

PERFECTLY

DIRECT

& DIRECTLY

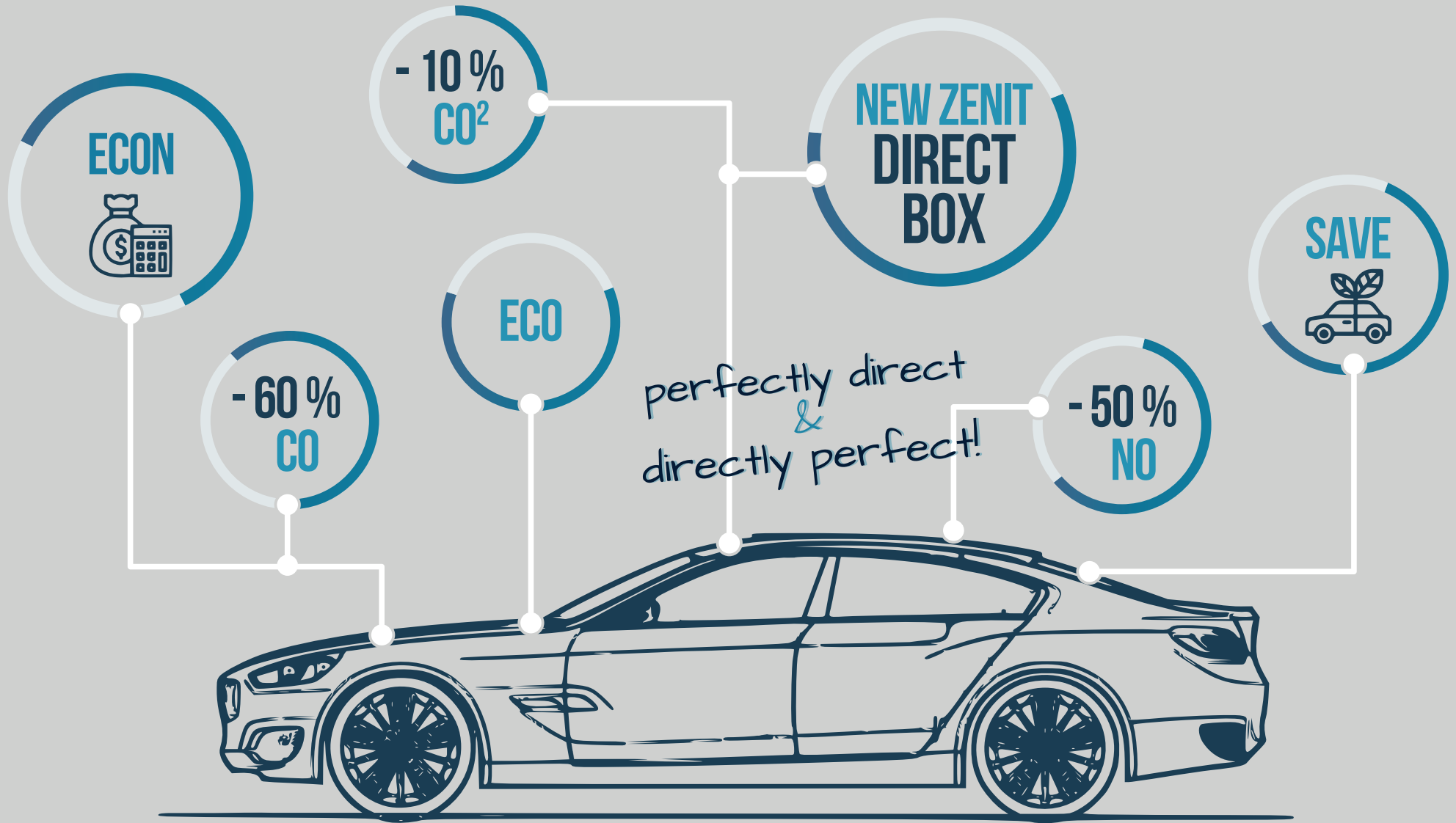
PERFECT



DIRECT INJECTION ON **LPG**



| BEST PART OF DRIVING





ZENIT DIRECT BOX: TECHNOLOGY FOR DIRECT PETROL INJECTION

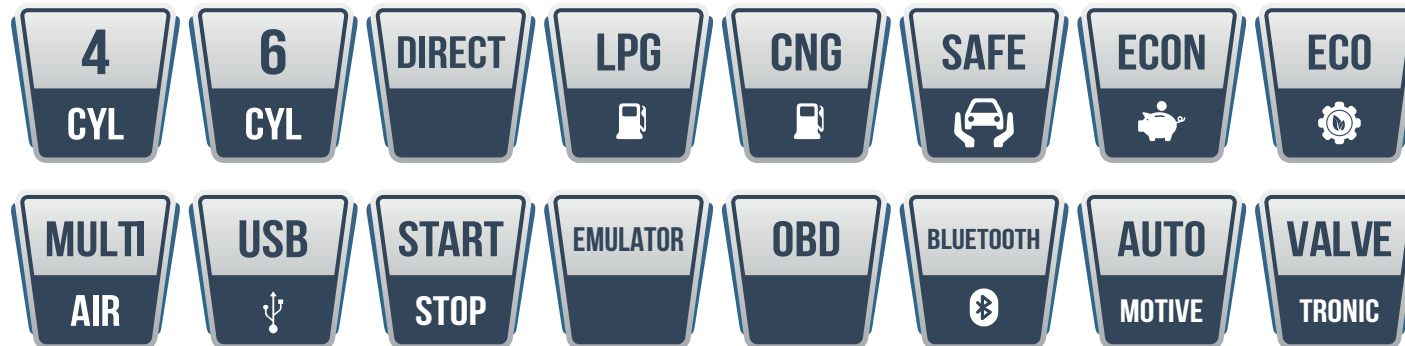
PREMIUM CATEGORY



What matters to the driver?
Driving economy and savings.

