

QUICK INSTALL (QR)

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Introduction

INTRODUCTION

The development of the Quick Install range (QR connector series) highlights Radiall's ability to innovate for customer needs and design a reliable and competitive industrial solution in record time.

Radiall's Quick Install is a lightweight solution that reduces harness integration and maintenance time. It can also replace EN3545 due to the same panel cutout. This new connector provides high performances, weight reduction and tool-less panel mounting and locking.

Utilizing Radiall's ability to design innovative solutions, this interconnect system was designed with two tool-less mechanisms that save up to 80% of installation time compared to the legacy screwed connector:

- A unique locking device system to ensure a quick, tool-less install on the panel
- A slide lock, which has already been mastered and qualified on other product ranges, to ensure instant manual mating of the harness connector. The slide technology features visual and audible indicators to guarantee that the installation and mating is locked.

APPLICATIONS

The innovative Quick Install has a positive impact on the total cost of ownership and provides customers with a proven and reliable high performance solution for cable-to-cable, optical and equipment versions onboard commercial aircraft.

FEATURES & BENEFITS

15% LIGHTER THAN THE COMPETITION



It features a unique design made of composite material with a slim form factor that provides 15% weight savings compared to the legacy screwed connector. With an average weight of 45 g per mated pair, the weight reduction represents up to 20 kg for a typical aircraft.

80% INSTALLATION TIME SAVINGS



- A unique locking device system to ensure a quick, tool-less installation on the panel
- A slide lock, which has already been mastered and qualified on other product ranges, to ensure instant manual mating of the harness connector

A TOOL-LESS AND FOD-PROOF DESIGN



The Quick Install provides customers with a proven and reliable high performance solution that can replace the cable-to-cable, optical and equipment versions of EN3545.

SELF INSPECTION AT MATING



The slide technology features visual and audible indicators guarantee that the installation and mating tools are locked.

ELECTRICAL CHARACTERISTICS

DIELECTRIC WITHSTANDING VOLTAGE: EN2591-207 WITH CURRENT LEAKAGE <2 mΩ

PRESSURE	CONTACT SIZES	CONNECTORS	
		MATED (VRMS)	UNMATED (VRMS)
Initial Measurement and After Damp Heat Steady State Test	22, 20, 16, 12 10, 08	-	1,300 (#22) 1,500
After Interfacial Sealing Test		1,300 (#22) 1,500	-
During Low Air Pressure Test (12,1 kPa)		-	600

Introduction

INSULATION RESISTANCE: EN2591-206

> 5,000 MΩ initial

> 1,000 MΩ after endurance at temperature, immersion at low air pressure, interfacial sealing and during fluid resistance test

ELECTRICAL STRESS TESTS

- Power supply voltage spikes ABD0100.1.8 and ED14/DO160 section 17, 2,000 V
- Lightning functional link ED14/DO160 section 22.5.1 « pin injection test » - 5A – 1,500 V/1,500 A

MECHANICAL CHARACTERISTICS

VIBRATION & SHOCK

SHELL TYPE	VIBRATION	SHOCK
QR Series	4h/axis 0.017 g ² /Hz from 10 to 50 Hz and 0.1 g ² /Hz from 50 to 2,000 Hz (129 m/s ²) Discontinuities < 1 μs Discontinuities < 2ns for Quadrax Contacts EN2591-403 Method B Condition D	50 g/Duration 11 ms EN2591-402 Method A

MATING/UNMATING

SHELL TYPE	MATING/UNMATING	MATING FORCE
PANEL LOCKING	50 Cycles	30 N max
PLUG TO RECEPTACLE	100 Cycles	90 N max for Arrangement 12 80 N max for All Other Arrangements

OTHER CHARACTERISTICS

- **Interfacial Sealing Test:** 12.1 kPa with sealing plug
- **Flammability/Density/Toxicity** ABD0031 (AITM)
 - **Flammability**
 - Burn length (average) must not exceed 152 mm (6 inches)
 - After flame time (average) must not exceed 15 seconds
 - After flame time of drips (average) must not exceed 3 seconds
 - **Density**
 - Dm (flaming) < 200
 - Dm (non flaming) < 200
- **Toxicity**
 - Hydrogen Fluoride: 100 ppm max
 - Hydrogen Chloride: 150 ppm max
 - Hydrogen Cyanide: 150 ppm max
 - Sulfur Dioxide: 100 ppm max
 - Nitrous Gases: 100 ppm max
 - Carbon Monoxide: 1,000 ppm max

