

A photograph of an industrial facility, likely a refinery or chemical plant, at night. The scene is dominated by three tall, cylindrical distillation columns or towers, each illuminated by bright yellow lights. These towers are connected by a complex network of pipes, walkways, and platforms. The entire structure is set against a dark, twilight sky with some clouds. In the background, a body of water is visible, reflecting some of the lights. The overall atmosphere is industrial and operational.

Versatile, industrial-strength
networking solutions

EATON

Powering Business Worldwide

The background of the slide is a photograph of an industrial facility, possibly a refinery or chemical plant, with tall distillation columns and complex piping. A semi-transparent blue horizontal band is overlaid across the middle of the image. In the bottom right corner, a portion of a high-visibility orange safety vest is visible.

The safety you rely on

Delivering world-class reliability and safety in high consequence harsh and hazardous environments



MTL is a part of Eaton's Crouse-Hinds business and remains a brand that stands for safety in the harshest of environments. Whilst we began with the MTL100 series zener barrier, MTL alongside Crouse-Hinds, has grown into the premier name for a comprehensive portfolio of solutions for high-consequence harsh and hazardous environments.

As we continue to evolve, so does our brand. Our products are now united with Eaton's leading range of reliable, efficient and safe electrical power management solutions. MTL has a new look alongside Crouse-Hinds by Eaton, but the products and technology you trust remain unchanged.

**More protection. More technology.
Expect more.**

Only Eaton's Crouse-Hinds Business can deliver...

- Protection and safety of people and assets around the world with unsurpassed reliability and quality in every product we offer
- Industry leading innovation and product efficiency
- Product solutions designed and certified for global specifications
- Best-in-class, global sales, and customer service teams that provide local support
- Over forty years of industry knowledge and expertise

Industrial Networks

MTL is proud to present its range of Industrial Strength Networking products. Designed to meet the most demanding process applications worldwide, our complete portfolio of ruggedised Ethernet connectivity devices offer harsh and hazardous area classifications, combined with **MTL's** 40 year pedigree of understanding process industry requirements.

The extensive range of switch and media converter products include multi-port Managed and Unmanaged Switches with Fibre, Gigabit, PoE (Power over Ethernet) and Redundant Ring functionality.

For applications requiring access into Division 1, Zone 1 and Zone 0 hazardous areas, including wireless access, then look no further than **MTL's** range of Intrinsically Safe Ethernet units. The 9460-ET Series delivers Intrinsically Safe "Power over Ethernet" (PoEx) with a single Cat 5e or Cat 6 cable, allowing live connection and disconnection of the end device in Zone 0, Zone 1 or Division 1.



To safeguard your network's critical devices, **MTL** can provide a unique solution to combat modern cyber-security threats - Tofino™. By deploying Tofino™ security appliances directly in front of each control device (or group of control devices), they provide SCADA and process control networks with a layered security solution.

MTL's 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 and ethernet communications, used by devices such as PLCs, RTUs, fieldbuses and SCADA components.

For further information about our "industrial strength" networking products contact -

mtlenquiry@eaton.com

www.mtl-inst.com

versatile networking solutions



Industrial Ethernet Switches

In today's industrial process's there are increasing demands for greater efficiency, higher reliability and lower cost of ownership of field equipment and supporting networks. **MTL** offers end to end or part solutions to meet the requirements of your project.

MTL's industrial Ethernet switches combine enterprise-class performance with rugged reliability to provide a "best of both worlds" solution for many of today's industrial applications. Our hardened switches are ideally suited for harsh and outdoor environments that include process plants, power substations, Smart Grid, utility, transportation and other industries where real-time performance under extreme operating conditions is required. Built-in redundancy coupled with advanced security and network management ensures the infrastructure stays up and running while providing tools for monitoring and tracking.



MTL can supply the full range of "industrial strength" Ethernet products to satisfy the most demanding process applications. Our Ruggedised Ethernet range is designed to operate in the harsh process control environment and features multi-port managed and unmanaged switches, copper to fibre media converters and Power over Ethernet (PoE) capabilities.