And what matters to you as a LPG system installer?
A failure-free product that will allow for efficient assembly, shortening the time of your involvement to the necessary minimum.

New Zenit Direct Box guarantees both - it takes care of your interests and the driver's needs at the same time.



DIRECT BOX - A PLATFORM
MEETING TECHNOLOGICAL
DEVELOPMENT OF AUTOMOTIVE

TECHNOLOGICALLY **ADVANCED**

WHAT MAKES THE **PREMIUM** CATEGORY DIFFERENT - **MODEL DIRECT BOX?**

- ▶ designer RGB switch
- ▶ universal shape of housing, which is ideal for installation (known from the premium model - Black Box)
- ▶ proven wiring harness from the Zenit controller family

WHAT DO YOU GAIN BY **CHOOSING THE DIRECT BOX MODEL?**

- ▶ Savings in time that you can spend on pleasure or servicing another customer.
 - ▶ Satisfied drivers who will gladly recommend Zenit Direct Box to their friends.
 - ▶ 100% adaptation of Zenit installation to the needs of the most demanding drivers.
 - ▶ The product was created in the spirit of automotive industry standards.
 - ▶ Certified by respected research and development institutions.
- Controller of the highest category - **PREMIUM!**

BASIC **INFORMATION**

BRAND: **ZENIT** | MODEL: **DIRECT BOX**

- ▶ injection type: **direct**
- ▶ number of supported cylinders: **4 | 6**
- ▶ type of gas fuel: **LPG | CNG**
- ▶ types: **JZ-55/4 | JZ-55/6**

Talking about direct petrol injection we often find English term Gasoline Direct Injection. Engines with direct petrol injection have different markings, depending on the producer – of the car concern.

Exemplary markings of the engines with direct petrol injection:

- ▶ **JTS**
- ▶ **Earth Dreams**
- ▶ **T-GDI**
- ▶ **GDI**
- ▶ **DISI MPS**
- ▶ **DISI**
- ▶ **SKYACTIVE**
- ▶ **CGI**
- ▶ **SIDI**
- ▶ **THP**
- ▶ **TFSI**
- ▶ **TSI**
- ▶ **ECOBOOST**

BY CHOOSING **ZENIT DIRECT BOX** INSTALLATION, YOU GET:

- complete electronics for 3, 4, 5 or 6 cylinder engines
- configuration for a specific car/engine code directly in the program without downloading from the website
- a proven way to save money

ZENIT DIRECT BOX

is adapted to work with specific configurations - model, capacity, engine code!



In some configurations of Zenit Direct Box control panel, we use an additional, external emulator of petrol injectors. The emulator which is homologated together with the control panel is available in two types: 4-cylinder (designation 4RL001) and 6-cylinder (designation 6RL001). We have fitted the emulator into the compact housing of Zenit Blue Box LIGHT, ensuring a minimum of space under the hood.

