

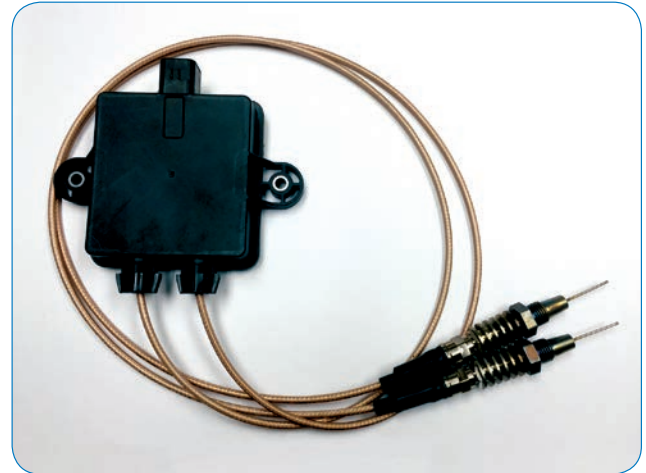
Diesel Particulate Filter (DPF) Soot Sensor

Overview

The Diesel Particulate Filter (DPF) Soot Sensor utilizes radio frequency technology to enable accurate measurement of soot within the DPF. The sensor provides real-time and highly accurate measurements of the soot throughout the duty cycle of the diesel engine and aftertreatment system.

Key Enablers

- The accuracy of the RF-based soot load measurement supports an aftertreatment strategy that requires no active regeneration of the DPF.
- However, if an active regeneration strategy is used, the RF-based soot sensor, due to its accuracy, allows more time between active regeneration events. This reduces the opportunity for machine downtime, which allows the customer to keep working. Fuel consumption savings are estimated to be in the 3%-5% range.
- Due to the accuracy of the RF-based soot sensor, the possibility of damage to the DPF brick from excessive soot load is reduced.
- By employing a passive regeneration strategy, using the RF-based soot sensor, engineering emissions targets may increase as the impact of infrequent regeneration adjustment factor decreases.
- When compared to delta-pressure technology:
 - RF-based Soot Sensor \rightarrow $Soot_{RF} = f(\text{RF Signal Attenuation, Temperature})$
 - Delta Pressure Soot Sensor \rightarrow $Soot_{DP} = f(\text{Pressure, Mass Flow, Temperature, Ash, Soot Morphology})$



Applications

- On-road and off-road diesel
- Industrial diesel

Target Customers

- Heavy duty equipment OEMs
- Aftertreatment equipment OEMs
- Diesel engine OEMs

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