

FIELD INSTALLATION QUICK GUIDE

Installation Instructions

3504E

Tricon 64-point high-density digital input module

PRODUCT	3504E
TYPE	TMR digital input
VOLTAGE	24 or 48 VDC
POINTS	64, commoned, DC-coupled

Prepared by Amikon Limited from the supplied official Tricon Product Specifications. This guide does not replace the complete manufacturer manual, site safety procedure, system validation plan or controlled Schneider Electric documentation.

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CONFIRM THE INSTALLED CONFIGURATION

Module	3504E
Chassis / slot	Verify Tricon chassis and mechanical keying
Termination	Verify external termination panel and cable
Field selection	Confirm 24 or 48 VDC in TriStation 1131
Hot spare	Confirm installed hot-spare arrangement
Status	PASS, FAULT and ACTIVE indicators

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PREPARATION AND MODULE HANDLING

- Follow the site permit, isolation and functional-safety procedure.
- Record the installed model, slot, termination panel, cable and TriStation configuration.
- Do not force a module into a slot; mechanical keying is intended to prevent incorrect installation.
- Protect the module, backplane and field connectors from electrostatic discharge and contamination.
- Verify field voltage and wiring before inserting or energizing the module.

OFFICIAL 3504E MODULE REFERENCE

Product Specifications

64-Point Digital Input Modules

Each 64-point Digital Input (DI) module has three isolated channels which independently process all data input to the module. A microprocessor on each channel scans each input point, compiles data and transmits it to the Main Processors on demand. Then input data is voted at the Main Processors just prior to processing to ensure the highest integrity.

All Digital Input Modules sustain complete, ongoing diagnostics for each channel. A failure on any channel activates the Fault indicator which in turn activates the chassis alarm. A TMR module is guaranteed to operate properly in the presence of a single fault and

may operate properly with certain kinds of multiple faults.

All Digital Input Modules support hot-spare modules 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 chassis.

The Model 3504E High-Density Digital Input Module continuously verifies the ability of the Tricon to detect transitions to the opposite state. On this TMR module, all critical signal paths are 100 percent triplicated for guaranteed safety and maximum availability. Each channel conditions signals independently between the field and the Tricon.

The Model 3564 Single Digital Input Module is optimized for safety-critical applications where low cost is more important than maximum availability. On single modules, only those portions of the signal path which are required to ensure safe operation are triplicated. Special self-test circuitry detects all stuck-On and stuck-Off fault conditions in less than half a second. If a single module detects an input fault, it reports that point as Off, which may cause a glitch during switch-over to a hot-spare module.

64-Point Digital Input Module Specifications

Model Number	3564	3504E
Type	Single, DI	TMR, DI
Voltage	24 VDC	24 or 48 VDC ¹
Points	64, commoned	64, commoned, DC coupled
DC Range	15-30 VDC	20-72 VDC
Maximum Voltage	36 VDC	72 VDC
Switching Level		24 V 48 V
OFF to ON	> 15 VDC	>18 VDC >32 VDC
ON to OFF	< 6 VDC	< 6 VDC <11 VDC
Nominal Turn-On	2-3 mA	negligible
Typical Hysteresis	4 VDC	4 VDC/7 VDC
Input Delay		
Off to On/On to Off	< 2 ms/< 2 ms	< 10 ms/< 10 ms
Minimum Point Isolation	1,500 VDC	n/a
Nominal Input Impedance	> 3.0 KΩ	> 30 KΩ
Nominal Field Power Load		
Per On point	0.2 watts	negligible
@ maximum field voltage	0.5 watts	negligible
Diagnostic Indicators		
Input Status	1 per point	1 per point
Module Status	PASS, FAULT, ACTIVE	PASS, FAULT, ACTIVE
Stuck Test	On and Off	On and Off
Color Code	Dark Red	Dark Red

1. The voltage is selected using TriStation 1131.

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TERMINATION AND CONNECTION CHECKS

- Confirm the external termination panel and its cable are appropriate for the installed Tricon I/O configuration.
- Check all 64 field-point identifications and commoned DC-coupled wiring against the controlled drawing.
- Confirm the selected 24 or 48 VDC range and ensure field signals stay within the documented limits.
- Inspect the module and backplane connectors before insertion; do not bypass mechanical keying.
- Verify grounding, enclosure and hazardous-area requirements for the installation.

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COMMISSIONING AND FUNCTIONAL TEST

- Confirm PASS and ACTIVE status and investigate any FAULT indication before service.
- Prove representative OFF-to-ON and ON-to-OFF transitions at the configured field voltage.
- Verify point mapping, inversion logic, alarms, interlocks and safety functions against the approved application.
- Check the hot-spare arrangement and module diagnostics according to the controlled Tricon procedure.
- Record the final hardware identity, TriStation selection and functional-test results before returning the system to operation.

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CONTROLLED DOCUMENTS

Official source	Tricon Product Specifications
Exact-model page	Page 36 - 64-Point Digital Input Module Specifications
System applications	Schneider Electric EcoStruxure Triconex Safety Systems
Product record	3504E
Support	INFO@AMIKON.CN