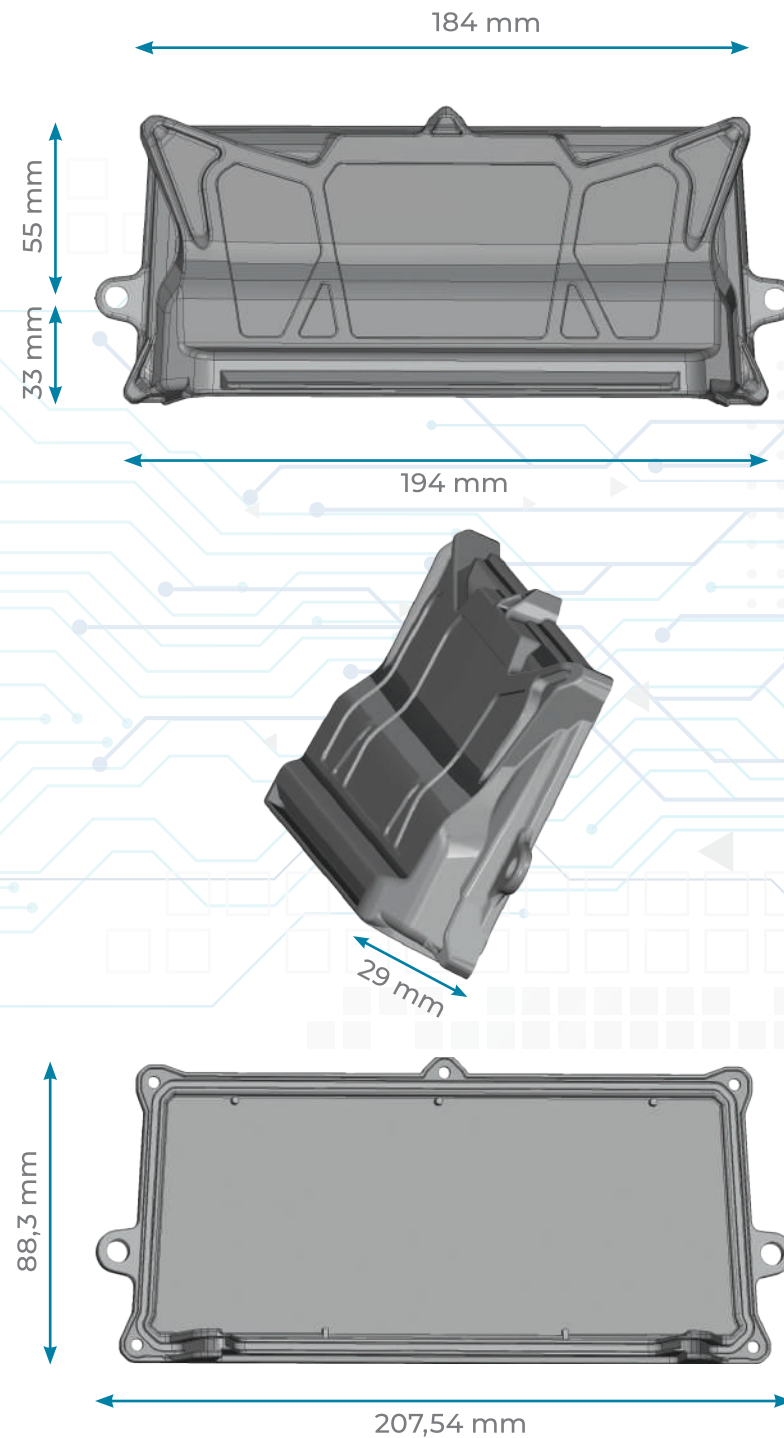
POLISH TECHNOLOGICAL THOUGHT AND POLISH PRODUCTION

Zenit Direct Box is the youngest representative of the ZENIT LPG&CNG controllers family. At the same time, it is another representative of the BOX line - a fully Polish technological concept and Polish production.

Zenit Direct Box controller is available in 2 versions: 4 and 6 cylinders. It has a built-in OBD module and a petrol pressure emulator. This is a solution tailored to the development of the broadly understood automotive industry. Zenit Direct Box installation is the result of the meticulous work of our R&D department, which used the knowledge and experience gained over the years. This solution is a response to the real needs of modern drivers.

The homologation tests were carried out in Poland by Łukasiewicz – Industrial Institute of Automotive. The test results confirmed compliance with the requirements of the regulations 67 (LPG), 110 (CNG) and 10 (Electromagnetic Compatibility) UN ECE. Approvals based on the presented research results, were issued in Poland by the unit authorized to do so, i.e. Technical Supervision of Transport.

The LPG Direct Box controller is 100% immune to any electromagnetic interference. This is confirmed by the approval obtained in accordance with Regulation 10 of the UN ECE. The document says about the electromagnetic compatibility of electrical and electronic devices used in cars.



THE HIGHEST QUALITY **UNDER CONSTANT SUPERVISION**

By choosing the premium category of gas installation, you expect the highest quality standards. Zenit Direct Box has the required product approval, confirming fulfillment of high quality standards. What's more, we have periodic audits of the Direct Box model conducted by external supervisory units. The purpose of the audit is to verify whether quality control system created by us works flawlessly. Positive audit evaluations confirm that we constantly produce in accordance with the standards required already at the stage of obtaining the approval.

In order to guarantee customers a premium category product, we undergo such inspections as the one conducted by the National Automotive Institute, the Motor Transport Institute, a certification unit in the field of Quality Management System according to the standards of the norm **PN-EN 9001:2015**.

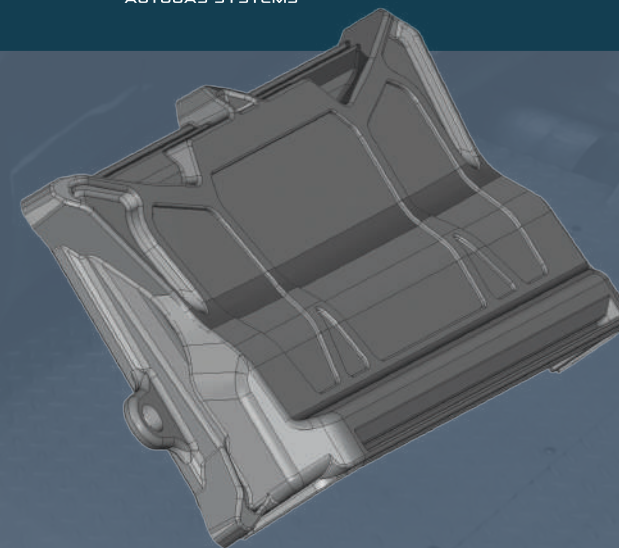
Installers are guaranteed that by choosing Zenit Direct Box, they decide for the highest standard of work and the highest quality offered on the market.

