

Delphi Broadband Resonant Knock Sensor

► Description

The Delphi Broadband Resonant Knock Sensor is a self-generating, high output piezoelectric sensor. Commonly mounted on an engine block or cylinder head, it produces an output voltage in proportion to the engine vibrations caused by knock. When knock is present on the sensor signal to the engine control module, the control module helps control knock by retarding spark timing. The resonance frequency of the sensor is matched to the knock frequency of the engine..



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► Benefits

- Self-generating piezoelectric design requires no power to the sensor.
- Broadband resonance accommodates shifts in engine knock frequency.
- High voltage output requires only a single, non-shielded wire and a low impedance measuring circuit. Also provides low susceptibility to electro-magnetic interference (EMI).
- Integral, tapered mounting stud requires no separate mounting bolt, and a flat machined mounting surface is not required.

► Typical Applications

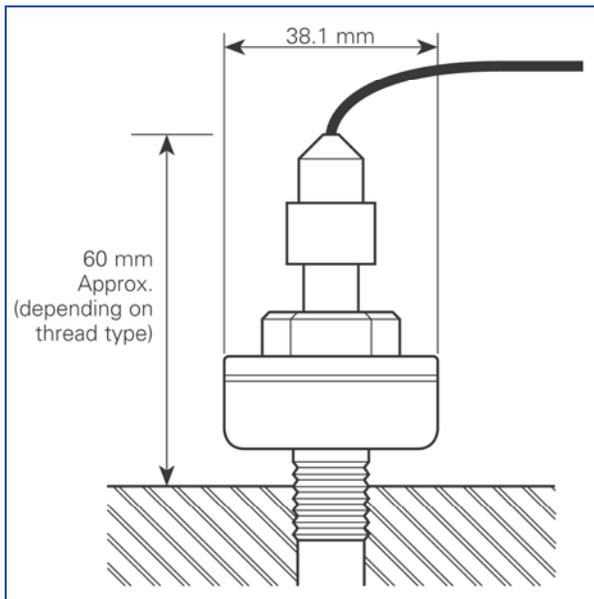
The Delphi Broadband Resonant Knock Sensor is designed for use on any spark ignition gasoline engine, including two-stroke engines. It can also be used for alternative fuel and flexible fuel engine applications.

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► Performance Advantages

The Delphi Broadband Resonant Knock Sensor's design enables the sensor to respond to knock frequencies up to 1,000 Hz from the design frequency value. Thus, the sensor can accommodate shifts in engine knock frequency with changing engine operating conditions. The high voltage output of the sensor permits the use of a single, non-shielded output wire and a low impedance measuring circuit, while providing low susceptibility to EMI.

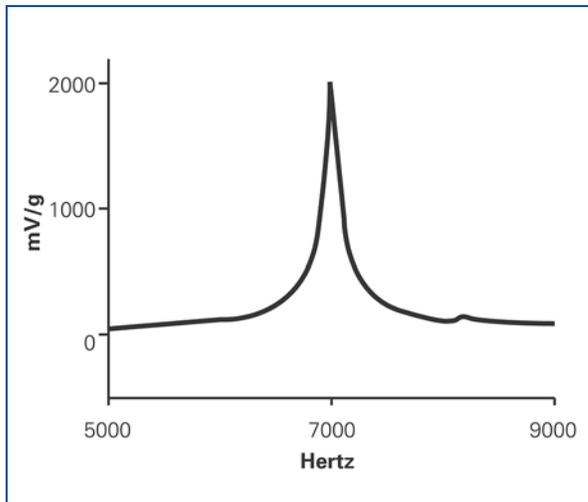
Typical Installation



This chart shows a typical mounting configuration and the overall dimensions of the Delphi Broadband Resonant Knock Sensor.

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Typical Transfer Function Axial Input Only



This chart demonstrates the behavior of the Delphi Broadband Resonant Knock Sensor at a frequency of 7,000 Hz.

► Performance Specifications

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|-----------------------------|--|
| Voltage | 550 to 1,050 V-Hz/g into a 2 kΩ resistive load |
| Available frequencies | 5,200 Hz, 6,000 Hz, 7,000 Hz, and 8,000 Hz |
| Mounting thread | M12 x 1.25 DIN 158 tapered (M10 x 1.5 straight and other threads also available.) |
| Operating temperature range | -40° C to 150° C |
| Environment | Sensor and connector are sealed to withstand humidity, salt spray, automotive fluids, and general underhood automotive environment |

► The Delphi Advantage

Delphi has one of the industry's most complete portfolios of sensors and a thorough understanding of automotive systems integration. Delphi offers global manufacturing capabilities for sensors and an in-depth knowledge of regional market requirements. Delphi has the experience and the expertise to provide a single device or a multifunctional "smart" module to meet specific customer needs.