



Power conversion
 Power generation
 Magnetics
 Sensors

Oil debris monitoring

Auto-Fault® Debris Monitoring System

VMI's Auto-Fault® Oil Debris Monitoring System is designed for today's environment of high performance aircraft turbo-shaft and turbo-thrust engines, as well as helicopter transmissions. Engine damage, as a result of debris in the lubricating system costs operators and engine manufacturers millions of dollars each year in unscheduled engine maintenance or replacement, not to mention impacting adversely on operational safety.

Incorporating several innovative, yet proven design changes over previous "chip detection" systems, VMI has developed the next-generation Oil Debris Monitoring System. This system reduces "nuisance" alerts, through a application specific "fuzz burn" feature, and improves ferrous particle detection through use of an improved particle capture system that virtually eliminates "no notice" capture. If the chip detector in this system captures a chip, it will either burn

the particle or alert the flight crew that there may be a problem. Once on the ground, the maintenance personnel can easily determine, through the Electronic Maintenance Module (EMM), which ECD has the debris, and remove it for inspection without tools of any kind, and without draining the oil.

The EMM, the brains of the system is designed to provide full diagnostic capability to the system as a whole as well as provide specific information to the maintenance crew. It not only alerts the maintenance crew which ECD has a particle, but will alert the crew if the EMM fails or there is an open wire. Should the EMM fail completely, the ECDs will continue to function to provide chip alerts to the flight crew, providing a "fail-safe" function.

Temperature sensing capability is available to prevent initiation of the fuzz burn feature should the oil reach a pre-determined temperature. Output of the chip alert can be to a discrete annunciation or can be through a digital bus for EFIS display

Technical specifications	Fuzz suppression
Power	200W max pulsed/12W max steady state
Input voltage	+ 28VDC dual
Input power	5W max continuous
Input power pulse	150W 50MS max (fuzz)
Wiring	No discrete wires
Conformal Coating	PCBA's to be coated per MIL-I-46058, Type AR
PCB assembly	Assembled per IPC-A-610, Class 3
Burn	.004
Components	Solid state devices
Weight	~ 1.2lbs
Operating temperature	-45°C to +55°C / -49°F to 131°F
Non-operating temperature	-65°C to +88°C / -85°F to 190°F
Altitude	-1,000ft to 20,000ft



Advantages

- ✔ Provides fully automatic system operation
- ✔ “Fail Safe” design allows pass-through of chip detection even if EMM fails or loses power
- ✔ Fuzz Burn feature reduces nuisance alerts, only indicates “on-condition”
- ✔ Reduces or eliminates nuisance indications
- ✔ Vaporize wear debris as small as 0.001”
- ✔ Current vs voltage – compensates for losses in wiring offering precise debris burning cycle
- ✔ No signal conditioning software is needed
- ✔ Customized firmware to adjust debris size thresholds
- ✔ Can monitor up to 8 CD on engine and transmission systems easily
- ✔ Detects sludge on CD
- ✔ Integral display
- ✔ Oil over-temperature condition
- ✔ Broken harness wire detection
- ✔ Continuous automatic Built-In Test (BIT) at power up, during operation, and on command
- ✔ Module indicator lights permits fault isolation for chips and wiring problems
- ✔ No special sensor housings are required
- ✔ Simple and easy replacement of existing systems

Certifications and Qualifications

- ✔ FAA STC SR09261 RC –Bell 206 A & B
- ✔ RTCA/DO-160B
- ✔ DO-160C pending

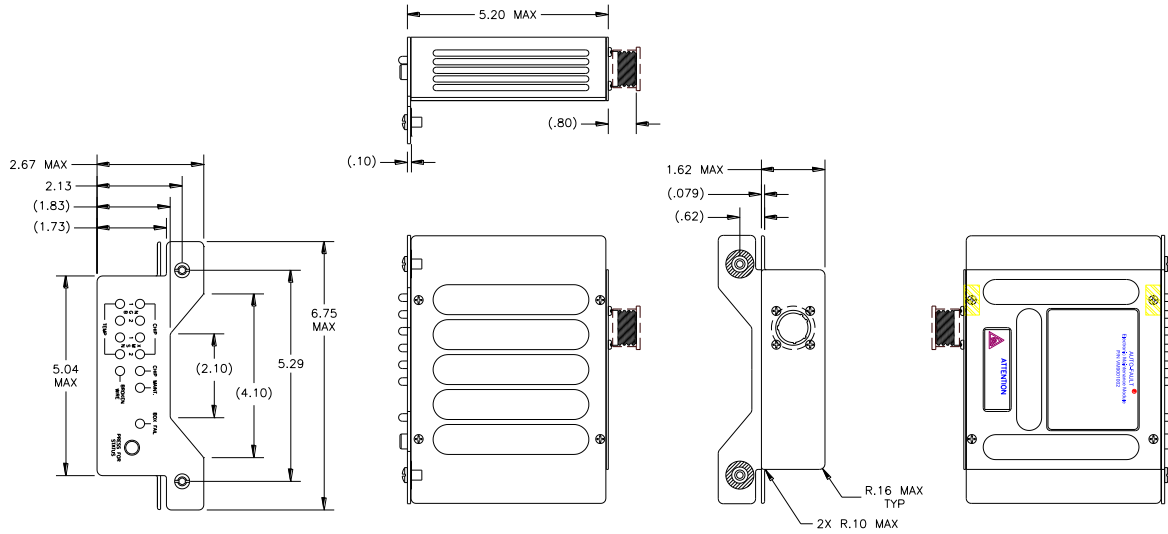
Product images

EMM Final Assembly

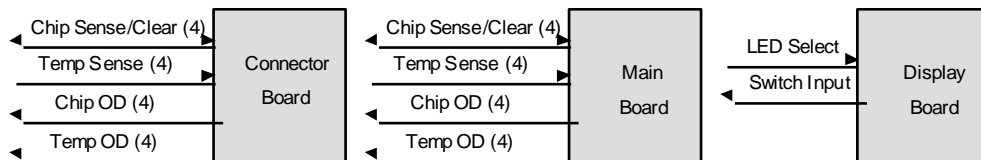




EMM Mechanical Design



EMM electrical design - System Interconnect



Platform	Part number
BH400 Series (Engine (Various))	303-0001