

Series SMPM-T

Description

The SMPM-T is the smallest threaded open source connector on the market. Its unique and innovative combination of a MIL-STD-348 SMPM female interface connector together with a retractable threaded nut provides an integrated solution offering unprecedented electrical and mechanical performance. The SMPM-T handles high density requirements with a connector centerline-to-centerline spacing of just 5 mm (0.20 in) while offering unmatched electrical stability at frequencies up to 65 GHz in even the harshest operating environments.

The SMPM-T connector is available along with HUBER+SUHNER Astrolab's industry driving microbend "bend-to-the-end" technology that is already qualified for any aerospace application. The SMPM-T connector complies with the hi-rel material restrictions of NASA while still offering full compliance with RoHS and REACH legislation in the commercial market.

Compatibility

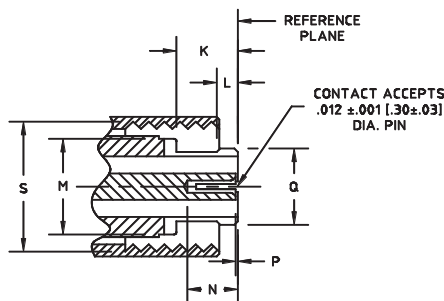
50 Ω SMPM-T connectors are intermateable without restrictions.

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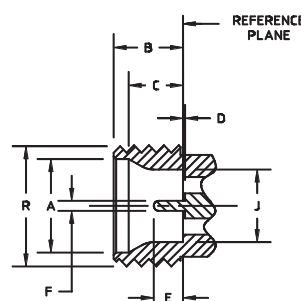
Interface dimensions (mm/inches)

SMPM-T female (socket contact)



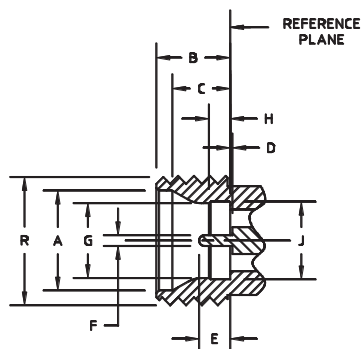
SMPM-T FEMALE (SOCKET CONTACT)
INTERFACE MEETS MIL-STD-348

SMPM-T male (pin contact), smooth bore



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

SMPM-T male (pin contact), full detent



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

	min.	max.		min.	max.
A	2.82 / 0.111	2.92 / 0.115	K	1.73 / 0.068	-
B	2.08 / 0.082	2.13 / 0.084	L	-	0.58 / 0.023
C	1.57 / 0.062	1.83 / 0.072	M	-	2.79 / 0.110
D	0.00 / 0.000	-	N	1.27 / 0.050	-
E	0.76 / 0.030	1.14 / 0.045	P	0.00 / 0.000	0.20 / 0.008
F	0.28 / 0.011	0.33 / 0.013	Q	-	2.41 / 0.095
G	2.11 / 0.083	2.16 / 0.085	R	-	3.66 / 0.145
H	0.53 / 0.021	0.58 / 0.023	S	3.30 / 0.130	-
J	2.18 / 0.086	2.24 / 0.088			

Interface dimensions conformable to the standards:

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

SMPM-T – 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 μ
VSWR	1.1:1 to 26.5 GHz 1.3:1 to 65 GHz
Insertion loss	0.05 + 0.04 $\sqrt{f}$ in GHz (non-hermetic connectors) 0.12 $\sqrt{f}$ in GHz (hermetic connectors)

Mechanical data	Requirements
Center contact retention	1.5 lbs (0.68 kg) 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 (1.59 kg) typical SMPM smooth bore - 1.5 lbs (0.68 kg) typical
Force to disengage	SMPM full detent - 5 lbs (2.27 kg) typical SMPM smooth bore - 1.5 lbs (0.68 kg) typical
Mating torque	22 $\pm$ 2 in-oz (0.016 $\pm$ 0.001 m-kg)

Environmental data	Requirements
Temperature range	-65 to +165 $^{\circ}$ 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, 28g peak
Random vibration	MIL-STD-202, method 214, condition K-I, 46.3 grms
Shock	MIL-STD-202, method 213, 12 000 g peak

SMPM-T – 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, Torlon™ per ASTM D-5204 or Ultem™ per ASTM D-5205	-
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	Planting
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.

