Military, aerospace, and subsea connectors, cables and non-explosive actuators
Over 45 years of high-reliability-connectivity innovations

Heritage proven standard products and custom-solution capabilities position Eaton as a primary source for harsh-environment interconnect for all physical domains: air, space, sea, and terrestrial.

For over 45 years, Eaton’s G&H Technology™ and Burton™ connectivity solutions have provided uncompromised performance in your most-challenging environments.

An unprecedented breadth of mission successes includes hundreds of thousands of connectivity solutions installed in harsh-environment applications extending from the depths of the Marianas Trench to the reaches of deep space.

This extensive program heritage provides the proven design platforms and technologies needed to develop innovative, high-reliability standard products and custom solutions.

Connectors, cables, and non-explosive actuators are available in form factors ranging from legacy to latest-generation miniaturized for a wide range of aerospace, aviation ground power, military, oilfield, and subsea applications.

3D modeling software is integrated with CAM resources to accelerate tooling and test fixture development and concurrently manufacture parts in prototype and production quantities. Dedicated tooling and prototype shops, and an extensive array of in-house environmental test equipment, also accelerate prototype development.

Mission critical engineering resources

**Technology portfolio**
An extensive portfolio of field-proven products and technologies satisfies a significant number of customer requirements with only minor modifications.

**Modeling and simulation**
Our design teams utilize SolidWorks to simulate a complete array of harsh-environment mechanical and thermal stresses.

**Extensive experience**
Eaton has an in-depth understanding of the materials, mechanisms, and electronic design required for harsh environment, mission-critical applications.

**Defined toll-gate process**
New product development is controlled through a defined toll-gate process to ensure consistent, predictable, and successful results.
Custom cables and wiring harnesses

Eaton can provide custom cables and wiring harnesses for turnkey design, collaborative co-development, or build-to-print programs. End-to-end connectivity capabilities include:

- Application-specific solutions for high currents and voltages, Ethernet, and RF and acoustic-signal applications
- Single and multiple-layer foil and braided EMI/RFI shielding
- Extreme temperatures, shock/vibration, radiation, corrosive media, vacuum and pressures up to 20,000 PSI
- Integrated mechanical tow, fluid delivery, and cable separation and release capabilities
- NAVSEA S9320-AM-PRO-020 certified overmolding
- Water blocked and pressure balanced oil filled subsea cables
- Harnesses with up to 2,800 wires, over 20-feet long, and string tied as per NASA-STD-8739.4

From subsea to space; custom cable heritage includes submarine weapons control (top) and space-rated (left) applications.
QPL style and specialized solutions include:

- MIL-310544
- MIL-DTL-12520
- MIL-DTL-26482
- MIL-DTL-55116
- MIL-DTL-55181
- B8-590/U battery
- Hotshoe connectors
- Miniaturized data and in-line power solutions
- SINCGARS GPS
- SINCGARS power tray

**Hotshoe Connectors**
- High contact densities
- Accordion-style contacts provide reliable connections even after moisture exposure
- 360° EMI/RFI shielding

**Mini-Data Connectors**
- 10 contact receptacles and plug / cable assemblies
- Supports data rates up to 10 gigabits / second
- Up to 1.4A per contact

**MIL-DTL-55116 Extended Body Receptacles**
- 2¾ inch additional length facilitates bulkhead mounting
- Doubled-ended feedthrough configurations

**MIL-DTL-55116 Style with 19 and 27 Contacts**
- High-contact-density panel mount and in-line solutions
- Rugged J-slot coupling mechanisms

**MIL-DTL-55181 Straight Backshell**
- Suitable for panel mount and in-line applications
- Plug and receptacle, pin or socket configurations

**MIL-DTL-55181 Dual Receptacle Splitters**
- Splits power and data from a single cable to two sets of receptacle contacts

**MIL-DTL-55181 Plug Splits Power to Two Cables**
- Plug bodies are available with pins or sockets
- Lower-cost solution than traditional Y-cables

**MIL-DTL-55181 Plug Splits Power to a Receptacle and a Cable**
- Low profile is ideal for height constrained applications
- Available with multiple cable and receptacle orientations

MIL-DTL-55116 plugs are available in QPL, NSA, right angle and lightweight configurations.

MIL-DTL-55181 options include RoHS compliant finishes.

SINCGARS heritage, power-tray connectors are available with integral EMI/RFI filtering.

**C4ISR / tactical communications**
Micro-military connectors

Dual-Start Threads
- 1.5 turns full mate
- Shell sizes 6, 7, 9, & 10
- 1 to 26 contacts
- 55 dB EMI shielding

Triple-Start Threads
- 1 turn full mate
- Shell sizes 8, 9, 11, & 12
- 4 to 26 contacts
- 85 dB EMI shielding

Custom Capabilities
- Cables assemblies and wiring harnesses
- Space-rated solutions
- Custom contact arrangements
- Ethernet and MIL-DTL1553

MIL-DTL-38999 Series III & IV

Lanyard-Release Plugs
- QPL D38999/29, / 30 and / 31
- Series III 22° off-axis-pull outperforms D38999 requirements
- Series IV 15° off-axis-pull with as low as 90 pounds force

Filtered Receptacles
- Meets D38999 shock/vibration without any deratings
- C, L, T and Pi filter configurations
- Custom solutions available for any voltage, frequency, and filtering requirements

Hermetic Receptacles
- Helium leakage less than 1 E-7 CC / S per EIA-364-02
- -65°C to 200°C operating temperatures
- Hardware and weld/solder mount configurations

Wing-Lok™ Plugs
- Reduces effort needed for rapid and repetitive engagements
- Ergonomic designs are especially beneficial when wearing bulky military and space-grade gloves

