DOT BCS

CAN READER

User Manual



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1. General Information

DOT BCS (hereinafter the “module”) is designed to read data from a vehicle or other machinery, process it and transmit it via Bluetooth, RS485 or USB.

The module is used in satellite-based vehicle monitoring systems as an interface between the tracker and the vehicle CAN bus.

Technical Specifications

Parameter	Value / Notes
Dimensions	61 × 42 × 15 mm; excluding antennas and mounting hardware
Weight	24 g; excluding wires
Supply voltage	8–40 V; excluding transient voltage spikes
Operating temperature	−40…+85 °C
Enclosure protection	IP54
USB	Type-C; data transfer, diagnostics, configuration and firmware updates
CAN	3 interfaces*; direct connection to the vehicle CAN bus
RS485	Data transmission using the DTA-CAN protocol
Bluetooth 5.0 (LE)	Data transfer, diagnostics, configuration and firmware updates*
Supported standard	J1939

IMPORTANT. Bluetooth configuration and the use of CAN3 instead of RS485 are available in a specialised firmware version.

DTA-CAN is the communication protocol name. In CAN Configurator, the corresponding value is DTACAN; this designation remains unchanged when the device is rebranded.

2. Pinout and Appearance

Pin	Designation	Function / Connection
1	VCC	Power supply positive
2	GND	Power supply negative
3	B / H3	RS485 B → tracker; CAN3 H → vehicle CAN*
4	A / L3	RS485 A → tracker; CAN3 L → vehicle CAN*
5	H2	CAN2 H → vehicle CAN
6	L2	CAN2 L → vehicle CAN
7	H1	CAN1 H → vehicle CAN
8	L1	CAN1 L → vehicle CAN

* CAN3 uses the RS485 pins and is available only in a specialised firmware version.



Figures 1 and 2 — Connector pinout and module appearance

3. Connections and LED Indication

Connecting to a Tracker

Data is transmitted to the tracker via RS485 or Bluetooth LE. For a wired connection, connect the corresponding RS485 lines: A to A and B to B. BLE reception using universal integration is described in Sections 5.1–5.2.

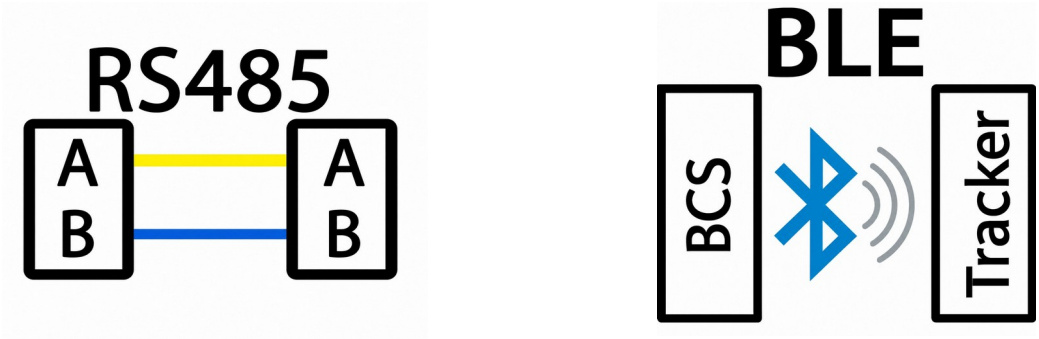


Figure 3 — Tracker connection: RS485 and Bluetooth LE

Connecting to the CAN Bus

Connect to the CAN bus according to the wiring diagram for the specific vehicle. Connect the H and L lines as shown in the relevant diagram. Diagrams are available on request from technical support — support@edvado.com.

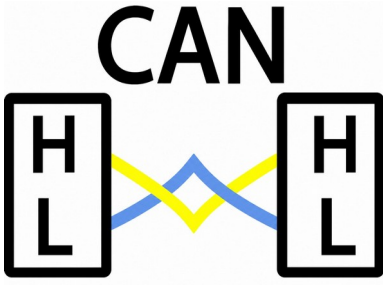


Figure 4 — CAN connection

LED Indication

Indicator	Colour	Meaning
POWER	Green	External power is connected
IGNITION	Blue	1 flash per second — normal operation; 3 flashes — ignition is on

4. Using CAN Configurator

CAN Configurator is an executable file (.exe) that requires no installation. No additional driver is required: the module is compatible with the built-in Windows driver.

