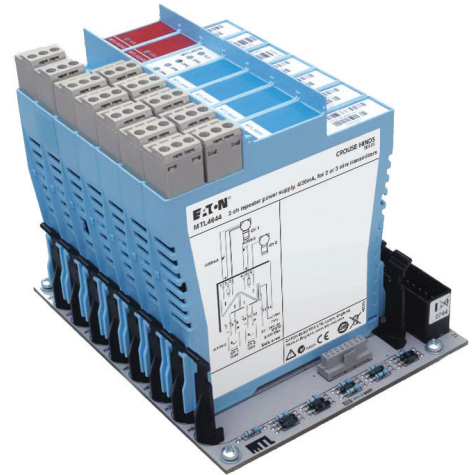


MTL4600 range

Isolating interfaces

- 3-port isolation as standard
- Highest module/channel packing densities
- Low power dissipation
- Quick install and release mechanism
- Multi-channel I/O modules
- Broken line and earth-fault protection



Isolation—protecting your system Designing your plant with good clean earth systems is not always possible. Poor ground conductivity, large process areas and heavy electrical machinery, all contribute to increased noise. This noise is induced or conducted into adjacent wiring, which in turn degrades the quality of the signals passing through the cables. Without isolation this noise is superimposed on the process signal causing a loss of accuracy, poor control and possibly failures or false trips.

Many control systems, PLCs and safety systems do not have full isolation between channels. In compact well defined plant layouts this is acceptable, but these are not always guaranteed. To avoid interference between channels, isolation is the solution.

The MTL4600 range of isolators offer reduced risk and greater protection to the system, with all the advantages of a common design approach for both IS and non-IS signals.

System Solutions

Building on the base of the MTL4500 range of solutions, the MTL4600 offers a high level of signal isolation for installations where multiple loops on a common connection are not desirable.

Signal isolation provides excellent protection against surges, common faults and noisy environments. It also eliminates the risk of earth loops between different areas of the plant, which, if not isolated, can cause significant errors or failures under fault conditions.

MTL4600 isolators are fully compatible with all existing backplanes used with MTL4500 range and many control systems. The form factor and signal types offer the user a common approach for both IS and non-IS signals.

The backplane mounting MTL4600 range is designed with system vendors in mind for "project-focussed" applications such as Distributed Control System (DCS), Emergency Shutdown Systems (ESD) and Fire and Gas monitoring (F&G).

The reduced power consumption and high efficiency enable high signal density to be achieved together with improved freedom in cabinet layout and design. Easy integration with the input/output assemblies of control or safety instrumentation systems not only simplifies project engineering but also reduces installation and maintenance costs.

A multiway connector to the backplane provides safe-area and power supply connections, while hazardous-area connections plug into the front of the module, simplifying installation and maintenance and reducing time, cost, and the risk of errors.

Line fault detection (LFD) facilities are provided across the range of I/O functions; on the switch/proximity detectors, the MTL4623 solenoid/alarm drivers and the isolating drivers. Analogue input units such as the MTL4641 provide line fault detection by repeating o/c or s/c currents to the control system.

Status LEDs, configuration switches and ports are located on the top or side of individual modules, as appropriate, for easy access.



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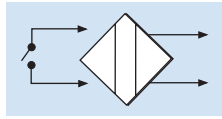
Eaton Electric Limited,
Great Marlings, Butterfield, Luton
Beds, LU2 8DL, UK.
Tel: + 44 (0)1582 723633 Fax: + 44 (0)1582 422283
E-mail: mtlenquiry@eaton.com
www.mtl-inst.com

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Publication No. EPS4600 Rev 5
September 2016