ENVIRONMENTAL CHARACTERISTICS

- **Temperature Range:** -55 °C/+175 °C
- **Temperature Life:** 1,000 hours at 175 °C
- **Salt Spray:** 96 hours
- **Humidity:** 56 days
- **Altitude Immersion:** (12,1 kPa) 3 cycles – 50,000 feet (15,000 m)

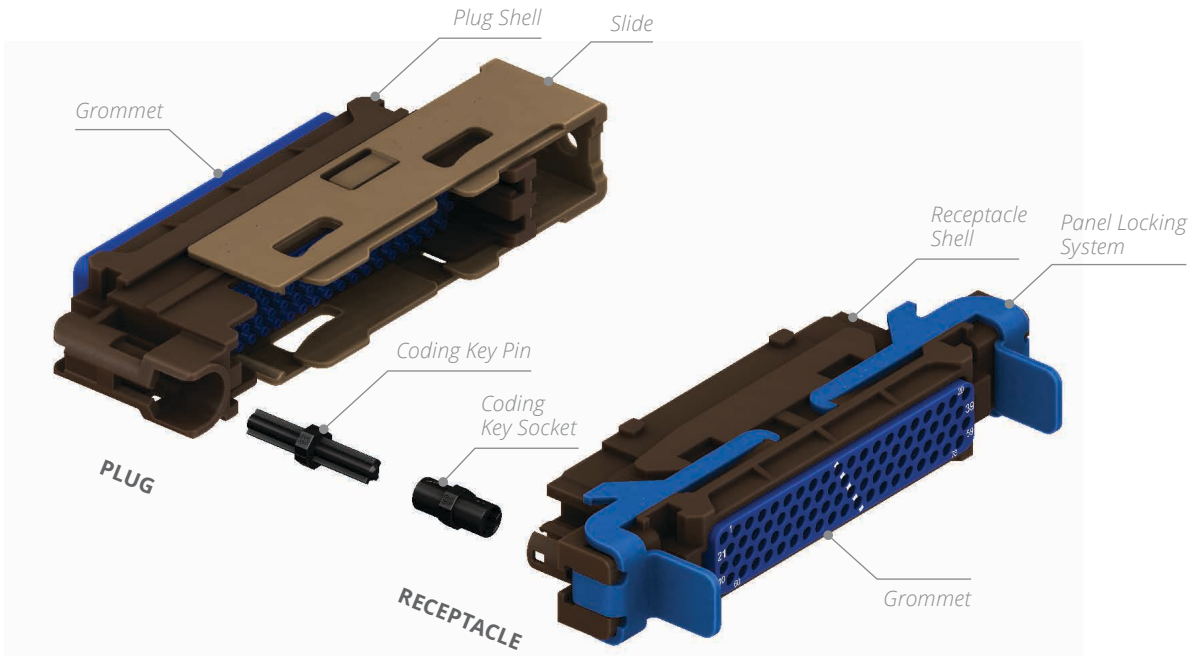
For more details, please refer to the QR qualification test reports.

QR Series

QR PRODUCT OVERVIEW

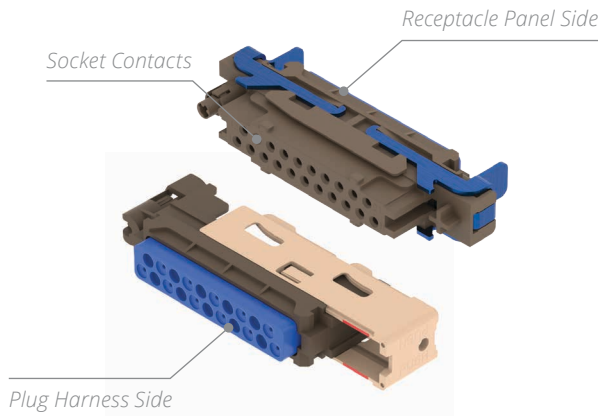
The QR connector is composed of two subassemblies:

- A receptacle connector
- A plug connector

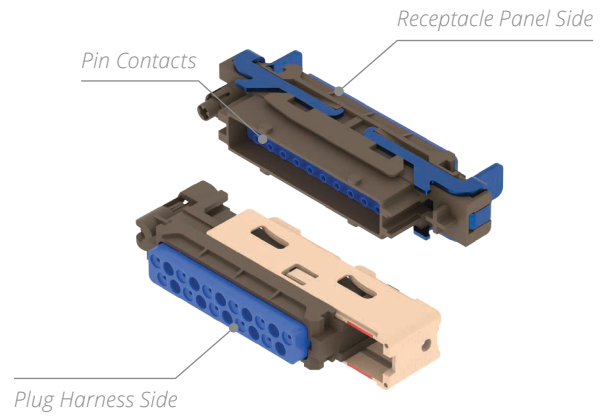


For each Receptacle/Plug, there is one version for male contacts and one for female contacts.

