

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

TRICONEX

7400069-005

TMR ANALOG INPUT MODULE

Used with the applicable Triconex safety system configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Tricon Technical Product Guide

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

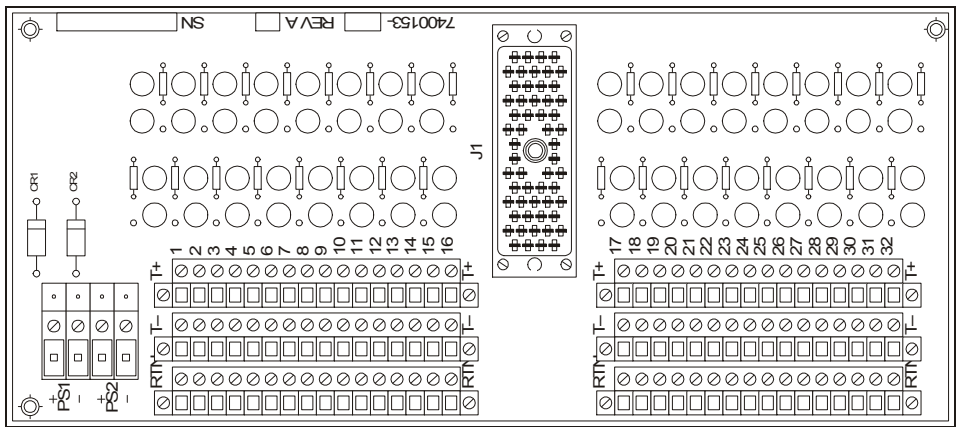
Model Number	3611E	3617E
Nominal Voltage	115 VAC	48 VDC
Type	TMR, Supervised DO	TMR, Supervised DO
Points	8, commoned	8, commoned
Voltage Range	90-155 VAC	36-72 VDC
Frequency Range	47-63 Hz	n/a
Maximum Switching Power	2,000 VA (resistive)	150 W (resistive)
On State Voltage Drop ^a	< 2V, typical	< 2V, 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.

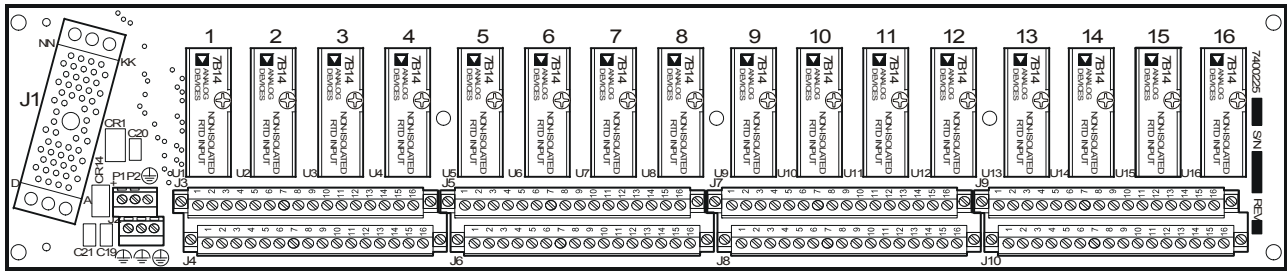
f-protected,	9662-610F	n/a	9653-610F	9671-610F	n/a	9101-010F	n/a	9671-810F ^b
	Commoned Term Panels	Non-Common Term Panels	Basic Term Panels	Nonincendive Term Panels	RG 1:180 Term Panels	Fanned-out Cables	Bypass Panels	ERT Loop-Back Cables/Panels
	n/a	n/a	9853-610F	9861-610F	9860-610F	n/a	n/a	n/a
	n/a	n/a	9853-610F	9861-610F	9860-610F	n/a	n/a	n/a
ts,	n/a	n/a	9863-710F (special panel)	n/a	n/a	n/a	n/a	n/a
) mA outputs	9881-810F	n/a	n/a	9871-810F	n/a	n/a	n/a	n/a
	Upscale	Downscale	Basic Term Panels	Nonincendive Term Panels	RG 1:180 Term Panels	Fanned-out Cables	Bypass Panels	ERT Loop-Back Cables/Panels
ype J, K, T,	9766-210F	9766-510F	n/a	9784-610F, upscale 9785-610F, downscale	n/a	n/a	n/a	n/a
ype E, J, K,	9765-610F	n/a	n/a	9786-110F	9782-110F	n/a	n/a	n/a
	3-Wire 4-20 mA	Voltage	2-Wire 4-20 mA	Nonincendive Term Panels	RG 1:180 Term Panels	Basic		RTD/TC/AI
tial,	n/a	9763-810F	9761-210F, 0-5 V 9771-210F, 0-5 V	9791-610F, current input 9792-610F, 4-20 mA, 0-5 V, 9787-110F, 16 VDC-56 VDC field voltage input	9790-610F, current input 9792-610F, 4-20 mA, 0-5 V, 16 VDC-56 VDC field 9795-610F, 4-20 mA, 0-10 V 9783-110F, voltage input 9764-310F, RTD/TC/AI input ^e	9753-110F, 0-5 V		9764-310F ^c
	n/a	n/a	9761-210F, 0-5 V 9771-210F, 0-5 V	9791-610F, current input	9790-610F, current input	n/a		n/a
ntial, 32 pts,	n/a	9763-810F	9761-410F	n/a	n/a	9753-110F, 0-10 V		n/a
olated, 16	n/a	9763-810F	9762-210F, 0-5 V 9762-410F, 0-10 V 9771-210F, 0-5 V	9791-610F, current input 9787-110F, voltage input	9790-610F, 4-20 mA, 0-5 V 9792-610F, 4-20 mA, 0-5 V, 16 VDC-56 VDC field	9753-110F, 0-5/0-10 V		n/a
nded, 64 pts,	9765-210F, 0-5 V	n/a	9760-210F, 0-5 V 9760-410F, 0-10 V	9789-610F, 4-20 mA	n/a	9750-210F, 4-20 mA 9750-810F, 0-5/0-10 V		n/a
o +5 VDC,	n/a	9763-810F	9761-210F, 0-5 V 9761-410F, 0-10 V 9771-210F, 0-5 V	9791-610F, current input 9787-110F, voltage input	9790-610F, 4-20 mA, 0-5 V 9792-610F, 4-20 mA, 0-5 V, 16 VDC-56 VDC field 9795-610F, 4-20 mA, 0-10 V 9783-110F, voltage input 9764-310F, RTD/TC/AI input ^e	9753-110F, 0-5 V		9764-310F ^c

