

EE381 Moisture in Oil Sensor





Compact Moisture in Oil Sensor

The EE381 is designed for the reliable measurement of moisture in transformer, lubrication or hydraulic oil as well as in diesel fuel. It is ideal for the preventive maintenance of equipment and machinery. Besides the accurate measurement of water activity (aw) and temperature (T), the EE381 calculates the absolute water content of the oil (x) in ppm.

Measurement Performance

The device features the high end E+E humidity sensing elements of the HC series, which stand for long term stability and high resistance to pollution.

Display and Outputs

The measured data is available on two freely configurable voltage or current outputs, as well as on the LC-display.

Functional Design

The compact, robust metal enclosure, the swirling front-end and various process connections and sampling options allow for easy and comfortable design-in, mounting and maintenance.

Configuration and Adjustment

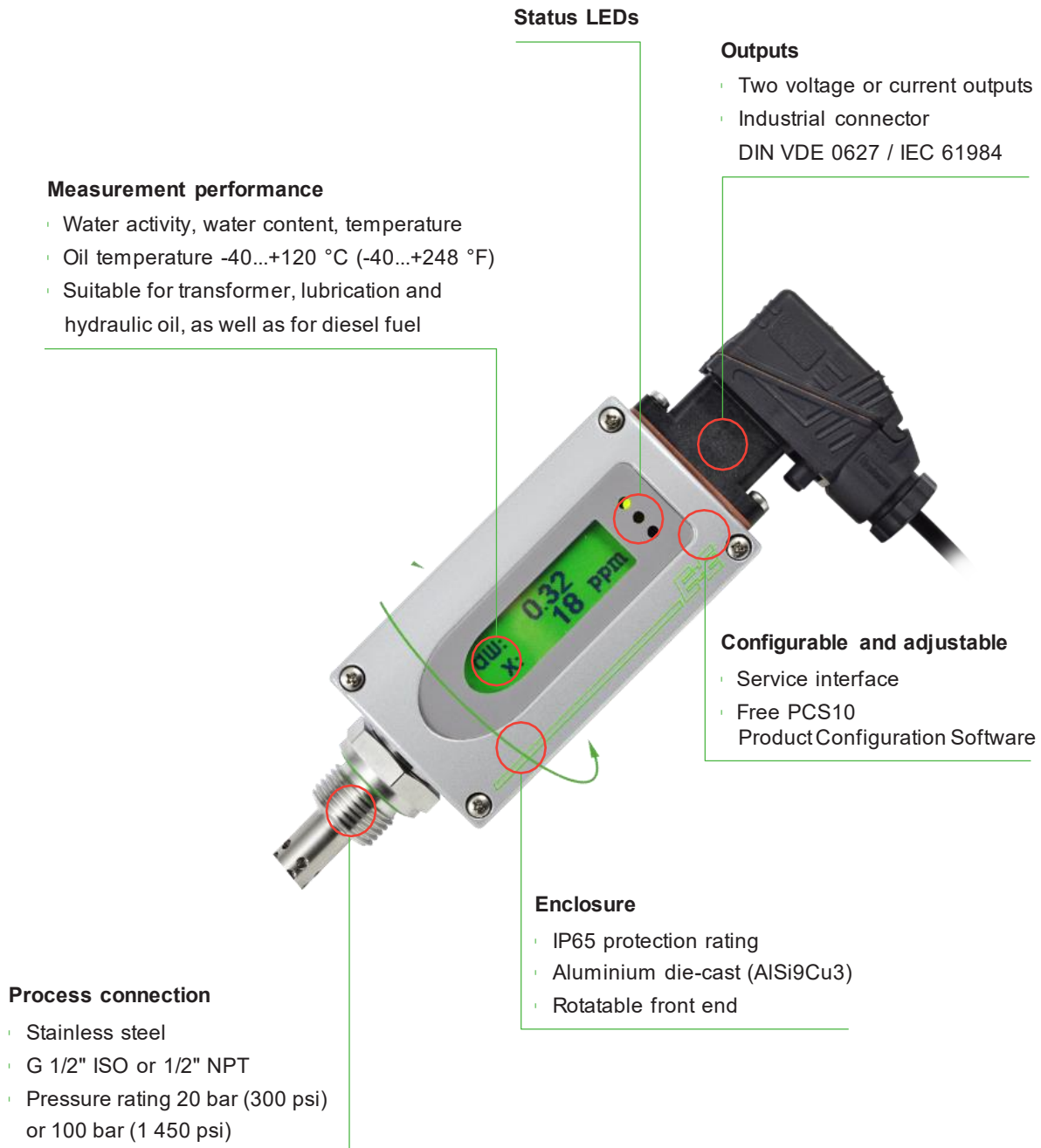
An optional adapter and the free PCS10 Product Configuration Software facilitate easy configuration and adjustment of the EE381.



EE381 moisture in oil sensor with display



Features





Accredited Traceable Calibration Certificate

Internationally recognised certificates for the calibration of measuring instruments from accredited laboratories document the traceability of the measurements to the International System of Units (SI). The E+E Elektronik calibration laboratory offers two levels of traceable calibrations.

