

3504E

64-Point 24/48 VDC Digital Input Module

Triconex 3504E is a high-density sixty-four-point TMR digital input module. It acquires commoned 24 or 48 VDC field states and transfers voted input data to the main processors.

PRODUCT SNAPSHOT

BRAND

Triconex

FAMILY

Tricon high-density digital input

PART

3504E

ORIGIN / HS

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PRODUCT OVERVIEW

Triconex 3504E is a high-density sixty-four-point TMR digital input module. It acquires commoned 24 or 48 VDC field states and transfers voted input data to the main processors.

- 1

Scans sixty-four commoned DC inputs through three independent channels
- 2

Votes input data at the main processors before control-program execution
- 3

Continuously tests the ability to detect transitions to the opposite state
- 4

Supports online hot-spare replacement through a separate termination panel

SYSTEM COMPONENTS

Tricon I/O chassis

voltage-matched external termination panel

24 or 48 VDC field input circuits

hot-spare module position

RELATED PRODUCTS ON APTER POWER

MODEL	SYSTEM ROLE	APTER POWER PAGE
Triconex 3008	Main Processor Module	Open product page
Triconex 4210	Remote Extender Module Set	Open product page
Triconex 4119A	Enhanced Intelligent Communication Module	Open product page

TECHNICAL DATA

PARAMETER	VALUE
Module type	TMR digital input
Input points	64 commoned; DC coupled
Configured voltage	24 VDC or 48 VDC
DC range	20 to 72 VDC
Maximum voltage	72 VDC
OFF-to-ON at 24 V	>18 VDC
ON-to-OFF at 24 V	<6 VDC
OFF-to-ON at 48 V	>32 VDC
ON-to-OFF at 48 V	<11 VDC

PARAMETER	VALUE
Input delay	<10 ms OFF-to-ON / ON-to-OFF
Nominal input impedance	>30 kOhm
Field power per ON point	Negligible
Input indicators	1 per point
Module indicators	PASS; FAULT; ACTIVE
24 V commoned panel	9566-810
48 V commoned panel	9565-810
24 V basic panel	9750-310
48 V basic panel	9750-410

TECHNICAL NOTE

Select 24 or 48 V operation in the approved TriStation configuration, match the corresponding termination panel, and prove threshold, channel voting, and stuck-state diagnostics.

APPLICATIONS & PRECAUTIONS

COMMON APPLICATIONS

High-density shutdown permissive acquisition

Scans sixty-four commoned DC inputs through three independent channels

Sixty-four-point machine interlock monitoring

Votes input data at the main processors before control-program execution

24/48 VDC field-state migration

Continuously tests the ability to detect transitions to the opposite state

Online spare-supported digital-input maintenance

Supports online hot-spare replacement through a separate termination panel

PRODUCT PRECAUTIONS

- 1 Verify 3504E and the configured 24 or 48 V execution before module handling.
- 2 Place affected safety functions in the approved maintenance condition.
- 3 Isolate the field supply and record all sixty-four channel assignments.
- 4 Match the external termination panel to the configured field voltage.
- 5 Use ESD controls and confirm the module keying before insertion.
- 6 Do not apply a threshold or panel selection from a 3503E or 3505E module.
- 7 Exercise representative OFF-to-ON and ON-to-OFF transitions on all channel groups.
- 8 Review point status, PASS/FAULT/ACTIVE, and hot-spare behavior before release.

ENGINEER FAQ

Q1 How should an engineer verify 24/48 V TriStation selection for 3504E?

Use the approved connection drawing and the model-specific values in Tricon Systems Technical Product Guide; preserve the as-found terminal, connector, polarity, shield, and channel identity.

Q3 Which installation error is most important to prevent on 3504E?

Do not interchange 3504E with an adjacent execution or alter its matched Tricon I/O chassis; the exact electrical, channel, and connector arrangement must be retained.

Q5 Which diagnostics should be reviewed after installing 3504E?

Review the applicable point, module, power, communication, or load indicators for 3504E, then confirm the intended role: scans sixty-four commoned dc inputs through three independent channels.

Q7 What evidence should be retained after stuck-transition self-test testing on 3504E?

Retain the full 3504E identity, as-left connections or settings, final diagnostics, measured functional-test result, and authorization to return the affected process function to service.

Q2 What check is required for voltage-matched ETP pairing when commissioning 3504E?

Apply a controlled signal or command within the documented range and compare the field result, controller indication, and product diagnostics before normal operation.

Q4 How is sixty-four commoned input channels handled during a 3504E replacement?

Record the installed state first, isolate the associated process function, reproduce only the approved model-specific arrangement, and verify it before energization.

Q6 Can 3504E be substituted for a similar Triconex model without a configuration review?

No. Confirm the exact model, companion hardware, signal execution, system version, and approved configuration before any substitution.

Q8 Which installed hardware must be matched before fitting 3504E?

Match 3504E to Tricon I/O chassis and voltage-matched external termination panel, then confirm the complete physical marking and assigned Tricon high-density digital input position.