MTL Instruments

Product Overview

COOPER Crouse-Hinds

Making Process
Connections
Worldwide

Welcome to the MTL

PRODUCT OVERVIEW

Cooper Crouse-Hinds integrates a comprehensive line of electrical and instrumentation products with expert support, industry insights and local availability to improve safety and productivity in the most demanding industrial and commercial environments worldwide.

Customers will now be able to benefit from a single supplier for all of their hazardous area needs, whether this is for instrumentation products, fieldbus components, electrical switchgear or enclosure and wiring solutions.

MTL Instruments is recognised as a world leader in the development and supply of Intrinsic Safety, Process Control and Surge Protection products. Many of the world's safety-critical processes are monitored, controlled or protected by MTL Instruments products and the company is distinguished by its global network of sales and support centres and by its acknowledged position as a thought leader in this high technology marketplace.
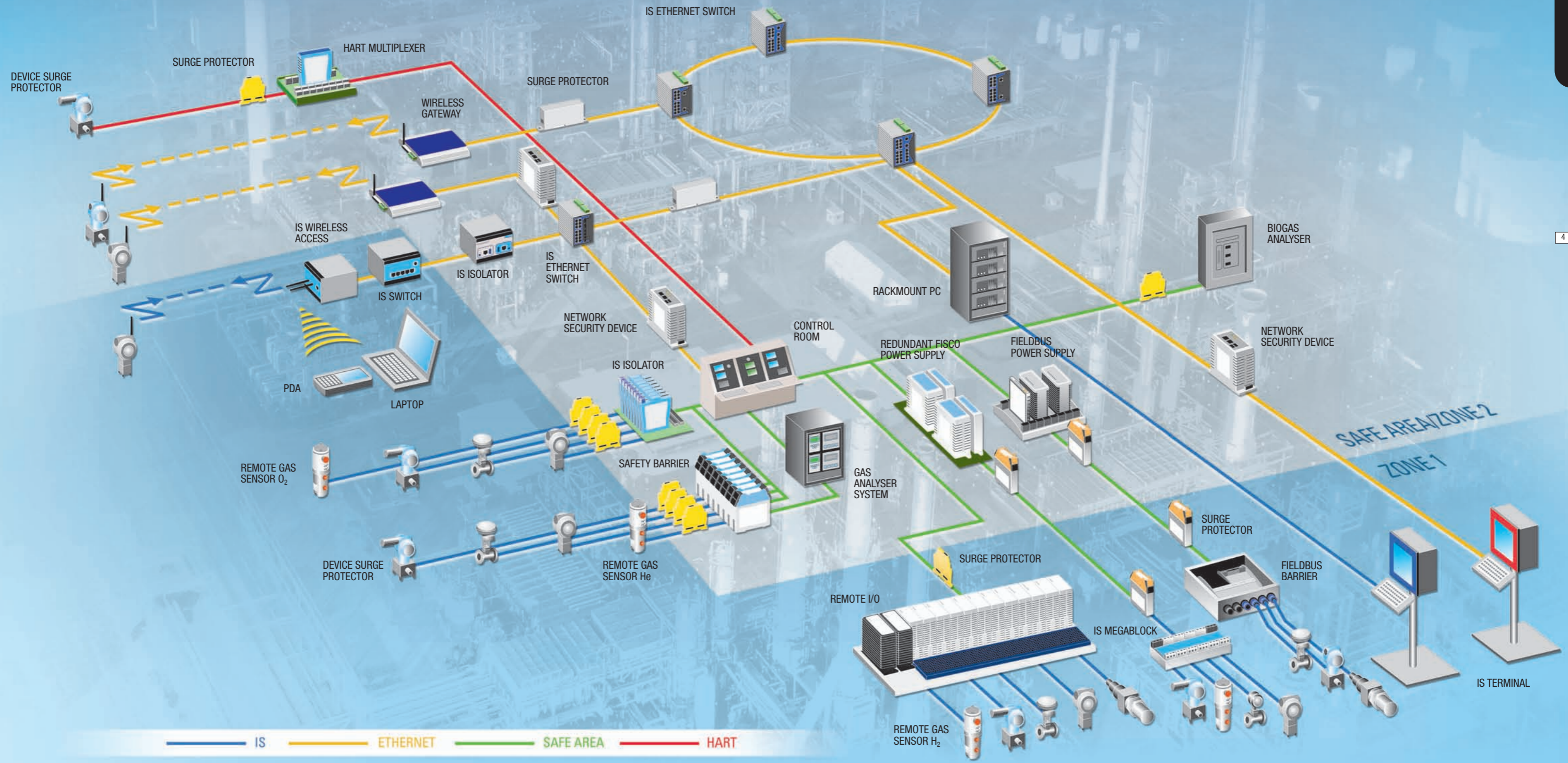
More detailed product information than is featured in this overview document, is available in separate, comprehensive catalogues or datasheets available from your local MTL Instruments office, or via our website at www.mtl-inst.com

'MANY OF THE WORLD'S SAFETY-CRITICAL PROCESSES ARE MONITORED, CONTROLLED OR PROTECTED BY MTL INSTRUMENTS PRODUCTS'

Making **Process Connections** Worldwide

COOPER Crouse-Hinds

MTL Instruments

Process Connections

SCOPE OF SUPPLY

DEVICE SURGE PROTECTOR

SURGE PROTECTOR

HART MULTIPLEXER

IS ETHERNET SWITCH

SURGE PROTECTOR

WIRELESS GATEWAY

IS WIRELESS ACCESS

IS SWITCH

IS ISOLATOR

IS ETHERNET SWITCH

NETWORK SECURITY DEVICE

BIOGAS ANALYSER

RACKMOUNT PC

NETWORK SECURITY DEVICE

PDA

LAPTOP

IS ISOLATOR

CONTROL ROOM

REDUNDANT FISCO POWER SUPPLY

FIELDBUS POWER SUPPLY

REMOTE GAS SENSOR O_2

SAFETY BARRIER

GAS ANALYSER SYSTEM

SAFE AREA/ZONE 2

ZONE 1

SURGE PROTECTOR

DEVICE SURGE PROTECTOR

REMOTE GAS SENSOR He

SURGE PROTECTOR

FIELDBUS BARRIER

REMOTE I/O

IS MEGABLOCK

IS TERMINAL

REMOTE GAS SENSOR H_2

— IS — ETHERNET — SAFE AREA — HART

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COOPER Crouse-Hinds

F800 SERIES
8 Segment Fieldbus Power System

The MTL-Relcom redundant fieldbus power system provides redundant power conditioning for fieldbus network segments and facilitates the connection of redundant input power supplies. Users can select from the widest range of available power options ranging from single-segment through two/four-segment and eight-segment redundant power systems.

The **F800 Series** provide redundant isolated power conditioning for eight (8) Fieldbus H1 network segments. The carriers provide for wire terminations for the 8 segments as well as the 2 power conditioning modules. These carriers are completely free of electronic components. This maximizes their MTBF and provides for the maximum System Availability. The system integrates seamlessly with host controllers from all the leading DCS vendors.

