

B & MCS-R series

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INTRODUCTION

The B series connectors are of robust design with fixed solder pot contacts of 15 A current rating. They are available in four different contact arrangements.

By their ruggedness, they are particularly suitable for rack and panel and cable to panel applications.

APPLICATIONS

The series B connectors ensures complete safety for the following applications:

Industries, transports, communications, power equipment and all specific civil and military electronic systems.

FEATURES

Plug and receptacle connectors are made of a thermoset insulator moulded onto a stainless steel fixing plate. Four contact arrangements are available, 8, 14, 24 and 32 contacts.

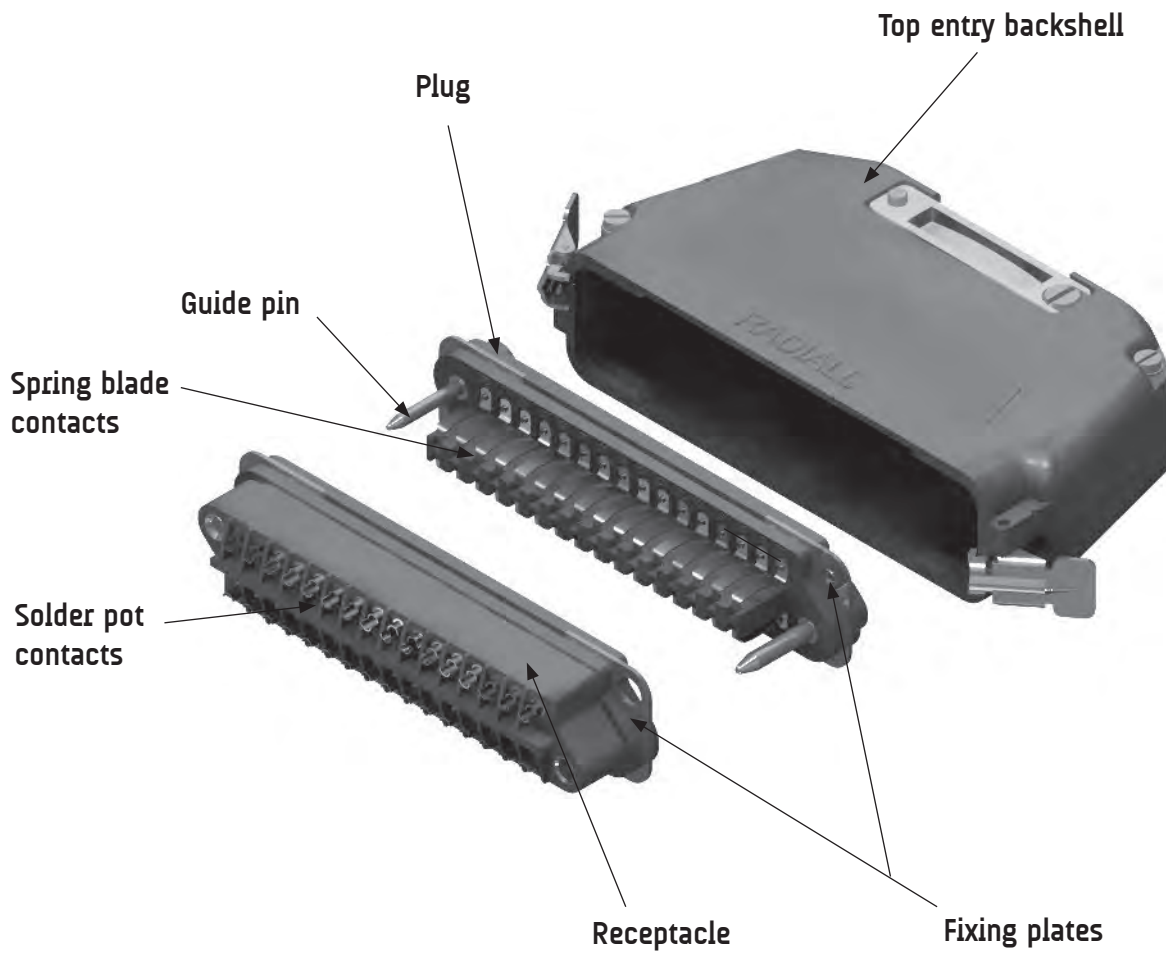
The receptacle box type connectors are fitted with round pin contacts. The plug connectors are fitted with spring blade contacts and two stainless steel guide pins of different diameter providing polarization and mating before the contacts to ensure correct alignment.

The pin contacts are in silver plated brass, the spring blade contacts are in silver plated bronze. The cambered configuration and elasticity procures a self wiping condition at each mating, ensuring high reliability.

The B series connector is only available with solder pot termination for gauge 16 wires. Standard receptacle connectors are fitted with floating eyelets, which allows 0.75 mm radial float.



Detailed view of the various parts of this series connector.



TECHNICAL CHARACTERISTICS

ELECTRICAL

Current rating by contact: 15 A

Test voltage:

- Between contacts: > 1500 V.r.m.s.
- Between contacts and earth: > 2000 V.r.m.s

Insulation resistance: > 5000 MΩ

Contact resistance: < 10 mΩ

MECHANICAL & ENVIRONMENTAL

Temperature range: -55°C (-131°F) to +125°C (+257°F)

Humidity: 21 days

Mating & unmating: 500 cycles

Contact retention: > 50 N

MATERIALS

Description	Material / Finish
Insulator block	Glass filled phenolic
Pin contacts (male)	Brass - silver plated
Spring blade contacts (female)	Bronze - silver plated
Guide pins	Stainless steel
Fixing plate	Stainless steel

MASSES g (oz)

Plug				
Contact Arrangement	08	14	24	32
Weight	35 (1.25)	50 (1.80)	70 (2.50)	85 (3)
Receptacle				
Contact Arrangement	08	14	24	32
Weight	35 (1.25)	50 (1.80)	70 (2.50)	85 (3)
Backshells				
Side entry	170 (6)	190 (6.70)	265 (9.35)	300 (10.60)
Top entry	180 (6.35)	200 (7.05)	280 (9.90)	320 (11.30)

The following is indications to help you out when ordering B connectors.

