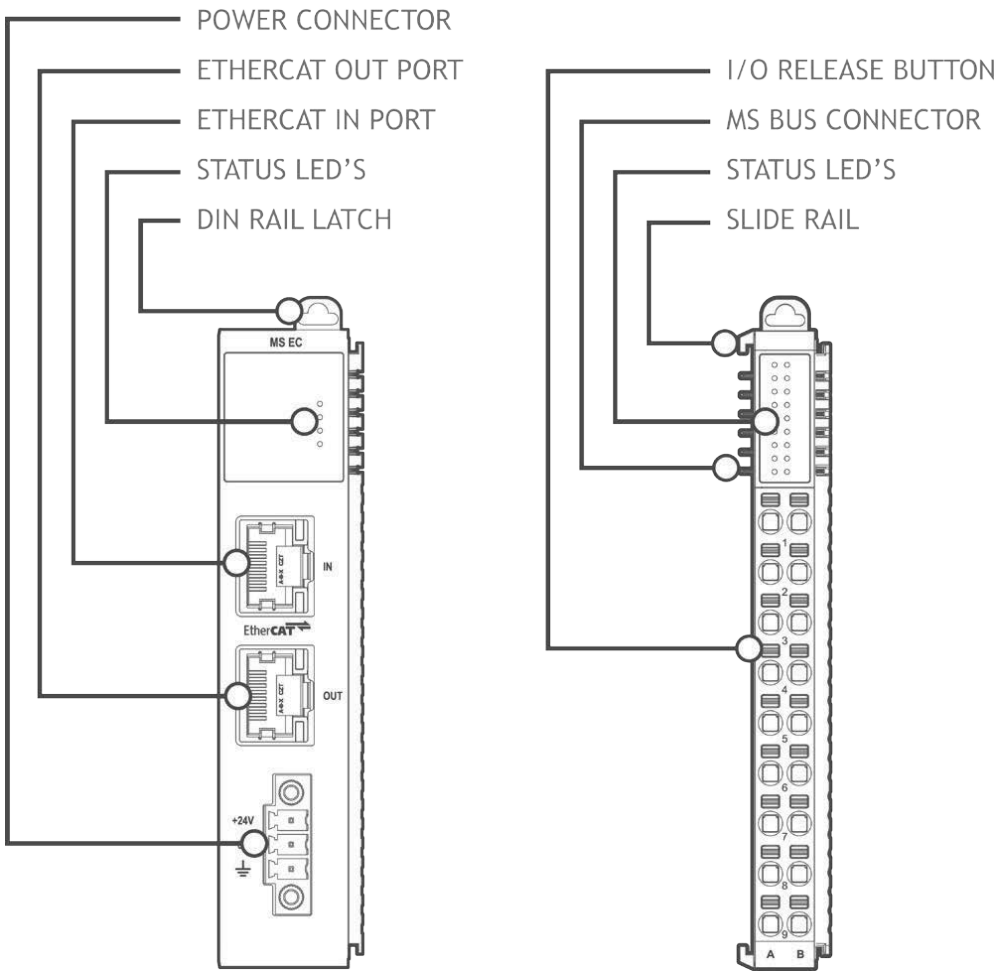
TRIO MOTION TECHNOLOGY

A MEMBER OF THE ESTUN GROUP



QUICK START GUIDE

MS EC | MS I/O

P659 | P001-P007

SAFETY WARNING

During the installation or use of control systems, users of Trio products must ensure that there is no possibility of injury to any person or damage to machinery.

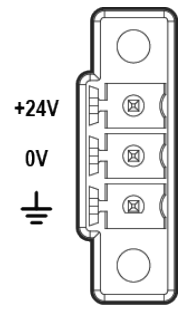
Control systems, especially during installation, can malfunction or behave unexpectedly. Bearing this in mind, users must ensure that even in the event of a malfunction or unexpected behaviour, the safety of an operator or programmer is never compromised.

ENVIRONMENTAL

Operating Temperature: -20° to 55° (see user manual for details).

