

# Amphenol® Amphe-Lite™ Subminiature Cylindrical Connectors

12-094-2

**Commercial 38999 Series III Type Connectors  
with contacts available in signal, power, coax and fiber optics.**



**Ideal for communications equipment, manufacturing process  
control and medical equipment.**

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**Amphenol**

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***Please visit our Website at [www.amphenol-industrial.com](http://www.amphenol-industrial.com)***

Also visit [www.amphenol-aerospace.com](http://www.amphenol-aerospace.com). Amphenol Industrial Operations and Amphenol Aerospace are both located at Sidney, NY. Together with other Amphenol divisions worldwide, Amphenol offers one of the broadest ranges of interconnect products in the marketplace.

Amphenol Aerospace and Amphenol Industrial Operations are Certified ISO 9001 Manufacturers.

\* Amphe-Lite is a registered trademark of Amphenol Corporation.

# Amphe-Lite Series

## Amphenol's ultimate commercial subminiature connector

### Commercial 38999, Series III Type Composite Connectors

The Amphe-Lite Connector Series is designed for communications equipment manufacturers with signal, power, RF or fiber optic interconnect requirements in harsh environments such as communication towers, outdoor and roof-top applications. This commercial 38999, Series III type composite connector series is ideal for communications equipment, manufacturing process control and medical equipment.

The Amphe-Lite offers the highest performance capabilities for severe environment applications, and yet is cost effective enough for general duty and non-environmental applications.

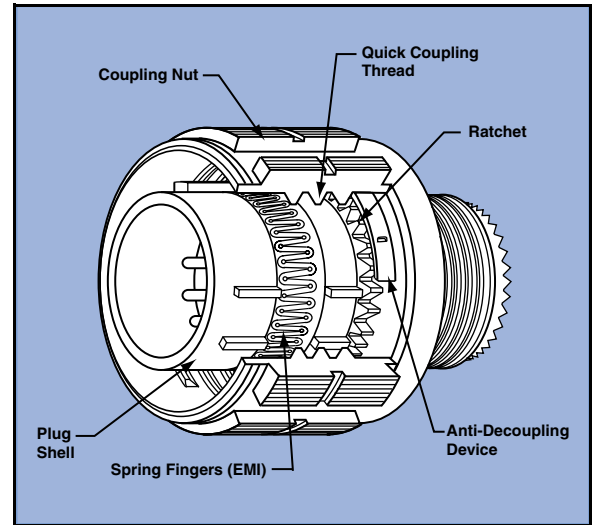
The Amphe-Lite is UL Recognized, file E115497.

### Features and Benefits of the Amphe-Lite Series:

- Service Class F Amphe-Lite connectors provide excellent EMI shielding and grounding through electroless nickel plating and spring grounding rings. Environmental sealing is ensured with interfacial seals to prevent contact corrosion. Composite shells are completely immune to corrosion problems.
- Service Class U provides a non-conductive finish when EMI shielding is not a criteria.
- Class F Composite shells resist severe corrosion, and provide plating endurance from salt spray exposure for a minimum of 2000 hours.
- Completely mates in one 360-degree turn of the coupling nut to provide the fastest and easiest equipment assembly and maintenance possible.
- Acme threads provide coupling durability. Thicker wall sections and a greater coupling surface area improve strength and shock resistance. Blunting of the thread on both the coupling nut and receptacle eliminates cross coupling.
- Recessed pins minimize potential contact damage in this 100% scoop-proof connector. In a blind mating application, mating shells cannot "scoop" the pins and cause a shorting or bending of contacts.
- A rigid dielectric insert with excellent electrical characteristics provides durable protection to the contacts. The socket contacts are probe proof, and all contacts are rear insertable and rear removable. Available in sizes 10 power, 12, 16, 20 and 22D contacts are plated in the standard 50 micro inches minimum gold, with 100 micro inches as an option.

### Optional Features:

- Conductive and non-conductive finish options are available. See how to order pg. 22.
- Circuit protection with filter contacts or surge arresting devices are available. See pg. 23.
- Fiber optics, extended life and shielded coaxial contacts can be specified in Amphe-Lite connectors. See pg. 23.
- Ground plane versions of the Amphe-Lite can be specified for use with coaxial and triaxial contacts. Twinax and power contacts can also be specified in the Amphe-Lite. See pg. 24.
- Selectively plated contacts are available. See pg. 16.
- High decoupling option is available for high vibration applications. See how to order pg. 22.



### Designed for Performance

Numerous advantages in performance capability are designed into the Amphenol® Amphe-Lite Connector. A positive shoulder to shoulder coupling design, grounding fingers, and electroless nickel plating provide superior EMI shielding capability of 65 dB minimum at 10 GHz.

### Amphe-Lite Shell Styles



wall mount  
receptacle



straight plug



jam nut  
receptacle

# Amphe-Lite Series

## performance criteria, specifications

Amphenol® Amphe-Lite connectors provide EMI shielding capability which exceeds MIL-DTL-38999 Series III requirements.

The Amphe-Lite connector with EMI grounding fingers and conductive finishes has proven to be the ultimate in EMI shielding effectiveness. The charts at right illustrate shielding effectiveness data which is typical of connectors tested with the nickel finish over a wide frequency range.

These capabilities along with a 125°C temperature rating and superior moisture sealing protection provide the user with a connector that can withstand the most rigorous application. UL RTI rating is 105°C

### CONTACT RATING

| Contact Size | Test Current |          | Maximum Millivolt Drop Crimp* |
|--------------|--------------|----------|-------------------------------|
|              | Crimp        | Hermetic |                               |
| 22D          | 5            | 3        | 73                            |
| 20           | 7.5          | 5        | 55                            |
| 16           | 13           | 10       | 49                            |
| 12           | 23           | 17       | 42                            |
| 10 (Power)   | 33           | NA       | 33                            |

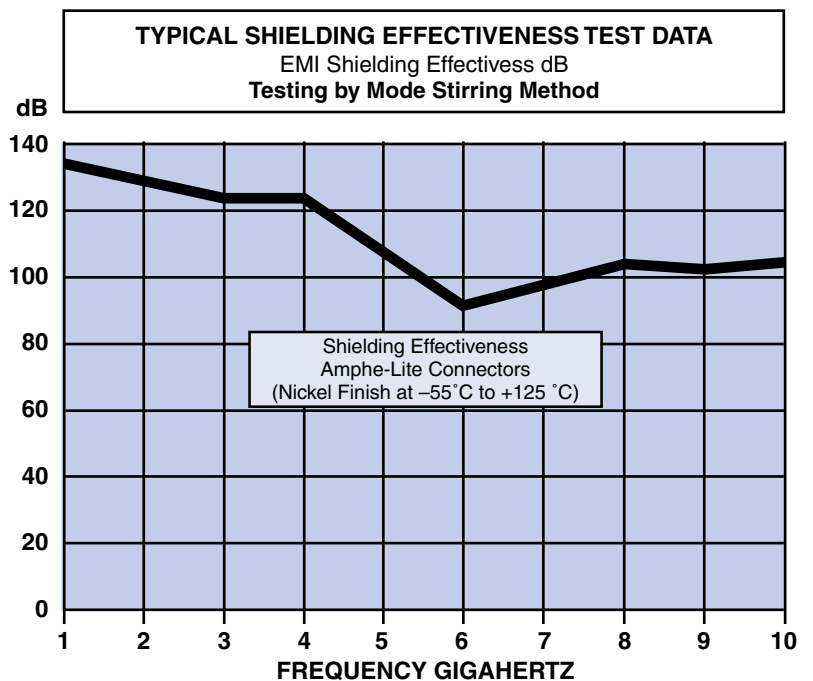
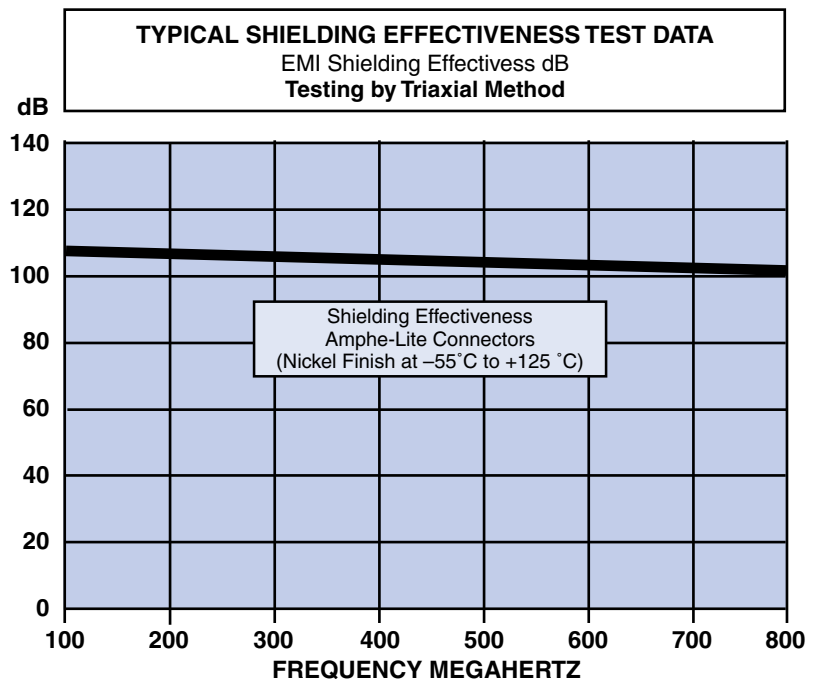
\* When using silver plated wire.

| Contact Size | Crimp Well Data |                    |
|--------------|-----------------|--------------------|
|              | Well Diameter   | Nominal Well Depth |
| 22D          | .0345 ±.0010    | .141               |
| 20           | .047 ±.001      | .209               |
| 16           | .067 ±.001      | .209               |
| 12           | .100 ±.002      | .209               |
| 10 (Power)   | .137 ±.002      | .355               |

### SERVICE RATING

| Service Rating | Suggested Operating Voltage (Sea Level) |      | Test Voltage (Sea Level) |
|----------------|-----------------------------------------|------|--------------------------|
|                | AC (RMS)                                | DC   |                          |
| M              | 400                                     | 550  | 1300 VRMS                |
| N              | 300                                     | 450  | 1000 VRMS                |
| I              | 600                                     | 850  | 1800 VRMS                |
| II             | 900                                     | 1250 | 2300 VRMS                |

\*\* Please note that the establishment of electrical factors is left entirely in the designers hands, since he is in the best position to know what voltage, switching surges, transients, etc. can be expected in a particular circuit.



Test data beyond 2GHz is subject to equipment variation.

### FINISH DATA

Amphe-lite connectors are available in the following finishes:

- Conductive Electroless Nickel Plated Composite (Service Class F)
- Black Composite, unplated (Service Class U)
- Conductive Black Zinc Composite (Service Class X)

See how to order page 22.

