

A. P. I.  
marine

# API Marine

## GENERAL COMPANY & PRODUCT PRESENTATION



API Marine ApS | Troensevej 12 | DK-9220 Aalborg Øst | Denmark  
Tel.: +45 9634 5070 | [info@api-marine.com](mailto:info@api-marine.com) | [www.api-marine.com](http://www.api-marine.com)

# API Marine

## Acoustic Precise Instruments

Development, design & production of advanced tank sensors and automation systems for marine applications



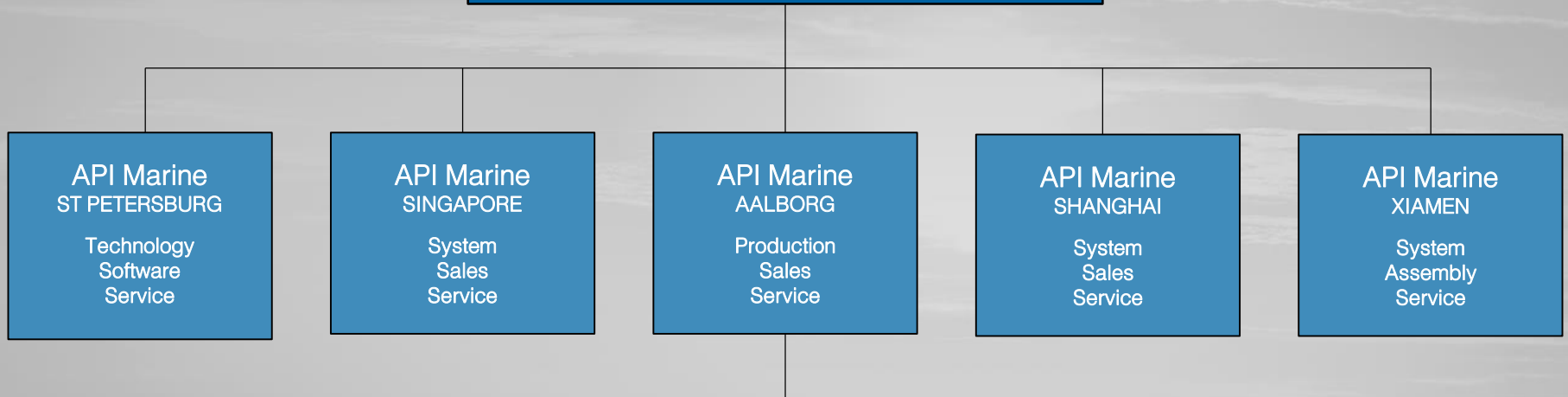
# About API Marine

An independent manufacturer of **sensors** and  
**automation systems**

All sensors & systems are developed and  
manufactured **in house**

**Patented** technologies





# API Marine Product Range



Unique Sensors, Transmitters & Switches



Control and Alarm Systems



Integrated Automation System



Valve Remote Control System



Loading and Stability Software

# Designed and Made for all Types of Vessels

## Container Vessels



- Remote Sounding System
- Loading Stability Software
- Valve Remote Control System
- Advanced Sensor Package

## Bulk Carriers



- Remote Sounding System
- Loading Stability Software
- Valve Remote Control System
- Advanced Sensor Package

## Oil & Chemical Tankers



- Integrated Automation System
- Cargo Tank Monitoring System
- High Level & Overfill system
- Remote Sounding system
- Valve Remote Control System
- Loading Stability Software

## Floating Docks



- Remote Sounding System
- Hydraulic Deflection System
- Loading Stability Software

## LNG Fuel Tanks



- Advanced Sensor Package



# API Marine Product Range



High quality and **reliable** automation systems start with good sensors

Designed and manufactured for **marine applications**

# Sensors for Critical Applications in Harsh Environments



Arctic Applications



LNG Fuel Storage Tanks



# API Marine Sensors



# High Quality Sensors for Marine and Industry

## TGD SERIES

TGD™ Tank Gauging Device (Level, Pressure & 3 x Temperature)

TGD-R™ Tank Level Radar

TGD-L™ Tank Gauging Device (Level)

TGD-TP™ Tank Gauging Device (Temp/Pressure)

## LEVEL SWITCHES

UTS™ Ultrasonic Tank Switch

TLA™ Tank Level Alarm (95%/98%)

