6U VPX ETHERNET SWITCH

AMPHENOL FAMILY OF RUGGEDIZED ETHERNET SWITCHES

DESCRIPTION

Amphenol Aerospace has developed a new 6U VPX Ethernet Switch -- the second in a series of ruggedized Ethernet Switches that provide an unmatched level of flexibility to meet any system requirement. The 48-port 6U VPX-managed Ethernet Switch is configurable for system connectivity, speeds, port types, and interoperation with various high-speed media converters and connectors for system interfacing. The new 6U VPX switch is a form, fit, and function replacement to the GXB-460.

The configurability to meet system requirements is achieved through superior product design. For starters, each port is capable of 10G Ethernet -- some ports can either be configured as 10G-Base-T (also supporting 100-Base-T and 1G-Base-T) or 10G-Base-KR (also supporting 1000-Base-X and SGMII). The switching throughput is up to 480 Gbps when using all 48 ports on the switch. In addition, the switch is non-blocking and low-latency for high-throughput architectures and applications. While the backplane is providing the highest densities of port count, the front-panel connections operate with various copper/fiber media converters and high-speed system connectors. Finally, the management software provides a command line interface, SNMP, and other web-based options for configuring the switch. It is capable of a full complement of virtualization, quality of service, security, tunneling, precision-time protocol, and other capabilities.

FEATURES & BENEFITS

- Up to 48 channels of 10 GbE interfaces on a single card. Many of the ports are configurable between 10G-Base-T and 10G-Base-KR. While the ports are all 10G capable, they also work in 100M and 1G modes.
- Line rate forwarding up to 480 Gbps
- Configurable for multiple backplane pinouts and profiles
- Highly managed multi-layer switching services to include multicast, QoS, and security features
- Precision time protocol (IEEE 1588v1/v2) support
- VITA 46 6U VPX available in conduction cooled -40-+85C environments as well as harsh vibration profiles

ORDERING INFORMATION

Part Number	Backplane XAUI or 10G Base-KXY	Backplane 106-Base-KR	Top Base-T	Top 106-Base-SR
CTC-202440-VPX6	20	24	4	0
CTC-202044-VPX6	20	20	4	4
CTC-201648-VPX	20	16	4	8

For other options, please contact factory.

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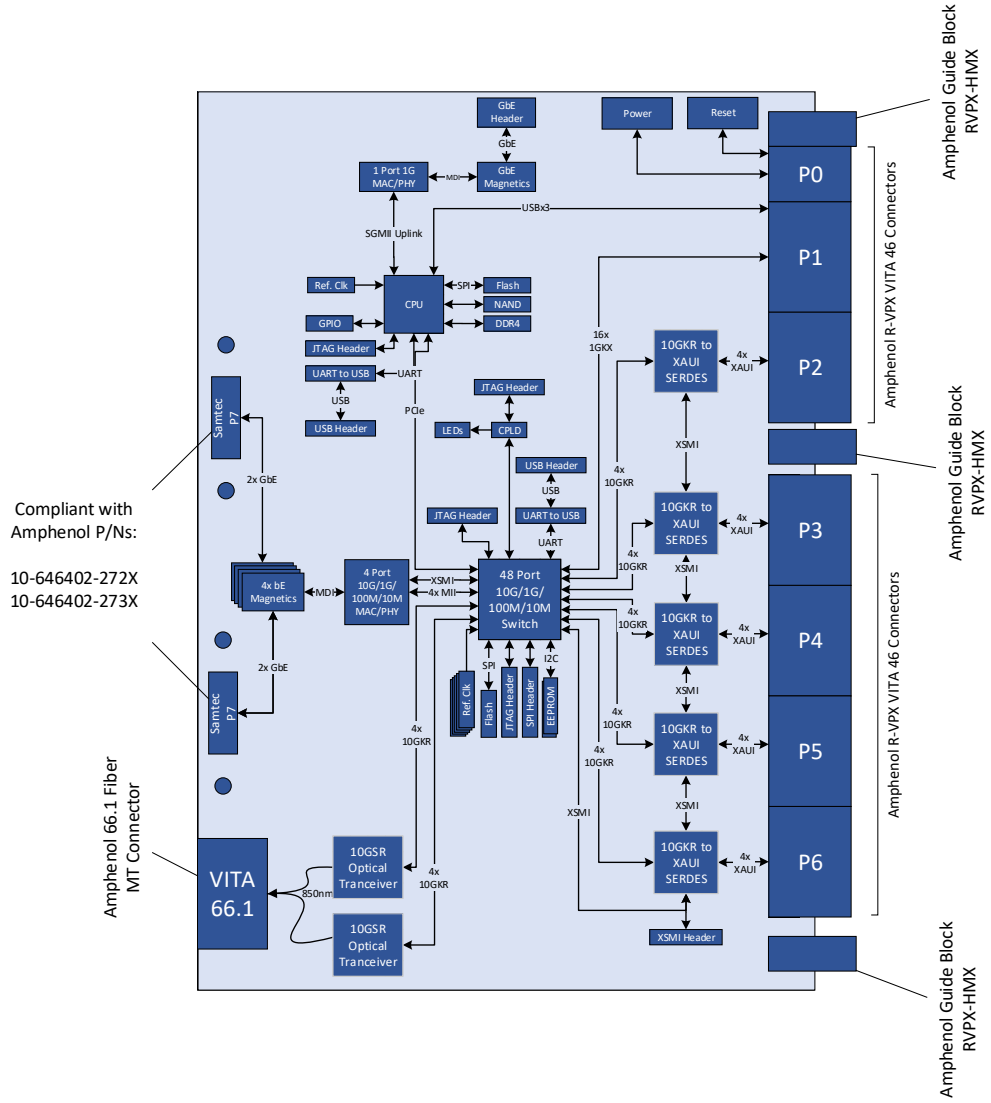
BLOCK DIAGRAM



Compliant with Amphenol Part Numbers:

10-646402-272X 10-646402-273X CA-628485-C00 CA-628485-C01

ETHERNET INTERFACES - BACKPLANE

- 16 ports of 10G-Base-KR / SGMII / 1000-Base-X are static
- 4 ports of 10G-Base-T / 1G-Base-T / 100-Base-T
- 20 ports of XAUI/10G-Base-KX4 are static from top HQDP Headers
- A maximum of 44 channels of 10G-Base-KR / SGMII / 1000-Base-X can be brought to the backplane
- This part is also compliant with Amphenol LightConex technology thereby removing a half differential pair wafer and replacing with backplane blind mate compliant fiber to copper and copper to fiber conversion. By utilizing Light Conex, 8 channels of 10G-Base-KR / SGMII / 1000-Base-X will be replaced by 4 channels of 10G-Base-SR / 1G-Base-SX. If LightConex is of interest, please contact the factory.
- 8 ports can each be either 106-Base SR off the top Vita 66.1 connector or 106-Base-KR/SGMII 11000-Base X off VPX Connectors" should be "8 ports can each be either 10G-Base-SR off the top Vita 66.1 connector or 10G-Base-KR/SGMII off the VPX Connectors

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TECHNICAL SPECIFICATIONS

Amphenol Aerospace

LAYER 2 SWITCHING ENGINE

- 802.1Q-compliant bridging
- Large forwarding database for MAC entries, IGMPv3/ MLDv2 IP multicast, FCoE entries, and router host entries
- Learning and forwarding based on virtual ports (ePorts) and virtual bridge domains
- L2 ECMP and link aggregation groups

