



HEATEC

Radar Liquid Level System

THE RADAR liquid level system uses microwave pulse technology to sense the level of liquid inside asphalt storage tanks. It is an optional system for both vertical and horizontal asphalt storage tanks. It offers important advantages over other types of level indicating systems.

The radar level indicator is very accurate and reliable. It uses no moving parts.

Remote displays

A significant advantage to the system is that it uses remote electronic displays. More than one display can be used and they can be installed at a variety of locations. For example one can be located inside the control house while another is at the unloading pump. Others can be placed at virtually any other strategic spot where it is practical to run signal wires.

What's displayed

The electronic displays can be setup to show a variety of information, such as:

- Volume of liquid in the tank
- Height of liquid level
- Percentage of full tank

Volume can be in gallons, liters or other units of liquid measure. Height can be in feet, inches, meters or other units of length. Percentage relates the ratio or proportion of the liquid in the tank to the capacity of the tank when full.

The display at one location can show one type of level information while a display at another location shows a different type of information.

Types of display available

At the present time two types of display are available to show liquid level information. (These are in



Radar sensing unit. Mounts atop the tank and emits a microwave signal, which travels downwards until it reaches the surface of the liquid asphalt. The signal is reflected back to the unit by the surface of the asphalt. The reflected signal is read by the unit, which converts the signal to data related to the distance traveled. This information is converted as needed for the various types of remote displays, including the unit's built-in display.



Honeywell UDC-2500 Controller and LED digital display.

addition to the display that is built into the sensing unit.) One is the digital display of the Honeywell UDC-2500 Controller for the asphalt level control system. The Honeywell controller is usually mounted on the heater control panel.

Another type of display is a small LED display approximately 1 x 1-1/2-inches. It is normally placed in the control house or at the unloading pump.

Graphic displays

Certain HMA plant computer programs from Astec now include graphics to depict each tank and liquid level information. It appears on the display screens of computer monitors.

Programmed high and low shutoff

The radar system can be programmed to automatically shutoff the unloading pump when the asphalt reaches a predetermined level while the tank is being filled. This prevents accidental overfills.

Likewise, it can be programmed to shutoff the supply pump when the asphalt level falls below a predetermined level. This prevents accidental coking of heating coils.

It's worth noting that the radar system provides more reliable high and low shutoff functions than other types of sensors or float switches.

Suitable tanks

Radar sensing units can be factory installed on new tanks and related equipment. They can also be retrofitted to most existing tanks in the field.

Calibration

Units that are retrofitted to existing tanks in the field, always require calibration in the field.

Some older tanks may have components inside them that will keep the radar unit from working properly without modification. Please consult our factory about installing radar units on older tanks.

Units installed in new tanks at our factory are calibrated before they are shipped. However, in some

cases, a new tank may require re-calibration in the field while in use.

Calibration in the field can be performed by user personnel using the unit's built-in profiling function. The most accurate field calibration is achieved by profiling the tank empty and continuing to profile it while it is filled with liquid asphalt.

Maintenance

Once a tank has been properly calibrated and is in use the radar sensor should operate reliably with a very high degree of accuracy. Recalibration is rarely needed.

However, the probe of a radar sensing unit may occasionally become contaminated and have to be cleaned. It should be cleaned at the first sign of false indications. Or it can be cleaned on a routine basis to prevent contamination.

One common cause of contamination is splattering of asphalt onto the probe when the tank is filled. This can usually be prevented by modifying the filler discharge pipe inside the tank to redirect its flow.

Another common cause of contamination is light ends in the asphalt. Vapors of the light ends can leave a coating on the probe. Over a period of time the coating may build up enough to interfere with the radar signals and produce false indications.

In both cases cleaning the probe restores normal operation.

Note: The products shown and described in this literature are subject to change without prior notice or obligation for previous products sold.

Specifications subject to change without notice. Publication 5-03-102 revised 5-10-2007

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