F600 SERIES
Multi Segment Fieldbus Power System

The F600A Series provides multi-segment fieldbus power using the FPS-IPM power modules. Each F600A includes two FPS-IPM plug-in power modules for each of the fieldbus segments. These modules function as power conditioners, providing impedance between the input DC power supply and the fieldbus.

A separate alarm module monitors the state of each of the eight power conditioning modules and the redundant power inputs. If a fault is detected on any of these components, the alarm relay opens and an LED provides visual indication of the fault. This allows failed components to be replaced so that power system integrity is maintained. The alarm circuitry is galvanically isolated from the fieldbus segments and input power supplies.

F809F
Fieldbus Diagnostics Module

The **F809F** Fieldbus diagnostics module is designed for use with the **F800** and **F6x8D** series Fieldbus power supplies or using the **F8x8** termination board detailed below. The module simply mounts onto the appropriate carrier and continuously monitors the performance of each of the eight fieldbus segments providing information on network health.

The physical layer is critical to the performance of the fieldbus system. During commissioning, the **F809F** collects data on the performance of the physical layer, provides alarms if any parameter is outside the preset limits, and is used to store a baseline segment performance within the system's Instrument Management Software.

FIELDBUS NETWORKS

The connection between field device and I/O terminal is critical to a reliable digital control system. MTL Instruments provide you with the complete spectrum of Foundation Fieldbus, HART, Industrial Ethernet and Wireless Access solutions from a single supplier and with all of the "usual" industrial strength features you have come to expect from MTL Instruments.

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FIELDBUS NETWORKS

FISCO POWER SUPPLIES
Increased Connections to a single I/S Trunk

The **FISCO** (Fieldbus Intrinsically Safe Concept) specification allows an increased number of field devices to be connected to a single fieldbus trunk. It also simplifies the safety assessment of IS Fieldbus systems. Two MTL **FISCO** power supplies provide power and the signal repeater functions for an intrinsically safe bus, using the same simple fieldbus design rules for IS systems as on a general purpose fieldbus. The **9121-IS** is suitable for connection into IIC/Group A (hydrogen) atmospheres whilst the **9122-IS** has a higher output current, typically powering more than 12 devices for connection into IIB/Groups C, D (ethylene) atmospheres.

FNICO POWER SUPPLIES
Reliable interconnection for fieldbus networks

For applications in Zone 2 and Division 2 hazardous areas, MTL's **FNICO** (Fieldbus Non-Incendive COncept) brings the benefits of FISCO together with higher current levels, allowing yet more devices per trunk. Live-working is permissible without gas clearance, allowing devices to be connected or removed while under power. MTL FNICO supplies 9111-NI (IIC/Group A) and 9112-NI (IIB/Group C, D) repeat the H1/Profibus-PA signal as a non-incendive bus for connection to suitably approved field instruments in Zone 2 or Division 2.

REDUNDANT FISCO POWER SUPPLIES
Higher Levels of System Availability

MTL Instruments has made a major enhancement to its class-leading range of Fieldbus Intrinsically Safe Concept (FISCO) wiring components for FOUNDATION™ Fieldbus networks. With the introduction of redundancy, the technique can now be used in critical hazardous area applications, while retaining the benefit of 'live maintenance'.

Specifically, redundancy of the fieldbus power supplies will be provided to eliminate the risk of network failure in the event of loss of a single supply unit. Such redundancy is routinely specified by end users and engineering companies for fieldbus installations where failure could result in severe loss of production.

FISCO is defined by IEC standard 60079-27, which provides a framework for the design and implementation of intrinsically safe fieldbus networks in hazardous areas. It has found wide industry acceptance because of the benefits of intrinsic safety as the safest explosion-protection technique, the clearly defined maintenance practice, and the widespread recognition by national standards organisations.

FIELDBUS DISPLAYS
Foundation Fieldbus H1 and Profibus PA Displays

MTL have an extensive range of 8-variable fieldbus displays. The FOUNDATION fieldbus™ H1 version is user configurable to support eight process variable Multiple Analog Output (MAO) Function Blocks or to support eight process variables using 2 x Input Selector Function Blocks. The Profibus PA version supports eight Analog Output blocks.

The large back-lit displays are preffered by many users to the built-in displays currently incorporated into fieldbus transmitters and have been proven and tested for use with Emerson DeltaV™, Yokogawa CS3000 R3, Honeywell Experian PKS, Smar System 302 and ABB Industrial IT.

TESTERS
Fieldbus troubleshooting and monitoring made easy

MTL fieldbus test instruments assist with the maintenance and fault-finding of fieldbus installations. Compact in size and powered either by batteries or from the fieldbus itself, this set of testers will complement every maintenance engineers toolbox. Our tester range includes a Fieldbus Monitor **FBT-3**, a Fieldbus Power & Signal Probe **FBT-4**, a Fieldbus Wiring Validator **FBT-5** and a Fieldbus Monitor **FBT-6**. Our fieldbus testers are established as the standard for fieldbus H1 test equipment.

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MEGABLOCK WIRING COMPONENTS
Reliable interconnection for fieldbus networks

Megablocks are DIN-rail mounted passive hubs designed for use in FOUNDATION fieldbus™ and Profibus-PA segments. They can connect 2, 4, 8, 10 or 12 field devices to the network trunk cable and can also provide short circuit and over voltage protection to the segment.

With over 250,000 FOUNDATION fieldbus™ device connections installed, Megablocks have an excellent reputation for reliability and ease of use. The established SpurGuard™ feature protects the fieldbus segment in the event of spur short-circuit faults, and a comprehensive programme of approval ensures compliance with hazardous area requirements world-wide.

FIELDBUS BARRIER

The new 937x-FB Series is a "Third Generation" design, combining the successful features of earlier product generations with new and innovative techniques that deliver significant improvements in ease of use, safety and reliability. 937x-FB Series Fieldbus Barriers are bus-powered from the fieldbus trunk and require no additional power supply in the field. The intrinsically safe fieldbus spurs are galvanically isolated from the trunk and require no protective ground connection in the field. Spur short-circuit protection is provided. The Fieldbus Barrier enclosure may be installed in a Zone 1/Zone 2 (gas) or Zone 21/Zone 22 (dust) hazardous area, with the trunk wiring implemented using suitably protected cable and increased safety (Ex e) connection facilities. The spurs may be connected to suitably-certified intrinsically safe fieldbus instruments in Zone 0 (gas) or Zone 20 (dust) hazardous areas. The 937x-FB has a modular construction, comprising fixed and pluggable components that may be assembled to form complete enclosure systems that are sized according to the application.

FIELDBUS CONNECTORS

MTL951 Ex d e Hazardous area plug and socket connectors enable the operator to remove equipment from a power or signal line in a hazardous area, without having to isolate the supply. It also allows fieldbus equipment to be removed from the bus without having to disrupt communication with other equipment attached to that bus.

