SMPM

Description

HUBER+SUHNER Astrolab SMPM connectors offer unrivaled miniaturisation and performance for RF applications up to 65 GHz. HUBER+SUHNER Astrolab SMPM connectors are MIL-SPEC qualified for defence and space flight applications. Along with the unique bend-to-the-end microbend style cable connectors, HUBER+SUHNER Astrolab offers a large portfolio of different PCB mount SMPM connectors that have been designed with optimised PCB trace launch geometries to offer a complete interconnect design solution from "wire-to-trace".

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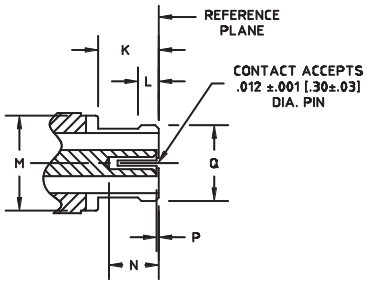
Compatibility

50 Ω SMPM connectors are intermateable without restrictions.

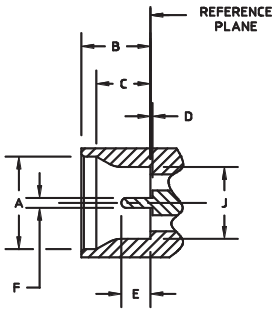
Interface dimensions (mm/inches)

SMPM female (socket contact)



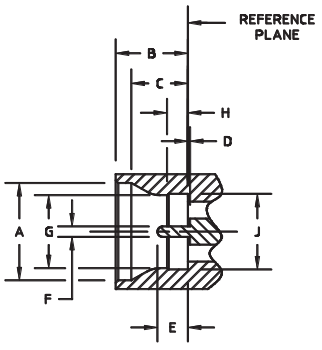
SMPM FEMALE (SOCKET CONTACT)
INTERFACE MEETS MIL-STD-348

SMPM male (pin contact), smooth bore



SMPM MALE (PIN CONTACT)
SMOOTH BORE
INTERFACE MEETS MIL-STD-348

SMPM male (pin contact), full detent



SMPM MALE (PIN CONTACT)
FULL DETENT
INTERFACE MEETS MIL-STD-348

	min.	max.		min.	max.
A	2.82/0.111	2.92/0.115	J	2.18/0.086	2.24/0.088
B	2.08/0.082	2.13/0.084	K	1.73/0.068	-
C	1.57/0.062	1.83/0.072	L	-	0.58/0.023
D	0.00/0.000	-	M	-	2.79/0.110
E	0.76/0.030	1.14/0.045	N	1.27/0.050	-
F	0.28/0.011	0.33/0.013	P	0.00/0.000	0.20/0.008
G	2.11/0.083	2.16/0.085	Q	-	2.41/0.095
H	0.53/0.021	0.58/0.023			

Interface dimensions conformable to the following standards:

USA: MIL-PRF-31031
SMPM interface MIL-STD-348

SMPM – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC to 65 GHz
Contact resistance	center conductor 6.0 milliohms max. outer conductor 2.0 milliohms max.
DWV	335 Vrms at sea level
Insulation resistance	5000 megaohms min.
Corona levels	125 Vrms at 70 000 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
Magnetic permeability	< 2 Mu
VSWR	1.1:1 to 26.5 GHz 1.3:1 to 65 GHz
Insertion loss	0.05 + 0.04 √f in GHz (non-hermetic connectors) 0.12 √f in GHz (hermetic connectors)

Mechanical data	Requirements
Center contact retention	1.5 lbs (6.672 N) min. (captivated designs)
Durability	100 cycles min. into a full detent shroud 1000 cycles min. into a smooth bore shroud
Force to engage	SMPM full detent – 3.5 lbs (15.569 N) typical SMPM smooth bore – 1.5 lbs (6.672 N) typical
Force to disengage	SMPM full detent – 5 lbs (22.241 N) typical SMPM smooth bore – 1.5 lbs (6.672 N) typical

Environmental data	Requirements
Temperature range	–65 to +165 °C
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	MIL-STD-202, method 101, condition B
Sine vibration	MIL-STD-202, method 204, 28 g peak
Random vibration	MIL-STD-202, method 214, condition K-I, 46.3 g
Shock	MIL-STD-202, method 213, 12 000 g peak

