



MMT162 Moisture and Temperature Transmitter for Oil

For OEM applications



Features

- Continuous measurement of moisture in oil
- Measures in lubrication, hydraulic, and transformer oils
- Excellent pressure and temperature tolerance
- Proven Vaisala HUMICAP® sensor: over 20 years in oil applications
- Measures water activity - ppm calculation available for transformer oil
- Digital output RS-485 with Modbus
- Traceable calibration (certificate included)

Vaisala HUMICAP® Moisture and Temperature Transmitter for Oil MMT162 is an excellent economical solution for reliable on-line detection of moisture in oil.

Benefits

- Reliable
- Durable
- Small size, easy to integrate

Reliable Vaisala HUMICAP® technology

MMT162 incorporates the latest generation of the Vaisala HUMICAP® sensor. The sensor is developed for demanding moisture measurement in liquid hydrocarbons and has been successfully used in oil applications for over two decades. The sensor's excellent chemical tolerance provides accurate and reliable measurement over the measurement range.

Water activity measurement

MMT162 measures moisture in oil in terms of the water activity (a_w) and temperature (T). Water activity indicates directly whether there is a risk of free

water formation. The measurement is independent of oil type, age, and temperature. The ppm calculation for mineral oil based transformer oil is optional in MMT162.

Several outputs - one connector

MMT162 has two analog outputs that can be scaled and the measurement ranges changed. Additionally, the transmitter has an RS-485 serial output. The signals and the unit power travel in the same cable.

An optional LED cable enables a visual alarm.

Compact, rugged, and intelligent

Due to its compact size, MMT162 is quickly and easily installed in tight spaces. Units are delivered fully assembled - however, you can reconfigure them to suit your needs.

MM70 moisture and temperature meter

In combination with an MM70 Handheld Moisture and Temperature Meter, the MMT162 provides an ideal tool for on-site calibration. MM70 Handheld Measurement Indicator (included in the MM70 package) can be used as a communication and datalogging device and display for the MMT162.

Technical data

Measurement performance

Water activity

| | |
|--|------------------------|
| Measurement range | 0 ... 1 a _w |
| Accuracy (including non-linearity, hysteresis, and repeatability): | |
| 0 ... 0.9 a _w | ± 0.02 a _w |
| 0.9 ... 1.0 a _w | ± 0.03 a _w |
| Response time in oil flow (typical) | < 1 min (dry-wet) |

Temperature

| | |
|-----------------------------|--------------------|
| Accuracy at +20 °C (+68 °F) | ± 0.2 °C (0.36 °F) |
|-----------------------------|--------------------|

Moisture

Calculated moisture content in ppm for mineral transformer oil

Operating environment

| | |
|-----------------------|-----------------------------------|
| EMC compliance | EN61326-1, Industrial environment |
| Operating temperature | -40 ... +60 °C (-40 ... +140 °F) |
| Storage temperature | -40 ... +80 °C (-40 ... +176 °F) |
| Oil temperature | -40 ... +80 °C (-40 ... +176 °F) |
| Oil flow | Some flow recommended |
| Pressure range | Up to 200 bar |

Inputs and outputs

| | |
|---|---|
| Alarm level indication by analog signal | User selectable |
| Digital outputs | RS-485, non-isolated, Vaisala protocol, Modbus RTU protocol |
| Analog current output | 0 ... 20 mA, 4 ... 20 mA |
| Analog voltage output | 0 ... 5 V, 0 ... 10 V |

Spare parts and accessories

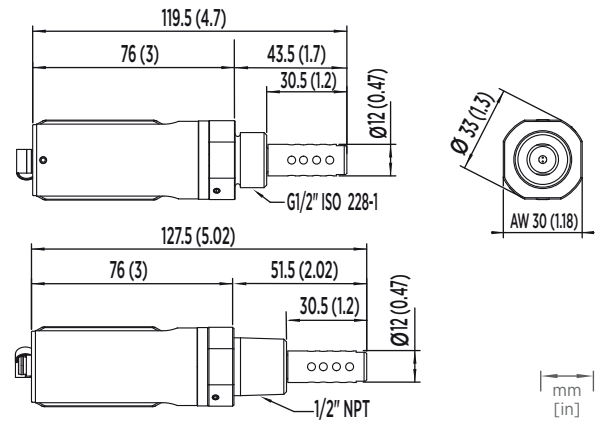
| | |
|--|-----------|
| Stainless steel filter (standard) | 225356SP |
| Stainless steel filter for high flow (> 1 m/s) | 221494SP |
| Connection cable for MM70 handheld meter | 219980 |
| USB serial interface cable | 219690 |
| Sealing ring set (U-seal) ISO G1/2, 3 pcs | 221525SP |
| Sealing ring set (copper) ISO G1/2, 3 pcs | 221524SP |
| ISO 1/2" plug | 218773 |
| NPT 1/2" plug | 222507 |
| Sampling cell | DMT242SC |
| Sampling cell with Swagelok connectors | DMT242SC2 |

Connection cables

| | |
|--|--------------|
| 0.32 m (1 ft) shielded, M8 threaded | HMP5OZ032 |
| 3.0 m (9.8 ft), shielded, M8 threaded | HMP5OZ300SP |
| 5.0 m (16.4 ft), shielded, M8 threaded | HMP5OZ500SP |
| 10 m (32.8 ft), shielded, M8 threaded | HMP5OZ1000SP |
| 3 m, shielded, connector 90° angle | 231520SP |
| 5 m, shielded, connector 90° angle | 231521SP |
| M8 threaded, Ch1 signal + Ch2 LED | MP300LEDCBL |

Mechanical specifications

| | |
|---|-----------------------------|
| Sensor | HUMICAP® |
| Cable connections (2 ports) | M8 4-pin male |
| Mechanical connections with bonded seal ring (washer) | G 1/2" ISO or NPT 1/2" |
| Weight | 200 g (7 oz) |
| Minimum operating voltage with | |
| RS-485 output | 14 ... 28 VDC |
| Voltage output | 16 ... 28 VDC |
| Current output | 22 ... 28 VDC |
| Supply current | |
| Normal measurement | 20 mA + load current |
| External load for | |
| Voltage output | Min. 10 kΩ |
| Current output | Max. 500 Ω |
| Housing | |
| Probe body material | Stainless steel (AISI 316L) |
| IP rating | IP66 |



MMT162 dimensions



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