MOTORSPORT | MAGNETI MARELLI

SRG-34X
Engine Control Unit

Description

SRG-34x is a dedicated Engine Control Unit. A single unit can drive up to four injectors Peak&Hold GDI with a Magneti Marelli custom Driver. It can drive High Pressure Pump with 8A peak current and 5A hold current. Single unit can drive up to four ignition coils. SRG-34x can also drive logic command coils (SW option).

The logic core is a high performance PowerPC microcontroller and an FPGA for diagnostic purposes.

Data logging and Communication Processor is managed from ARM 32-bit Cortex with an internal flash disk up to 1 GB. Communication from the PC based configuration tool and to other units (such as dashboard and logger) is by the 3 CAN lines, Ethernet line and USB2.0.

SRG-34x provides analogue inputs for single-ended, temperature and knock-sensor as well as an interface for a switching lambda sensor. The unit also provides an H-Bridge output stage for use with suitable "Drive by Wire" actuators.

10 configurable speed sensor inputs (Inductive, Rate or Hall) provide full flexibility of configuration for engine angle detection as well as other frequency inputs such as wheel or shaft speed.

Main Features

- *20 Single-ended*
- *10 Variable reluctance frequency inputs or Hall Inputs*
- *4 Inductive or logic command ignition drivers (SW option)*
- *4 Peak&Hold injector drivers for GDI*
- *2 H-Bridge: DC-Motor driver for "Drive by Wire" control*
- *2 PWM (Current controlled PWM)*
- *2 Linear Lambda Sensor ILIOS*
- *1 Knock input for detonation*
- *3 CAN line*
- *1 Ethernet line*
- *1 USB 2.0 line*
- *Up to 1 GB internal memory for data logging*

Benefits

- *Integrated solution: the SRG directly drives GDI injectors (no external modules required)*
- *Flexible setup by means of a high number of Inputs/ Outputs*
- *SW selectable NTC/PT1000 temperature sensors*
- *Direct management of Marelli dashboard display*
- *Compatible with a wide range of professional Marelli software tools*
- *Easy to install*
- *Matlab/Simulink Platform for application software (on request)*

Typical Applications

Fully compatible with the new GRE (Global Race Engine)

SRG-34-08381438100

Technical Characteristics

Inputs

Analogue Single-ended	20
Linear Lambda sensor (ILIOS)	2
Knock sensor	1
K-type thermocouple	2
NTC/PT1000 temperature sensor (each selectable)	6
NTC read injector rail	1
Internal temperature sensor	4
Accelerometer sensor XYX axis	1
VR Pick-ups or Hall effect	4
VR Rate or Hall effect	4
Hall effect	2
Lap Trigger	1
"Code Load" enable pin	1

Outputs

Peak & Hold GDI Injector drivers	4
Inductive or logic command ignition drivers (SW option)	4
Injector on-off	4
H-Bridges	2
Lambda heater drivers	2
PWM 3 A - 1 kHz	12
PWM 5 A	2
High side Vbatt 100 mA	4
Voltage references 70 mA	4

Communications

CAN line (1 Mbit/s)	3
Ethernet line (10/100 Mbit/s)	1
USB 2.0 line	1
Synchro (ISO9141)	1

Logic Core

MICRO CONTROLLER

Micro 32bit PowerPC CPU@264MHz	1
Flash E2PROM (x32 internal)	4 Mbyte
RAM memory (x32 internal)	256 Kbyte
Synchronous SRAM Memory (external x16)	2 Mbyte
MRAM memory (external x16)	2 Mbyte

DATA LOGGING and COMMUNICATION PROCESSOR

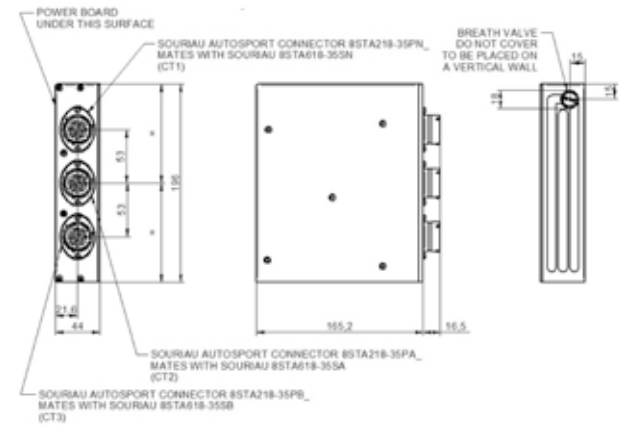|	
Micro (ARM–based 32bit @120MHz)	1
Flash E2PROM (x32 internal)	1 Mbyte
RAM memory (x32 internal)	128 Kbyte
Synchronous SRAM Memory (external x16)	2 Mbyte
Flash Disc (external x8)	1 Gbytes
Time keeper	1
JEDI controller injector pick&hold	1

Other Characteristics

Power supply	8 to 16 V
Operating temperature range (internal)	- 20 to 85 °C
Protection class	IP 65
Dimensions	
With connectors	196 x 181,7 x 44 mm
Weight (approx.)	1200 g

SRG-34X
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Dimensions

Dimensions in millimetres

Application Schematics