E20 67R-03 1173

E20 110R-04 0072

E20 10R-06 4684

 **ZENIT** | BEST PART OF DRIVING
AUTOGAS SYSTEMS



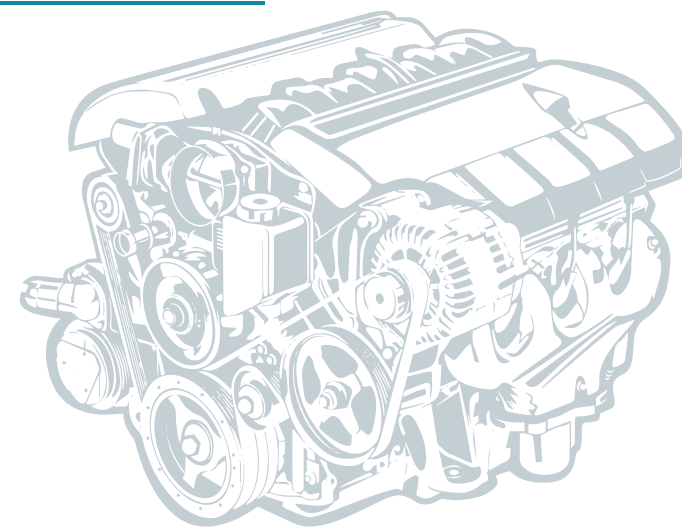
THE WORK OF THE INSTALLER **IS LIMITED TO A MINIMUM**

- The Direct Box system was created with the installer in mind - we provide a complete installation configuration for the engine code.
- Direct Box responds to the real needs of installers.
- By choosing our LPG installation for direct petrol injection, you gain convenient technical support available online and at the number of a dedicated hotline.



MAXIMALLY ADJUSTED

The installation is dedicated to engines with direct petrol injection with 3, 4, 5 and 6 cylinders. As a producer, we provide professional selection of Zenit Direct Box electronics components for a specific engine (engine code, and thus engine power and capacity). It's a guarantee that the installation will run on the best tested components in the most efficient way. By choosing Zenit Direct Box, you choose a proven solution and ensure stable savings.



TECHNICAL ASSISTANCE

TECHNICAL HELPLINE FOR WORKSHOPS



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+48 606 145 996



TECHNICZNY@AGCENTRUM.PL



MON-FRI 8:00 - 18:00 (CET), SAT 8:00 -14.00 (CET)



ZENIT DIRECT BOX ELECTRONICS INCLUDES:

- Zenit Direct Box controller
- tested and well-accepted electric harness
- MAP sensor with gas temperature sensor
- RGB switch
- temperature sensor of reducer
- sensor for indicating the level and reserve of gas in the tank



The Direct Box controller is ideal for vehicles with direct petrol injection that comes directly from the assembly lines of car manufacturers, as well as the ones already found on the roads.

OPERATION PARAMETERS OF ZENIT DIRECT BOX CONTROL PANEL:

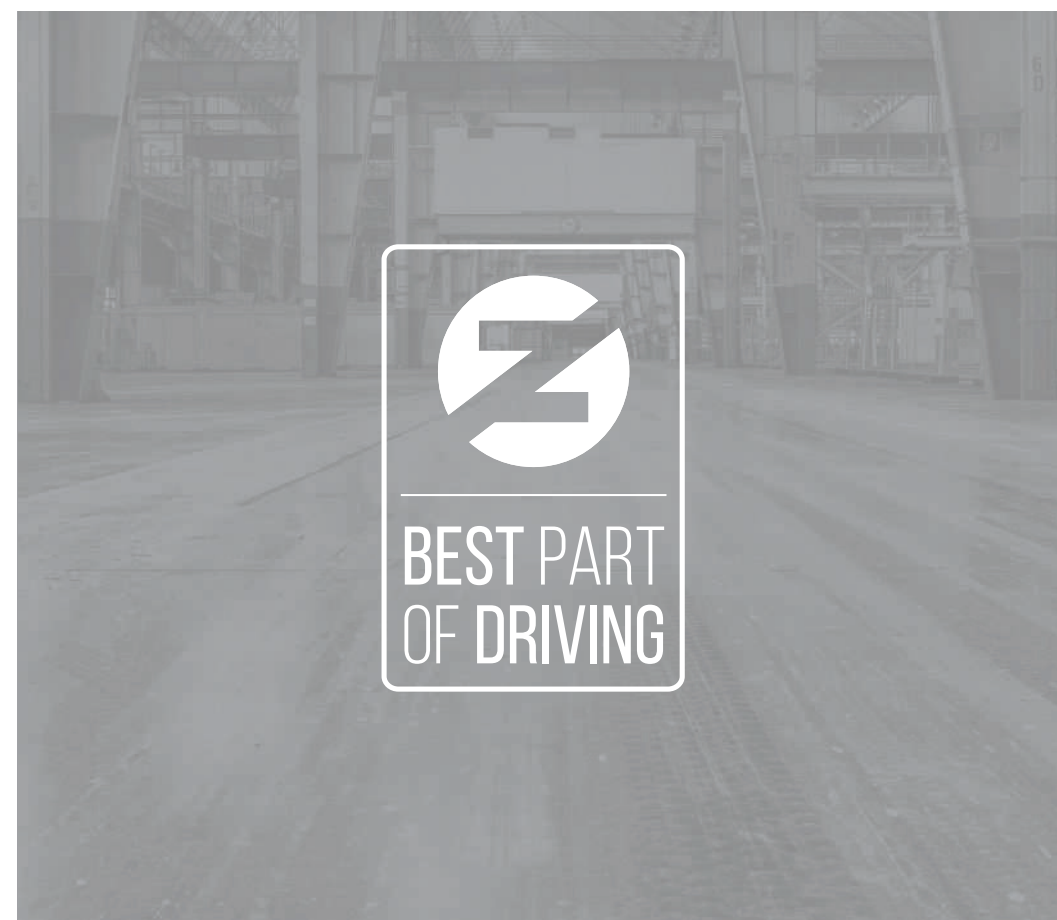
- Homologated minimum operation temperature: -20°C
- Homologated maximum operation temperature: $+120^{\circ}\text{C}$
- supply voltage: 10-16V
- maximum power consumption: 10A/4 cyl, 15A/6 cyl

