

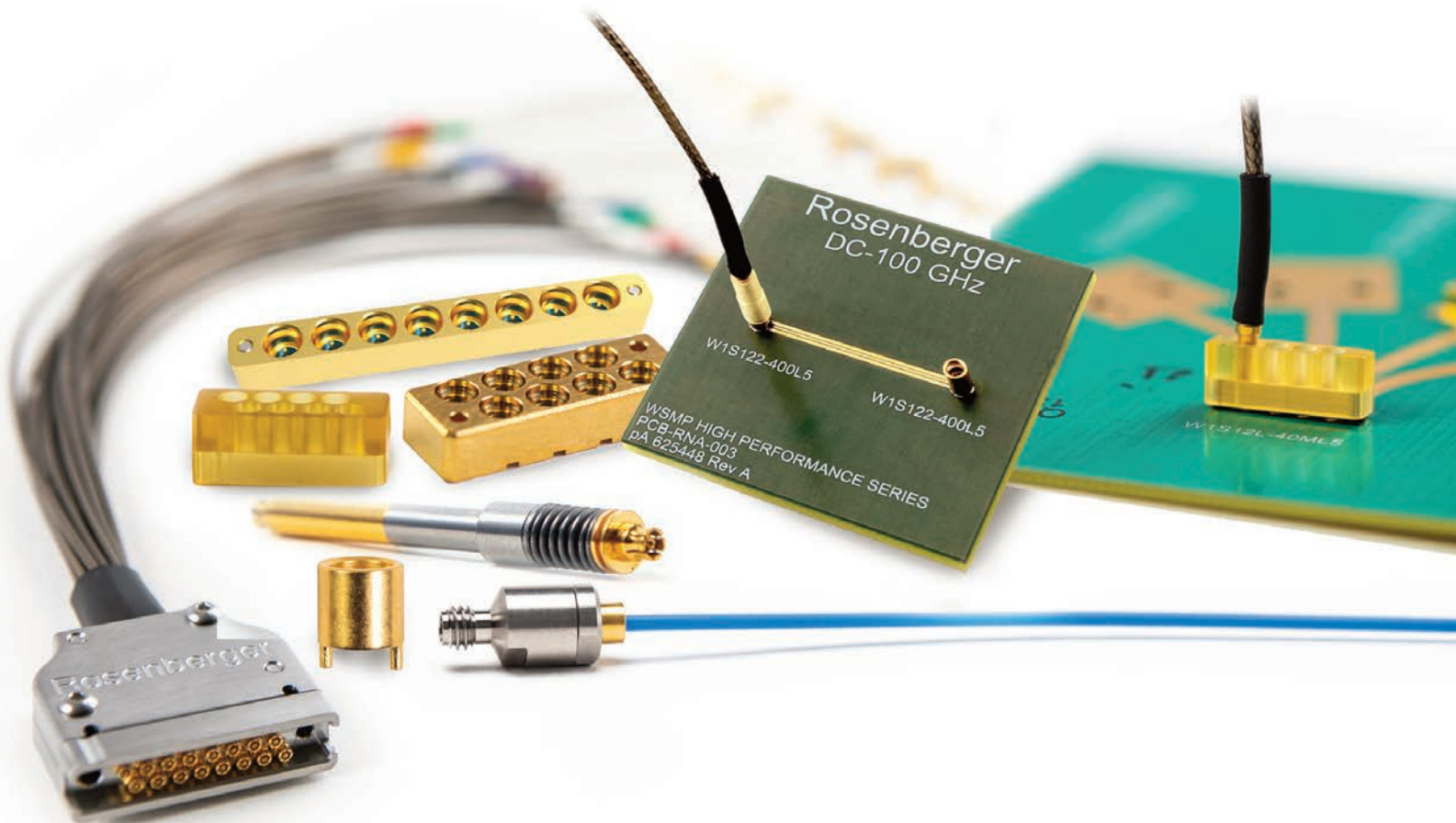
**NEW.**

Now including  
NexGen 100 GHz  
WSMP® Connectors

**Rosenberger**

## WSMP® Coaxial RF Connectors & Cable Assemblies for High Density Applications

ROSENBERGER NORTH AMERICA



# Standard WSMP<sup>®</sup> Connectors

## Specifications

|   |  |   |  |
|---|--|---|--|
| <b>Interface</b><br>According to Rosenberger WSMP <sup>®</sup> Interface standards  |  | <b>Mechanical data</b><br>Engagement force (typical)<br>Full Detent (FD)            11 N                    2.47 Lbs.<br>Smooth Bore (SB)        5.3 N                    1.19 Lbs.<br>Disengagement force (typical)<br>Full Detent (FD)            20 N                    4.5 Lbs.<br>Smooth Bore (SB)        4.45 N                   1.0 Lbs.<br>Axial Misalignment        .000-.010 inches [.000 - .250mm]<br>Radial Misalignment       ±.005 inches [+/- .13mm]   |  |
| <b>Material and plating</b><br>Connector parts            Material                    Plating<br>Center contact            Kovar <sup>®</sup> or CuBe        Gold<br>Outer contact            Kovar <sup>®</sup> or CuBe        Gold<br>Dielectric                    PTFE, PAI, or Corning 7070 <sup>™</sup> Glass   |  | <b>Environmental data</b><br>Temperature range        -55° C to +165° C<br>Thermal shock            MIL-STD-202, Meth. 107, Cond. B<br>Corrosion                    MIL-STD-202, Meth. 101<br>Vibration                    MIL-STD-202, Meth. 204, Cond. D<br>Shock                        MIL-STD-202, Meth. 213, Cond. I<br>Moisture resistance       MIL-STD-202, Meth. 106, except Step 7B<br>Max. soldering temperature (optional)    IEC 61760-1, +260°C for 10 sec.<br>RoHS                        Compliant<br>Hermetically-sealed to 1 x 10 <sup>-8</sup> cc/sec            On Request |  |
| <b>Electrical data</b><br>Impedance                    50 Ω<br>Frequency                    DC to 65 GHz<br>Return loss (typical)      ≥ 26 dB, DC to 26.5 GHz<br>≥ 19 dB, 26.5 to 65 GHz<br>Insertion loss                ≤ 0.12 x √f(GHz) dB<br>Insulation resistance      ≥ 3.5 x 10 <sup>3</sup> MΩ<br>Center contact resistance ≤ 6.0 mΩ<br>Outer contact resistance ≤ 2.0 mΩ<br>Test voltage (at sea level) 250 Vrms<br>RF High Potential (at sea level)    150 Vrms @ 5 MHz<br>RF-leakage (optional)      ≥ -80 dB (typical mated pair) @ 30 GHz |  | <b>Tooling</b><br>WSMP Cable Connector Prybar            W1W001-000<br>WSMP Right Angle Prybar Extraction Tool    W1W005-000<br>WSMP Bullet Insertion/ Extraction Tool    W1W002-000  |  |
| <b>Mechanical data</b><br>Mating cycles<br>Full Detent (FD)            ≥ 100<br>Smooth Bore (SB)        ≥ 500   |  |   |  |

