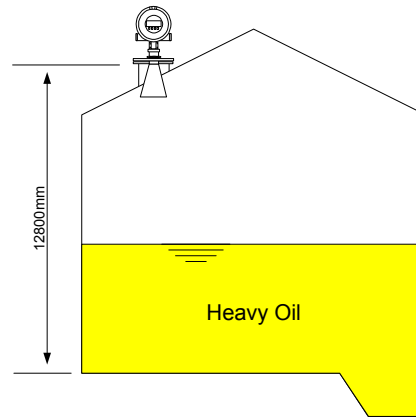


Radar Level Gauge Application Report 9

- Heavy Oil Level 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 - heavy oil monitoring - the MRG-10 radar gauge provides stable measurement of fluid level which is unaffected by atmospheric.

Other popular measurement methods include differential pressure sensors that 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 fluid to determine level. Using such gauges to measure heavy oils and other high viscosity liquids however, are likely to result in increased measurement errors.

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 fluid 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 | ○ Not affected | × | ○ Not affected | ○ Not affected |
| Durability | ○ Isolated from tank atmosphere | × | × | × |
| | | Wet | Wet | Exposed to tank atmosphere |

[Application Data]

Typical User : Power plant, steel company
 Target : Seawater or river water

[Installation Data]

Main Unit : Radar Level Gauge MRG-10
 Antenna : 8 inch cone antenna
 Range : 13m

For more detailed information, please contact your local representative.

Representative in your Area