# API

PRODUCTS AND SOLUTIONS
BULK CARRIER

SENSORS & AUTOMATION SYSTEMS





### **Bulk Carriers**

### SCOPE OF SUPPLY FOR BULK CARRIERS

- Tank Level Gauging System for Cargo Tanks and Service Tanks
- Valve and Remote Control System
- Online Loading and Stability Computer System



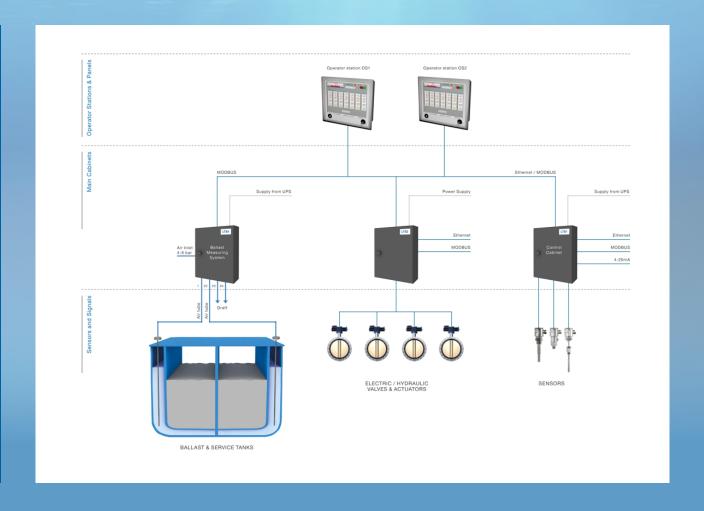


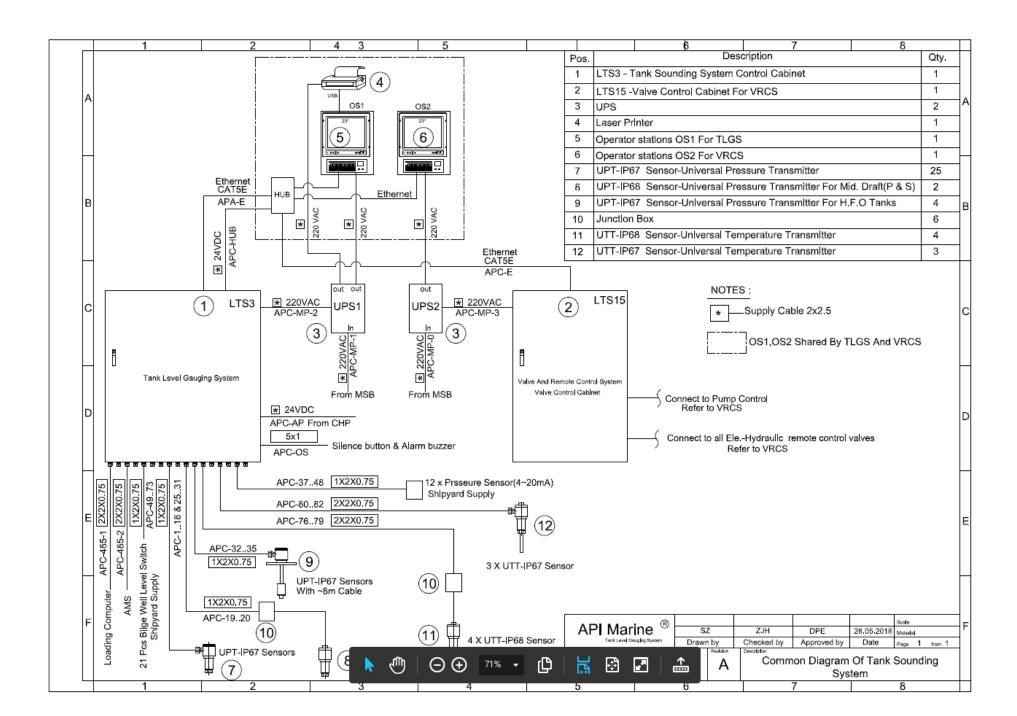
## **Typical Configuration**

**Bulk Carrier** 

### Typical Scope of supply

- TLGS Ballast & Service Tanks
- Valve Remote Control System
- Loading Computer
- Sensors



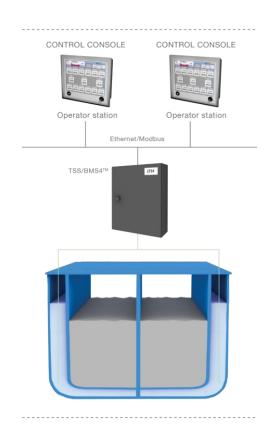




## TLGS (TSS/BMS4)

(Electric Pneumatic)

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



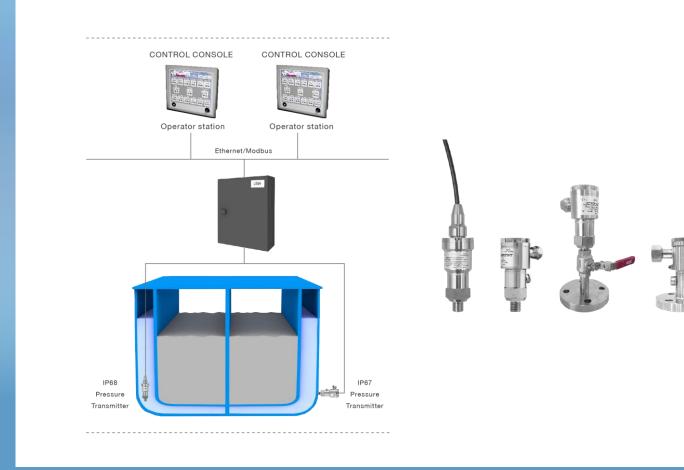




## TLGS (TSS/UPT)

(Pressure Transmitter)