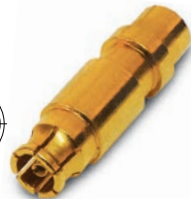
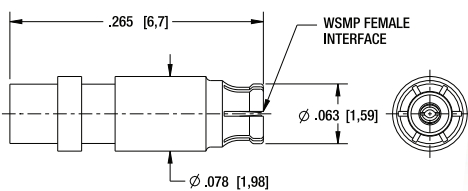
## Cable Connectors

### Description

WSMP Female Straight for .047 Cable

### Part Number

W1K101-270D3

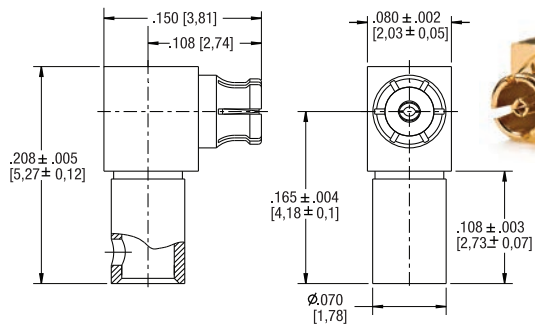


### Description

WSMP Female Right Angle for .047 Cable

### Part Number

W1K203-270D3

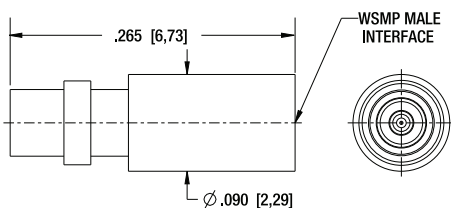


### Description

WSMP Male Straight for .047 Cable

### Part Number

FD: W1S101-270D3  
 SB: W1S141-270D3

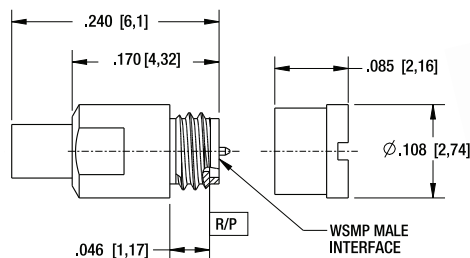


### Description

WSMP Male Straight Bulkhead for .047 Cable

### Part Number

FD: W1S501-270D3  
 SB: W1S541-270D3



# Standard WSMP<sup>®</sup> Connectors

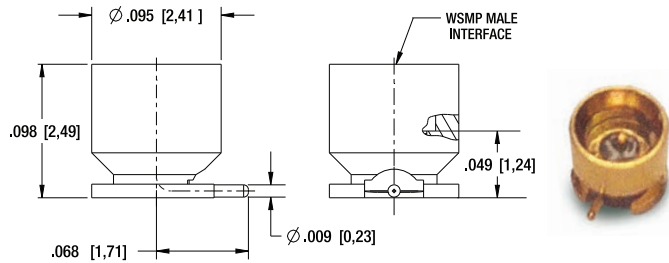
## PCB Connectors

### Description

WSMP Male PCB, Straight,  
SMT, J-Lead  
WSMP Male, PCB, Straight,  
with SMT p/u cap

### Part Number

FD: W1S103-40ML5  
SB: W1S143-40ML5  
FD: W1S109-40ML5  
SB: W1S149-40ML5

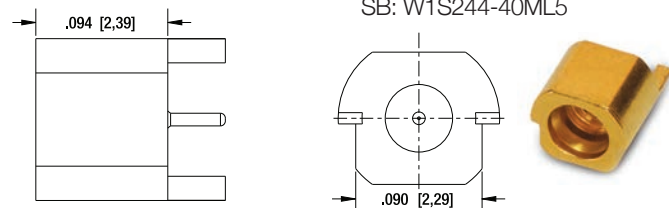


### Description

WSMP Male PCB Edge Mount

### Part Number

FD: W1S204-40ML5  
SB: W1S244-40ML5

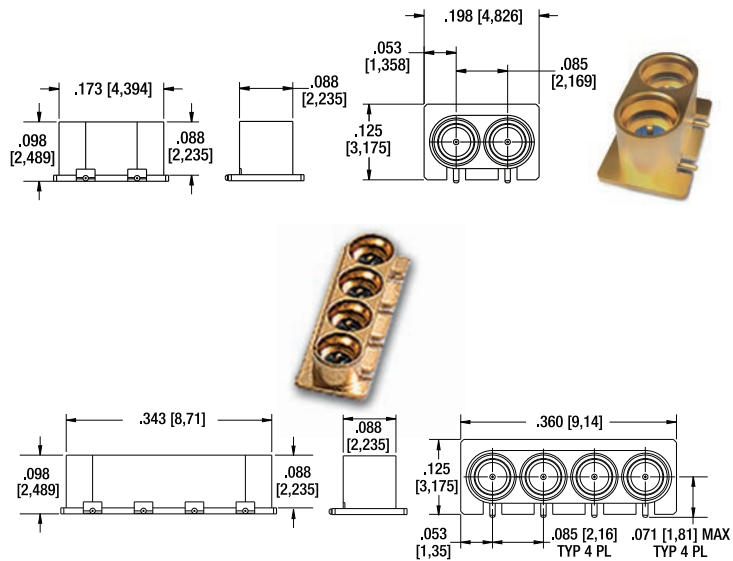


### Description

WSMP Male PCB, Straight,  
SMT, J-Lead, Multiport Arrays

### Part Number

FD: 2 Port: W1S12A 40ML5  
FD: 4 Port: W1S12B-40ML5  
SB: 2 Port: W1S15A-40ML5  
SB: 4 Port: W1S15B-40ML5



