USB-CAN converter

Supplies with USB-OBD II cable for connecting to vehicle CAN BUS

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1 DESCRIPTION

1.1 COMMON:

- PC compatibility – USB 2.0;
- CAN speed up to 1 Mbit/sec;
- CAN Listen only mode;
- ASCII protocol compatible with CANHacker and BUSMASTER;
- Metallic enclosure;
- Galvanic isolation;
- ESD protection;
- OBD II cable included.

Technical specifications:

- CAN speed up to 1 Mbit/sec;
- CAN controller – STM (ST microelectronics);
- CAN transceiver – MCP2551 (Microchip electronics);
- Insulator – ADUM1201 (Analog devices);
- ESD protection – PESD2CAN (NXP Semiconductors);
- CAN connector – DB9 (male);
- Power over USB;
- Driver – virtual serial port;
- OS – Windows XP+ 32/64 bit;
- LED indicators: Power, Activity, Error;
- Connector: USB – mini USB B;
- Size 53x53x26 mm;
- Enclosure material – aluminum;

1.2 SCOPE OF DELIVERY

1. USB-CAN converter;
2. Cable mini USB B – USB A;
3. Cable DB9 – OBD II;
4. CD containing software and user manual;
5. Warranty card.

1.3 INDICATIONS

There are three LED indicators on the converter's enclosure.

Green LED – Power indicator, it turns on after successful connecting with USB.

Blue LED – Shows activity on CAN BUS.

Red LED – Shows errors on CAN BUS and turns off after user reeds them.

1.4 CAN CONNECTOR PINOUT

DB9 connector pinout is compatible with CiA recommendations and represented in following table.

PIN	SIGNAL	DESCRIPTIOM
1	-	Not in use
2	CAN-L	CAN-L (dominant -)
3	CAN GND	Common ground
4	-	Not in use
5	-	Not in use
6	CAN GND	Common ground
7	CAN-H	CAN-H (dominant +)
8	-	Not in use
9	-	Not in use

1.5 LOAD RESISTORS

USB CAN Converter does not include any load or terminating resistors. External resistors could be added if needed.

1.6 DRIVER

Driver is on CD disk within USB CAN converter package or can be downloaded from manufacturer web site http://www.scan.cariot.ru No additional configuration after driver installation does not needed.

2 ASCII COMMANDS

2.1 COMMON

USB CAN converter exchanges ASCII commands with PC. Each command ends with a CR (0x13) symbol, this symbol does not include in command description. After successful command execution device answers with a CR symbol, if there are no special conditions within command. If command does not execute, device answers with a BELL (0x07) symbol. All commands are case sensitive.

Digits are represented in HEX.

2.2 COMMANDS

2.2.1 Connect CAN BUS

CAN BUS connects with one of three commands: **O**, **L** or **Y**. O command turns on CAN controller on previous configured speed, L command additionally turns on spy (or silent) mode, in which CAN controller does not send «Acknowledge bit» in CAN BAS, Y turns on echo mode, in which controller accepts commands sent with it.

2.2.2 CAN BUS disable

For disabling CAN BUS use **C** command. Some commands can be used only if CAN BUS is disabled.

2.2.3 Configure standard CAN BUS speed.

You can choose preconfigures CAN BUS speed with a **Sn** command, where n – is number from following table. Command is available only if CAN BUS is disabled.

N	SPRRD
1	20 kbit/sec
2	50 kbit/sec
3	100 kbit/sec
4	125 kbit/sec
5	250 kbit/sec
6	500 kbit/sec
7	800 kbit/sec
8	1 Mbit/sec

2.2.4 Configure custom, nonstandard speed

2.2.5 Sending first standard packet

Standard packet sending is executed with **tiiildd[0..8]** command. If successful, answer will be – **Z**, if fail – BELL. Command is available after CAN BUS is enabled.

Settings:

iii – 11-bit CAN identifier.

l – data field length (DLC), 0…8.

dd[0..8] – data bits, amount must be according **l** field.

2.2.6 Sending standard read query

Read query with standard address is sending with **riiil** command. If successful, answer will be – **Z**, if fail – BELL. Command is available after CAN BAS is enabled.

Settings:

iii – 11-bit CAN identifier.

l – data field length (DLC), 0…8.

2.2.7 Sending extended packed

Extended data packets with 29 bit address sends with a **Tiiiiiiiildd[0..8]** command. If successful, answer will be – **Z**, if fail – BELL. Command is available after CAN BAS is enabled.

Settings:

iiiiiiii – 29-bit CAN identifier.

l – data field length (DLC), 0…8.

dd[0..8] – data bits, amount should be according **l** field.

2.2.8 Sending extended read query

Read query with extended address sends with **Riiiiiiiil** command. If successful, answer will be – **Z**, if fail – BELL. Command is available after CAN BAS is enabled.

Settings:

iiiiiiii – 29-bit CAN identifier.

l – data field length (DLC), 0…8.

2.2.9 Enabling / Disabling hardware timestamps

With **Z1/Z0** command you can enable/disable hardware timestamps. Command works only if CAN BUS is enabled.

2.2.10 Setup filter mode

D1/D0 – double/single filter mode (32bit filter or two 16bit filters).

2.2.11 Configure code and filter mask

Filter code sets with a **Mxxxxxxxx** command, the mask sets with **mxxxxxxxx** command.

2.2.12 Controller status query

You can get controller status flags with a **F** command. Status in answer will be **Fxx**, where xx – status flags in HEX mode.

2.2.13 Version query

To get device version use **V**. The answer will be **Vxxyy**, where **xx** – hardware version, and **yy** – software version

2.2.14 Serial number query

You can get serial number with **N** command. The answer will be decimal serial number. For example: N12345678.