# Amphe-Lite Series

## insert availability and identification

| Shell Size/Arrg. | Service Rating | Total Contacts | Contact Size |    |     |    |           |            |          |              |
|------------------|----------------|----------------|--------------|----|-----|----|-----------|------------|----------|--------------|
|                  |                |                | 22D          | 20 | 16  | 12 | 12 (Coax) | 10 (Power) | 8 (Coax) | 8†† (Twinax) |
| 9-5★             | Grounded       | 1              |              |    |     |    |           |            |          | 1            |
| 9-35             | M              | 6              | 6            |    |     |    |           |            |          |              |
| 9-94             | M              | 2              |              | 2  |     |    |           |            |          |              |
| 9-98             | I              | 3              |              | 3  |     |    |           |            |          |              |
| 11-2★            | I              | 2              |              |    | 2   |    |           |            |          |              |
| 11-5             | I              | 5              |              | 5  |     |    |           |            |          |              |
| 11-35            | M              | 13             | 13           |    |     |    |           |            |          |              |
| 11-98            | I              | 6              |              | 6  |     |    |           |            |          |              |
| 11-99            | I              | 7              |              | 7  |     |    |           |            |          |              |
| 13-4★            | I              | 4              |              |    | 4   |    |           |            |          |              |
| 13-8             | I              | 8              |              | 8  |     |    |           |            |          |              |
| 13-35            | M              | 22             | 22           |    |     |    |           |            |          |              |
| 13-98            | I              | 10             |              | 10 |     |    |           |            |          |              |
| 15-5★            | II             | 5              |              |    | 5   |    |           |            |          |              |
| 15-15            | I              | 15             |              | 14 | 1   |    |           |            |          |              |
| 15-18            | I              | 18             |              | 18 |     |    |           |            |          |              |
| 15-19            | I              | 19             |              | 19 |     |    |           |            |          |              |
| 15-35            | M              | 37             | 37           |    |     |    |           |            |          |              |
| 15-97            | I              | 12             |              | 8  | 4   |    |           |            |          |              |
| 15-AC            | M              | 26             | 24           |    | 2   |    |           |            |          |              |
| 17-2             | M              | 39             | 38           |    |     |    |           |            |          | 1            |
| 17-6             | I              | 6              |              |    |     | 6  |           |            |          |              |
| 17-8★            | II             | 8              |              |    | 8   |    |           |            |          |              |
| 17-22★           | NA             | 4              |              |    |     |    | 2         |            | 2        |              |
| 17-26            | I              | 26             |              | 26 |     |    |           |            |          |              |
| 17-31            | M              | 19             | 4            | 11 | 4   |    |           |            |          |              |
| 17-35            | M              | 55             | 55           |    |     |    |           |            |          |              |
| 17-99            | I              | 23             |              | 21 | 2   |    |           |            |          |              |
| 19-11★           | II             | 11             |              |    | 11  |    |           |            |          |              |
| 19-31            | M              | 15             | 12           |    |     | 1  |           |            | 2        |              |
| 19-32            | I              | 32             |              | 32 |     |    |           |            |          |              |
| 19-35            | M              | 66             | 66           |    |     |    |           |            |          |              |
| 21-11★           | I              | 11             |              |    |     | 11 |           |            |          |              |
| 21-16★           | II             | 16             |              |    | 16  |    |           |            |          |              |
| 21-35            | M              | 79             | 79           |    |     |    |           |            |          |              |
| 21-39            | I              | 39             |              | 37 | 2   |    |           |            |          |              |
| 21-41            | I              | 41             |              | 41 |     |    |           |            |          |              |
| 21-75★           | M              | 4              |              |    |     |    |           |            |          | (See Note)   |
| 23-6★            | M              | 6              |              |    |     |    |           |            |          | 6            |
| 23-21★           | II             | 21             |              |    | 21  |    |           |            |          |              |
| 23-35            | M              | 100            | 100          |    |     |    |           |            |          |              |
| 23-53            | I              | 53             |              | 53 |     |    |           |            |          |              |
| 23-54            | M              | 53             | 40           |    | 9   | 4  |           |            |          |              |
| 23-55            | I              | 55             |              | 55 |     |    |           |            |          |              |
| 25-4             | I              | 56             |              | 48 | 8   |    |           |            |          |              |
| 25-7             | NA             | 99             | 97           |    |     |    |           |            |          | 2            |
| 25-8★            | NA             | 8              |              |    |     |    |           |            |          | 8            |
| 25-11            | N              | 11             |              | 2  |     |    |           | 9          |          |              |
| 25-17            | M              | 42             | 36           |    |     |    |           |            |          | 6            |
| 25-19★           | I              | 19             |              |    |     | 19 |           |            |          |              |
| 25-20            | N              | 30             |              | 10 | 13* |    | 4         |            |          | 3            |
| 25-24★           | I              | 24             |              |    | 12  | 12 |           |            |          |              |
| 25-26            | I              | 25             |              | 16 |     | 5  |           |            | 4        |              |
| 25-29★           | I              | 29             |              |    | 29  |    |           |            |          |              |
| 25-35            | M              | 128            | 128          |    |     |    |           |            |          |              |
| 25-37★           | I              | 37             |              |    | 37  |    |           |            |          |              |
| 25-43            | I              | 43             |              | 23 | 20  |    |           |            |          |              |
| 25-46            | I              | 46             |              | 40 | 4   |    |           |            | 2†       |              |
| 25-61            | I              | 61             |              | 61 |     |    |           |            |          |              |

★ Ground plane proprietary option available. Arrg. 9-5 is exclusively ground plane type. See page 24 for further information of ground plane connectors.

\* Two size 16 contacts dedicated to fiber optics. Consult Sidney, NY or catalog 12-352 for fiber optic information.

† For RG180/U and RG195/U cables only. (Contact Sidney, NY for other cable application).

†† Size 8 Coax and Twinax are interchangeable.

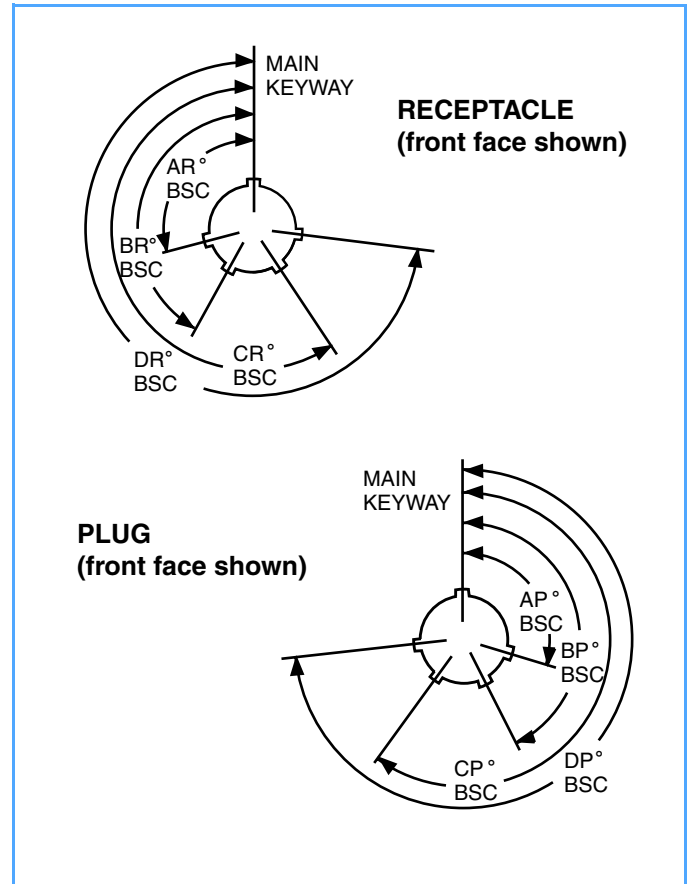
# Amphe-Lite Series

## alternate insert positioning

### MASTER KEY/KEYWAY POSITION

| Shell Size     | Key & keyway arrangement identification letter | AR° or AP° BSC | BR° or BP° BSC | CR° or CP° BSC | DR° or DP° BSC |
|----------------|------------------------------------------------|----------------|----------------|----------------|----------------|
| 9              | N                                              | 105            | 140            | 215            | 265            |
|                | A                                              | 102            | 132            | 248            | 320            |
|                | B                                              | 80             | 118            | 230            | 312            |
|                | C                                              | 35             | 140            | 205            | 275            |
|                | D                                              | 64             | 155            | 234            | 304            |
| 11, 13, and 15 | E                                              | 91             | 131            | 197            | 240            |
|                | N                                              | 95             | 141            | 208            | 236            |
|                | A                                              | 113            | 156            | 182            | 292            |
|                | B                                              | 90             | 145            | 195            | 252            |
|                | C                                              | 53             | 156            | 220            | 255            |
| 17 and 19      | D                                              | 119            | 146            | 176            | 298            |
|                | E                                              | 51             | 141            | 184            | 242            |
|                | N                                              | 80             | 142            | 196            | 293            |
|                | A                                              | 135            | 170            | 200            | 310            |
|                | B                                              | 49             | 169            | 200            | 244            |
| 21, 23, and 25 | C                                              | 66             | 140            | 200            | 257            |
|                | D                                              | 62             | 145            | 180            | 280            |
|                | E                                              | 79             | 153            | 197            | 272            |

A plug with a given rotation letter will mate with a receptacle with the same rotation letter. The angles for a given connector are the same whether it contains pins or sockets. Inserts are not rotated in conjunction with the master key/keyway.



# Amphe-Lite Series

## insert arrangements

front face of pin inserts illustrated

|                    |          |      |      |      |      |      |       |       |       |
|--------------------|----------|------|------|------|------|------|-------|-------|-------|
|                    |          |      |      |      |      |      |       |       |       |
| Insert Arrangement | 9-5      | 9-35 | 9-94 | 9-98 | 11-2 | 11-5 | 11-35 | 11-98 | 11-99 |
| Service Rating     | Grounded | M    | M    | I    | I    | I    | M     | I     | I     |
| Number of Contact  | 1        | 6    | 2    | 3    | 2    | 5    | 13    | 6     | 7     |
| Contact Size       | 8 Twinax | 22D  | 20   | 20   | 16   | 20   | 22D   | 20    | 20    |

|                    |      |      |       |       |      |       |       |       |
|--------------------|------|------|-------|-------|------|-------|-------|-------|
|                    |      |      |       |       |      |       |       |       |
| Insert Arrangement | 13-4 | 13-8 | 13-35 | 13-98 | 15-5 | 15-15 | 15-18 | 15-18 |
| Service Rating     | I    | I    | I     | M     | I    | II    | I     | I     |
| Number of Contacts | 4    | 8    | 22    | 10    | 5    | 14    | 1     | 18    |
| Contact Size       | 16   | 20   | 22D   | 20    | 16   | 20    | 16    | 20    |

|                    |       |       |       |       |      |      |
|--------------------|-------|-------|-------|-------|------|------|
|                    |       |       |       |       |      |      |
| Insert Arrangement | 15-19 | 15-35 | 15-97 | 15-AC | 17-2 | 17-6 |
| Service Rating     | I     | M     | I     | M     | M    | I    |
| Number of Contacts | 19    | 37    | 8     | 24    | 38   | 6    |
| Contact Size       | 20    | 22D   | 20    | 22D   | 22D  | 12   |

|                    |      |         |       |       |       |       |
|--------------------|------|---------|-------|-------|-------|-------|
|                    |      |         |       |       |       |       |
| Insert Arrangement | 17-8 | 17-22   | 17-26 | 17-31 | 17-35 | 17-99 |
| Service Rating     | II   | Coax    | I     | M     | M     | I     |
| Number of Contacts | 8    | 2       | 26    | 4     | 55    | 21    |
| Contact Size       | 16   | 12 Coax | 20    | 22D   | 22D   | 20    |

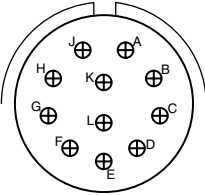
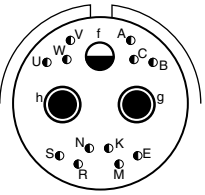
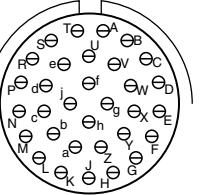
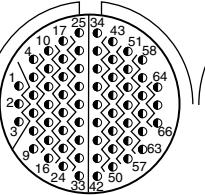
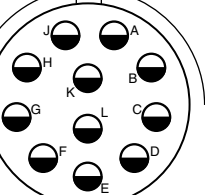
CONTACT LEGEND

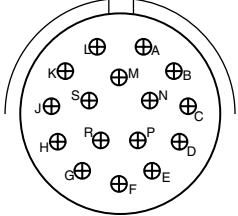
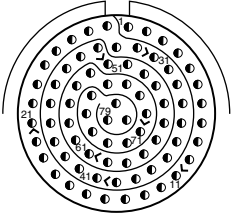
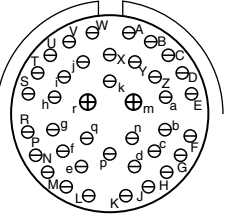
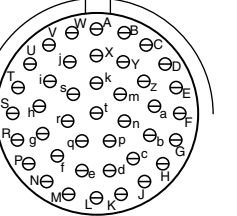
8
 10
 12
 16
 20
 22D

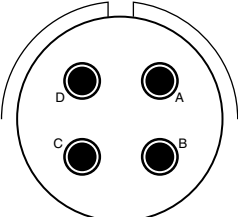
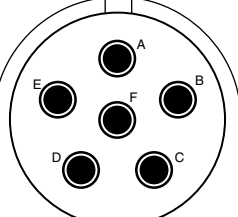
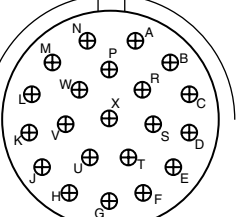
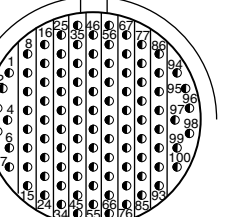
# Amphe-Lite Series

## insert arrangements

front face of pin inserts illustrated

|                    |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
|--------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                    |  |  |  |  |  |
| Insert Arrangement | 19-11                                                                             | 19-31                                                                             | 19-32                                                                              | 19-35                                                                               | 21-11                                                                               |
| Service Rating     | II                                                                                | M                                                                                 | I                                                                                  | M                                                                                   | I                                                                                   |
| Number of Contacts | 11                                                                                | 21                                                                                | 32                                                                                 | 66                                                                                  | 11                                                                                  |
| Contact Size       | 16                                                                                | 8 Coax 12 22D                                                                     | 20                                                                                 | 22D                                                                                 | 12                                                                                  |

|                    |                                                                                    |                                                                                    |                                                                                     |                                                                                      |
|--------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|                    |  |  |  |  |
| Insert Arrangement | 21-16                                                                              | 21-35                                                                              | 21-39                                                                               | 21-41                                                                                |
| Service Rating     | II                                                                                 | M                                                                                  | I                                                                                   | I                                                                                    |
| Number of Contacts | 16                                                                                 | 79                                                                                 | 37 2                                                                                | 41                                                                                   |
| Contact Size       | 16                                                                                 | 22D                                                                                | 20 16                                                                               | 20                                                                                   |

|                    |                                                                                     |                                                                                     |                                                                                      |                                                                                       |
|--------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                    |  |  |  |  |
| Insert Arrangement | 21-75                                                                               | 23-6                                                                                | 23-21                                                                                | 23-35                                                                                 |
| Service Rating     | M                                                                                   | M                                                                                   | II                                                                                   | M                                                                                     |
| Number of Contacts | 4                                                                                   | 6                                                                                   | 21                                                                                   | 100                                                                                   |
| Contact Size       | 8 Coax                                                                              | 8 Twinax                                                                            | 16                                                                                   | 22D                                                                                   |

Note: Size 8 cavities can be supplied with either twinax or coax per customer requirement.

