



BMS USB-CAN 1.X

Interface adapter

CONNECTION MANUAL

Revision 1 (09-November-2022)

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1 General description

The BMS USB-CAN 1.x interface adapter provides conversion of USB bus signals to CAN bus signals. After connection to a PC the device is recognized as a virtual COM port.

The adapter includes a switch to connect the 120 Ohm terminal resistor to CAN lines. Also, it has a 5 Volts external power supply switch.

The adapter is compatible with following operating systems: Windows 98, Windows ME, Windows 2000, Windows XP, Windows Vista, Windows 7, Windows 8/8.1, Windows 10, Mac OS 8/9, Mac OS X, Linux 2.4 and above.



Figure 1. BMS USB-CAN 1.x

1.1 Functions

The BMS USB-CAN 1.x interface adapter performs the following functions:

- conversion of USB interface signals to CAN two-wire trunk interface signals with galvanic isolation ($V_{rms} = 1000V$);
- power supply and information exchange with BMS devices using the ElectricDeviceMonitor software.

1.2 Specifications

Parameter	Value
Supply voltage, V	5 (USB port)
Current consumption without external load, mA (max)	80
Maximum current consumption, mA	600
Maximum output current via 5V line, mA	400
CAN bus speed, kbit/s	125, 250, 500, 1000
Dimensions (length × width × height), mm	92 × 50 × 27
Weight, g	70
Operating conditions	
Operating temperature range, ° C	-40÷75
Degree of protection from external influences	IP20

1.3 Connection diagram

Figure 2 shows an option to connect the BMS USB-CAN 1.x to the CAN bus, which already integrates several devices. If the BMS USB-CAN 1.x is the last device on the bus, the 120 Ohm switch must be set to position "1".

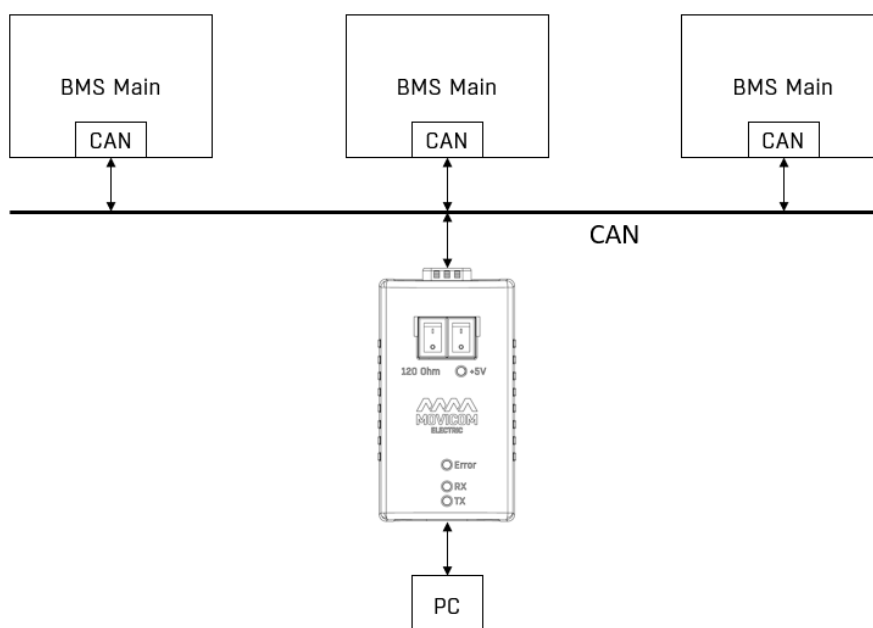


Figure 2. Scheme of connecting BMS USB-CAN 1.x to a bus with several devices

1.4 Safety regulations

The BMS USB-CAN 1.x device can be connected to devices with a high voltage level that is dangerous to life and health. When working with high voltage devices, follow the rules of electrical safety: use safety goggles, protective clothing, insulated tools, and devices.

2 Connection procedure

2.1 Device connectors

The location and designation of the connectors are shown in Figure 3.

