

# SPACE QUALIFIED (SQ) HIGH VOLTAGE CONNECTORS



Teledyne Reynolds, Inc. (TRI) has an extensive heritage as being a key supplier to the space community and is the preferred high voltage, interconnect solution provider. TRI's products have performed successfully in harsh environments such as the surface of one of Saturn's moons, Titan, and the Martian surface; as well as the extreme environmental conditions of deep space.

The heritage and design experience that TRI offers in meeting the demanding requirements imposed on high voltage, interconnection systems of both domestic and international space communities is unsurpassed.

Based on this experience and with input from the key players in the US space community, TRI has developed the first industry available specification covering high voltage interconnects. Three of TRI's connector series most commonly used in space applications are the first selected for qualification under the new specification titled TRI-SR-1: General Specification for Space Rated High Voltage Cables, Connectors and Cable Assemblies. The series that have been selected are the 600 SQ, PeeWee SQ and 311 SQ.

TRI-SR-1 specifies the material, design and testing requirements for Teledyne Reynolds' space qualified products.

SPECIFICATIONS	600 SQ	PeeWee SQ	311 SQ
Voltage Rating (kVDC)	5	12	15
Altitude Rating	10 mTorr to Deep Space	Sea Level to Deep Space	
Operating Temperature	-55° to 125°C		
Vented	Yes	No	
Receptacle Insulator Material	Plastic or Ceramic		Plastic
Plug Insulator Material	Plastic		
Coupling Style	Threaded	Push-Pull	Bayonet
Coupling Nut Material/Finish	Stainless Steel/Passivated	N/A	Ni/Au Plated Brass
Plug Contact Material/Finish	BeCu/Au with CRES Hood		
Receptacle Contact Material/Finish	BeCu/Au		Brass/Au
Wire Type	Coax	Non-Shielded	Coax
Wire Insulation	FEP		
Braid Termination	Soldered	N/A	Crimp
Test Voltage @ 70,000 ft. (21.34 km) Simulated Alt. and Ambient Temp.	7.5†	18	21

† 600 SQ tested with interface seal installed. Seal must be removed before use at 10 mTorr to deep space.

**Important:** The 600 SQ, PeeWee SQ and 311 SQ are subject to the export jurisdiction of the U.S. Department of State and may require export license or other approval from the U.S. Department of State.







## PRODUCT HERITAGE

Teledyne Reynolds is proud to be the preferred high voltage, interconnect solution provider for space applications. Listed below are just a few of the spacecraft and/or missions in which TRI has provided products to be used in mission critical systems.

- EUVE - Extreme Ultraviolet Explorer
- Cassini
- Huygens
- Hubble Space Telescope
- SOHO - Solar and Heliospheric Observatory
- TIMED - Thermosphere Ionosphere Mesosphere Energetics and Dynamics
- New Horizons
- Nozomi
- Rosetta
- AIM - Aeronomy of Ice in the Mesosphere
- IMAGE - Imager for Magnetopause-to-Aurora Global Exploration
- IBEX- Interstellar Boundary EXplorer
- Deep Space 1
- Dawn
- MESSENGER - MErcury Surface, Space ENVIRONMENT GEochemistry, and Ranging

## SQ PRODUCT'S INSPECTION PROCESSES AND DOCUMENTATION PACKAGE

All 600 SQ, PeeWee SQ and 311 SQ parts will undergo the following inspections and tests during production:

- In process radiographic inspection of solder joints (applies only to cable assemblies)
- Hermetic seal (applies only to hermetic connectors)
- Radiographic inspection of final assembly
- Outgassing
- Circuit resistance
- Insulation resistance
- Temperature cycle
- Dielectric withstanding voltage
- Visual and mechanical inspection

The following are optional Lot Acceptance Tests (LAT): that can be selected:

- Level 1 LAT: Outgassing - If this option is selected "slabs" of any encapsulants and/or potting materials accompany the product through the entire manufacturing process. These slabs are then sent out for outgassing tests at the end of the manufacturing process to ensure they meet NASA's outgassing requirements of TML < 1% and CVCM < 0.1%. The outgassing test report for the slabs is provided as part of the lot's data package.

- Level 2 LAT: Shock and Vibration - If this LAT is selected, three samples per lot will undergo the following: Random Vibration per MIL-STD-202, method 214, test condition II, test letter J, Sinusoidal Vibration per MIL-STD-202, method 204, test condition D and Shock per MIL-STD-202, method 213, test condition C.