## TRANSMITTERS

UPT™ Universal Pressure Transmitter

UTT™ Universal Temperature Transmitter



UTS™

# Ultrasonic Tank Switch



- Works on the principle of acoustic waves in a metal rod
- Unlimited number of versions available
- Technology patented in Europe, USA and Japan
- Works with any liquid

UTS™

# Ultrasonic Tank Switch



## Advantages

- No moving parts & no electronics - ONLY steel inside the tank
- Temperature range from -200 to +450° Celsius
- High pressure - up to 200 bar
- Extended length and flexible rod
- Easy service and low maintenance cost



UTS™

# Ultrasonic Tank Switch

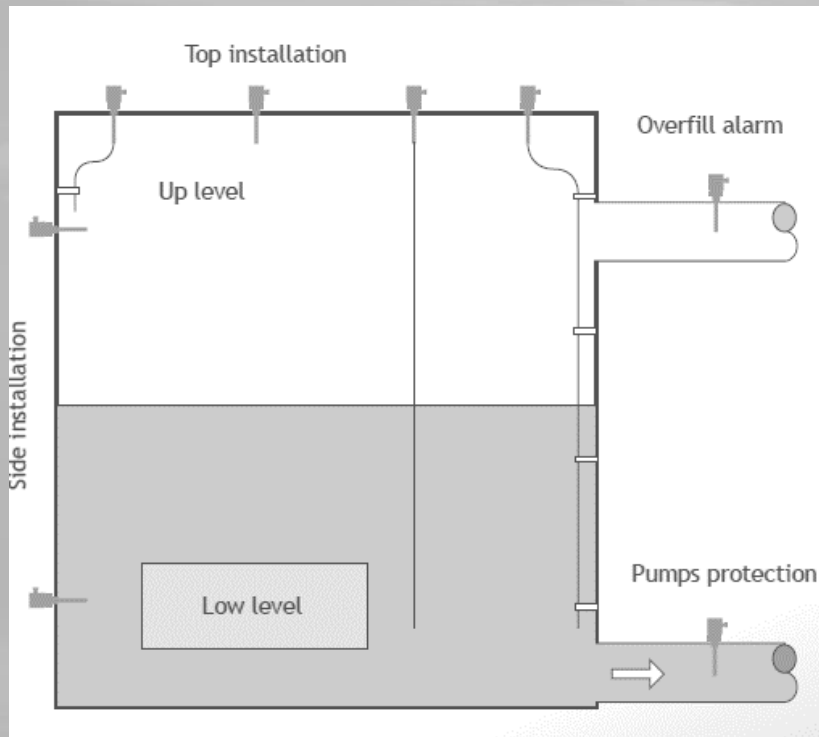


## Application Advantages

- Ideal solution for LNG applications - **Low temperature**
- Tank farms or other applications where **extended length** is required
- Power and energy production where **very high temperature** occurs
- Tanks with **high pressure**

UTS™

# Ultrasonic Tank Switch



- Tanks, Plants, Pipelines Reservoirs etc.
- High level alarm, Low level alarm
- Pump protection
- Any direction for mounting
- Any temperature

TLA™

# Tank Level Alarm



- Sensor for High Level & Overfill Alarm (95%/98%)
- Works on the same principle of UTS™
- Proven and reliable solution
- Virtually no maintenance
- Low cost of ownership
- Can be adapted to most makers of High level / Overfill alarm system

UTT™ / UPT™

# Universal Temperature & Pressure Transmitter



- Robust, ruggedized and reliable
- Designed for harsh environment, where other manufacture falls short
- Competitive solution for replacement of other high end products
- Standard output: 4-20mA



TGD-R™

# Tank Level Radar



- Applicable for oil, product & chemical tankers
- Non-contact measuring, no wear and tear
- High accuracy 0,1%
- Smaller measuring dead zone
- Customized variations
- Easy installation & maintenance
- Measuring range 0-35mm

TGD™

# Multifunctional Tank Gauging Device

## Accurate Measurement of:

# Level

# Temperature

# Pressure



TGD™

# Multifunctional Tank Gauging Device

- TGD™ for measurement in Cargo Tanks
- Non-contact level gauge with high accuracy
- Automatic self-calibration
- 2-wire connection
- Multi-point temperature profile in tank
- Inert gas pressure sensor built in