STANDARD VERSION



REVERSED VERSION

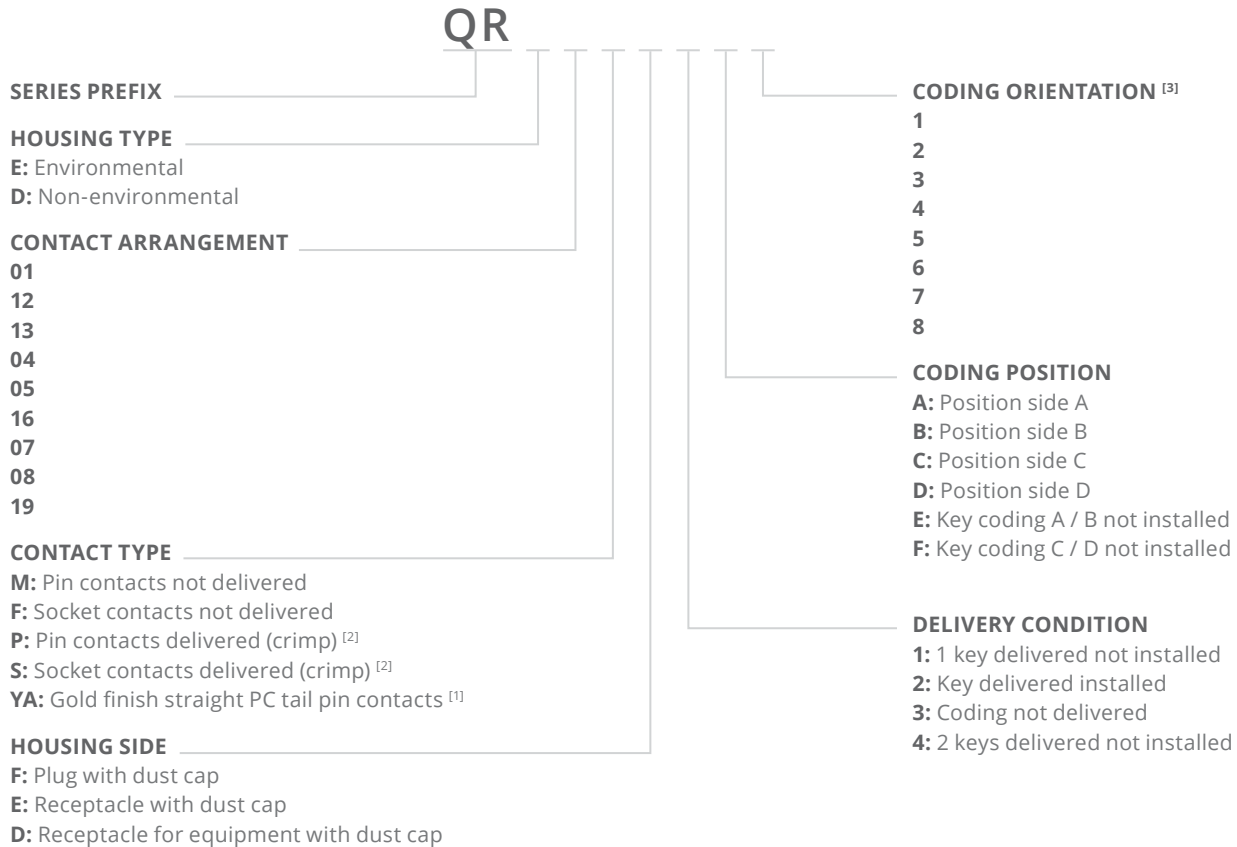


Notes

Except for the cavity change, the interior design of the shell is slightly different between a housing (socket or plug) for male contacts and its counterpart for female contacts

HOW TO ORDER QR CONNECTORS

- Both pin and socket contacts can be used in plugs or receptacles.
- Standard versions are receptacle equipped with socket contacts and plug equipped with pin contacts.
- Reversed versions are receptacle equipped with pin contacts and plug equipped with socket contacts.
- PC tail contacts are only compatible with receptacle for equipment.
- Cross reference between QR and EN3545 is not possible (not compatible).
- Connectors are delivered with a protective cover designed to protect the contact cavities from dust and FOD. Radiall recommends keeping the cap installed while the connector is not mated or while access to the active area is not necessary.