SM-PM-T - cable connectors

Straight cable jacks (female)

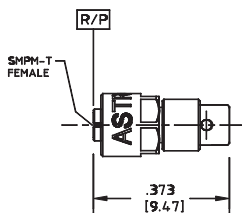


Fig. 1

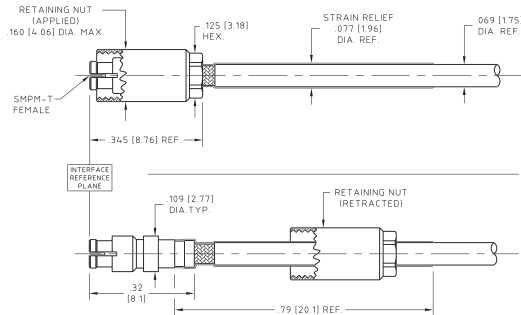


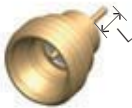
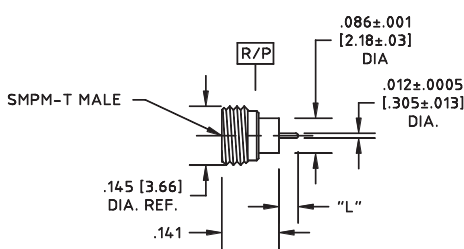
Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Cable dia. mm/in	Fig.
29971T-096FLEX	80366348	Y3, Y16, Y11 (2.18 mm/0.086 in)	single	2.43/0.096	1
29971T-MF53	80376818	Y3, Y16, Y11 (2.18 mm/0.086 in)	single	1.96/0.077	2

SM-PM-T - hermetic shrouds

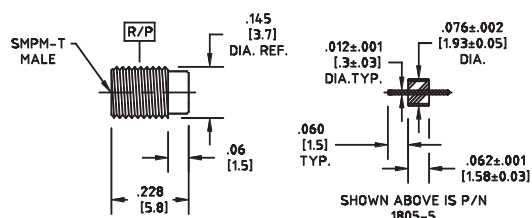
Hermetically sealed, plugs (male)



HUBER+SUHNER type	Item no.	Contact length "L" mm/in	End option	Detent
29976H1-2-060S	80362701	1.52/0.06	full	square
29976H1-2-090S	80362703	2.28/0.09	full	square
29976H1-4-060S	80362705	1.52/0.06	smooth bore	square
29976H1-4-090S	80362707	2.28/0.09	smooth bore	square

SMPM-T – panel mount connectors

Straight bulkhead receptacles, plug (male)

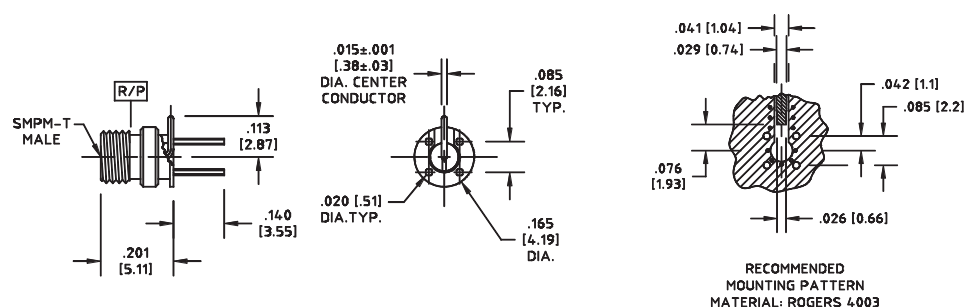


Bead as shown on picture sold separately.

HUBER+SUHNER type	Item no.	Detent
29976TSP-2-005	80370422	full
29976TSP-4-005	80374421	smooth bore

SMPM-T – PCB mount connectors

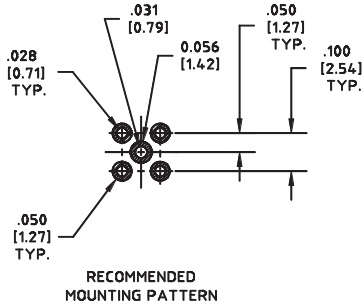
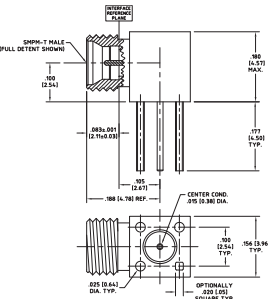
Straight PCB plugs (male)



HUBER+SUHNER type	Item no.	Detent
29976S1-2-140	80362694	full
29976S1-4-140	80362695	smooth bore

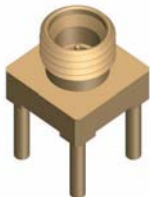
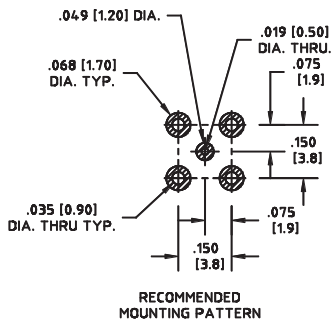
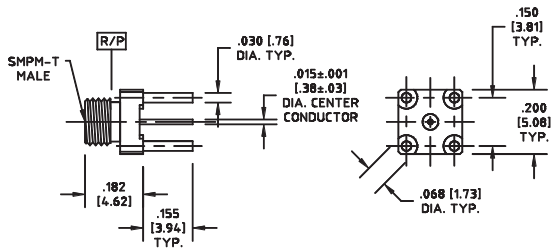
SM-PM-T – PCB mount connectors

Right angle PCB plugs (male)