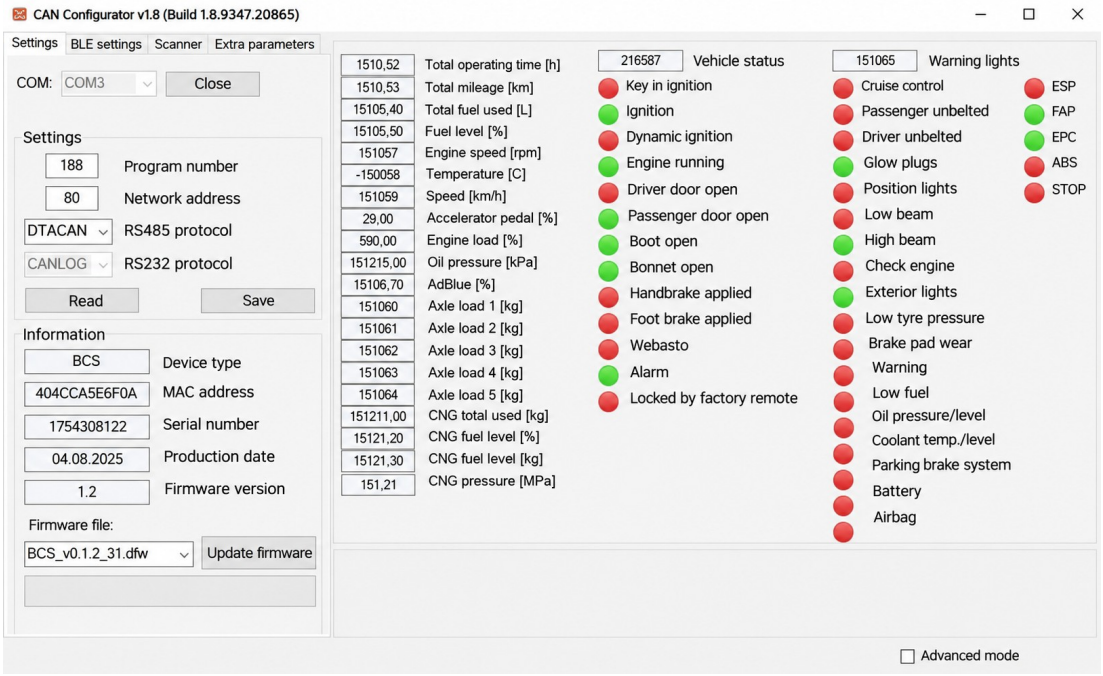


Figure 5 — CAN Configurator main window

Connecting to the Application

1. Connect the module to a PC via USB.
2. Open the COM port using the “Open” button in the top-left corner of the application window.
3. Once connected, the application automatically reads the module settings and displays them in the corresponding fields. CAN data in the right-hand section of the window starts refreshing once per second.

Reading and Saving Settings

To write modified parameters, click “Save” in the “Settings” section. To read the current settings, click “Read”.

Changing the Program Number

Enter the required number in the “Program number” field. Select the number from the list of supported vehicles. If the command is accepted, a module restart message appears; reopen the COM port after the restart.

IMPORTANT. Change the program number only when the module is disconnected from the CAN buses or the vehicle ignition is off.

5. Configuring BLE Transmission



Figure 6 — “BLE settings” tab

1. Open the “BLE settings” tab and enable BLE.
2. If necessary, change the device name and the advertising message rotation interval.
3. Select the parameters to transmit from the list. For reception using universal integration as described in Sections 5.1–5.2, select no more than four required CAN parameters.
4. To save the selected parameters, click “Save” on the “BLE settings” tab.

IMPORTANT. Manufacturer data contains up to 5 CAN parameters: the first is fixed (code 51, can_sequrity_state), and the remaining four are dynamic. If more than 5 parameters are selected, the dynamic parameters rotate at the specified interval; the default is 10 seconds. The packet structure and an example breakdown are provided in Section 7.

BLE data transmission and configuring the module itself via Bluetooth are different functions. Bluetooth configuration is available in a specialised firmware version.

The screenshots illustrate the CAN Configurator interface. The program numbers, firmware versions and parameter values shown are not recommended settings for your vehicle.

5.1 Selecting CAN Parameters on the Reader

1. Connect the reader to CAN Configurator and open the “BLE settings” tab. Select the “Enable BLE” checkbox.

2. Select up to four required CAN parameters in the “Parameters in advertisement” list and click “Save”. The reader transmits the selected data only if the CAN decoding program in use supports these parameters and the data is available on the vehicle CAN bus.