A full documentation package will be shipped with each lot ordered. The documentation package will include:

- Test data sheet
- Lot Acceptance Test operation sheet
- List of materials (MIUL)
- Outgassing test report
- Certificate of Conformance

## TYPICAL SPACE CABLE ASSEMBLY DESIGN AND PERFORMANCE REQUIREMENTS

- Low Outgassing Materials (TML < 1%; CVCM < 0.1%)
- Vented and Non-Vented Connectors
- Non-magnetic Materials
- Ultrasonically Cleaned Conductors
- Operation through Paschen's Minimum
- "Red plague" Resistant Conductors
- Low Partial Discharge

## APPLICATIONS

- Satellite Electric Propulsion
- X-Ray and Gamma Ray Detectors
- Rocket Engine Spark Igniters
- Mass Spectrometers
- Miniature High Voltage Power Supplies
- LIDAR
- RADAR
- Travelling Wave Tubes

# SPACE QUALIFIED (SQ) HIGH VOLTAGE CONNECTORS

## SQ PRODUCT QUALIFICATION AND PERIODIC INSPECTION

An SQ product's qualification per TRI-SR-1 consists of six test groups with various sample quantities per group. The test groups are:

<b>Group 1</b> Visual and Mechanical Inspection Material Finish Dissimilar Metals Design and Construction (Dimensions) Marking Workmanship Hermetic Seal (Hermetic Connectors Only) Continuity Dielectric Withstanding Voltage Insulation Resistance	<b>Group 2</b> Connector Durability Thermal Shock Vibration Shock Cable Retention Force Coupling Mechanism Retention Force Safety Wire Hole Pull-out Coupling Proof Torque Force to Engage/Disengage	<b>Group 3</b> Permeability of Non-Magnetic Materials Humidity Continuity Dielectric Withstanding Voltage Insulation Resistance  <b>Group 4</b> Accelerated Life Test Continuity Dielectric Withstanding Voltage Insulation Resistance	<b>Group 5</b> Center Contact Retention Corrosion Force to Engage/Disengage  <b>Group 6</b> Outgassing Flammability Odor Toxicity (Off-gassing)
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## SPACE LEVEL (S) VERSUS SPACE QUALIFIED (SQ) PRODUCTS

The table below shows the differences in testing, data package and inspection processes between the 600 S Space Level product line that TRI once offered and the 600 SQ Space Qualified product line that has replaced it.

FEATURES	DESCRIPTION	600 S	600 SQ
Data Package	Test Data Sheet (by serial number as applicable)		X
	List of Materials (MIUL)		X
	Outgassing Certification / Test Reports		X
	Certification of Conformance	X	X
Choice of Lot Acceptance IAW TRI-SR-1/600SQ	A - No Lot Acceptance Test (LAT)		X (as required)
	B - Level 1 LAT, Outgassing		
	C - Level 2 LAT, Shock and Vibration		
	D - Level 1 and Level 2 LAT		
Periodic Inspection IAW TRI-SR-1 (Table 2)	Periodic inspection will be performed every three years		X
Production Testing IAW TRI-SR-1	In-process Radiographic Inspection (solder joint)		X
	Outgassing		X
	Temperature Cycling		X
	Ceramic-to-metal Braze Joint Hermeticity Leak Test		X
	Contact Resistance		X
	Dielectric Withstanding Voltage		X
	Insulation Resistance		X
	Radiographic Inspection		X
Standard Production Testing	Visual and Mechanical		X
	Dielectric Withstanding Voltage Verification – No data report (Certification only)	X	
	Continuity – No data report (Certification only)	X	
	Non-metallic Materials Verified to Meet Outgassing Requirements (No data report or certification provided)	X	
	Ceramic-to-metal Braze Joint Hermeticity Leak Test - No data report (Certification only)	X	
	Component Level X-ray of Solder Joints (No data report or certification provided)	X	
Product Qualified to TRI-SR-1/600 SQ			X

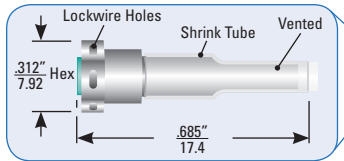


The 600 SQ is a variant of the 600 series designed to operate at a minimum vacuum of 10 millitorr to deep space. The plugs have no seals, and both plug and receptacle have vent features to release any air trapped during pressure reduction associated with launch and travel to deep space. Receptacles are shipped with an interface seal which should be installed for any necessary pre-launch electrical testing. The seal must be removed prior to launch to allow for proper venting of the interface.

