CANTEC-F1/USB
Can-bus adapter

Technical description

Module description

CANTEC-F1/USB – universal CAN-bus adapter (hereinafter-module), designed for an aftermarket multi purpose equipment connection to the vehicle CAN-bus.

Doesn't require programming during installation- the module is ready for operation. The module interfacing with the vehicle (model selection) is performed automatically: after the module connection to CAN-bus, to +12V and performing some simple actions (for most vehicles: turning ignition ON/OFF and arming/disarming with OEM remote key), the module automatically recognizes the vehicle. The web-tool Integrator (visit www.tec-integrator.com) was designed to provide you with all information necessary for module installation in a particular vehicle and with the list of compatible vehicles, and information on module operation.

Connections

Module pin assignment is described in Table 1. Connector pin numeration is shown in figure 2.

Inputs/outputs configuration is carried out through programming (read section «Module hardware functions programming»). The module is connected to PC via micro USB cable (no auxiliary equipment required). It gives the possibility for quick module firmware updating, car model setting up, adjusting inputs/outputs configuration.

Micro-USB connector is hidden inside the plastic shell. The latter needs to be disassembled in order to get access to Micro-USB connector.

Micro-USB (inside the plastic shell)
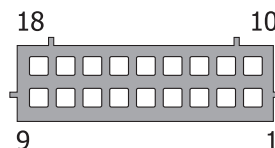

Figure 1. CANTEC-F1/USB module

Figure 2. Connector pin numeration, view from wire harness side

Table 1. Module connector pin assignment

№	Color	Type	Wire function	I, mA
1	Blue/red	Output (+/-)*	Hazard lights alternative control	200
2	Blue/yellow	Output (+/-)*	Central locking system alternative control	200
3	Black	Power supply	Ground	–**
4	White/black	Output (+)	Engine is running	50
5	Green/yellow	Output (-)	Parking brake	50
6	Pink/green	Output (+)	Brake	50
7	Yellow/red	Output (+)	Ignition	50
8	Green	Input (-)	Lock Centrol locking	1,5
9	Blue	Input (-)	Unlock central locking	1,5
10	Brown/red	CAN	Data bus CAN-H	–
11	Brown	CAN	Data bus Can-L	–
12	Red	Power supply	+12 V	750 (7)***
13	Grey/black	Output (-)	Driver door	50
14	Grey/blue	Output (-)	All doors	50

№	Color	Type	Wire function	I, mA
15	Grey/green	Output (-)	Trunk	50
16	Grey/yellow	Output (-)	Hood	50
17	Orange/white	Input (+)	Turn signal idicators activation	1,5
18	Orange/green	Input (-)	Trunk release	1,5

*Outputs with variable polarity. The polarity adjusts automatically after the vehicle identification procedure has been complete.

**The current consumtion depends on electric energy demand connected to negetive outputs.

***Absorbed current typical value in active mode and in stand-by mode can vary depending on electric energy demand connected to positive outputs.

The outputs №№ 4-7, 13-16 are with bare collector. It is strongly prohibited to short circuit the outputs №№ 4, 6, 7 to Ground and outputs №№ 5, 13-16 to +12 V.

Module connector pin description

Pin №1. «Hazard lights alternative control». Is used mostly on vehicels where control of hazard lights via Can-bus is not supported. The information about connection specificity on particular vehicle is available at: www.integrator.com.

Pin №2. «Central locking system alternative control». Is used for vehicles where central locking system is not controlled via Can-bus.

Pin №3. «Ground». Must be connected to vehicle ground at one of the points foreseen by the vehicle manufacturer for electrical equipment connection to «ground».

Pin №4. «Engine is running». Constant level signal (+12V) is formed during engine operation.

Pin №5. «Parking brake» Constant level signal («ground») is formed when the parking brake is engaged.

Pin №6. «Foot brake». Constant level signal (+12V) is generated when the foot brake is pressed.

Pin №7. «Ignition». Constant level signal (+12V) is formed when the ignition is turned ON.

Pin №8. «Central locking lock». Locking of the central locking system if negative pulse is applied.

Pin №9. «Central locking unlocking». Unlocking of the central locking system if negative pulse is applied.

Pins №№ 10, 11. Connection to vehicle CAN-bus (see Itegrator).

Pin №12. «Power supply». Shall be connected to one of the vehicle wires with non commutated voltage +12 V, using 1 Amp fuse.

Pin №13. «Driver's door». Constant level signal is generated («ground») if driver's door is opened.

Pin №14. «All doors». constant level signal is formed («ground») if any vehicle door is opened.

Pin №15. «Trunk». Constant level signal is formed («ground») if trunk is opened.

Pin №16. «Hood». Constant level signal is formed («ground») if hood is opened.

Pin №17. «Turn signal indicators activation». If pulse is applied on the input- turn indicators will flash. On some vehicles, due to their constructive peculiarity, is possible uneven lamp flashing while the pulses applied are even.

Pin №18. «Trunk release». If negative pulse is applied on this input- the trunk lid will be released.

