

## ECM-S12X-070 Family of Controllers

### Engine Control Module—Calibratable / Flash

#### Description

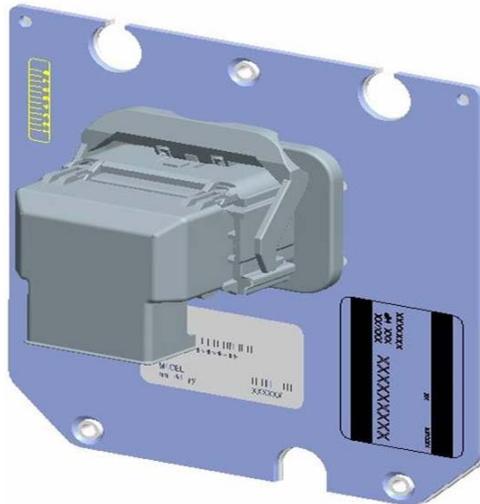
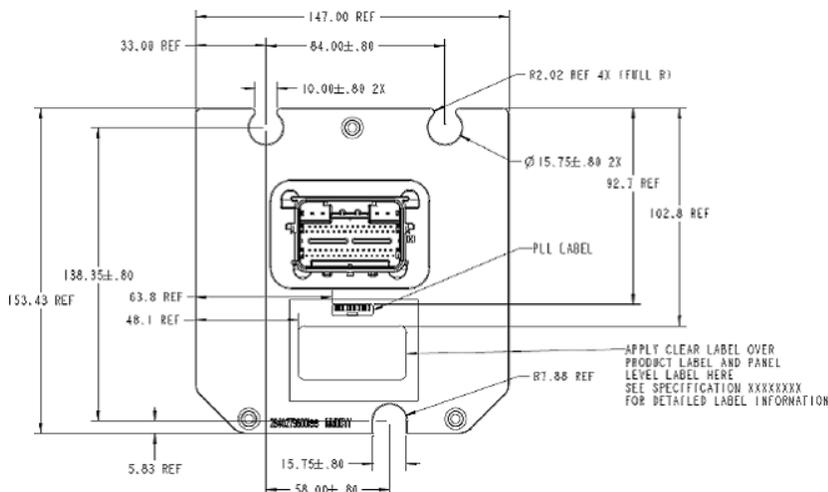
The ECM-S12X-070 family of engine control modules are rugged controllers capable of operating in harsh automotive, marine, and off-highway applications. The module and its connector system are environmentally sealed and suitable for engine mounting in many applications.

This unit provides 70 connector pins with inputs, outputs, and communications interfaces that support a wide variety of applications.

The ECM-S12X-070 is part of the MotoHawk Control Solutions ControlCore<sup>®</sup> family of embedded control systems. The ControlCore operating system, MotoHawk<sup>®</sup> code generation product, and MotoHawk's suite of development tools enable rapid development of complex control systems.

Each controller is available in 'F' (Flash) or 'C' (Calibratable) versions. Flash modules are typically used for production purposes. Calibratable modules are typically for prototyping/development only; they can be calibrated in real time using MotoTune<sup>®</sup>.

#### Physical Dimensions



- 70-pin platform
- Microprocessor: Freescale S12XE, 50 MHz
- Memory: 256 K flash, 16 K RAM, 4 K internal EEPROM, 64 K serial FRAM
- Calibratable Memory: 1 M flash, 64 K RAM
- Operating Voltage: 6.5–16 Vdc, 24 V (jump start), 5 V (crank)
- Operating Temperature: –40 to +85 °C (105 °C possible in some applications)

#### Inputs:

- VR or digital crank position sensor
- Digital cam position sensor
- 17 analog
- 1 oxygen sensor
- 4 switch
- 1 speed
- 1 emergency stop