CONTACT LEGEND


8


10


12


16


20

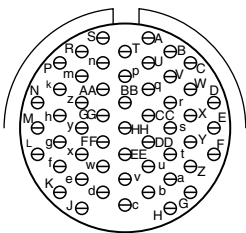

22D

# Amphe-Lite Series

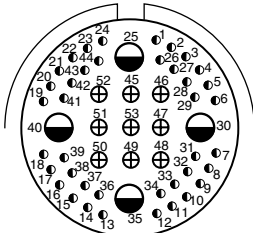
## insert arrangements

front face of pin inserts illustrated

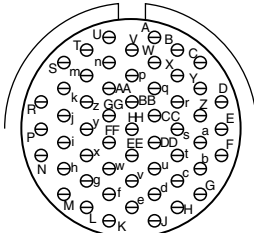
Insert Arrangement  
Service Rating  
Number of Contacts  
Contact Size



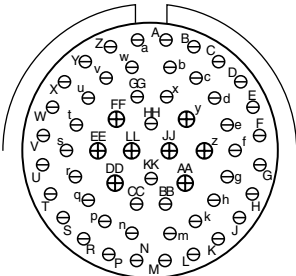
23-53  
I  
53  
20



23-54  
M  
40 9 4  
22D 16 12

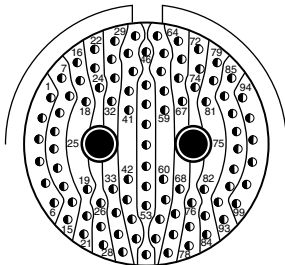


23-55  
I  
55  
20

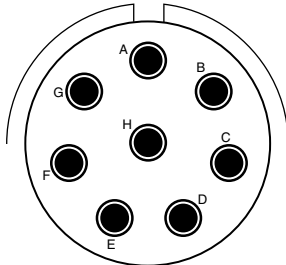


Insert Arrangement  
Service Rating  
Number of Contacts  
Contact Size

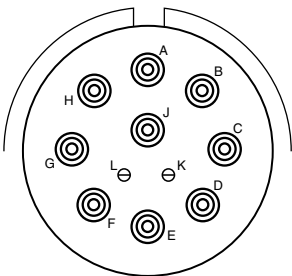
25-4  
I  
48 8  
20 16



25-7  
NA  
97 2  
22D 8 Twinax

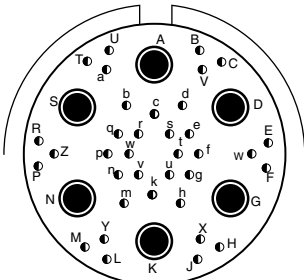


25-8  
NA  
8  
8 Twinax

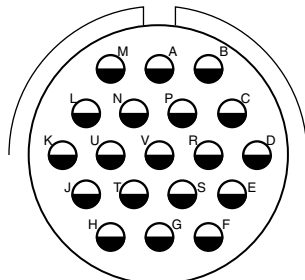


Insert Arrangement  
Service Rating  
Number of Contacts  
Contact Size

25-11  
N  
2 9  
20 10 Power



25-17  
M  
36 6  
22D 8 Twinax



25-19  
I  
19  
12

CONTACT LEGEND

●

8
 

⊙

10
 

◐

12
 

⊕

16
 

⊖

20
 

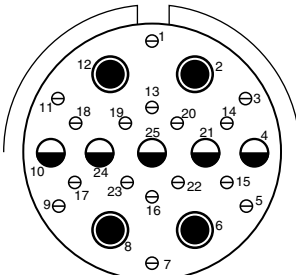
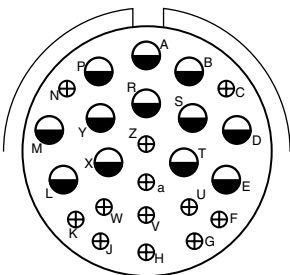
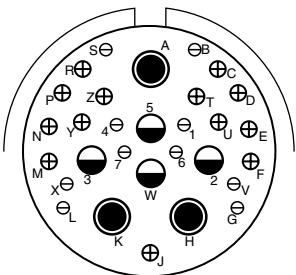
●

22D

# Amphe-Lite Series

## insert arrangements

front face of pin inserts illustrated

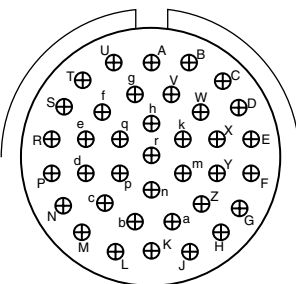
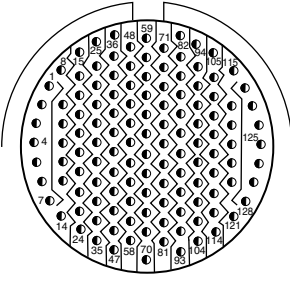
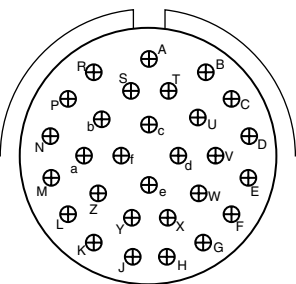


|                    |       |    |          |         |
|--------------------|-------|----|----------|---------|
| Insert Arrangement | 25-20 |    |          |         |
| Service Rating     | N     |    |          |         |
| Number of Contacts | 10    | 13 | 3        | 4       |
| Contact Size       | 20    | 16 | 8 Twinax | 12 Coax |

(Locations U and Y - Dedicated to Fiber Optics)

|                    |       |    |
|--------------------|-------|----|
| Insert Arrangement | 25-24 |    |
| Service Rating     | I     |    |
| Number of Contacts | 12    | 12 |
| Contact Size       | 16    | 12 |

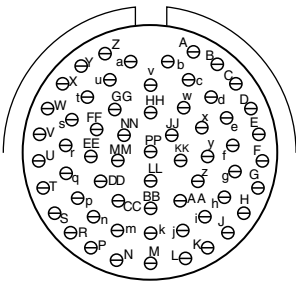
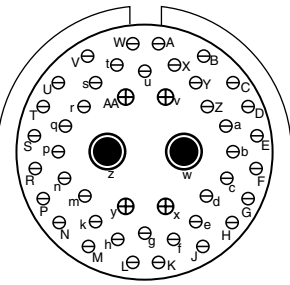
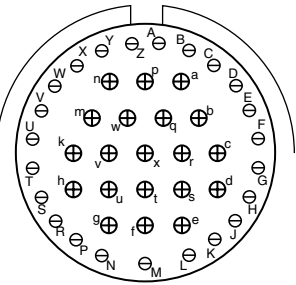
|                    |       |    |        |
|--------------------|-------|----|--------|
| Insert Arrangement | 25-26 |    |        |
| Service Rating     | I     |    |        |
| Number of Contacts | 16    | 5  | 4      |
| Contact Size       | 20    | 12 | 8 Coax |



|                    |       |  |
|--------------------|-------|--|
| Insert Arrangement | 25-29 |  |
| Service Rating     | I     |  |
| Number of Contacts | 29    |  |
| Contact Size       | 16    |  |

|                    |       |  |
|--------------------|-------|--|
| Insert Arrangement | 25-35 |  |
| Service Rating     | M     |  |
| Number of Contacts | 128   |  |
| Contact Size       | 22D   |  |

|                    |       |  |
|--------------------|-------|--|
| Insert Arrangement | 25-37 |  |
| Service Rating     | I     |  |
| Number of Contacts | 37    |  |
| Contact Size       | 16    |  |



|                    |       |    |
|--------------------|-------|----|
| Insert Arrangement | 25-43 |    |
| Service Rating     | I     |    |
| Number of Contacts | 23    | 20 |
| Contact Size       | 20    | 16 |

|                    |       |    |         |
|--------------------|-------|----|---------|
| Insert Arrangement | 25-46 |    |         |
| Service Rating     | I     |    |         |
| Number of Contacts | 40    | 4  | 2       |
| Contact Size       | 20    | 16 | 8 Coax† |

|                    |       |  |
|--------------------|-------|--|
| Insert Arrangement | 25-61 |  |
| Service Rating     | I     |  |
| Number of Contacts | 61    |  |
| Contact Size       | 20    |  |

† Coax contacts for RG180 or RG195 cable.

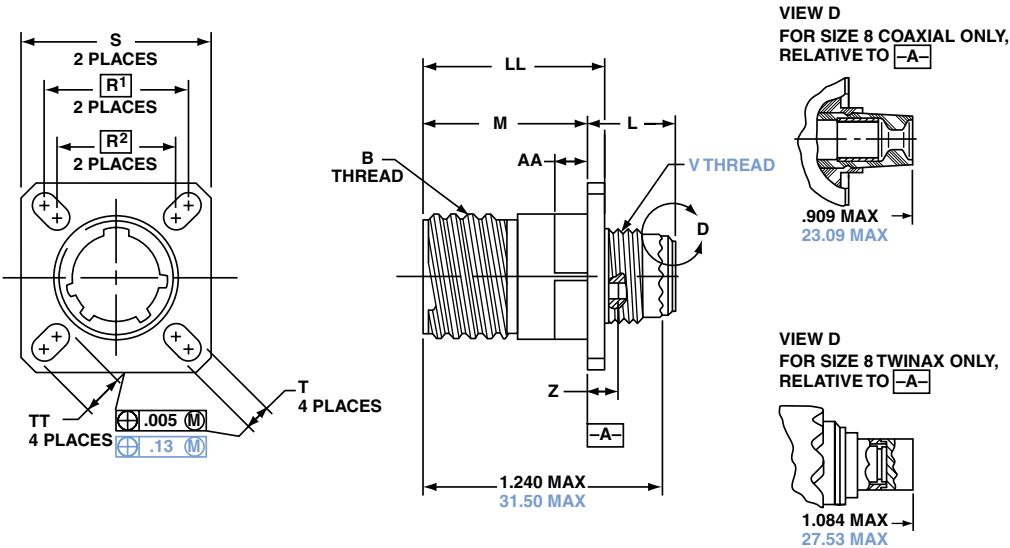
CONTACT LEGEND

 8  10  12  16  20  22D

# Amphe-Lite Series

## AL00 wall mounting receptacle, composite

AL00F(    )\*  
AL00U(    )\*  
AL00X(    )\*



\* To complete order number, see page 22.

