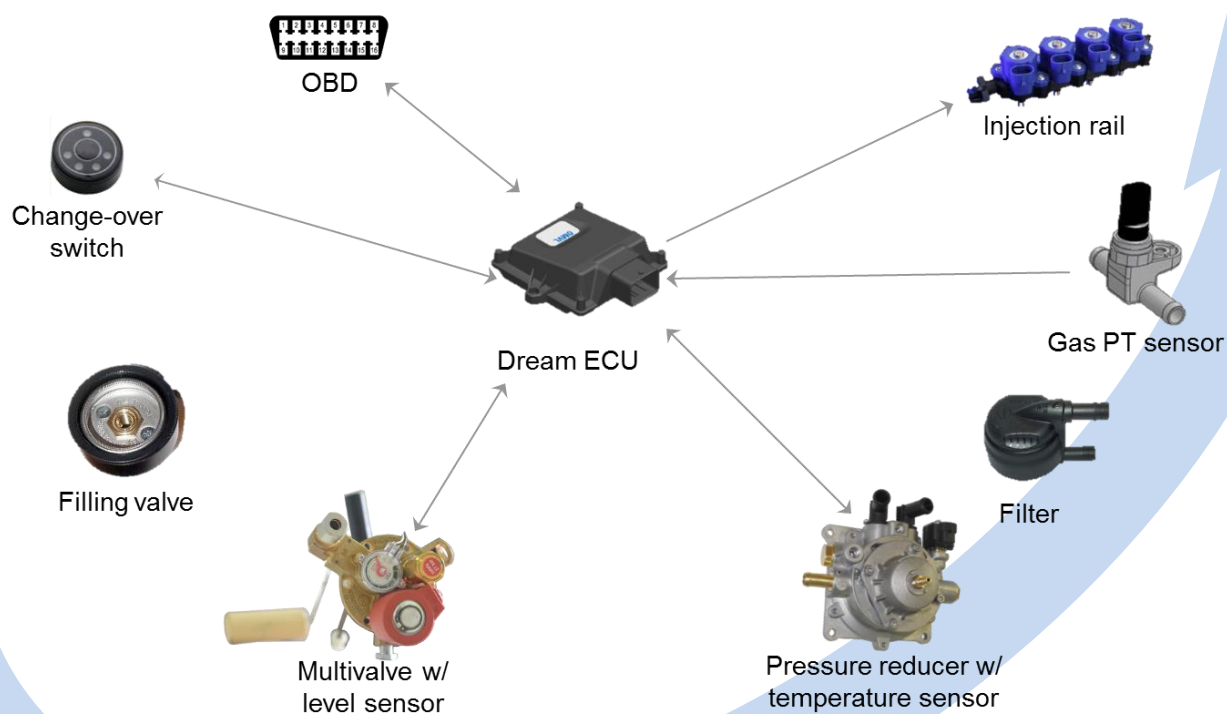


OMVL™

DREAMon

lpg & cng injection system

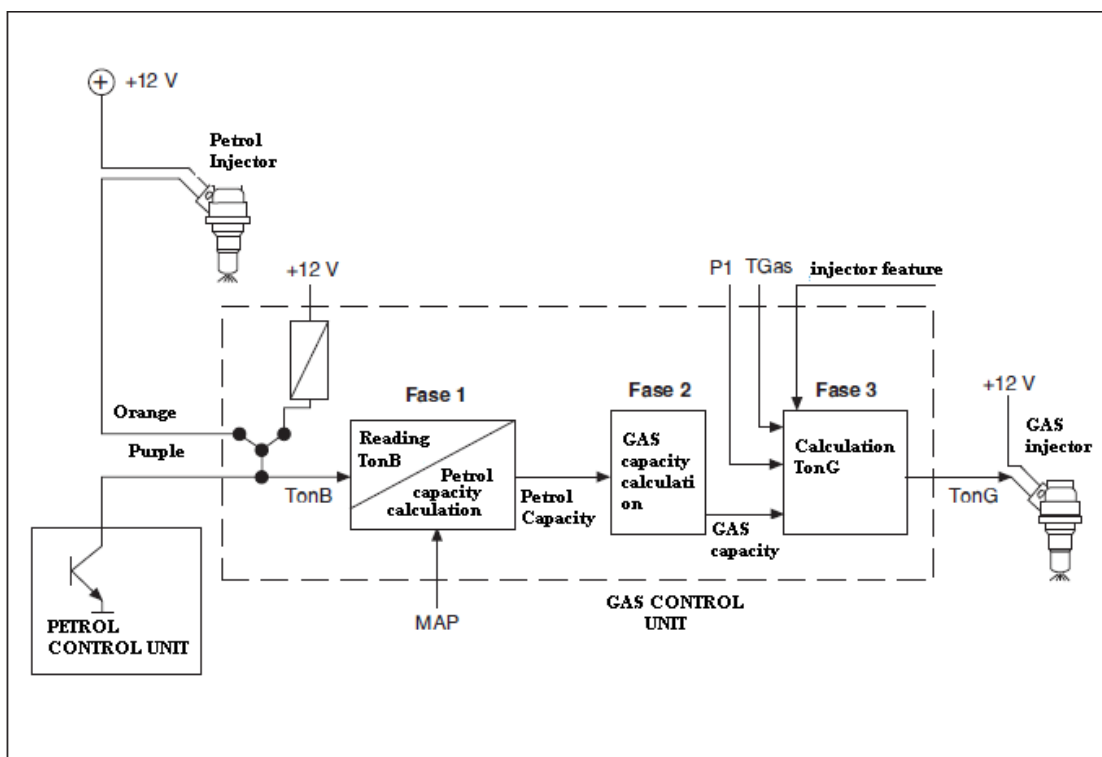
Is the LPG and CNG conversion system developed by **OMVL** for 3-8 cylinders vehicles. The gas electronic unit, coming from the **OMVL's** strong experience in the automotive field, offers a further technological aim making gas system more and more performing in terms of drivability and reliability keeping the same main features of previous **OMVL** gaseous injection systems.