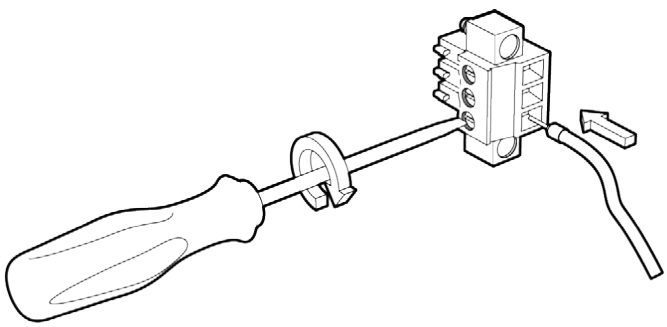
CONNECTORS

Power (24V) connector:



Note: Use ferrules on all wires for best connection.

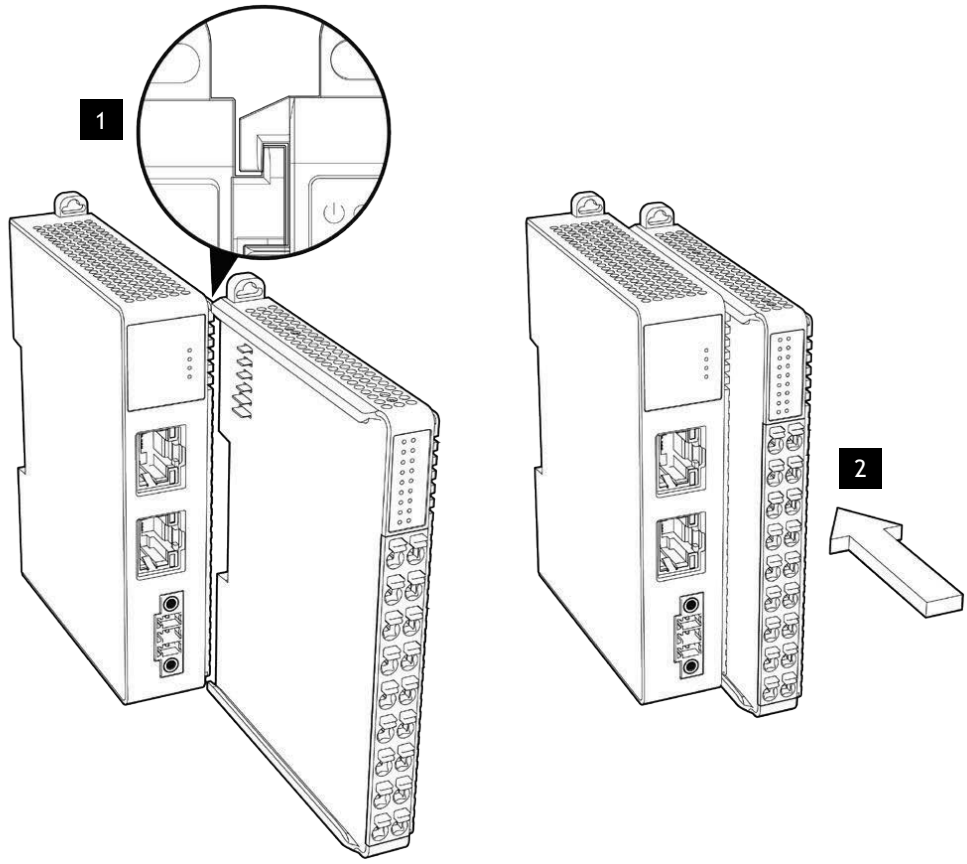
1. Connection: Push wire into hole of connector.
   Important: Use a small flat-bladed screwdriver to tighten the three screws onto the wires.
2. Removing the wires is the opposite procedure.



ASSEMBLING THE MS I/O SYSTEM

INSERTION

1. Ensure system is powered off. Align the Motion Slice I/O Module guide rails (top and bottom) to the corresponding guide rails on the controller or module.
2. Carefully slice the module back, engaging the blades, until it clicks into the DIN rail at the rear.



