Gigabit Ethernet Router (GER) AB12R

Part Number: AE102135-001 **12-Port Rugged Ethernet Router**

FEATURES

Ethernet Ports	• 12x managed tri-speed 10/100/1000 BASE-T ports
Networking	• 16K MAC Switching Engine • Auto MDI/MDX and polarity correction • 802.1p Quality of Service / DiffServ • 802.1q VLANs, RSTP • 802.3 Link Aggregation LACP, Redundancy • IGMP Snooping • Port Mirroring • Stateful Firewall - IPv4 • Intrusion Detection Prevention - IPv4 • Network Address Translation (NAT) - IPv4 • IPSEC - IPv4 • Dynamic Routing: OSPF v2/v3, RIP v1/v2/ng, IPv6
Control and Status	• Serial Port Command Line Interface • In Band SSH, HTTPS GUI, SNMP v2/3 MIBs • Default and custom non-volatile configurations • Built-In Test: Startup, Periodic, Commanded
Power	• DO-160G Power/Voltage • Voltage Input: 12Vdc - 33Vdc (28Vdc nominal) • Power Consumption: 18 W maximum
Connectors / Indicators	• Power and LAN Connector: MIL-C-38999 • LED Indicator: Power • Pin compatible with GES Gen2
Mechanical	• Housing: Machined rugged aluminum • Weight: 2.75 lbs • Dimensions: 5.15” W x 8.25” L x 1.38” H • Installation: 4x 10-32 screw holes
Standards Compliance and Compatibility	• IEEE 802.1, IEEE 802.3, IEEE 801.1, DO-160, MIL-STD-704, MIL-STD-810, MIL-HDBK-5400, MIL-HDBK-217
Cooling	• No moving parts, passive cooling. • No forced air or conductive cooling needed.
Environmental	• MIL-STD-810F
EMI / EMC	• DO-160G RF Emission and Susceptibility
Temperature Range	• Operating: -40C to +71C • Storage: -57C to +95C
Altitude	• Operating up to: 65,000 ft continuous
MTBF	• >27,000 hours @ 55C, Airborne Uninhabited Fighter Environment (calculated)
Customizable	• Aeronix offers an extensive line of Engineering Services including the creation and implementation of custom configurations for the AB12R Packaging, Connectors, Number of Channels, and/or other customer unique requirements.

The Aeronix Gigabit Ethernet Router (GER) AB12R provides twelve Tri-speed Ethernet ports for use in commercial, industrial, and military applications that require ultra-high data transfer rates in a self contained ruggedized package. The rugged design requires no forced air or conductive cooling, allowing operation in a broad range of harsh environments including operation in uninhabited aircraft bays.

The AB12R design is based on the widely-fielded Aeronix GES Gen2 product with a more powerful processor and switch chip fabric necessary to support Layer 3 infrastructure and management, all with only a minimal impact on overall power consumption. Advanced Layer 3 functions like IPSEC, RIP and OSPF can be utilized to add security to packets, and dynamic routing for more efficient communication using least cost routes. Firewalls can be set up to block traffic of specific types on specific ports.

Each of the twelve IEEE 802.3ab ports can individually auto-detect data rates of 10, 100, or 1000 BASE-T, or can be managed externally. The PHY’s in the AB12R offer extensive built in test utilizing Time Domain Reflectometry to detect problems in the platform wiring during Startup BIT.

Incorporating the Aeronix AB12R into your design allows the use of high speed Ethernet connectivity between any or all of your devices while virtually eliminating data-rate bottlenecks. This allows platforms to share data between sensors and processors at speeds significantly higher than MIL-STD-1553 connections.

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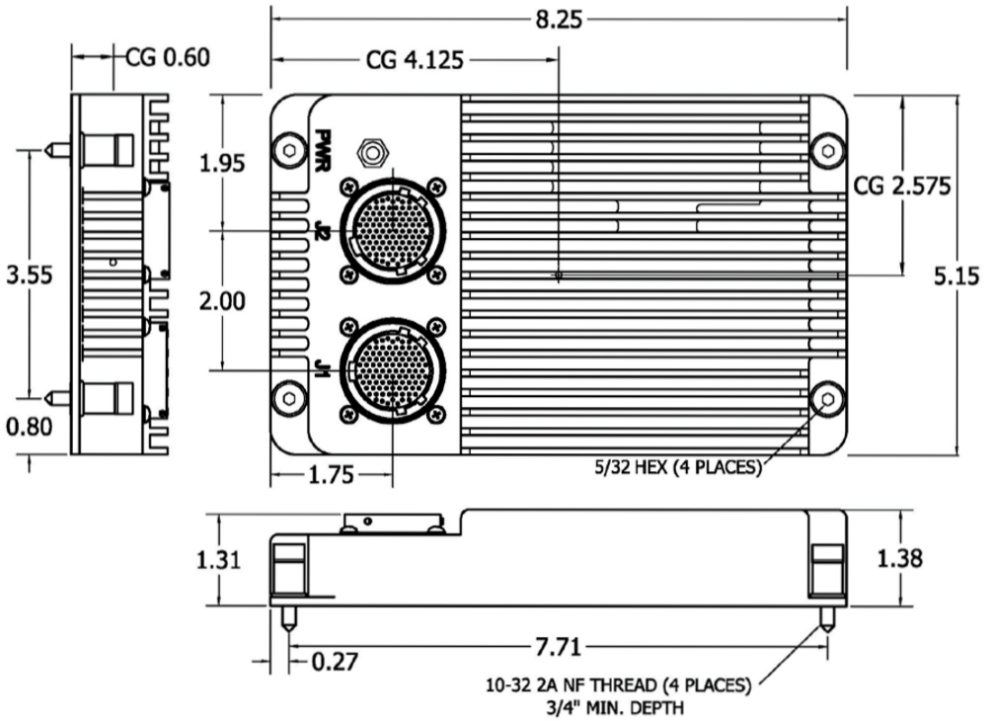
The information in this document is subject to change without notice. Contact Aeronix for latest details.