BENEFITS OF USING **ZENIT DIRECT BOX** CONTROLLER:

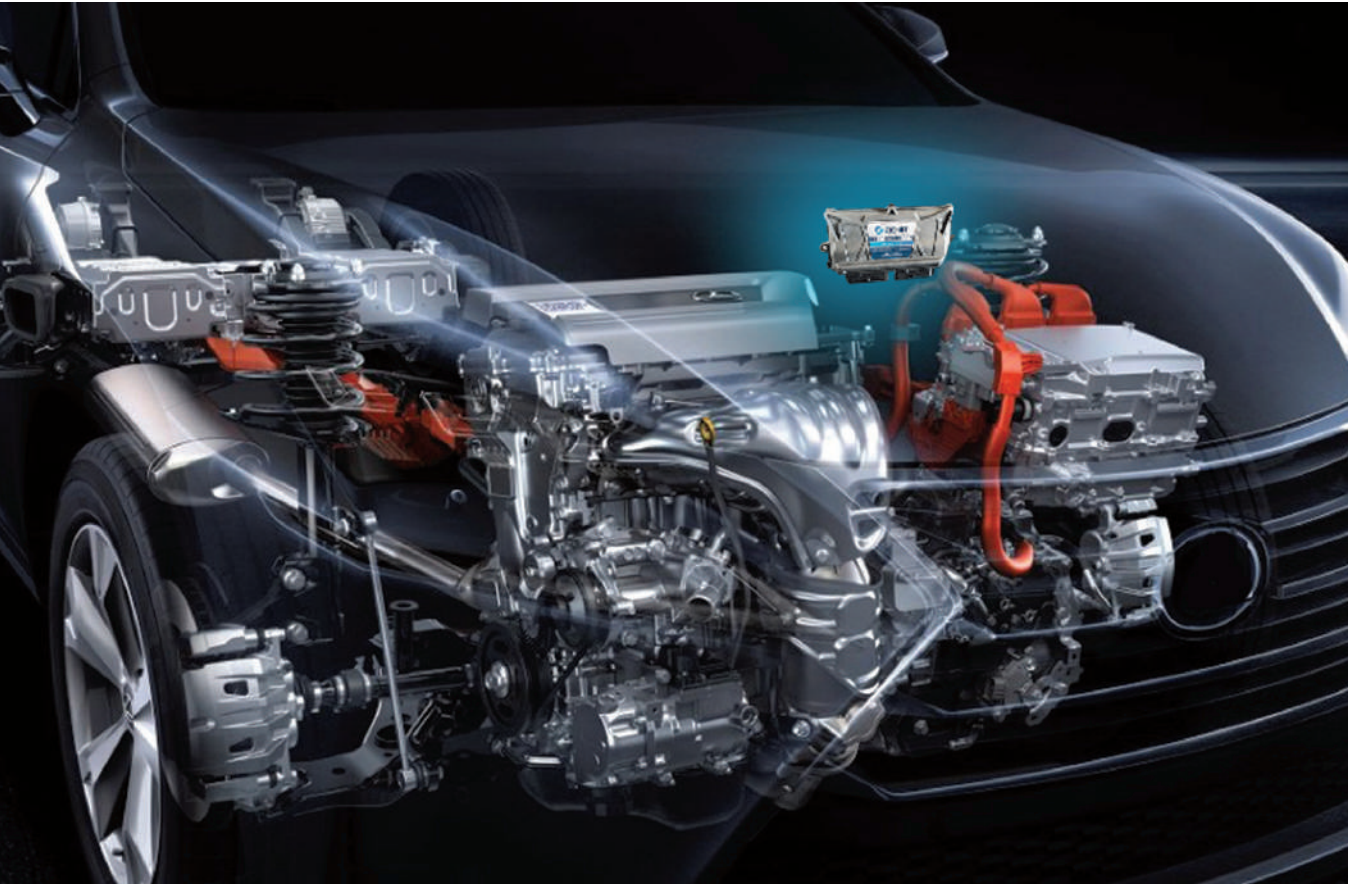
- perfectly matched fuel mixture
- insight into the current operating parameters of the engine
- access to extensive engine diagnostics
- reading (if necessary also erasing) errors from the vehicle's computer
- comfortable assembly of the installation
- savings of the installer's time
- **2in1** use of only one device instead of 2 separate ones - control panel and OBD scanner in one!

Hardware - built-in OBD II module supports protocols:

- CAN_11bitID_500kbps
- CAN_29bitID_500kbps
- CAN_11bitID_250kbps
- CAN_29bitID_250kbps
- KWP2000 Fast
- KWP2000 Slow
- ISO 9141



DO YOU KNOW HOW OUR INSTALLATION WITH **A DIRECT PETROL INJECTION ENGINE** WORKS?