Functioning strategies

The **DREAMon** system is standard with the petrol system, meaning it ensures that during gas functioning it is still the petrol control unit to determine the amount of fuel to send to the engine. It can also be said that **DREAMon** is a "passive system" or "slave", or that **DREAMon** works as "interpreter" between the petrol system and the gaseous fuel management. The **DREAMon** system functioning is based on the fact that the **DREAMon** control unit is connected to clamp or clamps of the petrol control unit piloting the injectors (fig. 1). In this way, it recognises the petrol injection time (Ti). (During gas functioning, the injectors signal will be recognised by the presence of injectors emulation integrated in the same system). Thanks to Ti and to engine revs signal, the **DREAMon** control unit calculates the petrol capacity that the original control unit intends to supply to the engine, converts it in gas capacity and realises it by opportunely piloting the gas injectors. This is a very important choice because to enable the petrol control unit to be constantly working and to itself pilot the gas dosing, allows to clearly and transparently realise functions such as stoichiometric control, enrichment in full load and cut-off in release according to the criteria envisioned by the manufacturing company, limiting of the maximum rotary speed, consistent management of petrol steam dispelling, correct communication with air conditioning system, etc.

All this without faulty error codes arising.



Everything remains unvaried with regard to the petrol system, therefore, the eventual appearance of an error message during petrol or gas functioning, is to be considered real and credible. Furthermore, if the vehicle has petrol functioning problems, they also occur in gas functioning. All this is necessary when wanting to also submit gas functioning to the strictest OBD anti-polluting Standards. The low impedance gas injectors are piloted in *peak & hold* mode,

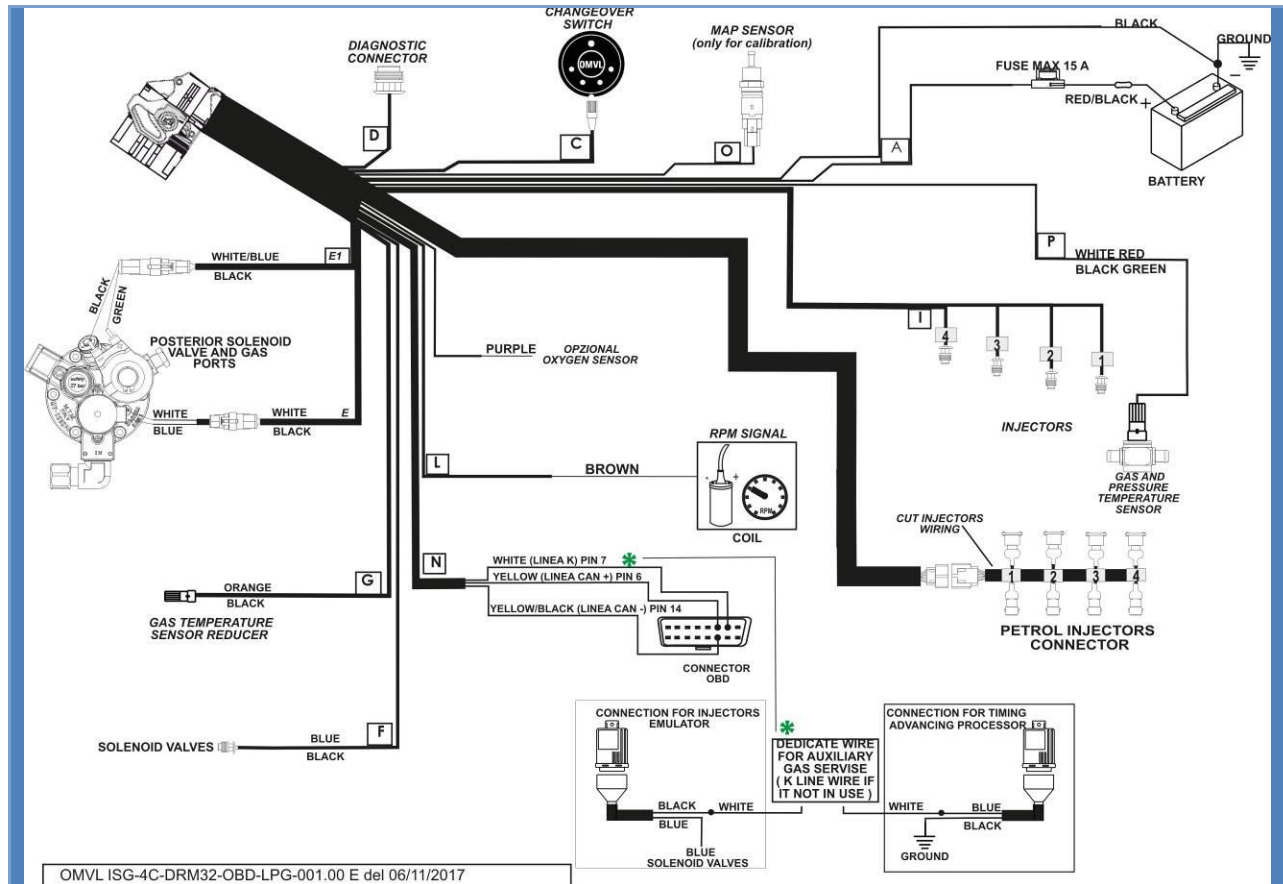
bearing in mind the gas physical parameters (temperature and absolute pressure) read by the control unit.



