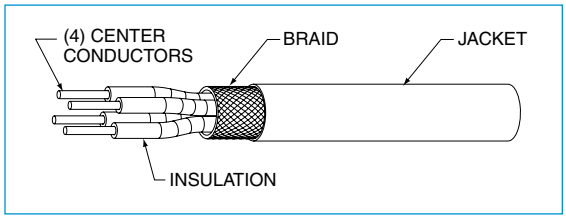
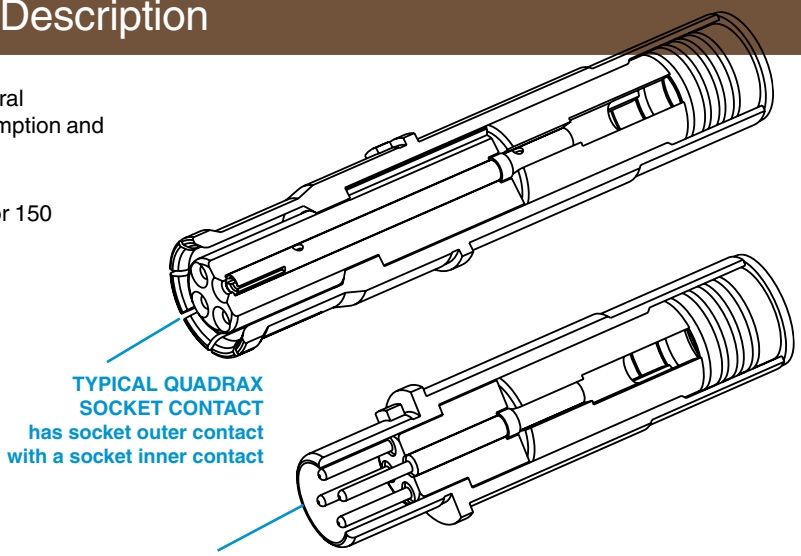
## Amphenol® Quadrax Contacts -Offer several advantages for high data transfer rates, low power consumption and excellent EMI compatibility:

- Four strategically spaced inner contacts form two 100 or 150 Ohm matched impedance differential pairs
- Outer contact has rugged wall section for durability
- Available in size 8 crimp termination style
- Also available in size 8 with PC tails (see page 233)
- Requires modification of MIL-DTL-38999 connector to accommodate keyed contacts




Cable Illustration - Quadrax Contact



TYPICAL QUADRAX SOCKET CONTACT
has socket outer contact with a socket inner contact

TYPICAL QUADRAX PIN CONTACT
has pin outer contact with a pin inner contact

Quadrax Pin with 8P8C "RJ45" Jack

Quadrax Pin Size 8 and MIL-DTL-38999 Series III Connector

### Quadrax Contacts are gold plated, crimp termination

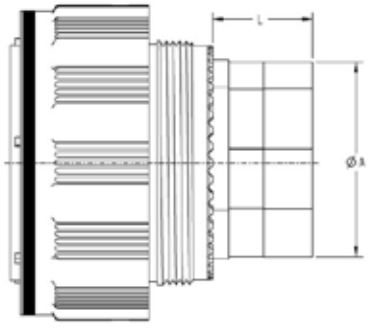
Finish of mating contact parts: supplied with 0.000050 min. gold over nickel on mating parts. Consult Amphenol for availability of other finishes.

**Quadrax Size 8 Contact Performance:**

- Bandwidth: Up to 1.25 GHz
- Data Rate: Exceeding 2.5 Gbps.
- Voltage Rating: 500 Vrms max. @ sea level
- Dielectric Withstanding Voltage: 1000 VAC rms between all inner contacts @ sea level, 500 VAC rms between inner and outer contacts @ sea level

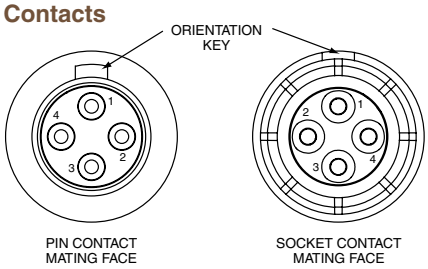
## Guide for selecting a Backshell:

When ordering backshells, to avoid interference between the piggyback grommets which are used on all size 8 cavities and the backshell the below keepout dimensions must be adhered to. (based on existing arrangements)



| Size | A Dia Min | L Min |
|---|---|---|
| 17 | .734 | .540 |
| 19 | .869 | .540 |
| 21 | .869 | .540 |
| 23 | 1.088 | .540 |
| 25 | 1.234 | .540 |

## Suggested Numbering for Quadrax Contacts




Differential Pairs, contacts 1-3, 2-4.

See page 243 for part number ordering of popularly used 38999 Series III connectors with 100 ohm quadrax contacts.

Quadrax differential pairs are 1 and 3, 2 and 4.

## Suggested Strain Relief - Insert Arrangements 9-5 or 19-18 with Quadrax Contacts

Due to the piggyback grommet interference with normal strain reliefs on the shell size 9 only, the recommended strain relief for the connector is: Amphenol part number TGW-R-5309-10 (OD Cad) or TGF-R-5309-10 (Electroless nickel) - shell size 9 only. For 19-18 insert pattern, recommended backshell: Glenair 367-221-NF. This is recommended due to the proximity of the size 8 contacts in relation to the shell.

Also see Quadrax contacts for ARINC 600 and R27 Rack and Panel Connectors on pages 265 and 266.

