

**AutoCAN-F v6**  
**Technical manual**

### Controller Description

AutoCAN-F v6 is a universal controller designed for connecting additional security, multimedia and service systems to a vehicle CAN bus. The controller functionality enablesthe user to solve unique tasks when installingdifferent kinds of equipment on modern vehicles.

The controller can work with two CAN buses simultaneously, which considerably extends its functionality wheninstalled on specific vehicles.

The controller interfacing to the vehicle (vehicle selection) is carried out automatically. Upon connecting to the CAN bus and power source and carrying out a set of simple actions (for the majority of vehicles it is turning the ignition on/off and vehicle locking/unlocking via the factory remote control), the controller identifies the vehicle automatically.

For more information on connecting the controller to the vehicle, the list of all the vehicles for which the controller is designed along with its functional features information, please refer to the Integrator program from [www.tec-electronics.ru](http://www.tec-electronics.ru).

### Module Inputs/Outputs

For port contacts enumeration, please see Fig. 1a. For the unit contacts designation, please refer to the wiring diagram given in Fig. 1b.

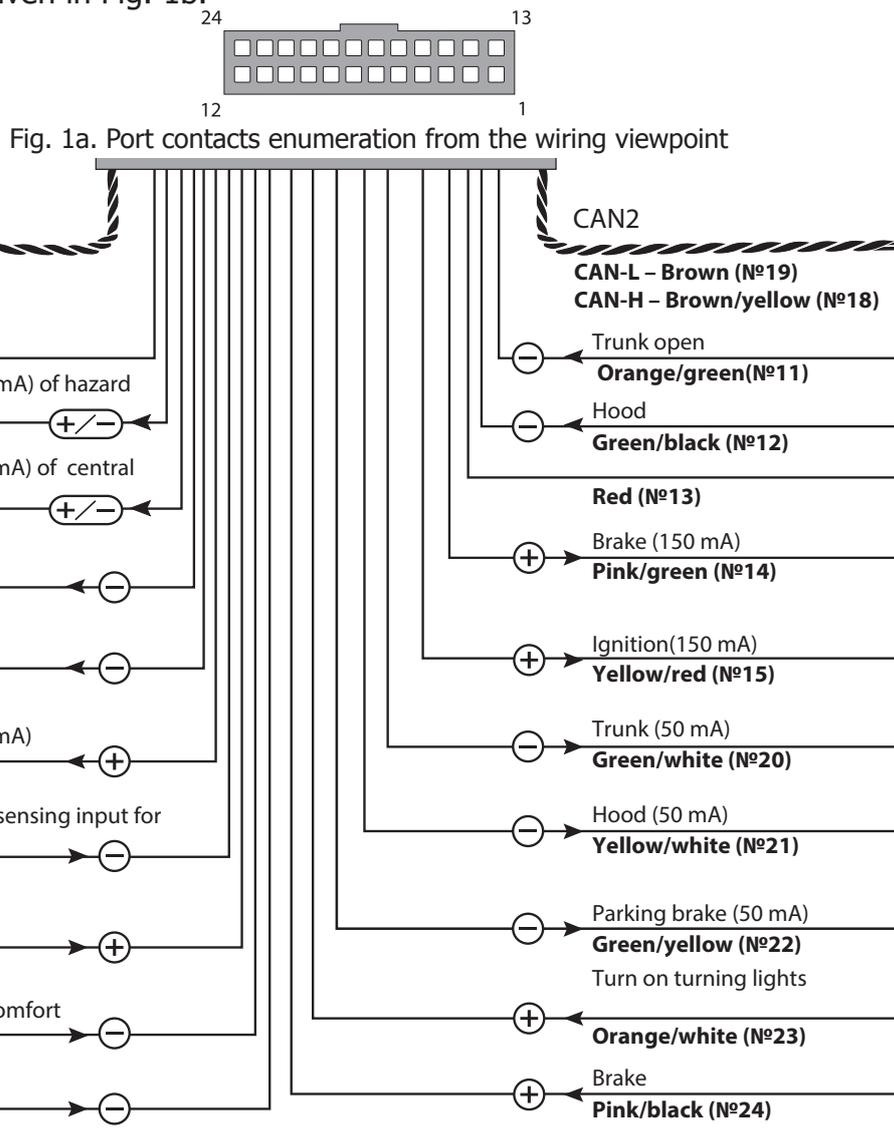


Fig. 1b. Module contacts designation

## Prior to installation



- Read carefully this Technical Manual
- Check if the controller is compatible with the designated vehicle and make sure that the required functions are supported by the controller.

