

# Time-Sensitive Networking (TSN) 10G Ethernet Switches

High Speed Rugged TSN Enabled Switches



## DESCRIPTION

Amphenol Military High Speed is continually evolving our line of industry-leading, rugged, and high-speed media converters and Ethernet switches. This latest high speed enabled Ethernet Switches include support for the highest speeds, rugged applications, and Time-Sensitive Networking (TSN) protocols.

The following set of switch products feature an integrated high speed ARM Cortex A9 processor along with an embedded Cortex R5 processor with enterprise-level buffer and table sizes. Each product includes TSN features such as Preemption, Time Aware Scheduling, and Seamless Redundancy to provide deterministic behavior to Ethernet networks.

## FEATURES

- Multiple channel count densities depending on form factor with 3U VPX, 6U VPX, and stand-alone variants supported.
- Flexible I/O configurations for each variant.
- Cut-through switching for low-latency applications.
- Complete TSN feature implementation:
  - Path control and reservation (IEEE 802.1Qca)
  - Time aware shaper (IEEE 802.1Qbv)
  - Frame preemption (IEEE 801Qbu/IEEE 802.3br)
  - Cyclic queueing and forwarding (IEEE 802.1Qch)
  - Timing and Synchronization, PTP, IEEE 82.1AS-Rev, 1588v2
  - Stream reservation protocol Enhancement (IEEE 802.1Qcc)
  - Time based Ingress Policer (IEEE 802.1Qci)
  - Frame replication and elimination for reliability (IEEE 802.1CB)
  - Front-haul network profile (IEEE 802.1CM)
- Interfaces for power, diagnostics, and others.
- Operational temperature of -40°C to +85°C

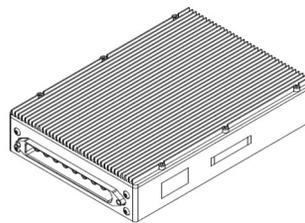
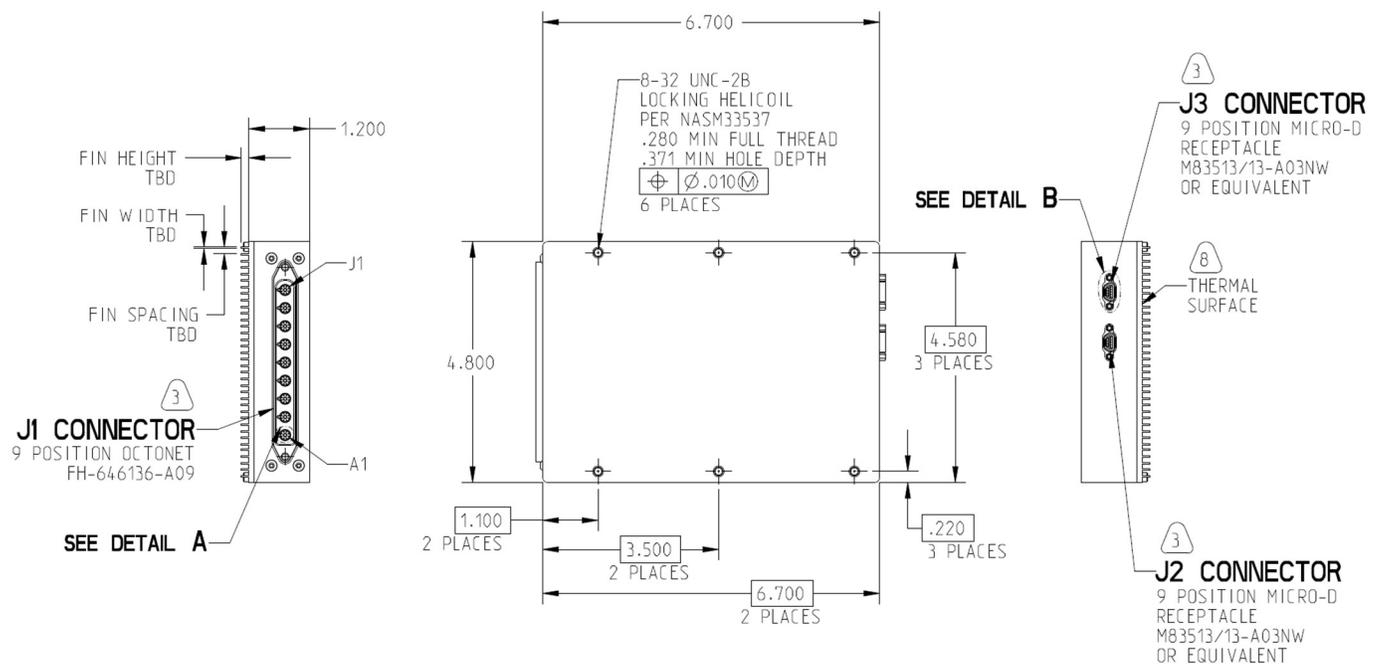


## ORDERING INFORMATION

PART NUMBER	DESCRIPTION	Interfaces
CF-02WA00-10X	Stand-Alone "Cassette" Switch	9 channels up to 10GBase-T; Control and 28V power
CF-020400-076	Stand-Alone Switch	12 channels up to 10GBase-T; Control and 28V power
CF-020400-065	6U VPX Switch	4 channels up to 10GBase-T; 24 channels of 1GBase-T; 2 @ KR
TBD	3U VPX Switch	Up to 32 channels of 10GBase-T

## MECHANICAL SPECIFICATIONS

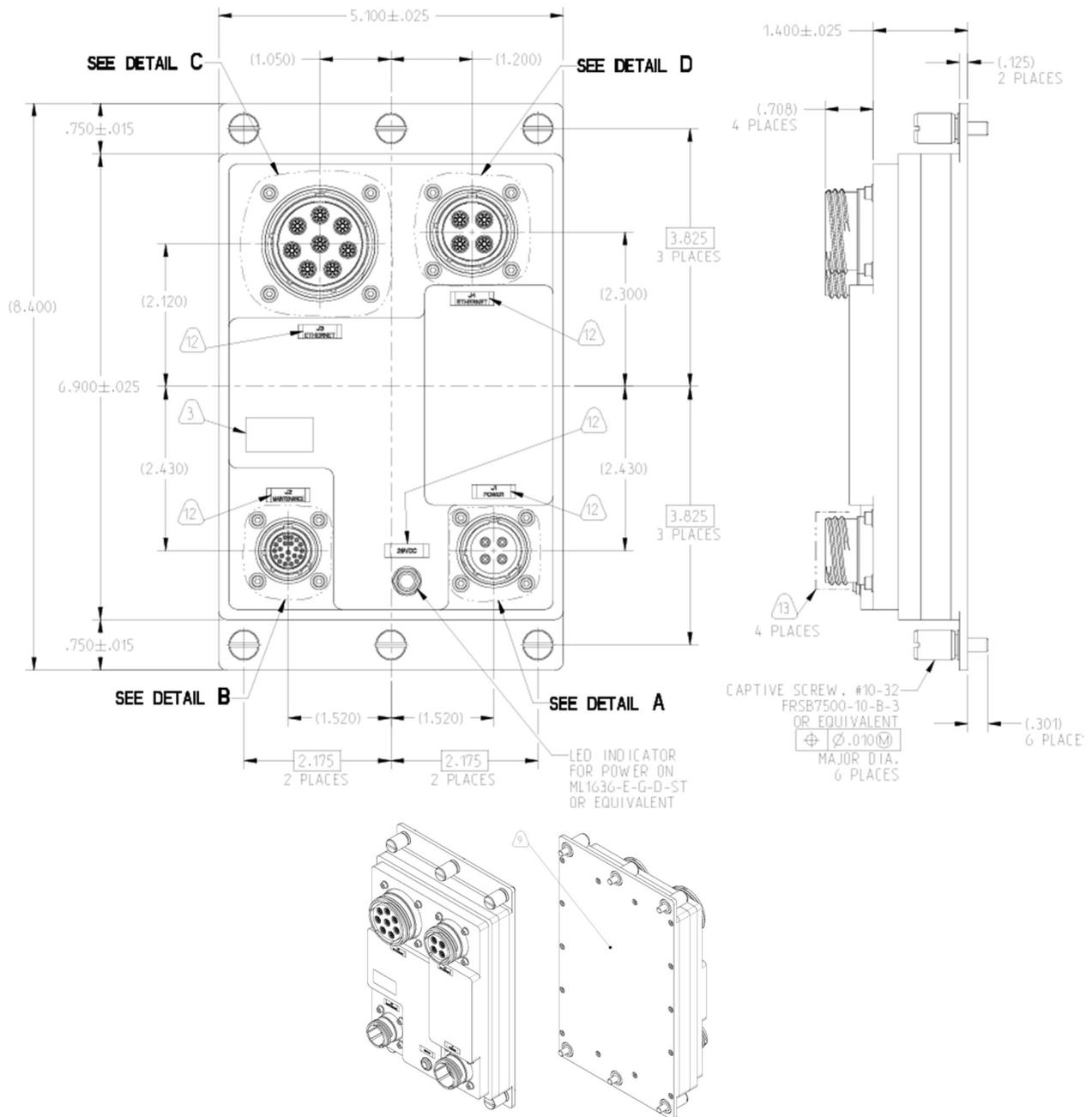
CF-02WA00-10X



**Amphenol**  
MILITARY HIGH SPEED

40-60 Delaware Avenue  
Sidney, NY 13838  
amphenol-aerospace.com | amphenolmao.com