When a receptacle connector is ordered with the locking system, in place of the floating eyelets, brackets are fitted whilst the locking clips are always fitted on the backshell.

For backshell and accessories please refer to pages 8-21 to 8-22 for ordering.

The plug connector is fitted with spring leaf contacts and the receptacle box type connector with pin contacts.

CONNECTOR PART NUMBER

B	24	M	71	NV
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Series prefix

Contact arrangement
08 – 14 – 24 – 32

Product type

M: plug connector

F: receptacle connector

Termination style ⁽¹⁾

71: Ø2.30 solder pot

73: Ø3.20 solder pot

74: PC Tail

75: 5 mm terminal blade

78: NFC 20120 terminal blade

80: screw cup termination

Modification code

NV: without locking

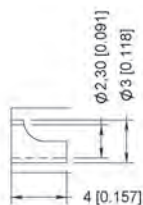
VP: brackets for locking system receptacle only (see page 8-19 for details)

NOTES:

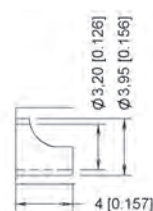
(1) Please refer to page 380 for views of termination styles.

TERMINATION STYLES

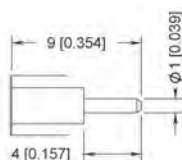
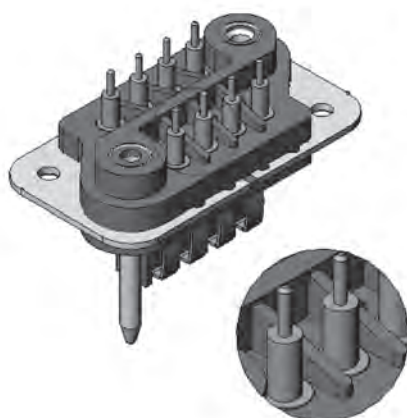
Following are the different termination styles available in details.



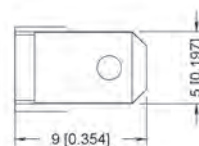
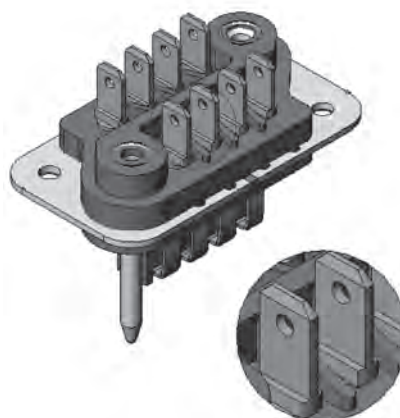
Style 71



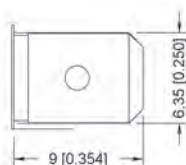
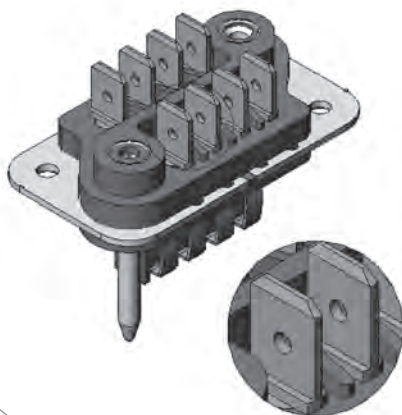
Style 73



