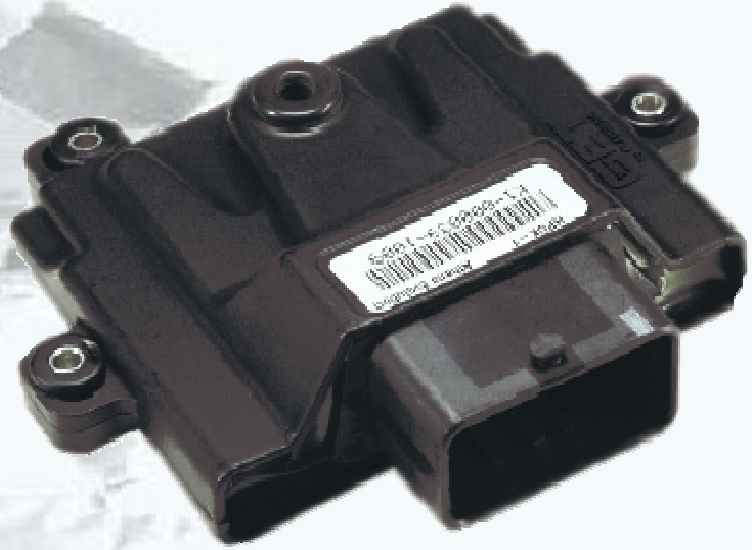
HPUG : UNITÀ DI CONTROLLO MOTORE AD ALTE PRESTAZIONI PER MOTORI A 2 E 4 TEMPI

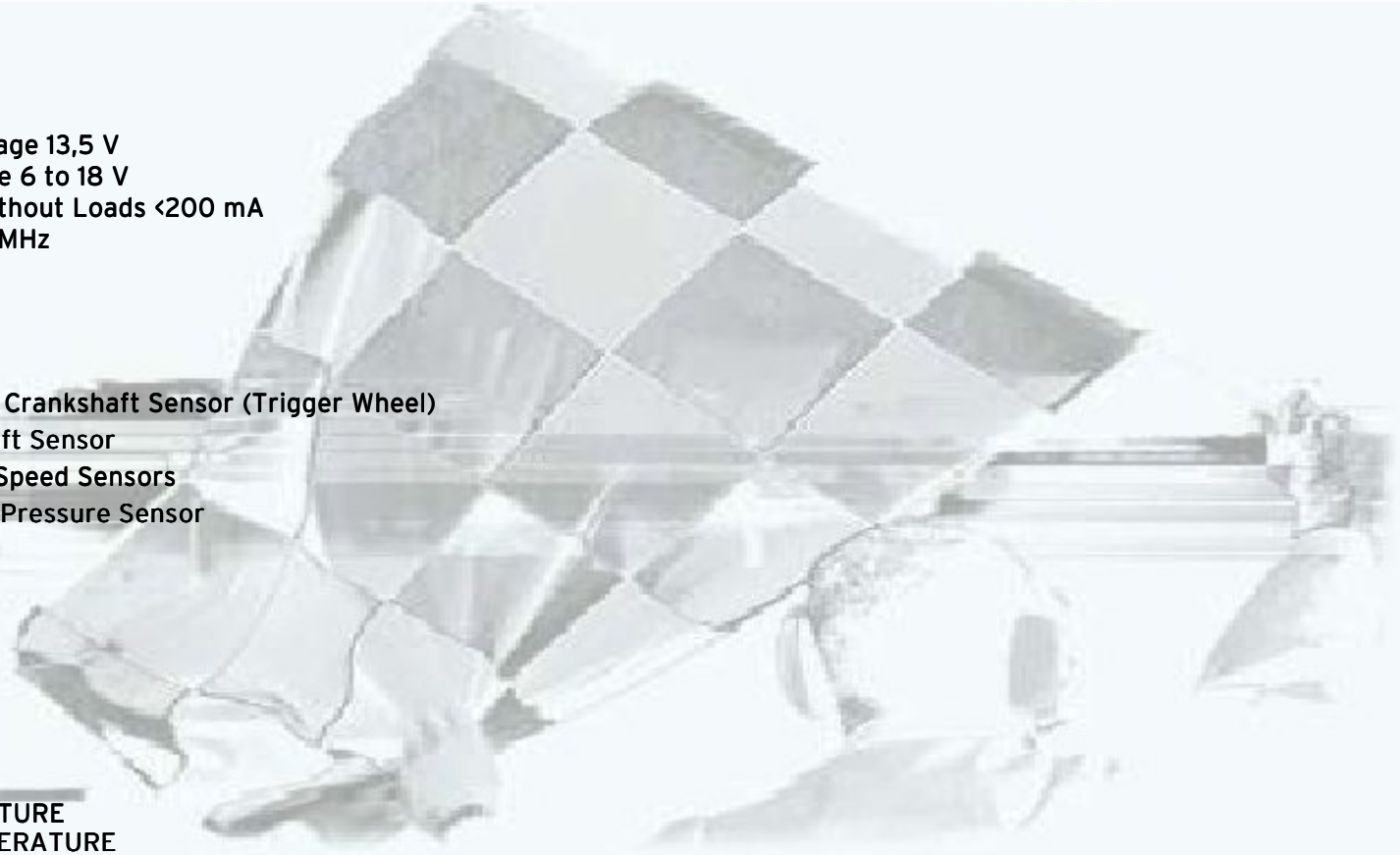
La **HPUG** e' una centralina di Controllo Motore derivata dalla **ECUG** e dedicata alla gestione di motori anche complessi a 2 e 4 Tempi ad Iniezione Elettronica. La **HPUG** può controllare motori fino a 2 Cilindri. In alcune condizioni e' anche possibile gestire motori fino ad 4 cilindri. Data la grande flessibilità della **HPUG** le diverse configurazioni applicative sono proposte attraverso diversi Firmware applicativi, configurazioni Hardware e diverse configurazioni di pinout.