LAYER 3 WIRE-SPEED ROUTING ENGINE

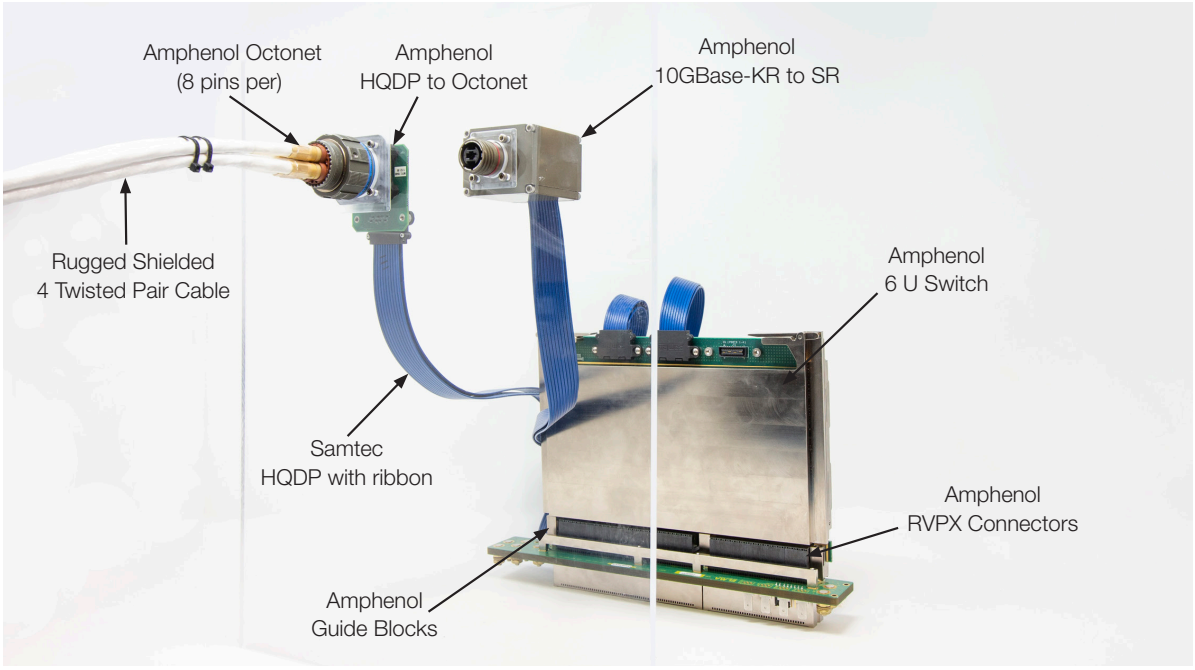
- Longest prefix match for IPV4/6 and IP Multicast
- Policy based routing
- VRF, VRF-Lite, BGP/MPLS IP VPNs
- Multicast routing supporting PIM-SM/DM and PIM-bidirectional routing protocols
- ECMP routing for load balancing traffic
- Network address translation (NAT 44,66)
- 10-646402-272X copper connectors Plus MT D38999 fiber connector for system interconnect

INTEROPERABILITY WITH AMPHENOL HIGH SPEED CONNECTORS

- Many options exist including Amphenol 10-646402-273X and 10-646402-272X which are Amphenol Octonet 10G-Base-T / 1G-Base-T connectors with Samtec HQDP accessible sites.
- Many options for system cables exist including Amphenol CA-628485-C00 and CA-628485-C01 which work with the 10-646402-273X and 10-646402-272X.

INTEROPERABILITY WITH AMPHENOL FIBER/ COPPER MEDIA CONVERTERS

- By using the board top Samtec HQDP connectors as well as Samtec HQDP configurable ribbons, the 6U VPX switch is easily connected to endless Amphenol fiber/ copper media converters. Examples are below.
- Many other options exist and can be tailored to customer system architectures.



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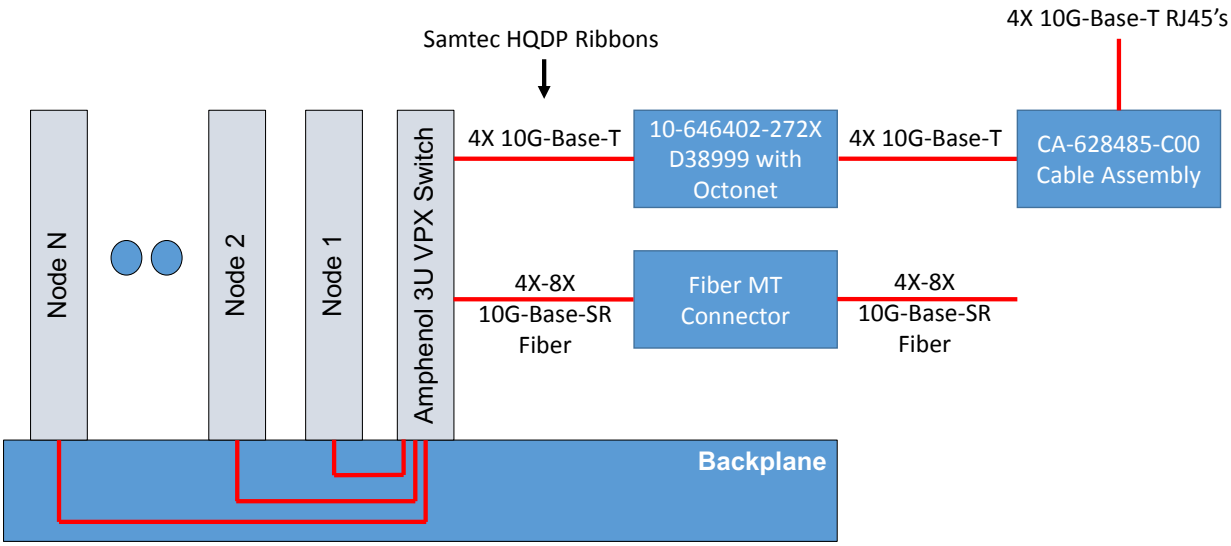
APPLICATION EXAMPLE

Amphenol VPX switch coupled with Samtec HQDP cable, Amphenol Octonet Connector, and Amphenol breakout cable for system connectivity of 8X 10G-Base-T channels. 10G-Base-T can also be 1G-Base-T and 100-Base-T.



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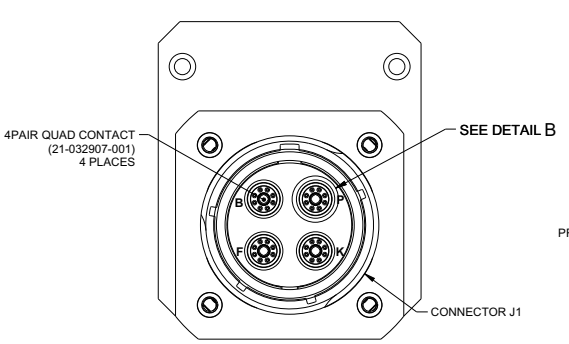
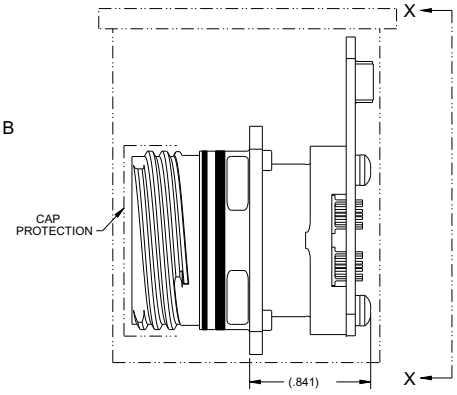
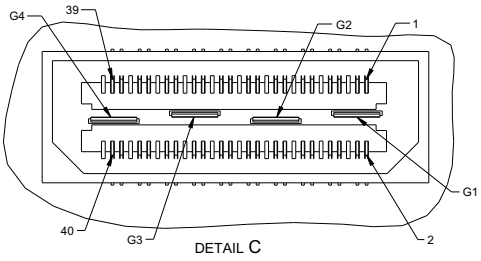
10-646402-272X: CONNECTOR DETAILS

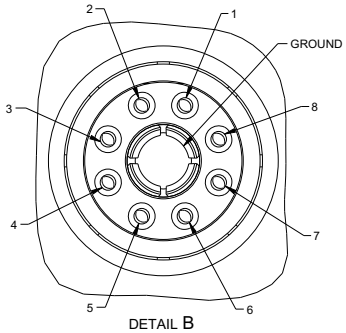
Receptacle Connector; TV40GQDZ-19-ABS; Ground Plane; 4-pair Quad Contact



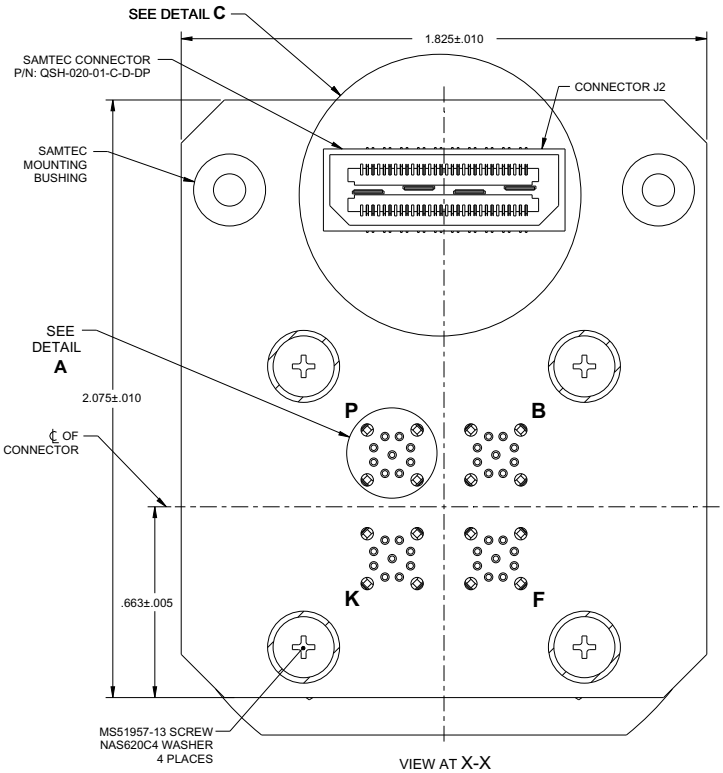




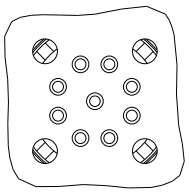
DETAIL C



DETAIL B



VIEW AT X-X


DETAIL A

Connection List		
Connector J1	Differential Pair	Connector J3
E-1	17	1
E-2		3
E-3	18	2
E-4		4
E-5	19	5
E-6		7
E-7	20	6
E-8		8
N/C	-	9,10,11,12
F-1	21	13
F-2		15
F-3	22	14
F-4		16
F-5	23	17
F-6		19
F-7	24	18
F-8		20
G-1	25	21
G-2		23
G-3	26	22
G-4		24
G-5	27	25
G-6		27
G-7	28	26
G-8		28
N/C	-	29,30,31,32
H-1	29	33
H-2		35
H-3	30	34
H-4		36
H-5	31	37
H-6		39
H-7	32	38
H-8		40