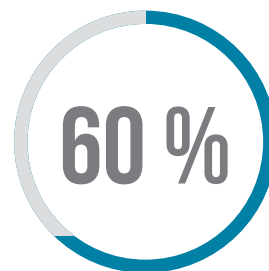


Direct injection engine works identically to multi-point injection engines. There are two differences with older indirect injection engines. Firstly, the injectors are located in the combustion chamber. Secondly, there is higher fuel pressure. The operation of such an engine (DI, GDI, etc.) on LPG fuel looks like this: a small amount of petrol is fed over the entire range of its operation. Then the LPG controller turns off the petrol injectors and the LPG fuel is injected into the intake manifold through the gas injectors. The gas together with the air goes to the cylinder and completes the demand for fuel. Petrol injectors are constantly protected. The minimum and maximum dose of gas depends on the needs of the engine, its operating parameters and mechanical elements of the gas system (mainly injectors).

In Zenit Direct Box installation, the petrol dosing range is set smoothly. The amount of additionally injected petrol is so small that it does not have a significant effect for driving economy.

ZENIT DIRECT BOX IS ECO!

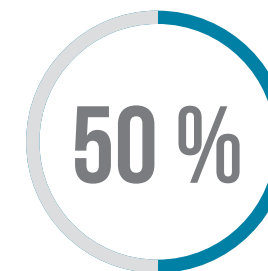
The use of autogas installations has a positive impact on the environment - it significantly reduces the level of exhaust emissions. One of the global problems in the world is pollution of the environment and smog. We see and feel it on our own skin. To a large extent, pollution comes from the transport sector. An effective way to improve air quality, reduce smog and reduce pollution is to convert your car to LPG. By choosing gas installation, you contribute to the protection of our common good, which is the natural environment and the planet Earth.



LESS!
CARBON OXIDE



LESS!
CARBON DIOXIDE



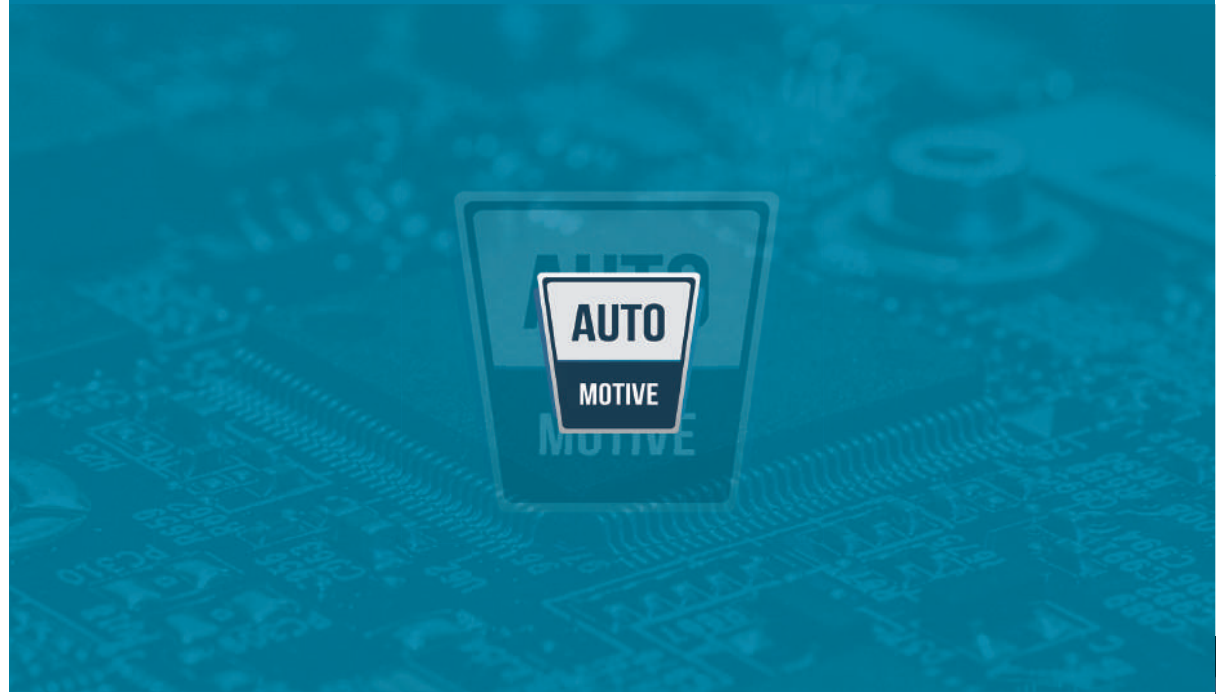
LESS!
CARBOHYDRATES
AND NITROGEN OXIDES



What's more - by choosing specific gas installation - Zenit Black Box - you contribute twice to the protection of the environment. Why? Because the installation is packed into ECO cardboard cartons! Each package is suitable for recycling - due to the use of grey paper and the type of printing.

ECO FRIENDLY WITH **ZENIT DIRECT BOX!**





WHAT MAKES **DIRECT BOX** DIFFERENT?

