CANTEC-F1 v5

Technical Manual

(TEC-6060-3)

Unit Description

CANTEC-F1 v5 is a universal adapter designed for connecting accessory security systems to vehicle’s CAN bus. The unit allows reading the information necessary for the alarm system from the bus and controlling certain vehicle units.

For information on unit connection to each vehicle in particular and the list of vehicles supported by the unit along with information on its functioning particularities, please refer to Integrator data (hereinafter referred to as Integrator).

Unit inputs/outputs

Information on unit port’s outputs assigning is located in Table 1 and Fig. 1.

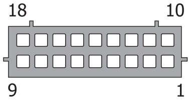

Fig. 1. Port contacts nimeration from wiring viewpoint.

Table 1. Unit port outputs assigning

No	Wire Color	Type	Assignment	Current, mA
1	Blue/Red	(+ / -)* output	Hazard lights alternate control	200
2	Blue/Yellow	(+ / -)* output	Central locking system alternate control	200
3	Black	Power supply	Ground	– **
4	White/Black	(+) output	Engine on	50
5	Green/Yellow	(-) output	Parking brake (handbrake)	50
6	Pink/Green	(+) output	Brake	50
7	Yellow/Red	(+) output	Ignition	50
8	Green	(-) input	Central locking	1,5
9	Blue	(-) input	Central unlocking	1,5
10	Brown/Red	CAN	CAN-H vehicle data bus	-
11	Brown	CAN	CAN-L vehicle data bus	-
12	Red	Power supply	+12 V	750(4)***
13	Серый/Black	(-) output	Driver’s door	50
14	Серый/Blue	(-) output	All doors	50
15	Серый/Green	(-) output	Trunk	50
16	Серый/Yellow	(-) output	Hood	50

No	Wire Color	Type	Assignment	Current, mA
17	Orange/White	(+) input	Turn signals activation	1,5
18	Orange/Green	(-) input	Trunk opening	1,5

* - changeable polarity outputs. Polarity is set automatically upon unit interfacing with the vehicle. Ports operation with load exceeding the indicated one is not guaranteed and may cause their destruction.

** - consumed current on output No. 3 depends on load connected to negative outputs.

*** - typical value of consumed current in operation and standby modes is indicated. It may change depending on positive outputs load.

Outputs No. 4 – 7, 13 – 16 are constructed as per open collector scheme. Bridging outputs No. 4, 6, 7 with the ground and outputs No. 5, 13 – 16 with +12 V is not allowed. Outputs operation with load exceeding indicated one is ton guaranteed and may cause their destruction.

Contact No. 1 "Alternate hazard lights control" is used for hazard lights control in the vehicles where CAN bus control is not available. Please refer to Integrator for information on particularities of connection to each vehicle in particular.

Contact No. 2 "Alternate central locking control" is used for central locking control in certain vehicles where CAN bus control is not available. Please refer to Integrator for information on particularities of connection to each vehicle in particular.

Contact No. 3 "Ground" is connected to the vehicle's body in one of the areas determined by the vehicle manufacturer for connecting the ground of original electrical equipment.

Contact No. 4 – positive output. A constant level signal is formed (+12V) with the ignition ON.

Contact No. 5 – negative output. A constant level signal is formed (ground) with parking brake (handbrake) on.

Contact No. 6 – positive output. A constant level signal is formed (+12V) with the brake pedal pressed.

Contact No. 7 – positive output. A constant level signal is formed (+12V) with the ignition ON.

Contact No. 8 – negative input. Central locking system locking (with negative impulse feeding).

Contact No. 9 – negative input. Central locking system unlocking (with negative impulse feeding).

Contacts No. 10, 11 – CAN-H, CAN-L are connected to vehicle's CAN bus (see Integrator).

Contact No. 12 – unit power supply is connected via 1A fuse to one of vehicle wires with unswitched +12V voltage.

Contact No. 13 – negative output. A constant level signal is formed (ground) when the driver's door is opened.

Contact No. 14 – negative output. A constant level signal is formed (ground) when any door is opened.

