



## BANANA PLUGS

R644/R921/R929/R941/R948/R995/R999



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Introduction

**INTRODUCTION**

With over 60 years of experience and continuous efforts in R&D, Radiall has become Europe’s number one source for coaxial connectors. Radiall’s position as a market leader has enabled the company to excel in the passive microwave component field for more than 50 years. Radiall’s expertise in design, development and manufacturing of passive microwave components is widely acknowledged in today’s industry.

Radiall's professional banana plugs consist of two major series and adapters:

**THE 4 MM SERIES**

- Safety plugs and sockets
- Safety patch cords
- Standard plugs and sockets
- Standard patch cords
- Accessories

**THE 2 MM SERIES**

- Plugs and sockets
- Patch cords
- PCB test points
- 20-way fixed connector
- Short circuit links
- Contact block and ribbon patch cords
- Accessories

**ADAPTERS**

- 2 mm / 4 mm banana adapter
- BNC / 2 mm banana adapter
- BNC / 4 mm banana adapter
- Banana adapter patch cord
- Coaxial banana adapter patch cord



**APPLICATIONS**

- Research institutes and laboratories
- Education
- Instrumentations
- Low voltage
- Electronics
- Engineering



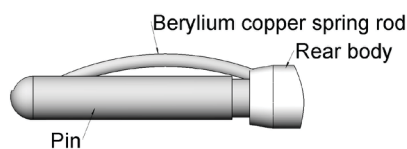
## Introduction

### FEATURES & BENEFITS

Radiall's in-house technologies ensure high reliable product solutions due to its expertise and advanced design technology.

Radiall's contacts consists of a monobloc pin fitted with a copper beryllium spring finger. Depending on the model, the pin may or may not have a protective sleeve.

	4 MM SERIES	1 MM SERIES
Contact Resistance	0.5 mΩ	1mΩ
Current Rating, Max @ 20 °C	30 A	10 A
Contact Durability, Min.	10,000 mating cycles	



### BENEFITS





- Excellent electrical conduction
- Very low contact resistance
- Robust contact point pressure when connected
- High durability for high number of mating cycles

### GLOSSARY OF ABBREVIATIONS








ABBREVIATION SERIES		DESTINATION
4 mm	2 mm	
B1	BL-I	Insulated Plug with Solder Connection
B2		Insulated Plug with Crimp or Solder Connection
	BL-PI	Insulated Panel Plug
B4	BL	Uninsulated Plug
	BL2-4	Uninsulated Threaded Plug
	BLP-4	Uninsulated Panel Plus with Solder Connection
DPI	DL-PL	Insulated Panel Socket
DPIS		Insulated Safety Panel Socket
DP	DLP	Uninsulated Panel Socket
	BLP D-2	Uninsulated Panel Plug / 2 mm dia. Socket
BDR-4	BDR-2	Stackable Plug with Quick Grip Cable Clamp
BDR-SR		Stackable Plug, Partial Safety
BDR-PR		Stackable Plug, Partial Safety Non-Thermofusible Sleeve
BDM	BLDM	Stackable Patch Cord
BDSA		Stackable Patch Cord, Total Safety
BDSR		Stackable Patch Cord, Partial Safety
BM	BLM	Extension Patch Cord
DM	DLM	Extension Female Patch Cord
PTM		Test Probe Patch Cord
	FL	Contact Block
	ML	Ribbon Patch Cords

Introduction

FINDER GUIDE

SERIES	IMAGE	CATEGORY	DESCRIPTION	PAGE	
4 mm		Safety Series	Banana Plugs	Stackable Plug (BDR-SR)	25-8
			Panel Sockets	Insulated Safety Panel Socket (DPIS)	
		Patch Cords	Plug/Plug Stackable, Retractable Sleeve (BDSR)	25-11	
			Patch Cords Made to Order		
		Standard Series	Banana Plugs	Uninsulated Plug (B4)	25-12
				Insulated Plug with Solder Connection (B1)	
				Insulated plug with Crimp or Solder Connection (B2)	
				Stackable Plug with Quick Grip Cable Clamp (BDR-4)	
		Panel Sockets	Uninsulated Panel Sockets (DP)	25-13	
			Insulated Panel Sockets (DP)		
Patch Cords		BM/BM Extension Patch Cords	25-14		
		BDM/BDM Stackable Patch Cords			
	PTM/BM Test Probe Patch Cords				
	Accessories	Test Clip - with Flexible Steel Rod	25-16		
		Safety Test Probe			
		Safety Female - Female Adapter			
2 mm		Standard Series	Banana Plugs	Uninsulated Plug with Crimp or Solder Connection (BL)	25-21
				Uninsulated Panel Plug with Solder Connection (BLP-4)	
				Uninsulated Panel Plug / 2 mm dia. Socket (BLP D-2)	
				Insulated Plugs with Solder Connection (BL-I)	
				Insulated Panel Plug (BL-PI)	
	Panel Sockets	Stackable Plug with Quick Grip Cable Clamp (BDR-2)	25-22		
		Uninsulated Panel Sockets (DLP)			
	Patch Cords	Insulated Panel Sockets (DL-PI)	25-23		
		BLM Extension Patch Cords			
		BLDM Stackable Patch Cords			
Patch Cords Made to Order					

Introduction

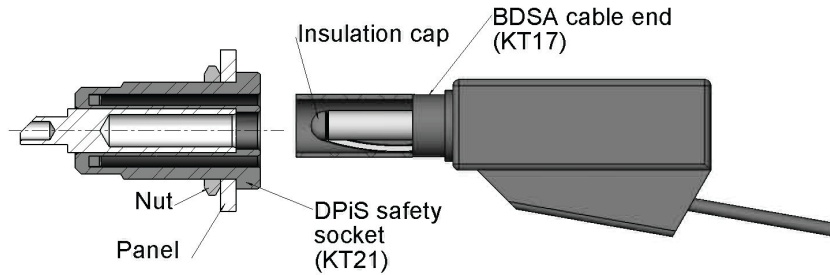
SERIES	IMAGE	CATEGORY		DESCRIPTION	PAGE	
2 mm		Standard Series	Multi-Contact 20-Way Fixed Connectors	Solder Cup - 12 mm Contact Pitch	25-24	
				Solder Cup - 6 mm Contact Pitch		
				Pin - 12 mm Contact Pitch		
				Pin - 6 mm Contact Pitch		
		Standard Series	Short Cut Circuit	12 mm Contact Pitch		
				6 mm Contact Pitch		
		Contact Blocks and Ribbon Patch Cords	Contact Blocks	Male Contact Blocks (FL M) Female Contact Blocks (FL F)		25-25
			Patch Leads	Male - Male Ribbon Patch Cords (ML MM) Female - Female Ribbon Patch Cords (ML FF)		
		Accessories		PCB Test Socket		25-26
				Test Probe		
Adapters		Banana Adapters	Banana Adapters	2 mm Male - 4 mm Female BNC / 2 mm Banana Adapter	25-28	
			BNC/Banana Adapters	BNC / 4 mm Banana Adapter		
		Banana Adapters Patch Cords		BLM/BM	25-29	
				BLDM/BDM		
		Coaxial Patch Cords		BLM/DM		
				BNC/BCX		

