Intrinsically safe solutions you can profit from

E·T·N

Powering Business Worldwide

With a comprehensive range of Integrated IS, Network Security, Wireless, HMI displays, FOUNDATION™ fieldbus and Surge protection solutions, MTL are committed to providing Yokogawa and its customers the best in quality, reliability, safety and value.
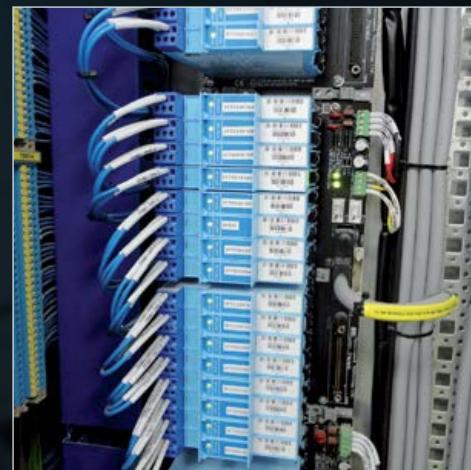
Introduction

MTL has a long history of providing solutions to Yokogawa for intrinsic safety applications from the early Centum XL and ProSafe to the latest Centum VP and ProSafeRS systems.

MTL is a renowned and respected supplier for intrinsic safety with over 40 years experience in the industry. The interface solutions provided meet all the requirements for worldwide applications.

MTL's IS barrier ranges include the MTL7700 series zener barriers, MTL5500 series DIN rail isolators and the MTL4500/4600 series backplane mounted isolating barriers. The backplane mounting ranges provide the integrated designs for direct cable connection to the system cards.

In addition to the IS interfaces MTL also manufacture a range of general purpose termination boards for Centum VP and ProSafeRS.

Product Range overview

CPY-C3 series
An extensive range of backplanes, for use with the MTL4500 series IS isolators and the MTL4600 general purpose range. Single, dual and 4 channel isolator options address the end users requirements for loop integrity and, where needed, the highest possible packing density.

CPY-RS series
MTL's range of backplanes address the requirements for safety applications. MTL4500 series isolators are functional safety assessed for such applications to the latest standards. Signal conditioning and diagnostics are available to provide the user with all the information required for reliable plant operation.

YTB-VP series
For use with the Centum VP these provide a remote cable connected interface for field wiring.

YTB-RS series
This series is designed with 2 rows of terminals to provide a compact interface. Each interface is supplied in a carrier for direct DIN rail mounting.
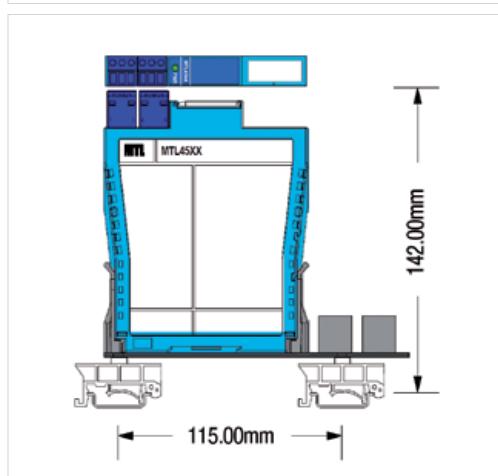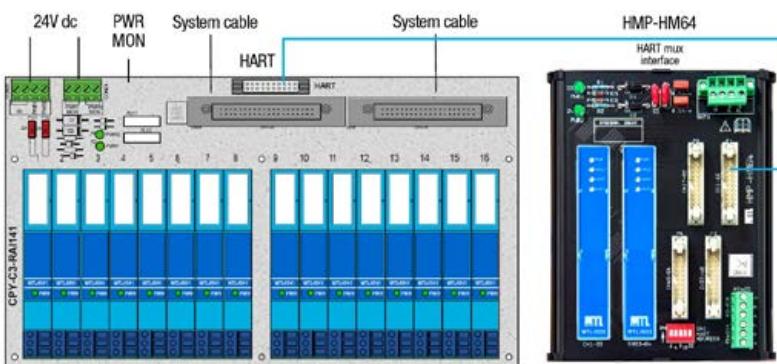
YTA series
Similar to the YTB series, the YTA provides single row terminals where stacked terminals are not the preferred solution.

Centum VP® and ProSafeRS® are marks of Yokogawa

Yokogawa Centum VP and ProSafe RS integrated solutions

MTL4500 series IS interfaces

Both the Centum and ProSafe solutions are based on the same format 8 and 16 way backplanes designs. MTL backplanes may be surface or dual DIN rail mounted.

