



EPX[®] Series
EN4644



Contents

Introduction 1-5

Disconnect applications 1-6

Rack and panel applications 1-7

EPX® SERIES

Technical characteristics for disconnect connectors 1-8

- Electrical characteristics 1-8

- Mechanical characteristics 1-8

Technical characteristics for rack & panel connectors 1-9

- Electrical characteristics 1-9

- Mechanical characteristics 1-9

Technical characteristics for inserts & contact 1-10

- Electrical characteristics 1-10

Mechanical characteristics 1-11

INSERTS

Insert selection table 1-12

How to order EPX® inserts 1-13

EPX® insert arrangements 1-14 to 1-16

CONTACTS

Signal & power crimp contacts 1-17

Oversized and reduced Crimp Barrel contacts 1-18

Coaxial crimp contacts 1-19

Twinax and triax crimp contacts 1-20

Quadrax & BMA crimp contacts 1-21

LuxCis® fiber optic contacts 1-22

Signal PC tail contacts 1-23

Quadrax size 8 PC tail contacts 1-24

Filler plugs and sealing plugs 1-24

Contacts for GbE link Focus 1-25

Contents

DISCONNECT APPLICATION

EPXA product overview 1-26

EPXB1 product overview 1-27

How to order EPXA & EPXB1 shell 1-28

How to order EPXA & EPXB1 assembly kit 1-29

Contacts termination for EPXB1 1-30

EPXA shell dimensions 1-31

EPXB1 shell dimensions 1-32

EPXA & EPXB1 polarization code 1-33

EPXA & EPXB1 accessories 1-34 to 1-35

EPXB2 Disconnect 1-36

EPXB2 product overview 1-37

How to order EPXB2 shell 1-38

How to order EPXB2 assembly kit 1-39

Contacts termination for receptacles 1-40

EPXB2 metallic shell dimensions 1-41

EPXB2 composite shell dimensions 1-42

EPXB2 polarization code 1-44

EPXB2 accessories 1-45

EPXB2 spare parts 1-46

Tools 1-47

RACK & PANEL APPLICATION

EPXB1 product overview 1-48

EPXB2 product overview 1-49

EPXB3 product overview 1-50

EPXB4 product overview 1-51

How to order EPXB1, B2, B3 & B4 shell 1-52

How to order EPXB1, B2, B3 & B4 assembly kit 1-53

Contacts termination for EPXB1, B2, B3 & EPXB4 plugs 1-54

EPXB1 shell dimensions + panel cut-out 1-55

EPXB2 shell dimensions + panel cut-out 1-56

EPXB3 shell dimensions + panel cut-out 1-57

EPXB4 shell dimensions + panel cut-out 1-58

EPXB panel cut-out coding 1-59

EPXB polarization code 1-60

Rack & panel accessories 1-61 to 1-62

EPX® galley product overview 1-63

How to order EPX® galley connector 1-64

Dimensions and panel cut out 1-65

Multigang EPX connectors 1-66

Introduction

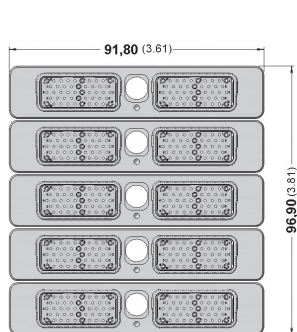
Radiall is recognized in the Aerospace and Defense industries for offering one of the broadest innovative product portfolios for connector interconnect solutions. The benefit of our experience with ARINC connectors permits Radiall to provide customers with a strong and global solution.

The EPX® series offers a wide range of solutions based on two insert sizes with a large variety of shells and contacts. This product range provides an excellent trade-off between the number of available contacts and the space used. The EPX® series is completely modular and expandable.

The EPX® series connectors are standardized by the EN4644 European standard.

A **high density solution** compared to circular connectors:

- Slim shell design with high contact density
- Stackable shells do not require additional space for locking and unlocking the connectors



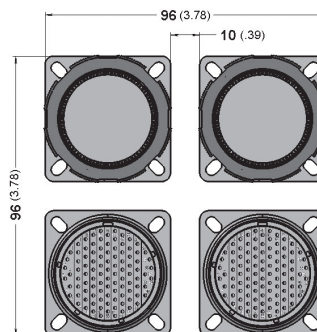
EPXB:

5 shells #2 with 2*48 Cts

--> Total Cts: 480

--> Total surface: $96.90 * 91.80 = 8895.42 \text{ mm}^2$

Gives $18.53 \text{ mm}^2/\text{contact}$



38999 :

4 shells #23 with 100 Cts

--> Total Cts: 400

--> Total surface: $96.00 * 96.00 = 9216 \text{ mm}^2$

Gives $23.04 \text{ mm}^2/\text{contact}$

A **cost saving** and **user-friendly** solution:

- Inserts can be wired in the workshop and later installed in the shells
- A common panel cut-out simplifies the connector installation
- Inserts can be easily installed and removed from the shell
- Inserts and shells are keyed to prevent mis-mating
- Standard Mil spec tools for contact crimping and contact insertion/extraction
- Field replaceable sub-assemblies
- Vibration resistant self-locking threads

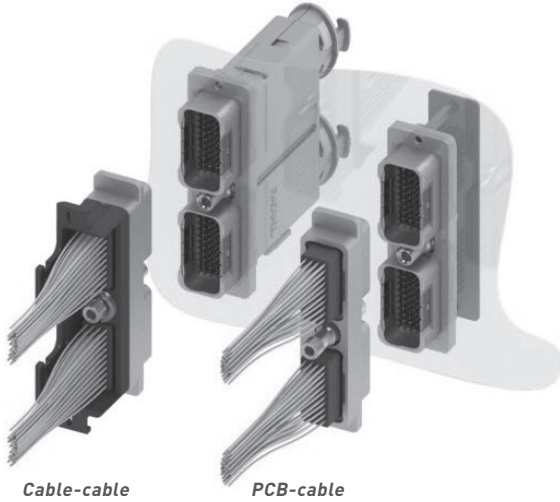
A **modular concept** with a large variety of options:

- Shell can accommodate a wide variety of inserts for signal, power, coax, data bus, fiber optic and high frequency BMA contacts
- Optional ground blocks (to meet the FAA HIRF requirements)
- Pin and socket inserts can be installed in either plug or receptacle shells (pin contacts are always fitted in the pin insert)

EPX® a **versatile solution** available in two different versions:

- Aluminium
- Composite

Disconnect Application



EPX® connectors (EPXA, EPXB1 and EPXB2) are specially designed to be used in cable-cable disconnect applications and PCB-cable disconnect applications.

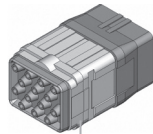
The principle of EPX® disconnect connectors is that the locking system is located on the connector itself.

EPX® connectors for disconnect applications address three main needs:

- Compactness: the design of the locking system allows an access from the back of the shell so that connectors can be stacked. Space can be easily saved
- Modularity: connectors use similar tools and accessories so that spare parts are reduced
- Ease of assembly: when on a panel, the connector is easy to mate with the use of a standard Allen wrench tool (available at Radiall or anywhere)

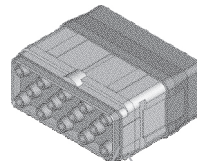
The modularity of this series allows you to configure a connector with higher performances (environmental, grounding blocks, shell mountings, etc). Several accessories offer you the possibility to create harnesses, like the 38999 series.

