



## Alarm/Control Panels and Sensors

HT-1106

To help provide for efficient operation and maintenance of your storage tank or process vessel, Highland Tank offers an extensive line of standard and customized alarm and control panels coupled with an array of sensors to monitor and manage even the most complex installations.

Liquid products can be monitored at any desired level with sensors and alarms alerting operators to condition changes. When employed in an oil/water separator or oil/sand interceptor application, sensors can also operate valves and pumps to remove accumulated oil or effluent water.

Double-wall tanks and oil/water separators can be monitored for tank integrity by placing sensors in the interstitial space to detect liquid infiltration.

All panels include audible alarms and/or visual warning lights to alert operators of system changes. Test buttons are included to monitor alarm panel functionality periodically. Highland Tank alarm and control panels and sensors can electronically monitor or control a wide array of processes and conditions.

### Sensors

Highland Tank's standard sensors include fixed-stem, suspended-stem, free-floating and a submersible continuous level transmitter. Sensors are used to identify liquid levels and detect hydrocarbon and/or water infiltration into the annular space of a double-wall vessel.

A single suspended-stem type sensor can support up to five magnetic floats each performing a separate level function. Additional floats can be added for special applications. Free-floating, suspended sensors employ a mechanical micro-switch in a plastic case and are field-adjustable. Each stem sensor offers custom cable lengths to connect directly to a control panel. Other sensor technologies are available upon request.

### High-LINK<sup>®</sup>

In addition to the alarm and control panels and sensors, Highland Tank also provides electronic monitoring. High-LINK<sup>®</sup> is cloud-based monitoring and management software that provides in-depth views of day-to-day operations. It includes predictive maintenance tools, extensive alerting capabilities and automated, customizable reporting features that help you keep an eye on daily operations, from anywhere, at any time, on any device.

For more information on High-LINK<sup>®</sup>, visit <https://www.highlandtank.com/high-link/>

# Model HT-AP Panels

Highland Tank's standard HT-AP-1 and AP-2 panels can be used in storage tank and oil/water separation applications.

Standard panels include an audible alarm/horn, alarm test button and alarm silence button. HT panels are configured and labeled to perform the combination of functions shown.

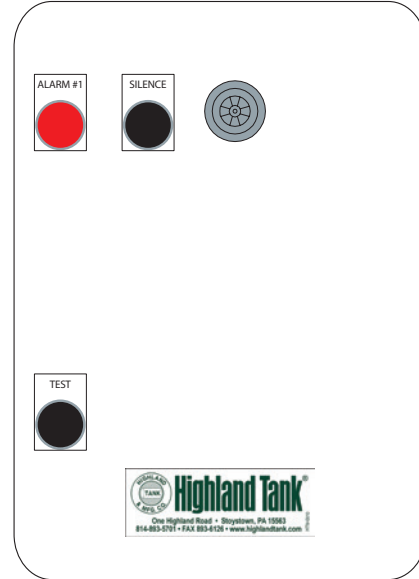
## HT-AP-1 - One-channel panel.

Performs a single monitoring function:

Liquid level sensing (fuel, oil, etc.)

OR

Liquid-only leak detection with non-specific alarm.



## HT-AP-2 - Two-channel panel.

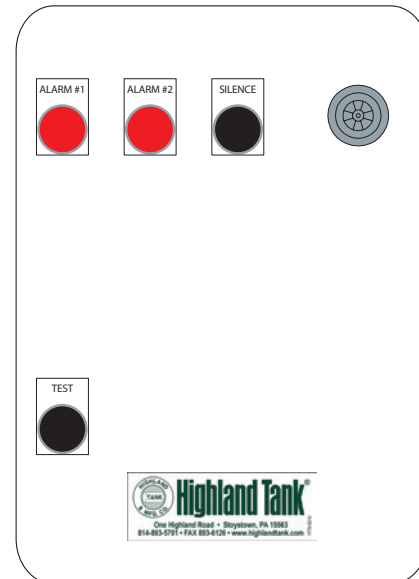
Performs two level monitoring functions:

Liquid level sensing High and low fuel, oil, etc.

OR

Liquid level sensing high or low fuel, oil, etc./ AND

Liquid Only Leak Detection with non-specific alarms.



# Model HTMS Panels

Highland Tank's standard HTMS alarm panels are available with up to four separate channels for specific storage tank monitoring functions.

