

LTD GAUGE

DENSIMETER MODEL LTD - 01146 LAND

Data is the cornerstone in effective decision-making and operations. LNG storage is no exception, as accurate data is vital to ensure the highest safety measures. LNG terminals handle and store multiple grades of LNG. The LNG ageing phenomena due to heat leaks generates both boil-off gas and changing in compositions. Therefore, it is vital to monitor the storage tanks and be warned of any stratifications occurrences. LNG storage facilities must have precise instruments that measure temperature, density, and level variations.

Incoming LNG can be of widely varying quality, and there is always a risk of stratification of the LNG, which can evolve into a 'roll-over' with severe consequences. A stratification that evolves into a roll-over causes an increase in the boil-off gas generated up to 10 times the normal rate, increase or over-pressurization of the tank, or lifting of the relief valve of the tanks. Thereby creating dangerous situations for the operations - including the risk of direct methane emission and CO2 from flaring.

Description

The world's most advanced LTD gauge based on Svanehøj Tank Control System.

- Unique single body concept.
- It accommodates all electronics and wiring and is mounted on a single flange.
- Travelling at user configurable speeds, it samples until 250 data points to construct a detailed and accurate LTD profile.
- Communication is via redundant MODBUS.

Functionality

Continuous measurement of temperature and density according to sensor position (level). 2 modes are available:

1. Profiles mode

The profile can be operated by two modes:

- **Standard mode:** The setting of samples if pre-defined by the embedded software and will record up to 250



samples each 200 mm from the bottom of the tank to the surface of the liquid.

- **Custom mode:** The setting of samples, the starting level, the stop level can be modified by the user.

2. Follow level

- This mode allowing to raise the sensor at the surface, the LTD will behave like a LT (servo gauge).
- The LTD will use the target density parameter to detect and follow the liquid surface.

Level measurement

Range: standard 0-60m (maximum 70 m)

Accuracy: +/- 2 mm

Resolution: 1 mm

Temperature measurement

Range: -200°C to +50°C

Accuracy: +/- 0.1°C

Resolution: 0.01°C

Sensor type: Pt100 Class AA, IEC60751

Density measurement

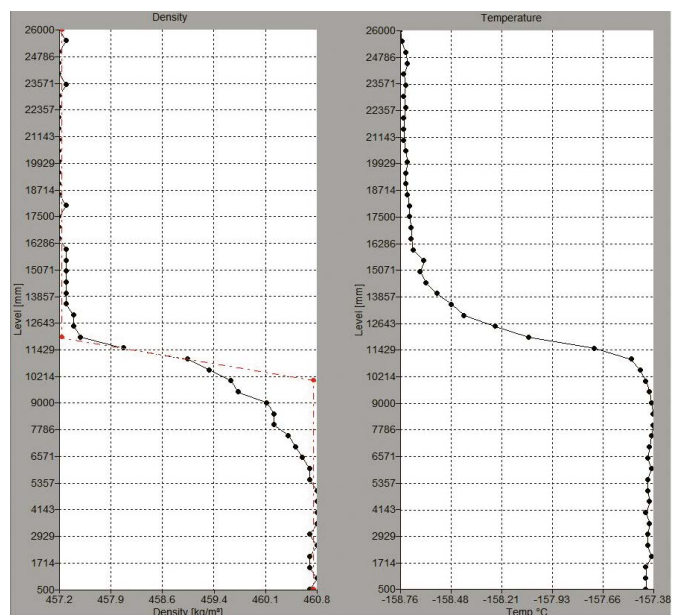
Range: 400 kg/m³ to 1000 kg/m³

Accuracy: +/- 0.5 kg/m³

Resolution: 0.1 kg/m³

Viscosity: < 0.6x10⁻³ Pa s

Sensor type: 01206-06-



Profile example.



Mechanical specification

Body material: Aluminium AS7G06Y23
 ASTM A351 CF 3M available as an option
 Paint: RAL7035 epoxy painting coat
 Ingress protection: IP67
 Operating Pressure: up to 0.7 Barg
 Operating temperature: -20°C to +50°C
 Process connection: 6" ANSI 150 # FF / DN150 ANSI 150 # FF
 Tape weight: 3.7 Kg
 Sensor weight: 1.5 Kg

Height : 707 mm · Width: 668 mm
 Depth 446 mm · Weight: ~100 Kg

Electrical specification

Power supply: 80Vac to 270Vac 50/60Hz
 Power draw: 40 Watts
 Communication: 2 serial buses (0-20mA or RS485) full redundant MODBUS RTU protocol
 Cable entries: 4x M20x150 delivery with 4 adaptors M20- 3/4' NPT
 EMC: According to IEC 61000

PRODUCT CODE: 01146-AB-CDEG

A	Flange type- cable entries type
A=1	Flange 150 lbs FF spiral wound 125 AARH – 4x M20x150
B	Primary field bus type
B=A	Current loop 0-20 mA – MODBUS protocol
B=B	RS485 2 wires – MODBUS protocol
C	Secondary field bus type
C=0	Without
C=1	Current loop 0-20 mA – MODBUS protocol
C=2	Rs485 2 wires – MODBUS protocol
D	Power supply type
D=1	80 / 150 VAC 50/60Hz
D=2	160 / 270 VAC 50/60Hz
E	Tape length
E=3	0 to 60 m
G	Hazardous area certification
G=2	JPN (Japan -20°C to +55°C)
G=3	cCASus (Canada / USA -20°C to +50°C)
G=4	PCEC (China -20°C + 50°C)
G=6	ATEX (Europe -20°C to +50°C)
G=7	IECEX (-20°C to +50°C)
G=9	KC (South Korea -20°C to +50°C)
G=A	ITRI (Taiwan -20°C to +50°C)

CERTIFICATES :

Europe



LCIE 05 ATEX 6043 X

International*



IECEX LCI 11.0054X

USA / Canada



C US
1774296

Japan



CML 19JPN1097X

South Korea



21-KA4BO-0205X

China



CE23. 3322X