

EG CARBURETOR

PETROL-GAS SWITCHOVER DEVICE

for carburetor or
injection type vehicles

USER MANUAL

ver 1.3 - 01.04.2015



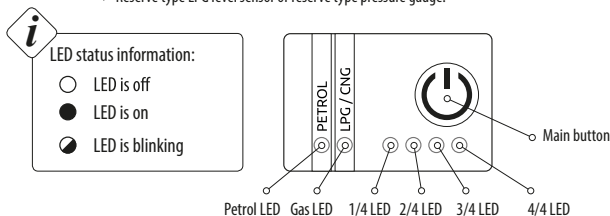
This instruction can be also downloaded from:
www.europegas.pl/en/technical-support

Table of content

1. Main features	2
2. Technical characteristics	3
3. Package contents	3
4. Installation recommendations	3
5. EG CARBURETOR switch programming	6
5.1 Main menu description	7
5.1.1 Operation type	7
5.1.2 MODE A – Manual mode	7
5.1.3 MODE B – Auto mode	7
5.1.4 MODE C – Gas level sensor configuration mode	8
6 States of operation in different modes	9
6.1 Manual switchover mode	9
6.2 Automatic switchover mode	10
7 Gas level indication LEDs	11

1 Main features

- Can be used on carburetor or injection type vehicles.
- Built without usage of mechanical relays – better reliability and endurance.
- Automated or manual switching over between fuels.
- Changeover to gas can be realised during acceleration or during deceleration.
- Adjustable RPM reference allows to choose moment of changeover to gas.
- Gas cut-off function after engine stalling realised by closing the solenoid valves.
- Programming can be done by pressing one button on front panel – no need to adjust any dip-switches or trimmers.
- Works with following gas level sensor types:
 - ◊ Europegas EG-HLS LPG sensor (output signal 0-5V).
 - ◊ Pressure gauge model CNG201C (output signal 0-5V).
 - ◊ LPG level sensors type 0 – 90 Ω and 90 – 0 Ω.
 - ◊ LPG level sensors type 0 – 50k Ω and 50k – 0 Ω.
 - ◊ Reserve type LPG level sensor or reserve type pressure gauge.



2 Technical characteristics

Supply voltage range:	9 – 16 V
Supply current:	150 mA (maximum 3A when electrovalves on)
GAS (blue wire) output current:	3A at 60 °C
Petrol (yellow wire) output current:	3A at 60 °C
Minimum RPM signal amplitude:	0.5 V
Casing dimensions – depth/width/height:	67mm/35mm/24mm
In compliance with UN ECE regulations:	R110.00, R67.01, R10.03

3 Package contents

- ♦ PETROL – GAS EG Carburetor switchover device.
- ♦ Support bracket.
- ♦ Wiring harness.
- ♦ EG-HLS LPG sensor (for LPG) or pressure gauge model CNG201C (for CNG).
- ♦ Set of assembling accessories.

4 Installation recommendations

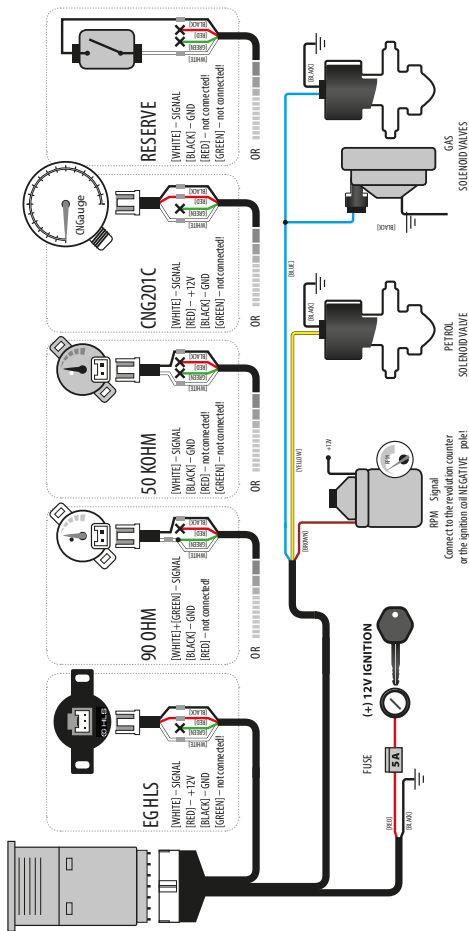
Installation warnings:

- ♦ Place the EG Carburetor wiring harness wires as far as possible from high voltage cables and other electrical noise sources.
- ♦ Each electrical connection made should be soldered and properly insulated.
- ♦ Do not open the EG Carburetor casing. It doesn't contain any parts which may be serviced by end-user.