## INTRODUCTION

### 4 MM SAFETY SERIES

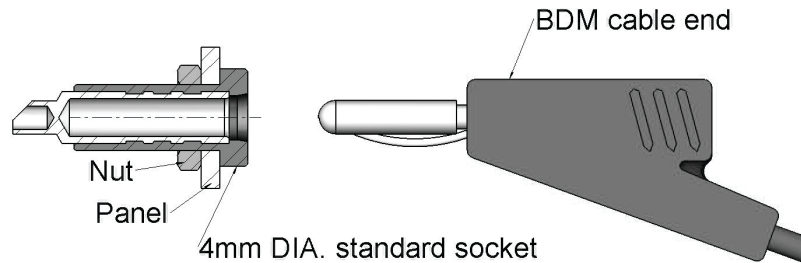
Due to safety being an important criteria when using test and measurement instrumentation, especially for high voltage use, Radiall developed the 4 mm Safety Series, which offers an improved protection system that eliminates all risk of contact with live elements when handling components.

Safety connectors are reinforced by a protective sleeve and an insulation cap on the top of the contact. The protective sleeve may be retractable or non-retractable. All plugs with non-retractable sleeves are rated at 600 V, CAT III or 1,000 V, CAT II according to the safety standard IEC 61010-031 version 2002.



### 4 MM STANDARD SERIES

The 4 mm Standard Series meets the requirements of NF C 93 440 standards. The product in this series are not intended for hand-held use at voltage above 30 Vac / 60 Vdc.



*Example of a Regular Connection: The Contact is Exposed.*

### ACCESSORIES: TEST CLIPS

- With sliding hook: The contact hook guarantees a good grip on wires, components and PCB pin up to 1.5 mm<sup>2</sup> thick.
- Alligator Test Clips: Features a large opening and gripping efficiency for use on motors, fuse holders, terminals, etc.
- Flexible Steel Rod Test Clips: The thin flexible steel rod allows testing of hard-to-reach points in dense circuitry.
- Crocodile Test Clips: Features a large 20 mm opening to allow attachment to larger test points.
- Safety Test Probe: An extra thin probe allows contact through coatings and some insulations. It can also be used for PCB measurements. Fitted with a rear-mounted 4 mm socket, it can be used with BM patch cords.



## 4 mm Series

## CHARACTERISTICS

	PLUGS	SOCKETS	PATCH CORDS
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## ELECTRICAL CHARACTERISTICS

<b>Current Rating, Max.</b> • 4 mm Safety • 4 mm Standard	30A (@ 20C)	15 A (@ 20C) Patch Cords 1 mm <sup>2</sup> 15 A (@ 20C) Patch Cords 1 mm <sup>2</sup> 30 A (@ 20C) 2 an 2.5 mm <sup>2</sup>	
<b>Dielectric Withstanding Voltage</b>	2,500 Vrms @ 50 Hz		
<b>Operating Voltage</b>	750 Vrms @ 50 Hz		
<b>Insulation Resistance, Min.</b>	5000 MΩ		
<b>Contact Resistance, Max.</b>	0.5mΩ	-	

## MECHANICAL CHARACTERISTICS

<b>Mechanical, Durability, Min.</b>	10,000 matings		
<b>Average Insertion Force</b>	25 N		
<b>Tightening Torque</b> • 4 mm Safety • 4 mm Standard	-	Max 140 N.cm 120 N.cm	-

## ENVIRONMENTAL CHARACTERISTICS

<b>Temperature Range</b> • 4 mm Safety • 4 mm Standard	-40 °C / +85 °C	-40 °C / +100 °C	BDSR Patch Cords -40 °C / +85 °C BDSA Patch Cords -25M °C / +70 °C
<b>Damp Heat</b>	(Uninsulated) -65 °C / +155 °C (Insulated Models) -60 °C / +100 °C		-40 °C / +70 °C

## MATERIALS

<b>Insulation</b>	Thermoplastic
<b>Contacts</b>	Nickel or Tin Plated Copper Alloy/Brass

## CHARACTERISTICS ACCESSORIES

	WITH SLIDING HOOK	WITH ALLIGATOR CLIP	WITH FLEXIBLE STEEL RODS	WITH CROCODILE DIE	SAFETY TEST PROBE
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## ELECTRICAL CHARACTERISTICS

<b>Operating Voltage, Max.</b>	1,000 Vrms				1,500 Vrms
<b>Current Rating Max</b>	4 A (@20C)	2.5 A	32 A	32 A	-
<b>Clip Opening (Max)</b>	1.5 mm (Max Hooking Capacity)			20 mm	

## MATERIALS

<b>Body</b>	Thermoplastic	
<b>Contact</b>	Stainless Steel	Steel

## PACKAGING

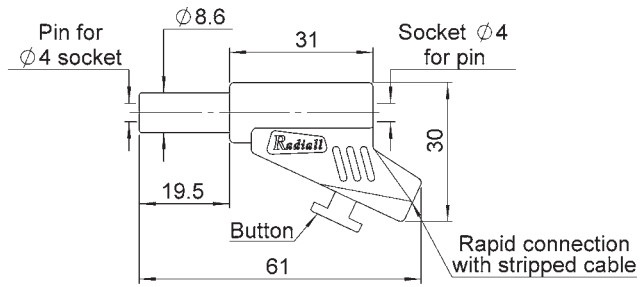
	2 mm Safety Series	4 mm Standard Series
<b>Plugs</b>	10 Pieces	100 Pieces
<b>Panel sockets</b>		100 Pieces
<b>Patch cords</b>		10 Pieces
<b>Accessories</b>		10 Pieces

4 mm Series

**SAFETY SERIES**

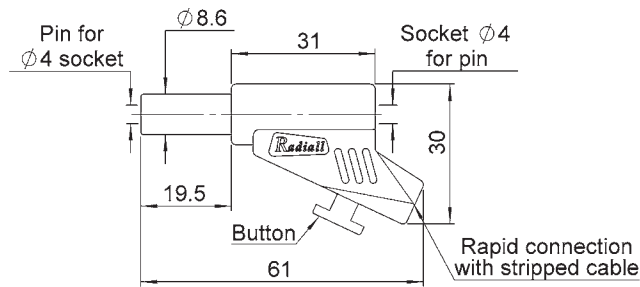
**PLUGS**

**Stackable Plug, Partial Safety (BDR-SR)**



PART NUMBER	COLOR	STANDARD
R941 460 600	Black	NFC 93440-KT12R
R941 461 600	Red	
R941 462 600	Green	
R941 463 600	Blue	
R941 464 600	Yellow	

