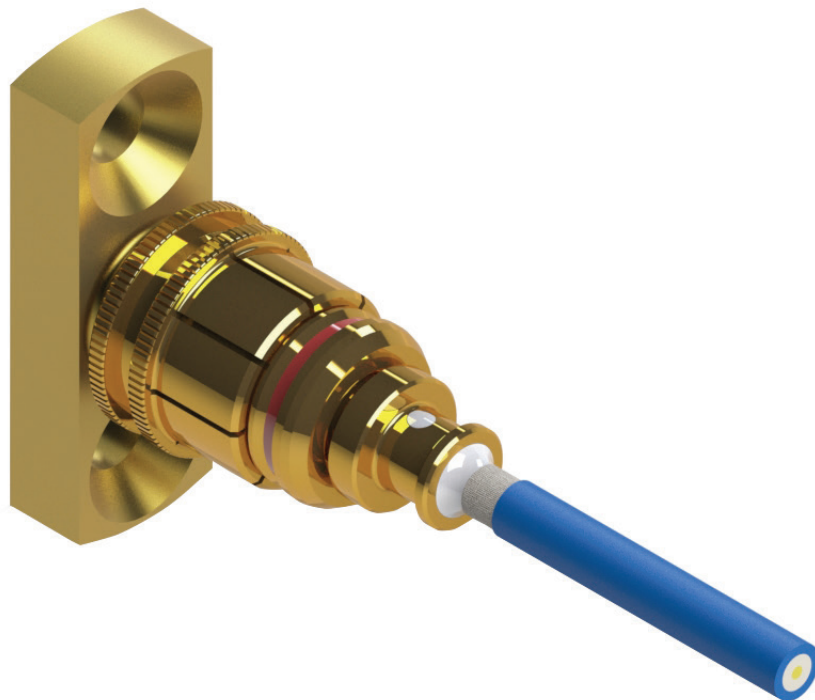


# High Frequency Mini-Lock Connector

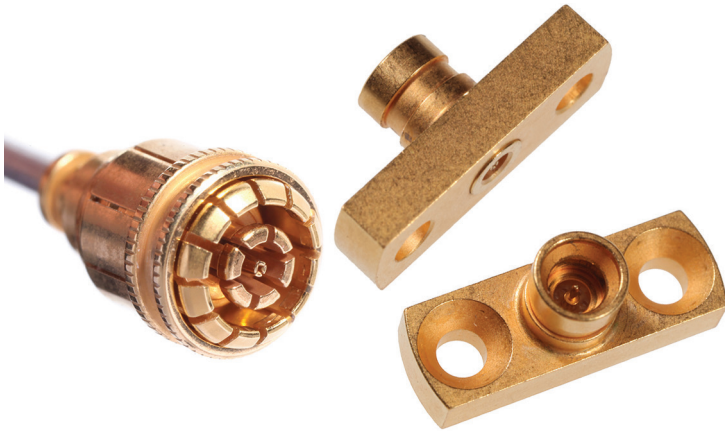
SMPM Series High Frequency Mini-Lock Connector



Patent Pending

# Mini-Lock Connector

High Frequency Performance up to 110 GHz



Smiths Interconnect's SMPM Mini-Lock connector is a high frequency, compact lightweight robust system design for superior electric reliability.

The Mini-Lock can be selected for use with Smiths Interconnect High Frequency Cable Assemblies.

Mini-Lock Connector features a robust locking mechanism ensuring reliable signal integrity and perfect transmission of data between applications. The connector is qualified to Vibration per MIL-STD-202, Method 204 and Shock per MIL-STD-202, Method 213, Condition I.

Mini-Lock connector are suitable for harsh mechanical stress environments such as radars, satellites, space flight, military, UAV and UGV applications.