This hazardous area connector can be used in Zone 1 and Zone 2 areas and can interface with the following types of electrical protection (Ex i, Ex d, Ex e, Ex p, Ex m, Ex n). The IIC T4 classification permits its use in almost all gas atmospheres. The connector is suitable for use in combustible dust atmospheres Zone 21 and 22 with dusts having a dust layer minimum ignition temperture greater than 210°C.

FIELDBUS PROCESS ENCLOSURES

MTL Process Junction Boxes are designed for mounting Megablock fieldbus wiring components. They offer plenty of space for termination and wiring, making it easy to install and maintain the fieldbus system. Available in powder-coated steel (**FCS7000 series**), carbon loaded, glass-reinforced polyester (**FCS800 series**) or stainless steel (**FCS9000 series**) and rated IP66, they provide the highest levels of corrosion resistance for the harshest process environments.

SURGE PROTECTION DEVICES
Protecting your fieldbus investment

The fieldbus system, by the very nature of the environment in which it will be placed, is at risk from surges across the fieldbus system. Because the fieldbus system is controlling and handling the data transactions across a common trunk, the importance of safeguarding the integrity of the fieldbus system is paramount in order that the shutdown of multiple processes does not occur.

MTL Surge Technologies, the surge protection division of the MTL Instruments Group Plc, designs and manufactures a vast range of protection solutions for all your system surge protection requirements.

Fieldbus MEMBER

MTL

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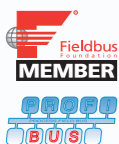
NETWORK SECURITY

MTL offers the best in network security products. The Tofino™ Industrial Security Solution is the ideal system to help companies address compliance with evolving security standards. With the ever increasing complexity of industrial network systems, an integrated, high quality network security solution can maintain operational efficiency and minimise exposure to risk.

DEFENCE-IN-DEPTH

Despite industry's best efforts to isolate our control systems from the outside world, control systems are regularly exposed to simple, but potentially devastating network security problems. Traditional security solutions are complex, difficult to configure and even harder to set up properly on the plant floor. The typical PLC or DCS is an easy target for attack - control devices and protocols offer little authentication, integrity or confidentiality mechanisms and can be completely controlled by any individual that can "ping" the device. It is often not possible to easily patch or add security features, even when security vulnerabilities are discovered. This leaves millions of new and legacy control systems vulnerable to potential network attack.

The Tofino™ Industrial Security Solution is designed specifically to provide industrial companies with a defence-in-depth solution for both new and legacy control systems. Think of it as a tailored security suite offering features such as Firewall, Secure Asset Management, Deep Packet Inspection and Intrusion Detection for operator stations, PLC's, RTU's and DCS, giving your control system multiple layers of "defence-in-depth".

Plug a Tofino™ appliance onto the control network in front of a PLC, DCS or HMI station and it learns what type of device it needs to protect, looks up the device's vulnerabilities in a central database and then tunes itself to protect that specific device. It even understands SCADA and process control protocols, so it acts as a barrier to prevent all unauthorized access while in no way obstructing valid control commands.

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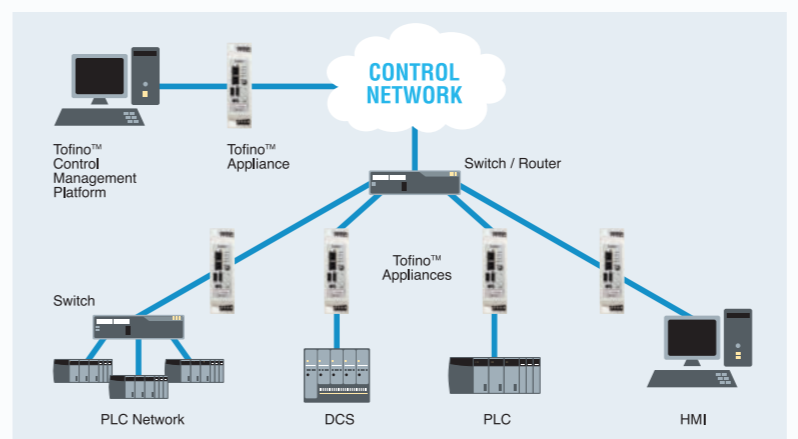
INTRINSICALLY SAFE
"POWER OVER ETHERNET" POExTM

Until now, installing Ethernet, especially wireless access points, in classified areas had the two challenges of being "live worked" and requiring a reliable power supply.

MTL and **CSL**, two companies known for their knowledge in Intrinsic Safety, are proud to introduce another world first, Intrinsically Safe "Power Over Ethernet" (POEx™). This ground breaking technology brings the concept of a single cable connection for Industrial Ethernet enabled devices suitable for mounting in any environment through to Zone 0. The range, consisting of an Ethernet Switch, Serial Gateway, Wireless access point, and Media Converter – all suitable for Zone 1 mounting, combine with a Zone 2 mounted Power Supply and Isolator unit to provide a complete "Ethernet anywhere" solution.

MTL9491-PS I/S POWER SUPPLY

The **MTL9491-PS** Power Supply is the preferred method for supplying the **9460-ET** series of instrinsically safe Ethernet modules and is based on an isolating power supply. It takes a 24V DC safe area / Zone 2 supply and produces an intrinsically safe, 12V DC nominal output capable of powering the Ethernet modules mounted in a Zone 1 hazardous area. Each **9491-PS** can power a single Ethernet module. In order to provide multiple outputs required for several Ethernet modules, the **9491-PS** power supply module is ganged up to the required number of ways, either DIN-rail mounted or using the power distribution backplane to simplify the 24VDC input connection to the modules.

INTRINSICALLY SAFE ETHERNET

The deployment of Ethernet into Process Automation has long been hindered by the hazardous area classification in which the end device is often installed. The 9460-ET Series delivers Intrinsically Safe Power over Ethernet (PoEx™), allowing live connection and disconnection of the end device in Zone 0 and 1 hazardous areas.

COOPER Crouse-Hinds

INTRINSICALLY SAFE ETHERNET

MTL9465-ET MEDIA CONVERTER

The **MTL9465-ET** 10/100Mbps Copper to Fibre OpticMedia Converter allows an Ethernet network to be extended over a greater distance. The fibre optic link may be up to 2km in length when running at 100Mbps. Longer distances are obtained by simply connecting a **9466** (10/100Mbps Ethernet Switch) between two **9465** media converters, effectively giving a 'repeater' function. The use of fibre optics gives exceptional immunity to noise and electrical interference, it is also used when connecting a Hazardous Area network to a Zone 2 / Safe Area network or device. The **9465-ET** is designed for Zone 1 hazardous-area mounting inside a suitable IP6x enclosure and has intrinsically safe ATEX and IECEx approvals with FM and CSA approvals pending.