| Inches     |                                         |        |                |                |                |        |                |        |                         |          |                 |
|------------|-----------------------------------------|--------|----------------|----------------|----------------|--------|----------------|--------|-------------------------|----------|-----------------|
| Shell Size | B Thread Class 2A 0.1P-0.3L-TS (Plated) | L Max. | M +.000 - .005 | R <sup>1</sup> | R <sup>2</sup> | S Max. | T +.008 - .006 | Z Max. | AA Max. Panel Thickness | LL ±.005 | TT +.008 - .006 |
| 9          | .6250                                   | .514   | .775           | .719           | .594           | .948   | .128           | .198   | .234                    | .913     | .216            |
| 11         | .7500                                   | .514   | .775           | .812           | .719           | 1.043  | .128           | .198   | .234                    | .913     | .194            |
| 13         | .8750                                   | .514   | .775           | .906           | .812           | 1.137  | .128           | .198   | .234                    | .913     | .194            |
| 15         | 1.0000                                  | .514   | .775           | .969           | .906           | 1.232  | .128           | .198   | .234                    | .913     | .173            |
| 17         | 1.1875                                  | .514   | .775           | 1.062          | .969           | 1.323  | .128           | .198   | .234                    | .913     | .194            |
| 19         | 1.2500                                  | .514   | .775           | 1.156          | 1.062          | 1.449  | .128           | .198   | .234                    | .913     | .194            |
| 21         | 1.3750                                  | .545   | .745           | 1.250          | 1.156          | 1.575  | .128           | .228   | .204                    | .911     | .194            |
| 23         | 1.5000                                  | .545   | .745           | 1.375          | 1.250          | 1.701  | .154           | .228   | .204                    | .911     | .242            |
| 25         | 1.6250                                  | .545   | .745           | 1.500          | 1.375          | 1.823  | .154           | .228   | .204                    | .911     | .242            |

| Millimeters |        |              |                |                |       |              |                 |        |         |         |               |
|-------------|--------|--------------|----------------|----------------|-------|--------------|-----------------|--------|---------|---------|---------------|
| Shell Size  | L Max. | M +.00 - .13 | R <sup>1</sup> | R <sup>2</sup> | S Max | T +.20 - .13 | V Thread Metric | Z Max. | AA Max. | LL ±.13 | TT +.20 - .13 |
| 9           | 13.06  | 19.69        | 18.26          | 15.09          | 24.1  | 3.25         | M12X1-6g        | 5.03   | 5.94    | 23.19   | 5.49          |
| 11          | 13.06  | 19.69        | 20.62          | 18.26          | 26.5  | 3.25         | M15X1-6g        | 5.03   | 5.94    | 23.19   | 4.93          |
| 13          | 13.06  | 19.69        | 23.01          | 20.62          | 28.9  | 3.25         | M18X1-6g        | 5.03   | 5.94    | 23.19   | 4.93          |
| 15          | 13.06  | 19.69        | 24.61          | 23.01          | 31.3  | 3.25         | M22X1-6g        | 5.03   | 5.94    | 23.19   | 4.39          |
| 17          | 13.06  | 19.69        | 26.97          | 24.61          | 33.7  | 3.25         | M25X1-6g        | 5.03   | 5.94    | 23.19   | 4.93          |
| 19          | 13.06  | 19.69        | 29.36          | 26.97          | 36.9  | 3.25         | M28X1-6g        | 5.03   | 5.94    | 23.19   | 4.93          |
| 21          | 13.84  | 18.92        | 31.75          | 29.36          | 40.1  | 3.25         | M31X1-6g        | 5.79   | 5.18    | 23.14   | 4.93          |
| 23          | 13.84  | 18.92        | 34.93          | 31.75          | 43.3  | 3.91         | M34X1-6g        | 5.79   | 5.18    | 23.14   | 6.15          |
| 25          | 13.84  | 18.92        | 38.10          | 34.93          | 46.4  | 3.91         | M37X1-6g        | 5.79   | 5.18    | 23.14   | 6.15          |

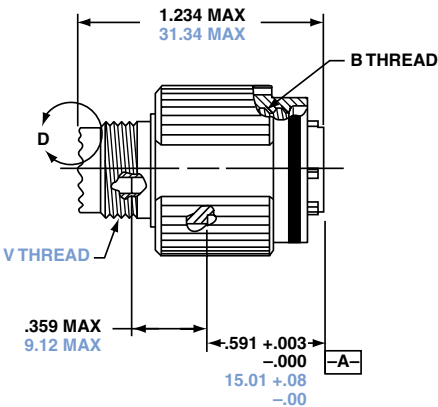
All dimensions for reference only

Designates true position dimensioning

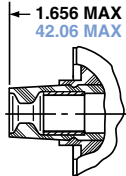
# Amphe-Lite Series

## AL06 straight plug, composite

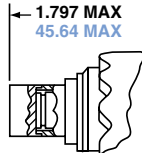
AL06F(    )\*  
 AL06U(    )\*  
 AL06X(    )\*



VIEW D  
 FOR SIZE 8 COAXIAL ONLY,  
 RELATIVE TO -A-



VIEW D  
 FOR SIZE 8 TWINAX ONLY,  
 RELATIVE TO -A-



\* To complete order number see page 22.

| Inches     |                                         |                   |
|------------|-----------------------------------------|-------------------|
| Shell Size | B Thread<br>0.1P-0.3L-TS-2B<br>(Plated) | Q<br>Dia.<br>Max. |
| 9          | .6250                                   | .858              |
| 11         | .7500                                   | .984              |
| 13         | .8750                                   | 1.157             |
| 15         | 1.0000                                  | 1.279             |
| 17         | 1.1875                                  | 1.405             |
| 19         | 1.2500                                  | 1.515             |
| 21         | 1.3750                                  | 1.641             |
| 23         | 1.5000                                  | 1.767             |
| 25         | 1.6250                                  | 1.889             |

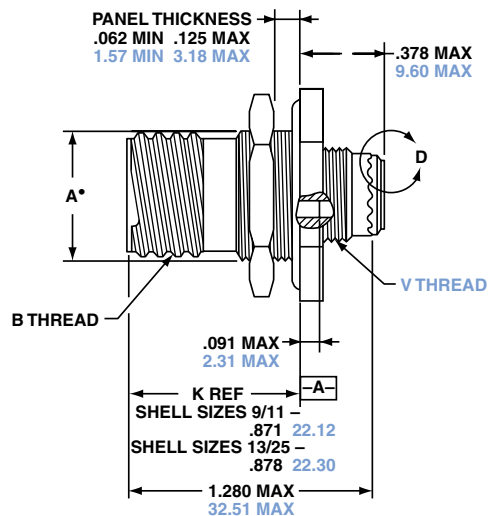
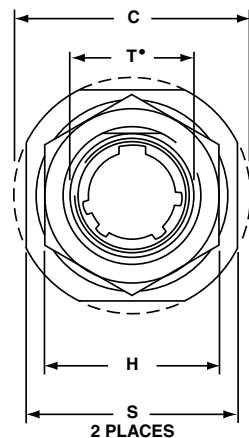
All dimensions for reference only.

| Millimeters |           |                       |
|-------------|-----------|-----------------------|
| Shell Size  | Q<br>Max. | V<br>Thread<br>Metric |
| 9           | 21.8      | M12X1-6g              |
| 11          | 25.0      | M15X1-6g              |
| 13          | 29.4      | M18X1-6g              |
| 15          | 32.5      | M22X1-6g              |
| 17          | 35.7      | M25X1-6g              |
| 19          | 38.5      | M28X1-6g              |
| 21          | 41.7      | M31X1-6g              |
| 23          | 44.9      | M34X1-6g              |
| 25          | 48.0      | M37X1-6g              |

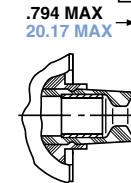
# Amphe-Lite Series

## AL07 jam nut receptacle, composite

AL07F( )\*  
AL07U( )\*  
AL07X( )\*



VIEW D  
FOR SIZE 8 COAXIAL ONLY,  
RELATIVE TO -A-



VIEW D  
FOR SIZE 8 TWINAX ONLY,  
RELATIVE TO -A-



\* To complete order number see page 22.

Inches

| Shell Size | A*<br>+.000<br>-.010 | B Thread<br>Class 2A<br>0.1P-0.3L-TS<br>(Plated) | C<br>Max. | H Hex<br>+.017<br>-.016 | S<br>±.010 | T*<br>+.010<br>-.000 |
|------------|----------------------|--------------------------------------------------|-----------|-------------------------|------------|----------------------|
| 9          | .669                 | .6250                                            | 1.199     | .875                    | 1.062      | .697                 |
| 11         | .769                 | .7500                                            | 1.386     | 1.062                   | 1.250      | .822                 |
| 13         | .955                 | .8750                                            | 1.511     | 1.250                   | 1.375      | 1.007                |
| 15         | 1.084                | 1.0000                                           | 1.636     | 1.375                   | 1.500      | 1.134                |
| 17         | 1.208                | 1.1875                                           | 1.761     | 1.438                   | 1.625      | 1.259                |
| 19         | 1.333                | 1.2500                                           | 1.949     | 1.562                   | 1.812      | 1.384                |
| 21         | 1.459                | 1.3750                                           | 2.073     | 1.688                   | 1.938      | 1.507                |
| 23         | 1.575                | 1.5000                                           | 2.199     | 1.812                   | 2.062      | 1.634                |
| 25         | 1.709                | 1.6250                                           | 2.323     | 2.000                   | 2.188      | 1.759                |

Millimeters

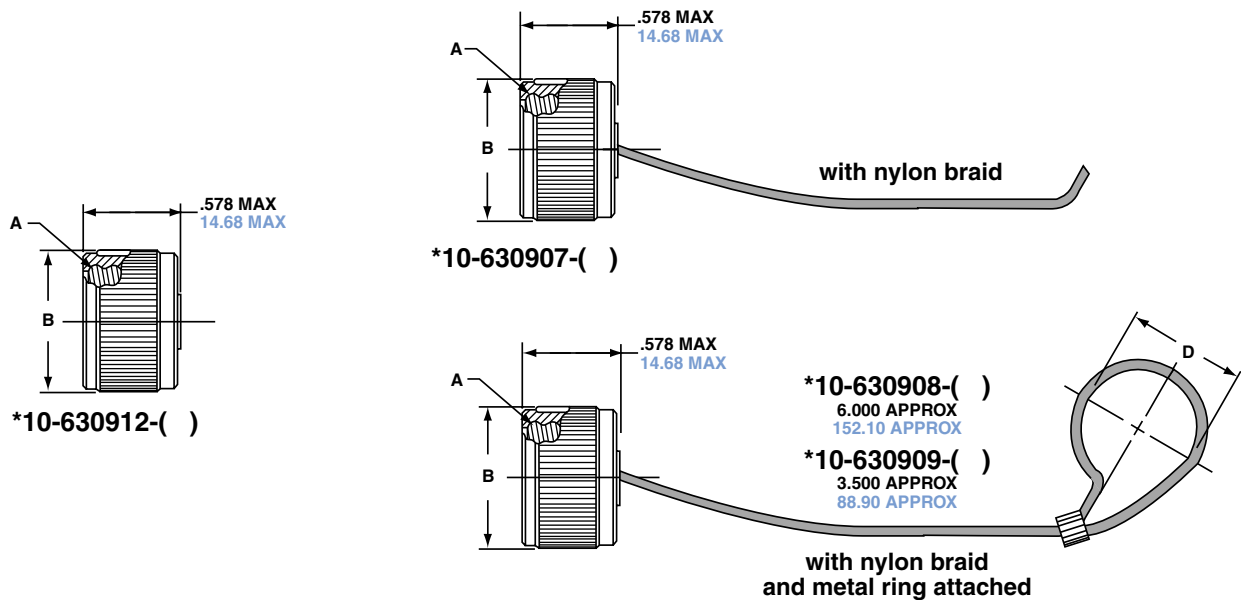
| Shell Size | A*<br>+.00<br>-.25 | C<br>Max. | H Hex<br>+.43<br>-.41 | S<br>±.25 | T*<br>+.25<br>-.00 | V<br>Thread<br>Metric |
|------------|--------------------|-----------|-----------------------|-----------|--------------------|-----------------------|
| 9          | 16.99              | 30.45     | 22.23                 | 26.97     | 17.70              | M12X1-6g              |
| 11         | 19.53              | 35.20     | 25.40                 | 31.75     | 20.88              | M15X1-6g              |
| 13         | 24.26              | 38.38     | 30.18                 | 34.93     | 25.58              | M18X1-6g              |
| 15         | 27.53              | 41.55     | 33.32                 | 38.10     | 28.80              | M22X1-6g              |
| 17         | 30.68              | 44.73     | 36.53                 | 41.28     | 31.98              | M25X1-6g              |
| 19         | 33.86              | 49.50     | 39.67                 | 46.02     | 35.15              | M28X1-6g              |
| 21         | 37.06              | 52.65     | 42.80                 | 49.23     | 38.28              | M31X1-6g              |
| 23         | 40.01              | 55.85     | 46.02                 | 52.37     | 41.50              | M34X1-6g              |
| 25         | 43.41              | 59.00     | 50.80                 | 55.58     | 44.68              | M37X1-6g              |

All dimensions for reference only.

• D shaped panel cut-out dimensions to prevent connector from turning

# Amphe-Lite – accessories

## receptacle protection cap



\* To complete order number, add shell size and suffix number.  
For example, shell size 11 with electroless nickel 10-630912-11F.

| Inches     |                                |             |                     |
|------------|--------------------------------|-------------|---------------------|
| Shell Size | A Thread Class 2B 0.1P-0.3L-TS | B Dia. Max. | D Dia. +.010 -0.000 |
| 9          | .6250                          | .875        | .703                |
| 11         | .7500                          | 1.000       | .844                |
| 13         | .8750                          | 1.125       | 1.016               |
| 15         | 1.0000                         | 1.250       | 1.141               |
| 17         | 1.1875                         | 1.438       | 1.266               |
| 19         | 1.2500                         | 1.500       | 1.391               |
| 21         | 1.3750                         | 1.625       | 1.516               |
| 23         | 1.5000                         | 1.750       | 1.641               |
| 25         | 1.6250                         | 1.875       | 1.766               |

| Millimeters |             |                  |
|-------------|-------------|------------------|
| Shell Size  | B Dia. Max. | D Dia +.25 -0.00 |
| 9           | 22.23       | 17.86            |
| 11          | 25.40       | 21.44            |
| 13          | 28.58       | 25.81            |
| 15          | 31.75       | 28.98            |
| 17          | 36.53       | 32.16            |
| 19          | 38.10       | 35.33            |
| 21          | 41.28       | 38.51            |
| 23          | 44.45       | 41.68            |
| 25          | 47.63       | 44.86            |

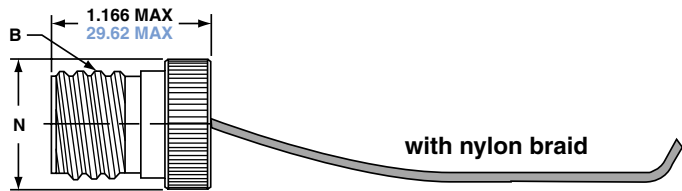
Consult Sidney, NY for availability of stainless steel protection caps.

