

LNG: Simplified Solutions for Complex Measurements

APPLICATION SERIES



OVERVIEW

Demand for natural gas as a fuel source continues to accelerate and will remain elevated; however, for regions that do not produce as much natural gas or where demand cannot be met via pipeline, it must be imported as a liquid (LNG). The market demand for LNG has subsequently created a rise in liquefaction terminals in regions with abundant natural gas resources, to increase their own export capacities.

Much of the demand for instrumentation has come through the engineering and construction of these recent startups and future terminals in the design phase, where applications present unique measurement challenges – even to the core level & flow instrumentation players whose reputations have been built on performance in the energy sectors.



CHALLENGES

Measurement challenges for LNG trains, on-site power generation, and transportation:

- **Light Hydrocarbons:** Potential for liquids with extremely low dielectrics and specific gravities (SG down to 0.4 and below) that are prone to flashing
- **Total Level & Interface:** Heavier hydrocarbons dropping out through fractionation, water through knockout drums, or other types of separators
- **Temperature Ranges:** Liquefaction processes down to -162°C (-260°F) and below, mixed with high-pressure requirements
- **Reducing Emissions:** Gas flows for boil-off gas (BOG) on carriers and combustion processes may be relatively low flow rates and low pressures



SOLUTION



AMETEK Level Measurement Solutions (LMS) has extensive experience providing instrumentation solutions for LNG applications.

- **Level Transmitters & Switches:** Guided Wave Radar (GWR) and Displacer level transmitters have been instruments of choice, as both technologies are capable of total level and interface applications including low dielectrics and/or low specific gravities.
- **Flow Meters:** Thermal mass flow measurement is a preferred technology for gas flow applications with low flows and low pressures.
- **Visual Level:** Magnetic Level Indicators (MLIs) have become a standard in the process industries in replacing sight glasses. Various chamber constructions are available including single and dual chamber designs with accessories including level transmitters, switches, frost extensions, and insulation.

Product line quick reference

- [Eclipse Model 706 Guided Wave Radar Transmitter](#)
- [Magnetic Level Indicators](#)
- [Modulelevel Model E4 Displacer Transmitter](#)
- [Thermatel Model TA2 Mass Flow Meter](#)

RESULTS & BENEFITS

The deployment of AMETEK level & flow instrumentation resulted in several key takeaways.

- GWR with the highest Signal-to-Noise Ratio provides reliable performance in the lowest dielectric medias
- Application versatility, as the same GWR is plug & play whether it is measuring total level or interface
- Aurora MLI single chamber design includes a GWR transmitter, providing redundancy and assisting in applications more prone to flashing
- Less maintenance and downtime using the most field-tested float and displacer technologies
- Emissions reduction using Thermal Mass for BOG and combustion flows
- Performance track record in helping execute some of the largest global LNG and Power-generation projects



CONCLUSION

With the most trusted brands in level measurement, AMETEK LMS has the performance track record in executing LNG and floating LNG (FLNG) projects across the world. Combining the highest performing GWR with traditional float and displacer-based technologies, both users and specifiers will benefit from the most reliable level measurements.

[Contact us today](#) to collaborate on the next project, from front-end engineering & design, through construction, commissioning, and ultimately servicing these sites for decades to come.