**CABLE ASSEMBLIES**

(Dimensions shown as in/mm)

**Double-Ended, Shielded  
786866S**

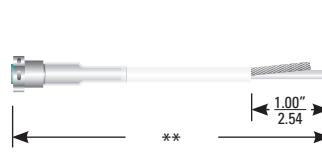


- All cables assemblies built using wire 700023S
- Standard wire color is White (-09)
- All plugs have stainless steel coupling nuts with lockwire holes and gold-plated brass bodies

• **Weight\***: .210 oz (5.95 g); add .164 oz/ft (15.3 g/m) of wire

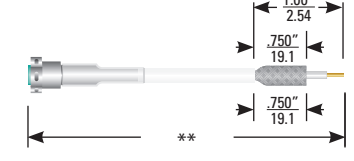
\*Plug connector weight measured by cutting terminated connector from cable directly behind the shrink tube.

**Single-Ended, Shielded, Pigtailed  
786834S**



• **Weight\***: .105 oz. (2.98 g); add .164 oz/ft (15.3 g/m) of wire

**Single-Ended, Shielded, Stub Ended  
786862S**

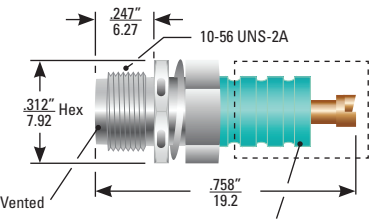


• **Weight\***: .105 oz. (2.98 g); add .164 oz/ft (15.3 g/m) of wire

**RECEPTACLES**

(Dimensions shown as in/mm)

**Non-Sealed, Front Panel Mount  
786863S**

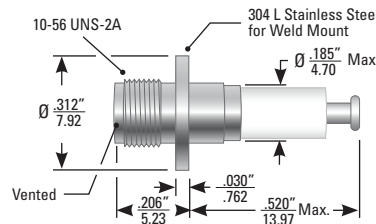


- Stainless steel body, lock wire holes
- Vented interface when interface seal is removed
- **Weight**: .054 oz (1.53 g)
- **Mating Torque**: 2 to 3 in-lbs (without interface seal); 4 to 6 in-lbs (with interface seal)
- **Mounting**: Requires .197" (5.0 mm) diameter hole
- **Panel Mounting Torque**: 8 to 10 in-lbs

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

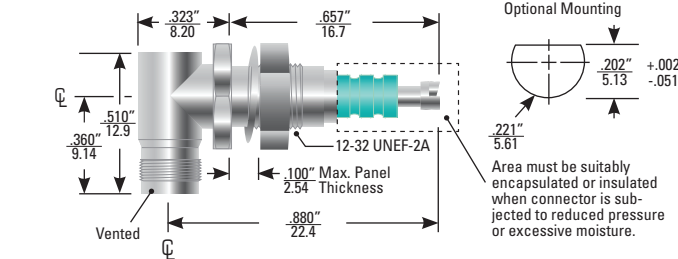
**Ceramic-to-Metal, Brazed Hermetic  
400004S**

- **Mounting**: Weld Flange
- **Mounting**: Solder Flange



- Sealed for 1 ATM differential pressure
- Vented interface when interface seal is removed
- **Weight**: .036 oz (1.02 g)
- **Max. Leak Rate**: 1 x 10<sup>-8</sup> cc/s He @1 ATM differential pressure
- **Mating Torque**: 2 to 3 in-lbs (without interface seal); 4 to 6 in-lbs (with interface seal)

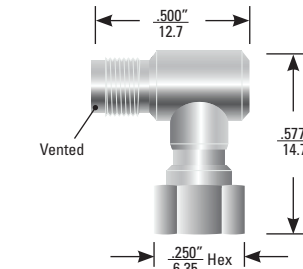
**Right Angle, Non-Sealed, Front Mount  
786865S**



- Stainless steel body, no lockwire holes
- Vented interface when interface seal is removed
- **Weight**: .125 oz (3.54 g)
- **Mating Torque**: 2 to 3 in-lbs (without interface seal); 4 to 6 in-lbs (with interface seal)
- **Mounting**: See optional D-hole mounting
- **Panel Mounting Torque**: 8 to 10 in-lbs

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

**Right Angle Adapter  
786835S**



- Stainless steel body, hex nut, no lockwire holes.
- Vented interface when interface seal is removed
- **Weight**: .083 oz (2.35 g)
- **Mating Torque**: 2 to 3 in-lbs (without interface seal); 4 to 6 in-lbs (with interface seal)

**Note**: The interface seal located in 600 SQ receptacles is required to be installed during ground-based laboratory testing. The interface seal should then be removed prior to launch to allow for proper venting of the interface. The receptacle interface seal removal tool, 178-8608, is purchased separately. Please request the interface seal removal procedure document, R-631, from Teledyne Reynolds' Engineering.