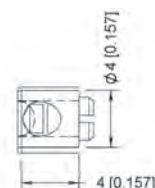
Style 74



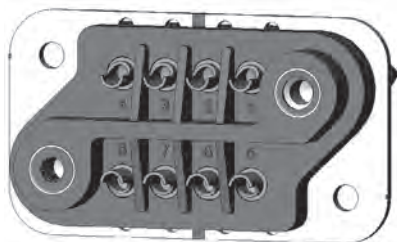
Style 75



Style 78



Style 80



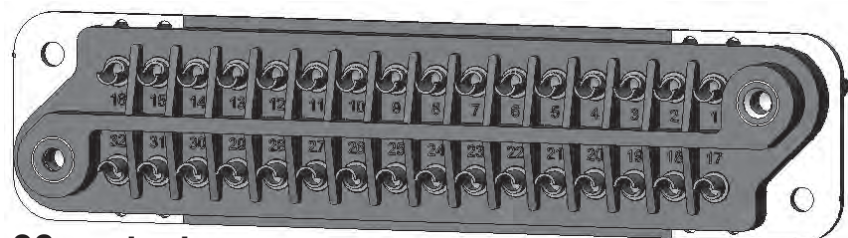
8 contacts



14 contacts



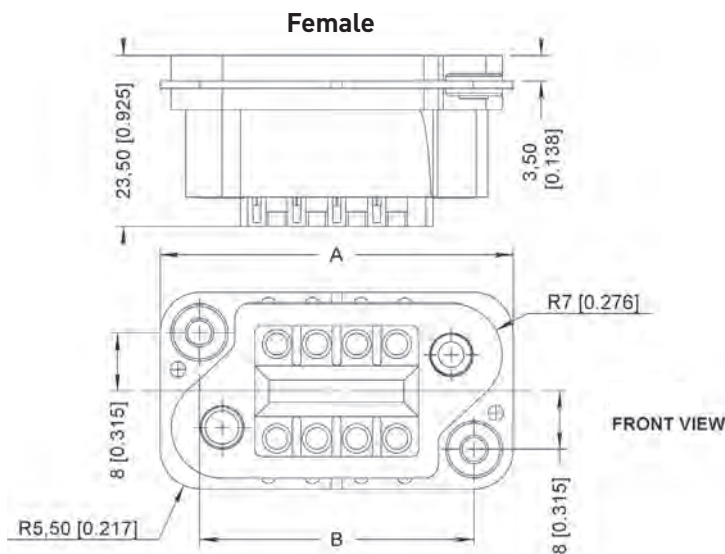
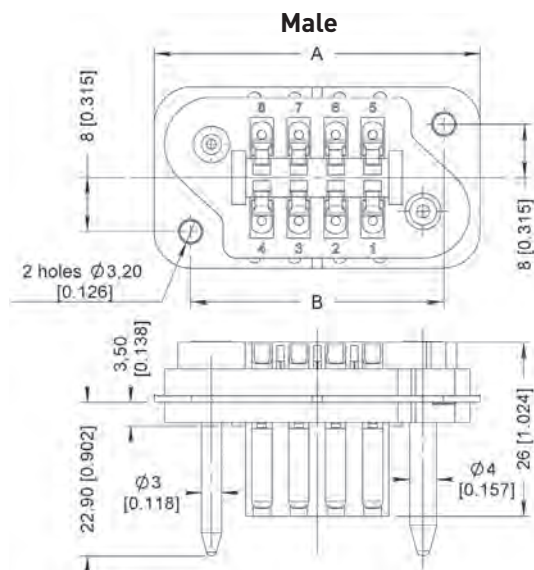
24 contacts



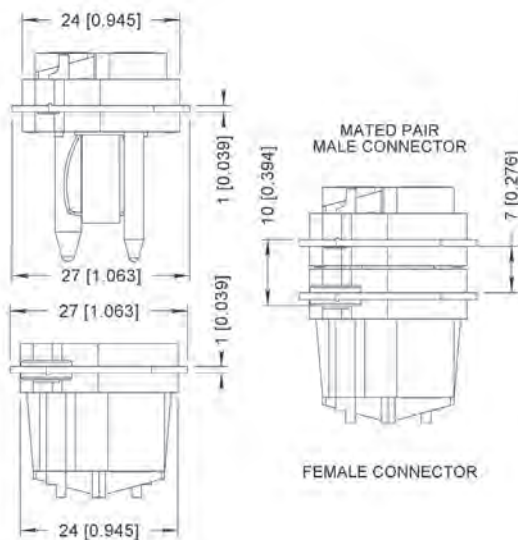
32 contacts

DIMENSIONS mm(inch)

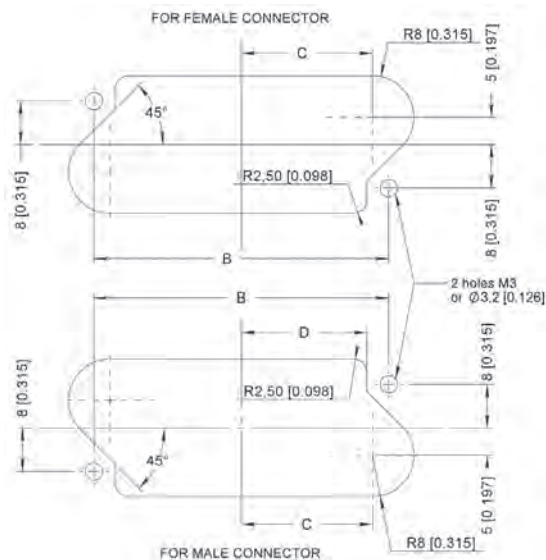
SINGLE SHELL DIMENSIONS



MATED SHELL DIMENSIONS



PANEL CUT OUTS



Contact Arrangement	Plug & receptacle connector dimensions mm(inch)			
	A	B	C	D
08	48.5 (1.909)	37.5 (1.476)	15.75 (0.620)	15.5 (0.610)
14	65 (2.559)	54 (2.125)	24 (0.944)	23.5 (0.925)
24	92.5 (3.641)	81.5 (3.208)	37.75 (1.486)	37.5 (1.476)
32	114.5 (4.507)	103.5 (4.074)	48.75 (1.919)	48.5 (1.909)

Handwritten notes area with horizontal lines.

INTRODUCTION

MCS-R series

The MCSR series connectors are of robust design and available in four contacts arrangements, respectively 28, 48, 83 and 113 wire contacts, size gauge 16.

The same number of micro coaxial contacts can be installed instead of the wired contacts.

A unique feature of the MCSR connector is that it's interchangeable with the B series, but careful it is not intermateable.

The connectors may be adapted with die cast aluminium hoods, with two types of cable entries, either from the top or from the side.

APPLICATIONS

The MCSR connectors are suitable for various applications in the following industrial fields. Communications and automation systems, electronic equipments, in the navy, in the military and in the aerospace applications.

FEATURES

The MCS-R series, plug and receptacle connectors are made of a thermostat insulator moulded onto a stainless steel fixing plate. Four contact arrangements are available, 28, 48, 83 and 113 contacts.