ISOLATOR FUNCTION SELECTOR

Digital Input

MTL4604
MTL4610
MTL4611
MTL4613
MTL4614
MTL4614D
MTL4616
MTL4617
MTL4619L
MTL4619H

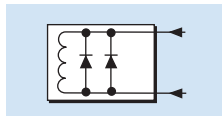


Channels Function

1	switch/prox input, phase reversal + LFD
4	switch/prox input, solid-state output
1	switch/prox input, c/o relay output
2	switch/prox input, solid-state output
1	switch/prox input, relay + LFD alarm
1	switch/prox input, dual output relay
2	switch/prox input, relay
2	switch/prox input, relay + LFD alarm
1	24V/48V digital input
1	110Vac/125Vdc digital input

Digital Output

MTL4621
MTL4623
MTL4623L
MTL4623R
MTL4624
MTL4624S
MTL4626
MTL4627
MTL4628



1	loop powered solenoid driver
1	solenoid driver with LFD alarm
1	loop powered solenoid driver with LFD alarm
1	solenoid driver with reverse LFD alarm
1	switch operated solenoid driver
1	switch operated solenoid driver, 24V override
2	switch operated relay
1	24V 250mA digital output
1	Relay output

Pulse Output

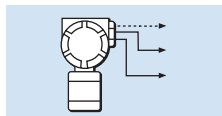
MTL4632



1	pulse isolator, digital or analogue output
---	--------------------------------------------

Analogue Input

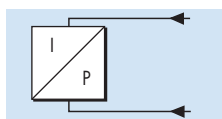
MTL4641
MTL4641A
MTL4641AS
MTL4641S
MTL4644
MTL4644A
MTL4644AS
MTL4644S
MTL4644D



1	2/3 wire transmitter repeater
1	transmitter repeater, passive input
1	transmitter repeater, passive input, current sink
1	2/3 wire transmitter repeater, current sink
2	2/3 wire transmitter repeater
2	transmitter repeater, passive input
2	transmitter repeater, passive input, current sink
2	2/3 wire transmitter repeater, current sink
1	2/3 wire transmitter repeater, dual output

Analogue Output

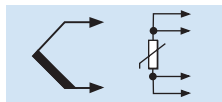
MTL4646
MTL4646Y
MTL4649
MTL4649Y



1	4-20mA smart isolating driver + LFD
1	4-20mA smart isolating driver + oc LFD
2	4-20mA smart isolating driver + LFD
2	4-20mA smart isolating driver + oc LFD

Temperature Input

MTL4675
MTL4676-RTD
MTL4676-THC



1	temperature converter, THC or RTD
2	temperature converter, RTD
2	temperature converter, THC



Powering Business Worldwide

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

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EUROPE (EMEA):
+44 (0)1582 723633 mtlenquiry@eaton.com
THE AMERICAS:
+1 800 835 7075 mtl-us-info@eaton.com
ASIA-PACIFIC:
+65 6 645 9888 sales.mtlsing@eaton.com

MTL4600 RANGE COMMON SPECIFICATIONS

Please go to our website at www.mtl-inst.com for the latest information regarding safety approvals, certificates and entity parameters.

Connectors

Each unit is supplied with signal connectors, as applicable.
When using crimp ferrules for the signal connectors the metal tube length should be 12mm and the wire trim length 14mm.

Isolation

1500V rms minimum, between system and field terminals.
50V between system circuits and power supply

Supply voltage

20 – 35V dc

Terminals

Accepts conductors of up to 2.5mm² stranded or single-core

Mounting

MTL4500/4600 series backplanes

Ambient temperature limits

–20 to +60°C (–6 to +140°F) operating
–40 to +80°C (–40 to +176°F) storage

Humidity

5 to 95% relative humidity

Weight

140g

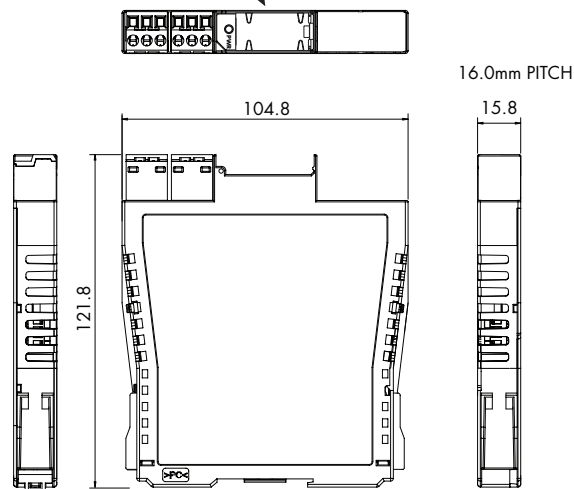
Approximate (except where indicated)

