

Non-invasive flow measurement of cryogenic fluids

## FLUXUS<sup>®</sup> Cryo

LNG - Liquid Ethane - Liquid Air - Liquid Nitrogen -  
Liquid Oxygen

Liquefaction plants

LNG carrier loading  
and off-loading

Onshore

Offshore / FLNG / FSRU

Peak shaving plants

Re-gasification





## FLUXUS® Cryo The superior measuring solution for cryogenic fluids

Since 2008 FLEXIM's unique non-invasive ultrasonic flow meters have been running in various LNG applications: from 3" lines in peak shaving plants to 36" pipes for tanker off-loading to storage tanks.

The non-invasive ultrasonic meters provide a solution for all cases where reliable and trouble-free flow measurement is required. The ultrasonic measurement with its huge turndown is ideally suited to cover the highest flow rates of loading / off-loading processes as well as very low flow rates at start or stop of operation. The measuring accuracy meets all monitoring, control and SIS purposes. Implemented diagnostics can be used to detect beginning and end of the liquid flow in batch processing.

### Applications:

- Flow control during LNG carrier off-loading and ship-to-ship loading:
  - flow rates for control purpose
  - total flow to check tank level inventory
  - SIL-approved meter editions for flow rates to SIS, e.g. to control flow in ship-to-ship loading
- Flow measurement on FSRUs:
  - flow measurement directly at the loading arms to control flow-weighted sampling rates
- Peak shaving plants:
  - flow control to re-gasification

### Features:

- Highly accurate flow measurement without pressure drop
- Highly reliable:
  - Maintenance-free. No moving or vibrating parts
  - Dual-beam redundant measurements
- Operationally safe:
  - No gaskets, no leakage points
- Economical:
  - No pipework modification necessary
  - One-man-installation without the need for lifting gear
  - No pressure loss - no risk of flashing

### Retrofit:

- No pipework modifications necessary
- No lifting gear required – independent of pipe size
- FLUXUS® Cryo can be mounted at limited space conditions, e.g. at FLNG loading arms
- Installation is done within a few hours when the pipe is not cooled down
- The measuring system is fully integrated into the insulation

### New Plants:

- Highly cost-effective – only standard piping needs to be planned – FLUXUS® Cryo fits
- Late design changes aren't a problem! One equipment type fits many pipe sizes
- No pressure-loss and thus no energy loss
- No risk of flashing
- Significantly reduced CAPEX, especially for large diameters
- Global installation and support by FLEXIM