

ESD links for bunkering

FOR LNG AND NEW FUELS (METHANOL, AMMONIA, HYDROGEN)



Bunkering ESD links

Emergency shutdown (ESD) links provide a connection between the ESD systems on both sides of a fuel or cargo bunkering/transfer system and ensure the mutual shutdown of operation in case of an emergency or fault. They can also support ancillary services such as communication and data exchange between the transferring and receiving sides.

Various industry bodies (e.g. IMO, ISO, SGMF) have developed regulatory frameworks and recommendations for safe gas handling operations, which call for linked emergency shutdown systems to be installed between the parts of liquid gas or hazardous material transfer.

These frameworks are considered to be best practice and aim to maintain communication (e.g. ESD signal transfer, direct voice, data communication) between the persons in charge of the transfer.



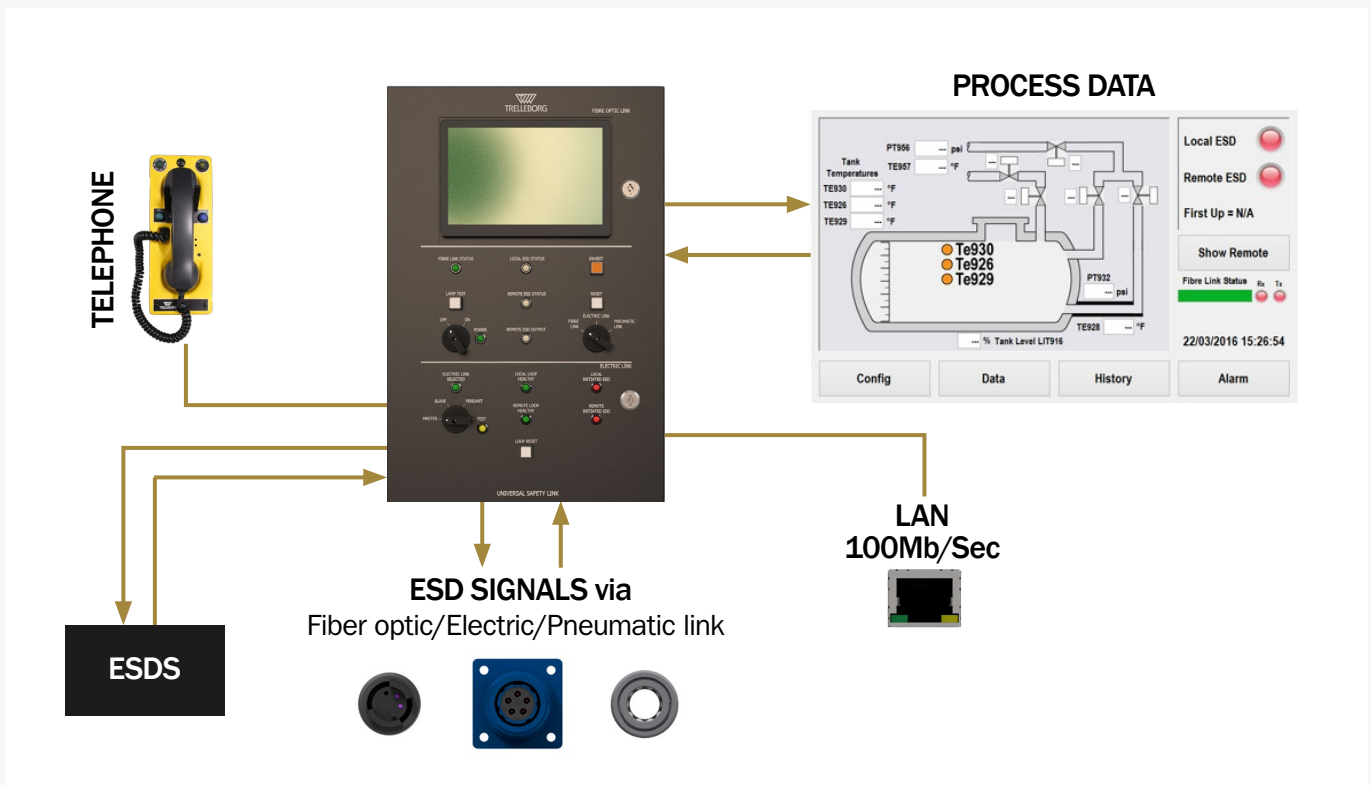
UNIVERSAL SAFETY LINK FROM TRELLEBORG

Trelleborg's commitment to safety brought to life the UNIVERSAL SAFETY LINK (USL), a bunkering safety link that consists of fiber, electric and pneumatic links, exceeding requirements of bunkering operations and guaranteeing a seamless transfer operation.

While the pneumatic and electric links transfer the emergency shut down (ESD) signal in case of an emergency, the fiber optic link transfers not only the

ESD signal but additionally supports communication via a Hotphone and provides access to process data from both sides. The data link offers significant benefits such as providing real-time information that can effectively prevent emergencies and associated subsequent costs (downtime, loss of trading ability, threat to equipment, assets, and human life).

USL CONFIGURATION



- | The fiber optic link system uses SONET technology and a physical connection is made through the use of industry-standard two-way MIL standard expanded beam connectors (MIL-DTL-835126). SGMF BSL Type 3 compliant.
- | The electric link uses standard 5-pin ‘SIGTTO’ style electric connectors. SGMF BSL Type 2 compliant.
- | The pneumatic link uses a 1/2” QDC connector (MIL-C-51234). SGMF BSL Type 1 compliant.
- | The operator simply selects one of the above links as the main link. The others are available as a backup in case of failure of the main link.
- | Ensures compliance with industry standards.
- | Promotes smooth and secure transactions.
- | Protects valuable assets from the risk of unforeseen events.

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Website | trelleborg.com/marineandinfrastructure
 Sales | sales.TMSUK@trelleborg.com

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Trelleborg Marine and Infrastructure
Email: sales.TMSUK@trelleborg.com