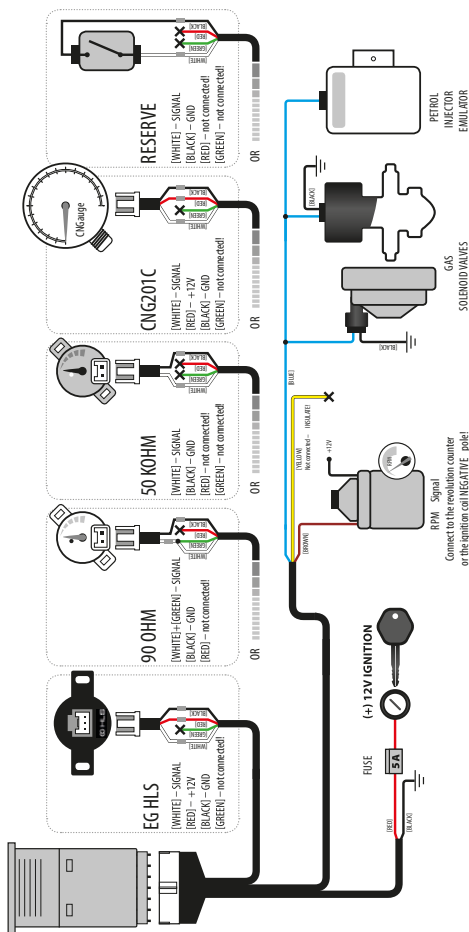
Installation guide:

- ♦ Casing can be mounted using support bracket included in the package or mounted in the dashboard using pre-cut mounting hole.
- ♦ Do not replace the 5A fuse supplied with Eg Carburetor harness with fuses of higher amperage or non-compliant with the DIN 72581 standards. This can cause irreparable damage to the vehicle.
- ♦ Installed petrol solenoid valve must be NORMALLY CLOSED (NC) with possibility of mechanical opening in case of emergency.
- ♦ Installed gas solenoid valve must be NORMALLY CLOSED (NC).
- ♦ The +12V ignition key red-white wire from ECU harness needs to be connected to the place in which +12V voltage appears from the moment of turning on the ignition key to ACC position, do not drops below +9V during engine cranking and remains stable during all the time of engine's work. Voltage should drop to 0V shortly after turning off the ignition key.
- ♦ It is highly recommended to connect +12V ignition key red-white wire from ECU harness into original vehicle's +12V ignition key circuit.
- ♦ RPM signal must be taken from the place where it is present during all the time of engine's work. It is recommended to connect RPM signal wire to negative pole of ignition coil.

Assembly diagram – CARBURETOR ENGINE:



Assembly diagram – INJECTION ENGINE:

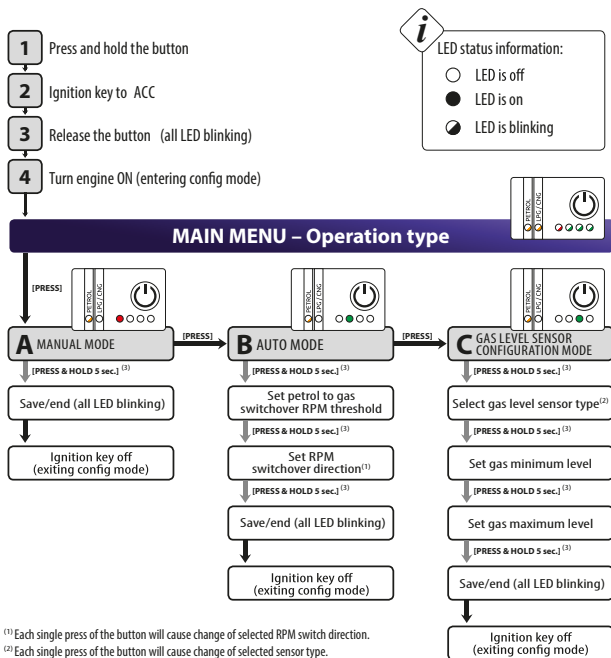


5 EG CARBURETOR switch programming

1. Make sure everything is properly connected and the ignition key is in OFF position.
2. Shift gear to neutral and apply the handbrake.
3. Press and hold the switch button.
4. Turn the ignition key to ACC first and release the switch button.
5. Turn on the engine to go to main menu.



