

OCTAL 1000BASE-T TO SGMII CONVERTER

CTC-ENET-OCTAL-1G

PDS-249-3



Amphenol Aerospace adds Gigabit Ethernet to SGMII Converter to the Integrated Electronic Products Line.

This product line is rugged, flexible, and affordable with many options available. This 1000BASE-T to SGMII Converter couples SerDes technology and protocol conversion with a new level of ruggedization.

1000BASE-T COPPER INTERFACE

- D38999 Shell Size 23
- (100) Size 22 contacts

SGMII INTERFACE

- Samtec Q Series® High Speed Cable Assembly
- Consult factory for specific type required

POWER SPECIFICATIONS

- 5V power connection in Samtec connector
- Low power consumption
 - Less than 5 watts

BENEFITS

- 8 ports of Gigabit Ethernet
- Conversion of 1000BASE-T to SGMII
- Compliant with IEEE 802.3ab Ethernet Standards and Specifications
- Hermetic option available with a helium leak rate of 10⁻⁴ cc/sec

RUGGEDIZATION

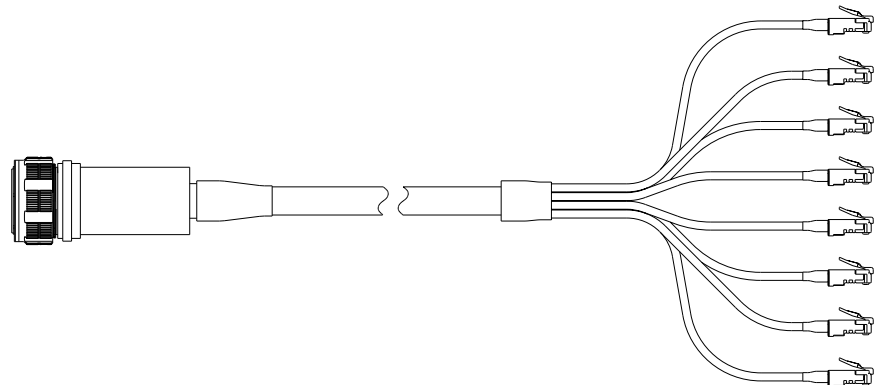
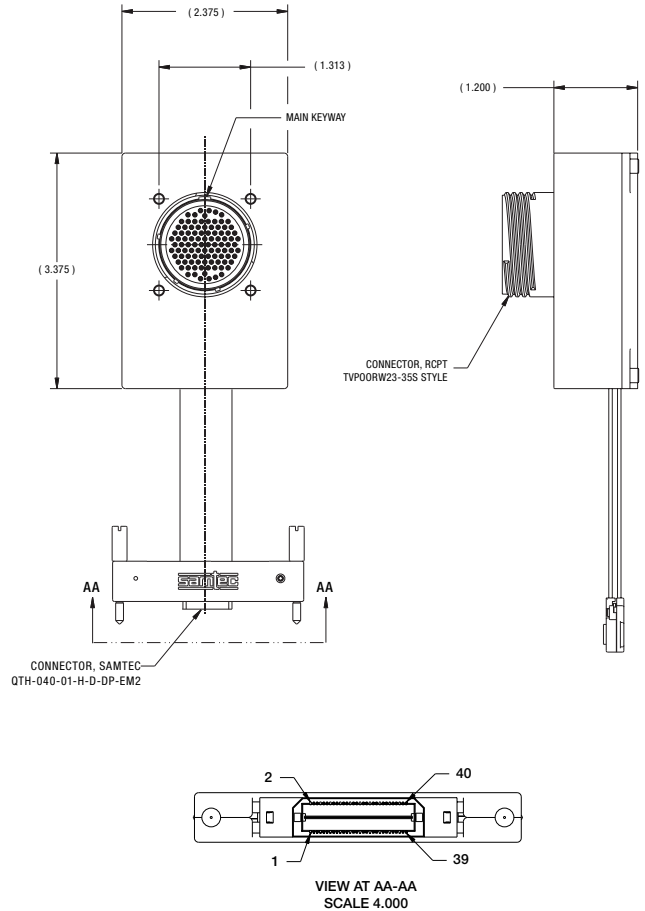
- Natural convection cooled (no fan or cold plate required)
- Operational temperature -40°C to +85°C
- Storage temperature -50°C to +125°C
- EMI/EMC compatible
- Refer to page 5 for additional details

