Description	Model No.	See
TriStation 1131 and Diagnostic Software		
TriStation 1131 v4.x Software License with printed manuals	Contact Triconex	page 65
Enhanced Diagnostic Monitor v2.x	Contact Triconex	page 66
Documentation Sets		
Tricon Planning and Installation, Field Terminations, and Communication printed manuals	Contact Triconex	
Triconex User Documentation, includes all manuals in PDF format (CD-ROM)	Contact Triconex	

Tricon I/O Modules

Voltage	Description	Type	Model No.	Points	For Details, See
Digital Input Modules					
115 VAC/VDC	Opto-Isolated, Non-Commoned	TMR	3501E/3501T	32	page 35
48 VAC/VDC	Commoned in Groups of 8, Self-Test	TMR	3502E	32	page 35
24 VAC/VDC	Commoned in Groups of 8, Self-Test	TMR	3503E	32	page 35
24/48 VDC	High-Density, DC Coupled	TMR	3504E	64	page 36
24 VDC	Low Threshold with Self-test, Commoned	TMR	3505E	32	page 35
24 VDC	Single, Opto-Isolated, Commoned	Single	3564	64	page 36
Pulse Input	Differential, AC Coupled	TMR	3511	8	page 37
Pulse Totalizer	Opto-isolated, Non-commoned	TMR	3515	32	page 38
Digital Output Modules					
115 VAC	Opto-Isolated, Non-commoned	TMR	3601E/3601T	16	page 39
120 VDC	Opto-Isolated, Non-commoned Opto-Isolated, Commoned	TMR	3603B, 3603E/3603T	16	page 39
24 VDC	Opto-Isolated, Non-commoned	TMR	3604E	16	page 39
48 VDC	Opto-Isolated, Non-commoned	TMR	3607E	16	page 39
115 VAC	Galvanically Isolated, Commoned., Supv.	TMR	3611E	8	page 41
48 VDC	Galvanically Isolated, Commoned, Supv.	TMR	3617E	8	page 41
120 VDC	Opto-Isolated, Commoned, Supervised	TMR	3623/3623T	16	page 40
24 VDC	Opto-Isolated, Commoned, Supervised	TMR	3624	16	page 40
24 VDC	Supervised/Non-Supervised, Commoned	TMR	3625	32	page 40
24 VDC	Opto-Isolated, Commoned	Dual	3664	32	page 42
24 VDC	Opto-Isolated, Commoned	Dual	3674	32	page 42
Relay Output	Non-triplicated, Normally Open	Non-triplicated	3636R/3636T	32	page 37

TMR Digital Output Modules

Each TMR Digital Output (DO) module receives output signals from the Main Processors on each of three channels. Each set of three signals is then voted by special quadruplicated output circuitry on the module. The circuitry produces one voted output signal and passes it to the field termination. The quadruplicated voter circuitry provides multiple redundancy for all critical signal paths, guaranteeing safety and maximum availability.

Each TMR Digital Output Module has a voltage-loopback circuit which verifies the operation of each output switch independently of the presence of a load and determines whether latent faults exist. Failure of the detected field voltage to match the commanded state of the output point activates the LOAD/FUSE alarm indicator.

In addition, ongoing diagnostics are performed on each channel and circuit of a TMR Digital Output Module. Failure of any diagnostic on any channel activates the Fault indicator, which in turn activates the chassis alarm signal. The Fault indicator merely indicates a channel fault, *not* a module failure. The module is guaranteed to operate properly in the presence of a single fault and may continue to operate properly with certain kinds of multiple faults.

All TMR Digital Output Modules support hot-spare capability, and require a separate external termination panel (ETP) with a cable interface to the Tricon backplane. Each module is mechanically keyed to prevent improper installation in a configured chassis.

Digital outputs are designed to source the current to field devices, so field power must be wired to each output point on the field termination.

16-Point Digital Output Module Specifications

Model Number	3601E/3601T	3603B/3603E/3603T	3607E	3604E
Nominal Voltage	115 VAC	120 VDC	48 VDC	24 VDC
Type	TMR, DO	TMR, DO	TMR, DO	TMR, DO
Output Signals	16, non-commoned	16, commoned (3603E/T 16, non-commoned (3603B	16, non-commoned	16, non-commoned
Voltage Range	80-155 VAC	90-150 VDC	44-80 VDC	22-45 VDC
Voltage Drop[1]	< 3V, typical	< 1.5V, typical	< 3V, typical	< 4V, typical
Frequency Range	47-63 Hz	n/a	n/a	n/a
Current Ratings, Maximum	2A per point 12A surge/cycle	0.8A per point 4A surge/10 ms	1A per point 5A surge/10 ms	2A per point 10A surge/10 ms
Load Leakage	2 mA maximum @ 60 Hz	2 mA maximum	2 mA maximum	2 mA maximum
Chassis Leakage	4 mA maximum @ 60 Hz	n/a	n/a	n/a
Fuses (on Field Termination)	1 per output, 3A fast-acting	1 per output, 1.0A fast-acting	1 per output, 1.25A fast-acting	1 per output, 2.5A fast-acting
Point Isolation	1,500 VDC/ 2500 VDC[2]	1,500 VDC/ 2500 VDC[3]	1,500 VDC	1,500 VDC
Diagnostic Indicators				
On or Off state	1 per point	1 per point	1 per point	1 per point
Module Status	PASS, FAULT, ACTIVE	PASS, FAULT, ACTIVE	PASS, FAULT, ACTIVE	PASS, FAULT, ACTIVE
Field Alarm	LOAD/FUSE	LOAD/FUSE	LOAD/FUSE	LOAD/FUSE
Color Code	Green	Blue	Light blue	Dark blue

1. **WARNING**: The voltage drop may be significantly higher in some applications.
2. For 3601T.
3. For 3603T.