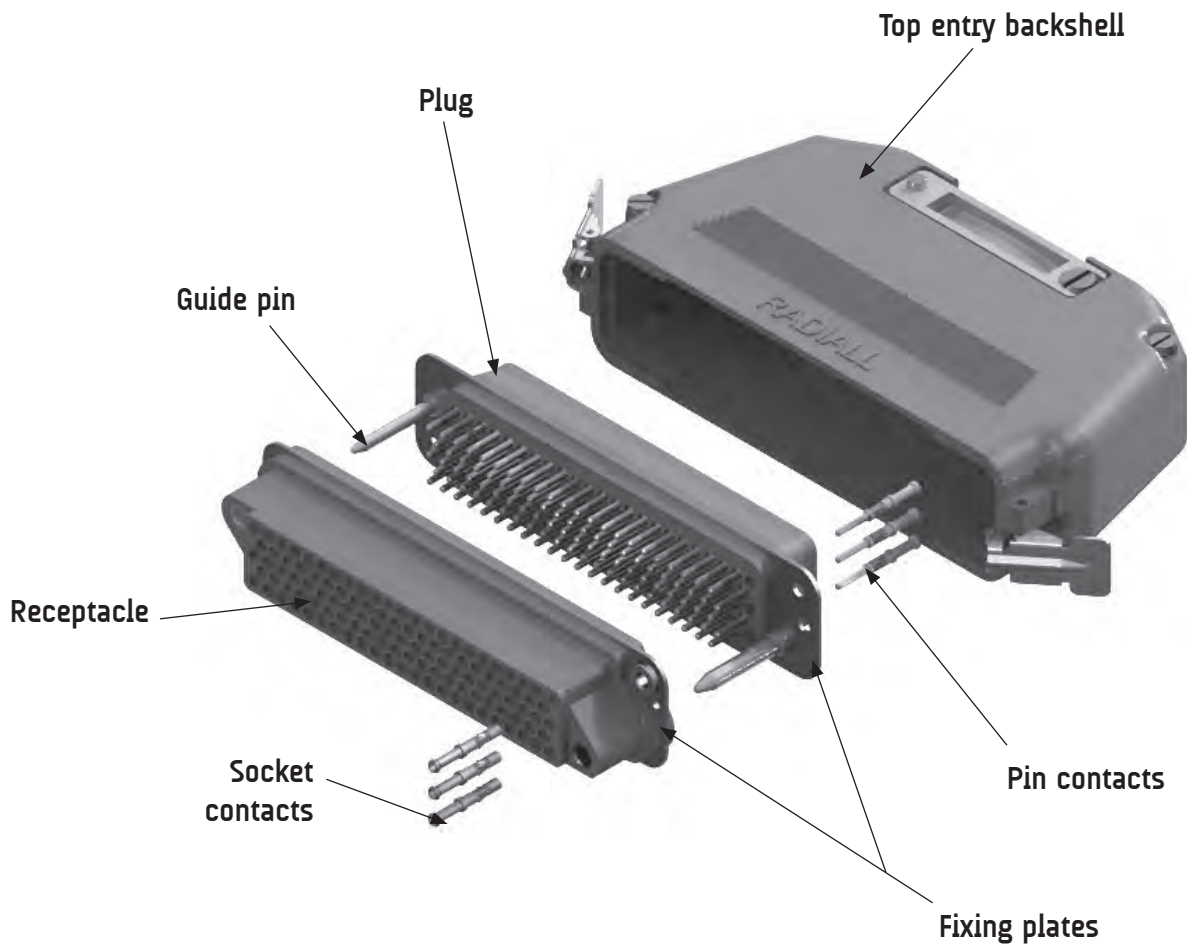
The plug connector is fitted with two guide pins of different diameter, which provides polarization and mate before the contacts ensuring a perfect alignment and reliability. The plug connector accepts socket wire contacts or pin micro coaxial contacts.

The receptacle connector accepts pin wire contacts or socket micro coaxial contacts and is fitted with floating eyelets which allows 0.75 mm radial float.

Three termination styles on the contacts are available, wire contacts with solder pot or crimp for wire size gauge 16 and micro coaxial contacts, crimp style.



Detailed view of the various parts of this series connector.



TECHNICAL CHARACTERISTICS

ELECTRICAL

Current rating by contact: 13 A

Operating voltage: 350 V.r.m.s @ 50 Hz

Test voltage: 1500 V.r.m.s @ 50 Hz

Insulation resistance: > 5000 M Ω

Contact resistance: < 12 m Ω

ELECTRICAL with Micro coaxial contacts

Impedance: 50 Ω

Operating frequency range: 0 to 1000 MHz

VSWR of pair of contacts: < 1.4 from 0 to 1000 MHz

Insertion loss of a pair of contacts @ 1000 MHz: < 0.20dB

Test voltage at sea level (mated pair): 600 V.r.m.s @ 50Hz

Insulation resistance: > 5000 M Ω

Contact resistance: < 12 m Ω

MECHANICAL & ENVIRONMENTAL

Temperature range: -55°C (-131°F) to +125°C (+257°F)

Humidity: 21 days

Mating & unmating: 500 cycles

Contact retention: > 50 N

MATERIALS

Description	Material / Finish
Insulator block	Glass filled phenolic
Guide pins	Stainless steel
Fixing plate	Stainless steel
Contacts	Copper alloy – gold over nickel plated

MASSES g (oz)

Plug				
Contact Arrangement	28	48	83	113
Weight	40 (1.45)	60 (2.15)	90 (3.20)	115 (4.05)
Receptacle				
Contact Arrangement	28	48	83	113
Weight	40 (1.45)	55 (1.95)	85 (3)	110 (3.90)
Backshells				
Side entry	170 (6)	190 (6.70)	265 (9.35)	300 (10.60)
Top entry	180 (6.35)	200 (7.05)	280 (9.90)	320 (11.30)



HOW TO ORDER CONNECTORS

The following is indications to help you out when ordering MCS-R connectors.

When ordering a connector with its locking system VP, brackets fitted on the female connector replace the eyelets, whilst the locking clips are always fitted on the backshell.

Series MCS-R contacts are removable. Contacts shall be ordered separately following the termination style and quantities desired.

For backshells and accessories please refer to page 8-21 to 8-22 for ordering.

For contact references please refer to page 8-18.

