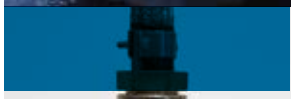
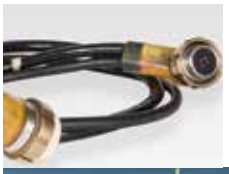
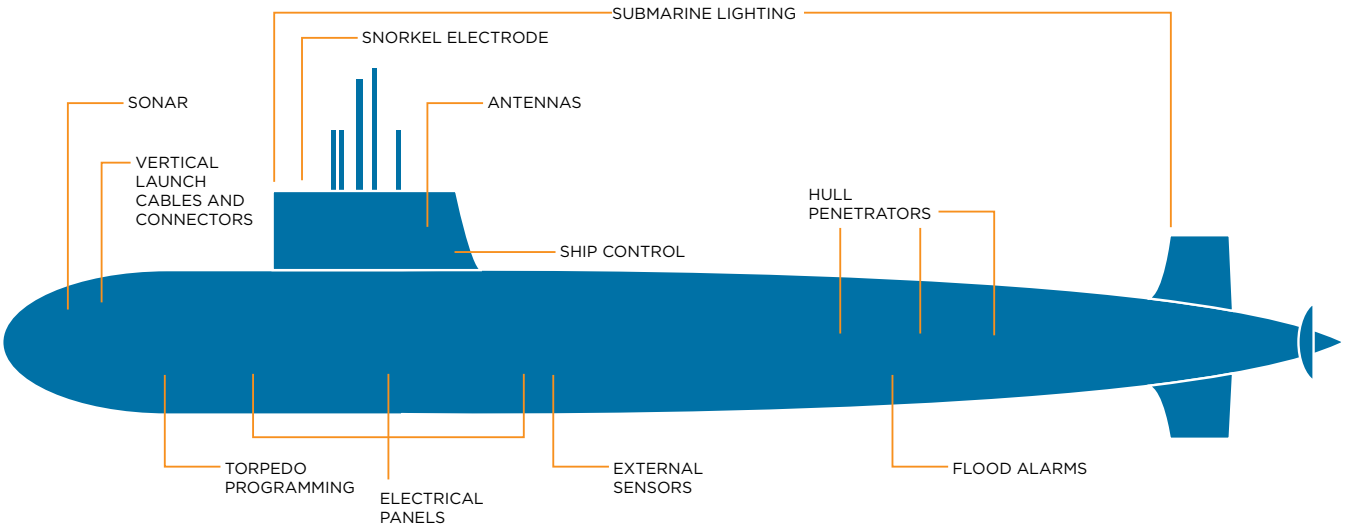






SEACON Integrated Solutions for Submarines and Surface Ships

Integrated Solutions for Submarines and Surface Ships

Harsh Environment Connectivity, with Military-Grade Custom Interconnects, Sensors, Shipboard Lighting, and Electrical Panels



TE Connectivity (TE) products for submarines and surface ships are manufactured to customer requirements, NAVSEA drawings and to the latest military standards. Many of TE's products can be found in MIL-HBK-940, Standard Electrical Symbol List.

Standard or Custom

Beyond our standards-based products, we can provide you with custom designs to fit unique needs—in quantities from one to thousands.

SUBSAFE Level One Approved

Where required, our products are designed and manufactured to meet the requirements of the U.S. Navy's SUBSAFE quality assurance program, which helps ensure that a sub's hull stays watertight and can recover from unanticipated flooding.

Standard product lines include:

Pressure-Proof Connectivity*

- Hermetic connectors
- Hull connectors and penetrators
- Cable assemblies and molded parts

* Note: Pressure-tested to customer's design specifications

Sensors and Lighting

- Water-sensing electrodes
- Magnetic proximity switches
- Lighting

Subsystems

- On-board electrical panels
- Control panels

Quality

- ISO 9001:2015 certified manufacturer
- SUBSAFE Level One Certified

Engineering and Design

Our engineering expertise extends to understanding your application and a commitment to realizing your vision.

- Custom one-off solutions
- Production-level products in the quantities you need

Our ability to create products precisely tailored to your application helps support higher performance and lower costs through the life of your program.

