

Released



**Product Manual 35088 Version A**  
**(Revision -, 2/2019)**  
Original Instructions



**SECM70 Digital Control**

**Hardware Manual**

## Control Features

Table 1-1. Control Features

Woodward P/N	HW Version	Features
1751-6767	1752 (PROD)	Mobile Industrial
1751-6772	1702 (DEV)	Mobile Industrial, on-the-fly calibratable
1751-6768	1753 (PROD)	Power Gen
1751-6773	1703 (DEV)	Power Gen, on-the-fly calibratable
1751-6769	1754 (PROD)	Marine
1751-6774	1704 (DEV)	Marine, on-the-fly calibratable
1751-6770	1755 (PROD)	On-Highway
1751-6776	1705 (DEV)	On-Highway, on-the-fly calibratable
1751-6771	1756 (PROD)	Hydraulic
1751-6777	1706 (DEV)	Hydraulic, on-the-fly calibratable

Standard features common to all models are:

- 2 engine speed inputs: camshaft and crankshaft speed (crank software configurable for variable reluctance [VR] magnetic pickup sensor or Hall effect proximity sensor inputs)
- 1 frequency input
- Up to 14 analog inputs
- 4 switch inputs
- Up to 2 HEGO sensor inputs
- 1 UEGO sensor input (compatible with Bosch LSU4.9 or NTK sensors)
- Up to 2 knock sensor inputs
- 1 transducer power output providing +5 V (350 mA)
- Up to 6 injector drivers (3 capable of providing software configurable peak-and-hold current levels)
- Up to 8 ignition coil drivers
- MPRD (Master Power Relay Driver) low-side output
- 9 low-side output drivers (up to 3 with current sense feedback)
- Up to 3 lamp drivers
- TACH low-side output
- 2 H-bridge driver outputs providing 10 A and 5 A drive capability and current-sense feedback
- Optional 3-Phase BLDC driver
- 2 CAN (Controller Area Network) communications ports
- 16-kilobyte serial EEPROM for tunable parameter storage

## Environmental Capabilities

The following is a summary list of the environmental limits used for ECM design validation.

Operating Voltage	8–32 Vdc
Minimum Cranking Voltage	5.5 V
Operating Temperature	(-40 to +105) °C (-40 to +221 °F)
Storage Temperature	(-40 to +105) °C (-40 to +221 °F)
Mechanical Vibration	RV3 (22.1 Grms)
Mechanical Shock	50 g, 11 ms, half-sine wave, 4 shocks in each direction (24 total shocks)
Ingress Protection	SAE J1455 High Pressure Spray and Steam Cleaning Tests
EMI/RFI Specification	CISPR 25 (Radiated & Conducted Emissions)
	ISO 7637-2 (Conducted Transient Testing)
	ISO 10605 (ESD)
	ISO 11452-4 (Conducted Immunity)
	ISO 11452-2 (Radiated Immunity)
	ISO 7637-3 (Transient Immunity)

For more detailed information on the SECM70 environmental validation specifications, please contact Woodward. Sharing of this information requires an NDA (non-disclosure agreement).

### **IMPORTANT**

**For new applications, the actual environmental data and OE specifications must be reviewed by Woodward during application development and approved prior to offering warranty coverage for the application.**

## Chapter 3. I/O Description

### IMPORTANT

All interface I/O not provided by Woodward must be reviewed by Woodward and approved prior to offering warranty coverage for the application.

### Block Diagram

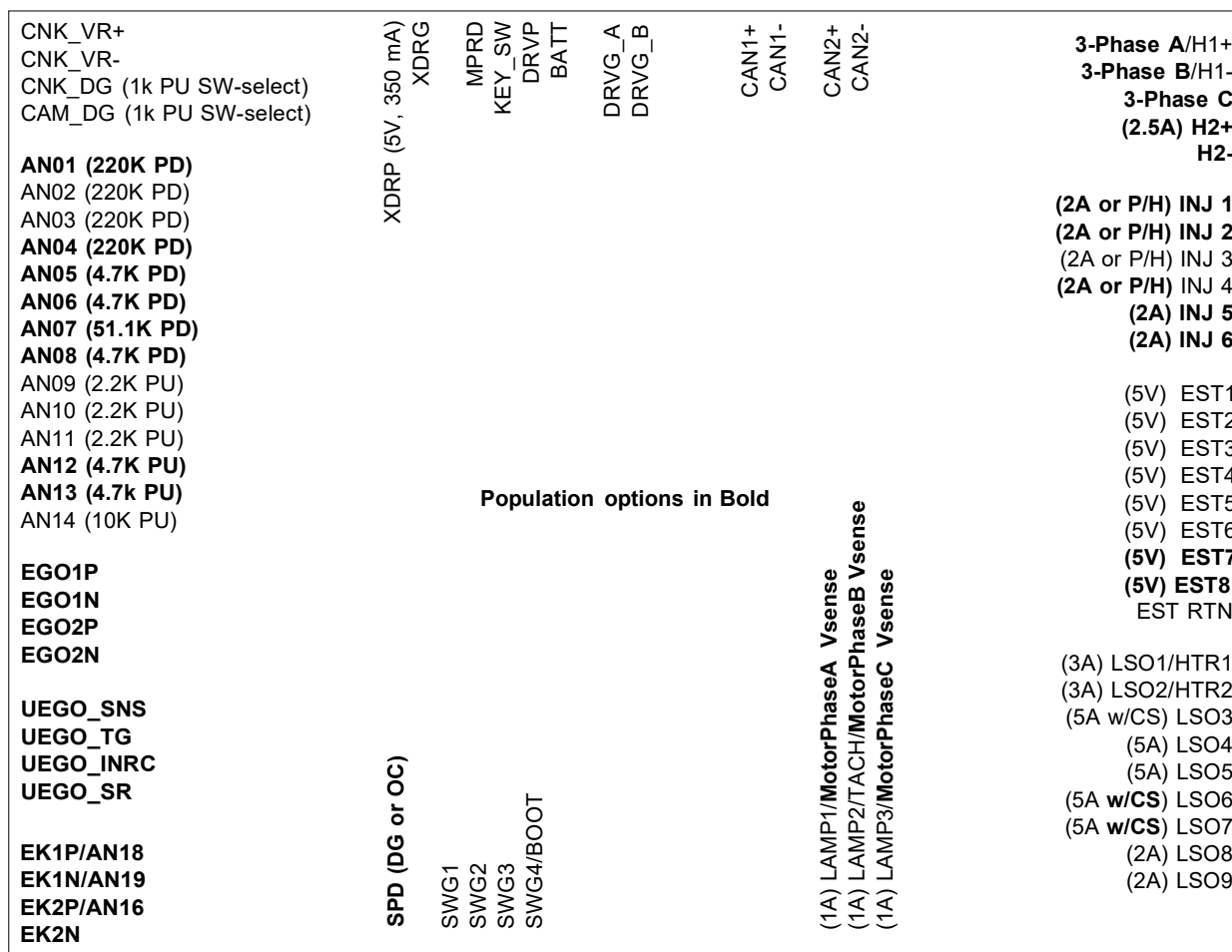


Figure 3-1. Block Diagram