



LPG

HI TECH AUTOMOTIVE ENGINEERING

CNG

About us

Even as a very young company, APOLO is already at the forefront of its business field and is recognized as one leading American creator of LPG industry solutions.

APOLO designs and develops components for the international automotive sector, specializing in the alternative fuel marketplace.

With a reputation for innovation, responsiveness and being ahead of the curve, APOLO provides its partners with a market-focused approach to its products.

Backed by a strong procurement team and cutting-edge technology, the APOLO team works closely with our designers and our customers to make a competitively priced, high quality product.

We work in close relationship with our customers around the world.

Alliances with key LPG equipment providers, enables APOLO to take advantage of the latest and emerging technologies.

APOLO works in close partnership with major brands and producers, ensuring that its products match their aspirations and quality of service. APOLO designs the internal layout, software and functionality, selects the components and works with world-class designers of automotive electronics for the creation of first class products.

We are still focused on innovation and technology, and we show the way to leading-edge software solutions .

We provide electronic technology and real research and development. Our innovation is Indisputable.

Solutions

Our customers bring us their manufacturing challenge and we provide a solution.

We supply electronic engine management devices, LPG handling components and associated software to manufacturers of new vehicles, as well as to aftermarket fleet conversion specialists.

We are known for providing fast, thorough solutions based on comprehensive understanding of our customers' requirements.

Environmental policy

APOLO is aware of its responsibilities to ensure that its operations are conducted in a manner that minimizes any adverse environmental impact.

Our Environmental policy is :

- To comply with National environmental statutory and regulatory requirements.
 - To foster a safe and clean working environment, improve production processes and mitigate the environmental impact.
 - To achieve the continual improvement commitment.
- APOLO, during the design and production process, heeds its responsibilities to create environmentally-friendly and energy efficient products.

CLEVER setting software

The brain of the CLEVER series ECU-s is the CLEVER setting software, constantly improved to be compatible with the newest engine types.

CLEVER makes the calibration and adaptation easy in CLEVER mode, collecting and calculating the injection times and setting the system to optimal performance.

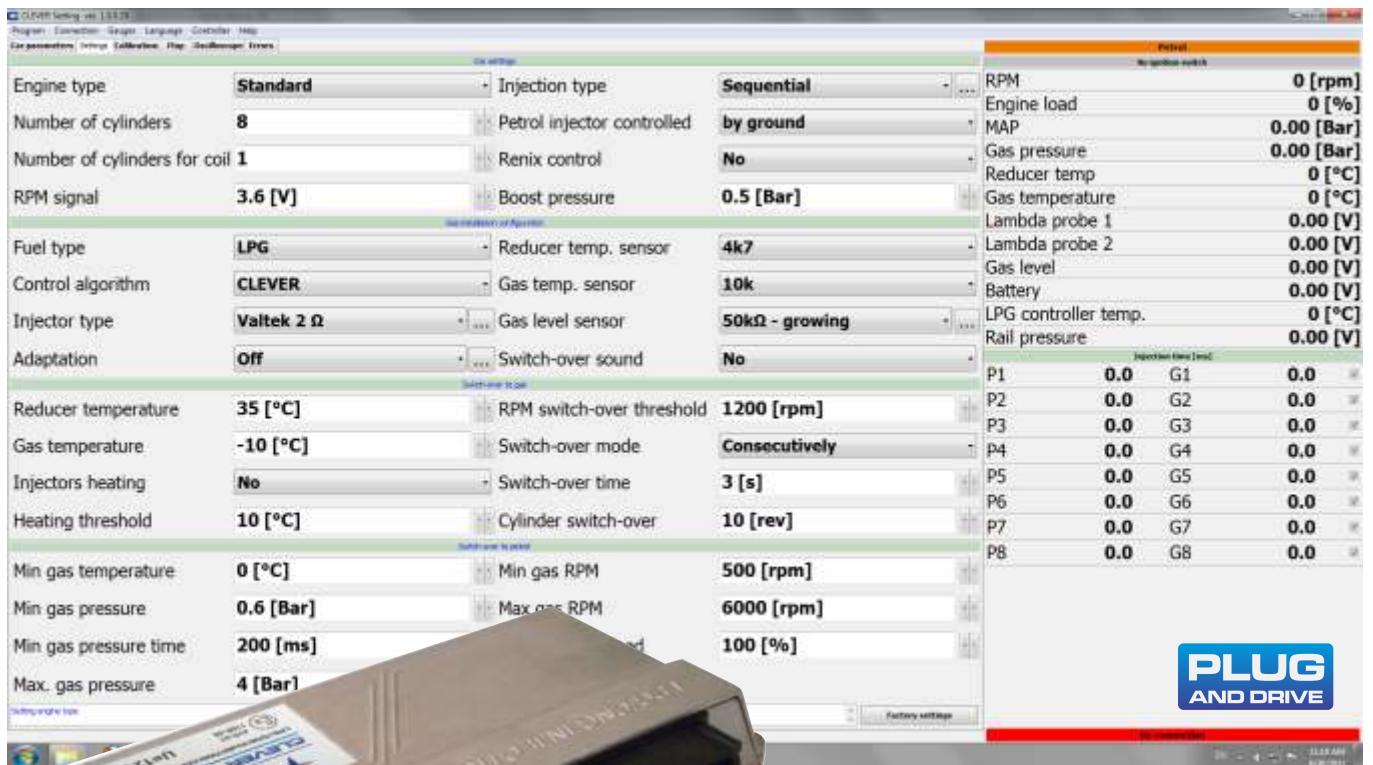
CLEVER software has also STANDARD mode that allows the user to manually set parameters.