**Stackable Plug, Partial Safety-Non-Thermofusible Sleeve (BDR-PR)**



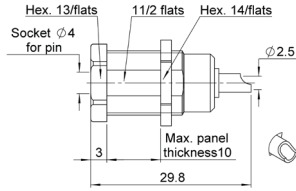
PART NUMBER	COLOR	STANDARD
R941 480 600	Black	NFC 93440-KT12R DCN 5935 BA
R941 481 600	Red	

4 mm Series

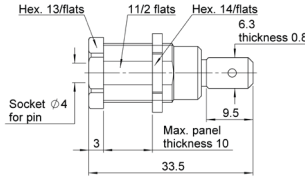
**SOCKETS**

**Insulated Safety Panel-Mount Sockets (DPIS)**

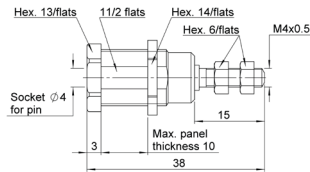
Insulated safety panel sockets are mateable with standard 4 mm BM/BDM patch cords and BDSR/BDSA safety patch cords.



PART NUMBER	COLOR	TERMINATION	STANDARD	PANEL DRILLING
R941 920 600	Black	Solder Cup	NFC 93440-KT21F	P05
R941 921 600	Red			
R941 922 600	Green			
R941 923 600	Blue			
R941 924 600	Yellow			



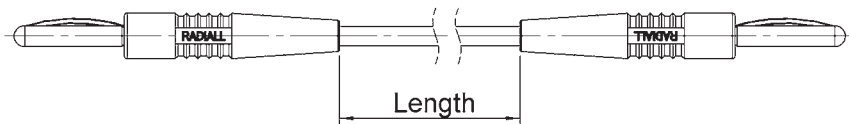
PART NUMBER	COLOR	TERMINATION	STANDARD	PANEL DRILLING
R941 920 602	Black	Flat for FASTON Lug Type	NFC 93440-KT21L	P05
R941 921 602	Red			



PART NUMBER	COLOR	TERMINATION	STANDARD	PANEL DRILLING
R941 920 603	Black	For Fork Lug	NFC 93440-KT21V	P05
R941 921 603	Red			
R941 924 603	Yellow			

**PATCH CORDS**

Except where specified, all patch cords lengths are defined by the length of the cable without connectors or strain relief.



Radiall Patch Cord Series includes:

- BDSR/BDSR: Retractable sleeve for partial security
- Patch Cords Made-To-Order

4 mm Series

**PATCH CORDS**

**Plug/Plug Stackable Patch Cords - Retractable Sleeve (BDSR/BDSR)**

Cable Type:

- PVC, 1 mm<sup>2</sup> conductor, 3.5mm insulation
- PVC, 2 mm<sup>2</sup> conductor, 3.5 mm insulation
- Silicone, 2.5 mm<sup>2</sup> conductor, 4 mm insulation



R948 1 6

**PATCH CORDS LENGTH**

- 3:** 25 cm
- 4:** 50 cm
- 5:** 100 cm
- 6:** 150 cm
- 7:** 200 cm

**CABLE TYPE**

- 00:** PVC 1 mm<sup>2</sup> 3.5 mm
- 02:** PVC 2 mm<sup>2</sup> 3.5 mm
- 29:** Silicone 2.5 mm<sup>2</sup> 4 mm

**COLOR**

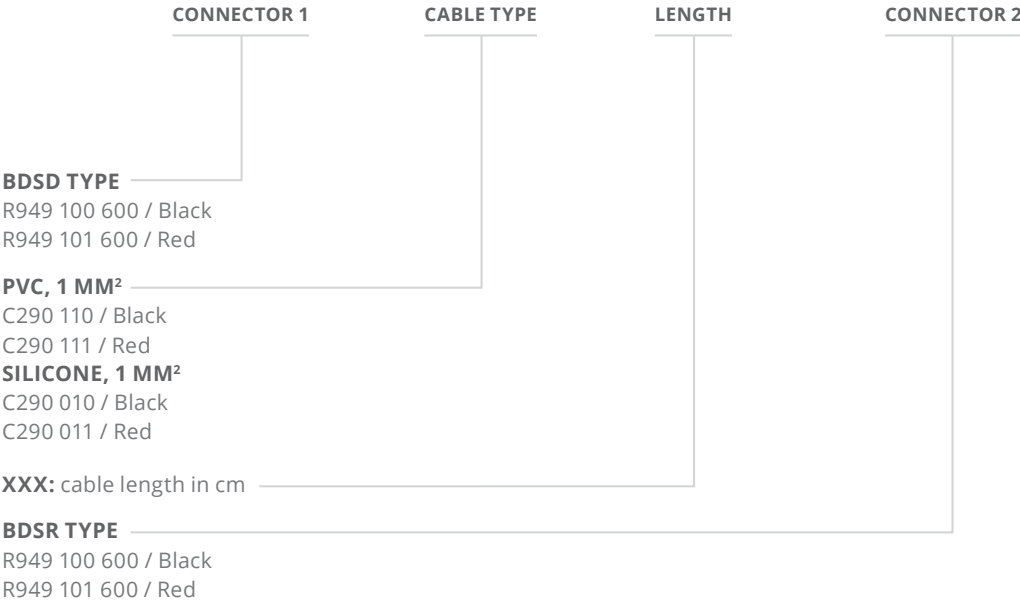
- 0:** Black
- 1:** Red

4 mm Series

Made-To-Order Patch Cords

Customized patch cords using BDSR plugs can be made-to-order to meet your specifications. Choices include connector style, cable type, color, and cable length.

