

SELECTION GUIDE

SMP
RF Connectors

Up to DC–40 GHz precision connector solutions for PCB mount, blind-mate interconnects, RF modules, test fixtures and drawing-based custom SMP configurations.

40 GHz
SELECTED SMP FREQUENCY RANGE

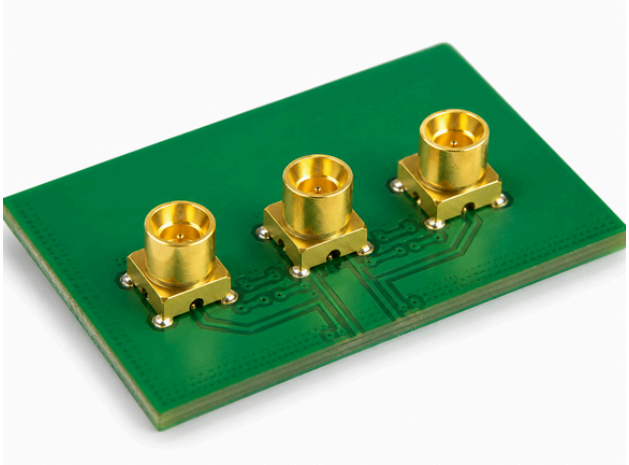
50 Ω
STANDARD RF IMPEDANCE

PCB to Blind-Mate
BOARD-LEVEL & MODULE INTERCONNECTS

PRODUCT DEFINITION

What Are SMP Connectors?

Miniature push-on RF interfaces for high-density and blind-mate microwave interconnects.



SMP connectors are miniature push-on RF interfaces designed for high-density board-level, module-to-module and blind-mate microwave interconnects. Compared with threaded RF connectors, SMP interfaces support faster mating, compact packaging and controlled mechanical tolerance in modular RF systems.

They are commonly used in RF modules, radar assemblies, communication equipment, test fixtures and board-to-board microwave interconnects where space, alignment tolerance and repeatable RF performance are critical.

Selection Guide Scope

This guide presents selected SMP connector configurations for PCB mount, jack, full detent, limited detent and smooth bore applications. Frequency range, mechanical structure, material selection and PCB layout requirements are model-specific.

Additional SMP configurations may be reviewed based on customer drawings, mating-interface requirements or PCB layout constraints.

01

Compact RF Packaging

SMP interfaces support dense microwave layouts where larger threaded connectors may not fit.

02

Push-On Mating

Snap-on coupling allows faster connection and removal without threaded torque.

03

Blind-Mate Capability

Detent and smooth bore options support floating alignment and modular RF assembly.

04

Board-Level Integration

PCB mount, plug and jack configurations support compact RF modules and evaluation boards.

Typical Applications

RF Modules | Radar Assemblies | Board-to-Board RF Links | Blind-Mate Systems | Test Fixtures | Communication Equipment

DETENT & BLIND-MATE LOGIC

Detent & Blind-Mate Selection Logic

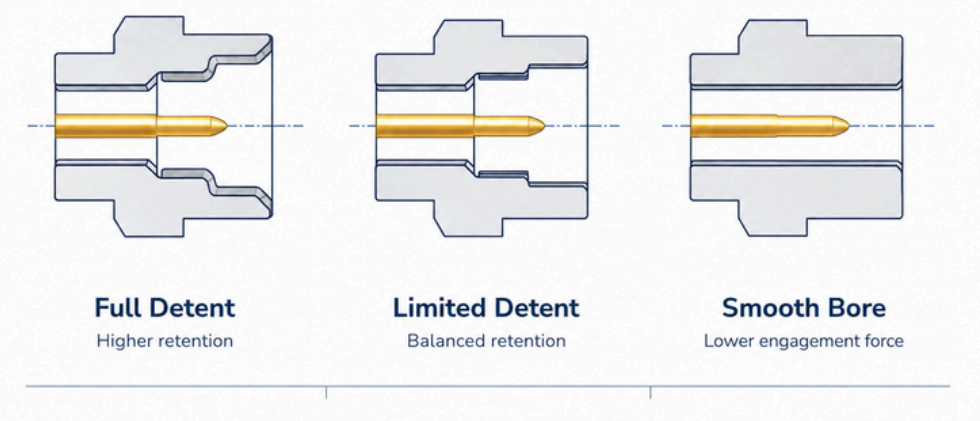
Choose the right SMP interface behavior for retention, serviceability and alignment tolerance.