Welding, Molding and Final Assembly

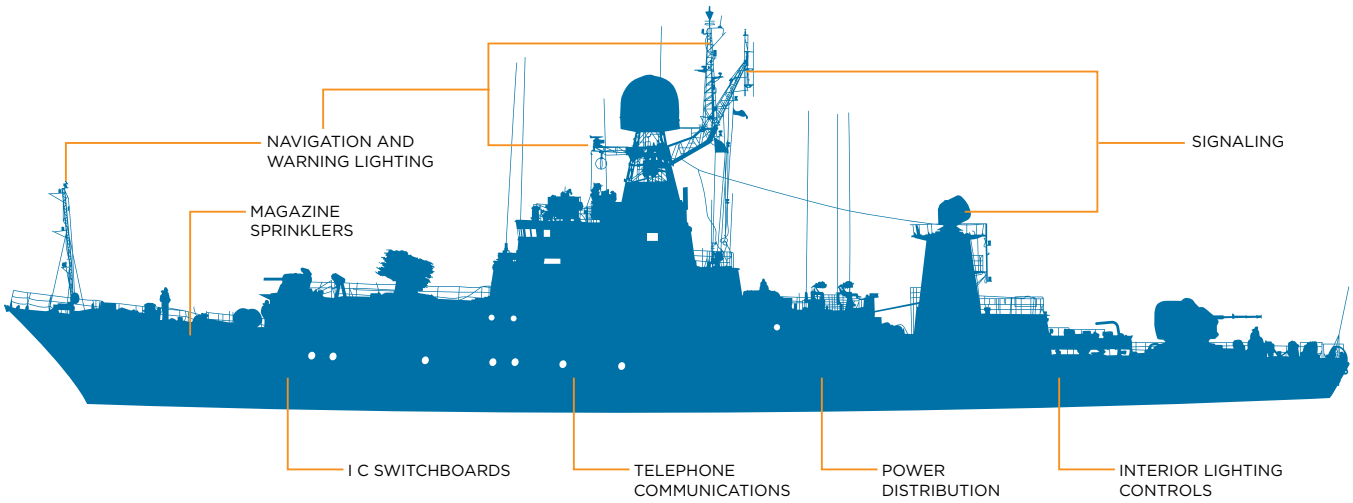
We excel at turning concepts into high-quality reality.

- Welding and machining exotic alloys
- NAVSEA S9320-AM-PRO-020 approved molding facility
- Materials encapsulation to withstand pressures up to 2000 psi

Design

Welding/Fabrication

Assembly



Testing Our testing procedures meet NAVSEA inspection requirements.

Test capabilities include:

- Hydrostatic testing to 2000 psi
- Mechanical inspection and testing
- Electrical testing, including testing under hydrostatic pressure
- Environmental testing, using HALT (Highly Accelerated Life Testing) and HASS (Highly Accelerated Stress Screening)

Qualified Products . . . Time-Tested Reliability

Our pressure-tested and hermetically sealed connectors are available in epoxy molded or glass-to-metal configurations for data and power interconnects.

Designed for Harsh Marine Environments

Mil Spec Materials

- Nickel-copper alloys and stainless steel
- Polyurethane encapsulation
- Glass-to-metal hermetic sealing

High-Speed Data Delivery

- Up to 18 GHz with coaxial cable
- Single mode and multimode fiber capabilities

Pressure Sealed and Hydrostatically Tested

- Concurrent hydrostatic/electrical testing on fully automated equipment
- Up to 2000 psi, regulated to your requirements
- High capacity test chamber

HALT/HASS test chamber

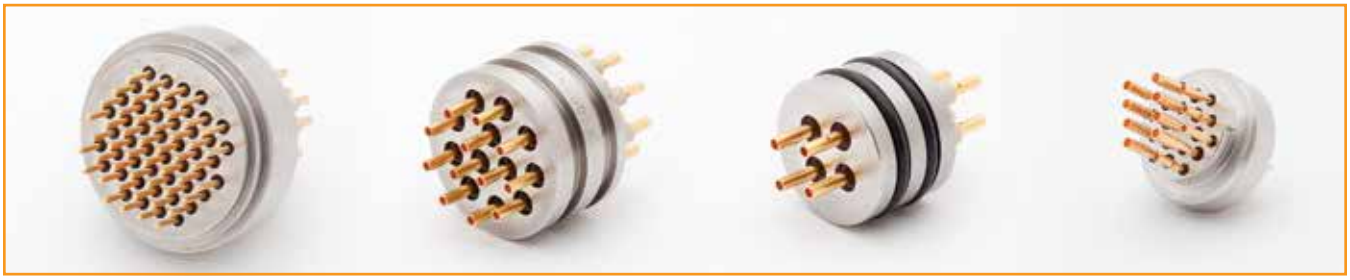
Hydrostatic test chamber

TE Components . . . TE Technology . . . TE Know-how . . .

AMP | AGASTAT | CII | HARTMAN | KILOVAC | MICRODOT | NANONICS | POLAMCO | Raychem SEACON | Rochester | DEUTSCH

Empower Engineers to Solve Problems, Moving the World Forward.

CONNECTORS AND HULL PENETRATORS



Glass-sealed headers and penetrators

TE's glass to metal seal connectors are used in various harsh environments in the military, marine and oil & gas industries. TE's ability to create a water tight seal between the glass, electrical contact and metal shell of the connector gives our customers a reliable connection that they can count on. TE's MSS (Metal Shell Series) are available in a glass seal version.