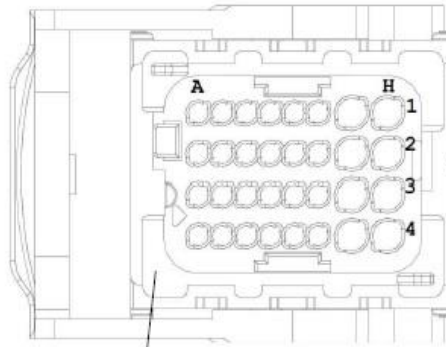
Dream ECUs family

ECU	DREAM OBD	DREAM	DREAM 64
Fuel	CNG/LPG	CNG/LPG	CNG/LPG
Cylinders	2,3,4	2,3,4	5,6,8
Main connector	32 ways	32 ways	64 ways
Solenoid outputs	2	2	2, with diagnostics
Petrol injectors emulation	Integrated	Integrated	Integrated
Gas temperature sensor	Y	Y	Y
Gas pressure sensor	Y	Y	Y
Pressure reducer temperature sensor	Y	Y	Y
Oxygen sensor inputs	1	1	2
RPM input	Y	Y	Y
MAP sensor	Only during calibration	Only during calibration	Only during calibration
OBD connection (K e Can)	Y	No	Y

Main wiring

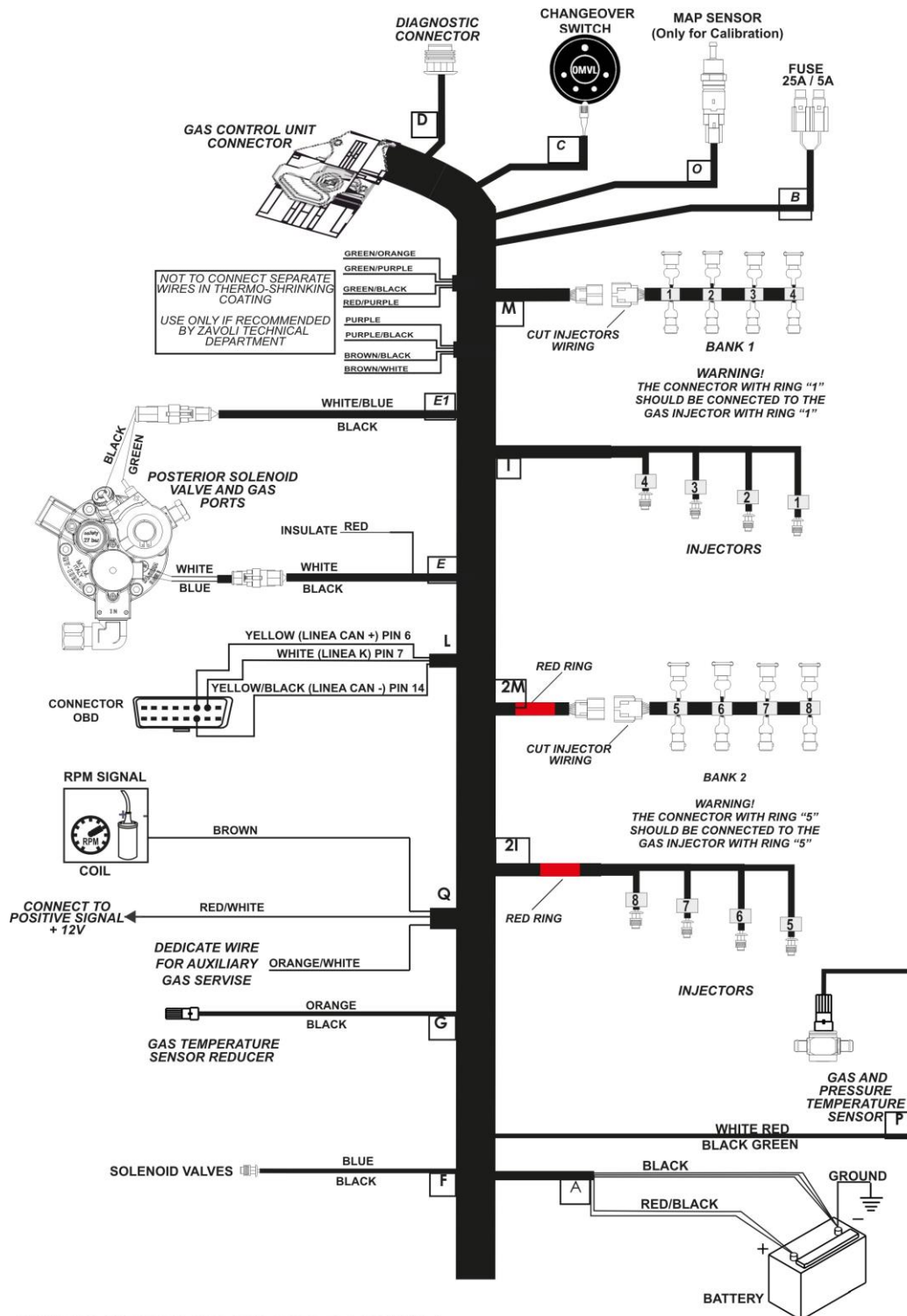


Pin Out



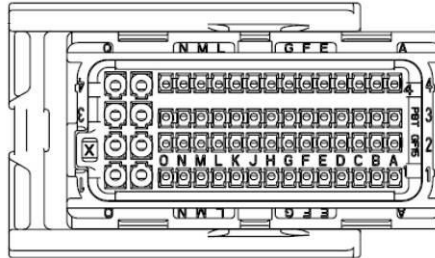
PIN	DESCRIPTION	COLOUR	SIGNAL
1A	Petrol Injector Cyl. 3 Side Injector	GREEN	→
1B	Petrol Injector Cyl. 3 Side Petrol Ecu	GREEN/BLACK	←
1C	Petrol Injector Cyl. 4 Side Injector	YELLOW	→
1D	Petrol Injector Cyl. 4 Side Petrol Ecu	YELLOW/BLACK	←
1E	Connection Obd Linea K	WHITE	↔
1F	Rpm	BROWN	←
1G	Power Supply Battery	RED/BLACK	→
1H	Positive Solenoid Valve	BLUE	→
1H	Positive Gas Injector	RED/GREEN	→
2A	Petrol Injector Cyl. 2 Side Petrol Ecu	RED/BLACK	←
2B	Signal Map Sensor	WHITE	←
2C	Signal Temperature Gas Sensor	WHITE	←
2D	Signal Pressure Gas Sensor	GREEN	←
2E	Changeover Switch and Socket Diagnostic	GREEN	→
2F	Positive Signal + 12V	WHITE/RED	←
2G	Power Supply Battery	RED/BLACK	→
2H	Positive Posterior Solenoid Valve	WHITE/BLUE	→
2H	Positive Gas Injector	RED/GREEN	→

PIN	DESCRIPTION	COLOUR	SIGNAL
3A	Petrol Injector Cyl. 2 Side Injector	RED	→
3B	Signal Temperature Water Sensor	ORANGE	←
3C	Signal Sonda Lambda	PURPLE	←
3D	Connection Obd Can Bus	YELLOW/BLACK	↔
3E	Connection Obd Can Bus	YELLOW	↔
3F	Positive 5V Level Sensor	RED	→
3G	Ground	BLACK	←
3H	Positive 12V Socket Diagnostic	RED	→
4A	Petrol Injector Cyl. 1 Side Petrol Ecu	BLUE/BLACK	←
4B	Petrol Injector Cyl. 1 Side Injector	BLUE	→
4C	Negative Injector Gas 1	YELLOW	→
4D	Negative Injector Gas 2	ORANGE	→
4E	Negative Injector Gas 3	RED	→
4F	Negative Injector Gas 4	BROWN	→
4G	Ground	BLACK	→
