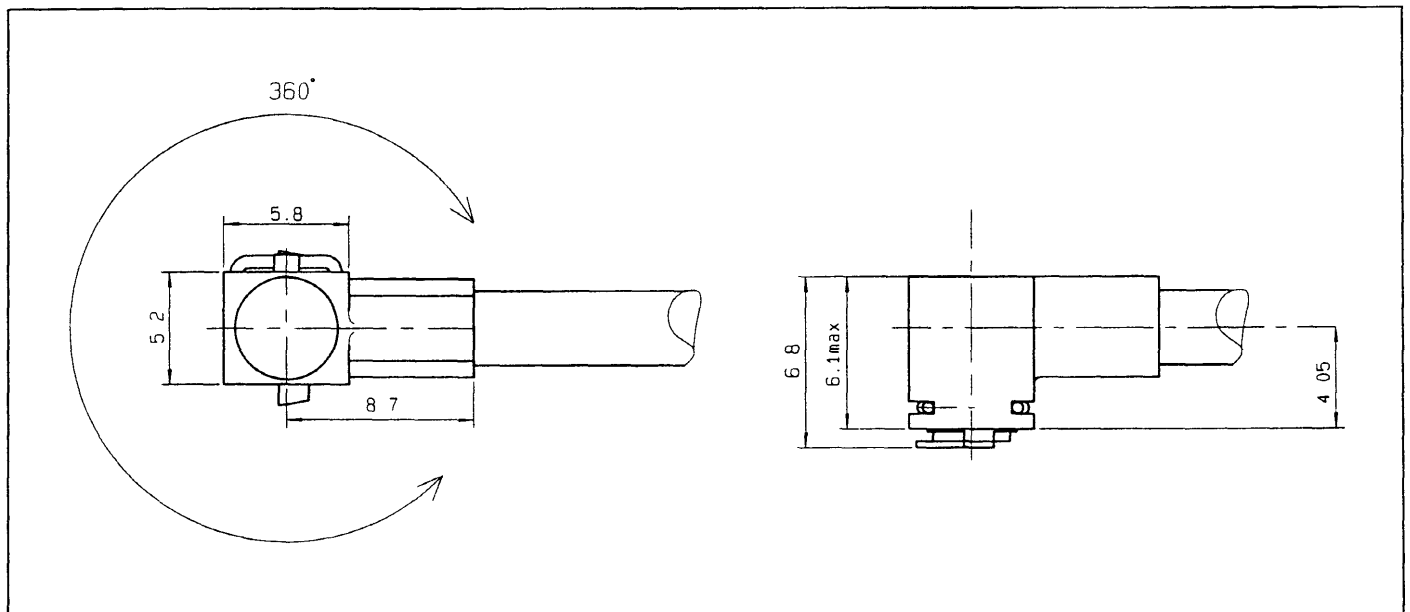
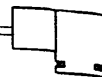


50 $\Omega$	DC - 8 GHz
75 $\Omega$	DC - 1 GHz

- Microminiature coaxial connectors
- Surface mount receptacle
- Fully compatible with automated pick and place machines
- Snap-on mating
- 360° rotation
- High RF performance
- High mechanical reliability





	TEST STANDARD	REQUIREMENTS	RESULTS
--	---------------	--------------	---------

### ELECTRICAL

Impedance		50 Ω - (and 75 Ω)	
Frequency range		DC - 8 GHz (for 75 Ω DC - 1 GHz)	
V.S.W.R. (mated pair)	IEC 1169-1	1.10+(0.05 x F(GHz)) Max	passed
Insertion loss	IEC 1169-1	≤ 0.2 F (GHz)	passed
RF leakage (mated pair)	IEC 1726		-42 dB at 500 MHz -38 dB at 1 GHz -30 dB at 3 GHz
Outer contact resistance	IEC 1169-1 (I=40 mA eff.)	Initial 2.5 mΩ max Final 12.5 mΩ max	passed
Center contact resistance	IEC 1169-1 (I=40 mA eff.)	Initial 5 mΩ max Final 15 mΩ max	passed
Insulation resistance	IEC 1169-1	≥ 5000 MΩ under 500 Vcc	passed
Working voltage			170 V eff.
Testing voltage	IEC 1169-1	500 V eff.	passed

