ONLINE FLUID CONDITION

SENSOR AND DISPLAY SYSTEM

SIMPLEX TURBULO

Parker

ENGINEERING YOUR SUCCESS.

The Online Fluid Condition Sensor

Monitor fuel dilution, soot ingress and contamination of oils and fluids using one online sensor — the only one of its type to measure nS/m conductivity and pressure.

Low quality, incorrect fuel or oil lubrication combined with infrequent maintenance is a cause of machinery damage, leading to expensive repairs. The Parker Fluid Condition Sensor (FCS) provides constant, real-time monitoring of critical oil parameters - temperature, moisture content, pressure, permittivity and conductivity. It determines when oil needs to be serviced due to degradation of the oil chemistry or contamination by other fluids such as water or the wrong oil. When used as part of a pro-active maintenance programme, the FCS will help reduce the overall operating cost of machinery, with associated reductions in failure related downtime, removal of routine checks and lab testing.

'World leading engine manufacturers recognise the benefits of our Fluid Condition Sensor'

Our most technically accomplished multiparameter sensor

Electrical properties of oil change at different temperatures, which may also vary with oil type and age. FCS features an innovative temperature compensation function to combat these effects, which in turn improves the trend accuracy of data.

- **Reduces machinery design complexity by enabling four parameters to be measured by a single sensor.**
- **Replaces stand-alone sensors and wiring complexity.**
- **Simplifies data handling and connections.**
- **Multiple outputs from one sensor.**

Suitable for all hydrocarbon mineral-based hydraulic fluids and lubricating oils

- **Large diesel engines**
- **Industrial gearboxes**
- **Heat exchanges**
- **Turbocharger lube**
- **Thrusters**
- **Gas turbines**
- **Hydraulic oil systems**
- **Industrial tooling machines**
- **Any need to monitor oil degradation & contaminant ingress**

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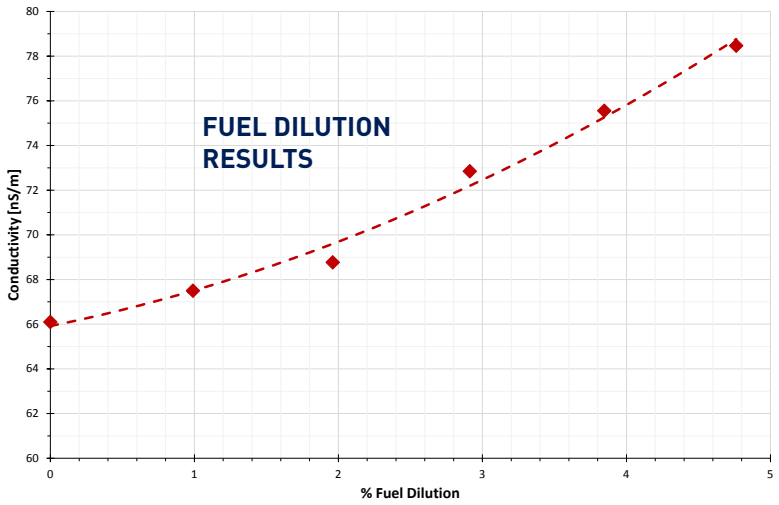
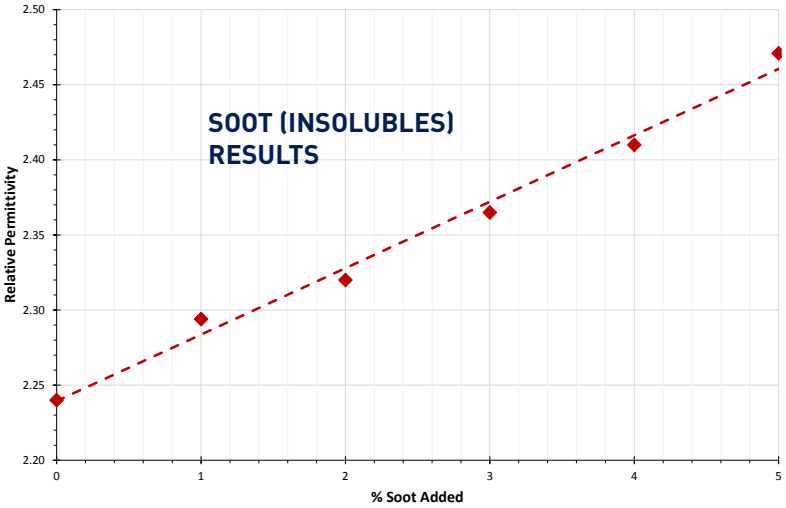
Robust, Repeatable Measurement

