



Rail Overview

Tyco Electronics

As today's railroads evolve into an evermore high-tech industry, rely on Tyco Electronics for the products to keep your stock rolling and your communications running. Because today's Tyco Electronics Connectors are more than just connectors. We help make it easier and more productive to increase capabilities, ensure reliability and control maintenance costs. From traditional terminals and splices that have kept locomotives running for years to touch-enhanced applications on the ground, track or power line. Locomotives, EMU and DMU Cars, Signalling, Catenaries, Communications, Security, Public Address Systems, Lighting, Ticketing Systems are the main applications of Tyco Electronics products. We can provide the best support with the most advanced, versatile and cost effective technologies.



Interconnections for H.F.Signals, Harnesses Simplification, High Current/Voltage Terminals and Components, Connectors, Insulators, Circuit Protections, Environmental Interface Connectors, EMI Protection, RF Interconnections, Fibre Optics Passive and Active Components, Reliable Application Tooling, Printed Circuit Boards, Cables and Cable Accessories, Relays, Power Resistors, Identification Systems, Switches, Sensors and Electronic Modules, Touch Screens, Wireless Components and Power Systems.

Our Electronic Components division is the world's largest supplier of passive electronic components, including connectors and interconnect systems, relays, switches, circuit protection devices, touchscreens, sensors, and wire and cable.

Tyco Electronics ability to serve your present and future requirements is realised through the synergies of a strong R&D program, expertise in materials science, product design and process engineering, and our network of knowledgeable application engineers, sales representatives and customer service personnel.



Tyco Electronics is a leading global provider of engineered electronic components, network solutions and wireless systems, with 2006 sales of \$12.7 billion to customers in 150 countries. We design, manufacture and market products for customers in industries from automotive, appliances and aerospace and defence to telecommunications, computers and consumer electronics. With over 8,000 engineers and worldwide manufacturing, sales and customer service capabilities.



Other Business Units

Power Systems

Tyco Electronics Power Systems, a division of Tyco Electronics, is a leading global provider of innovative, reliable AC-DC and DC-DC switching power supplies, complete telecom power systems, batteries, Power Modules, Solid State Relays, GPS Receivers, Gas Detection Modules, hybrids and Low Noise Amplifiers. Tyco Electronics Power Systems also offers custom design, engineering, installation and technical support services to its customers worldwide.



M/A-COM

The M/A-COM business unit is the recognised technology leader in bringing IP-based network innovation to two-way radio communications for Utilities, Transportation, Federal and Public Safety markets worldwide. The M/A-COM unified network architecture products delivers to customers unprecedented access to voice, interoperability and data information - where it's needed, when it's needed and to whom it's needed.

AMP NETCONNECT

Tyco Electronics develops a comprehensive range of leading-edge network connectivity and systems management infrastructure solutions as well as network management and monitoring solutions, under the AMP NETCONNECT brand, that solve complex networking infrastructure challenges companies face today. Serving customers in government, education, healthcare, finance, manufacturing, technology, commercial and residential real estate markets AMP NETCONNECT products and systems deliver integrated, customised solutions for voice, data and video networking needs. Offering the broadest line in the industry, the AMP NETCONNECT business unit of Tyco Electronics is well positioned to be a single-source systems provider of products that provide optimized technology performance and increased productivity, giving customers a more immediate return on their information technology investment.



Multiple Application Products



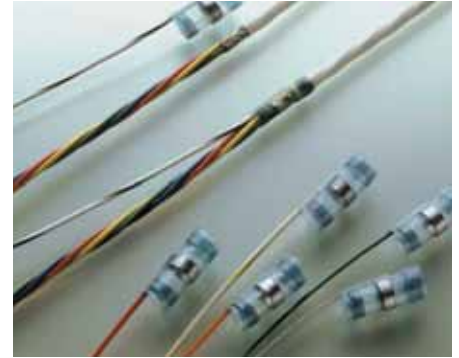
PIDG Terminals and Splices and Insulated Terminals and Splices

- Insulated crimp terminals & splices
- LSF halogen free insulation providing high dielectric strength
- Design provides maximum contact and tensile strength
- STRATO-THERM high-temperature terminal available
- Meets the requirements of London Underground and SNCF



