Converter RS-BL

Manual

2016

CONTENT

1. General information about the product

1.1. Purpose of the product

1.1.1. The converter RS-BL (hereinafter referred to as the converter) is intended for tuning the communication interfaces of the detector and control panel when adjusting and testing the detector's operability.

The converter is designed for interoperability with the FMC series detectors devices (and Tribo-M detector over the wire communication line only).

A personal computer (PC) or an Android based device may be used as the control panel.

1.1.2. The converter consists of two independent converters:

- Converter RS-485 in a USB (hereinafter referred to as RS), ensuring the connection of the detector to the PC or Android device over the wire communication line;

- Converter RS-485 in Bluetooth (BL), ensuring the connection of the detector to the Android device over the wireless network.

1.1.3. The RS power supply is provided from the PC's or Android device's USB port.

1.1.4. The BL power supply is provided from the embedded lithium polymer battery or from an external AC power source.

A standard 5V network adapter or the PC's USB port may be used for charging the battery.

1.2. Technical characteristics

1.2.1. The technical characteristics of the RS are provided in Table 1.1.

Table 1.1 – The technical characteristics of the RS.

No.	Characteristic	Meaning
1	Power supply voltage	5 V (USB-port)
2	Consumption current, no less than	150 mA
3	Maximum data transmission speed	57600 bit/s
4	USB interface specification	2.0
5	Compatibility with the operation system	Windows XP… Windows 10
6	Network topology RS-485	Point-to-point
7	Communication line length RS-485, no longer than	1000 m
8	Operating temperature range	From - 40 to + 50°C

1.2.2 The technical characteristics of the BL are stated in Table 1.2

Table 1.2 – The technical characteristics of the BL

No.	Characteristic	Meaning
1	Power supply voltage	3.6 (internal accumulator)
		8…30 V (external source)
2	Consumption current, no more than	80 mA
3	Battery capacity, no less than	850 mA per hour
4	The time of operation of the transformer from fully charged battery, no less than	8 hrs
5	Battery charge time, no more than	3 hrs
6	Data transmission speed	57600 bit/s
7	Network topology RS-485	Point-to-point
8	The length of the communication line RS-485, no more than	1000 m
9	Bluetooth interface specification	2.1 + EDR
10	Bluetooth receiver sensitivity	-92 dBm
11	Bluetooth transmitter capacity	19 dBm (Class 1)
12	Bluetooth operating distance, no less than	100 m
13	Operating temperature range	From -20 to +50°C
14	Temperature range when the battery is charging	From 0 to +45°C

1.3. Completeness

1.3.1. The full set of delivery of the transformer is provided in Table 2

Table 2 – The delivery set

Name	Quantity	Note
Transformer RS-BL	1	
Connection cable FMC - RS	1	0.5 m
Connection cable micro USB - USB	1	
Charging device	1	
Package	1	
Technical certificate	1	