HART® is a registered trademark of HART Communication Foundation

DIMENSIONS (MM)

MTL4600

Optional TH5000 tag holder for individual isolator identification.
Accepts tag label 25 x 12.5 ±0.5mm, 0.2mm thick



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Powering Business Worldwide

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

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EUROPE (EMEA):
+44 (0)1582 723633 mtlenquiry@eaton.com
THE AMERICAS:
+1 800 835 7075 mtl-us-info@eaton.com
ASIA-PACIFIC:
+65 6 645 9888 sales.mtlising@eaton.com

PCS45/PCL45USB CONFIGURATOR FOR MTL CONVERTERS

The PCS45/PCL45USB configurator allows MTL converters to be configured from a standard PC running a Microsoft® Windows® operating system. It comprises PC software, provided on a CD (PCS45), and an ATEX certified interfacing link (PCL45USB). Converters can be configured from the safe area, while on-line, and configurations can be saved to disk and printed out when required. It is suitable for use with MTL4000, MTL4500, MTL4600, MTL5000 and MTL5500 range of products.

SPECIFICATION

PCL45USB hardware

Location

Safe area

Connections

PC side: USB B(F) socket

Converter side: cable with 3.5mm jackplug, 3-pole for MTL4500, MTL4600 and MTL5500 range of converters. An adapter cable is provided for other earlier MTL converters.

Cable lengths

Converter side (fitted): 1.5m

USB cable A(M) to B(M) (supplied): 2m

Ambient temperature limits

-10°C to +60°C operating

-20°C to +70°C storage

Humidity

5 to 95% relative humidity (non-condensing)

Weight

200g

PCS45 Configuration software

Compatible with Windows 2000 or Windows XP.

Consult MTL for operation with any other operating system, e.g. Windows Vista™.

Software medium

PCS45 supplied on CD

Updates are available at www.mtl-inst.com

Recommended minimum PC configuration

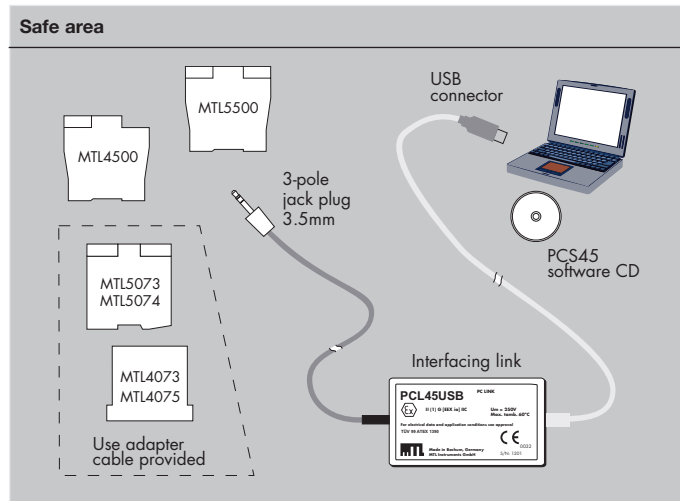
Microsoft Windows 2000 or Windows XP

20MB of available hard disc space

CD ROM drive

Available USB port

Printer (local or network)



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Powering Business Worldwide

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

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EUROPE (EMEA):