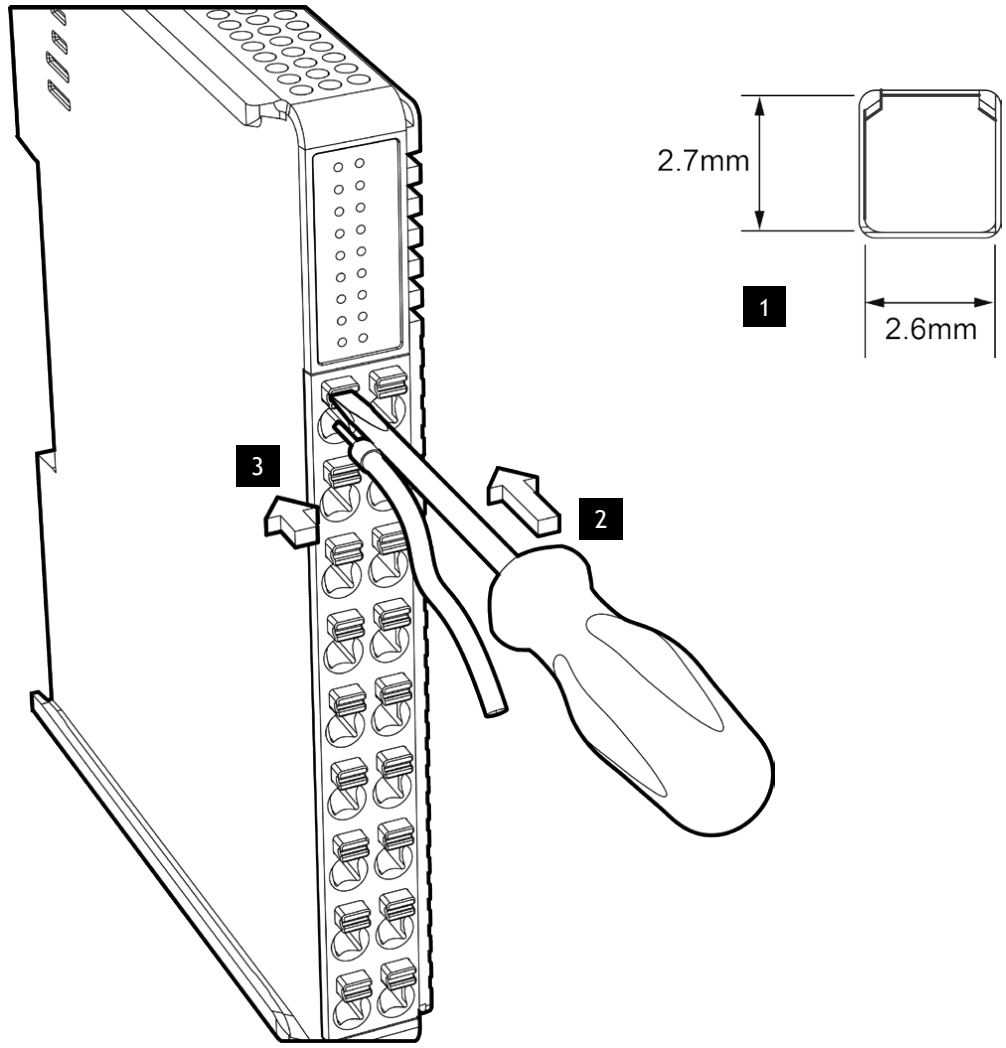
REMOVAL

1. Lift the DIN rail latch at the rear of the controller or module to be removed.
2. Carefully slide the module forward, disengaging the blades, until it is free of the guide rails.

WIRING THE MS I/O SYSTEM

1. Ensure each wire is terminated with a 16 AWG-24AWG ferule. The dimensions of the wire hole is shown below.
2. To insert the terminated wire, press the MS I/O release button. A small flat bladed screwdriver may be used for this.
3. Push the wire into the corresponding hole below the button until a small resistance is felt.

Removal of wires is the opposite procedure.

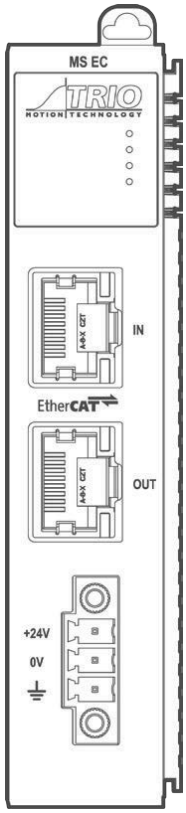


MS EC ETHERCAT COUPLER (P659)

The MS EC EtherCAT Coupler connects MS I/O slices to an EtherCAT network and supports update rates from 125us to 4ms, providing performance for both motion control and general automation applications. With EtherCAT IN and OUT ports the MS EC Coupler can be placed at any point in the EtherCAT network.