HOW TO ORDER



EXAMPLE TO ORDER

1 Black BDSR Plug / Red Silicone 1 mm<sup>2</sup> Cable Length 125 cm / 1 Red BDSR Plug.  
Part Number: R949 100 600 / C290 011-125 cm / R949 100 600

Notes

- 1. For other options, please contact your local representative
- 2. Refer to the table below to select your insert class:

4 mm Series

**STANDARD SERIES  
PLUGS**

**Uninsulated Banana Plugs**

FIGURE	PART NUMBER	DESCRIPTION	PANEL DRILLING
	R941 019 000	Solder or Crimp 15 mm Solder Post Strip Length: 5 mm Crimp Tool: Buchanan R612 548 000 Positioner Radiall R282 561 000 Crimp Setting: 1.20 (18 AWG) 1.08 (22 AWG) Maxi 15 A	-
	R941 029 000	Solder or Crimp 2 mm Solder Post Strip Length: 5 mm Crimp Tool: Buchanan R612 548 000 Positioner Radiall R282 561 000 Crimp Setting: 1.50 (14 AWG) 1.25 (18 AWG)	-
	R941 049 000	Threaded Panel Connection 8 mm Rear Length	P03
	R941 069 000	Threaded Panel Connection 18 mm Rear Length	P03
	R941 149 000	Panel Banana Plug 4 mm with Rear Socket for Mating with 4 mm Plug	P01

4 mm Series

Insulated Banana Plugs

FIGURE	PART NUMBER	COLOR	DESCRIPTION
	R941 460 000	Black	Stackable Banana with Quick-Grip Clamp for Stripped Cable 2 and 4 mm Socket for Banana Plugs
	R941 461 000	Red	

SOCKETS

Uninsulated Panel Sockets (DP)

FIGURE	PART NUMBER	DESCRIPTION	PANEL DRILLING
	R941 619 000	Solder Cup Cup Tripping Dimension 4 mm (14 AWG)	P01
	R941 629 000 (Nickel Plated Version)		

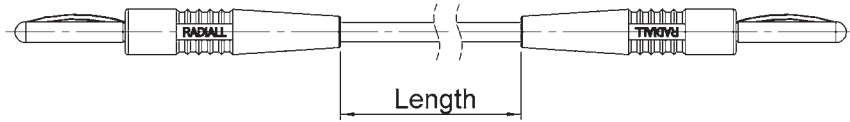
Insulated Panel Sockets (DPI)

FIGURE	PART NUMBER	COLOR	DESCRIPTION	PANEL DRILLING
	R941 920 001	Black	Tin-Plated Solder Cup UL 94V-0 Thermoplastic Insulation	P06
	R941 921 001	Red		
	R941 922 001	Green		
	R941 923 001	Blue		
	R941 924 001	Yellow		
	R941 926 001	White		

4 mm Series

**PATCH CORDS**

Except where specified, all patch cords lengths are defined by the length of the cable without connectors or strain relief.



Radiall Patch Cord Series includes:

- **BM/BM:** Molded extension patch cords
- **BDM/BDM:** Molded stackable patch cords
- **PTM/BM:** Molded test probe patch cords
- Patch cords made-to-order

**Extension Patch Cords (BM/BM)**

Cable Type: PVC, 1 mm<sup>2</sup> conductor, 3.5 mm insulation



R948 0 000

**PATCH CORDS LENGTH**

- 3: 25 cm
- 4: 50 cm
- 5: 100 cm
- 6: 150 cm
- 7: 200 cm

**COLOR**

- 0: Black
- 1: Red
- 2: Green
- 3: Blue

**Stackable Patch Cords (BDM/BDM)**

Cable Type:

- PVC, 1 mm<sup>2</sup> conductor, 3.5 mm insulation
- PVC, 2 mm<sup>2</sup> conductor, insulation
- Silicone, 2.5 mm<sup>2</sup> conductor, 4 mm insulation



R948 1 0

**PATCH CORDS LENGTH**

- 3: 25 cm
- 4: 50 cm
- 5: 100 cm
- 6: 150 cm
- 7: 200 cm

**CABLE TYPE**

- 00: PVC 1 mm<sup>2</sup> 3.5 mm
- 02: PVC 2 mm<sup>2</sup> 3.5 mm
- 29: Silicone 2.5 mm<sup>2</sup> 4 mm

**COLOR**

- 0: Black
- 1: Red
- 2: Green
- 3: Blue
- 4: Yellow



4 mm Series

**Test Probe Patch Cords (PTM/BM)**

Cable Types: PVC, 1 mm<sup>2</sup>, 3.5 mm insulation



PART NUMBER	COLOR	CORD LENGTH
R948 250 000	Black	100 cm
R948 251 000	Red	100 cm

**Made-To-Order Patch Cords**

The series comprises the following extremities: BM, BDM, DM. Choices include connector style, cable type, color, and cable length.

**HOW TO ORDER**

CONNECTOR 1	CABLE TYPE	LENGTH	CONNECTOR 2
<p><b>BM TYPE</b> R949 000 / Black R949 001 / Red R949 003 / Blue</p> <p><b>BDM TYPE</b> R949 100 / Black R949 101 / Red</p> <p><b>DM TYPE</b> R949 500 / Black R949 501 / Red</p>	<p><b>PVC 1 MM<sup>2</sup> CROSS SECTION:</b> C 290 11x x=0: Black, 1: Red, 2: Green, 3: Blue, 4: Yellow</p> <p><b>PVC 2 MM<sup>2</sup> CROSS SECTION:</b> C 290 10x x=0: Black, 1: Red, 2: Green, 3: Blue, 4: Yellow</p>	<p><b>XXX CM:</b> over cable length in cm</p>	
<p><b>BM TYPE</b> R949 000 / Black R949 001 / Red R949 003 / Blue</p> <p><b>BDM TYPE</b> R949 100 / Black R949 101 / Red</p> <p><b>DM TYPE</b> R949 500 / Black R949 501 / Red</p>			

**FOR FREE END:** Please write the word "free"

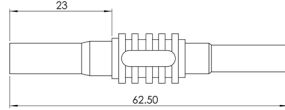
**EXAMPLE TO ORDER**  
1 Black BDSR Plug / Green PVC 1 mm<sup>2</sup> with 80 cm / 1 Red BDM Plug.  
Part Number: R949 100 / C290 012-80 cm / R949101

4 mm Series

**ACCESSORIES**

**FEMALE / FEMALE ADAPTERS**

These adapters allow for the connection between two standard patch cords with BM extremities.



PART NUMBER	COLOR
R941 960 600	Black
R941 961 600	Red

**TEST CLIPS**

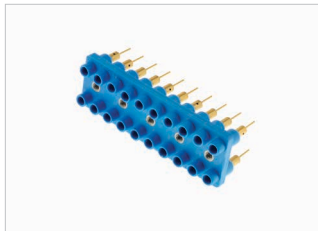
FIGURE	DESCRIPTION	PART NUMBER	COLOR	SERIES
	With Sliding Hook	R999 700 600	Black	4 mm Safety Series
		R999 701 600	Red	
	With Flexible Steel Rod Test Clip	R999 720 600	Black	4 mm Safety Series
		R999 721 600	Red	
	Safety Test Probe	R941 850 000	Black	4 mm Standard Series
		R941 851 000	Red	

## 2 mm Series

**INTRODUCTION**

Radiall's high-quality and reliable 2 mm Series are designed for high-density test and measurement applications. This series includes a wide range of plugs, sockets, patch cords, test accessories, multiway connectors, short-circuit link, and other configurations.