All dimensions for reference only.

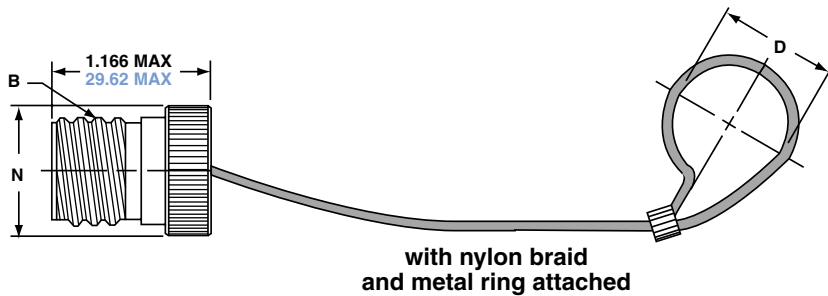
# Amphe-Lite – accessories

## plug protection cap

\*10-630910-( )



\*10-630911-( )



\* To complete order number, add shell size and suffix number.  
For example, shell size 11 with electroless nickel, 10-630910-11F

| Inches     |                                |                |             |
|------------|--------------------------------|----------------|-------------|
| Shell Size | A Thread Class 2A 0.1P-0.3L-TS | D +.030 - .000 | N Dia. Max. |
| 9          | .6250                          | .516           | .895        |
| 11         | .7500                          | .641           | 1.000       |
| 13         | .8750                          | .766           | 1.171       |
| 15         | 1.0000                         | .891           | 1.299       |
| 17         | 1.1875                         | 1.016          | 1.436       |
| 19         | 1.2500                         | 1.141          | 1.543       |
| 21         | 1.3750                         | 1.266          | 1.670       |
| 23         | 1.5000                         | 1.343          | 1.787       |
| 25         | 1.6250                         | 1.516          | 1.914       |

| Finish                       | 10-No Suffix |
|------------------------------|--------------|
| Electroless nickel           | -( )F        |
| Black composite, unplated    | -( )         |
| Black zinc alloy, conductive | -( )X        |

Consult Sidney, NY for availability of stainless steel protection caps.

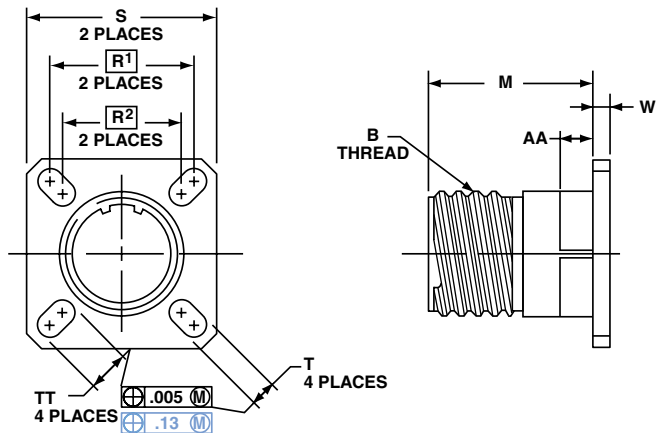
| Millimeters |              |             |
|-------------|--------------|-------------|
| Shell Size  | D +.25 - .00 | N Dia. Max. |
| 9           | 13.11        | 22.73       |
| 11          | 16.28        | 25.40       |
| 13          | 19.46        | 29.74       |
| 15          | 22.63        | 32.99       |
| 17          | 25.81        | 36.47       |
| 19          | 28.98        | 39.19       |
| 21          | 32.16        | 42.42       |
| 23          | 34.11        | 45.39       |
| 25          | 38.51        | 48.62       |

All dimensions for reference only.

# Amphe-Lite – accessories

## dummy receptacle

\*10-630913-( )



\* To complete order number, add shell size and suffix number.  
For example, shell size 11 with electroless nickel , 10-630913-11F.

Inches

| Finish                       | 10-No Suffix |
|------------------------------|--------------|
| Electroless nickel           | -( )F        |
| Black composite, unplated    | -( )         |
| Black zinc alloy, conductive | -( )X        |

| Shell Size | B Thread Class 2A 0.1P-0.3L-TS (Plated) | M +.020 - .000 | R <sup>1</sup> | R <sup>2</sup> | S ±.010 | T +.008 - .006 | W ±.010 | AA Max. Panel Thickness | TT +.008 - .006 |
|------------|-----------------------------------------|----------------|----------------|----------------|---------|----------------|---------|-------------------------|-----------------|
| 9          | .6250                                   | .822           | .719           | .594           | .938    | .128           | .098    | .234                    | .216            |
| 11         | .7500                                   | .822           | .812           | .719           | 1.031   | .128           | .098    | .234                    | .194            |
| 13         | .8750                                   | .822           | .906           | .812           | 1.125   | .128           | .098    | .234                    | .194            |
| 15         | 1.0000                                  | .822           | .969           | .906           | 1.219   | .128           | .098    | .234                    | .173            |
| 17         | 1.1875                                  | .822           | 1.062          | .969           | 1.312   | .128           | .098    | .234                    | .194            |
| 19         | 1.2500                                  | .822           | 1.156          | 1.062          | 1.438   | .128           | .098    | .234                    | .194            |
| 21         | 1.3750                                  | .791           | 1.250          | 1.156          | 1.562   | .128           | .125    | .204                    | 1.94            |
| 23         | 1.5000                                  | .791           | 1.375          | 1.250          | 1.688   | .154           | .125    | .204                    | .242            |
| 25         | 1.6250                                  | .791           | 1.500          | 1.375          | 1.812   | .154           | .125    | .204                    | .242            |

Millimeters

| Shell Size | M +.51 - .00 | R <sup>1</sup> | R <sup>2</sup> | S ±.25 | T +.20 - .15 | W ±.25 | AA Max. | TT +.20 - .15 |
|------------|--------------|----------------|----------------|--------|--------------|--------|---------|---------------|
| 9          | 20.88        | 18.26          | 15.09          | 23.83  | 3.25         | 2.49   | 5.94    | 5.49          |
| 11         | 20.88        | 20.62          | 18.26          | 26.19  | 3.25         | 2.49   | 5.94    | 4.93          |
| 13         | 20.88        | 23.01          | 20.62          | 28.58  | 3.25         | 2.49   | 5.94    | 4.93          |
| 15         | 20.88        | 24.61          | 23.01          | 30.96  | 3.25         | 2.49   | 5.94    | 4.39          |
| 17         | 20.88        | 26.97          | 24.61          | 33.32  | 3.25         | 2.49   | 5.94    | 4.93          |
| 19         | 20.88        | 29.36          | 26.97          | 36.53  | 3.25         | 2.49   | 5.94    | 4.93          |
| 21         | 20.09        | 31.75          | 29.36          | 39.67  | 3.25         | 3.18   | 5.18    | 4.93          |
| 23         | 20.09        | 34.93          | 31.75          | 42.88  | 3.91         | 3.18   | 5.18    | 6.15          |
| 25         | 20.09        | 38.10          | 34.93          | 46.02  | 3.91         | 3.18   | 5.18    | 6.15          |

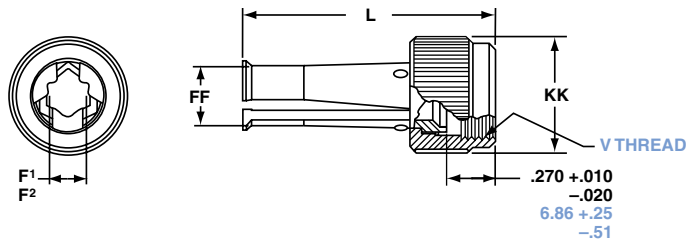
All dimensions for reference only.

Designates true position dimensioning

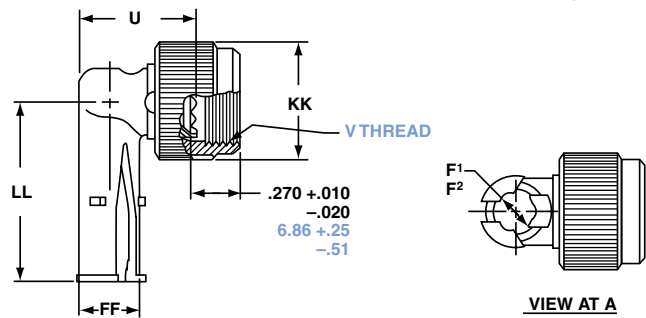
# Amphe-Lite – accessories

## cable clamps

\*10-630934-XXX



\*10-630935-XXX



\* To complete order number, add shell size and suffix number.  
For example, shell size 11 with electroless nickel, 10-630934-11F.

| Finish             | 10-No<br>Suffix |
|--------------------|-----------------|
| Electroless nickel | -( )F           |

Inches

| Shell<br>Size | F <sup>1</sup><br>Min.<br>Dia.<br>Cable | F <sup>2</sup><br>Max.<br>Dia.<br>Cable | L<br>Max. | U<br>Max. | FF<br>Dia.<br>Max. | KK<br>Dia.<br>Max. | LL<br>Max. |
|---------------|-----------------------------------------|-----------------------------------------|-----------|-----------|--------------------|--------------------|------------|
| 9             | .094                                    | .203                                    | 1.431     | .656      | .347               | .629               | 1.015      |
| 11            | .141                                    | .250                                    | 1.431     | .688      | .394               | .756               | 1.062      |
| 13            | .172                                    | .323                                    | 1.431     | .750      | .467               | .883               | 1.125      |
| 15            | .203                                    | .422                                    | 1.431     | .859      | .566               | 1.011              | 1.328      |
| 17            | .234                                    | .500                                    | 1.431     | .937      | .644               | 1.138              | 1.392      |
| 19            | .265                                    | .562                                    | 1.431     | 1.000     | .706               | 1.265              | 1.453      |
| 21            | .297                                    | .625                                    | 1.492     | 1.062     | .769               | 1.393              | 1.609      |
| 23            | .328                                    | .703                                    | 1.492     | 1.141     | .847               | 1.488              | 1.656      |
| 25            | .359                                    | .765                                    | 1.492     | 1.203     | .909               | 1.616              | 1.719      |

Millimeters

| Shell<br>Size | F <sup>1</sup><br>Min. Dia.<br>Cable | F <sup>2</sup><br>Max. Dia.<br>Cable | L<br>Max. | U<br>Max. | FF<br>Dia. Max. | KK<br>Dia.<br>Max. | LL<br>Max. |
|---------------|--------------------------------------|--------------------------------------|-----------|-----------|-----------------|--------------------|------------|
| 9             | 2.39                                 | 5.16                                 | 36.35     | 16.66     | 8.81            | 15.98              | 25.78      |
| 11            | 3.58                                 | 6.35                                 | 36.35     | 17.48     | 10.01           | 19.20              | 26.97      |
| 13            | 4.37                                 | 8.20                                 | 36.35     | 19.05     | 11.86           | 22.43              | 28.58      |
| 15            | 5.16                                 | 10.72                                | 36.35     | 21.82     | 14.38           | 25.68              | 33.73      |
| 17            | 5.94                                 | 12.70                                | 36.35     | 23.80     | 16.36           | 28.91              | 35.36      |
| 19            | 6.73                                 | 14.27                                | 36.35     | 25.40     | 17.93           | 32.13              | 36.91      |
| 21            | 7.54                                 | 15.88                                | 37.90     | 26.97     | 19.53           | 35.38              | 40.87      |
| 23            | 8.33                                 | 17.86                                | 37.90     | 28.98     | 21.51           | 37.80              | 42.06      |
| 25            | 9.12                                 | 19.43                                | 37.90     | 30.56     | 23.09           | 41.05              | 43.66      |

All dimensions for reference only.

# Amphe-Lite Series

## contacts, sealing plugs, plastic dust caps

### STANDARD CONTACTS FOR AMPHE-LITE SERIES

| Contact Size | Pin Part Number                      | Socket Part Number                   |
|--------------|--------------------------------------|--------------------------------------|
| 8 (Coax)     | 21-33102-21                          | 21-33101-21                          |
| 8 (Twinax)   | 21-33190-529                         | 21-33191-530                         |
| 10 (Power)   | 10-251415-105                        | 10-407035-105                        |
| 12           | 10-251415-12H                        | 10-597261-121                        |
| 16           | 10-251415-165                        | 10-407035-165                        |
| 20           | LP-251415-205                        | 10-597261-201                        |
| 22D          | LP-251415-725<br>or<br>10-597434-725 | 10-597261-721<br>or<br>10-597825-451 |

Above part numbers include standard 500 cycle finish designation - gold plating over suitable underplate in accordance with MIL-C-39029.