CONNECTIONS

Power Supply	24V ± 10%
EtherCAT Connection	RJ45 x 2
Protocol	EtherCAT
Update Rates	125us, 250us, 500us, 1ms, 2ms, 4ms
Data Rate	100Mbit/s
Network Cable	CAT5e min
Dimensions WxHxD (mm)	23 x 100 x 75



LED'S

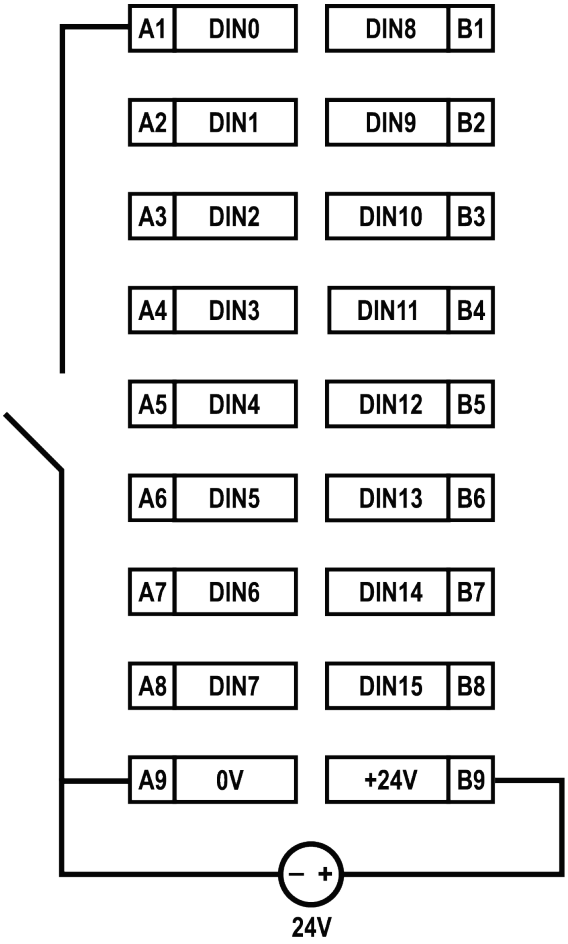
⏻	Power Supply	Green
RN	EtherCAT RUN	Green
ER	EtherCAT ERR	Red
TS	Telegram Status (MS Bus)	Green

MS DI 16N (P001)

The 16 inputs are NPN current sourcing type and have electrical isolation. All connections are via 18 way push-in connectors. The slice indicates the input signal states via LEDs.

CONNECTIONS

Digital Input Channels	16
Power Supply	24V ± 10%
ON voltage	>15V
OFF voltage	<5V
Input Current	3.5mA
Input Filter Cut-Off	18kHz
Protection	Reverse Voltage
Dimensions WxHxD (mm)	12 x 100 x 75



LED'S

⏻	Power Supply*	Green
TS	Telegram Status (MS Bus)	Green
0 - 15	Digital Input State	Yellow

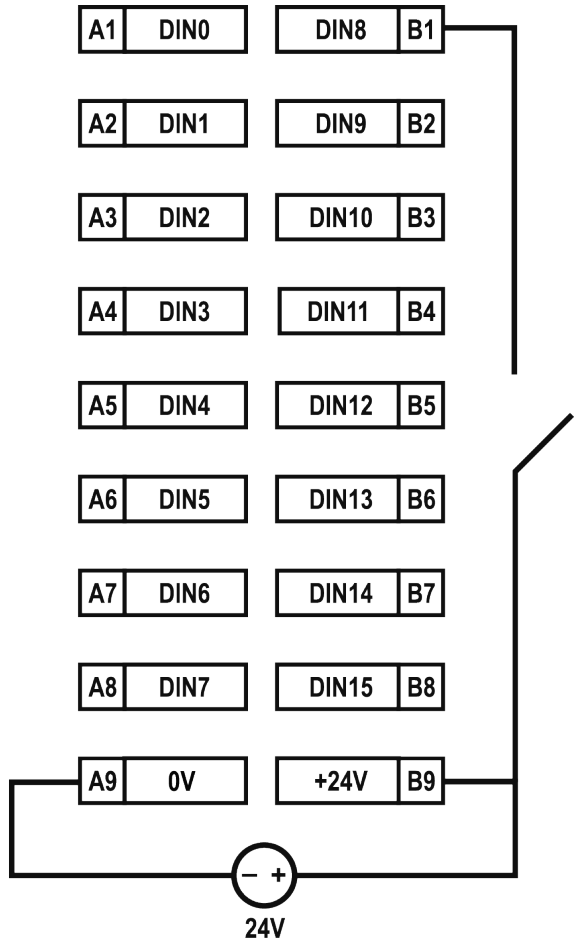
*Communication power, not 24V

MS DI 16P (P002)

The 16 inputs are PNP current sinking type and have electrical isolation. All connections are via 18 way push-in connectors. The slice indicates the input signal states via LEDs.