- Level measurement
- Draft measurement
- Can be supplied as stand-alone system
- Easily integrated and extended
- Level alarm functionalities
- Suitable for retrofit installations
- Sensors available in a wide variety of versions

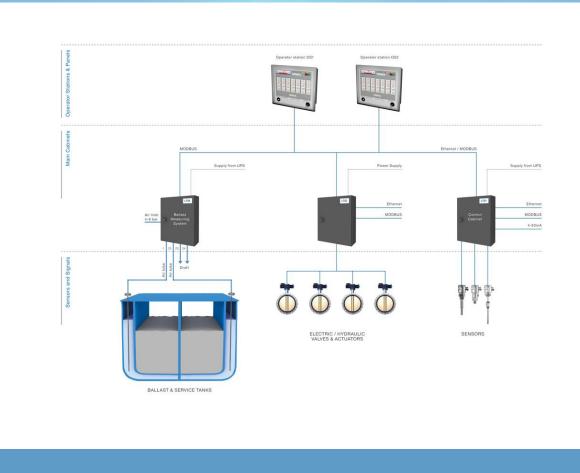




### Valve Remote Control System

Electro Hydraulic (TSS/VRC<sup>TM</sup>)

- Compact and flexible solutions
- Fully compatible with API Marine and other tank level gauging systems
- Modern hardware and software (mimic) for easy and flexible control
- Advantage to combine maker for TLGS/VRC - Less problems!
- Own development, design & approvals





### Valve Remote Control System

Actuators

- API Marine own development Unique and simple design
- Single and double acting
- Compact and low weight
- Easy mounting to all quarter turn valves
- Horizontal and vertical mounting
- Meets major Class requirements
- Dry or submerged mounting
- Low maintenance





## Valve Remote Control System

UPU

- API Marine own development Unique and simple design
- For Single and double acting actuators
- Compact and low weight
- Easy mounting to all quarter turn valves
- Meets major Class requirements
- Low maintenance



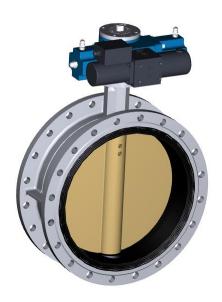






## **UPU** (Universal Power Unit)



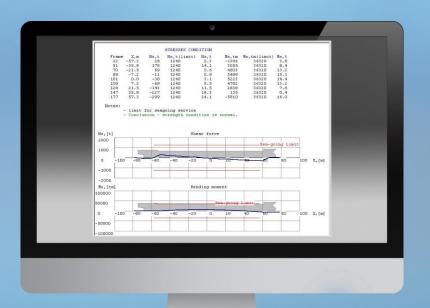






## Loading & Stability Computer - TSS/MasterLoad

- Online / Offline modes
- Tank and Loading Status
- Stability & Stress calculations
- Damage Stability

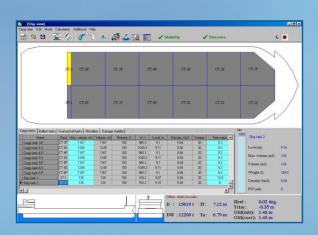


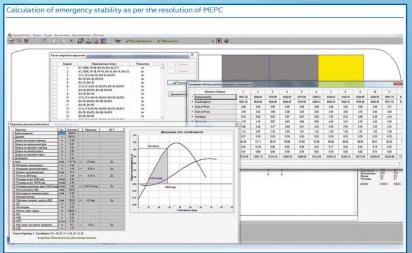


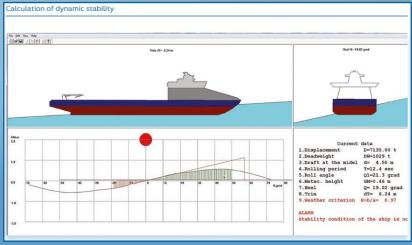
## Loading Computer

TSS / MasterLoad

- 100% own development
- API Marine works directly with Class for approval
- New building or retrofit/upgrade applications
- Meet all requirements for MARPOL ANNEXI REGULATIOS 2016









## Sensors for Critical Applications in Harsh Environments

- Designed and manufactured for marine applications
- High quality and reliable automation systems starts with good sensors
- Patented technologies









### Sensors & Transmitters

### **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**<sup>TM</sup>

• Ultrasonic Tank Switch

### TLATM

 Tank Level Alarm (95%/98%)

### **TRANSMITTERS**

### **UPT**<sup>TM</sup>

• Universal Pressure

Transmitter

### **UTT**<sup>TM</sup>

Universal

Temperature

Transmitter



















## Reference Project - Bulk Carrier

**Type of vessel** 63500 / 64000 DWT

Shipyard Nantong XiangYou &

others

Owner Various

No. of projects 40+

### **API SCOPE OF SUPPLY**

- Tank Level Gauging System
- Valve Remote Control System









## API Marine Bulk Carriers Summary

- Integrated and flexible solution
- Integrated "one-stop-supply" = less problems for the shipyard
- All sensors and key components are 100% own development no 3<sup>rd</sup> party sensors
- High quality sensors = the heart of the system
- API Marine scope of work: initial proposal phase to final commissioning
- (Class approval drawing & FAT)
- Proven track record
- High reliability and robust design
- Competitive solution!



QUALITY - RELIABILITY - SAFETY