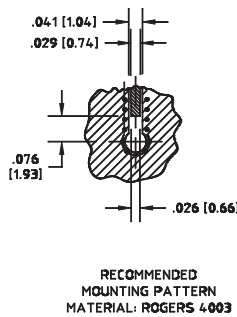
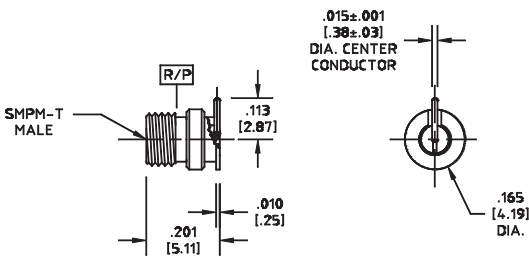
HUBER+SUHNER type	Item no.	Detent
29976RA-2-001	80374263	full
29976RA-4-001	80374264	smooth bore

Straight PCB plugs (male)



HUBER+SUHNER type	Item no.	Detent
29976T1-2-155	80366706	full
29976T1-4-155	80370524	smooth bore

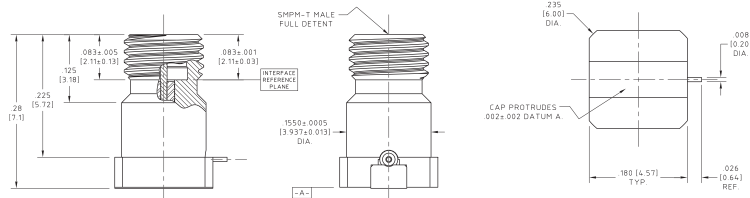
Straight PCB plugs (male)



HUBER+SUHNER type	Item no.	Detent
29976SM-2-001	80362696	full
29976SM-4-001	80362697	smooth bore

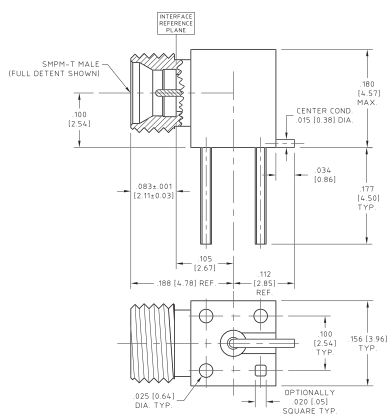
SMPM-T – PCB mount connectors

Straight PCB plugs (male)/reverse mount



HUBER+SUHNER type	Item no.	Detent
29976TRM-2-001	80374144	full
29976TRM-4-001	80395475	smooth bore

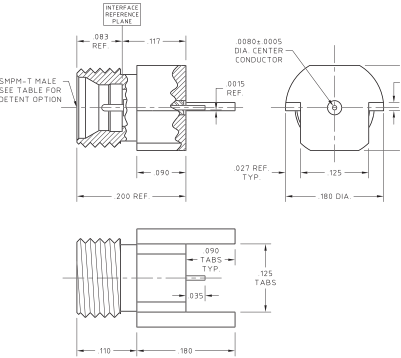
Right angle PCB plugs (male)



HUBER+SUHNER type	Item no.	Detent
29976RA-2-003	80376679	full
29976RA-4-003	80376680	smooth bore

SM-PM-T – edge mount connectors

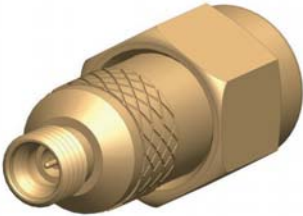
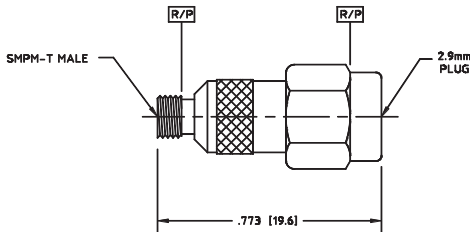
Edge mount PCB plugs (male)



HUBER+SUHNER type	Item no.	Detent
29976BM-2-006	80367075	full
29976BM-4-006	80367222	smooth bore

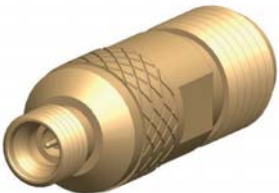
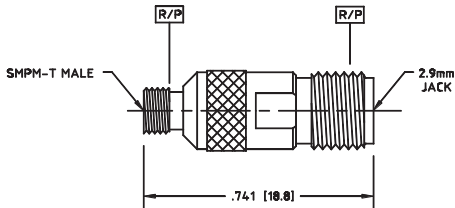
SM-PM-T – adaptors

Adaptor SM-PM-T plug – SK (2.92 mm standard) plug (male/male)



HUBER+SUHNER type	Item no.	Packaging	Detent
29429-1T2	80317870	single	full

Adaptor SM-PM-T plug – SK (2.92 mm standard) jack (male/female)



HUBER+SUHNER type	Item no.	Packaging	Detent
29429-4T2	80362561	single	full