# Advantages and cost savings for shipyards

- Flexibility of mounting / positioning TGD™ in tank / on tank top
- Easy to arrange construction in slop tanks
- Less cabling - only 2 wires
- Less protection pipes, painting and installation
- Only one deck penetration for level / pressure / temperature sensor
- Less calibration
- Less time for commissioning





TGD™

# Multifunctional Tank Gauging Device

TGD-L™ (Level)  
TGD-LP™ (Level/Pressure)



- Non-contact level gauge with high accuracy
- 2-wire connection (HART)
- Flexible and easy installation
- Pressure sensor can be included (optional)

TGD-T™ (Temperature)  
TGD-TP™ (Temperature/Pressure)

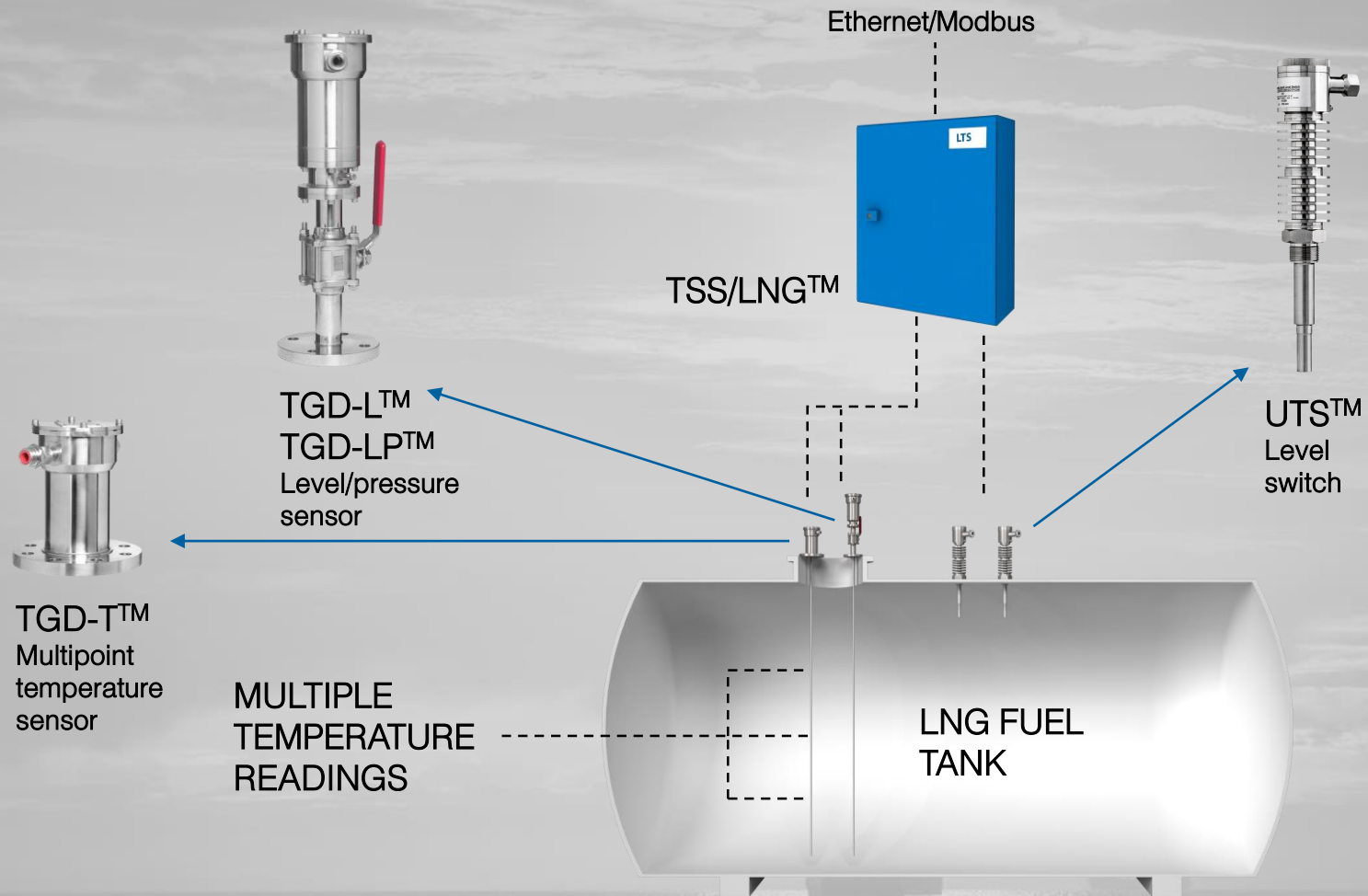


- Multi-point temperature sensor (up to 15 points)
- Built-in pressure transmitter (optional) for less deck penetration

