



APPLICATION NOTE Water & Wastewater

Measurement of wastewater level in plastic containers

- Automated wastewater management of intermediate bulk containers (IBC)
- Continuous measurement through closed plastic tank roofs
- Reliable and accurate readings avoid environmental issues

1. Background

A French manufacturer of industrial process equipment uses plastic containers (IBC totes) to collect the wastewater from various machining and cleaning processes. The six IBC (Intermediate Bulk Containers) have a capacity of 1000 l and contain mostly water mixed with oil or cleaning agents. Once the maximum capacity of a container is reached, a supply valve is closed and another one opened to fill the next container. The totes are frequently emptied by a recycling company. They are located outside and subject to prevailing weather conditions.

2. Measurement requirements

Up until recently, the customer has made only visual checks to avoid overfilling the containers. This was risky on busy days or during holiday periods, so he was searching for an economic solution to automate this process and avoid environmental issues.

3. KROHNE solution

KROHNE delivered 6 OPTIWAVE 1400 with polypropylene (PP) Drop antenna and electrical cable clamp. These non-contact FMCW radar level transmitters for water and wastewater applications measure through the plastic roof of each container and send the values to a PLC (programmable logic controller). The PLC controls the valves and triggers a visual alarm when an IBC tote reaches 60% of its capacity and needs to be emptied.



OPTIWAVE 1400 suspended above an IBC tote

4. Customer benefits

Thanks to FMCW technology and the small beam angle of the Drop antenna, the OPTIWAVE 1400 provide continuous, reliable and accurate measuring values to the PLC. This permits the customer to automate the process and avoid environmental issues from overflowing.

Due to their non-contact technology, the instruments are maintenance-free. There was also no need for the operator to cut an opening into the container allowing easy operation of the devices. The radars measure right through the plastic roof of the IBCs. The containers can be evacuated without dismantling the radars, which are freely suspended above.

Its robust IP68 rated stainless steel design makes the OPTIWAVE 1400 particularly resistant to the prevailing weather conditions in outdoor installations. Adding the competitive price, the manufacturer has found a robust, cost-effective and maintenance-free solution for his process.



Level monitoring via the programmable logic controller (PLC)

5. Product used

OPTIWAVE 1400

- 2-wire, loop-powered, with HART®7
- FMCW-technology for greater resolution, just like the new 80 GHz generation
- Proven PP Drop antenna, insensitive to condensation or deposits
- Narrow beam angle (8°) for a sharp focus on the medium
- ±2 mm / 0.08" accuracy
- Robust stainless steel design, waterproof (IP68 / NEMA 4X/6)
- Maintenance-free concept
- Installation and operation made simple, safe and secure
- Also available with brackets and other antenna aiming kits



Contact

Would you like further information about these or other applications?
Do you require technical advice for your application?
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Please visit our website for a current list of all KROHNE contacts and addresses.