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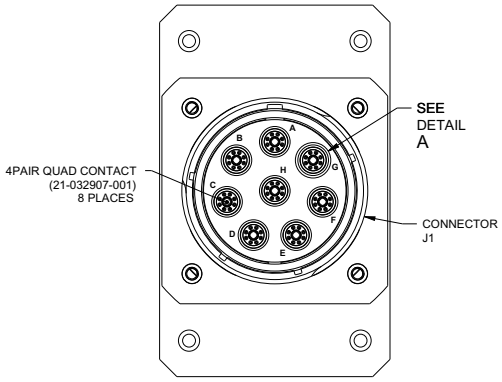
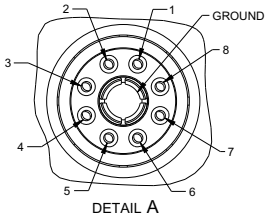
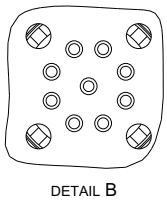
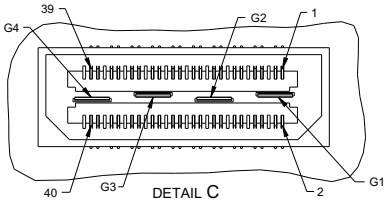
10-646402-273X: CONNECTOR DETAILS

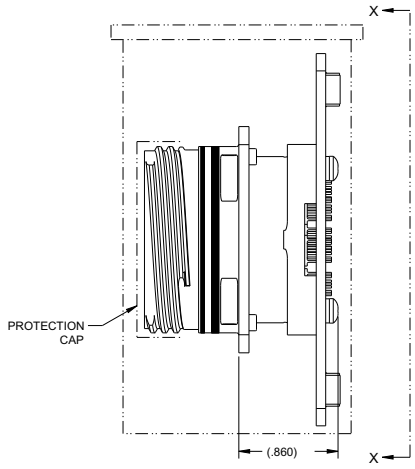
Receptacle Connector; TV40GQDZ-25-8S; Ground Plane; 4-pair Quad Contact

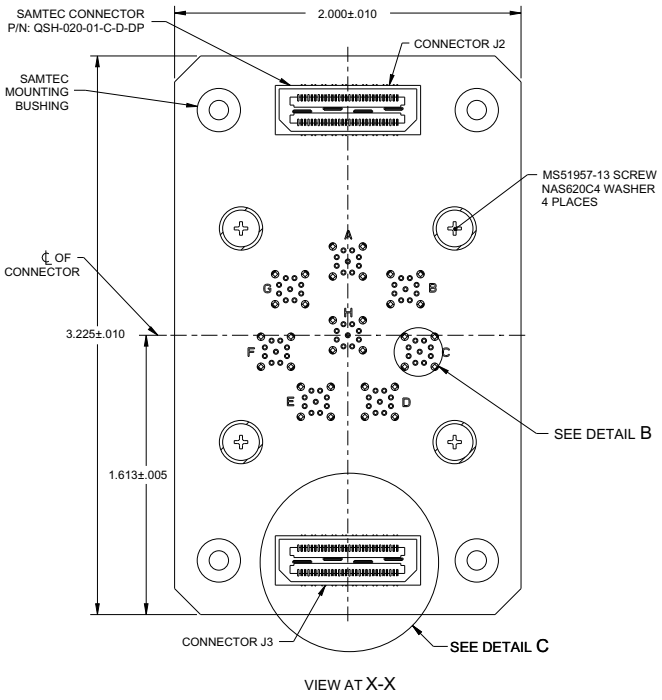












VIEW AT X-X

Connection List					
Connector J1	Differential Pair	Connector J2	Connector J1	Differential Pair	Connector J3
A-1	1	1	E-1	17	1
A-2		3	E-2		3
A-3	2	2	E-3	18	2
A-4		4	E-4		4
A-5	3	5	E-5	19	5
A-6		7	E-6		7
A-7	4	6	E-7	20	6
A-8		8	E-8		8
N/C	-	9,10,11,12	N/C	-	9,10,11,12
B-1	5	13	F-1	21	13
B-2		15	F-2		15
B-3	6	14	F-3	22	14
B-4		16	F-4		16
B-5	7	17	F-5	23	17
B-6		19	F-6		19
B-7	8	18	F-7	24	18
B-8		20	F-8		20
C-1	9	21	G-1	25	21
C-2		23	G-2		23
C-3	10	22	G-3	26	22
C-4		24	G-4		24
C-5	11	25	G-5	27	25
C-6		27	G-6		27
C-7	12	26	G-7	28	26
C-8		28	G-8		28
N/C	-	29,30,31,32	N/C	-	29,30,31,32
D-1	13	33	H-1	29	33
D-2		35	H-2		35
D-3	14	34	H-3	30	34
D-4		36	H-4		36
D-5	15	37	H-5	31	37
D-6		39	H-6		39
D-7	16	38	H-7	32	38
D-8		40	H-8		40

