

31 SERIES
310 SERIES
311 SERIES

6.5 kVDC

SEA LEVEL

15 kVDC

70,000 FT

-40° TO 85°C

POLARIZED

SERIES 31 SEA LEVEL RATED

These reliable coaxial connectors have been in production since 1950. Available as plug connectors, kits and cable assemblies, they mate all series 311 Cond. 1 connectors and adaptors.

SERIES 310 FOR OPERATION AT REDUCED PRESSURE

A sealed version of the series 31 that mates all series 311 Cond. 1 receptacles and adaptors.

SERIES 311 FOR OPERATION AT REDUCED PRESSURE

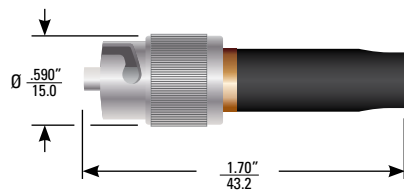
This series features seals for reduced pressure operation, a shell-to-shell grounding spring finger shield, a hooded female socket and three polarizing conditions as shown in the illustration to the right, the bayonet coupling has machined rings to designate polarization by either sight or feel.

Information on the Space Qualified (SQ) 311 SQ series can be found in Teledyne Reynolds' Space Qualified Products catalog.

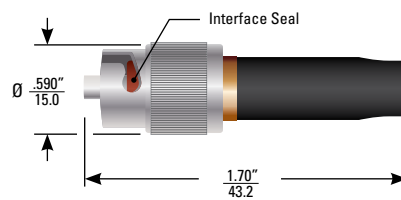
PLUG KITS

Shielded

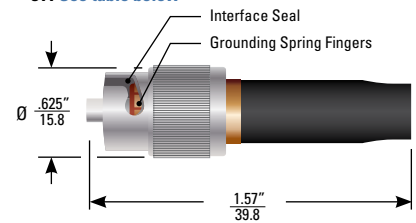
31 167-0669 Uses Wire **167-2669**



310 167-4356 Uses Wire **167-2669**
167-4419 Uses Wire **167-2896**



311 See table below



(Dimensions shown as in/mm)

- While plugs kits are available for customer-fabricated cable assemblies, Teledyne Reynolds highly recommends purchasing cable assemblies because of difficulties customers may experience in assembly and testing.
- Assembly instructions can be found at www.teledynereynolds.com or by contacting Teledyne Reynolds' Engineering.
- 31 and 310 series plugs mate 311 series conditional polarized receptacles.

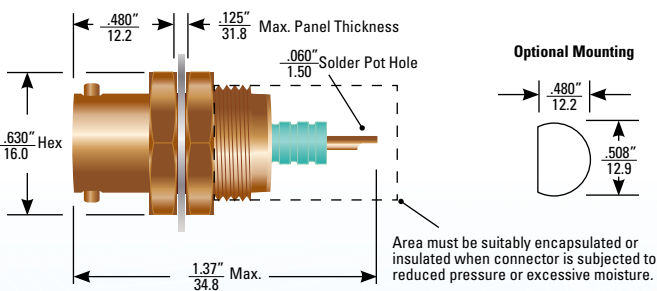
RECEPTACLES

Polarized, Non-Sealed, Front Mount

311 COND. 1 167-7792

311 COND. 2* 167-7793

311 COND. 3 167-7794



Area must be suitably encapsulated or insulated when connector is subjected to reduced pressure or excessive moisture.

• **Panel Mounting Torque:** 36 to 42 in-lbs

Ceramic-to-Metal, Brazed Hermetic (Not Shown)

311 COND. 1* 167-7605-1

311 COND. 2* 167-7605-2

311 COND. 3* 167-7605-3

- Sealed for 1 ATM differential pressure
- **Mounting:** Weld Flange
- **Max. Leak Rate:** 1x10⁻⁸ cc/s He @1 ATM differential pressure

* Special order item

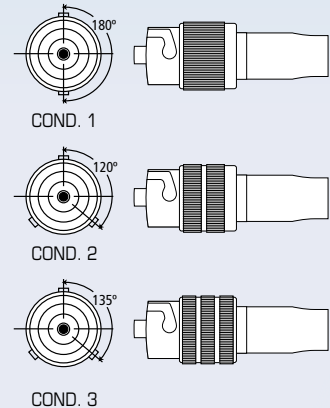
****Cable Assembly Ordering Information:** All cable assembly cable lengths are to be specified in inches only. For example, to order part number 178-6027 with a cable length of 10 feet 8 inches the cable assembly part number would be specified as 178-6027-128N.