MTL9466-ET I/S SWITCH MODULE

The **9466-ET** 10/100Mbps, Layer 2, Ethernet switch allows the interconnection of **MTL 9400-ET** series networking modules via its 5 ports. It also enables an Ethernet network to cover a greater distance using either Cat5e cable or fibre-optic for longer spans. This capability is due to the low latency 'store and forward' mechanism integral to the switch, which ensures that the stringent timing associated with Ethernet is maintained. With the **9466-ET** switch each connection is effectively a 'point-to-point' network segment. The **9466-ET** switch can also distribute power to compatible devices connected to each of its five ports via the RJ45 Cat5e cables (PoEx). The **9466-ET** is designed for Zone 1 hazardous-area mounting inside a suitable IP6x enclosure and has intrinsically safe ATEX and IECEx approvals with FM and CSA approvals pending.

MTL9469-ET WIRELESS ACCESS UNIT

The **MTL9469-ET** is a multi-functional module that can be used as an Access Point, Wireless Bridge (Client) or Wireless Repeater When used in the Access Point (AP) mode, it allows wireless devices to connect through it and onto the wired Ethernet network, either in AD-HOC or Infrastructure modes. When used as a Bridge, it makes it possible to turn any 10/100 Ethernet device into a wireless device, or to connect two network segments together to make a single network (without the interconnecting wire or fibre optic). Additionally the module may also be used in its Wireless Repeater (WDS) mode to extend the range covered by a wireless network. The **9469-ET** is designed for Zone 1 hazardous-

area mounting inside a suitable IP6x enclosure and has intrinsically safe ATEX and IECEx approvals with FM and CSA approvals pending. The approvals cover both surface industry and mining applications. The unit may be powered by an intrinsically safe power supply or by Power over IS Ethernet (PoEx) providing intrinsically safe power and Ethernet communications over a single Cat5e cable. The Tri-Band operation offers flexibility in situations where the 2.4GHz band may be overcrowded or where operation in the 5GHz and 5.4GHz bands is desired. Optional dual antennae also provide diversity improving wireless operation.

MTL9468-ET ISOLATOR

The **MTL9468-ET** 10/100Mbps, Isolating Ethernet Barrier allows the interconnection of a Zone 2 or un-certified safe area device to the intrinsically safe **9400-ET** series of Ethernet networking products, operating in the hazardous area. The isolating barrier provides a compact alternative solution to fibre optic cable and media converters and for when it is desirable to use Cat5e cables in preference to fibre. The **9468-ET** is designed for Zone 2 hazardous-area mounting inside a suitable IP6x enclosure and has intrinsically safe ATEX and IECEx approvals, with FM and CSA approvals pending. The approvals cover both surface industry and mining applications. The module is supplied as a DIN-rail mounting device.

MTL9461-ET GATEWAY

The **MTL9461-ET** Ethernet Gateway gives existing intrinsically safe equipment "Ethernet connectivity" by allowing conventional serial communication port equipment to be connected to an Ethernet network. Two 9-way D-type serial ports are provided which are RS232/TTL compatible. In addition, the module's front panel screw terminals (T6 - T15) provide two RS485/RS422, 2- or 4- wire ports, giving a total of four serial ports. All ports can operate at speeds up to 115K2baud. Various protocols are available (eg: Serial Modbus, Modbus/TCP, Ethernet IP etc) in addition to Serial Tunnelling. The **9461-ET** is designed for Zone 1 hazardous-area mounting inside a suitable IP6x enclosure and has intrinsically safe ATEX and IECEx approvals with FM and CSA approvals pending. The approvals cover both surface industry and mining applications.

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ELPRO
Technologies

ELPRO
Wireless Gateway

SERIAL

RADIO

ACT   OK

905U-G-ET1
Ethernet

WIB ready

WIRELESS I/O

Wireless I/O products (also known as wireless telemetry) connect directly to transducer and/or control signals and transmit signal values by radio to a receiving device. The receiving device either re-creates the signal value (eg 4 – 20 mA) or via ELPRO gateways, outputs a data-bus register value (eg EtherNet/IP, Profibus, Modbus etc).

Wireless I/O products differ in terms of the number and type of on board I/O points (analog, digital, pulse, thermocouple) and one or two way communications between sending and receiving devices. Our wireless I/O product offering has been designed to suit your application needs but with flexibility to expand as your needs grow.

WIRELESS GATEWAYS

Our comprehensive range of wireless gateways are designed to operate on licensed and license - free radio bands around the world using both fixed frequency and frequency hopping - spread spectrum techniques. Wireless gateways are the ideal answer to extending and interconnecting either factory or process automation busses such as Profibus, Ethernet, Modbus or DeviceNet providing a high security firewall. Multiple wireless devices can be used for distributed data requirements using our "Wireless Information Backbone" (WIB) to create a wireless mesh structure that features high data security and efficient use of the available frequencies.

WIRELESS MODEMS

Wireless modem products transmit serial or Ethernet data which remains largely unaltered between the sending and receiving of device communications: commonly referred to as 'transparent' communications. While communications are transparent, they are typically routed between devices being 'addressed' in one of two ways:

Broadcast communication results in the same message being simultaneously received by all modems in the network. Generally, this is used where the protocol communicated and/or the field device itself is addressable (eg PLC's or Modbus).

Specific unit addressing or controlled mode communication individually sends data to a specified unit within the network. This is generally applied to applications where the protocol and/or field device cannot be addressed and the modem performs this function (eg datalogger applications). ELPRO's wireless modems range from serial to Ethernet to GSM/GPRS offerings with a variety of frequency and RF power options.

WIRELESS CONNECTIVITY

Our range of wireless products can be localized and customized for operation in both licensed and unlicensed RF bands in many countries. Products fall into two major classes: those designed for telemetry of analog and discrete I/O signals and those designed for RF connection of serial communications used by devices such as PLCs, RTUs, fieldbuses and SCADA components.

ELPRO
Technologies

COOPER Crouse-Hinds

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MTL4500 SERIES
Backplane mounted Intrinsic Safety Isolators

The new **MTL4500** Series is the next generation of backplane mounting Intrinsic Safety Isolators, compatible with clients existing installed base of MTL4000 equipment and introducing many new key application benefits. Utilising innovative planar transformer technology at its heart and extensive automation in construction, the **MTL4500** Series offers industry leading features and performance in a single package. It is designed with the requirements of system vendors in mind, for 'project focussed' applications such as Distributed Control Systems (DCS), Emergency Shutdown Systems (ESD) and Fire and Gas monitoring (F&G).

With fast module installation, easier system integration, improved performance from low-power circuit designs and more I/O channels in each module giving the highest packing density on the market plus 3 port isolation as standard.

MTL5500 SERIES
DIN-Rail mounted Intrinsic Safety Isolators

The new **MTL5500** Series Intrinsic Safety Isolators are DIN-rail mounting and meet the needs of the IS interface market for "application focussed" projects. These range from single instrument loops, through various combinations and enclosures to fully equipped cabinets, across all industries where hazardous areas exist.