+44 (0)1582 723633 mtlenquiry@eaton.com

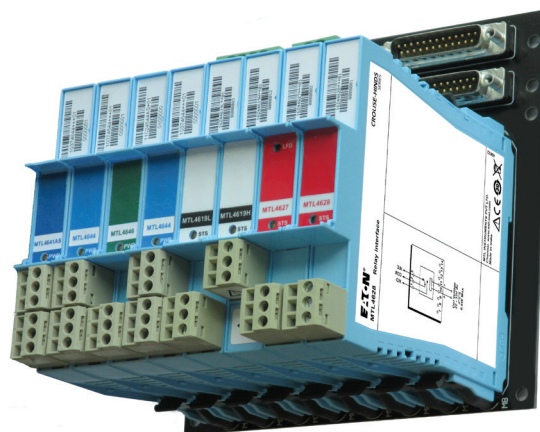
THE AMERICAS:

+1 800 835 7075 mtl-us-info@eaton.com

ASIA-PACIFIC:

+65 6 645 9888 sales.mtlsing@eaton.com

CUSTOM, STANDARD AND UNIVERSAL BACKPLANES FOR EASY DCS INTEGRATION



- **Total flexibility**
- **Reduce wiring**
- **Simplify installation**
- **Special functions**
- **Signal conditioning**
- **HART® integration**

The MTL4500/MTL4600 range of backplanes, enclosures and other accessories provide comprehensive, flexible and remarkably compact mounting facilities for system vendors, original equipment manufacturers and end users alike.

CUSTOMISED BACKPLANES

Eaton provides a complete design and manufacturing service for MTL customised backplanes. Customised backplanes give the vendors and users of process control and safety systems the opportunity to integrate MTL4500/MTL4600/HART® modules directly into their system architecture. As there are no hazardous-area circuits on the backplanes, customised versions can be produced without the need for IS certification, so simplifying design and lowering costs.

UNIVERSAL CUSTOM BACKPLANES

The 'universal' backplane allows a fast and economic approach to providing a custom interface. Where tight time schedules exist, the backplane can be installed to allow the panel building and wiring to be completed. The customised adapter card can then be plugged in at any time up to integrated test.

ADAPTER CARDS

Adapter cards already exist for many of the DCS companies. In addition there is a range of general purpose cards that offer reduced wiring for use with specific MTL modules. These are also available in left- and right-hand versions to ease panel wiring.

STANDARD MTL BACKPLANES

Standard MTL backplanes are available to accommodate 4, 8, 16, or 24 modules using screw-clamp connectors for the safe-area circuits. On an individual backplane, any module can be plugged into any position and module types can be mixed. For 8-, 16- and 24-way backplanes, screw-clamp connectors which plug into the backplanes provide primary and secondary 24V dc power supplies. Power to several 8- or 16-way backplanes can be interconnected to reduce and simplify wiring – see instruction manual INM4500/INM4600 for details.

MTL CPS STANDARD BACKPLANES

Backplane model no.	Number of modules	Safe-area connections	MOUNTING KITS			ACCESSORIES		
			Surface	DIN-rail (T or G)	19-inch rack	Earth-rail kit	Tagging strip kit	Spare fuse pack
CPS04	4	Screw-clamp	SMS01	DMK01	–	–	–	FUS1.0ATE5
CPS08	8	Screw-clamp	SMS01	DMK01	–	ERK08	TSK08	FUS1.0ATE5
CPS16	16	Screw-clamp	SMS01	DMK01	–	ERK16	TSK16	FUS2.0ATE5 or FUS2.5ATE5
CPS24	24	Screw-clamp	SMS01	DMK01	HMP24	–	TSK24	FUS4.0ATE5

OPTIONAL ACCESSORIES

Optional accessories include colour coded tagging strip kits for all three sizes of backplane and earth rail kits for 8 and 16-way versions. Mounting accessories are available for surface (all backplanes), T-section and G-section DIN-rail (8- and 16-way versions), and a horizontal plate for mounting 24-way backplanes in 19-inch racks.