All MTL4500 series analogue input and output modules are HART compatible. HART is passed directly through to HART compatible system cards. Alternatively the backplanes may be used to extract the HART data into a separate maintenance system via the MTL4800 series HART multiplexer products.

For digital signals, isolators may be chosen to provide line monitoring on both inputs and outputs. A wide range of backplanes are provided to offer single, dual and 4 channel isolator options for majority of Yokogawa system IO modules.

HART
COMMUNICATION PROTOCOL

Intrinsically safe solutions you can profit from...

Centum VP MTL4500 Series Interfaces

A range of dedicated backplanes and connections units are available to interface with MTL4500 series intrinsically safe isolator modules and the MTL HART maintenance system products.

I/O module	Backplane	Function	MTL module	Cable	Red'nt
AAI141(-H)	CPY-C3 AAI141	32ch AI 4-20mA	MTL4544 x 16	KS1x2	
AAI143(-H)					
AAI141(-H)	CPY-C3-RAI141	16ch AI 4-20mA	MTL4541/4575 x 16	KS1x2	Yes
AAI143(-H)					
AAI141(-H)	CPY-C3-AAI141-HD	32ch AI 4-20mA	MTL4544 x 16	KS1x4	Yes
AAI143(-H)					
AAI543-H	CPY-C3-AAI543-H	16ch AO	MTL4546Y x 16	KS1x2	Yes
AAI841	CPY-C3-AAI841	8ch AI + 8ch AO	MTL4541 x 8 + 4546Y x 8	KS1x2	Yes
AAI841-H	CPY-C3-AAI841-H	8ch AI + 8ch AO	MTL4541 x 8 + 4546Y x 8	KS1x2	Yes
AAI841(-H)	CPY-C3-AAI841-HD	16ch AI 4-20mA	MTL4544 x 8 + 4549Y x 8	KS1x4	Yes
AAI141(-H)	CPY-C3-RAI141-H8	16ch AI 4-20mA	MTL4544 x 8	KS1x2	Yes
AAI143(-H)					
AAI841-H	CPY-C3-RAI841-H8	8ch AI + 8ch AO	MTL4544 x 4 + 4549Y x 4	KS1x2	Yes
AAI543(-H)	CPY-C3-RAI543-H8	16ch AO	MTL4549Y x 8	KS1x2	Yes
ADV161	CPY-C3-ADV161	64ch DI	MTL4510 x 16 AKB337		
ADV161	CPY-C3-ADV151	32ch DI	MTL4516/4517 x 16	AKB337	Yes
ADV151	CPY-C3-ADV151	32ch DI	MTL4516/4517 x 16	AKB331	Yes
ADV151	CPY-C3-ADV151-M	16ch DI+LFD	MTL4511/4514 x 16	AKB331	Yes
	CPY-C3-ADV151-S	16ch DI+LFD	MTL4511/4514 x 16		
ADV151	CPY-C3-ADV151-H8	32ch DI	MTL4510 x 8	AKB331	Yes
ADV551	CPY-C3-ADV551-M	16ch DO+LFD	MTL4524/4525/4523R*	AKB331	Yes
	CPY-C3-ADV551-S	16ch DO+LFD	MTL4524 /23R linked to Master*		
ADV551	CPY-C3-ADV551L-M	16ch DO	MTL4521, 4521L	AKB331	Yes
	CPY-C3-ADV551L-S	16ch DO	MTL4521, 4521L		
ADV561	CPY-C3-ADV551-M x2	16ch DO+LFD	MTL4524/4525/4523R*	AKB337	Yes
	CPY-C3-ADV551-S x2	16ch DO+LFD	MTL4524 /23R linked to Master*		

Note: Compatible module alternatives
MTL4516 specified, MTL4513 is compatible
MTL4524 specified, MTL4525 is compatible. *NOTE: in Off state max output voltage is 4V open circuit.
MTL4541 specified, MTL4532 in pulse to current mode, MTL4541A or MTL4575 are compatible.

ProSafe RS

MTL4500 series interfaces

A dedicated range of backplane interfaces are available to interface the ProSafe RS safety system with MTL4500 series intrinsically safe isolator modules and the MTL HART maintenance system.

