

For a brief description of the modules, see the following tables.

Main Processor Module

Model	Description	Points
3101	14-maximum I/O modules, executes control application and votes on inputs and outputs	Not applicable

Communication Module

Model	Description	Points
3201	Interfaces, Modbus master or slave, selectable RS-232/485 serial ports, TriStation, Triconex Peer-to-Peer, TSAA, and TCP-IP/UDP-IP	Not applicable

Analog Input Module

Model	Description	Points
3351	4–20 mA, commoned, 6% over-range	32

Analog Output Module

Model	Description	Points
3481	4–20 mA, commoned, 6% over-range	4
3482	2 @ 4–20 mA, 2 @ 4–40 mA, commoned, 6% over-range	4

Digital Input Module

Model	Description	Points
3301	24 V DC, commoned	32

30 Main Processor Module

Main Processor Module

The following Main Processor components are available.

Model	Description
3101	MP Module (up to 14 I/O modules)
2101	MP Baseplate

A minimum Trident system has one MP Baseplate housing three MPs. Each MP Module serves as one channel of a Trident system. An MP Module consists of processors that execute the following firmware:

- Application processor and system executive (SX)
- I/O processor and input/output executive (IOX)

System Executive

The system executive performs the following functions:

- Control application execution
- TriBus communication and voting
- System diagnostics
- TriStation and Modbus slave communication

Input/Output Executive

The input/output executive performs the following functions:

- I/O module ASIC communication
- I/O control
- I/O diagnostics

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Guidelines

This section discusses issues to consider when installing and configuring your Trident controller.



WARNING

During installation of a Trident controller, take special care with all power sources to minimize the hazard of electrical shock.

When unpacking the Trident controller, check the items against the shipping list to verify that everything you ordered is included. Keep the boxes and packing materials in case you need to return items to Triconex.

Configuring Controller Modules

A controller with a Model 3101 MP can include the following components:

- 1 Main Processor (MP) Baseplate assembly with 3 MP Modules
- 1 Communication Baseplate with up to 2 Communication Modules
- Up to 14 baseplates with up to 2 I/O modules per baseplate or up to 10 baseplates if using AO or PI Modules.
- Up to 15 Interconnect Assemblies
- I/O bus extender kits for each I/O column
- End Caps (top and bottom) for each column

System Configuration

When planning your system, the maximum number of I/O modules allowed depends on whether the system includes AO or PI Modules. If the system does not include AO or PI Modules, the maximum allowed I/O modules is 14.

If the system includes AO or PI Modules, the following applies:

- Up to 1 PI Module per system
- Up to 2 AO Modules per system
- Up to 10 total I/O modules per system

Hot-spare modules are not counted as part of the total.

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the maximum logic and field power for all modules installed on a baseplate. (Field power is the percentage of field circuit power that is dissipated within the controller.) If spares are present, add the same amount of logic power as the primary modules.

Module	Model Number	Maximum Logic Power (Watts) ¹	Maximum Field Power (Watts)	
			Primary	Spare
Analog Input	3351	3	4	Negligible
Analog Output	3481	3	3	Negligible
Analog Output	3482	3	7	Negligible
Communication	3201	8	Not applicable	Not applicable
Digital Input	3301	3	7	Negligible
Digital Output	3401	3	4	Negligible
Main Processor	3101	8 ²	Not applicable	Not applicable
Pulse Input	3381	3	Negligible	Negligible
Solid-State Relay Output	3451	3	4	Negligible

1. To convert watts to British thermal units: BTU = watts x 3.414

2. Without MAUs

For more information about cooling, contact the Triconex Customer Response Center.

Calculating Logic Power

Note Information in this section is based on a fault condition in which only one of the redundant power sources is operational. Under normal operating conditions, both power sources share the load.

To determine the maximum logic power supply needed, use the following table to sum the maximum logic power for all modules, including hot spares, to be installed on a baseplate.

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Module	Model Number	Maximum Logic Power (Watts) ¹
Analog Input	3351	3
Analog Output	3481	3
Analog Output	3482	3
Communication	3201	8
Digital Input	3301	3
Digital Output	3401	3
Main Processor	3101	8 ²
Pulse Input	3381	3
Solid-State Relay Output	3451	3

1. To convert watts to British thermal units: BTU = watts x 3.414.

2. Without MAUs

Power Connections

An independent power source, equipped with its own fuse and switch, can be shared by multiple baseplates. You should connect each baseplate to two, independent power sources.

The selection of supply wiring depends on:

- Current ratings
- Temperatures
- Wiring lengths

In critical environments, at least one power source should be an uninterruptible power supply (UPS), which can be shared by multiple Trident baseplates. The UPS should be rated for the total number of baseplates to be powered and for the duration of the maximum expected down time.

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PRODUCT: 3101 (MP3101) / Trident Main Processor Module

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