- **HPUG** Hardware e **K1RACExx** Firmware sono dedicati alla gestione di applicazioni Auto.
- **HPUG** Hardware e **K2RACExx** Firmware sono dedicati alla gestione di applicazioni Moto.

Su tutti i dispositivi della famiglia **HPUG** l'accesso alle Variabili, Tabelle e Piani di calibrazione e' possibile con i diritti Basic del software Maya senza l'utilizzo di Licenze avanzate. I dispositivi della famiglia **HPUG** vengono forniti senza mappa. File di mappa a titolo esemplificativo sono distribuiti se disponibili.

Electrical and CPU Data



Power:

- Nominal supply voltage 13,5 V
- Supply voltage range 6 to 18 V
- Max Current Sink without Loads <200 mA
- CPU 32 Bit RISC 50 MHz

Inputs:

- 1 Input for Inductive Crankshaft Sensor (Trigger Wheel)
- 1 Hall-effect Camshaft Sensor
- 2 Hall-effect Wheel Speed Sensors
- Internal Barometric Pressure Sensor
- 3 Digital Inputs :
  - Tipover
  - Sidestand
  - Map Change
- 6 Analog Inputs :
  - TPS1
  - TPS2
  - MAP
  - LAMBDA
  - AIR TEMPERATURE
  - ENGINE TEMPERATURE

Output:

- 2 Low Side Injector Power Stage
- 2 IGBT Ignition Coil Power Stage
- 2 Low Side Power Stage for Direct control of Cooling Fan and Fuel Pump
- 1 Low Side Power Stage for Custom Function
- 1 H-Bridge 5A for EXUP control
- 1 Stepper Motor Driver
- 6 Low Side protected Power Stages :
  - ECR Relay Driver
  - Light Relay Driver [1]
  - Tachometer
  - MIL Lamp
  - Solenoid 1
  - Solenoid 2
- 1 Protected Sensors Supply Voltage (5V)