CERTIFIED AUTOMOTIVE PROCESSOR



The Direct Box model is based on a certified 32-bit processor from NXP. The processor is commonly chosen by car manufacturers. The certificate is awarded to companies producing automotive components and is a proof of the highest quality. It was designed by experienced founders of International Automotive Task Force (IATF), which brings together companies such as BMW Group, Daimler, Fiat, General Motors, or Volkswagen and industry organizations. The awarded certificate guarantees compliance the strictest standards of the largest automotive concerns and the certainty that the processor in Zenit Direct Box will work perfectly in each car and will cooperate with the vehicle installations. Zenit Direct Box was created on a six-layer printed circuit board, and thanks to electromagnetic interference shielding, it

works stably. Lacquering the circuit board with a special varnish provides maximum moisture resistance. Zenit Direct Box is the most thoroughly protected controller in its category.

INTERESTING FACT!

The processor is used in currently manufactured cars to control the drive unit, in comfort modules, in autonomous cars, at eCockpit!

His twin brother drives the well-known and respected Zenit Black Box.

PREMIUM INSTALLATION & PREMIUM SWITCH



RGB SWITCH

- built-in light adjustment sensor!
- functional, round shape with a centrally located clickable microswitch!
- RGB diodes, thanks to which you can get any colour of the light!
- built-in buzzer with adjustable volume and tone control!
- based on a microcontroller
- connection: plug - socket
- additional CHECK light

FREQUENTLY ASKED QUESTIONS

? Does Zenit Direct Box controller also support engine codes and car models that Zenit Direct supported?

Yes, all configurations developed by us over the years have been transferred to the new Direct Box.

? What is the process of updating the Zenit Direct Box software?

The installer receives information about the availability of new software for the control panel (firmware) after starting the program and decides whether he wants to update it (recommended). The new software will be available on our website.

? What is the configuration update process like?

You select the configuration of Zenit Direct Box installation for a specific engine code in the program from the drop-down list. The configuration database in the software can be updated in two ways: manually and automatically (after selecting the option in the program).

? Can I open Zenit Direct Box with a program dedicated to Zenit Direct installation?

We have created a new dedicated Zenit Direct Box program. Its icon differs from the already known icon of the Zenit Box program only in color - it is gray, just like the Direct Box housing.





NEW ZENIT DIRECT BOX SOFTWARE



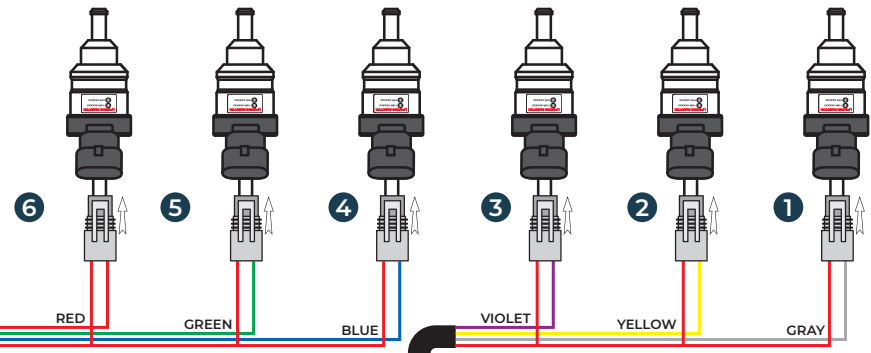
ZENIT DIRECT BOX PROGRAM ICON

A NEW DIMENSION OF LPG & CNG
POWER FOR DIRECT PETROL INJECTION

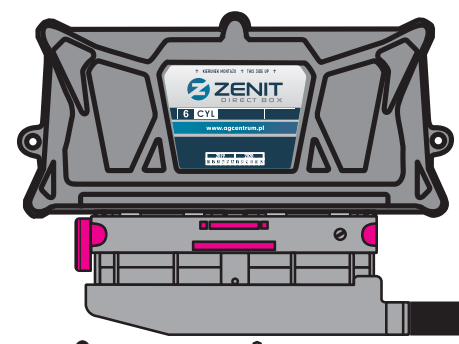
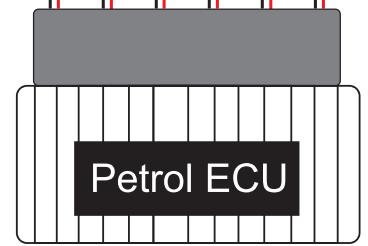
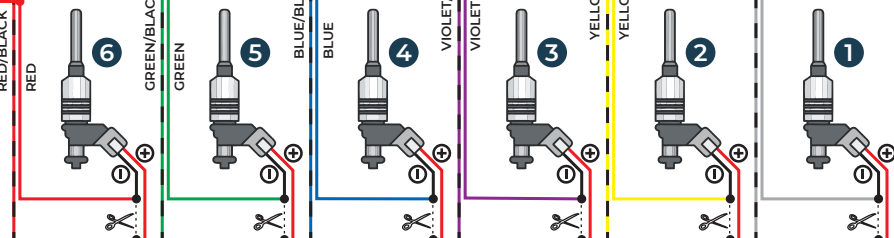
Current software and
manuals available at
www.agcentrum.pl

