

# TYPE N



**Type N Connectors**

## Type N Connectors

### Description

Named after Paul Neill of Bell Labs after being developed in the 1940's, the Type N offered the first true microwave performance. The Type N connector was developed to satisfy the need for a durable, weatherproof, medium-size RF connector with consistent performance through 18 GHz.

There are two families of Type N connectors: Standard N (coaxial cable) and Corrugated N (helical and annular cable). Their primary applications are the termination of medium to miniature size coaxial cable, including RG-8, RG-58, RG-141, and RG-225.

### Features/Benefits

- Accommodates a wide range of medium to miniature-sized RG coaxial cables in a rugged medium-sized design.
- Meets many customer application demands with plug styles available in straight and right angle and jack styles available in panel mount, bulkhead mount, and receptacle.

### Applications

- Antennas
- Base Stations
- Broadcast
- Instrumentation
- Microwave Radio
- Mil-Aero
- PCS
- Radar
- Radios
- Satellite Communications
- Surge Protection
- WLAN

## Type N Specifications

### Electrical

|                                 |   |
|---------------------------------|---|
| Impedance                       | 50 $\Omega$   |
| Frequency range                 | DC - 11 GHz (flexible cable)<br>DC - 18 GHz (semi-rigid)                    |
| VSWR                            | 1.3 max. @ DC - 11 GHz (straight)<br>1.35 max. @ DC - 11 GHz (right-angle)  |
| RF-leakage                      | 90 dB minimum @ 3 GHz   |
| Voltage rating (at sea level)   | $\leq$ 1,500 V peak (depending on cable)                                    |
| Contact resistance              | center contact: $\leq$ 1 m $\Omega$<br>outer contact: $\leq$ 0.2 m $\Omega$ |
| Insulation resistance           | 5,000 M $\Omega$ minimum  |
| Insertion loss maximum          | $\leq$ 0.15 dB @ 10 GHz   |
| Dielectric withstanding voltage | 2,500 Vrms (at sea level)   |

### Mechanical

|                                  |  |
|----------------------------------|--|
| Mating                           | 5/8-24 Threaded coupling (MIL-STD-348)                     |
| Coupling torque, min./max.       | 15 inch lbs to max recommended                             |
| Coupling nut retention force     | 101.2 lbs (450N) min.                                      |
| Assembly torque (body/clamp nut) | positive stop, 18/20 lb-ft (25/30 N-m)                     |
| Braid/Jacket cable affixment     | All braid hex crimps, clamps: screw-thread and braid clamp |
| Center conductor cable affixment | Solder   |
| Captivated contacts              | All crimp, unless noted otherwise                          |
| Contact Captivation              | 6.3 lbs (28N) min.   |
| Durability (matings)             | 500 cycles minimum   |

### Environmental

|                         |   |
|-------------------------|---|
| Temperature range       | -65°C to +165°C                               |
| - copolymer of styrene: | -55°C to +85°C                                |
| Weatherproof            | All series N with gaskets                     |
| Hermetic seals          | Helium leak test, 2 x 10 <sup>8</sup> cc/sec. |
| Thermal shock           | MIL-STD-202, method 107, cond. B              |
| Moisture resistance     | MIL-STD-202, method 106                       |
| Corrosion               | MIL-STD-202, method 101, cond. B              |
| Vibration               | MIL-STD-202, method 204, cond. B              |
| Mechanical shock        | MIL-STD-202, method 213, cond. 1              |

Note: These characteristics are typical but may not apply to all connectors.

## Type N Specifications (continued)

### Material

Male contact

Female contact

Crimp ferrule

Other metal parts

Insulator

Gasket

Brass, gold or silver plated

Phosphor bronze or beryllium copper, gold or silver plated

Copper or brass

Brass, nickel plated

PTFE, copolymer of styrene, glass TFE (herm. sealed)

Silicone or synthetic rubber (weatherproof)