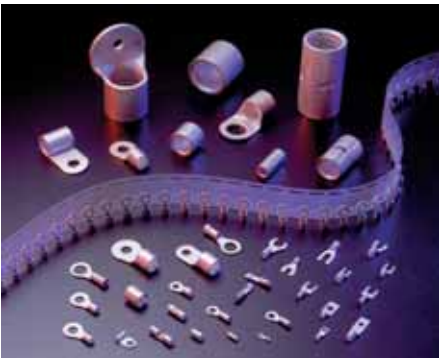
Power Terminals to 1000mm²

- Full range of standard and special (2 hole and angled) terminals
- Ranges of terminals to meet and exceed the requirements of NFF 00363, London Underground and BS EN 61238
- Terminals for Aluminium Cable and Bimetallic applications
- A full range of hand, hydraulic and battery powered Crimping equipment



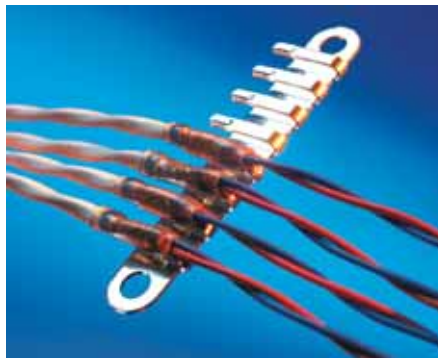
SolderSleeve Shield Terminations

- Wire-to-wire, shield, coaxial cable termination
- One piece design offers easy installation and lower installed cost
- Transparent sleeve provides encapsulation, inspectability, strain relief, and insulation
- Immersion resistant
- Prefluxed solder preform provides a controlled soldering process
- Meets MIL-S-83519 and NAS 1747



SOLISTRAND Brazed Seam Terminals

- Utilise a brazed seam
- Applied with "W" crimp tool
- Termination to solid and stranded wires
- 26 AWG - 600 MCM wire range



Bus Bar Devices

- Suitable for cable screen termination
- Multiple coax terminations
- Solder Bus Bar



MiniSeal Crimp Splices

- Immersion-resistant splice with heat-shrinkable sealing sleeve
- Qualified to MIL-S-81824/1
- Small and light weight
- Insulation and strain relief

Multiple Application Products



Heat-Shrinkable Tubing

- Modified elastomer tubing offers flexibility and improved resistance to abrasion and physical abuse
- Resists most oils, fuels, and other fluids commonly found in mil-aero applications, even while exposed to elevated temperatures
- Temperature range: -94° to 250°F (-70° to 120°C)
- Available with inside diameters (expanded state) ranging from .125 (3.18) to 4 (101.6)
- Meets SAE-AMS-DTL-23053/1 class 1 & 2
- Halogen free



Performance Labels

- Labels provide colour coding, permanent and temporary identification
- Self-laminated labels provide side-entry identification of cables and wires
- A multitude of sizes and materials for diverse applications and surfaces
- Labels are available for temporary or permanent applications
- Printing systems and software available



Harness & Harnessing Components

- Tyco Electronics Component Systems complete range matched to working and climatic environments
- LFH for passenger areas
- Fuel resistant for engine and exposed areas
- Repairable and re-enterable sealed harnesses
- Heat-shrinkable tubing and molded shapes
- Adhesives
- Adopters
- Assemblies
- Components approved to widely recognised standards and specifications (SAE, MIL, Defence, DNV, Lloyds, ABS)



RFID Tags and Labels

- Custom UHF, HF, and LF RFID labels and tags specifically adapted to work in rail environments
- NEW! High-memory UHF RFID tag to trace critical parts and components
- Memory is re-writable for critical information such as Birth and Maintenance Records, as well as installation procedures and technicians' notes.
- Retrieve basic information with a standard EPC Gen2 RFID reader, higher level information can be restricted



Wire and Harness Identification

- Heat-shrinkable sleeves provide permanent wire identification, strain relief and insulation
- Available in a multitude of sizes and materials for diverse applications
- Designed to withstand various environments
- Tie-on markers provide identification solutions for large cable and wire bundles
- Printing systems and software available
- Halogen free



Cable Glands

- Complete range of cable glands
- Nylon glands for multi purpose applications
- Brass glands for vehicle interior and exterior use
- Highest quality IP68 EMC glands for most demanding environments

Electronics

Applications

Signalling and Monitoring Systems • Safety Equipment • Control Systems Drive Cabs Passenger Information
Internal Lighting • Passenger Entertainment • Distribution Box