Specifically designed  
and tested for mission  
critical applications

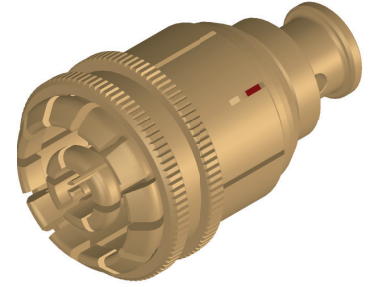
## Features and Benefits

- Small lightweight connector
- High frequency: 110 GHz
- Excellent electrical performance
- Robust locking capability
- Temperature range: -65 °C to 165 °C
- Low insertion force
- Vibration: MIL-STD-202G, Method 204,
- Shock: MIL-STD-202G, Method 213, Condition I

## Applications:

- Satellite Communication & Navigation
- Military, Commercial and Scientific Programs
- GEO/MEO/LEO and Small Satellites
- Manned Space Flight
- Electronic warfare
- Unmanned vehicles

# Technical Characteristics



## High Frequency SMPM Series Mini-Lock Connector - Female Straight

### Electrical

Impedance	50Ω
Frequency range	DC to 110 GHz
Contact resistance	Center conductor 6.0 milliohms max. Outer conductor 3.0 milliohms max.
DWV	335 Vrms at sea level
Insulation resistance	5000 megohms min.
Corona levels	125 Vrms at 70000 ft.
RF high potential	200 Vrms at 5 MHz
RF leakage	80 dB max. at 3 GHz 65 dB max. at 3 to 26.5 GHz
VSWR (per connector)	1.25:1 to 26.5 GHz 1.35:1 to 50 GHz 1.65:1 to 110 GHz
Insertion loss (per connector)	0.04*√f in GHz

### Mechanical

Center contact retention	1.5 lbs. min. (captivated designs)
Durability	100 cycles min. into a full detent shroud, 500 cycles min. into a smooth bore shroud
Force to engage	SMPM full detent - 4.5 lbs. typical SMPM smooth bore - 2.5 lbs. typical
Force to disengage	SMPM full detent - 6.5 lbs. typical SMPM smooth bore - 0.5 lbs. minimum
Locking feature retention	50 lbs. axial force minimum

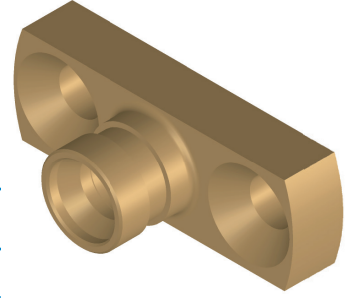
### Environmental

Temperature range	-65 to +165 (°C)
Thermal shock	MIL-STD-202, Method 107, condition B (-65°C to +165°C)
Moisture resistance	MIL-STD-202, Method 106, except step 7B
Corrosion	MIL-STD-202, Method 101, condition B
Vibration	MIL-STD-202, Method 204, condition G
Shock	MIL-STD-202, Method 213, condition I

### Material

Cable and shroud connectors	Material	Plating
Body, sleeve, and contact	Beryllium Copper per ASTM-B-196	Gold plate per ASTM-B488, code C, type II, Class 1.25 over Nickel plate per SAE-AMS-QQ-N-290, Class 2, over Copper per SAE-AMS-2418
Dielectric	Rexolite 1422, per LP-516A, Type E2	-

# Technical Characteristics



## High Frequency SMPM Series Mini-Lock Connector - 2 Hole Flange

### Electrical

Impedance	50Ω
Frequency range	DC to 110 GHz
Contact resistance	Center conductor 6.0 milliohms max. Outer conductor 2.0 milliohms max.
DWV	335 Vrms at sea level
Insulation resistance	5000 megohms min.
Corona levels	125 Vrms at 70000 ft.
RF high potential	200 Vrms at 5 MHz
RF leakage	80 dB max. at 3 GHz 65 dB max. at 3 to 26.5 GHz
VSWR (per connector)	1.15:1 to 26.5 GHz 1.30:1 to 65 GHz Up to 110 GHz depending on customer application
Insertion loss (per connector)	0.04*√f in GHz

### Mechanical

Center contact retention	1.5 lbs. min. (captivated designs)
Durability	100 cycles min. into a full detent shroud, 500 cycles min. into a smooth bore shroud
Force to engage	SMPM full detent - 4.5 lbs. typical SMPM smooth bore - 2.5 lbs. typical
Force to disengage	SMPM full detent - 2.0 lbs. minimum SMPM smooth bore - 0.5 lbs. minimum
Locking feature retention	20 lbs. axial force minimum