Space Rated
- Series III NATC meets NASA SSQ 21635
- Series IV designs are space flight approved by NASA GSFC
- Ergonomic Wing-Lok™ plugs are ideal EVA & IVA solutions

Up to 900 Amps
- Shell sizes 33 – 57
- Rugged, Series IV derived breech-lock-coupling mechanisms
- Peacekeeper ICBM qualified
- 2800 VRMS service ratings

Features include:
- Significantly reduced size and weight compared to MIL-DTL38999 solutions
- Mating compatibility with miniaturized connectors from other manufacturers
- Coupling mechanisms stay engaged in high shock and vibration environments
- Threaded and banding platform backshell attachment options

QPL style and specialized solutions include:
- Class K 2000° firewall
- Filtered receptacles
- General purpose plugs and receptacles
- Hermetic receptacles
- MIL-STD 1553 high speed data
- MIL-STD-1760 lanyard release
- Power-Breech™ solutions rated up to 900A
- Space rated including NATC
- Wing-Lok™ plugs

Custom Connectors and Cables
- Application specific contact arrangements
- Extreme operating environments and corrosive-media compatibility
- Custom cables and wiring harnesses including overmolded, flat ribbon, coax, high-current power and Ethernet
Custom space, launch, and weapons systems

Heritage-proven technologies and design platforms can be leveraged to quickly provide a wide range of custom, harsh-environment solutions for interconnect applications ranging from shoulder-fired missile launchers to deep space probes:

- Actuator-released interconnects
- Cryogenic connectors
- Deadfaced in-flight disconnects
- EVA and IVA quick disconnects
- Flight termination systems
- High voltage quick disconnects
- In-flight disconnects
- Integrated gas and fluid fittings
- Interstage-raceway connectors
- Low-impacted-shock connectors
- NATC space-rated connectors
- Positive mate monitoring
- Umbilical connectors and cable assemblies
- Vertical launch disconnects
- Zero-separation-force connectors

Non-explosive actuators

Features include:

- Safe handling and deployment
- Program heritage includes over 12,000 actuations
- Fragment and debris free operation
- Low power consumption
- Rapid releases across wide temperature ranges
- Low imparted shock
- Field refurb and reset capabilities reduce costs for multiple test sequences

Customs and Cables

- Valves and bottle piercers
- Actuator-released interconnects
- Form, fit, and function pyrotechnic actuator replacements
- Cable assemblies and wiring harnesses

Separation Nuts

- Standard products rated up to 9500 pounds load capacity
- Heritage proven in over 4,000 releases

Pin Pullers

- Solutions range from standalone devices to integrated systems
- Compression release solutions are also available

Cable Releases

- Available with single or multiple cable-release points
- Heritage proven load ratings up to 267 pounds per cable

Tension Releases

- Standard products rated up to 1300 lbs. load capacity
- Miniaturized solutions release 250 lbs. in form factors less than 1/3 cubic inch

Tension Links

- Standard products rated up to 2000 pounds load capacity
- Ideal solutions for Marman clamp (V-band) restraint and release applications

Electrical Switches

- Event-based switching such as bypassing failed battery or solar-power cells
- Significantly higher reliability than electrical relays
Commercial and military aviation

**Solutions include:**
- AS7974 cable assemblies
- B1B cable assemblies
- Extension cables
- Jumper cables
- Metallic and non-metallic banded cables
- Safety-service systems
- Single-point-refueling cables
- Six-around-one cables
- Y-adapter cables

**Cabin Lighting Connectors**
- Shells utilize integral tracks to facilitate reliable blind mating
- Available with 8 to 24 contacts
- Extensive commercial aircraft flight heritage

**Ground Power Receptacles**
- 400Hz, 28VDC and 270VDC
- Airframe and ground equipment solutions
- Commercial and military flight heritage

**Ground Power Plugs and Cables**
- 400Hz, 28VDC and 270VDC
- Field-replaceable contact assemblies
- Six-around-one cables
- AS7974 banded cables

Subsea, shore power and oil and gas penetrators

**Custom Naval Connectors & Cables**
- Water blocked and NAVSEA PRO-20 certified overmolded cables
- Mechanical tow, fluid delivery, and separation and release cable capabilities

**Dry-Mate Burton™ Connectors**
- Shell sizes 9 to 48
- 29 to 39 contacts
- Cable options include Ethernet, overmolded and PBOF

**Ultra-Compact Shell Sizes 9 & 12**
- Shell size 9: up to 8 contacts
- Shell size 12: up to 14 contacts
- Cable options include Ethernet, overmolded and PBOF

**Underwater-Mate**
- In-line, bulkhead and miniaturized form factors
- 1 to 8 contacts
- Rated up to 440V and 175A

**Subsea Penetrators**
- 2 to 12 conductors ranging from 1/0AWG to 18AWG
- Straight and right-angle bodies
- Custom penetrators, wiring harnesses and cable assemblies

**Shore Power**
- MIL-C-24368 plugs and receptacles
- OPNAVINST 11310.3B single-pole connectors
- Overmolded cable assemblies

**Wet-Mate Burton™ Connectors**
- Shell sizes A, B, and C
- 2 to 16 contacts
- Bulkhead, in-line, overmolded, and PBOF solutions

**Subsea Penetrators**
- 2 to 12 conductors ranging from 1/0AWG to 18AWG
- Straight and right-angle bodies
- Custom penetrators, wiring harnesses and cable assemblies

**Oil and Gas Penetrators**
- Penetrators to fit standard and non-standard wellheads
- Surface and downhole connectors and packer penetrators