MCSR	028	M	00
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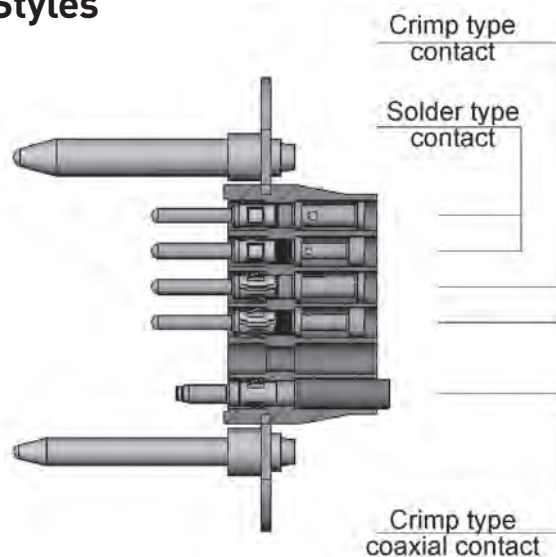
Series prefix _____

Contact arrangement _____
028 – 048 – 083 – 113

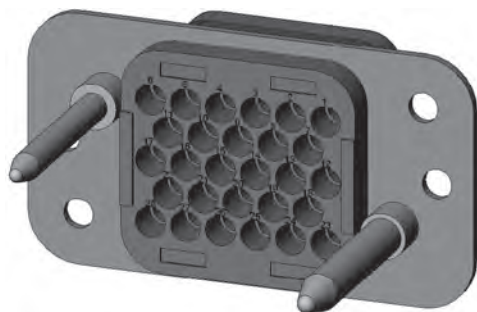
Product type _____
M: plug connector
F: receptacle connector

Modification code _____
00: without locking
VP: brackets for locking system receptacle only (see page 8-19 for detail)

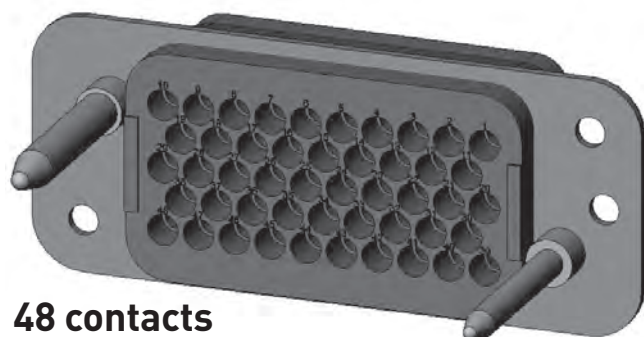
Termination Styles



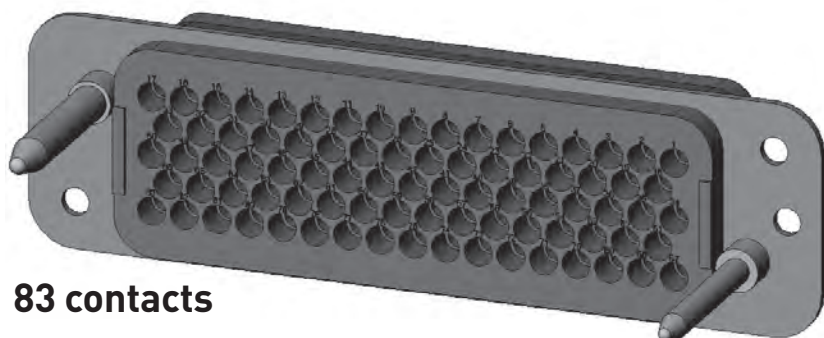
Plug view shown



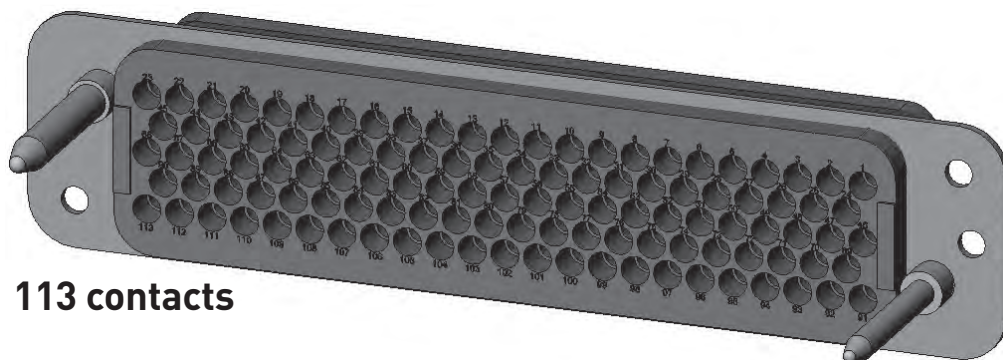
28 contacts



48 contacts



83 contacts

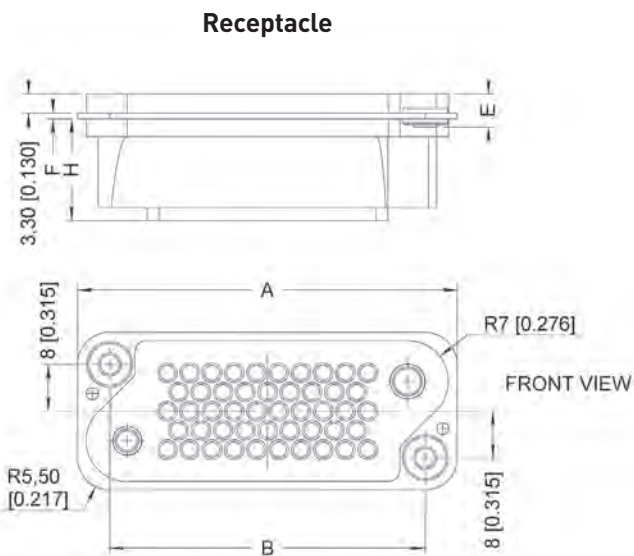
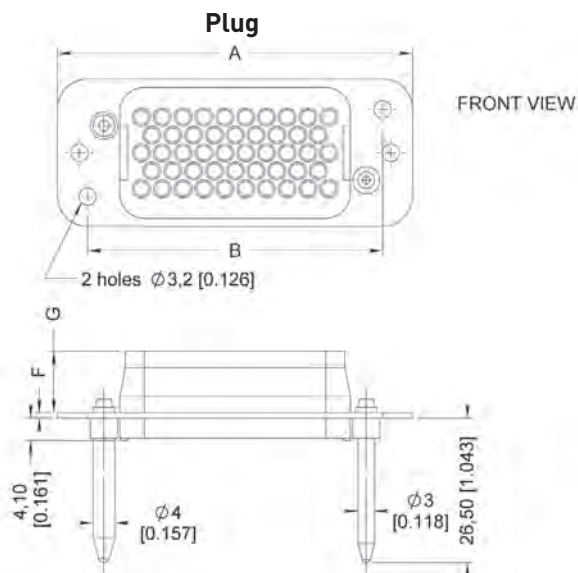


113 contacts

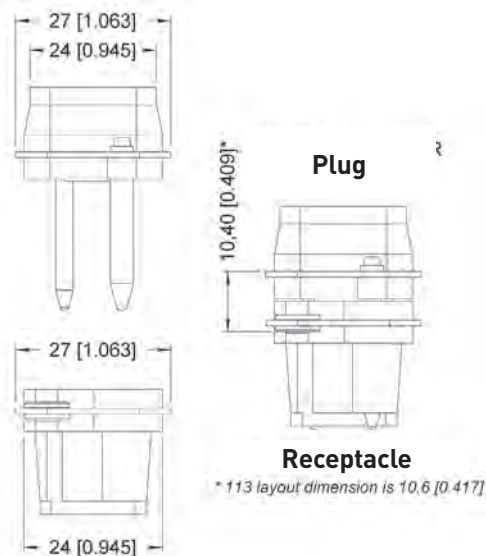
DIMENSIONS

mm(inch)

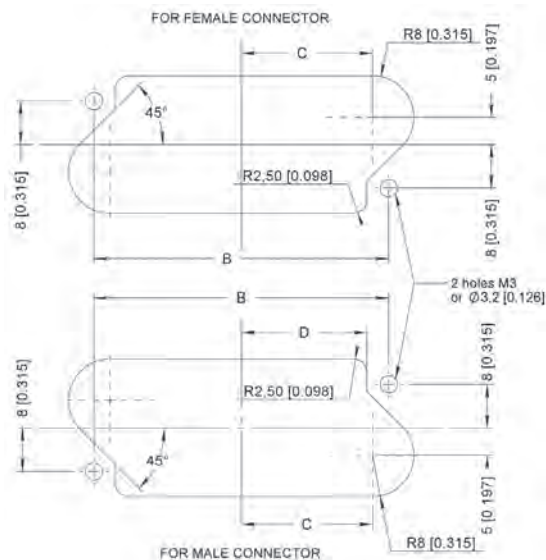
SINGLE SHELL DIMENSIONS



MATED SHELL DIMENSIONS



PANEL CUT OUTS



Contact Arrangement	Plug & receptacle connector dimensions mm(inch)							
	A	B	C	D	E	F	G	H
028	48.5 (1.909)	37.5 (1.476)	15.75 (0.620)	15.5 (0.610)	5.3 (0.209)	1 (0.039)	11.5 (0.452)	17.7 (0.697)
048	65 (2.559)	54 (2.126)	24 (0.945)	23.5 (0.925)	5.3 (0.209)			
083	92.5 (3.642)	81.5 (3.209)	37.75 (1.486)	37.5 (1.476)	5.3 (0.209)			
113	114.5 (4.508)	103.5 (4.075)	48.75 (1.919)	48.5 (1.909)	5.5 (0.217)	1.2 (0.047)	11.3 (0.445)	17.5 (0.689)

MICRO COAXIAL CONTACTS

			Outer conductor Description		Center conductor Description	
Cable type	Type	Part number	Crimping tool	Setting	Crimping Tool	Positionner
RG178 RG196 KX21	Pin	614120	282281 M22520/2-01	1	282292 M22520/4-01	282973 M22520/4-02
	Socket	690020				
RG174 RG188 RG316 KX3 - KX22	Pin	614140	282281 M22520/2-01	2	282292 M22520/4-01	282973 M22520/4-02
	Socket	690040				
AWG26 Twisted pair cable Ø1.1	Pin	614160	282281 M22520/2-01	2	282292 M22520/4-01	282973 M22520/4-02
	Socket	690060				
AWG24 Twisted pair cable Ø1.3	Pin	614170	282281 M22520/2-01	2	282292 M22520/4-01	282973 M22520/4-02
	Socket	690070				

CRIMP WIRE CONTACTS ⁽²⁾

Cable type	Type	Part number	Crimping tool	Positioner	Extraction tool
AWG16 AWG18 AWG20	Pin	614200	282291 M22520/1-01	282975	282920
	Socket	690300			
AWG20 AWG22 AWG24	Pin	614200	282291 M22520/1-01	282976	282920
	Socket	690300			

SOLDER WIRE CONTACTS ⁽²⁾

Cable type	Type	Part number	Extraction tool
AWG16 AWG18 AWG20	Pin	614230	282920
	Socket	614330	
AWG20 AWG22 AWG24	Pin	614240	282920
	Socket	614340	



NOTES:

(1) For other termination please consult us.

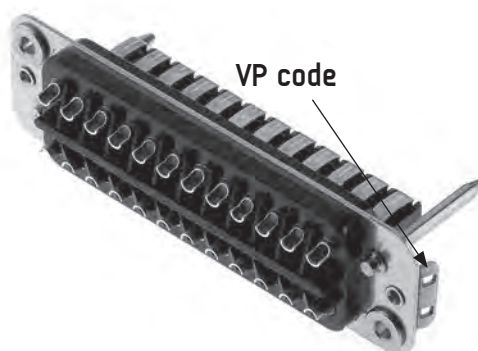
(2) Stripping length for cable types AWG16-18-20 is 6 and for types AWG20-22-24 it is 5.

LOCKING SYSTEM CODE VP

The brackets can only be used on the receptacle connector and enables it to be fastened securely when its mating half is fitted with a hood.

The brackets replace the floating eyelets on the receptacle connector.

On both series B and MCSR when **VP code** is ordered, the corresponding hood must be ordered with the male connector.



B & MCS-R series

Technical drawing of a 100mm wide plate with a central slot. The drawing includes the following dimensions and features:

- Overall Width:** 100 [3.937]
- Top Edge Dimensions:**
 - 5U - 211,50 [8.327]
 - 4U - 167 [6.575]
 - 3U - 122,50 [4.823]
- Bottom Edge Dimensions:**
 - 5 [0.197]
 - 10 [0.394]
 - A
 - 10 [0.394]
 - A
- Central Slot:**
 - Slot width: $\varnothing 3,5$ [0.138]
 - Slot depth: 10 [0.394]
 - Slot shape: U-shaped with rounded ends.
- Other Features:**
 - 50 [1.969] (Top edge thickness)
 - 5 [0.197] (Bottom edge thickness)
 - 10 [0.394] (Slot depth)
 - A (Slot width)
 - M3 (Threaded hole)

Series	
B	
14	

Series		Reference following number of cut outs		
B	MCSR	3 U	4 U	5 U
14	48	PP314	PP414	PP514
24	83	PP324	PP424	PP524
32	113	-	PP432	-
Dimensions A mm (inch)		114.5 (4.508)	139 (5.472)	183.5 (7.224)



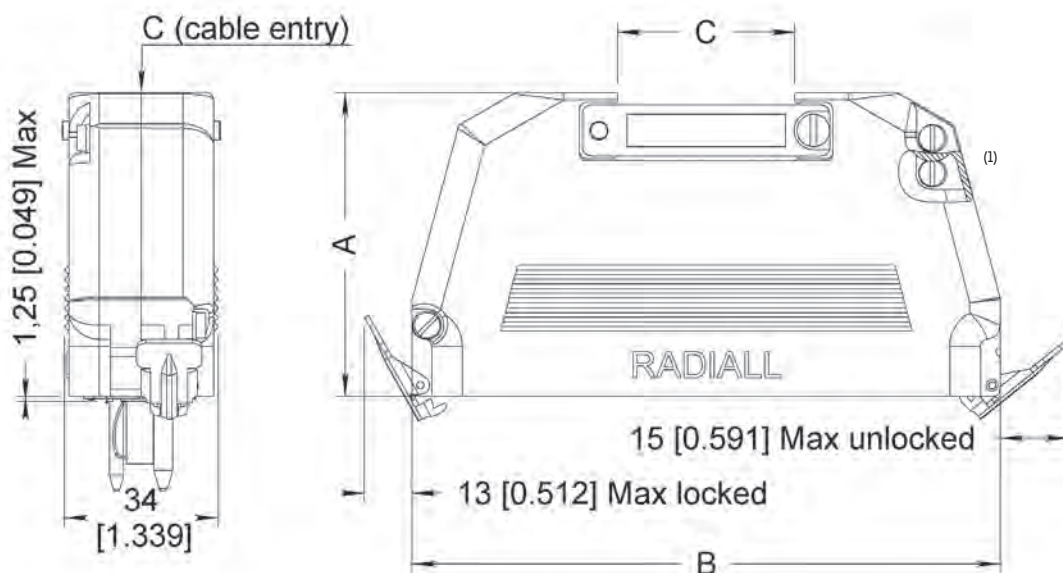
CONNECTORS ACCESSORIES





The backshells for both series B and MCSR are available in four sizes and are supplied in two halves which enables them to be fitted after the wiring of the connectors.

They are available either with TOP or SIDE (45°) cable entry.

Each backshell is fitted with a pair of locking clips, one fixed on each end. This allows the connector backshell assembly to be fastened securely to the mating connector fitted with the VP brackets.

TOP ENTRY

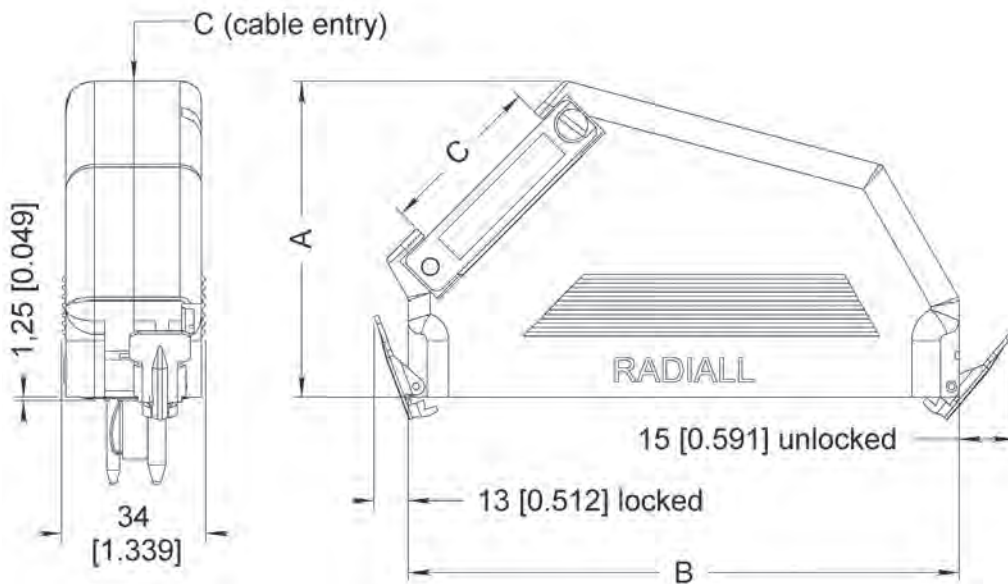






Part number for TOP ENTRY	Number of contacts		B & MCSR dimensions mm (inch)		
	B series	MCSR series	A	B	C
612813	8	28	52.5 (2.067)	60.5 (2.382)	 26 x 10 (1.024 x 0.394)
612823	14	48		77 (3.031)	 26 x 15 (1.024 x 0.591)
612837	24	83	65.5 (2.579)	104.5 (4.114)	 38 x 20 (1.496 x 0.787)
612845	32	113		126.5 (4.980)	 38 x 20 (1.496 x 0.787)

NOTE:

(1) This screw is for grounding purpose.

