

LIQUID ANALYZERS IN MARINE INDUSTRY

Ballast Tank Conductivity Measurement

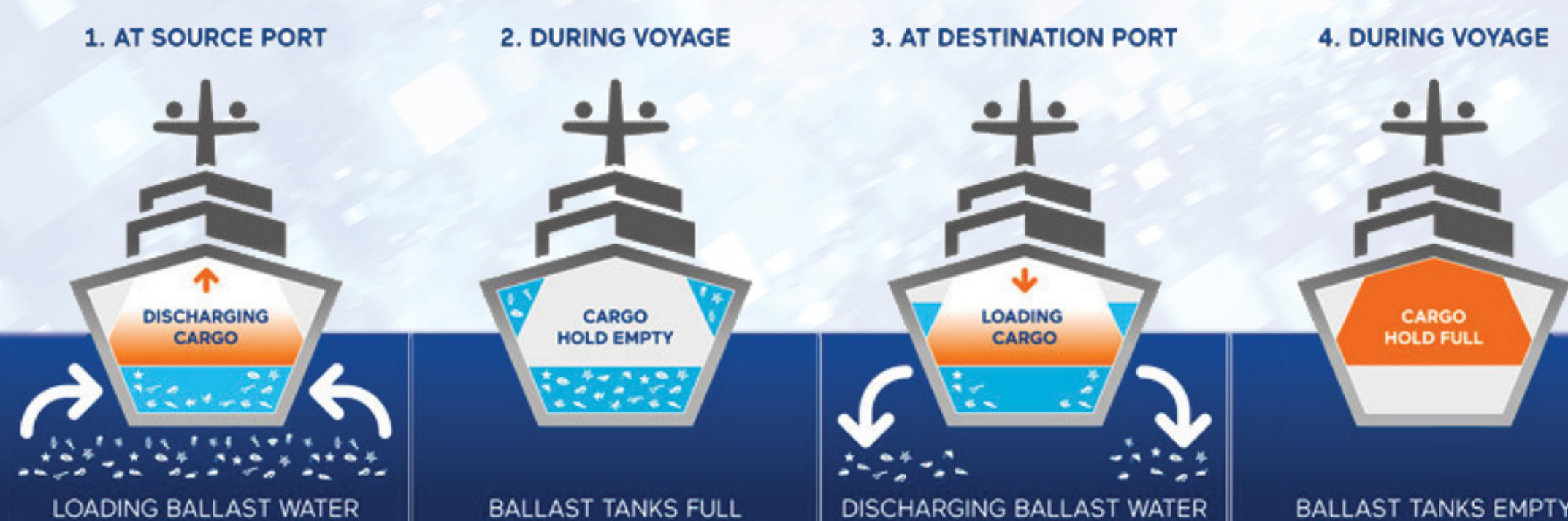


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Yokogawa is making an effort to address environmental issues at the regional and global levels, through our business activities to prevent environmental pollution and advance environmental conservation.

Maritime transport accounts for 80% of global trade in goods. The main consequence of this transport is the use of approximately 10 billion tons of ballast water per year. It is estimated that more than 4,000 species are transported daily in ballast tanks and that about 40 recent invasive species are caused by these transfers. Giant oil tankers, bulk carriers, container vessels, and cruise ships, use a considerable amount of ballast water to completely balance/stabilize the vessel, trim for better cruise performance. Vessel ballast water is taken in coastal waters in the port of one region after unloading cargo and discharged in the port of another area after loading new cargo. For additional reloading, water discharge can also be applied in “via points ports” in various regions.



Ballast Water - Impact of invasive species

Ballast water contains many marine organisms, such as bacteria, larvae and plankton that are primarily indigenous and exotic, which, when released - can survive and become a potential threat to our ecosystems, health, and natural resources, invading new environments and can cause significant ecological as well as economic damage of domestic ecosystems.

Eco system

The ecological threat to biodiversity and local eco-systems.

Health risk

The health risk with the introduction of toxic and pathogenic organisms that can affect fauna, flora and human populations.

Fishing

The economic impact on fishing, the coastal industry, and other commercial activities and natural resources may be disrupted.



Ballast Water Treatment System (BWTS)

A water treatment system is required to ensure complete water neutralization for ballast tanks. Yokogawa provides support for water treatment for ballast tanks with reliable water quality measurements.

Neutralization of ballast water can be done by connecting to port systems or locally on vessels, by installing fixed systems for self-treatment of ballast water.

Technologies such as ballast tanks are used for water treatment:

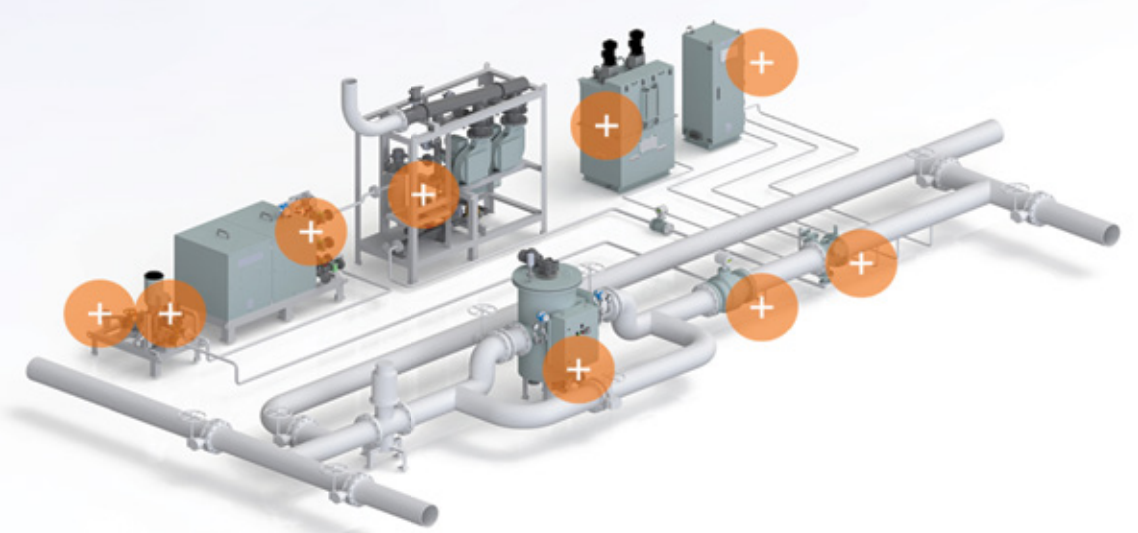
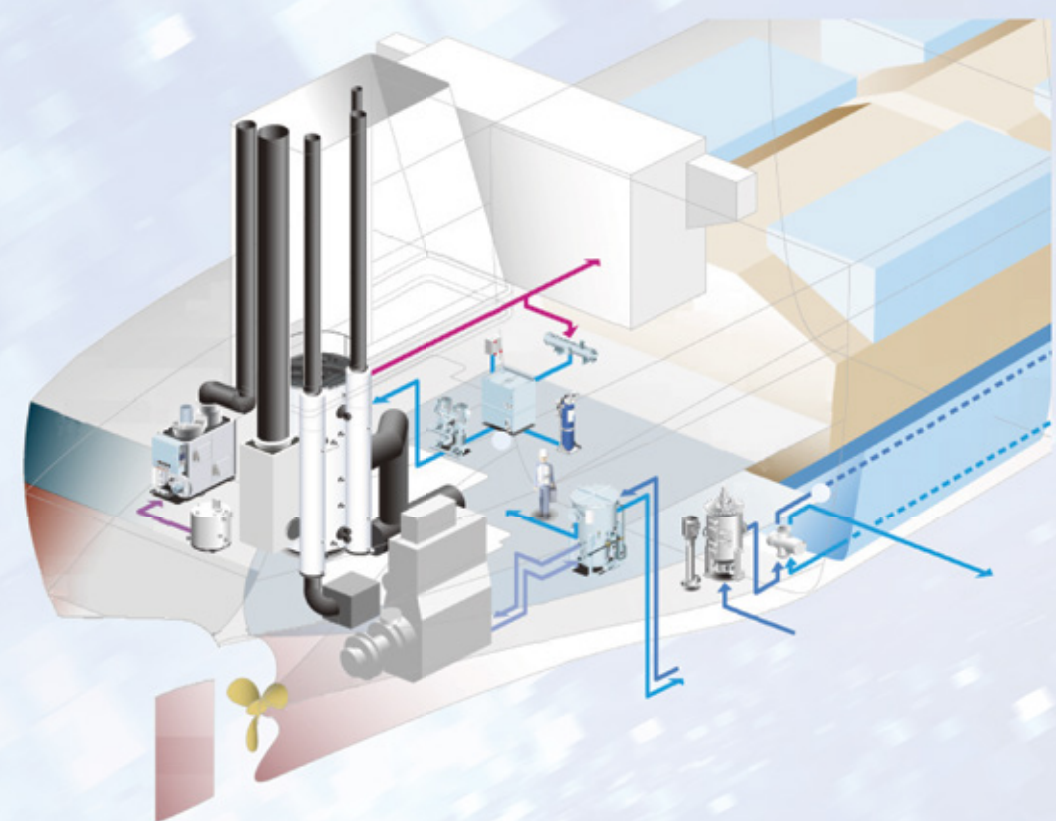
- Filtration
- UV radiation or
- Chemical treatment

The efficiency of ballast water neutralization systems has also been monitored through worldwide regulatory bodies to ensure that ships have a proper neutralization system management plan.

In response to and preventing the threat posed by ballast water systems, regulatory bodies worldwide issue regulations at regional, national and international levels and work to ensure that vessels have a proper ballast water management plan and efficient water treatment and testing systems.

Yokogawa respects all applicable laws and regulations on environmental protection, so in this area, the conductivity measurement loop for ballast water treatment comes with approval for usage in marine applications.

Yokogawa constantly reviews and improves activities based on its environmental management system to meet and improve the above items.





The FLXA21 is 2-wire module-type liquid analyzer that can be connected to up to two detectors from pH /ORP meters, conductivity meters, inductive conductivity meters, and dissolved oxygen meters.



- 2-wire conductivity analyzer FLXA21
- Enclosure material Plastic (Polycarbonate)
- Housing rating IP66/ NEMA 4A/ CSA 3S
- Power supply 2-wire 24 VDC Loop Powered
- Output signal Bi-directional HART digital communication, superimposed on mA (4-20 mA) signal
Optional FF (FOUNDATION Fieldbus) and PF (Profibus) communication
- Analyzer certification General purpose for CE, RCM;
Hazardous area approval;
RINA type approval



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The Inductive Conductivity (also called Toroidal or Electrodeless), the sensing elements (electrode coils) of an inductive sensor do not come in direct contact with the process. These two matched (identical) coils are encapsulated in PEEK (or Teflon) protecting them from the adverse effects of the process.



- Inductive conductivity sensor ISC40G/S
- Measuring elements Toroids with high permeability magnetic material Pt1000 or 30k temperature element
- Wetted parts sensor 30% glass filled PEEK
- Non-wetted parts sensor Sealing gasket : Viton Thread part : AISI 316 SS
- Measuring range 1 μ S/cm to 2 S/cm
- Temperature range 20 to 130°C
- Installation (direct / bypass) wide range of holders flange adapters



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