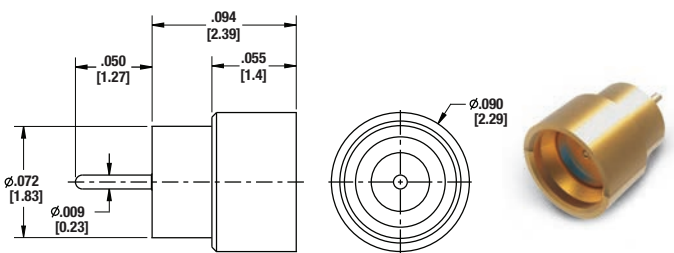
## Hermetic

### Description

WSMP Straight, PCB plug,  
solder-in hermetic

### Part Number

FD: W1S101-5H0L5  
SB: W1S141-40ML5



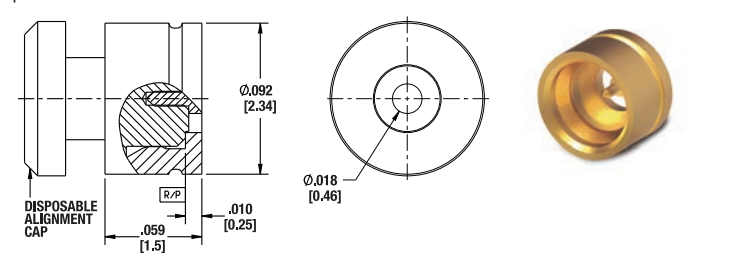
## Shroud/Pin

### Description

WSMP Straight, PCB plug,  
pin/shroud kit

### Part Number

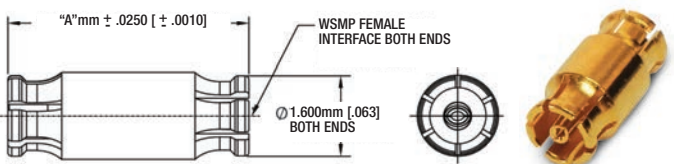
FD: W1S104-40ML5  
SB: W1S144-40ML5



## Adapters

### Description

WSMP Female Blindmate Interconnect (Bullet)



| Part Number  | A (mm) | A (in) | Part Number  | A (mm) | A (in) |
|--------------|--------|--------|--------------|--------|--------|
| W1K10A-K00D3 | 2.49   | 0.098  | W1K10J-K00D3 | 7.62   | 0.300  |
| W1K10C-K00D3 | 3.18   | 0.125  | W1K10M-K00D3 | 10.16  | 0.400  |
| W1K10F-K00D3 | 3.81   | 0.150  | W1K10N-K00D3 | 12.70  | 0.500  |
| W1K10G-K00D3 | 5.08   | 0.200  | W1K10P-K00D3 | 15.24  | 0.600  |
| W1K10H-K00D3 | 6.35   | 0.250  |              |        |        |

Additional lengths available on request

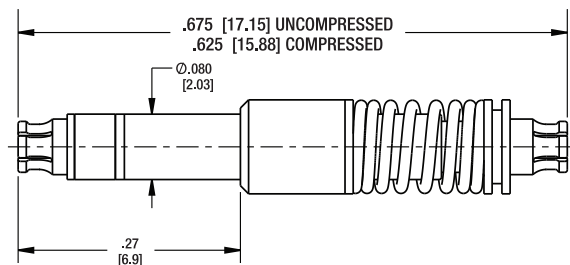
## Compressible Adapters

### Description

Compressible Bullet

### Part Number

W1KF1W1-K03D3



Custom sizes available upon request, please consult the factory.

# High Speed Applications

Applications include:

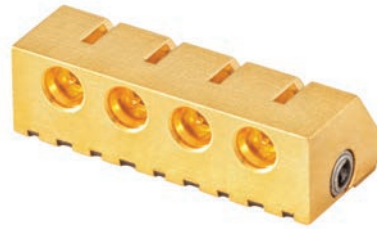
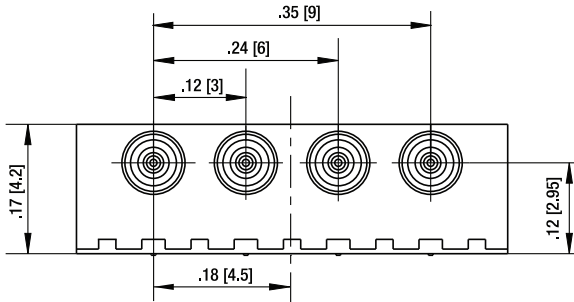
- Optical Transceivers
- 100G – 400G Optical Network Applications
- Laser Modulators
- Typical application: Integrated Polarization Multiplexed Quadrature Modulators according to OIF\_HBPMQ-TX-010

## Description

WSMP Male, Full Detent, 4 port SMT

## Part Number

FD: W1S20M-40ME4



## Edge Launch WSMPs



## Description

WSMP Male, 4-port, edge launch

## Part Number

FD: W1S20J-40ML5  
SB: W1S24J-40ML5

WSMP Male, 8-port, edge launch

FD: W1S20H-40ML5  
SB: W1S24H-40ML5

## Hermetic WSMPs



## Description

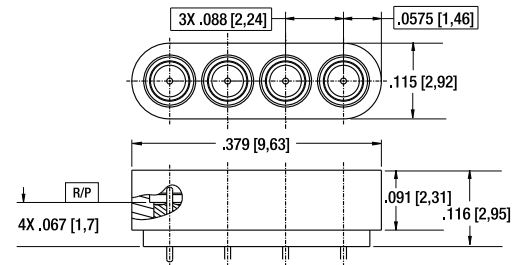
WSMP Male, 4-port, vertical launch

## Part Number

FD: W1S10Z-40ML5  
SB: W1S14Z-40ML5

WSMP Male, 8-port, vertical launch

FD: W1S10S-40ML5  
SB: W1S14S-40ML5

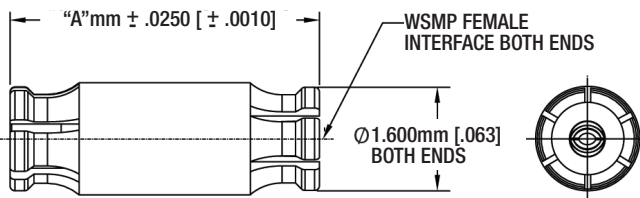


Please contact the factory for further information and product availability of our High Speed products.

## Adapters

### Description

WSMP Female Blindmate Interconnect (Bullet)



| Part Number  | A (mm) | A (in) | Part Number  | A (mm) | A (in) |
|--------------|--------|--------|--------------|--------|--------|
| W1K10A-K00D3 | 2.49   | 0.098  | W1K10J-K00D3 | 7.62   | 0.300  |
| W1K10C-K00D3 | 3.18   | 0.125  | W1K10M-K00D3 | 10.16  | 0.400  |
| W1K10F-K00D3 | 3.81   | 0.150  | W1K10N-K00D3 | 12.70  | 0.500  |
| W1K10G-K00D3 | 5.08   | 0.200  | W1K10P-K00D3 | 15.24  | 0.600  |
| W1K10H-K00D3 | 6.35   | 0.250  |              |        |        |

Additional lengths available on request

# NEW NexGen WSMP® Connectors

## Specifications

True high frequency performance thru 100 GHz. Footprint optimization available.