# API Marine Systems and Solutions

Flexible and tailor made solutions,  
with all components & modules  
100% developed & manufactured by  
API Marine

# LNG Fuel Tank Solutions

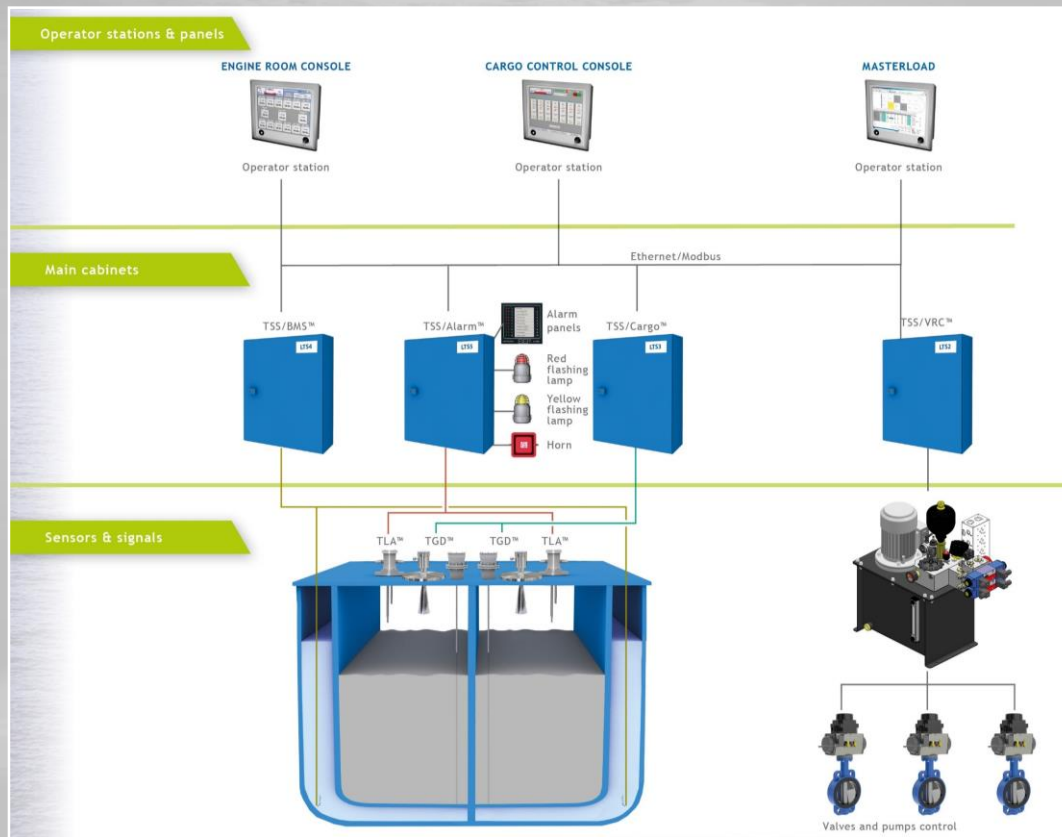


# LNG Fuel Tank Solutions

- Combined package or stand-alone sensors with standard output for easy integration
- High accuracy/ high reliability
- No moving parts in tank
- Flexible and customized solutions



# Integrated Automation System



# Integrated Automation System

- Cargo Tank Monitoring System
- High Level/Overfill Alarm System
- Remote Sounding System
- Valve Remote Control System
- Loading Computer

