Amphenol
MILITARY HIGH SPEED

10/100/1000MBPS MEDIA CONVERTER

AMPHENOL'S TFOCA-II, M28876, AND TACBEAM MEDIA CONVERTERS



DESCRIPTION

Amphenol Military High Speed (AMHS) offers the TFOCA-II Media Converter to provide optical-electrical (O-E) and electrical-optical (E-O) conversion for harsh environments. This stand-alone unit features internal optical transceivers integrated in a compact housing with 10/100/1000Mbps Ethernet electrical interfaces and AMHS's famous field proven connectors.

Systems engineers can effortlessly convert their systems with the benefits of fiber optics without the need to design and develop harsh environment fiber optic transceivers and associated electronics. Also, these Media Converter's compact size significantly reduces the footprint devoted to O-E and E-O conversion using discrete components. The standard Media Converter supports conversion for 10/100Mbps or 100/1000Mbps (auto-negotiating) Ethernet providing up to 1 Gbps transport over 10 kilometers using single mode fiber.

The unit incorporates Amphenol's TFOCA-II, M28876, and TACBEAM, field-proven connectors (US Army standard fiber optic connector) with hundreds of thousands of units deployed. The ruggedization allows the user to easily concatenate cable assemblies in the field to meet the required length.

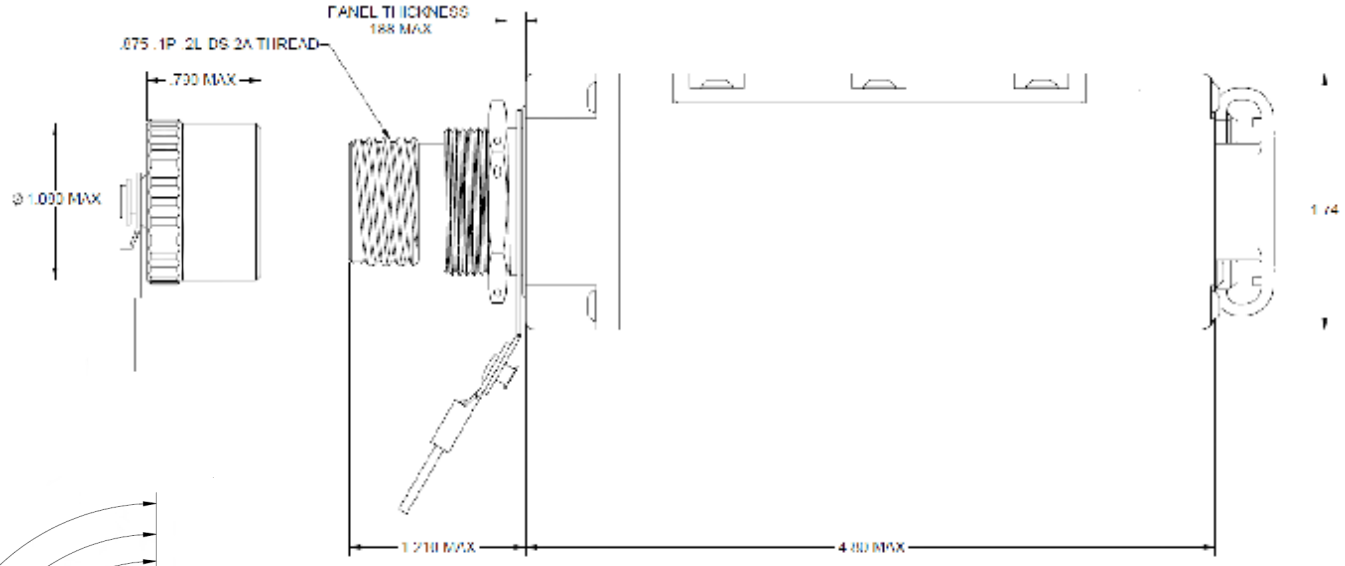
FEATURES & BENEFITS:

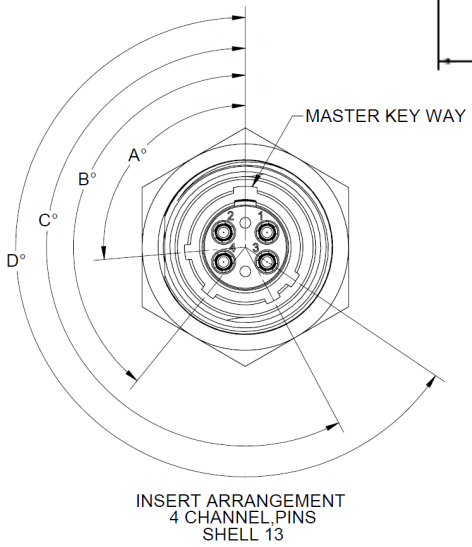
- Effortlessly converts systems to fiber optics (longer distances, EMI/RFI immunity, lighter weight) without major system redesign
- Compact size significantly reduces O-E/E-O conversion compared to traditional discrete designs
- Harsh environment assemblies support extended temperature range and military vibration/shock requirements
- Supports single mode or multimode operation
- 1 or 2 port Ethernet options
- Supports single or auto-negotiating 10/100 or 100/1000 Ethernet O-E/E-O conversion
- Compliant with IEEE 802.3 Standards

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DIMENSIONAL INFORMATION:

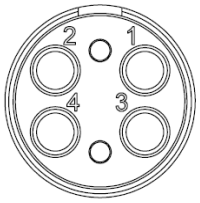
CF-MC28

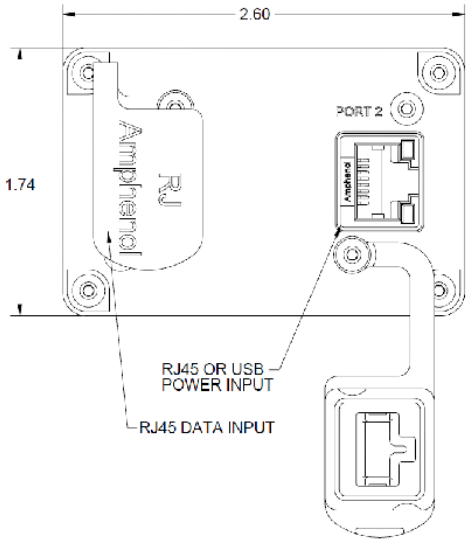


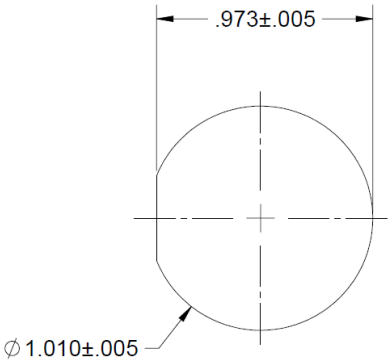


INSERT ARRANGEMENT
4 CHANNEL,PINS
SHELL 13

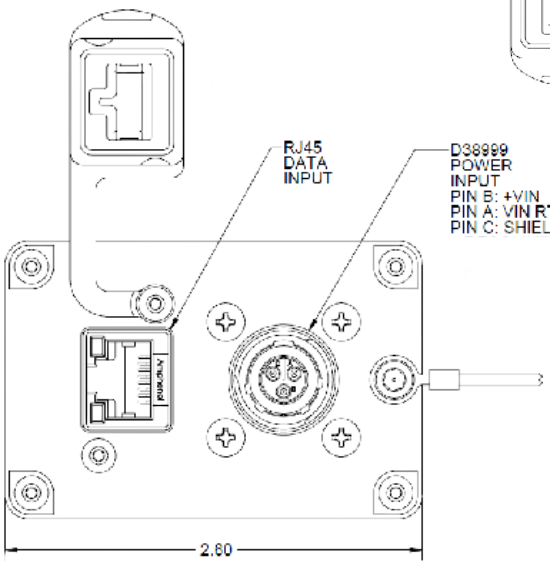
PIN FACE





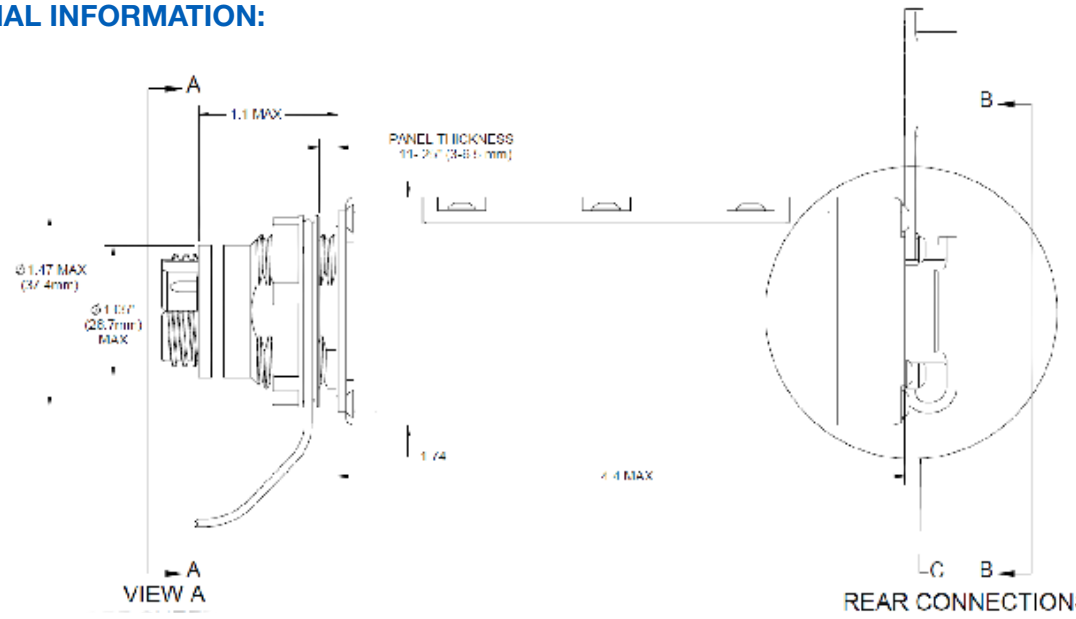


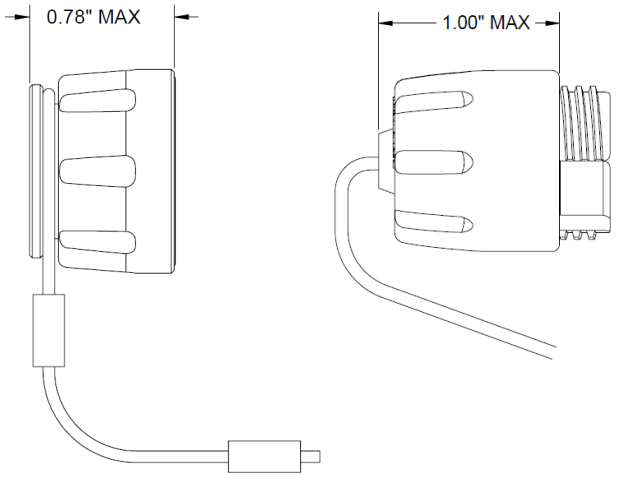
RECOMMENDED
PANEL CUT OUT

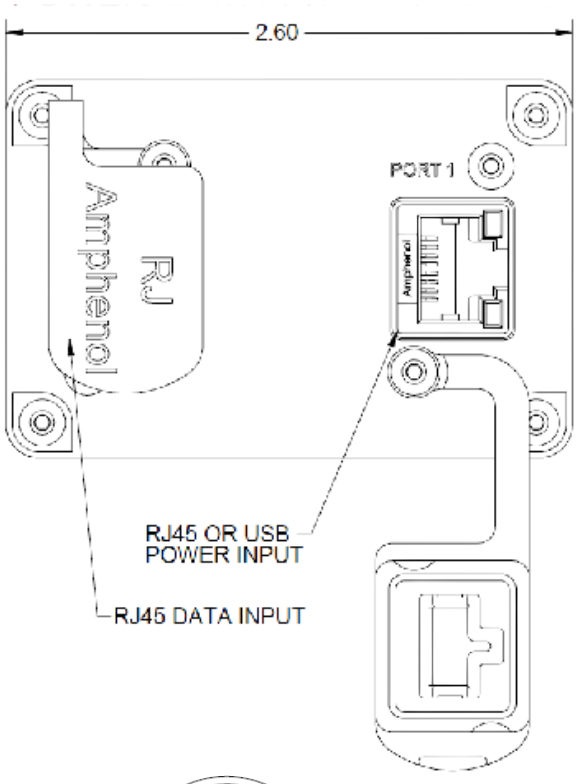


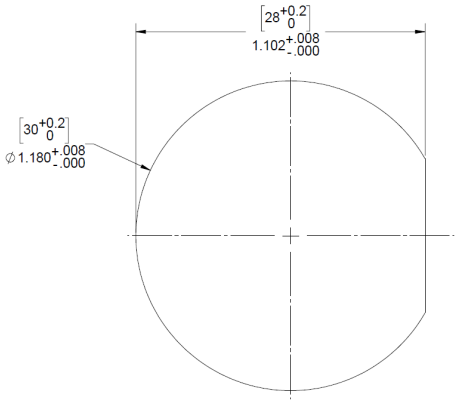
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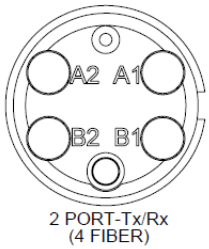
CF-MCEB



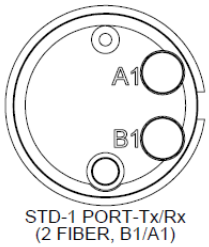








2 PORT-Tx/Rx
(4 FIBER)

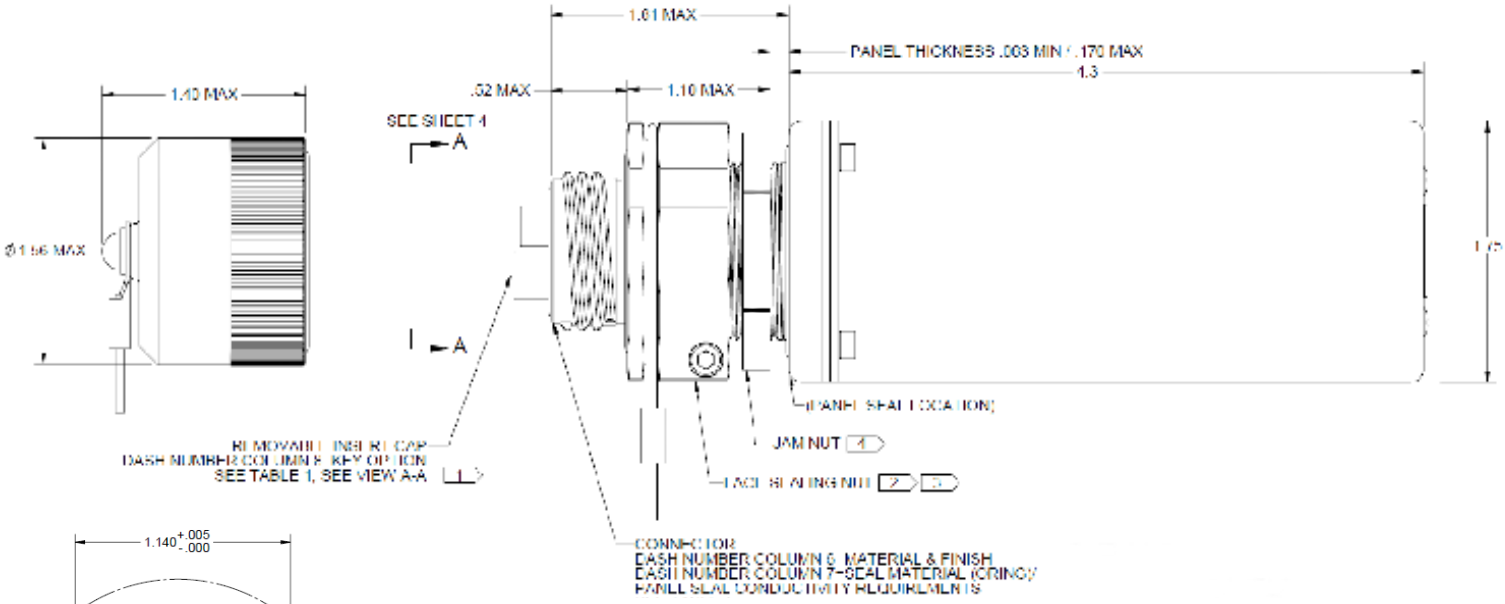


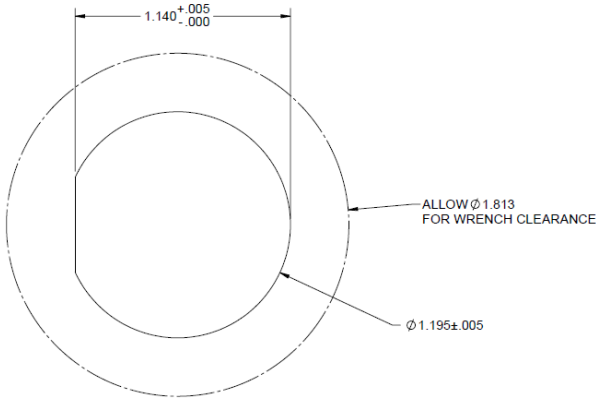
STD-1 PORT-Tx/Rx
(2 FIBER, B1/A1)

PANEL CUT-OUT DIMENSIONS

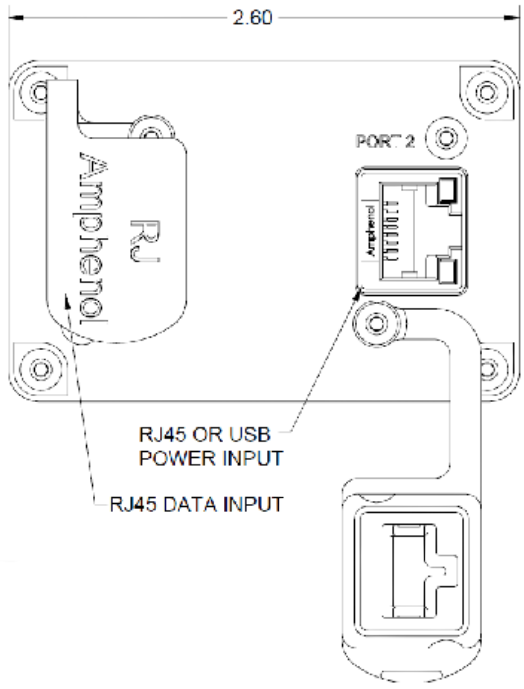
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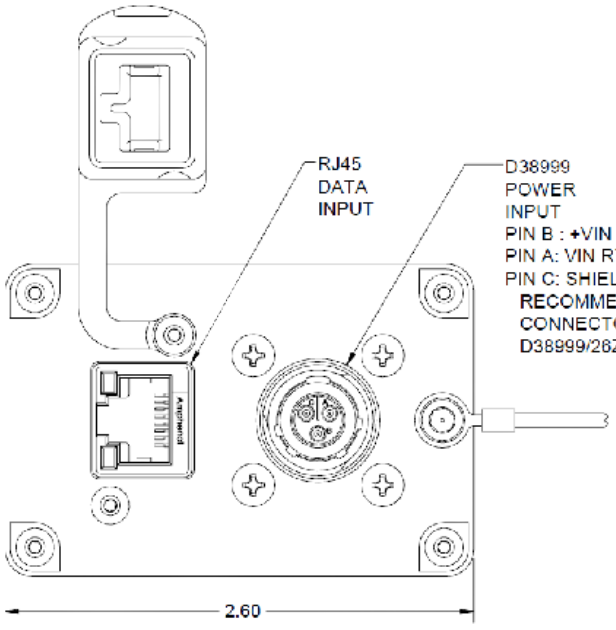
CF-MCTS