EPXA insert



EPXA connector

EPXB insert



EPXB1 connector



EPXB2 connector

EPXB inserts fit in any EPXB disconnect connector

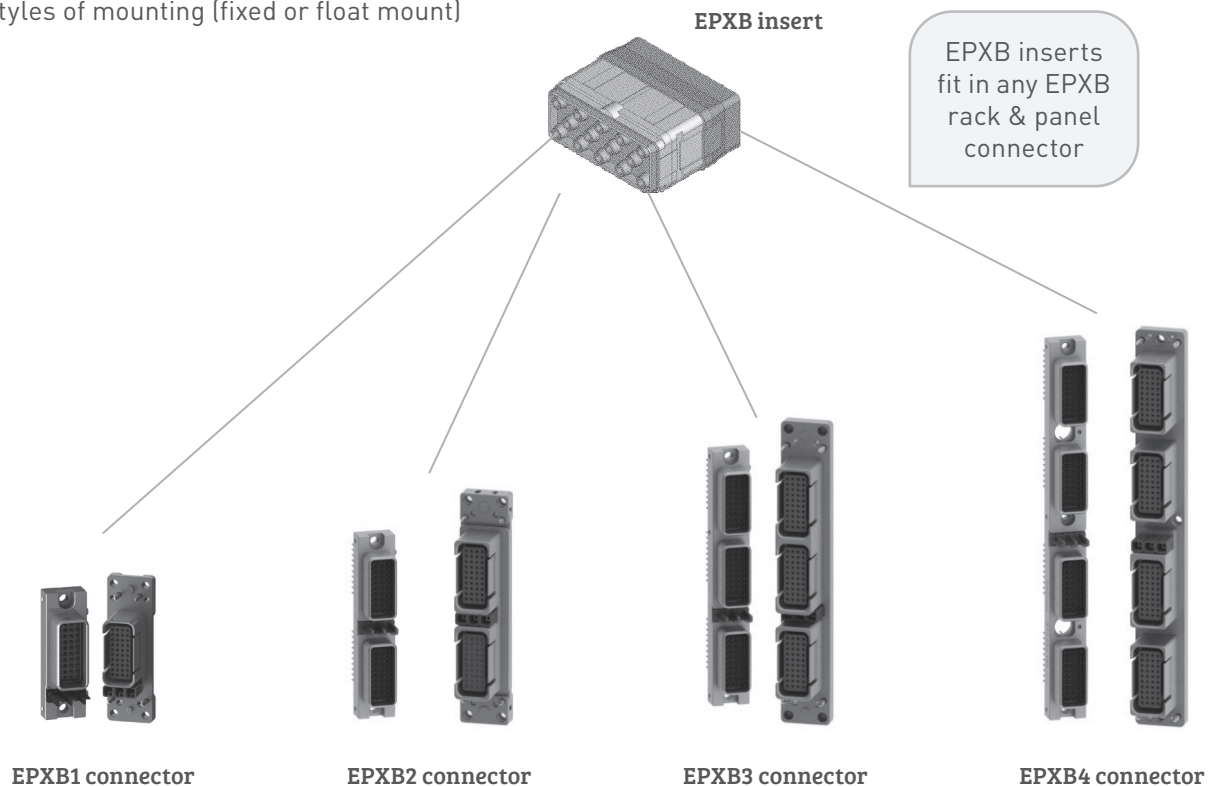
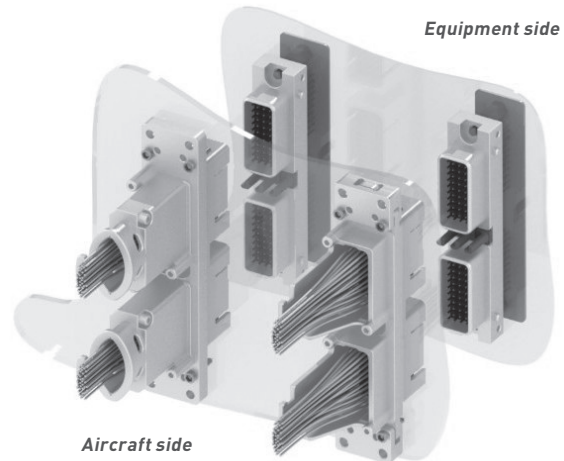
Rack and Panel Application

In response to the need of system miniaturization and new equipment design, Radiall introduces its new rack and panel connectors dedicated to Line Replaceable Module (LRM) applications.

The EPX® rack and panel connectors are intended for blind mate applications. The plug connector is designed to be used in a Line Replaceable Module (LRM) while the receptacle is installed on the aircraft rack. There is no locking mechanism on these blind mate connectors, that feature is part of the equipment interface to the aircraft.

Radiall rack and panel modules offer:

- A wide range of connectors from size 1 to 4 based on the same design. They all use the same accessories, polarization and mounting style in order to standardize the EPX® series
- Reliable system: the polarization device prevents any mounting mistakes between the panel and the receptacle shell, and also between the plug and the receptacle shells
- Modularity in mounting EPX® connectors: EPX® rack and panel receptacles feature Arinc 600 functionality combined with a space saving design which provides several styles of mounting (fixed or float mount)



Technical Characteristics for Disconnect Connectors

ELECTRICAL CHARACTERISTICS

EMI shielding effectiveness EN2591-213

Frequency (MHz)	Leakage attenuation (dB)
100	65
200 & 300	63
400	62
500 & 600	60

OTHER CHARACTERISTICS

- **Shell to shell conductivity** < 2.5 mΩ, operating voltage: 400 Vrms or 500 Vdc at sea level, according to EN2591-205
- **Voltage stability (ground block):** Maximum variation 4mV according to SAE AS 81714 (MIL-T-81714)
- **Lightning stike:** - 5kA - 1600V for EPX® connectors in aluminium version
- 3kA - 1600V for EPX® connectors in composite version

MECHANICAL CHARACTERISTICS

Mating/unmating

Shell type	Material	Mating/Unmating
EPXA	Aluminium	100 cycles
EPXB1	Aluminium	100 cycles
EPXB1	Composite	100 cycles
EPXB2	Composite	100 cycles ⁽¹⁾
EPXB2	Aluminium	100 cycles ⁽¹⁾

VIBRATION & SHOCK

Shell type	Material	Vibration	Shock
		For 8 hrs on each of the 3 axis/ interruption <1µs EN2591-403 EIA 364-28	3 shocks on each axis EN2591-402 EIA 364-27
EPXA	Aluminium	Acceleration 27.8g (test condition 6 letter G)	Shock amplitude 50g /duration 11ms
EPXB1	Aluminium		
EPXB1	Composite		
EPXB2	Composite		
EPXB2	Aluminium		Shock amplitude 300g /duration 3ms
Disconnect EPX® with Quadrax contacts	/	Acceleration 16.9g (test condition 5 letter E)	Shock amplitude 50g /duration 11ms

NOTE:

(1) 500 mating cycles possible when using lubricant (as per the standard Mil-spec DOD G 24508) on locking device

Technical Characteristics for Rack & Panel Connectors

ELECTRICAL CHARACTERISTICS

EMI shielding effectiveness en2591-213

Frequency (MHz)	Leakage attenuation (dB)
100	65
200 & 300	63
400	62
500 & 600	60

OTHER CHARACTERISTICS

- **Shell to shell conductivity** < 2.5 m Ω, operating voltage: 400 Vrms or 500 Vdc at sea level, according to EN2591-205
- **Voltage stability (ground block):** Maximum variation 4mV according to SAE AS 81714 (MIL-T-81714)
- **Lightning stike:** - 5kA - 1600V for EPX® connectors in aluminium version
- 3kA - 1600V for EPX® connectors in composite version

MECHANICAL CHARACTERISTICS

Mating/unmating

Shell type	Material	Mating/Unmating
EPXB1	Aluminium	500 cycles
EPXB2		500 cycles
EPXB3		500 cycles
EPXB4		500 cycles

The minimum mating forces are described in the EN4644 standard and depends on the connector size and insert arrangement. Consult Radiall for more information.

VIBRATION & SHOCK

Shell type	Material	Vibration	Shock
		For 8 hrs on each of the 3 axis/ interruption <1µs EN2591-403 EIA 364-28	3 shocks on each axis EN2591-402 EIA 364-27
EPXB1	Aluminium	Acceleration 16.9g (test condition 5 letter E)	Shock amplitude 50g /duration 11ms
EPXB2			
EPXB3			
EPXB4			

Technical Characteristics for Inserts & Contacts

ELECTRICAL CHARACTERISTICS

Electrical characteristics conform to SAE AS 39029 (MIL-C-39029 type A)
 Contacts conform to EN3155-076 and EN3155-077

CONTACTS

Contact size	Wire size	Max current Amps
22	AWG22	5
	AWG24	3
	AWG26	2
20	AWG20	7.5
	AWG22	5
	AWG24	3
16	AWG16	13
	AWG18	10
	AWG20	7.5
12	AWG12	23
	AWG14	17
	AWG16	13
8	AWG8	46
	AWG10	33
5	AWG8	80 ⁽¹⁾
	AWG10	33

NOTE:

(1) Size 5 contacts are not part of SAE AS 39029 (MIL-C-39029 type A). They are qualified by Radiall to 80 Amps

GROUND BLOCK CONTACT

	Contact with wire size	Max current Amps
Contact to contact	Contact + AWG20	7.5
Contact to mounting surface	Contact + AWG20	7.5

DIELECTRIC WITHSTANDING VOLTAGE EN2591-207 EIA 364-20 with leakage current < 1mΩ

Level	Environmental inserts voltage (VRMS)	Non-environmental voltage (VRMS)
Sea level	1500	1500
50,000 feet	800	600
70,000 feet	800	300

INSULATION RESISTANCE EN2591-206 EIA 364-21

Temperature	Insulation resistance
Ambient temperature	> 5000 MΩ
175°C (+347°F)	> 200 MΩ

Mechanical Characteristics

RETENTION CHARACTERISTICS

Contact retention EN2591-409 EIA 364-29 in terminated connectors.