CONNECTIONS

Digital Input Channels	16
Power Supply	24V ± 10%
ON voltage	>15V
OFF voltage	<5V
Input Current	3.5mA
Input Filter Cut-Off	18kHz
Protection	Reverse Voltage
Dimensions WxHxD (mm)	12 x 100 x 75



LED'S

⏻	Power Supply*	Green
TS	Telegram Status (MS Bus)	Green
0 - 15	Digital Input State	Yellow

*Communication power, not 24V

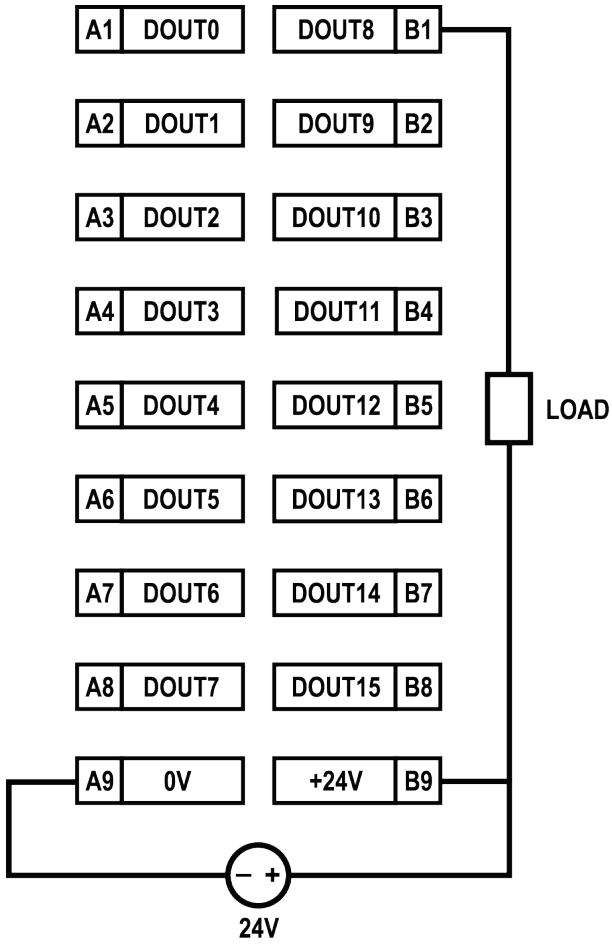
MS DO 16N (P003)

The 16 outputs are NPN current sinking type and have electrical isolation. All connections are via 18 way push-in connectors. The slice indicates the input signal states via LEDs.

CONNECTIONS

Digital Output Channels	16
Power Supply	24V ± 10%
Load Type	Resistive, inductive, Capacitive
ON time	100us
OFF time	100us
Max. Output Current	500mA (per channel), 4A* (per slice)
Protection	Short Circuit, Overvoltage, Reverse Voltage
Dimensions WxHxD (mm)	12 x 100 x 75

*derate to 2A per slice at 55degC



LED'S

⏻	Power Supply*	Green
TS	Telegram Status (MS Bus)	Green
0 - 15	Digital Output State	Yellow