## Controller Setting

The built-in button and light-emitting diode (LED) located in the controller body are used for setting the controller (see Fig.2).



Fig. 2.

## Interfacing the Module to a Vehicle

All vehicles supported by the controller are divided into groups and subgroups. Each vehicle has a corresponding group and subgroup number (see Integrator). The interfacing procedure consists in assigning the group and subgroup.

If the controller was installed in another vehicle (the group and subgroup were assigned), the controller shall be reset to the factory settings prior to interfacing.

Two interfacing options are available:

### *Automatic interfacing*

Upon connecting to the vehicle CAN bus, supplying power and carrying out a set of simple actions (for the majority of vehicles it is turning the ignition on/off and vehicle locking/unlocking with the factory remote control), the required group and subgroup will be assigned automatically. You just need to check correctness of the group and subgroup assignment by light signals (group number – pause, subgroup number – pause). Interfacing procedure for each specific vehicle is described in the Integrator program.



If the group is represented with a two-digit number, each digit of the group will be indicated separately. For example, group 35; subgroup 2 is indicated as follows: 3 long signals - 1-second pause, 5 long signals - 2-second pause, 2 short signals - 4-second pause, etc.;

### *Forced Interfacing*

Enables forced assignment of the group and subgroup, to be used only in exceptional cases.

Programming Sequence:

1. Supply power to the controller and wait for intermittent light signals.
2. Press and release the built-in button 10 times. If all the actions are correct, the controller will inform about this with three light signals.
3. Press the built-in button once. The controller informs about option selection with repeated single light signals.
4. Enter the group number by pressing the built-in button for the corresponding number of times. The controller will periodically emit series of light signals, where the number of signals corresponds to the group number.



If a group represents a two-digit number, enter the first digit of the group number, wait for 2 seconds, and enter the second digit of the group number.

The controller will periodically give series of audible signals corresponding to the group number.

5. Wait for 2 seconds.
6. Enter the subgroup number by pressing the built-in button the corresponding number of times. Check correctness of the group and subgroup assignment by checking light signals (group number – pause, subgroup number – pause):
  - if the group and subgroup is incorrect, press the built-in button once.
  - if the group and subgroup is not correct, press the built-in button two times.

Repeat the programming sequence starting from item #4.

### **Programming of Analogue Steering Wheel Buttons**

In order to use the analogue steering wheel buttons:

- Immediately after the controller has identified the vehicle model, turn the ignition on and wait for at least 5 seconds.
- Sequentially (one after another) press all the steering wheel buttons and steering column joysticks (cruise control, main unit control, etc.). The buttons, upon pressing which the controller emits a light signal, will be available for use.
- Turn the ignition off. Wait for confirmation: single flashing of the built-in LED.

The analogue steering wheel buttons programming shall be started within 15 minutes from the moment the controller has been interfaced to the vehicle. If more than 15 minutes has passed, reset to the factory settings and program the controller again.

## Controller Hardware Functions Programming

Programming is carried out as per Controller Hardware Functions Configuration Table (Menu 1).