Based upon the same core technology as the **MTL4500** Series, the **MTL5500** Series has a slim, compact housing and the range of module options contains both single and multiple channel devices which enables the user to choose the functionality and integrity needed without sacrificing cabinet space. The modules can be used for a wide variety of interface tasks for process instrumentation. All signal wiring is made through removable connectors which facilitates fast installation and simple maintenance procedures.

MTL7700 SERIES
DIN-Rail mounted Safety Barriers

The **MTL7700** Series follows closely in the footsteps of the **MTL700** but as a DIN-rail mounting barrier providing quick and easy installation without the need for special hardware. Removable terminals are used for ease of installation, maintenance and for providing a loop disconnect by simply unplugging the terminals from the side of the module. The barriers clamp simply and securely onto standard T-section DIN rail, simultaneously making a reliable IS earth connection.

When the **MTL7700** Series is used in conjunction with the **MTL7798** power feed module the user has a fully protected, electronically fused supply to many barriers with no additional wiring required.

INTRINSIC SAFETY SOLUTIONS

For over thirty years MTL Instruments has been the world leader in intrinsic safety (IS) interfaces for hazardous areas, producing barriers, isolators and integrated IS to help prevent explosions in process industries. Whatever the application, MTL Instruments helps to protect investments in hazardous areas.

COOPER Crouse-Hinds

PROCESS ALARM EQUIPMENT

Our range of Alarm Equipment for the process and power industries is designed for use across all areas of the plant including intrinsically safe and explosion proof equipment for potentially hazardous areas. This suite of products compliments our range of hazardous area control and instrumentation products.

ANNUNCIATORS AND EVENT RECORDERS

As a world leading supplier of process alarm equipment RTK are able to provide a solution for all safe and hazardous area industrial applications. Used to monitor critical alarms our Alarm Annunciators are all designed as modular products, manufactured to your exact needs with a range of options added as required.

The range includes products for all hazardous areas and also the SIL725 Annunciator certified to IEC61508 at SIL2 level for use as part of a safety instrumented system.

Units can be supplied as pure Event Recorders to time-stamp events to 1ms or as a combined Event Recorder/ Alarm Annunciator.

HAZARDOUS AREA NOTIFICATION

Operators working within a hazardous area need to be quickly and clearly informed of any potential hazard, our range of Notification products serves this purpose perfectly. The range includes Sounders, Beacons, Light Towers, LED Clusters and Alarm Displays all certified for use in potentially hazardous areas.

The Sounders all provide programmable tones and outputs in excess of 100dB and all the Visual products use the latest LED technology to provide maximum brightness with a limited supply current. The DA135 ruggedised LED Beacon can be combined with the Sounder to create a unique single point Annunciator system or supplied as a dual colour version to indicate different fault severities.

ENGINEERED SOLUTIONS

Many clients require much more than the simple supply of loose products. To service these customers our experienced team of engineers can provide a consultancy service to help them select the most appropriate solution. These solutions can consist of any intrinsically safe or explosion proof system or custom alarm or event recording systems.

Our systems team will manage each project throughout its life-cycle. This will include creation of the specification and design of the complete system for approval by the client. Following approval, the project passes to production where the complete system, including any software, is fabricated and wired. The finished package, with all agreed documentation, is then ready for the Factory Acceptance Test prior to shipment to site. Commissioning and training can also be provided if required.

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VISUALISATION AND INDICATORS

The GECMA range of high-quality HMI operating stations are purpose built for use in industrial and Ex rated production areas. Their modular concept uses intrinsically safe components whilst the deliberate use of high quality materials allow them to be used in the strictest of hygiene environments. So now you can position your process PC where you need it... with your process.

Explorer 18i

G3CMA

CHALLENGER

The Challenger range of remote PC terminals meet the highest demands on modern operation and visualization of product processes in Ex Zone 1 and Zone 2 environments. Challenger PC terminals only need to be connected to the mouse, keyboard and VGA interfaces on the controlling computer in order to realize intrinsically safe data transfer via the transmission unit TCV2i. Without software and hardware adjustments being necessary, bright process monitoring can immediately be visualized on the Challenger terminal on site. Based on our philosophy of "modular components" it is possible to configure the PC terminal required for each individual production plant. With additional Options such as RS 232 interface, barcode scanner, video camera, etc., each Challenger terminal is upgradable to a universal operating station.

EXPLORER

Designed as a Panel PC, the Explorer is based on a modular concept - in line with our range of Challenger remote PC terminals. Using this concept RAM, CPU, Ethernet, Industrial Ethernet, USB, RS 232, RS 485, RS 422 interfaces etc. can all be configured in the same way as all operating and visualization components (display, touch screen, trackball, joystick, keyboardÖ). Whether for local display purposes or operation of software in Ex Zone 1 / 2 / 21 / 22, for client server applications (SCADA), for control of PLC or as a web terminal ñ the EXPLORER PANEL PC offers maximum flexibility to individual requirements. Constructed as an intrinsically safe panel mounting module, this PANEL PC can be easily integrated into all FHP housings, as well as any customized housings.

INDICATORS

MTL indicators are loop powered and the low voltage drop across the input terminals allows them to be installed in almost any 2-wire, 4-20mA loop. Alternatively, they may be used, for example, for the re-transmission of mass/flow computations from the safe area, through a suitable MTL IS interface to the indicator in the safe area. All units can indicate measurements in either a linear or square root extraction mode, the latter being used, for example, to display directly the flow from differential pressure measurements using an orifice plate, Dall tube, or venturi. Large liquid crystal displays make the process variables easily visible at a distance. Process units are configured into the display area. Instant readout of percentage or loop current is available at the push of a button.

Field mounting units are housed in a rugged aluminium IP67, NEMA 4X case. ABS and GRP options are available for highly corrosive atmospheres.

G3CMA

COOPER Crouse-Hinds

REMOTE I/O

The MTL8000 Process I/O system is part of the world's best selling modular subsystem that offers maximum flexibility for any installation. Designed to be field mounted close to your devices, the MTL8000 is designed to address all your process needs, connecting as few as 8 or as many as 256 I/O points to each node.

BUS INTERFACE MODULES

An MTL8000 node uses a Bus Interface Module (BIM) to communicate with the host controller via a local area network (LAN). Different BIMs can be chosen to operate with a range of popular fieldbus protocols.

The BIM mounts on a carrier and receives all of its communication and power links from it. The BIM uses the RS485 communications standard. Other alternatives are RS422, by changing switches (where available) on the carrier, or RS232 by fitting an in-line converter. Switch options sometimes offer alternative methods for terminating the LAN.

Some BIMs also have a second LAN connection to maintain communications in the event of damage occurring to the main communications link.

I/O MODULES

I/O modules transfer signals to and from field instruments. A wide range of modules is available, including types for low-level instrumentation, AC mains and intrinsically safe signals. I/O modules typically have 4, 8 or 16 field channels.

