MTL Instruments

IS Ethernet Solutions

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Providing a complete "Ethernet anywhere" solution

COOPER Crouse-Hinds

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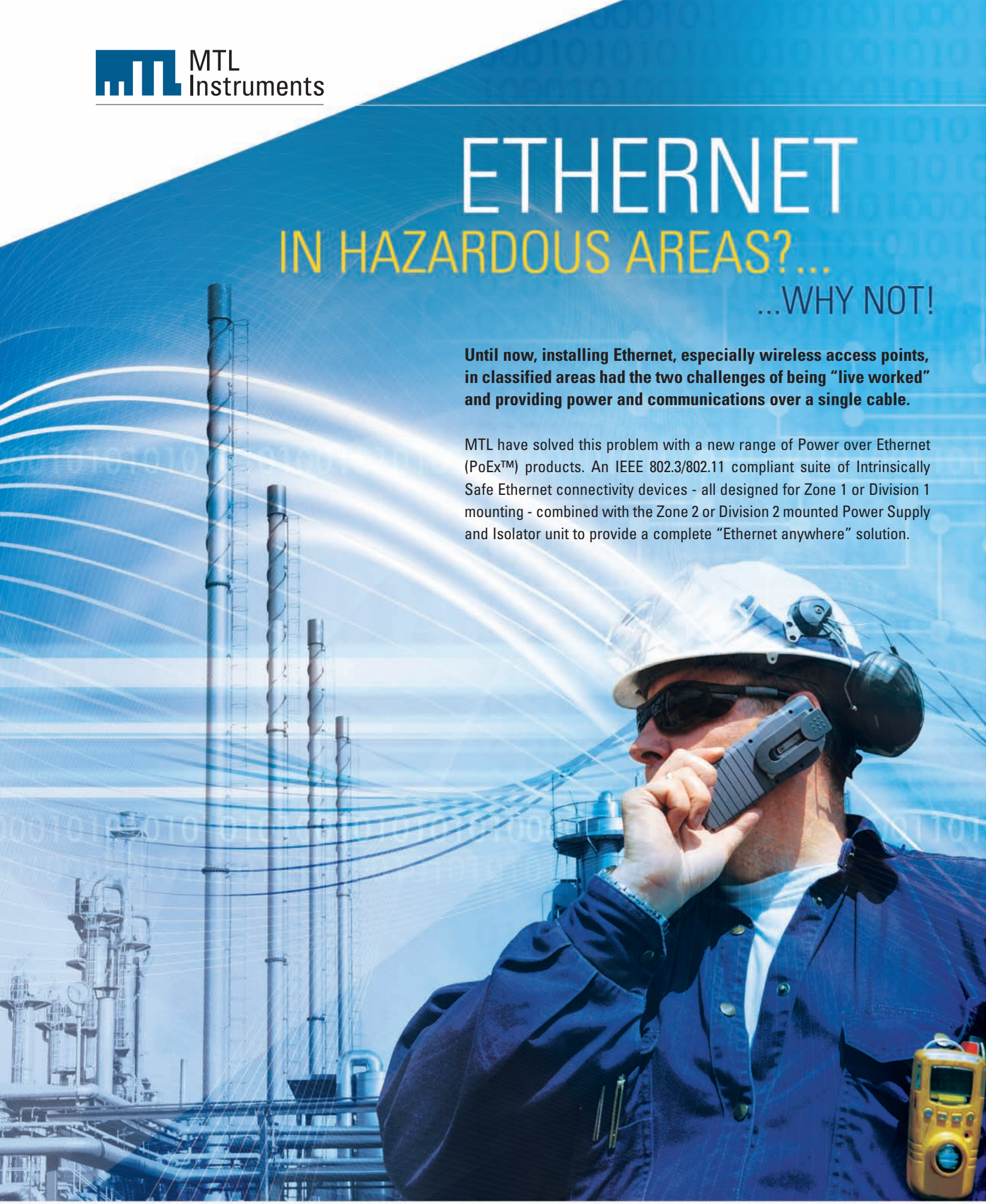
ETHERNET
IN HAZARDOUS AREAS?...
...WHY NOT!

Until now, installing Ethernet, especially wireless access points, in classified areas had the two challenges of being "live worked" and providing power and communications over a single cable.