SIDE ENTRY



Part number for SIDE ENTRY	Number of contacts		B & MCSR dimensions mm (inch)		
	B series	MCSR series	A	B	C
612814	8	28	63 (2.480)	60.5 (2.382)	 26 x 10 (1.024 x 0.394)
612824	14	48		77 (3.031)	 26 x 15 (1.024 x 0.591)
612838	24	83	73 (2.874)	104.5 (4.114)	 38 x 20 (1.496 x 0.787)
612846	32	113		126.5 (4.980)	 38 x 20 (1.496 x 0.787)

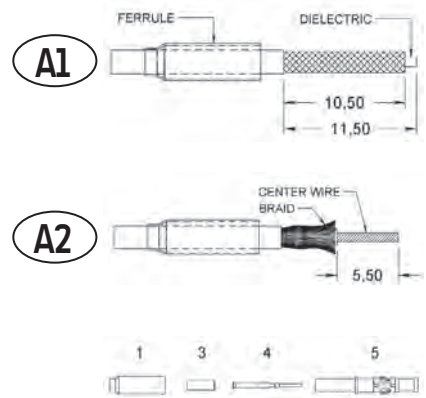
MICRO COAXIAL CONTACTS ASSEMBLY INSTRUCTIONS

Three different modes of assembly are to be considered following the cable type used. The two first assemblies A and B are applicable for braid coaxial cables, whilst the third assembly C is applicable for twin conductor cable. The three mounting procedures are identical for both contact types, pin and socket.

A Mounting procedure coaxial cables

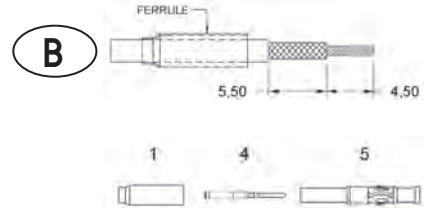
After sliding the ferrule over the cable and stripping the latter to the dimensions shown in A1.

- Comb the braid in opening it up, strip the center wire to the dimension shown in A2.
- Slide the insulator bushing ⁽³⁾ over the dielectric .
- Place the center contact ⁽⁴⁾ over the conductor, the contact must butt against the insulator bushing ⁽³⁾.
- Crimp the center contact with tool 282281.
- Slide the cable and contact into the body ⁽⁵⁾ ensuring that it's pushed home, then trim back the braid over the body ⁽⁵⁾.
- Slide the ferrule over the braid up to the body shoulder.
- Place the assembly into tool 282292 and crimp the ferrule.



B After sliding the ferrule over the cable, strip the latter to dimensions shown in B (mounting of coaxial contacts without insulator bushing).

- Comb the braid and place the center contact over the conductor butting it against the dielectric.
- Place the sub assembly into tool 282281 and crimp the center contact.
- The following steps are identical to those indicated in A.

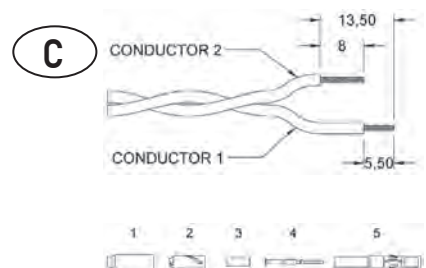


C Micro coaxial contacts with twin conductor cable

After sliding the ferrule over the twin conductors and stripping them to dimensions shown in C.

Note: conductor 1 is for the centre contact, whilst conductor 2 is for earthing.

- Slide the adaptor 2 and the insulator bushing ⁽³⁾ over conductor 1.
- Place the center contact ⁽⁴⁾ over the conductor, butting it against the sheath.
- Place the sub assembly into tool 282281 and crimp the centre contact.
- Slide the cable and contact into the body ⁽⁵⁾, ensuring that its home.
- Slide the adaptor 2 onto the body ⁽⁵⁾ against the shoulder.
- Place conductor 2 into the helical slot.
- Slide the ferrule over the adaptor and conductor 2, up to the shoulder of the body ⁽⁵⁾.
- Place the assembly into tool 282292 and crimp the ferrule.



NOTES:

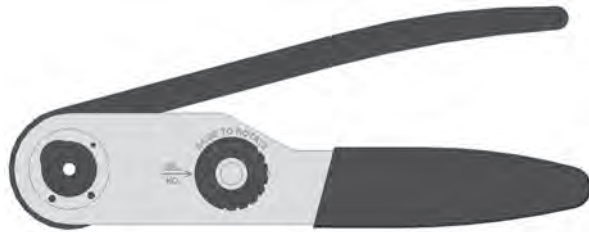
- 1: Ferrule
- 2: Twisted pair adaptor
- 3: Insulating bush
- 4: Socket or pin contact
- 5: Contact body

Crimp tools

282281 – M22520/2-01

282291 – M22520/1-01

282292 – M22520/4-01



Positioners

282973 – M22520/4-02

282976 – Daniels TP616

282975 – Daniels TP617



Extraction tool

282920



NOTES

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