### Military

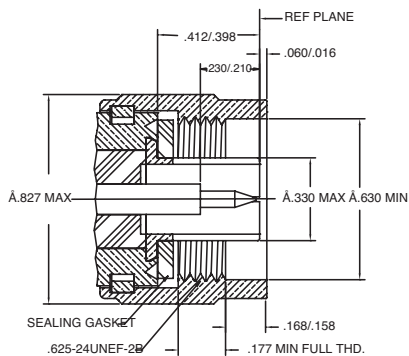
MIL-STD-348A

MIL-A-55339

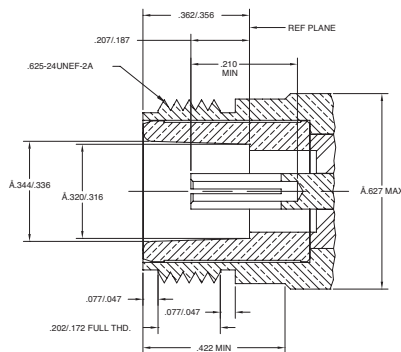
where applicable

where applicable

### Plug



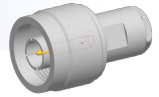
### Jack



## Cable Connectors

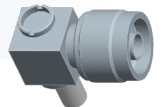
### Straight Plugs

| Cable |                | Plating |         | Termination |             |
|-------|----------------|---------|---------|-------------|-------------|
| Group | Part Number    | Body    | Contact | Body        | Contact     |
| B     | 082-6034       | Nickel  | Gold    | Crimp       | Crimp/Clamp |
| C     | 000-34025-536C | Nickel  | Gold    | Clamp       | Solder      |
| C     | 082-5375       | Nickel  | Gold    | Crimp       | Crimp       |
| C     | 082-5375-RFX   | Nickel  | Gold    | Crimp       | Crimp       |
| C     | 000-34025-RFX  | Nickel  | Gold    | Clamp       | Solder      |
| C1    | 082-5370       | Nickel  | Gold    | Crimp       | Crimp       |
| C1    | 082-4427 (QPL) | Silver  | Gold    | Crimp       | Crimp       |
| E     | 082-5380-RFX   | Nickel  | Gold    | Crimp       | Crimp       |
| G2    | 082-6106       | Nickel  | Gold    | Crimp       | Crimp       |
| G2    | 082-6152       | Nickel  | Gold    | Crimp       | Crimp       |
| G3    | 082-340-1052   | Nickel  | Gold    | Crimp       | Crimp       |
| G3    | 082-6142-1000  | Silver  | Gold    | Crimp       | Crimp       |
| G3    | 082-202-1006   | Nickel  | Gold    | Clamp       | Solder      |
| G4    | 082-340 (QPL)  | Silver  | Gold    | Crimp       | Crimp       |
| G4    | 082-332 (QPL)  | Silver  | Gold    | Crimp       | Crimp       |
| G4    | 082-4425-1003  | Silver  | Gold    | Crimp       | Crimp       |
| G4    | 082-4425 (QPL) | Silver  | Gold    | Crimp       | Crimp       |
| G4    | 082-4426-11RFX | Nickel  | Gold    | Crimp       | Crimp       |
| G4    | 082-3202       | Nickel  | Silver  | Clamp       | Clamp       |
| G4    | 082-312        | Nickel  | Silver  | Clamp       | Solder      |
| G4    | 082-202        | Nickel  | Silver  | Solder      | Clamp       |
| G4    | 082-202-RFX    | Nickel  | Gold    | Clamp       | Solder      |
| G4    | 082-4426 (QPL) | Silver  | Gold    | Crimp       | Crimp       |
| G4    | 082-4352 (QPL) | Silver  | Gold    | Clamp       | Solder      |
| K     | 082-5993       | Silver  | Gold    | Crimp       | Crimp       |
| L     | 082-5955-RFX   | Nickel  | Gold    | Solder      | Solder      |
| L2    | 082-5956-RFX   | Nickel  | Gold    | Solder      | Solder      |
| L3    | 082-6124       | Nickel  | Gold    | Solder      | Solder      |



### Angle Plugs

| Cable |                | Plating |         | Termination |         |
|-------|----------------|---------|---------|-------------|---------|
| Group | Part Number    | Body    | Contact | Body        | Contact |
| C1    | 082-5374       | Nickel  | Gold    | Crimp       | Crimp   |
| C1    | 082-4442 (QPL) | Silver  | Gold    | Crimp       | Solder  |
| G2    | 082-6157       | Nickel  | Gold    | Crimp       | Solder  |
| G3    | 082-6048-1000  | Silver  | Gold    | Crimp       | Solder  |
| G4    | 082-4440-1001  | Nickel  | Gold    | Crimp       | Crimp   |
| G4    | 082-4440 (QPL) | Silver  | Gold    | Crimp       | Crimp   |
| G4    | 082-5988-1000  | Silver  | Gold    | Crimp       | Solder  |
| K     | 082-5995       | Silver  | Gold    | Crimp       | Solder  |