MTL have solved this problem with a new range of Power over Ethernet (PoEx™) products. An IEEE 802.3/802.11 compliant suite of Intrinsically Safe Ethernet connectivity devices - all designed for Zone 1 or Division 1 mounting - combined with the Zone 2 or Division 2 mounted Power Supply and Isolator unit to provide a complete "Ethernet anywhere" solution.



THE APPLICATION

Today in Process Automation many different methods are used to power and to communicate with end devices. Such methods may include 4-20mA; a variety of different fieldbus standards; serial communications - including RS232, 422 and 485; video; telephony and Ethernet.

Where applications require high speed or handle increasing amounts of data, Ethernet is the ideal solution as it provides open connectivity and can be combined with Ethernet Remote I/O and Linking Devices to connect to low bandwidth 4-20mA and fieldbus systems.

In the hazardous areas, the choice often falls on intrinsically safe serial communication. However, all these serial solutions are proprietary resulting in very high design, integration and maintenance costs.

Many end users have recognised the benefits of giving mobile operators access to control and maintenance system data. In many process plants a mobile operator may spend sometime in hazardous areas so it is recommended to select intrinsically safe PDAs and Zone 2 PCs offering 802.11 wireless connectivity.

When communication is required to Ethernet devices in hazardous areas, mechanically protected wiring is usually installed. This increases the installation cost and a gas clearance certificate is required for any maintenance on the network.

Alternatively, for some applications intrinsically safe Ethernet using fibre optic cable has been selected. This is good for long distance but is expensive when interconnecting several devices together in the same location. In addition, the power distribution poses additional wiring and cost.

THE SOLUTION

The new MTL 9460-ET range of Intrinsically Safe Ethernet components with Power over Ethernet Ex (PoEx™) provide a comprehensive solution for taking copper, fibre and wireless Ethernet into hazardous areas without the need for separate power cables.

CONTROL ROOM

The IS Ethernet isolator allows communication across hazardous areas to Ethernet devices. The Intrinsically Safe Ethernet cable can be directly connected to IS Ethernet devices or an IS Ethernet isolator may be located within a purged or flameproof enclosure housing the Ethernet device

The Intrinsically Safe Ethernet solution is certified for use in both Gas Group II surface industries and Gas Group I mining applications.

SAFE AREA
ZONE 2 DIVISION 2

ZONE 1 DIVISION 1

The IS Copper to Fibre Optic Media Converter enables an IS Ethernet network to be extended over a much greater distance.

The IS Ethernet switch provides a cost effective solution for interconnecting Ethernet components within a local area on the plant.

The IS Ethernet WLAN access point and bridge offers lower costs and easier maintenance for WLAN equipment installed in hazardous areas. Compliant with IEEE 802.11 a/b/g/h & Super AG standards, 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. Supporting data-rates of up to 108Mbps, providing the ideal wireless infrastructure for all the data needs of the mobile operator in hazardous areas.

The IS Ethernet Gateway provides existing intrinsically safe equipment with “Ethernet connectivity” by allowing conventional serial communication equipment to be connected to an Ethernet network.

Many intrinsically safe devices such as analysers, weighing systems, dust monitors, etc. have RS232, RS422 or RS485 serial connectivity. Providing these devices with Ethernet connectivity offers considerable hardware and integration cost savings.

BUSINESS BENEFITS

Many end users in both the process industries and coal mining select intrinsic safety as their protection method for instrumentation as it minimises the total cost ownership. Savings are achieved in both the initial CAPEX avoiding costs of flameproof enclosures, conduit and armour to protect cables, specialist certified antennas, etc. in addition to OPEX savings from the ability to live maintain the network.