WIRING DIAGRAM

GAS INJECTORS

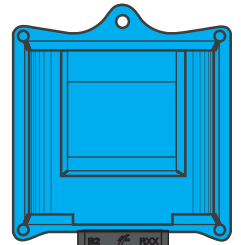


PETROL INJECTORS



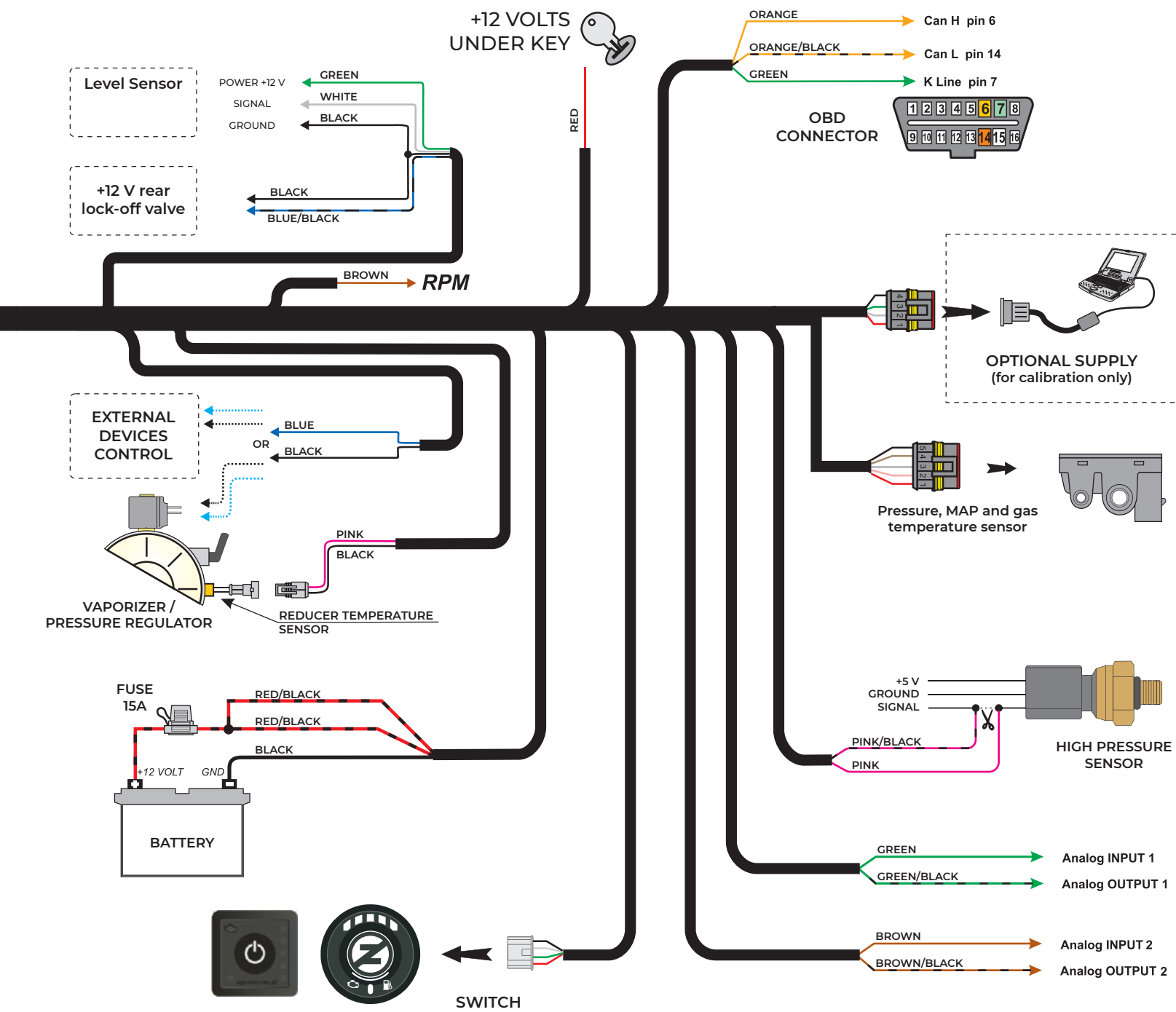
Place central unit with connector down

- PIN 21 WHITE
- PIN 1 ORANGE
- PIN 33 PINK
- PIN 52 BROWN
- PIN 27 BLACK
- PIN 25 RED/WHITE



Emulator
(optional connection see the detailed manual for a specific type of the engine)





Sequence of connecting petrol injectors:

According to the manual dedicated to a specific type of engine.

Sequence of connecting gas injectors:

4-cylinder engines:
 unless dedicated manual states otherwise, connect in accordance with the order of the cylinders in the engine, usually no 1 from timing.

6-cylinder engines:
 : According to the manual dedicated to the specific type of engine.

PERFECTLY
DIRECT
& DIRECTLY
PERFECT





Premium installation - **Zenit Direct Box** - was created thanks to the experience and knowledge of the manufacturer of LPG & CNG autogas installations - AG Centrum. Every day, in our Research and Development Center, Zenit installations are developed by the team of experienced technicians. As a result, we meet the expectations of the customers from all over the world, and hundreds of thousands of cars in more than 50 countries are equipped with Zenit installations.



ZENIT DIRECT BOX - PERFECTLY DIRECT AND DIRECTLY PERFECT!

/ZenitAutogas



| www.zenitautogas.pl | www.agcentrum.pl |