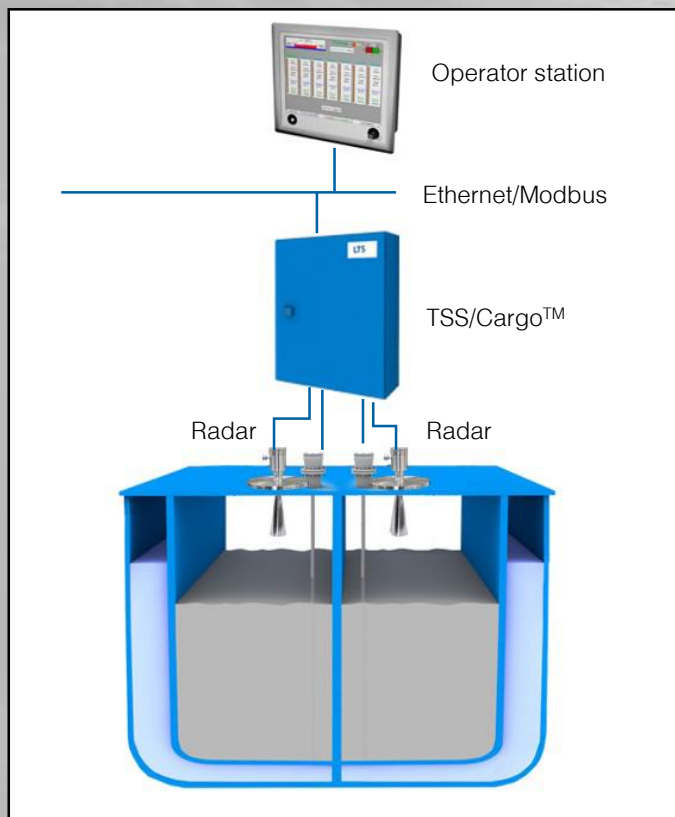


# Cargo Tank Monitoring System

- For all types of Oil and Chemical tankers
- For cargo and slop tanks
- Cargo level, temperature, pressure monitoring
- Manifold pressure monitoring
- Flexible and competitive solutions
- Stand alone, or as part of an Integrated System

TGD-R™ / TGD-TP™

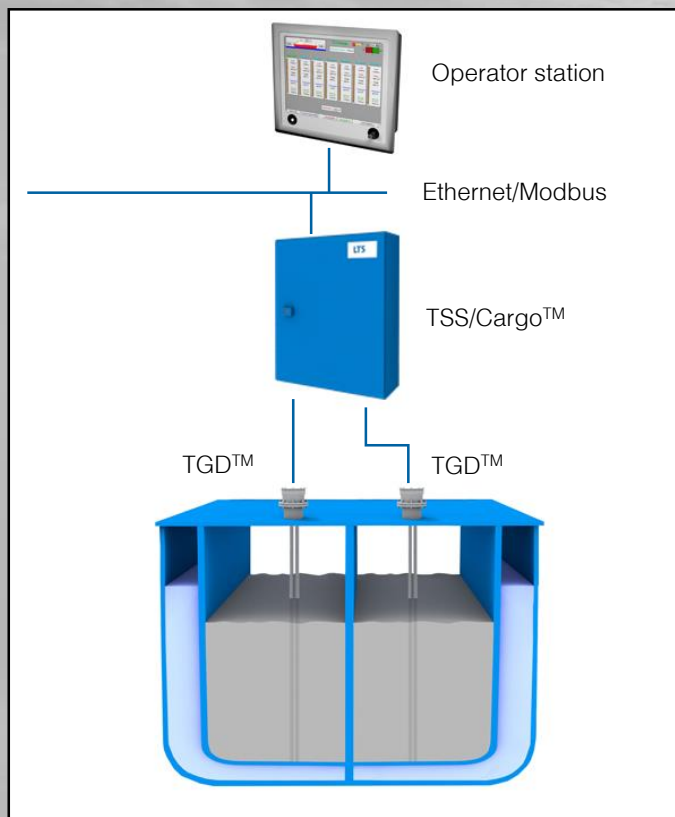
# Cargo Tank Monitoring System with TGD-R & TGD-TP



- Basic system configuration with radar and combined temperature/pressure transmitter
- Ideal & proven solution for product & chemical tankers
- Combined temperature & pressure transmitter – less installation cost
- Stand-alone system or part of integrated automation system