WEATHERPROOF ENCLOSURES

Weatherproof enclosures are available for applications where separate safe-area enclosures are required for backplanes with modules. Available to accommodate one 4-way or one 8-way backplane, they are manufactured from GRP giving protection against dust and water to IEC529:IP65. The lids are made from transparent high-strength polycarbonate so that LEDs, switches, etc, on the tops of the modules are easy to see.

DCS VENDORS/SYSTEMS SUPPORTED:

ABB Automation

S100, INFI90, S800

Emerson

Delta V, M Series, S Series

GE Bently-Nevada

HIMA

HIMax

Honeywell

PMIO, C200, C300, UPIO, Safety Manager, USIO

Rockwell Automation

ICS Triplex, Plantguard

Schneider Electric

Foxboro I/A, Triconex Trident/Tricon, Modicon

Siemens

ET200, S7

Yokogawa

Centum R3, VP, Prosafe RS, CS3000



Powering Business Worldwide

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

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EUROPE (EMEA):

+44 (0)1582 723633 mtlenquiry@eaton.com

THE AMERICAS:

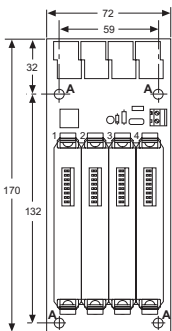
+1 800 835 7075 mtl-us-info@eaton.com

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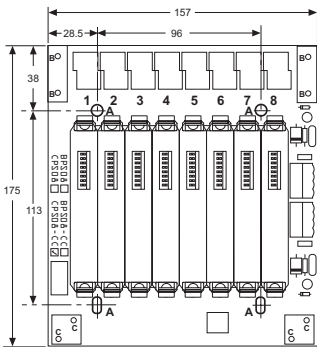
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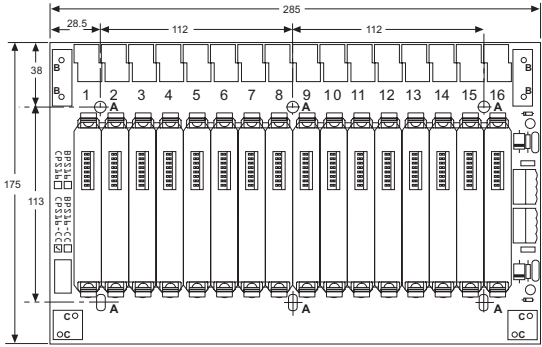
CPS BACKPLANE DIMENSIONS (mm)



