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ATR Airborne Rack ATR-WA-Mx Series

Thales Computers expands its Racks & Enclosures product line with the new 3/4ATR-WA-M28 rack, an off-the-shelf solution that meets RTCA/DO-160D and MIL-STD-810 Airborne requirements.

ATR Airborne Rack ATR-WA-Mx Series

The 3/4ATR-WA-M28 rack is ideal for airborne, ship and ground mobile systems, and other harsh environment applications. It houses a convection heat exchanger and is optimized for use with Thales Computers' 6U Extended Temperature (WA) and Convection-Cooled/Ruggedizer™ (RA) boards. These WA and RA model boards have front panel connectors and ejector handles and are compliant to the IEEE 1101.10 specification.

Mechanical Specifications

The rack's height conforms to the standard-sized ARINC 404 profile with hold downs to ARINC 600 positioned to ARINC 404 in order to maximize front panel connector area. The 3/4ATR-WA-M28 rack employs conductive interior surfaces using flat gasketing methods to reduce EMC/EMI in accordance with MIL-STD-461.

The card cage is designed for 6U VME64x boards and for convection-cooled boards that conform to IEEE 1101 and use a backplane with PO connectors.

A space for I/O wiring is reserved between the top cover and the front panel. In the front panel of the rack are mounted two I/O connectors and a power connector. The connectors are compliant with MIL-C-38999. Adequate space is provided to install wiring from the front panel connectors to the P2/PO backplane connectors and the front panels of the boards.

Convection-Cooled

The 3/4ATR-WA-M28 rack has a 28 VDC power supply, 300W input and four output 5V, 3.3V, $\pm 12V$ with operating temperatures of -45° to $75^{\circ}C$. Heat is extracted from the rack with one fan that distributes the turbulent airflow necessary for the boards, moving from the front to the rear panel. The filter unit is externally accessible by removing the front panel of the rack. An ON/OFF switch with mechanical security also resides on the front panel. The 3/4ATR-WA-M28 rack is qualified STD-MIL-810 and RTCA/DO-160 with Thales Computers VME boards in class WA (see Technical Specifications chart).

Technical Specifications for ATR-WA-Mx Series

ATR SIZE	Standard		3/4ATR	1/2ATR (TBD)	1ATR (TBD)
Order Code	MIL-STD-810	RTCA/DO-160	3/4ATR-WA-M28	1/2ATR-WA-M28	1ATR-LWA-M28
Standard Size	ARINC Specification ARINC 404A "Tall" boxe		3/4ATR Short	1/2ATR Short	1ATR Long
Width			7.5 inch (190.5 mm)	4.88 inch (123.95 mm)	10.12 inch (257.05 mm)
Length (L2) max			12.62 inch (320.5 mm)	12.62 inch (320.5 mm)	19.62 inch (498.3 mm)
Height max	ARINC 404A Tall boxe (attach.1 note4)		10.91 inch (277 mm)	10.91 inch (277 mm)	10.91 inch (277 mm)
Weight (approx)			20 lbs (9 kg).	15.4 lbs (7 kg).	28.7 lbs (13 kg).
VME64x slots with PO	VITA 1		7	5	12
Mounting Board			Vertical	Vertical	Vertical
Power Supply	Standard MIL-STD-461D MIL-STD-704A and E MIL-STD-1275A				
Input		Section 16 Cat B	28 VDC - 300W	28 VDC - 200W	28 VDC - 450W
Output		Section 17 Cat B	+5V/40A * +3.3V/10A +12V/1A * -12V/1A	+5V/20A * +3.3V/10A +12V/1A * -12V/1A	+5V/60A * +3.3V/20A +12V/1A * -12V/1A
Environment Spec.					
Operating Temperature	Method 501.3 and 502.3	Section 4 Cat B	-45° to $75^{\circ}C$	-45° to $75^{\circ}C$	-45° to $75^{\circ}C$
Storage Temperature	Method 501.3 and 502.3	Section 4 Cat B	-55° to $100^{\circ}C$	-55° to $100^{\circ}C$	-55° to $100^{\circ}C$
Airflow			2 m/s	2 m/s	2 m/s
Salt Fog	Method 509.3 (5% for 48 hours)	Section 14 Cat S	X	X	X
Temperature Shock	Method 503.3 procedure I	Section 5 Cat B	X	X	X
Humidity	Up to 95% RH with varying temp., 10 Cycle of 240 hours, Method 507.3	Section 6 Cat B	X	X	X
Altitude, Operating	Method 500.4	Section 4 Cat B	-1,000 ft to 33,000 ft	-1,000 ft to 33,000 ft	-1,000 ft to 33,000 ft
Altitude, Storage	Method 500.4	Section 4 Cat B	-1,000 ft to 50,000 ft	-1,000 ft to 50,000 ft	-1,000 ft to 50,000 ft
Mechanical					
Vibration	514.4-8 Category 5, 15 to 2,000,Hz	Section 8 Cat C	X	X	X
Shock	516.4-4 Procedure I and VI, 20g 11,ms	Section 7 Cat B	X	X	X
Acceleration	Structural and operational tests. Method 513.5 procedure I and II.		X	X	X
Magnetic Effect		Section 15 Cat A	X	X	X
EMC	MIL-STD-461D		X	X	X
Support Structures	ARINC 404A		X	X	X
Finishing	MIL-C-22750F and -C-24643 (gold alodined)		X	X	X

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