Signal Wire & Cables

- Zero halogen, thin wall, high temperature, light weight wire and cables for today's most stringent Mass Transit requirements
- Signal wire and cable from 0.15 to 4.0mm² available as single wires braided and jacketed multicores (750/1350V AC max)
- Cable range 1.0mm² to 400mm² (750/1300V AC)
- Zero halogen Databus, Coaxial and Fibre Optic cables
- Jumper cables
- Compliant and approved to various standards including: EN50306, NF F 63 808, NF F 63 826, DIN 5510, NF F 16 101, BS 6853



HTS Connectors

- Aluminium die cast housings with corrosion protected surfaces and contact inserts made of high quality approved materials are the core competence of this brand
- IP68 protected housings and inserts rated to over 350A set benchmarks



Sealed Connectors

- Wire-to-board
- Wire-to-panel
- Wire-to-wire
- Wide range of connector styles and sizes



HTS HEE Connectors

- This insert series is based on screw machined contacts
- Available from 0.14 to 4mm²
- Available in gold or silver plating
- Series available in 10, 18, 32 and 46 positions
- Rated to 500V and 16A



HIP Connector Housing

- IP68 protected housings with screw locking system
- Available in both surface and panel mount versions made from solid die cast aluminium
- Various levels of EMI and/or corrosion protection are available in both Metric and PG threads



Dynamic Connectors

- Connector system designed for use with I/O and power circuits in power and control boards
- Wire-to-board, wire-to-panel, wire-to-wire
- Voltage up to 630 Vac
- Current up to 30A depending on contact and number of positions



Circular Connectors

- Lightweight, all plastic and metal-shell connectors
- Operating temperature -55 to +125°C
- Panel, chassis and freehanging configurations

Electronics



Soft Shell

- Low cost connectors for sub systems and lighting and passenger information
- Sealed versions available
- Lanced and Lanceless contact design
- 2 piece housings for sure contact location
- Provide highly reliable and economic system of grouping multihead connections
- Wire-to-wire and wire-to-board options
- From 1.14mm to 9.91mm centrelines
- To 19 Amps as standard current capacity
- Housing materials halogen free 94V-0 and 94V-2
- Other features like polarization, seals, etc.



Coax

- Wide selection of connector types and interfaces including:
- MIL-C-39012, MIL-C-55339, MIL-A-83517
- BNC, TNC, UHF, SMB, SMC, MCX, MMCX
- FME, ISA, N Series, SMA, SSMA



M Series Connectors

- 50 and 75 way connectors meeting the requirements for SSI (Solid State Interlocking) signalling installations
- Intermateable with connectors made to MIL-C-28748
- Wide range of connector styles and sizes
- Complete line of accessories



IDC Connectors

- .050 and .100 centreline
- Standard and transition connectors
- Centre and military polarized
- Broad range of flat ribbon cables



Metrimate Connectors

- True metric dimensions
- Meet IEC requirements, tested to VDE, UL and CSA
- Housings made of UL 94V-0



AMPLIMITE D-Subminiature Connectors

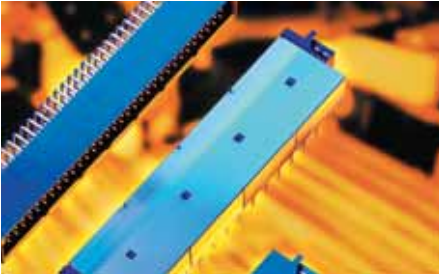
- Qualified to MIL-DTL-24308
- Standard density (9-50 positions) and high density (15-104) positions available
- Blindmate shell for improved alignment solutions
- Combination power/RF insert arrangements
- Sealed versions available
- Space qualified versions
- ULTRA-LITE non-magnetic connectors provide 15-20% weight savings and enhanced EMI/RFI performance



Terminal Blocks

- Eurostyle type VDE approved
- Tri and Dual Barrier strip type
- Hardware accessories
- Card edge type
- Europa and Nema compliant

Electronics



EuroCard Connectors

- Meet Din 41612 and IEC 603-2
- Available in Type B, C, F, M, R
- ACTION PIN post for reliability and economical assembly



Microminiature, Nonminiature & Rectangular Connectors

- Microminiature D Connectors per MIL-PRF-83513 - .050 (1.27) centreline; 9-100 positions
- Nanominiature Connectors per MIL-C-83513 - .025 (0.635) centreline; 5-65 positions
- MCEM Rectangular per MIL-C-55302 requirements - two-row, board-to-board - .050 (1.27) centreline; 40-184 positions
- HDSM Rectangular per MIL-C-55302 requirements - Four-row, board-to-board - .050 (1.27) centreline; 38-400 positions