### Electrical data

|                       |  |
|-----------------------|--|
| Impedance             | 50 Ω   |
| Frequency             | Next Gen 100 GHz   |
| Return loss (typical) | ≥ 18 dB, DC to 40 GHz<br>≥ 15 dB, 40 to 70 GHz<br>≥ 12 dB, 70 to 100 GHz |
| Insertion loss        | ≤ 0.12 x √f(GHz) dB  |
| Insulation resistance | ≥ 3.5 x 10 <sup>9</sup> MΩ   |

### Electrical data

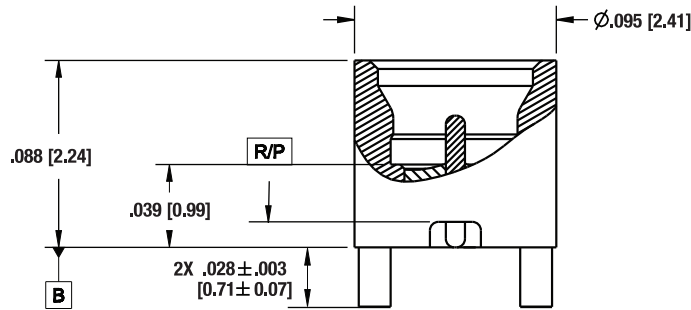
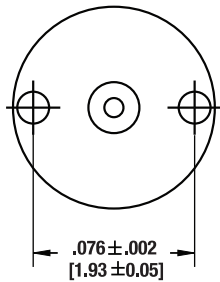
|                                  |  |
|----------------------------------|--|
| Center contact resistance        | ≤ 6.0 mΩ                               |
| Outer contact resistance         | ≤ 2.0 mΩ                               |
| Test voltage (at sea level)      | 250 Vrms                               |
| RF High Potential (at sea level) | 150 Vrms @ 5 MHz                       |
| RF-leakage (optional)            | ≥ -80 dB (typical mated pair) @ 30 GHz |

### Description

WSMP Male, Single Port, SMT Shroud

### Part Number

FD: W1S122-400L5  
SB: W1S152-400L5

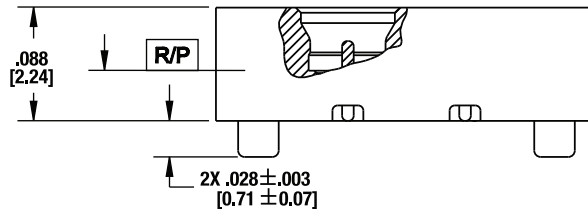
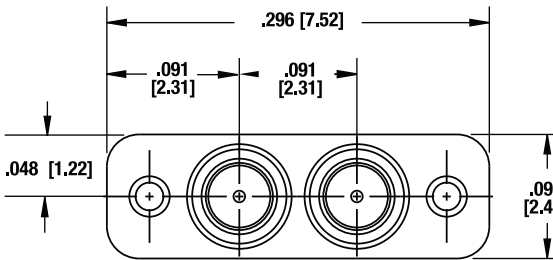


### Description

WSMP Male, 1x2 Port SMT Shroud

### Part Number

FD: W1S12K-40ML5  
SB: W1S15K-40ML5

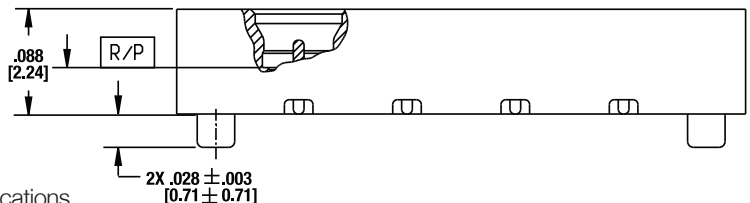
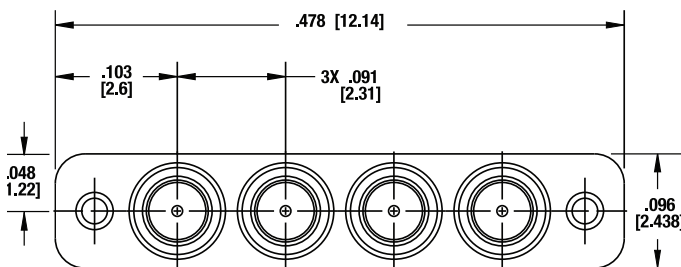


### Description

WSMP Male, 1x4 Port, SMT Shroud

### Part Number

FD: W1S12L-40ML5  
SB: W1S15L-40ML5



Note 1: Mechanical and Environmental Data is per the standard specifications.

Note 2: Alignment pins are press fit and may be removed at the customer's discretion.

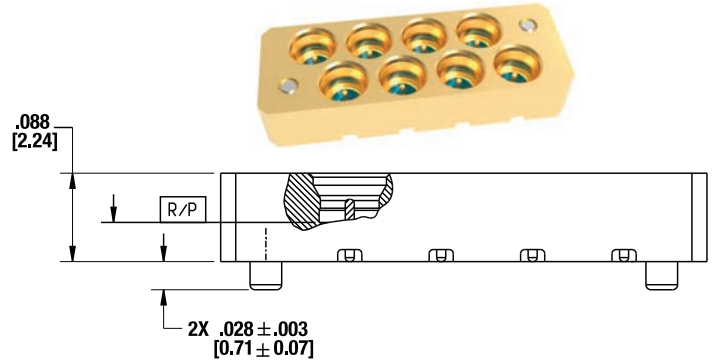
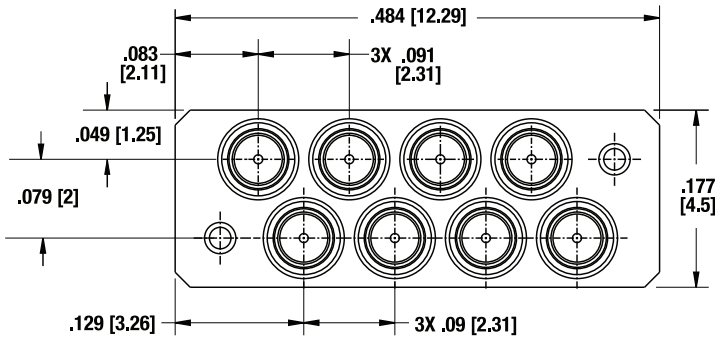
# NEW NexGen WSMP® Connectors