*Communication power, not 24V

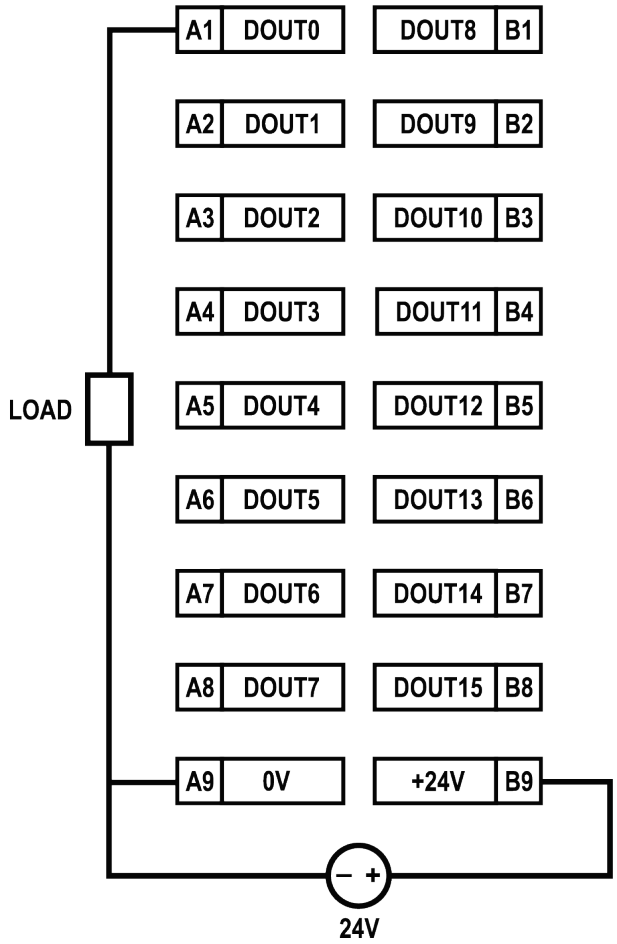
MS DO 16P (P004)

The 16 outputs are PNP current sourcing type and have electrical isolation. All connections are via 18 way push-in connectors. The slice indicates the input signal states via LEDs.

CONNECTIONS

Digital Output Channels	16
Power Supply	24V ± 10%
Load Type	Resistive, Indictive, Capacitive
ON time	125us
OFF time	125us
Max. Output Current	500mA (per channel), 4A* (per slice)
Protection	Short Circuit, Overvoltage, Reverse Voltage
Dimensions WxHxD (mm)	12 x 100 x 75

*derate to 2A per slice at 55degC



LED'S

⏻	Power Supply*	Green
TS	Telegram Status (MS Bus)	Green
0 - 15	Digital Output State	Yellow

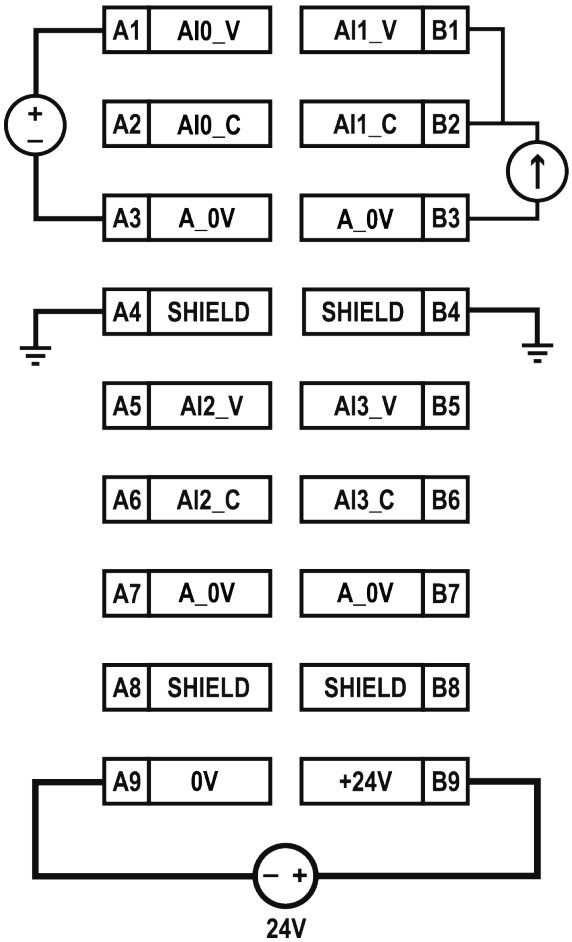
*Communication power, not 24V

MS AI 4S (P005)

The P005 analogue input slice has 4 Voltage or current channels, each with a programmable range and digitized to a resolution up to 16-bits.
Each channel has a separate 0V and shield connection for optimized signal to noise ratio. All connections are via 18 way push-in connectors.