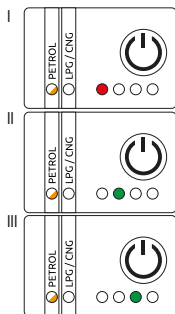
ATTENTION: It is possible to configure only one menu branch at a time. If you want to change settings in other branch, turn the car ignition off and repeat configuration procedure for desired branch.



5.1. MAIN MENU DESCRIPTION

5.1.1. Operation type

- Start pressing the button shortly to switch between 3 modes:
 - 1/4 LED on: Mode A – switchover between fuels will be done manually (I)
 - 2/4 LED on: Mode B – switchover between fuels will be automatic (II)
 - 3/4 LED on: Mode C – configure gas level indicator parameters (III)
- After selecting mode B or C press and hold the switch button for 5 seconds to get to next menu item. In case of selecting mode A press and hold of switch button for 5 seconds will set manual switchover mode.



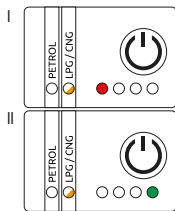
5.1.2. MODE A – Manual mode

- In case of selecting mode A press and hold of switch button for 5 seconds will set manual switchover mode, save settings and exit configuration mode.

5.1.3. MODE B - Auto mode

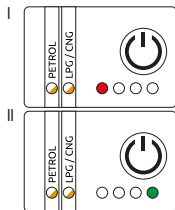
PETROL TO GAS SWITCH RPM:

- Push the gas pedal to reach desired switchover RPM and keep that value constant.
- Press button once to save desired switchover RPM value in memory. Every time when button is pressed, new value will be stored in memory, overwriting previous one.
- Observe switch LED status when changing RPM.
 - 1/4 LED on – current RPM is lower than selected threshold (I)
 - 4/4 LED on – current RPM higher than selected threshold (II)
- Press and hold the switch button for 5 seconds to get to next menu item.



RPM SWITCH DIRECTION:

- Start pressing the button shortly to select the desired RPM switchover type:
 - 1/4 LED on: switchover between fuels during deceleration (RPM are falling) (I)
 - 4/4 LED on: switchover between fuels during acceleration (RPM are raising) (II)
- Press and hold the switch button for 5 seconds to save settings and exit configuration mode.



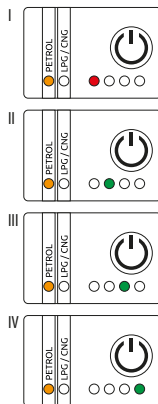
5.1.4. MODE C - Gas level sensor configuration mode

GAS LEVEL SENSOR TYPE:

- Start pressing the button shortly to select the desired gas level sensor type:
 - 1/4 LED on: CNG201C sensor (I)
 - 2/4 LED on: 0 - 90 Ω sensor (II)
 - 3/4 LED on: 0 - 50 k Ω sensor or RESERVE sensor (III)
 - 4/4 LED on: HLS LPG sensor (IV)
- Press and hold the switch button for 5 seconds to get to next menu item.

NOTE: If we want to adjust the gas level sensor manually we need to select desired characteristics range and go to the next menu item by pressing and holding the button for 5 seconds.

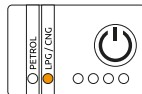
NOTE: Next steps to set minimum and maximum gas level may be omitted by pressing and holding the button for 5 seconds. Use them only if gas diodes are not showing expected values for current gas level in the tank.



GAS MINIMUM LEVEL:

NOTE: If the gas minimum level is already set and we don't want to adjust it we can omit this setting by pressing and holding the button for 5 seconds.

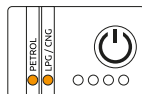
- Ensure that gas tank is empty. Press the button shortly to save current gas level in memory.
- After successfully saving the gas level up all the diodes will be lit on and remain like this until we will go to next menu item. Every time the button is pressed shortly, new gas level value is stored in memory.
- Press and hold the switch button for 5 seconds to go to next menu item.