Full Detent
Higher retention for secure mating and stable mechanical hold.

Limited Detent
Balanced retention and removability for serviceable modules and test boards.

Smooth Bore
Lower engagement force for blind-mate and floating alignment applications.

SMP connectors are available with different interface engagement styles to match the mechanical requirements of the RF system. Full detent, limited detent and smooth bore configurations provide different levels of retention force, removability and blind-mate tolerance.



Conceptual interface comparison

DETENT TYPE	RETENTION LEVEL	BEST FOR	TYPICAL USE
Full Detent	Higher retention	Secure mechanical hold	Fixed RF modules, stable board-level mating
Limited Detent	Medium retention	Removable connection	Serviceable modules, test boards, repeatable mating
Smooth Bore	Lower retention	Blind-mate / floating alignment	Board-to-board assemblies, low engagement force applications

SELECTION NOTE

Use full detent when stronger mechanical retention is required. Use limited detent when the connection must remain serviceable. Use smooth bore when lower engagement force or blind-mate tolerance is more important than retention force.

Representative Models

VST-CPSMPM-16
SMP Male Full Detent
DC–40 GHz | VSWR ≤1.20

VST-CPSMPM-17
SMP Straight Plug for PCB Smooth Bore
DC–26.5 GHz | VSWR ≤1.25

VST-CPSMPM-18
SMP Straight Plug for PCB Limited Detent
DC–26.5 GHz | VSWR ≤1.25

PRODUCT RANGE

SMP Product Configuration Map

Selected PCB mount, jack, plug, detent and drawing-based configurations.



Vinstronics provides selected SMP connector configurations for board-level RF interconnects, blind-mate systems and compact microwave assemblies. The models shown in this guide represent common structures; additional mechanical configurations may be reviewed based on customer drawings or PCB layout requirements.

01 **PCB Mount Receptacles** Compact SMP interfaces for board-level RF modules and microwave evaluation boards.	02 **Straight Plugs for PCB** Plug-style SMP configurations for vertical or board-level mating in compact assemblies.	03 **SMP Jack / Female Connectors** Jack configurations for mating interface completion and board-level connector layouts.	04 **Full Detent Connectors** Higher-retention SMP interfaces for secure mating and stable mechanical hold.
05 **Limited Detent Connectors** Balanced retention and removability for serviceable modules and test boards.	06 **Smooth Bore Connectors** Lower engagement force for blind-mate and floating alignment applications.	07 **Non-Magnetic SMP Options** Selected configurations for magnetic-sensitive systems and special equipment requirements.	08 **Drawing-Based Custom** Customer drawings, PCB layouts and mechanical constraints can be reviewed by sales engineering.

CATALOG SCOPE NOTE

The models listed in this selection guide represent selected SMP connector configurations available from Vinstronics. Additional interface styles, PCB layouts, detent options, materials, plating structures and custom configurations may be available upon request.

SELECTED MODELS

Featured High-Frequency SMP Selection Matrix

Selected SMP configurations for high-frequency board-level and compact RF module applications.



The models listed below represent selected high-frequency SMP connector configurations from Vinstronics. Frequency performance, mechanical structure and PCB layout requirements are model-specific; final selection should be confirmed with the model drawing and application requirements.

MODEL	CONFIGURATION	FREQUENCY	VSWR	FEATURE	BEST FOR
VST-CPSMPM-16	SMP Male Full Detent	DC–40 GHz	≤1.20	Full detent, stainless steel body	Secure high-frequency SMP mating
VST-CPSMPM-13	SMP Male	DC–40 GHz	≤1.25	Compact PCB mount structure	High-frequency board-level RF interface
VST-CPSMPM-14	SMP Male	DC–40 GHz	≤1.25	Compact SMP male structure	RF module and PCB interconnect
VST-CPSMPM-09	SMP PCB Receptacle, Male	DC–40 GHz	≤1.3	PCB receptacle configuration	Board-level SMP receptacle interface

Frequency

Up to DC–40 GHz in selected SMP configurations.