Standard panels include an audible alarm/horn, alarm test button and alarm silence button. Each HTMS panel is customized to the application requirements with internal configurations and front cover labeling.

HTMS panels can be assembled with any combination of these functions:

- High level
- Low level
- Interim levels
- Leak detection

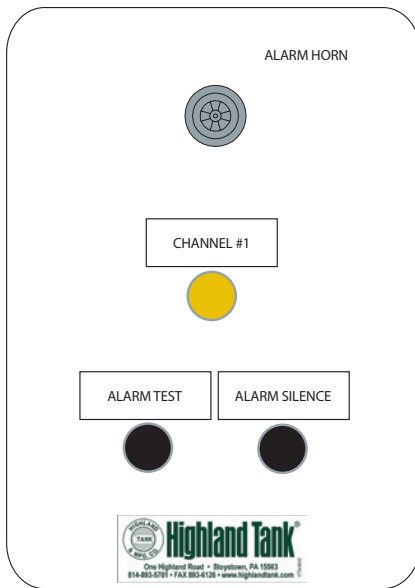
All panels include auxiliary dry contacts for each channel.

Custom multi-channel alarm and control panels are also available and configured as required for specific applications:

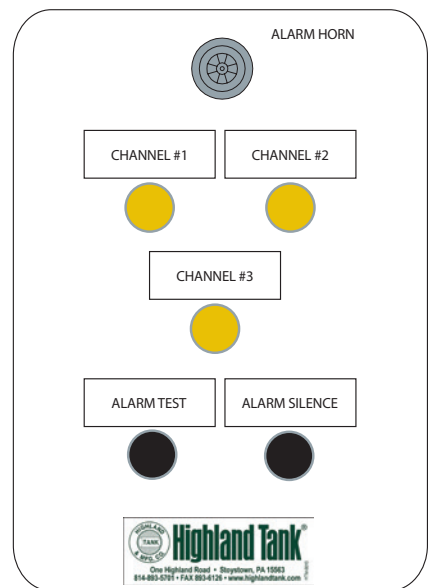
- Pump operation
- Valve control
- Strobe light
- Level readout
- Auto dialer

Please contact Highland Tank for additional information.

