Quest-tec Solutions is a leading supplier of magnetic level indicators, as well as traditional sight glasses and conductivity type remote level indicators for water indication in steam service. This wide range of products for level indication allows Quest-tec Solutions the option of providing the best technology for nearly any level application. The Magne-Trac™ level indicator is easy to install, low maintenance, and easy to view. Accessories include point level switches and transmitters to provide integration into plant control systems.

PRINCIPLE OF OPERATION
There are three major components of a Magne-Trac™ liquid level indicator: Chamber, Float and Indicator.

MAGNE-TRAC™ CHAMBER
The chamber may be constructed of any non-magnetic material, including austenitic stainless steel, alloys such as Alloy 20, and plastics. The chamber is typically mounted to the side of the vessel with an inlet and outlet that will allow the liquid level in the chamber to match the liquid level in the vessel, in the same manner that traditional sight glasses work. Magne-Trac Chambers are available to ASME B31.1 and 31.3, and utilize flange end closures for float access.

MAGNE-TRAC™ FLOAT
Standard floats are constructed of thin wall, deep drawn 316 Stainless Steel or Titanium. Optional materials are available. Each float is custom engineered for a specific application and operating process variables. The float houses a magnet array, designed to project a magnetic field through the chamber and to an externally mounted indicator assembly. Variables considered in the construction of a float are dependent on the temperature, pressure and liquid density, as well as material compatibilities.

MAGNE-TRAC™ INDICATOR
The standard indicator consists of anodized aluminum housing, rotating flags, and a clear cover. The standard UV stable Yellow/Black flags are uniquely constructed of high temperature molded nylon. The non-corrosive nature of the material eliminates problems with corrosion often encountered with the aluminum flag/stainless steel pins most commonly supplied in the market. Magne-Trac™ indicators are constructed with a UV scratch resistant polycarbonate window as standard, eliminating nuisance breakage of glass and allowing a high integrity fit. The flags are a wide 1.4” to enhance viewing. Each flag is assembled around a high temperature rare earth magnet assembly that ensures a latching action to eliminate false indication due to vibration.

SAMPLE SPECIFICATIONS
Magnetic Level Indicators shall be constructed of non-magnetic material. Floats shall be deep drawn, spherical end, with 360° magnet array. Indicators shall be housed in anodized aluminum. Flags shall be injection molded Amodel 1.4” in width. Flag color shall be Yellow (liquid) and Black (vapor). The indicator shall be UV and scratch resistant polycarbonate. End closures for float access shall be flanged.

FEATURES
- Innovative flag design—each flag contains two high strength magnets
- 360° Magnet Assembly for Consistent Flipper to Float Coupling
- 1.4” Wide Flag for enhanced Indicator view. Yellow-liquid, Black-vapor
- Corrosion resistant moving parts
- Impact resistant polycarbonate indicator window
- Standard Schedule 40 Chamber
- Available to ASME B31.1/31.3 Standards
MTLT-5000 MAGNETOSTRICTIVE
The MTLT-5000 is based upon the magnetostrictive principle. The sensing tube contains a wire which is pulsed at fixed time intervals. The interaction of the current pulse with the magnetic field created by the magnetic float causes a torsion stress wave to be induced in the wire. This torsion propagates along the wire at a known velocity from the position of the magnetic float and toward both ends of the wire. The microprocessor-based electronics measure the elapsed time between the start and return pulses and convert it into a 4-20 mA DC output which is proportional to the level being measured.

