

**Analog Output 8-Point Processor/FTA****MC-PAOX03**

Parameter	Specification
FTA Models	<b>MU-TAOX02, TAOX12, TAOX52</b>
Output Type	4-20 mA
Output Channels	8
Output Ripple	100 mV peak-to-peak at power line frequency, across 250 $\Omega$ load
Output Temperature Stability	0.02% Full Scale/ $^{\circ}$ C
Resolution	$\pm$ 0.05%
Calibrated Accuracy	$\pm$ 0.35% (25 $^{\circ}$ C) including linearity
Output Readback Checking Accuracy	$\pm$ 4%
Humidity	10 - 90% non-condensing
Directly Accessible Output Current Range	0.1-21.4 mA
Maximum Current Output	26 mA
Maximum Resistive Load	750 $\Omega$ @ 22 mA
Output Settling Time (digital input code to 98% of final output value)	4 ms
Surge withstand capability	ANSI/IEEE C37.90.1-1978

**Analog Output 8-Point Processor Redundancy Option****MU-TAOX12, TAOX52**

Parameter	Specification
Output Signal Perturbation During Swap	1 ms nominal 4 ms maximum
Output Signal Perturbation During Failover	30 ms nominal 125 ms maximum
FTA Switching Hardware Diagnostic Frequency	Once per minute

**Analog Output IOP Comparison**

Function IOP Models	AO (8 points) MC-PAOX03	AO (16 points) MU-PAOY22
IOP Configuration	AO	AO_16
Number of Channels	8	16
Smallest ORU <sup>(1)</sup>	IOP	IOP
Redundancy <sup>(2)</sup>	Yes	Yes
Redundancy Method	Outputs Electrically Isolated via Field Replaceable Relay Switch Module on FTA	Parallel Outputs -- Solid-State Switch in IOPs
Redundancy Bias <sup>(3)</sup>	Yes	No
Output Condition on IOP failure <sup>(4)</sup>	Configurable	Unpowered
Output Condition on PMM failure <sup>(5)</sup>	Configurable	Configurable
Single Channel Failure Robustness <sup>(6)</sup>	High	Medium
External Connection Check <sup>(7)</sup>	Yes	Yes
Standby Manual <sup>(8)</sup>	Yes	Yes
<p>(1) The Optimal Replaceable Unit (ORU) is the object that can be replaced on a failure that minimally impacts the operation of the system. The ORU is generally an item that can be replaced in the field using a minimum number of tools. In many cases the item is plug replaceable such as the IOP.</p> <p>(2) Failure detection coverage for the redundancy option is equivalent.</p> <p>(3) In a redundant configuration, the primary is a "preferred" primary. System availability is slightly increased when the primary IOP is the "preferred" Primary. Servicing of the FTA switching module can be performed without disturbing the process when the IOP is the "preferred" primary.</p> <p>(4) The output state upon failure of the AO8 IOP is configurable to either <b>Hold</b> or <b>Unpower</b> the output. AO16 outputs are always set to <b>Unpowered</b> upon failure of the IOP.</p> <p>(5) The output state upon failure of the PMM for both AO8 and AO16 IOPs is configurable to either <b>Hold</b> or <b>Unpower</b> the output.</p> <p>(6) Channel robustness is different in the two module types. The AO8 provides individual channel output circuitry including individual output power systems and individual DAC output circuits. The AO16 provides one power supply and one DAC per IOP. Individual AO16 outputs are controlled using sample and hold circuitry.</p> <p>(7) Point level failures are detected by both AO8 and AO16 IOPs. Both IOPs can detect if the output is being correctly propagated to the field (i.e., wires are connected).</p> <p>(8) The Standby Manual is an optional unit which handles 8 outputs. The AO16 provides a Standby manual function by using two AO8 standby manual units connected into the AO16 FTA.</p>		