

TNC / TNC 18 GHz series

R143 / R144

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INTRODUCTION



50Ω	DC - 11 GHz (standard) DC - 18 GHz (TNC 18 GHz)
75Ω	DC - 1.5 GHz DC - 1 GHz (recommended)
50 and 75Ω	DC - 1.5 GHz (commercial)

GENERAL

- Screw-on equivalent to BNC bayonet series
- Good RF performance
- Suitable for high power levels
- Long life and high strength
- 3 ranges:
 - Standard TNC series (50 and 75Ω fully intermateable)
 - Commercial TNC series (50 and 75Ω)
 - 18 GHz TNC series (50Ω)

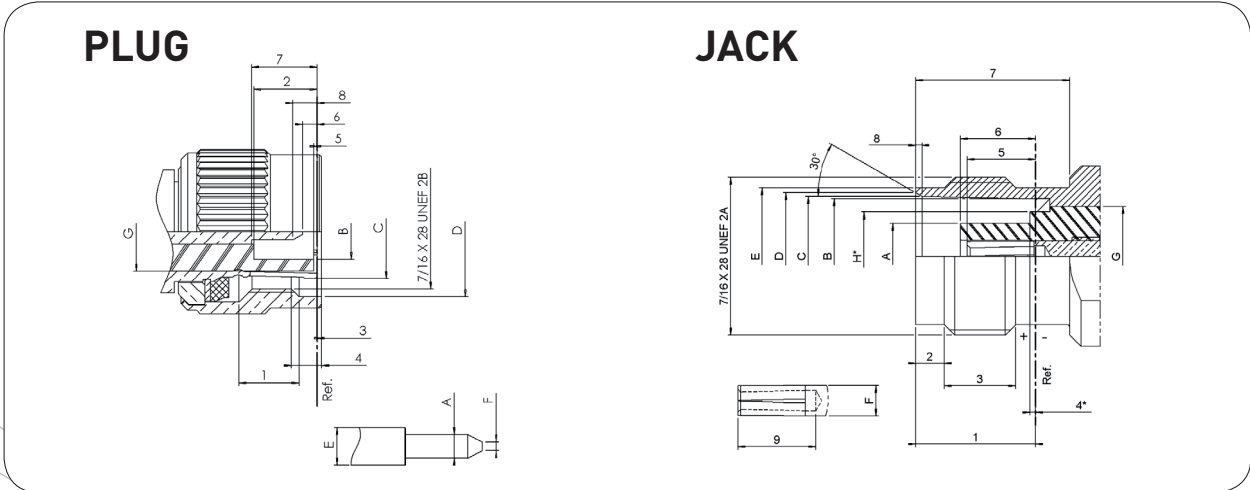
APPLICABLE STANDARDS

- MIL-C-39012 / MIL STD 348A/313
- IEC 60169-17
- CECC 22200

APPLICATIONS

- Avionics
- Aeronautics
- Countermeasures
- Telecommunications

INTERFACE TNC



INTERFACE TNC

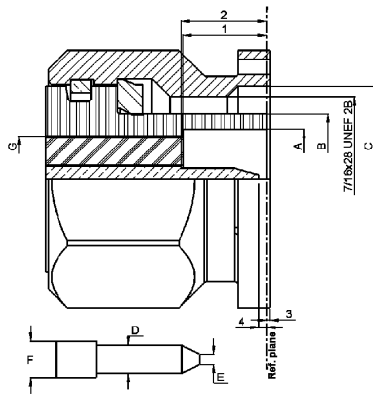
Letter	mm		inch	
	min.	max.	min.	max.
A	1.32	1.37	0.052	0.054
B	4.83	-	0.190	-
D	11.40	-	0.449	-
E	-	2.20	-	0.087
F	0.35	0.65	0.014	0.025
G	7.00	7.05	0.275	0.277
1	4.9	5.70	0.193	0.224
2	5.28	5.79	0.208	0.228
3	0.15	-	0.006	-
4	1.8	-	0.071	-
5	0.15	-	0.006	-
6	0.08	1.02	0.003	0.040
7	5.33	5.84	0.210	0.230
8	0.70	1.98	0.027	0.078

Letter	mm		inch	
	min.	max.	min.	max.
A	-	4.72	-	0.186
B	8.10	8.10	0.319	0.321
C	8.31	8.46	0.327	0.333
D	8.79	9.04	0.346	0.356
E	9.60	9.68	0.378	0.381
F	-	2.20	-	0.087
H	-	5.90	-	0.232
1	8.30	8.50	0.327	0.335
2	1.73	2.24	0.068	0.088
3	4.75	-	0.187	-
4	-	0.15	-	0.006
5	4.72	5.23	0.186	0.206
6	4.78	5.28	0.188	0.208
7	10.7	-	0.421	-
8	0.38	0.76	0.015	0.030
9	4.95	-	0.195	-

