



Technical Product Guide

Tricon Systems

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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 33
48 VAC/VDC	Commoned in Groups of 8, Self-Test	TMR	3502E	32	page 33
24 VAC/VDC	Commoned in Groups of 8, Self-Test	TMR	3503E	32	page 33
24/48 VDC	High Density, DC Coupled	TMR	3504E	64	page 34
24 VDC	Low Threshold with Self-test, Commoned	TMR	3505E	32	page 33
24 VDC	Single, Opto-Isolated, Commoned	Single	3564	64	page 34
Pulse Input	Differential, AC Coupled	TMR	3511	8	page 35
Pulse Totalizer	Opto-isolated, Non-commoned	TMR	3515	32	page 36
Digital Output Modules					
115 VAC	Opto-Isolated, Non-commoned	TMR	3601E/3601T	16	page 37
120 VDC	Opto-Isolated, Non-commoned Opto-Isolated, Commoned	TMR	3603B, 3603E/3603T	16	page 37
24 VDC	Opto-Isolated, Non-commoned	TMR	3604E	16	page 37
48 VDC	Opto-Isolated, Non-commoned	TMR	3607E	16	page 37
115 VAC	Galvanically Isolated, Commoned., Supv.	TMR	3611E	8	page 39
48 VDC	Galvanically Isolated, Commoned, Supv.	TMR	3617E	8	page 39
120 VDC	Opto-Isolated, Commoned, Supervised	TMR	3623/3623T	16	page 38
24 VDC	Opto-Isolated, Commoned, Supervised	TMR	3624	16	page 38
24 VDC	Supervised/Non-Supervised, Commoned	TMR	3625	32	page 38
24 VDC	Opto-Isolated, Commoned	Dual	3664	32	page 40
24 VDC	Opto-Isolated, Commoned	Dual	3674	32	page 40
Relay Output	Non-triplicated, Normally Open	Non-triplicated	3636R/3636T	32	page 35
Analog Input Modules					
0-5 VDC	Differential, DC Coupled	TMR	3700A	32	page 41
0-10 VDC	Differential, DC Coupled	TMR	3701	32	page 41
0-5, 0-10 VDC	Differential, Isolated	TMR	3703E	16	page 41
0-5, 0-10 VDC	High-Density, Differential, DC Coupled	TMR	3704E	64	page 41
Thermocouple	Differential, DC Coupled	TMR	3706A	32	page 44
Thermocouple	Differential, Isolated	TMR	3708E	16	page 44
0-5 VDC	Single-Ended	TMR	3720	64	page 41
0 to 5 or -5 to +5 VDC	Differential, DC Coupled	TMR	3721	32	page 41
Analog Output Modules					
4-20 mA	Current Loop, DC Coupled	TMR	3805E	8	page 43
4-20 mA and 20-320 mA	Current Loop, DC Coupled	TMR	3806E	6 and 2	page 43

Product Specifications

Model Number	3704E	3720	3721
Voltage	0-5V or 0-10V ¹ , + 6%	0-5VDC, + 6%	0 to 5 VDC or -5 to +5 VDC ¹ , + 6%
Type	TMR	TMR	TMR
No. of Input Points	64, commoned	64, single-ended	32 differential, DC-coupled
Isolated Points	No	Yes	Yes
Input Update Rate	75 ms	10 ms	10 ms
Resolution	12 bits	12 bits or 14 bits programmable	12 bits or 14 bits programmable
Accuracy	< 0.25% of FSR from 0° to 60°C	< 0.15% of FSR from 0° to 60° C	< 0.15% of FSR from 0° to 60° C
Input Resistance (load)	30 MΩ (DC), min.	10 MΩ (DC), min.	10 MΩ (DC), min.
Power-Off Resistance	30 kΩ (DC), typical	140 kΩ (DC), typical	140 kΩ (DC), typical
Common Mode Rejection	n/a	n/a	-85 dB (DC - 100 Hz)
Common Mode Range	n/a	n/a	-12V to +12V peak
Leg-to-Leg Isolation	200 kΩ typical	420 kΩ typical	420 kΩ typical
Normal Mode Rejection	-1 dB @ 8Hz -12 dB @ 60Hz -18 dB @ 120Hz	-3 dB @ 8Hz -17 dB @ 60Hz -23 dB @ 120Hz	-3 dB @ 23 Hz -8 dB @ 60 Hz -14 dB @ 120 Hz
Input Overrange Protection	150 VDC/115 VAC continuous	150 VDC/115 VAC continuous	150 VDC/115 VAC continuous
Current Range	0-20 mA, 250 Ω shunt for 5V 500 Ω shunt for 10V	0-20 mA (plus 6% over-range) with 250 Ω shunt resistor	0-20 mA with 250 Ω shunt resistor
Diagnostic Indicators			
Module Status	PASS, FAULT, ACTIVE	PASS, FAULT, ACTIVE, FIELD	PASS, FAULT, ACTIVE, FIELD
Color Code	Copper	Yellow	Yellow