## Description

WSMP Male, 2x4 Port, SMT Shroud

## Part Number

FD: W1S12N-40ML5  
SB: W1S15N-40ML5

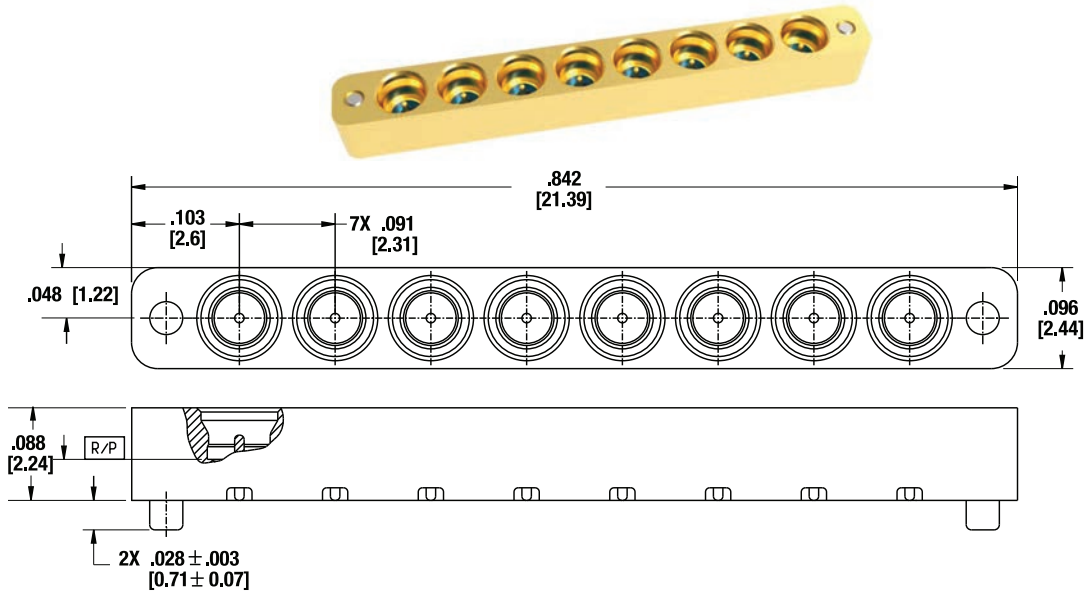


## Description

WSMP Male, 1x8 Port, SMT Shroud

## Part Number

FD: W1S12M-40ML5  
SB: W1S15M-40ML5



# NEW NexGen WSMP® Alignment Covers

Strain reliefs are available that securely hold a cable assembly in place during Test & Measurement or other applications. Alignment covers slide over the WSMP connector.

## Description

Single port alignment cover  
1x2 port alignment cover  
1x4 port alignment cover  
1x8 port alignment cover  
2x4 port alignment cover

## Part Number

W1S152-400/50  
W1S15K-40M/50  
W1S15L-40M/50  
W1S15M-40M/50  
W1S15N-40M/50



# WSMP® Cable assemblies

Rosenberger's high frequency, flexible cable assemblies incorporating our high performance 1.85mm, 2.92mm, and WSMP connectors.



| P/N                       | Connector 1 | Connector 2  | Cable         | Length | Electrical Specifications (typical)    |
|---------------------------|-------------|--------------|---------------|--------|--|
| <b>RPC 1.85 to WSMP:</b>  |             |              |               |        |  |
| 70W-08S1-W1K1-00203       | 1.85mm(m)   | WSMP(f)      | RTK Flex .047 | 203mm  | DC-70 GHz, R.L.> 12dB @26 GHz, typical |
| 70W-08K1-W1K1-00080       | 1.85mm(f)   | WSMP(f)      | RTK Flex .047 | 80mm   | DC-70 GHz, R.L.> 12dB @26 GHz, typical |
| 70W-08S1-W1K2-00203       | 1.85mm(m)   | WSMP(f) r/a  | RTK Flex .047 | 203mm  | DC-70 GHz, R.L.> 12dB @26 GHz, typical |
| <b>RPC 2.92 to WSMP:</b>  |             |              |               |        |  |
| 70W-02S1-W1K1-00203       | 2.92mm(m)   | WSMP(f)      | RTK Flex .047 | 203mm  | DC-40 GHz, R.L. >12 dB@26 GHz, typical |
| 70W-02K1-W1K1-00080       | 2.92mm(f)   | WSMP(f)      | RTK Flex .047 | 80mm   | DC-40 GHz, R.L. >12 dB@26 GHz, typical |
| 70W-02S1-W1K2-00203       | 2.92mm(m)   | WSMP(f), r/a | RTK Flex .047 | 203mm  | DC-40 GHz, R.L. >10 dB@26 GHz, typical |
| <b>WSMP to WSMP</b>       |             |              |               |        |  |
| 70W-W1K1-W1K1-00203       | WSMP(F)     | WSMP(F)      | RTK Flex .047 | 203mm  | DC-70 GHz, R.L. >15 dB@26 GHz, typical |
| 70W-W1K2-W1K2-00203       | WSMP(F) r/a | WSMP(F) r/a  | RTK Flex .047 | 203mm  | DC-70 GHz, R.L. >14 dB@18 GHz, typical |
| 70W-W1K1-W1K2-00203       | WSMP(F)     | WSMP(F) r/a  | RTK Flex .047 | 203mm  | DC-70 GHz, R.L. >16 dB@18 GHz, typical |
| <b>RPC 1.0 mm to WSMP</b> |             |              |               |        |  |
| L70-323-102               | WSMP(F)     | RPC-100 Plug | RTK Flex .047 | 102mm  |  |
| L70-336-102               | WSMP(F)     | RPC-100 Jack | RTK Flex .047 | 102mm  |  |

## WSMP 2x8

### Description

Straight PCB plug

### Part Number

W1S14P-40ML5



## Cable Assemblies

### Description

2x8 to RPC-2.92 male, 12"  
2x8 to RPC-1.85 male, 12"  
2x8 to 2x8, 12"

### Part Number

H70W-W16-Km-00305  
H70W-W16-Vm-00305  
H70W-W16-W16-00305



# Next Generation High Performance WSMP® Test Results

Rosenberger's Next Generation High Performance WSMP® connectors offer true, 100 GHz performance in a small, high-density package. The test structure below is used to validate RF measurements to 100GHz.

