TestMate® Water Sensor | TWS-D

Introduction

The TWS-D with an integrated digital display is based on the proven TWS-C series for the on-line detection of water in oils, particularly as a sensor for Condition Monitoring. The TestMate® water sensor provides early detection of water problems thus preventing faults and unnecessary interruption to operations. The device has 2 switching outputs and one reversible analogue output signal (4-20 mA or 0-10 V selectable). The TWS-D detects the water saturation level and temperature of the fluid and transmits the values in the form of an analogue signal. The 4-digit digital display is capable of rotation around both axes enabling optimal alignment. All settings available on the TWS are grouped in 2 easy-to-navigate menus. The following parameters can be modified:

- Saturation level/temperature
- Switching points
- Switching mode of switching outputs
- Switching direction
- Switching delay times

The TWS-D thus enables a continuous monitoring of hydraulic and lubrication oils; precise, permanent and on-line.

Features

- 4 - digit digital display, can be aligned in two axes
- User friendly key programming
- Reliable compact rugged design
- No calibration necessary for different oil types
## Specifications

### Input Data
- **Measuring Range:** 0 to 100% Saturation; -13°F to 212°F (25°C to 100°C)
- **Operating Pressure:** -7.25 to 725 psi max (-0.5 to 50 bar)
- **Burst Pressure:** 9135 psi (630 bar) max
- **Parts in Contact with Media:** Connection Point: Stainless Steel/Ceramic with vacuum-metalized metal; Seal: EPDM or Viton

### Output Data
#### Humidity Measurement
- **Output Signal (saturation level):** 4 to 20 mA
- **Calibrated Accuracy:** ≤ ± 2% FS max
- **Accuracy in Media Measurements:** ≤ ± 3% FS typ.
- **Pressure-dependent:** + 0.02% FS/bar

#### Temperature Measurement
- **Output Signal (temperature):** 4 to 20 mA
- **Accuracy:** ± 2% FS max

### Ambient Conditions
- **Nominal Temperature Range (saturation level measuring):** 32°F to 176°F (0°C to 80°C)
- **Ambient Temperature Range:** -40°F to 176°F (-40°C to 80°C)
- **Fluid Temperature Range:** -40°F to 176°F (-40°C to 80°C)
- **Viscosity Range:** 32 to 23,175 SUS (1 to 5000 cSt)
- **Flow Velocity:** Maximum 16 ft/s
- **Media Tolerance:** Mineral oil-based fluids, natural and synthetic esters
- **Mark:** EN 50081-1, EN 50081-2, EN 50082-1, EN 61000-6-1-2-3-4
- **Type of Protection acc. DIN 40050:** IP 67

### Other Data
- **Supply Voltage:** 18 to 35 VDC
- **Residual Ripple Supply Voltage:** ≤ 5%
- **Mechanical Connection:** G3/8A DIN 3852
- **Torque Rating:** 18.5 ft-lbs
- **Electrical Connection:** M12x1, 5 pole (DIN VDE 0627)
  - Pin 1: +Ub
  - Pin 2: Analog output
  - Pin 3: 0V / GND
  - Pin 4: SP 1 (alarm)
  - Pin 5: SP 2 (warning)