MPI Detonation Sensing Interface System - Model DSI

The MPI Detonation Sensing Interface System utilizes a pair of highly sensitive accelerometers to detect detonation. In the event of detonation the DSI signals the MPI Ignition System, via 4/20 ma control signal, which responds by immediately retarding the timing thus eliminating the potentially harmful effects of continuous detonation.

Features:

- Utilizes advanced piezoelectric accelerometer sensors to provide real-time analog signal
- Signal is proportional in amplitude to the levels of vibration detected
- Sensors respond over wide range of frequencies up to 10 KHz
- Retards timing to reduce vibration intensity or eliminate it entirely
- Sensor range – 0 – 500 g's
- Detect any source of vibration

Benefits:

- Easy to use Controller interface
- Detects detonation tendencies at low levels before they reach greater intensity and cause engine damage
- Flexible controls, useful information for operators
- Wide bandwidth allows detection of most mechanical vibration sources including detonation
- Complete installation kits, wiring guidelines and sensor kits provided

Sales•Service•Support

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FWMurphy Control & Instrumentation Solutions

MPI Detonation Sensing Interface System

Maximize Power To Run Smoother.

Specifications:

Power Requirements: 18-30 VDC 300mA max.

Controller Operating Temp range: -20C to 70C

Sensor Operating Temp Range: -40C to 120C

Sensor Frequency Range: 20-5000 Hz

Sensor Sensitivity: 10mV/g 500g F.S.

Control Inputs:

The 1/REV signal must be provided. Two interfaces are available for customer convenience.

Option 1. MPI_ISO_1/REV-MPI_ISO_RTN: This input connects back to the MPI Isolated_ 1/REV output pair.

Option 2. 1/REV_In: This interface is designed to be used directly by a mag pick sensor. It can be wired in parallel to the MPI 1/REV mag pick up. It can also be connected in parallel to a Hall-Effect sensor if in use.

Control Output: Vanalog_Out: This is a 1-5 volt open-circuit output level that when terminated externally by 250 ohm resistor becomes a 4-20 ma current signal. Note: The MPI Ignition system already has an internal 250 ohm resistor across this input.

Shutdown Output: This is an Open-Drain type interface.

Maximum current when activated: 1.0 amps.

Maximum externally applied voltage when de-activated: 100V.

Panel Controls and Indicators:

1. Power On Switch. Applies 24 VDC to the electronics and sensors.

   The knock sensor cable should never be removed or installed with power on.

   Power On Indicator provides verification that power is applied.

2. Sensor 1(2) Low Level lights: These indicators will come on when the engine is running over 400 rpm and the sensor output is below minimum level. Its an indication that the sensor is not sensing vibration levels during normal running operations. This may be due to the sensor becoming loose or the cable is removed or the engine is running at idle or unloaded when very low levels of vibration are generated.

3. SHUTDOWN: This indicator will come on if the system detects three heavy detonation present for three successive revolutions. The Shutdown output will activate and it can be tied into a panel or directly to the MPI to kill ignition.

4. SHUTDOWN RESET: After a shutdown occurs this push-button clears the shutdown indicator and de-activates the shutdown output for subsequent start-up.

5. Internal indicators

   1. Flashing amber led indicates firmware is operating normally

Applications as of 2004

– Any Caterpillar 3500 series engines.

MPI Distributor and Service Representative:

www.murphy-pi.com

Specifications and performance data subject to change without notice. Certified specifications and performance data available upon request.

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