**Table 1. Controller Hardware Functions Configuration (Menu 1)**

Nº	Option Description	Setting range/ default	Note
1	Vehicle model	- / -	<i>See Interfacing the Controller to a Vehicle Section</i>
2	Factory alarm control	- / Enabled	LED is ON - the factory alarm control is enabled. LED is OFF - the factory alarm control is disabled.
3	Sequential Central Lock deactivation	- / Disabled	LED is ON - the function is enabled. LED if OFF - the function is disabled
4	Automatic windows closing (Comfort function)	- / Enabled	LED is ON - the function is enabled. LED if OFF - the function is disabled.
5	Timer Channel function operation time (Comfort)	1-6 / 3	From 1 to 6. Unit value is equal to 10 seconds.
6	Alternate Central Lock control algorithm via output no. 3	1-3 / -	1 – single-wire,pulse, negative 2 – single-wire,pulse, positive 3 – single-wire,pulse, negative (when Central Lock status is not available)
7	Alternate Hazard Lights control algorithm via output no. 2	1-5 / -	1 –pulse, negative 2 – status, negative 3 – pulse, positive 4 – status, positive 5 –negative,lamp control
8	Parking Distance Control (PDC) system algorithm	1-3 / 1	1 - Activation on rear gear 2 - Activation on speed 3 - Activation on rear gear with priority of switching off
9	PDC control button	- / -	The following buttons can be used: – CAN-bus «visible» – analogue, steering wheel – positive or negative. Connected to the external programmable digital input (positive or negative, see Programmable Input Functions Table).
10	Central lock activation when motion starts	- / Disabled	LED is ON - the function is enabled. LED if OFF - the function is disabled.
11	Central lock deactivation when turning the ignition off	- / Disabled	LED is ON - the function is enabled. LED if OFF - the function is disabled.
12	Central lock deactivation when turning the ignition off	- / Disabled	LED is ON - the function is enabled. LED if OFF - the function is disabled.

## Annotations to the Table

Option No. 1. Vehicle model. Allows forced vehicle group and subgroup assignment.

Option No. 2. Factory alarm control. If the factory alarm system control is enabled, the controller locks and unlocks the vehicle with the same commands that activate/deactivate the factory alarm system. If the factory alarm system control is disabled, the controller uses those commands at which the factory alarm system is not activated/deactivated.

Option No. 3. Sequential door opening. Allows enabling/disabling the sequential door opening.

Option No. 4. Automatic windows closing (Comfort feature). Allows enabling or disabling the automatic activation of Comfort feature when activating the Central Lock.

Option No. 5. Timer Channel function operation time (Comfort). Allows setting the time during which the Timer channel (Comfort) function will be active. The time is set in 10-second intervals.

Option No. 6. Alternate Central Lock control algorithm via output No. 3. When necessary, this option allows setting the output No.3 functioning and its polarity according to a particular algorithm. Generally, the algorithm is set automatically when interfacing to the vehicle.

Option No. 7. Alternate Hazard Lights control algorithm via output No. 2. When necessary, this option allows setting the output No.2 functioning and its polarity according to a particular algorithm. Generally, the algorithm is set automatically when interfacing to the vehicle.

Option No. 8. Parking Distance Control (PDC) system algorithm:

- Activation on rear gear. Front and rear parking sensors are activated upon shifting the transmission to R or with the control button and deactivated when the speed reaches 15 km/h or with the control button.
- Activation on speed. The front parking sensors are enabled if the vehicle speed is less than 15 km/h. The rear parking sensors are enabled if the vehicle moves back and its speed is less than 15 km/h. This mode allows deactivation of all sensors with the control button until the ignition is turned on again or until activated with the control button.
- Activation on rear gear with priority of switching off. The algorithm is similar to Activation on rear gear algorithm but if the parking sensors have been deactivated with the control button they will not be enabled when the transmission is shifted to R position until the ignition is turned on again or until activated with the control button.

Option No. 9. PDC control button Allows to assign a button for PDC control (see item 5.6, Programming Sequence section).

Option No. 10. Central lockactivation when motion starts Allows to enable or disable the automatic Central lockactivation function after the vehicle starts its motion.

Option No. 11. Central lockdeactivation when turning the ignition off. Allows to enable/disable the automatic Central lockdeactivation function when the ignition is turned off.

Option No. 12. Disarming confirmation by PIN-code entering. The PIN-code is expected to be entered after opening the vehicle; if the PIN-code has not been entered, then, 30 seconds after opening any door, hood or trunk, a signal will be formed in the Siren Panic and Horn Panic outputs.