### MECHANICAL

Durability	IEC 1169-1	500 matings	passed
Force to engage/disengage	IEC 1169-1	Ins ≤ 18 N Ext > 7 N	passed
Shocks	IEC 68-2-27	50g/11ms 3 shocks/axis/way	passed
Vibrations	IEC 68-2-6	sinwaves 10/2000 Hz 20g - 3 H/axis	passed
Bumps	IEC 68-2-29	40g/11ms 3000 bumps/axis/way	passed
Cable retention force	IEC 1169-1	15 N min	Ø 2 mm = 20 N Ø 2.6 mm = 60 N
Solderability	IEC 68-2-29		passed

### ENVIRONMENTAL

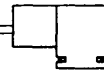
Temperature range			-55°C +100°C
Damp heat	IEC 68-23	40°C / 93% / 10 days	passed
Thermal shocks	IEC 68-2-14 Test NA	-50°C +100°C 20 cycles step 30 mn	passed

### MATERIALS

Plugs body	Zamak
Receptacles body	CuSn9p
Plugs center contact	Cube2
Receptacles center contact	Brass
Insulators	PTFE

### PLATING

Plugs body	Nickel
Receptacles body	Gold
Plugs center contact	Gold
Receptacles center contact	Gold



## PIGTAILS (or cable assemblies)

The right angle plugs are delivered as pigtails or cable assemblies.

(Over 100.000 pieces, other assembling possibilities can be custom tailored upon request)



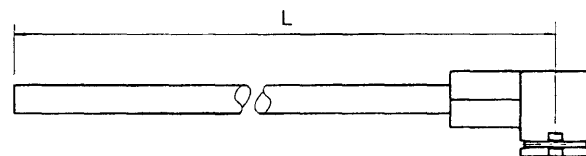
### How to order

Examples of composition (minimum length = 1.575 (4 cm) ± 2 %) :

#### Example 1 :

Pigtail featuring one right angle plug

Connector see page 10 / Cable / Length (cm)

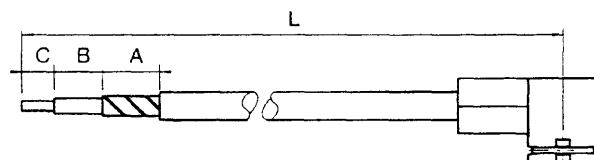


#### Example 2 :

Pigtail featuring one right angle plug with stripping option (stripping according to customers requirements with possibility of tin central conductor).

Connector see page 10 / Cable / Length (cm)

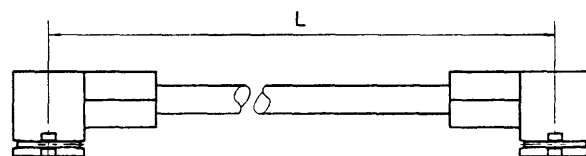
A= (mm) B= (mm) C= (mm)



#### Example 3 :

Cable assembly featuring two right angle plugs

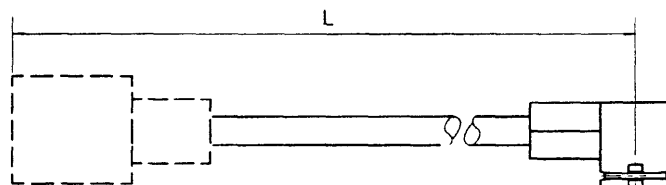
Connector see page 10 / Cable / Connector see page 10 / Length (cm)



#### Example 4 :

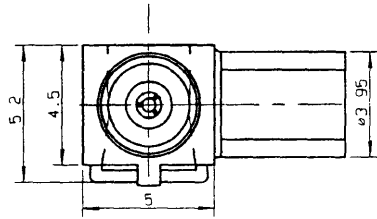
Cable assembly featuring one MMT right angle plug and any other connector compatible with cable.