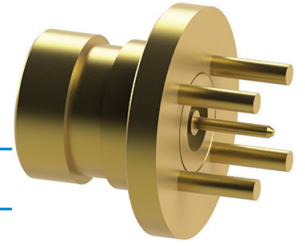
### Environmental

Temperature range	-65 to +165 (°C)
Thermal shock	MIL-STD-202, Method 107, condition B (-65°C to +165°C)
Moisture resistance	MIL-STD-202, Method 106, except step 7B
Corrosion	MIL-STD-202, Method 101, condition B
Vibration	MIL-STD-202, Method 204, condition D
Shock	MIL-STD-202, Method 213, condition I

### Material

Cable and shroud connectors	Material	Plating
Body, sleeve, and contact	Beryllium Copper per ASTM-B-196	Gold plate per ASTM-B488, code C, type II, Class 1.25 over Nickel plate per SAE-AMS-QQ-N-290, Class 2, over Copper per SAE-AMS-2418
Dielectric	Rexolite 1422, per LP-516A, Type E2	-

# Technical Characteristics



## High Frequency SMPM Series Mini-Lock Connector - Male Straight PCB Mount

### Electrical

Impedance	50Ω
Frequency range	DC to 110 GHz
Contact resistance	Center conductor 6.0 milliohms max. Outer conductor 2.0 milliohms max.
DWV	335 Vrms at sea level
Insulation resistance	5000 megohms min.
Corona levels	125 Vrms at 70000 ft.
RF high potential	200 Vrms at 5 MHz
RF leakage	80 dB max. at 3 GHz 65 dB max. at 3 to 26.5 GHz
VSWR (per connector)	1.15:1 to 26.5 GHz 1.30:1 to 65 GHz Up to 110 GHz depending on customer application
Insertion loss (per connector)	0.04*√f in GHz

### Mechanical

Center contact retention	1.5 lbs. min. (captivated designs)
Durability	100 cycles min. into a full detent shroud, 500 cycles min. into a smooth bore shroud
Force to engage	SMPM full detent - 4.5 lbs. typical SMPM smooth bore - 2.5 lbs. typical
Force to disengage	SMPM full detent - 2.0 lbs. minimum SMPM smooth bore - 0.5 lbs. minimum
Locking feature retention	20 lbs. axial force minimum

### Environmental

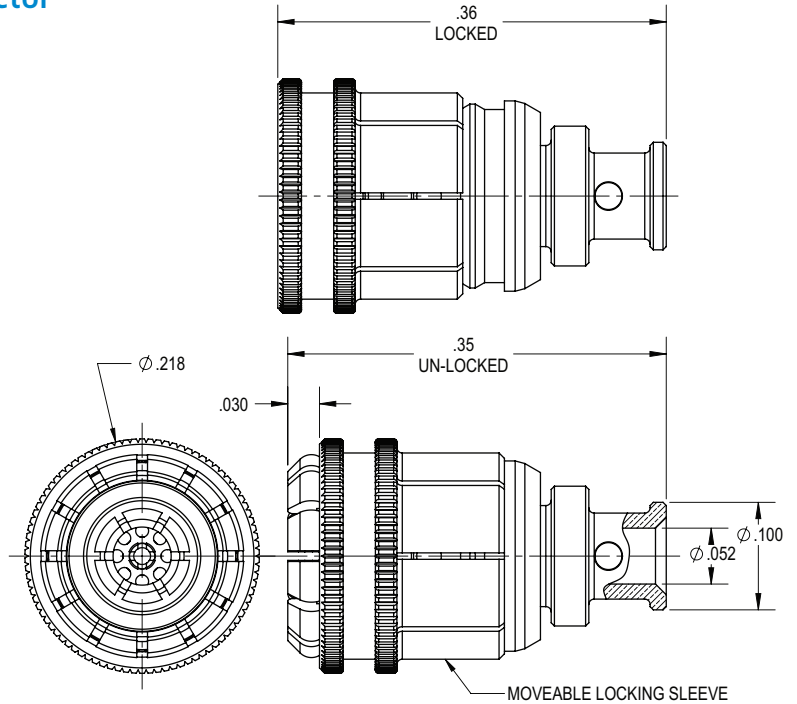
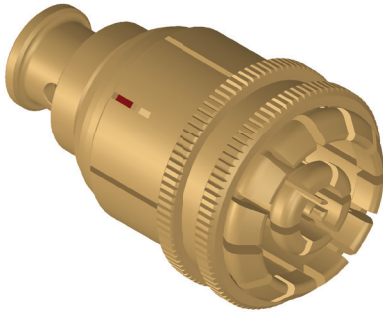
Temperature range	-65 to +165 (°C)
Thermal shock	MIL-STD-202, Method 107, condition B (-65°C to +165°C)
Moisture resistance	MIL-STD-202, Method 106, except step 7B
Corrosion	MIL-STD-202, Method 101, condition B
Vibration	MIL-STD-202, Method 204, condition D
Shock	MIL-STD-202, Method 213, condition I