**Table 2. Module Inputs/Outputs Configuration (Menu 2)**

№	Option Description	Setting range/ Default	Note
1	Programmable output No. 2	1-39 /Alternate Hazard Lights control	Alternate Hazard Lights control is used in the vehicles where control via the CAN-bus is not possible.
2	Output No. 2 polarity	- / Negative polarity	LED is off - negative polarity. LED is on - positive polarity.
3	Programmable output No. 3	1-39 / Alternate Central Lock control	Alternate Central Lock control is used in the vehicles where control via the CAN-bus is not possible.
4	Output No. 3 polarity	1-39 / Alternate Central Lock control	LED is on – positivepolarity output. LED is off – negativepolarity output.
5	Programmable output №4	1-39/1	Security
6	Programmable output №5	1-39/12	All doors
7	Programmable output №6	1-39/17	Engine is started
8	Programmable output №14	1-39/25	Brake
9	Programmable output №15	1-39/15	Ignition
10	Programmable output №20	1-39/12	Trunk
11	Programmable output №21	1-39/12	Hood
12	Programmable output №22	1-39/26	Handbrake
13	Programmable output №9	1-13/1	Activate Central Lock + Comfort (command)
14	Programmable output №10	1-13/2	Deactivatecentral lock (command)
15	Programmable output №11	1-13/3	Open trunk (command)
16	Programmable output №12	1-13/10	Hood control
17	Programmable output №23	1-13/4	Turn lights activation
18	Programmable output №24	1-13/12	Brakelights condition control

### Annotations to the Table

Options Nos. 1, 3, 5-12 are designed for creating custom configuration of the controller by assigning any of 39 functions to a particular output (see Programmable Output Functions Table).

Options Nos. 13-18 are designed for creating custom configuration of the controller by assigning any of 12 functions to a particular input (see Programmable Input Functions Table).

Options Nos. 2, 4 enable setting the required polarity of the controller outputs Nos. 2 and 3.

The polarity can be set only if one of 39 functions has been programmed in these outputs (see Programmable Output Functions Table).

**Table 3. Programmable Output Functions**

№	Function	Description
1	Security	A constant level signal is formed for the time when the unit is in the Security mode
2	Increased Security	The function operation is similar to the Security function; however, the signal is formed prior to entering the PIN-code after disarming.
3	Arming Pulse	0.8-sec long pulse is formed when the controller enters the Security mode.
4	Disarming Pulse	0.8-sec long pulse is formed when the controller exits the Security mode.
5	Pulse when entering PIN-code	0.8-sec long pulse is formed after entering the PIN-code.
6	Hood closing pulse	0.8-sec long pulse is formed when the controller enters the Security mode. If the hood is open, there is no pulse.
7	Pulse of trunk opening with factory remote control	0.8-sec long pulse is formed when the controller detects the trunk opening command from the factory remote control.
8	Factory Alarm System Panic	A constant level signal is formed for the time while the factory alarm system (if installed) is in the Alert mode.
9	Siren Panic	A 30-sec long constant level signal is formed if one of the zones is triggered in the Security mode: trunk, doors, hood opening. This function can be used in the vehicles that are not equipped with the factory alarm system. The signal stops when the vehicle exits the Security mode.
10	Horn Panic	A 30-sec long pulse signal is formed if one of the zones is triggered in the Security mode: trunk, doors, hood opening. Also, it gives signals when arming/disarming the vehicle. This function can be used in the vehicles that are not equipped with the factory alarm system. The signal stops when the vehicle exits the Security mode. It is used for Alert signal feeding to the vehicle factory horn.
11	Horn Panic from External Input	A pulse signal is formed for the time while there is an input signal to the external digital input with the Horn Control function.
12	Doors, hood and trunk	A constant level signal is formed if any of the preprogrammed doors, hood or trunk is open.
13	Sensors Ignoring	In the Security mode, a constant level signal is formed with the trunk open, if it has been opened using the factory remote control. Also, the signal is formed when the Comfort feature is active. This function is designed for organizing sensors deactivation to avoid false alarms.
14	Original buttons	A constant level signal is formed if a preprogrammed vehicle button is pressed.
15	Ignition	A constant level signal is formed with the ignition on (also when starting the engine).
16	ACC	A constant level signal is formed with the vehicle ACC on (first key position, in some vehicles may be congruent with ignition). This function is deactivated only when the key is removed from the ignition lock.
17	Engine is started	A constant level signal is formed with the engine started.
18	Engine rpm	A pulse signal is formed with a pulse sequence frequency proportional to the engine crankshaft rotational speed. 1 imp/sec corresponds to the crankshaft rotational shaft of 20 rpm. The signal is designed for determining estimated, and not the exact rpm value.

