3704E

64-Point 0-5/0-10 VDC Analog Input Module

Triconex 3704E is a sixty-four-point high-density TMR analog input module. It digitizes commoned 0-5 or 0-10 VDC process signals for voted safety-control processing.

PRODUCT SNAPSHOT

BRAND	**FAMILY**
Triconex	Tricon high-density analog input
PART	**ORIGIN / HS**
3704E	USA / 8537101190

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PRODUCT OVERVIEW

Triconex 3704E is a sixty-four-point high-density TMR analog input module. It digitizes commoned 0-5 or 0-10 VDC process signals for voted safety-control processing.

1. Samples sixty-four commoned analog inputs through three TMR channels
2. Selects 0-5 V or 0-10 V operation through the approved TriStation configuration
3. Converts current loops with voltage-range-specific precision shunts at the termination panel
4. Supports online hot-spare replacement with continuous channel diagnostics

SYSTEM COMPONENTS

- Tricon I/O chassis and hot spare
- range-matched external termination panel
- 0-5 or 0-10 V field circuits
- 250- or 500-ohm current-conversion shunts

RELATED PRODUCTS ON APTER POWER

MODEL	SYSTEM ROLE	APTER POWER PAGE
Triconex 3504E	High-Density Digital Input Module	**Open product 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 analog input
Input points	64 commoned
Configured range	0-5 VDC or 0-10 VDC plus 6%
Isolated points	No
Input update rate	75 ms
Resolution	12 bit
Accuracy	<0.25% FSR, 0 to 60 degC
Input resistance	30 MOhm DC minimum
Power-off resistance	30 kOhm DC typical

PARAMETER	VALUE
Normal-mode rejection	-1 dB at 8 Hz; -12 dB at 60 Hz; -18 dB at 120 Hz
Input overrange protection	150 VDC / 115 VAC continuous
0-5 V current option	0-20 mA with 250 Ohm shunt
0-10 V current option	0-20 mA with 500 Ohm shunt
Indicators	PASS; FAULT; ACTIVE
0-5 V panel	9760-210
0-10 V panel	9760-410
Basic voltage panel	9750-810
Basic current panel	9750-210

TECHNICAL NOTE

Set the voltage range in TriStation, match the corresponding panel and shunt value, preserve commoned-channel wiring, and prove accuracy plus voted channel agreement after installation.

APPLICATIONS & PRECAUTIONS

COMMON APPLICATIONS

High-density safety transmitter acquisition

Samples sixty-four commoned analog inputs through three TMR channels

Sixty-four-channel process measurement

Selects 0-5 V or 0-10 V operation through the approved TriStation configuration

Selectable 0-5/0-10 V modernization

Converts current loops with voltage-range-specific precision shunts at the termination panel

Hot-spare analog-input maintenance

Supports online hot-spare replacement with continuous channel diagnostics

PRODUCT PRECAUTIONS

1. Verify 3704E and the configured 0-5 or 0-10 V range before replacement.
2. Place all affected analog safety functions in the approved maintenance state.
3. Isolate field signals and record sixty-four channel assignments plus scaling.
4. Match 250-ohm shunts to 0-5 V current service and 500-ohm shunts to 0-10 V service.
5. Keep input overrange inside the published continuous protection limit.
6. Use ESD controls and verify the module keying and hot-spare position.
7. Inject controlled values across channel groups and compare the three TMR readings.
8. Review PASS/FAULT/ACTIVE state, scaling, alarms, and safety response before release.

ENGINEER FAQ

Q1 How is sixty-four commoned analog inputs handled during a 3704E replacement?

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

Q2 Which diagnostics should be reviewed after installing 3704E?

Review the applicable point, module, power, communication, or load indicators for 3704E, then confirm the intended role: samples sixty-four commoned analog inputs through three tmr channels.

Q3 Can 3704E 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.

Q4 What evidence should be retained after 75 ms update and TMR agreement testing on 3704E?

Retain the full 3704E identity, as-left connections or settings, final diagnostics, measured functional-test result, and authorization to return the affected process function to service.

Q5 Which installed hardware must be matched before fitting 3704E?

Match 3704E to Tricon I/O chassis and hot spare and range-matched external termination panel, then confirm the complete physical marking and assigned Tricon high-density analog input position.

Q6 How should an engineer verify TriStation voltage-range selection for 3704E?

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.

Q7 What check is required for 250 versus 500-ohm shunts when commissioning 3704E?

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

Q8 Which installation error is most important to prevent on 3704E?

Do not interchange 3704E with an adjacent execution or alter its matched Tricon I/O chassis and hot spare; the exact electrical, channel, and connector arrangement must be retained.

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