Communications Interfaces:

- 1 RS232

System Layout

- Trigger Wheels : N-2, N-2 with CAM Reference, N-2 on Camshaft,N-1, N-1 with CAM Reference, N-1 on Camshaft, Renix
- alpha/n and/or MAP compensated
- Load indicated by Throttle Position ("TPS") and/or MAP
- Cam sensor elimination with sequential injection and ignition (depend on the engine layout)

Standard Functions [*]

- Ignition and Injection timing configurable parameters over 32 x 16 calibration setpoints
  - (1 or 2) Main fuel injection time
  - (1) Fuel correction per cylinder
  - (1or 2) End-of-Injection timing
  - (1 or 2) Main ignition timing
  - (1) Ignition timing correction per cylinder

- Compensation provided for
  - Battery Voltage
  - Engine and Air Temperature
  - Barometric Pressure
- Acceleration and Deceleration Correction for Injection, Ignition and Bypass Valve
- Cranking fuel adjustment table
- Adjustable engine speed limiter
- Closed loop lambda control (narrow band or wide band externally amplified)
- Adjustable cooling fan control
- Adjustable Load calibration table points
- Adjustable RPM calibration table points
- Configurable for air and engine temperature and lambda Sensors
- End of Line Calibration:

Using the appropriate tool, setting the following parameters is possible witout the need to flash the entire calibrations:

- TPS Limits
- Overall Injection and Ignition correction
- Chassis and Engine identification number and Assembly date
- Unlocking Code

Special Features and Functions

- Vehicle "Safe Operation" control (tilt, etc)
- "Dual Calibration" Maps

[*] Calibration Plane, Tables and Variables are different accessible depending on Maya License type

Mating Connector and Terminal

- 48 Ways CMC MOLEX Female Housing

The following Pinout descriptions are different Pinout configurations to be used with different Hardware/Firmware devices. To avoid any doubt please refere to the website documentation where schematic and pinout documentation are updated every time a new version is available.

HPUG PIN Layout for K1RACE Firmware Family

PIN #	ECUG Standard Function	Note
A1	STEPPER D	Stepper Motor Drive
B1	STEPPER A	Stepper Motor Drive
C1	STEPPER B	Stepper Motor Drive
D1	STEPPER C	Stepper Motor Drive
E1	GNDPOW2	
F1	VBB1 Key	12 Volts Ignition Switch
G1	VBB2 ECR	12 Volts After ECR Relay
H1	5V VREF	Protected 5 Volts
J1	ECR Relay	ECR Relay
K1	SOLENOID 1	2 Amps Output Low Freq. PWM
L1	PUMP	4 Amps (8 Amp Peak)
M1	FAN	4 Amps (8 Amp Peak)
A2	GNDINJ	
B2	TAIR	Analog 0 to 5V (Passive Type Sens.)
C2	LAMBDA	Analog 0 to 5V (Lambda Type)
D2	MAP	Analog 0 to 5V (Active Type Sens.)
E2	MAPCHANGE	Digital 0 to 5V (12 V Protected)
F2	SIDESTAND	Digital 0 to 5V (12 V Protected)
G2	SPEED1/GEARCUT	Frequence 0 to 5V (12 V Protected)
H2	GND	
J2	LIGHT Relay	2 Amps Output Low Freq. PWM
K2	MIL Lamp	2 Amps Output Low Freq. PWM
L2	DC1 (+)	5 Amps Full "H" Bridge
M2	DC2 (-)	5 Amps Full "H" Bridge