Key Features

- Custom configurations for specific requirements
- Available with boot seals
- Stainless steel, QQ-N-281 (NiCu) and QQ-N-286 (NiCuAl) housings
- Reliable connections in high pressure environments
- Voltage rated up to 3KV
- Pressure rated up to 20,000 psi
- Temperature: -50°F to 400°F (10°C to 204°C)

Our pressure-tested and hermetically sealed connectors are available in epoxy molded or glass-to-metal configurations for data and power interconnects.

Signal/control connectors with up to 120+ positions

Fiber optic connectors for data and signals, supporting both multimode and single-mode fiber

Coaxial connectors for data and RF signals up to 18 GHz, with impedance matching to reduce crosstalk

Power connectors, rated up to 440 V/400 A, meet the need for harsh environment operation and shore power

Hybrid coaxial connectors, combining RF data and electrical power

Penetrator for vertical launch system

Missile tube penetrator

Multiple-hull connectors are made to your specifications for size and receptacle configuration.

Single receptacles can carry from from 1 to 120 conductors, depending on the type of wire and insert arrangement chosen.

Hull penetrator

CABLE ASSEMBLIES AND MOLDED PRODUCTS

Sea-trial test cable

Cable assembly for vertical launch system

Our full line of MIL-DTL-24231 pressure-proof electrical fittings and connectors are built and tested to your specifications for cable type, length, number of conductors, and plug style. We support custom harness configurations, with multiple connector configurations and jacket options. Molded products are NAVSEA S9320-AM-PRO-020 capable, making us approved to fabricate, mold, and inspect outboard cable assemblies and components for the US Navy.

Applications

- Penetrator-to-shipboard control panels
- In-board/outboard cable assemblies
- Underwater systems

WATER-SENSING ELECTRODES

Ballast-style electrode

Torpedo tube electrode

Smart snorkel electrode

TE electrodes help you safely and reliably sense the presence of water in floodable compartments. Our smart snorkel electrode, with automated on/off operation, features solid-state controls to extend operational life.

For snorkel applications, where ice build-up must be controlled, heated electrodes have an operating temperature range of 2°C to 21°C.

Applications

- Snorkels
- Missile tubes
- Torpedo tubes
- Ballast
- Lock-out chambers

LIGHTING SOLUTIONS

Infrared transmitter system

Submarine navigation lights

Submarine ID beacon light

We design a variety of lights qualified to MIL-DTL-24560 for shipboard navigation, signal, and warning lights suited to both surface and subsea applications. Submarine lights use tempered glass Fresnel globes to enhance light output, increase impact resistance, and withstand discoloration and etching at sea.

	Light Type	MIL-HDBK-290 Symbol
	Infrared Transmitter AN/SAT-2A	N/A
	Approach Light	164.3
	Signal Light	192.1
	Submarine Navigational Lights	174, 188, 189
	Submarine ID Light	177
	Aircraft Warning Light	160.1
	Sight Light	136, 156
	Signal Lights	190

Applications

Submarine

- External pressure-proof to US Navy standards

Surface Ships

- Meets US Navy standard 108 (MIL-STD-108)
- Infrared communication systems (AN/SAT-2A)

MAGNETIC PROXIMITY SWITCHES

Hatch door proximity switch

Magnetic switch assembly

Submersible limit switch

Pressure-proof magnetic proximity switches, which are commonly used to indicate mast and antenna position, feature rugged construction with molded polyurethane or glass-filled epoxy housings. Our second-generation switches use an epoxy-encapsulated glass reed switch to enable precise readings and help prevent operational failure.

Our offerings include Symbols 2652, 2742, and 2744, as well as the latest generation of proximity switches.

Applications

- Submarines and surface ships
- Masts
- Antennas

Masthead proximity switch

SHIPBOARD ELECTRICAL PANELS

Portable bridge control communications

Power distribution panel (Symbol 969)

General-purpose test panel

Our electrical panels for communications, testing, and power distribution are built to meet MIL-STD-461-EMI shock requirements. They feature heavy-gauge construction and shielding as appropriate to help create rugged panels that will neither interfere with sensitive electronics nor be susceptible to outside electromagnetic interference.

Applications

Communication Systems

- Ship-to-ship
- Internal
- Infrared ship-to-satellite

Test Panels

- System diagnostics/self-diagnostics
- Rugged general purpose

Power Distribution

- Light, motor, and switch control

For More Information

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Follow us on Twitter for all the latest product news @TEConnectivity, and on Facebook, TEConnectivity.

Harsh Environment Connectivity, with Military-Grade Custom Interconnects, Sensors, Shipboard Lighting, and Electrical Panels

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