

# LNG Monitoring

## Fiber Optic Sensing for Liquefied Gases

**Maximize safety and minimize risks at facilities managing LNG and other liquefied gases (LPG, Ammonium, Hydrogen etc.) with leading-edge technology.**

Due to the extreme temperatures needed to keep gas in its liquid state, small leaks can have devastating consequences. With Distributed Temperature Sensing (DTS), the temperature information is analyzed in real time with just a single passive fiber optic cable. This enables efficient leakage detection while lowering cost of ownership and providing gapless temperature monitoring of the critical assets of an entire plant, such as pipes, tank annulus, impounding basins or jetties.

### Distributed Temperature Sensing (DTS)

DTS technology is recommended for spillage detection in liquefied natural gas facilities in section 13.4 of EN 1473:2007-06. With optical fibers used for sensing, our system is non-corrosive and intrinsically safe in explosive atmospheres. It accurately measures the temperature over multiple kilometers every minute and is also suitable for the operation under extreme conditions. With this real-time information, automatic countermeasures can be taken in the case of an emergency such as automatic system shut down, which minimizes environmental and economic consequences.



### Leak Detection

A leak of a pipe or tank leads to very low temperatures that are precisely detected and located within a few meters with the fiber optic sensor cable that is installed along the pipe, in the tank annulus or around impoundment basins. Various alarm thresholds can be individually set in different alarm zones offering pre- and main alarms. FiberStrike's smart alarm features cover maximum, minimum and three gradient alarms to ensure best performance. Our DTS solution offers the lowest false alarm rate in the industry; alarms are transmitted to the DCS system through standard protocols like Modbus TCP and/or hard-wired relay contacts.



## Temperature Monitoring

Additionally, optimized control of cool-down operations, e.g., for load and unload procedures, are easily enabled with the continuous thermal information provided by the DTS system. With the high coverage of several kilometers per measurement unit, full temperature monitoring makes it possible to pinpoint the exact locations of any thermal anomalies. This feature is helpful for the control of base slab heating systems – not only to identify hot spots, but also to reduce overall energy consumption and the amount of blow-off gas.

Our DTS solutions are compliant to various regulations around the world. The operator receives all critical information, such as temperature, even for inaccessible locations inside the tank. Our system is certified for highly explosive atmospheres (ATEX /IECEX), and according IEC 61508 SIL2. It is virtually maintenance-free and suitable for remote areas which are difficult to access. This ease-of-use comes with highly reliable performance, a low-power laser for safe use and a long product life (MTBF > 33 years). Part of our offering includes sensor cables that fit to the needs of the application: robustness and a wide temperature measurement range (-196 °C to 300 °C).



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## SmartVision™

Our sophisticated SmartVision™ software features asset visualization and alarm management with a central database plus reporting and analysis capabilities. Intuitive graphic user interface (GUI) software provides an overview of all critical assets and points of interest. Critical data is visualized, and the operator can identify the exact alarm trigger spot. Pinpointing multiple events simultaneously, the operator is enabled to react quickly and initiate appropriate countermeasures before severe damage and down-times occur. SmartVision provides easy integration with other monitoring solutions, such as CCTV, DAS, DTS and other sensor solutions via Modbus and SCADA.