**SERIES SPECIFICATIONS**

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	(kVDC) Test Voltage @ 70,000 ft	(kVDC) Test Voltage @ Sea Level
600 SQ	5	10 mTorr to Deep Space	-55 to 125	1	Plastic or Ceramic	Plastic	Threaded	CRES	BeCu/Au with CRES hood	Brass/Au	Shielded	FEP	Solder	7.5 <sup>†</sup>	N/A

**WIRE SPECIFICATIONS**

Part #	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			
700023S	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

† 600 SQ tested with interface seal installed. Seal must be removed before use at 10 mTorr to deep space.

**Note**: Product part numbers, dimensions and specifications are subject to change without notice. Products listed represent only a small selection of Teledyne Reynolds' products. Please visit [www.teledynereynolds.com](http://www.teledynereynolds.com) for the most up to date product line information. Contact Teledyne Reynolds' Engineering to discuss custom designs. Illustrations are for reference only and may not reflect actual design. **WARNING**: Connectors should NEVER be handled, mated or unmated when voltage is applied. **Important**: The 600 SQ Series is subject to the export jurisdiction of the U.S. Department of State and may require export license or other approval from the U.S. Department of State.

The PeeWee SQ Series is one of a family of subminiature, high voltage connectors for use in high voltage applications where dense electronic packaging is required. PeeWee SQ connectors use a unique method of sealing high voltage at reduced atmospheric pressure, which allows the connector to be operated at 12 kVDC through 70,000 feet to deep space within a temperature range of -55° to 125°C. The sealing method used is Teledyne Reynolds' patented Advanced Interface Seal.

**CABLE ASSEMBLIES**

**Single-Ended Receptacle, Straight**

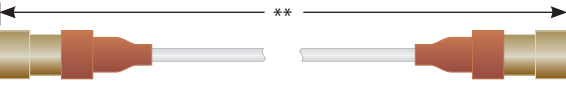
786875S



• **Weight:** .023 oz (0.652 g); add .047 oz/ft (4.37 g/m) of wire

**Double-Ended Receptacle - Straight**

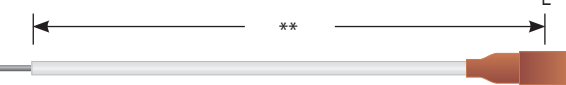
786850S



• **Weight:** .046 oz (1.30 g); add .047 oz/ft (4.37 g/m) of wire

**Single-Ended Receptacle, Right Angle**

786837S



• **Weight:** .023 oz (0.652 g); add .047 oz/ft (4.37 g/m) of wire

**Double-Ended**

786849S



• **Weight:** .046 oz (1.30 g); add .047 oz/ft (4.37 g/m) of wire

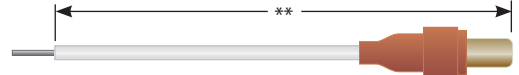
• All cable assemblies built using wire 800121S

• Standard wire color is Natural (-10)

† Cabled connector weight includes weight of connector with approximately 0.25" (6.35 mm) of terminated and encapsulated wire

**Single-Ended Plug, Straight**

786877S



• **Weight:** .014 oz (0.397 g); add .047 oz/ft (4.37 g/m) of wire

**Double-Ended Plug - Straight**

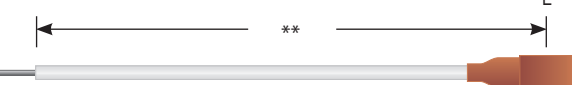
786853S



• **Weight:** .028 oz (0.794 g); add .047 oz/ft (4.37 g/m) of wire

**Single-Ended Plug, Right Angle**

786876S



• **Weight:** .014 oz (0.397 g); add .047 oz/ft (4.37 g/m) of wire

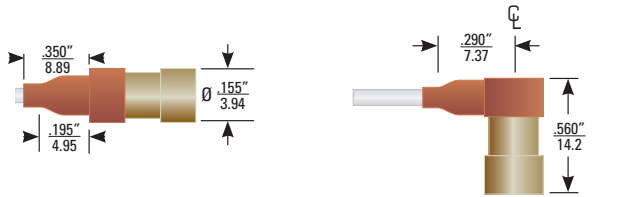
**Double-Ended**

786852S



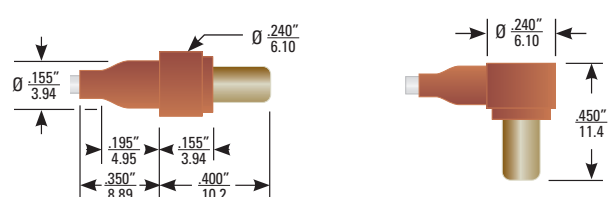
• **Weight:** .028 oz (0.794 g); add .047 oz/ft (4.37 g/m) of wire

**RECEPTACLE DIMENSIONS**



**PLUG DIMENSIONS**

(Dimensions shown as in/mm)



**RECEPTACLES**

**Ceramic-to-Metal, Brazed, Hermetic**

400002S

• **Mounting:** Weld Flange

400005S

• **Mounting:** Solder Flange

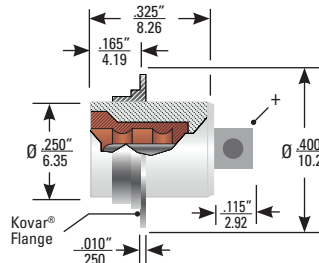
• **Weight:** .036 oz (1.02 g)

• Sealed for 1 ATM differential pressure

• **Max. Leak Rate:** 1x10<sup>-8</sup> cc/s He

@ 1 ATM differential pressure

+ Contact pot will accommodate a 22 to 20 AWG wire.



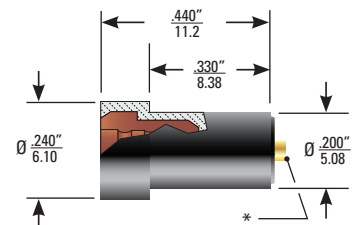
**Non-Sealed, Front Mount**

786878S

• **Weight:** .013 oz (0.369 g)

• **Mounting:** Recommend bonding into epoxy G-10 plate .080" (2.03mm) or .120" (3.05mm) thick. Requires a .244" to .250" (6.20 - 6.35mm) diameter hole

\* Contact pot will accommodate a 22 to 24 AWG wire. Do not exceed 204°C when soldering. Use SN 60 solder.



(Dimensions shown as in/mm)

**SERIES SPECIFICATIONS**

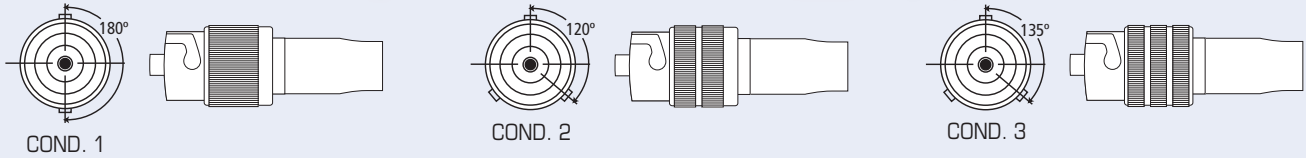
Series	Voltage Rating (kVDC)	Altitude Rating (ft)	Operating Temp. (°C)	Current Rating (Amp)	Receptacle Insulator Material	Plug Insulator Material	Coupling Style	Coupling Nut Material/Finish	Plug Contact Material/Finish (Socket)	Recept. Contact Material/Finish (Pin)	Wire Type	Wire Insulation	Braid Termination	(kVDC) Test Voltage @ 70,000 ft	(kVDC) Test Voltage @ Sea Level
PeeWee SQ	12	Sea Level to Deep Space	-55 to 125	1.6	Plastic or Ceramic	Plastic	Push-Pull	N/A	BeCu/Au with CRES hood	Brass/Au or Kovar/Ni	Non-shielded	FEP	N/A	18	N/A

**WIRE SPECIFICATIONS**

Part #	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			
800121S	18	24	19/36	SPC	Etched FEP	0.050/1.27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Note:** Product part numbers, dimensions and specifications are subject to change without notice. Products listed represent only a small selection of Teledyne Reynolds' products. Please visit [www.teledynereynolds.com](http://www.teledynereynolds.com) for the most up to date product line information. Contact Teledyne Reynolds' Engineering to discuss custom designs. Illustrations are for reference only and may not reflect actual design. **WARNING:** Connectors should NEVER be handled, mated or unmated when voltage is applied.