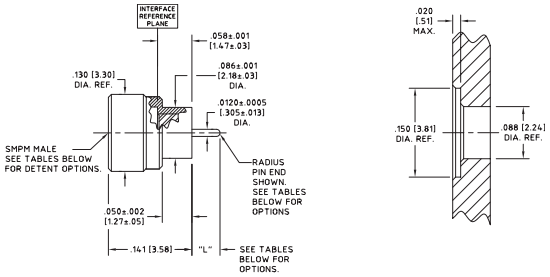
SMPM – technical data

Material data		
Cable and shroud connectors	**Material**	**Plating**
Body and contact	beryllium copper per ASTM B-196	gold plate per ASTM B-488, code C, type II over nickel plate per SAE-AMS-QQ-N-290, type 1
Dielectric	PTFE per ASTM D-1710, type I, grade 1 or Torlon™ per ASTM D-5204	–
Shroud	#303 SS per ASTM A-582	passivated per SAE-AMS-2700
Hermetic shroud connectors	**Material**	**Plating**
Body and contact	Kovar® per ASTM F-15, class 1	gold plate per ASTM B-488, code A, type III over nickel plate per SAE-AMS-QQ-N-290, type 1
Dielectric	Corning 7070 glass or equivalent	–
Adaptors	**Material**	**Plating**
Body and nut	#303 SS per ASTM A-582	gold plate per ASTM B-488, code C, type II over nickel plate per SAE-AMS-QQ-N-290, type 1
Contact	beryllium copper per ASTM B-196	gold plate per ASTM B-488, code C, type II over nickel plate per SAE-AMS-QQ-N-290, type 1
Dielectric	PTFE per ASTM D-1710, type I, grade 1 and Ultem™ per ASTM D-5205	–

Performance listed is typical. Individual part configuration may vary. Contact HUBER+SUHNER Astrolab for more information and specifications by part number. Customer specific factors pertaining to recommended mounting patterns including transmission line topology, substrate thickness and material, board-stackup, operating frequency, etc. must be submitted to HUBER+SUHNER Astrolab for analysis prior to release of final performance levels and mounting configurations.

SMPM – hermetic shrouds

Hermetically sealed, plugs (male)



HUBER+SUHNER type	Item no.	"L"	End option	Detent
		mm/in		
29972H1-2-030S	80376464	0.762/0.030	square	full
29972H1-2-050S	80376465	1.270/0.050	square	full
29972H1-2-060S	80395460	1.524/0.060	square	full
29972H1-2-070S	80395461	1.778/0.070	square	full
29972H1-2-090S	80395462	2.286/0.090	square	full
29972H1-4-030S	80395463	0.762/0.030	square	smooth bore
29972H1-4-050S	80395464	1.270/0.050	square	smooth bore
29972H1-4-060S	80395465	1.524/0.060	square	smooth bore
29972H1-4-070S	80395466	1.778/0.070	square	smooth bore
29972H1-4-090S	80395467	2.286/0.090	square	smooth bore

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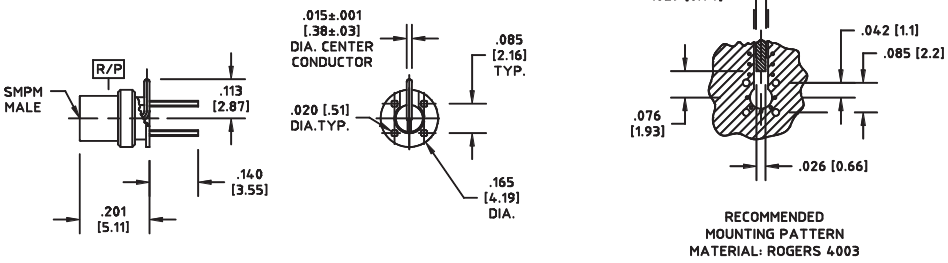
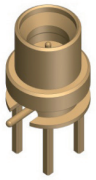
SMPM – PCB mount connectors

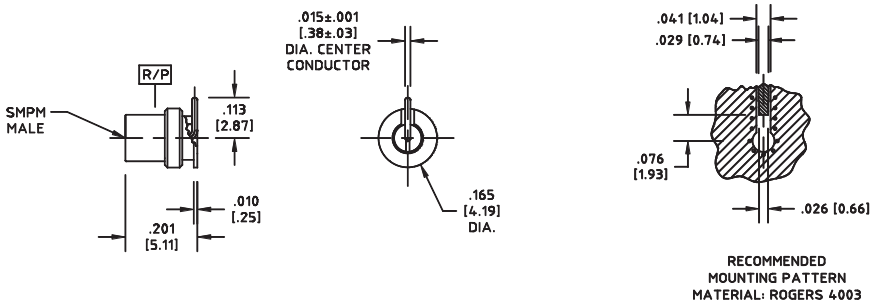
Straight PCB plugs (male)

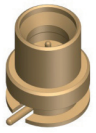




HUBER+SUHNER type	Item no.	Detent
29972S1-2-001	80367473	full
29972S1-4-001	80367474	smooth bore

