Amphenol
MILITARY HIGH SPEED

VELCOR ETHERNET SWITCH

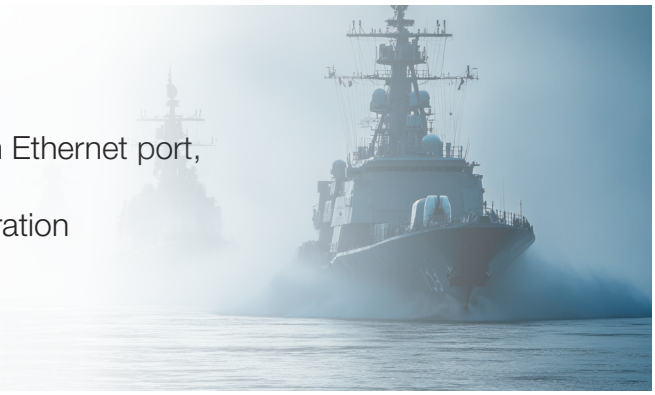
45 CHANNEL COPPER AND FIBER OPTIC NETWORK SWITCH

DESCRIPTION

The 45 Channel Copper and Fiber Network Switch up to 200G is a reliable, high-performance switching solution designed for stable and efficient network connectivity in rugged environments like commercial aerospace and avionics for defense systems. Designed to support 11 channels of up to 1GBase-T and 34 channels of up to 25GBase-SR (can support 1GBase-SX, 10GBase-SR, 40GBase-SR4, 100GBase-SR4, and 200GBase-SR8), it delivers fast data transmission, low latency, and dependable traffic management to support modern networking demands. Built with a robust hardware design in a 19-inch rack mount 4U chassis, this switch ensures consistent performance under heavy workloads while maintaining secure and orderly data flow across connected devices. Its compact form factor allows flexible deployment in network cabinets or control systems, making it suitable for both new installations and network upgrades. Ideal for applications requiring dependable connectivity, the switch supports scalable network expansion and helps maintain smooth, uninterrupted communication across your infrastructure. External interface connectors are separated for unique connections to various system components.

FEATURES & BENEFITS:

- 4U 19-inch rack mounted ethernet switch
- Visual indicators show link, speed, and power for each Ethernet port, aiding fault identification and maintenance
- Supports redundant power supply for continuous operation
- Tabletop or 19-inch rack (4U) mountable
- Conduction-cooled, operates from -40 °C and 85 °C