- Zone 2, Class 1 Div 2 approved
- Low power dissipation
- Flexible redundancy options
- Hardened environmental specification
- High MTBF
- Switch status via Modbus

rugged reliable switches

Unmanaged Ethernet Switches

9200-ET SERIES

- **Robust-edge devices and PoE**
 - Unmanaged copper, fibre and PoE switches
- **Flexible deployment options**
 - 5 to 9 port DIN-rail or panel mount
 - Plug-and-play functionality works out of box
- **Trouble-free operation**
 - Ultra-reliable 1,000,000+ hours MTBF
 - Dual power inputs with industrial spike protection
- **Industrial indoor rated**
 - Supports temperatures ranging from -40 to 75/85°C,
 - Class I, Div 2 and Zone 2 hazardous locations



Managed Ethernet Switches

9200-ETM SERIES

- **Versatile networking solutions**
 - Managed copper, fibre and Gigabit switches
- **Flexible deployment options**
 - 5 to 18 port DIN-rail style
 - Plug-and-play functionality works out of box
 - Fast redundant ring and mesh network support
- **Advanced features and security**
 - Configurable network management options
 - Real-time data access and prioritization
- **Hardened for the toughest applications**
 - Supports temperatures ranging from -40 to 75° C
 - NEMA TS-2 for traffic control systems
 - Div 2 and Zone 2 hazardous locations



Rackmount Ethernet Switches

9200-ETZ SERIES

- **Designed for critical industrial applications**
 - Fast redundant ring and mesh network support for high availability
 - Real-time message delivery prioritises data to eliminate network congestion
 - Sophisticated multicast controls reduce traffic to ensure optimal performance
 - Powerful network management and plug and play functionality eases configuration and speeds troubleshooting
- **Rugged rackmount switch for the harshest environments**
 - Wide operating temperature from -40 to 85°C



Intrinsically Safe Ethernet

MTL, known for its leadership in Intrinsic Safety, is proud of 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 hazardous area environment. The range, consisting of an Ethernet Switch, Serial Gateway, Wireless access point, and Media Converter - all suitable for Zone 1 and Division 1 mounting - combine with a Zone 2 mounted Power Supply and Isolator unit to provide a complete “Ethernet anywhere” solution.

The deployment of Ethernet into Process Automation has long been hindered by the hazardous area classification in which the end device is installed. Now the 9400-ET Series provides cost-effective, Intrinsically Safe (IS) Ethernet equipment that can be installed and maintained in Zone 1, Zone 0 and Division 1 hazardous areas in Surface Industry Group II and Mining Group I applications.



Additionally, in Process Automation it is preferred to use a single cable providing power and communications to the end device. The 9400-ET Series delivers Intrinsically Safe ‘Power over Ethernet’ (PoEx™) using a single Cat 5e or Cat 6 cable, allowing live connection and disconnection of the end device in hazardous areas and typically reducing the cost of installing the LAN in hazardous areas by 40%.

“Power over Ethernet” PoEx™

I/S Power Supply

9491-PS

The 9491-PS Power Supply is the preferred method for supplying the 9460-ET series of intrinsically 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.



Media Converter

9465-ET

The 9465-ET 10/100Mbps Copper to Fibre Optic Media Converter allows an Ethernet network to be extended over a greater distance. The fibre optic link may be up to 8km in length when running at 100Mbps. Longer distances are obtained by simply connecting a 9466-ET (10/100Mbps Ethernet Switch) between two 9465 media converters, effectively giving a 'repeater' function.



Wireless Access Unit

9469-ET

The 9469-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 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. Additionally the module may also be used in its Wireless Repeater (WDS) mode to extend the range covered by a wireless network.



Switch Module

9466-ET

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.



Isolator

9468-ET

The 9468-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.