№	Function	Description
19	Transmission Condition	A constant level signal is formed if the transmission handle is set to the pre-programmed position (P, R, N, D 1). For robotized transmission, the following positions can be programmed: R, N, D 1. For mechanical transmission, only R position is available.
20	Vehicle moves	A constant level signal is formed if the vehicle speed has exceeded a certain threshold value (this value varies from vehicle to vehicle, but lies within 5 – 10 km/h).
21	Front parking sensors activation	A constant level signal is formed for activating the front parking system sensors
22	Rear parking sensors activation	A constant level signal is formed for activating the rear parking system sensors.
23	Parking Distance Control System LED output	<p>It is used for indicating the PDC system condition.</p> <ul style="list-style-type: none"> <li>• If the parking sensors work according to Activation on rear gear or Activation on rear gear with priority of switching off algorithm, the LED is ON when the sensors are active.</li> <li>• If the parking sensors work according to Activation on speed, the LED is ON when the sensors are not active.</li> </ul>
24	Motion speed	A pulse signal is formed with pulse sequence frequency proportional to the vehicle speed. 1 imp/sec corresponds to a speed of 1 km/h. The signal is designed for determining estimated and not the exact speed.
25	Brake	A constant level signal is formed with the brake pedal pressed.
26	Handbrake	A constant level signal is formed when the vehicle is put on the handbrake.
27	External lights	A constant level signal is formed with the external lights on.
28	Timer Channel (Comfort)	A constant level signal is formed within a certain time (from 10 to 60 sec.) after arming the vehicle. The time is set in 10-second intervals.
29	Vehicle distance run	A pulse signal is formed with pulse sequence frequency proportional to the vehicle distance run. 1imp/sec corresponds to 5 meters run
30	Right turn signal	A pulse signal is formed with pulse sequence frequency proportional to pulse frequency of the vehicle right turn signal.
31	Left turn signal	A pulse signal is formed with pulse sequence frequency proportional to pulse frequency of the vehicle left turn signal.
32	Upper beam	A constant level signal is formed when the upper beam is on.
33	Lower beam	A constant level signal is formed when the lower beam is on.
34	Rear fog lights	A constant level signal is formed when the rear fog lights are on.
35	Seat belts	A constant level signal is formed if any of the preprogrammed seat belts is fastened.
36	Driver/passenger presence sensor	A constant level signal is formed if there is a driver or a passenger (pre-programmed).
37	Engine assistance heater switching ON	A constant level signal is formed according to the engine assistance heater operation algorithm (taking into account temperature, engine rpm, ignition).
38	Right turn switch status	A constant level signal is formed for the time the right turn is on.
39	Left turn switch status	A constant level signal is formed for the time the left turn is on.