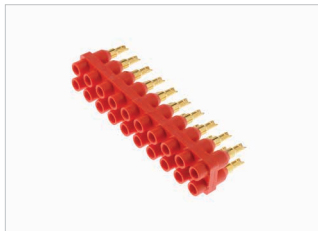
- Plugs
- Patch cords
- 20-way fixed connector
- Contact block and ribbon patch cords
- Sockets
- PCB test points
- Short circuit links
- Accessories

**20-WAY FIXED CONNECTORS**

These connectors contain twenty 2 mm sockets molded into a low-profile housing. The tight pitch between sockets makes them particularly suitable for use in circuit breakers and test batteries.

**ADVANTAGES**

- *Quick assembly time with single mounting operation for multi-connections*
- *Space savings*
- *Simplified panel piercing*
- *Orientation of solder shafts*



Has the potential to be able to remove the cable harness without disconnecting each socket.

**SHORT-CIRCUIT U LINKS**

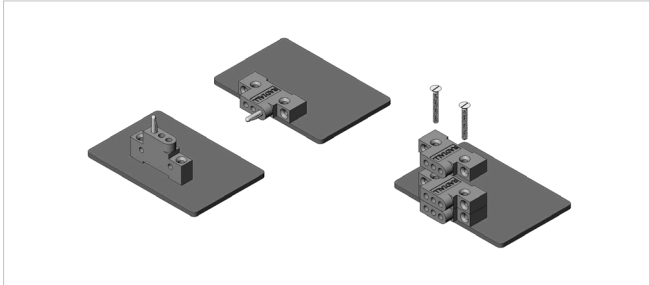
The short-circuit U link is a complementary component to the 20-way fixed connector and can be used to make shunts. It is fitted with a rear-mounted 2 mm socket.

## 2 mm Series

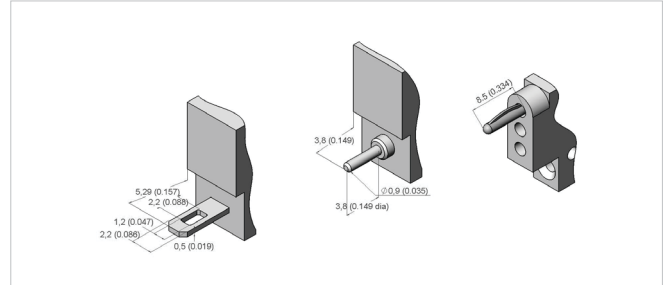
## 2 MM CONTACT BLOCKS &amp; RIBBON PATCH CORDS SERIES

This series includes:

Contact blocks and ribbon patch cords.



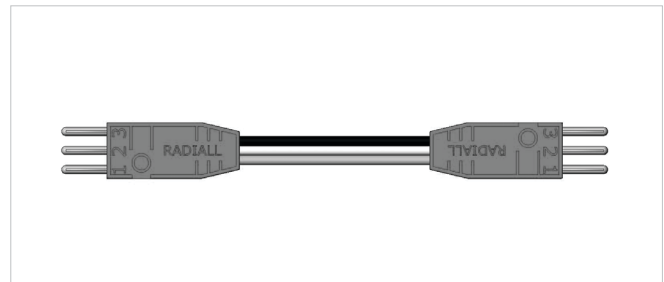
Dimensions of contact outlets and projections.



## RIBBON PATCH CORDS

The contact blocks can mate with ribbon patch cords, which have:

- Excellent contact
- Sturdy construction
- Contact polarization options
- Low bulk
- High retention



They can be used for several field applications such as: electronics, laboratories, education and telecommunications.

## PCB TEST SOCKET ACCESSORIES

Test sockets simplify testing and maintenance of equipment where direct contact with components should be avoided.

- **Test Socket entrax 10.16 mm:** This model, with the particular disposition of the pins, allows the immobilization on the circuit board. This version is particularly adapted for a wave soldering operation.
- **Test Socket entrax 5.08 mm:** This test socket is made up of a joined spiral spring with a nickel over plated protection.

## TEST PROBE ACCESSORIES

An extra thin probe allows contact through coatings and some insulations. It can also be used for PCB measurements. They are fitted with a rear-mounted 2 mm socket and can be used with BLM and BLDM patch cords.

## 2 mm Series

## CHARACTERISTICS

	PLUGS	SOCKETS	PATCH CORDS
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## ELECTRICAL CHARACTERISTICS

Current Rating, Max.	10 A (@ 20 °C)	PVC Cable 0.3 mm <sup>2</sup> Section 5 A (@ 20 °C)	
Dielectric Withstanding Voltage	1500 Vrms @ 50 Hz		
Operating Voltage	250 Vrms @ 50 Hz		
Insulation Resistance, Min.	5,000 mΩ		
Contact Resistance, Max.	1 mΩ	-	

## MECHANICAL CHARACTERISTICS

Mechanical, Durability, Min.	10,000 Matings		
Average Insertion Force	14 N		

## ENVIRONMENTAL CHARACTERISTICS

Temperature Range	Uninsulated -65 °C / +155 °C Insulated Models -60 °C / +100 °C	-40 °C / +70 °C
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## MATERIALS

Insulation	Thermoplastic		
Contacts	Nickel or Tin Plated Copper Alloy/Brass		

## ELECTRICAL CHARACTERISTICS

	20-WAY FIXED CONNECTOR	SHORT-CIRCUIT U LINKS
Current Rating, Max.	7 A (@ 20 °C)	
Dielectric Withstanding Voltage	2,000 Vrms 50 Hz	
Operating Voltage	500 Vrms 50 Hz	
Insulation Resistance	5,000 mΩ	

## MECHANICAL CHARACTERISTICS

Mechanical, Durability, Min.	10,000 Matings		
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## ENVIRONMENTAL CHARACTERISTICS

Temperature Range	-40 °C / +125 °C	-40 °C / +70 °C
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## MATERIAL

Insulation	Self-Extinguishable PBT UL 94V0	PVC
Contacts	Brass with Gold Plating	Brass/Bronze

2 mm Series

**CONTACT BLOCKS & RIBBON PATCH CORDS**

**ELECTRICAL CHARACTERISTICS**

<b>Current Rating, Max.</b> • Contact Blocks • Ribbon Patch Cords	7 A (@ 20 °C) 5 A (@ 20 °C)
<b>Dielectric Withstanding Voltage</b>	1,500 Vrms @ 50 Hz
<b>Operating Voltage</b>	250 Vrms @ 50 Hz
<b>Insulation Resistance (Insulated Models)</b>	5,000 MΩ
<b>Contact Resistance</b>	1 mΩ

**MECHANICAL CHARACTERISTICS**

<b>Endurance</b>	> 10,000 Matings
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**ENVIRONMENTAL CHARACTERISTICS**

<b>Temperature Range</b> • Contact Blocks • Ribbon Patch Cords	-65 °C / +120 °C -40 °C / +85 °C
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**MATERIALS**

<b>Insulation</b>	Thermoplastic
<b>Body</b>	Nickel or Tin Plated (Solder Connection) Copper Alloy / Brass

**ACCESSORIES**

**ELECTRICAL CHARACTERISTICS**

	<b>PCB TEST SOCKETS</b>	<b>TEST PROBE</b>
<b>Dielectric Withstand Voltage</b> • Extra 10.16 Model • Other Models	1,500 Vrms 50 Hz 1,000 V	1,000 Vrms -
<b>Operating Voltage</b>	250 Vrms 50 Hz	250 Vrms 50Hz

**MECHANICAL CHARACTERISTICS**

<b>Insulation Resistance</b>	10,000 MΩ	5,000 MΩ
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**ENVIRONMENTAL CHARACTERISTICS**

<b>Operating Temperature</b>	-40 °C / +100 °C	-25 °C / +70 °C
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**PACKAGING**

<b>Plugs</b>	100 Pieces (Except BDR-2 = 10 Pieces)
<b>PCB Test Sockets</b>	100 Pieces
<b>Patch Cords</b>	10 Pieces
<b>20-Way Fixed Connector</b>	1 Piece
<b>Short-Circuit U Links</b>	100 Pieces
<b>PCB Test Sockets</b>	100 Pieces
<b>Test Probe</b>	10 Pieces
<b>Contact Blocks</b>	50 Pieces
<b>Ribbon Patch Cords</b>	10 Pieces

2 mm Series

**PLUGS**  
**UNINSULATED BANANA PLUGS**

FIGURE	PART NUMBER	DESCRIPTION	PANEL DRILLING
	R921 019 000	Solder or Crimp Strip Length: 4 mm Crimp Tool: Buchanan R612 548 000 Positioner Radiall R282 982 000 Cable: AWG 20, 22, 24	-
	R921 029 000	Threaded Rear Length 4 mm	-
	R921 119 000	Nut-Tin-Plated Solder Strip Length: 4 mm Cable: AWG 20	P03
	R921 149 000	Male-Female Adapter with Nut	P03

**INSULATED BANANA PLUGS**

FIGURE	PART NUMBER	COLOR	DESCRIPTION	PANEL DRILLING
	R921 330 000	Black	Tin-Plated Solder Cable: AWG 20	-
	R921 331 000	Red		
	R921 332 000	Green		
	R921 333 000	Blue		
	R921 334 000	Yellow		
	R921 336 000	White		
	R921 461 000	Red	Stackable Plug with Quick Grip Clamp 2 mm rear socket	-

2 mm Series

**SOCKETS**

**UNINSULATED BANANA SOCKETS**

FIGURE	PART NUMBER	DESCRIPTION	PANEL DRILLING
	R921 609 000	Tin-Plated Solder Panel Mount: M3.5 x 0.35 Thread Strip Length: 4 mm Cable: AWG 20	P04
	R921 629 000	Tin-Plated Solder Panel Mount: M4 x 0.5 Thread Strip Length: 4 mm Cable: AWG 20	P03

**INSULATED BANANA SOCKETS**

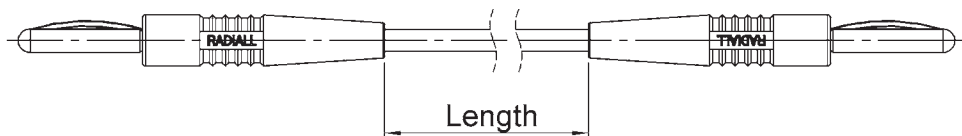
FIGURE	PART NUMBER	COLOR	DESCRIPTION	PANEL DRILLING
	R921 920 000	Black	Machined Panel-Mount Socket Tin-Plated Solder Termination Strip Length: 4 mm Cable: AWG 20	P02
	R921 921 000	Red		
	R921 922 000	Green		
	R921 923 000	Blue		
	R921 924 000	Yellow		
	R921 926 000	White		
	R921 930 000	Black	Stamped Panel-Mount Socket Tin-Plated Solder Termination Strip Length: 4 mm AWG 20 Wire	P02
	R921 931 000	Red		
	R921 932 000	Green		
	R921 933 000	Blue		
	R921 934 000	Yellow		
	R921 936 000	White		

**PATCH CORDS**

Except where specified, all patch cords lengths are defined by the length of the cable without connectors or strain relief.

Radiall Patch Cord Series includes:

- **BLM:** Molded miniature extension patch cords
- **BLDM:** Molded miniature stackable patch cords
- **Patch Cords Made-To-Order**



Each plug is soldered onto the cable in order to assure an excellent electrical connection with very stable transfer resistance.



