TITAN

USB 3 DATA & POWER CONVERTER, ETHERNET SWITCH

PDS-AMHS2





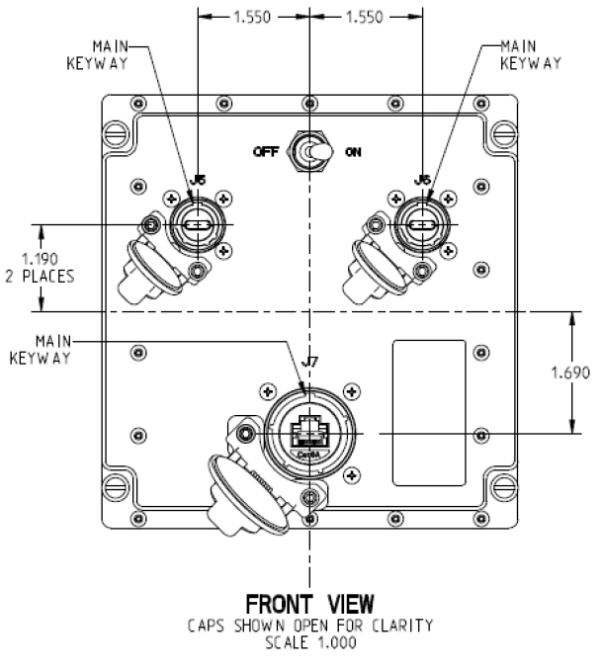
DESCRIPTION:

This unit bridges three USB 3.2 channels with power delivery to 1G and 10G Ethernet, giving the platform high-speed data and power over a single compact interface. Network connectivity includes two 10GBase-T channels and two 1GBase-SX fiber channels that can also operate at 10G, with six additional channels reserved for future growth. A built-in managed switch supports PTP along with other Layer 2/3 features, while integrated security and built-in test (BIT) capabilities meet mission requirements. Connector shells are tin zinc nickel plated aluminum alloy on the USB and RJ field connectors (J4 through J7) and nickel-plated composite on the D38999 connectors (J1 through J3), with protective caps, LEDs, and labels included.

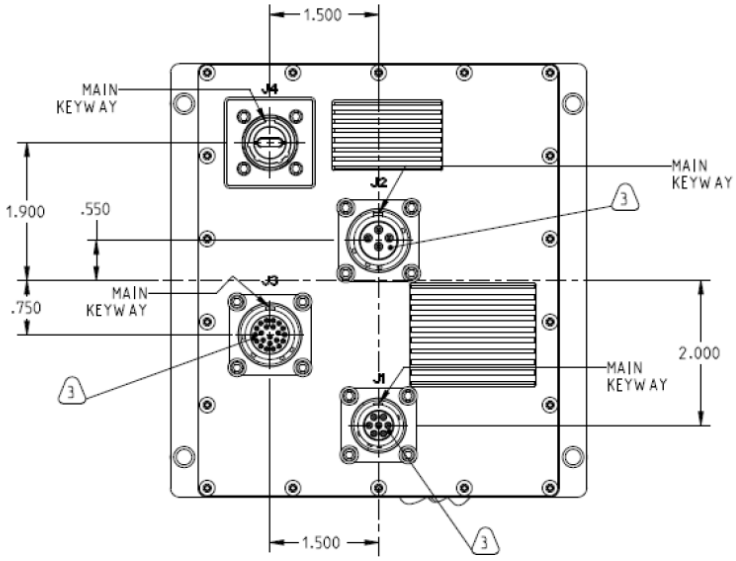
FEATURES & BENEFITS:

- 3X USB 3.2 channels with power delivery linked to 10G Ethernet (up to 25 watts per channel)
- 2X channels supporting up to 10GBase-T
- 2X channels of 1GBase-SX (with 10G capability)
- 6X additional channels reserved for expansion, not connected to fiber optic ports
- 28V aircraft power converted internally
- Managed switch featuring PTP and other layer 2/3 functionalities
- TSN features - 802.1CM-2018 Profile B, 802.1AS-2020, Qav, Qbv, Qbu, Qci, CB, 802.3br
- Security protocols and BIT specifications
- Ruggedized enclosure qualified high altitude operational environment
- J4, J5, J6, and J7 connector shells made of tin zinc nickel-plated aluminum alloy (USB / RJ Field)
- J1, J2, and J3 connector shells are nickel plated composite (D38999)
- Connector caps, LEDs, and labels

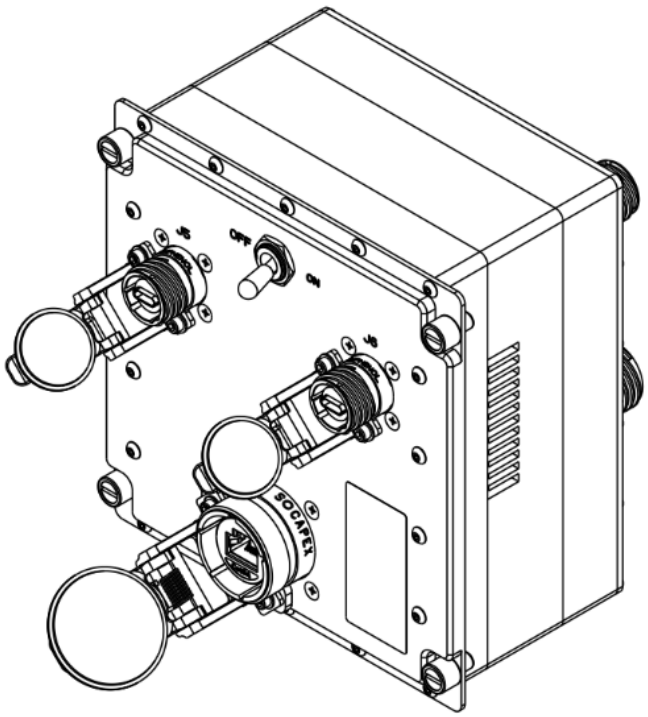
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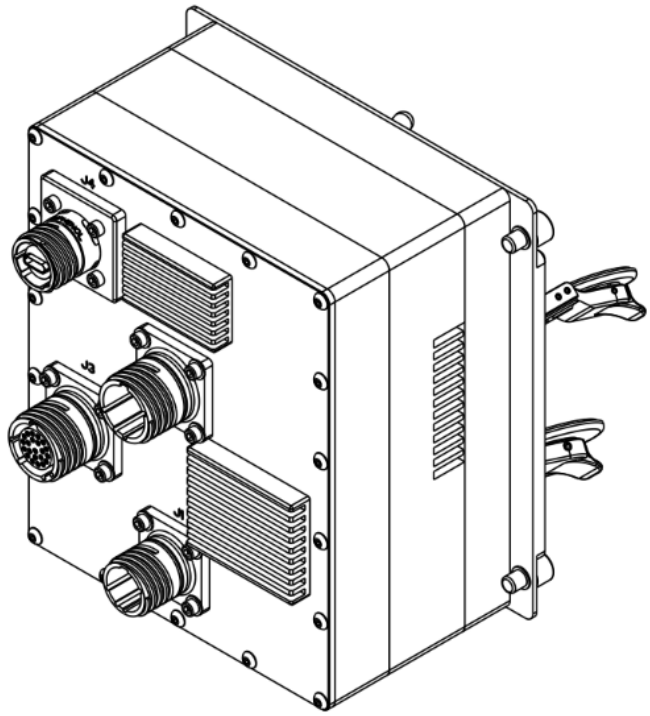
FRONT VIEW
CAPS SHOWN OPEN FOR CLARITY
SCALE 1.000



REAR VIEW
SCALE 1.000



FRONT ISOMETRIC VIEW
CAPS SHOWN OPEN FOR CLARITY
SCALE 0.600



REAR ISOMETRIC VIEW
SCALE 0.600

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Amphenol
MILITARY HIGH SPEED

I/O CHART

CONNECTOR	PIN NO.	SIGNAL NAME
J1 POWER 11-99P	A	28VDC_IN
	B	28VDC_RTN
	C	SAFETY GROUND / CHASSIS
	D	NVMRO
	E	GND
	F	RESET
	G	GND
	SHELL	CHASSIS

I/O CHART

CONNECTOR	PIN NO.	SIGNAL NAME
J2 FIBER 13-4P	A	1/10GBase-SX/SR_TX1
	B	1/10GBase-SX/SR_RX1
	C	1/10GBase-SX/SR_TX2
	D	1/10GBase-SX/SR_RX2
	SHELL	CHASSIS

I/O CHART

CONNECTOR	PIN NO.	SIGNAL NAME
J3 ETHERNET 13-35S	1	RS232_TX
	2	RS232_RX
	3	GND
	4	NC
	5	MGMT_1GBASE-T_DA+
	6	MGMT_1GBASE-T_DA-
	7	MGMT_1GBASE-T_DB+
	8	MGMT_1GBASE-T_DB-
	9	MGMT_1GBASE-T_DC+
	10	MGMT_1GBASE-T_DC-
	11	MGMT_1GBASE-T_DD+
	12	MGMT_1GBASE-T_DD-
	13	NC
	14	1/10GBASE-T_DA+
	15	1/10GBASE-T_DA-
	16	1/10GBASE-T_DB+
	17	1/10GBASE-T_DB-
	18	1/10GBASE-T_DC+
	19	1/10GBASE-T_DC-
	20	1/10GBASE-T_DD+
	21	1/10GBASE-T_DD-
	22	NC
	SHELL	CHASSIS

I/O CHART

CONNECTOR	PIN NO.	SIGNAL NAME	PIN NO.	SIGNAL NAME
J4 USB-C	A1	GND	B12	GND
	A2	SSTX1+	B11	SSRX1+
	A3	SSTX1-	B10	SSRX1-
	A4	VBUS	B9	VBUS
	A5	CC1	B8	SBU2
	A6	D+	B7	D-
	A7	D-	B6	D+
	A8	SBU1	B5	CC2
	A9	VBUS	B4	VBUS
	A10	SSRX2-	B3	SSTX2-
	A11	SSRX2+	B2	SSTX2+
	A12	GND	B1	GND

I/O CHART

CONNECTOR	PIN NO.	SIGNAL NAME	PIN NO.	SIGNAL NAME
J5 USB-C	A1	GND	B12	GND
	A2	SSTX1+	B11	SSRX1+
	A3	SSTX1-	B10	SSRX1-
	A4	VBUS	B9	VBUS
	A5	CC1	B8	SBU2
	A6	D+	B7	D-
	A7	D-	B6	D+
	A8	SBU1	B5	CC2
	A9	VBUS	B4	VBUS
	A10	SSRX2-	B3	SSTX2-
	A11	SSRX2+	B2	SSTX2+
	A12	GND	B1	GND

I/O CHART

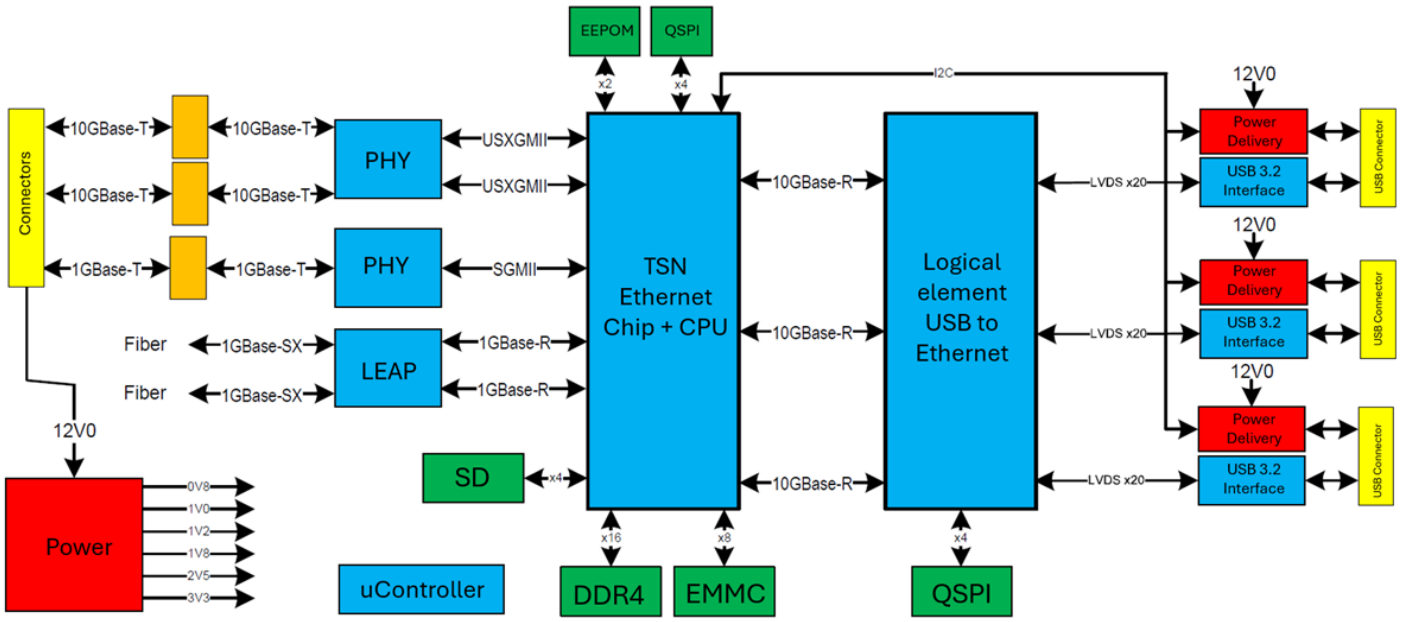
CONNECTOR	PIN NO.	SIGNAL NAME
J7 ETHERNET RJ45	1	1/10GBASE-T_DA+
	2	1/10GBASE-T_DA-
	3	1/10GBASE-T_DB+
	4	1/10GBASE-T_DC+
	5	1/10GBASE-T_DC-
	6	1/10GBASE-T_DB-
	7	1/10GBASE-T_DD+
	8	1/10GBASE-T_DD-

I/O CHART

CONNECTOR	PIN NO.	SIGNAL NAME	PIN NO.	SIGNAL NAME
J6 USB-C	A1	GND	B12	GND
	A2	SSTX1+	B11	SSRX1+
	A3	SSTX1-	B10	SSRX1-
	A4	VBUS	B9	VBUS
	A5	CC1	B8	SBU2
	A6	D+	B7	D-
	A7	D-	B6	D+
	A8	SBU1	B5	CC2
	A9	VBUS	B4	VBUS
	A10	SSRX2-	B3	SSTX2-
	A11	SSRX2+	B2	SSTX2+
	A12	GND	B1	GND



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EEPOM
QSPI
x2
x4
I2C
12V0
Connectors
10GBase-T
10GBase-T
10GBase-T
10GBase-T
1GBase-T
1GBase-T
PHY
PHY
USXGMII
USXGMII
SGMII
Fiber
1GBase-SX
Fiber
1GBase-SX
LEAP
1GBase-R
1GBase-R
TSN Ethernet Chip + CPU
10GBase-R
10GBase-R
10GBase-R
Logical element USB to Ethernet
LVDS x20
LVDS x20
LVDS x20
Power Delivery
USB 3.2 Interface
USB Connector
12V0
Power Delivery
USB 3.2 Interface
USB Connector
12V0
Power Delivery
USB 3.2 Interface
USB Connector
12V0
Power
0V8
1V0
1V2
1V8
2V5
3V3
SD
x4
uController
x16
x8
x4
DDR4
EMMC
QSPI

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

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