Design-In Review

Confirm PCB footprint, mating interface and mechanical constraints before final selection.

Drawing Support

Model-specific drawings and configuration review available upon request.

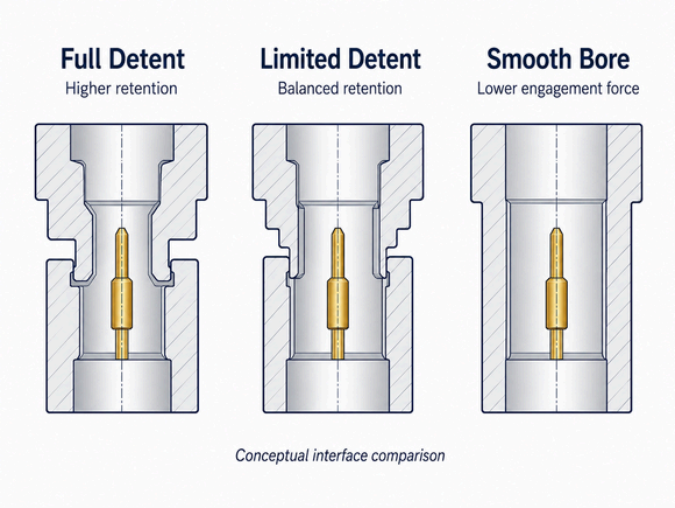
Note: Frequency and RF performance are model-specific. For alternative mechanical structures, PCB layouts or application-specific requirements, contact Vinstronics sales engineering for review.

RETENTION & BLIND-MATE CONTROL

Detent & Blind-Mate Selection Matrix

Selected SMP configurations for retention control, removability and blind-mate alignment.

SMP detent style affects retention force, removability and blind-mate behavior. Use full detent for stronger mechanical hold, limited detent for serviceable connections and smooth bore for lower engagement force or floating alignment.



Conceptual interface comparison

MODEL	PRODUCT TYPE	FREQUENCY	VSWR	DETENT / STYLE	RECOMMENDED USE
VST-CPSMPM-16	SMP Male Full Detent	DC–40 GHz	≤1.20	Full Detent	Secure board-level or module mating
VST-CPSMPM-17	SMP Straight Plug for PCB	DC–26.5 GHz	≤1.25	Smooth Bore	Blind-mate or low engagement force applications
VST-CPSMPM-18	SMP Straight Plug for PCB	DC–26.5 GHz	≤1.25	Limited Detent	Removable board-level mating
VST-CPSMPM-15	Non-magnetic SMP Connector for PCB	DC–18 GHz	≤1.25	Limited Detent / Non-magnetic	Magnetic-sensitive or special equipment systems

Voltage rating, dielectric withstand voltage, operating temperature and other environmental limits are model-specific. Confirm the individual drawing before design-in or quotation.

ENGINEERING NOTE

Detent selection should be confirmed together with mating interface, available float, retention requirement, expected service cycle and PCB or module alignment tolerance.

REPRESENTATIVE CONFIGURATIONS

Standard PCB Mount & Jack Selection Matrix

Representative SMP male, PCB mount and jack configurations for board-level RF interconnects.



The following models represent selected standard SMP connector configurations for board-level RF modules, compact PCB layouts and mating-interface completion. Additional mechanical structures may be reviewed based on customer drawings or PCB layouts.