**Table 4. Programmable Input Functions**

№	Function	Description
1	Activate Control Lock + Comfort (command)	Comfort is always enabled when the signal in the input lasts for more than 2 seconds and stopped when the control signal is removed from the controller input. The function operation does not depend on Automatic windows closing option setting.
2	Deactivate central lock (command)	Sending an impulse to this input allows deactivating the central lock.
3	Open trunk (command)	Sending an impulse to this input allows opening the trunk lid
4	Turn lights activation	Sending an impulse to this input allows blinking with turn lights. In some vehicles, due to their design peculiarities, uneven lamp blinking may be observed while the impulses are fed evenly.
5	Horn control	Excitation signal to this input enables function No. 11 - Panic on horn from external input. Halting the input excitation stops this function.
6	Start the engine	Engine is started via the CAN bus.
7	Central lock activated (status)	This function is used in exceptional cases when central lock status is not available in the CAN bus (see Integrator).
8	Central lock deactivated (status)	This function is used in exceptional cases when central lock status is not available in the CAN bus (see Integrator).
9	PDC control button	This function is used for managing the Parking Distance Control function with an external button.
10	Hood control	The function is used when information about the hood position is not available in the vehicle CAN bus. In this case, the Hood control input shall be connected to the hood limit switch.
11	Comfort halting	Sending an impulse to this input enables stopping the controller automatic windows closing function (comfort) and hence ventilating the vehicle. Sending an impulse prior to setting the vehicle in the Security mode cancels the launch of Comfort feature for this setting.
12	Brakelights condition control	The function is used when information about the brake pedal position is not available in the vehicle CAN bus. In this case, the brakelights condition control input shall be connected to the output of the brake pedal limit switch.
13	Driver's door opening simulation	Sending an impulse to this input enables simulation of the driver's door opening via the CAN-bus. The function can be used for ACC signal disabling after remote starting.

### Programming Sequence

1. Turn the ignition on.
2. For entering Menu 1, press the built-in button 10 times; the controller will give three light signals. For entering Menu 2, press the built-in button 12 times, the controller will give four light signals.
3. Select the required option according to Table 1 or 2 by pressing and releasing the built-in button such number of times which corresponds to the required option number. The controller shall inform about the option number with series of light signals.

4. Move to option setting by pressing and holding the brake pedal. The controller will inform about the option condition with LED.



In case the vehicle CAN bus does not contain the brake pedal position data, the brakelights condition control input shall be connected to the output of the vehicle brake pedal limit switch.

5. Change the option setting by pressing and releasing the built-in button such the number of times which is required for navigating the option from the current setting number to the required one. The controller will inform on the new option setting with series of light signals. Please consider that when navigating the option settings, the last setting is followed by the first one. Release the brake pedal, whereupon the controller will change the indication from the option setting back to the current option number. Now you can proceed with programming the next option or exit the programming mode.

5.1. Function No. 12, Doors, hood and trunk programming algorithm. You can set any combination of doors, hood and trunk, upon opening which the controller will form a signal in the programmable output. For the purposes of this algorithm, the doors, hood and trunk are referred to as the doors. With the brake pedal pressed, go to option No. 12 settings. The controller will inform on the option condition twice with series of 12 light signals each, after which it will give intermittent light signals. On seeing the intermittent signals, release the brake pedal. The controller will continue emitting intermittent light signals. Open only those doors that are to be indicated in this output, and leave the rest doors closed (the doors can be opened in advance). Press the brake pedal again. The controller will inform on option condition with series of 12 light signals and the doors will be assigned to this output. If you do not press the brake pedal and exit current option programming, the controller will save its previous condition. Release the brake pedal and the controller will start indicating the option number.

5.2. Function No. 14, Original buttons programming algorithm. With the brake pedal pressed, navigate to option setting No.14. The controller will inform on the option condition twice with series of 14 light signals each, followed by intermittent light signals. Without releasing the brake pedal, press the required button (for vehicle-specific list of buttons, see Integrator). If the controller responds to the button, it will stop emitting the intermittent light signals and will once again indicate the option setting number with series of 14 light signals. Release the brake pedal, the controller will indicate the option number with the series of light signals. If the brake pedal is released prior to setting the button, the controller will exit the option while saving its original setting and will start indicating the option number.

5.3. Function No. 19, Transmission condition programming algorithm. With the brake pedal pressed, navigate to option setting No.19. The controller will inform on the option condition twice with series of 19 light signals each, followed by intermittent light signals. Without releasing the brake pedal, switch the transmission handle to the required position: P, N, D or R (the handle may be set in the required position in advance); for robotized transmission the positions are: R, N, D; for mechanical transmission, only R position is available. Release and press again the brake pedal. The controller will stop emitting the intermittent signals and will once again indicate the option setting number with series of 19 light signals each. Release the brake pedal, the controller will indicate the option number. If you do not press the brake pedal and leave the current option programming, the controller will save the option previous condition.