FEATURES
- Designed to mount externally to the Magne-Trac™
- NEMA 4X, IP65
- Offers a 4 – 20 mA 2-wire loop powered circuit for continuous level measurement
- Accuracy (+-) 1mm [0.039in.]
- Repeatability 0.001% F.S. or 0.381 mm [0.015 in.]* *Whichever is greater
- Modular design
- Available in lengths up to 300 inches
- No maintenance required
- Adjustable output damping
- Process temperature range: -40°F to 400°F
- Multidrop HART Communications
- Up to .001” resolution
- Non-contact design ensures no wear to the sensing element, thus requiring no maintenance or recalibration
- AMS Aware
- 2-wire loop powered
- Available with 90º elbow to allow maximum measuring range in small clearance spaces
- FM-Approved Explosion Proof/IS
- RFI/EMI protection
- LCD display option available for local indication

LEVEL SWITCHES
Quest-tec level switches are hermetically sealed, non-mercury, bi-stable latching switches designed for use with Magne-Trac level gages. The bias magnet design latches the switch maintaining the contact after the level continues to rise or fall. The switch will change state when the float magnet passes by. The switches are fully adjustable and non-invasive. Level switches are mounted to the Magne-Trac chamber with all 316 Stainless Steel worm gear pipe clamps. Switch points can be changed easily at any time without any interruption to the visual indication or process.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>Max Volts</th>
<th>Max Current</th>
<th>Max Power</th>
<th>Dead Band</th>
<th>Max Temp</th>
<th>Min Temp</th>
<th>Contacts</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTLS-1A</td>
<td>120 VAC / 150 VDC</td>
<td>1.0 AMPS</td>
<td>25W</td>
<td>0.50 inch</td>
<td>302°F</td>
<td>-40°F</td>
<td>SPDT</td>
<td>Class 1 Div 1 Groups B, C, D</td>
</tr>
<tr>
<td>MTLS-5A</td>
<td>125 /250 VAC</td>
<td>.5.0 AMPS</td>
<td>1200W</td>
<td>0.50 inch</td>
<td>248°F</td>
<td>-40°F</td>
<td>2 SPDT</td>
<td>Class 1 &amp; 2 Div 1 &amp; 2 Groups B, C, D</td>
</tr>
<tr>
<td>MTLS-10A</td>
<td>0.5 amp @ 110VDC 250VAC</td>
<td>10.1 AMPS</td>
<td>2500W</td>
<td>0.50 inch</td>
<td>302°F</td>
<td>-40°F</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HIGH-TEMP
Narrow Aluminum Flag for Temperature's exceeding 450°F – 850°F
Flags Red-Liquid, Silver-Vapor

DRUM LEVEL INDICATOR
Meets ASME Boiler Code (PG60) for water remote level indicators on Boiler Drum
Not acceptable for Boilers operating at or above 900 PSI WSP

INDICATOR
Stainless Steel for Offshore

TEMP CONTROL
- High Temperature Flexible Insulation Blanket
- Cryogenic Insulation with Non-Frost Extensions
- Steam Tracing
- Electric Heat Tracing

SCALE OPTIONS
- Inches only
- Metric (mm/cm)
- Negative/Positive (boiler service)
- Percent (0-100)
- Volumetric (gallons, liters)
- Offset zero (plus and minus scale divisions)
- Decimal feet (0.1ft or 0. 01ft.divisions)
- Custom Scale (specify)
GUIDED WAVE RADAR TRANSMITTERS used in conjunction with Magne-Trac Plus and Bridle-Trac Bypass Chamber Series.

**FMP51 ACCESSORY**

Continuous level measurement of liquids, pastes and slurries but also for interface measurement. The measurement is not affected by changing media, temperature changes, gas blankets or vapors.

<table>
<thead>
<tr>
<th>FEATURES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Process connections</td>
<td>Thread or flange</td>
</tr>
<tr>
<td>Temperature</td>
<td>-40 to +200°C [-40 to +392°F]</td>
</tr>
<tr>
<td>Pressure</td>
<td>-1 to +40 bar [-14.5 to +580 psi]</td>
</tr>
<tr>
<td>Maximum measuring range</td>
<td>Rod 10m (33ft), rope 45m (148ft), coax 6m (20ft)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±2mm (0.08&quot;)</td>
</tr>
<tr>
<td>Dielectric Constant</td>
<td>1.6 (Rod probe, Rope probe), 1.4 (Coax probe)</td>
</tr>
</tbody>
</table>

International explosion protection certificates, overfill prevention WHG SIL, marine approval, 5-point linearity protocol

**FMP54 ACCESSORY**

Continuous measurement in liquids under extreme conditions. Excellent for steam boilers, toxic media using gas tight feed-through guarantee. Reliable results in case of gas and steam phases. Reliable in moving surface, foam and changing medias.

