



USER MANUAL

OPERATION AND THE USE OF A CAR WITH Diego G3 / NEVO / NEVO-SKY SEQUENTIAL GAS INJECTION SYSTEM

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1. STARTING THE ENGINE

Vehicle equipped with Diego G3 / NEVO system normally starts on gasoline. Switching to gas fuel supply occurs automatically after obtaining the relevant parameters, selected during the calibration of the system, such as:

- coolant / reducer temperature,
- the delay time of switching petrol → gas,
- engine speed (RPM) for switching.

2. CONTROL PANEL

Driver uses control panel to communicate with gas ECU.

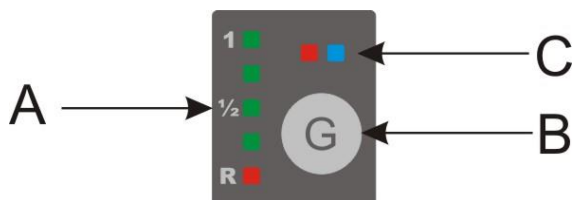


Fig. 2.1 Diego G3 control panel.

A - LED indicator of actual gas level in the tank

B - switch for fuel type selection

C - status LEDs (working state indication)
(blue or red LED - configurable into software)

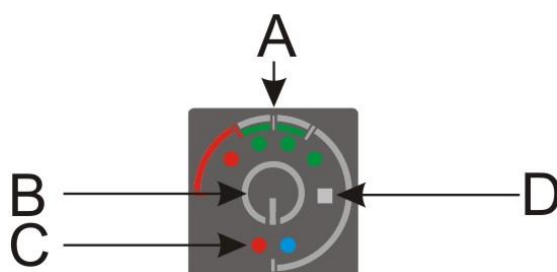


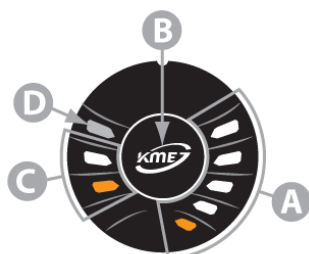
Fig. 2.2 DG4 control panel

A - LED indicator of actual gas level in the tank

B - switch for fuel type selection

C - status LEDs (working state indication)
(blue or red LED - configurable into software)

D - light sensor



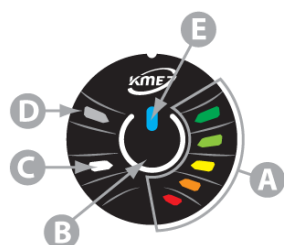
Rys. 2.3 DG5 control panel

A - LED indicator of actual gas level in the tank

B - switch for fuel type selection

C - status LEDs (working state indication)
(configurable into software)

D - light sensor



Rys. 2.4 DG7 RGB control panel

A - RGB LED indicator of actual gas level in the tank
(configurable into software)

B - switch for fuel type selection

C - status LEDs (working state indication)
(configurable into software)

D - light sensor

E - backlight LED (configurable into software)

Panel implements following tasks:

1. **Fuel type selection** – pressing button **(B)** causes the transition from one fuel to another (petrol - gas - petrol)
2. **Working state indication (C).**

Work on petrol – gas system is completely shut down, the panel is completely blank - no lights are flashing. The backlight diode for the DG7 panel may be on.

Work on petrol with automatic switching to gas – flashing blue or red status LED. System waits for switching parameters (software configurable).

Work on gas – permanently illuminated status LED (selectable during the calibration of the system).

2.1 Indication of the current level of gas fuel in the tank (A)

Number of illuminated LEDs of gas level display indicates the degree of filling the gas tank:

Diego G3	NEVO DG4	NEVO DG5 / DG7	
4 green LEDs	3 green LEDs	5 LEDs	Full tank
3 green LEDs	2 green LEDs	4 LEDs	4/5 of tank capacity
2 green LEDs	1 green LEDs	3 LEDs	3/5 of tank capacity
1 green LED	Flashing red LED (or 1 green + 1 red)	2 LEDs	2/5 of tank capacity
1 red LED	1 red LED	1 LED	1/5 of tank capacity

2.2 Light sensor (NEVO and NEVO-SKY only)

























Depending on the ambient light controller automatically adjusts the brightness of the panel (configurable option in the program).

2.3 Gas system signaling

Sequential gas injection system Diego G3 / NEVO / NEVO-SKY has the function of self-control, allowing to detect malfunctions of the gas installation. All errors are stored in the ECU, and most of them are indicated on the control panel. Errors are indicated by alternate flashing of the red and blue LEDs with an acoustic signal. In NEVO system errors are additionally indicated by flashing the gas level LEDs (only when this option is activated). The most common cause of the error signal is no gas in the tank. Deleting this alarm requires pressing the fuel type selection button or it will be muted automatically after a few seconds.