CONNECTIONS

Analogue Input Channels	4
Power Supply	24V ±10%
Signal Voltage	±10V 0-10V ±-5V 0-5V
Signal Current	4-20mA 0-20mA
Resolution	16-bit
Protection	Overvoltage
Dimensions WxHxD (mm)	12 x 100 x 75



LED'S

Power Supply* Green

TS Telegram Status (MS Bus) Green

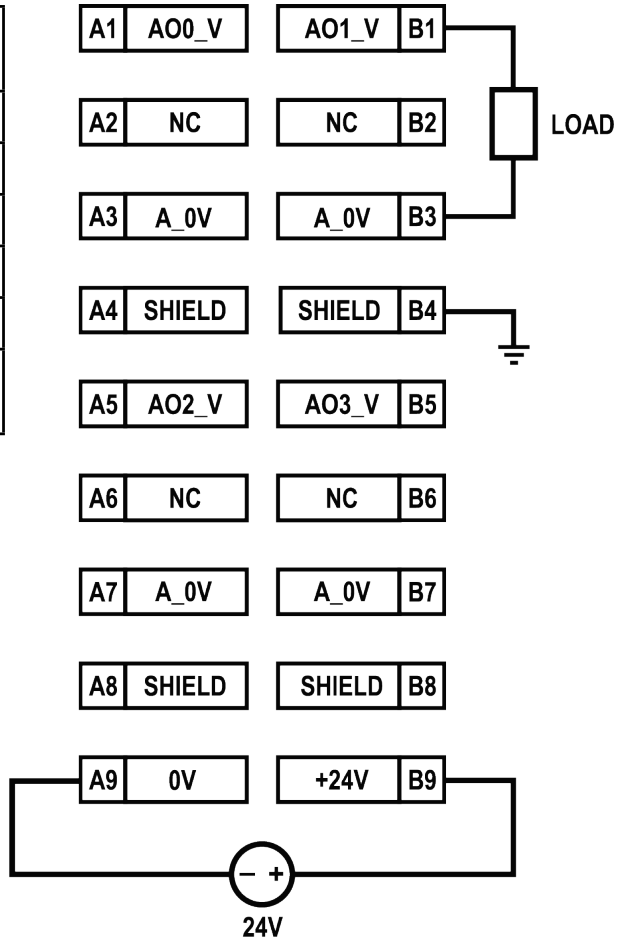
*Communication power, not 24V

MS AO 4SV (P006)

The P006 analogue output slice has 4 Voltage channels, each with a +/-10V range and digitized to a resolution of 16-bits.
Each channel has a separate 0V and shield connection for optimized signal to noise ratio. All connections are via 18 way push-in connectors

CONNECTIONS

Analogue Input Channels	4
Power Supply	24V ± 10%
Signal Voltage	+/-10V
Signal Current	±6mA
Resolution	16-bit
Protection	Short Circuit
Dimensions WxHxD (mm)	12 x 100 x 75



LED'S

Power Supply* Green

TS Telegram Status (MS Bus) Green

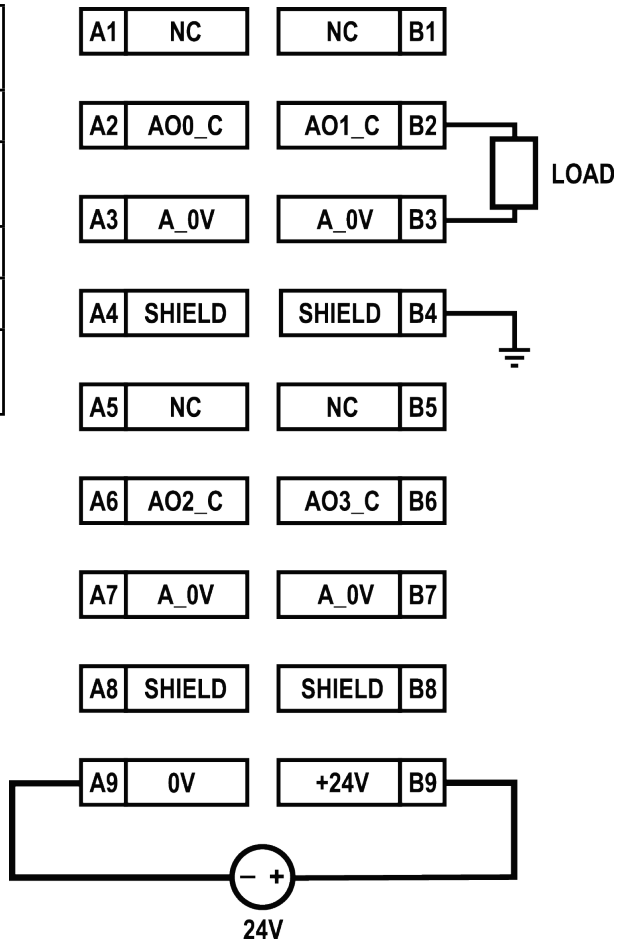
*Communication power, not 24V

MS AO 4SC (P007)