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Process connections</td>
<td>Thread or flange</td>
</tr>
<tr>
<td>Temperature</td>
<td>-196 to +450°C [-320 to +842°F]</td>
</tr>
<tr>
<td>Pressure</td>
<td>Vacuum -1 to +400 bar (Vacuum -14.5 to +5,800 psi)</td>
</tr>
<tr>
<td>Maximum measuring range</td>
<td>Rod 10m (33ft), Rope 45m (148ft), coax 6m (20ft)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Rod ±2mm (0.08&quot;)</td>
</tr>
<tr>
<td>Dielectric Constant</td>
<td>1.6 (Rod probe, Rope probe), 1.4 (Coax probe)</td>
</tr>
</tbody>
</table>

International explosion protection certificates, overfill prevention WHG, SIL, marine approval, steam boiler approval, 5-point linearity protocol

**FMP55 ACCESSORY**

Combination of capacitance and guided wave radar measuring principle in one device. The instrument guarantees safe measured value acquisition even in emulsion layers and issues level and interface layer signals simultaneously.

<table>
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<tbody>
<tr>
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</tr>
<tr>
<td>Temperature</td>
<td>-50 to +200°C [-58 to +392°F]</td>
</tr>
<tr>
<td>Pressure</td>
<td>-1 to +40 bar [-14.5 to +580 psi]</td>
</tr>
<tr>
<td>Maximum measuring range</td>
<td>Rod 4m (13ft), rope 10m (33ft), coax 6m (20ft)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Rod ±2mm (0.08&quot;)</td>
</tr>
<tr>
<td>Dielectric Constant</td>
<td>1.6 (Rod probe, Rope probe), 1.4 (Coax probe)</td>
</tr>
</tbody>
</table>

International explosion protection certificates, overfill prevention WHG, SIL, marine approval
The Quest-tec Solutions Magne-Trac utilizes a non-magnetic pipe chamber mounted directly to a vessel. The process connections from the chamber to the vessel act as an inlet and outlet that allow the liquid level in the pipe chamber to match the level in the process vessel. Inside the chamber, a custom designed float rises and falls with the level of the liquid in the chamber. A 360° magnet array within the float projects a magnetic field through the pipe chamber to an externally mounted indicator to provide a visual read out of the liquid level within the vessel.
The Quest-tec Solutions Magne-Trac Plus combines the Magne-Trac magnetic level gage with the Bridle-Trac bypass chamber. It may be used with our VAR Partner E&H GWR or customer specified radar for redundant level measurement. See page 4 for listing of our partners GWR models. The Magne-Trac Plus is recommended in applications that require both visual and electronic level viewing.

Endress+Hauser

VAR PARTNER
In addition to Magnetic Gage manufacturing, **Quest-tec** manufactures custom instrument bridles in several configurations, utilizing various technologies, including guided wave radar, buoyancy-based devices, process gages, boiler gage systems, differential pressure and other equipment needing to be attached to the bridle.

**Advantage Quest-tec Solutions provides:**

- **Single Point Responsibility**
  instruments, bridle, welding, testing, documentation
- **Isolation** ease of calibration and maintenance
- **Avoid interference between other devices**
- **Reduces Turbulence & Foam**
  improves measurement accuracy

**Quest-tec** is an International Company with Representatives based throughout the world. Our Partners can assist with Commissioning Start Up and Calibration, 24 Hour Service and Repair Support.

**866.240.9906**

**IMMEDIATE HELP VIA-REMOTE MAINTENANCE**

Using the remote maintenance service TeamViewer, the QTS service technician can assist you immediately, check the instrument configuration and perform certain analysis.
Quest-tec solutions Registration #0736

40,000ft² climate controlled

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