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Gigabit Ethernet Switch (GES) NXT-8

Part Number: AE103716-001

The Aeronix Gigabit Ethernet Switch (GES) NXT-8 is a MIL-qualified, rugged 8-port Ethernet switch designed for use in demanding commercial, industrial, and military environments. Equipped with 8 × 10/100/1000 BASE-T copper ports, it delivers ultra-high data transfer rates in a self-contained, durable package that requires no forced air or conductive cooling. The NXT-8 operates reliably across a wide range of harsh conditions, including uninhabited aircraft bays, where traditional equipment would fail.

As a fully managed Layer 2/3 router, the NXT-8 supports customer-specific configurations that are stored in non-volatile memory and automatically loaded at startup to meet application-specific requirements. All configurations are authenticated to ensure secure and dependable operation.

Despite its rugged performance, the NXT-8 features a compact, lightweight design that allows it to fit into tight spaces where other switches cannot, making it an ideal choice for size- and weight-constrained installations without sacrificing capability or reliability.

Ethernet Ports	• 8 x 10/100/1000Mbps BASE-T Copper Ports
Management Interfaces	• In-band HMI: SSHv2 CLI, Telnet CLI, HTTP/S Web • In-band MMI: SNMPv1/v2/v3, HTTP/S JSON-RPC; • Out-of-band HMI: RS232 CLI • All interfaces can be individually disabled via startup-config.
Standards Compliance & Compatibility	• IEEE 802.1, IEEE 802.3 • MIL-STD-46 • MIL-STD-704, MIL-STD-810 • MIL-HDBK-5400
Security and Access Control	• Hardware-enforced Secure Boot • Hardware Root of Trust (HRoT) • Authentication on all mgmt interfaces • Encryption on SSH, JSON-RPC and Web • AAA, 802.1X, RADIUS, TACACS+, Firewall, ACLs • Port MAC Security, Sticky MACs • ARP Inspection, IP Source Guard, DHCP Snooping • BPDU Guard, Root Guard • Syslog & audit trail to both UDP and TCP servers • Traffic data not stored in non-volatile memory • Backup Image and recovery



Shown with mounting plate.

FEATURES

Enhanced Features	• Time-Sensitive Networking (Deterministic Ethernet) -Low latency, Highest QoS, Assured bandwidth • PTPv2 (IEEE-1588 and 802.1as) -Grandmaster (GM) capable via external GPS -Phase lock to GM in less than 20 secs -Jitter from GM less than 100 ns • Secure Boot, Secure Update, Secure Config -HW ASIC-enforced using asymmetric ECDSA P384 -Rescue via TOTP • Enhanced Built-In Test (Startup, Periodic, Initiated) -Time-Domain Reflectometry cable test -MAC Bouncing (spoofing) detection • Store and Forward (default), Cut-through • Port and Flow Mirroring, Jumbo frames • Monitoring alarms through SNMP or JSON-RPC • Hardware & Software Zeroize • Boot Time < 50s
Networking	• Auto MDIX with automatic downshifting • Loop Guard and ERPS (802.1Q) • Spanning Tree (8021.d), RSTP (802.1w), MSTP (802.15) • IGMP v2/v3 and MLD v1/v2 Snooping, GARP (802.1ak) • Broadcasting and Storm Control • VLANs (802.1Q), Trunking, and Native VLAN • VLAN Q-in-Q double-tagging (bridging) PVLANs • QoS Multi-Layer Classifier, Strict Queues, Fair Queues, ACLs, ToS/DSCP • L3 Static Routing, RIP v2, OSPF v2/v3 • Link Aggregation (802.3AD) • IPv4 and IPv6 support

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

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Aeronix Airborne 8 Port Router (NXT-8) Qualifications

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CHARACTERISTICS	
Ports	8 x 10/100/1000Mbps BASE-T Copper Ports - IEEE 802.3ab Compatible
Dimensions	3.44"W x 3.70"L x 1.36"H
Weight	1.5 lbs (.68 kg)
Processor	LAN9668
Connectors	1 x 2M801-011-07NF-13-37PA/B and 1 x 2M801-011-07NF-8-135A