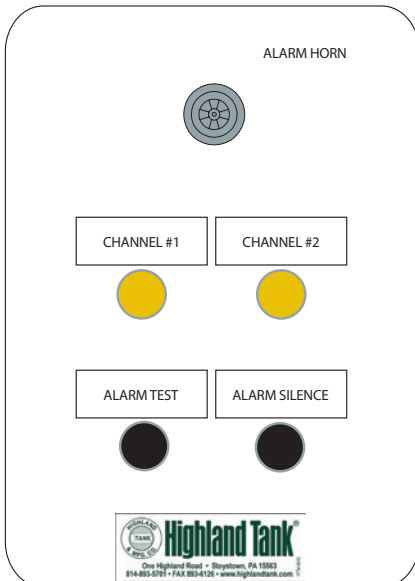
**HTMS-1**



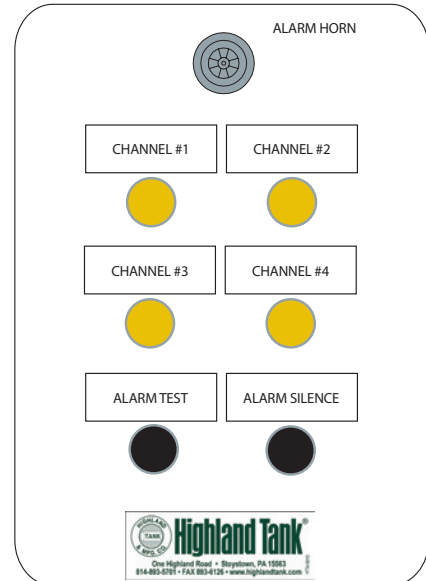
**HTMS-3**



**HTMS-2**



**HTMS-4**



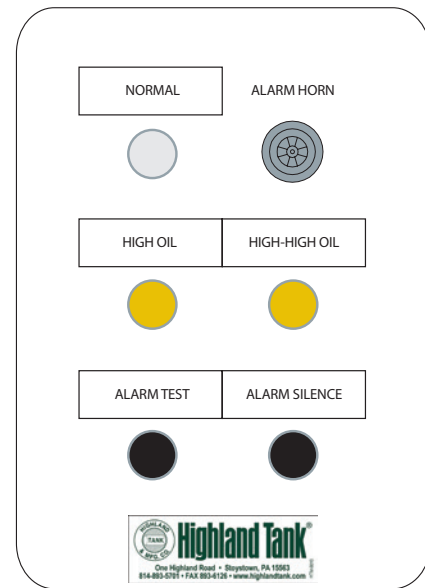
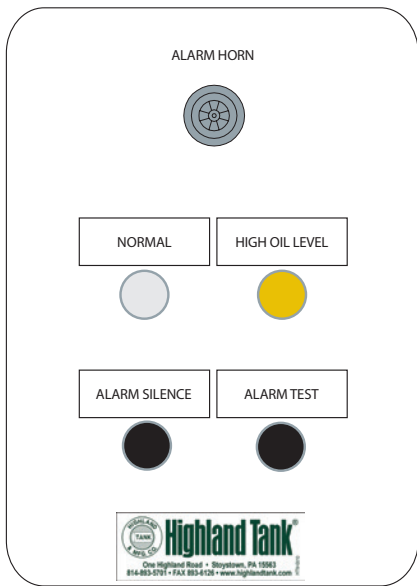
# Model HT-A Panels

Highland Tank's standard HT alarm panels are available with up to four separate channels designed to monitor specific functions of oil/water separators and oil/sand interceptors. In addition, the AP-1 and AP-2 panels can be used in storage tank applications. Standard panels include an audible alarm/horn, alarm test button and alarm silence button.

HT panels are configured and labeled to perform the combination of functions shown. Custom multi-channel control panels are also available and configured as required for specific applications such as valve control and pump operation. Please contact Highland Tank for additional information.

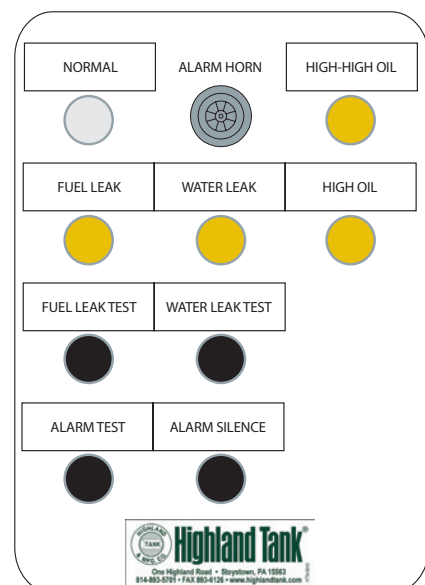
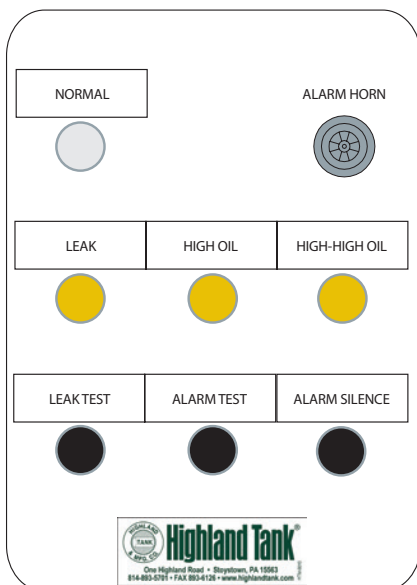
**HT-A1** - Single-channel panel. Performs one level monitoring function: High oil level with an alarm

**HT-A2** - Two-channel panel. Performs High-Oil Level AND High-High-Oil Level sensing with specific alarms.



**HT-A2-LD** - Three-channel panel. Performs High-Oil Level, High-High Oil Level sensing AND Liquid Only Leak Detection with specific alarms for oil levels only.

**HT-A2-LDFW** - Four-channel panel. Performs High-Oil Level, High-High Oil Level sensing AND Leak Detection for Fuel or Water with specific alarms or each.



# Alarm Panel Functions

## Light or button description and function for standard panels

### **NORMAL LIGHT** (White)

Indicates that system is active in normal operating (non-alarm) mode.

### **TEST**

Temporarily closes the control panel circuits to provide a system test.

### **ALARM HORN**

Works in conjunction with yellow alarm lights. Emits audible (90-95 decibel) sound alerting operator that system has entered an alarm mode.

### **SILENCE**

Silences the audible alarm temporarily for operator to perform service. (Does not cancel alarm mode.)

### **ALARM #1**

Alerts operator to any one of these conditions: high or low liquid level, leak detection or high-oil level in oil/water separator applications.