For other contact options available for use in Amphe-Lite connectors, (thermo-couple) consult Sidney, NY.

### PLASTIC DUST CAPS

| Shell Size | Plug        | Receptacle  |
|------------|-------------|-------------|
| 9          | 10-70506-14 | 10-70500-10 |
| 11         | 10-70506-16 | 10-70500-12 |
| 13         | 10-70500-18 | 10-70500-14 |
| 15         | 10-70500-20 | 10-70500-16 |
| 17         | 10-70500-22 | 10-70500-19 |
| 19         | 10-70500-24 | 10-70500-20 |
| 21         | 10-70524-1  | 10-70500-22 |
| 23         | 10-70506-28 | 10-70500-24 |
| 25         | 10-70500-28 | 10-70524-1  |

For metal protection caps see pages 12 and 13.

### SEALING PLUGS

| Contact Size | Proprietary No. |
|--------------|-----------------|
| 8 (Coax)     | 10-482099-8     |
| 8 (Twinax)   | T3-4008-59P     |
| 10 (Power)   | 10-576225       |
| 12           | 10-405996-121   |
| 16           | 10-405996-161   |
| 20           | 10-405996-201   |
| 22D          | 10-405996-221   |

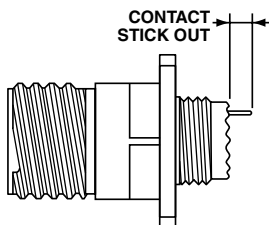
# Amphe-Lite Series

## contacts – printed circuit board, wire wrap

### SOCKETS

| PCB Socket Contacts | Size | Tail Dia    | Contact Stickout Max/Min<br>(See Illustration below) |              |              |
|---------------------|------|-------------|------------------------------------------------------|--------------|--------------|
|                     |      |             | AL00                                                 | AL06         | AL07         |
| 10-497623-15        | 22D  | .019        | .291<br>.226                                         | .316<br>.251 | .242<br>.182 |
| 10-497623-25        | 22D  | .019        | .868<br>.803                                         | .893<br>.828 | .819<br>.759 |
| 10-497623-35        | 22D  | .019        | .348<br>.283                                         | .373<br>.308 | .299<br>.239 |
| 10-497623-45        | 22D  | .019        | .208<br>.143                                         | .233<br>.168 | .159<br>.099 |
| 10-497623-75        | 22D  | .019        | .146<br>.081                                         | .171<br>.106 | .097<br>.037 |
| 10-497623-105       | 22D  | .019        | .028<br>NS                                           | .053<br>.000 | .021<br>NS   |
| 10-497623-145       | 22D  | .019        | .609<br>.539                                         | .634<br>.564 | .560<br>.495 |
| 10-497623-155       | 22D  | .019        | .423<br>.358                                         | .448<br>.383 | .374<br>.314 |
| 10-497643-15        | 20   | .019        | .348<br>.294                                         | .373<br>.319 | .299<br>.250 |
| 10-497643-25        | 20   | .019        | .213<br>.159                                         | .238<br>.184 | .164<br>.115 |
| 10-497643-35        | 20   | .019        | .555<br>.501                                         | .580<br>.526 | .506<br>.457 |
| 10-497643-45        | 20   | .019        | .138<br>.084                                         | .163<br>.109 | .089<br>.040 |
| 10-497650-15        | 16   | .040        | .255<br>.201                                         | .280<br>.226 | .206<br>.157 |
| Wire Wrap Contacts  |      | Tail Square |                                                      |              |              |
| 10-497577-15        | 22D  | .025        | .155<br>.090                                         | .180<br>.115 | .106<br>.046 |
| 10-497577-25        | 22D  | .025        | .002<br>NS                                           | .027<br>NS   | NS<br>NS     |
| 10-497577-35        | 22D  | .025        | .201<br>.136                                         | .226<br>.161 | .152<br>.092 |
| 10-497577-55        | 22D  | .025        | .566<br>.501                                         | .591<br>.526 | .517<br>.457 |
| 10-497621-15        | 20   | .025        | .151<br>.101                                         | .176<br>.126 | .102<br>.057 |
| 10-497621-25        | 20   | .025        | .605<br>.555                                         | .630<br>.580 | .556<br>.511 |
| 10-497621-35        | 20   | .025        | .308<br>.258                                         | .333<br>.283 | .259<br>.214 |

All dimensions for reference only.  
Consult Sidney, NY for specific contact contour stickout data.  
NS designates No Stickout.



See also catalog 12-170, Amphenol Cylindrical Connectors for PCB Applications. This catalog provides the most commonly used insert pattern pin-out drawings which have been tooled for the purpose of attaching cylindrical connectors to printed circuit boards.

### PINS

| PCB Pin Contacts   | Size | Tail Dia    | Contact Stickout Max/Min<br>(See Illustration below) |              |              |
|--------------------|------|-------------|------------------------------------------------------|--------------|--------------|
|                    |      |             | AL00                                                 | AL06         | AL07         |
| 10-407552-15       | 22M  | .019        | .335<br>.280                                         | .360<br>.305 | .286<br>.236 |
| 10-407552-55       | 22M  | .019        | .224<br>.169                                         | .249<br>.194 | .175<br>.125 |
| 10-407552-85       | 22M  | .019        | .060<br>.010                                         | .085<br>.035 | .011<br>NS   |
| 10-407552-95       | 22M  | .019        | NS                                                   | NS           | NS           |
| 10-407552-115      | 22M  | .019        | .002<br>NS                                           | .023<br>NS   | NS           |
| 10-497640-15       | 20   | .019        | .348<br>.298                                         | .373<br>.323 | .299<br>.254 |
| 10-497640-25       | 20   | .019        | .213<br>.163                                         | .238<br>.188 | .164<br>.119 |
| 10-497640-45       | 20   | .019        | NS                                                   | NS           | NS           |
| 10-497640-65       | 20   | .019        | .138<br>.088                                         | .163<br>.113 | .089<br>.044 |
| 10-497596-15       | 20   | .025        | .058<br>.012                                         | .083<br>.037 | .009<br>NS   |
| 10-497596-25       | 20   | .025        | .148<br>.102                                         | .173<br>.127 | .099<br>.058 |
| 10-497596-35       | 20   | .025        | .229<br>.183                                         | .254<br>.208 | .180<br>.139 |
| 10-497596-55       | 20   | .025        | .346<br>.300                                         | .371<br>.325 | .297<br>.256 |
| 10-497695-15       | 16   | .040        | .255<br>.205                                         | .280<br>.230 | .206<br>.161 |
| 10-497630-25       | 16   | .062        | .348<br>.298                                         | .373<br>.323 | .299<br>.254 |
| 10-497630-35       | 16   | .062        | .060<br>.010                                         | .085<br>.035 | .011<br>NS   |
| 10-497630-45       | 16   | .062        | .108<br>.062                                         | .133<br>.087 | .059<br>.018 |
| 10-597502-15       | 12   | .081        | .228<br>.178                                         | .252<br>.203 | .179<br>.134 |
| Wire Wrap Contacts |      | Tail Square |                                                      |              |              |
| 10-407572-15       | 22D  | .025        | .014<br>NS                                           | .498<br>.007 | NS<br>NS     |
| 10-407572-35       | 22D  | .025        | .155<br>.105                                         | .180<br>.130 | .106<br>.061 |
| 10-407572-45       | 22D  | .025        | .255<br>.205                                         | .280<br>.230 | .206<br>.161 |
| 10-407572-75       | 22D  | .025        | .521<br>.475                                         | .546<br>.500 | .472<br>.431 |
| 10-407584-25       | 20   | .025        | .605<br>.559                                         | .630<br>.584 | .556<br>.515 |
| 10-407584-35       | 20   | .025        | .308<br>.262                                         | .333<br>.287 | .259<br>.218 |

PCB socket and pin numbers include finish designation - gold plating over suitable underplate in accordance with MIL-C-39029. For other finish variations, consult Sidney, NY.

Note: 22M and 22D contacts are interchangeable.

For other contact options available for use in Amphe-Lite connectors (thermocouple, fiber optic), consult Sidney, NY.

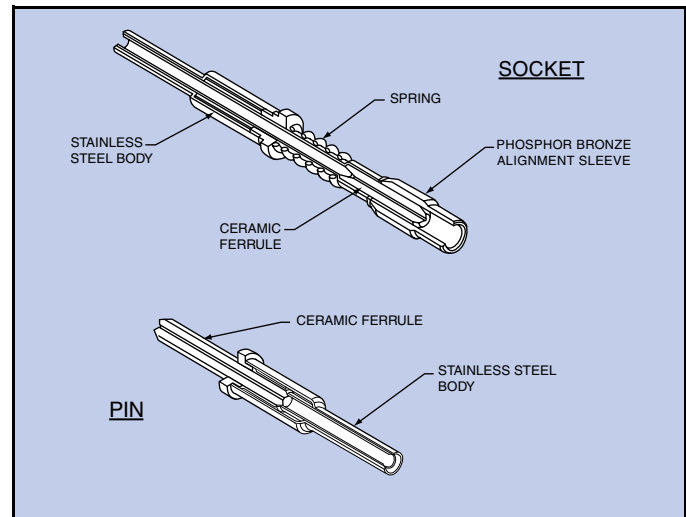
# Amphe-Lite Series

## fiber optic termini – multi-mode, size 16

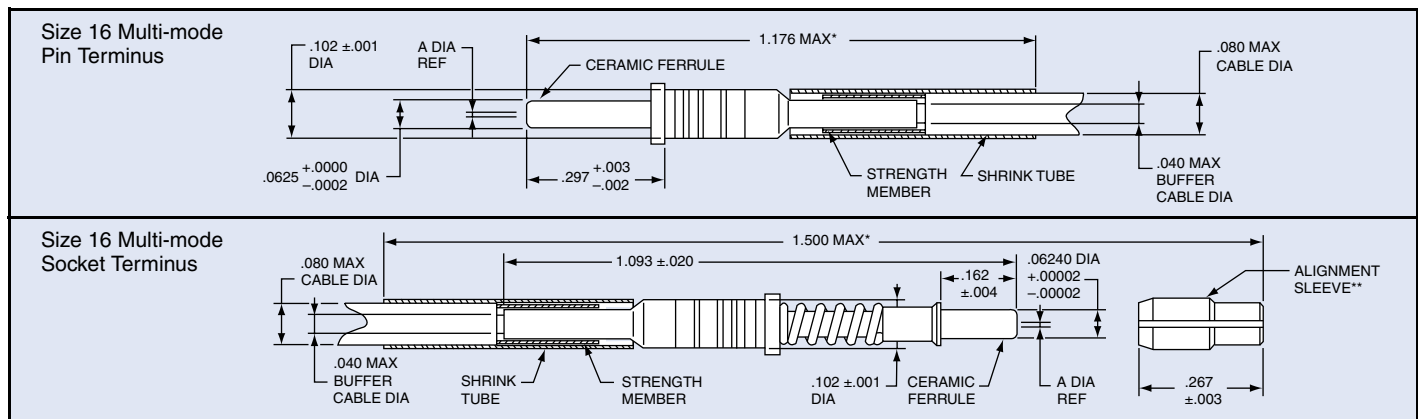
### Amphenol® Multi-mode, Size 16 Termini

#### Features and Performance Levels:

- Ceramic alignment ferrule which precisely positions the fiber within the termini
- Phosphor bronze alignment sleeve, assembled on the socket after polishing insures accurate fiber to fiber alignment (a ceramic alignment sleeve is also available).
- Typical insertion loss for 100/140 fiber with .2 NA at 820 nm is .5 to .7 dB using Air Gap (AG) polish technique  
Use of the ceramic ferrule and sleeve maximizes the ability to hold extremely tight dimensional tolerances while maintaining accurate concentricity, thus providing superior and consistent optical loss performance.
- Termination accomplished using the industry proven epoxy/polish method. Can be polished Air Gap (AG) or Physical contact (PC).
- Socket cleaning optional. Consult Amphenol, Sidney, NY for termini cleaning tool. For application tools consult Sidney, NY.



Multi-mode Size 16 Fiber Optic Termini



Amphenol® Multi-Channel fiber optic connectors are supplied less contacts. Order multi-mode termini by Amphenol part number designation as shown in the chart below. Consult Amphenol, Sidney, NY for further availability.

\* Indicated dimension when fully assembled.  
\*\* Alignment sleeve shipped unassembled.