1.4. Installation and operation

1.4.1. The converter’s operation principle

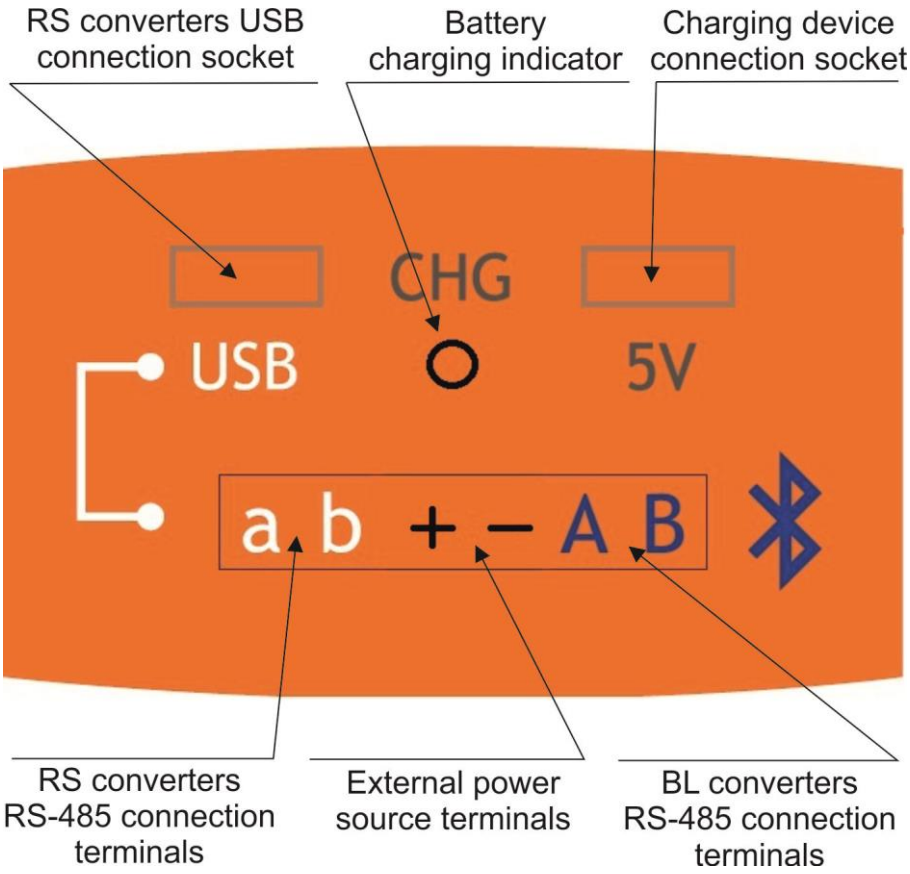
The RS converter converts the electrical and time-based characteristics of the RS-485 interface into the signals of the universal consecutive bus of the USB.

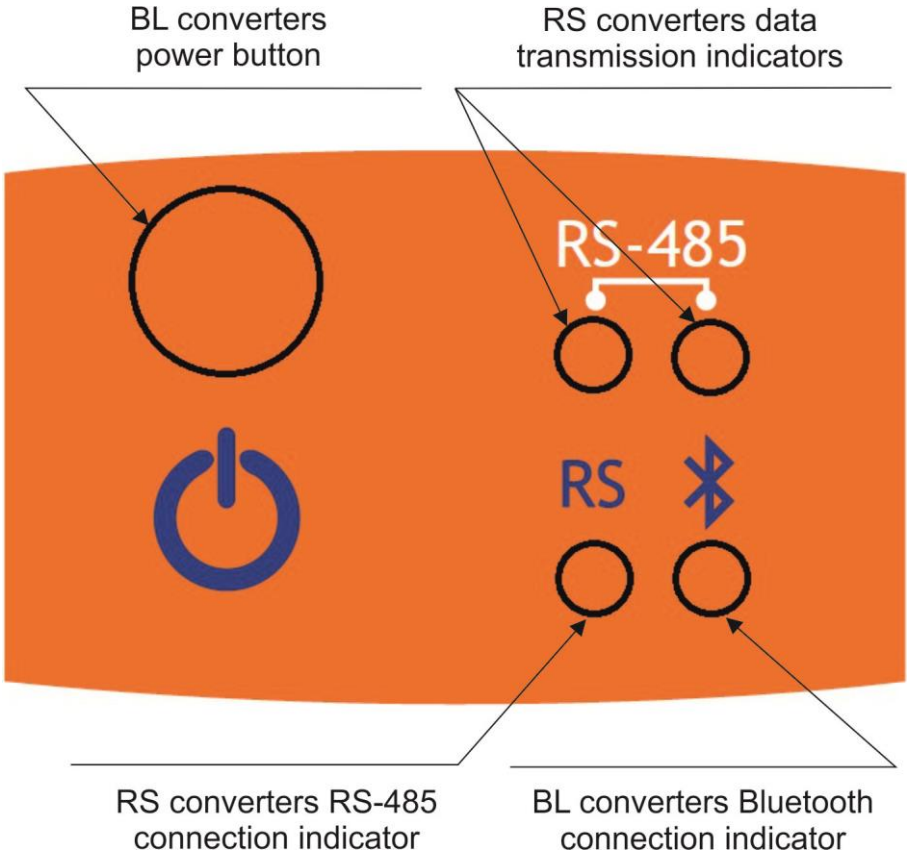
The BL converter transforms the electrical and time-based characteristics of the RS-485 interface into signals of the Bluetooth wireless personal network.