Contact size	Retention force	Max displacement
Ground block	88N (20 lbs)	0.30mm (.012 in.)
22	53.4N (12 lbs)	0.38mm (.015 in.)
20	89N (20 lbs)	0.38mm (.015 in.)
16	111.2N (25 lbs)	0.38mm (.015 in.)
12	133.45N (30 lbs)	0.38mm (.015 in.)
8	133.45N (30 lbs)	0.38mm (.015 in.)
5	133.45N (30 lbs)	0.38mm (.015 in.)

- **Insert retention:** 400N (90 lbs) EN2591-410 EIA 364-35
- **Maximum insert displacement in the shell cavity:** 0.30mm (.012 in.)

ENVIRONMENTAL CHARACTERISTICS

Temperature

- **Temperature range:** -65°C/+175°C (-85°F/+347°F) according to EIA364-32 and EN2591-305
- **Temperature range:** -65°C/+125°C (-85°F/+257°F) for EPXB2 composite shell and for Rack & Panel EPXB
- **Temperature life:** 1000 hours at maximum temperature

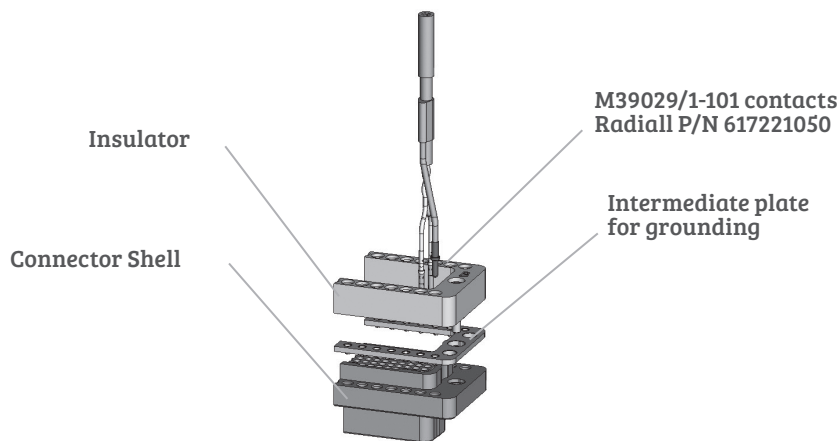
OTHER CHARACTERISTICS

- **Salt spray:** 96 hours (nickel-plated aluminium and composite) EN2591-307 EIA 364-26 test condition A
- **Humidity:** 10 days with temperature variation from -10°C to +65°C EIA 364-31 Method 4, test condition B
- **Altitude immersion:** 3 cycles at 50,000 feet EN2591-314 EIA 364-03

GROUND BLOCK

Radiall provides a unique patented feature by integrating a ground block directly on the shell

This option permits very short ground terminations



Insert Selection Table

Insert name should be used when ordering EPX® insert
 Insert code should be used when ordering kit assembly

Series	Insert name	Insert code	Contact Size & Type ⁽¹⁾											Total contacts	
			22*	20*	15 or 16*	16	16	12*	8	8	8	5	5		
			Signal	Power	Power or coax	LuxCis® fiber optic	Power in fiber optic cavity	Power or coax	Power	Quadrax or twinax	BMA	Coax or triax	Power		
EPXA	00	0													0
	1C1	A											1		1
	1P1	B												1	1
	04	C			2				2						4
	09	D		3	6										9
	14	E		14											14
	14M	F	8	3	3										14
	17	G	12	5											17
20	H	20												20	
EPXB	00	0													0
	C3	A											3		3
	P3	B												3	3
	3Q3	C									3				3
	06	D							6						6
	10Q2	E		8							2				10
	12F6	F				6	6								12
	F12C	G				12									12
	13C1	H		6	4				2				1		13
	13P1	J		6	4				2					1	13
	14	K			14										14
	17	L		14					3						17
	20C1	M		19									1		20
	20P1	N		19										1	20
	22	P		16	6										22
	22V	Q		16	6										22
	25P1	R	24							1					25
	25Q1	S	24								1				25
	28	T	22		6										28
	30	U		30											30
34	W	18	16											34	
40	X	40												40	
48	Y	48												48	
3T3	Z											3		3	

NOTE:

(1) Only contacts marked with an asterisk (*) are included with EPX® inserts
 All other contacts must be ordered separately (coax, twinax, quadrax and fiber optic contacts)

How to order EPX® inserts

Only crimp contacts can be delivered with insert

	EPX	B	E	40	P	B	S
--	-----	---	---	----	---	---	---

Series prefix _____

Insert size⁽¹⁾ _____

A: Insert for EPXA
B: Insert for EPXB1, EPXB2, EPXB3 or EPXB4

Class⁽²⁾ _____

E: Environmental
N: Non-environmental (no rear grommet, no interfacial seal)
H: Non-environmental with a rear grommet, available for pin insert only (recommended for crimp contacts)
T: Non-environmental with an interfacial seal, available for pin insert only (recommended for PC tail contacts)

Insert name _____
 Refer to table on page 1-12 for insert arrangements

Insert type _____

P: Pin
S: Socket

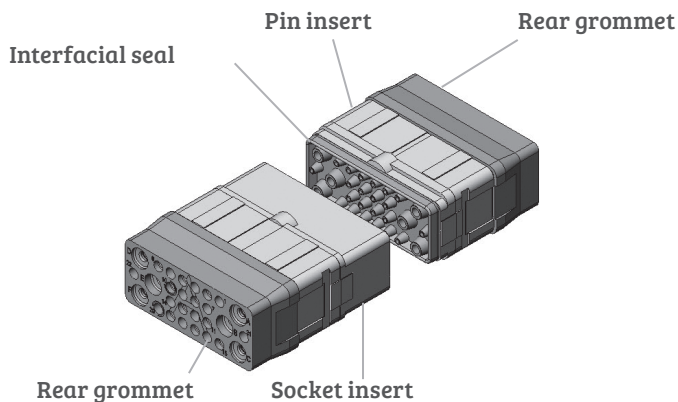
Insert keying⁽³⁾ _____

A: Keying A
B: Keying B

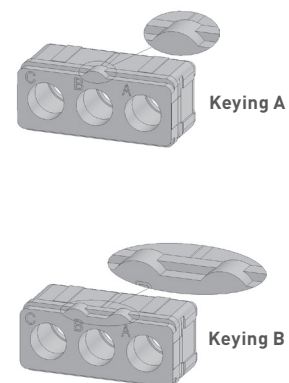
Contact _____

Without code: insert delivered without contacts
S: Signal and power contacts are delivered with inserts but are uninstalled (refer to page 1-12)
 Inserts 00, 1C1, 1P1, C3, P3, 3Q3, 12F6, F12C and 3T3 are not available in S contact version

ENVIRONMENTAL INSERT



Insert Keying Detail



NOTES:

- (1) Inserts are designed for rear release & rear removable contacts
- (2) Pin and socket inserts can be installed in either plug or receptacle shell
 F6, F12C and 12F6 are only available in E class. "Insert 00 is only available in N class
- (3) For EPXA, EPXB1, EPXB3 and EPXB4 shells, use only insert keyed A
 For EPXB2 shells, use one insert keyed A and one insert keyed B

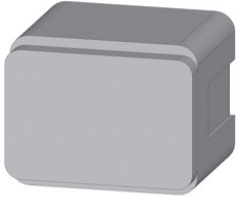
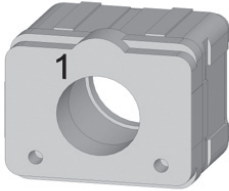
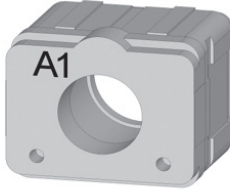
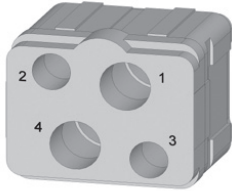
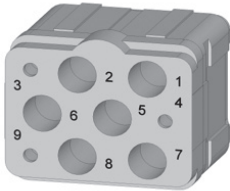
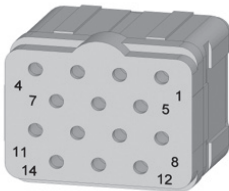
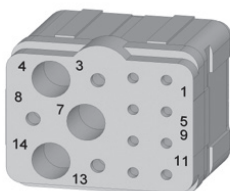
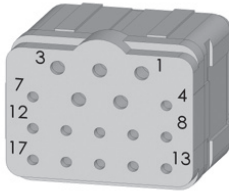
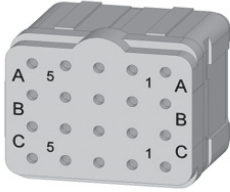
EPXA Insert Arrangements