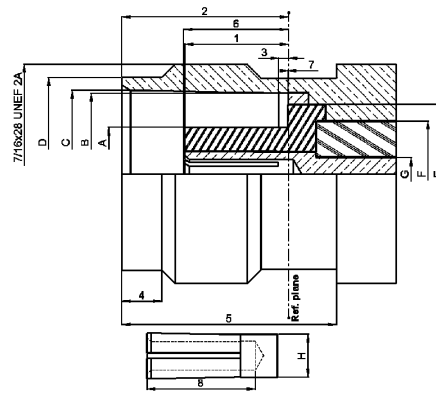
TNC/TNC 18 GHz

INTERFACE TNC 18 GHz

PLUG



JACK



Letter	mm		inch	
	min.	max.	min.	max.
A	6.18	6.22	0.243	0.245
B	8.03	8.09	0.316	0.319
C	11.40	11.60	0.449	0.457
D	1.34	1.36	0.053	0.054
E	0.35	0.65	0.014	0.026
F	1.62	1.66	0.064	0.065
G	5.28	5.32	0.208	0.210
1	5.28	5.38	0.208	0.212
2	5.35	5.50	0.211	0.217
3	-0.30	0.55	-0.012	0.022
4	0.35	0.90	0.014	0.065

Letter	mm		inch	
	min.	max.	min.	max.
A	4.68	4.72	0.184	0.186
B	8.10	8.15	0.319	0.321
C	8.32	8.46	0.328	0.333
D	9.61	9.68	0.379	0.381
E	6.93	6.98	0.273	0.275
F	5.28	5.32	0.208	0.210
G	1.62	1.66	0.064	0.065
H	2.14	2.18	0.084	0.086
1	4.98	5.23	0.196	0.206
2	8.36	8.46	0.329	0.333
3	0.48	1.02	0.019	0.040
4	1.80	2.20	0.071	0.087
5	10.60	11.00	0.417	0.432
6	5.18	5.28	0.204	0.208
7	-0.10	0.05	0.004	0.002
8	5.20	5.70	0.204	0.224

CHARACTERISTICS TNC

Test/characteristics	MIL-C-39012 A	Values/remarks	
ELECTRICAL CHARACTERISTICS			
Impedance		50Ω 75Ω	
Frequency range		DC - 11 GHz DC - 1.5 GHz	
V.S.W.R.	3-14	1.30 max	
Insertion loss	3-27	0.18 dB max at 9 GHz	
RF leakage	3-26	-60 dB min from 2 to 3 GHz	
Insulation resistance	3-11	5000 MΩ min	
Contact resistance	3-16	Initial 1.5 0.2	After proof 2 -
Working voltage		At sea level: 500 V rms	at 70000 ft (21000 m): 125 V rms
Dielectric withstanding voltage	3-17	At sea level: 1500 V rms	at 70000 ft (21000 m): 375 V rms
RF withstanding voltage	3-23	At sea level: 1000 V rms (5 MHz sine wave)	

MECHANICAL CHARACTERISTICS

Durability	3-15	500 matings	
Mating / unmating		axial force: not applicable torque: 1.96 inch pounds (22.6 N.cm)	
Recommended mating torque		3.99 to 5.98 inch pounds (46 to 69 N.cm)	
Proof torque		14.74 inch pounds (170 N.cm)	
Coupling mechanism retention force	3-25	100 Lbf (44.5 daN)	
Cabling retention force	3-24	cable clamp:	40.6 Lbf (181 N min) (all cables)
		crimped:	51 Lbf (227 N min) (cable dia. 189 (4.8) to 228 (5.8))
			76.4 Lbf (340 N min) (cable dia. 250 (6.35) and above)
Center contact retention		Axial: 6.06 Lbf (27 N)	

ENVIRONMENTAL CHARACTERISTICS

Temperature range		-65°C / +165°C
standard models		-65°C / +100°C
hermetic sealed models		-65°C / +105°C
models for semi-rigid cables		
Thermal shock	3-20	MIL-STD-202, method 107, condition B
High temperature endurance		MIL-STD-202, method 108
Corrosion (salt spray)	3-13	MIL-STD-202, method 101, condition B
Vibrations	3-18	MIL-STD-202, method 204, condition B
Shocks	3-19	MIL-STD-202, method 213, condition G
Moisture resistance	3-21	MIL-STD-202, method 106
Low pressure	3-22	Not applicable
Hermetic seal		Applied vacuum 10 ⁻⁶ mm of Hg (Torrs) leakage rate < 10 ⁻⁶ atm/cm ³ /s
Leakage		Pressure 3.5 bars; duration 2 mn; temperature 15°C to 25°C

MATERIALS AND PLATING

Body and center pin contact	Brass as per QQ-B-626	Nickel plated
Center socket contact	Beryllium copper as per QQ-C-530	Gold plated
Ferrules	Brass	
Insulators	PTFE teflon	
Gaskets	Silicone elastomer	

All dimensions are given in mm

CHARACTERISTICS COMMERCIAL TNC

Test/characteristics	Values/remarks
ELECTRICAL AND ENVIRONMENTAL CHARACTERISTICS	
Impedance	50Ω or 75Ω
Frequency range	DC - 1.5 GHz
Test voltage	1500 V rms
Operating voltage	500 V rms
Insulation resistance	5000 mΩ min (500 V)
Contact resistance	10 mΩ max
Temperature range	-35°C / +70°C

PLATING

Body	Nickel
Center contacts	Gold

Test/characteristics	MIL-C-39012 A	Values/remarks
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ELECTRICAL CHARACTERISTICS