5.4. Function No. 35, Seat belts programming algorithm. You can set any combination of seat belts, upon fastening which the controller will form a signal in the programmable output. With the brake pedal pressed, go to option No. 35 setting. The controller will inform on the option condition twice with series of 35 light signals each, followed by intermittent light signals. On seeing the intermittent signals, release the brake pedal. The controller will continue emitting intermittent light signals. Fasten only those seat belts, which shall be indicated in this output leaving the rest belts unfastened (you can fasten the seat belts in advance). Press the brake pedal again. The controller will inform about the option setting with series of 35 light signals. If you do not press the brake pedal and leave the current option programming, the controller will save the option previous setting. Release the brake pedal and the controller will start indicating the option number.

5.5. Function No. 36, Driver/Passenger Presence Sensor programming algorithm. You can set any combination of driver/passengers presence at which the controller will form a signal in the programmable output. With the brake pedal pressed, go to option No. 36 setting. The controller will inform on the option setting twice with series of 36 light signals each, followed by intermittent light signals. On seeing the intermittent signals, release the brake pedal. The controller will continue emitting intermittent light signals. Sit down by turns on the seats sensors of which shall be indicated in the output. You shall stay on each seat for at least 2 seconds. Press the brake pedal again. The controller will inform about the option condition with series of 36 light signals. If you do not press the brake pedal and leave the current option programming, the controller will save the option previous setting. Release the brake pedal and the controller will start indicating the option number. If, when releasing the brake pedal, the setter was seating on the seat, the sensor of this seat could not be programmed at once. For programming this seat, one should rise from the seat and sit down on it once again.

5.6. Parking Distance Control System control button assignment algorithm. With the brake pedal pressed, go to option No. 9 settings, Menu 1. The controller will give intermittent light signals. Press and hold the button selected by you for a definite time (if the controller «sees» the button, then the light indication will be disabled while the button is held pressed):

- control with short press: hold the button pressed less than 2 sec;
- control with long press (2.5 sec): hold the button pressed from 3 to 5 sec;
- control by status: hold the button pressed longer than 5 sec.

Release the button: the controller will emit light signal once and turn the light indication off. Release the brake pedal, the controller will start indicating the option number 6. In order to move to the next option programming, press and release the built-in button for the number of times required for navigating the option from the current option number to the required one.

#### *Programming Mode Exit*

The controller will exit the programming mode and save all the configuration settings in the non-volatile memory when the ignition is turned off or 60 seconds after the last action if the brake pedal is not pressed.

## PIN-code

A PIN-code is a confidential combination of presses on one or several original buttons of the vehicle. The PIN-code represents a 1-, 2-, 3- or 4-digit number. The PIN-code is used when the functions 'Increased Security' and 'Impulse When Entering PIN-code' are active. For the list of original buttons which can be «seen» by the controller in each specific vehicle, see Integrator. The PIN-code represents a 1-, 2-, 3- or 4-digit number. An individual PIN-code is assigned by the installer when installing the controller.

### PIN-code Entry

The PIN-code is entered with the ignition turned on or with the engine started by pressing the original buttons evenly; take care that when setting one of the digits the duration of presses and pauses between them does not exceed 1 second. Make a pause of about 2 seconds between the digits. In case you have made an error when entering the PIN-code, after about 3 seconds an audible signal is heard meaning that the PIN-code shall be entered again.

#### *PIN-Code Examples*

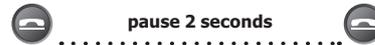
The buttons , , , ,  are used as an example.  
For the list of available buttons, refer to the installer.

#### *PIN-code entry with single button*

One-digit PIN-code:



One-digit PIN-code:



#### *PIN-code entry using several buttons*

When entering the PIN-code, you must monitor the button sequence.

