

The **FCR-21 Engine Management System** is a specialized solution specifically developed for unmanned defense aerial systems that utilize 1- and 2-cylinder engines in demanding environments. The system has been engineered to meet the unique requirements of these engines, incorporating proprietary algorithms that enhance performance and reliability. To further improve the system's reliability, a redundant design has been implemented to reduce the risk of downtime and ensure seamless operation in any condition.

the **Engine Specialists**



System Features and Options

- Electronic Throttle Control
- Closed Loop Fuel Pressure Control
- Integrated Fault Detection
- CAN-Bus Interface
- Electronic Oil Injection Control
- Dual Redundant Speed Sensor Inputs
- Dual Ignition Outputs
- Dual Injector Outputs
- Dual Thermocouple Inputs

Technical Specs

Operating Temp:	-40° to 105° C (higher temp with engineering review)
Storage Temp:	-40° to 150° C
Operating Voltage:	10-30V DC
Ingress Protection Rating:	IP-67
Vibration Resistance:	+/- 5g in all directions (10-1,000 Hz)
RF/EMI Resistance:	Up to 80V/m from 1 MHz to 10 GHz

Applications

Designed for 1-2 cylinder spark ignited engines that require ultra high reliability.

At CSI, our engineers understand the demands of defense applications and develop custom controls to suit.

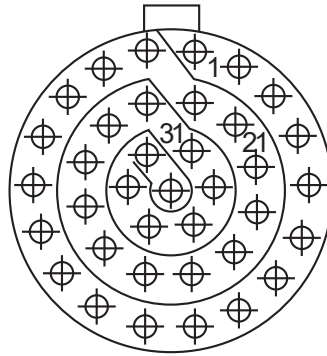
FCR-21 Pinout

Application: General Purpose

Connector,

37 POS, 22 Contact Size

Pin	Destination
1	CAN High
2	System Ground
3	Relative Humidity
4	Analog Ground
5	Analog 5VDC
6	Analog Input #2
7	Analog Ground
8	Analog Ground
9	EGT1 +
10	EGT1 -
11	EGT2 +
12	EGT2 -
13	NC
14	TRIGGER 2
15	12V Supply
16	12V Supply
17	Trigger 1
18	CAN Low
19	System Ground
20	Analog 5VDC
21	CHT 1
22	Analog Ground
23	Intake Air Temp
24	Analog Ground
25	CHT 2
26	NC
27	NC
28	Gnd
29	Gnd
30	Gnd
31	Throttle Position
32	Analog 5VDC
33	Analog Ground
34	Fuel Temp
35	12V Supply
36	Servo Signal
37	Fuel Pressure

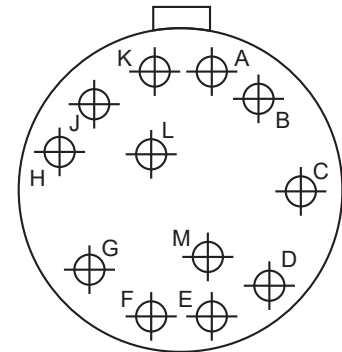


14-35 (M)
Size 14
37#22

Connector,

12 POS, 8x20 Contact Size,
4x 16 Contact Size

Pin	Destination
A	Oil Pump1 -
B	Fuel Pump Cmd
C	NC
D	Fuel Lift Pump -
E	Coolant Pump -
F	Inj 1 -
G	Inj 2 -
H	Oil Pump 2 -
J	Ign 1 -
K	B +
L	B -
M	Ign 2 -



14-97 (I)
Size 14
8#20 4#16

Pin Capacity

General Specifications

Contact Size	Shell Size	Max Current (Amps)
22		5
20	08 to 24	7.5
16	see below	20

Control Systems Inc. (CSI) offers a full range of Engine Control Modules (ECMs) for various industries including industrial, marine, off-road, defense, and heavy-duty. Our engineers deliver quick product customization to meet customer needs. CSI provides full-service support including calibration, durability and emissions testing to assist from concept to Manufacturer of Record (MOR).

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FCR-21: Enhanced Redundancy FADEC