• **Note:** Product numbers and specs subject to change without notice. • Products listed represent only a small selection of Teledyne Reynolds' products please visit www.teledynereynolds.com for the most up to date product information. • Contact Teledyne Reynolds' Engineering to discuss custom designs. **WARNING:** Connectors should NEVER be handled mated or unmated when voltage is applied.

311 SERIES POLARIZATION

Series 311 connectors feature interface polarization which allows the system design engineer to use the same basic connector in three different circuits without concern of mismatching the circuits.

Polarization is controlled by the numbers and/or dissimilar spacing of the bayonet lugs on the receptacle. There are three conditions of polarization available.



| 311 P/N | POLARIZATION | WIRE P/N |
|-------------|--------------|----------|
| 167-7624-1 | 1 | 167-2669 |
| 167-7624-2* | 2 | • |
| 167-7624-3* | 3 | • |
| 167-7918-1 | 1 | 167-2896 |
| 167-7918-2* | 2 | • |
| 167-7918-3* | 3 | • |

(• = Same value as above)

CABLE ASSEMBLIES

Single-Ended, Shielded



Double-Ended, Shielded



Built Using 167-2669 Wire

(• = Same value as above)

| SERIES | POLARIZATION | SINGLE-ENDED | DOUBLE-ENDED |
|--------|--------------|--------------|--------------|
| 31 | 1 | 167-1617 | 167-1615 |
| 310 | • | 167-4360 | 167-4358 |
| 311 | • | 178-7032 | 178-7026 |
| 311* | 2 | 178-7033 | 178-7027 |
| 311* | 3 | 178-7034 | 178-7028 |

Built Using 167-2896 Wire (Not shown)

| SERIES | POLARIZATION | SINGLE-ENDED | DOUBLE-ENDED |
|--------|--------------|--------------|--------------|
| 310* | 1 | 167-4425 | 167-4424 |
| 311* | • | 178-7035 | 178-7029 |
| 311* | 2 | 178-7036 | 178-7030 |
| 311* | 3 | 178-7037 | 178-7031 |

31 SERIES
310 SERIES
311 SERIES

6.5 kVDC
15 kVDC

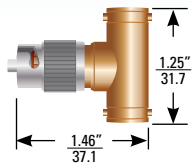
SEA LEVEL
70,000 FT

-40° TO 85°C

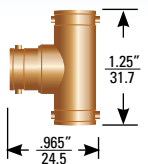
POLARIZED

SPECIAL ORDER ADAPTORS

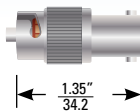
(Dimensions shown as in/mm)



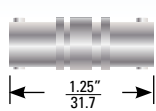
**"T" ADAPTOR
MALE-FEMALE-MALE**
COND. 1: 167-7825-1
COND. 2: 167-7825-2
COND. 3: 167-7825-3



**"T" ADAPTOR
MALE-MALE-MALE**
COND. 1: 167-7826-1
COND. 2: 167-7826-2
COND. 3: 167-7826-3

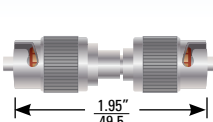


**STRAIGHT ADAPTOR
FEMALE-MALE**
COND. 1 to 2: 178-7146
COND. 1 to 3: 178-7152
COND. 2 to 1: 178-7157
COND. 2 to 3: 178-7162
COND. 3 to 1: 178-7158
COND. 3 to 2: 178-7163

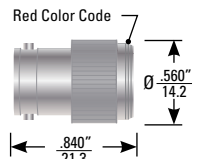


**STRAIGHT ADAPTOR
MALE-MALE†**
COND. 1 to 1: 178-6484
COND. 1 to 2: 178-6485
COND. 1 to 3: 178-6486
COND. 2 to 1: 178-6487
COND. 2 to 2: 178-6487
COND. 2 to 3: 178-6488
COND. 3 to 3: 178-6489

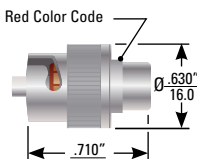
†Also available with gold plating.