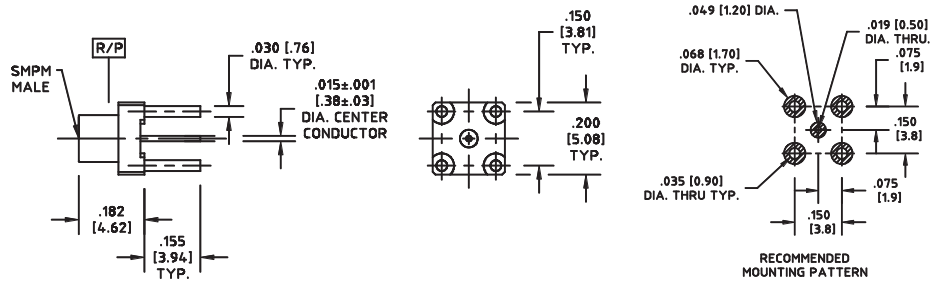
Straight PCB plugs (male)

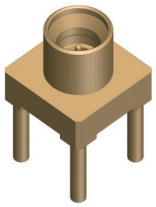




HUBER+SUHNER type	Item no.	Detent
29972SM-2-001	80367475	full
29972SM-4-001	80367476	smooth bore

Straight PCB plugs (male)





HUBER+SUHNER type	Item no.	Detent
29972T1-2-155	80395469	full
29972T1-4-155	80395470	smooth bore

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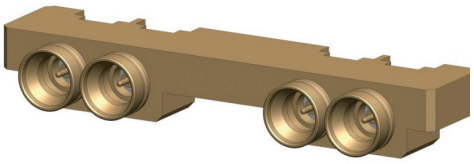
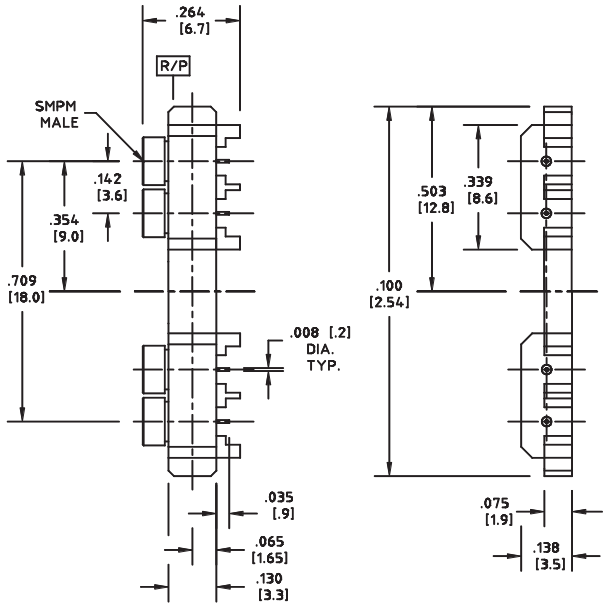
SMPM – edge mount connectors

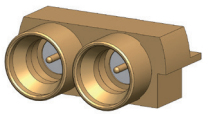
Edge mount PCB plugs (male)

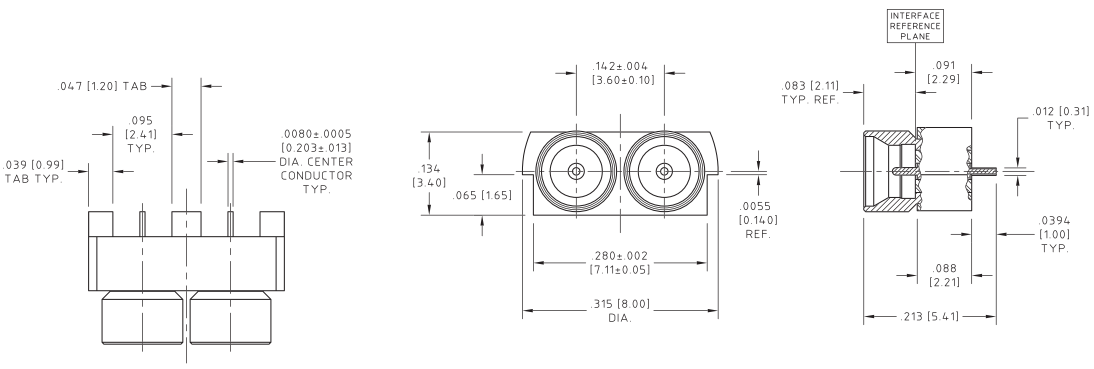




HUBER+SUHNER type	Item no.	Detent
29976CB7-2-4	80374382	full
29976CB7-4-4	80395468	smooth bore