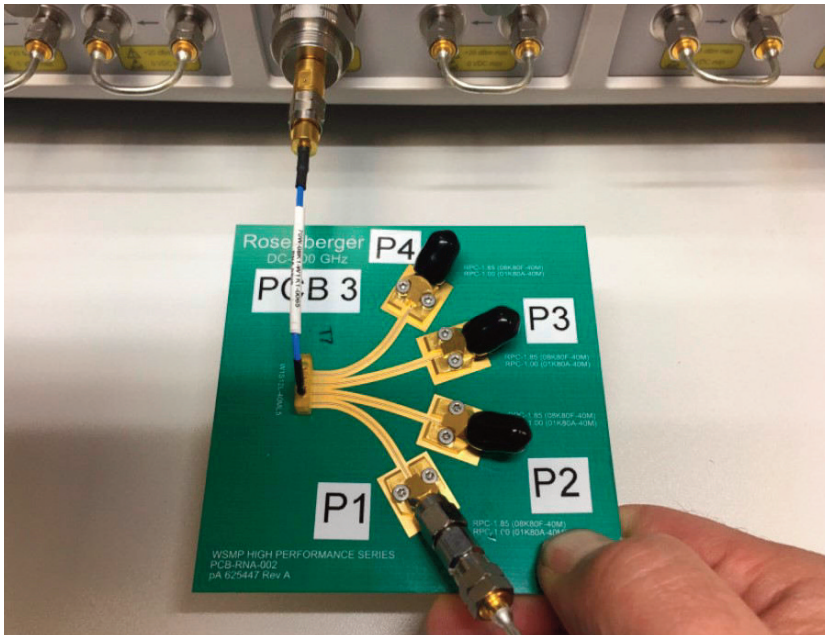


Figure 1

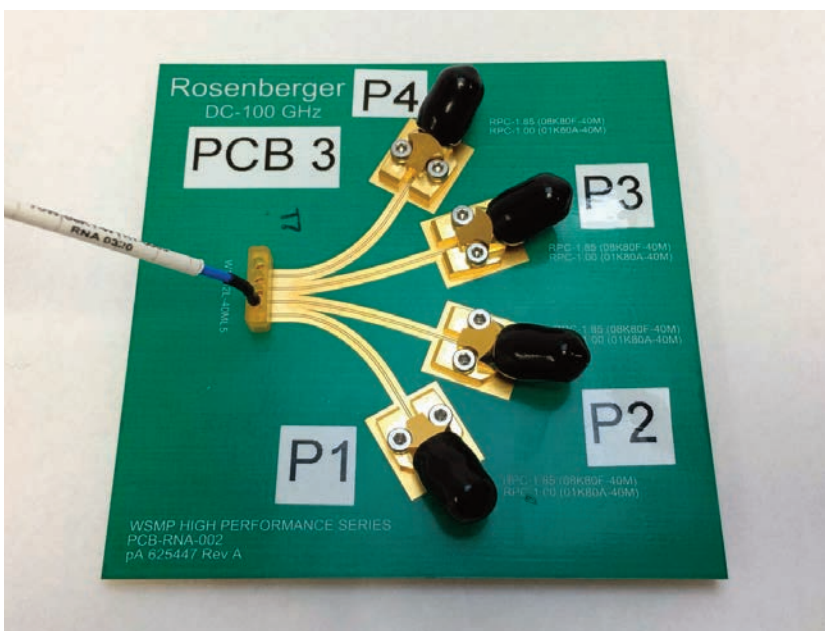


Figure 2

## Test Set up:

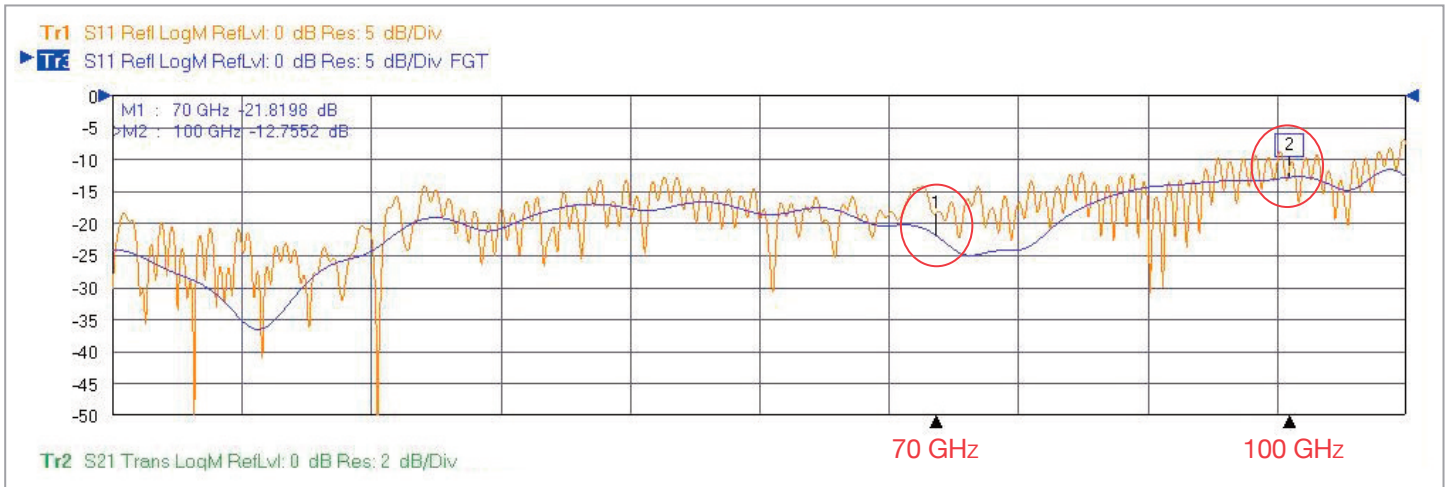
Pictured to the left, is a detail of the high performance WSMP® test set-up. This is used to take a "full path" measurement from VNA port 1 that includes a full WSMP cable assembly, WSMP mated interfaces, PCB connector and transitions, PCB trace, solderless precision connector, and mated port 2 cable assembly.

Pictured to the left is the basic test setup for gating the WSMP connector performance as it transitions to the PCB. Gate 1 is set in Time Domain at a point along the cable assembly while Gate 2 is set along the PCB trace. The "gated path" reveals the true RF measurements of the WSMP NexGen connector system that includes the mated interface, PCB connector, and PCB transition.

\*\*Also shown is the optional alignment cover to provide mechanical stability during measurements.

