

WI CONNECTOR®

DC to 110 GHz



The WI Connector® Family is a complete coaxial connector system with mode-free performance to 110 GHz. Based on the 1.00 mm coaxial connector front side interface as specified by IEEE Std 287, the WI Connector is well suited for high frequency applications ranging from components to systems and instrumentation.

Visit www.anritsu.com for the latest information including installation instructions, outline drawings, and RoHS compliance status.

WI Connector® features

- Excellent RF Performance to 110 GHz
- 50 Ω Impedance
- Low VSWR
- Industry Standard 1 mm Interface

Connector Launchers

The WI Connector® launcher family includes both male and female WI Connectors. The WI Connector® has an air dielectric interface similar to K and V connectors. The center conductor is supported by Anritsu's proprietary low-loss high temperature support bead on one end and a glass bead (W1-102F and W1-102M) or a Teflon bead (W1-105F and W1-105M) on the other end. The use of the high temperature support bead allows the connector to be subjected to

temperature ranges up to 200°C for a short period. The center conductor extends outside of the connector and allows the user to make a direct pin overlap connection to the microwave circuit. The threads on the backside of the WI Connector® allow the user to install the WI Connector® by screwing it into the housing wall. Since Anritsu's proprietary low-loss high temperature plastic bead is used, the user can solder the connector which has the glass bead into the housing to achieve a hermetic connection.

Flange Mount Connector

W1 two-hole Flange Mount female Connector is also available. The center conductor of the connector is supported by a PPO® bead on the front-end and by a Teflon bead on the back end. The center conductor extends outside the connector, allowing for a direct pin overlap connection to the microwave circuit.

Cable Connector

Both the male and female cable connectors are available. Typical return loss at 110 GHz for finished cables exceeds 16 dB (1.35 SWR).

Tools



01-504, W1-6 mm
Torque Wrench



01-506, W1-7 mm
Torque Wrench



01-505, W1-6-7 mm
Open end Wrench

Connectors



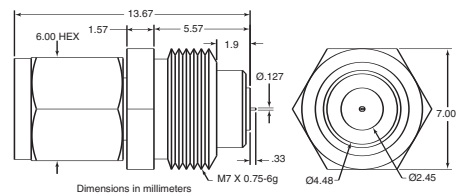
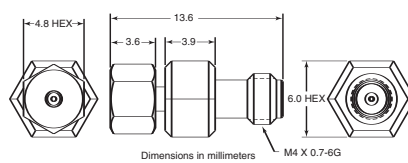
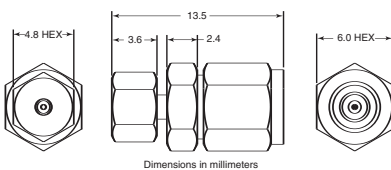
W1-101M
W1 Male In-line Cable Connector, DC-110 GHz



W1-101F
W1 Female In-line Cable Connector, DC-110 GHz



W1-102M, W1-105M
W1 Male Sparkplug Connector, DC-110 GHz



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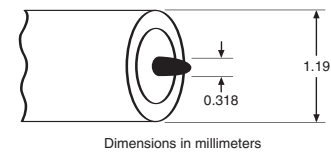
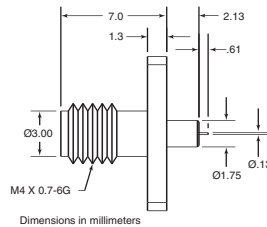
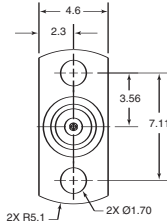
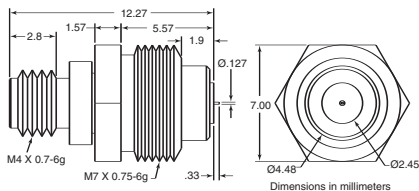
W1-102F, W1-105F
W1 Female Sparkplug Connector, DC-110 GHz



W1-103F
W1 Female Flange Connector, DC-110 GHz



W047-2
Semi-rigid coaxial cable, 1.52 m length of 1.19 mm semi-rigid cable for W1-101 series connector