Impedance		50Ω
Frequency range		DC - 18 GHz
V.S.W.R.	3-14	Semi-rigid cable: 1.17 max Flexible cable: 1.35 at 124 GHz In series adapter: 1.35 max
Insertion loss	3-27	0.18 dB max at 9 GHz
RF leakage	3-26	-60 dB min from 2 to 3 GHz
Insulation resistance	3-11	5000 MΩ min
Contact resistance	3-16	Initial 1.5 0.2 After proof 2 -
Working voltage		At sea level: 500 V rms at 70000 ft (21000 m): 125 V rms
Dielectric withstanding voltage	3-17	At sea level: 1500 V rms at 70000 ft (21000 m): 375 V rms
RF withstanding voltage	3-23	At sea level: 1000 V rms (5 MHz sine wave)

MECHANICAL CHARACTERISTICS

Durability	3-15	500 matings
Mating / unmating		axial force: not applicable torque: 1.96 inch pounds (22.6 N.cm)
Recommended mating torque		22.98 inch pounds (265 N.cm)
Proof torque		29.40 inch pounds (339 N.cm)
Coupling mechanism retention force	3-25	100 Lbf (44.5 daN)
Cabling retention force	3-24	51 Lbf (227 N min) (cable dia. .189 (4.8) to .228 (5.8)) 76.4 Lbf (340 N min) (cable dia. .250 (6.35) and above)
Center contact retention		Axial: 6.06 Lbf (27 N)

ENVIRONMENTAL CHARACTERISTICS

Temperature range		
standard models		-65°C / + 165°C
hermetic sealed models		-65°C / +100°C
models for semi-rigid cables		-65°C / +105°C
Combined climate tests		
Thermal shock	3-20	MIL-STD-202, method 107, condition B
High temperature endurance		MIL-STD-202, method 108
Corrosion (salt spray)	3-13	MIL-STD-202, method 101, condition B
Vibrations	3-18	MIL-STD-202, method 204, condition B
Shocks	3-19	MIL-STD-202, method 213, condition G
Moisture resistance	3-21	MIL-STD-202, method 106
Low pressure	3-22	Not applicable
Hermetic seal		Applied vacuum 10 ⁻⁶ mm of Hg (Torrs) Leakage rate < 10 ⁻⁶ atm/cm ³ /s
Leakage		Pressure 3.5 bars; duration 2 mn; temperature 15°C to 25°C

MATERIALS

Body		Stainless steel
Center socket contact	male	Brass
	female	Bronze
Ferrules		Brass
Insulators		PTFE teflon
Gaskets		Silicone elastomer

PLATING

Body		Passivated
Center contacts		Gold plated

Standard packaging = unit

All dimensions are given in mm (inch)

PLUGS

STRAIGHT PLUGS CRIMP TYPE FOR FLEXIBLE CABLE

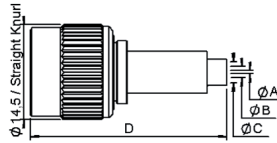


Fig. 1

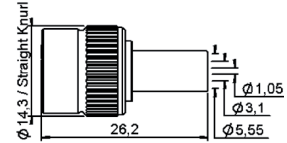


Fig. 2

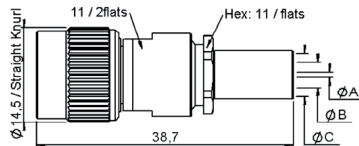


Fig. 3

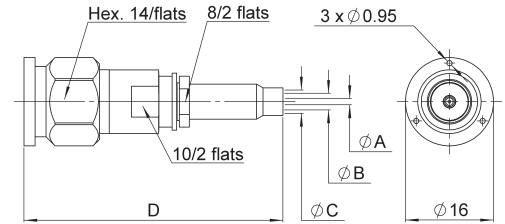


Fig. 4

Cable group	Cable group dia.	Part number	Fig	Dimensions mm				Captive center contact	Packaging	Note
				A	B	C	D			
RG174/RG316	2.6/50/S	R143 075 000	1	0.6	1.75	3.25	29.6	yes	100 pieces	
	3.85/50/S	R143 088 101	4	1.15	3	4.2	47	no	unit	
RG58/RG141	5/50/S	R143 082 000	2					yes	100 pieces	full crimp commercial version, full crimp
		R143 082 161						no		
		R143 072 000	3	1.05	3.1	5.55		yes	unit	
RG142/RG223/RG400	5/50/D	R143 073 000	1		3.075	5.5				
		R143 083 000			1.05	3.1	5.5	26.6		
RG59/RG62	6/75+93	R143 074 000	3	0.75	3.9	6.6				

STRAIGHT PLUGS CLAMP TYPE FOR FLEXIBLE AND SEMI RIGID CABLE

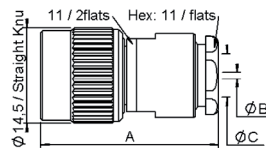


Fig. 1

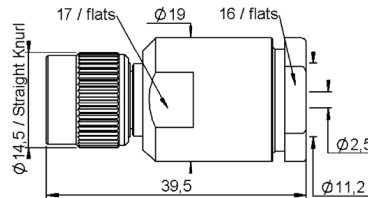


Fig. 2

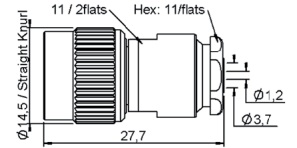


Fig. 3

Cable group	Cable group dia.	Part number	Fig	Dimensions mm			Captive center contact	Packaging	Note
				A	B	C			
RG174/RG316/RD316 RG179/RD179	2.6/50+75	R143 004 000	1	26.5	0.6	3.1	yes	unit	
RG58/RG141/RG142 RG223/RG400	5/50/S+D	R143 008 000		27.1	1.2	5.6	no	100 pieces	conical braid clamp
RG59/RG62	6/75+93	R143 012 000		27	1.05	6.65			
RG213/RG393/RG214	10+11/50	R143 018 000	2				yes	unit	safety coupling nut
		R143 018 500							
RG402	.141"	R143 052 000	3				no		