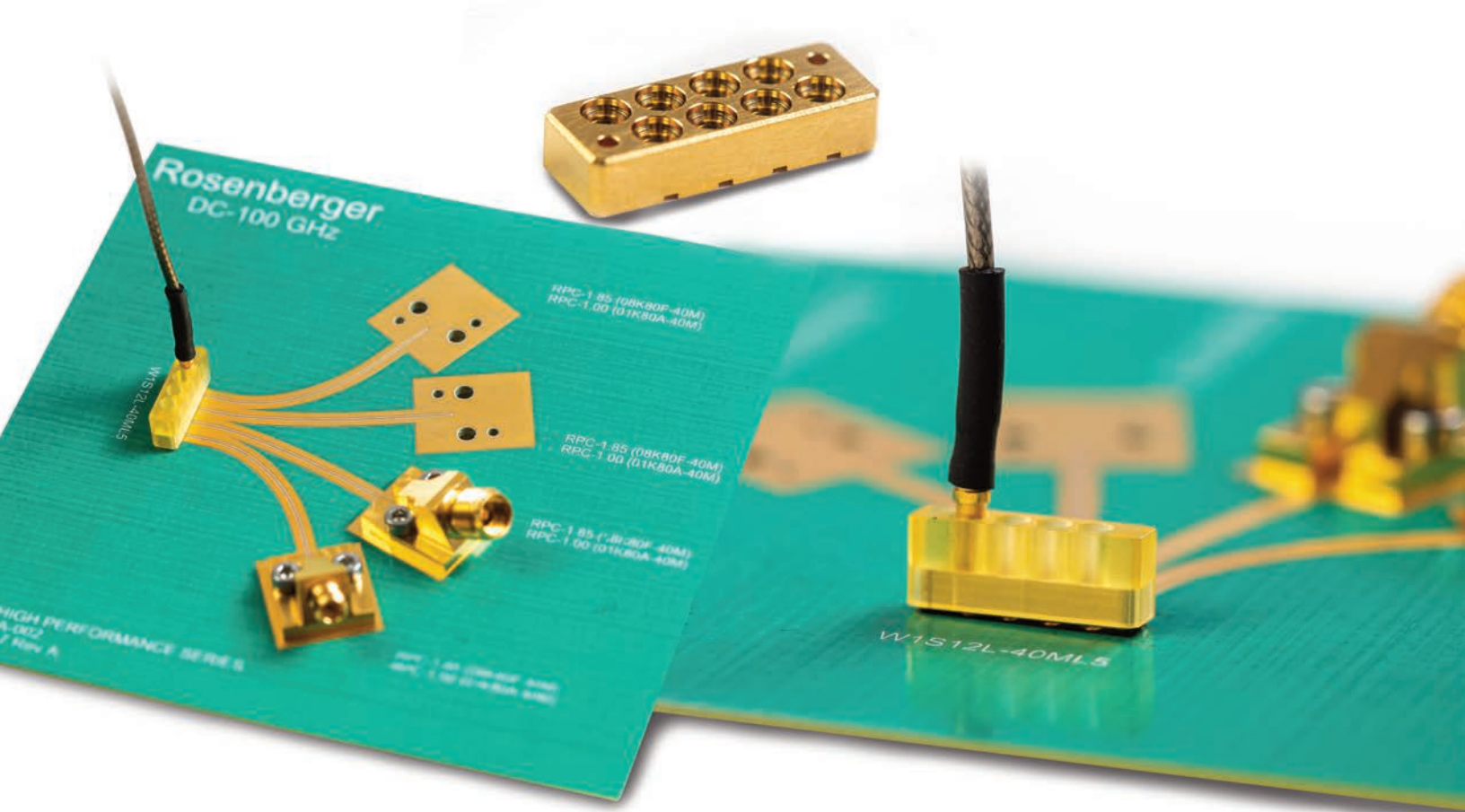


# Summary of Test results



The Vector Network Analyzer's (VNA) output plot (Port 1 through Port 2):

- ♦ The Beige trace is the "full path" from figure 1 (the cable, PCB connector, trace and termination).
- ♦ The Blue trace is the result of the "gated path" from figure 2. The gated measurements demonstrate performance of the NexGen WSMP<sup>®</sup> return loss value exceeding approximately 12dB out to 100GHz.



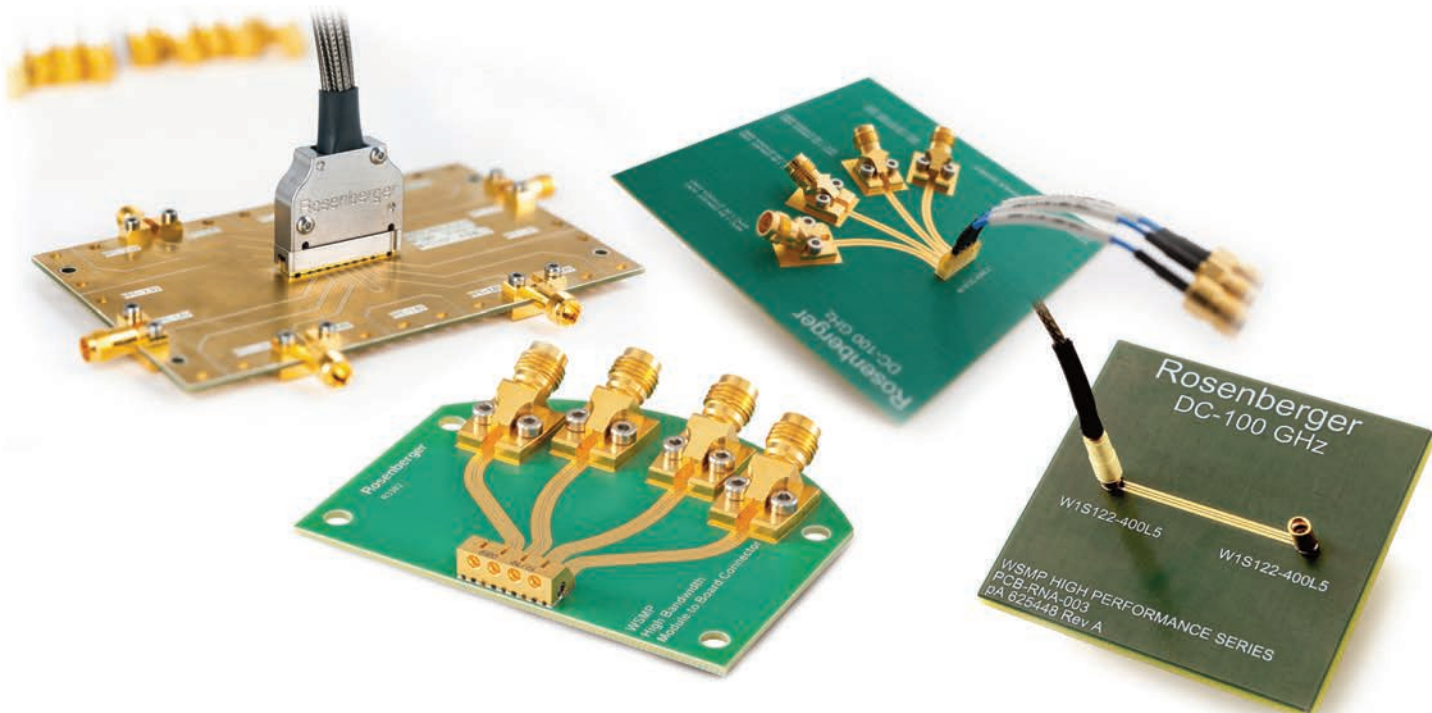
# WSMP® and NexGen WSMP® Product Evaluation Boards