: illuminate when point fuse is removed. Each point is commoned.
 : illuminate when point fuse is removed. Each point is self-protected and commoned.
 d separately. A total of 16 is required for each termination panel.
 ation 11.31 software.

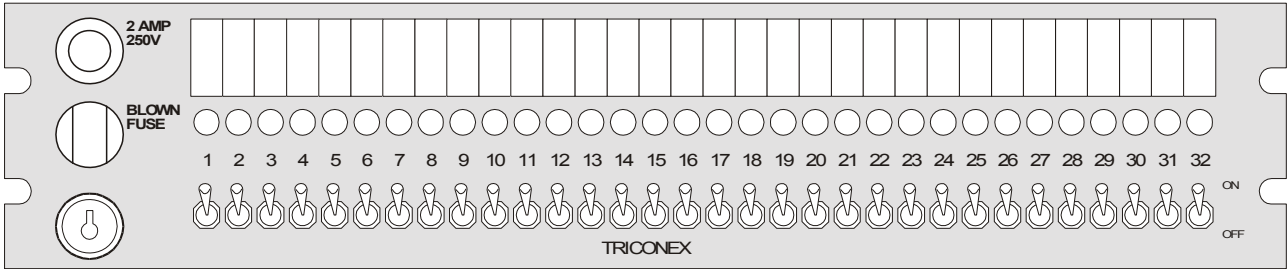
Field Termination Options



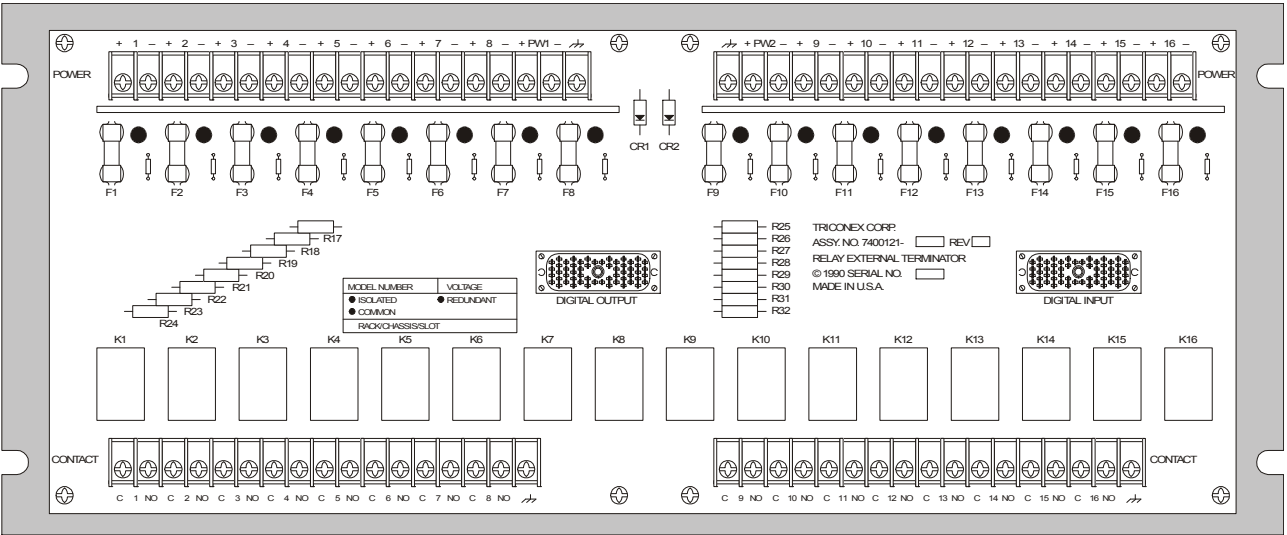
3-Wire Transmitter Analog Input Termination Panel



RTD/TC/AI External Termination Panel



External Bypass Termination Panel



External Relay Termination with 16 Interposing Relay Contacts