4G	Negative Solenoid Valve	BLACK	→
4H	Negative Posterior Solenoid Valve	BLACK	→



OMVL ISG-4C-DRM64-OBD-LPG-002.00 E del 06/11/2017

Pin Out



PIN	DESCRIPTION	COLOUR	SIGNAL
1A	Power Supply Battery	RED	→
1B	Changeover Switch	GREEN	→
1C	Signal Temperature Water Sensor	ORANGE	←
1D	Connection Obd Can Bus	YELLOW	↔
1E	Signal Sonda Lambda 2	PURPLE/BLACK	←
1F	Signal Petrol Pressure IN	GREEN/ORANGE	←
1G	\\	\\	\\
1H	Ground	BLACK	←
1J	Rpm	BROWN/GREY	←
1K	Rpm	BROWN	←
1L	\\	\\	\\
1M	Rpm	BROWN/WHITE	←
1N	Connection Obd Linea K	WHITE	↔
1O	Signal Petrol Pump PWM	RED/PURPLE	←
1P	Power Supply Battery	RED	→
1Q	Power Supply Battery	RED	→

PIN	DESCRIPTION	COLOUR	SIGNAL
2A	Positive 12V Socket Diagnostic	RED	→
2B	Socket Diagnostic	GREEN	→
2C	Signal Map Sensor	WHITE	←
2D	Connection Obd Can Bus	YELLOW/BLACK	↔
2E	\\	\\	\\
2F	Signal Petrol Pressure OUT	GREEN/PURPLE	←
2G	Signal Temperature Gas Sensor	WHITE	←
2H	Signal Pressure Gas Sensor	GREEN	←
2J	Positive Sensor 5V	RED	→
2K	\\	\\	\\
2L	Power External Services 12V	WHITE/ORANGE	→
2M	\\	\\	\\
2N	Signal Sonda Lambda 1	PURPLE	←
2O	Power External Relè 12V	GREEN/BLACK	→
2P	Positive Gas Injector	RED/GREEN	→
2Q	Positive Gas Injector	RED/GREEN	→

Pin Out

PIN	DESCRIPTION	COLOUR	SIGNAL
3A	Petrol Injector Cyl. 1 Side Petrol Ecu	BLUE/BLACK	←
3B	Petrol Injector Cyl. 3 Side Injector	GREEN	→
3C	Petrol Injector Cyl. 3 Side Petrol Ecu	GREEN/BLACK	←
3D	Petrol Injector Cyl. 4 Side Injector	YELLOW	→
3E	Petrol Injector Cyl. 4 Side Petrol Ecu	YELLOW/BLACK	←
3F	Petrol Injector Cyl. 7 Side Petrol Ecu	GREEN/BLACK	←
3G	Petrol Injector Cyl. 7 Side Injector	GREEN	→
3H	Petrol Injector Cyl. 8 Side Petrol Ecu	YELLOW/BLACK	←
3J	Petrol Injector Cyl. 4 Side Injector	YELLOW	→
3K	Positive Signal + 12V	WHITE/RED	←
3L	Negative Injector Gas 4	BROWN	→
3M	Negative Injector Gas 3	RED	→
3N	Negative Injector Gas 2	ORANGE	→
3O	Negative Injector Gas 1	YELLOW	→
3P	Positive Posterior Solenoid Valve	WHITE/BLUE	→
	Positive Gas Injector	RED/GREEN	→
	Positive Solenoid Valve	BLUE	→
3Q	Ground	BLACK	←