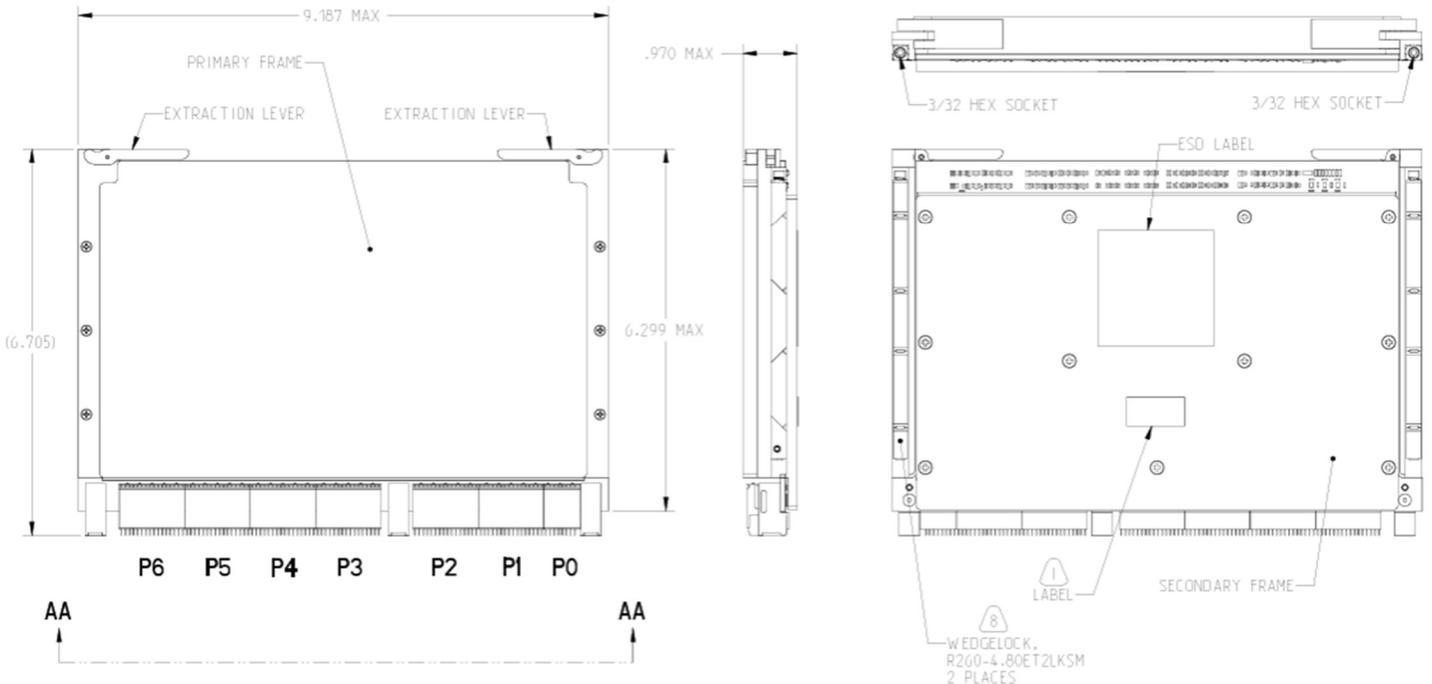
CF-020400-076



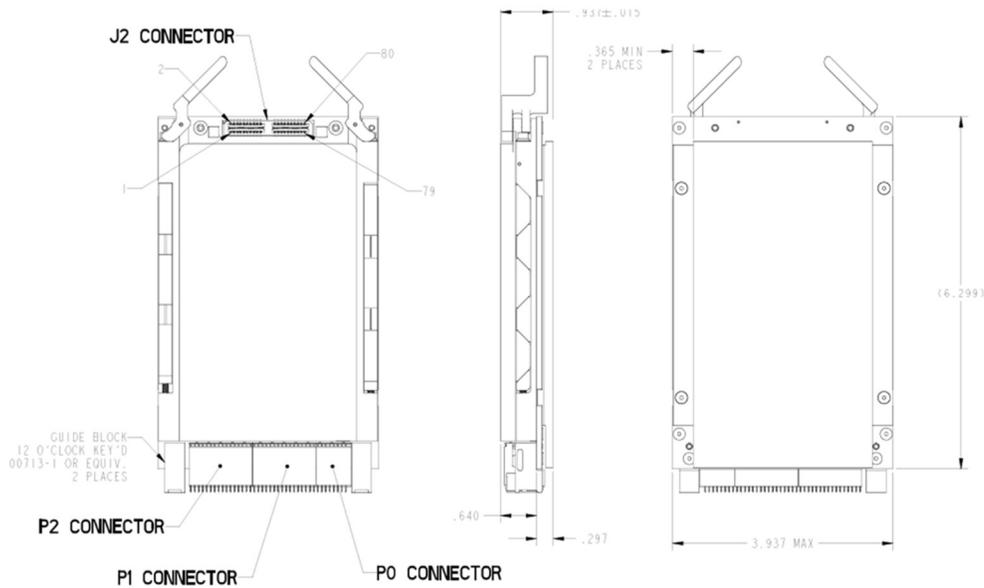
**Amphenol**  
MILITARY HIGH SPEED

40-60 Delaware Avenue  
Sidney, NY 13838  
amphenol-aerospace.com | amphenolmao.com

6U Variants



3U Variants



## ADDITIONAL FEATURES

- Line-rate, non-blocking architecture
- Redundancy features (IEC 5243903 C4 and IEC 62439-3 C5)
- Support for port extender applications (IEEE 802.1br, eTAG, VNTag, HiGig™)
- Layer 2, IPV4/IPv6 Layer 3, Layer 4, and user-defined field (UDF) based packet classification.
- Priority-based Flow Control (PFC)
- Synchronized Ethernet (SyncE)
- OAM (IEEE 802.1ag and ITU-T Y.1731)



**Amphenol**  
MILITARY HIGH SPEED

40-60 Delaware Avenue  
Sidney, NY 13838  
[amphenol-aerospace.com](http://amphenol-aerospace.com) | [amphenolmao.com](http://amphenolmao.com)

# 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<sup>-5</sup> cc/sec performance

## SHOCK AND VIBRATION:

- Sine Vibration - 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



40-60 Delaware Avenue  
Sidney, NY 13838  
amphenol-aerospace.com | amphenolmao.com

#### ELECTROMAGNETIC 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.

#### 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 metho

Notice: Specifications are subject to change without notice. Contact your nearest Amphenol Corporation Sales Office for the latest specifications. All statements, information and data given herein are believed to be accurate and reliable but are presented without guarantee, warranty, or responsibility of any kind, expressed or implied. Statements or suggestions concerning possible use of our products are made without representation or warranty that any such use is free of patent infringement and are not recommendations to infringe any patent. The user should assume that all safety measures are indicated or that other measures may not be required. Specifications are typical and may not apply to all connectors.

AMPHENOL is a registered trademark of Amphenol Corporation.

©2023 Amphenol Corporation REV: PRELIMINARY



40-60 Delaware Avenue  
Sidney, NY 13838

[amphenol-aerospace.com](http://amphenol-aerospace.com) | [amphenolmao.com](http://amphenolmao.com)