

Trelleborg SeaTechnik™ Emergency Shutdown Link (ESL)

- Emergency Shut Down (ESD) link for ship to shore & ship to ship applications
- Used in LPG, liquid chemical and oil transfer applications
- Suitable for use in SIL2 environment under IEC 61508
- Ensures galvanic isolation between ship and shore
- ‘First-up’ indication for ESD location
- Suitable for Ex ia IIB hazardous area applications
- From the world leaders in ship to shore safety link systems

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Emergency Shutdown Link

The transfer of hazardous liquids in a marine environment necessitates the use of linked Emergency Shut Down (ESD) systems. In order that these systems can interact reliably and rapidly, Trelleborg Marine Systems has developed its Trelleborg SeaTechnik™ Emergency Shutdown Link (ESL) system. The ESL offers a reliable link between the two interconnected ESD systems involved in the transfer, enabling rapid and controlled shutdown of the transfer operation in emergency situations.

Complementing our world leading range of other ESD link products and systems, the ESL is primarily aimed at LPG, oil and liquid chemical transfer operations. It supersedes earlier pneumatic systems which are slower in operation and therefore less appropriate as an ESD solution.

The Trelleborg SeaTechnik™ ESL meets the Recommendations and Guidelines for Linked Ship/Shore Emergency Shut-Down of Liquefied Gas Cargo Transfer (SIGTTO, 2009).

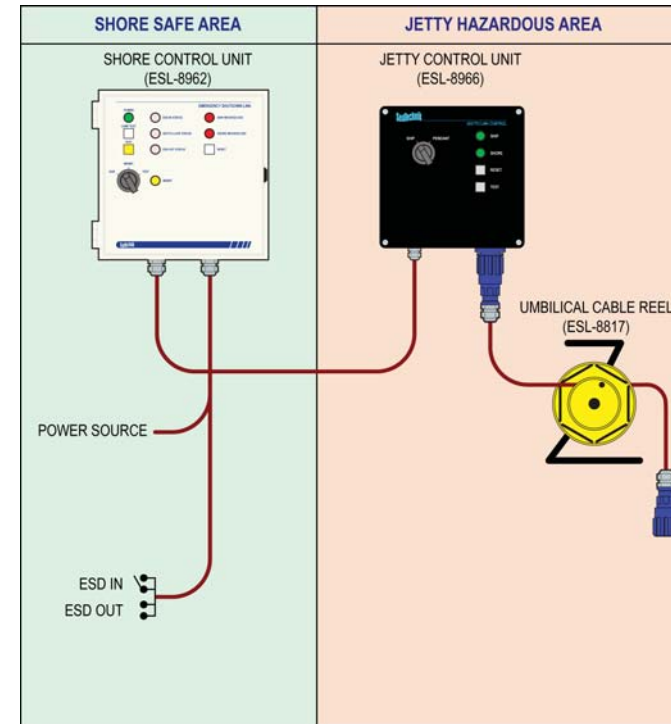
System Description:

The Trelleborg SeaTechnik™ Emergency Shutdown Link system comprises shore-side and ship-side sections. These are similar in that both possess a 'safe area' control unit, linked by fixed cable to hazardous area enclosures & control boxes. Typically the hazardous area enclosures are in turn interconnected by a flexible umbilical cable that allows the two sections to communicate. The safe area control units are also connected into the ESD systems to ensure the correct and safe shut down of equipment in the event of an emergency.

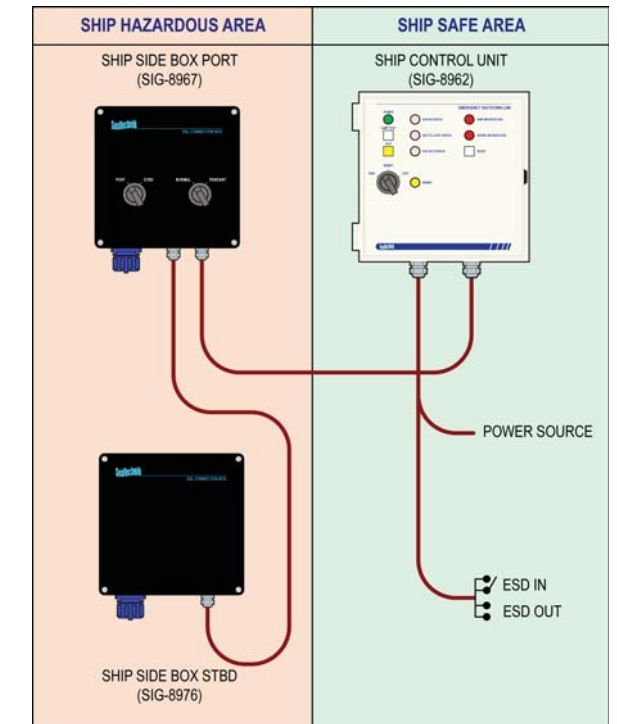
A key feature is that the ship ESL systems incorporate the same electronics as the shore system thereby allowing direct ship to ship functionality not seen in other systems of this type.

