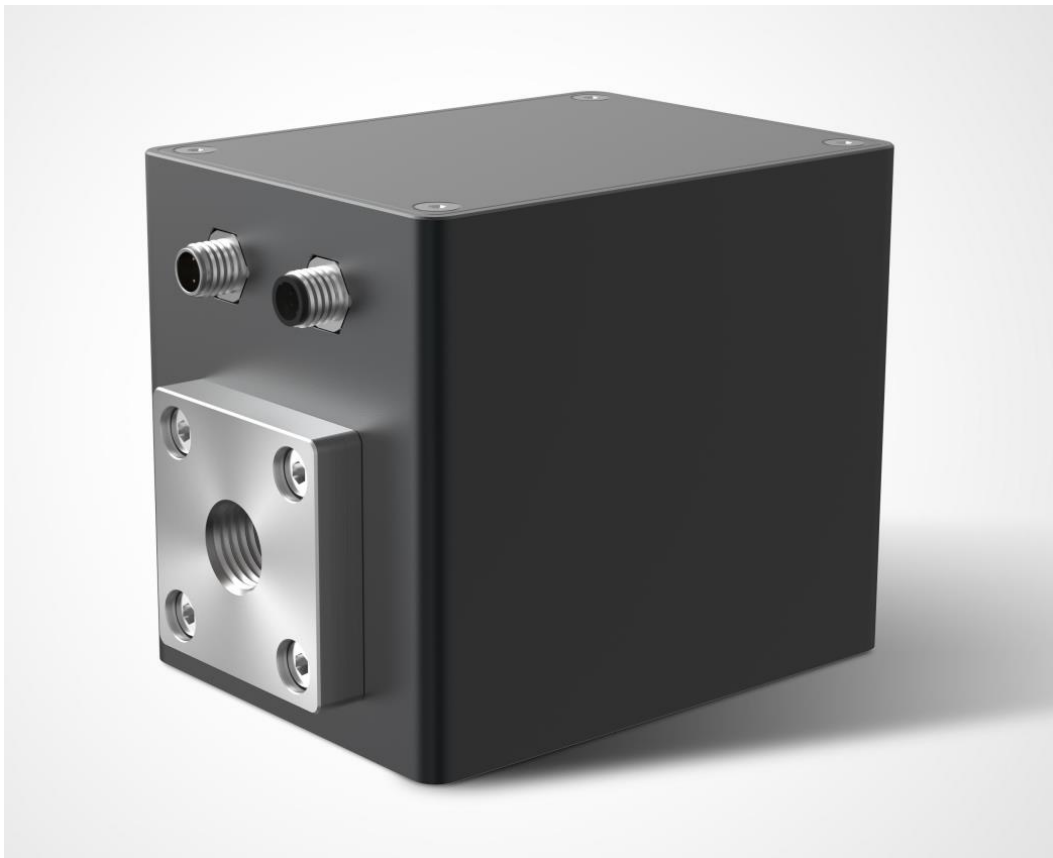




LWTX-4503 Iron Chip Series Metal Abrasive Sensor



High speed, Precision, Robustness

Product Description

LWTX-4503 is an intelligent sensor for real-time detection of metallic ferromagnetic and non-ferromagnetic wear particles in lubricating oil. The product adopts today's world advanced multi-coil electromagnetic induction principle, relying on high reliability, high sensitivity data sampling and processing module, can simultaneously monitor the abrasive particle properties, size, distribution, quantity, concentration, quality, flow rate and temperature, etc., real-time monitoring of lubrication and wear status of large industrial equipment.

The LWTX-4503 is extremely powerful and can provide the following data for user evaluation:

- ◆ Fe ferrimagnetic metal abrasive grains minimum identification lower limit: 40um
- ◆ NFe non-ferromagnetic metal grit detection limit: 150um.
- ◆ Fe & NFe 5 to 8 size bands each with customisable upper and lower limits.
- ◆ Number of grains in each size band of Fe & NFe (cumulative)
- ◆ Fe & NFe total particle count (cumulative)
- ◆ Fe & NFe concentration per minute ppm (mg/L)
- ◆ Fe & NFe mass per hour (ug/h)
- ◆ Lubricant flow rate (m/s)
- ◆ Sensor internal temperature (° C)
- ◆ Total running time (sec)

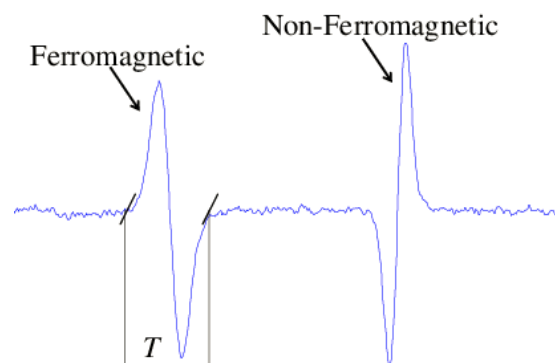
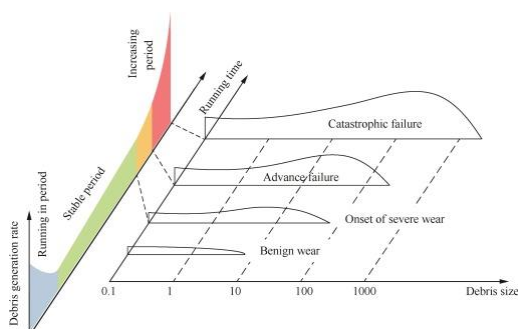
By continuously monitoring the production of wear debris and accurately analysing the increase in the number of wear particles, changes in concentration and mass per unit of time in each of the above size bands, it is possible to get a clear and accurate picture of the state of wear of the equipment.