CPS04
CPS04-CC

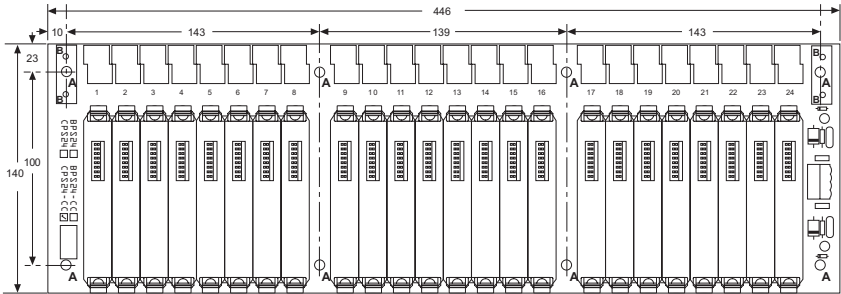


CPS08
CPS08-CC



CPS16
CPS16-CC

-CC - Conformal Coating



CPS24

Power requirements, Vs

21V dc to 35V dc through plug-in connectors

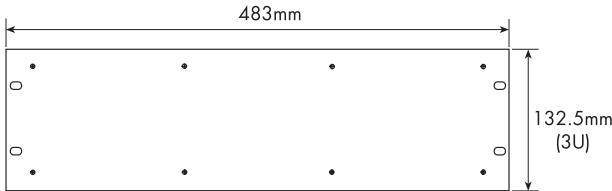
Safe-area connections

CPS: 2.5mm² screw-clamp terminals – 6 positions per module

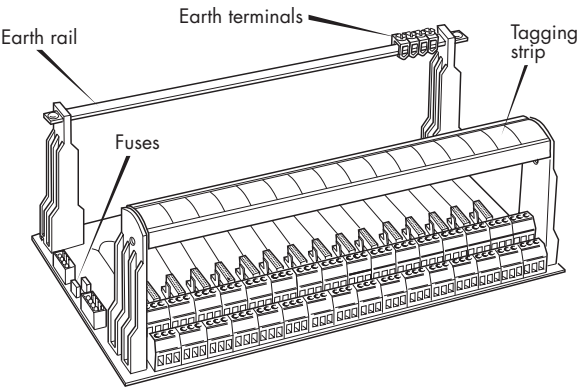
Weight (without modules or accessories)

CPS04:	96g
CPS08:	225g
CPS16:	419g
CPS24:	592g

HMP24 - 19" RACK MOUNTING PLATE FOR CPS24



BACKPLANE ACCESSORIES



SCK45 - backplane clips



10 x strip of four

MCK45 - backplane clips



16 x strip of two

ORDERING INFORMATION



MTL4600 range of isolators

Specify part number: eg, **MTL4611**

Individual isolator identification

TH5000 Tag holder (Pack of 20)

Connectors - MTL4600

SAF-CJC Field plug, terminals 1 and 3 with cold-junction sensor

SAF-CJC2 Field plug, terminals 4 and 6 with cold-junction sensor

SAF1-3 System plug, terminals 1, 2 and 3

SAF4-6 System plug, terminals 4, 5 and 6



MTL4500/4600 Standard Backplanes

CPS04 4-way backplane screw-clamp connector

CPS08 8-way backplane screw-clamp connector

CPS16 16-way backplane screw-clamp connector

CPS24 24-way backplane screw-clamp connector

MTL4500/4600 Custom Backplanes

Contact MTL for options and advice



MTL4500/4600 Backplane mounting accessories

DMK01 DIN-rail mounting kit, T- or G-section (pack of 40)

8-way backplanes require 4,
16-way backplanes require 6

SMS01 Surface mounting kit (pack of 40)
4- and 8-way backplanes require 4,
16-way backplanes require 6,
24-way backplanes require 8

HMP24 Horizontal mounting plate and screws for 19-inch rack mounting
24-way backplanes only

BMK08 Mounting kit for one 4- or 8-way backplane

BMK16 Mounting kit for one 16-way backplane

MTL4600 Backplane accessories

ERK08 Earth rail kit for CPS08 backplane

ERK16 Earth rail kit for CPS16 backplane

TSK08 Tagging strip kit for CPS08 backplane

TSK16 Tagging strip kit for CPS16 backplane

TSK24 Tagging strip kit for CPS24 backplane

FUS1.0ATE5 Fuse kit for 4- and 8-way backplanes, (10 per pack)

FUS2.0ATE5 Fuse kit for 16-way backplane, (10 per pack)

FUS4.0ATE5 Fuse kit for 24-way backplanes, (10 per pack)

MCK45 MTL4000 backplane conversion kit (16 clip pairs per pack)

SCK45 Module 4-clip strips (10 strips + 40 rivets per pack)

MPL01 Module position label (blank) (50 per pack)



Literature

INM4500 MTL4600 range instruction manual

Configurator and software

PCL45USB Configurator, PC interface and software

PCS45 PC software

Please go to our website at www.mtl-inst.com for the latest information.



Powering Business Worldwide

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

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EUROPE (EMEA):
+44 (0)1582 723633 mtlenquiry@eaton.com
THE AMERICAS:
+1 800 835 7075 mtl-us-info@eaton.com
ASIA-PACIFIC:
+65 6 645 9888 sales.mtlsing@eaton.com