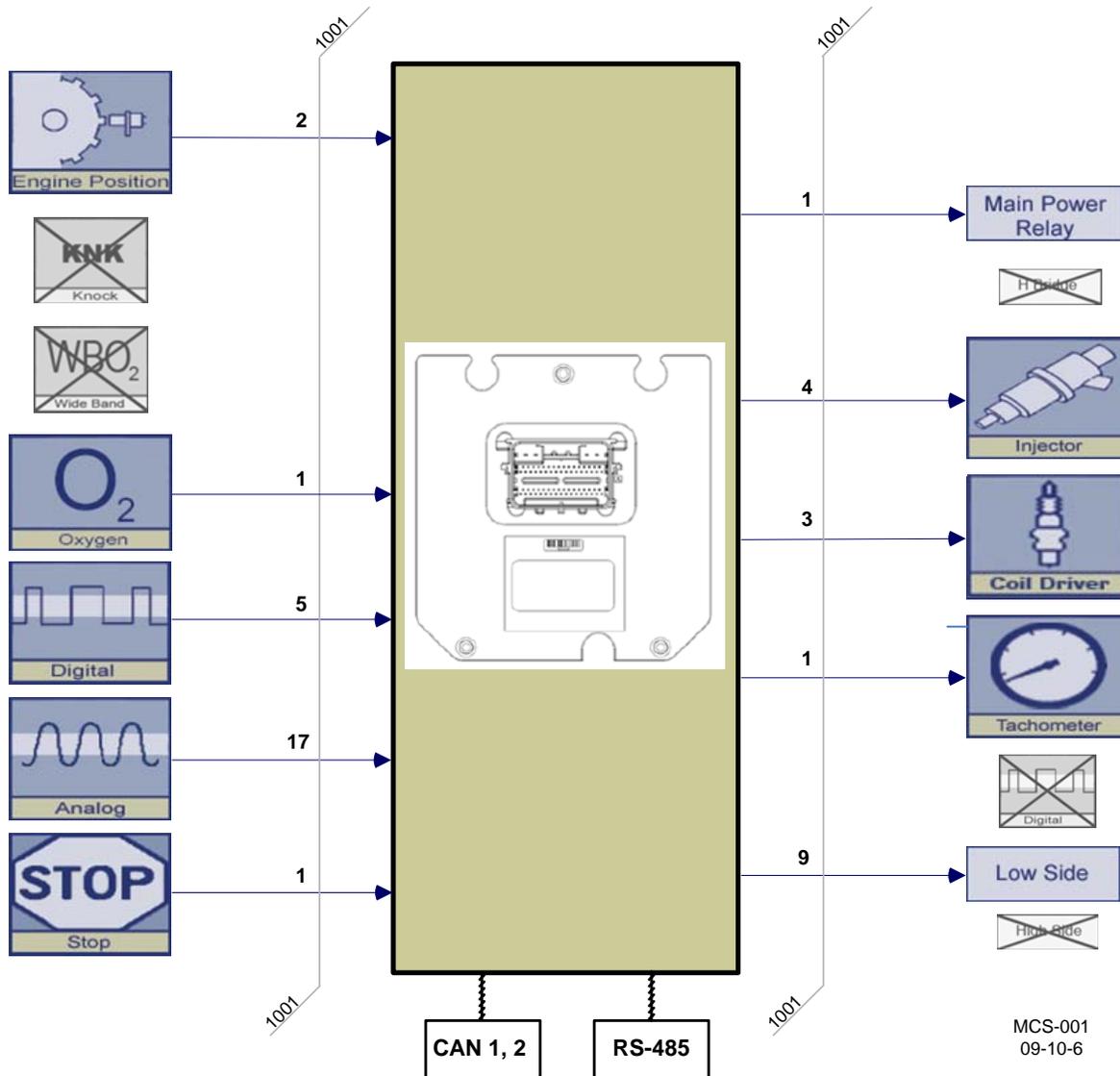
#### Outputs:

- 4 injector (high impedance) drivers
- 3 ignition coil drivers
- 1 tachometer driver
- 9 low-side drivers
- 1 main power relay driver
- 2 sensor supply (5 V) outputs

#### Communications:

- 2 CAN 2.0b channels
- 1 RS-485 channel

# Simple Block Diagram



## Ordering Information

Controller	Part No.	w/Mounting Hardware	Boot Key (P/N)	Boot Cable	Desktop Simulator Harness (P/N)
ECMS12X0701001CP0	1751-6466	8923-1640	N/A	5404-1144	5404-1207
ECMS12X0701001F00	1751-6458	8923-1620			

CP0 suffix indicates calibratable (development) version of a module.



PO Box 1519, Fort Collins CO, USA 80522-1519  
 1000 East Drake Road, Fort Collins CO 80525  
 Tel.: +1 (970) 482-5811 ♦ Fax: +1 (970) 498-3058  
[www.woodward.com](http://www.woodward.com)

### Distributors & Service

Woodward has an international network of distributors and service facilities. For your nearest representative, call the Fort Collins plant or see the Worldwide Directory on our website.

This document is distributed for informational purposes only. It is not to be construed as creating or becoming part of any Woodward contractual or warranty obligation unless expressly stated in a written sales contract.

Copyright © Woodward 2009, All Rights Reserved

For more information contact: