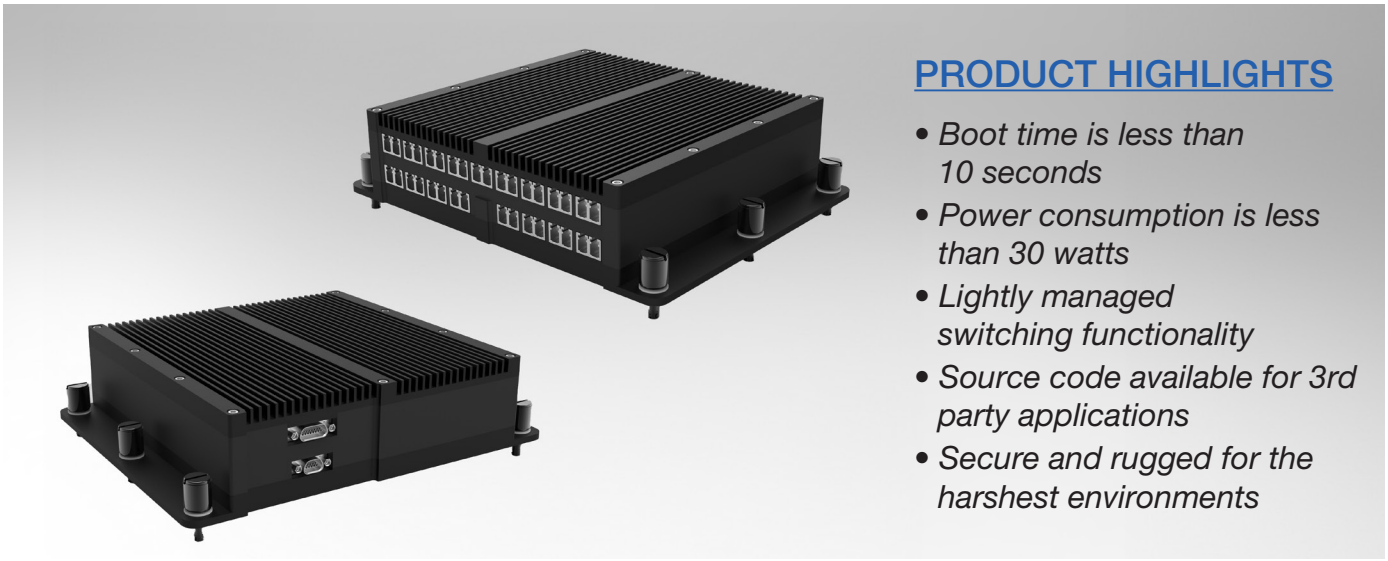
Amphenol
MILITARY HIGH SPEED

17-CHANNEL RUGGED ETHERNET SWITCH

16 Channels of 1GBase-LX and 1 Channel of 100Base-FX



PRODUCT HIGHLIGHTS

- *Boot time is less than 10 seconds*
- *Power consumption is less than 30 watts*
- *Lightly managed switching functionality*
- *Source code available for 3rd party applications*
- *Secure and rugged for the harshest environments*

DESCRIPTION

Amphenol's 17-channel Rugged Ethernet Switchbox is a standalone ethernet switch and configurable for system connectivity, various speeds, port types, as well as interoperation with several high-speed media converters and cable assemblies for system interfacing.

This switch features 16 channels of 1GBase-LX and 1 channel of 100Base-FX. In Amphenol's state of the art communications testing center, the switchbox is aggressively tested at line rates to RFC 2889 for switch and RFC 2544 for L2/L3 performance, latency, packet forwarding and other key items.

The switch is manufactured using derivates of Amphenol's MIL-DTL-38999 Series III connectors. These connectors contain standard AS39029 qualified Size 22D contacts and Octonet contacts. Amphenol's Octonet contacts are a proven design used in a variety of military programs. The Octonet is a Size 8 contact that houses four differential pairs, capable of a data rate of 4Gbps maximum and 100Ohm impedance. This contact system has been tested and passed all specification requirements of AS39029 qualification.

While the current channel types are set at 1GBase-LX & 100Base-FX, please contact us for other interfaces and derivatives.

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FEATURES & BENEFITS

- 16 channels of 1GBase-LX and 1 channel of 100Base-FX
- Power input module support for MIL-STD-704A-F for 28V or MIL-STD-1399 Section 300A Type 1 115V AC
- 30 watts or less typical power consumption
- Less than 10 second boot time from power on to traffic switching.
- Mil-spec power supply with hold-up capacitor and in-rush current limiting circuit
- Built in test functionality for power up, initiated, and continuous operation.
- MIL-DTL-38999 power, debug/maintenance, and data connectors
- Mil-spec black painted chassis with cold plate external conduction cooling
- Host management process with expanded Ethernet features including:

- o CLI interface and web interface
- o IPV4 / IPV6 routing
- o Information on links and port counters
- o Tagged and untagged vlan configurations
- o Trunk link aggregation
- o Port mirroring
- o Port based QoS
- o 802.1P QoS
- o Rate limitations
- o Loop detection
- o Multicast IGMP snooping
- o Approved zeroization methods
- o Denial of service protections
- o Firewall functionality
- o Secure booting
- o Cable diagnostics
- o Access control
- o Reset functionality with authenticated Ethernet command
- o CNSA 1.0 algorithms
- o Secure Methods for logging into switch over management Ethernet

ORDERING INFORMATION

PART NUMBER	115VAC—MIL-STD-1399	CF-02WA00-21X
PART NUMBER	28V—MIL-STD-704A-F	CF-02WA00-22X

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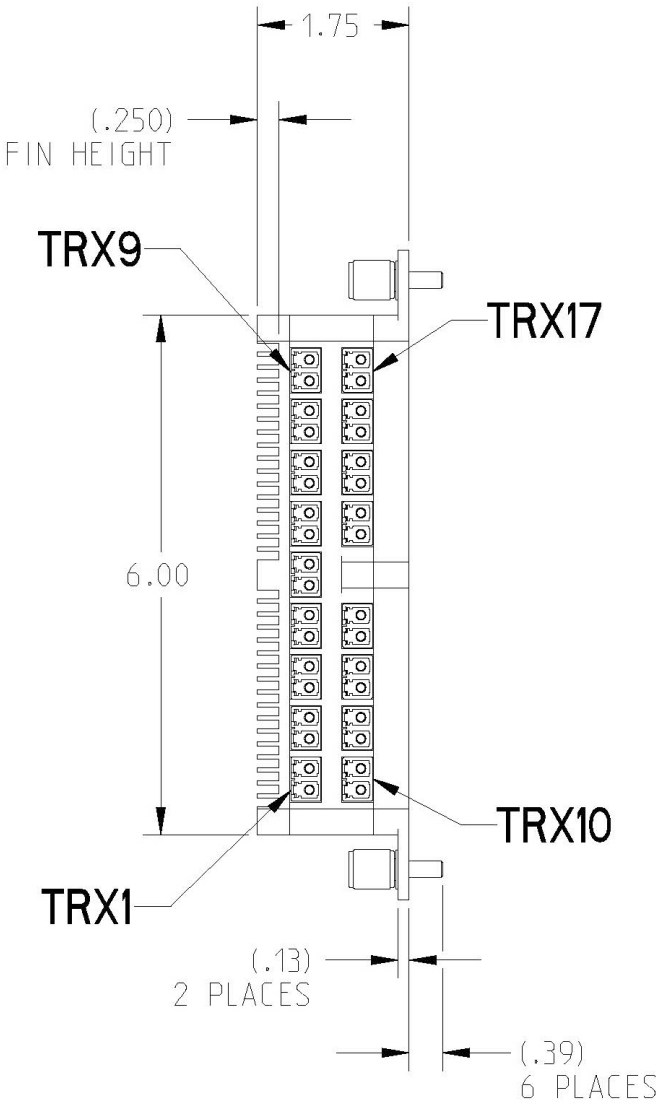
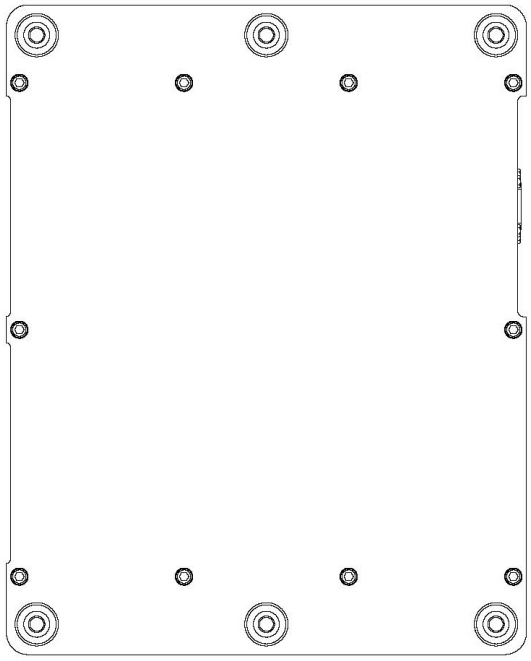
DIMENSIONAL INFORMATION





