

## 1. ENR.G60800 - E-400 LPG OBD 8 CYLINDER (INDIRECT SQI)

### a. ENR.E60800-E-400 OBD 8 CYLINDER ECU SET



Designed for all types of 8 Cylinder vehicles. Very lightweight, shock resistance, waterproofs plastic housing, intelligent with OBD option, auto calibration and auto map correction, Gas injector heating and diagnostic, valve protection, real time diagnostic of components, best calibration result with OBD connection.

### CERTIFICATIONS

- ☒ ECE 67R-01
- ☒ ECE 110R-00
- ☒ ECE 10R-03

### KIT CONTENT

- ☒ 1 x ECU Unit with standard plastic box + back cover in aluminium
- ☒ 1 x "Intelligent" change-over switch
- ☒ 1 x pressure sensor type 4+2,5 Absolute
- ☒ 1 x standard loom CA0315
- ☒ 1 x fuse (7,5 A) and fuseholder bag
- ☒ 1 x shrink tube bag (4 cyl)
- ☒ 1 x Wiring diagram
- ☒ Packing: 1 box per kit, 120 box in a carton, 2 cartons per pallet (extra cost will be charged if 1 pallet per carton is needed)

## TECHNICAL DATA

<b>Supply Voltage:</b>	10 - 16 Volts CC
<b>Working temperature:</b>	-20 / + 105 °C
<b>Power consumption: - stand-by (key Off):</b>	< 20 mA
<b>No load ready to change (key on):</b>	< 160 mA
<b>Gas Injectors supported:</b>	2, 3, 4
<b>Injectors Impedance:</b>	from 2 to 16 ohms
<b>Lock-off load on single input:</b>	2 (Imax = 4A cad.)
<b>Inputs for lock-off / Services:</b>	2
<b>Water temper. sensors supported:</b>	4,7 - 10 kohm
<b>Gas temper. sensors supported:</b>	4,7 - 10 kohm
<b>Pressure sensors supported:</b>	4+2,5 bar Absolute
<b>Level sensors supported:</b>	0..5V - 1050 & 806 compatibles - 0..90 ohm (others on demand)
<b>Lambda sensors managed:</b>	0-0,8 / 0-5 / 5-0 / 0,8-1,6 2,5-3,5 / UEGO
<b>Lambda emulation</b>	possible for all managed types
<b>Change-over Switch:</b>	Push button, gas level shown, operating led, ready-to-change blinking, diagnostics, Buzzer
<b>Interface:</b>	4-pole AMP on wiring for USB or proprietary Bluetooth interface
<b>Standard OBD protocols supported:</b>	CAN H/L & ISO KL

## b. ENR.15004x - ENERGIA LPG REDUCER 09XP



The **EN09N** reducers, the latest evolution of the EN09 sequential reducers family, has been designed with the aim of further improving the performance compared to the other reducers of the EN09 family, thanks to the improved heating circuit and the higher support engines power, up to 125kW. This reducer differs on the integral body, the complete separation of the water and gas circuits, the improved gas circuit and the deeper water circuit, which allows a better heat exchange.

<b>Type of product</b>	LPG sequential reducer
<b>Material</b>	Die cast aluminium body
<b>Weight</b>	1.30 kg
<b>Dimensions (mm)</b>	125x125x105 mm
<b>Max inlet pressure</b>	3 MPa (30 bar)
<b>Outlet pressure *</b>	adjustable from 90 to 180 kPa
<b>Coil voltage</b>	12 V DC
<b>Coil power</b>	11 W
<b>Coil connection</b>	Fast-on (AMP upon request)
<b>Inlet connection</b>	M10x1 pipe Ø 6 mm
<b>Outlet connection</b>	Fixed fitting Ø 12 mm
<b>Engine power</b>	Up to 125 kW

### d. ENR.30004 - ENERGIA FG Filter

Use for in-line gaseous state, disposable, body made of plastic. Filter cartridge made of resonated paper. Available for rubber hose internal Ø 10-12-14-16 mm.