PIN	DESCRIPTION	COLOUR	SIGNAL
4A	Petrol Injector Cyl. 1 Side Injector	BLUE	→
4B	Petrol Injector Cyl. 2 Side Petrol Ecu	RED/BLACK	←
4C	Petrol Injector Cyl. 2 Side Injector	RED	→
4D	Petrol Injector Cyl. 5 Side Petrol Ecu	BLUE/BLACK	←
4E	Petrol Injector Cyl. 5 Side Injector	BLUE	→
4F	Petrol Injector Cyl. 2 Side Petrol Ecu	RED/BLACK	←
4G	Petrol Injector Cyl. 6 Side Injector	RED	→
4H	Negative Posterior Solenoid Valve	BLACK	→
4J	Negative Solenoid Valve	BLACK	←
4K	Positive Signal + 12V	WHITE/RED	←
4L	Negative Injector Gas 8	BROWN	→
4M	Negative Injector Gas 7	RED	→
4N	Negative Injector Gas 6	ORANGE	→
4O	Negative Injector Gas 5	YELLOW	→
4P	Ground	BLACK	←
4Q	Ground	BLACK	←

ONE-TOUCH CHANGEOVER SWITCH

- SMD single-stable changeover switch
- outside \varnothing 26 mm
- Possible installations:
 - built-in with \varnothing 23 mm hole and 2 mm dimension
- With integrated Acoustic indicator (buzzer)
- N° 4 green Leds for level indication
- N° 1 bi-colour (green/red) Led for working mode indication



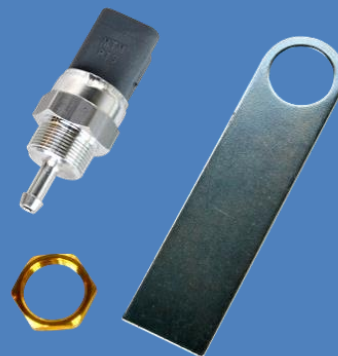
PTS SENSOR - LOW PRESSURE



- Gas pressure/temperature sensor
- Mass: 22 g
- Overall dimensions: \varnothing = 24 mm, h = 64,5mm
- Integrated connector
- Power Supply Voltage: $5 \pm 0,1$ VDC
- Supply Current: 10 mA MAX
- Output Voltage Range (pressure): 0,5 to 4,5 V
- Operating temperature $-30^{\circ}\text{C} \div 130^{\circ}\text{C}$
- Approval: R67-01, R110

MAP sensor

- Integrated connector
- Pressure Range: $0 \div 2,5$ bar
- Precision: 1,5 % F.S.
- Operating temperature: $-40^{\circ}\text{C} \div 125^{\circ}\text{C}$
- Output voltage: $0 \div 5$ V



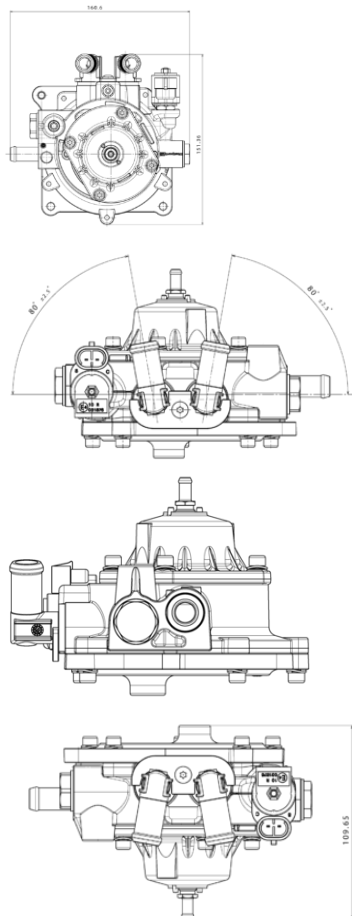
Note: MAP sensor is required *ONLY* during calibration. Then it can be removed.
DE802060 MAP sensor NOT included in kits, sold separately

CPR LPG- REDUCER



The pressure regulator reduces gas pressure and, in case of the LPG, it also ensures that the liquid gas is completely vaporized. A solenoid valve shuts off the gas flow to the engine, when the engine is not operating. The new OMVL Compact series of pressure regulators implement many innovative solutions that improve performance in all driving conditions; technologies that are a step ahead toward higher performances, longer durability and improved safety. Not only performance for the drivers, but also solutions for the installers: simplified layout, thanks to reduced footprint that takes minimal precious space under the bonnet, frontal connections that are always close at hand in any situation and extended performance range that satisfies almost any application.