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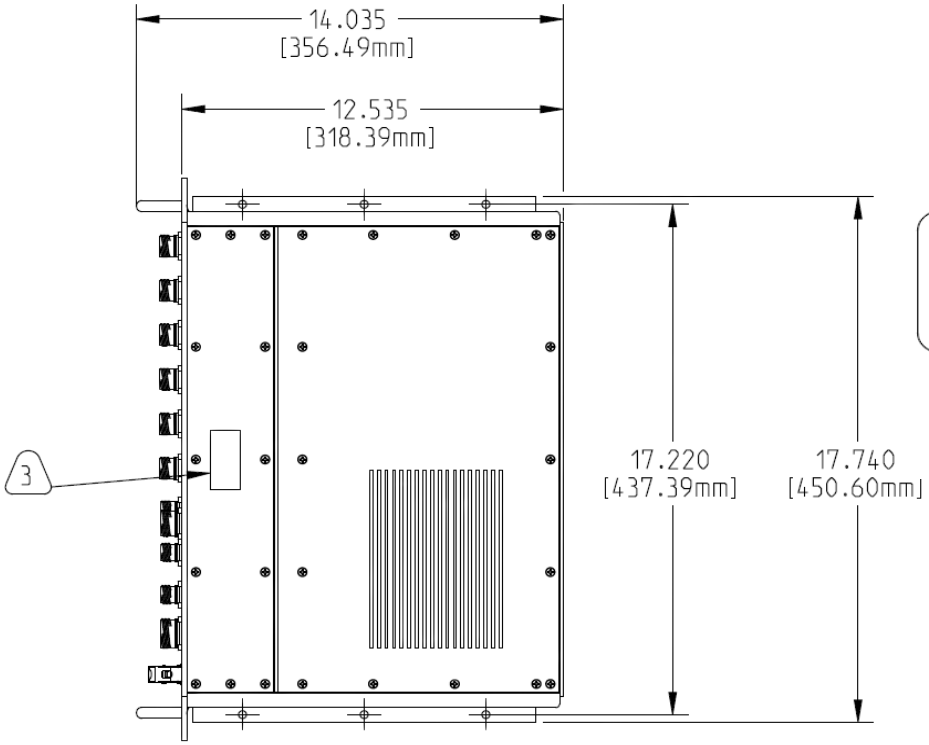
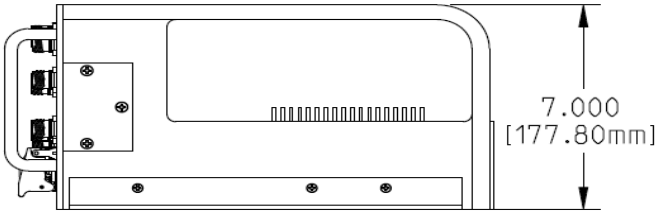
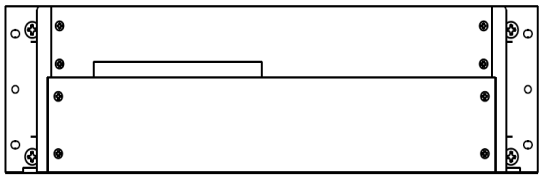
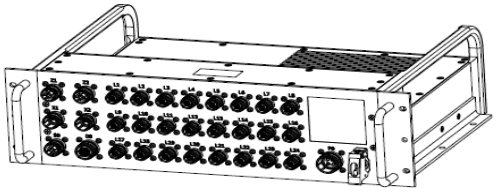
DIMENSIONAL INFORMATION

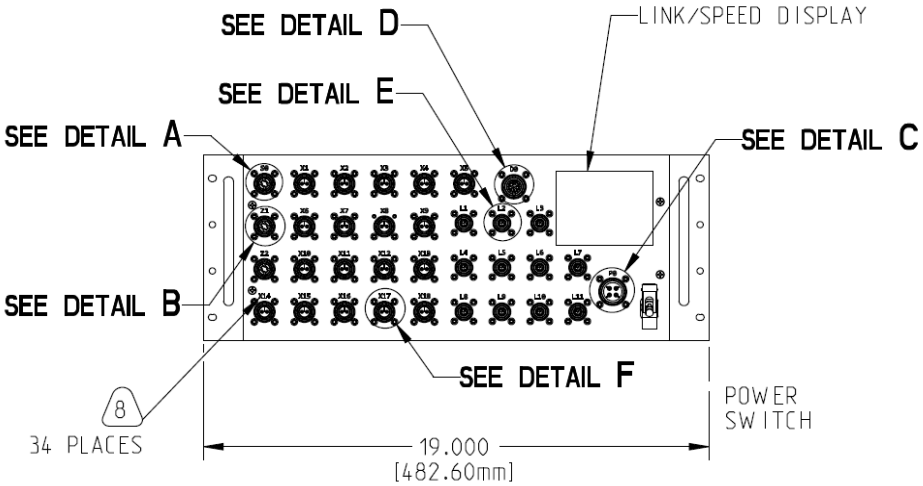


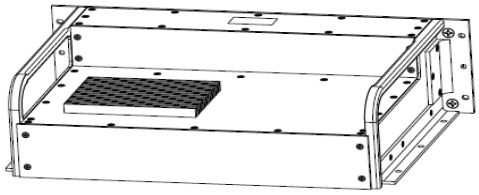






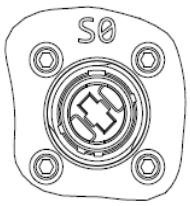
FRONT ISOMETRIC VIEW



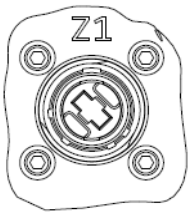


REAR ISOMETRIC VIEW

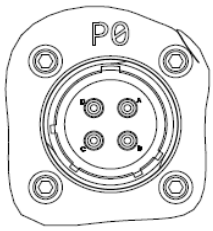
DIMENSIONAL INFORMATION



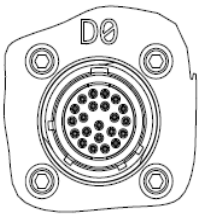
DETAIL A
S0
CF-971902-01H
SCALE 1.500



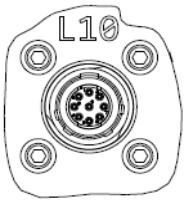
DETAIL B
Z1, Z2
CF-971902-01S
SCALE 1.500