**Important:** The PeeWee SQ Series is subject to the export jurisdiction of the U.S. Department of State and may require export license or other approval from the U.S. Department of State.



**311 SQ SERIES POLARIZATION**

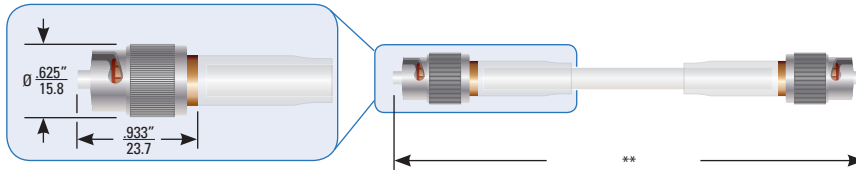
Series 311 SQ connectors feature interface polarization which allows the system design engineer to use the same basic connector in three different circuits without concern of mismatching the circuits. Polarization is controlled by the numbers and/or dissimilar spacing of the bayonet lugs on the receptacle. There are three conditions of polarization available.

**CABLE ASSEMBLIES**

(Dimensions shown as in/mm)

**Double-Ended, Shielded**

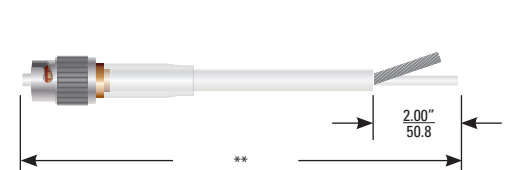
786869S - Condition 1 • 786870S - Condition 2 • 786871S - Condition 3



- All cables assemblies built using 700023S wire
  - Standard cable color is White (-09)
  - **Weight\***: 1.20 oz (33.9 g); add 0.164 oz/ft (15.3 g/m) of wire
- \*Connector weight is for a terminated connector

**Single-Ended, Shielded, Pigtailed**

786869S - Condition 1 • 786870S - Condition 2 • 786871S - Condition 3



- **Weight\***: 0.600 oz (17 g); add 0.164 oz/ft (15.3 g/m) of wire

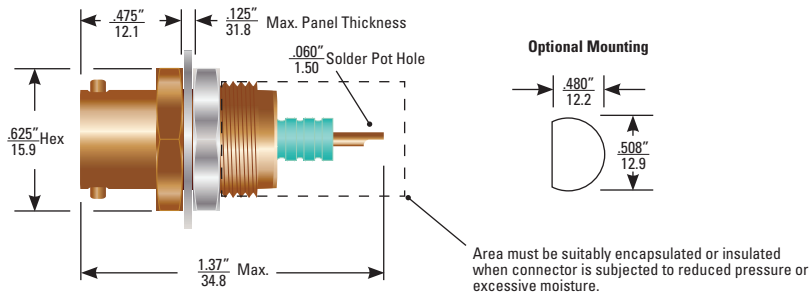
**RECEPTACLES**

(Dimensions shown as in/mm)

**Front Mount, Non-Sealed**

786867S - Condition 1  
786868S - Condition 2  
786854S - Condition 3

- **Weight**: 0.578 oz (16.4 g)
- **Mounting Torque**: 8 to 10 in-lbs



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

**\*\* CABLE ASSEMBLY ORDERING INFORMATION**

All assembly cable lengths are to be specified in inches only.

<b>786868</b>	<b>S</b>	<b>10</b>	<b>B</b>	<b>24</b>
Basic Part Number	Space Rated Assembly	Wire Color*	Lot Acceptance Inspection	Length (Inches)

**Wire Color**

Cable assemblies are available with wire in the following colors:

00 Black	01 Brown	02 Red	03 Orange	04 Yellow	05 Green	06 Violet	08 Gray	09 White	10 Natural
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\* If Wire Color is not applicable, such as with a non-cabled receptacle, use code 00.  
Please contact Teledyne Reynolds' Engineering department if you have any questions or need further clarification.

**Lot Acceptance Tests**

<b>DESIGNATOR</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
<b>LEVEL</b>	No LAT	Level 1	Level 2	Level 1 & 2

- Level 1 LAT - Outgassing
- Level 2 LAT - Shock and Vibration

**SERIES SPECIFICATIONS**

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	(kVDC) Test Voltage @ 70,000 ft	(kVDC) Test Voltage @ Sea Level
311 SQ	15	Sea Level to Deep Space	-55 to 125	10	Plastic	Plastic	Bayonet	Brass/Ni	BeCu/Au with CRES hood	Brass/Au	Shielded	FEP	Crimp	21	N/A

**WIRE SPECIFICATIONS**

Part #	Operating Voltage (kVDC)	Conductor				Insulation		Shielding			Jacket		Impedance Ω	Attenuation dB/100 ft @ 400mhz	Capacitance pF/FT (Nom.) @1k HZ
		AWG	Strands	Plating	Ø in./mm	Material	Ø in./mm	AWG	Plating	Ø in./mm	Material	Ø in./mm			
700023S	18	26	19/38	SPC	0.118/3.00	FEP	0.050/1.27	36	SPC	0.075/1.91	FEP	0.095/2.41	46	25	33.7

**Note:** Product part numbers, dimensions and specifications are subject to change without notice. Products listed represent only a small selection of Teledyne Reynolds' products. Please visit [www.teledynereynolds.com](http://www.teledynereynolds.com) for the most up to date product line information. Contact Teledyne Reynolds' Engineering to discuss custom designs. Illustrations are for reference only and may not reflect actual design. **WARNING:** Connectors should NEVER be handled, mated or unmated when voltage is applied.  
**Important:** The 311 SQ Series is subject to the export jurisdiction of the U.S. Department of State and may require export license or other approval from the U.S. Department of State.

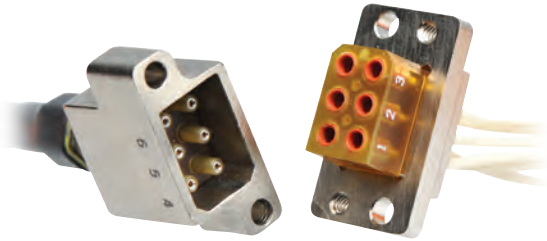


## ADDITIONAL PRODUCTS FOR SPACE

In addition to the 600 SQ, PeeWee SQ and 311 SQ, Teledyne Reynolds has several other product offerings that have commonly been used by the space community. Even though the altitude rating for these connector families is 70,000 ft (21.34 km), they have been used successfully in numerous space applications.

### JR SERIES

**6 kVDC, 4 and 6 Pin**



A smaller, multi-pin version of the PeeWee series of high voltage connectors and cable assemblies. Although micro-miniature in size, this series of cable assemblies will operate at voltages up to 6 kVDC at 70,000 ft (21.34 km) altitude over a temperature range of -55° to 125° C.

### SID SERIES

**15 kVDC, 1 and 4 Pin**

This family of "inline disconnects" use push-on, pull-off friction mating of a silicone rubber plug with a tapered interface to a hard, plastic receptacle that significantly reduces trapped air to achieve corona resistant high voltage performance. In an effort to further reduce corona discharges, the SID cable assembly is available with a semi-conductive silicone wire and proprietary semi-conductive coating over the silicone plug. This configuration could also potentially alleviate the need for shielding in certain applications. The SID is rated for operation at 15 kVDC at 70,000 ft (21.34 km) over a temperature range of -55° to 95° C.



### HIGH PERFORMANCE, LOW CORONA DISCHARGE HIGH VOLTAGE WIRE

Teledyne Reynolds manufactures ultra purity, high voltage wires that are designed to operate in space applications requiring thousands of hours of reliability. Wire can be ordered by the reel or supplied as leads in connectorized, high voltage cable assemblies. The wires are designed to meet the general requirements of specifications such as MIL-DTL-16878, MIL-W-22759 and MIL-C-17, but in addition meet "higher level" performance required for low corona, high voltage applications.



Unique processing and testing of these wires, such as 100% reel-to-reel corona testing and reel-to-reel 100% optical inspection of the insulation ensures the reliability expected of space level components.

### 1807 SERIES

**15 kVDC, 7 Pin**

This bayonet coupled, multi-pin family of connectors has been used in some of the most successful, spacecraft ion propulsion systems. Available in configurations with individually shielded or non-shielded depending on your application's requirements. The 1807 is rated for operation at 15 kVDC at 70,000 ft (21.34 km) over a temperature range of -55° to 125° C.