## Cable Connectors (continued)

## Straight Jacks



| Cable |               | Plating |         | Termination |         |
|-------|---------------|---------|---------|-------------|---------|
| Group | Part Number   | Body    | Contact | Body        | Contact |
| G4    | 082-63        | Nickel  | Silver  | Clamp       | Solder  |
| G3    | 082-209-1006  | Nickel  | Silver  | Clamp       | Solder  |
| C     | 082-5376-RFX  | Nickel  | Gold    | Crimp       | Crimp   |
| E     | 082-6092-RFX  | Nickel  | Gold    | Crimp       | Crimp   |
| G4    | 082-63-RFX    | Nickel  | Gold    | Clamp       | Solder  |
| G2    | 082-6158      | Nickel  | Gold    | Crimp       | Crimp   |
| C1    | 000-35025-RFX | Nickel  | Gold    | Clamp       | Solder  |
| E     | 000-36500-RFX | Nickel  | Gold    | Clamp       | Solder  |
| G4    | 082-4429-RFX  | Nickel  | Gold    | Clamp       | Solder  |

## Panel Jacks: 4-Hole Flange



| Cable |              | Plating |         | Termination |         |
|-------|--------------|---------|---------|-------------|---------|
| Group | Part Number  | Body    | Contact | Body        | Contact |
| C1    | 082-5372     | Nickel  | Gold    | Crimp       | Crimp   |
| G4    | 082-62       | Nickel  | Silver  | Clamp       | Solder  |
| L     | 082-6099-RFX | Nickel  | Gold    | Solder      | Crimp   |
| L2    | 082-6098-RFX | Nickel  | Gold    | Solder      | Crimp   |
| L3    | 082-6163     | Nickel  | Gold    | Solder      | Solder  |

## Bulkhead Jacks

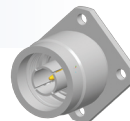


| Cable |               | Plating |         | Termination |         |
|-------|---------------|---------|---------|-------------|---------|
| Group | Part Number   | Body    | Contact | Body        | Contact |
| B     | 082-5933      | Nickel  | Gold    | Crimp       | Solder  |
| B     | 082-6096-RFX  | Nickel  | Gold    | Solder      | Solder  |
| B     | 082-6093-RFX  | Nickel  | Gold    | Crimp       | Crimp   |
| C     | 082-5378      | Nickel  | Gold    | Crimp       | Crimp   |
| C     | 082-5378-RFX  | Nickel  | Gold    | Crimp       | Crimp   |
| C1    | 082-5373      | Nickel  | Gold    | Crimp       | Crimp   |
| G2    | 082-6151-RFX  | Nickel  | Gold    | Crimp       | Crimp   |
| G3    | 082-6143-1000 | Silver  | Gold    | Crimp       | Crimp   |
| G4    | 082-346-RFX   | Nickel  | Gold    | Crimp       | Crimp   |
| K     | 082-5994      | Silver  | Gold    | Crimp       | Solder  |
| L     | 082-6097-RFX  | Nickel  | Gold    | Solder      | Crimp   |
| L3    | 082-6162      | Nickel  | Gold    | Solder      | Crimp   |

## Receptacles

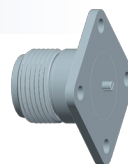
### Panel Plugs: 4-Hole Flange

| Part Number   | Plating |         | Terminal Type | Description      |
|---------------|---------|---------|---------------|------------------|
|               | Body    | Contact |               |                  |
| 000-49000-RFX | Nickel  | Gold    | Solder Cup    | Front Mount Only |
| 082-6100-RFX  | Nickel  | Gold    | Slotted Post  | Front Mount Only |



### Panel Jacks: 4-Hole Flange

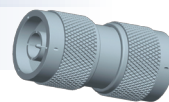
| Part Number   | Plating |         | Terminal Type | Description         |
|---------------|---------|---------|---------------|---------------------|
|               | Body    | Contact |               |                     |
| 082-97        | Nickel  | Silver  | Solder Cup    | Front or Rear Mount |
| 082-97-RFX    | Nickel  | Gold    | Solder Cup    | Front or Rear Mount |
| 082-368 (QPL) | Silver  | Gold    | Solder Cup    | Front or Rear Mount |
| 082-6101-RFX  | Nickel  | Gold    | Slotted Post  | Slot Terminal       |



