WL705 Ultrasonic Water Level Sensor

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Specifications:

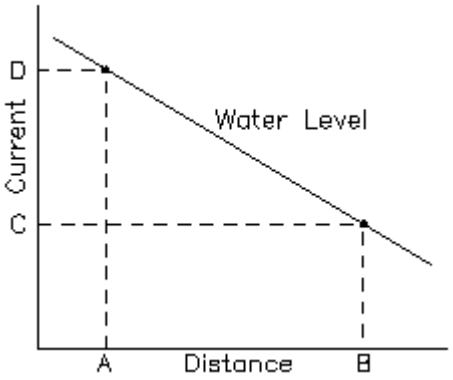
Sensor Range:	WL705-003 4” (.33’) - 36” (3’)
	WL705-012 4” (.33’) - 144” (12’)
	WL705-048 15” (1.25’) - 576” (48’)
Supply Voltage:	10-30VDC (sensitivity reduced below 15 VDC)
Supply Current:	40mA
Averaging Time:	15 seconds
Temperature:	-40º to +158º F Output Current:
	4mA, maximum distance
	20mA, minimum distance
Connections:	Brown +15-30VDC
	Blue Ground
	Green 4-20mA output (WL705-048)
	Black 4-20mA output (WL705-012 & WL705-003)

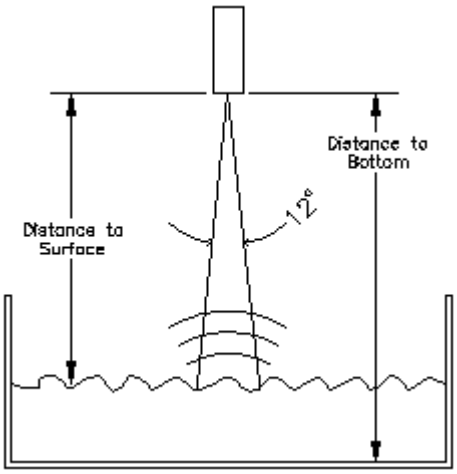
WL705-048

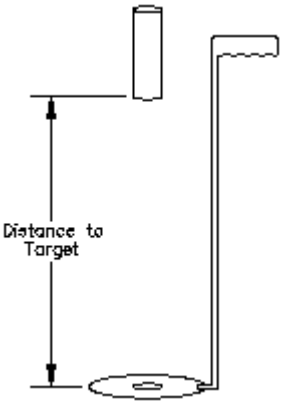
WL705-012/003

Operation:

The WL705 sensors use ultrasonic sound waves to determine the distance from the face of the sensor to the surface of the water by timing how long it takes the signal to return. An internal temperature sensor automatically compensates for the temperature related variation in the speed of sound and a 15-second averaging time reduces the affects of turbulence in the water. Note that the sensor must be powered for 15 seconds for the output to stabilize.







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Calibration:

The calibration procedures for recording devices vary. The process requires knowing the output current from the sensor at two different distances, as well as the distance from the sensor to the bottom of the reservoir. The sensor's output current increases as the distance between it and the target gets shorter. Thus, the current is lowest when the water level is zero. Due to the difficulty in calibrating the recording device with actual water levels, a hand held target may be used or the sensor signal can be reflected off a solid flat object at known distances. Measuring the current at two different distances within the range of the sensor would be one calibration method. Divide the difference in the two currents by the difference in distance to get the amount of current per unit of length. Mount the sensor at a distance from the bottom that gives a zero depth reading. The 12º width of the beam means the size of the "spot" on the surface of the water gets bigger at greater distances. Maximum accuracy is attained by insuring that the beam hits a flat surface at all times, best achieved by mounting the sensor as close as possible to the surface of the water without exceeding the measurement range.

LED Functions:

Round LED

Displays "Green" when target is sensed, "Red" when target not found/not sensed.

Square LED

WL705-003 - Illuminates "Green" when target is sensed and is within the min and max range (4" – 36")

WL705-012 - Illuminates "Green" when target is sensed and is within the min and max range (4" – 144")

WL705-048 - Illuminates "Green" when target is sensed but shorter than the minimum distance sensor (<15")

Rectangular LED

WL705-003 - Illuminates "Green" when target is sensed and is within the min and max range (4" – 36")

WL705-012 - Illuminates "Green" when target is sensed and is within the min and max range (4" – 144")

WL705-048 - Illuminates "Green" when target is sensed but farther than the maximum distance for the sensor (>48' or 576").

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