## CUSTOM SOLUTIONS

Teledyne Reynolds is ready to support your application specific requirements that may require customization of an existing product or developing a new design to meet your needs. Even if you determine that an existing product presented in this data sheet will meet your requirements, TRI strongly urges you to discuss any potential usage of these connectors with a Teledyne Reynolds' Applications Engineer before purchasing.

# OTHER HIGH VOLTAGE INTERCONNECT PRODUCTS

## STANDARD CONNECTOR PRODUCT MATRIX

Series	Voltage Rating (kV)	At 70,000 ft	Number of Contacts	Advanced Series	Coupling Method	Shielded	Ceramic Feedthrough	Bag Assembly	Temperature Rating (°C)
600	5	•	1		Threaded	•	•	•	-55 to 125
610	5	•	1		Threaded	•		•	-55 to 125
JR	6	•	4 & 6	•	Push-on/Pull-off	•			-55 to 125
31	6.5		1		Bayonet	•		•	-40 to 85
1205	7.5	•	5		Bayonet	•		•	-55 to 105
600 SL	10		1		Threaded	•	•	•	-55 to 125
610 SL	10		1		Threaded	•		•	-55 to 125
531 SL	10		1		Bayonet	•		•	-40 to 85
730/830	10	•	1		Threaded		•	•	-55 to 125
C 730	10	•	1		Threaded	•			-55 to 95
1407	10	•	7		Bayonet	•		•	-55 to 105
PeeWee	12	•	1	•	Push-on/Pull-off & Threaded		•		-55 to 125
Magnum <sup>a</sup>	12	•	6	•	Bayonet	•	•		-55 to 125
Hi/Mate™	13.5	•	Various	•	MIL-DTL-38999				-55 to 125
Hi/Mate <sub>D</sub> ™	13.5	•	Various	•	D-Sub				-55 to 125
Magnum Plus <sup>a</sup>	14	•	6	•	Bayonet	•	•		-55 to 125
310	15	•	1		Bayonet	•		•	-40 to 85
311	15	•	1		Bayonet	•		•	-40 to 85
531	15	•	1		Bayonet	•		•	-40 to 85
737	15	•	1		Threaded			•	-55 to 125
C 737	15	•	1		Threaded	•			-55 to 95
SID	15	•	4		Push-on/Pull-off				-55 to 95
Century	15	•	1	•	Threaded	•	•		-55 to 125
1804	15	•	4		Bayonet & Threaded	•		•	-55 to 125
1807	15	•	7		Bayonet & Threaded	•		•	-55 to 125
HVID	17,45, 60		1		Push-on/Pull-off			•	-40 to 85
Century Plus	18	•	1	•	Threaded	•	•		-55 to 125
155	20	•	5		Bayonet			•	-55 to 125
521 SL	20		1		Bayonet	•		•	-40 to 85
720	20	•	1		Threaded		•	•	-55 to 125
C 720	20	•	1		Threaded	•	•		-55 to 95
521	25	•	1		Bayonet	•		•	-40 to 85
727	25		1		Threaded			•	-55 to 125
C 727	25	•	1		Threaded	•			-55 to 95
Maxxum	25	•	1	•	Threaded	•	•		-55 to 125
C 735	30	•	1		Threaded	•			-55 to 95
Max	30	•	1	•	Threaded	•			-55 to 125
403 <sup>a</sup>	35	•	3		Bayonet	•			-55 to 125
401	40	•	1		Bayonet	•			-55 to 125
C 740	40	•	1		Threaded	•			-55 to 95
R75	40, 50, 75		1		Threaded	•			-40 to 85
C 750	50	•	1		Threaded	•			-55 to 95

Teledyne Reynolds welcomes the opportunity to submit alternate design proposals where our standard items do not satisfy your requirements.

<sup>a</sup>The Magnum, Magnum Plus, 600 SQ, PeeWee SQ and 311 SQ Series are subject to the export jurisdiction of the U.S. Department of State and may require export license or other approval from the U.S. Department of State.

<sup>b</sup>Bag assemblies enable customers to build their own cable assemblies using assembly instructions found at [www.teledynereynolds.com](http://www.teledynereynolds.com). Wire is not included in kits and may be ordered separately from Teledyne Reynolds. Although this option is available, Teledyne Reynolds highly recommends purchasing already built cable assemblies to ensure the reliability of the products.

To learn more about our complete line of connectors and other Teledyne Reynolds' product offerings please visit [www.teledynereynolds.com](http://www.teledynereynolds.com).