### Material

Cable and shroud connectors	Material	Plating
Body, sleeve, and contact	Beryllium Copper per ASTM-B-196	Gold plate per ASTM-B488, code C, type II, Class 1.25 over Nickel plate per SAE-AMS-QQ-N-290, Class 2, over Copper per SAE-AMS-2418
Dielectric	Rexolite 1422, per LP-516A, Type E2	-

# Connector Outline Drawing

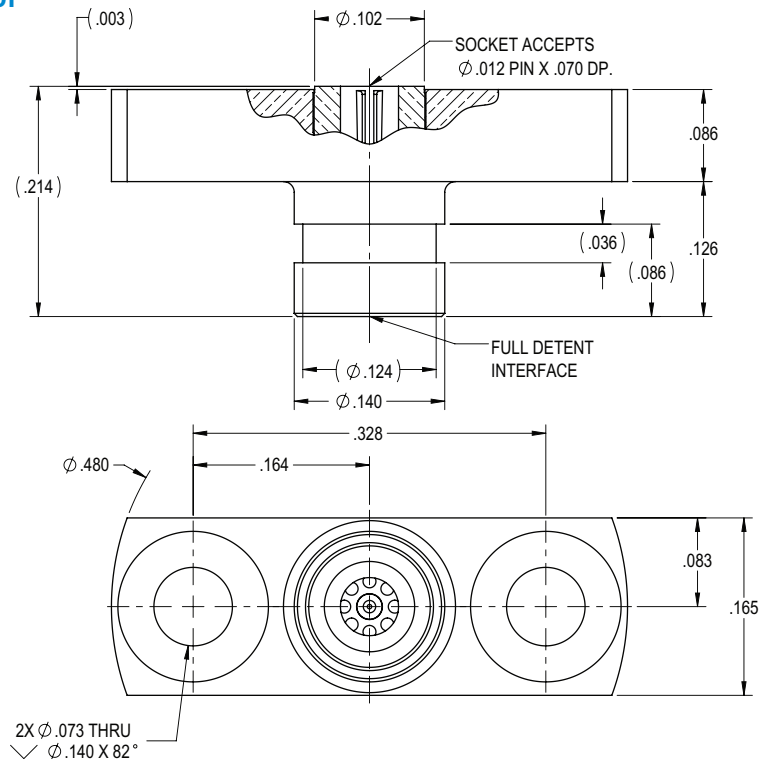
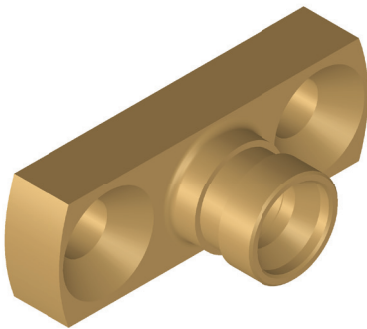
High Frequency SMPM Series Mini-Lock Connector - Female Straight