One-digit PIN-code:



Two-digit PIN-code:



## PIN-code Change

1. Turn the ignition on.
2. Enter the current PIN-code. The built-in LED will blink once and a single impulse will be formed in the 'Impulse when entering PIN-code' output.
3. Press any button used for entering the PIN-code 14 times. If you are changing the factory PIN-code, press the built-in button 14 times. Wait for confirmation: single blinking of the built-in LED and impulse in the 'Impulse when entering PIN-code' output.

4. Set the new PIN-code. Presses of the buttons which can be «seen» by the controller are confirmed with the built-in LED blinking. Wait for confirmation: single blinking of the built-in LED and impulse in the 'Impulse when entering PIN-code' output.

5. Reenter the PIN-code. Wait for confirmation:

- double blinking of the built-in LED and two impulses in the 'Impulse when entering PIN-code' output mean the PIN-code has been changed, the controller has exited the PIN-code change mode.

- single blinking of the built-in LED and one impulse in the 'Impulse when entering PIN-code' output mean that an error occurred when entering the new PIN-code, the procedure for changing the PIN-code shall be repeated starting from the fourth item.

### CAN Parameters Indication

This function allows real-time analysis of the availability of certain parameters (listed below) in the vehicle-specific CAN bus and correction of the wiring diagram on the basis of the obtained results. Parameters are indicated by means of the built-in LED (see Fig.2). The LED illuminates at the moment any of the below parameters are activated (door opening, brake pedal pressing, etc.) and stays illuminated for 5 seconds or until this parameter is deactivated.

The Engine RPM and Engine Temperature parameters are indicated in another way:

Engine RPM - the LED blinks with frequency proportional to the actual engine rpm: 1 LED blink (flash) per second corresponds to 500 revolutions per minute (i.e. when the engine rpm is 2,300, the LED blink frequency will make up 4 Hz). The parameter is indicated for 5 seconds after the engine start. When the engine rpm are indicated, other parameters are not indicated.

Engine Temperature - the LED blinks once each time it receives a new temperature value (with the ignition turned on or with the engine started). The parameter indication takes place only if no other parameters are indicated.

The function indicates the following parameters:

- ◇ Doors (each door separately, hood, trunk).
- ◇ Ignition lock condition (key in the lock, ACC, IGN, Start)
- ◇ Engine is started
- ◇ Transmission condition (for automatic transmission - P, R, N, D, for mechanical transmission – R)
- ◇ Handbrake
- ◇ Brakelights
- ◇ Security
- ◇ Factory Alarm System Panic
- ◇ Central Lock status
- ◇ Sensors Ignoring
- ◇ Engine rpm
- ◇ Engine temperature

## Factory Reset

The controller has the procedure for resetting all the programmable settings, which is used for erasing the vehicle model settings from the non-volatile memory and restoring all the other programmable option settings to the factory ones.

For factory reset:

- Disconnect the controller from power supply and CAN bus.
- Press and hold the built-in button.
- While holding the built-in button, supply the power to the controller (the CAN bus must remain disconnected). The controller will give intermittent light signals.
- Disconnect the power supply and release the built-in button.

**Table 5. Technical Data and Operating Conditions**

Characteristic	Value
Power supply voltage, V	9 ... 15
Max. current consumption in operating mode, mA	750
Max. current consumption in standby mode, mA	1
Operation temperature, °C	- 40 ... + 85
Storage temperature, °C	- 40 ... + 85
Maximum relative air humidity, %	95

## Delivery Set

	Description	Number
1	Central unit	1 pc.
2	Wire harness with a connector	1 pc.
3	Technical Description	1 pc.
4	Package	1 pc.

Product warranty period is 3 years from the date of purchase if installed in accordance with the installation instructions. Please contact your vendor company upon any warranty case.



Manufactured by TEC Electronics Ltd.  
 Certificate of Conformity No. C-RU.AG92.V.32319  
 The product complies with the requirements of the Technical Regulations:  
 Technical Regulations on Safety of Wheeled Vehicles  
 (the Russian Federation Government Decree No. 720 of 10/09/2009)