2 mm Series

PLUGS

MOLDED EXTENSION (BLM)  
Cable: PVC Cable 0.3 mm<sup>2</sup>



R928 0xx 000

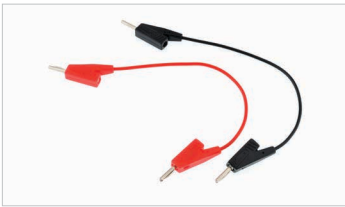
PATCH CORDS LENGTH

- 1: 10 cm
- 5: 100 cm

COLOR

- 0: Black
- 1: Red
- 3: Blue

MOLDED STACKABLE (BLDM)  
Cable: PVC Cable 0.3 mm<sup>2</sup>



R928 1xx 000

PATCH CORDS LENGTH

- 1: 10 cm
- 2: 20 cm
- 4: 50 cm
- 5: 100 cm

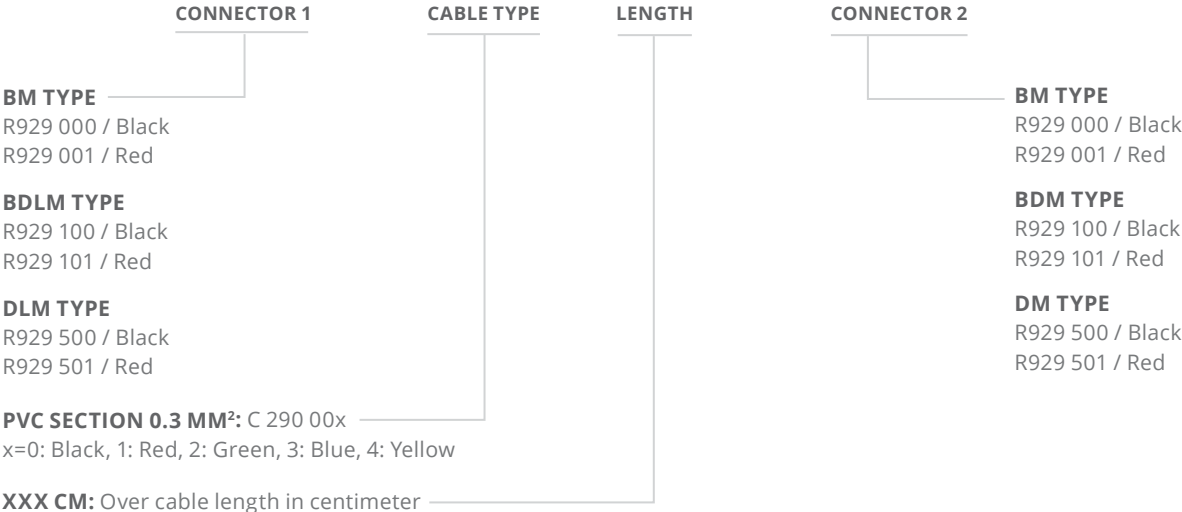
COLOR

- 0: Black
- 1: Red
- 2: Green
- 3: Blue
- 4: Yellow

MADE-TO-ORDER PATCH CORDS

Customized patch cords using BLM, BLDM, or DLM plugs can be made-to-order to your specifications. Choices include connector style, cable type, color, and cable length. Packaging: 10 identical patch cords.

HOW TO ORDER



FOR FREE END: Please write the word "free"

EXAMPLE TO ORDER:

1 Black BLM Extremity / Red PVC Cable Length 40 cm / 1 Red BLM Plug.  
Part Number: R929 000 / C290 001-40 cm / R929501

2 mm Series

20-WAY FIXED CONNECTORS  
12 MM CONTACT PITCH

FIGURE	PART NUMBER	COLOR	TERMINATION
	R929 991 000	Blue	Solder Cup
	R929 991 001	Red	
	R929 991 002	Green	
	R929 991 003	Black	
	R929 991 004	Yellow	
	R929 992 000	Blue	Pin

6 MM CONTACT PITCH

FIGURE	PART NUMBER	COLOR	TERMINATION
	R929 993 000	Blue	Solder Cup
	R929 993 001	Red	
	R929 993 002	Green	
	R929 993 003	Black	
	R929 993 004	Yellow	
	R929 994 003	Black	Pin

SHORT-CIRCUIT U LINK  
12 mm Contact Pitch

FIGURE	PART NUMBER	COLOR
	R644 543 000	Blue
	R644 543 001	Red
	R644 543 002	Green
	R644 543 003	Black
	R644 543 004	Yellow

6 mm Contact Pitch

FIGURE	PART NUMBER	COLOR
	R644 543 020	Blue
	R644 543 021	Red
	R644 543 022	Green
	R644 543 023	Black
	R644 543 024	Yellow

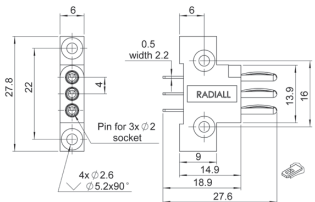
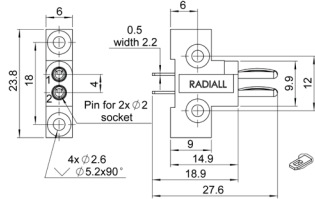
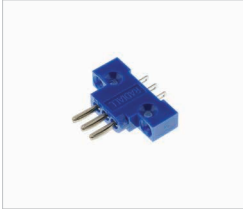
2 mm Series

**CONTACT BLOCKS**

The contact blocks are available for different types of connections:

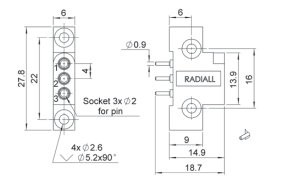
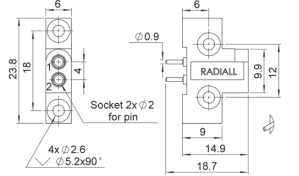
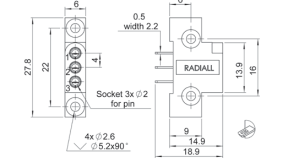
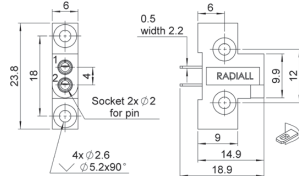
- Wire soldering
- Straight pins for PCB
- Elbow pins for PCB (contact your Radiall sales representative)
- Wrapping pins (contact your Radiall sales representative)

**MALE CONTACT BLOCKS**



PART NUMBER	NOTE
R644 020 000	Tin-Plated Solder Cup
R644 030 000	

**FEMALE CONTACT BLOCKS**



PART NUMBER	NOTE
R644 120 000	Tin-plated solder cup
R644 130 000	
R644 121 000	PCB Pins
R644 131 000	

2 mm Series

### RIBBON PATCH CORDS

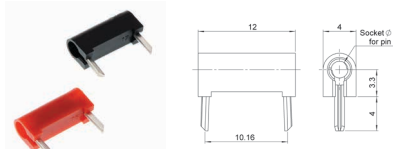
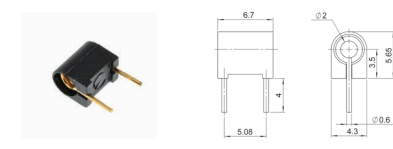
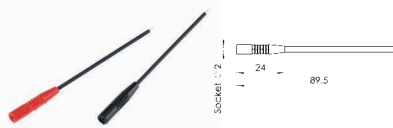
The contact blocks are available for different types of connections:

#### MALE-MALE RIBBON PATCH CORDS 100 CM LENGTHS

FIGURE	PART NUMBER	DESTINATION	NUMBER OF CONTACT
	R644 823 000	ML 2 mm	2
	R644 833 000	ML 3 mm	3

### ACCESSORIES

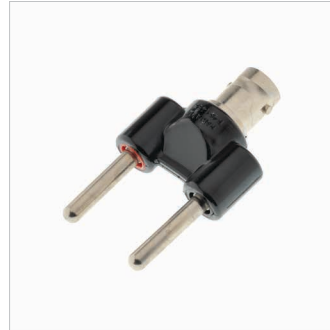
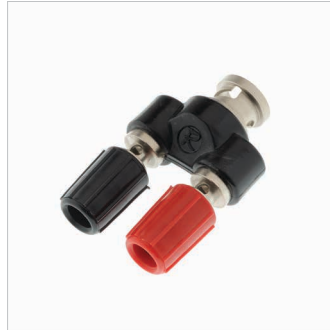
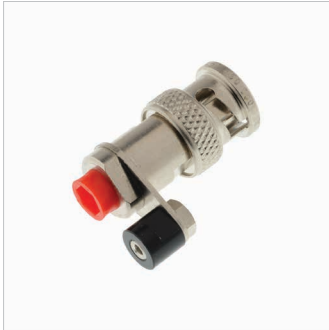
#### TEST SOCKETS & TEST PROBE

FIGURE	PART NUMBER	COLOR	DESCRIPTION
	R921 910 000	Black	Test Socket Entrax 10.16 mm
	R921 911 000	Red	
	R921 912 000	Green	
	R921 913 000	Blue	
	R921 914 000	Yellow	
	R921 916 000	White	
	R921 820 070	Black	Test Socket Entrax 5.08 mm
	R921 820 071	Red	
	R921 820 072	Green	
	R921 820 073	Blue	
	R921 820 074	Yellow	
	R921 820 076	White	
	R921 850 000	Black	Test Probe
	R921 851 000	Red	

## Banana Adapters

## INTRODUCTION

The connection may be attached to a coaxial line. You will find at the end of the catalog the adapters which allow connecting between 2 mm and 4 mm or between BNC coaxial connectors with banana plugs for both 2 mm and 4 mm connectors.



## CHARACTERISTICS

	2 MM / 4 MM ADAPTER	BNC / 2 MM ADAPTER	BNC / 4 MM ADAPTER	ADAPTER PATCH CORDS
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## ELECTRICAL CHARACTERISTICS

<b>Current Rating, Max.</b>	10 A (@ 20 °C)	-	5 A (@ 20 °C)
<b>Dielectric Withstanding Voltage</b>	1,500 Vrms @ 50 Hz	Two: 2,500 Vrms @ 50 Hz One-Way: 750 Vrms @ 50 Hz	1,500 Vrms @ 50 Hz
<b>Operating Voltage</b>	250 Vrms @ 50 Hz	-	250 Vrms @ 50 Hz
<b>Insulation Resistance (Insulated Models)</b>	5,000 MΩ	Two: 5,000 MΩ One-Way: 5,000 MΩ	5,000 MΩ

## ENVIRONMENTAL CHARACTERISTICS

<b>Temperature Range</b>	-40 °C / +70 °C	-40 °C / +100 °C	-40 °C / +70 °C
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## MATERIALS

<b>Insulator (Banana Plug / Socket Side)</b>	Thermoplastic
<b>Electrical Contacts</b>	Nickel or Tin Plated Copper Alloy/Brass


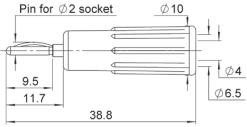
## PACKAGING

DESCRIPTION	PACKAGING
2 mm / 4 mm	100 Pieces
BNC / 2 mm	1 Piece
BNC / 2 mm	1 Piece
Patch Cords	10 Pieces


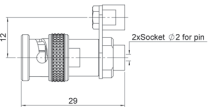
2 mm Series

ADAPTERS

2 MM PIN TO 4 MM SOCKET ADAPTERS


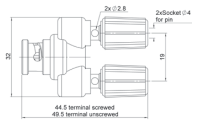

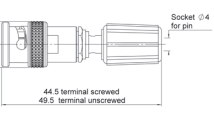

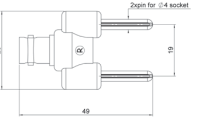
FIGURE	PART NUMBER	COLOR	NOTE
 	R921 390 000	Black	2 mm Male - 4 mm Female Adapter
	R921 391 000	Red	

2 MM TO BNC ADAPTERS

FIGURE	PART NUMBER	COLOR	NOTE
 	R191 450 000	Black	Packaging Individually

4 MM TO BNC ADAPTERS

These adaptors are designed to uncouple electric signals from input and output terminals of a measuring device fitted with male or female BNC fixed connectors.

FIGURE	PART NUMBER	NOTE
 	R191 453 000	BNC: Male Banana: Two 4 mm Sockets
 	R191 454 000	BNC: Male Banana: One 4 mm Socket
 	R191 455 000	BNC: Female Banana: Two 4 mm Plugs

## Banana Adapters

**ADAPTERS PATCH CORDS****BANANA ADAPTER PATCH CORDS**


Patch cords are designed to provide continuity between two pieces of equipment or create patch cords with 2 mm interfaces on one end and 4 mm interface on the other.

Cable Type: 0.3 mm<sup>2</sup>, PVC

FIGURE	PART NUMBER	COLOR	CONFIGURATION
	R999 251 000	Red	BLM / BM 100 cm Length
	R999 350 000	Black	BLDM / BDM 100 cm Length
	R999 351 000	Red	
	R999 352 000	Green	
	R999 353 000	Blue	
	R999 354 000	Yellow	
	R999 520 000	Black	BLM / DM 20 cm Length
	R999 521 000	Red	

**COAXIAL PATCH CORDS/4 MM BANANA PLUG****BCX Coaxial Patch Cords**

The BCX coaxial cords are normally connected to the terminals of measuring devices in order to uncouple the central core from the braid of a coaxial cable. The BCX plug is non-removable. The cable core is soldered to the center contact and the braid is soldered to the socket.

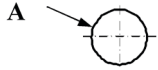
FIGURE	PART NUMBER	COLOR	CONFIGURATION
	R948 450 000	Black	Length: 100 cm (With Connectors)

Banana Adapters

**PANEL DRILLING**

**P01**

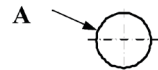
**PANEL CUT OUT**



	mm	
	Maxi	mini
A	6.2	6.1

**P02**

**PANEL CUT OUT**



	mm	
	Maxi	mini
A	5.2	5.1

**P03**

**PANEL CUT OUT**



	mm	
	Maxi	mini
A	4.2	4.1

**P04**

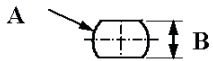
**PANEL CUT OUT**



	mm	
	Maxi	mini
A	3.7	3.6

**P05**

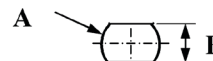
**PANEL CUT OUT**



	mm	
	Maxi	mini
A	12.2	12.1
B	11.2	11.1

**P06**

**PANEL CUT OUT**



	mm	
	Maxi	mini
A	8.2	8.1
B	7.2	7.1