2. Operating instructions

2.1. Structure

2.1.1. The view of the transformer’s front and back panels is shown on the figure below.


RS converters USB connection socket
Battery charging indicator
Charging device connection socket
CHG
USB
5V
a b + – A B
RS converters RS-485 connection terminals
External power source terminals
BL converters RS-485 connection terminals


BL converters power button
RS converters data transmission indicators
RS-485
RS
RS converters RS-485 connection indicator
BL converters Bluetooth connection indicator

2.1.3. The RS converter's light indicators show the following information:

- The connection of the RS to the PC is indicated by triple synchronous flashes of both indicators;

- The rare flashes of both indicators show the receipt and transmission of data along the line of interface RS-485.

2.1.4. The light indicators of converter RS-BL show the following information:

– RS – shows the exchange of data along the line of interface RS-485 (rare flashing indicates the absence of connection to the RS-485, constant lighting means the proper connection to the RS-485):

– BL - shows the exchange of data along the Bluetooth line interface (rare flashing indicates the absence of connection to Bluetooth, constant lighting means the proper connection to Bluetooth).

The proper power supply to BL is indicated by periodic synchronous flashings of both indicators (in case of absence of exchange along the respective lines).

During the battery's discharge the RS and BL indicators are lighted in succession.

2.1.5. The CHG light indicator of the charging device (the red indicator) reflects the state of the battery during the charging (if the light is constantly on – the battery is under charging, if the light turns off – the charging is completed).

2.2. The converter's operation

2.2.1. For wireless connection of the Android control panel to the detector it is necessary to do the following:

- Connect the FMC – RS cable (it is applied in a set) to the "A-B" terminals of the BL converter (a red wire – A, black – B);

- Connect the plug of the FMC – RS cable to the signalling device's RS-485 socket:

- Power up the converter by pushing the power button;

- Turn on the Android application, search for the RS 485-BL*** (serial number on the product case) device and establish the connection.

The BL indicator must turn on.

2.2.2. While the battery is being discharged, the indicators RS and BL will light in succession.

In order to avoid deep discharge of the battery and, as the consequence, reduction of its life cycle, it is necessary to disconnect the battery (press the button one more time). If it is necessary to continue the operation, the power should be provided to the terminals as per Paragraph 2.2.3.

In order to charge the battery, it is necessary to connect the standard +5V network adapter with the permissible current load no less than 500 мА.

After the charging is completed, the CHG will turn off.

2.2.3. It is possible to feed the converter from an external source of 8…30 V. The external source must be connected to the terminals " + " and " – ".

2.2.4. For connecting the control panel to the detector with the help of wire connection it is necessary to do the following:

- Connect the FMC – RS cable (it is applied in a set) to the RS converter's terminals "a-b" (a red wire – a, black – b);
- Connect the plug of the FMC – RS cable to the detector's RS-485 socket;
- Connect the micro USB – USB cable to the socket of the USB converter RS-USB;
- Connect the opposite cable plug to the PC's USB port or to the Android device;
- Wait till the drive activates (working with "Windows");
- Activate the application.

3. The manufacturer's guarantee certificate

The manufacturer guarantees the conformity of the converter RS-BL No _____ to the conditions, provided in this manual and is considered suitable for operation.

Date of issue _____ 201

The guarantee operation period is 12 months as of the date of dispatch by the manufacturer.

The guarantee does not cover the converter if:

- The product is mechanically or thermally damaged or filled with water;

- The failures caused by operational parameters set out in this manual, failure to comply.

Send complaints to the following address:

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