*ENVIRONMENTAL

Test	Detail	Military Specification	Comment/Tailoring
Low Pressure (Altitude)	Storage Operational Explosive - Decomp	MIL-STD-810G Method 500.5 Procedure I MIL-STD-810G Method 500.5 Procedure II MIL-STD-810G Method 500.5 Procedure IV	Procedure I: -57°C @ 50,000 feet Procedure II: -40°C @ 40,000 feet Procedure IV: 8,000 feet to 40,000 feet in not more than 0.1Sec
High Temperature	Storage Operational	MIL-STD-810G Method 501.5 Procedure I MIL-STD-810G Method 501.5 Procedure II	Procedure I: +95°C Procedure II: Cyclic = +71°C Constant = +71°C
Low Temperature	Storage Operational	MIL-STD-810G Method 502.5 Procedure I MIL-STD-810G Method 502.5 Procedure II	Procedure I: -57°C Procedure II: Cyclic = -40°C
Temperature	Shock	MIL-STD-810G Method 503.5 Procedure I-B	Procedure I-B: from Constant = -40°C to +71°C at 111°C/Minute
Comb Temp Alt/Humidity	Operational	MIL-STD-810G Method 520.3 Procedure III	Procedure III: -40°C to +71°C Sea level to 60,000ft
Rain	Drip	MIL-STD-810G Method 506.5 Procedure III	7 gal/ft^2/hr for 15 minutes, connector face exposed
Humidity	Exposure	MIL-STD-810F Method 507.5 Procedure II	Operating & non-operating effects, 95% ± 4% Humidity +30°C to 60°C, 10 Cycles
Fungus	Non-Operational	MIL-STD-810G Method 508.6	28-day growth
Salt Fog	Exposure	MIL-STD-810G Method 509.5	Operating & non-operating exposure to salt-sea atmosphere (4) 24hr wet/dry cycles
Sand & Dust	Blowing	MIL-STD-810G Method 510.5 Procedure I & II	<150um dust, 150um to 850um sand (18m/s) at +71°C
Explosive Atmosphere	Operational	MIL-STD-810G Method 511.5 Procedure I	At sea level and 40,000ft
Acceleration	Structural Operational Crash Hazard	MIL-STD-810F Method 513.6 Procedure I MIL-STD-810F Method 513.6 Procedure II MIL-STD-810F Method 513.6 Procedure III	Structurally withstand ±27.0g applied individually along all 3 axes Remain operational at ±18.0g applied individually along all 3 axes Remain captive, 40g forward, 20g aft and down, 18g left/right, 10g up
Vibration	Performance Endurance Gunfire UH-60 Main	MIL-STD-810G Method 514.6 Procedure I MIL-STD-810G Method 514.6 Procedure I MIL-STD-810G Method 519.6 Procedure III MIL-STD-810G Method 514.6 Procedure I	Annex D, 514.6D-I; 30 mins, 0.02 g2/Hz to 0.04 G2/Hz, 15-2000 Hz, Overall, 7.4Grms Annex D, 514.6D-I; 60 mins, 0.04 g2/Hz to 0.06 G2/Hz, 15-2000 Hz, Overall, 9.2Grms 7.5 min sweeps, 5 to 15 g, 66 to 856 Hz Annex D, Table 514.6D-III; 4 hours, 0.001g2/Hz to 0.01g2/Hz, 10 to 500 Hz, Overall, 1.8Grms
Acoustical Noise	Operational	MIL-STD-810G Method 515.6 Procedure I	30 mins, 140dB overall, 50 to 10000 Hz
Shock	Functional Crash Hazard Bench - Handling	MIL-STD-810G Method 516.6 Procedure I MIL-STD-810G Method 516.6 Procedure V MIL-STD-810G Method 516.6 Procedure VI	20g, 11ms nominal, 3 blows ea direction, ea axis (18 total), terminal peak sawtooth (TPS) 40g, 11ms nominal, 2 blows ea direction, ea axis (12 total) TPS 4" drop, 1 drop per edge per face (24 total)
MTBF	100% Duty Cycle	MIL-HDBK-217 FN2	63.298 hrs @ +55°C, 44.943 hrs @ +70°C Airborne Uninhabited Fighter Environment
Mounting Hardware	Vibration Tolerance		4x 6-32 threaded holes or mounting plate with 4x 6-32 captive screws
Cooling Air	Free Air, unmounted	MIL-HDBK-5400	Free convection and radiation. Does not use the aircraft structure as a heat sink

*Final testing to be performed in 2026.

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Aeronix Airborne 8 Port Router (NXT-8) Qualifications

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*ELECTROMAGNETIC COMPATIBILITY

Test	Detail	Military Specification	Comment/Tailoring
Conducted Emissions	Operational	MIL-STD-461G CE101 Par 5.4, CE101-4 Curve #2	Power Leads, 30 Hz to 10 kHz
		MIL-STD-461G CE102 Par 5.5, CE102-1 Basic Curve	Power Leads, 10 kHz to 10MHz
Conducted Susceptibility	Operational	MIL-STD-461G CS101 Par 5.7, CS101-1 Curve #2	Power leads, 30Hz to 150 kHz
		MIL-STD-461G CS114 Par 5.12, CS114-1 Curve #5	Bulk cable injection, 10 kHz to 200MHz
		MIL-STD-461G CS115 Par 5.13, CS115-1	Bulk cable injection, impulse excitation, 30Hz for 1 min
		MIL-STD-461G CS116 Par 5.14, CS116-1 & CS116-2	Damped sinusoidal transients, cables, & power leads, 10kHz to 100MHz, 5 mins
Radiated Emissions	Operational	MIL-STD-461G RE101 Par 5.17, RE101-1 & RE101-2	Magnetic field, 30Hz to 100kHz
		MIL-STD-461G RE102 Par 5.18, RE102-3	Fixed wing external & Fixed wing internal < 25m; Electric field, 10kHz to 18GHz
Radiated Susceptibility	Operational	MIL-STD-461G RS101 Par 5.20 RS101-2	Army; Magnetic field, 30 Hz to 100 kHz
		MIL-STD-461G RS103 Par 5.21, Table XI	Aircraft Internal Army; Electric field, 2 MHz to 18 GHz

*Final testing to be performed in 2026.

