

Rotational Viscometer



Lubrizol Rotational Viscometer

Product Description

The rotational viscometer developed by Lubrizol can measure viscosity in Centipoise from the principle of a fixed rotational speed motor that when rotating within the oil gives a variable current feedback in response to variations in mechanical resistance which is related to the oil temperature and viscosity.

The instrument shown in figure 1 uses a calibrated temperature profile for the lubricant viscosity to calculate the measured viscosity and derive a viscosity value associated with the state of the lubricant under test. From the theoretical and calculated viscosity an error profile can be obtained.

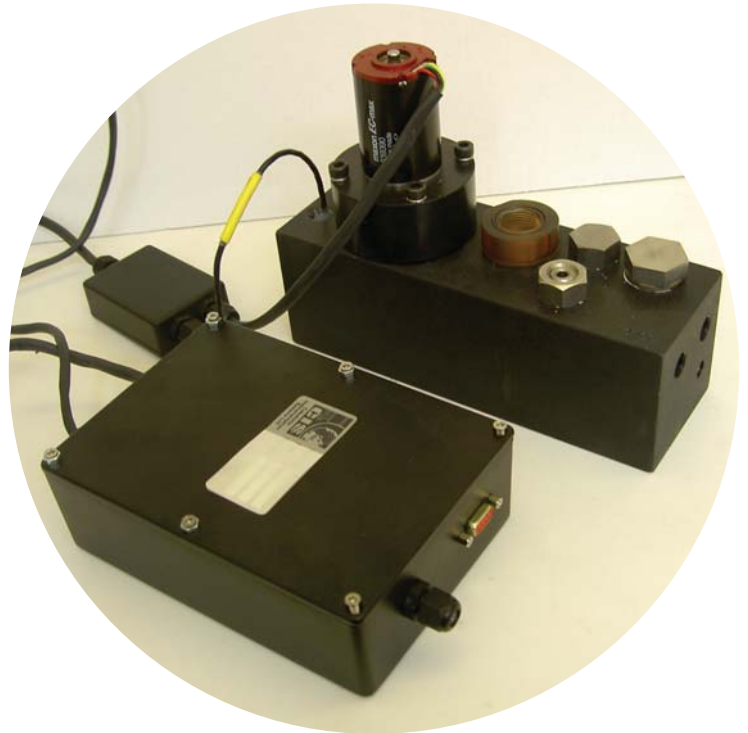


Figure 1 The Rotational Viscometer Sensor

The instrument communicates through a serial port and using an RS232/485 communication interface. The instrument can be easily connected to a SCADA or DCS system communicating MODBUS serial software protocol.

The sensor electronics has the following features:-

- A 16 bit Analogue to Digital converter to give 65565 steps of oil viscosity measurement.
- A 16 bit Analogue to Digital converter to give 65535 steps of oil temperature measurement.
- Programmable Integrated Circuitry for processing and communication data.
- Operational temperature range at present is 35 deg C to 100 degrees C oil.
- RSS232 and RS485 communications.
- Measured digital parameters are Oil temperature in Degrees Celcius, Viscosity in Centipoise.

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- Analogue Voltage output capability for the Viscosity level signal.
- Generates a digital alarm signal of 5 Volts (TTL)
- Modbus interface - serial communications protocol possible option.

Installation

The sensor would typically be installed within a circulating pump and filtration system and be on the clean side of the filter. A manifold T piece or pipe outlet 'T joint' will allow the sensor to be simply installed. The oil would be taken through the instrument manifold and return to the main lubrication line or reservoir (preferably at a point of lower pressure than the input to the sensor).

Product Specifications

Housing Body Material	Stainless Steel 304
Union & Manifold Materials	6082 T6 Aluminium (anodized)
Seals	neoprene
Fluid Interface	variable
Working Pressure	10 Bar max.
Sensor Mounting	Oil Resistant PCB with Lacquered Contacts
Working Fluid	Mineral & Synthetic Oil
Temperature Range	5° to 110° C
Viscosity Accuracy	±2% when calibrated
Temperature Accuracy	±2° C when calibrated
Power Supply	6-30 V DC
Current Consumption	Variable
Data Processing	8 bit PIC Microcontroller
Data Interface	RS232 & RS485
Serial Protocol	SNAP or MODBUS Software Protocol
Serial Data	9600bps, 8 data bits, 1 stop bits no parity
Analogue Input	1 to 5V