TGD-R™ / TGD-TP™

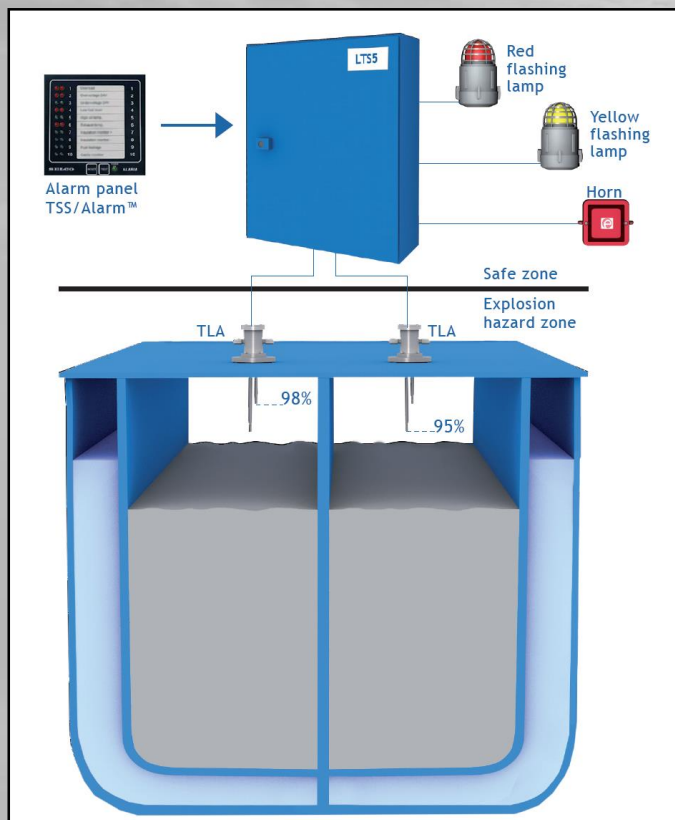
# Cargo Tank Monitoring System with TGD (Multifunction Tank Sensor)



- Basic system configuration with TGD (Tank Gauging Device)
- Level, temperature, pressure monitoring in cargo tank in one deck sensor
- Advantage & cost saving installation on cargo tank
- Stand-alone system or part of integrated automation system



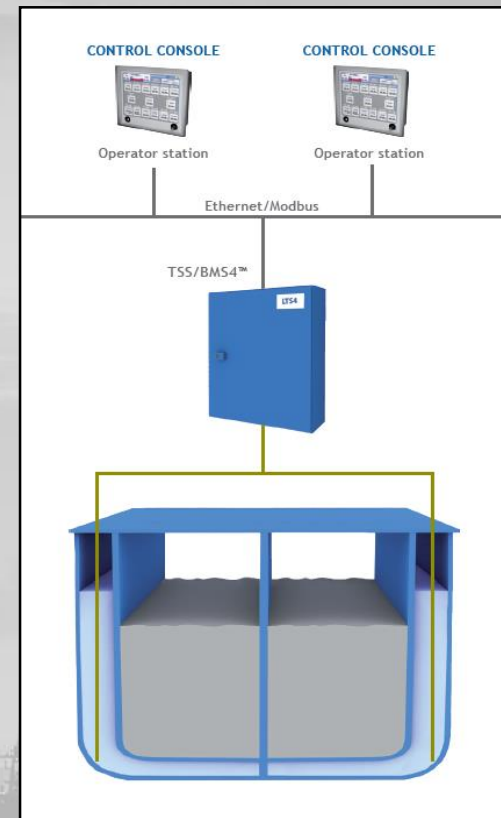
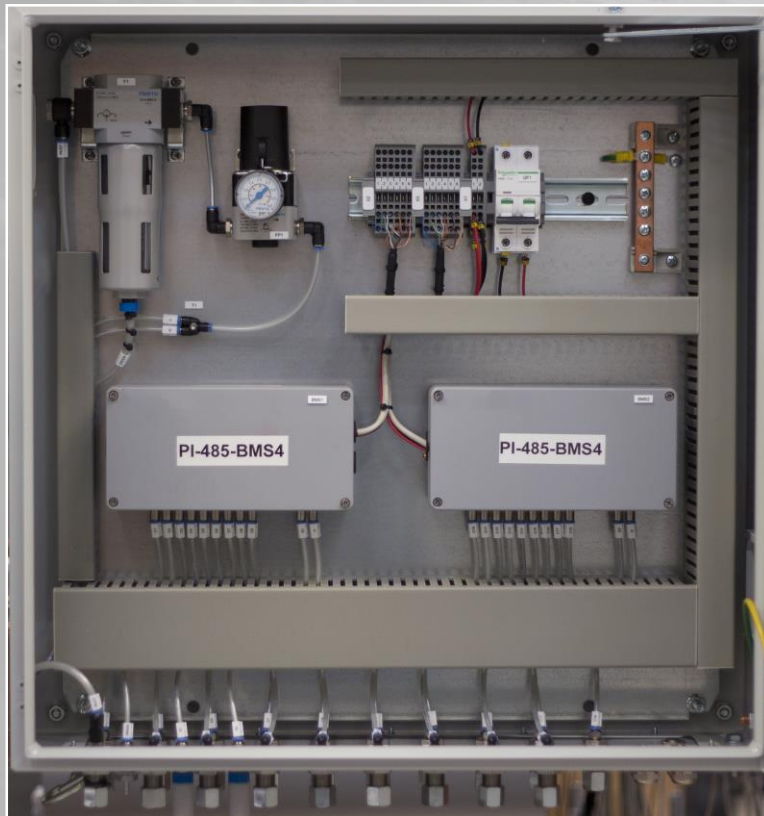
# High Level and Overfill Alarm System