Notes

1. For other PC tail extension options, please contact us
2. Not applicable for arrangement 07. For arrangement 08 the contacts size 8 must be ordered separately
3. Optional if installed

QR Series

POLARIZATION CODE

QR

SERIES PREFIX _____

HOUSING TYPE _____

P: Plug

R: Receptacle

CODING KEY _____

E: Key coding A / B not installed

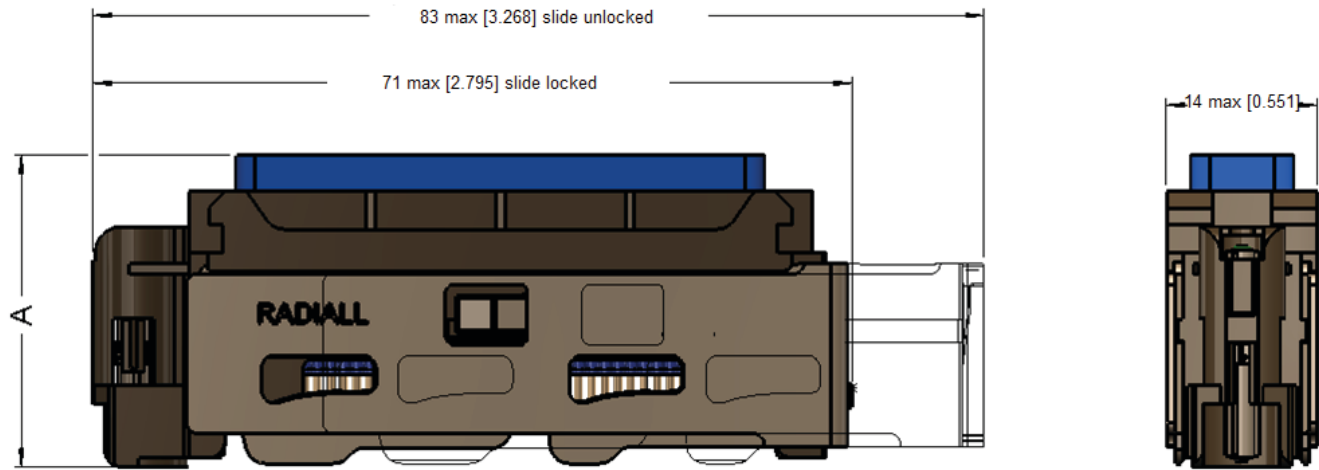
F: Key coding C / D not installed

The polarization is made with 2 pairs of modular keys to ensure a coding of each arrangement. There are 4 modular coding keys (2 for the receptacle and 2 for the plug). Every key has 2 sides (A and B or C and D). To ensure proper mating between them, the coding shall be the same on plug and receptacle connectors (for example, coding A2 for both keys).

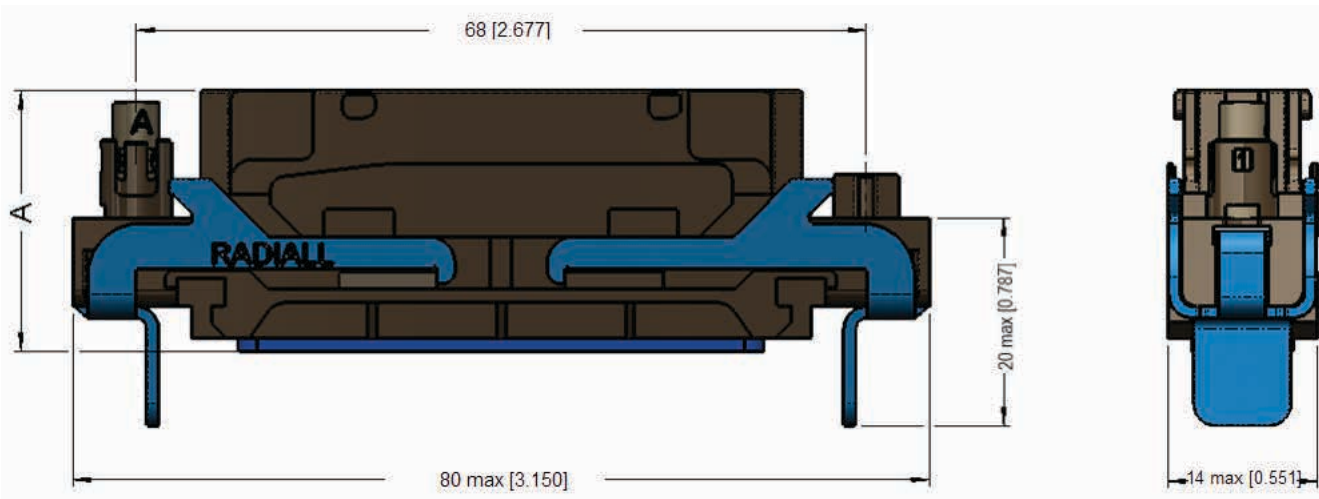
	PLUG	RECEPTACLE
QR		
CODING DEVICE	 <p>View A View B View C View D</p>	 <p>View A View B View C View D</p>