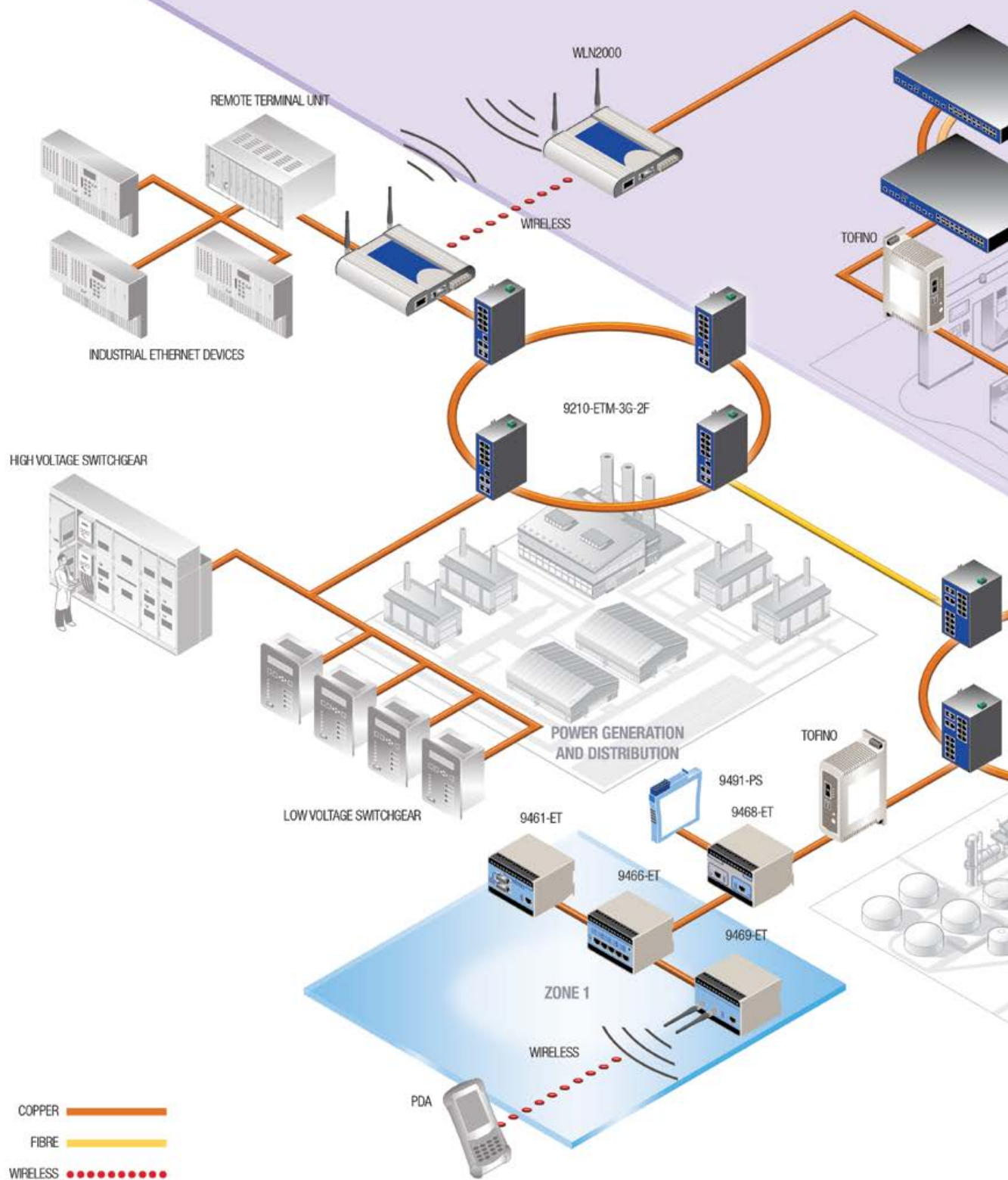


Gateway

9461-ET

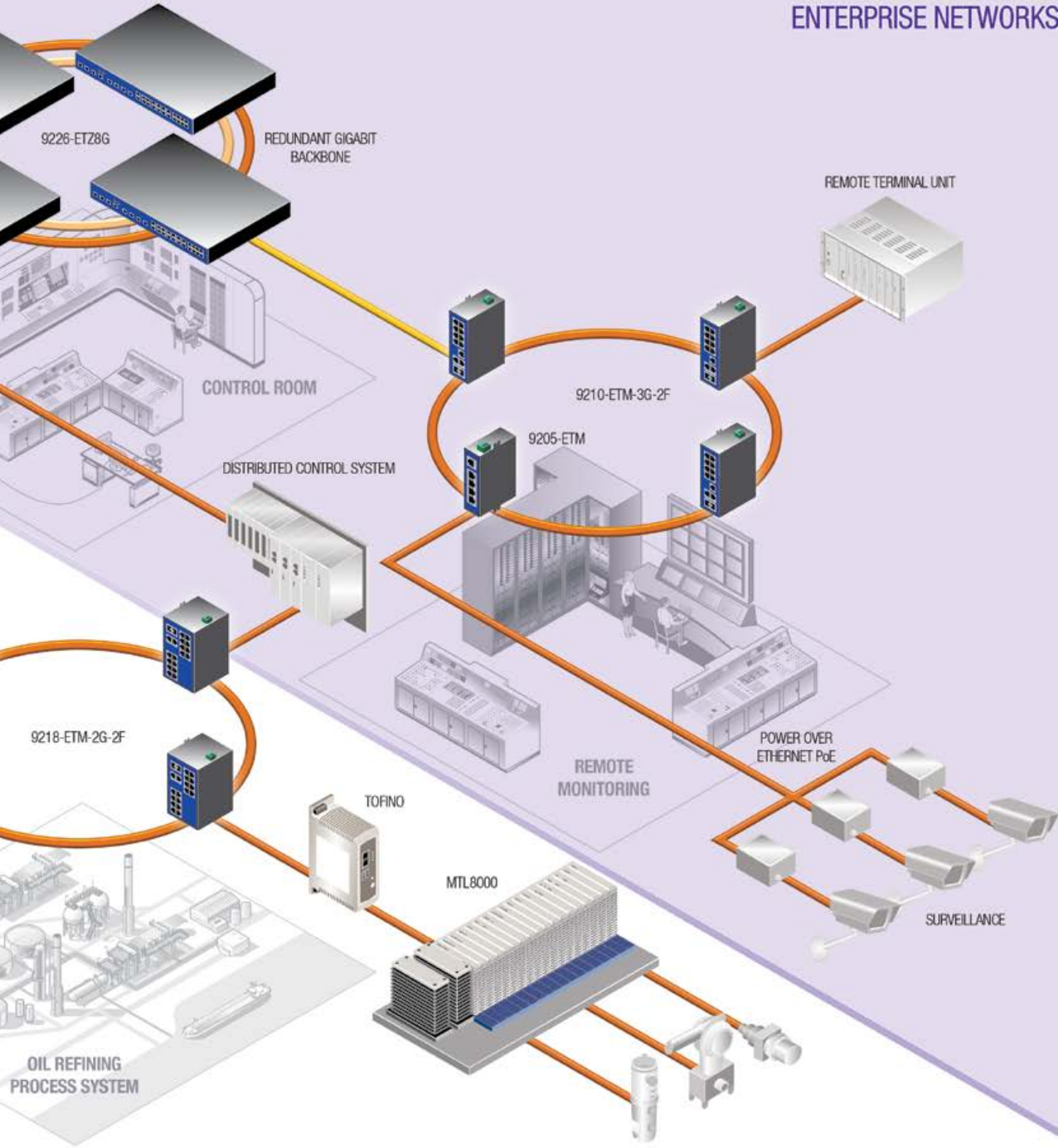
The 9461-ET Ethernet Gateway gives existing intrinsically safe equipment "Ethernet connectivity" by allowing conventional serial equipment to be connected to an Ethernet network. IS serial devices are supported with serial tunnelling and IS Modbus devices are supported with powerful serial to Modbus TCP/IP gateway functionality.





Industrial Networks range

ENTERPRISE NETWORKS



PROCESS NETWORKS

Network Security

Supervisory Control and Data Acquisition (SCADA) and Industrial Control Systems have long been considered immune to the cyber attacks suffered by corporate information systems. The move to open standards such as Ethernet, TCP/IP, and web technologies has allowed hackers and virus writers to take advantage of the control industry's ignorance. The result is a growing number of cyber-based security events that are affecting critical infrastructure and manufacturing industries.

The Tofino™ Industrial Security System from MTL addresses the important issue of protecting Industrial Networks from both malicious and accidental network security incidents.



The MTL 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 OPC protection for operator stations, PLC's, RTU's and DCS, giving your control system multiple layers of "defence-in-depth".