RIGHT ANGLE PLUGS CRIMP TYPE FOR FLEXIBLE CABLE

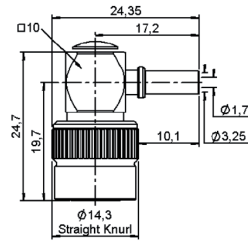


Fig. 1

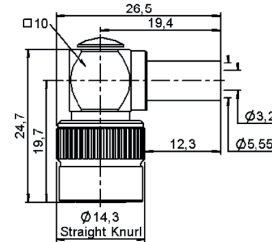


Fig. 2

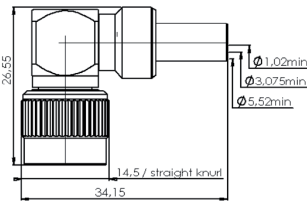


Fig. 3

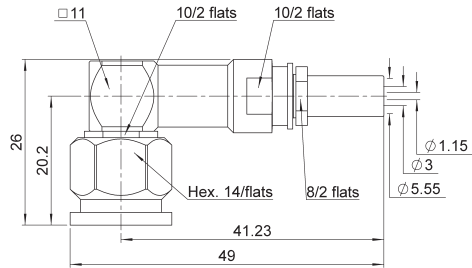
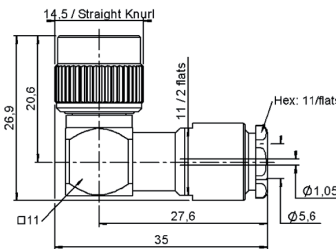


Fig. 4

Cable group	Cable group dia.	Part number	Fig	Captive center contact	Packaging	Note
RG174/RG316	2.6/50/S	R143 181 161	1	yes	100 pieces	commercial version
RG58/RG141	5/50/S	R143 182 161	2		unit	
		R143 182 000	3		100 pieces	
RG142/RG223/RG400	5/50/D	R143 183 300	4			

RIGHT ANGLE PLUG CLAMP TYPE FOR FLEXIBLE CABLE



Cable group	Cable group dia.	Part number	Captive center contact	Packaging
RG58/RG141/RG142/RG223/RG400	5/50/S+D	R143 156 000	yes	unit

STRAIGHT JACKS CRIMP TYPE FOR FLEXIBLE CABLE

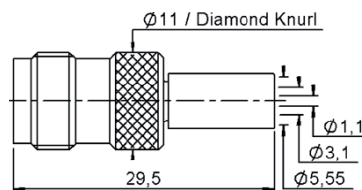


Fig. 1

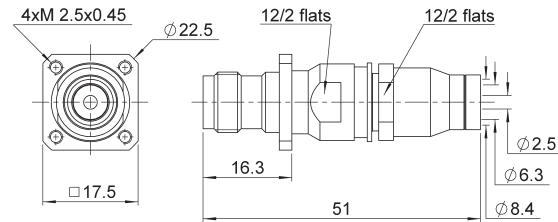


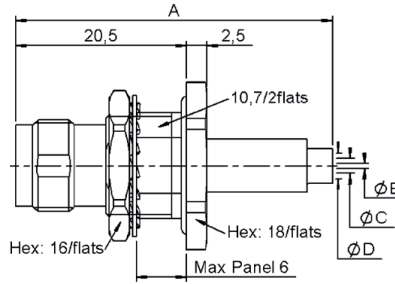
Fig. 2

Cable group	Cable group dia.	Part number	Fig	Captive center contact	Panel drilling	Packaging	Note
RG58/RG141	5/50/S	R143 235 161	1	yes		100 pieces	commercial version, full crimp square flange
	8.07/50	R143 293 390	2		P01	unit	

To download data sheets and assembly instructions, visit www.radiall.com & enter the part number in the Search box.
Bold part numbers represent products typically in stock & available for immediate shipment.
 See page 8 and 9 for packaging information.

JACKS

STRAIGHT BULKHEAD JACKS CRIMP TYPE FOR FLEXIBLE CABLE



Cable group	Cable group dia.	Part number	Dimensions mm				Captive center contact	Panel drilling	Packaging	Note
			A	B	C	D				
RG174/RG316	2.6/50/S	R143 331 161	38	0.6	1.75	3.10	yes	P09+P11	100 pieces	commercial version, panel sealed
RG58/RG141	5/50/S	R143 332 161	35	1.05	3.10	5.55				commercial version, panel sealed, full crimp

STRAIGHT JACKS CLAMP TYPE FOR FLEXIBLE CABLE

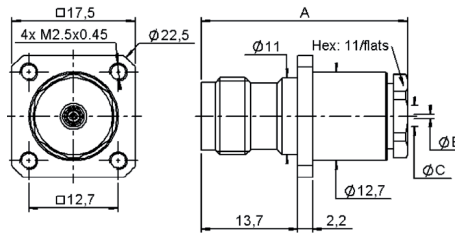


Fig. 1

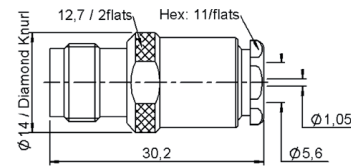
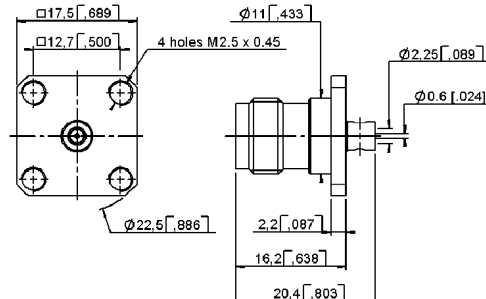