Connector see page 10 / Cable / R \_\_\_\_ (\*) / Length (cm)

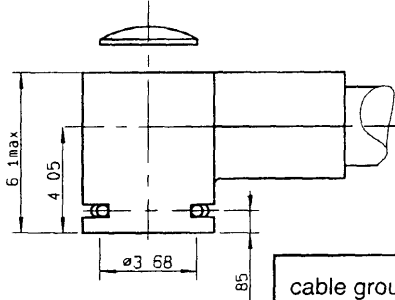


(\*) See suitable connectors on pages 16 - 17

## RIGHT ANGLE PLUG CRIMP TYPE FOR PIGTAILS (or cable assemblies)



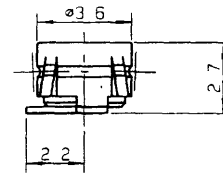
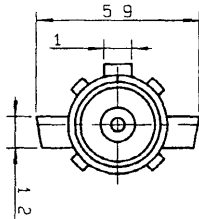
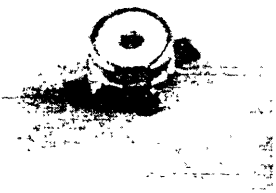
Extraction procedure : see page 11



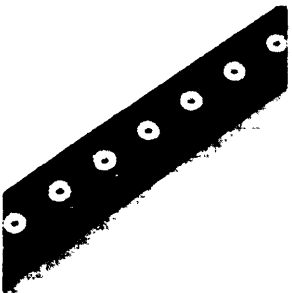
cable group	Right angle plugs part number (*)	Pigtails (cable 20 cm) part number
2/50/S	R210 153 000(*)	R284 008 001
2/50/D	R210 155 000	R284 008 002
2/75/S	R210 153 000(*)	R284 008 003
2.6/50/S	R210 157 000(*)	R284 008 004
2.6/50/D	R210 158 000	R284 008 005

(\*) : The part numbers R210 153 000 (only for cable RG 178) and R210 157 000 (only for cable RG 174) can be available unassembled.

## SMT RECEPTACLES

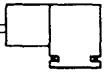


Soldering pattern and mounting operations page 14 & 15

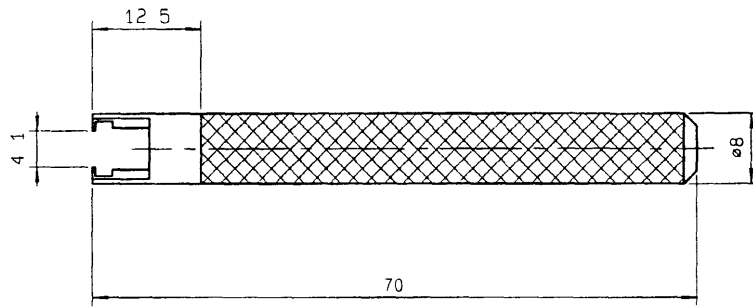


packaging	part number
reel of 100	R210 408 012
reel of 500	R210 408 052
reel of 3000	R210 408 302

Packaging : see complete reel description page 13



## EXTRACTION TOOL

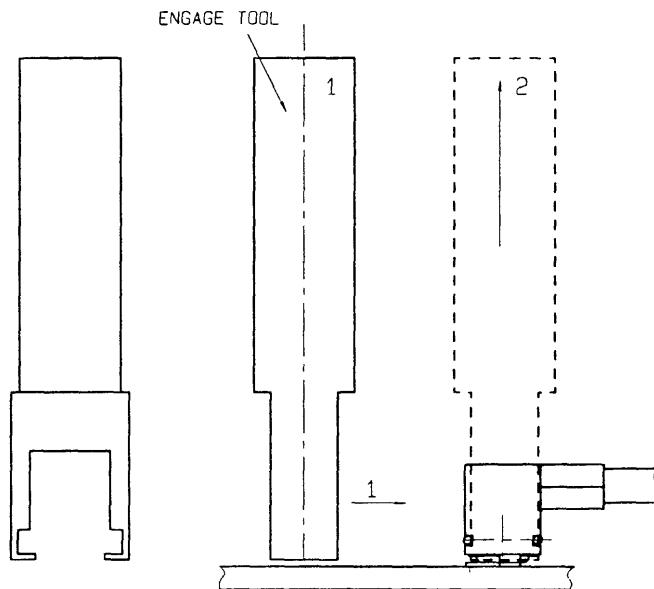


part number
R282 868 030

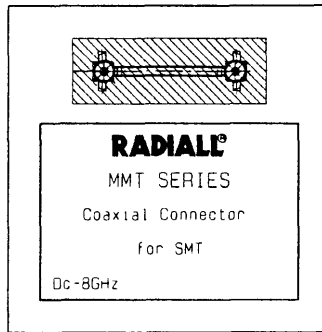
## EXTRACTION PROCEDURE

A special tool must be used to remove the right angle MMT plug from the receptacle.

- 1- Insert the tool under the right angle MMT plug as shown
- 2- Pull off in the vertical direction to extract the right angle MMT plug



## TEST BOARD



part number
<b>R210 900 500</b>

Connected to a network analyser by 2 cable assemblies this board allows to measure the V.S.W.R. of a complete link.

## MEASUREMENT CABLE ASSEMBLY (cable 2,6/50/D)

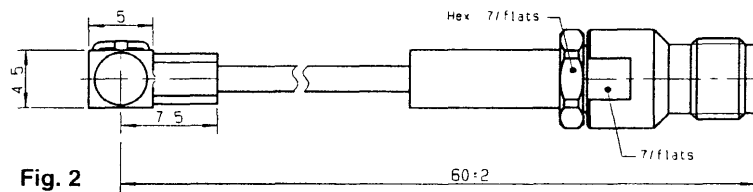
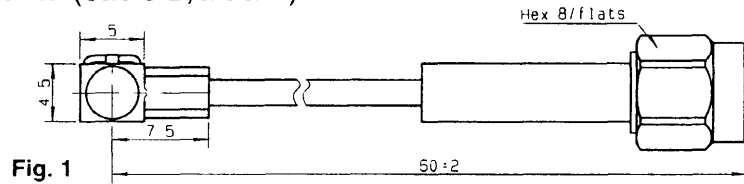
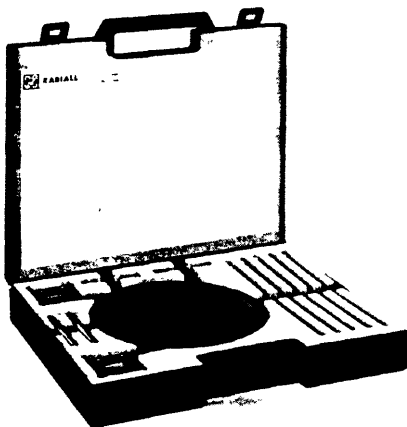
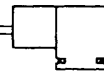


Fig.	part number	composition
1	<b>R284 310 061</b>	R210 158 000 + C291 185 067 cable + R125 072 080
2	<b>R284 310 062</b>	R210 158 000 + C291 185 067 cable + R125 233 590

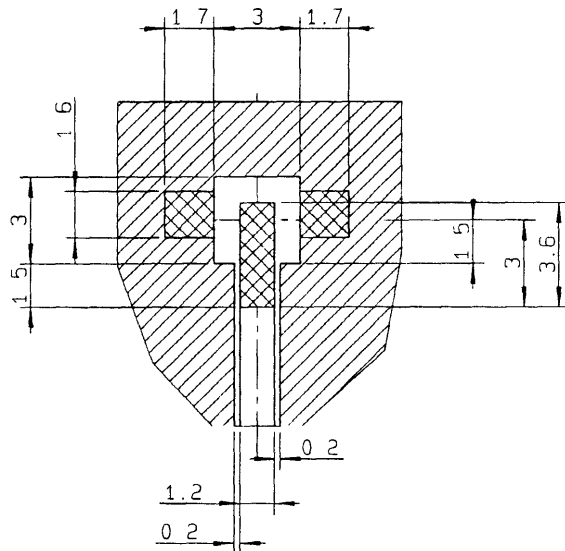
## QUALIFICATION KIT



part number	Contains
<b>R280 741 001</b>	100 receptacles R210 408 012 5 pigtails R284 008 001 5 pigtails R284 008 002 5 pigtails R284 008 003 5 pigtails R284 008 004 5 pigtails R284 008 005 3 cable assemblies R284 310 061 3 cable assemblies R284 310 062 14 tests boards R210 900 500 6 tools R282 868 030



## RECEPTACLE SOLDERING PATTERN



Pattern



Land for solder paste

Coplanar line

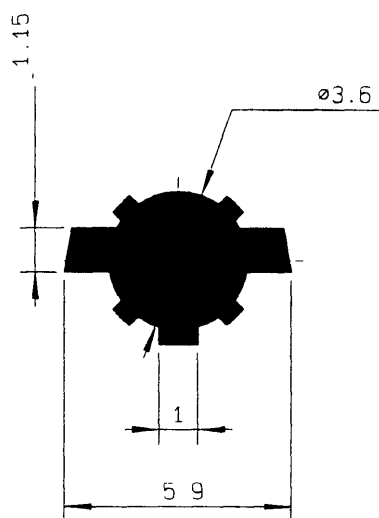
Ground and signal are on the same side.

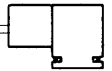
Thickness of PCB : 1 mm

The material of PCB is glass-epoxy composite ( $E_r = 4,8$ ).

The solder resist should be printed except for the land pattern on the PCB

## VIDEO SHADOW OF THE RECEPTACLE





To ensure the correct adhesion of the MMT receptacle to the PCB, the following procedures are recommended.

## A - Soldering procedure using automatic pick and place equipment

### 1) Solder cream :

- RADIALL recommends using a solder cream Sn63-Pb35-Ag2 type (63% tin – 35% lead – 2% silver) "no clean – low residue" (50% solid residue of flux quantity) that will permit the elimination of the cleaning operation step after soldering.
- When using a conventional solder cream with high level (50%) of flux solid residue, it is important to incorporate a good cleaning operation step, similar to what is described below in paragraph 5.
- Note : when choosing a solder cream for gold-plated PCB pattern, it is important to use a cream made with silver. This will help in avoiding formation of intermetallics as part of the solder joint.

### 2) Solder cream deposition :

- The solder cream should be deposited on the designated zone areas (see pattern page 14) by a screen printing process. RADIALL advises a thickness of .008" (0.2 mm).
- If using a thickness of less than .008" (0.2mm) the zone area must be specifically designed for this thickness (please consult RADIALL)
- Please optically verify that the edges of the zone are clean and without contaminates.

### 3) Placement of the component :

- Place the receptacle onto the PCB with automatic pick and place equipment. Please verify that the PCB zoned areas have not oxydated.
- Various types of suction can be used (see drawings page 13)
  - nozzle int dia. .060" (1.5 mm) min
  - nozzle ext dia. .110" (2.8 mm) max
- RADIALL does not recommend using adhesive agents on the receptacle or on the PCB
- RADIALL guarantees coplanarity between the 3 receptacle leads .004" (0.1 mm)
- The use of a video camera is preferred for checking the positioning of the components (see video shadow page 13)

### 4) Soldering : infra-red reflow process :

- Please follow RADIALL's recommended profile as illustrated.
- When using a "no clean – low residue" type of solder cream, RADIALL recommends a linear pre-heat profile not to exceed 160°C with a 1 to 2°C /s. rise.

### 5) Cleaning of the PCB :

- When using a conventional solder cream with high level of residue, please clean the PCB with a substitute product, similar to CFC, that complies to the International Environmental Agency rules.
- RADIALL recommends using a vapor phase process (ultra-sonic waves are allowable)

### 6) Quality Check :

- Solder joints : verify by visual inspection that the formation of meniscus on the sides of the receptacle leads are proper.

## B - Soldering procedure by manual operation :

### 1) Solder cream :

- (Refer to procedure A – 1)

### 2) Flux deposition :

- Deposite a thin layer of flux on mounting zone.
- Allow the flux to evaporate a few seconds before applying the solder cream (in order to avoid dilution of the cream).

### 3) Solder cream deposition :

- Deposite a small quantity of solder cream on mounting zone area by syringe.
- Be careful, do not apply solder cream outside of the zone area.

### 4) Placement of the component :

- Lift the body of the receptacle by tweezers. Do not use fingers (fingers risk twisting the legs of the receptacle or ejecting the center contact and can contaminate lead surfaces)
- Place the component on the mounting zone by pressing lightly on the top of the receptacle insulator with tweezers. The receptacle leads will stick into the solder cream.