Note: Connectors not sold separately, only as a cable assembly

# Mounting Outline Drawing

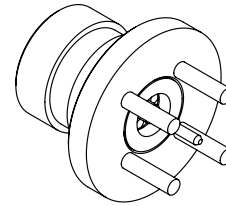
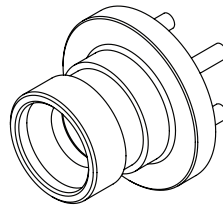
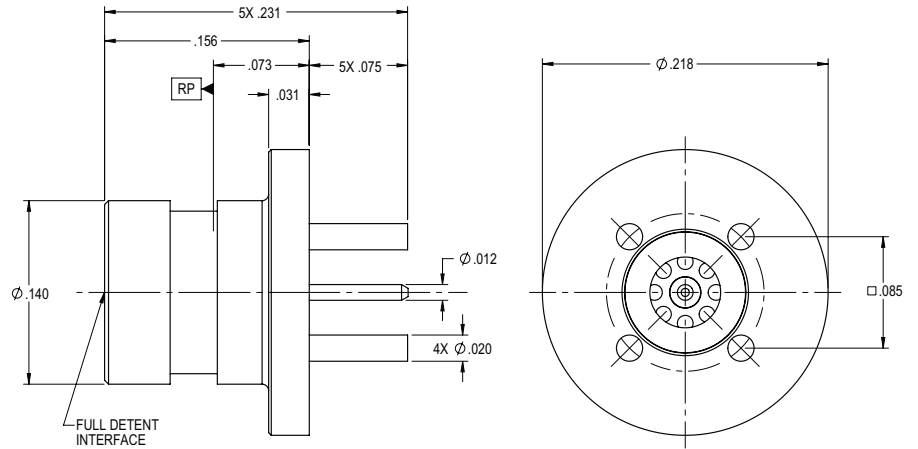
High Frequency SMPM Series Mini-Lock Connector - Two Hole Flange



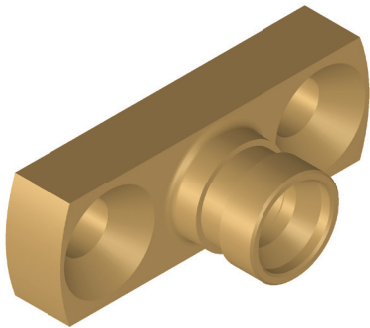
Note: Dimension for reference only.

# Mounting Outline Drawing

High Frequency SMPM Series Mini-Lock Connector -  
Male Straight PCB Mount



## How To Order Tool



PN: 009-01-352  
Two Hole Flange



PN: 009-01-328  
Male Straight PCB Mount



FX-1403-9 Simplified  
Installation/Extraction Tool



FX-1403-90  
Installation/Extraction Tool

# Worldwide Support

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## Connectors

### Americas

#### Sales

connectors.uscsr@smithsinterconnect.com

#### Technical Support

connectors.ustechsupport@smithsinterconnect.com

### Europe

#### Sales

connectors.emeacsr@smithsinterconnect.com

#### Technical Support

connectors.emeatechsupport@smithsinterconnect.com

### Asia

#### Sales

asiacsr@smithsinterconnect.com

#### Technical Support

asiatechsupport@smithsinterconnect.com

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## Fibre Optics & RF Components

### Americas

#### Sales

focom.uscsr@smithsinterconnect.com

#### Technical Support

focom.techsupport@smithsinterconnect.com

### Europe

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focom.emeacsr@smithsinterconnect.com

#### Technical Support

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### Asia

#### Sales

focom.asiacsr@smithsinterconnect.com

#### Technical Support

focom.techsupport@smithsinterconnect.com

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## Semiconductor Test

### Americas

#### Sales

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#### Technical Support

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### Europe

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semi.emeacsr@smithsinterconnect.com

#### Technical Support

semi.techsupport@smithsinterconnect.com

### Asia

#### Sales

semi.asiacsr@smithsinterconnect.com

#### Technical Support

semi.techsupport@smithsinterconnect.com

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## RF/MW Subsystems

### Americas, Europe & Asia

#### Sales

subsystems.csr@smithsinterconnect.com

#### Technical Support

subsystems.techsupport@smithsinterconnect.com

# Connecting Global Markets

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