## Adapters

### Straight Plug-Plug

| Part Number | Plating |         | Contact |
|-------------|---------|---------|---------|
|             | Body    | Contact |         |
| 082-100     | Nickel  | Silver  | Silver  |
| 082-100-RFX | Nickel  | Nickel  | Gold    |



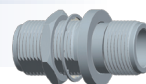
### Straight Jack-Jack

| Part Number | Plating |         | Contact |
|-------------|---------|---------|---------|
|             | Body    | Contact |         |
| 082-101     | Nickel  | Nickel  | Silver  |
| 082-101-RFX | Nickel  | Nickel  | Gold    |



### Bulkhead Jack-Jack

| Part Number | Plating |         | Contact |
|-------------|---------|---------|---------|
|             | Body    | Contact |         |
| 082-66      | Nickel  | Nickel  | Silver  |
| 082-66-RFX  | Nickel  | Nickel  | Gold    |



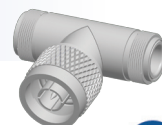
### Angle Plug-Jack

| Part Number | Plating |         | Contact |
|-------------|---------|---------|---------|
|             | Body    | Contact |         |
| 082-213     | Nickel  | Nickel  | Silver  |
| 082-64      | Nickel  | Nickel  | Silver  |
| 082-64-RFX  | Nickel  | Nickel  | Gold    |



### T-Adapters

| Part Number | Plating |         | Adapter Ends   |
|-------------|---------|---------|----------------|
|             | Body    | Contact |                |
| 082-102     | Nickel  | Silver  | Jack-Plug-Jack |
| 082-99      | Nickel  | Gold    | Jack-Jack-Jack |



| Cable Group | Cable Type   |
|-------------|--|
| A           | RG-178, 196  |
| B           | RG-174, 188A, 316, Belden 7805                                   |
| B1          | RG-179, 187, Belden 9221   |
| B2          | RD-188/U, RD-316/U   |
| B3          | RD-179/U, AT&T 19224L2   |
| C           | RG-58, 58A, 58C, 141, 303, LMR195, Belden 7806A, 9907            |
| C1          | RG-55, 142, 223, 400   |
| C2          | LMR200, Belden 7807A   |
| D           | RG-58/U Plenum, Thinnet, RG-122/U, Belden 88240, 89907           |
| E           | RG-59, 62, 140, 210, Belden 8241, 8263, 8279, 9209               |
| E1          | RG-59/U 20 AWG center conductor, Belden 1426A, 1505A, 9100, 9278 |
| E2          | RD-59/U, Belden 8281, 9141, 9231                                 |
| E3          | RG-59/U Quad Shield, Belden 1152A                                |
| F           | RG-59/U Plenum, Belden 1560A, 9259, 82259, 89259, 88241          |
| F1          | RG-59/U Plenum 20 AWG center conductor, Belden 82108             |
| G1          | RG-6, 143, 212   |
| G2          | 8X, LMR240, Belden 7808A, 9258                                   |
| G3          | LMR400, Belden 7810A, 8214, 9913                                 |
| G4          | RG-8, 8A, 9, 87A, 213, 214, 225, 393                             |
| G5          | RD-6/U   |
| H           | RG-11  |
| H1          | Belden 1694A, 9248   |
| H2          | Belden 1859A, 7731, 8213, 9292                                   |
| H3          | RG-54A/U   |
| I           | AT&T 734A, Belden 1505A  |
| I2          | AT&T 735A, Belden 735A1  |
| J           | Quad 59 headend cable  |
| K           | LMR600   |
| K2          | Belden 1695A   |
| K3          | RG-122, 180, 195, Belden 1855, 1865A, 8218                       |
| L           | .141 semi-rigid, RG-402/U  |
| L2          | .085, .086, .087 semi-rigid, RG-405/U                            |
| L3          | .250 semi-rigid  |
| L4          | .047 semi-rigid, Belden 1674                                     |
| M           | 1/2 inch annular corrugated                                      |
| M1          | 1 1/4 inch annular corrugated                                    |
| M2          | 1 5/8 inch annular corrugated                                    |
| M3          | 7/8 inch annular corrugated                                      |
| N           | 1/4 Helical  |
| N1          | 3/8 Helical  |
| N2          | 1/2 Helical  |
| N3          | 7/8 inch SFC   |
| P1          | .81 mm OD micro-cable  |
| P2          | 1.13 mm OD micro-cable, TCB-068                                  |
| P3          | 1.32 mm OD micro-cable   |
| P4          | 1.37 mm OD micro-cable   |



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