### 5) Soldering :

- Pre-heat stage : use a heat gun (soldering iron is not recommended) at a distance of .800" (20 mm) from the receptacle, applying the jet of air in a continuous circular motion, until the solder cream starts to look dull. This stage avoids any thermal shock since both areas to be soldered are brought up to the same temperature.
- Final re-melting step is carried out by moving the heat gun to a closer distance of .200" (5 mm) from the receptacle legs while guiding the jet of air onto each receptacle lead, at a 45° angle.

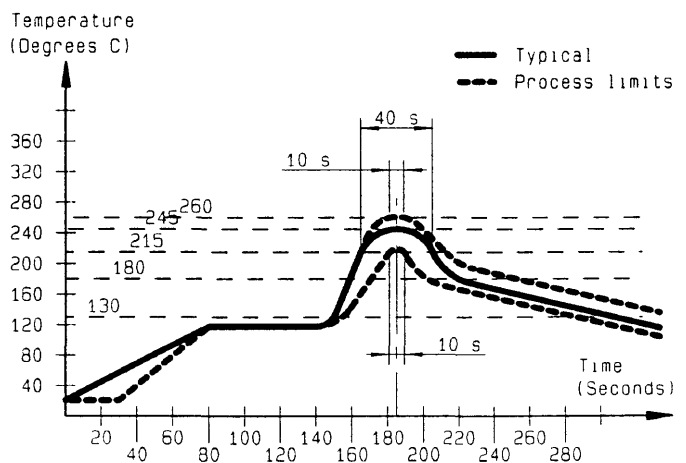
### 6) Cleaning of the PCB

- (Refer to procedure A – 5)

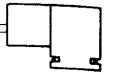
### 7) Quality check :

- (Refer to procedure A – 6)

TEMPERATURE PROFILE







Series	Connector type	2/50 S			2/50 D	
		Crimp	Solder	Clamp	Crimp	Clamp
SSMA	STRAIGHT PLUG					
	RIGHT ANGLE PLUG					
	STRAIGHT JACK					
SSMB	STRAIGHT PLUG	R203 073 000 (020*)				
	RIGHT ANGLE PLUG	R203 173 000 (020*)				
	BULKHEAD STRAIGHT JACK	R203 313 000				
	BULKHEAD RIGHT ANGLE JACK	R203 373 000*				
SSMC	STRAIGHT PLUG	R202 073 000*				
	RIGHT ANGLE PLUG	R202 173 000*				
SBMA	BULKHEAD STRAIGHT PLUG					
	STRAIGHT JACK					
	FLOATING FLANGE STRAIGHT JACK					
	BULKHEAD STRAIGHT JACK					
MCX	STRAIGHT PLUG	R113 081 000 (020)			R113 080 000*	
	RIGHT ANGLE PLUG	R113 181 000 (020)	R113 161 000 (020)			
	STRAIGHT JACK	R113 236 000* (020)				
	BULKHEAD STRAIGHT JACK	R113 306 000 (020*)				
Coaxial terminals	STRAIGHT - 2 legs	R280 280 000 (020)	R280 221 000 (020*)			
	STRAIGHT - 4 legs	R280 282 000		R280 281 000		
	RIGHT ANGLE - 2 legs		R280 219 000 (020*)			
	RIGHT ANGLE - 4 legs	R280 292 000		R280 291 000		
SMA	STRAIGHT PLUG	R125 069 000 R124 069 120 (123)				R125 002 200*
	RIGHT ANGLE PLUG	R125 170 402*				R125 163 200*
	STRAIGHT JACK	R125 231 000* (001)				
	FLANGE STRAIGHT JACK	R125 270 000* R124 271 120 (123)				
	TRUNCATED FLANGE STRAIGHT JACK				R125 270 000*(001*)	
	BULKHEAD STRAIGHT JACK	R124 310 020 (023)				
SMB	STRAIGHT PLUG	R114 073 000		R114 003 000 (020*)		
	RIGHT ANGLE PLUG	R114 183 000 (020*)		R114 163 000 (020*)	R114 174 000*	
	STRAIGHT JACK	R114 237 000		R114 203 000		R114 304 000* (420*)
	BULKHEAD STRAIGHT JACK	R114 311 000		R114 303 000		
SMC	STRAIGHT PLUG	R112 073 000 (020)		R112 003 000 (020*)	R112 073 000 (020*)	R112 003 000 (020*)
	RIGHT ANGLE PLUG	R112 183 000 (020)		R112 163 000	R112 183 000 (020)	R112 163 000
	STRAIGHT JACK	R112 237 000*		R112 203 000 (120*)	R112 237 000*	R112 203 000 (120*)
	BULKHEAD STRAIGHT JACK	R112 311 000*		R112 303 000	R112 311 000*	R112 303 000
BMA	BULKHEAD STRAIGHT PLUG					
	BULKHEAD PANEL SEAL STRAIGHT PLUG	R128 082 001*				
	FLOATING STRAIGHT JACK	R128 232 001*				
	FLOATING FLANGE STRAIGHT JACK	R128 250 001				
Microclic	STRAIGHT PLUG	R205 071 000				
	RIGHT ANGLE PLUG	R205 181 000				
	STRAIGHT JACK	R205 241 000				
BNC	STRAIGHT PLUG			R141 003 000		
	RIGHT ANGLE PLUG			R141 153 000		
	FLANGE STRAIGHT JACK	R141 285 000*		R141 253 000		
	BULKHEAD STRAIGHT JACK			R141 323 000		R141 301 000*
mQ	STRAIGHT PLUG			R225 003 000*		
	FLANGE STRAIGHT JACK			R225 253 000		
	BULKHEAD STRAIGHT JACK			R225 303 000*		
N	STRAIGHT PLUG	R161 071 000				
	RIGHT ANGLE PLUG					
	FLANGE STRAIGHT JACK	R161 281 000			R161 281 000	
	BULKHEAD PANEL SEAL STRAIGHT JACK	R161 309 000 (200)			R161 309 000 (200)	