Fine Pitch Board-to-Board SMT Connectors

- 0.8mm Free Height (FH) Connector for parallel board stacking; spacing from 5 (.197) to 16 (.630)
- 1.0mm FH (IEEE 1386) Connector for parallel board stacking; spacing from 8 (.315) to 15 (.591)
- MICTOR Connector for high-speed interconnects; 76 signal lines per inch; redundant contact interface for high reliability



Z-PACK HM-FB Metric Connectors

- Future Bus Compatible IEC 61706-4-OX (48B) and EIA SP 3179
- From 4 to 10 rows
- Power, coax and fibre optics mixed version available
- ACTION PIN post for reliability and economical assemble



Electronics - Customised Solutions



HTS Coach to Coach (MD) Connectors

- Single connector for more than 850 lines, each 10A rated
- IP68 protected, corrosion protected with cable gland or conduit adaptors



HTS Rail Track Antenna Connectors

- Specially designed connector that is designed on a customised feature
- 49mm height and 20 positions
- IP67 dense design



Distribution Box (Modular Connector)

- Point to point harness application
- Modular concept
- Æ 94V0, low smoke (compliant to NF F 16-01 IF=12, cl.F1)
- Æ Applied cost reduction
- 24+24 way per wired panel unit to customer specification

Electronics - Relays and Contactors



General Purpose Relays (SCHRACK)

- Panel Mount, Plug In and PC Mount relays to meet the requirements of Sub System and Control Equipment manufacturers
- Compact design offering space saving and miniaturisation of the finished assembly
- High temperature and high In Rush relays
- Traditional PCB relays for control applications and high power industrial relays suited to heavy current switching up to 30 Amps



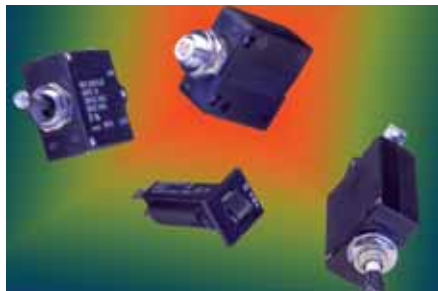
Safety Relays

- A range of safety relays to EN50205
- Includes the innovative SR6 low profile 6 pole safety relay
- Suitable for signalling and other applications where safety is paramount



Timers

- A range of electronic relays and time delays in PC mount and Plug In versions
- Electro Pneumatic Time delays Relays offering On delay and True Off delay functions
- Unrivalled reliability for more than 40 years



Thermal Circuit Breakers

- Current ratings from .25 to 50 Amps
- Push-to-reset only & switchable types
- Various mounting & termination options
- Series trip function



HV Relays

- Vacuum and gas-filled enclosures
- Up to 70kV isolation
- Carry from milliamps to 110 Amps
- 1 form A (SPST-NO) to 4 form C (4PDT) arrangements
- PC board and panel mount types



High Performance Relays & Solenoids

- TO-5, .100 (2.54) grid, 1/5 size, 1/10 size, half-size and full-size relays
- Low level to 25 amp rating
- 1 form C (SPDT) to 6 form C (6PDT) arrangements
- Latching and non-latching types
- Time delay relays with solid state or electromechanical output
- Voltage, frequency and phase sensors
- Custom-designed solenoids

Switches



Tyco Electronic Switches

- Tyco Electronics can provide virtually any switch you need, including:
- DIP switches
- Toggle switches
- Pushbutton switches
- Tact switches
- Rocker and paddle switches
- Surface mount styles
- Pushwheel switches
- Knobs and other accessories

Power

Applications

Coach to Coach • Train Couplers • Converters • Power Supply • Battery • Auxiliary Equipment



Power Cables

- Zero halogen, thin wall, high temperature, light weight cables for today's most stringent Mass Transit requirements
- Medium voltage power cables from 1.5mm² to 400mm² (1800/3300V AC and 3600/6000V AC)
- Bespoke cable designed to meet customer performance requirements
- Jumper cables
- Compliant and approved to meet various standards including: NF F 63 826, DIN 5510, NF F 16 101, BS 6853



Power Contactors, Sensors, Monitors & Distribution Systems

- Hermetic or gasket seal
- Repairable models
- High shock, vibration and acceleration types
- Conventional, plug in or bus bar mounting
- Easily tailored to meet specific customer requirements