Aeronix Airborne 12 Port Router (AB12R) Qualifications

Characteristic	Detail
Ports	12x 10/100/1000Mbps IEEE 802.3ab compatible
Dimensions	5.15"W x 8.25"L x 1.38"H
Weight	2 lb 12 oz (1.25 kg)
Processor	NXP QorIQ P1010
Connectors	MIL-C-38999 (Signal and Power)

Test	Detail	Specification	Comment/Tailoring
Environmental			
Low Pressure (Altitude)	Storage	MIL-STD-810F Method 500.4 Procedure I	Procedure I: -57°C @ 65,000 feet
	Operational	MIL-STD-810F Method 500.4 Procedure II	Procedure II : -40°C @ 65,000 feet
	Explosive De-comp	MIL-STD-810F Method 500.4 Procedure IV	Procedure IV: 8,000 feet to 23,100 feet in 8mSec
High Temperature	Storage	MIL-STD-810F Method 501.4 Procedure I	Procedure I: +95°C
	Operational	MIL-STD-810F Method 501.4 Procedure II	Procedure II: +71°C
Low Temperature	Storage	MIL-STD-810F Method 502.4 Procedure I	Procedure I: -57°C
	Operational	MIL-STD-810F Method 502.4 Procedure II	Procedure II: -40°C
Rain	Drip	MIL-STD-810F Method 506.4 Procedure III	
Humidity		MIL-STD-810F Method 507.4	Operating and non-operating effects of humidity, condensing
Fungus		MIL-STD-810F Method 508.5	Designed with certified fungus inert materials
Salt Fog	Exposure	MIL-STD-810F Method 509.4 Procedure I	Operating and non-operating exposure to salt-sea atmosphere
Sand and Dust	Blowing	MIL-STD-810F Method 510.4 Procedure I & II	
Explosive Atmos-phere		MIL-STD-810F Method 511.4 Procedure I	At site and 40,000ft altitudes
Acceleration Load Factors	Ultimate Loads	MIL-STD-810F Method 513.5 Procedure I	Limit Load test at Ultimate Load level, ±15.0G applied individually along the three axes
	Crash Landing		Remain captive, 40G forward, 20G aft and down, 14G left/right, 10G up
Vibration	Performance	MIL-STD-810F Method 514.5	0.025 G2/Hz 15 - 2000 Hz, Overall 4.4Grms
	Endurance	MIL-STD-810F Method 514.5	0.060 G2/Hz 15 - 2000 Hz, Overall 9.2Grms
Acoustical Noise		MIL-STD-810B Method 515.1 Category B	140db
Shock	Functional	MIL-STD-810F Method 516.5 Procedure I	Eighteen (18) blows, terminal peak sawtooth, 20g, 11ms
	Crash Safety	MIL-STD-810F Method 516.5, Procedure V	TPS, 40g, 11 mSec shock as modified by MIL-STD-810B, Method 516, Procedure III Figure 516-1
MTBF		MIL-HDBK-217 FN2	27,000 hours @ +55°C, Airborne Uninhabited Fighter Environment, 100% Duty Cycle
Service Life			>10,000 hours
Mounting Hardware			Retained
Cooling Air	Free Air, un-mounted	MIL-HDBK-5400	Does not use the aircraft structure as a heat sink
Electromagnetic Compatibility			
AF Conducted Sus-ceptibility		DO-160G - Section 18	Category B
Induced Signal Sus-ceptibility		DO-160G - Section 19	Category AC
Radio Frequency RS and CS	Conducted	DO-160G - Section 20	Category T
	Radiated		Category T
	Bonding		< 2.5mΩ
Emission of Radio Frequency Energy	Conducted	DO-160G - Section 21	Category M
	Radiated		Category M
ESD		DO-160G - Section 25	Category A
Primary Power			
Power Input	+28VDC in	DO-160G - Section 16	Category B
Voltage Spike		DO-160G - Section 17	Category B
Power Consumption			18 Watts maximum



3D model file available upon request

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
AE102135-001	• Military Rugged, Ethernet Router, DO-160 Qualified, 12 x 10/100/1000 BASE-T with MIL-C-38999 Connectors
Accessories (Intended for Lab Use Only)	
AE102576-001	• Breakout box from AB12R to 12x RJ45 in box, 1x DB-9 cable and connector, and Banana plug power cables
AE102085-002	• Breakout cabling from AB12R P1 to 6x RJ45 connectors and 2x DB-9 connector, cable length 12 inches
AE102086-001	• Breakout cabling from AB12R P2 to 6x RJ45 connectors and 2x Banana jack, cable length 12 inches
AE102085-084	• Breakout cabling from AB12R P1 to 6x RJ45 connectors and 2x DB-9 connector, cable length 84 inches
AE102086-084	• Breakout cabling from AB12R P2 to 6x RJ45 connectors and 2x Banana jack, cable length 84 inches