INSERTS

CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION


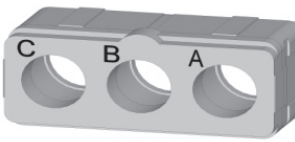
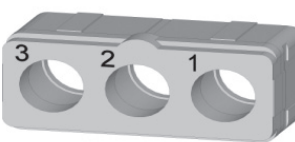
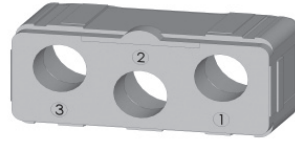
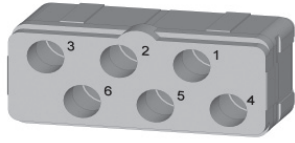
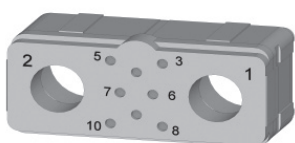
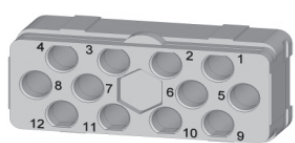
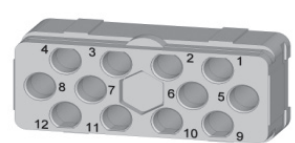
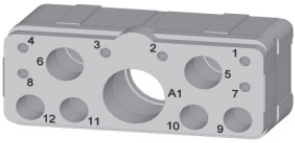
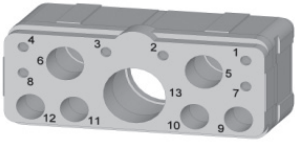
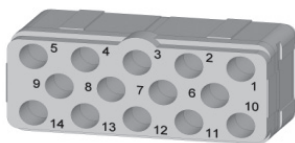
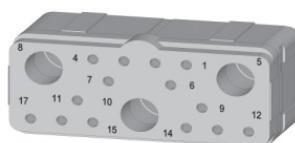
			
<p>Insert name 00 Insert code 0 Blank insert ⁽¹⁾</p>	<p>Insert name 1C1 Insert code A 1 x size 5 coax contacts</p>	<p>Insert name 1P1 Insert code B 1 x size 5 power contacts</p>	<p>Insert name 04 Insert code C 2 x size 15 or 16 contacts 2 x size 12 contacts</p>
			
<p>Insert name 09 Insert code D 3 x size 20 contacts 6 x size 15 or 16 contacts</p>	<p>Insert name 14 Insert code E 14 x size 20 contacts</p>	<p>Insert name 14M Insert code F 8 x size 22 contacts 3 x size 20 contacts 3 x size 15 or 16 contacts</p>	<p>Insert name 17 Insert code G 12 x size 22 contacts 5 x size 20 contacts</p>
			
<p>Insert name 20 Insert code H 20 x size 22 contacts</p>			

NOTE:

(1) P/N for blank insert is EPXAN00

EPXB Insert Arrangements

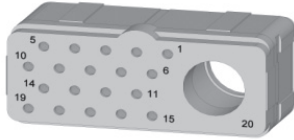
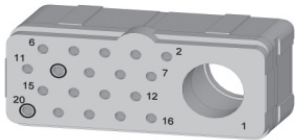
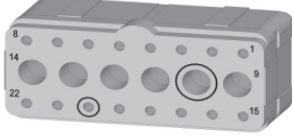
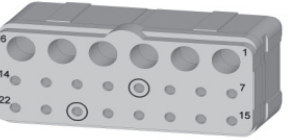
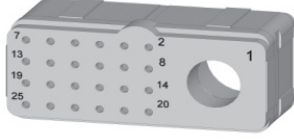
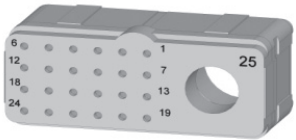
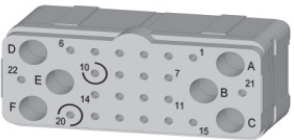
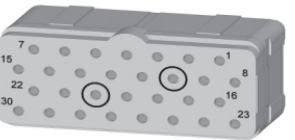
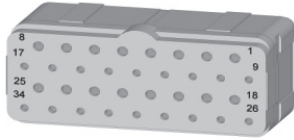
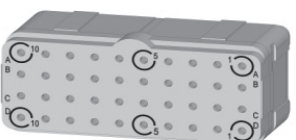
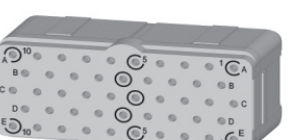
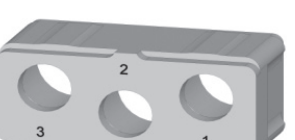
Full size inserts arrangements are compliant with EN4644

			
Insert name 00 Insert code 0 Blank insert ⁽¹⁾	Insert name C3 Insert code A 3 x size 5 coax contacts	Insert name P3 Insert code B 3 x size 5 power contacts	Insert name 3Q3 Insert code C 3 x size 8 quadrax contacts
			
Insert name 06 Insert code D 6 x size 12 medium power contacts	Insert name 10Q2 Insert code E 8 x size 20 contacts 2 x size 8 quadrax contacts	Insert name 12F6 Insert code F 6 x size 16 Optical LuxCis® termini 6 x size 16 special electrical contacts	Insert name F12C Insert code G 12 x size 16 Optical LuxCis® termini
			
Insert name 13C1 Insert code H 6 x size 20 contacts 4 x size 15 or 16 contacts 2 x size 12 contacts 1 x size 5 coax contact	Insert name 13P1 Insert code J 6 x size 20 contacts 4 x size 15 or 16 contacts 2 x size 12 contacts 1 x size 5 power contact	Insert name 14 Insert code K 14 x size 15 or 16 contacts	Insert name 17 Insert code L 14 x size 20 contacts 3 x size 12 contacts

NOTE:
(1) P/N for blank insert is EPXBN00

EPXB Insert Arrangements

Full size inserts arrangements are compliant with EN 4644.

			
Insert name 20C1 Insert code M 19 x size 20 contacts 1 x size 5 coax contact	Insert name 20P1 Insert code N 19 x size 20 contacts 1 x size 5 power contact	Insert name 22 Insert code P 16 x size 20 contacts 6 x size 15 or 16 contacts	Insert name 22V Insert code Q 16 x size 20 contacts 6 x size 16 contacts
			
Insert name 25P1 Insert code R 24 x size 22 contacts 1 x size 8 power contact	Insert name 25Q1 Insert code S 24 x size 22 contacts 1 x size 8 quadrax contact	Insert name 28 Insert code T 22 x size 22 contacts 6 x size 15 or 16 contacts	Insert name 30 Insert code U 30 x size 20 contacts
			
Insert name 34 Insert code W 18 x size 22 contacts 16 x size 20 contacts	Insert name 40 Insert code X 40 x size 22 contacts	Insert name 48 Insert code Y 48 x size 22 contacts	Insert name 3T3⁽¹⁾ Insert code Z 3 x size 8 BMA pin contacts

NOTE:

(1) 3T3 pin insert only is available. It is mateable with 3Q3 socket insert

Signal & Power Crimp Contacts

EPX series offers a wide range of contacts compliant with EN3155 and SAE AS 39029. The available contacts cover aerospace applications for terminating to both cables and printed circuit boards.