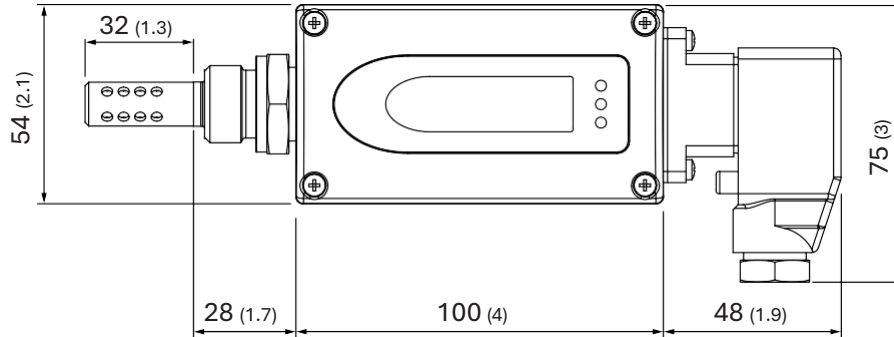
- As a Designated Institute (DI) of the Republic of Austria, the E+E calibration laboratory maintains Austria's national measurement standards for humidity, dew point temperature, air velocity and CO₂. This authorises the E+E calibration laboratory to issue calibration certificates at the level of a National Metrological Institute (NMI).
- The E+E calibration laboratory is accredited by Akkreditierung Austria in accordance with DIN EN ISO/IEC 17025 with the identification number 0608. This allows the laboratory to issue ISO 17025 certificates for the measurands humidity, temperature, dew point temperature, air velocity, flow, pressure and CO₂.

Visit www.eplusecal.com for detailed information on calibration and to enquire a certificate of accredited traceable calibration for the E381 from the Designated Institute.

Dimensions

Values in mm (inch)

Enclosure



Technical Data



Email: Sales@fa-st.co.uk | Call +44(0)1246268900 | Visit: www.oilsampling.co.uk



Measurands

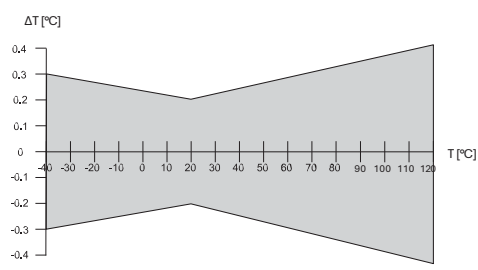
Water Activity (aw) / Water Content (x)

Measuring range	0...1 aw 0...100 000 ppm; actual range depends on the oil type, for non-mineral transformer oil, specific solubility parameters are needed (ppm output is valid in the range 0...100 °C (32...212 °F))
Accuracy¹⁾ including hysteresis, non-linearity and repeatability (0...0,9 aw) (0,9...1 aw)	±0.02 aw ±0.03 aw
Temperature dependency aw T	$\pm(0.00022 + 0.0002 \cdot aw) \cdot \Delta T [^{\circ}\text{C}]$ $\Delta T = T - 20\text{ }^{\circ}\text{C}$ ±0.0003 °C/°C
Response time t ₆₃ , typ. @ 20 °C (68 °F) in still mineral transformer oil	10 min.

1) Traceable to international standards, administrated by NIST, PTB, BEV,...

The accuracy statement includes the uncertainty of the factory calibration with a coverage factor k=2 (2-times standard deviation). The accuracy was calculated in accordance with EA-4/02 and with regard to GUM (Guide to the Expression of Uncertainty in Measurement).

Temperature (T)

Oil temperature	-40...120 °C (-40...+248 °F)
Accuracy¹⁾	

1) Traceable to international standards, administrated by NIST, PTB, BEV,...

The accuracy statement includes the uncertainty of the factory calibration with a coverage factor k=2 (2-times standard deviation). The accuracy was calculated in accordance with EA-4/02 and with regard to GUM (Guide to the Expression of Uncertainty in Measurement).

Outputs

Analogue

Two freely selectable and scaleable outputs aw, T or x [ppm]	0 - 5 V	0 - 10 V ¹⁾	-1 mA < I _L < 1 mA
	mA (3-wire)	I _L = load current 4 - 20 mA (3-wire) R _L < 500 Ω ¹⁾	0 - 20 R _L = load resistance

1) Minimum supply voltage 15 V DC



General

Power supply class III  USA & Canada: Class 2 supply necessary, max. voltage 30 V DC	10 - 30 V DC	
Current consumption , typ. @ 24 V DC Voltage output Current output	40 mA 80 mA	
Electrical connection 7-pole industrial plug wire cross-section cable outlet	DIN VDE 0627 / IEC 61984 0.25 - 1 mm ² PG 11	
Filter	Stainless steel	
Pressure working range	0...20 bar (0...300 psi) 0...100 bar (0...1 450 psi)	
Temperature working range Probe Electronics Display	-40...+120 °C (-40...+248 °F) -40...+80 °C (-40...+176 °F) -20...+50 °C (-4...+122 °F)	
Storage condition	-40...+60 °C (-40...+140 °F)	
Enclosure Material Protection rating	Aluminium die-cast (AlSi9Cu3) IP65	
Electromagnetic compatibility	EN 61326-1 Part15 Class B	EN 61326-2-3 Industrial environment FCC ICES-003 Class B
Conformity	 	
Configuration and adjustment	PCS10 Product Configuration Software (free download: www.epluse.com/pcs10) and EE-PCA Product Configuration Adapter	