- High and high-high (95% & 98%) level detection in oil & chemical tankers, LPG & LNG carriers, FSO & FPSO and oil barges
- TLA (Tank Level Sensor) with no moving parts – low maintenance/cost of ownership
- Flexible, compact and highly economical solution
- Can be supplied as stand-alone system or as part of IAS

TSS / BMS4™

# High Level and Overflow Alarm System



Typical Configuration

# Remote Sounding System

## FEATURES AND FUNCTIONS

- Electro pneumatic level and draft measurement
- System suitable for all types of vessels
- Compact and fully integrated system
- Competitive pricing / low investment cost
- Flexible and modular concept and design

# Remote Sounding System

## FEATURES AND FUNCTIONS

- Low air consumption & less depending on air quality
- Automatic calibration of sensor during operation
- No electrical parts in Ex zone
- Intelligent scanning feature
- Easy installation



# Remote Sounding System

## FEATURES AND FUNCTIONS

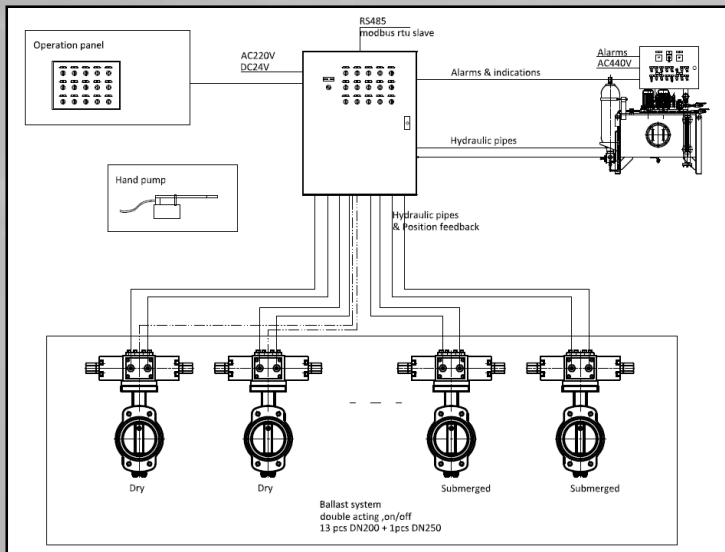
- Standard RS485 MODBUS output / easy interfacing
- Automatic cleaning (purging) of pipes
- Reliable and proven system
- Virtually maintenance free
- Ideal for retrofit installations
- Can easily be adapted to existing / onboard installations



# Valve Remote Control System

## CONSISTING OF:

- Valve remote control cabinet/ solenoid valve control cabinet (SVC)
- Operation panel (OP)
- Hydraulic Power Unit
- Valves
- Actuators
- Hand Pumps



# Valve Remote Control System

- Control and operation of Ballast and Cargo Tanks
- Stand alone system or integrated with remote sounding system
- Own development, design & approvals