- Signal and power contacts
- High frequency with coax, twinax and triax contacts
- Ethernet links with Quadrax contacts
- Optical links with LuxCis® contacts

Discover our brand new range of signal & power contacts with selective gold plating

Features and benefits :

- Significant reduction of cost of ownership
- Reduced dependence on gold rate fluctuation
- No change in the contact crimping or soldering process

Specifications:

- Same contact design as full plated version
- Contact interface gold plated with 1.27µm
- For crimp version, no changes are required for the crimping process
- For PC tail version, use of selective plated contacts has no impact on PCB design
- Product qualification is available upon request

Contact size	Wire size	Type	Part number full plated	Part number selectively plated	Crimping tool	Positioner	Selector	Ins / ext tool	Type of tool	
22	22	Pin	617200	617200100	282281 M22520/2-01	282970 M22520/2-23	4	282522 {M81969/14-01}	Plastic	
	24						3			
	26	Socket	617300	617300100			3			
20	20	Pin	617221	617221100	282281 M22520/2-01	282971 M22520/2-08	7	282522001 {M81969/39-01}	Plastic	
	22						6			
	24	Socket	617320	617320100			5			
16		Pin	617240	617240100	282291 M22520/1-01	282972 M22520/1-02	6	282515 {M81969/14-03}	Plastic	
			18							5
		20	Socket	617340			617340100			4
	Ground block	20	Pin	617221050	N/A	282281 M225520/2-01	282581015 M22520/2-11	7	282886	Metal
			Socket	N/A	N/A					
	for optical/ electrical insert	16	Pin	617235003 ⁽¹⁾	N/A	282291 M22520/1-01	282581013	6	282515 {M81969/14-03}	Plastic
18		5								
20		4								
12	12	Pin	617250	617250100	282291 M22520/1-01	282972 M22520/1-02	8	282549004 {M81969/14-04}	Plastic	
	14						7			
	16	Socket	617350	617350100			6			
8	8	Pin	617291002 ^(2&3)	N/A	R282600000 M22520/23-01 + Die set R282650000 M22520/23-02	282588	N/A	282549001	Metal	
	10	Socket	617391002 ^(2&3)	N/A						
5	8	Pin	617280 ^(2&4)	N/A	R282600000 M22520/23-01 + Die set R282650000 M22520/23-02	282557020	N/A	282946 {M81969/28-01}	Metal	
		Socket	617390 ^(2&4)	N/A						282557021
	12	Pin	617260001 ^(2&4)	N/A		282613	282586003			6
		16	Socket	617370001 ^(2&4)			N/A			

NOTES:

- (1) Electrical contacts for optical inserts are always pin contacts (hermaphrodite)
- (2) In order to make these contacts environmental, it is necessary to add a sealing boot. Please contact us for additional information
- (3) These power contacts can be used in power inserts only [25P1]
- (4) These power contacts can be used in power inserts only [P3, 13P1 and 20P1]

Oversized & Reduced Crimp Barrel Contacts

Contact size	Wire size	Type	Part number fully plated	Crimping tool	Positioner	Selector	Ins / ext tool	Type of tool	
22	reduced crimp barrel	28	Pin	617201 ⁽¹⁾	282281 M22520/2-01	282970 M22520/2-23	5	282522 (M81969/14-01)	Plastic
		30	Socket	617301 ⁽¹⁾			4		
	oversize crimp barrel	20	Pin	617200200	282281 M22520/2-01	282970 M22520/2-23	5		
		22	Socket	617300200			4		
		24					3		
		24					3		
20	reduced crimp barrel	22	Pin	617224001 ⁽¹⁾	282281 M22520/2-01	282971 M22520/2-08	4	282522001 (M81969/39-01)	Plastic
		24	Socket	617324001 ⁽¹⁾			3		
		26					3		
		oversize crimp barrel	18	Pin			617221200		
	20		Socket	617320200	5				
	22				4				
	22		4						
	16	reduced crimp barrel	20	Pin	617241 ⁽¹⁾	282291 M22520/1-01	282972 M22520/1-02		
22			Socket	617341 ⁽¹⁾	5				
24					4				
reduced crimp barrel for optical electrical insert			20	Pin	617235002 ^(1&2)			282291 M22520/1-01	282581013
		22	Pin	617235002 ^(1&2)	5				
		24			4				
oversize crimp barrel		14	Pin	617240200	282291 M22520/1-01	282972 M22520/1-02	6		
		16	Socket	617340200			5		
		18					5		

NOTES:

- (1) When smaller wire sizes are used on contacts with reduced crimp barrel, the wire will not provide sealing to the grommet. If sealing is required, please contact Radiall
- (2) Electrical contacts for optical insertss are always pin contacts (hermaphrodite)

INSERTS

CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

Coaxial Crimp Contacts

Contact size	Cable type	Type	Environmental part number	Non-environmental part number	Ins/ext tool	Type of tool
15-16	RG174-RG179 RG316	Pin	617130		282512	Metal
		Socket	617030			
	RG178	Pin	617131			
		Socket	617031			
	GORE/AXON P812817 FILECA F1703-134 FILOTEX SP132868	Pin	617132			
		Socket	617032			
	RG178 DT	Pin	617133			
		Socket	617033			
UT .047	Pin	617135				
	Socket	617035				
12	UT.085-RG405	Pin	617160		282549004 (M81969/14-04)	Plastic
		Socket	617060			
5	RG58-RG141	Pin	617101001	617101	282946 (M81969/28-01)	Metal
		Socket	617001001	617001		
	RG142 - RG400	Pin	617102001	617102		
		Socket	617002001	617002		
	RG174-RG316 RG188	Pin	617103001	617103		
		Socket	617003001	617003		
	RG178-RG196	Pin	617104001	617104		
		Socket	617004001	617004		
	RG180	Pin	617105001	617105		
		Socket	617005001	617005		

EPX® SERIES

INSERTS

CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

Twinax & Triax Crimp Contacts

Contact size	Cable type	Type	Environmental part number	Non-environmental part number	Ins/ext tool	Type of tool
12 Triax	ECS0700	Pin	617190010		282549004 (M81969/14-04)	Plastic
		Socket	617090010			
	M17/176-00002	Pin	617190012			
		Socket	617090012			
8 Triax	TENSOLITE	Pin	617165021	617165020	282549001	Metal
	24473/03159X-2	Socket	617065021			
		Pin	617165			
	WHITMOR W26751575	Socket	617065			
ABS0386WF24 & TYCO 1726A1424A		Pin	617165011			
	Socket	617065011				
5 Triax	M17/176-0002	Pin	617150001		282946 (M81969/28-01)	Metal
		Socket	617050001			
	PAN6421	Pin	617152001			
		Socket	617052001			

INSERTS

CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

Quadrax & BMA Crimp Contacts

QUADRAX CONTACTS



Contact size	Cable type	Type	Environmental part number	Non-environmental part number	Extraction tool in metal
8	Ethernet cable ABS0972 & ABS1503	Pin	617175011	617175012	282549001
		Socket	617075011	620075010	
	TENSOLITE NF24Q100	Pin	617175051	617175052	
		Socket	617075051	620075050	
	Tensolite NF26Q100 JSF Y18	Pin	617175053	617175054	
		Socket	617075053	620075021	

BMA CONTACTS



Contact size	Cable type	Connector Type	Environmental part number	Non-environmental part number	Frequency range	Max VSWR	Insertion loss
8	SHF5 - SHF5M ⁽¹⁾	Pin ⁽²⁾	617171011	617171010	DC-18 GHz	1.35	0.13 dB at max frequency (18 GHz)
	RG142	Pin ⁽²⁾	617171021	617171020	DC-12.4 GHz	1.35	0.11 dB at max frequency (12.4 GHz)
	SHF2.4M ⁽¹⁾ /UT.085 Harbour SS405 Times Tflex405	Pin ⁽²⁾	617171031	617171030	DC-18 GHz	1.35	0.13 dB at max frequency (18 GHz)
	SHF5 - SHF5M ⁽¹⁾	Socket	617071011	617071010	DC-18 GHz	1.35	0.13 dB at max frequency (18 GHz)
	RG142	Socket	617071021	617071020	DC-12.4 GHz	1.35	0.11 dB at max frequency (12.4 GHz)
	SHF3 ⁽¹⁾	Socket	617071041	617071040	DC-18 GHz	1.35	0.13 dB at max frequency (18 GHz)

Extraction tool **282549001** is used for size 8 BMA contacts
 Environmental BMA contacts are all provided with sealing boots

NOTES:

- (1) The BMA contacts which can accommodate SHF cables requires a termination by Radiall
- (2) BMA can only be installed in modified EPXB Quadrax insert such as 3T3P. Ex: EPXBE3T3PA

LuxCis® Fiber Optic Contacts

The LuxCis® product range is a proven, flexible and always expanding fiber optic interconnect solution offering high speed communication in aerospace and other harsh environments.