### **ALARM #2**

Alerts operator to any one of these conditions: high or low liquid level, leak detection or high-oil level in oil/water separator applications for second channel on 2-channel panel.

### **HIGH-OIL**

Alerts operator of High-Oil level. Oil has reached a predetermined level and must be pumped out as soon as possible.

### **HIGH-HIGH-OIL**

Alerts operator of High-High-Oil level. Oil has reached a critical predetermined level and must be pumped out immediately.

### **ALARM TEST**

Temporarily closes the control panel circuits to provide an audible and visual system test.

### **ALARM SILENCE**

Silences the audible alarm temporarily for operator to perform service. (Does not cancel alarm mode.)

### **LEAK**

Alerts operator of a leak in either primary or secondary wall of tank. Does not discriminate if leak is fuel or water.

### **LEAK TEST**

Temporarily closes the control panel's leak detection circuit to provide a system test.

### **FUEL LEAK**

Alerts operator of a leak from primary tank wall into the interstice.

### **WATER LEAK**

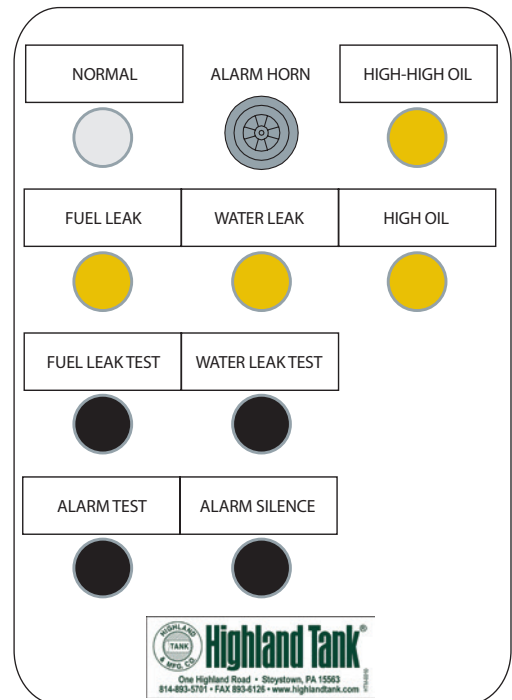
Alerts operator of a water leak from primary or secondary tank wall into interstice.

### **FUEL LEAK TEST**

Temporarily closes the control panel's fuel leak detection circuit to provide a system test.

### **WATER LEAK TEST**

Temporarily closes the control panel's water leak detection circuit to provide a system test.



# Standard Level Sensors

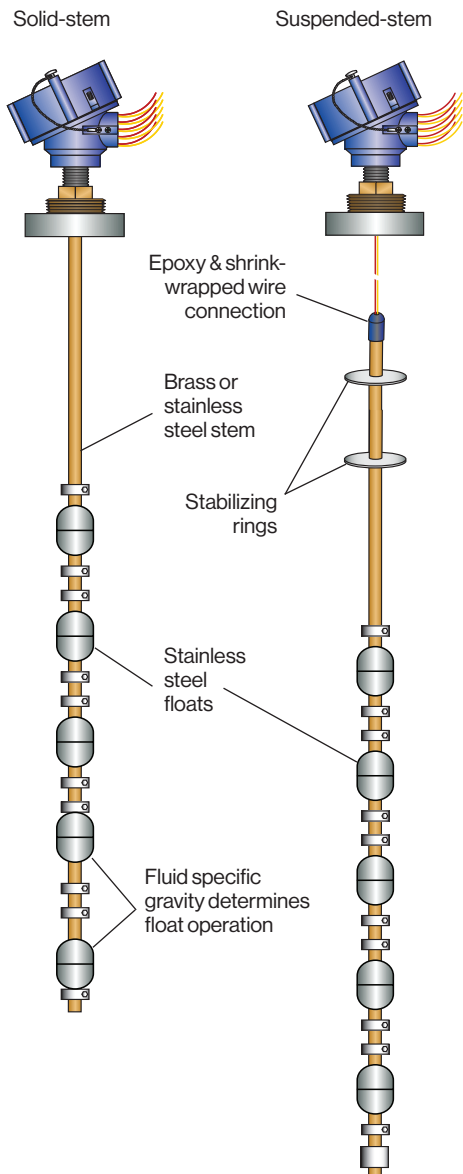
## Level Sensors

Sensors are used to monitor liquid levels in storage tanks and vessels. Highland Tank offers solid-stem, suspended-stem, free-floating types and a submersible continuous level transmitter.