Module adjustment

Use the programming button and LED indicator which are embedded into module for module adjustment (see figure 1).

Vehicle identification

All vehicles supported by the module are divided into groups and subgroups (see Integrator). Vehicle identification procedure is group and subgroup assignment.

If the module had already been installed on another vehicle earlier (group and subgroup were assigned), then prior to performing vehicle interfacing procedure, reset the module to factory settings.

There are two vehicle identification (interfacing) methods:

1. Automatic identification (interfacing).

After module connection to vehicle CAN-bus, supplying power to it and performing a series of simple actions (for most vehicles those actions are: turning ignition ON/OFF and vehicle locking/ unlocking with OEM remote key) the required group and subgroup will be defined automatically. You just need to control correctness of identified group and subgroup by checking LED indicator flashes (group number – pause, subgroup – pause). Vehicle identification (interfacing) procedure for every particular vehicle is described in the web-application Integrator (visit www.tec-integrator. com).

Vehicle identification (interfacing) is recommended to perform in automatic mode (when installing directly on the vehicle).

2. Forced vehicle identification (interfacing) procedure.

Most often is used in exceptional cases only.

Programming is carried out via Programming button(PB). Prior to interfacing, the vehicle group shouldn't not be identified and the CAN bus shouldn't not be connected. The module will exit the programming mode if the PB is not pressed within 60 seconds.

The most convenient way for forced interfacing is performing this procedure via TECprog, connecting the module directly to PC, if there is no such possebility- the vehicle identification (interfacing) procedure can be done manually.

Programming sequence:
1. Connect the power source to the unit and wait for short LED flashes.
2. Press the PB 10 times in order to enter «Menu 1» (begin this action not later than 10 seconds after the module has been powered up). If all the actions have been carried out correctly, the module will inform about this by three LED flashes.
3. Enter the option No. 1 of the «Menu 1» – «Vehicle model» by pressing the PB once. The module will inform about the selected option with continuous single LED flash.
4. Set up a vehicle group by pressing the PB a particular number of times (see Integrator). The module will be periodically emitting series of LED flashes, the number of flashes corresponds to the group number.
5. Wait for 2 seconds.
6. Set up a vehicle subgroup by pressing the PB a particular number of times (see Integrator).

Check if the vehicle model has been chosen correctly by controling the LED flashes (group number – pause, subgroup number – pause):

• If a vehicle make and model have been set up correctly, press the PB once. The LED will stop flashing and the vehicle make and model will be programmed.
• If the vehicle model has been set up incorrectly, press the PB twice. Repeat the programming procedure beginning from the step № 4.

Module hardware functions programming

Programming is carried out according to «Menu-1».

Table 2. Module hardware functions configuration («Menu-1»)

№	Option description	Values range	Factory settings	Annotation
1	Vehicle model	–	–	Adjusts automatically or manually if needed (group, subgroup)
2	OEM alarm system control	1-2	1	1– enabled (LED glows); 2 – disabled (LED is off)
3	Windows automatic closure («Comfort»)	1-2	1	

Option №2. «OEM alarm control». If the OEM alarm system control is enabled, the unit locks and unlocks the vehicle central locking system using the same commands that activate (deactivate) the OEM alarm system (with OEM remote control, driver's door lock barrel, etc.). If the OEM alarm system control is disabled, the module locks (unlocks) the vehicle central locking with commands that don't activate (deactivate) the OEM alarm system. (E.g. central lock locking/unlocking via vehicle interior button).

Option №3. «Windows automatic closure». It allows to enable/disable «Comfort» feature when locking up a vehicle central locking. If the function is enabled in 2 sec after vehicle central locking has been locked up-the module will automatically close the windows and sunroof.

Programming sequence

1. Switch the ignition ON.
2. Enter the «Menu-1». In oreder to do that- press PB 10 times withing 10 sec. after switching the ignition ON.
3. Select a desired option in «Menu-1». For that purpose press the PB a particular number of times corresponding to the option number in the menu. Module will inform about the option number by the series of LED flashes.
4. Proceed to changing the option value. For that purpose- press and hold the foot brake. Module will inform about the current option value by LED flashes. While the foot brake is being held, time counting for programming mode automatic exit is not performed.

In case if in a vehicle CAN-bus the data on brake pedal state is absent (see Integrator), use input №18 of the module-"Trunk release": attach this input to the vehicle "ground" instead of pressing the brake pedal while programming the module.

5. Change the option value by pressing the PB once.

The module will exit the programming mode saving all configuration settings in nonvolatile memory after the ignition has been switched off or in 60 sec. after the last action has been performed, if the brake pedal is not pressed.

Resetting to factory default settings

There is the special procedure for resetting the module to factory default settings. After this procedure is complete-all the vehicle model settings will be erased from the nonvolatile memory and all the other options values will be reset to factory ones.

Sequence for resetting to the factory values:
1. Disconnect the module from the CAN-bus and power source.
2. Press and hold the PB.
3. With the PB held, supply power to the module (Can-bus should remain detached). Wait for intermittent LED flashes.
4. Detach power source, release the PB.