OPTICAL PERFORMANCES

	MultiMode (PC) 850 / 1300 nm	SingleMode (UPC) 1310 / 1550 nm
Insertion Loss (IL) Mean (IEC 61300-3-4 Method B)	0.1 dB	0.15 dB
Return Loss (RL) (IEC 61300-3-6)	> 20 dB	> 50 dB

MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

	Standard	Performances
Thermal cycling	SAE AS 13441 method 1003.1	-55°C/+125°C (cable dependant)
Temperature endurance	TIA/EIA 455-4	1000 h @ 125°C (cable dependant)
Vibration	TIA/EIA 455-11	27 Grms
Shock	TIA/EIA 455-14	50 G, 11 ms
Durability	TIA / EIA 364-09	500 cycles ⁽¹⁾
Maintenance	SAE AS 13441 method 2002.1	10 cycles
Cable retention 1.8 mm diameter 900 µm diameter	SAE AS 13441 method 2009.1	68 N 7 N
Humidity	TIA EIA 455-5	10 cycles / 24 h 90% RH -25°C / +65°C

LUXCIS® CONTACT PART NUMBERING SYSTEM



F725: LuxCis® series

Ferrule type

- 00:** PC ferrule for SingleMode fiber
- 03:** PC ferrule for 50/125 or 62,5/125 µm MultiMode fiber
- 04:** PC ferrule for 100/40 µm MultiMode fiber
- 05:** PC ferrule for 200/230 µm MultiMode fiber
- 50:** APC ferrule for SingleMode fiber

Cable type and diameter

- 118:** 900 µm cable
- 318:** 1.2 mm cable with strengthening members, tight structure
- 419:** 1.6 to 2.2 mm cable, loose structure
- 519:** 1.6 to 2.2 mm cable, tight structure

NOTES:

(1) Mating cycles are dependant on connector series
 Radiall can support you with your cable and harness assemblies
 Please contact your sales representative

Signal PC tail Contacts

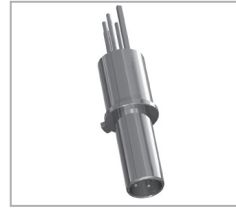
Selection table for straight PC tail contacts

Contact termination	Contact type	Size 22	Size 20	Size 16	Size 12	Size 8	Size 5
RA	Pin	617205510	617222514	617242510	617259505	617291501	617289506
	Socket	617305500	617322505	617342510	617359505	617391501	617389506
YA	Pin	617205010	617222014	617242010	617259005	617291001	617289006
	Socket	617305	617322005	617342010	617359005	617391001	617389006
ZA	Pin	617205710	617222714	617242710	617259705	617291701	617289706
	Socket	617305700	617322705	617342710	617359705	617391701	617389706
RB	Pin	617205501	617222512	617242508	617259506	617291503	617289504
	Socket	617305501	617322506	617342511	617359506	617391503	617389504
YB	Pin	617205001	617222012	617242008	617259006	617291003	617289004
	Socket	617305001	617322006	617342011	617359006	617391003	617389004
ZB	Pin	617205701	617222712	617242708	617259706	617291703	617289704
	Socket	617305701	617322706	617342711	617359706	617391703	617389704
RC	Pin	617205515	617222513	617242517	617259503	617291504	617289503
	Socket	617305508	617322507	617342513	617359503	617391504	617389503
YC	Pin	617205015	617222013	617242017	617259003	617291004	617289003
	Socket	617305008	617322007	617342013	617359003	617391004	617389003
ZC	Pin	617205715	617222713	617242717	617259703	617291704	617289703
	Socket	617305708	617322707	617342713	617359703	617391704	617389703
RD	Pin	617205509	617222510	617242509	617259507	617291505	617289507
	Socket	617305502	617322509	617342515	617359507	617391505	617389507
YD	Pin	617205009	617222010	617242009	617259007	617291005	617289007
	Socket	617305002	617322009	617342015	617359007	617391005	617389007
ZD	Pin	617205709	617222710	617242709	617259707	617291705	617289707
	Socket	617305702	617322709	617342715	617359707	617391705	617389707
Ins/ext. tool		282522 M81969/14-01	282522001 M81969/39-01	282515 M81969/14-03	282549004 M81969/14-04	282549001 M81969/28-03	282946 M81969/28-01

QUADRAX SIZE 8 PC tail CONTACTS

Selection table for straight PC tail contacts

Contact termination	Contact type	Part number size 8
RA	Pin	617177512
	Socket	617077512
YA	Pin	617177012
	Socket	617077012
ZA	Pin	617177712
	Socket	617077712
RB	Pin	617177501
	Socket	617077502
YB	Pin	617177001
	Socket	617077002
ZB	Pin	617177701
	Socket	617077702
RC	Pin	617177508
	Socket	617077508
YC	Pin	617177008
	Socket	617077008
ZC	Pin	617177708
	Socket	617077708
RD	Pin	617177513
	Socket	617077513
YD	Pin	617177013
	Socket	617077013
ZD	Pin	617177713
	Socket	617077713
Ext. tool		282549001



Filler Plugs & Sealing Plugs

Sealing plugs are dedicated to environmental inserts and filler plugs are dedicated to non-environmental inserts

Contact size	Filler plug		Sealing plug
Size 22	620920		616910
Size 20	610941		616911
Size 16	620922		616912
Size 12	620923		616913
Size 8	Socket	619950	618915
	Pin	619953	
Size 5	Socket	617931	616914013
	Pin	617930	

Contacts for GBE Links

Radiall offers gigabit ethernet solutions based on standard components
These 2 solutions are perfectly suited for high speed transfers for digital audio and video signals

QUADRAX SOLUTION:

- Available with any EPXB connector
- 2 Quadrax contacts are required for 1 Gigabit link
- Quadrax inserts: 3Q3 or 10Q2
- Up to 2 Gbit/sec

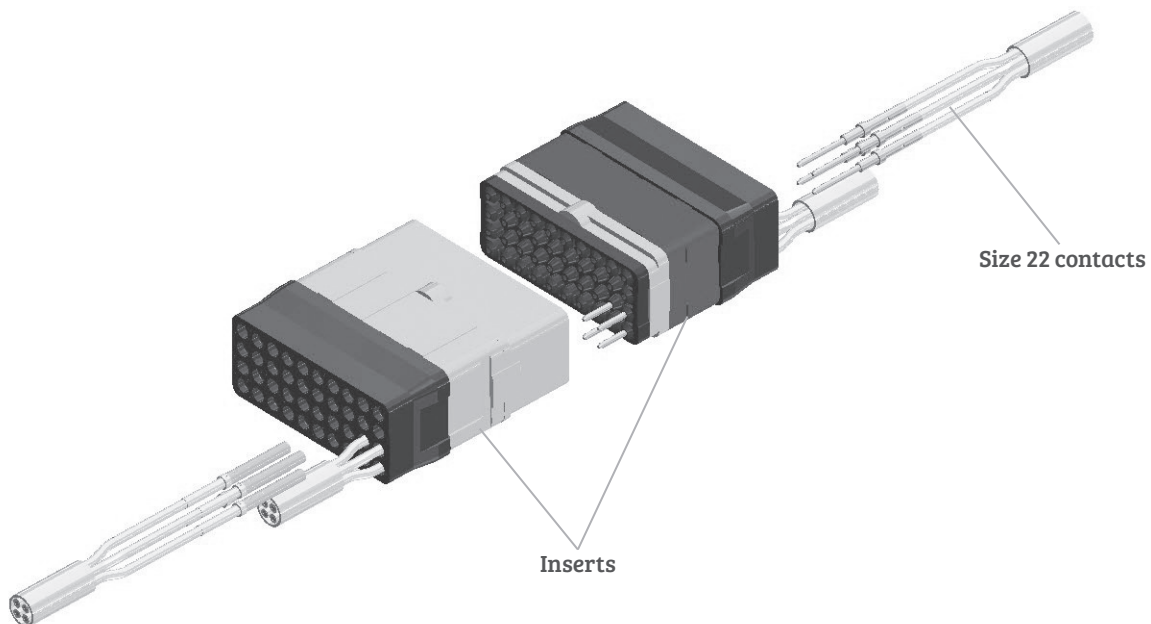
HIGH DENSITY SOLUTION:

- Available with any EPXB connector
- 4 twisted pairs requires 8 #22 contacts for 1 Gbit link
- Inserts: 40 or 25Q1
- Additional size 22 contacts can be used for ground continuity
- EMI backshell (recommended by Radiall)
- Up to 1 Gbit/sec
- Short strip dimensions are required to get minimum impedance disturbance.
Radiall solution combines short strip and easy maintenance availability.

