

# Comparison of Marley LLC™ Hanging Probe and Ultrasonic Water Level Controls

This paper discusses the differences between Marley LLC Hanging Probe and Ultrasonic Water Level Controls.

### Application

Cooling towers cool process water which flows to a cold water basin before being recirculated. A water level control system provides monitoring and control of water level in the cold water basin.

### Purpose

The Hanging Probe control is simple and economical. It has one reference probe, two probes for water makeup (on, off), and one probe each for the following events: high alarm, high cutoff, low cutoff and low alarm. During manufacture, the LLC hanging probe panel can be configured for various combinations of water events. Note that additional events cannot be configured in the field. The panel is UL/cUL listed. When adjusting water event levels, the probes are manually adjusted up or down within the metal stilling chamber. These circuits can be integrated into various Marley control panels, including the Can Do, SPPC (single point power connection), AIO (all in one) and Fluid Cooler Fan and Pump panels.

The Ultrasonic LLC+BMS control option allows customers to monitor and control the water level via a 4-20mA signal to the building management system (BMS).



Ultrasonic Panel



Hanging Probe



Hanging Probe Panel



The Ultrasonic LLC control offers non-contact, precise monitoring of the water level in the cold water basin via an ultrasonic sensor located in a stilling chamber. A PLC (programmable logic controller) performs set point control and the color touchscreen provides a visual of the water level makeup set point and alarm set point. The touchscreen allows remote set up and fine tuning of water level set points. A 120vac circuit powers a remote water makeup solenoid valve. These circuits can be integrated into various Marley control panels, including the Can Do, SPPC, AIO and Fluid Cooler Fan and Pump panels.



Ultrasonic Sensor



Stilling Chamber

**Events**

- Water Makeup – controls a solenoid valve for adding water to the system due to evaporation
- High Cutoff – used to shut off a pump due to high water level
- High Alarm – used to alert the operator to a high water situation
- Low Cutoff – used to shut off a pump or other component to prevent pump cavitation
- Low Alarm – used to alert the operator to low water level

	Hanging Probe LLC	Ultrasonic+BMS Sensor	Ultrasonic LLC
	\$	\$	\$\$
Contact Free		✓	✓
Modbus Communication	N/A		✓
High Alarm	Optional		✓
High Cutoff	Optional		✓
Low Cutoff	Optional		✓
Low Alarm	Optional		✓
Makeup	Optional		✓
Dry Contact Relay Outputs for Events	✓		✓
Periodic Cleaning of Probes	✓		
4-20mA Output to BMS	N/A	✓	✓
Color Touchscreen Display	N/A		
Continuous Precise Water Level Monitoring		✓	✓
Point-topoint Water Level Monitoring	✓		
UL/cUL Listed	✓	✓	✓

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