Contact No. 15 – negative output. A constant level signal is formed (ground) when the trunk is opened.

Contact No. 16 – negative output. A constant level signal is formed (ground) when the hood is opened.

Contact No. 17 – positive input. Turn signals activation. Feeding an impulse to this input allows blinking with the turn signals. In certain vehicles asinchronous turn signals blinking may occur while the impulses are fed sinchonously due to vehicle's constructive particularities.

Contact No. 18 – negative input. Trunk opening. Feeding an impulse to this input allows opening the trunk lid.

Unit Programming

When typical installation of **CANTEC-F1 v5** unit installation is carried out, programming may not be necessary for the unit is fully operation-ready. Vehicle interfacing (model selection) is carried out automatically. Upon connecting the unit to the CAN bus, power feeding and performing a set of simple actions (for majority of vehicles it is turning the ignition on/off and vehicle locking/unlocking via original remote control), the unit automatically identifies the fehicle.

Below is the detailed description of unit-vehicle interfacing procedure along with unit configuration programming procedures.

Programming stage one: Unit interfacing with the vehicle

Vehicles supported by the unit are divided into functional groups, each of which is divided into subgroups. All groups and subgroups are assigned with item ordinals (see Inegrator).

Upon unit installation, it is necessary to interface it with the vehicle by carrying out a set of actions (see Integrator). Interfacing is the procedure of unit identifying vehicle group and subgroup. Upon vehicle identification algorithm's launch, the unit emits a periodical light signals. If the unit identifies only the vehicle group, then it will stop emitting periodical light signals and will periodically emit series of light signals, where the number of signals will correspond with the group number.

If the Immobilizer identifies both the group and subgroup of the vehicle, then it will inform on the completion of vehicle interfacing with a triple series of light signals where the number of long signals corresponds with group number and the number of short signals correposnds with the subgroup number

Programming stage two: unit configuration programming

For the purposes of unit programming the Programming Button (PB) and LED indicator (LED) located on the unit's body are used (see Fig. 2).

One of vehicle's original buttons can be used as programming button (varies from vehicle to vehicle – see Integrator).

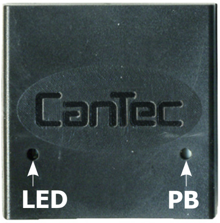

Fig. 2.

At stage two unit hardware features and user settings are adjusted. Two independent menus are used when programming (see Unit hardware features configuration (Menu 1) and User unit settings configuration (Menu 2)).

Table 2. Unit hardware features configuration (Menu 1)

No	Option description	Default	LED condition
1	Vehicle model	-	See Unit Programming section
2-10	Not used	-	Reserved by manufacturer
11	Changes blocking	OFF	On – Public, Off – OFF, On – User, On – Admin
12-15	Not used	-	Reserved by manufacturer
16	Original alarm system control	On	On – original alarm control on Off – original alarm control off

Annotations to Table 2.

Option No. 1. Vehicle model

Allows changing the subgroup if necessary (see Integrator)

Options No. 2-10. Not used. Reserved by manufacturer.

Option No. 11. Changes blocking. Allows prohibiting reprogramming of unit hardware features.

<u>Option has four conditions:</u>

1. Public – reprogramming prohibition is set for all menu options except for option 11.

2. OFF – prohibition is off, all options are reprogrammable.

3. User – prohibition is set for all options except for option No. 1 (password is to be entered in order to remove prohibition).

4. Admin – prohibition is set for all menu options (password is to be entered in order to remove prohibition).

Values **1** (Public) and **2** (OFF) can be set with programming button. Values **3** (User), **4** (Admin) and password can be set only during unit reprogramming with PC via original TECPROG programming unit. Removing User or Admin prohibition is available only via TECPROG upon password entering. You can switch from User mode to Public mode in order to prohibit reprogramming of all options except for 11. In this case you can switch from Public mode only back to User mode.

Revering to factory default settings leads to resetting of options, reprogramming of which is not password protected. Manu can be accessed, navigated, its options' condition can be monitored in any condition of option 11.