For further information, please contact Radiall

High density solution

Detailed view of inserts including contacts for gigabit ethernet link



INSERTS

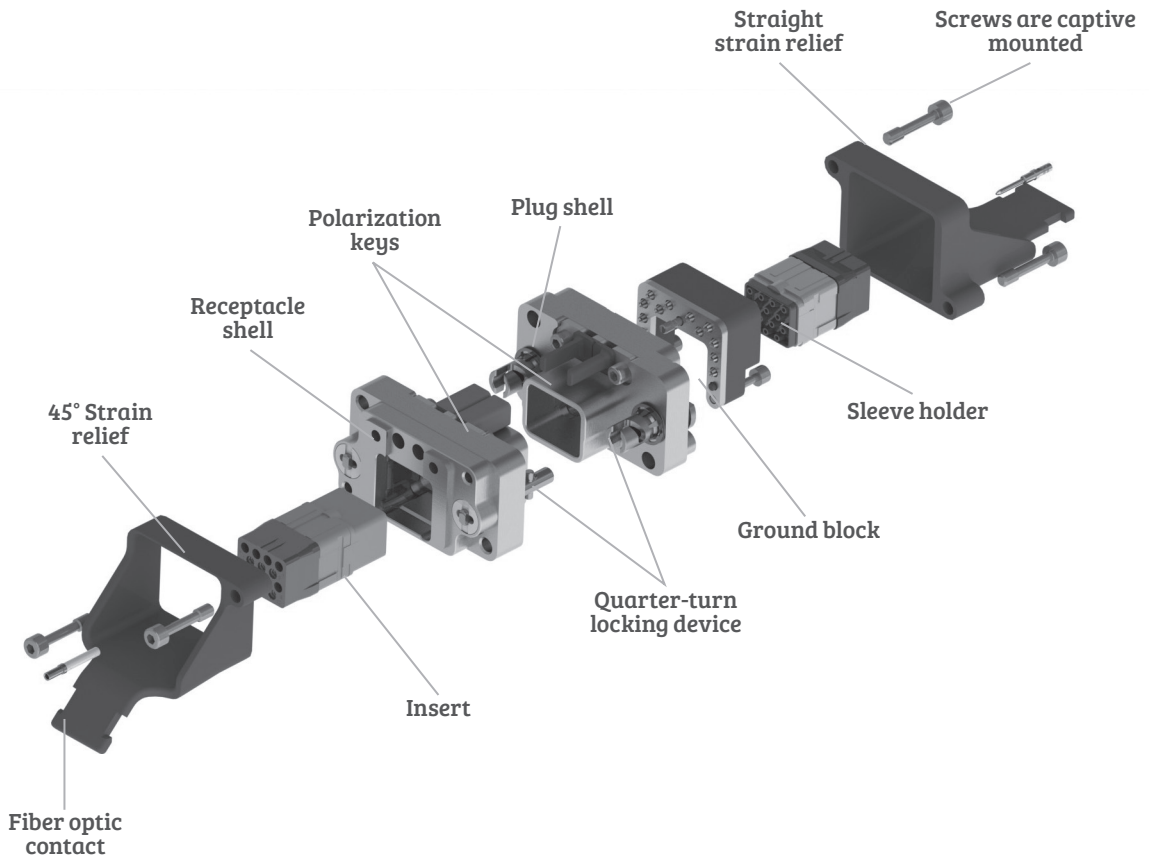
CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

EPXA Product Overview

Detailed view of receptacle and plug with accessories for the EPXA1 connector



INSERTS

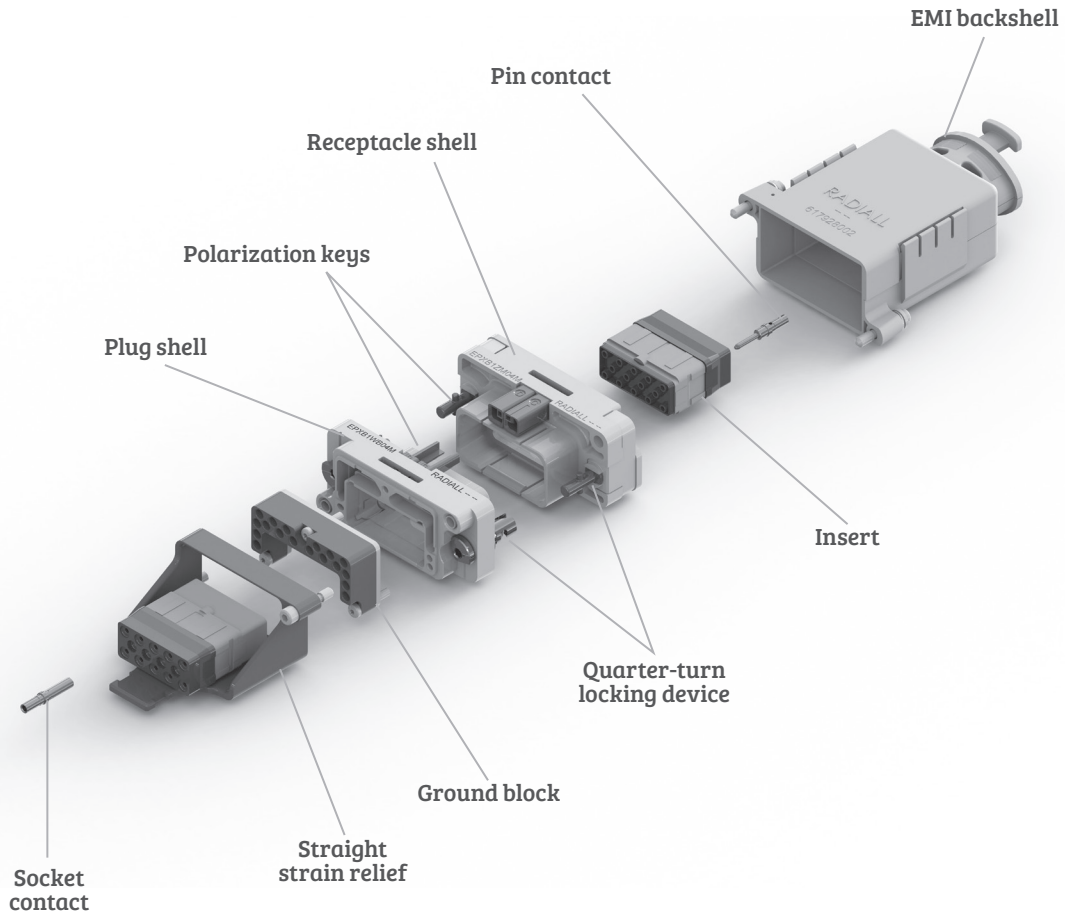
CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