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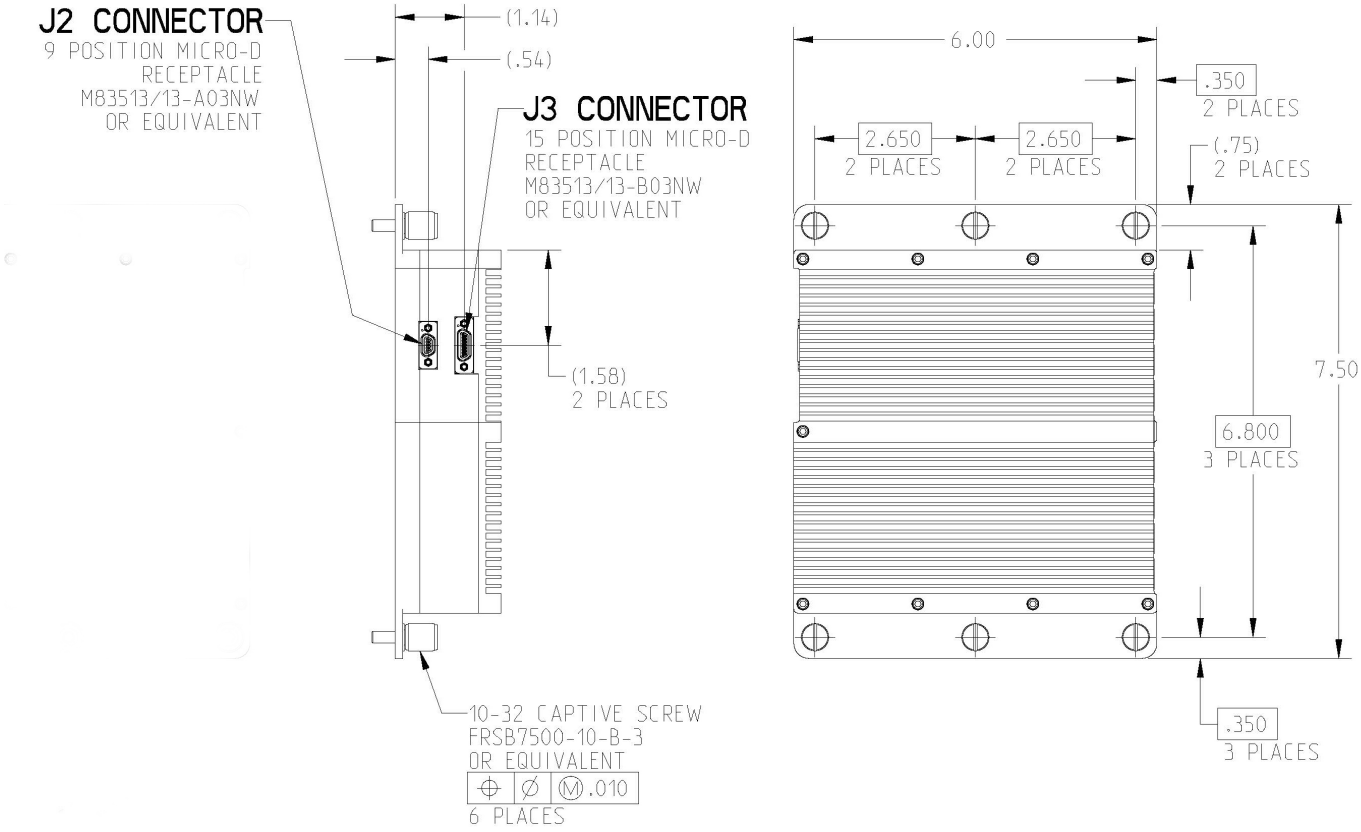