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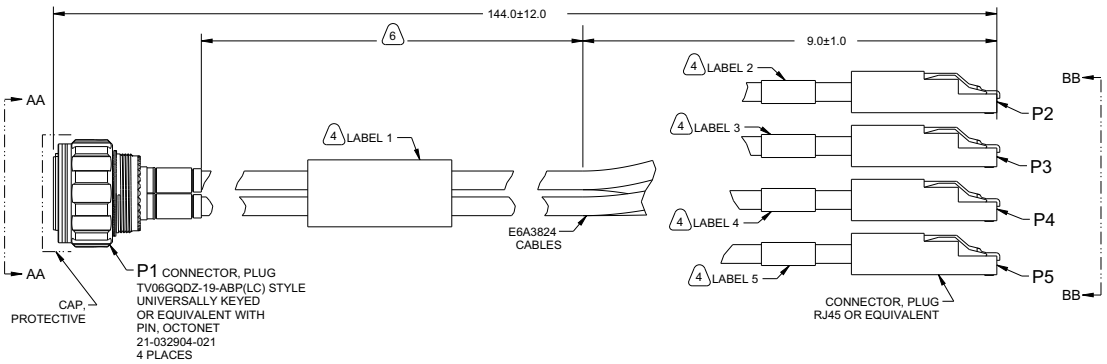
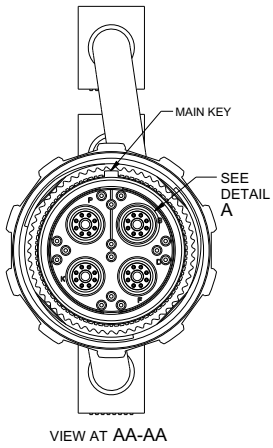
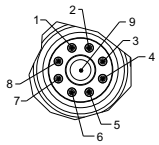
CA-628485-C00: TEST CABLE DETAILS

Universally Keyed; TV06GQDZ-19-ABP to RJ45; Zinc Nickel Plated; 12 ft.

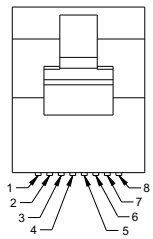




VIEW AT AA-AA



DETAIL A
CONTACT ID'S



PARTIAL VIEW AT BB-BB

Marking Table	
Label ID	Marking
Label 1	AMPHENOL CA-6284850-C00 DATE CODE PER 9-9172-3 & LOT NO.
Label 2	B
Label 3	F
Label 4	K
Label 5	P

Wiring Table		
P1 Connector Cavity ID	P2 Connector PIN ID	P3 Connector PIN ID
B : 1	1	-
B : 2	2	-
B : 3	3	-
B : 4	6	-
B : 5	4	-
B : 6	5	-
B : 7	7	-
B : 8	8	-
F : 1	-	1
F : 2	-	2
F : 3	-	3
F : 4	-	4
F : 5	-	5
F : 6	-	6
F : 7	-	7
F : 8	-	8
B : 9 B : Outer	Outer	-
F : 9 F : Outer	-	Outer

Wiring Table (Continued)		
P1 Connector Cavity ID	P4 Connector PIN ID	P5 Connector PIN ID
K : 1	1	-
K : 2	2	-
K : 3	3	-
K : 4	6	-
K : 5	4	-
K : 6	5	-
K : 7	7	-
K : 8	8	-
P : 1	-	1
P : 2	-	2
P : 3	-	3
P : 4	-	4
P : 5	-	5
P : 6	-	6
P : 7	-	7
P : 8	-	8
K : 9 K : Outer	Outer	-
P : 9 P : Outer	-	Outer