TECHNICAL SPECIFICATIONS



Gas inlet	Female connector with bicone for pipe Ø 6 mm
Gas outlet	Male connector for rubber hose Ø int.12mm, 0° or 90°inclination (optional). Multi-direction fitting
Coolant inlet / outlet	Male connector for rubber hose Ø 16 mm, 0° or 90° inclination. Multi direction fitting
Solenoid power	12 V D.C.
Pressure reducer stages	1
Gas delivery pressure (stabilized)	1,2 bar
Max. working pressure	30 bar
Operating temperature	-20 °C » 120 °C
Approvals	E4-110R-00, E4-10R, UL

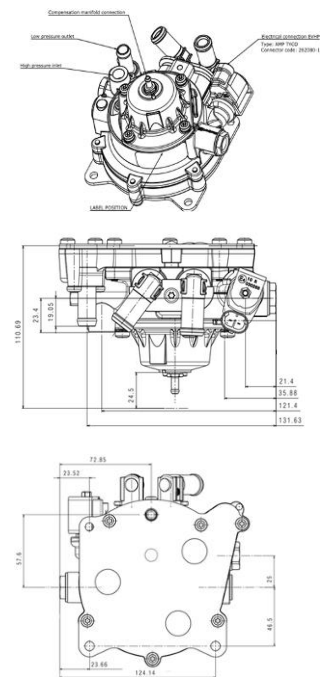
LINX LPG- REDUCER

The LINX Lpg Reducer pressure regulator has been designed with a focus on the most compact size and the best long-term performance. The pressure regulator reduces gas pressure and, in case of the LPG, it also ensures that the liquid gas is completely vaporized. A solenoid valve shuts off the gas flow to the engine, when the engine is not operating. The LINX pressure regulators implement many innovative solutions that improve performance in all driving conditions; technologies that are a step ahead toward higher performances, longer durability and improved safety. Not only performance for the drivers, but also solutions for the installers: simplified layout, thanks to reduced footprint that takes minimal precious space under the bonnet, frontal connections that are always close at hand in any situation and extended performance range that satisfies almost any application.

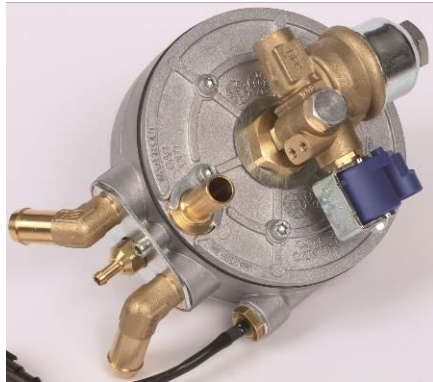


TECHNICAL SPECIFICATIONS

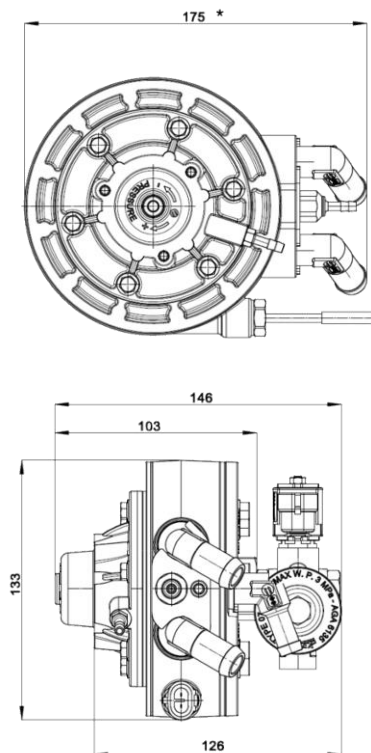
Gas inlet	Female connector with bicone for pipe Ø 8 mm.
Gas outlet	Male connector for rubber hose Ø int.12mm.
Coolant inlet/outlet	Male connector for rubber hose Ø 15 mm, Multi direction fitting.
Gas shut-off solenoid	Integrated in the body
Solenoid power	12 V d.c.
Gas pressure reduction stages	Single
Gas inlet pressure	2.5 – 30 bar (63-435 [PSI])
Gas outlet pressure (stabilized)	1.4 bar (20.3 [PSI])
Maximum working pressure	30 [bar] (435 [PSI])
Maximum gas flow rate	35 kg/h (LPG)
Maximum Power @ 25[°C]	140 [kW]
LPG inlet filter	15 µm nylon filtering net
Vacuum compensation socket	Yes Ø 6 [mm]
Temperature Sensor	Integrated in the body (optional)
Operating Temperature	-20/120 [°C] (-4/248 [°F])
Weight	1450 [g]
Homologation	ECE 67R-01 ; 10R-04



PALLADIO- REDUCER



TECHNICAL SPECIFICATIONS



Material	Aluminum
Type	Membrane single reduction stage
Operating temperature	-20 °C » +120 °C
Max. inlet pressure	27 bar
Output setting pressure (adjustable)	0,9 » 1,1 bar 1,2 » 1,6 bar
Gas outlet	hose connection ø 10 mm (straight fitting) optional: 120° fitting
Coolant inlet / outlet	hose connection ø 15 mm (120° fitting) optional: straight fitting
Electrical connection	AMP/DELPHI Superseal 1,5 mm IP67
Weight	ca 2 Kg (with Solenoid Valve)
Approvals	ECE R67

