Cargo Level Radar (FMCW)

- Redundant ullage indication
- Fully stand alone unit with touch screen
- Completely non-contacting to cargo and vapours
- Closed tank cleaning and service of all components
- Designed to operate in extremely rough conditions on ships
**OPTIWAVE 8300 C Marine**

### Dimensions and weight (DN125 standard flange)

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>Weight (kg)</th>
<th>Dimensions (inches)</th>
<th>Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>433</td>
<td>141</td>
<td>ø 170</td>
<td>400</td>
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<tr>
<td>20</td>
<td>17</td>
<td>5.6</td>
<td>ø 6.7</td>
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<td></td>
<td>16</td>
<td>44</td>
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</table>

**Easy installation and light weight**

- Small deck socket
- Flange DN125 (ø = 200 mm)
- Total weight: 20 kg

**Non contact measurements**

The OPTIWAVE 8300 C Marine offers completely non contact level measurements in cargo tanks.

The transmitter is located in the radar head, transmitting through the pressure sealing part.

**Radar antennas**

**Horn antenna:**
Standard antenna for most tanker applications.

**Drop antenna:**
As an alternative to horn antenna we can also offer a solid drop antenna solution. The construction of the drop antenna makes it ideal for sticky/contaminating liquids or dust-laden atmospheres where product build-up inside a horn antenna is likely to occur.
Measuring system

Measuring principle
Frequency Modulated Continuous Wave (FMCW), 24 GHz

Application range
Level measurement of liquids, pastes, slurries and solids

Measuring range
0...40 m / 0-132 ft

Beam angle
± 5°

Measuring accuracy

Accuracy (at reference conditions)
up to 20 m / 66 ft < 2 mm / 0.08"
20...40 m / 66...132 ft ± 0.01% of distance

Repeatability
< 0.5 x error of measurement

Measured value resolution
0.1 mm / 0.04"

Ambient conditions

Hazardous locations
Intrinsically safe, zone 0, 1, 2
Temperature classes: T6...T1
Explosion groups: IIA...IIC

Ambient temperature
-40...+70°C / -40...+160°F (signal converter)

Flange temperature
-40...+200°C / -40...+390°F
optional -60...+250°C / -75...+480°F

Ingress protection
IP 66/67 (signal converter)

Product conditions

Physical properties
No effect on measurement results

Dielectric constant (εr) ≤ 1.5

Product limitations
Liquid ammonia (NH3), Liquid hydrogen (H2), Liquid helium (He)

Process temperature
Unrestricted (but beware ambient and flange temperatures)

Materials

Signal converter
Stainless steel 316L

Flange system / antenna
Stainless steel 316L (1.4404) [standard]
or 3% Molybden Mo

Gaskets 
FPM (Viton), Karleze 6375 (others optional)

Process connection
DIN 2501 DN 125 / PN 16 (standard)

Power supply and output

Powered by
4-20 mA

Protocols
HART®

Current output
4-20 mA passive

Certificates and approvals

Ex approvals
Intrinsically safe according to ATEX and IEC

IACS approvals
DNV, ABS, GL, LR, BV, CCS, NK, RINA, KR

Stillwell installation

Main deck / tank top

Ventilation holes
Diameter 8-10 mm
Distance between holes appx. 500 mm

Bottom of tank

Standard installation

Main deck / tank top

Main deck / tank top
The OPTIWAVE Cargo Level Radar is a highly accurate and reliable instrument for measuring the ullage/level. With its heavy duty stainless steel housing, it is designed to withstand the roughest conditions on deck.

Well protected by a stainless steel cover, it carries a backup display for redundant indication. Loading may continue with a man on deck, if level information is lost on the main monitoring station.

- You will be able to load cargo using only the instrument
- Touch screen user interface
- Connect cleaning hose to quick coupling on ball valve
- Tank is closed during all cleaning
- Tank seal
- The radar head can be replaced without opening the tank and releasing tank vapours
- Replacement can be done at any time, even during cargo operations.
- IGP-sensor mounted on radar
- Washing connection protected by a ball valve
- Top unit locking screw
- Stainless steel housing
- Effective cleaning inside antenna
- Local calculation of level data
- Touch-screen with 4-button operation
- Stainless steel protection cover