

Triconex AI3351

32-Point 4-20 mA Analog Input Module

Manufacturer	Triconex
Model / order number	AI3351
Product identification	32-Point 4-20 mA Analog Input Module
System / family context	Trident v2 Systems

Verified scope

Base model 3351: 32 commoned current inputs, nominal 4-20 mA, 2-22 mA operating range, 12-bit resolution and 0.15 percent full-scale absolute accuracy.

Engineering checks before replacement

- Confirm the 250-ohm input load in the loop-power budget.
- Preserve range scaling and under-range/over-range handling.
- Check baseplate selection for HART or sensor conditioning.
- Use an approved calibration source for complete loop tests.

Original manufacturer source reference

Technical Product Guide for Trident v2 Systems, product specifications extract; revision not shown. Original PDF pages 16.

Open manufacturer document (hosted copy)

This cover is an independent Sales PLC reference, not a manufacturer-issued datasheet. The following manufacturer pages retain their original text, layout and page numbering.

Request model verification or a quotation

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Product Specifications

Analog Input Module

Each TMR Analog Input Module has three isolated sets of electronics, called channels, which independently process field data input to the module. Each channel places the processed data in an array and transmits this array, on request, to the MP associated with that channel. The MPs vote the data before passing it to the application. In TMR mode, the data passed is mid-value. In dual mode, the data passed is the average.

AI Modules include complete, ongoing diagnostics for each channel. If the diagnostics detect a failure on any channel, the Fault indicator turns on and activates the system alarm. The Fault indicator identifies a channel fault, not a complete module failure. AI Modules are guaranteed to operate properly in the presence of a single fault and may continue to operate properly with multiple faults.

AI Modules support a hot-spare module. Each AI Module is mechanically keyed to prevent improper installation in a configured baseplate.

The Model 3351 AI Module can be used with these baseplates:

- Model 2351, which is used in typical 4–20 mA applications.
- AI External Termination Baseplate, which is used with the Model 9764-510 RTD/TC/AI External Termination Panel or the Model 9792-310 AI Hazardous Location External Termination Panel.
- Model 2354, which is used in 4–20 mA applications and enables communication between HART field devices and Configuration and Asset Management Software running on a PC.
- Model 2354A, which is used in 4–20 mA applications in hazardous

Model 3351 Analog Input Module Specifications

Feature	Specification
Points	32, commoned
Nominal input current	4–20 mA DC
Specified operational current range	2–22 mA DC
Absolute maximum field voltage	33 VDC
Absolute maximum reverse field voltage	– 0.6 VDC
Absolute maximum input current	50 mA DC
Input bandwidth (3dB)	16 Hz
Source impedance	180 Ω
Input impedance (with baseplate)	250 Ω
I to V resistor	100 $\Omega \pm 0.01\%$
Resolution	12 bits
Absolute error	0.15% of full scale (20 mA)
Diagnostic	Force-to-value diagnostic (FVD)
Scan time	< 1 ms for all 32 points
Functional earth to protective earth isolation	500 VDC, minimum
Functional earth to functional earth (logic) isolation	800 VDC, minimum

locations and enables communication between HART field devices and Configuration and Asset Management Software running on a PC.

Analog Input/Digital Input Module

The Analog Input/Digital Input Module has 16 digital input points (points 1–16) and 16 analog input points (points 17–32).

The AI/DI Module has three isolated sets of electronics, called channels, which independently process field data input to the module. Sensing of each input point is performed in a manner that prevents a single failure on one channel from affecting another channel.

For analog input points, each channel receives variable voltage signals from each point, converts them to digital values, and transmits the values to the three MPs on demand.

For digital input points, an ASIC on each channel scans each input point, compiles data, and transmits it to the MPs upon demand.