• Manufactured upon request Please consult us.



MMT

# CONNECTORS SUITABLE WITH MMT PIGTAILS

Series	Connector type	2,6/50 S			2,6/50 D	
		Crimp	Solder	Clamp	Crimp	Clamp
SSMA	STRAIGHT PLUG	R121 072 000				
	RIGHT ANGLE PLUG	R121 172 000				
	STRAIGHT JACK	R121 236 000			R203 076 030*	
SSMB	STRAIGHT PLUG	R203 075 000 (020)				
	RIGHT ANGLE PLUG	R203 175 000 (020)				
	BULKHEAD STRAIGHT JACK	R203 315 000				
SSMC	BULKHEAD RIGHT ANGLE JACK	R202 075 000			R108 084 001*	
	STRAIGHT PLUG	R202 175 000			R108 264 001*	
SBMA	RIGHT ANGLE PLUG					
	BULKHEAD STRAIGHT PLUG					
	STRAIGHT JACK					
MCX	STRAIGHT PLUG	R113 082 000 (020)			R113 083 000 (020)	
	RIGHT ANGLE PLUG	R113 182 000 (020)			R113 183 000 (020)	
	STRAIGHT JACK	R113 240 000 (020)			R113 241 000* (020*)	
Coaxial terminals	BULKHEAD STRAIGHT JACK	R113 310 000 (020)			R113 311 000* (020*)	
	STRAIGHT - 2 legs	R280 280 100 (120)	R280 222 000 (020)	R280 283 000	R280 280 200*	
	STRAIGHT - 4 legs	R280 284 000	R280 222 200 (020)	R280 293 000	R280 283 000	R280 293 000
SMA	RIGHT ANGLE - 2 legs	R280 294 308			R125 072 008	R124 072 220 (223)
	RIGHT ANGLE - 4 legs	R280 294 000			R125 174 000*	R124 174 120 (123)
	STRAIGHT PLUG	R125 072 000 (001)	R124 071 120 (123)		R125 233 000* (001*)	R124 233 120 (123)
SMB	RIGHT ANGLE PLUG	R125 172 000 (001)	R124 172 120 (123)			R124 274 120 (123)
	STRAIGHT JACK	R125 236 000 (001)	R124 236 120 (123)			
	FLANGE STRAIGHT JACK	R125 272 000 (001)	R124 272 120 (123)			
SMC	TRUNC FLANGE STR JACK	R125 303 000 (001)	R124 312 120 (123)		R125 304 000* (001*)	R124 313 120 (123)
	BULK PANEL SEAL STR JACK	R114 082 000 (020)		R114 005 000 (120)	R114 083 000 (020*)	
	STRAIGHT PLUG	R114 187 000 (020)		R114 165 000	R114 182 000	
BMA	RIGHT ANGLE PLUG	R114 238 000 (120)		R114 205 000	R114 244 420*	
	STRAIGHT JACK	R114 313 000 (020)		R114 305 000	R114 315 000*	
	BULKHEAD STRAIGHT JACK	R112 082 000 (120)		R112 005 000 (120)	R112 083 000*	
Microclic	STRAIGHT PLUG	R112 187 000		R112 165 000	R112 182 000	
	RIGHT ANGLE PLUG	R112 238 000 (120)	R112 205 120	R112 205 000		
	STRAIGHT JACK	R112 313 000		R112 305 000		
BNC	BULKHEAD STRAIGHT JACK	R128 083 000 (001)			R128 084 827	
	BULKHEAD STRAIGHT PLUG	R128 085 000 (001)				
	BULK PANEL SEAL STR PLUG	R128 233 000 (001)			R128 234 827	
mQ	FLOATING STRAIGHT JACK	R128 263 000 (001)			R128 264 827	
	FLANGE STRAIGHT JACK	R128 313 000 (001)				
	BULKHEAD STRAIGHT JACK	R205 074 000				
N	STRAIGHT PLUG	R205 244 000		R141 004 000		
	RIGHT ANGLE PLUG	R141 075 000		R141 154 000		
	STRAIGHT JACK	R141 175 000		R141 254 000		
N	STRAIGHT PLUG	R141 290 200		R141 324 000		
	FLANGE STRAIGHT JACK	R141 306 000		R225 004 000		
	BULKHEAD STRAIGHT JACK			R225 254 000		
N	STRAIGHT PLUG			R161 004 000		R161 004 000
	FLANGE STRAIGHT JACK				R161 072 000	
	BULKHEAD STRAIGHT JACK				R161 181 300	R161 252 000
N	STRAIGHT PLUG	R161 072 000		R161 252 000	R161 281 300	R161 321 000
	RIGHT ANGLE PLUG	R161 181 000		R161 321 000		R161 322 000
	FLANGE STRAIGHT JACK	R161 281 300			R161 311 200 (300)	
N	BULK PANEL SEAL STR JACK	R161 311 200 (300)				

