



Level



Pressure



Flow



Temperature



Liquid Analysis



Registration



Systems Components



Services



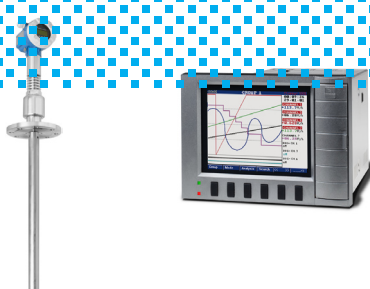
Solutions

## Level Measurement in Heating Oil

Levelflex M FMP45 with coax probe and Memograph S recorder provide leak monitoring in heating oil tank



Heating oil storage/expansion vessel mounted on roof



FMP45 with coax probe and Memograph S recorder



Memograph S in control cabinet with over-ride lock

A manufacturer's insurance company requested that a safety system be put in place to reduce risks or injury to people and equipment in case of a leak or pipe breakage in a roof mounted heating oil storage/expansion tank. The system needed to be tamper proof and provide a history of events.

### Company profile

Customer is a large producer of consumer and industrial glues in the United States.

### Application description

Roof mounted heating oil tank is used to accommodate the slow rise and fall of the oil level under normal heating operating conditions. The primary concern is a sudden fall in level (pipe breakage or leak) or sudden rise in level (during filling of tank). A recorder/logging system that cannot be manipulated and can also shut-off the boiler and/or valves to control heating oil segments was required.

Product:	Heating oil
Dielectric:	Approximately 2
Temperature:	Cold to 536°F (280°C)
Pressure:	Slightly above 14.5 psi
Mounting:	Flange
Tanks:	5 ft. high, horizontal cylindrical

### Solution

The Levelflex FMP45 with coax probe is the ideal measuring instrument, and has been used in hundreds of continuous liquid level applications. What sets this application apart from others is the total solution offered by Endress+Hauser.

The Memograph S has a function which can measure a "rate of change over time". After the system is taught what the normal rate of change and dynamics of the heating system are, the limits can be set for a normal rate of change. Any variation outside the normal rate of change is recorded and controls the various valves and pumps for the boiler.

The Memograph S recording and logging system cannot be manipulated. The customer has a key lock to over ride the system for maintenance or when oil is added to the tank. The system records the time and person responsible whenever an override takes place.

### Measurement results

The insurance company accepted the heating oil monitoring system as sufficient and did not increase the insurance rate. This resulted in immediate costs savings for the manufacturer.

Plant electricians made some additional hard interlocks from the Memograph S to the valve relays in the cabinet to complete the safety features of the system.

### Instrument description

The Levelflex FMP45 is a top mounted compact level transmitter that transmits micro impulse radar signals on a rod or cable. The pulses are reflected by the product surface, received by the electronics, evaluated and converted into level information. Fluctuations in density, temperature, and foam do not effect the measurement.

The Memograph S "Safety Data Manager" is the compact and powerful solution in safety relevant applications due to the fact that data is securely recorded. By using the "Audit trail", process sequences can be verified. It plots signals, monitors alarm limit points, analyzes measurement points, stores the data internally and archives data on ATA flash memory cards. Data access is limited to authorized personnel only and is controlled by use of a unique ID and password system.

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