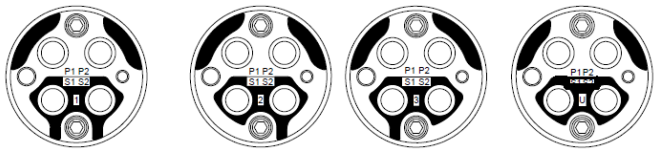




PANEL CUT-OUT DIMENSIONS







VIEW A-A
SCALE: 3/1

ORDERING INFORMATION:

	PRODUCT CATEGORY	OPTICAL MODE	DATA CONNECTOR TYPE	ETHERNET SPEED	TX/RX PAIRS
CF-MC	TS TFOCA-II	S Singlemode 1310nm (9/125 OS1)	J RJ45	F 10/100 Mbps	1 Two pairs
	28 M28876	M Multimode 1300nm (62.5/125 OM1)		G 100/1000 Mbps	2 One pair
	EB TACBEAM	H Multimode 1300nm (50/125) OM4)			
		G Multimode 850nm (50/125 OM4)			
		W MM & SM 850/1310nm (OM4 & OS1)			

POWER CONNECTOR	MATERIAL AND FINISH ('C' only available for MCTS)	SEALING OPTION	KEY OPTION (MCTS and MC28 only, omit for MCEB)	EB DUST CAP (MCEB only, omit for MCTS and MC28)
D PoE in RJ45, RoHS	C 303 SS Passivated	3 Nitrile O-ring	1 Key 1	3 Black Nylon cap
4 PoE in RJ45	Z Al with Zn-Ni	4 EPDM O-ring	2 Key 2	4 Black Metal cap
8 D38999 with 5VDC	2 Al with OD Cad		3 Key 3	
9 D38999 with 28VDC	3 Al with Durmalon		4 Key 4	
	7 Al with E-less Ni			

APPLICATIONS:

- Military Command Shelters and Platforms
- Communication Systems
- Satellite Communications
- Fiber Optic Infrastructures
- Ruggedized LAN Systems
- Vehicles

SPECIFICATIONS:

OPTICAL SPECIFICATIONS

Optical Connector:

- TFOCA-II Channels: 2 (1 discrete pair of optical TX/RX) or 4 (2 discrete pairs of optical TX/RX)
- Wavelength: 850, 1300, 1310, 1550nm
- Fiber Type: Single-mode (9/125µm) or Multimode (50/125 or 62.5/125µm)
- Optical transmission rate: up to 1 Gbps

OPTICAL CHARACTERISTICS

- 10/100Mbps: Optical Output Power: -20dBm to -14dBm
- 10/100Mbps: Receiver Input Sensitivity: -32dBm to -8dBm
- 100/1000Mbps: Optical Output Power: -9.5dBm to -3dBm
- 100/1000Mbps: Receiver Input Sensitivity: -19dBm to -3dBm

ELECTRICAL SPECIFICATIONS

- Electrical Connectors: RJ-45
- Interface: Dual 10/100Mbps or 100/1000Mbps Ethernet ports
- Conformance: IEEE 802.3
- Power: PoE Type 2

ENVIRONMENTAL SPECIFICATIONS

- Operating Temperature: -40°C to 71°C
- Storage: -56°C to 85°C
- Vibration: Mil 810 Transport

SOFTWARE

FULLY MANAGED | 60 SECOND BOOT | MANUALS AVAILABLE UPON REQUEST

STACKING
Stacking Ring Topology
Stacking Chain Topology
Removing and Replacing Stacking Members
Exchanging Stacking Members
Switching the Stacking Master

CONFIGURING SYSTEM TIME
Configuring of Daylight Savings Time
Configuring SNTP
Polling for Unicast Time Informaiton
Polling for Anycast Time Information
Broadcast Time Information
Defining SNTP Settings