"Defence-in-Depth"

Tofino™

Ethernet Based Industrial Security Appliance

9211-ET

- industrial network protection
- simple installation
- 10/100Mbps Ethernet
- automatic device discovery
- “transparent learning” option
- power supply redundancy
- assisted rule generation
- DIN-rail mounting

The Tofino™ Industrial Security System from MTL addresses the important issue of protecting Industrial Networks from malicious or accidental disruptions.

Instead of the standard, highly complex, “IT-style” firewall that requires highly-trained staff to install it, the Tofino™ appliance only requires a field technician to attach power and two network cables to it and then walk away. Configuration is handled via a Central Management Platform (CMP) allowing the user to monitor, deploy and configure multiple Tofino's from a single location.

The system has the flexibility to protect a small plant with a single PLC, or a multi-national organization with thousands of critical devices scattered around the globe. By deploying Tofino™ appliances in front of each control device (or group of devices), they provide SCADA and process control companies with a layered security solution for their systems.

The Tofino™ uses Loadable Security Modules (LSM's), which are tailored software modules. The Appliance and LSM's provide highly customizable protection directly in front of critical devices, in a similar fashion to the way personal firewalls provide local protection for desktop computers. Configuration is simple. Drag and drop the icon of a device you want to communicate with onto a second device and the rules are automatically created. Or put the Tofino into TEST mode and then use the Assisted Rule Generation feature to suggest firewall rules based on existing traffic patterns. Even highly complex industrial protocols can be carefully managed with the “Special Rule” feature.

The Tofino™ appliance logs “events of interest”. Chosen events, such as power anomalies, abnormal or unsolicited traffic and intrusions can be recorded and downloaded for later examination. Redundant power supply inputs enable the user to reduce the risk of power failure to the module and power-fail inputs are provided to enable any supply failures to be signalled directly to the appliance for data logging.



Unparalleled security . . .
. . . unrivalled support

Industrial network protection with 24/7 support

To find out more about the Tofino™ Industrial Security Solution or our range of support services...

visit our website at: www.mtl-inst.com
or email: tofino@mtl-inst.com

Wireless Connectivity

MTL offers end-to-end or part solutions to meet the requirements of your project. From plant-wide 802.11 network infrastructure in hazardous areas to simple transducer cable replacement, MTL brings the experience and the products to offer robust and secure wireless systems. MTL wireless technology supports industry standard connections and protocols, maximizing flexibility and reducing inventory costs.

Wireless technology can be used to solve physical problems such as:

- Cabling repeatedly damaged or EMC issues on site
- Mobile data access (personnel, rotating machines, vehicles)
- Large communication distances
- Harsh or protected environments



In addition to the above solutions, wireless technology can bring benefits and flexibility to a new or completed project beyond that of a purely cabled solution.

Benefits of wireless systems include:

- Simpler installation options; pulling cable through walls and ceiling can increase complexity.
- Improved commissioning options; some wireless systems can be tested before installation.
- Improved scalability; wireless networks are simpler to scale than wired equivalents.
- Increased mobility; wireless networks enable personnel to perform diagnostics remotely.

Monitoring more with less

Easy Wireless I/O

WIO-900L/800L

The WIO-900L and 800L simply and reliably communicate transducer and switch data by providing a 4-20mA, mV and digital interface in a small footprint radio. The sensor data is transmitted to a remote output as digital and 4-20mA effectively replacing the cable. Line of sight distances of up to 10km for the WIO-800L and 20 miles for the WIO-900L are achievable.



Access Point

WLN-2000

The WLN-2000 enables Ethernet and serial device connectivity over an 802.11 wireless connection for network access or standalone data transfer. Full networking solutions can be deployed to manage data between fixed and mobile devices on 2.4GHz and 5GHz license-free bands. The WLN-2000 has a built-in web server, containing web pages for analyzing and modifying the module's configuration.



Wireless Access Unit

9469-ET

The 9469-ET is a multi-functional module that can be used as an Access Point, Wireless Bridge (Client) or Wireless Repeater.

The intrinsically safe device is certified for mounting in Zone 1 and Division 1 hazardous areas allowing it to be sited in the optimum location to provide reliable communications.