Figure 7 — Selecting parameters to transmit in CAN Configurator

5.2 Universal Integration Setup (DOT)

1. Open the DOT tracker settings → “Bluetooth (BLE) sensors”. In an unused “MAC address” field, enter the reader MAC address: 12 hexadecimal characters without separators. The address in the screenshot is an example only.

2. In the “Universal sensor integration” field associated with this MAC address, paste the entire string below:

FF#T220:[B11,B12,B13,B14];FF#T221:[B16,B17,B18,B19];FF#T222:[B21,B22,B23,B24];FF#T223:[B26,B27,B28,B29]

3. Click “Save”. Once BLE packets are received from the reader, the tracker starts transmitting the corresponding values to the monitoring platform.

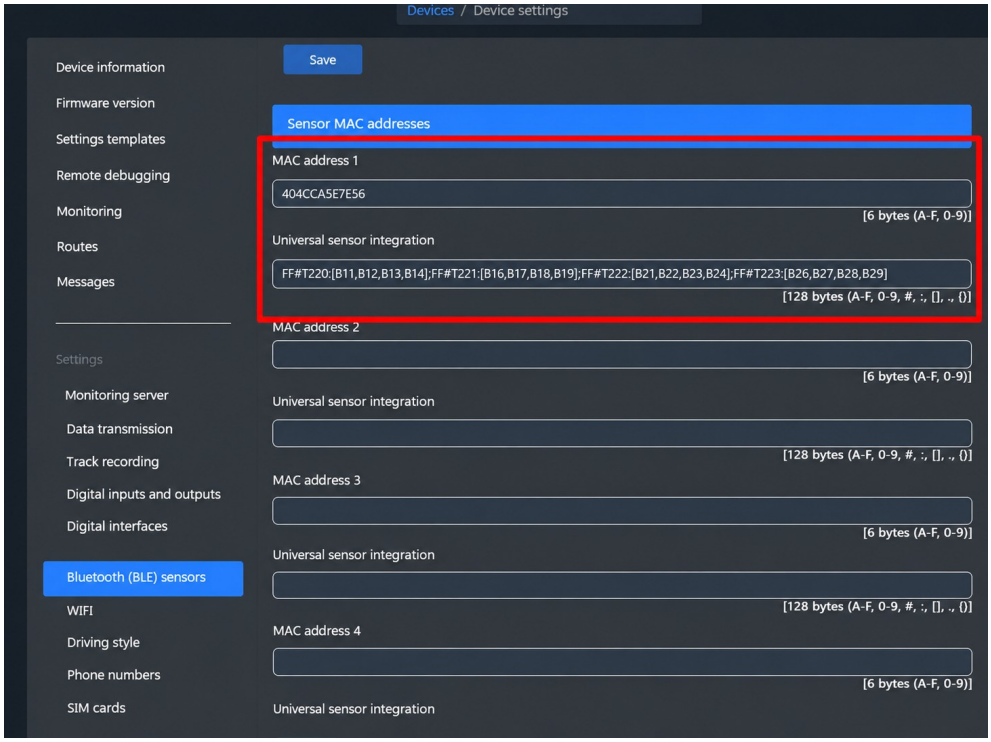


Figure 8 — Reader MAC address and universal integration string

Field mapping: T220 → VAL_10; T221 → VAL_11; T222 → VAL_12; T223 → VAL_13. These fields contain the values of the four dynamic parameters in their order within the BLE packet.

The meaning, units and scale of each value are determined by the transmitted CAN parameter. For example, a raw fuel level value of 982 corresponds to 98.2 L. The integration string extracts values, not CAN parameter codes.

If you use a tracker from another manufacturer with a similar function, contact that manufacturer to configure data reception. Provide this manual, particularly Section 7, “BLE Advertising Packet Format”.

6. Firmware Update

1. Obtain the latest firmware file for the module version in use.
2. Place the firmware file in the same folder as CAN Configurator.
3. Click “Update firmware”.
4. Wait for the update to finish. The module restarts automatically.

Software and Resources

The links below are retained from the original manual. They lead to the software developer’s external resources; rebranding the device does not change protocol or file names. Contact Edvado technical support to confirm that a specific firmware version is compatible with DOT BCS.

CAN Configurator — application download

List of vehicles and CAN programs

Firmware files

DTA-CAN protocol description

Edvado — official website

Wiring Diagrams

Wiring diagrams for the CAN bus of a specific vehicle are available on request from technical support — support@edvado.com. When contacting support, specify the vehicle model and the module version in use.