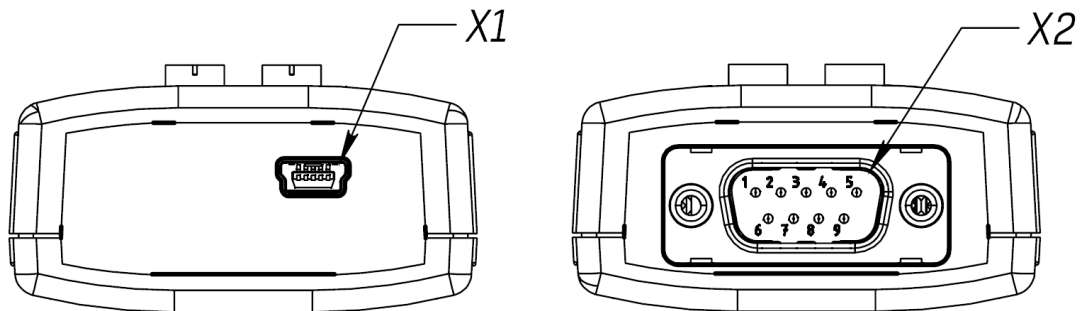
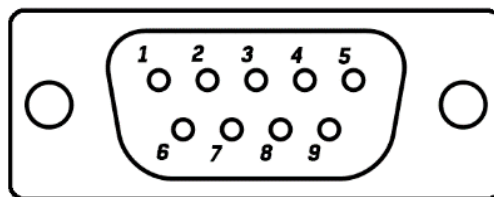


Figure 3. BMS USB-CAN 1.x connectors

2.1.1 X1 – mini-USB connector for communication with PC.

2.1.2 X2 – DB-9 connector for connecting to CAN bus.



Pin	Name	Description
1	-	-
2	CAN_L	CANL line of CAN bus
3	GND	Ground
4	-	-
5	-	-
6	-	-
7	CAN_H	CANH line of CAN bus
8	-	-
9	+5V	External device power supply

2.2 Settings

If the BMS USB-CAN 1.x is connected to a PC, it is recognized as a common USB Serial Port (see Figure 4). Remember the port number, it will be needed later during connection to the CAN bus.

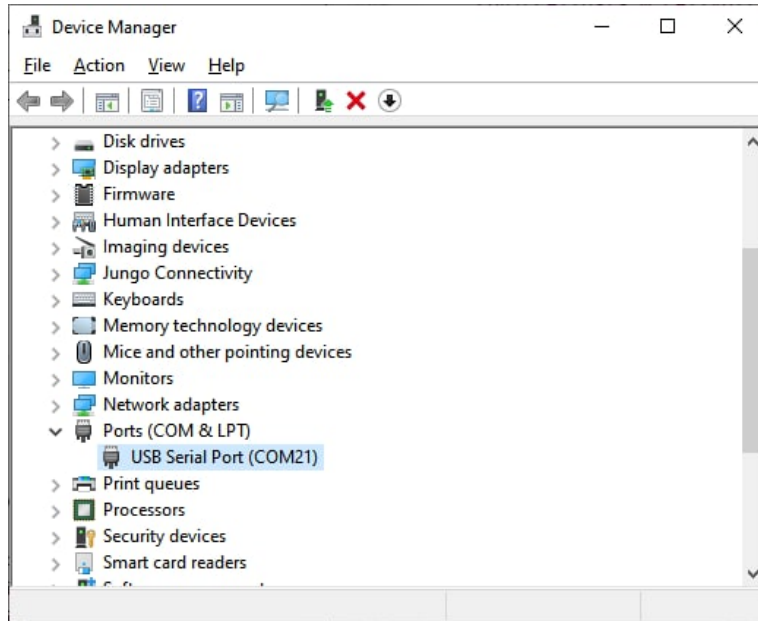


Figure 4. BMS USB-CAN in Device manager

Before using the BMS USB-CAN decrease the “Latency Timer” for correct operation. To do this, right-click on the “USB Serial Port” and select “Properties”.

In the opened window, select the “Port settings” tab and click the “Advanced” button (see Figure 5).

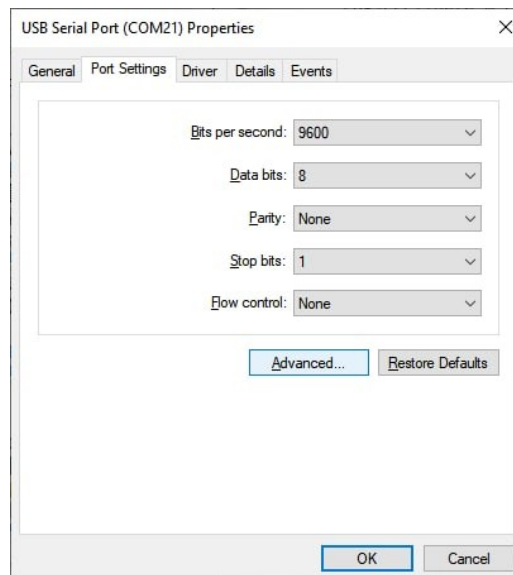


Figure 5. Serial port properties

In the opened window, set the “Latency Timer” to the minimum value of 1 ms (see Figure 6).