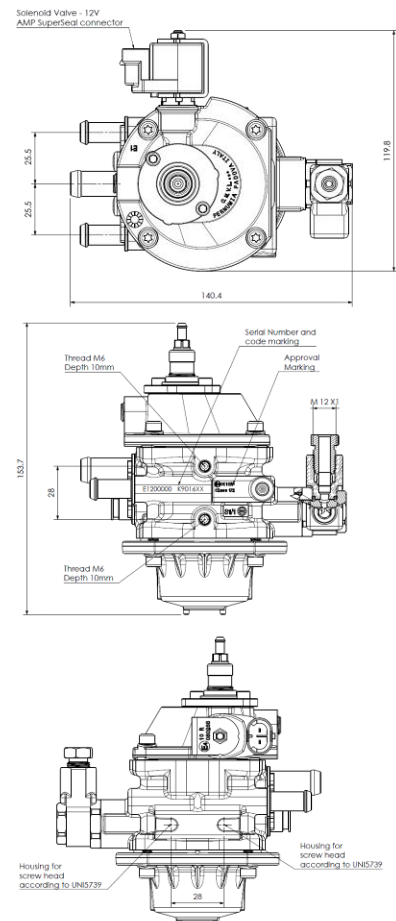
DREAM EVO – REDUCER

The DREAM EVO CNG pressure regulator has been designed with a focus on the most compact size and the best long-term performance. The pressure regulator receives gas from the tank, reduces the pressure and sends it to the injectors. A solenoid valve shuts off the gas flow to the engine, when the engine is not operating. The OMVL Compact series of pressure regulators implement many innovative solutions that improve performance in all driving conditions; technologies that are a step ahead toward higher performance, longer durability and improved safety. Not only performance for the drivers, but also solutions for the installers: simplified layout, thanks to reduced footprint that takes minimal precious space under the bonnet, frontal connections that are always close at hand in any situation, and extended performance range that satisfies almost any application.



TECHNICAL SPECIFICATIONS

Max. power	up to 200 kW
Gas inlet	Female connector with double conical joint for pipe Ø 6 mm. Multi direction fitting. ¼" Gas pipe connection available
Gas outlet	Male connector for rubber hose Ø int. 12mm
Coolant inlet / outlet	Male connector for rubber hose Ø 10 mm (Ø 8 mm available)
Pressure reducer stages	2 stage with servo
Solenoid power	12 V DC
Gas delivery pressure	1,5 » 2,2 bar
Max. working pressure	260 bar
Gas flow rate @ 100 bar	up to 50 Kg/h
Operating temperature	-40 °C » 120 °C
Pressure gauge port	¼" gas
Approvals	E4-110R-00 / E4-10R



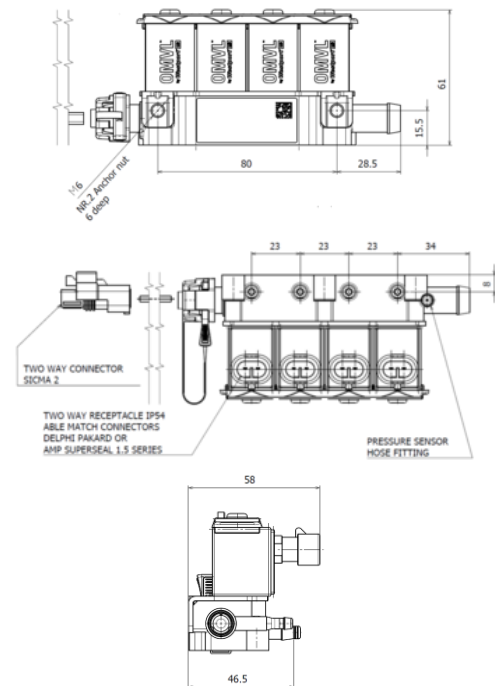
SUPER LIGHT- INJECTION UNIT



The injection unit ensures that the right quantity of gas is delivered into the intake manifold at the intake valves. The electronic injectors are opened in the right sequence and at the right time to suit the engine's ignition cycle.

TECHNICAL SPECIFICATIONS

Max. working pressure	4.5 bar relative (0.45 Mpa)
Minimum opening time	2,8 ms
Gas flow rate (air through 3.00 mm nozzle)	9.8 mg/cycle at 4 ms and Delta P of 2,00 bar 28 mg/cycle at 10 ms and Delta P of 2,00 bar
Operating temperature	-40 °C » 120°C (environment) -20 °C » 90°C (gas temperature)
Weight	4 cyl: 443,5 g 3 cyl: 300 g 2 cyl: 200 g
Overall dimension (mm)	4 cyl: 136 x 58 x 61 3 cyl: 119 x 61 x 61 2 cyl: 96 x 61 x 61
Approvals	110R-00, 67R-01, 10R-04



SUPER LIGHT- INJECTION UNIT

FEATURES

- Normally closed, low resistance, peak & hold driving strategy injector
- 4 cylinder vertical layout for easy installation
- Side fuel feeding

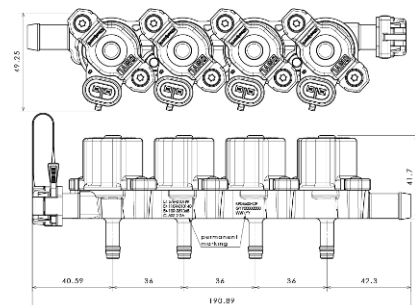


INSTALLATION

- Gemini must be mounted well fastened on the engine, closed to the intake manifold.
- Solenoid valves must be near to the vertical position (it is allowed up to 80 degrees of tilt).
- Injection nozzles must be fastened as close as possible to the cylinders inlet valves and/or petrol injectors.
- Gas hoses from injection rail nozzle to manifold nozzles must have the same length and they must be as short as possible.