AMPOWER Wave Crimp System

- Reliable, low resistance, gas tight interface
- Improved heat dissipation resulting in higher current capacity or reduced operating temp.
- Low inductance, high capacitance power distribution
- Reduced noise
- Packaging flexibility - cables can be easily routed through confined spaces
- Separable interfaces have positive locking, polarisation and contact shrouding
- Right-angle and vertical headers
- Four cable self-aligning connector
- Unique tap permits branching of trunk lines to serve multiple distribution points
- Assemblies are measured at 70-110 Amps (with 30°C temperature rise)



High Current Connectors

- Wide range of pin and socket sizes available
- Multi-point contact design utilising Louvertac Contact Bands
- AMPOWER Multi Pin Connector offered in current ratings from signal to 150 Amps



Power Series Battery Connectors

- Single or 2-pole housing
- Built-in interlocking features allow stacking and wire routing
- Contact range from 12 AWG to 300 MCM
- Integral stainless steel locking spring in housing for contact retention



HTS Power Connector

- Range of connectors developed on the requirements of Railway market
- Current ratings up to 500A, strain reliefs, ground connection and corrosion protected surfaces

Power



HTS Modular

- Signal current
- Power applications (>150A/1000V)
- Fibre optic, pneumatic, coax or twisted pair applications can be mixed using these very flexible connectors



HTS AM1P Drive Motors

- Single pole connectors for current rates <300A
- Crimp (35 to 95mm²) and terminations for cable lugs are available



HTS HF13 Battery

- Powerful connecting system with very low mating forces
- Rated to 370A/3.5kV
- Crimp ferrules from 16 to 150mm²

Power - Customised Solutions



HTS Quick Disconnecter

- 4 x 370A, ground contact for 120mm² and 3.5kV nominal voltage
- Corrosion and IP68 protection are the features of this connector used in bogie-wiring



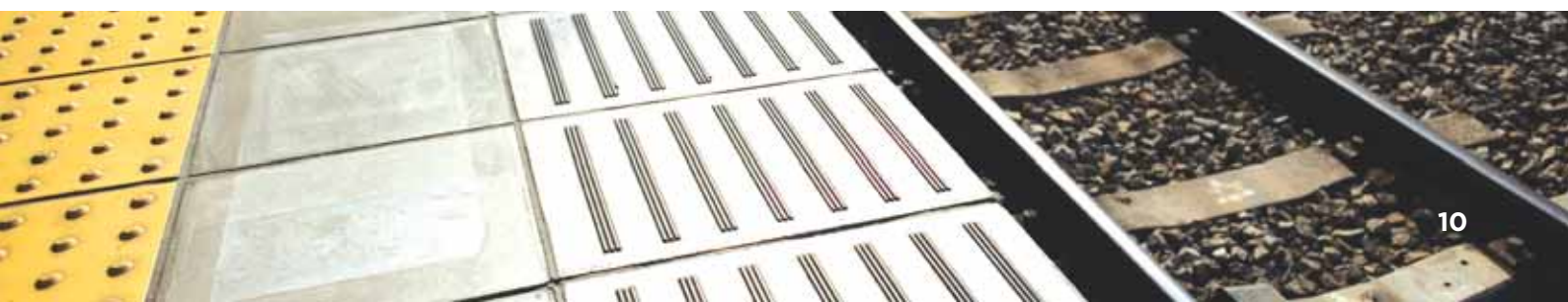
HTS Flat Connectors Traction Converter

- Customised design that is used in static converters
- Nominal current is <1.500A
- Low induction termination



Power Resistors

- Resistors available in wirewound, thickfilm and foil technologies
- Available up to 1500W continuous operating power
- A range of terminations, harnesses, etc. available
- Custom designs welcome



High Voltage

High Voltage Products

- All products can be custom designed for new build or retrofit applications
- Worldwide technical support including trial installation and commissioning
- RAYCHEM polymer insulation provides... light weight/small size/cleaning aerodynamic profile/long creepage path (no cleaning in most service conditions)
- All products suitable for AC traction systems 15/25kV; some products for DC systems as indicated
- Enhanced qualification and type test specifications



Roofline Cable Assemblies

- Pre-assembled, pre-tested cable interconnection system with low profile self-supporting or flexible terminations
- Optional cable clamps, current transformers and mounting accessories available



Insulators

- Robust lightweight designs for pantograph, bus bar and equipments supports
- Robust R polymer insulation systems
- Non-breaking housing material
- Low weight
- Special applications including drive rods and air feeds
- Suitable for AC and DC systems



