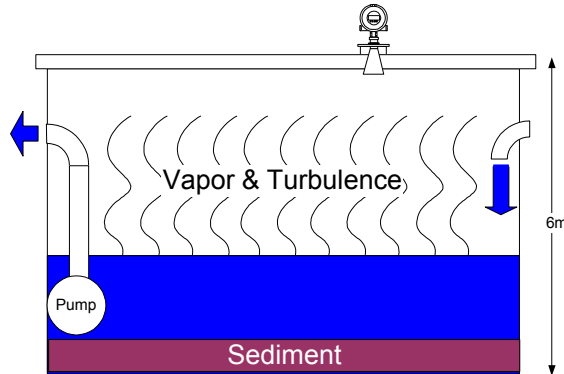


# Radar Level Gauge Application Report 7

## - Cooling Water Monitoring -



The MRG-10 micropower impulse radar level gauge features accurate, non-contact, level measurement with simple installation over a target fluid.

In this application - cooling water monitoring - the MRG-10 radar gauge provides stable measurement of water level, unaffected by atmospheric.

Submerged pressure sensor systems are often used in these types of installations. The sensors detect the pressure exerted by the liquid's mass. Pressure is then converted to level measurement in accordance with preset densities.

Capacitance type level gauges are also widely employed in this application. This type of gauge detects electrical capacitance based on physical contact of the sensor (i.e. submerged length of probe) with the liquid to determine level.

These types of gauges are commonly applied in waterworks because of their relatively simple construction and design which involves direct sensor-liquid contact (wet installation). There are drawbacks however with such systems. For example, increased measurement errors are apt to occur with high viscosity liquids such as slurries.

Ultrasonic level gauges are also frequently used as a non-contact means of level measurement. This type of gauge measures the round-trip transiting time of high frequency sounds to and from the surface of a liquid and converts this into distance. Ultrasonic level gauges however are easily affected by fog, vapor, pressure, temperature changes, and other environmental factors.

Radar level gauges, which incorporate electromagnetic waves (microwaves) on the other hand, do not require direct contact with liquids, density parameters or complex capacitance comparisons. Microwave-based level gauges are also least affected by ambient conditions.

In addition, the MRG-10 radar level gauge offers HART 2-wire loop communication protocol so customers can change any parameter from a central computer station with PC and

configuration software. The MRG-10's 4-key input menu display also allows parameter setting on site as an alternate method

	MRG-10	Pressure	Capacitance	Ultrasonic
Non-Contact	○	×	×	○
Vapor (High Temp & High Humidity)	○ Least affected	○ Not affected	×	×
Temp. Change	○ Least affected	○ Not affected	○ Not affected	×
Sediment	○ Least affected	×	○ Least affected	○ Least affected
Durability	○ Isolated from ambient conditions	×	×	×

**[ Application Data ]**

Typical User : Power plant, steel company  
Target : Coolant water

**[ Installation Data ]**

Main Unit : Radar Level Gauge MRG-10  
Antenna : 8 inch cone antenna  
Range : 6m

For more detailed information, please contact your local representative.

**Representative in your Area**