TECHNICAL SPECIFICATIONS

Material	Plastic
Linearity	±5% from 2,2 ms of injection time
External leakage	< 15 cc/h
Inductance	4,4 mH
Resistance	1,75 ± 5% Ω
Voltage	8 » 16 Vdc
Electrical connection	AMP SuperSeal 1.5 connector
Operating temperature (environment)	-40 °C » +120 °C
Operating temperature (gas)	-20 °C » +90 °C
Max. working pressure	0,6 » 4,0 barg
Burst pressure	6,75 bar for 5 minutes
Max. gas flow rate	Up to 8 kg/h of LPG @ 1 barg Up to 9 kg/h of CNG @ 2 barg
Minimum opening time @ 13,5 V	1,8 ms @ 1 barg 1,9 ms @ 2 barg
Gas inlet	Male connection for rubber hose with internal diameter 12 mm
Gas outlet	Male connection for rubber hose with internal diameter 6 mm
Weight	365 g
Approvals	UN ECE R110-R03 UN ECE R67-R04 LPG



Mounting conditions

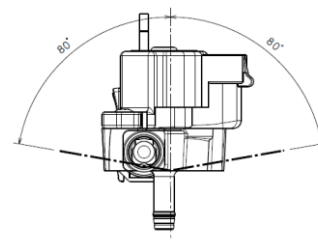


Table Sizing

LPG “SL & GEMINI”

SL GEMINI	Engine	2 Cylinders Hp (Kw)	3 Cylinders Hp (Kw)	4 Cylinders Hp (Kw)	5 Cylinders Hp (Kw)	6 Cylinders Hp (Kw)	8 Cylinders Hp (Kw)
Ø 1,5 mm	ASPIRATED	////	Up To 42(31)	Up To 55(41)	////	////	////
	SUPERCHARGED	////	////	Up To 74(54)	////	////	////
Ø 1,75 mm	ASPIRATED	////	43(32) To 57(42)	56(42) To 76(56)	////	////	////
	SUPERCHARGED	////	Up To 75(55)	75(55) To 99(73)	////	////	////
Ø 2,0 mm	ASPIRATED	Up To 49(36)	58(43) To 73(54)	77(57) To 98(72)	Up To 122(90)	Up To 148(109)	Up To 197(145)
	SUPERCHARGED	Up To 65(48)	76(56) To 98(72)	110(74) To 130(96)	Up To 162(119)	Up To 194(143)	Up To 260(191)
Ø 2,5 mm	ASPIRATED	50(37) To 77(57)	74(55) To 115(85)	99(73) To 153(113) *100 kw use Linx	123(91) To 191(141)	149(110) To 231(170)	198(146) To 307(226)
	SUPERCHARGED	66(49) To 102(75)	99(73) To 152(112) *100 use Linx	131(97) To 204(150) *100 use Linx	163(120) To 254(187)	195(144) To 305(224)	261(192) To 406(299)
Ø 3,5 mm	ASPIRATED	78(58) To 109(80) *92 use Linx	////	154(114) To 217(160) *100 kw use Linx	192(142) To 272(200)	232(171) To 326(240)	308(227) To 435(320)
	SUPERCHARGED	103(76) To 145(107) *92 use Linx	////	205(151) To 292(215) *100 use Linx	////	////	////

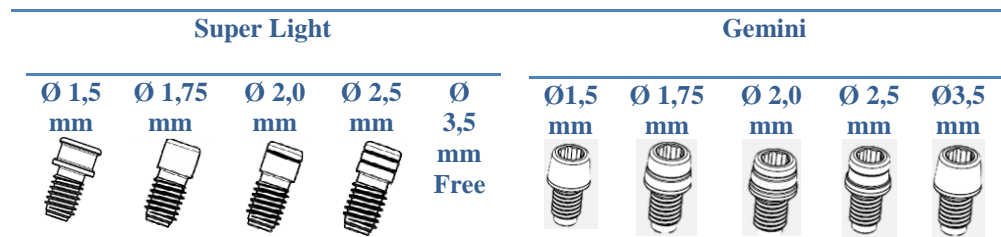


Table Sizing

CNG “SL & GEMINI”

SL GEMINI	Engine	2 Cylinders Hp (Kw)	3 Cylinders Hp (Kw)	4 Cylinders Hp (Kw)	5 Cylinders Hp (Kw)	6 Cylinders Hp (Kw)	8 Cylinders Hp (Kw)
Ø 1,5 mm	ASPIRATED	////	Up To 39(29)	Up To 53(39)	////	////	////
	SUPERCHARGED	////	////	Up To 62(46)	////	////	////
Ø 1,75 mm	ASPIRATED	////	40(30) To 54(40)	54(40) To 73(54)	////	////	////
	SUPERCHARGED	////	Up To 64(47)	63(47) To 84(62)	////	////	////
Ø 2,0 mm	ASPIRATED	Up To 47(35)	55(41) To 71(52)	74(55) To 95(70)	Up To 120(88)	Up To 142(105)	Up To 190(140)
	SUPERCHARGED	Up To 56(41)	65(48) To 83(61)	85(63) To 111(82)	Up To 139(102)	Up To 166(122)	Up To 222(163)
Ø 2,5 mm	ASPIRATED	48(36) To 75(55)	72(53) To 111(82)	96(71) To 148(109)	121(89) To 185(136)	143(106) To 223(164)	191(141) To 296(218)
	SUPERCHARGED	57(42) To 87(64)	84(62) To 130(96)	112(83) To 174(128)	140(103) To 217(160)	167(123) To 260(191)	223(164) To 347(255)
Ø 3,5 mm	ASPIRATED	76(56) To 107(79)	////	149(110) To 215(158)	186(137) To 268(197)	224(165) To 321(236)	297(219) To 428(315)
	SUPERCHARGED	88(65) To 125(92)	////	175(129) To 250(184)	////	////	////

Super Light					Gemini				
Ø 1,5 mm	Ø 1,75 mm	Ø 2,0 mm	Ø 2,5 mm	Ø 3,5 mm Free	Ø 1,5 mm	Ø 1,75 mm	Ø 2,0 mm	Ø 2,5 mm	Ø 3,5 mm