DETAIL C
P0
POWER
10-646401-750N
SCALE 1.500



DETAIL D
D0
CF-971913-35S
SCALE 1.500



DETAIL E
L1 THRU L11
10-646401-751N
SCALE 1.500

DETAIL F
X1 THRU X18
CF-971912-02P
SCALE 1.500

CONNECTOR LIST		
CONNECTOR DESIGNATOR	CONNECTOR PART NUMBER (OR EQUIVALENT)	MATING CONNECTOR (OR EQUIVALENT)
S0	CF-971902-01H	CF-59Z611-01G
Z1, Z2	CF-971902-01S	CF-59Z611-01P
P0 POWER	10-646401-750N	F2-538244-04S
D0 DEBUG	10-646401-760N	F2-538243-35P
L1 THRU L11	10-646401-751N	F2-640231-09P
X1 THRU X18	CF-971912-02P	CF-50Z611-02S

I/O CHARTS

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
P0 (POWER)	1	230VAC_IN AND 230VAC_RTN
	2	
	3	
	4	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
S0	1	200GBase-SR8
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	
	13	
	14	
	15	
	16	
	17	
	18	
	19	
	20	
	21	
	22	
	23	
	24	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
Z1	1	100GBase-SR4
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
Z2	1	100GBase-SR4
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
X1	1	25GBase-SR
	2	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
X2	1	25GBase-SR
	2	

I/O CHARTS

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
X5	1	25GBase-SR
	2	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
X6	1	25GBase-SR
	2	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
X7	1	25GBase-SR
	2	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
X8	1	25GBase-SR
	2	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
X9	1	25GBase-SR
	2	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
X12	1	25GBase-SR
	2	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
X13	1	25GBase-SR
	2	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
X14	1	25GBase-SR
	2	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
X15	1	25GBase-SR
	2	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
X16	1	25GBase-SR
	2	

I/O CHARTS

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
X17	1	25GBase-SR
	2	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
X18	1	25GBase-SR
	2	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
L1	1	1GBase-T
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
L2	1	1GBase-T
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
L3	1	1GBase-T
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
L4	1	1GBase-T
	2	
	3	
	4	
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	7	
	8	
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I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
L5	1	1GBase-T
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	

I/O CHARTS

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
L6	1	1GBase-T
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
L9	1	1GBase-T
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
L7	1	1GBase-T
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
L10	1	1GBase-T
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
L8	1	1GBase-T
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
L11	1	1GBase-T
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	

I/O CHARTS

I/O CHART		
CONN.	PIN NO.	SIGNAL NAME
DO (DEBUG)	1	
	2	
	3	
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Marvell ROS (Routing Operating System)

Marvell ROS is a robust, production-proven network operating system designed to fully leverage the perfor-mance and capabilities of Marvell's advanced Ethernet switch silicon. Purpose-built for scalability, reliability, and flexibility, ROS pro-vides a comprehensive software foundation for developing high-performance switch-ing and routing solutions across enterprise, industrial, and embedded networking applications.

At its core, ROS delivers a tightly integrated control and management plane that works seamlessly with Mar-vell's switch ASICs, enabling wire-speed Layer 2 and Layer 3 functionality with deterministic performance. The architecture combines a Linux-based operating environment with Marvell's optimized switching SDK, allowing for efficient hardware abstraction, rapid feature deployment, and simplified system integration.