## Stem Sensors

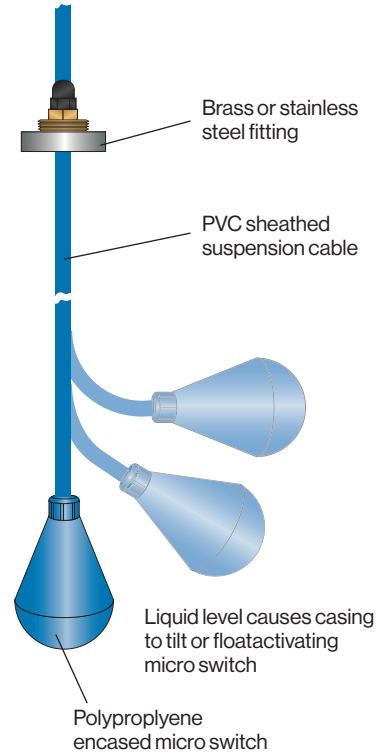
Solid and suspended float sensors can perform up to five separate level functions in a tank or vessel monitoring system.

Suspended-stem sensors are best suited for deep burial installations and are installed with a carrier pipe to grade.



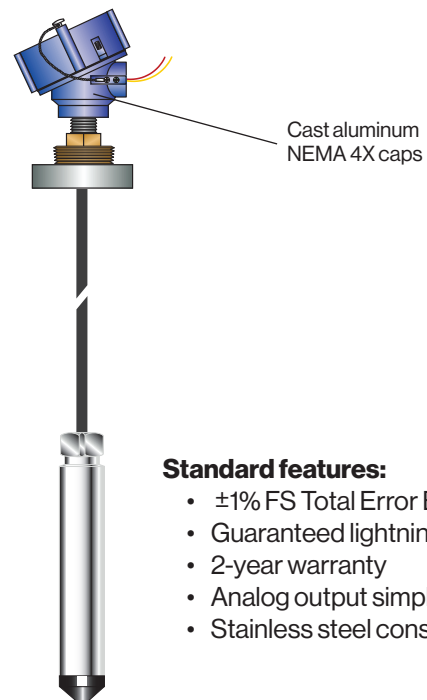
## Free-floating

Sensors control liquid levels with mechanical micro switches by either closing or breaking a circuit and can perform functions such as starting or stopping a pump.



## Submersible Level Transmitter

The pressure transducer provides sustained performance over a wide range of operating conditions including continuous level readout, pump and valve control.



### Standard features:

- $\pm 1\%$  FS Total Error Band
- Guaranteed lightning protection
- 2-year warranty
- Analog output simplifies interface
- Stainless steel construction

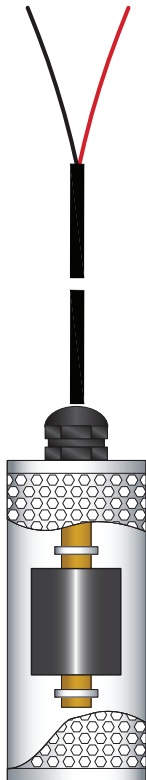
# Standard Leak detection Sensors

## Leak Detection Sensors

Highland Tank offers two standard suspended leak detection sensors for monitoring the interstitial space of a double-wall storage or process tank.

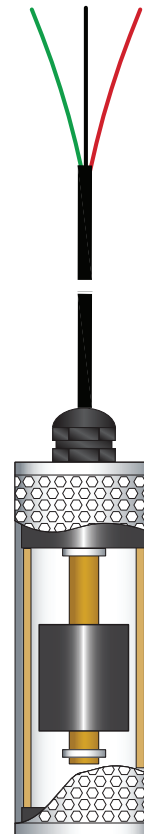
### HTLP - Liquid Only Leak Sensor

Used to monitor the interstitial space of double-wall tanks and detect infiltration of liquids (water or hydrocarbons) from either the primary or secondary tank. Sensors measure 1.5" diameter for use in 2" diameter monitoring pipe.



### HTSP - Fuel/Water Leak Sensor

Used to monitor the interstitial space of double-wall tanks and detect infiltration of liquids (discerning water and hydrocarbons) from either the primary or secondary tank. Sensors measure 1.5" diameter for use in 2" diameter monitoring pipe.



# Highland Tank®



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