Fig. 2

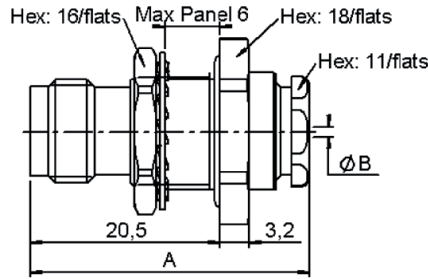
Cable group	Cable group dia.	Part number	Fig	Dimensions mm			Captive center contact	Panel drilling	Packaging	Note
				A	B	C				
RG174/RG316/RD316/RG179/RD179	2.6/50+75	R143 254 000	1	29.8	0.6	3.1	yes	P04	Unit	Square flange Also for screws type 3-56 UNF 2A
RG58/RG141/RG142/RG223/RG400	5/50/S+D	R143 258 000		30.2	1.05	5.6	no			
RG58/RG141	5/50/S	R143 207 000	2							

SQUARE FLANGE STRAIGHT JACK SOLDER TYPE FOR SEMI-RIGID CABLE



Cable group	Cable group dia.	Part number	Captive center contact	Panel drilling	Packaging
RG405	.085"	R143 257 440	no	P01	Unit

STRAIGHT BULKHEAD JACKS PANEL SEALED REAR MOUNT



Cable group	Cable group dia.	Part number	Dimensions (mm)		Captive center contact	Panel drilling	Packaging
			A	B			
RG178/RG196	2/50/S	R143 323 000	29.9	2.2	yes	P09	Unit
RG174/RG316/RD316	2.6/50	R143 324 000	29.6	3.1			100 pieces
RG58/RG141	5/50/S	R143 325 000	30.17	5.6			Unit
RG402	.141"	R143 337 000	30.8	3.7	no		100 pieces

SQUARE FLANGE STRAIGHT FEMALE RECEPTACLES

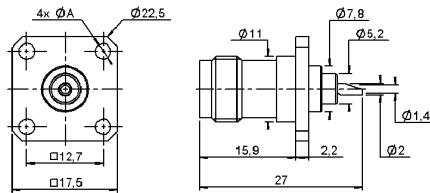


Fig. 1

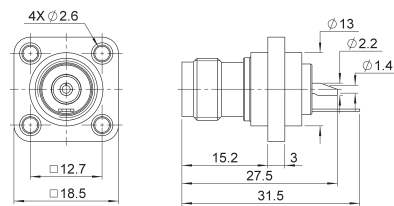


Fig. 2

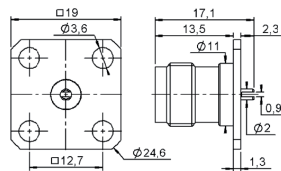


Fig. 3

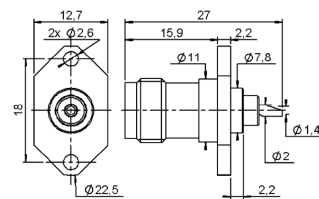


Fig. 4

Part number	Fig	Dimensions A (mm)	Captive center contact	Panel drilling	Packaging	Note
R143 404 000	1	M2.5 x 0.45	yes	P05	Unit	Solder pot 17.5 mm square flange
R143 405 000		2.6			100 pieces	
R143 406 000	2			P13	Unit	Insulated 18.5 mm square flange
R143 420 000	3		no	P02		Slotted contact 19 mm square flange
R143 453 000	4		yes	P07		Solder pot contact 2 holes flange

RECEPTACLES

BULKHEAD STRAIGHT FEMALE RECEPTACLES

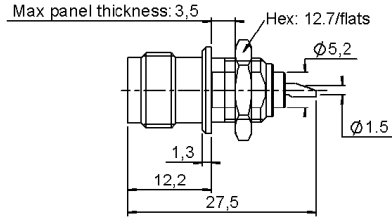


Fig. 1

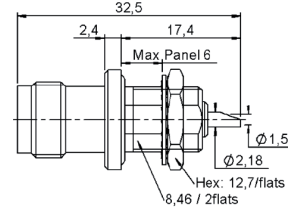
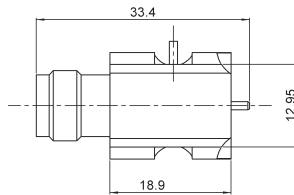


Fig. 2

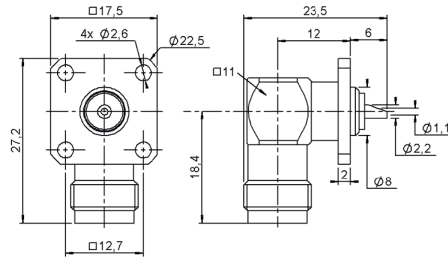
Part number	Fig	Captive center contact	Panel drilling	Packaging	Note
R143 557 000	1		P08	Unit	Front mount, solder pot contact
R143 603 000	2	yes	P10		Panel sealed, front mount, solder pot contact

