

CAN100 User Guide For GV Series Tracker

ACCECAN100UG001

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International Telematics Solutions Innovator

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Contents

Contents	2
0. Revision history	3
1. General Description	0
2. Product Specification	1
2.1. Technical Specification	1
2.2. Part List.....	1
3. Installation.....	3
3.1. Pinout Description.....	3
3.2. Device Installation	4
3.3. CAN-bus Synchronization	4
3.4. Firmware Upgrade.....	5
3.5. Installation Example (GV300 with CAN100 STD)	5
3.6. Installation Example (GV200 with CAN100 STD)	6
3.7. Installation Example (GV65 with CAN100 INV)	6
4. Message Format and Operation	7

0. Revision history

Revision	Date	Author	Description of change
1.00	2014-08-26	Cid Xu	Initial
1.01	2014-10-23	World Chu	Add how to connect with GV65 device
1.02	2015-04-15	World Chu Super Zhao	Change document template and add GV200 installation example..

1. General Description

CAN100 is designed to gather logistic information from car for use of vehicles monitoring systems. CAN100 provides various information which describes current state of the car in simple, RS-232 based protocol, which is not dependent from car maker or model.

CAN100 decodes information from vehicles digital buses (CAN bus and J1708), i.e.

- vehicle distance,
- fuel level,
- fuel consumption,
- engine speed,
- engine temperatures,
- state of doors, locks, indicators on the dashboard,
- supports driver identification based on digital tachograph,
- and many others.

The number of supported information and car models increases continuously.


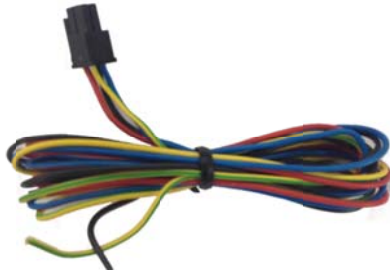


2. Product Specification

2.1. Technical Specification

NO.	ITEM	SPECIFICATION
1	Box size	69mm*49.5mm*18mm
2	Power supply voltage	7V to 32V
3	Power supply current	Typ. 11 mA
4	Power supply current in sleep mode	Max. 1 mA
5	Operating temperature	-40℃~+80℃

Table 1. CAN100 Technical Specification

2.2. Part List

Name	Picture	Remark
CAN100		CAN bus module
4 pin connector cable		Power supply and connect to telemetric device serial port, RS-323 compatible.
6 pin connector cable		Connect to telemetric device Canbus port
8 pin connector cable		Connect to telemetric device J1708 port



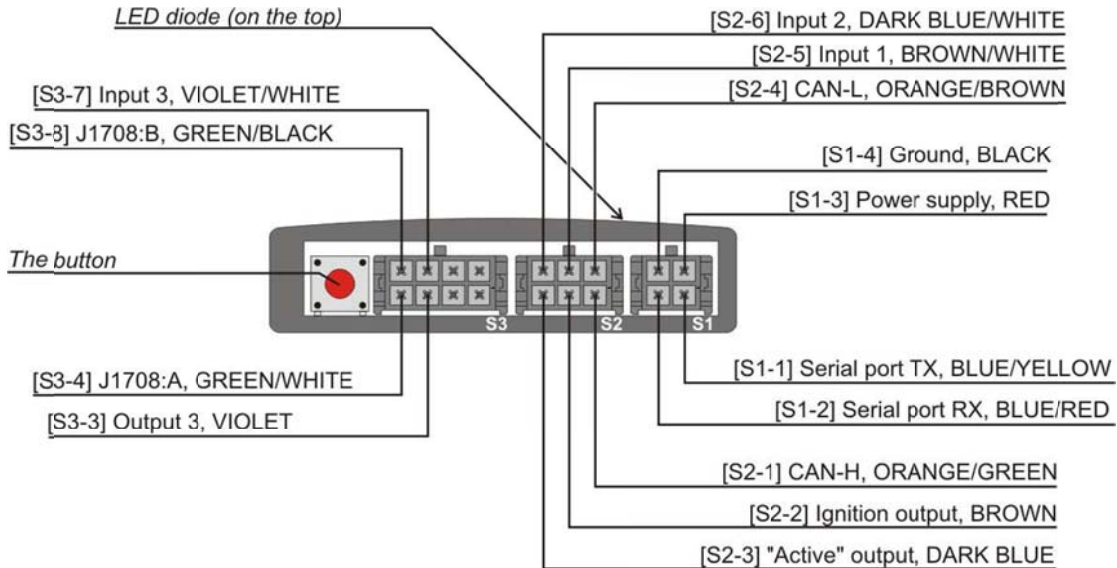
CAN click (Optional)		Connect to the CAN bus wire without breaking them, instead of 4 pin connector cable
CAN100 UART cable (Optional)		Power supply and connect to telemetric device serial port, UART compatible *Accessory for CAN100 INV.

Table 2. CAN100 Part List

3. Installation

3.1. Pinout Description



Picture 1: CAN100 - Pinout

- LED diode (on the top of the case) – indicates the mode of the device
- The button in front panel – runs synchronization, awakes the device

PINOUT:

- CANH and CANL - connect to CAN-bus in a vehicle
- J1708:A and B - connect to J1708 data bus in a vehicle (optional - in particular car models)
- SUPPLY POWER and GROUND - connect to vehicle power installation (both 12V and 24V installation accepted)
- Serial port TX and RX, full-duplex, compatible to RS232 and UART (options to choose) - connect to telemetric module serial port
- Ignition output (positive) - active, when car's ignition or engine is on (read from the CAN bus). Active level high (supply voltage, max. current 100 mA). Connect to telemetric device ignition input (instead of connecting vehicles ignition wire).
- Output "active" (negative) - indicate the status of digital buses in the car (CAN-bus and J1708). Shorted to ground (max. current 100 mA) when there goes information across CAN-bus or J1708. Inactive (high-impedance), when the car is in sleep (low power) mode. Connect to telemetric device's input, to wake it up when car is about to be running.
- Output 3 (negative, max. current 100 mA), configurable.
- Inputs 1, 2 and 3 - analog (resolution up to 12 bits) or digital (configurable).