ATTENTION : This guide is intended as an information and does not include all series P/N.





## CABLE CHARACTERISTICS

CABLE TYPE	CABLE	Outer Ø (mm)	Outer screen type	Impedance (Ω)	Dielectric type	400 MHz		900 MHz		2 GHz	
						Insertion loss	Power	Insertion loss	Power	Insertion loss	Power
2/50 S	RG 178 KX 21 A	.071 (1.80)	FEP	50	PTFE	0.9 dB/m	55 W	1.5 dB/m	35 W	2.5 dB/m	22 W
2/50 D	Et. 124416	.083 (2.10)	FEP	50	PTFE	0.87dB/m	110 W	1.3 dB/m	70 W	1.94 dB/m	45 W
2/75 S	PK/75-1-11	.075 (1.90)	PE	75	PE	0.9 dB/m	20 W	1.4 dB/m	12 W	2 dB/m	9 W
2.6/50 S	RG 316/RG 174	.098 (2.49)	FEP	50	PTFE	0.5 dB/m	210 W	0.8dB/m	140 W	1.7 dB/m	95 W
2.6/50 D	RG 316 DT	.098 (2.49)	FEP	50	PTFE	0.5 dB/m	210 W	0.8dB/m	140 W	1.7 dB/m	95 W

## INDEX OF P/N

RADIALL Part Numbers	Page	RADIALL Part Numbers	Page	RADIALL Part Numbers	Page	RADIALL Part numbers	Page
R210 153 000	10	R210 408 052	10	R282 868 030	11	R284 008 004	10
R210 155 000	10	R210 408 302	10	R284 008 001	10	R284 008 005	10
R210 157 000	10	R210 900 500	12	R284 008 002	10	R284 310 061	12
R210 158 000	10			R284 008 003	10	R284 310 062	12
R210 408 012	10	R280 741 001	12				