I/O CHART (115VAC)

J2 I/O CHART	
PIN ID	SIGNAL
1	115VAC, 60Hz
2	115VAC, 60Hz
3	N/C
4	PWR_RTN
5	PWR_RTN
6	115VAC, 60Hz
7	115VAC, 60Hz
8	PWR_RTN
9	PWR_RTN

J3 I/O CHART	
PIN ID	SIGNAL
1	RS232_CONSOLE_TX
2	RS232_CONSOLE_RX
3	RS232_CONSOLE_GND
4	N/C
5	RS232_PIC_RX
6	RS232_PIX_TX
7	RS232_PIC_GND
8	N/C
9	SWITCHBOX_RESET_A
10	SWITCHBOX_RESET_RTN
11	N/C
12	N/C
13	N/C
14	N/C
15	N/C

OPTICAL I/O CHART	
TRANSCEIVER ID	SIGNAL
TRX1	1GBase-LX
TRX2	1GBase-LX
TRX3	1GBase-LX
TRX4	1GBase-LX
TRX5	1GBase-LX
TRX6	1GBase-LX
TRX7	1GBase-LX
TRX8	1GBase-LX
TRX9	1GBase-LX
TRX10	1GBase-LX
TRX11	1GBase-LX
TRX12	1GBase-LX
TRX13	1GBase-LX
TRX14	1GBase-LX
TRX15	1GBase-LX
TRX16	1GBase-LX
TRX17	100Base-FX

I/O CHART (28VDC)

J2 I/O CHART	
PIN ID	SIGNAL
1	28VDC
2	28VDC
3	N/C
4	PWR_RTN
5	PWR_RTN
6	28VDC
7	28VDC
8	PWR_RTN
9	PWR_RTN

J3 I/O CHART	
PIN ID	SIGNAL
1	RS232_CONSOLE_TX
2	RS232_CONSOLE_RX
3	RS232_CONSOLE_GND
4	N/C
5	RS232_PIC_RX
6	RS232_PIX_TX
7	RS232_PIC_GND
8	N/C
9	SWITCHBOX_RESET_A
10	SWITCHBOX_RESET_RTN
11	N/C
12	N/C
13	N/C
14	N/C
15	N/C

OPTICAL I/O CHART	
TRANSCEIVER ID	SIGNAL
TRX1	1GBase-LX
TRX2	1GBase-LX
TRX3	1GBase-LX
TRX4	1GBase-LX
TRX5	1GBase-LX
TRX6	1GBase-LX
TRX7	1GBase-LX
TRX8	1GBase-LX
TRX9	1GBase-LX
TRX10	1GBase-LX
TRX11	1GBase-LX
TRX12	1GBase-LX
TRX13	1GBase-LX
TRX14	1GBase-LX
TRX15	1GBase-LX
TRX16	1GBase-LX
TRX17	100Base-FX

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MILITARY HIGH SPEED

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:

- Operating Temperature
  - Thermal Cycles between -40°C and 85°C while device is operating
- Temperature is measured at chassis housing or card edge
  - Storage Temperature- Thermal Cycles between -55°C and 125°C

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
  - PORT1_10G Peak, 5-2,000Hz
  - 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
  - 60 minutes per axis, in each of three mutually perpendicular axes.
- 40 G Peak Shock Cycle
  - Three hits in each axis, both directions, ½ sine and terminal-peak saw tooth, Total 36 hits.

FLUIDS SUSEPTABILITY:

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

ALTITUDE:

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

ELECTRONMAGNETIC COMPATIBILITY:

- Designed to comply with MIL-STD-461E

PRINTED CIRCUIT BOARD ASSEMBLIES:

- Conformal Coat
  - Amphenol performs Conformal Coating 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.

OTHER:

- Designed for MIL-STD-704F Power
- Salt/Fog/Dust
- Fluids and Rain
- Explosive atmosphere

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.