CLEVER software is similar to most common systems on the market. Automatic adaptation is more precise and it can result in lower consumption even up to 10-15% less comparing to our competitors.

Drivers are also equipped with automatic constant adaptation system which monitors the system all the time, checking injection times every time the ignition starts.

Gas injection is always at the optimum level even if petrol injection times are changing.

CLEVER drivers should be mounted with joints heading up so that the joints are easily accessible and detachable.



The screenshot displays the CLEVER setting software interface. The main window is divided into several sections for parameter configuration:

- Engine type:** Standard
- Injection type:** Sequential
- Number of cylinders:** 8
- Petrol injector controlled:** by ground
- Number of cylinders for coil:** 1
- Renix control:** No
- RPM signal:** 3.6 [V]
- Boost pressure:** 0.5 [Bar]
- Fuel type:** LPG
- Reducer temp. sensor:** 4k7
- Control algorithm:** CLEVER
- Gas temp. sensor:** 10k
- Injector type:** Valtek 2 Ω
- Gas level sensor:** 50k Ω - growing
- Adaptation:** Off
- Switch-over sound:** No
- Reducer temperature:** 35 [°C]
- RPM switch-over threshold:** 1200 [rpm]
- Gas temperature:** -10 [°C]
- Switch-over mode:** Consecutively
- Injectors heating:** No
- Switch-over time:** 3 [s]
- Heating threshold:** 10 [°C]
- Cylinder switch-over:** 10 [rev]
- Min gas temperature:** 0 [°C]
- Min gas RPM:** 500 [rpm]
- Min gas pressure:** 0.6 [Bar]
- Max gas RPM:** 6000 [rpm]
- Min gas pressure time:** 200 [ms]
- Max gas pressure:** 4 [Bar]

On the right side, there is a 'Petrol' section with various sensor readings:

- RPM: 0 [rpm]
- Engine load: 0 [%]
- MAP: 0.00 [Bar]
- Gas pressure: 0.00 [Bar]
- Reducer temp: 0 [°C]
- Gas temperature: 0 [°C]
- Lambda probe 1: 0.00 [V]
- Lambda probe 2: 0.00 [V]
- Gas level: 0.00 [V]
- Battery: 0.00 [V]
- LPG controller temp.: 0 [°C]
- Rail pressure: 0.00 [V]

Below these readings is a table for 'Injection time [ms]':

	P1	P2	P3	P4	P5	P6	P7	P8	G1	G2	G3	G4	G5	G6	G7	G8
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

The 'PLUG AND DRIVE' logo is visible in the bottom right corner of the software window.



CLEVER X 1 series

A new type of microprocessor with 48-pin header, for 4 cylinder engines only. This combines advanced technology with economics.

This controller unit is confined in 114 x 35,3 x 140 aluminum case. This way it can be easily fitted under any hood with limited space.

CLEVER X 1.04 has all the mentioned features and safety protections, ensuring outstanding quality and performance.

Automatic calibration and adaptation can be done in less than 15 minutes and it takes just a few clicks to have the system fully operational.

Latest software drivers will take care of the rest with adaptation system, checking and correcting injection times if necessary.

CLEVER - X 1.04



CLEVER X 3 series

CLEVER X 3 series ECU is the new type of microprocessor driver with a traditional 56-pin header.

It operates on 4, 6 and 8 cylinder engines.

Drivers can be joined and can operate up to 16 cylinder engines.

The processor is confined in a compact 190 x 30 x 125 aluminum case.

CLEVER X 3.04 has all the mentioned features and safety protections, ensuring outstanding quality and performance.

Automatic calibration and adaptation can be done in less than 15 minutes and it takes just a few clicks to have the system fully operational.

Software Driver will take care of the rest with its constant adaptation system, checking and correcting injection times if necessary.

CLEVER X 3.04, 3.16, and 3.18, versions are the next innovations in our offer.

More efficient processor enables more advanced features like measuring ECU's temperature, frame freezing and faster oscilloscope and it will allow us to add more in the future.

Plus the injection times are even more precise than in standard version.

CLEVER - X 3.04



LPG/CNG COMPONENTS

APOLO INJECTOR ALPHA

Injector for 4 cylinders, 3 or 1 ohm (Ω), with all nozzles included



ALPHA

Technical data

WORKING PRESSURE	0.5 - 2 bar
MAX PRESSURE	3.0 bar
SUPPLY VOLTAGE	12V \pm15%
INLET GAS FITTING	\varnothing 10 mm
OUTLET GAS FITTING	nozzles M8x1
CALIBRATED HOLE RANGE	1.0-3.5
TEMPERATURE RANGE	-20/+120 °C
APROVALS	67R-01, 110R-00

Apolo injectors for gaseous LPG and Natural Gas.