3.2. Device Installation

The device is to be installed in the car connecting the power supply and CAN-bus (and optionally J1708) according to the installation diagram (diagram available for each car model, which CAN100 works with).

When you connect the power on, the LED diode on the top of the unit case flashes green:

- once per second, if the information is received from the CAN bus, or J1708,
- once per 4 seconds, if the CAN and J1708 bus are in sleep mode or improperly connected,

When the car goes into standby mode (low power), CAN bus (and J1708) goes sleep, too.

Then, the CAN100 goes into low power mode. Then the LED diode is off.

CAN100 returns to normal operation as soon as CAN or J1708 bus is activated. At the same time the output [S2-3] ("active") will be activated (negative).

Sleep mode can also be ended by pressing a button on the front panel of the device.

After pressing the button, the LED will flash accordingly.

WARNING! If Ignition is turned on in the car, and the LED blinks every 4 seconds - the device is not properly connected to the vehicle CAN bus.

After connecting (as described above), the CAN100 is ready to work and is able to communicate through the serial port.

3.3. CAN-bus Synchronization

Particular car models' CAN-buses vary from each other significantly. CAN100 is able to recognize each type of CAN-bus and adjust automatically.

Unconfigured device on first-time run starts synchronization immediately after power is supplied. Synchronization should be performed after the device is connected to the CAN bus (and J1708, if required). Make sure that car ignition is on during synchronization.

If device is configured for any car, synchronization can be started in the following way:

1. Connect the power for the device. The LED lights red.
 2. Press the button on the front panel of the device (you can hold it while connecting power supply).
 3. After approximately 3 seconds, the LED will light green. Then release the button.
- After starting the device, sync LED blinks red. After several seconds (up to half a minute), synchronization is done and:
- if the green LED lights – car has been synchronized successfully, turn the power supply off and on after 5 seconds - now the device is synchronized with the car.

- if the LED flashes alternating green / red - it means an invalid connection to the CAN-bus. Make sure the CAN-bus wires are not swapped (CAN-H against CANL), and the ignition is turned on. If these conditions are met – the device is not connected to any CAN-bus.

- if the red LED light - CAN bus connection is correct, but the car has not been recognized. The current version of the software of CAN100 will not work with this car model.

CAN-bus synchronization may also be performed through the serial port.

On request, the device may be delivered with the proper configuration for the selected car model.

3.4. Firmware Upgrade

CAN100 firmware can be updated through the serial port. Before installing the unit in the car, make sure that the most current firmware version is loaded.

Subsequent versions of the software can support more information from the vehicle CAN-bus, and will also support more car models.

Details of software updates, as well as the latest firmware versions will be provided by the device supplier.

3.5. Installation Example (GV300 with CAN100 STD)

GV300 can communicate with CAN100 device via RS232 port.

The following table shows the definition of CAN100_STD device's external interface.

Pin No.	Pin Name	Cable Color
S1-1	TX	Blue/Yellow
S1-2	RX	Blue/Red
S1-3	Power Supply	Red
S1-4	Ground	Black

Table 3. External Interface of CAN100_STD Device

The following table shows how to connect with the GV300.

GV300				CAN100_STD		
Pin No.	Pin Name	Color	Connection	Pin No.	Pin Name	Color
4	RXD	Green or Pink	↔	S1-1	TX	Blue/Yellow
5	TXD	White/Black	↔	S1-2	RX	Blue/Red
11	Power	Red	↔	S1-3	Power Supply	Red
6	Ground	Black	↔	S1-4	Ground	Black

Table 4. CAN100_STD Device Connects with GV300

3.6. Installation Example (GV200 with CAN100 STD)

GV200 can communicate with CAN100 device via RS232 port.

The following table shows the definition of CAN100_STD device's external interface.

Pin No.	Pin Name	Cable Color
S1-1	TX	Blue/Yellow
S1-2	RX	Blue/Red
S1-3	Power Supply	Red
S1-4	Ground	Black

Table 5. External Interface of CAN100_STD Device

The following table shows how to connect with the GV200.

GV200				CAN100_STD		
Pin No.	Pin Name	Color	Connection	Pin No.	Pin Name	Color
9	RXD	Orange	←→	S1-1	TX	Blue/Yellow
11	TXD	Orange / Gray	←→	S1-2	RX	Blue/Red
24	Power	Red	←→	S1-3	Power Supply	Red
23	Ground	Black	←→	S1-4	Ground	Black

Table 6. CAN100_STD Device Connects with GV200

3.7. Installation Example (GV65 with CAN100 INV)

GV65 can communicate with CAN100_INV device via UART port. Only for the serial ports of CAN100_INV device is TTL.

First, connect the CAN100 UART CABLE with GV65, then you can connect CAN100 device with GV65 conveniently.



Picture 2: GV65 device connects with CAN100 UART CABLE

4. Message Format and Operation

Reference to relevant @Track Air Interface Protocol.