Inter-Car Jumper Leads

- Unique coiled cable design for large inter-car movements
- Long flex life
- Fully insulated to provide flashover protection and allow reduced clearance
- Simple connection system to RAYCHEM terminations
- Suitable for AC and DC systems
- Custom options available



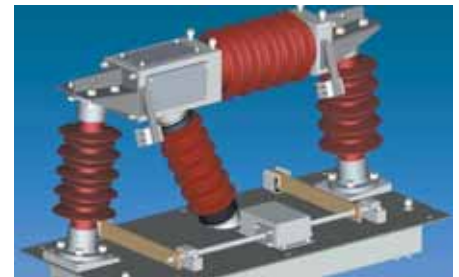
Surge Arresters

- Polymer housed metal oxide arresters for AC and DC traction systems
- Wide range of voltage and energy classes available
- Metal oxide/gapless arresters
- Compliant IEC 60994 - 60721 - 61373
- Silicon rubber/EPDM and EVA housing
- Custom design options available



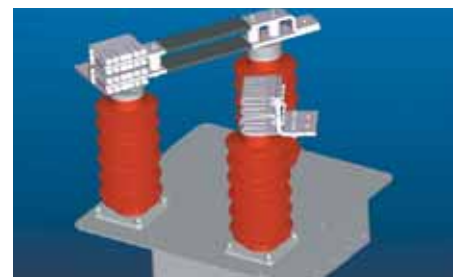
Transformer Cable Assemblies

- As rooflines but with choice of integral roof bushings/terminations and screened transformer connectors
- Integral flange plates, current transformers and mounting accessories available



High Voltage Circuit Breakers

- Main AC vacuum circuit breaker with air-free electrical actuation
- RAYCHEM insulation system
- Simple electronic control and interface
- Low profile, low weight
- Low maintenance
- Optional earthing arms



Switches

- Electrically actuated, air-free AC/DC system selector/disconnector earthing switches
- Simple electronic control and interface
- Designed for low maintenance

Other Technologies



Fibre Optics

Our broad product brand offering includes:

- Connectors, adapters, tooling and accessories
- Cable assemblies and backplane interconnects
- Fibre management, packaged solutions, sub-systems and laser process
- Premise wiring and telecom outside plant products
- Electro-optic products
- Attenuators, WDMs and switches



Expanded Beam Fibre Optics

- Expanded beam inserts for ARINC and 38999
- Three insert sizes, up to four channels per insert
- Mini Expanded Beam insert for multi-channel small form factor
- PRO BEAM and PRO BEAM JR. connectors for army and naval tactical communications
- High performance connectors and cable assemblies for harsh environments



Magnetic Contactless Sensors

- Binary position sensor. no power required
- Drive frequencies: 0 Hz to 10 KHz (600,000 RPM)
- High output voltage pulse 3.5 V DC
- Sensing distance .95 (24)



Rotational Sensor

- Resolver angular displacement sensor
- Shock and vibration resistant
- Temp. range -67° to 302°F (-55° to 150°C)
- Rugged and wear free, no brushes
- Absolute angular position over entire rotation

Tooling



Entry Level Terminator (ELT) with Stripping Module

- Semiautomatic bench terminator crimps wide range of AMP products
- Handles 32-14 AWG wire range
- Three modes of operation - crimp only, strip only, or strip and crimp
- Fast applicator changeover and easy adjustments
- "Step Mode" for fast set-up



Thermal Transfer Printing Systems

- Wide range of thermal transfer printers for printing identification products
- Printing systems for both high and low volume applications
- Simultaneous, double-sided printer designed for demanding applications
- Approved ribbon combinations for various materials maximise print performance
- Software includes built-in templates and printing schemes and is easy to navigate
- Integrated print-and-apply label systems also available

Other Technologies



EMI Filters

- Broad range current and performance capabilities
- For the most severe environmental applications
- High frequency filters
- For Tempest applications to protect confidential information
- IEC connectors, wires leads, and .250 (6.35) or stud terminals available



Electric Motors

- A range of Fractional horse power motors from 5 through 1500W
- Applications include heating ventilation and air conditioning equipment for rolling stock and station installations
- Capability to produce customer solutions in low and medium volumes



Heavy Power Line Filters

- 100 dB of attenuation from 12 kHz - 10 GHz
- Stand-alone and NEMA I style facility filters
- Designed in accordance with MIL-F-15733
- UL listed in accordance with UL 1283
- High Altitude Electromagnetic Pulse (HEMP) products available



Touchscreen Products

- ELO TouchSystems touchmonitors for control machine applications
- CRT and LCD displays in a range of sizes and enclosures for desktop or machine enclosure use



Energy, Power and Utility Products

Insulation Enhancement System



Medium Voltage Line Cover

Provides insulation for catenary, droppers and associated conductors against contact with trees, birds, wildlife or even vandalism. Simple, fast wraparound installation.