FSM
FUNCTIONAL SAFETY MANAGEMENT
IEC 61508:2010

ProsafeRS IO module	Backplane	Function	MTL module	Redundant cable connection
SAI143(-H)	CPY-RS-AI16-KS	16ch AI	MTL4544/44A	KS1
SAI143(-H)	CPY-RS-SAI16-KS	16ch AI	MTL4541/41A	KS1
SAV144	CPY-RS-AI16V-KS	16ch AI	MTL4544/44A	KS1
SAV144	CPY-RS-SAI16V-KS	16ch AI	MTL4541/41A	KS1
SAI533(-H)	CPY-RS-AO08-KS	8ch AO	MTL4546Y	KS1
SDV144	CPY-RS-DI16-AKB	16ch DI	MTL4516/17	AKB331
SDV144	CPY-RS-SDI16-AKB	16ch DI+LFD	MTL4511/14	AKB331
SDV144	CPY-RS-SPI16-AKB	16ch DI+LFD	MTL4501-SR	AKB331
SDV144	CPY-RS-SSI16-AKB	16ch DI+LFD	MTL4504	AKB331
SDV531	CPY-RS-DO08-AKB	8ch DO	MTL4521/21L/23L/23V	AKB331
SDV541	CPY-RS-DO016-AKB	16ch DO	MTL4521/21L/23L/23V	AKB331

Signal Isolation - MTL4600 series

The MTL4600 series isolator range provides channel to channel signal isolation when used with Centum VP or ProSafeRS in non-intrinsically safe applications. 1500Vac isolation is provided, this protects the system cards from high common mode voltages, that can occur under fault conditions.

The MTL4600 modules are used with the appropriate CPY backplanes described earlier.

MTL is a certified Functional Safety Management (FSM) company

Centum VP / ProSafe RS Termination Boards

YTB series - These termination boards provide remote terminations via standard cable connections to the Centum VP and ProSafe RS systems. All interfaces are supplied in carriers for DIN rail mounting. Dual power supplies and power monitoring are provided, where required. Double row field terminals to provide maximum packing density.

Product number	IO card	Function
	CENTUM VP	
YTB-VP-AI16-KS	AAI141/143 16	channel analogue input
YTB-VP-AIO16-KS	AAI143/543	16 channel analogue input and output
	AAI135/835	8ch AI and 8ch AO isolated
YTB-VP-DI32-AKB	ADV151/161	32 channel digital input
YTB-VP-RO32-AKB	ADV551/561	32 channel relay output
	PROSAFE	
YTB-RS-AI16-KS	SAI143	16 channel analogue input
YTB-RS-AO8-KS	SAI533	8 channel analogue output
YTB-RS-DI16-AKB	SDV144	16 channel digital input
YTB-RS-DO8-AKB	SDV531	8 channel digital output
YTB-RS-DO16-AKB	SDV541	16 channel digital output

YTA series - These termination boards provide remote terminations via standard cable connections to the Centum VP and ProSafe RS systems. All interfaces are supplied in carriers for DIN rail mounting. Dual power supplies and power monitoring are provided, where required. Single row field terminals are fitted where customer requirements specify this.

Product number	IO card	Function
	CENTUM VP	
YTA-C3-AIO16-KS	AAI143/543	16ch Analogue input or Output
YTA-C3-DI32-AKB	ADV151	32ch
	PROSAFE	
YTA-RS-AI16-KS	SAI143	16ch AI
YTA-RS-AO8-KS	SAI533	8ch AO
YTA-RS-DI16-AKB	SDV144	16ch DI
YTA-RS-DO8-AKB	SDV531	8ch DO
YTA-RS-DO16-AKB	SDV541	16ch DO

Centum VP & Stardom F<small>OUNDATION</small>^{TM} fieldbus

91xx & F10x Series conditioned Fieldbus power supplies

Type	MTL model number	Compatible with
8-segment N+1 redundant, 500mA	9188-91-Px	Yokogawa ALF111 H1 interface via AKB336 cables
8-segment N+1 redundant, 250mA	9188-61-Px	
4-segment N+1 redundant, 500mA	9188-41-Px	
8-segment N+1 redundant, 250mA	9188-21-Px	
1-segment simplex, 21.5V, 500mA	F101-Px	Yokogawa ALF111 or NFLF111 H1 interface
1-segment simplex, 29.7V, 500mA	F102-Px	
1-segment simplex (Eco), 13V, 250mA	F104-Px	
4-segment FISCO redundant	9108-22-Px	Yokogawa ALF111 H1 interface via AKB336 cables

FS32 Pluggable trunk surge protector

- Redundant fieldbus power for F<small>OUNDATION</small>™ fieldbus cards
- Flexible N+1 redundancy
- Can reduce initial capital cost by 25% whilst supporting future expansion
- Fully isolated hot-swappable power modules
- Low power dissipation
- On-line diagnostics option
- Pluggable trunk surge protection option

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