<b>Housing material</b>	Plastic
<b>Filter efficacy</b>	85
<b>Max pore diameter</b>	from 36 to 44
<b>Medium pore diameter</b>	from 6 to 8
<b>Substance number</b>	from 121 to 131
<b>Thickness</b>	from 0,30 to 0,36
<b>Resin</b>	from 15 to 19
<b>Stiffness</b>	from 1500 to 3000
<b>Mullen test</b>	from 2,0 to 3,0

### c. ENR.25001- ENERGIA 4 RAIL INJECTOR

The fourth generation 4 cylinders Injector Rail for LPG/CNG.

Energia Repair Kit can be purchased to fix old injector rail.

Compatible with all Energia Italy products.



Characteristic	Unit	Value		Note
Injector Version	N° of cylinders	2, 3, 4		
Material body and treatment		Aluminium black anodized		
Relative Pressure	Bar (Psi)	From 0,5 to 2,0 (7 to 29)		Working pressure
		3,0 (43)		Max pressure
Rated voltage (at coil)	Volt	10,8 - 14,4		
Minimum copper wire section for coil connection	mm <sup>2</sup>	0,75		
Coil type	by encoding	A2	A3	
Resistance	Ω	2	3	± 5% at T= 25°
Suggested peak current time (duration)	ms	4	4,2	
Suggested peak current value	A			
Suggested holding current (±10%)	A	1		
Cold Starting Requirements		Increase up to 20% the "peak current time" for first cycles when gas temperature is < 10°C		
Complete OPENING Response Time	ms	2,6	3	(±10% - total injection time 5 ms) ± 5% tested without nozzle at 14V Dp=1 bar T= 25°C
Complete CLOSING Response Time	ms	2,8	2,8	

Minimum injection pulse	ms	2,7	3,1	tested with 2 mm nozzle diameter at 14V $\Delta p=1$ bar T= 25°C
Stroke	Micron	450		
Seat Diameter	mm	3,3		
Static flow rate (with max nozzle $\Phi$ ) for 1 single injector at 20°C (with air)	SLPM (sL/min)	105		at 1 bar inlet pressure
Calculated max flow rate(with max nozzle $\Phi$ ) for 1 single injector CNG at 20°C (G20 CNG fluid)	gr/sec	1,62		at 1 bar inlet pressure
	Kg/h	5,84		at 1 bar inlet pressure
Calculated max flow rate(with max nozzle $\Phi$ ) for 1 single injector LPG at 20°C	gr/sec	2,8		at 1 bar inlet pressure
	Kg/h	10		at 1 bar inlet pressure
Leakage (tested with air)	cc/h	$\leq 15$		
Noise level	dB	64		$\pm 1$ dB Rail Test Condition
Compatibility with gas		LPG, CNG		
Driver Stage		Peak and Hold (PWM)		
Coil Connector type		2 way Amp/Delphi super seal female connector with tab contacts	About connecting wire, refer to our drawing, code 114.01.AMP.001	
Inlet gas fitting for rubber hose	mm	$\varnothing 10$ mm / $\varnothing 12$ mm / $\varnothing 14$ mm / $\varnothing 16$ mm		
Outlet gas fitting		Calibrated nozzles M8x1 for rubber hose $\varnothing 4$ mm - $\varnothing 5$ mm - $\varnothing 6$ mm		
Calibrated hole $\varnothing$ range (for nozzles)	$\varnothing$	From 1,00 to 2,75 mm (0,25 mm step)		
Approvals		110R-00 67R-01 (-40°C / +120°C) ISO 15500-2:2016 ISO 15500-7:2015		
Principle of operation		Solenoid valve - Normally closed - Mobile Plunger		
Power handling capability LPG		1 bar up to 40 HP/cyl		
Power handling capability CNG	HP/cyl	2 bar up to 35 HP/cyl		
Coil IP Rating		IP67		