All I/O modules are connected to a high speed Bus Interface Module (BIM) via a proprietary bus system called "Railbus" and one BIM can control up to 32 modules. The module carrier provides the transmission medium for the Railbus and by plugging a module onto a carrier, connections are made between the module and the bus. The connectors on the carrier also provide the power supply links to the module.

Additionally, 2/1 modules can use intrinsically safe wiring to send and receive signals into hazardous areas.

MTL8000 1-1 SYSTEM

The MTL8000 1/1 is an innovative remote I/O system targeted at applications that require installation in Zone 1 hazardous areas and connection to Profibus-DP hosts, while maintaining a low installed cost. The system is designed and certified for installation in Zone 1, IIC T4 hazardous areas, with connections to intrinsically safe field instruments in Zone 1 or Zone 0. A single node can accommodate up to 16 I/O modules - equivalent to 64 I/O channels. A typical node consists of a carrier, with integral terminations, that accommodates power supply units, Bus Interface Modules, and the I/O modules, enclosed in a ruggedised stainless steel enclosure.

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MTL
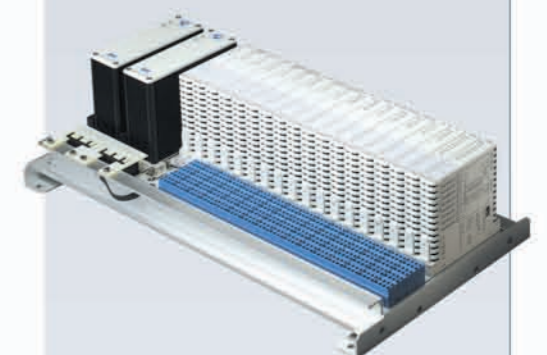
HART
COMMUNICATION PROTOCOL

MULTIPLEXERS

The HART multiplexer is the brains of the system. Its is a combination of two modules, the MTL4841 - HART communications module and MTL4842 - HART interface module.

They provide the HART data interface between smart devices in the field and HART instrument management software running on a PC. The modules which mount on the BPHM64 HART backplane connect to the field devices via either HART connection units or IS backplanes depending on the application.

BACKPLANES

As every plant is different MTL offer a wide range of both generic and customised HART connection boards for all types of installations to offer the optimum cost effective solution. On board isolation, filtering, signal conditioning, labelling and system specific connectors combine to offer customer specific solutions.
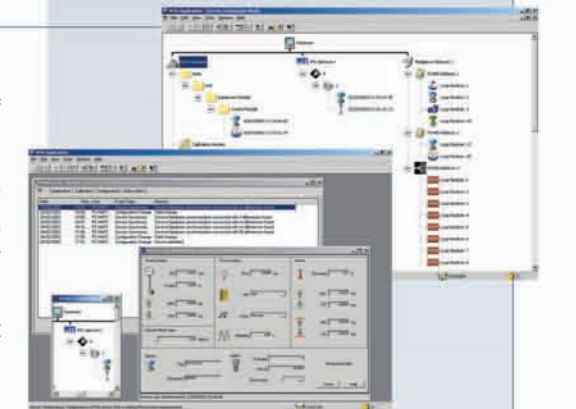
Whatever the application, MTL have, or can design, an integrated solution to allow simple, flexible and space effective connection to your control system. Installations worldwide show that users everywhere recognise the quality and reliability of MTL Integrated Solutions.
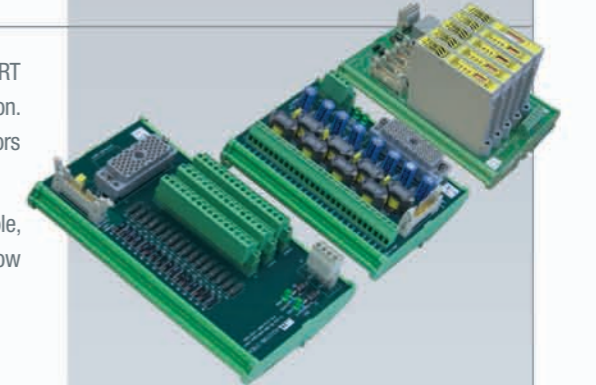
HART SOFTWARE

Powerful instrument management software is being widely adopted by the process industry to provide detailed process and maintenance information for a broad range of HART field devices.

The online access to the information contained within HART devices allows users to diagnose field device troubles before they lead to costly problems. Software such as AMS, PRM, FieldCare and Cornerstone can capture and use diagnostic data from HART field instruments via the MTL HART connection hardware. This allows users to realise the full potential of their field devices to optimise plant assets, which results in significant operations improvement and direct maintenance savings.

HART

MTL provide the HART connection between your field devices, your control system and your instrument management software package When it comes to HART, MTL offers the most cost effective, reliable and flexible solutions for every application and industry.

COOPER Crouse-Hinds

SURGE PROTECTION

Advanced surge protection devices from MTL Surge Technologies safeguard all types of electric and electronic equipment from destructive high voltage transients and feature rapid operation, accurate voltage control and automatic resetting once the over-voltage has ceased.

DATA & SIGNAL

Induced surges and transient voltages can destroy or, perhaps more worryingly, render inaccurate sensitive control and measurement instruments.

Control systems, sensors and telecommunications equipment may be subjected to a barrage of interference and surges of energy, therefore to disregard the need for simple, effective and reliable surge protection is to compromise the safety of the plant.

MTL surge protection devices provide protection both at the controller and at the field-mounted instrument, with specifically designed devices suitable for all data & signal requirements including Industrial Ethernet.

FIELDBUS

A fieldbus, like any distributed electrical system, is at an increased risk of lightning-induced surges and transient overvoltages because it presents a large target area with multiple points of entry.

The operation of a network relies not only on the individual field instruments but also on the trunk and spur cables; should these be damaged by surges then the whole system is at risk. The MTL Surge Technologies' fieldbus protector range has been designed specifically for fieldbus installations, providing excellent protection while remaining transparent to the digital communication signals.

The cost of reliable surge protection is therefore a small price to pay to safeguard the significant investment in today's fieldbus systems.
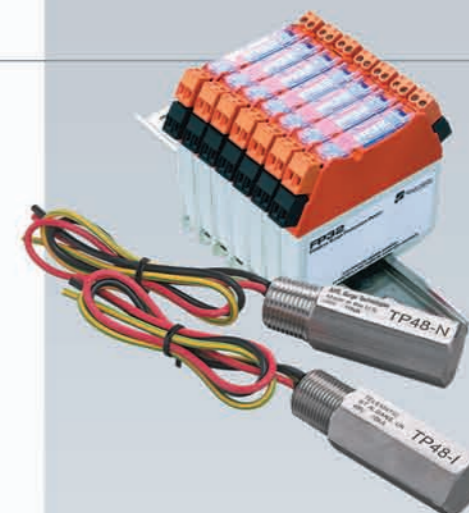
MAINS POWER

Surges and spikes from nearby lightning strikes, arc-welders and high voltage cables can destroy or disrupt unprotected electronic equipment. These destructive forces enter mains power circuits within buildings by a variety of methods.