CONFIGURING DEVICE SECURITY
Configuring Management Security
Configuring Authentication Methods
Defining Access Profiles
Defining Profile Rules
Defining Authenticaion Profiles
Defining RADIOUS Settings
Defining TACACS+ Authentication
Configuring Passwords
Defining Local Users
Defining Line Passwords
Defining Enable Passwords
Configuring Network Security
Network Security Overview
Port-Based Authentication
Advanced Port-Based Authentication
Defining Port Authentication Properties
Defining Port Authentication
Configuring Multiple Hosts
Defining Authentication Hosts
Viewing EAP Statistics
Defining Access Control Lists
Defining IP Based Access Control Lists
Defining MAC Based Access Control Lists
Binding Device Security ACL's
Managing Port Security
Enabling Storm Control

CONFIGURING SYSTEM LOGS
Defining General Log Properties
Viewing Memory Logs
Viewing Flash Logs
Defining System Log Servers

CONFIGURING INTERFACES
Configuring Ports
Aggregating Ports
Configuring LACP
Configuring VLAN's
Defining VLAN Properties
Defining VLAN Membership
Defiing VLAN Interface Settings
Configuring GARP
Defining GARP
Defining GVRP
Viewing GVRP Statistics

DEFINING IP ADDRESSES
Configuring IP Addressing
Defining IP Addressing
Defining ARP
Defining Domain Name Servers
Defining DNS Servers
Defining DNS Host Mapping

DEFINING THE FORWARDING DATABASE
Defining Static Forwarding Database Entries
Defining Dynamic Forwarding Database Entries
CONFIGURING SPANNING TREE
Defining Classic Spanning Tree
Defining STP on Interfaces
Defining Rapid Spanning Tree
Defining Multiple Spanning Tree
Defining MSTP Instances Settings

CONFIGURING SNMP
SNMP v1 and v2c
SNMP v3
Configuring SNMP Security
Defining SNMP View
Defining SNMP Group Profiles
Defining SNMP Group Members
Defining SNMP Communities
SNMP Communities Basic Table
SNMP Communities Advanced Table
Configuring SNMP Notifications
Defining SNMP Notification Global Parameters
Defining SNMP Notificaiton Filters
Defining SNMP Notification Recipients
SNMP v3 Notification Recipients

CONFIGURING MULTICAST FORWARDING
Multicast Forwarding
Typical Multicast Setup
Multicast Operation
Multicast Registration
Multicast Address Properties
Defining Multicast Properties
Adding MAC Group Address
Adding IP Multicast Groups
Configuring IGMP Snooping
Configuring MLD Snooping
Viewing IGMP/MLD IP Multicast Groups
Defining Multicast Router Ports
Defining Forward All Multicast

MANAGING SYSTEM FILES
Downloading System Files
Firmware Download
Configuration Download
Uploading System Files
Upload Type
Software Image Upload
Configuration Upload
Copying Files
Restoring the Defult Configuration File

CONFIGURING QUALITY OF SERVICE
Quality of Service Overview
VPT Classification Information
CoS Services
Defining General QoS Settings
Configuring QoS Settings
Restoring Factory Defult QoS Interface Settings
Defining Queues
Defining Bandwidth Settings
Mapping CoS Values to Queues
Mapping DSCP Values to Queues
Defining QoS Basic Mode
Defiing Basic Mode Settings
Rewritting Basic Mode DSCP Values
Defining QoS Advanced Mode
Setting Policy Binding

MANAGING DEVICE DIAGNOSTICS
Configuring Port Mirroiring

VIEWING STATISTICS
Viewing Interface Statistics
Recieve Statistics
Transmit Statstics
Viewing Etherlike Statistics
Managing RMON Statistics
Viewing RMON Statistics
Configuring RMON History
Defining RMON History Control
Viewing the RMON History Table
Configuring RMON Events
Defining RMON Events Control
Viewing the RMON Events Logs
Defining RMON Alarms

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