QR Series

**QR SHELL DIMENSIONS
PLUG**



RECEPTACLE FOR CRIMP CONTACTS ^[1]

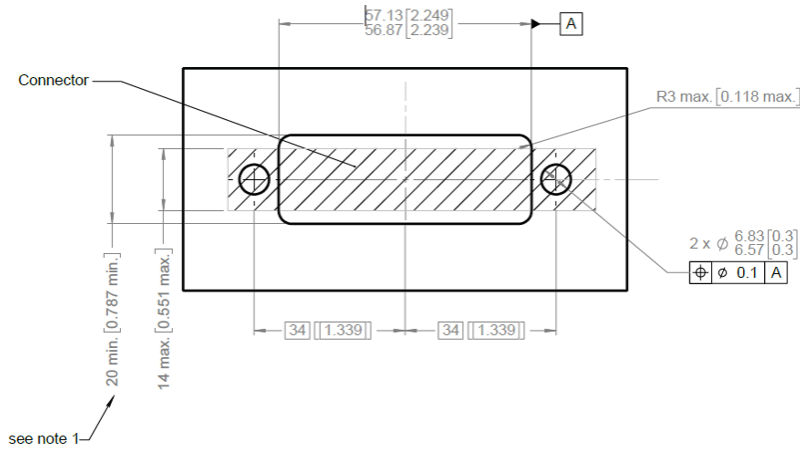


CONTACT ARRANGEMENT	GROMMET PROTRUSION (A) MAX MM (INCH) FOR RECEPTACLE	GROMMET PROTRUSION (A) MAX MM (INCH) FOR PLUG
01, 04, 05, 12, 13	27 [0.984]	31.50 [1.102]
07, 08	32 [1.181]	33.50 [1.220]
16, 19	37.50 [1.614]	41.50 [1.614]