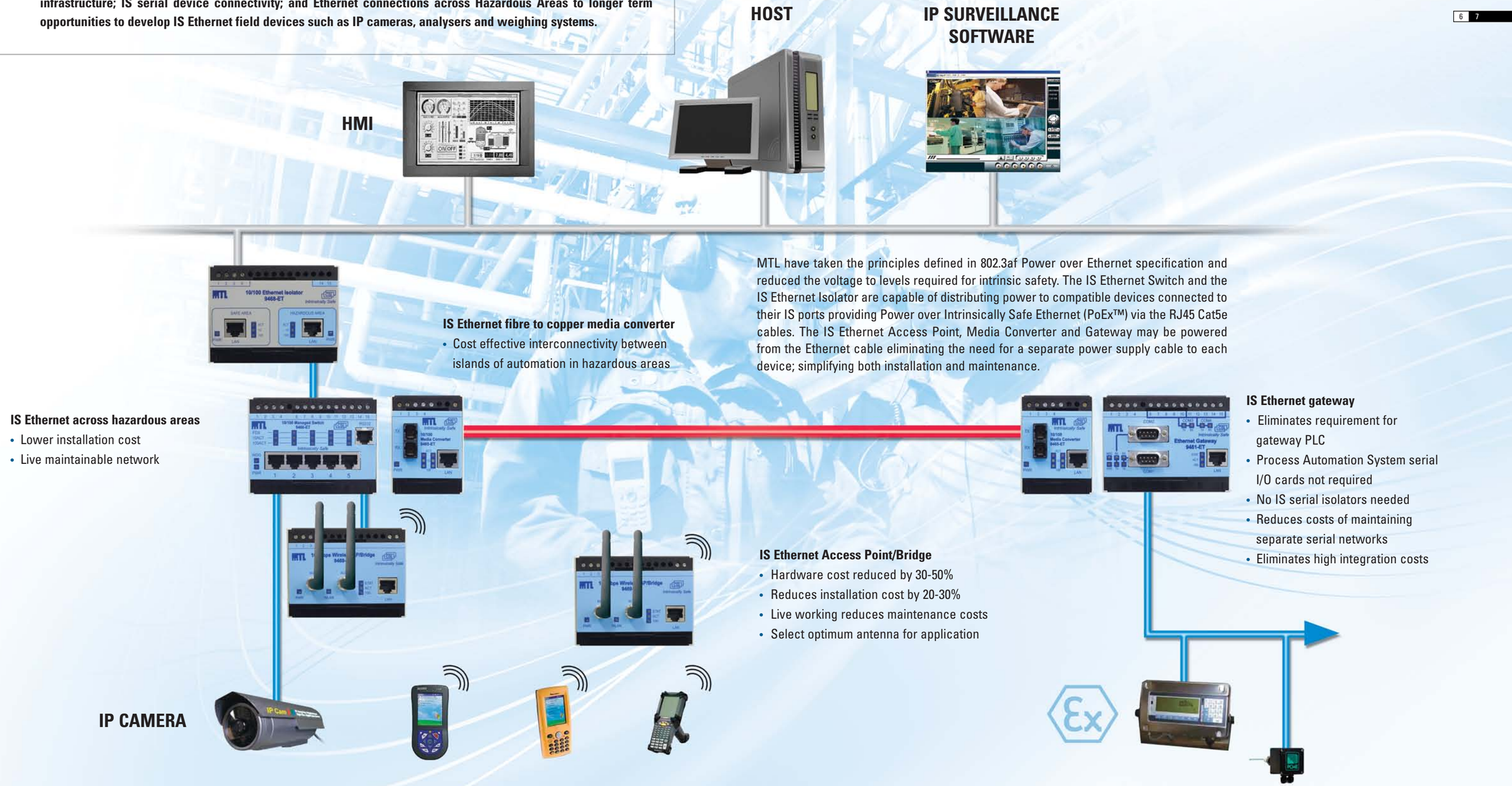
These benefits are now extended to Ethernet applications ranging from immediate needs for Hazardous Area WLAN infrastructure; IS serial device connectivity; and Ethernet connections across Hazardous Areas to longer term opportunities to develop IS Ethernet field devices such as IP cameras, analysers and weighing systems.

WE WILL NOT USE ETHERNET FOR PROCESS APPLICATIONS UNTIL IT IS INTRINSICALLY SAFE WITH POWER AND COMMUNICATIONS OVER A SINGLE CABLE

LEADING CHEMICAL MANUFACTURER

WE COULD NOT ACHIEVE THE PLANNED OUTPUT WITHOUT THE INTRINSICALLY SAFE ETHERNET SYSTEM

LEADING UK COAL MINE



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