

Combined ESDS and SSL System for LNGCs

Trelleborg Marine Systems has a proven track record in the development of specialist systems for the Marine Industry worldwide. The Trelleborg SeaTechnik™ Combined ESDS LNGC Ship-Shore Link system is just one of the range of systems that can be supplied as a standalone system for existing tonnage or for integration with other key safety and monitoring systems. Improvements have been identified in installation, operation and maintenance when incorporating the functionality of the ESDS and SSL within a single enclosure. The ESDS is designed to be IGC compliant covering ESD, TPS1, TPS2, GBSC and GLC.

Trelleborg Marine Systems has been involved in the supply of SSLs since 1996 and is the leading supplier throughout the world, having received contracts for:

- Over 500 LNG Carriers, FSRUs
- Over 125 LNG / LPG Condensate Terminals

The extensive knowledge and experience gained as a result of this significant reference list has led to the development of our combined ESDS SSL system that is the most advanced on the market.

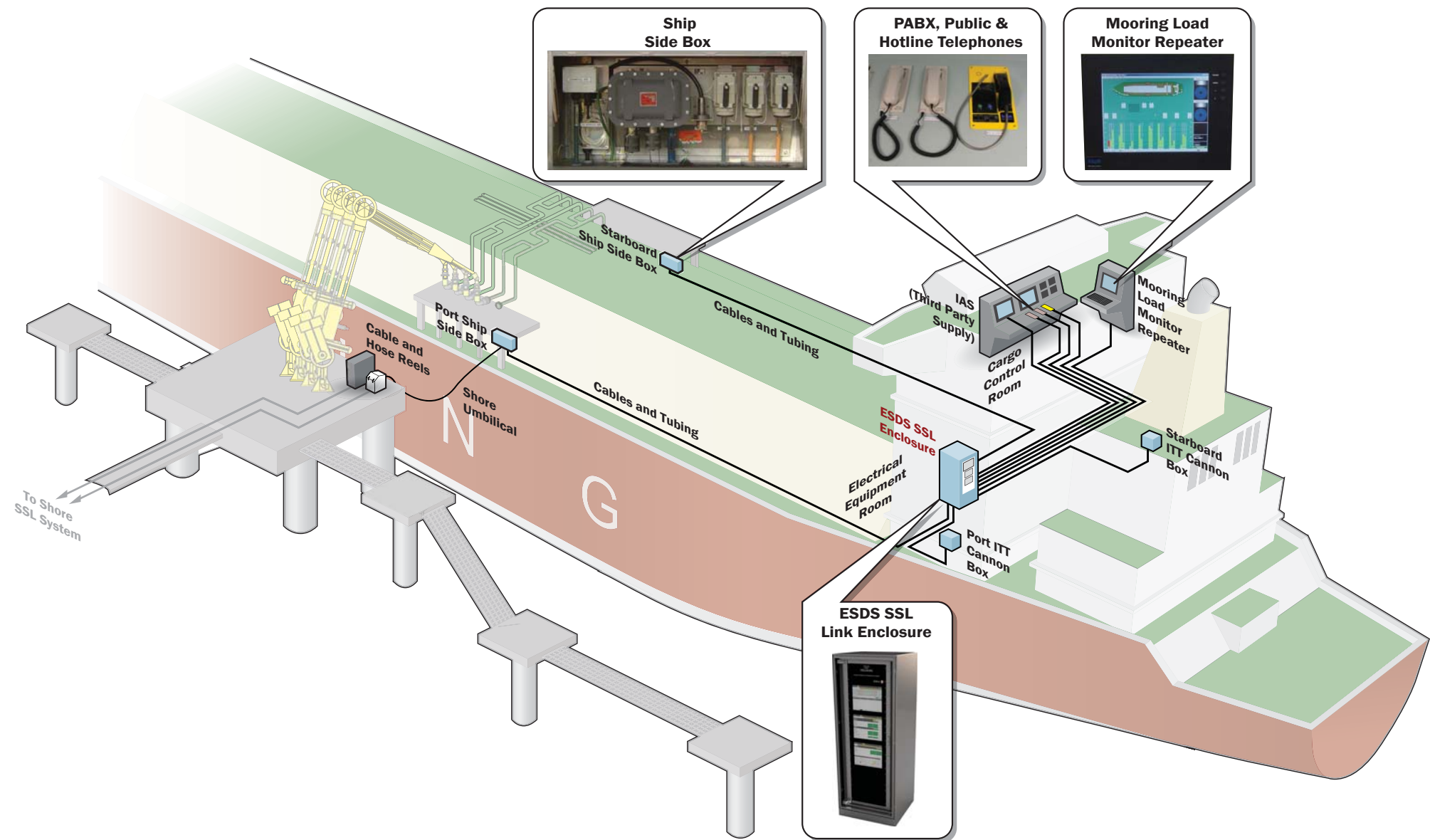
Other features include:

- Fiber optic, electric and pneumatic links are totally independent to conform with ISO 28460.
- Touchscreen user interface
- Proven worldwide compatibility
- Simple electronic reconfiguration to match respective terminal
- Enhanced diagnostics capability

- Local fault finding of ESDS at cabinet
- Main system micro-controller based
- Processor redundancy allowing the system to continue to function even in the event of a failure
- Certified to ISO 61508 SIL 2
- Future-proofing to allow interfaces to external systems e.g. DCS/IAS

Summary of Benefits

- Trelleborg Marine Systems - pioneers of Integrated Worldwide ESDS SSL systems
- Proven track record supplying specialist systems to the marine industry
- Retrofit options available
- Powered from main SSL system's dual redundant 24Vdc Power supply
- Options for reduced installation costs via combined wiring techniques
- Local cause & effect display incorporating trip level overview
- Expansion via remote I/O stations
- Worldwide service & support network
- Continuous development philosophy, with latest technology system available, ensuring full compatibility with existing systems
- Digital capability communicates high speed voice, data or video across the link



Combined ESDS and SSL System for LNGCs

The Trelleborg SeaTechnik™ SSL system features fully ATEX EX d certified electrical connectors for use in hazardous areas. For added safety Trelleborg Marine Systems incorporates EX ia Galvanic Isolator interfacing for Emergency Shut Down (ESD) circuits.

A flexible range of input/output signals can be configured to interface with any control system to suit customer requirements.

The Trelleborg SeaTechnik™ SSL can be supplied with any combination of the following systems:

- Fiber optic - analog
- Fiber optic - digital (USL compatible)
- Electric
- 5 pin electric (ESL and 'SIGTTO' system compatible)
- Pneumatic
- Fusible plugs: fire detection devices as specified in IGC , designed to melt at 96-102 °C
- Push buttons: allowing manual ESD initiation, to be located in accessible locations internally and externally

Interface Connection Options

- Trelleborg SeaTechnik™ fiber optic connectors
- Electric – 37 way Pyle connectors

- Electric - 6 way 'Miyaki' connectors
- Electric – ITT Cannon connectors
- 5 pin 'SIGTTO' link systems
- Pneumatic systems
- Anti-surge connectors
- Miyaki/Pyle adaptors

Associated Systems and Options

- Trelleborg SeaTechnik™/Iwatsu hotphone
- Fiber optic MLM system
- VHF radio link
- 5-Pin SIGTTO connectors
- USL Small scale system

Test Equipment Options

- Fiber optic Active Test Unit (ATU)
- Fiber optic loop-back test connector
- 37 way Electric Test Unit (ETU)
- Miyaki test unit

Service & Support

Trelleborg Marine Systems has been designing, manufacturing and supporting leading edge marine energy management and safety systems for over 20 years. With the head office located in Northwest UK, a team of experienced service engineers and performance analysts/specialists provides installation, commissioning and in-service support worldwide. The worldwide team includes dedicated staff in our Korea and Singapore offices.

A network of experienced sales/technical agents and associates worldwide provides further support, and ongoing technical training is offered to both customers' and associates' engineers worldwide.