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PINOUT

MIL-DTL-38999 Shell Size 23-25 size 22D pins							
Pin	Description	Pin	Description	Pin	Description	Pin	Description
1	CH 1 A+	26	Ground	51	CH 5 A+	76	Ground
2	CH 2 A+	27	CH 4 A+	52	CH 5 A-	77	CH 7 A+
3	CH 2 A-	28	Ground	53	Ground	78	CH 7 A-
4	Ground	29	Ground	54	CH 5 B+	79	CH 7 B+
5	CH 2 B+	30	Ground	55	CH 5 B-	80	CH 7 B-
6	CH 2 B-	31	Ground	56	CH 6 A+	81	CH 7 C+
7	Ground	32	Ground	57	Ground	82	CH 8 A+
8	CH 1 A-	33	CH 3 D+	58	CH 6 B+	83	CH 8 A-
9	CH 1 B+	34	CH 3 D-	59	CH 6 B-	84	CH 8 B+
10	Ground	35	CH 1 C-	60	Ground	85	Ground
11	CH 2 C+	36	CH 1 D+	61	CH 5 C+	86	Ground
12	CH 2 C-	37	CH 4 A-	62	CH 5 C-	87	CH 7 D+
13	Ground	38	Ground	63	Ground	88	CH 7 D-
14	CH 2 D+	39	CH 4 B+	64	CH 5 D+	89	CH 7 C-
15	CH 2 D-	40	CH 4 B-	65	CH 5 D-	90	Ground
16	CH 1 B-	41	Ground	66	Ground	91	CH 8 C+
17	Ground	42	CH 4 C+	67	CH 6 A-	92	Ground
18	CH 3 A+	43	CH 4 C-	68	Ground	93	CH 8 B-
19	CH 3 A-	44	Ground	69	CH 6 C+	94	Ground
20	CH 3 B+	45	Ground	70	CH 6 C-	95	Ground
21	CH 3 B-	46	CH 1 D-	71	Ground	96	Ground
22	CH 3 C+	47	Ground	72	CH 6 D+	97	CH 8 C-
23	CH 3 C-	48	CH 4 D+	73	CH 6 D-	98	Spare
24	Ground	49	CH 4 D-	74	Spare	99	CH 8 D+
25	CH 1 C+	50	Spare	75	Spare	100	CH 8 D-



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HOW TO ORDER:

1.	2.	3.	4.	5.	6.	7.	8.
Connector Type	Material	SGMII Interface	Finish	Shell Style	Option (Hermetic or Non-Hermetic)	D38999 Connector Rotation	Main Keyway Rotation
CTC							

STEP 1 :

Connector Type	
CTC	Copper to Copper Media Conversion Family

STEP 4:

Finish	
T	Aluminum Durmalon
Z	Aluminum Black Zinc Nickel
F	Aluminum Electroless Nickel
M	Composite Electroless Nickel
W	Aluminum OD Cad
J	Composite OD Cad
L	Stainless Steel Electrodeposited Nickel
Y	Stainless Steel Passivated

STEP 2 :

Material	
-5	Aluminum Shell
-6	Composite Shell
-8	Stainless Steel Shell

STEP 5 :

Shell Style	
0	Wall Mount

STEP 7 :

D38999 Connector Rotation	
N	N
A	A
B	B
C	C
D	D

STEP 3 :

SGMII Interface	
-5	Samtec Q Series® Connector

STEP 6 :

Option	
05	Non-Hermetic
06	Hermetic

STEP 8 :

Main Keyway Rotation	
W	0°
X	90°
Y	180°
Z	270°

AVAILABLE TEST EQUIPMENT

	Part Number	Description
Test Cable	CA-628485-A30	RJ45 Test Cable for D38999 Connector, 5'
	CA-628485-A31	RJ45 Test Cable for D38999 Connector, 10'
	CA-628485-A32	RJ45 Test Cable for D38999 Connector, 15'
	CA-628485-A33	RJ45 Test Cable for D38999 Connector, 20'
Test Board	CF-020005-013	SMA Test Board for Samtec Connector

AMPHENOL INTEGRATED ELECTRONIC PRODUCTS 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

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 is 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

FLUIDS SUSCEPTIBILITY

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

VIBRATION & SHOCK

- Sine Vibration – 10 g 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 - 0.005@5Hz, 0.1@15Hz, 0.1@2,000Hz
-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.

ALTITUDE

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

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 HUMISEAL 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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