Edge mount PCB plugs (male)





HUBER+SUHNER type	Item no.	Detent
29972CB2-2-002	80376772	full
29972CB2-4-002	80376773	smooth bore

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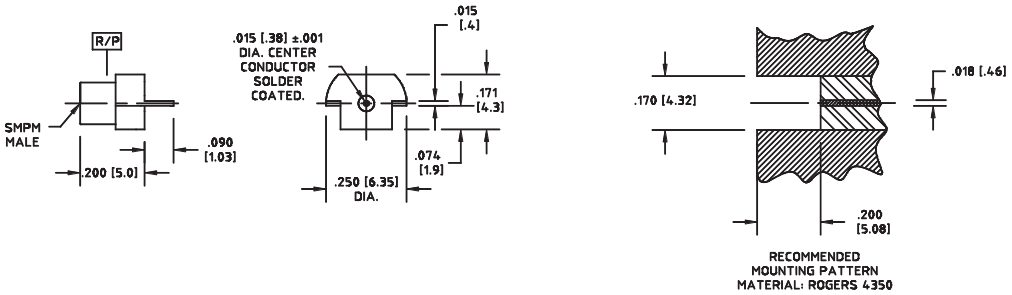
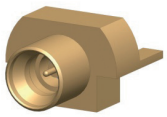
SMPM – edge mount connectors

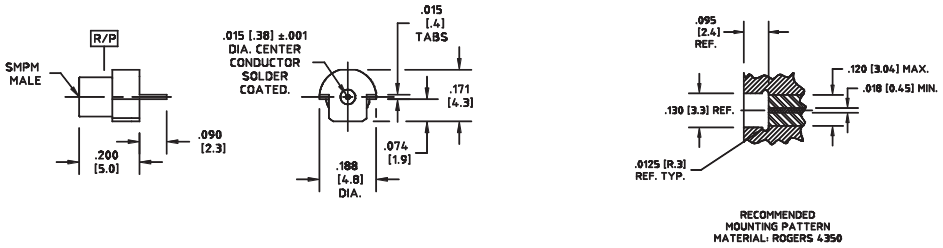
Edge mount PCB plugs (male)

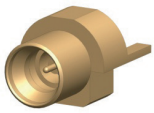




HUBER+SUHNER type	Item no.	Detent
29972BM-2-002	80395471	full
29972BM-4-002	80362691	smooth bore

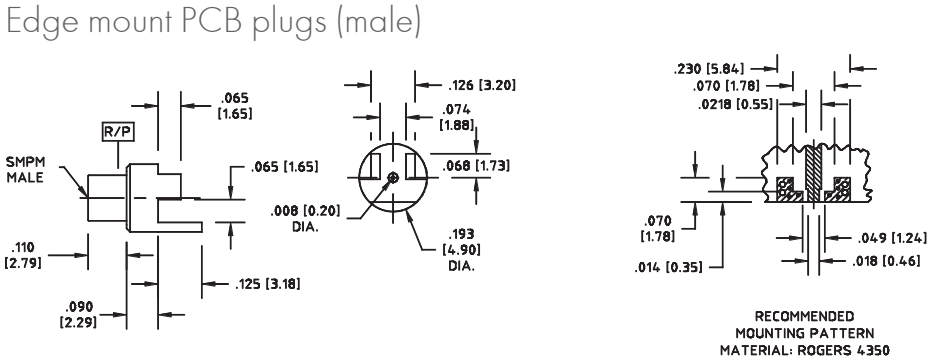
Edge mount PCB plugs (male)





HUBER+SUHNER type	Item no.	Detent
29972BM-2-004	80395472	full
29972BM-4-004	80395473	smooth bore

Edge mount PCB plugs (male)



HUBER+SUHNER type	Item no.	Detent
29972EM-2-001	80395474	full
29972EM-4-001	80377148	smooth bore

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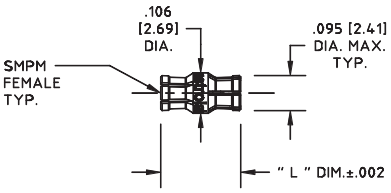
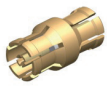
SMPM – adaptor

Adaptor jack/jack (female/female)





HUBER+SUHNER type	Item no.	Packaging	Adaptor length L
			mm/in
29981-A2F1	80372056	single	5.33/0.210
29981-A2F2	80363712	single	12.7/0.500
29981-A2F3	80376811	single	6.45/0.254

Note: Adaptors to other interfaces can be found in the section SMPM-T (page 112).
The SMPM-T plug (male) to SK adaptors can also be used to connect SMPM.

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