Energia Italy LPG multivalve EN02 is designated for LPG tanks. It is homologated in accordance with the European Regulation ECE 67R-01. It has all necessary safety devices such as: pressure relief valve (PRV), pressure relief device (PRD), solenoid valve, 80% filling limiter, excess flow valve, non-return valve, manual (service) valve and level indicator (electronic upon request). Energia Italy EN02 is available for 0°, 30°, 90° cylindrical tanks, for 30° and 37° internal toroidal tanks and for 0° external tanks. Also upon request additional versions for special tanks are available. Energia Italy AT02 is also supplied with electrical wire for coil connection, sensor holder (sensor installed upon request) and mounting accessories

Material	Hot forged brass
Weight	0,9 kg
PRV setting	2.7 MPa (27 bar)
PRD	120 ± 10°C
PRV flow rate	23.4 Nm <sup>3</sup> /min
PRD flow rate	4.4 Nm <sup>3</sup> /min
Filling speed	18 lt/min @ 10 bar
Inlet connection	1/4 gas
Outlet connection	M10x1/pipe Ø6 mm or M12x1/pipe Ø8 mm
Coil power	11W
Coil voltage	12V DC

#### Warranty

24 months warranty from the date indicated on the product.



### **Energia Filling Point**

Brass refueling fitting with integrated sintered bronze filter for refueling valves with male thread M16x1.5 mm, reduction length 62 mm. The set includes a sealing O-ring between the filler installed in the car and the filter adapter.  
Used for the Italian type refueling gun (DISH).



## Technical Data Sheet LPG Thermoplastic Hoses



Branding	GAS5A201XX000RA 3/16" LPG 67R-01 0370 CLASS 1 MESE/ANNO LOTTO MADE IN ITALY		
	GAS5A301XX000RA 1/4" LPG 67R-01 0370 CLASS 1 MESE/ANNO LOTTO MADE IN ITALY		
Characteristic	Unit	Value	
Internal diameter	in.	3/16 "	1/4"
Internal diameter	mm	4.8	6.4
External diameter	mm	9.2	10.8
Tolerance		+0.20 -0.10	+0.20 -0.10
Minimum burst pressure	Bar	120	120
Test pressure	Bar	60	60
Max working pressure	Bar	30	30
Minimum bend radius	mm	45	60
Weight	g/m	56	65
Branding and coding - Covering colors	Substitute the two "XX" in the code with the following numbers: 00 (Black), 02 (Blue), 03 (Dark Blue), 05 (Red), 09 (Green)		
Technical-constructive features	Internal core in Polyamide, reinforcement with a Textile fiber and external covering in anti-abrasion Polyurethane, micro perforated in the following colors: blue, black, green, dark blue. External covering in Polyamide micro perforated in the following colors: blue, black, green, dark blue		
Raw materials	Polyamide PA12 - Polyester fiber braid - Polyester polyurethane - Polyamide		
Application	LPG-67R series hoses have been created for LPG conveying at medium pressure		
Working temperature	From -40°C to +125°C		
Working pressure	Safety ratio 1:4		



**LPG/CNG rubber hose ECE R67-01/R110 certified**

Max working pressure: 4,5 bar

Max working temperature: -20°C +120°C

Application: LPG/CNG

Certification: R67-01/R110

Diameter	Code
4x10	TG01G
5x11	TG02G
6x12	TG03G
10x17	TG04G
12x19	TG05G
16x24	TG06G
19x28	TG07G
13x21	TG08G



### Mounting Set 4 Cylinder

The tightening range and standard number are indicated on the product

Easy & safe assembly with improved cover and screw design

Philips screw is advantageous over flat screws and is used by many factories and end users,

Burr-free and convex edges preventing the hose from being damaged

Triangular design that prevents the form from being distorted

Other Technical Features:

Compliant with DIN 3017.

Chromium VI free: compliant with ROHS, WEEE and ELV Environmental Directives -convex band edges avoid damage of fastened hos