7. BLE Advertising Packet Format

The Manufacturer data field in a DOT BCS BLE advertising packet carries parameters obtained from the vehicle CAN bus, such as mileage, fuel level, temperature and other data.

7.1 Record Structure

Example record from the original documentation (hexadecimal data):

1EFF160FBC00338B92010038D603000039D30400003A500000003B7B000000

Field	Value	Purpose
Length	0x1E = 30	Number of following bytes: 1 byte for the record type + 29 bytes of Manufacturer data
Record type	0xFF	Manufacturer data — manufacturer-specific data
Manufacturer data	29 bytes	Prefix, sensor type, reserved byte and up to 5 CAN parameters

The complete record in this example occupies 31 bytes, including the length byte. Offsets in the table below are measured from the start of Manufacturer data — the first byte, 0x16, after 0x1E and 0xFF.

7.2 Manufacturer Data Payload

Offset, bytes	Size, bytes	Contents
0	2	Prefix (manufacturer code): 0x0F16; bytes 16 0F
+2	1	Sensor type — BCS: 0xBC
+3	1	Reserved: 0x00
+4	5	CAN parameter 1
+9	5	CAN parameter 2
+14	5	CAN parameter 3
+19	5	CAN parameter 4
+24	5	CAN parameter 5

Each CAN parameter occupies 5 bytes: 1 byte for the parameter code and 4 bytes for the value. The five-byte block range in the original description is 0x0000000000… 0xFFFFFFFFFF.

In this example, multi-byte numbers are stored least significant byte first (little-endian). Parameter codes and value formats correspond to the CAN parameters in the server communication protocol.

7.3 Example Breakdown

The prefix 16 0F, type BC and reserved byte 00 are followed by five CAN parameter blocks:

Block bytes	Code and parameter	Value
33 8B 92 01 00	0x33 = 51 Security flags	0x0001928B = 103051
38 D6 03 00 00	0x38 = 56 Fuel level	0x000003D6 = 982 98.2 L
39 D3 04 00 00	0x39 = 57 Engine speed	0x000004D3 = 1235 1235 rpm
3A 50 00 00 00	0x3A = 58 Engine temperature	0x00000050 = 80 80 °C
3B 7B 00 00 00	0x3B = 59 Speed	0x0000007B = 123 123 km/h

IMPORTANT. For fuel level in this example, the raw value 982 corresponds to 98.2 L (a scale of 0.1 L). The scale and interpretation of other parameters are defined by the protocol; a factor of 0.1 does not apply to all values.

7.4 Fixed and Dynamic Parameters

- Manufacturer data carries up to 5 CAN parameters.
- The first parameter is fixed: code 51, can_sequrity_state (security flags), is always transmitted.
- The remaining four parameters are dynamic; their transmission depends on data availability on the CAN bus.
- If more than 5 parameters are selected, the dynamic parameters rotate at the specified interval. The default interval is 10 seconds.

The name can_sequrity_state retains the spelling used in the original protocol description. Configuring the transmitted parameters and message rotation interval is described in Section 5.

8. Warranty Terms

The service life of the equipment is 10 years.

The manufacturer does not guarantee software or hardware compatibility with software or equipment not included in the package, unless explicitly stated in the operating manual.

This warranty does not cover device upgrades.

Warranty coverage is void in the following cases:

- Failure to comply with the product operating instructions.
- Mechanical damage, whether external or internal.
- Faults caused by foreign objects, insects or liquids entering the device.
- Chemical, electrochemical, electrostatic or extreme thermal damage.
- Damage caused by power supply, communication or cable networks that do not comply with applicable national standards.
- Damage caused by the installation of components that do not meet the manufacturer’s technical requirements.
- Repairs or preventive maintenance carried out during the warranty period by persons not authorised by the manufacturer.
- Damage to or removal of the manufacturer’s seals on the equipment.
- Malfunctions resulting from external influences on the equipment or on the electrical circuit to which it is connected.
- Faults caused by third-party actions or other unforeseen circumstances unrelated to the equipment manufacturer’s obligations.

9. Package Contents

The reader package contains the items listed in the table below.

#	Item	Qty	Notes
1	DOT BCS	1	CAN reader
2	Main wiring harness	1	
3	Product passport	*	On request

Up-to-date technical information and software are available on the manufacturer's official website.

Note: the manufacturer reserves the right to change the package contents without reducing the product's performance or functionality.