PIN #	ECUG Standard Function	Note
A3	INJ1	High Impedance Injector Driver
B3	TPS2/GEAR POSITION	Analog 0 to 5V (Active Type Sens.)
C3	TPS1	Analog 0 to 5V (Active Type Sens.)
D3		NC
E3	SPEED2	Frequence 0 to 5V (12 V Protected)
F3	SCAM	Frequence 0 to 5V (12 V Protected)
G3	TIPOVER	Digital 0 to 5V (12 V Protected)
H3	GND	
J3	NEUTRAL LAMP	2 Amps Output Low Freq. PWM
K3	TACHO	2 Amps Output Low Freq. PWM
L3	GNDC	
M3	GNDIGN	
A4	INJ2	High Impedance Injector Driver
B4	SMOT (+)	VRS Sensor (+)
C4	SMOT (-)	VRS Sensor (-)
D4	TENG	Analog 0 to 5V (Passive Type Sens.)
E4	NC	NC
F4	RX	Communication and Programming
G4	TX	Communication and Programming
H4	PRG	Communication and Programming
J4	GNDPOW1	
K4	GNDPOW1	
L4	COIL2	Inductive Coils Driver
M4	COIL1	Inductive Coils Driver

In rosso sono riportate le modifiche rispetto la versione OEM

Applicazione K1RACExx

HPUG PIN Layout for K2RACE Firmware Family

PIN #	ECUG Standard Function	Note
A1	STEPPER D	Stepper Motor Drive
B1	STEPPER A	Stepper Motor Drive
C1	STEPPER B	Stepper Motor Drive
D1	STEPPER C	Stepper Motor Drive
E1	GNDPOW2	
F1	VBB1 Key	12 Volts Ignition Switch
G1	VBB2 ECR	12 Volts After ECR Relay
H1	5V VREF	Protected 5 Volts
J1	ECR Relay	ECR Relay
K1	PUMP RELAY	2 Amps Output
L1	SOLENOID 1	4 Amps (8 Amp Peak)
M1	SOLENOID 2	4 Amps (8 Amp Peak)
A2	GNDINJ	
B2	TAIR	Analog 0 to 5V (Passive Type Sens.)
C2	LAMBDA	Analog 0 to 5V (Lambda Type)
D2	MAP	Analog 0 to 5V (Active Type Sens.)
E2	MAPCHANGE	Digital 0 to 5V (12 V Protected)
F2	SIDESTAND	Digital 0 to 5V (12 V Protected)
G2	SPEED1/GEARCUT	Frequence 0 to 5V (12 V Protected)
H2	GND	
J2	LIGHT Relay	2 Amps Output Low Freq. PWM
K2	MIL Lamp	2 Amps Output Low Freq. PWM
L2	DC1 (+)	6 Amps Full "H" Bridge
M2	DC2 (-)	6 Amps Full "H" Bridge

PIN #	ECUG Standard Function	Note
A3	INJ1	High Impedance Injector Driver
B3	TPS2	Analog 0 to 5V (Active Type Sens.)
C3	TPS1	Analog 0 to 5V (Active Type Sens.)
D3	PTPS1	Analog 0 to 5V (Active Type Sens.)
E3	SPEED2	Frequence 0 to 5V (12 V Protected)
F3	SCAM	Frequence 0 to 5V (12 V Protected)
G3	TIPOVER	Digital 0 to 5V (12 V Protected)
H3	GND	
J3	FAN RELAY	2 Amps Output
K3	TACHO	2 Amps Output Low Freq. PWM
L3	GNDC	
M3	GNDIGN	
A4	INJ2	High Impedance Injector Driver
B4	SMOT (+)	VRS Sensor (+)
C4	SMOT (-)	VRS Sensor (-)
D4	TENG	Analog 0 to 5V (Passive Type Sens.)
E4	PTPS2	Analog 0 to 5V (Active Type Sens.)
F4	RX	Communication and Programming
G4	TX	Communication and Programming
H4	PRG	Communication and Programming
J4	GNDPOW1	
K4	GNDPOW1	
L4	COIL2	Inductive Coils Driver
M4	COIL1	Inductive Coils Driver

In rosso sono riportate le modifiche rispetto la versione OEM

Applicazione K2RACExx