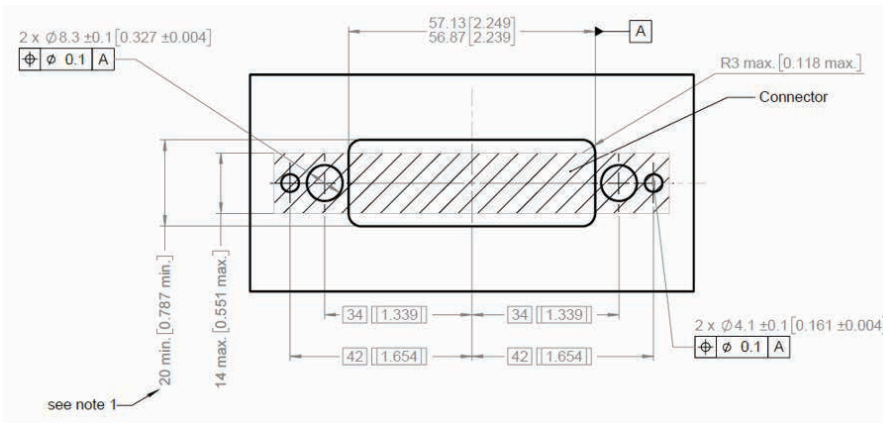
Notes

1. Receptacles with PC Tail contacts have a different design. Please contact us for details.

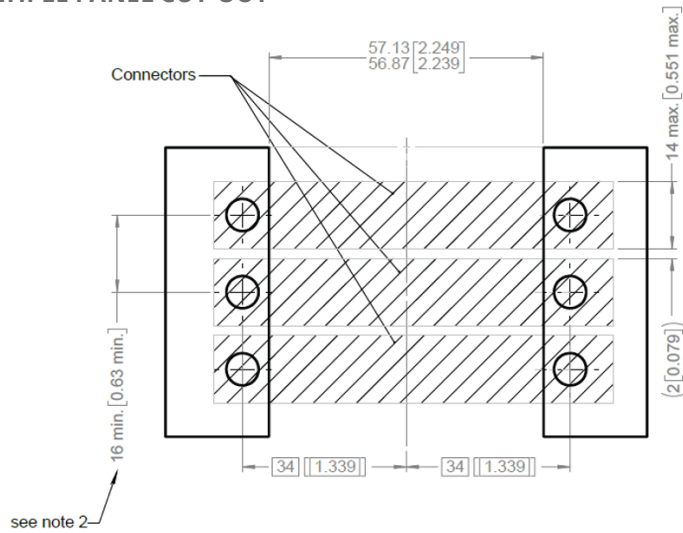
PANEL CUT-OUT STANDARD QUICK INSTALL (PANEL THICKNESS 0.8 - 1.73 [0.0315 - 0.068])



PANEL CUT-OUT QUICK INSTALL EQUIPMENT (PANEL THICKNESS 2 [0.079] MAX)



MULTIPLE PANEL CUT-OUT



Notes

1. The minimum cutout width is contingent on the radius cutout value. Therefore, to achieve a desired narrow/wide cutout width, the radius must change accordingly.
2. The pitch between connectors depends on the minimum gap desired. A commonly used gap of 2 mm is used to define the pitch advised here.

QR Series

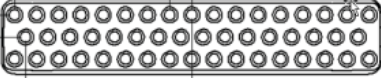
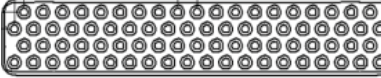
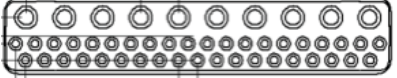
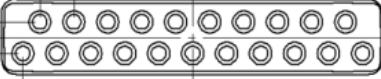
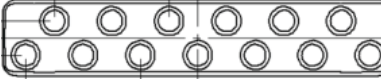
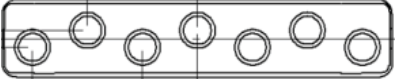
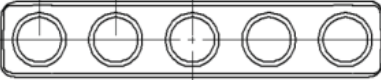
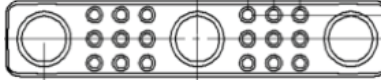
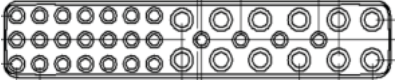
QR SHELL WEIGHTS

HOUSING SIDE	CONTACT ARRANGEMENT	WEIGHT	
		WITH CAVITIES FOR PIN CONTACTS (M)	WITH CAVITIES FOR SOCKET CONTACTS (F)
PLUG (P) 1 CODING KEY INCLUDED	01	22g	23g
	12	22g	23g
	13	22g	24g
	04	22g	23g
	05	22g	23g
	16	25g	26g
	07	22g	24g
	08	22g	24g
	19	22g	24g
RECEPTACLE (R) 1 CODING KEY INCLUDED	01	23g	25g
	12	23g	25g
	13	23g	25g
	04	23g	25g
	05	23g	24g
	16	25g	27g
	07	23g	25g
	08	22g	26g
	19	22g	25g

QR Series

QR ARRANGEMENTS

CONTACT ARRANGEMENT NAME	CONTACT SIZE & TYPE						TOTAL QUANTITY OF CONTACTS
	22	20	16	12	10	8	
	SIGNAL	POWER	POWER	POWER	POWER OR TRIAXIAL	POWER OR QUADRAX OR TWINAX OR TRIAX	
07	-	-	-	-	-	5	5
16	-	-	-	-	7	-	7
05	-	-	-	13	-	-	13
04	-	-	21	-	-	-	21
08	-	18	-	-	-	3	21
19	-	25	12	-	-	-	37
13	39	-	10	-	-	-	49
01	-	50	-	-	-	-	50
12	78	-	-	-	-	-	78

		
Arrangement 01: 50 Contacts #20	Arrangement 12: 78 Contacts #22	Arrangement 13: 39 Contacts #22 10 Contacts #16
		