Single version with 0,6mm stroke.

Coils with 2-way built-in watertight connector.

Body made of aluminium. Not very sensitive to dirt accumulation, very moderate price, easy maintenance and easy to clean.

Accurate study on the internal flow dynamics.

APOLO MULTIVALVES

CILINDER 30°



D. 200
D. 230
D. 244
D. 270
D. 300
D. 315
D. 360
D. 400

TOROIDAL 30°



H. 180 / 190
H. 200 / 204
H. 220 / 225
H. 230 / 240
H. 250
H. 270

TOROIDAL 0°



H. 180 / 190
H. 200 / 204
H. 220 / 225
H. 230
H. 240 / 250
H. 270

LPG VALVE



LPG/CNG COMPONENTS

APOLO REDUCER SR05 / <100 kW

The model SR04 reducer is made for LPG sequential injection systems. It's Equipped with filter unit and inlet solenoid valve, compared to basic version it has also an additional post-heating of theLPG at the outlet, that allows higher gas flow and higher gas temperature at the exit.

Apolo SR05 is suitable for engines with power from 60 kW to 100 kW. The pressure at the outlet is adjustable from 0,9 to 1,8 bar.

This version of LPG reducer is a single stage reducer for LPG sequential injection systems, homologated 67R-01. Equipped with filter unit and inlet solenoid valve, compared to basic version it has also an additional post-heating of the lpg at the outlet, that allows higher gas flow and higher gas temperature at the exit.

The pressure at the outlet is adjustable from 0,9 to 1,8 bar (pressures referred to reducer not connected to the engine).



APOLO REDUCER SR05 / Technical data

Dimensions	120x125x105 mm
Material	1.5 kg
Weight	Aluminium die cast body
Max. inlet pressure	3 MPa
Outlet pressure	variable from 90 to 180 kPa *
Solenoid voltage	12 V DC
Solenoid absorption	17 W
Inlet connection	M10x1 pipe ø6 mm
Outlet connection	Fixed fitting ø12 mm
Engine power	100 kW

VALVE LUBRICATION SET

VALVE LUBRICATION SET

For precise dosage of protection fluid for valves.
Easy to setup and simply for use.

VALVE PROTECTION FLUID / 1L

Optimizes engine output and improves combustion, while protecting your engine and valves during extreme loads. Valve Protection for Gas Vehicles protects your engine throughout the entire year.



DIESEL ANTI FREEZE 1:1000 (with dosage unit) / 250 ml

Diesel Anti-freeze contains agents that surround the paraffin crystals, this preventing further growth and aggregation with other crystals.



DIESEL PLUS 1:1000 / 250 ml

The highly concentrated additive with diesel multifunctional active components (including biocide). Diesel plus improves ignition performance by increasing the cetane number, purges and keeps clean the fuel injectors.



DIESEL WINTER POWER 1:500 / 1L

The highly concentrated diesel additive with multifunctional active components and winter power. Cetane booster: eases the cold start, increases engine performance, improves the cold start reliability of the engine during winter conditions.



SYSTEM CLEANER / 200 ml

The highly concentrated cleaning additive for injectors, reliably removes debris, especially on the intake valves as well as in the fuel and the injection system, optimizes fuel consumption and protects against corrosion. Re-enables the full engine performance.



STOP RADIATOR LEAK / 200 ml

Small remedy against major repairs. Seals critical hairline cracks quickly and securely, absolutely deposit-free: reacts only where it is washed into leaks and hairline cracks and comes into contact with the outside air saves costly repairs.



STOP OIL LEAK / 200 ml

The proven high-performance additive against loss of oil in leaky engines. Restores the elasticity of seals. Seals oil leaks reliably and reduces oil consumption.

DIAFRAGMS AND SETS

Various types of diafraam sets for the most types of reducers, both traditional and sequential



FILTERS



Filter for gas phase



Y filter for gas phase



Filter for gas phase with socket for Bosch sensor inlet



Various types of filters for valves

RUBBER HOSES



Ventilation tubes (tubes for box of mutivalves).



Rubber hoses \varnothing 5/11, \varnothing 12/19, \varnothing 16/24

HOSE CLAMPS

APOLO hose clamps

8-12, 10-16, 12-20,
16-25, 19-26, 25-40

Available in 2, 5, 50 and 1000 pcs packing.



PLASTIC TIES

APOLO cable ties

3,6x100 3,6x120 3,6x150
3,6x180

4,8x120 4,8x160 4,8x185
4,8x200 4,8x250 4,8x400
4,8x550

9,0x700 9,0x900

One package of ties contains 100 pcs of cable ties



HEAT SHRINK TUBES

Heat shrink tubes:

Ø 3mm, Ø 5mm, Ø 10mm,
Ø 15mm, Ø 25mm, Ø 30 mm





www.apolotech.us