Comprehensive Feature Set

Marvell ROS supports a rich set of networking features required for modern Ethernet infrastructure:

•Advanced Layer 2 Switching: VLANs, QinQ, Spanning Tree Protocol (STP/RSTP/MSTP), MAC learning and aging, port mirroring, and link aggregation (LAG/LACP)

•Full Layer 3 Routing Capabilities: IPv4/IPv6 routing, static routing, multicast support, and scalable forwarding tables

•Quality of Service (QoS): Traffic classification, prioritization, shaping, and congestion management for deterministic performance

•Security and Access Control: ACLs, port-based security, storm control, and traffic filtering for enhanced network pro-tection

•High Availability & Resiliency: Fast convergence, redundancy mechanisms, and fault detection to ensure continuous operation

•Comprehensive Management Interfaces: Command Line Interface (CLI), SNMP, and programmable APIs for flexible system control and integration

Optimized for Performance and Scalability

ROS is engineered to maximize the capabilities of Marvell switch silicon, delivering high throughput, low latency, and efficient resource utilization. Its modular architecture allows developers to scale from compact embedded systems to high-port-count switching platforms while maintaining consistent performance and feature behavior.

Flexible and Customizable Platform

Designed with OEMs and system integrators in mind, Marvell ROS provides a flexible software framework that can be tailored to specific application requirements. Its Linux foundation enables integration with third-party applications, cus-tom management layers, and value-added features, accelerating time-to-market while reducing development com-plex-ity.

Accelerated Development and Reduced Risk

By providing a mature, field-tested networking stack, ROS significantly reduces the effort required to develop and vali-date switching platforms. Developers benefit from a stable baseline with proven interoperability, allowing teams to focus on differentiation rather than foundational networking functionality.

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Amphenol Ruggedization Design

Overview

Amphenol integrated electronic products are designed and manufactured to our Ruggedization guidelines listed below. These guidelines ensure years of reliable operation in harsh environment applications where extreme operating temperatures, shock, vibration, and corrosive atmospheres are regularly experienced. Unless otherwise noted, the parts conform to the
below specifications.

Temperature:

- Opperating Temperature - thermal cycles between -40ºC and 85ºC while device is operating.
- Temperature is measured at chassis housing or card edge
- Storage temperature - thermal cycles between -55ºC and 125ºC

Humidity

- Operating Humidity - humidity cycle between 0-100% non-condensing humidity while device operating
- Storage Humidity - humidity cycle between 0-100% condensing humidity

Sealing

- Sealing can be optionally provided at the MIL-DTL-38999 interface with up to 10-5 cc/sec performance

Shock and Vibration

- Sine Vibration - 10g Peak. 5-2,000Hz
  - o Based on a sine sweep duration of 10 minutes per axis in each of three mutually perpendicular axes. May be displacement limited from 5 to 44 Hz, depending on specific test.
- Random Vibration - 0.0005 @ 5Hz, 0.1 @ 15 Hz, 0.1 @ 2,000 Hz
  - o 60 minutes per axis, in each of three mutually perpendicular axes.
- 40 G Peak Shock Cycle
  - o Three hits in each axis, both directions, 1/2 sine and terminal-leak saw tooth, total 36 hits

Fluid Susceptability

- MIL-DTL-38999 receptacle interface per EIA-364-10E

Altitude:

- -1,500 to 60,000 ft Altitude Testing w/ Rapid Depressurization

Electromagnetic Compatibility

- Designed to comply with MIL-STL-461E

Printed Circuit Board Assemblies

- Conformal Coat
- Amphenol performs Conformal Coting to both sides of printed circuit board assemblies using HUSMISEAL IB31 in accordance with IPC-610, Class 3.
- Printed Circuit Board Rigidity
- Amphenol printed circuit boards are fabricated in accordance with IPC-6012, Class 3
- Printed Circuit Board Fabrication
- Amphenol printed circuit boards acceptance criteria is in accordance with IPC-610, Class 3.

Reliability Predictions (MTBF)

Amphenol can perform Mean Time Between Failure (MTBF) reliability analysis in full compliance with MIL-HDBK-217F-1 Parts Count Prediction and MIL- HDBK-217F-1 Parts Stress Analysis Prediction. We can also perform reliability analyses in full compliance of ANSI/ VITA 51.1 if it is required or preferred over the later method

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