The primary route is where power, often "dirty" and spike-laden, actually enters the building and it is at this point that surges should be stopped in order to prevent them from propagating further.

However, surges and RFI can also corrupt mains power supplies from within the building. By providing protection at the main power distribution board and then at each piece of equipment, mains borne surges and spikes are eliminated before they can cause damage.

COOPER Crouse-Hinds

HITECH INSTRUMENTS

GAS ANALYSER SYSTEMS

Hitech Instruments has been specialising in process gas analysers for over 25 years. A number of different sensor technologies are used and products are available in multiple configurations. Hitech is able to respond quickly to market led requirements for multi-parameter instruments with bespoke sample systems.

ANALYSERS
Fixed, portable, hazardous areas and OEM

Most analysers are available in a variety of configurations to suit customer demand. Panel mount, rack mount, wall mount and bench top options are offered as fixed units, while portable units are presented in rugged cases to extend lifetime in harsh plant conditions. For OEM customers and large PLC systems 'blind' transmitter versions are available. Hitech can respond quickly to solve application specific demands from all process industries.

Wireless connectivity is achieved with Elpro products and hazardous area situations with MTL barriers.
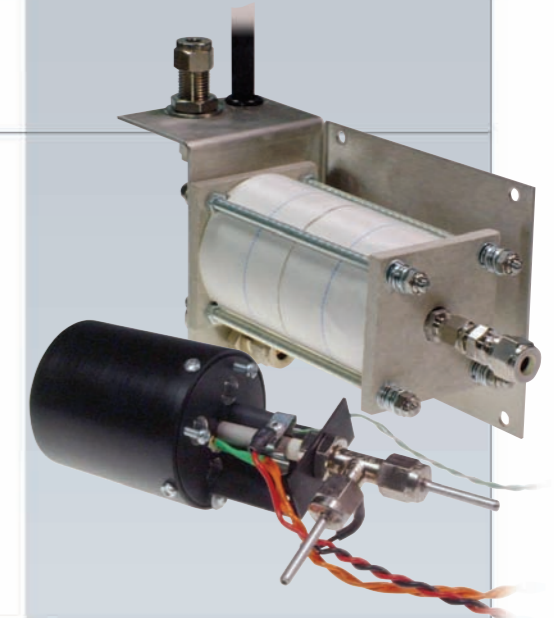
SENSORS
Zirconia, electrochemical, infrared and katharometers

Zirconia sensors and galvanic (electrochemical) cells are the two technologies used for oxygen measurement. A range of options are available for applications including low ppm levels, mildly acidic gases or hydrocarbons. Hydrogen sulphide is also measured with an electrochemical cell.

Katharometers are thermal conductivity devices ideal for measurement in binary or pseudo-binary mixtures. Hydrogen, dissociated ammonia, sulphur hexafluoride, helium and other inert gases where no dedicated sensor exists, are ideal candidates for this method.

Infrared sensors are used typically for methane, carbon dioxide and carbon monoxide in biogas and 'syngas' applications.

SAMPLE CONDITIONING SYSTEMS
Bespoke systems for specific applications

Analysers and sensors depend heavily on the condition of sample supplied. Hitech supplies a number of component parts – filters, flowmeters, regulators, pumps, etc – as well as bespoke sample conditioning systems designed for specific customer applications. Water vapour and particulate matter will routinely prevent accurate analysis but can easily be eliminated with careful choice of sample system.

Application questionnaires ensure that all process parameters are fully considered.

HITECH INSTRUMENTS

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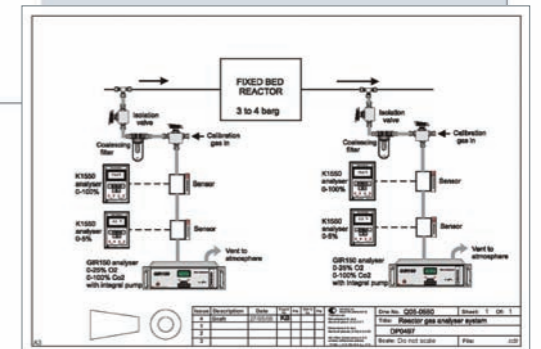
OXYGEN ANALYSERS
From low ppm to high %

The G1010 panel mount oxygen analyser with electrochemical cell options is Hitech's 'best seller' and used in a wide variety of industries and applications. ATEX certified configurations are available.

Zirconia oxygen sensors have a rapid response and are usually more accurate at low ppm oxygen levels. The Z4010 is a rugged, transportable unit ideal for use at multiple points on a plant, e.g. air separation and gas blending applications. The Z1920C is designed with a catalytic reactor to measure fuel:air ratios in flame treatment and burner applications. Fixed instruments often feature remote sensors and bi-directional RS232 for true remote capability.

HYDROGEN & CHLORINE ANALYSER
Hydrogen measurement in the chlorine manufacturing process

The KK650 is designed to measure both hydrogen and chlorine at all stages of the chlorine manufacturing process. Unique dual katharometer design even allows accurate, continuous measurement at start-up. The analyser is suitable for measuring at all stages of the chlor alkali process - 'wet' chlorine, 'dry' chlorine and tail gases. Custom design sample systems enable reliable measurement in 'wet' chlorine. Low maintenance and no consumables result in low cost of ownership. An accurate system which compares very favourably with technologies costing five times as much.

KATHAROMETERS
For hydrogen, helium, SF_6, dissociated ammonia, inert gases

Hitech is a market leader in novel katharometer design employing established thermal conductivity principles. The K1550R panel mount analyser with remote sensor can be supplied in different configurations, either with barriers to mount the sensor in hazardous areas or with full ATEX housing.

Hydrogen is often measured by this technique and compensation inputs can be provided for non-binary mixtures.

BIOGAS & LANDFILL ANALYSERS
Process measurement for efficiency and safety

The GIR5000 is available in two or three gas versions to measure a choice of methane, carbon dioxide, oxygen and hydrogen sulphide. Landfill gas analysers should be certified for use in Zone 2 hazardous areas according to the industry Code of Practice ESA ICOP 2nd Edition, a decision endorsed by the Health & Safety Executive. Hitech Instruments was the first company to introduce a purpose designed, fixed analyser that is Zone 2 ATEX compliant. The GIR5000 is equally at home measuring the gas from a landfill site or an anaerobic digester.