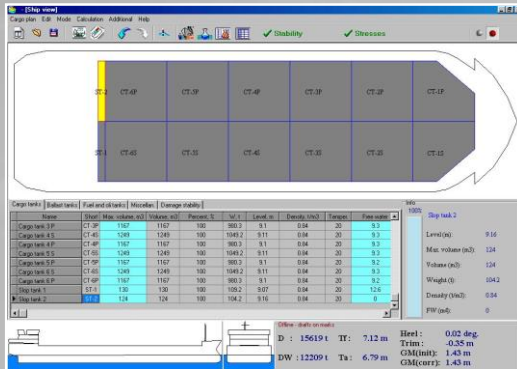
VRC™

# Valve Remote Control System



- On-line/Off-line modes
- Tank & Loading status
- Stability & Stress
- Damage Stability

# Loading and Stability Software / System



Name	Short name	Online?	Code
Cargo tank 1S	CT-1S	<input type="checkbox"/>	101
Cargo tank 1P	CT-1P	<input type="checkbox"/>	102
Cargo tank 2S	CT-2S	<input type="checkbox"/>	103
Cargo tank 2P	CT-2P	<input checked="" type="checkbox"/>	104
Cargo tank 3S	CT-3S	<input checked="" type="checkbox"/>	105
Cargo tank 3P	CT-3P	<input checked="" type="checkbox"/>	106
Cargo tank 4S	CT-4S	<input checked="" type="checkbox"/>	107
Cargo tank 4P	CT-4P	<input type="checkbox"/>	108
Cargo tank 5S	CT-5S	<input checked="" type="checkbox"/>	109
Cargo tank 5P	CT-5P	<input type="checkbox"/>	110
Cargo tank 6S	CT-6S	<input checked="" type="checkbox"/>	111
Cargo tank 6P	CT-6P	<input type="checkbox"/>	112
Ship tank 1	ST-1	<input type="checkbox"/>	113
Ship tank 2	ST-2	<input checked="" type="checkbox"/>	114
Ballast tank 1	BT-1	<input type="checkbox"/>	201
Ballast tank 2	BT-2	<input type="checkbox"/>	202
Ballast tank 3	BT-3	<input type="checkbox"/>	203

- 100% own Product/Design/Development
- API Marine work directly with class for approval
- New building or retrofit/upgrade applications
- Meet all requirements for Marpol Annex I Regulations 2016



# Reference Projects

## Chemical Tankers

8500 DWT: 4+4+2+2 Vessels - ABS Class

13000 DWT: 2+2+2+2+2 Vessels - BV Class

Shipyard: Tongbao Shipbuilding (Nantong)

Shipowner: Dinheng Shipping





# Reference Projects

## Chemical Tankers

### API Scope of Supply:

- Cargo Tank Monitoring System
- High Level & Overfill Alarm System
- Remote Sounding System
- Valve Remote Control System
- Loading Computer



8500DWT (4+6) Stainless Steel Chemical/Product Oil Tanker

- Class: ABS
- Cargo hold material: Duplex 2205
- Cargo & slop tanks capacity: 9500m<sup>3</sup>



13000DWT (4+6) Stainless Steel Chemical/Product Oil Tanker

- Class: BV
- Cargo hold material: Duplex 2205
- Cargo & slop tanks capacity: 15000m<sup>3</sup>

# References

## Shipowners & Clients



# References

## Shipowners & Clients



YARDIMCI



CIMC RAFFLES





# Production



# Production





# API Marine Integrated Solutions Advantages

**Independent** supplier of sensors and solutions, with all competences under the same roof

All sensors and key components are **100% own development** – no 3rd party sensors

All products designed and manufactured for **maritime** applications

# API Marine



- Solutions for harsh and demanding environments
- Sensors approved for Winterization / Iceclass 7 applications
- High reliability & robust design



# Certificates & Type Approvals

- ISO9001:2008
- ATEX and IECEx
- Most Marine Class Approvals
- FAT (on request)



# API Marine



Quality  
Reliability  
Safety







API Marine ApS | Troensevej 12 | DK-9220 Aalborg Oest | Denmark  
Tel.: +45 9634 5070 | [info@api-marine.com](mailto:info@api-marine.com) | [www.api-marine.com](http://www.api-marine.com)