PRIMARY POWER

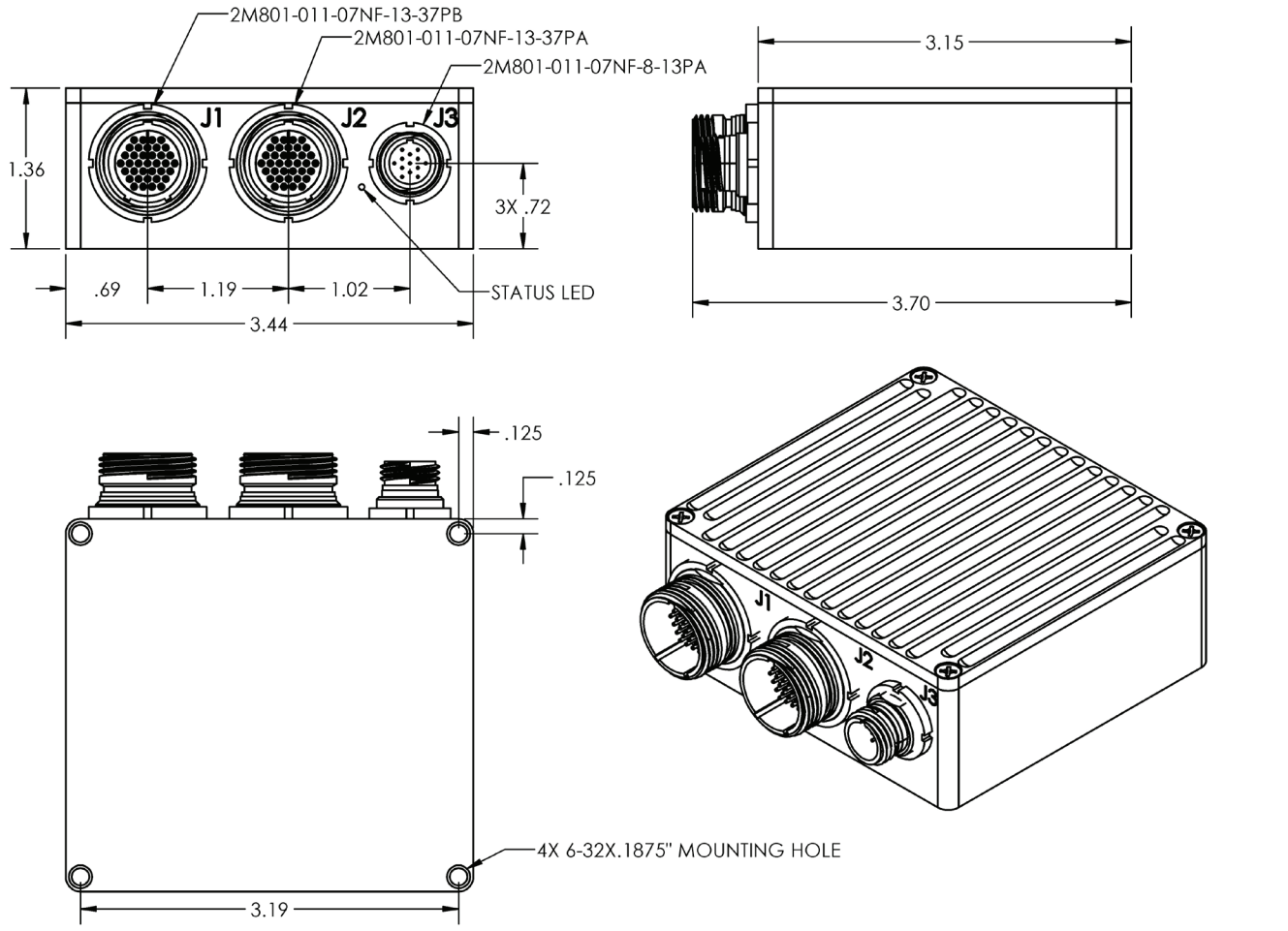
Test	Detail	Military Specification	Comment/Tailoring
Power Input	+28VDC in	MIL-STD-704F and MIL-STD-704A	Category B
Voltage Spike		MIL-STD-704F and MIL-STD-704A	Category B; Spikes: +/- 250V, 50 ea, 2 Joules
Power Consumption	Operational	Startup ≤ 16W | Steady State @ max speed with all ports on ≤ 8W	



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Part Number: AE103716-001



ORDERING INFORMATION

Part Number	Description
AE103716-001	Military Rugged, Ethernet Switch/Router, 8 x 10/100/1000 BASE-T MIL-C-38999 Connectors
AE103715-001	NXT-8 Mounting Plate

Accessories (Intended for Lab Use Only)

Part Number	Description
TBA	TBA