



# E-Guard

## On-Guard® module for engine power cylinder monitoring

### Key Features at a Glance

- Utilizes Windrock's "Smart" Transmitter
- Peak pressure and angle statistics indicate consistency of combustion
- Monitor up to 10 power cylinders per module
- Modular System Architecture can be configured with other On-Guard® family modules to meet your monitoring requirements
- Installation is simple, fast and inexpensive
- Can be mounted at the machine to reduce the length of cable runs
- Optional On-Guard® Diagnostic software for monitoring, analysis, reporting and trending
- On-Guard® Software available in single user and multi-user network license versions

### What's New

- Ethernet communication through device server

### E-Guard

The E-Guard "smart" transmitter, a member of our On-Guard® family of products, is Windrock's online solution for monitoring power cylinder combustion characteristics. With today's "clean air" requirements, it is critical to know that the peak firing pressure (PFP) in your engine's power cylinders are well balanced, performing with consistent cycle-to-cycle combustion and without misfires or detonations. This information allows you to operate the unit with the lowest possible output of nitrous oxide and dangerous carbon monoxide.

Windrock's online monitoring system provides continuous machine protection. The module has its own internal processor and memory and is capable of performing complex calculations, alarm detection and error checking.

E-Guard is especially suited for 2-stroke natural gas fueled engines which tend to become unbalanced. Balancing all cylinder's peak pressure is very important to maintain good mechanical condition and to minimize emissions.



### Data Acquisition

The E-Guard module accepts up to ten high temperature (AC) pressure sensors (or load washers mounted under a head bolt) plus a separate input for manifold pressure. The twelfth channel is for a reference sensor used to calibrate the dynamic pressure sensors. Due to the harsh environment the AC pressure sensor is subjected to, the E-Guard performs a number of sensor fault checks every cycle to insure the AC pressure sensor signals are valid.

The transmitter's internal processor calculates statistical data on average PFP for each cylinder location of PFP, compression pressure, percentage of poor combustion, pre-combustion and detonations. In addition to peak pressures, E-Guard provides percent over-pressure cycles, percent no or poor combustion cycles, and compression pressures.

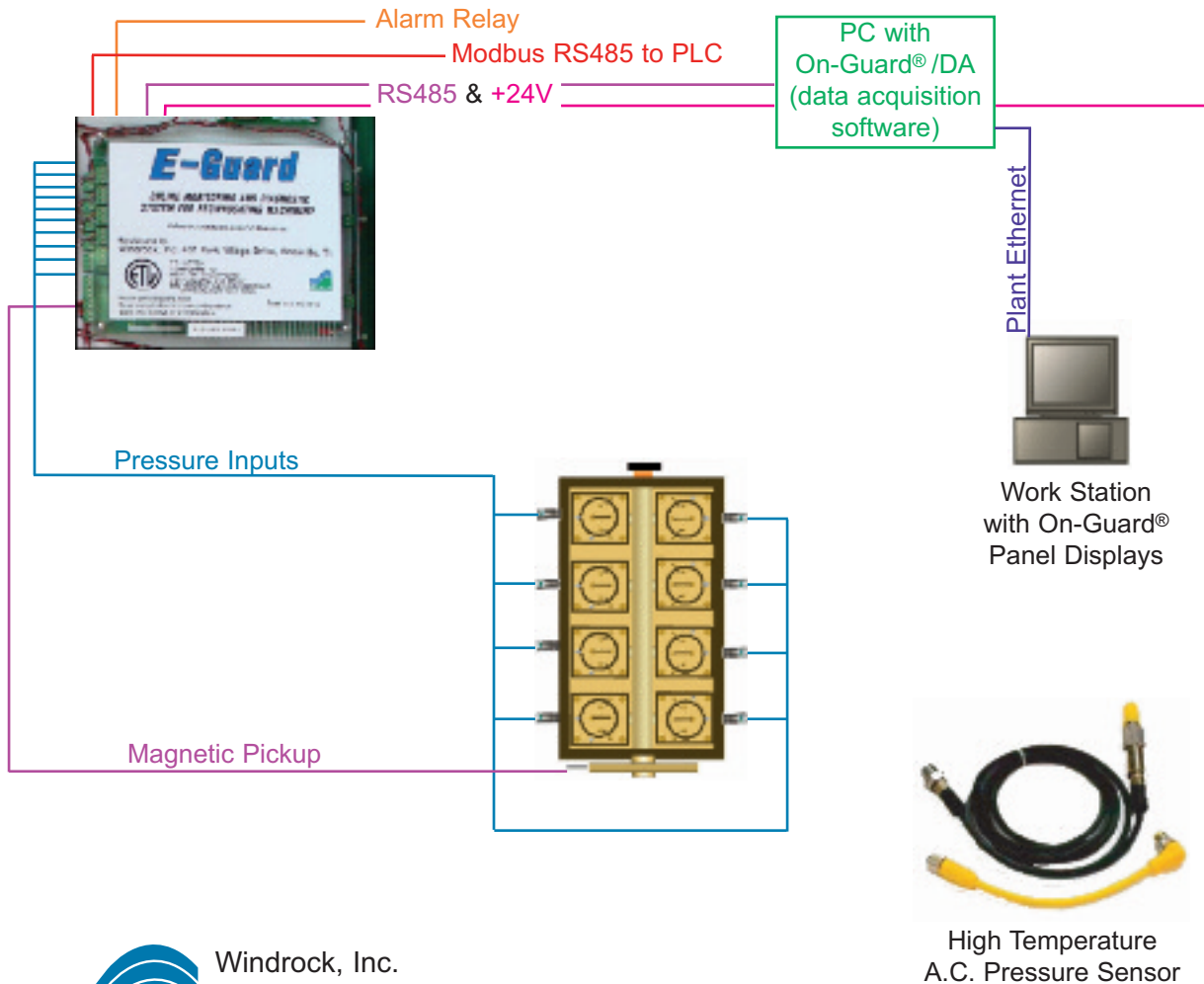
The information can be accessed by the user's PLC / DCS system via RS-485 com link to inform the plant's operators of the need to balance the engine power cylinders. An optional relay is available for remote alarm indication.

*Modular design allows mounting at the machine reducing installation costs.*

**Questions? Contact us today:**  
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## Specifications

Size:	8 inches high x 10 inches wide x 2 inches deep
Weight:	Less than 3 pounds
Number of Channels:	10 dynamic pressure inputs plus speed / phase reference inputs (once per turn <u>or</u> once per turn and once per degree) manifold pressure input and reference pressure input for calibration
Hazardous Area Ratings:	Suitable for Class I, Div 2, Groups A, B, C, D areas Sensors rated for Class I, Div 1, Groups A, B, C, D areas
Outputs:	PLC / DCS Interface - standard integer-based modbus RS-485 Alarm Relay - Hermetically sealed, selectable N.O. or N.C. output logic
Power:	20 - 30 VDC, 250 mA
Environmental Limits:	-25 degrees F to +150 degrees (operating); -40 degrees F to +185 degrees (storage) up to 95% humidity (non-condensing)



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