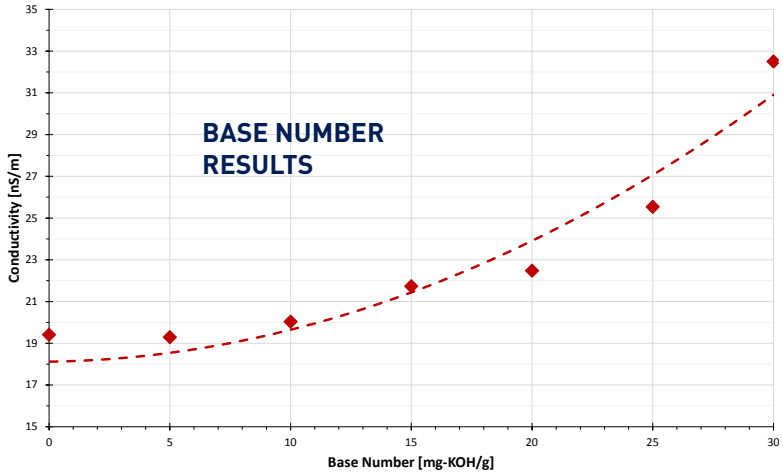
Routine condition monitoring helps to prevent equipment failure.

FCS measures two oil condition parameters: AC conductivity (reported in nS/m) and permittivity, which together provide a more detailed analysis of contaminant ingress and/or oil changes/aging. It is suitable whenever it is a requirement to detect sudden changes in the dielectric properties of the fluid resulting from contamination ingress from external sources.

On diesel engines, the FCS may be used to **monitor the common problems of fuel contamination**, degradation of the oil and ingress of water from the cooling system. By tracking changes in oil electrical conductivity, FCS can detect fuel dilution – a common problem in 4-stroke diesel engines. FCS also closely correlates to soot (insolubles) ingress by tracking changes in relative permittivity.







FLUID CONDITION SENSOR ACCURACY

AC Conductivity: +/- 5%
Permittivity: +/- 5%
Moisture: +/- 2%
Temperature: +/- 0.5 °C
Pressure: +/- 0.2 Bar
(for operation <500m above sea level)

Results shown on this page contain lab generated data

Connect & Display with our SDI

The Fluid Condition Sensor communicates via industry standard Modbus over RS485 protocol. Parker recommends our intelligent **new Sensor Display Interface (SDI)** to extend the FCS functionality and connectivity. The SDI can display results for up to four oil parameters in real-time, trigger and opto-isolated alarm relay, and output up to 4x 4-20mA analog signals. The SDI can also send a signal to the sensor connected using the push button on the side of the SDI product box. The compact, rugged SDI unit is simple to install and connect.

Technical specification

Sample type:
Lubricating & Hydraulic Oils – Mineral/Synthetics.
Measurement units:
AC conductivity (nS/m), Relative Permittivity, Relative Humidity (%), Temp (°C), Pressure (bar).
Measurement range:
AC Conductivity :
0-2000 (nS/m)
Relative Permittivity:
2-8, RH (0-100%), Temp (-20 to 100°C), Pressure (-1 to 10 bar gauge).
Voltage:
10-32VDC.
Ambient operating temperature:
-20°C to +80°C.
Permitted fluid temperature:
-20°C to +100°C.
Maximum fluid pressure:
10 bar gauge (sustained and transitory).
Ingress protection:
IP44.
Communications:
Modbus over RS485 and CANopen.
Connection:
5-way, M12 connector.
Weight:
0.4 kg.
Connection port:
1/2" BSP.
Enclosure Material:
Stainless Steel 316.

Sensor Display Interface (SDI)

Display Units:
5 x Parameter Outputs
Unit Inputs:
Customer – 2 Wires – 10-32 VDC. Sensor – 5 Wires.
Unit Outputs:
8 Wires – Digital Comms – 2 Wires, 4 x 4-20mA – 4 Wires.
Voltage:
10-32 VDC.
Operating Temperature:
-20°C to +55°C.
Ingress Protection:
IP44.

Ordering information

Part no	Description	Replaces current Parker product(s)
FCS3111	Fluid Condition Sensor	-
FCS3112	Relative Humidity Sensor	Moisture Sensors (FG-K16946-KW, FG-K16951-KW)
FCS3113	Oil Condition Sensor	Oil Condition Sensors (FG-K16203-KW, FG-K16318-KW, FG-K16327-KW, FG-K16330-KW, FG-K16340-KW, FG-K14492-KW)
FCS3121	Fluid Condition Sensor + Sensor Display Interface	-

Authorised Distributor
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