Specifications

Impedance	50 Ω
Frequency	DC to 110 GHz
Insertion Loss	0.70 dB typical
Return Loss	1.38 to 110 GHz typical 1.24 to 110 GHz typical (W1-101F, W1-101M)
Insulation Resistance	>1200 MΩ
Center Conductor Contact Resistance	6 mΩ typical
Maximum Power CW	6 W
Frontside Pin Depth	0 to 0.076 mm maximum
Backside Pin Protrusion	0.33 mm typical for W1-102F, W1-102M, W1-105F, W1-105M, 0.61 mm typical for W1-103F
Torque Coupling Nut	4 in-lb maximum
Torque W1 Connector Installation	5 in-lb maximum
Hermeticity (W1-102F, W1-102M)	1 x 10 ⁻⁸ std cc He/sec at atmosphere differential

Materials

W1-101F W1-101M	Outer Conductor: Passivated Stainless Steel Center Conductor: Beryllium-copper, gold plated over nickel per Mil-G-45204C Coupling Nut: Passivated Stainless Steel Sleeve: Beryllium-copper, gold plated over nickel per Mil-G-45204C Lock Screw: Passivated Stainless Steel
W1-102F W1-102M	Outer Conductor: Beryllium-copper, gold plated over nickel per Mil-G-45204C Center Conductor: Beryllium-copper, gold plated over nickel per Mil-G-45204C Coupling Nut: Passivated Stainless Steel Glass Bead Center Pin: Kovar, gold plated over nickel per Mil-G-45204C Glass Bead Outer Conductor: Kovar, gold plated over nickel per Mil-G-45204C Glass Bead Dielectric: Corning 7070 Glass Plastic Bead Dielectric: Proprietary
W1-103F	Outer Conductor: Passivated stainless steel Center Conductor: Beryllium-copper, gold plated over nickel per Mil-G-45204C Coupling Nut: Passivated Stainless Steel Plastic Support Bead Dielectric: Polyphenylene Oxide Noryl
W1-105F W1-105M	Outer Conductor: Passivated stainless steel Center Conductor: Beryllium-copper, gold plated over nickel per Mil-G-45204C Coupling Nut: Passivated Stainless Steel Plastic Support Bead Dielectric: Proprietary

Environmental information

Tests are performed per MIL-STD-202F.

Operating Temperature Range	0° to +55°C
Storage Temperature Range	-54° to +125°C for W1-102F, W1-102M, W1-105F, W1-105M -54° to +85°C for W1-103F
Humidity	25° to -40° and 25° to 125°C, method 107G, condition B
Shock	100G peak sawtooth, method 213, test condition 1
Vibration	Sinewave: 10 Hz to 2000 Hz, 0.06" DA, method 204, test condition D Random: 50 Hz to 2000 Hz, 11.6 Grams, Power Spectral Density 0.1 Grams ² /Hz, Method 214, Test Condition 1, Letter D
Salt Spray	5% concentration for 48 hours, Method 101D, Condition B
Dielectric Withstanding Voltage	500 Vac RMS, 60 seconds, method 301

Ordering information

Please specify model/order number, name, and quantity when ordering.

Model/Order No.	Name
W1-101F	W1 Male In-line Cable Connector, DC-110 GHz
W1-101M	W1 Female In-line Cable Connector, DC-110 GHz
W1-102F	W1 Female Sparkplug Connector, Hermetic, DC-110 GHz
W1-102M	W1 Male Sparkplug Connector, Hermetic, DC-110 GHz
W1-103F	W1 Female Flange Connector, DC-110 GHz
W1-105F	W1 Female Sparkplug Connector, DC-110 GHz
W1-105M	W1 Male Sparkplug Connector, DC-110 GHz
W047-2	Semi-rigid Coaxial Cable
01-504	W1 6 mm Torque Wrench
01-505	W1 6-7mm Open end Wrench
01-506	W1 7 mm Torque Wrench