RF POWER SWITCHING CONNECTORS



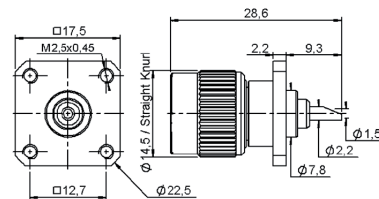
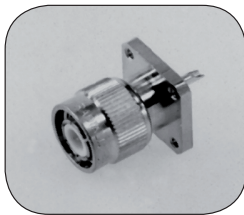
Part number	Type
R143 422 947	left
R143 422 957	right

SQUARE FLANGE RIGHT ANGLE FEMALE RECEPTACLE



Part number	Captive center contact	Panel drilling	Packaging	Note
R143 654 000	yes	P06	Unit	Solder pot contact

SQUARE FLANGE STRAIGHT MALE RECEPTACLE



Part number	Captive center contact	Panel drilling	Packaging	Note
R143 440 000	yes	P03	Unit	Solder pot contact

PROTECTIVE CAPS

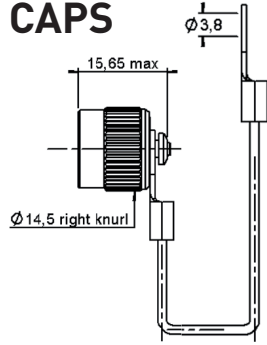


Fig. 1

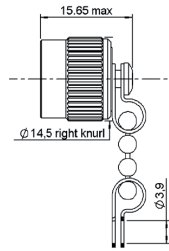


Fig. 2

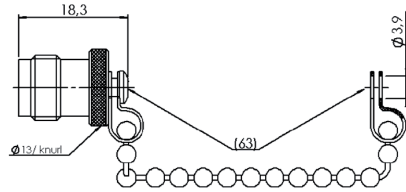


Fig. 3

Part number	Fig	Finish	Packaging	Note
R143 805 000	1	Black chromium	Unit	Male with cord
R143 812 000	2	Nickel		Male with chain
R143 835 000	3		100 pieces	Female with chain

IN SERIES ADAPTERS

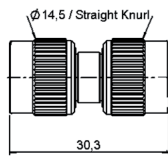


Fig. 1

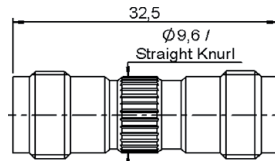


Fig. 2

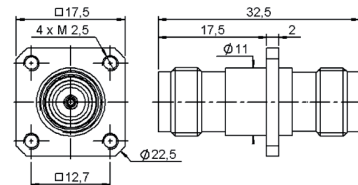


Fig. 3

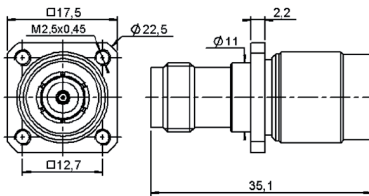


Fig. 4

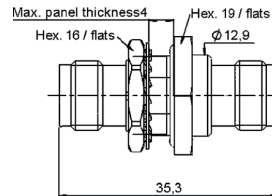


Fig. 5

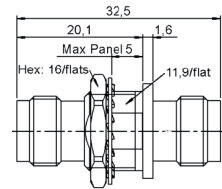


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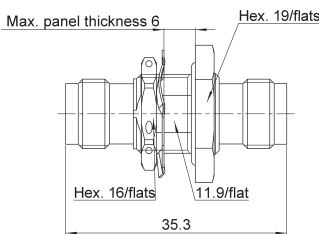


Fig. 7

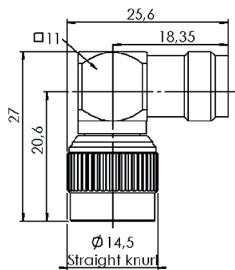


Fig. 8

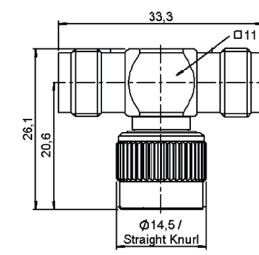


Fig. 9

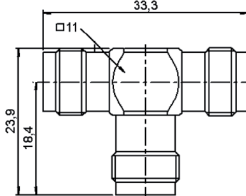


Fig. 10

Part number	Fig	Captive center contact	Panel drilling	Packaging	Note
R143 703 000	1	yes	P01	Unit	Male-male
R143 704 000	2				Female-female
R143 710 000	3			Square flange female-female	
R143 713 000	4			Square flange slide on type male-female	
R143 753 000	5			Bulkhead hermetic, panel sealed female-female	
R143 720 000	6			Commercial version, bulkhead female-female	
R143 753 120	7			Bulkhead hermetic, panel sealed female-female	
R143 770 000	8			Right angle male-female	
R143 780 000	9			Female female male	
R143 782 000	10			Female female female	

To download data sheets and assembly instructions, visit www.radiall.com & enter the part number in the Search box.
Bold part numbers represent products typically in stock & available for immediate shipment.
 See page 8 and 9 for packaging information.