"I" Beam Insulation Cover

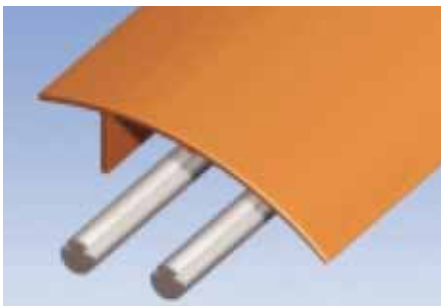
Prevents accidental bridging between "I" section steelwork and live catenary or associated equipment by wildlife. Installation is clip-on, tool-free and fast.

HV Connectors



Substation connectors

A full range of HV connectors for substation applications is available, suitable for tubular and flexible conductors. Tee, Derivation and Termination available for aluminium, copper or bimetallic joins from 30kV to 330kV.



Twin Contact Wire Cover

Provides an insulating platform above Twin or Single contact wires. Used in tunnels, under bridges, or in stations where there is reduced clearance. Attaches to contact wire with industrial standard clamps.



Bus Insulation Squirrel Guard

Can be mounted horizontally or vertically on any MV insulator or bushing, to prevent wildlife bridging phase to ground. Designed to eliminate accidental flashover on trackside substations and all associated equipment...



Grounding connectors

A range of copper compression connections is available for constitution of the earthing grid and connection of the grid to the frames.

Catenary Dropper System



Catenary Dropper System

The catenary connection dropper provides mechanical and electrical binding between the carrier and the contact wire. An insulated version is also available for tunnel crossing. Custom designs are available on request.



Catenary Dropper System

The examples shown are adjustable (right) and fixedlength (left).

Energy, Power and Utility Products

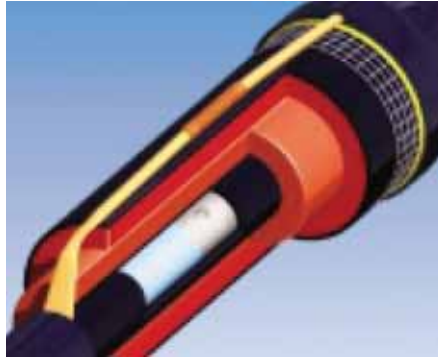
HV Surge Arrester



HV Surge Arrester DC & AC

Traction Surge Arresters are suitable for installing on rolling stock or at the track-side. The HE60MC or HSR-R ranges have a rugged and compact design capable of withstanding mechanical forces experienced in such installations.

HV Cable Accessories



Cable joints

Suitable for all common polymeric cables - crossbonding, shield break and external grounding arrangements are easily accommodated. Link boxes can be easily attached, adopting the network design requirement. Short installation time reduces outages, whilst extensive field experience and rigorous testing have proven the reliability of the technology used.



52kV and 72kV Terminations

Heat-shrink technology offers the reliability of 30 years of field performance with polymeric terminations. For higher voltage classes we offer 145kV to 170kV prefabricated joints and terminations for indoor and outdoor switchgear and transformers.

Insulator System



Catenary insulators

Strut and tension applications using either porcelain, polymeric or hybrid technologies in catenary applications. Customers can specify required impact strength, handling, pollution resistance, cleaning and mechanical loading. The range of products extends from 750V DC (mainly porcelain) up to 15/25kV AC (porcelain and polymeric) and also 50kV AC (hybrid).



Portal insulators

High-strength Porcelain (C120) and Polymeric (Eglass or acid-resistant E-glass) cores designed for low deflection and single insulator support. A range of core diameters is available, based on long-term loading requirements, with housing, creepage and dryarc distance as key design criteria.



Substation insulators

Porcelain and Hybrid (porcelain core and polymeric housing) insulators for substation applications. Hybrids are generally specified where porcelain insulators have flashover issues or polymeric insulators have too much deflection under load in switching applications. Standard IEC or ANSI classifications are available.