### Ordering Information Multi-mode Termini (Size 16) for Amphe-Lite Connectors

| Fiber Size†<br>Core/Cladding Dia (Microns) | Size 16 Socket | Size 16 Pin   | A Dia Ref |         |
|--------------------------------------------|----------------|---------------|-----------|---------|
|                                            |                |               | Inches    | Microns |
| 50/125                                     | CF-198035-010  | CF-198036-010 | .0050     | 127     |
| 62.5/125                                   |                |               |           |         |
| 100/140                                    | CF-198035-017  | CF-198036-017 | .0057     | 145     |
| 100/140/172                                | CF-198035-029  | CF-198036-029 | .0069     | 175     |
| 100/140/172                                | CF-198035-29A  | CF-198036-29A | .0068     | 173.5   |
| 200/230                                    | CF-198035-053  | CF-198036-053 | .0093     | 236     |
| 200/240                                    | CF-198035-057  | CF-198036-057 | .0097     | 245     |
| 200/280                                    | CF-198035-074  | CF-198036-074 | .0114     | 290     |
| 200/300                                    | CF-198035-080  | CF-198036-080 | .0120     | 305     |

† Additional sizes available upon request: consult Amphenol, Sidney, NY for availability.

Power contacts can be purchased separately, contact Amphenol, Sidney, NY.

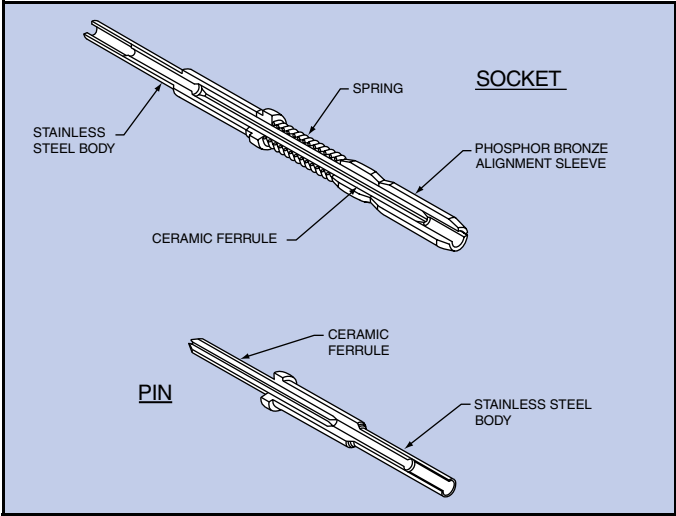
# Amphe-Lite Series

## fiber optic termini – multi-mode, size 20

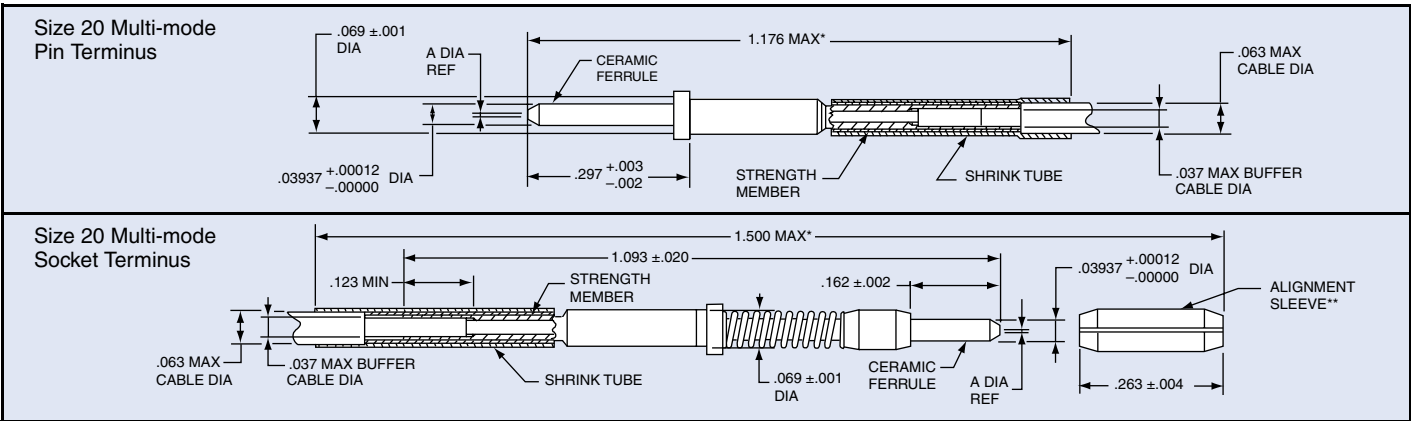
### Amphenol® Multi-mode, Size 20 Termini

Features and Performance Levels:

- Designed for use in size 20 cavities of Amphe-Lite connectors
- Designed with similar high performance components as the proven size 16 termini
- Comparable performance and reliability to the size 16 termini can be expected
- Offers increased termini density in Amphenol Amphe-Lite connectors
- Maintains fiber optic/electrical hybrid capabilities
- Allows for multiple fiber accommodations
- Termination accomplished using the industry proven epoxy/polish method. Can be polished Air Gap (AG) or Physical contact (PC).
- Socket cleaning optional. Consult Amphenol, Sidney, NY for termini cleaning tool. For application tools consult Sidney, NY.



Multi-mode Size 20 Fiber Optic Termini



Amphenol® Multi-Channel fiber optic connectors are supplied less contacts. Order multi-mode termini by Amphenol part number designation as shown in the chart below. Consult Amphenol, Sidney, NY for further availability.

\* Indicated dimension when fully assembled.  
\*\* Alignment sleeve shipped unassembled.

### Ordering Information

#### Multi-mode Termini (Size 16) for Amphe-Lite Connectors

| Fiber Size†<br>Core/Cladding Dia (Microns) | Size 20 Socket | Size 20 Pin   | A Dia Ref |         |
|--------------------------------------------|----------------|---------------|-----------|---------|
|                                            |                |               | Inches    | Microns |
| 50/125                                     | CF-198080-010  | CF-198081-010 | 0.0050    | 127     |
| 62.5/125                                   |                |               |           |         |
| 100/140                                    | CF-198080-017  | CF-198081-017 | 0.0057    | 145     |

† Additional sizes available upon request: consult Sidney, NY for availability.  
Power contacts can be purchased separately, contact Sidney, NY.

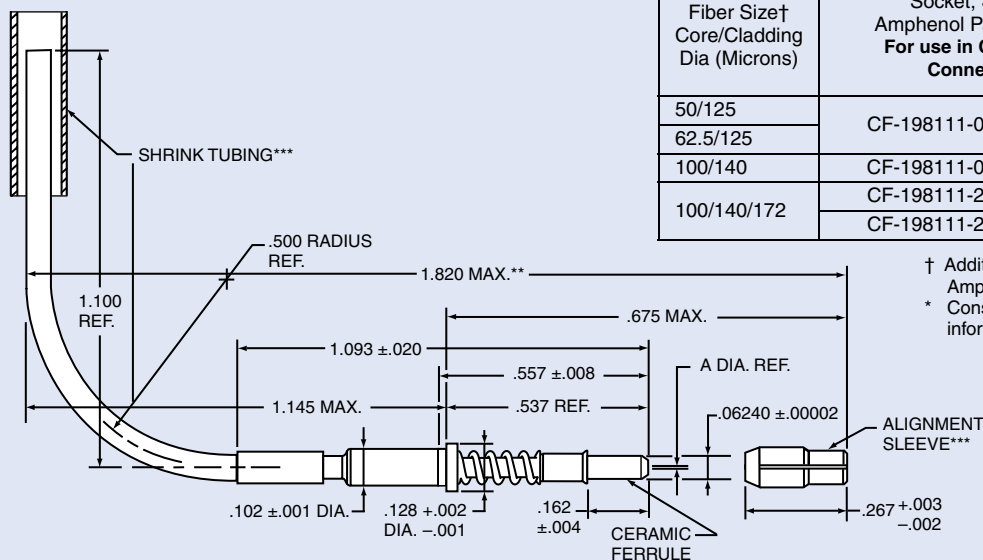
# Amphe-Lite Series

## fiber optic termini – 90° multi-mode, size 16

Amphenol provides 90°, size 16 fiber optic termini that can be used with multi-channel cylindrical connectors.

### 90° Socket Termini (Size 16)

### Ordering Information for 90° Multi-mode Socket Termini



† Additional sizes available upon request: consult Amphenol, Sidney, NY for availability.

\* Consult Amphenol, Sidney, NY for ordering information.

\*\* Indicated dimension when fully assembled.

\*\*\* Shrink tubing and alignment sleeve are shipped unassembled.

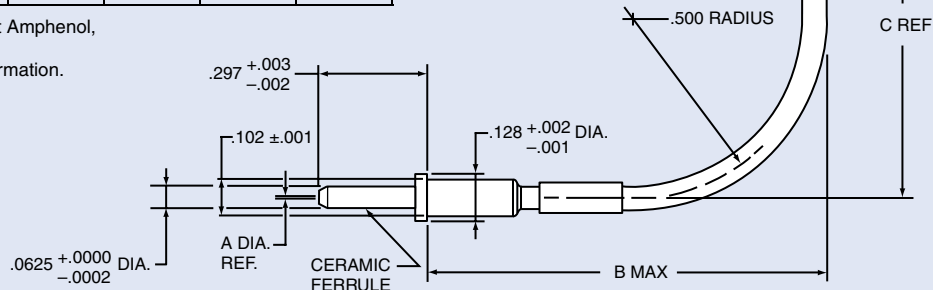
### 90° Pin Termini (Size 16)

### Ordering Information for 90° Multi-mode Pin Termini

| Fiber Size†<br>Core/Cladding<br>Dia (Microns) | Pin, Size 16<br>Amphenol Part Number<br>For use in Cylindrical<br>Connectors | A Dia Ref |         | B Max<br>(Inches) | C Ref<br>(Inches) |
|-----------------------------------------------|------------------------------------------------------------------------------|-----------|---------|-------------------|-------------------|
|                                               |                                                                              | Inches    | Microns |                   |                   |
| 50/125                                        | CF-198110-010                                                                | .0050     | 127     | 1.121             | 1.100             |
| 62.5/125                                      |                                                                              |           |         |                   |                   |
| 100/140                                       | CF-198110-017                                                                | .0057     | 145     | 1.121             | 1.100             |
| 100/140/172                                   | CF-198110-029                                                                | OR        | .0069   | 175               | 1.100             |
|                                               | CF-198110-29A                                                                |           | .0068   | 173.5             | 1.100             |
| 50/125                                        | CF-198112-010                                                                | .0050     | 127     | 1.003             | .900              |
| 62.5/125                                      |                                                                              |           |         |                   |                   |
| 100/140                                       | CF-198112-017                                                                | .0057     | 145     | 1.003             | .900              |
| 100/140/172                                   | CF-198112-029                                                                | OR        | .0069   | 175               | 1.003             |
|                                               | CF-198112-29A                                                                |           | .0068   | 173.5             | .900              |

† Additional sizes available upon request: consult Amphenol, Sidney, NY for availability.

\* Consult Amphenol, Sidney, NY for ordering information.



# Amphe-Lite Series

## application tools

The following data includes information pertaining to the application tools which have been established for crimping, inserting, and removing contacts incorporated in the Amphe-Lite Series connectors. For additional information on coaxial contact tools see catalog 12-130.

All crimping tools included are the “full cycling” type.

There is a possibility of additional crimping tools other than those included being available at present or in the future for this specific application.

### RECOMMENDED CRIMPING TOOLS

| Contact Size/Type                        | Crimping Tool                             | Turret Die or Positioner                  |
|------------------------------------------|-------------------------------------------|-------------------------------------------|
| 12 Pin and Socket                        | M22520/1-01                               | M22520/1-04                               |
| 16 Pin and Socket                        | M22520/1-01<br>M22520/7-01                | M22520/1-04<br>M22520/7-04                |
| 20 Pin and Socket                        | M22520/1-01<br>M22520/2-01<br>M22520/7-01 | M22520/1-04<br>M22520/2-10<br>M22520/7-08 |
| 22D Pin                                  | M22520/2-01<br>M22520/7-01                | M22520/2-09<br>M22520/7-07                |
| 22D Socket                               | M22520/2-01<br>M22520/7-01                | M22520/2-07<br>M22520/7-05                |
| 8 Twinax Center Pin and Socket           | M22520/2-01                               | M22520/2-37                               |
| 8 Twinax Intermediate Outer Pin & Socket | M22520/5-01                               | M22520/5-200                              |

| Contact Size/Type               | Crimping Tool | Turret Die or Positioner   |
|---------------------------------|---------------|----------------------------|
| 8 Coaxial Inner Pin and Socket  | M22520/2-01   | M22520/2-31                |
| 8 Coaxial Outer Pin and Socket  | M22520/5-01   | M22520/5-05 Die Closure B  |
|                                 | M22520/5-01   | M22520/5-41 Die Closure B  |
|                                 | M22520/10-01  | M22520/10-07 Die Closure B |
| 16 Coaxial Inner Pin and Socket | M22520/2-01   | M22520/2-35                |
| 16 Coaxial Outer Pin and Socket | M22520/4-01   | M22520/4-02                |
| 12 Coaxial Inner Pin and Socket | M22520/2-01   | M22520/2-34                |
| 12 Coaxial Outer Pin and Socket | M22520/31-01  | M22520/31-02               |
| 10 (Power)                      | TP201423      | 1716P-1                    |

Where 2 or 3 tools are listed for a contact size, only one tool and its die or positioner are required to crimp the contact.

