

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

TRICONEX

AO 3481

TMR ANALOG OUTPUT MODULE

Used with the applicable Triconex safety system configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Trident Planning Installation Guide

Analog Output Modules

The following analog output components are available.

Model	Description	Current	Type
3481	Analog Output Module	4 @ 4–20 mA	Commoned
3482	High-Current Analog Output Module	2 @ 4–20 mA, 2 @ 4–40 mA	Commoned, High Current
2481	Analog Output Baseplate		Direct Termination

Analog Output (AO) Modules contain the circuitry for three identical, isolated channels. Each channel includes a proprietary ASIC that receives its output table from the I/O communication processor on its corresponding main processor. The AO Modules use special shunt circuitry to vote on the individual output signals before they are applied to the load. This voter circuitry insures only one output, A or B or C, is driving the field load. The shunt output circuitry provides multiple redundancy for all critical signal paths, guaranteeing safety and maximum availability.

The AO Modules continuously execute forced-switch diagnostics (FSD) on each point. By carefully forcing error conditions and observing proper behavior of the voting circuitry, high reliability and safe operation is insured. This safety feature allows unrestricted operation under a variety of multiple-fault scenarios.

The AO Modules support hot sparing for online replacement of a faulty module or continuous back-up to an active module. The AO Modules are mechanically keyed to prevent improper installation in a configured baseplate.

Model 3481 Analog Output Module Specifications

Feature	Specification
Points	4, commoned-return, DC-coupled
Output current range	4–20 mA output, controlled 0–22 mA over-range 0 mA output capability (step function <2 mA)
Output accuracy	<0.25% (in range of 4–20 mA) of FSR (0–22 mA), from 0° C to 70° C (32° F to 158° F)
Type	TMR
Resolution	12 bits
Diagnostic	Forced-switch diagnostic (FSD)
External loop power (reverse voltage-protected)	32 V DC, maximum 24 V DC, nominal
Output loop power requirements for specified load	300 Ω @ >16 V DC (1 A minimum) 500 Ω @ >20 V DC (1 A minimum) 700 Ω @ >24 V DC (1 A minimum) 800 Ω @ >28 V DC (1 A minimum)
Over-range protection	36 V DC, continuous 0 V DC, continuous
Switch time on leg failure	1 ms, typical 3 ms, maximum
Functional-to-protective-earth isolation	500 V DC, minimum
Functional-to-functional-earth (logic) isolation	800 V DC, minimum

Analog Output Module Indicators

This section describes the AO Module indicators and recommends actions for fault conditions.

