

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

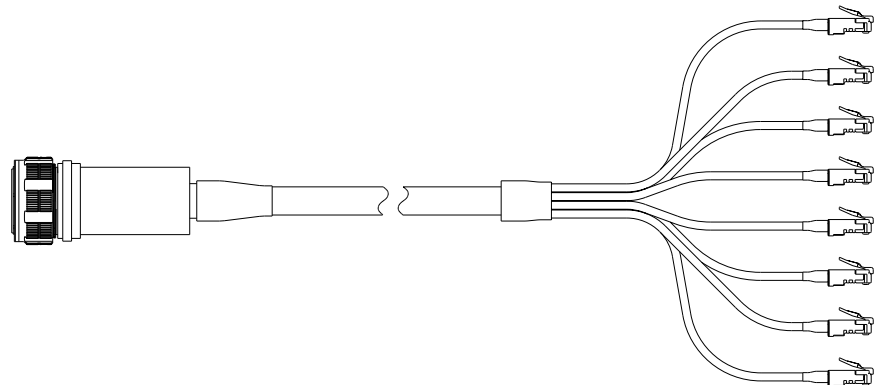
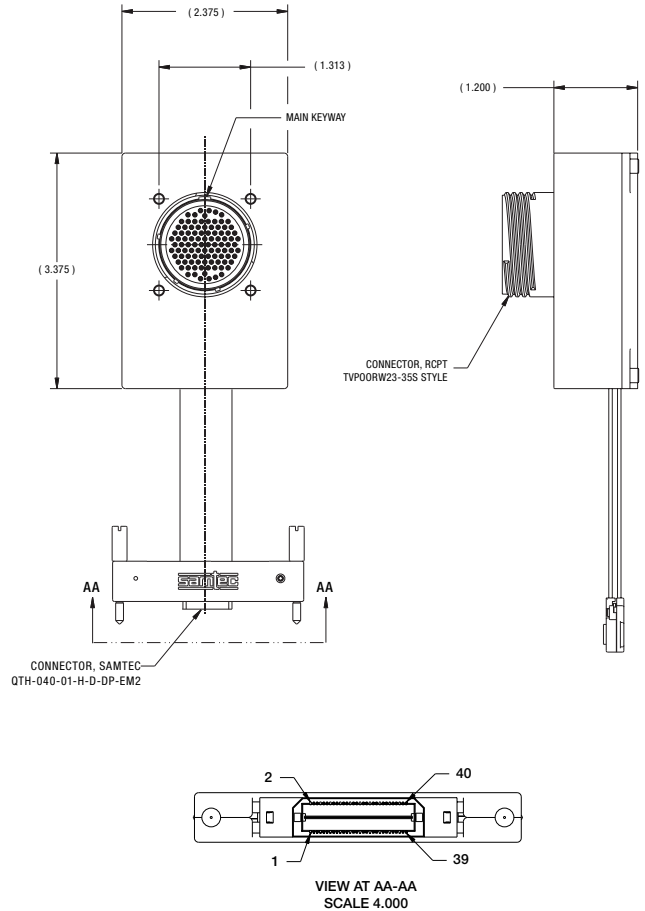
- Natural convection cooled (no fan or cold plate required)
- Operational temperature -40°C to +85°C
- Storage temperature -50°C to +125°C
- EMI/EMC compatible
- Refer to page 5 for additional details

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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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