3617E

8-Point 48 VDC Supervised TMR Digital Output Module

Product scope

- Provides eight commoned 48 VDC outputs with relay-based TMR voting and continuous field supervision.
- Uses a five-volt secondary source to extend short-circuit detection while a commanded output remains off.
- Requires at least 100 mA of connected load and a 1.25-amp fuse at each supervised termination path.

Manufacturer source

Triconex Product Specifications, Supervised Digital Output Module Specifications

Triconex Product Specifications, 8-Point Supervised Digital Output Module Specifications, document 01-9302048-MM-001.

Request a fast quote	Product reference	
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3617E product reference

8-Point 48 VDC Supervised TMR Digital Output Module

Verified configuration

Triconex 3617E is an eight-point commoned 48 VDC supervised TMR digital output module with relay voting, field-circuit loopback and hot-spare support.

Manufacturer	Triconex
Model	3617E
Product family	Tricon 8-Point Supervised Digital Output Modules
Product type	Supervised TMR Digital Output Module
Model	3617E
Architecture	TMR supervised digital output
Nominal voltage	48 VDC
Points	8 commoned
Voltage range	36 to 72 VDC
Frequency range	DC only
Maximum switching power	150 W resistive
Typical on-state drop	Less than 2 V

Manufacturer source

Triconex Product Specifications, Supervised Digital Output Module Specifications

The following pages retain the manufacturer technical content for configuration and engineering review.

The Tricon controller supports a comprehensive range of modules to meet customers' needs.

Product Specifications

The Triconex product family includes a comprehensive range of modules. This section includes: a summary of the system components and their uses, a table that lists standard products and their model numbers, and a summary of specifications for each standard product in the Tricon controller family.

See the *Planning and Installation Guide for Tricon v9-v10 Systems* for complete information.

Summary of Tricon System Components

Chassis

- *Main Chassis*—houses Main Processors, memory back-up batteries, communication modules and I/O modules.
- *Expansion Chassis*—for additional I/O modules with up to 100 feet (30 meters) total cable length between the Main Chassis and the last Expansion Chassis.
- *RXM Chassis*—for I/O modules up to 7.5 miles (12 kilometers) away from the Main Chassis.
- *Mechanical Keying*—Each slot in the Tricon controller is mechanically keyed to correspond with a specific type of module. This prevents the installation of modules into improper slots.

For chassis mounting and enclosure specifications, see page 31.

Power Supply Modules

- Provide logic power to modules in the Main, Expansion or RXM Chassis. Available in 24 VDC, 115 VAC and 230 VAC versions. The power rating of each power supply is 175 watts at 140° F (60° C).

Main Processors

The Main Processors execute the system diagnostics and the user-written control program.

Communication Modules

- *Tricon Communication Modules (TCM)* support a number of Triconex protocols and applications and user-written applications on Ethernet (802.3) networks, including TriStation, Modbus TCP, and OPC. It also supports RS-232 and RS-485 serial communication with Modbus devices, TriStation 1131, and GPS for time synchronization.
- *Enhanced Intelligent Communication Modules (EICM)* support RS-232, RS-422 and RS-485 serial communication with Modbus devices and TriStation 1131 applications.
- *Network Communication Modules (NCM)* support a number of Triconex protocols and applications and user-written applications on Ethernet (802.3) networks, including the TriStation 1131 software.
- *Safety Manager Modules (SMM)* act as an interface between a Tricon controller and a Honeywell Universal Control Network (UCN), one of three principal networks of the TDC-3000 DCS.
- *Hiway Interface Modules (HIM)* act as an interface between a Tricon controller and a Honeywell TDC-3000 Hiway Gateway and Local Control Network (LCN).
- *Advanced Communication Modules (ACM)* allow a Tricon controller to interface with a Foxboro Industrial Automation (I/A) Series DCS and a TriStation 1131 application.

Fiber-Optic Remote Extender Modules (RXM)

For operation of Expansion Chassis up to 7.5 miles (12 kilometers) away from the Main Chassis, with exceptional immunity against electro-static and electro-magnetic interference.

Interface Modules

- *HART Analog Input Interface Modules* act as an interface between 4-20 mA analog input points from HART smart devices in the field and HART Host software running on a PC.
- *HART Analog Output Interface Modules* act as an interface between 4-20 mA analog output points from HART smart devices in the field and HART Host software running on a PC.