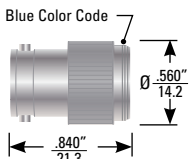
**STRAIGHT ADAPTOR
FEMALE-FEMALE**
COND. 1: 178-7631-1
COND. 2: 178-7631-2
COND. 3: 178-7631-3



**MALE
SHORTING PLUG**
COND. 1: 167-7905-1
COND. 2: 167-7905-2
COND. 3: 167-7905-3

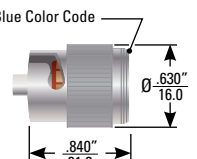


**FEMALE
SHORTING PLUG**
COND. 1: 167-7903-1
COND. 2: 167-7903-2
COND. 3: 167-7903-3



**MALE PROTECTIVE
COVER^Δ**
COND. 1: 178-7058-1
COND. 2: 178-7058-2
COND. 3: 178-7058-3

^ΔNo electrical function.



**FEMALE PROTECTIVE
COVER^Δ**
COND. 1: 167-7864-1
COND. 2: 167-7864-2
COND. 3: 167-7864-3

^ΔNo electrical function.

SPECIAL ORDER CONNECTORS & ADAPTORS (Not shown)

(• = Same value as above)

| PART # | DESCRIPTION | PANEL MOUNT STYLE | POLARIZATION |
|----------|-------------------|-------------------|--------------|
| 178-7375 | Receptacle | Rear | 1 |
| 178-7376 | • | • | 2 |
| 178-7377 | • | • | 3 |
| 178-7023 | Sealed Receptacle | • | 1 |
| 178-7024 | • | • | 2 |
| 178-7025 | • | • | 3 |

| PART # | DESCRIPTION | PANEL MOUNT STYLE | POLARIZATION |
|------------|--|-------------------|--------------|
| 178-7370 | Sealed Receptacle | Front | 1 |
| 178-7371 | • | • | 2 |
| 178-7372 | • | • | 3 |
| 167-7904-1 | Sealed Bulkhead feed-through Male-Male | • | 1 |
| 167-7904-2 | • | • | 2 |
| 167-7904-3 | • | • | 3 |

SERIES SPECIFICATIONS

(• = Same value as above)

| Series | Voltage Rating (kVDC) | Altitude Rating (ft) | Operating Temp. (°C) | Current Rating (Amp) | Receptacle Insulator Material | Plug Insulator Material | Coupling Style | Coupling Nut Material/Finish | Plug Contact Material/Finish (Socket) | Recept. Contact Material/Finish (Pin) | Wire Type | Wire Insulation | Braid Termination | Test Voltage @ 70,000 ft | Test Voltage @ Sea Level |
|--------|-----------------------|----------------------|----------------------|----------------------|-------------------------------|-------------------------|----------------|------------------------------|---------------------------------------|---------------------------------------|-----------|-----------------|-------------------|--------------------------|--------------------------|
| 31 | 6.5 | Sea Level | -40 to 85 | 10 | Plastic or Ceramic | Plastic | Bayonet | Brass/Ni | BeCu/Au with CRES hood | Brass/Au or Kovar™ | Shielded | PE | Crimp | N/A | 7.5 |
| 310 | 15 | 70,000 | • | • | • | • | • | • | • | • | • | FEP or PE | • | 21 | N/A |
| 311 | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |

WIRE SPECIFICATIONS

| Part Number | Operating Voltage (kVDC) | Conductor | | | Insulation | | Shielding | | | Jacket | | Impedance Ω | Attenuation dB/100 ft @ 400mhz | Capacitance pF/FT (Nom.) @1k HZ |
|-------------|--------------------------|-----------|---------|---------|------------|--------------|-----------|---------|--------------|----------|--------------|-------------|--------------------------------|---------------------------------|
| | | AWG | Strands | Plating | Material | ø in./mm | AWG | Plating | ø in./mm | Material | ø in./mm | | | |
| 167-2896 | 18 | 26 | 19/38 | SPC | FEP | 0.050 / 1.27 | 36 | SPC | 0.075 / 1.91 | FEP | 0.095 / 2.41 | 46 | 25 | 33.7 |
| 167-2669 | 20 | 16 | 19/29 | TPC | PE | 0.118 / 3.00 | • | TPC | 0.150 / 3.81 | PE | 0.195 / 4.95 | 31 | 16 | 48 |

• Note: For reference, part numbers 167-2896 and 167-2669 are known as "Type L" cable and "Type C" cable, respectively. • If UV resistance or higher temperature rating is required, wire part number 178-6053 can be used. It is dimensionally equivalent to 167-2669, but with PFA insulation and jacket. Kovar is a registered trademark of the Carpenter Technology Corporation.