MULTI-PARAMETER ANALYSERS
Customer led, application specific products

The Hitech Design department is experienced at solving customer led application demands as new markets evolve. Some recent examples include,

- KG1550 panel mount and KG6050 rugged portable units for both hydrogen and oxygen; parameters critical to some biomass applications

- GIR250 bench top unit for oxygen and carbon dioxide is used in fermentation monitoring, sports science and modified atmosphere packing

- KIR4250 is a dual channel portable unit for hydrogen and carbon dioxide, designed for a leading manufacturer of industrial catalysts

ALTERNATOR PURGE GAS MONITORS
Hydrogen purity and purge cycle analysers for power stations

Even small changes in hydrogen purity can affect the efficiency of turbogenerators significantly. For maintenance, the system needs to be purged carefully and efficiently to avoid the risk of explosive gas mixtures of hydrogen and air. The alternator purge gas monitors from Hitech are ideal for this application. The K1650 panel mount and K6050 rugged portable have three different ranges to measure hydrogen purity, hydrogen in air and carbon dioxide in air. Samples systems are available to regulate and calibrate pressurised systems.

HITECH INSTRUMENTS

COOPER Crouse-Hinds

CONNECTIVITY

In a worldwide market place, Cooper Crouse-Hinds provides solutions and products that are certified to meet local standards. When it comes to quality, engineering and service, however, our commitment to continuous reinvention sets a global standard.

MOLDED PRODUCTS

Cooper Interconnect, a division of Cooper Crouse-Hinds, is your one source for the design & development of connectors, cable assemblies, and interconnect solutions. The most extensive offering of specialty connectors and cable assemblies for welding, mining, ship-to-shore, aerospace, military, underwater, softpower & more.

With globally integrated manufacturing facilities, Cooper Interconnect provides solutions from concept design and prototyping right through to the finished product. Whatever your interconnect needs, Cooper Interconnect is your engineered-solutions provider.

ExLINK HOT SWAP CONNECTORS

With eXLink Cooper Crouse-Hinds provides a NEW, complete system for connecting and disconnecting products electrically. This system is available in different versions for different applications.

The self-cleaning Ex-e multi-contact conducting pins provide permanent faultless electrical connection. To ensure that the contact system remains fully functional even during long-term use in aggressive environments all conducting pins are silver-plated. The quality of the connection means that the system is suitable for current in the mA range up to 16 A continuously. All eXLink plugs, inlets, receptacle and connectors are designed for hot swapping of apparatus in hazardous areas without disconnecting terminals, without shutting down circuits and without a "hot work permit!"
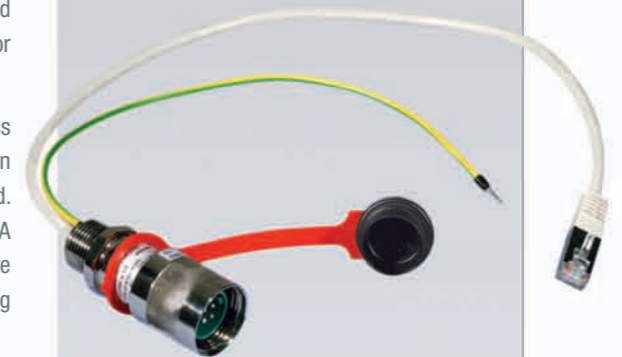
MULTI PURPOSE TERMINAL
More power for hazardous areas

The new multi purpose terminal employs a 2-step removal process to ensure that possible high energy sparks will be kept inside the flame proof enclosure of the terminals. The metal pins of the module remain within the flame proof area until the module is removed manually. At this point sparks will have been extinguished already and the module will be volt free.

Applications include:

- fusing of Ex-d valves, signal lamps, sounders etc.
- diode separation of supply circuits simple OR gate for Zone 1 mounting
- visible disconnect of field devices
- relay switch for power circuits
- Bus termination, current limitation, opto-coupler etc.

CEAG

CEAG

COOPER Crouse-Hinds

SERVICES AND SUPPORT

With our years of Intrinsic Safety and Foundation Fieldbus experience the staff of MTL can provide instant value to your project – at any time in its lifecycle and at all stages of the project from Front End Engineering Design (FEED) to construction and commissioning right through to post-project network integrity maintenance.

MTL SERVICES - TAILORED FOR YOUR NEEDS

Getting it right from the start is the key to the success of any project and MTL is here to help you get your industrial network right. Regardless of whether you are designing a "traditional" analogue system, HART based system or a complete digital system incorporating Foundation Fieldbus, Industrial Ethernet and Wireless systems, MTL can add value tailored to your specific needs for Project Definition, Network Services and Knowledge Capture.

With our global network of Sales associates, help is never far away because it is the local sales person with whom you have been dealing for years, who will continue to be your interface to the complete MTL organization, helping you get your project completed on budget and on time, with real and sustainable benefits.

PROJECT DEFINITION AND SCOPE

Generate the rewards and synergies of early involvement of MTL at the front end of your project activities. In today's demanding environment finding the right skills at the right time is often as big a challenge as doing the work itself. MTL can help by either taking on responsibility for the Industrial network scope of your project or simply providing those "extra bodies," that are so hard to find today.

MTL's team of professionals provide you with unbiased expertise starting with FEED and specification development to commissioning and check out. Whether you want to handover complete responsibility for the industrial network to MTL – single source solution; have someone coach you through the process; help you over a hump; be there in the background, or simply have an impartial outsider give you the confidence that you are "on track", our team is here to help.

INTEGRITY AND AVAILABILITY

With security as a 'Top of Mind' issue and the ever increasing cost of network downtime, capitalise on the real benefits of a thorough and periodic 'Health Check' of your network infrastructure.

As we all embrace the new world of IP and Ethernet based technologies we must also face the challenges of the network security. MTL and its partners have several leading world authorities on this subject as part of our team. So not only do you get a well designed network, the solution will be secure as well. Of course, if you already have a system installed and need a third party audit to confirm that you really are as secure as you believe, MTL can help you again.

KNOWLEDGE CAPTURE

Enjoy the benefits of improved education and awareness of network support staff leading to smooth and efficient operations as well as a more structured approach to troubleshooting with time and cost savings.

DOCUMENTATION

MTL will also review the project specifications and Control Narratives. This will help identify potential savings opportunities and any non-compliances from the original design and specification, through more efficient network layout/design.

Another key deliverable of the Engineering design is the documents to verify that what is delivered meets the design intent. MTL can help here as well with preparation of the FAT, SAT, and Commissioning check sheets. Then when you actually are in the field, MTL again comes to your aid with support services including a person to assist with collection and verification of the baseline data and signal integrity between devices and host system.

TRAINING

The key to a successful project is knowledge. The MTL team can provide the necessary knowledge to your team at all stages of your project and to all the members of your team whether they be the engineering design team, installation contractor, maintenance team, or plant operators. Our programs are custom tailored to meet the needs of your project and your facility.

Our training classes combine both theory and practice with extensive demonstrations and hands-on opportunities to quickly implement the new skills being transferred to your team. Since not all training is done in the classroom, as part of MTL's Solution, we can also mentor your team on a consultancy basis by providing design templates, worked examples and reviews throughout the project, not just key milestones.

'GETTING IT RIGHT FROM THE START IS THE KEY TO THE SUCCESS OF ANY PROJECT AND MTL IS HERE TO HELP YOU GET YOUR INDUSTRIAL NETWORK RIGHT.'

COOPER Crouse-Hinds

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