the value of that sensor;
- The “CAN-Log” device does not send information on the current sensor.

Configuring the RS02 module

The RS02 module has a number of configurable parameters of which are listed in Appendix 1. To configure the module The Bitrek Connect configurator module is used, as well as Connect Configurator software. How to work with the configurator module and The software is described in detail in the document “General Guide to Organizing and Configuring the Bitrek Connect System. The general guide to organizing and configuring Bitrek Connect system”.

The RS02 module is compatible with the “CAN-Log” modules of both older versions (P145) and new (U245) modules. The selection of the “CAN-Log” version is done by the parameter ID 0405.

The RS02 module has the possibility to set the working of the “CAN-Log” module. For this purpose in the module parameter ID 0404 it is necessary to enter the desired number of the “CAN-Log” program. At If the value 0 is entered in this parameter, the program number program number will not be

changed.

It should be borne in mind, that the setting of the program number will take place only after restarting the module.

It is possible to check the communication between the “CAN-Log” module and the RS02 module. For this purpose the test program CANLog must be installed. In this mode CAN-Log simulates the connection to the external CAN bus of the vehicle and transmits a number of test parameters. These parameters are read out and transmitted to the Connect-Bus. Consequently, it is possible to set these parameters for server by means of a Connect tester. The parameters that can be used as control parameters can be used as parameters coolant temperature and engine speed.

The test program number for the “CAN-Log” version P145 is 188. For version U245 the test program number is 11188.

The basic setting of the module is reduced to setting only two the version of the “CAN-Log” protocol and the number of the “CANLog ”. After these parameters are set correctly, the RS02 module will start transmitting to the bus a number of parameters received from the “CAN-Log”.

Connecting the "CAN-Log" to the RS02 module

The RS-232 interface connection of the “CAN-Log” module and the RS02 module is connected crosswise: the RX signal of the “CAN-Log” module is connected to the TX signal of the RS02 module (see Table 5.)

Table 5. Connection diagram of the “CAN-Log” module

SEO CAN-LOG	**Connect**	**RS02 module**	
Pin name		**Pin number**	**Pin name**
RS 232 Rx	⇔	4	TX D
RS 232 Tx	⇔	1	RX D
GND	⇔	3 or 6	GND
+ Vin	⇔	5 or 2	+ Vin

Appendix 1 . Device parameters

№	**Parameter name**	**ID when configured**	**Parameter digit**	**Parameter assignment**	**Default value**
1	CANSlaveAddr	0200	1 byte	The device address on the Connect-Bus	4
2	CANLogPrgNum	0404	2 bytes	CAN Log program number	188
3	SturtupNum	0405	4 bytes	CAN Log protocol version	0
4	BusSendPeriod	0700	1 byte	1 byte CAN Log data sending period to Connect-Bus	1100
5	CANLogPollingPeriod	0701	1 byte	CAN Log polling period, in seconds	5

№	Parameter name	ID when configured	Parameter digit	Parameter assignment	Default value
6	DevicePIN	0910	1 byte	Device access password	11111

Addendum 2. List of variables broadcasted to the Connect-Bus

№	Parameter name	Width	PGN	Start Bit	Bit Total	Timeout	Discreteness
1	Device model	4	18F713	0	32	10	-
2	Software version	4	18F713	32	32	10	-
3	module operating time	4	18F712	0	32	10	1 sec
4	number of starts of the module	4	18F712	32	32	10	pcs
5	engine runtime	4	18F715	32	32	5	1 sec
6	vehicle mileage	4	18F716	0	32	5	0.005 km
7	Fuel consumption	4	18F716	32	32	5	0.05 l
8	Fuel level in the tank (liter or %)	2	18F717	0	16	5	0.1 l/0.1 %
9	Engine speed	2	18F717	16	16	5	0,25 rpm
10	Motor temperature	1	18F717	32	8	5	-60 °C
11	vehicle speed	1	18F717	40	8	5	1/256 km/h or 1 km/h
12	axle load #1	2	18F717	48	16	5	0.5 kg
13	axle load #2	2	18F718	0	16	5	0.5 kg
14	axle load #3	2	18F718	16	16	5	0.5 kg
15	axle load #4	2	18F718	32	16	5	0.5 kg
16	axle load #5	2	18F718	48	16	5	0.5 kg
17	Harvesting time	4	18F71A	0	32	5	1 min
18	Harvested area	4	18F71A	32	32	5	1/10000 ha
19	Capacity	2	18F71B	0	16	5	1/100000 ga/h
20	harvested yield	4	18F7B	16	16	5	1 kg
21	grain moisture	2	18F71B	48	16	5	0,1%
22	AdBLUE liquid level	2	18F71C	0	16	5	0.1%
23	threshing drum speed	2	18F71C	16	16	5	1 rpm
24	Outlet drum clearance	2	18F71C	32	16	5	1 mm
25	Accelerator pedal position	1	18F71C	48	8	5	0.4%
26	engine load	1	18F71C	56	8	5	1 %
27	mileage to next service	2	18F71D	16	16	5	1 km
28	excess mileage	2	18F71D	32	16	5	1 km
29	mileage after service	2	18F71D	48	16	5	1 km