1. The voltage is selected using the TriStation software.

Module Part #	Module Description	Upscale	Downscale	Basic Term Panels	Nonincendive Term Panels	Fanned-out Cables	Bypass Panels	ERT Loop-Back Cables/Panels
3706A	Thermocouple input, type J, K, T, differential, 32 pts.	9766-210	9766-510	n/a	9784-610, upscale 9785-610, downscale	n/a	n/a	n/a
3708E	Thermocouple input, type E, J, K, T, isolated, 16 pts.	9765-610	9765-610	n/a	9786-110	n/a	n/a	n/a
Module Part #	Module Description	3-Wire 4-20 mA	Voltage	2-Wire 4-20 mA	Nonincendive Term Panels	Basic	RTD/TC/AI	
3700 3700A	AI, 0–5 VDC, differential, 32 pts.	n/a	9763-810	9761-210, 0–5 V 9771-210, 0–5 V	9791-610, current input 9787-110, voltage input	9753-110, 0–5 V	9764-310 ¹	
3701	AI, 0–10 VDC, differential, 32 pts.	n/a	9763-810	9761-410	n/a	9753-110, 0–10 V	n/a	
3703E ²	AI, 0–5/0–10 VDC, isolated, 16 pts.	n/a	9763-810	9762-210, 0–5 V 9762-410, 0–10 V 9771-210, 0–5 V	9791-610, current input 9787-110, voltage input	9753-110, 0–5/0–10 V	n/a	
3704E ²	AI, 0–5/0–10 VDC, non-isolated, 64 pts.	9765-210, 0–5V	n/a	9760-210, 0–5 V 9760-410, 0–10 V	9789-610, 4–20 mA	9750-210, 4–20 mA 9750-810, 0–5/0–10 V	n/a	
3720	AI, 0–5 VDC, single-ended, 64 pts.	9765-210, 0–5 V	n/a	9760-210, 0–5 V 9760-410, 0–10 V	9789-610, 4–20 mA	9750-210, 4–20 mA 9750-810, 0–5/0–10 V	n/a	
3721 ²	AI, 0 to 5 VDC or –5 to +5 VDC; differential; 32 pts.	n/a	9763-810	9761-210, 0–5 V 9761-410, 0–10 V 9771-210, 0–5 V	9791-610, current input 9787-110, voltage input	9753-110, 0–5 V	n/a	

1. Signal conditioners must be ordered separately. A total of 16 is required for each termination panel.

2. Must be configured with TriStation.

Dimensions of External Termination Panels

Panel Model	Width (across DIN rail)	Length (along DIN rail)	Height (out from DIN rail)
9251-210	7 in (17.78 cm)	19 in (48.26 cm)	4.75 in (12.065 cm)
9551-110	3 in (7.62 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9552-610	3 in (7.62 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9553-610	3 in (7.62 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9561-110	4.5 in (11.43 cm)	7.75 in (19.685 cm)	4.25 in (10.795 cm)
9561-810	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9562-810	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9563-810	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9563-910	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9565-710	4.5 in (11.43 cm)	10 in (25.4 cm)	4.25 in (10.795 cm)