Rosenberger offers several product evaluation boards that are available to our customers so that they may evaluate and test the product as they choose. The evaluation boards come in Four configurations: single port NexGen WSMP, 1x4 port NexGen WSMP, 2x8 channel WSMP(standard WSMP) and finally, High Speed OIF style connectors.

| EV Board Style | Freq.   | Connectors EV Board  | Part Number       |
|----------------|---------|--|-------------------|
| 1x1            | 70 GHz  | 2, WSMP NexGen (W1S122-400L5),<br>+2 cable assemblies (WSMP(f) to 1.85mm)  | WSMP-Eval-1Ch-70  |
| 1x1            | 100 GHz | 2, WSMP NexGen (W1S122-400L5),<br>+2 cable assemblies (WSMP(f) to 1.00mm)  | WSMP-Eval-1Ch-100 |
| 1x4            | 70 GHz  | 1x4 WSMP NexGen + 4, 1.85mm(f) connectors<br>+ 2 cable assemblies (WSMP(f) to 1.85mm)  | WSMP-Eval-4Ch-70  |
| 1x4            | 100 GHz | 1x4 WSMP NexGen + 2, 1.85mm(f) connectors & 2,<br>1 mm (f) connectors + 2 cable assemblies                                   | WSMP-Eval-4Ch-100 |
| 2x8            | 40 GHz  | 1, 2x8 (16 channel) WSMP connector + 3,<br>1.85mm(f) connectors + 3 2.92mm(f) connectors<br>+ mating cable assembly (2.92mm) | WSMP-Eval-16Ch-K  |
| 2x8            | 70 GHz  | 1, 2x8 (16 channel) WSMP connector + 3,<br>1.85mm(f) connectors + 3 2.92mm(f) connectors<br>+ mating cable assembly (1.85mm) | WSMP-Eval-16Ch-V  |
| 1x4            | 110 GHz | 1, 4 channel OIF connector.<br>Solderless 1 mm & 1.85 mm   | WSMP-OIF-Eval -4  |

**Notes:** NexGen WSMP Evaluation boards include plastic strain relief.

Connectors sold separately.



# Accessories

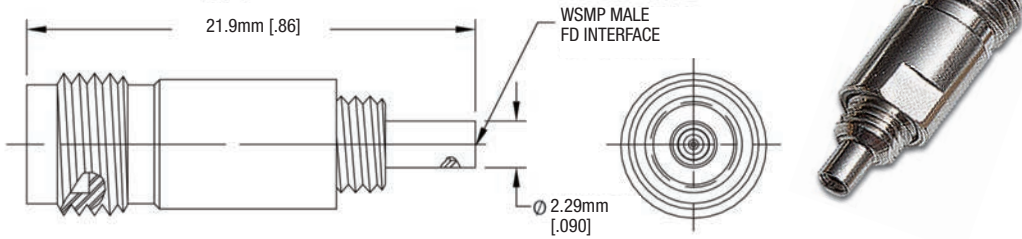
## Between Series Test Adapters

### Description

WSMP Male Full Detent to  
RPC-2.92 Female Adapter  
RPC-1.85 Female Adapter  
RPC-2.4 Male Adapter  
RPC-2.4 Female Adapter  
RPC-1.00 Male Adapter

### Part Number

W1S102-K00S3 to 40 GHz  
W1S108-K00S3 to 65 GHz  
W1S109-S00S3 to 50 GHz  
W1S109-K00S3 to 50 GHz  
W1S101-S00D3 to 100 GHz

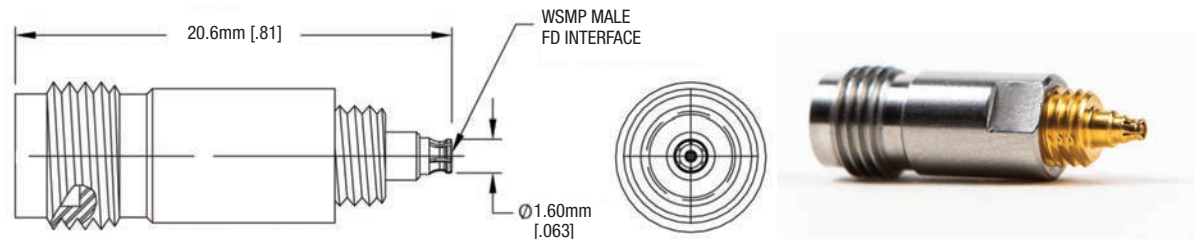


### Description

WSMP Female to  
RPC-2.92 Female Adapter  
RPC-1.85 Female Adapter  
RPC-2.4 Female Adapter  
RPC-1.00 Male Adapter

### Part Number

W1K102-K00D3 to 40 GHz  
W1K108-K00D3 to 67 GHz  
W1K109-K00D3 to 50 GHz  
W1K101-K00D3 to 50 GHz



## Tools. Custom for your needs

### Description

WSMP Cable Connector  
Prybar Extraction Tool

**Part Number**  
W1W001-000



### Description

WSMP Right Angle  
Prybar Extraction Tool

**Part Number**  
W1W005-000



### Description

WSMP Bullet Insertion/  
Extraction Tool

**Part Number**  
W1W002-000



# WSMP™ Coaxial RF Connectors and RF Coaxial Cable Assemblies

Provides:

- True 100 GHz signal integrity performance, for Next Generation Products
- Center to Center Spacing 0.085" [2.15 mm]
- Board to Board Height of 4.99mm [.196"]
- 45% Smaller than SMP; 35% Smaller than Mini SMP (SMPM)
- Custom Footprints for Optimized RF Performance on Your PC Board
- Custom RF Cable Assemblies for Your Application

## Company Profile

Rosenberger is a leading worldwide supplier of controlled impedance and optical connectivity solutions, system components for mobile communications networks, data centers and test and measurement as well as high voltage contact systems. The Rosenberger group operates manufacturing and assembly locations in over 10 countries as well as a global sales network.



## Rosenberger North America



Rosenberger Akron is the center of excellence for standard and custom RF cable assemblies. Our advanced technology, reputation for innovation and commitment to our

customers has enabled our rapid-turn production as well as our ability to meet and exceed the demands of the North American marketplace.

Rosenberger North America is ISO 9001 and AS9100 certified.

**Pride in Precision.**



### **Rosenberger**

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