The above crimping tools and positioners are available from the approved tool manufacturer.

### INSERTION TOOLS

| Use with Contact Size | Plastic Tools  |                  | Metal Tools    |                         |                                       |        |
|-----------------------|----------------|------------------|----------------|-------------------------|---------------------------------------|--------|
|                       | MS Part Number | Color            | Angle Type     |                         | Straight Type Proprietary Part Number | Color  |
|                       |                |                  | MS Part Number | Proprietary Part Number |                                       |        |
| 10 (Power)            | M81969/14-05*  | Gray / (White)   | M81969/8-11    | †                       | †                                     | Green  |
| 12                    | M81969/14-04*  | Yellow / (White) | M81969/8-09    | 11-8674-12              | 11-8794-12                            | Yellow |
| 16                    | M81969/14-03*  | Blue / (White)   | M81969/8-07    | 11-8674-16              | 11-8794-16                            | Blue   |
| 20                    | M81969/14-10*  | Red / (Orange)   | M81969/8-05    | 11-8674-20              | 11-8794-20                            | Red    |
| 22D                   | M81969/14-01*  | Green / (White)  | M81969/8-01    | 11-8674-24              | 11-8794-24                            | Black  |
| 8 Coaxial             | None Required  |                  |                |                         |                                       |        |
| 8 Twinax              | None           |                  | M81969/46-06** | None                    |                                       | Red    |

### REMOVAL TOOLS

| Use with Contact Size | Plastic Tools  |                  | Metal Tools                                  |                |                         |                                       |                |
|-----------------------|----------------|------------------|----------------------------------------------|----------------|-------------------------|---------------------------------------|----------------|
|                       | MS Part Number | Color            | For Unwired Contacts Proprietary Part Number | Angle Type     |                         | Straight Type Proprietary Part Number | Color          |
|                       |                |                  |                                              | MS Part Number | Proprietary Part Number |                                       |                |
| 10 (Power)            | M81969/14-05*  | (Gray) / White   | †                                            | M81969/8-12    | †                       | †                                     | Green / White  |
| 12                    | M81969/14-04*  | (Yellow) / White | 11-10050-11                                  | M81969/8-10    | 11-8675-12              | 11-8795-12                            | Yellow / White |
| 16                    | M81969/14-03*  | (Blue) / White   | 11-10050-10                                  | M81969/8-08    | 11-8675-16              | 11-8795-16                            | Blue / White   |
| 20                    | M81969/14-10*  | (Orange) / Red   | 11-10050-9                                   | M81969/8-06    | 11-8675-20              | 11-8795-20                            | Red / White    |
| 22D                   | M81969/14-01*  | (Green) / White  | 11-10050-7                                   | M81969/8-02    | 11-8675-24              | 11-8795-24                            | Green / White  |
| 8 Coaxial             | M81969/14-12   | Green            | None                                         | None           | 11-9170                 | DRK264-8††                            | N/A            |
| 8 Twinax              | M81969/14-12   | Green            | None                                         | M81969/46-12** | 11-9170                 | N/A                                   | N/A            |

The M81969/8, 11-8674, 11-8675, and 11-8794 metal contact insertion and removal tools will accommodate wires having the maximum outside diameter as follows: Contact size 12–.155, 16–.109, 20–.077, 22D–.050. When wire diameters exceed those specified, the plastic tools must be used.

\* Double end insertion/removal tool.

† To be determined.

\*\* Twinax insertion tools are available only in a straight type, metal version..

†† Contact Daniels Manufacturing Co. for availability.

# Amphe-Lite Series

## how to order

Amphenol® Amphe-Lite Composite Connectors can be ordered by coded part number. Ordering procedure is illustrated by part number AL00F9-35PB as shown below:

|                     |       |       |       |        |       |       |       |
|---------------------|-------|-------|-------|--------|-------|-------|-------|
|                     | AL    | 00    | F     | 9 - 35 | P     | B     | ( )   |
| Connector Type      | _____ | _____ | _____ | _____  | _____ | _____ | _____ |
| Shell Style         | _____ | _____ | _____ | _____  | _____ | _____ | _____ |
| Service Class       | _____ | _____ | _____ | _____  | _____ | _____ | _____ |
| Shell Size          | _____ | _____ | _____ | _____  | _____ | _____ | _____ |
| Insert Arrangement  | _____ | _____ | _____ | _____  | _____ | _____ | _____ |
| Contact Type        | _____ | _____ | _____ | _____  | _____ | _____ | _____ |
| Alternate Positions | _____ | _____ | _____ | _____  | _____ | _____ | _____ |
| Specials            | _____ | _____ | _____ | _____  | _____ | _____ | _____ |

### Connector Type

AL designates Amphe-Lite Connector Series

### Shell Style

00 designates wall mount receptacle  
06 designates straight plug  
07 designates jam nut receptacle

### Service Class

F electroless nickel plated composite  
U black composite, unplated  
X black zinc alloy, conductive, composite

### Shell Size

9 thru 25 available

### Insert Arrangement

See insert arrangement chart, page 3. See insert configurations illustrated on pages 5-8.

### Contact Type

P designates standard 500 cycle pin contacts  
S designates standard 500 cycle socket contacts

### Alternate Positions

Locksmith keying - rotation of minor keys. "N" not required for normal position, see page 4.

### Specials

Specials include optional contact styles and contact platings. Also includes a high decoupling style of Amphe-Lite. Consult Amphenol, Sidney, NY for part numbering suffix for specials.

### Standard Packaging

The Amphe-Lite Series is shipped with connectors and contacts packaged in bulk. Consult Amphenol, Sidney NY for special packaging requirements

# Amphe-Lite – capabilities

## fiber optics, filter contacts, flex termination, coax contacts

### FIBER OPTIC

Fiber optic termini connectors offer a precision optic interconnect system within the Amphe-Lite connector. The Amphe-Lite connector provides protection from damage in severe environmental and physical conditions. Optical performance is optimized utilizing the ceramic alignment features employed by the termini. Insertion losses are typically .8dB and can range from .5 to 1.5 dB, depending on test conditions.

See pages 18-20 for fiber optic termini features and how to order. Ask for publication 12-352 or contact Sidney, NY for more information on Amphenol Fiber Optic Connectors.

Also available with MT and LC termination within an Amphe-Lite shell kit. Contact Amphenol, Sidney for more information.



Fiber Optics

### FILTER CONTACTS FOR EMI PROTECTION

EMI shielding protection devices can be integrated into the Amphe-Lite connector to provide a cost effective alternative to discrete devices mounted inside the box. These unique, high performance designs provide weight and space savings necessary for modern electronic systems.

Ask for publication 12-120 or contact Amphenol, Sidney, NY for complete information on Amphenol Filter/Transient Protection Connectors.



Filter Contacts



Flex Termination Assemblies

### FLEX TERMINATION ASSEMBLIES FOR PRINTED CIRCUIT BOARD APPLICATIONS

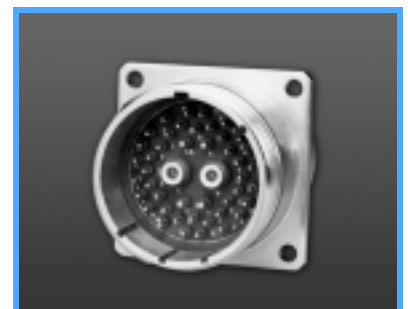
Amphenol provides flex termination assemblies for printed circuit board attachment. Flex circuits are available for Amphe-Lite connectors in flat or sculptured styles. Sculptured® Flexible Circuits with built-in terminations eliminate the failures associated with crimped or solder-on contacts, and they are designed to geometrically fit the tight space requirements within a unit. They plug into a printed circuit board and create a self-locking terminal pad which eliminates the need for an additional interconnect to the PCB.

Ask for catalog 12-170, Amphenol Cylindrical Connectors for PCB Applications.

### CONNECTORS WITH COAX CONTACTS

For shielded wire applications, coaxial contacts can be incorporated into Amphe-Lite connectors. Designed-in crimp or solder types are available to fit various RG and special cables. High performance coaxial contacts eliminate discontinuities or impedance variations due to movement of parts under axial load.

For further information on coax contacts ask for catalog 12-130.



Coax Contacts

# Amphe-Lite Series – capabilities

## ground plane connectors, twinax contacts, power contacts

### GROUND PLANE CONNECTORS

Amphenol offers Amphe-Lite connectors for data bus, LAN and coax/triax/twinax transmission lines with conductive inserts that ground the outer conductor of the coax, triax or twinax contact to the shell. These connectors are sold “less contacts”. They will accommodate size 8 coax, triax or twinax contacts or size 12 and 16 coax contacts.

The insert availability chart on page 3 indicates the patterns that are available in a ground plane version, (see those designated with a star symbol), and consult Amphenol, Sidney NY for ordering procedures.

### CONNECTORS WITH CONCENTRIC TWINAX CONTACTS

The size 8 concentric twinax contact was developed for use in MIL-STD-1553 Airborne multiplex data bus applications which require high performance interconnect characteristics in multi-pin connectors. The Amphe-Lite Series with concentric twinax contacts are ideal for communication data bus applications. The concentric twinax contact is crimp terminable to twisted-shielded cable.

For further information on concentric twinax contacts ask for Amphenol Catalog 12-130.

### CONNECTORS WITH REDUCED COMPONENT TWINAX (RCT) CONTACTS

The RCT (Reduced Component Twinax) contact meets MIL-C-39029/90 and /91 requirements for interchangeability and performance while reducing the number of user-assembled components from seven to three. The inner conductors and outer barrel of the RCT are each terminated to the cable by a crimp joint, so no costly assembly soldering operations are required. Features include:

- Three user assembled components
- Available in size 8 and size 10 contacts
- MIL-C-17/176-00002 cable termination
- For installation in Amphe-Lite connectors
- Termination completed in only two crimping operations
- Inner conductors stripped to common length, eliminating multiple measurements

For further information on RCT contacts ask for Amphenol Catalog 12-130.

### CONNECTORS WITH POWER CONTACTS

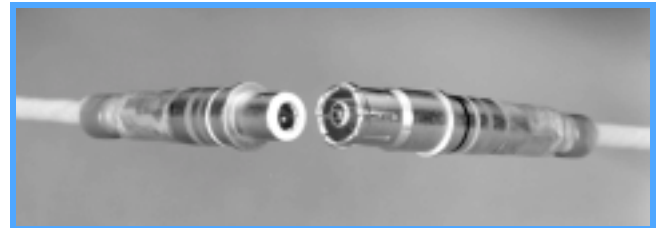
Size 10 power, size 12 and size 16 contacts are available in many standard insert arrangements. These contacts provide a wide range of power transmission capabilities. Standard contacts are gold plated to maintain a superior conductive surface. For further information on insert patterns that contain power contacts refer to the insert availability chart on page 3.

### CONNECTORS FOR RJ AND USB INTERFACE

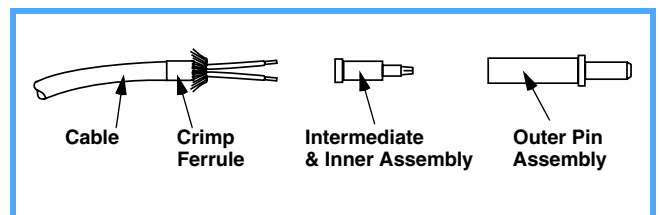
Amphe-Lite connector kits are also available with RJ and USB connector interfaces within the ruggedized Amphe-Lite connector shell. Contact Amphenol, Sidney, NY for more information.



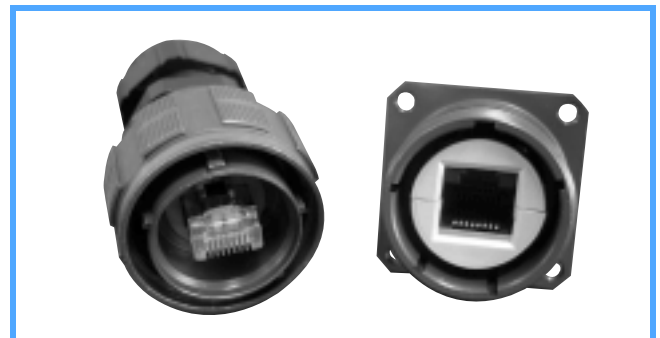
**Ground Plane Connector with Metallic Insert and Concentric Twinax Contacts**



**Concentric Twinax Contacts Qualified to M39029/90 and /91**



**RCT (Reduced Component Twinax) Contact**



**Connectors for RJ Interface**