I/O Modules

- *Digital Input Modules* receive discrete signals of these nominal voltages: 115 VAC/VDC, 48 VAC/VDC, and 24 VAC/VDC. All voltages are available in TMR modules. Non-TMR modules are available in 24 VDC and 48 VDC only. Speed input and totalization modules are also available.
- *Supervised Digital Output Modules* produce discrete output signals of these nominal voltages, with diagnostic coverage of the field circuit and load device: 115 VAC, 120 VDC, 48 VDC, and 24 VDC.
- *Digital Output Modules* produce discrete output signals of these nominal voltages: 115 VAC, 120

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Product Specifications

VDC, 24 VDC, and 48 VDC. Dual output modules are also available.

- *Analog Input Modules* receive analog signals of these types: 0-5 VDC, -5 to +5 VDC, 0-10 VDC, and Thermocouple types J, K, T and E. Available in both isolated and DC-coupled versions.
- *Analog Output Modules* are available in these versions: eight output points at 4-20 mA; six output points at 4-20 mA and two at 20-320 mA; and four output points at -60 to 60 mA.

Conformal Coating

Most of the Tricon hardware models in the *Planning and Installation Guide for Tricon v9–v10 Systems* and the *Field Terminations Guide for Tricon v9–v10 Systems* can be ordered with conformal coating by adding the letter "C" to the end of the standard model number.

The following equipment *cannot* be ordered with conformal coating:

- Equipment certified for use in nuclear 1E applications
- All types of cables; including interface cables, I/O bus cables, and fanned-out cables
- Blank slot covers

Neoprene dust covers are provided with external termination panels and chassis that are conformal coated. You can install the dust covers on unused external termination panel connectors and unused backplane connectors, at your discretion.

Some of the Tricon hardware with conformal coating has been certified for use in marine environments. For more information, see "Tricon Equipment Certified for Use in Marine Environments" on page 21.

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8-Point Supervised Digital Output Modules

Designed for the most critical applications, Supervised Digital Output (SDO) modules meet the needs of systems whose outputs remain in a single state for extended periods of time (in some applications, for years). An SDO module receives output signals from the Main Processors on each of three channels. Each set of three signals is then voted upon by a fully fault-tolerant quadruplicated output switch whose elements are mechanical power relays, so that one voted output signal is passed to the field termination.

Each SDO module has voltage and current loopback circuitry coupled with sophisticated online diagnostics that verify the operation of each output switch, the field circuit and the presence of a load. This design provides complete fault coverage without the need to influence the output signal.

The modules are called "supervised" because fault coverage is extended to include potential field problems. In other words, the field circuit is *supervised* by the SDO module so that the following field faults can be detected:

- Loss of power or blown fuse
- Open or missing load
- A field short resulting in the load being energized in error
- A shorted load in the de-energized state

Failure to detect field voltage on any output point energizes the power alarm indicator. Failure to detect the presence of a load energizes the load alarm indicator. When an optional secondary power supply is used, shorted loads in the Off state can be detected. (This feature is not provided on Model 3611E, an AC module.)

All SDO modules support hot-spare capability, and they require separate external termination panels (ETP) with a cable interface to the Tricon controller backplane.

8-Point Supervised Digital Output Module Specifications

Model Number	3611E	3617E
Nominal Voltage	115 VAC	48 VDC
Type	TMR, Supervised DO	TMR, Supervised DO
Points	8, commoned	8, commoned
Voltage Range	90-155 VAC	36-72 VDC
Frequency Range	47-63 Hz	n/a
Maximum Switching Power	2,000 VA (resistive)	150 W (resistive)
On State Voltage Drop[a]	< 2V, typical	< 2V, typical
Current Ratings, Maximum	2A per point 10A/AC cycle	1A per point 5A/10 ms
Minimum Required Load	50 mA	100 mA
Voltage Range of Secondary Power Supply	n/a	5.00 VDC ±.25 VDC
Chassis Leakage	1mA max. @ 60 Hz	n/a
Load Leakage	4 mA max.	4 mA max.
Fuses (on Field Termination)	1 per output (2.5A fast-acting)	1 per output (1.25A fast-acting)
Point Isolation	1,500 VDC, min.	1,500 VDC, min.
Diagnostic Indicators		
Output Status	POINT, PWR, LOAD,	POINT, PWR, LOAD,
Module Status	PASS, FAULT, ACTIVE	PASS, FAULT, ACTIVE
Color Code	Deep green	Mint green

a. **WARNING**: The voltage drop may be significantly higher in some applications.

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