Options No. 12-15 are not used. Reservd by manufacturer.

Option No. 16. Original alarm system control.

If original alarm system control is on, the unit will lock (unlock) the vehicle with commands that activate (deactivate) the original alarm system (via original remote control or keyhole etc.).

If the original alarm system control is off, the unit will lock (unlock) the vehicle with commands that do not activate (deactivate) the original alarm system (e.g., central locking system locking/unlocking via vehicle interior button).

Table 3. User unit settings configuration (Menu 2)

No	Option description	Default	LED condition
1-10	Not used in this unit	-	-
11	Automatic windows closing (Comfort feature)	On	On – feature is on Off – feature is off

Annotations to Table 3

Options No. 1-10 are not used. Reserved by manufacturer.

Option No. 11. Automatic windows closing (Comfort feature).

Allows activating or deactivating the automatic activation of Comfort feature when the central locking system is locked. If the feature is on, in 2 seconds upon central locking system locking, the unit will close the windows and hatch.

Programming sequence

1. Turn the ignition on.
2. Enter the required programming menu. In order to do so, you need to commence entering the code not later than 10 seconds after turning the ignition on (while the LED is on) as follows:
   - In order to enter Menu 1 – Unit hardware features configuration (see Table 2), please press and release the programming button ten times. The unit will inform that you have entered the menu with three light signals;
   - In order to enter Menu 2 – User unit settings configuration (see Table 3), please press and release the programming button twelve times. The unit will inform that you have entered the menu with four light signals.
3. Select the menu option by pressing and releasing the programming button for the number of times corresponding with the required menu option number (see Tables 2 and 3). The unit will inform on the selected option's number with series of light signals.
4. Go to menu option setting by pressing and holding the brake pedal*. The unit will inform on option setting via LED (see Tables 2 and 3). With the brake pedal held programming mode exiting countdown is not activated.
5. Change the option setting by pressing and releasing the programming button.
6. Exit the programming mode by turning the ignition off or waiting for 60 seconds since last action in the menu if the brake pedal has not been pressed. All the changes will be saved in unit's energy-independent memory.

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* - in case of the vehicle's CAN bus does not contain data on brake pedal position (see Integrator), unit input No. 18 is used. When in programming mode, please bridge unit input No. 18 with the ground instead of pressing the brake pedal.

Restoring factory default settings

The unit has the procedure of restoring the programmable settings back to their factory default settings. During the performance of this procedure all the settings of vehicle model are erased and all programming options' settings are restored back to factory original ones. In case if the programming is password-protected (see Table 2, option No. 11), only the unprotected options will reset to factory default, while the others will keep their current settings.

In order to reset to factory default, please do the following:

- Disconnect the unit from the power supply and from the CAN bus
- Press and hold the programming button
- Reconnect the unit with the power supply while holding the programming button (CAN bus needs to be disconnected). The unit will emit short light signals.
- Disconnect the power supply, release the programming button.

Table 4. Technical data and operation conditions

Characteristic	Data
Voltage, V	9 ... 15
Max. useful current in operational mode, no more than, mA	750
Max. useful curent in standby mode, no more than, mA	4
Operational temperature, ˚C	– 40 ... + 85
Storage temperature, ˚C	– 40 ... + 85
Relative humidity, %	95

Table 5. Standard delivery kit

Item	Q-ty
Central unit	1 pc
Wire harness with port	1 pc
Warranty certificate	1 pc
Package	1 pc

Product warranty is provided for 1 year since the moment of sale under condition that installation recommendationas have been followed. Should a warranty incident occur, please contact the company that sold the product to you.

Distributor ______________________________ Date of sale ___________________________

AB75

Manufacturer «TEC electronics» Ltd.
Product is produced according to ТУ 4372-004-78025716-09.
Certificate of origin No РОСС RU. АВ75. В00132
Product corresponds to regulatory documents:
ГОСТ Р 41.97-99, ГОСТ Р 50789-95