

## Embedded Machine Monitor ECT-EMM

The Ectron Embedded Machine Monitor ECT-EMM is a high-speed precision overspeed monitor (OSM) that offers protection for the turbine engines that may be damaged by excessive speed. The state-of-the-art design offers outstanding response, reliability and versatile performance. A proven design with over 6000 units operating on turbine engines worldwide.

### Features :

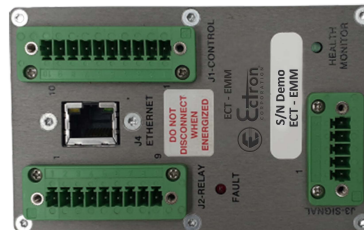
- 6 msec response time for frequency > 2KHz
- $\pm 5\text{ppm}/^\circ\text{C}$  stability over operating range
- Provides an accurate 4 -20 mA analog output of the speed signal.
- HART protocol interface on the 4-20 mA lines
- EthernetIP or Profinet for connection to OT network
- Ability to drive external solenoids or switch relays
- $-20^\circ\text{C}$  to  $+85^\circ\text{C}$  operating temperature range.
- 153 Hz to 25 KHz operating frequency range
- Rugged, ATEX/IECEX options available
- Provides very high failsafe reliability
- Complies with CSA, NEC, IEC and CE standards



The algorithm used to detect an overspeed event uses a combination of averaging plus the mean of several pulses. When the frequency signal is derived from blade sensing, this algorithm allows for blade flutter without causing an overspeed event.

After considerable testing, Ectron engineers were able to develop an algorithm which reduces blade flutter of  $\pm 7.5\%$  to only  $\pm 0.5\%$  variation of actual rotor speed. Also, when operating with gear-tooth sensing, cyclic signal frequency variation is improved.

Internal encapsulation and rugged construction permit use in unprotected areas including mounting on a turbine engine sled.



### Applications:

- Turbine/Engine Overspeed Monitor
- Use in control loop as backup fault monitor
- Engine or Machine monitor