I/O INTERFACE

SIO-100S

The SIO-100S series of wireless I/O multiplexers provide an interface to MTL wireless networks for sensors, transducers and switches. The SIO-100 can communicate via Modbus RTU or a point to point exception reporting protocol. The SIO-100S possesses configurable input types and supports a wide range of end devices.



Serial Modems

WMO-900S/800S

The WMO-900S and 800S serial modems provide remote serial connectivity. Possessing both RS232 and RS485 ports for communication, this device is configurable for a variety of network topologies.



Serial Modems

WMO-400S

The WMO-400S serial modem is ideal for long range SCADA applications. Providing serial communication for devices such as PLCs, intelligent transducers and data loggers the WMO-400S operates on the 400MHz frequency range for licensed and license-free applications. Features of the WMO-400S include configurable radio power, frequency, network topology and data pathing features.



Surge protection

MTL has a close association with the Process Industry and a presence in the Networks and Wireless Infrastructure markets which means that we are well placed to support a wide range of industries around the world. We supply a comprehensive range of surge protection devices offering solutions for all mains power, process control, network and communications, telecom, wireless and RF systems.

Our commitment to not only meet, but surpass our customers' high expectations can only be achieved by maintaining very high standards in all aspects of our business. Independent verification of our quality and safety procedures is of paramount importance and our accreditation to internationally recognised standards such as ISO 9001 is proof of this commitment.



Our 10 year 'no fuss' product warranty, is further evidence of our confidence in our products and their application capabilities.

At **MTL** we understand that your business relies on our products so we aim to design and manufacture the very best devices available. We know that when you install an **MTL** solution you want to know that it will give years of reliable maintenance free protection, protection you can depend on, and we're confident that it will.

Protecting your assets

Networks and communications protection

Network technologies from the Internet to LANs have revolutionised the way businesses operate. From last month's sales figures to the real-time status of a remote pumping station, industry relies on computer networks now more than ever. Network surge protection is essential if your business relies on IT services for its minute to minute operation. MTL provides an excellent range of protection devices serving a wide range of network and comms applications. Make sure you're protected.



AC protection

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. A full range of AC surge protectors are available for local equipment protection and also complete facilities protection. Surge handling capabilities up to 400kA ensure that the maximum uptime is guaranteed for your facility. Power Protection is fundamental - MTL supplies that protection



Data and signal protection


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.



RF and coaxial protection

MTL has a wealth of experience in the design and manufacture of surge protection solutions for very specialised areas of application. Whether protection is required for wireless telecommunications, satellite, CCTV or general antennae protection, MTL can supply a superior protection device to meet your requirements. It is not just the obvious areas, such as mains power, networks and telecom systems that require protection - these specialist applications should not be overlooked.



A low-angle photograph of two tall, silver industrial distillation columns in a refinery. The columns are surrounded by a complex network of black pipes and yellow safety railings. The scene is set against a dramatic sky with large, bright orange and yellow clouds, suggesting a sunset or sunrise. The lighting creates a strong contrast between the dark industrial structures and the bright sky.

Robust, versatile and
reliable connectivity for
harsh process control
environments



EATON Crouse-Hinds series

The safety you rely on.

See the complete MTL industrial networking product portfolio at www.mtl-inst.com

U.S. (Global Headquarters):
Eaton's Crouse-Hinds Business
1201 Wolf Street
Syracuse, NY 13208

(866) 764-5454
FAX: (315) 477-5179
FAX Orders Only:
(866) 653-0640

CrouseCustomerCTR@Eaton.com

For more information:

If further assistance is required, please contact an authorised MTL Distributor, Sales Office, or Customer Service Department

AUSTRALIA

MTL Instruments Pty Ltd,
10 Kent Road, Mascot, New South Wales, 2020, Australia
Tel: +61 1300 308 374 Fax: +61 1300 308 463
E-mail: mtlsalesanz@eaton.com

BeNeLux

MTL Instruments BV
Ambacht 6, 5301 KW Zaltbommel
The Netherlands
Tel: +31 (0)418 570290 Fax: +31 (0)418 541044
E-mail: mtl.benelux@eaton.com

CHINA

Cooper Electric (Shanghai) Co. Ltd
955 Shengli Road, Heqing Industrial Park
Pudong New Area, Shanghai 201201
Tel: +86 21 2899 3817 Fax: +86 21 2899 3992
E-mail: mtl-cn@eaton.com

