

# Inspired thinking



2 For Liquid Level measurement in seal pots, don't think Differential Pressure or Hydrostatic.

**Magnetrol® has much smarter options.**

API 682 is followed to ensure the highest levels of safety, reliability and productivity, particularly for the oil & gas and chemical industries. So choose smarter level instrumentation to adhere to API 682, from cost-effective switches to full-featured transmitters.

# We're thinking about your business

Measuring and ensuring proper liquid levels in your seal pots protects expensive equipment and your brand. Using Ultrasonic Level Switches or Guided Wave Radar Level Transmitters from Magnetrol® instead of Differential Pressure Transmitters is smarter for everyone.

**For end users** that means accurate performance, advanced diagnostics, and no calibration necessary regardless of specific gravity changes.

**For seal pot manufacturers** that means a variety of price and performance options, with worldwide safety approvals and simple, easy-to-stock configurations.

## Smarter options for API 682 Revision 3

The third edition of the API Standard 682 was released in September 2004 in order to combine with ISO 21049. Revision 3 specifically mentioned ultrasonic switches.

MAGNETROL Ultrasonic Contact Level Technology is the right idea for customers who adhere to Revision 3. It uses high-frequency sound waves that are easily transmitted across a transducer gap in the presence of liquid media, but are attenuated when the gap is dry.

## Smarter options for API 682 Revision 4

API Standard 682 Revision 4 was released in May 2014. Revision 4 was the first mention of indicating transmitters, specifically hydrostatic, but it does open the standard to other technologies that meet purchaser approval if specified. This includes the substitution of switches in place of transmitters. However, if transmitters are selected, the recommendation is that they should be analog, two-wire type, and have 4–20 mA output.

MAGNETROL Current Shift and Guided Wave Radar Technology offer smarter options for customers who adhere to Revision 4.

## Echotel® 910 Ultrasonic Relay Switch

**Why Choose It:** The most economical option. It utilizes ultrasonic energy to detect the presence or absence of liquid in a single-point transducer.

### Key Benefits

- No calibration or density configuration required
- Universal nameplate
- 2-year warranty



API 682  
R3

Ultrasonic Contact Level Technology

API 682  
R4

Current Shift and Guided Wave Radar Technology

## Guided wave radar for Revision 4

Guided Wave Radar (GWR) offers significant advantages over Differential Pressure Transmitters. GWR measures level directly. There's never an error associated with density (SG) or other changes in the liquid and no calibration is ever required.

**ECLIPSE®**  
706GWR

**HORIZON 704®**

## Echotel® 961 Ultrasonic Single Point Relay Switch

**Why Choose It:** Offers the ultimate solution to reliable single-point liquid level indication.

### Key Benefits

- No calibration or density configuration required
- LED indication with optional window
- Provides enhanced diagnostic information
- Stainless steel enclosure available
- Time delay available to avoid false level alarms
- Suitable for Safety Integrity Level (SIL) 2 loops



API 682  
R3



## Echotel® 961 Current Shift Model

**Why Choose It:** The most economical option for Revision 4.

All the benefits of the 961 Relay Switch Model plus:

- Two-wire device
- Provides discrete mA outputs with continuous indication (8 mA is normal operation, 16 mA is level alarm)
- Meets NAMUR NE43 recommendations (3.6 mA or 22 mA) for malfunction indication to provide 4–20 mA range



API 682  
R4

## Echotel® 962 Ultrasonic Dual Point Relay Switch

**Why Choose It:** Has two independent switches in a single instrument to achieve low level and high level indication.

### Key Benefits

- No calibration or density configuration required
- Top-mounted to eliminate taps and reduce costs
- Provides enhanced diagnostic information
- Stainless steel enclosure available
- Time delay available to avoid false level alarms
- Suitable for Safety Integrity Level (SIL) 2 loops

API 682  
R3



## Echotel® 962 Current Shift Model

**Why Choose It:** Top-mounted option that eliminates taps.

All the benefits of the 962 Relay Switch Model plus:

- Two-wire device
- Provides discrete mA outputs (8 mA is low level alarm, 12 mA is normal operating level, 16 mA is high level alarm)
- Meets NAMUR NE43 recommendations (3.6 mA or 22 mA) for malfunction indication to provide 4–20 mA range

API 682  
R4



## Horizon® 704 Guided Wave Radar Transmitter

**Why Choose It:** Provides all of the advantages of GWR and the most cost effective option.

### Key Benefits

- Most cost-effective GWR
- Reduce taps and costs
- Single compartment housing
- Continuous 4-20mA/HART® output
- NAMUR NE43 Compliant
- Easy-to-stock configuration



API 682  
R4

## Eclipse® 706 Guided Wave Radar Transmitter

**Why Choose It:** Leading-edge level transmitter designed to provide measurement performance well beyond that of many of the more traditional technologies.

### Key Benefits

- Complete proactive diagnostics with automated waveform capture
- Available with DTMs and allows for HART or FOUNDATION fieldbus™ installations
- Accurately measures from the bottom to the top of the probe for small ranges without a dead zone or transition zone
- Superior signal-to-noise ratio



API 682  
R4

Both 704 and 706 GWR transmitters available for chamber mount

- Frees the top of the vessel
- Offers the same connections as ultrasonic switches
- Easy-to-stock configuration

***For more inspired thinking, contact the experts at Magnetrol® International for best-in-class level and flow control.***



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