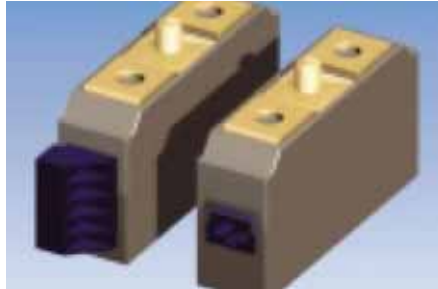
Energy, Power and Utility Products

Signalling and Telecom



Surge Protectors RTM

Network Rail Approved Single Phase Surge Protectors are employed on the incoming power supplies or tail cables, providing protection for the 100V and 140V power supplies in the SSI equipment cases and rooms.



Surge Protectors TLP

The TLP range of Surge Protectors is employed on Telecommunication Equipment Transmission Lines, to reduce the likelihood of transmission-circuit damage as a result of power surges to STS Line Cards, Transmission Systems, STS Concept 32 Line Interface Cards and Pulse Code Modulation Line Regulators etc.



Spark Gap Device SPG

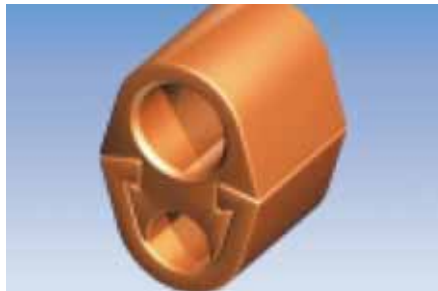
Designed for use with traction circuits to provide protection against lightning over-voltage on signalling and cable circuits.

Connection Systems



Bimetallic connectors

A crimp-type anchor sleeve for the protected wire, which provides a waterproof mechanical and electrical connection for the copper-protected carrier wire to the pole.



Double barrel connectors

A branch-crimped connector for copper, aluminium and bimetallic wires, which provides an electrical connection between the carrier wire and an intermediate cable.



Spade connectors

Spade-end crimped lug: Spade-end crimped lug: A copper, aluminium or bimetallic lug for electrical connection from a copper or aluminium wire to an item of apparatus.



TEE connectors

Branch tee connector: A copper or aluminium tee connector to make a mechanical and electrical connection between one end of a copper or aluminium conductor to a bare copper or aluminium bar.



Crimping tools

Tools and tooling to crimp the catenary connectors. A wide range of hydraulic equipment is also available to crimp the connectors and droppers to the catenary.



Energy, Power and Utility Products

LV Cable Accessories



LV Cable Accessories

The GURO and RAYCHEM brands offer cable accessories for all cable types. Using specially formulated insulation materials, they help maintain service reliability in both overhead and underground installations and resist tracking and degradation caused by erosion, ultraviolet light etc. Low-voltage joints are available in polymeric, gel and resin technologies. Low-voltage terminations are available in heat-shrink, sealing systems available in cold-applied technology for ducts and heat-shrink for feedthrough systems. Other components available are breakouts, sealing caps, heat-shrink repair tape, heat-shrink wraparound, heat-shrink tubing and cold-applied insulating sleeves.

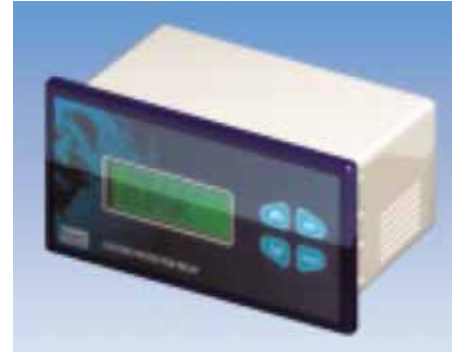
HELIFORMED Ties



Dead Ends & Splices

HELIFORMED and wedge-connection systems used in overhead power networks worldwide, designed to fit the specific conductor size and material specification. The range of products available includes: AMPACT Tap Connectors, HELIFORMED Dead Ends, Heliformed Line Guards, HELIFORMED Repair Sleeves.

System Protection



System Protection

An electronic protective device to monitor trackside signalling power feeders, with higher sensitivity and quicker response time than traditional fuses. Allows smaller cable diameters to be used over longer distances with substantial cost savings. Measures, displays and communicates the supply levels, and is fully programmable with up to 12 trip functions, and measures events which can be time- and date-stamped.



Americas

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Canada – Toronto
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Fax: +905-474-5520
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Fax: +52-55-1106-0901

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Fax: +54-11-4733-2083

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Troy, MI
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