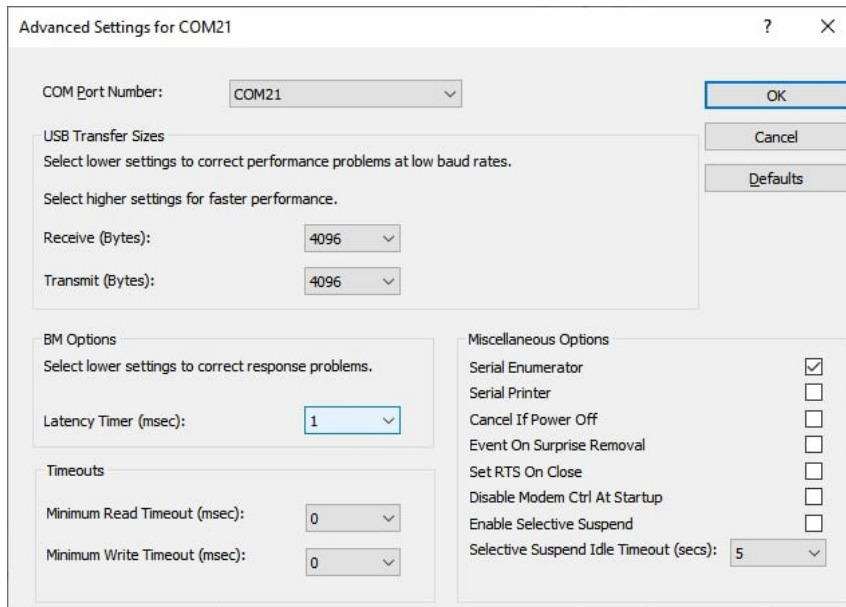


Figure 6. Serial Port Advanced options

To connect to the CAN bus, start the ElectricDeviceMonitor software and open the corresponding monitor.

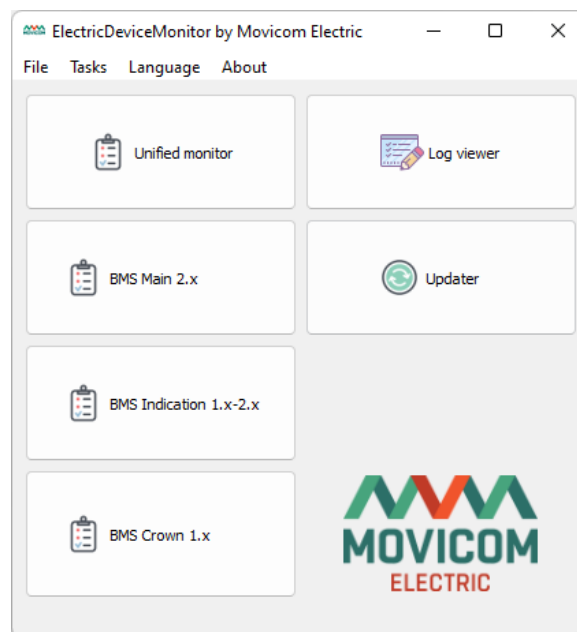


Figure 7. ElectricDeviceMonitor main window

In the interface settings, select the “BMS USB-CAN” in the list of CANopen interfaces. Then, select the port, which was previously specified in the Device Manager, set the bus speed and device ID. Then, click on the “Launch monitor” button (see Figure 8).

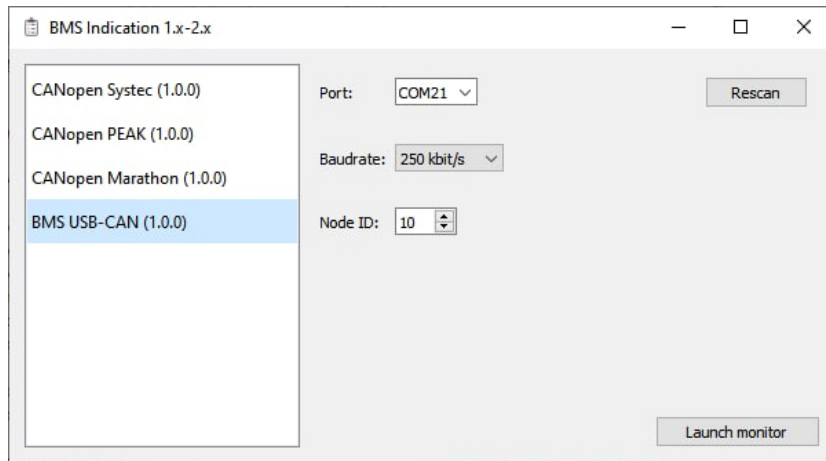


Figure 8. Interface settings

3 Contacts

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4 Revision history

Rev. number	Rev. date	Changes
1	09-November-2022	First revision