PLUGS AND JACKS

STRAIGHT PLUGS CRIMP TYPE FOR FLEXIBLE CABLE

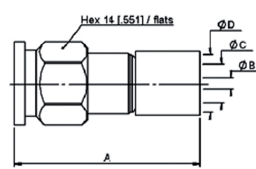


Fig. 1

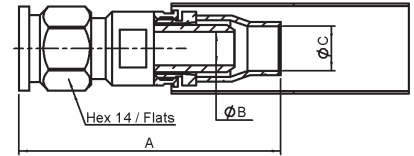
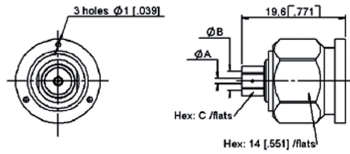


Fig. 2

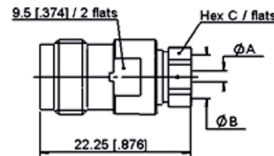
Cable group	Cable group dia.	Part number	Fig	Dimensions mm (inch)			
				A	B	C	D
RG142/RG223/RG400	5/50/D	R143 082 700	1	30 (1.181)	1.05 (0.041)	3.2 (.125)	5.5 (.218)
		R143 097 700	2	43.5 (1.713)	3 (.118)	5 (.197)	
	8.07/50	R143 092 790	2	49.7 (1.957)	6.3 (.248)	8.4 (.331)	

STRAIGHT PLUGS SOLDER TYPE FOR SEMI-RIGID CABLE



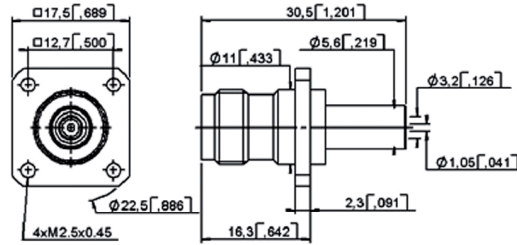
Cable group	Cable group dia.	Part number	Dimensions mm (inch)		
			A	B	C
RG402	.141"	R143 051 700	1 (.039)	3.65 (.144)	5 (.197)
RG401	.250"	R143 054 700	1.7 (.067)	6.45 (.254)	8 (.315)

STRAIGHT JACKS SOLDER TYPE FOR SEMI-RIGID CABLE



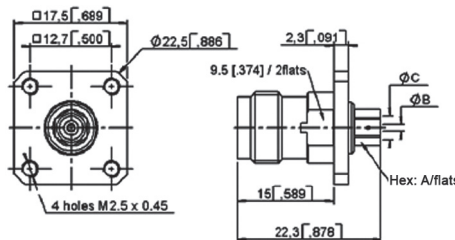
Cable group	Cable group dia.	Part number	Dimensions mm (inch)		
			A	B	C
RG402	.141"	R143 227 700	1 (.039)	3.65 (.143)	5 (.197)

STRAIGHT SQUARE FLANGE JACK CRIMP TYPE FOR FLEXIBLE CABLE



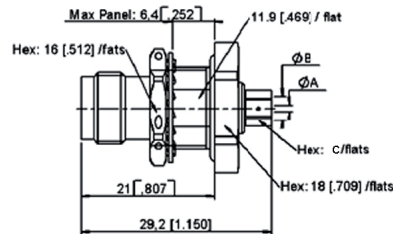
Cable group	Cable group dia.	Part number	Panel drilling
RG142/RG223/RG400	5/50/D	R143 292 700	P01

STRAIGHT SQUARE FLANGE JACKS SOLDER TYPE FOR SEMI-RIGID CABLE



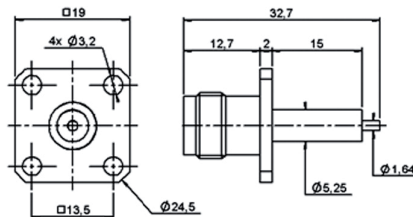
Cable group	Cable group dia.	Part number	Dimensions mm (inch)			Panel drilling
			A	B	C	
RG405	.085"	R143 272 700	4 (.157)	0.6 (.024)	2.25 (.089)	P12
RG402	.141"	R143 273 700	5 (.197)	1 (.039)	3.65 (.144)	

STRAIGHT BULKHEAD JACK SOLDER TYPE FOR SEMI-RIGID CABLE



Cable group	Cable group dia.	Part number	Dimensions mm (inch)			Panel drilling
			A	B	C	
RG402	.141"	R143 321 700	1 (.039)	3.65 (.144)	5 (.197)	P09

SQUARE FLANGE STRAIGHT FEMALE RECEPTACLE (extended dielectric - stub contact)



Part number	Captive center contact	Panel drilling
R143 412 700	yes	P13

To download data sheets and assembly instructions, visit www.radiall.com & enter the part number in the Search box. **Bold** part numbers represent products typically in stock & available for immediate shipment. See page 8 and 9 for packaging information.