The P007 analogue output slice has 4 current channels supporting a programmable output range and digitized to a resolution of 15-bit.
Each channel has a separate 0V and shield connection for optimized signal to noise ratio. All connections are via 18 way push-in connectors.

CONNECTIONS

Analogue Input Channels	4
Power Supply	24V ± 10%
Signal Current	4-20mA 0-20mA
Resolution	15-bit
Protection	Short Circuit
Dimensions WxHxD (mm)	12 x 100 x 75

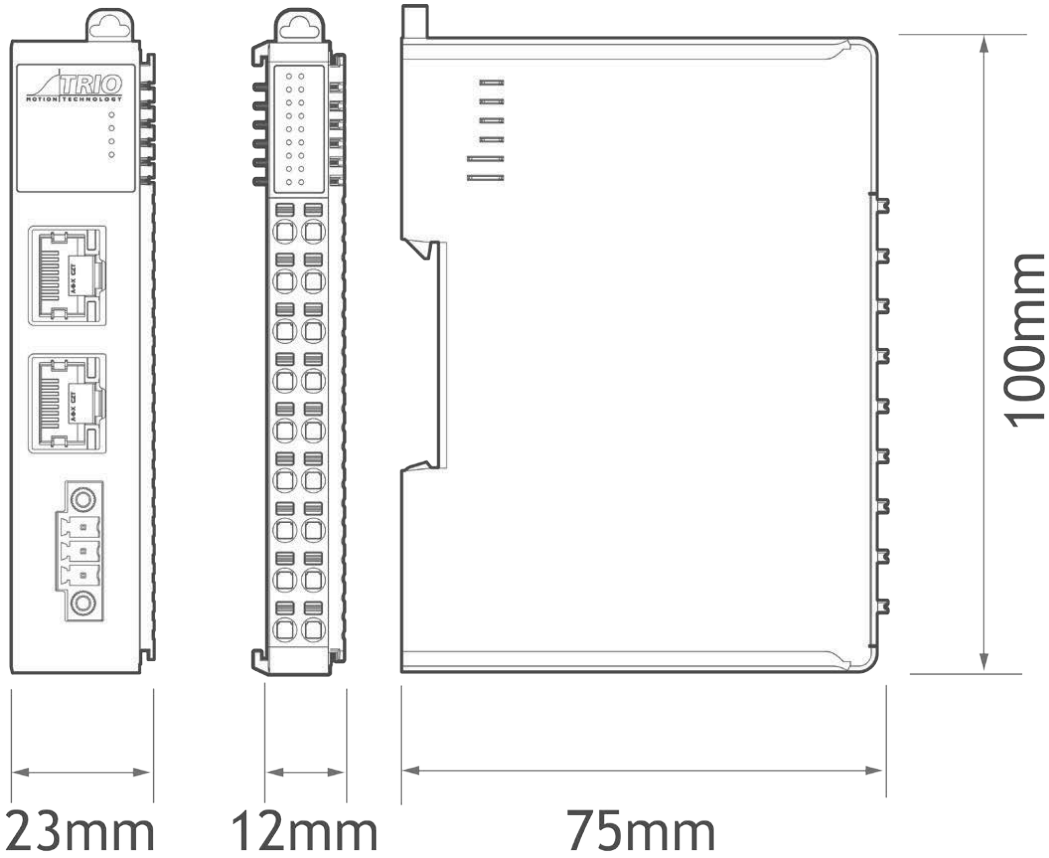


LED'S

⏻ Power Supply* Green

TS Telegram Status (MS Bus) Green

*Communication power, not 24V



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CAD data Drawings to aid packaging and mounting are available in various formats from the Trio web site. Products should be wired by qualified persons.
Specifications may change without notice. E & OE

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