Arrangement 04: 21 Contacts #16	Arrangement 05: 13 Contacts #12	Arrangement 16: 7 Contacts #10
		
Arrangement 07: 5 Contacts #8	Arrangement 08: 18 Contacts #20 3 Contacts #8	Arrangement 19: 25 Contacts #20 12 Contacts #16

Contacts

SIGNAL & POWER CRIMP CONTACTS

ELECTRICAL CHARACTERISTICS

Signal & Power Crimp Contacts for Copper Cables

CONTACT SIZE	WIRE SIZE	TYPE	ENVIRONMENTAL PART NUMBER	NON-ENVIRONMENTAL PART NUMBER	CRIMPING TOOL	POSITIONER	SELECTOR OF JAWS	INS/EXT TOOL
22	AWG26 AWG24 AWG22	Pin	670200 (per M39029/58-360) or 628200 (per EN3155-008M2222) ^[1]		282281 (M22520/2-01)	282562 (M22520/2-09)	2 3 4	282522 (M81969/14-01)
		Socket	670350 (M39029/57-354) or 628300 (per EN3155-003F2222) ^[1]			(M22520/2-06)		
20	AWG24 AWG22 AWG20	Pin	628220 (per EN3155-014M2020)		282281 (M22520/2-01)	(M22520/2-08)	5 6 7	282522001 (M81969/39-01)
		Socket	628320 (per EN3155-015F2020)					
16	AWG20 AWG18 AWG16	Pin	670230 (per M39029/58-364) or 628240 (per EN3155-008M1616) ^[1]		282291 (M22520/1-01)	(M22520/1-04) Blue	4 5 6	282515 (M81969/14-03)
		Socket	670380 (per M39029/57-358) or 628340 (per EN3155-003F1616) ^[1]					
12	AWG14 AWG12	Pin	670240 (per M39029/58-365) or 628250 (per EN3155-008M1212) ^[1]		282291 (M22520/1-01)	(M22520/1-04) Yellow	7 8	282549004 (M81969/14-04)
		Socket	670390 (per M39029/57-359) or 628350 (per EN3155-003F1212) ^[1]					
10	AWG12 AWG10	Pin	628260 (per EN3155-008M1010)		Manual tool: 282296 (M300BT) Pneumatic tool: (M22520/23-01)	Manual tool: DMC TP1526 Pneumatic tool: DMC WA23-102L	Manual tool: 2 (cable awg12) 4 (cable awg10) Pneumatic tool: DMC WA-101DA	282549033 (M81969/14-05)
		Socket	628360 (per EN3155-003F1010)					
8	AWG08	Pin	628291001	628291	M22520/23-01	DMC WA23-296	DMC WA23-2	282549051 (M81969/14-12)
		Socket	628391001	628391				

Notes

1. M39029 contacts are used when contacts are supplied with the connector assemblies.

Contacts

COAXIAL CRIMP CONTACTS

SIZE 8 COAXIAL CRIMP CONTACTS

CONTACT SIZE	CABLE TYPE	CONTACT GENDER	NON-ENVIRONMENTAL PART NUMBER ^[1]	EXTRACTION TOOL
8	RG400 (ASNE0293XF)	Pin	691800021	282549051 (M81969/14-12)
		Socket	691810020 691810021	
	EN4604-003WZ (Draka F1703-195)	Pin	691800020	
	EN4604-005WL (ASNE0690WL Draka F1703-158)	Socket	619054002	
Pin		619156002		

TWINAX & TRIAX CRIMP CONTACTS

SIZE 8 TWINAX CRIMP CONTACTS

CONTACT SIZE	CABLE TYPE	CONTACT GENDER	NON-ENVIRONMENTAL PART NUMBER ^[1]	EXTRACTION TOOL
8	ABS0386WF24 (Draka F2703-37)	Pin	617165014	282549051 (M81969/14-12)
		Socket	620065010	
	EN3375-009WX26 (ASNE0807WX26 Nexans ET133199)	Pin	628165012	
		Socket	620065012	

TRIAx CRIMP CONTACTS

CONTACT SIZE	CABLE TYPE	CONTACT GENDER	NON-ENVIRONMENTAL PART NUMBER ^[1]	EXTRACTION TOOL
8	EN3375-004 EN3375-005	Pin	691800071	282549051 (M81969/14-12)
		Socket	691800171	
	EN3375-003	Pin	691800070	
		Socket	691800170	
	EN3375-004CWJ24	Pin	ABS2231P02	
		Socket	ABS2231S02	
10	EN3375-006XM24 (ASNE0290XM24)	Pin	691800090	282549033 (M81969/14-05)
		Socket	691800190	