GAS MAXIMUM LEVEL:

NOTE: If the gas maximum level is already set and we don't want to adjust it we can omit this setting by pressing and holding the button for 5 seconds.

- Ensure the gas tank is full. Press the button shortly to save current gas level in memory.
- After successfully saving the gas level up all the diodes will be lit on and remain like this until we will go to next menu item. Every time the button is pressed shortly, new gas level value is stored in memory.
- Press and hold the switch button for 5 seconds to save settings and end programming.



6 States of operation in different modes

6.1 MANUAL SWITCHOVER MODE:

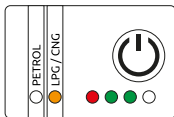
In manual mode all changeovers between fuels are being done when front panel button will be pressed. When the tank is empty, the switch will not switchover to PETROL automatically.

GAS OPERATION STATE:

GAS LED is on.

GAS level status is indicated by LEDs.

Engine is working on GAS.



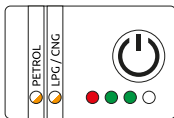
When the tank is empty, the switch will not switchover from GAS to PETROL automatically. Manual changeover from GAS to PETROL by pressing button is required.

ZERO OPERATION STATE:

PETROL and GAS LED blinking.

GAS level status is indicated by LEDs.

GAS and PETROL cut off from the engine.



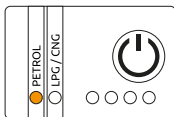
Changeover from PETROL to GAS after button pressed.

PETROL OPERATION STATE:

PETROL LED is on.

GAS level status is not indicated.

Engine is working on PETROL.



Changeover from PETROL to GAS after button pressed.

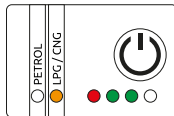
6.2 AUTOMATIC SWITCHOVER MODE:

In automatic mode all changeovers are done automatically when the switch is set to PETROL to GAS mode. The changeovers can also be forced manually by pressing front panel button. When the tank is empty, the switch changes to PETROL automatically.

GAS STATE:

GAS LED is on.
GAS level status is indicated by LEDs.
Engine working on GAS.

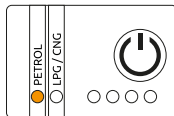
Changeover from GAS to PETROL after button pressed or GAS tank empty.



PETROL STATE:

PETROL LED is on.
GAS level status is not indicated.
Engine working on PETROL.

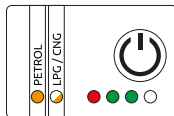
Changeover from PETROL to GAS after button pressed.



PETROL TO GAS STATE:

PETROL LED on, GAS LED blinking.
GAS level status is indicated by LEDs.
Engine started on PETROL.

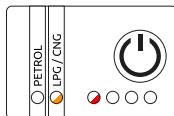
Changeover to GAS after button pressed or after programmed RPM threshold reached.



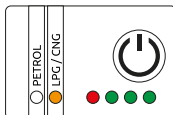
EMERGENCY GAS STATE:

If the GAS tank is empty and system won't allow us to changeover to GAS, it is possible to force start vehicle's engine on GAS.

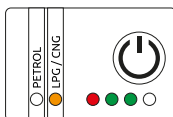
When the engine is not running and ignition key is in ACC position and system in PETROL state, press and hold the button for 5 seconds
GAS LED is ON, car is working on GAS, unless switch button will be pressed.
GAS level status is ignored in that mode.



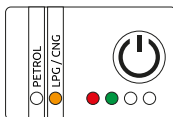
7 Gas level indication LEDs



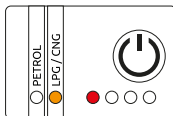
1/4 LED, 2/4 LED, 3/4 LED, 4/4 LED on – **TANK FULL**



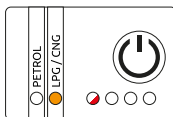
1/4 LED, 2/4 LED, 3/4 LED on – **3/4 OF THE TANK AVAILABLE**



1/4 LED, 2/4 LED on – **TANK HALF FULL**



1/4 LED on – **QUARTER OF THE TANK AVAILABLE**



1/4 LED blinking – **TANK ALMOST EMPTY**



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