The LWTX-4503 alerts the user to failures and malfunctions in the earliest stages of the equipment, allowing for less costly maintenance measures to be taken compared to traditional maintenance inspection schedules.

Measuring Principle

The LWTX-4503 has two sets of high performance reverse wound excitation coils and two sets of high performance induction coils built in. Both the excitation and induction coils operate at resonance. When there is a metal abrasive grain through the pipeline, the magnetic flux change of the excitation coil is received by the induction coil, and the real-time capture and reporting of the metal abrasive grain signals is completed by the high sensitivity sampling unit, bandpass filtering unit, phase and amplitude comparison unit, signal amplification unit, low-pass filtering unit and signal extraction unit.

The LWTX-4503 achieves detection capability for 40um ferrous (Fe) and 150um non-ferrous (NFe) particles.



Key Features

- Fe 40μm, NFe 150μm Effective identification Sixteen editable size bands
- Abrasive concentration ppm/mass output
- Flow rate, temperature and running time data output
- Abnormal wear detection to protect valuable assets
- Measurement free from external metal and magnetic fields
- Measurement is unaffected by air bubbles and moisture in the oil
- Fast response and continuous data accumulation
- Excellent chemical and pressure resistance
- No moving or consumable parts, 10 year design life 2.5kv isolated RS485 communication



Applications

- Wind, thermal and hydropower industry
- Large engineering machinery and equipment
- Transport vehicles
- Aviation, marine, railway and other transport industries Offshore engineering such as drilling platforms
- Fuel storage and transport
- Refining and petroleum industry
- Seawater treatment and testing equipment
- Oil treatment equipment
- Chemical analysis
- Process Quality Management
- Oil treatment and filtration systems
- Coatings, Inks & Printing
- Medical equipment

Technical Parameters

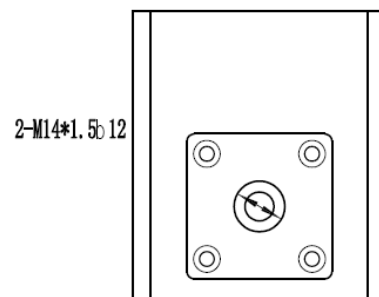
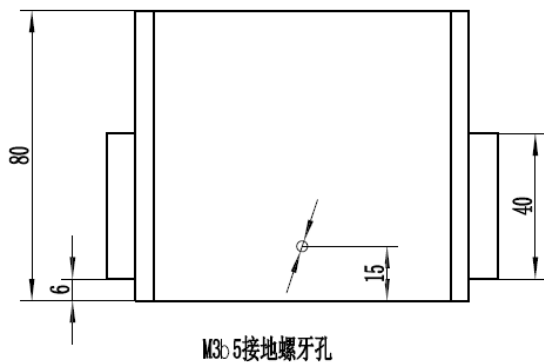
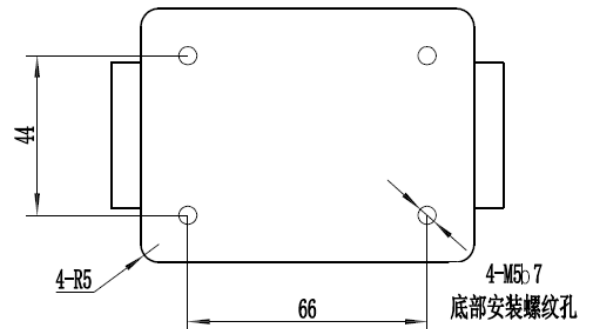
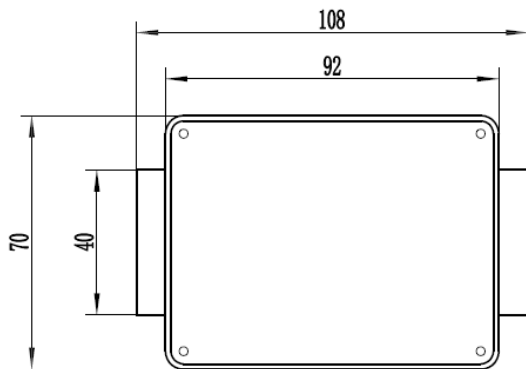
Detection capability	Ferromagnetic abrasive Fe > 40μm (ESD) 5~8 grades
	Non-ferromagnetic abrasive grain NFe > 150μm (ESD) 5~8 grades
statistical cycle	Start-up self-test 30 seconds (first time), data continues to accumulate
Number of particles	Max 100 pcs/sec
allowed flow	0.2 ... 8.9 L/min (0.15 ... 2.9m/s)
Piping specifications	Φ8mm
digital output	RS485 MODBUS RTU, Isolated Voltage 2.5kv
Operating power	DC 12~30V±10%, < 200mA



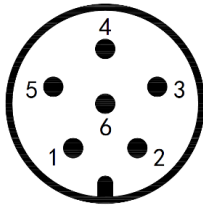
LUWATECH

Probe pressure resistance	20bar Max
Applicable fluids	Lubricants and hydraulic fluids (synthetic and mineral base), etc.
fluid temperature	-20 ... 80 °C
environmental temperature	-20 ... 85 °C
Shell material	316 stainless steel, T6061 anodised aluminium
Structural dimension	108×70×80 mm (L x W x H)
screw interface	M14*1.5 (customisable)
Weight	<1.0 kg
protection class	IP65
connection cable	2 metres M8 - 6 pole straight
electromagnetic compatibility	EN 61326-1 EN 61326-2-3 ICES-003 Class B
Explosion-proof certification	Ex ib IIC T4 Gb (Optional)

Structural dimension (mm)



Interface Definition (M8-6 pole male)



2)	+24V DC	Red
4)	GND	Black
1)	RS485+/A	White
3)	RS485-/B	Green

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Particle Counter Specialist Supplier