2.3.1 Errors flashing codes (NEVO and NEVO-SKY only)

NEVO error codes list (code, description, flashing code):

Control panel type		NEVO DG4	NEVO DG5 / DG7
Code	Description	<div> <div>Red</div> <div>Green</div> <div>Green</div> <div>Green</div> </div>	<div> <div>Diode 1</div> <div>Diode 2</div> <div>Diode 3</div> <div>Diode 4</div> <div>Diode 5</div> </div>
E001- E008	Petrol injector no signal cyl 1..8.		
E009- E016	Gas injector malfunction cyl 1..8.		
E017	Reducer temperature sensor short.		
E018	Reducer temperature sensor open.		
E019	Gas temperature sensor short.		
E020	Gas temperature sensor open.		
E021	Gas valves – circle short.		
E022	Gas valves - circle open.		
E023	Empty gas tank (low gas pressure).		
E024	Inefficient reducer heating circle (Reducer too cold <15°C).		
E025	Petrol injectors merged (lack of information about mixture).		
E026	Gas injectors merged (lack of possibility of gas mixture correction).		

2.3.2 Acoustic signalization

In addition to the light signals which are displayed on the control panel, the gas system also indicates individual events using acoustic signals:

- a) Each fuel type change button press is indicated by an sound signal.
- b) If you run out of gas in the tank or the gas pressure in the gas injectors drops system will automatic return from the gas supply to petrol and the driver will hear a beep - turned off by pressing the button on the panel once (system remains in standby mode - alternately flashing two LEDs - blue and red). In that state, after refueling the car on gas station system automatically switches to gas supply. Another push of the button on the panel will switch from gas supply to gasoline permanently – in this state each engine start generates three beeps to remind that the system remained in operation on gasoline (it is possible to disable this feature using the software for gas ECU) and the system will not switch to gas.
- c) Gas ECU may also indicate the fact that the car has reached the distance from the last inspection (configurable from the program) and another visit in the workshop is required. This information is generated immediately after switching system to the gas (once for each engine start) in the form of the 10 short sounds at intervals of 0.5 seconds.

2.4 Additional control panel messages in NEVO and NEVO-SKY system

In a state of waiting for switching parameters, system may inform on level indicating LEDs about time left to gas switching. Sequentially illuminate LEDs indicate the status of warm up the engine (the regulator). All level LEDs pulsing mean that the car reached the switching temperature.

2.5 Emergency start on gas

In case of petrol fuel system failure installed Diego G3 / NEVO / NEVO-SKY system allows you to start the engine directly on the gas. In order to start the engine on emergency mode you should:

1. Turn the ignition on.
2. Switch system to petrol (panel is completely blank – no diodes light on).
3. Turn the ignition off.
4. Turn the ignition on (the engine cannot work).
5. Press and hold button on the Control panel for about 10 seconds until you hear a **long beep** (status LED lights constant light – at this moment the system goes into operation on gas and the gas ECU open the valves).
6. Release the button on Control panel and immediately start the engine (without reversing the ignition key in the ignition off position.)
7. **WARNING!** Too long holding button on the panel will start the automatic gas level indicator calibration procedure (only NEVO). It is possible to exit from this mode by pressing the button again (the LED on the panel will go off and the system goes on petrol).

After emergency start (directly on the gas) before you start driving, wait for the temperature of the engine to raise to about 50 °C to ensure sufficient heating of the reducer. Otherwise, the reducer may freeze, which may damage the gas system components and even the engine.

NOTE! The reducer/environment temperature must be greater than 0 °C, otherwise due to safety reasons it is impossible to start the vehicle on gas fuel. Therefore, this feature should be used only in exceptional circumstances!

Frequent use of this mode more than 50 times will block the possibility of an emergency engine start directly on the gas fuel. It will also determine the need the workshop in order to unlock the ECU function.

NOTE! Emergency start on gas may be disabled when 12V “after the ignition” signal disappears during the procedure.

NOTE! During emergency starting on the gas cannot operate some functions of the controller (eg switching mechanisms).

NOTE! Function is not supported for NEVO-SKY DIRECT.

2.6 Automatic gas level indicator calibration (NEVO and NEVO-SKY only, for NEVO available from 4.0D version)

This process allows you to automatically configure the full range of gas level indication on the panel driver. Prior to calibration, it is necessary to select the right type of gas level sensor.

Automatic calibration should be performed during the refueling of empty gas tank. The whole procedure is as follows:

1. Turn the ignition on (gas tank should be empty).
2. Switch system to petrol (panel is completely blank).
3. Turn the ignition off.
4. Turn the ignition on (the engine cannot work).
5. Press the button on the control panel, and hold for about 15 sec. (available to NEVO 4.0G version) or 20 sec. (newer versions). After about 10 seconds the gas ECU open the valves and indicates working on gas (you can hear longer beep from drivers panel).
6. After about 5 sec. (to NEVO 4.0G) or 10 sec. (newer versions) after the gas valve opening (the button is still pressed) panel will indicate the calibration mode of the gas level indicator – gas level LEDs flash alternately.



or



7. Wait about 5 seconds to write down stable minimum level of gas.
8. Turn the ignition off.
9. Fuel the gas tank.
10. Turn the ignition on.
11. Wait until the panel stops indicating the calibration mode.
12. Calibration finished.

WARNING! It is possible to exit from the automatic calibration gas level indicator by pushing the button again (the LED on the panel will go off and the system goes on petrol).

WARNING! If panel indicates wrong fuel level after calibration it could mean that it was made improperly – repeat the process before next refueling.