

Product Introduction



The MDS-680A oil moisture sensor is an intelligent instrument for online monitoring of the moisture content in oil products. Its front end uses a polymer material humidity-sensitive conversion element to capture real-time changes in the electrical properties of the oil-water mixture. Data compensation is performed using a high-precision temperature probe, and an optimized algorithm is used to determine the moisture content in the oil. The sensor can simultaneously detect three key indicators: temperature, water activity (saturation), and water content. It is suitable for lubrication systems in hydraulic power stations, gearboxes, diesel engines, turbines, air compressors, and other equipment.

The sensor employs a multi-oil matrix calibration process and a dynamic temperature compensation algorithm to ensure long-term data stability and accuracy. It features built-in industrial-grade electromagnetic protection and power isolation modules, effectively resisting electromagnetic interference from frequency converters and high-power start-stop cycles, making it suitable for harsh industrial environments.

The MDS-680A can monitor oil status in real-time and continuously, transforming from delayed sampling to online monitoring. This helps users detect oil deterioration trends early and avoid major equipment failures. Its core value lies in cost reduction, efficiency improvement, and safety enhancement, and it is widely used in key equipment in fields such as engineering machinery, shipbuilding, mining, power, and steel.

Features

1. Simultaneously measures oil temperature, water activity (saturation degree) and water content, fully reflecting the moisture status of oil products and providing multi-dimensional real-time data support for lubrication systems.
2. Adopts polymer materials as humidity-sensitive conversion elements. Utilizing the characteristic of dielectric constant variation after moisture absorption, it dynamically captures moisture equilibrium with sensitive and reliable response.
3. Built-in high-precision temperature probe, combined with dynamic temperature compensation algorithm to conduct real-time compensation for measured data, effectively reducing the impact of temperature fluctuation on moisture detection results.
4. Equipped with industrial-grade electromagnetic protection and power isolation modules, it resists strong electromagnetic interference from variable-frequency motors and startup/shutdown of high-power equipment, suitable for harsh industrial sites.

Technical parameters

Category	Parameter Item	Specification
Water Activity (Saturation)	Measuring Range	0~1 aw
	Measurement Accuracy	±0.02 aw (0~0.6); ±0.03 aw (0.6~0.9); ±0.04 aw (0.9~1)
	Resolution	0.001 aw
Temperature Measurement	Measuring Range	-20~125°C
	Measurement Accuracy	±0.3°C (at 25°C)
	Resolution	0.1°C
Water Content Measurement	Measuring Range	0~1000 ppm
	Measurement Accuracy	±10% of average repeated measurement value
	Resolution	1 ppm
Signal Output	Digital Signal Output	RS485 MODBUS RTU (Default)
	Analog Current Output	4~20mA (Optional)
Electrical Specifications	Operating Voltage	DC12~32V (RS485); DC20~32V (4~20mA)
	Operating Current	<20mA (RS485 output); <40mA (4~20mA output)
	Electrical Connector	M8*1, 6-pin Aviation Plug
	Connection Cable	6-core, 2m (Standard), 26AWG
Performance & Environment	Refresh Rate	1 reading/Second; Startup time < 30S
	Operating Temperature	-30~70°C
	Fluid Medium Temperature	-20~125°C
	Storage Temperature	-40~85°C
Compliance	Compliant Standards	EN61326-1, EN61326-2-3, ICES-003 Class B

Thank You For Your Business!