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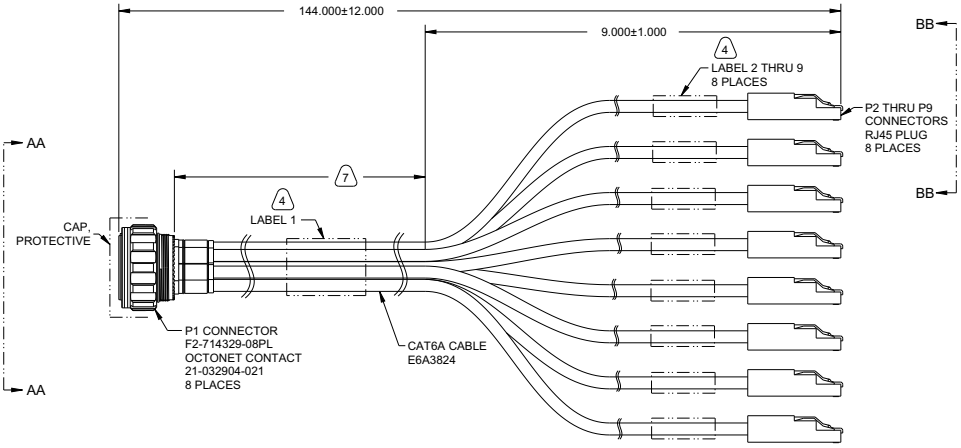
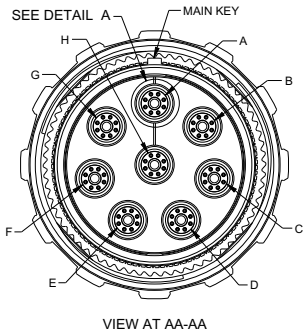
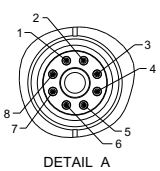
CA-628485-C01: TEST CABLE DETAILS

Cable Assembly; Octonet Test; Universal Key

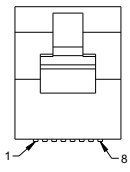




VIEW AT AA-AA



DETAIL A



VIEW AT BB-BB

Wiring Table		Wiring Table	
P1 Cavity	P ( ) Connector	P1 Cavity	P ( ) Connector
A-1	P2-1	E-1	P6-1
A-2	P2-2	E-2	P6-2
A-3	P2-3	E-3	P6-3
A-4	P2-4	E-4	P6-4
A-5	P2-5	E-5	P6-5
A-6	P2-6	E-6	P6-6
A-7	P2-7	E-7	P6-7
A-8	P2-8	E-8	P6-8
B-1	P3-1	F-1	P7-1
B-2	P3-2	F-2	P7-2
B-3	P3-3	F-3	P7-3
B-4	P3-4	F-4	P7-4
B-5	P3-5	F-5	P7-5
B-6	P3-6	F-6	P7-6
B-7	P3-7	F-7	P7-7
B-8	P3-8	F-8	P7-8
C-1	P4-1	G-1	P8-1
C-2	P4-2	G-2	P8-2
C-3	P4-3	G-3	P8-3
C-4	P4-4	G-4	P8-4
C-5	P4-5	G-5	P8-5
C-6	P4-6	G-6	P8-6
C-7	P4-7	G-7	P8-7
C-8	P4-8	G-8	P8-8
D-1	P5-1	H-1	P9-1
D-2	P5-2	H-2	P9-2
D-3	P5-3	H-3	P9-3
D-4	P5-4	H-4	P9-4
D-5	P5-5	H-5	P9-5
D-6	P5-6	H-6	P9-6
D-7	P5-7	H-7	P9-7
D-8	P5-8	H-8	P9-8

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