ADAPTERS

IN SERIES ADAPTERS

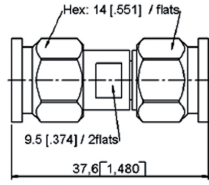


Fig. 1

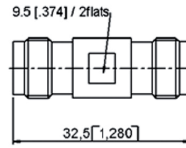


Fig. 2

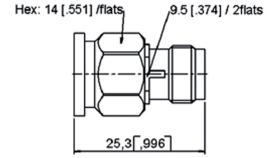


Fig. 3

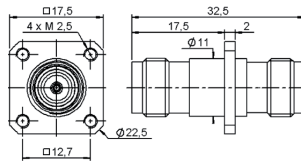


Fig. 4

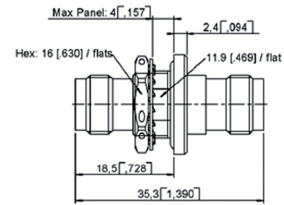
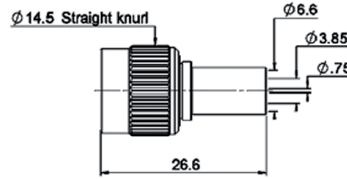


Fig. 5

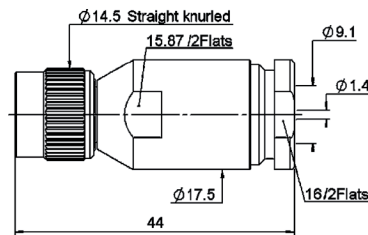
Part number	Fig	Captive center contact	Panel drilling	Note
R143 703 700	1	yes		Male - male
R143 704 700	2			Female - female
R143 705 700	3			Male - female
R143 710 700	4		P16	Square flange female - female
R143 730 700	5		P09	Bulkhead panel sealed female - female

STRAIGHT PLUGS CRIMP TYPE FOR FLEXIBLE CABLE



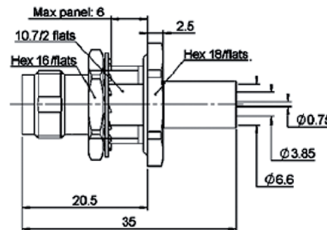
Cable group	Cable group dia.	Part number	Captive center contact	Note
RG59/RG62	6/75 + 93	R144 085 000	no	Full crimp
		R144 085 161	yes	Commercial version - full crimp

STRAIGHT PLUG CLAMP TYPE FOR FLEXIBLE CABLE



Cable group	Cable group dia.	Part number	Captive center contact	Packaging
RG6	8/75	R144 017 000	yes	Unit

STRAIGHT BULKHEAD JACKS CRIMP TYPE FOR FLEXIBLE CABLE

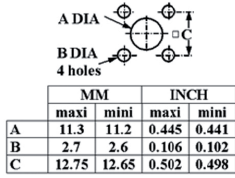


Cable group	Cable group dia.	Part number	Captive center contact	Panel drilling	Packaging	Note
RG59/RG62	6/75 + 93	R144 334 000	no	P09 or P11	Unit	Panel sealed
		R144 334 161	yes		100 pieces	Commercial version Panel sealed

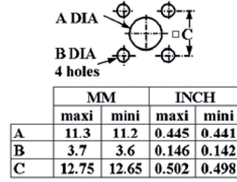
To download data sheets and assembly instructions, visit www.radiall.com & enter the part number in the Search box. **Bold** part numbers represent products typically in stock & available for immediate shipment. See page 8 and 9 for packaging information.

PANEL DRILLING

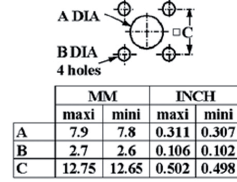
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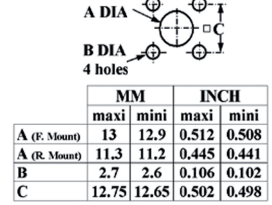
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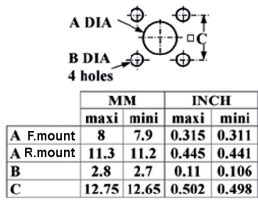
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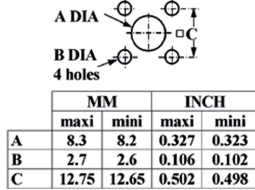
P04



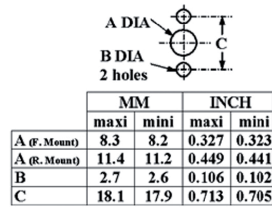
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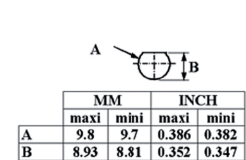
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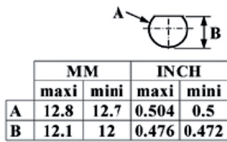
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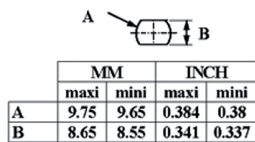
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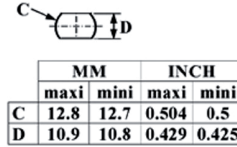
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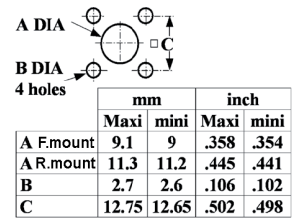
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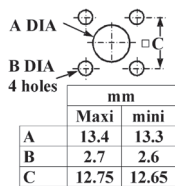
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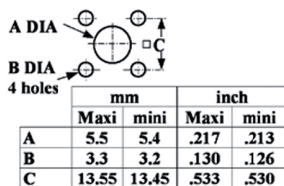
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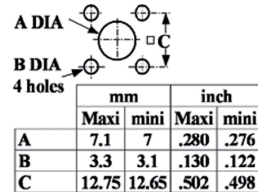
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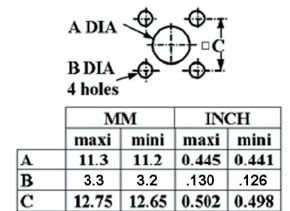
P14



P15



P16





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