## TV-R Series, MIL-DTL-38999 Series III* Connectors

| QUADRAX CONTACTS FOR USE IN TV-R CONNECTORS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Cable | Contact Part Number (Termination Instruction Sheet)** | | Impedance (Ohms) | Inner Conductor (AWG) | Contact Size | Electrical Protocol†† | Crimping Tools | |
| | Pin | Socket | | | | | Inner Contact | Outer Contact |
| Draka Fileca F-4703-3, F4704-4, Filotex ET 2PC236, Filotex ET2PF870, PIC Wire E50424 ABS0972, Tensolite 23450/04090X-4(LD) Draka Fileca F-4704-5, ABS1503 KD 24 | 21-033384-021 (L-2119-A) | 21-033385-021 (L-2119-A) | 100 | 24 | 8 | Ethernet, 1000 Base-T Gigabit Ethernet | M22520/2-01 with Positioner M22520/2-37 or with Daniels Positioner K709 | M22520/5-01 with Die Set M22520/5-45 (Location A) |
| Tensolite NF24Q100, NF24Q100-01, 24443/9P025X-4(LD), S280W502-4, 24443/03130X-4(LD), 24443/C20714X-4(LD), 24450/0120X-4(LD), NF24-2Q100, TYCO CEC-RWC-18664, GORE GSC-01-81869-01, 24443/03166X-4(LD), Thermax T956-4T200, Pic Wire E51424, Thermax MX100Q-24, NF24Q100-01-200C (Space), BMS13-72T03C04G024 | 21-033384-051 (L-2119-D) | 21-033385-051 (L-2119-D) | | 24 | | Ethernet, 1000 Base-T Gigabit Ethernet | | |
| Tensolite NF22Q100, NF22Q100-01, Thermax 956-5, GORE RCN 7688 | 21-033384-061 (L-2119-H) | 21-033385-061 (L-2119-H) | | 22 | | Ethernet (100 Mbps), 1000 Base-T Gigabit Ethernet (1 Gbps) | | |
| Tensolite NF26Q100, NF26Q100-01, NF26-2Q100, PIC E51426, Wirenetics W-3714-379 | 21-033384-071 (L-2119-AB) | 21-033385-071 (L-2119-AB) | | 26 | | Ethernet (100 Mbps), 1000 Base-T Gigabit Ethernet (1 Gbps) | | |
| S280W502-4/BMS13-72T03C04G024 | 21-033384-141 (BACC47GM1) | 21-033385-141 (BACC45GN1) | | 24 | | | | |
| Draka Fileca F-4704-6, Gore RCN 8672 | 21-033384-151 (L-2119-AW) | 21-033385-151 (L-2119-AW) | | 26 | | Ethernet (100 Mbps), 1000 Base-T Gigabit Ethernet (1 Gbps) | | |
| Tensolite NF24Q100-01 (same as 21-03338( ) -51, uses EMI Piggyback) | 21-033384-161 (L-2119-BE) | 21-033385-161 (L-2119-BE) | | 24 | | Ethernet (100 Mbps), 1000 Base-T Gigabit Ethernet (1 Gbps) | | |
| Gore RCN8513, JSFY18-3 | 21-033384-171 (L-2119-BN) | 21-033385-171 (L-2119-BN) | | 22 | | Ethernet (100 Mbps), 1000 Base-T Gigabit Ethernet (1 Gbps) | | |
| Tensolite NF22Q100 Special Box pattern, only mates with 21-0333 ( )-181 | 21-033384-181 (L-2119-BP) | 21-033384-181 (L-2119-BP) | | 22 | | Ethernet (100 Mbps), 1000 Base-T Gigabit Ethernet (1 Gbps) | | |
| Tensolite NF24Q100, NF24Q100-01 for 2.5 Gbps applications | 21-033384-191 (L-2119-BS) | 21-033385-191 (L-2119-BS) | | 24 | | •Serial FPDP Applications (2.5 Gbps) (Typical app run at 150 Ohms) • HDMI 1.3 | | |
| Gore RCN 8647 | 21-033384-301 | 21-033385-301 | | 24 | | | | |
| USB2 (28433/02171LX-4) | 21-033384-101† | 21-033385-101† | 90 | | | USB2.0 (480 Mbps) | | |
| Tensolite 24450/03089X-4(LD) Gore RCN8647 | 21-033384-211 | 21-033385-211 | 110 | 24 | | IEEE 1394B Firewire | | |
| JSFY02-1, JSFY18 | 21-033384-221 | 21-033385-221 | | 24 | | IEEE 1394B Firewire | | |
| Gore RCN8487, JSFY18 | 21-033384-231 | 21-033385-231 | | 24 | | IEEE 1394B Firewire | | |
| Tensolite 24450/03089X-4(LD) Same as 21-03338( )-211 but Box pattern, mates with 21-03338( )-241 only | 21-033384-241† | 21-033385-241† | | 24 | | IEEE 1394B Firewire | | |
| F-4703, ABS1503KD24 | 21-033384-281 | 21-033385-281 | 100 | | | Meets EN3155-074 | | |
| Tensolite 26473/02006X-4(LD)/Gore RCN8328 (not for new designs, use 21-033450/1 series) | 21-033384-31 (L-2119-B) | 21-033385-031 (L-2119-B) | 150 | 26 | | | | |

CHART CONTINUES ON NEXT PAGE

QUADRAX CONTACT DATA

Contacts are inserted by hand. Refer to termination instructions listed. Contacts are removed with a removal tool. Recommended tool is MIL-I-81969/14-06, Daniels DRK-264-8. Refer to termination instructions listed. Finish of mating contact parts: Contact part numbers shown in the chart above are supplied gold plated per ASTM B488 Type II, Code C, .000050 min. thick over nickel plate per AMS-QQ-N-290, Class 2, .000030/.000150 thick.

Daniels crimping tools available from Daniels Mfg. Corp. 6103 Anno Ave., Orlando, FL 32809

* Requires modified connector to accommodate keyed contacts.

**Termination instructions are packaged with each contact and can be found on-line at: www.amphenol-aerospace.com/serviceinstructions.asp

† Consult Amphenol for current release of this contact or instruction sheet if applicable.

†† Test reports available for indicated protocols. Consult Amphenol Aerospace. Typical applications run at 150 Ohms