QUADRAX CRIMP CONTACTS

CONTACT SIZE	CABLE TYPE	CONTACT GENDER	NON-ENVIRONMENTAL PART NUMBER	ENVIRONMENTAL PART NUMBER	EXTRACTION TOOL
8	DRAKA F4704-4 (ABS0972KB24) DRAKA F4704-5 (ABS1503KD24)	Pin	628175070	[1]	282549051 (M81969/14-12)
		Socket	628075070	[1]	
	NF26Q100	Pin	617175070	628175072	
		Socket	617075070	628075072	
	NF24Q100	Pin	617175070	628175071	
		Socket	617075070	628075071	
	NF22Q100	Pin	617175040	[1]	
		Socket	620075040	[1]	
	JSFY02	Pin	628179002	[1]	
		Socket	620079002	[1]	

Notes

1. Please contact Radiall for environmental applications

Contacts

FIBER OPTIC CONTACTS & Q-MTITAN

QR COMPATIBILITY

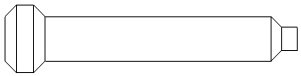
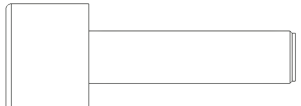
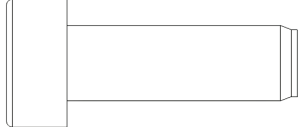
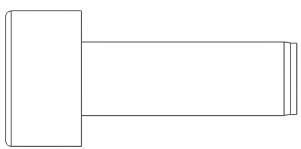
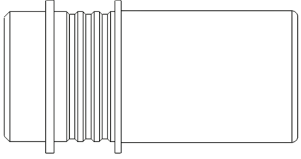
Fiber optic contacts EN4531 with adapters in size 8 cavities are available with arrangements 07 (up to 5 contacts) and 08 (mix of optical and electrical contacts) ^[1]

12-channel Q-MTitan ARINC 846 fiber optic contact fits size 8 Quadrax cavities without adapters (5 Q-MTitan = 60 fiber optic in a Quick Install connector) ^[1]

SEALING PLUGS

Sealings plugs are dedicated to environmental insert cavities.

The sealing is guaranteed between each individual contact cavities. No filler plug or dummy contacts are necessary. Sealing plugs in unused cavities are optional, but recommended for future usage in order to avoid dust or FOD to enter the cavities.







SIZE	CONTACT CAVITY VERSION	COLOR	PART NUMBER	DRAWING
22	For Pin & Socket	Black	616910 (MS27488-22-2) or (E0616BC2200)	
20		Red	616911 (MS27488-20-2) or (E0616BC2000)	
16		Green	616912 (MS27488-16-2)	
		Blue	or (E0616BC1600)	
12 & 10		Orange	616913 (MS27488-12-2)	
		Yellow	or (E0616BC1200)	
08		Red	628950020 (E0616BC0803)	

Notes

1. Please contact Radiall for performance information

Accessories

ACCESSORIES, SPARE PARTS & TOOLS

	PART NUMBER	DESCRIPTION
	628954001	Receptacle Dust Cap
	628954002	Plug Dust Cap
	282654001	Handle for test bench connector easier disconnection (Cable Clamps for Electrical Contacts)
	282654002	Handle for test bench connector easier disconnection (Cable Clamps for Quadrx Contacts)
	282700500	Set of Mounting Tools for Key A, B, C, D
	282700100	Tool for Coding Key A - White ^[1]
	282700200	Tool for Coding Key B - Green ^[1]
	282700300	Tool for Coding Key C - Yellow ^[1]
	282700400	Tool for Coding Key D - Blue ^[1]

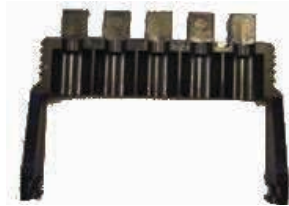
Notes

1. Tools for coding key are compatible with receptacle and plug.

*Accessories***ACCESSORIES FOR CABLE**

The Quick Install series is compatible with a wide range of standard cable clamp accessories.

The Quick Install plug and receptacle are suitable for use with EN3545-007 straight and right angle cable clamps for standard contacts and size 8 contacts.



Notes