MODEL	CONFIGURATION	MOUNTING STYLE	FREQUENCY	VSWR	BEST FOR
VST-CPSMPM-02	SMP Male	PCB mount	DC–20 GHz	≤1.3	Standard SMP board-level interface
VST-CPSMPM-10	SMP Male	PCB mount	DC–12.4 GHz	≤1.2	Compact lower-frequency SMP mount
VST-CPSMPM-11	SMP Male	4-hole PCB / flange-style mount	DC–18 GHz	≤1.4	Board-level SMP male configuration
VST-CPSMPM-12	SMP Male	4-hole PCB / flange-style mount	DC–18 GHz	≤1.4	Board-level SMP male configuration
VST-CPSMPM-20	SMP Male	PCB mount	DC–6 GHz	≤1.25	Lower-frequency SMP PCB connection
VST-CPSMPF01	SMP Jack / Female	PCB mount	DC–18 GHz	≤1.25	SMP jack interface completion
VST-CPSMPF-02	SMP Jack	PCB mount	DC–18 GHz	≤1.25	SMP jack PCB configuration
VST-CPSMPF-03	SMP Jack	2-hole / flange-style jack	DC–18 GHz	≤1.25	SMP jack for secured board mounting

CATALOG SCOPE NOTE

The models shown are representative SMP configurations. Additional PCB layouts, jack structures, mounting styles and customer drawing-based configurations may be reviewed upon request.

APPLICATION SUPPORT

Applications, Materials & Custom Inquiry Guide

SMP connector selection support for high-density RF modules, blind-mate systems and board-level microwave interconnects.

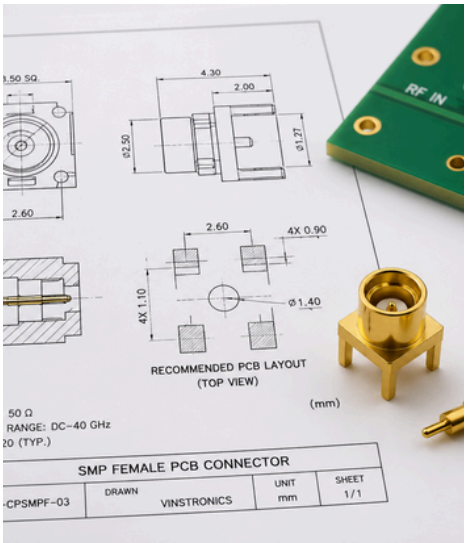
APPLICATION AREA	ENGINEERING USE	SMP CONNECTOR VALUE
High-Density RF Modules	Modular RF assemblies with limited space and repeatable mating requirements.	Compact push-on interfaces for dense microwave layouts.
Radar & Phased-Array Systems	Dense microwave packaging and board-level RF routing.	SMP configurations for compact RF paths and modular assemblies.
Board-to-Board RF Interconnects	Board stacking and module-to-module transitions.	Blind-mate and plug-style SMP interfaces.
Test Fixtures & Evaluation Boards	RF validation boards, lab fixtures and prototype evaluation.	PCB mount and jack configurations for repeatable testing.
Communication Equipment	Wireless modules, microwave subsystems and compact communication assemblies.	Miniature RF interconnects for compact system packaging.
Special RF Systems	Magnetic-sensitive, drawing-based or application-specific RF systems.	Non-magnetic and custom configurations reviewed upon request.

MATERIALS & CONFIGURATION NOTES

Material and plating structures are model-specific. Typical material options include brass, beryllium copper, stainless steel, tin bronze, PTFE, PEEK, LCP and gold-plated contact structures depending on connector configuration and application requirements.

SELECTED MODEL SCOPE

The models listed in this selection guide represent selected SMP connector configurations available from Vinstronics. They do not represent the full range of Vinstronics SMP capabilities.



For Drawing-Based or Custom Requirements

If the required SMP connector structure is not listed in this guide, please provide your drawing, PCB layout, mating interface and application requirements. The Vinstronics sales engineering team can review the configuration and recommend a suitable SMP connector solution.

Customer drawing or reference structure	Target frequency range
SMP male / jack / female configuration	Detent preference
PCB mounting style or panel structure	PCB thickness, stack-up and layout constraints
Material, plating or non-magnetic requirements	Estimated quantity and application environment

Precision RF Interconnect Solutions

Send your SMP connector drawing, PCB layout or mating-interface requirement to sales@vinstronics.com for engineering review.

Vinstronics

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