The ESL system can operate if only one side of the transfer operation is equipped with the system. In this case, a pendant unit can be connected to the jetty control unit or ship side box enabling the operator to manually initiate a shutdown if necessary.

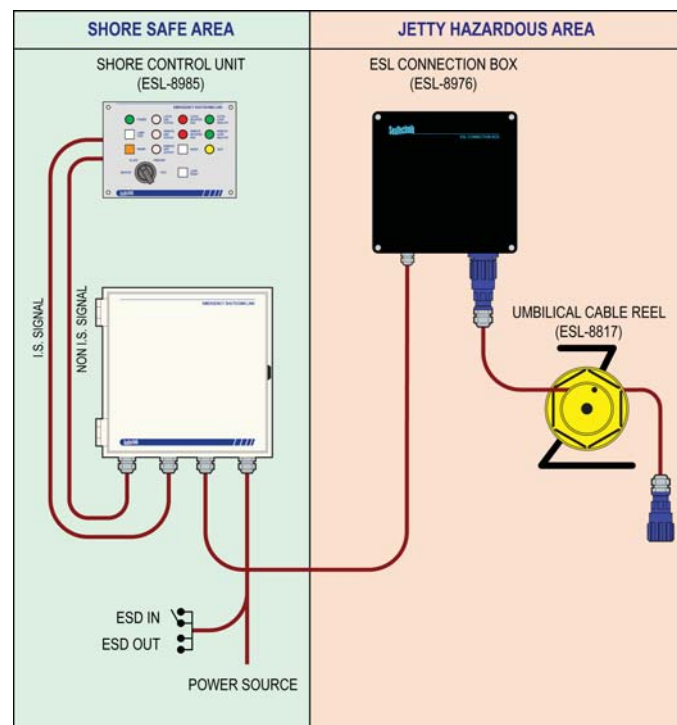
Shore ESL System



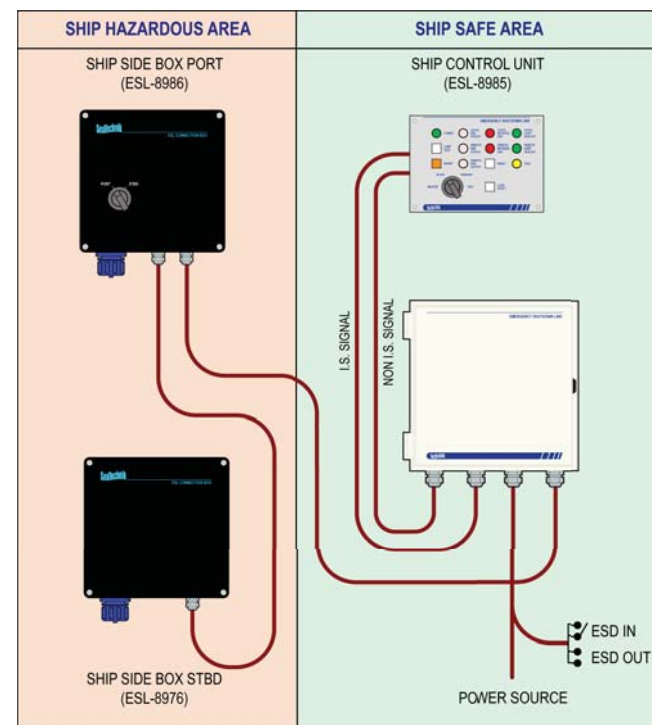
Ship ESL System



Shore ESL with Console Mount Controls



Ship ESL with Console Mount Controls



System Key Features and Benefits:

- Emergency Shut Down (ESD) link for ship and shore applications
- Used in LPG, liquid chemical and oil transfer applications
- Intrinsically safe
- Suitable for use in SIL2 environment
- Ensures galvanic isolation between ship and shore
- 'First-up' indication for rapid fault location
- Suitable for Ex ia IIB hazardous area applications

- System test function
- Ship to ship connection possible
- Umbilical/pendant cable options
- Conforms to industry standards
- Simple design principle
- Compatible with Trelleborg SeaTechnik™ Universal Safety Link (USL)
- From the world leaders in ship-shore safety link systems

Key System Components

Standard Shore Side:

- Control Unit (ESL-8166)
- Jetty Control Unit (ESL-8167)
- Umbilical Cable and Reel (ESL-8817)
- Pendant (ESL-8821)
- Shore Test Unit (ESL-8820)

Additional components required:

- Fixed cable for ship and shore

Standard Ship Side:

- Control Unit (ESL-8166)
- Ship Side Box Port (ESL-8967)
- Ship Side Box Starboard (ESL-8976)
- Umbilical Cable and Reel (ESL-8817)
- Pendant (ESL-8821)
- Ship Test Unit (ESL-8983)



Control Unit



Jetty Control Unit



Umbilical Cable and Reel



Shore Test Unit



Pendant and Reel



Ship 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.