FRANCE

MTL Instruments sarl,
7 rue des Rosières, 69410 Champagne au Mont d'Or
France
Tel: +33 (0)4 37 46 16 53 Fax: +33 (0)4 37 46 17 20
E-mail: mtlfrance@eaton.com

GERMANY

MTL Instruments GmbH,
Heinrich-Hertz-Str. 12, 50170 Kerpen, Germany
Tel: +49 (0)22 73 98 12 - 0 Fax: +49 (0)22 73 98 12 - 2 00
E-mail: csckerpen@eaton.com

INDIA

MTL India,
No.36, Nehru Street, Off Old Mahabalipuram Road
Sholinganallur, Chennai - 600 119, India
Tel: +91 (0) 44 24501660 /24501857 Fax: +91 (0) 44 24501463
E-mail: mtlindiasales@eaton.com

ITALY

MTL Italia srl,
Via San Bovio, 3, 20090 Segrate, Milano, Italy
Tel: +39 02 959501 Fax: +39 02 95950759
E-mail: chmninfo@eaton.com

JAPAN

Cooper Crouse-Hinds Japan KK,
MT Building 3F, 2-7-5 Shiba Daimon, Minato-ku,
Tokyo, Japan 105-0012
Tel: +81 (0)3 6430 3128 Fax: +81 (0)3 6430 3129
E-mail: mtl-jp@eaton.com

NORWAY

Norex AS
Fekjan 7c, Postboks 147,
N-1378 Nesbru, Norway
Tel: +47 66 77 43 80 Fax: +47 66 84 55 33
E-mail: info@norex.no

RUSSIA

Cooper Industries Russia LLC
Elektrozavodskaya Str 33
Building 4
Moscow 107076, Russia
Tel: +7 (495) 981 3770 Fax: +7 (495) 981 3771
E-mail: mtlrussia@eaton.com

SINGAPORE

Cooper Crouse-Hinds Pte Ltd
No 2 Serangoon North Avenue 5, #06-01 Fu Yu Building
Singapore 554911
Tel: +65 6 645 9888 Fax: +65 6 487 7997
E-mail: sales.mtlsing@eaton.com

SOUTH KOREA

Cooper Crouse-Hinds Korea
7F. Parkland Building 237-11 Nonhyun-dong Gangnam-gu,
Seoul 135-546, South Korea.
Tel: +82 6380 4805 Fax: +82 6380 4839
E-mail: mtl-korea@eaton.com

UNITED ARAB EMIRATES

Cooper Industries/Eaton Corporation
Office 205/206, 2nd Floor SJ Towers, off. Old Airport Road,
Abu Dhabi, United Arab Emirates
Tel: +971 2 44 66 840 Fax: +971 2 44 66 841
E-mail: mtlgulf@eaton.com

UNITED KINGDOM

Eaton Electric Ltd,
Great Marlings, Butterfield, Luton
Beds LU2 8DL
Tel: +44 (0)1582 723633 Fax: +44 (0)1582 422283
E-mail: mtlenquiry@eaton.com

AMERICAS

Cooper Crouse-Hinds MTL Inc.
3413 N. Sam Houston Parkway W.
Suite 200, Houston TX 77066, USA
Tel: +1 281-571-8065 Fax: +1 281-571-8069
E-mail: mtl-us-info@eaton.com

Eaton Electric Ltd,
Great Marlings, Butterfield, Luton
Beds LU2 8DL, UK.
Tel: + 44 (0)1582 723633 Fax: + 44 (0)1582 422283
E-mail: mtlenquiry@eaton.com

www.mtl-inst.com

EATON
Powering Business Worldwide

© 2016 Eaton
All Rights Reserved
ZL-B-INDNET-EN-0916
September 2016

Eaton Electric Limited,
Great Marlings, Butterfield, Luton
Beds, LU2 8DL, UK.
Tel: + 44 (0)1582 723633 Fax: + 44 (0)1582 422283
E-mail: mtlenquiry@eaton.com
www.mtl-inst.com

Eaton is a registered trademark.
All other trademarks are property
of their respective owners.