EPXB1 Product Overview

Detailed view of receptacle and plug with accessories for the EPXB1 connector



EPX® SERIES

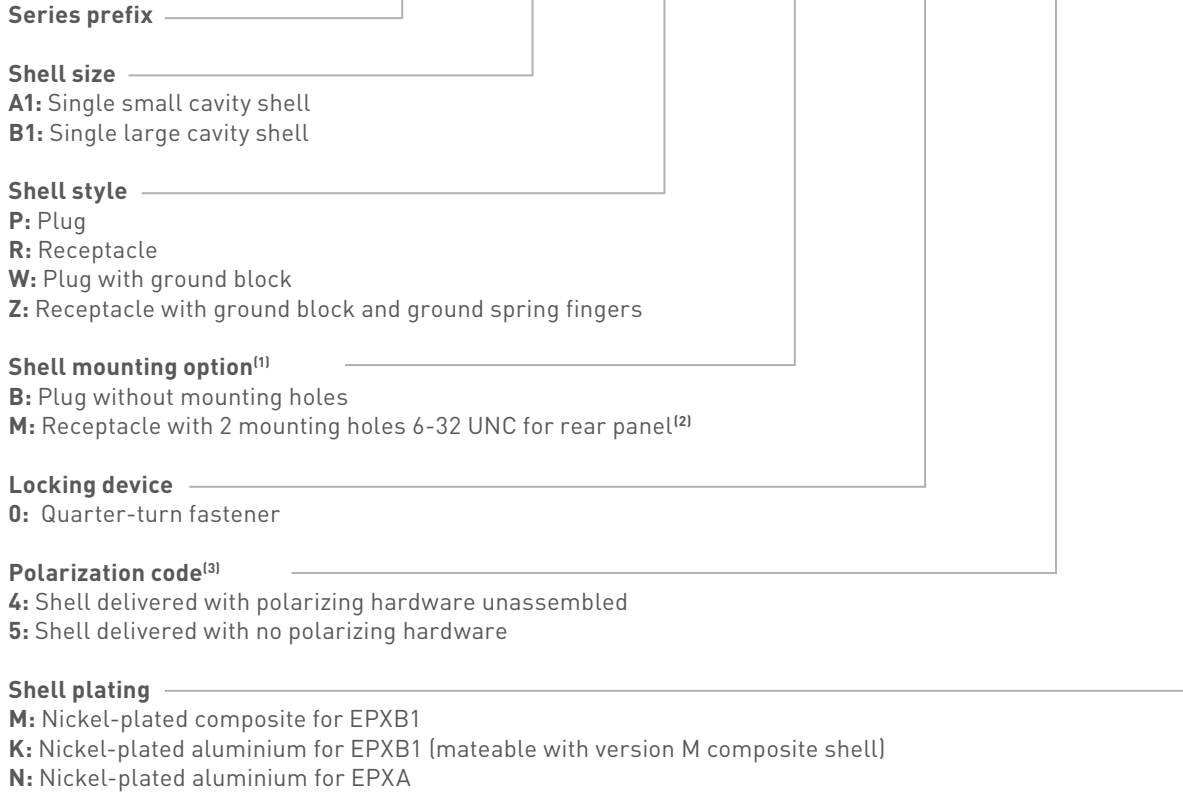
INSERTS

CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

How to Order EPXA & EPXB1 Shell



NOTES:
 (1) Recommended locking torque: 1.6Nm (14.16 in-lbs) for metallic shell and 1.1Nm (9.73 in-lbs) max for composite shell
 (2) Self-locking mounting holes are designed for rear panel mounting
 (3) Please see page 1-33 on how to use the polarization device

How to Order EPXA & EPXB1 Assembly Kit

Assembly kit is delivered fully assembled including shell with insert mounted, with or without contacts according to the selection.

Tips to help you in your selection:

- You are free to use either pin or socket inserts in EPXA & EPXB1 plug or receptacles.
- Crimp contacts can be delivered with a kit, check which contacts would be included on page 1-12.
- If PC tail are selected then all cavities including signal, power and quadrax are populated. Size 5 coax cavities are not populated.
- If PC tail contacts are needed, remember that they are available as pin straight PC tail contacts in receptacles only.

	EPX	B1	R	4	M	E	M	YA
--	-----	----	---	---	---	---	---	----

SHELL SELECTION PART

Series prefix _____

Shell size _____
A1: Single small cavity shell
B1: Single large cavity shell

Shell style _____
P: Plug
R: Receptacle
W: Plug with ground block
Z: Receptacle with ground block and ground fingers

Polarization code _____
4: Shell delivered with polarizing hardware unassembled
5: Shell delivered with no polarizing hardware

Shell plating _____
M: Nickel-plated composite for EPXB1
K: Nickel-plated aluminium for EPXB1 (mateable with version M composite shell)
N: Nickel-plated aluminium for EPXA

INSERT SELECTION PART

Insert class _____
E: Environmental
N: Non-environmental (no rear grommet, no interfacial seal)
H: Non-environmental insert with a rear grommet, available for pin insert only (recommended for crimp contact)
T: Non-environmental insert with an interfacial seal, available for pin insert only (recommended for PC tail contact)

Insert code _____
Refer to page 1-12 to select insert code

Contacts termination _____
XS: Socket insert without contacts
XP: Pin insert without contacts
SS: Socket insert with crimp contacts
SP: Pin insert with crimp contacts] These contacts are delivered uninstalled

YA: Gold PC tail contacts length A
ZA: Tin-lead PC tail contacts length A
RA: Pure tin (RoHS) PC tail contacts length A] Refer to page 1-30 to select PC tail contacts for receptacle

INSERTS

CONTACTS

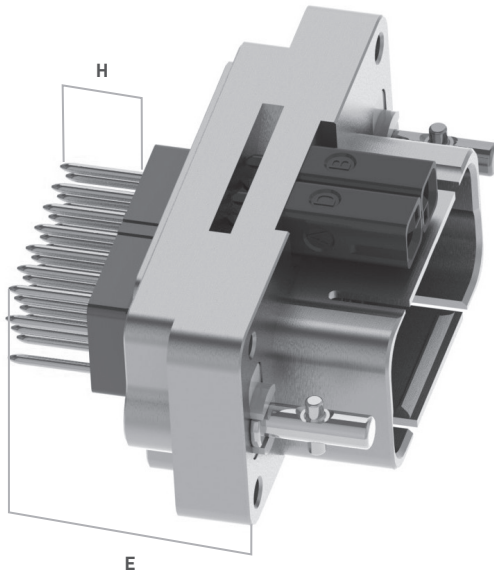
DISCONNECT APPLICATION

RACK & PANEL APPLICATION

Contacts Termination for EPXB1

EPXB1 RECEPTACLES (aluminium and composite shell version)

Straight PC Tail contact termination				
Min Length E mm (inch)	Min Length H mm (inch)	Gold	Tin-lead	Pure tin (RoHS)
16.20 [0.637] ⁽¹⁾	/	YA	ZA	RA
19.40 [0.763] ⁽¹⁾	/	YB	ZB	RB
21.25 [0.836] ⁽¹⁾	/	YC	ZC	RC
25.20 [0.992]	5.40 [0.212]	YD	ZD	RD



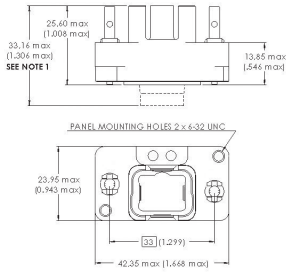
NOTE:

(1) These PC tail lengths are not compatible with EPXBE and EPXBH inserts

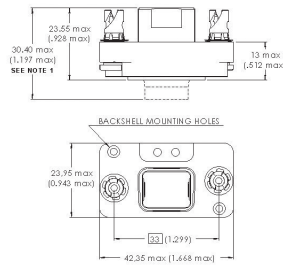
EPXA Shell Dimensions

WITHOUT GROUND BLOCK

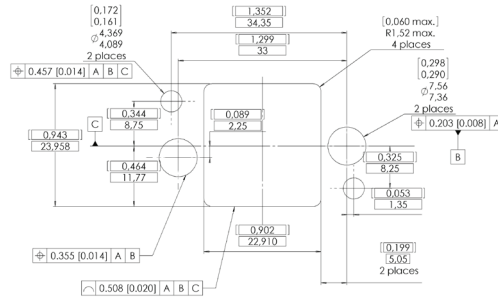
Receptacle



Plug

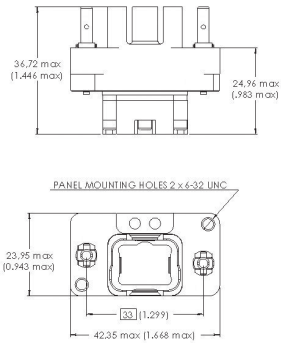


SINGLE PANEL CUT OUT (2)

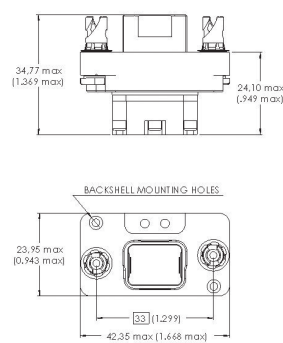


WITH GROUND BLOCK

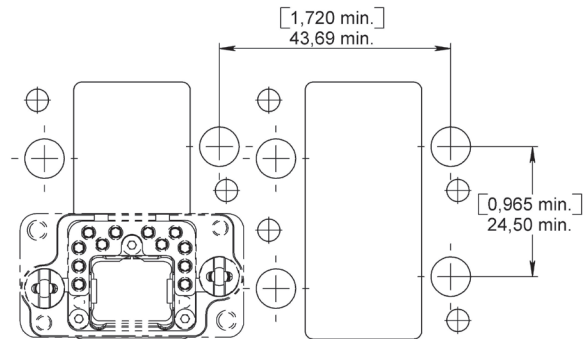
Receptacle



Plug



MULTIPLE PANEL CUT OUT (2)



NOTES:

- (1) Maximum dimension for insert with grommets
For inserts without grommets maximum dimensions will be for receptacle 25.55mm (1.006in) and for the plug 23.52mm (0.926in)
- (2) Rear mounting side view with key post oriented to the upper side

EPX® SERIES

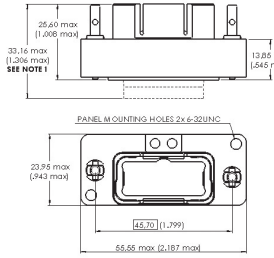
INSERTS
CONTACTS

DISCONNECT APPLICATION
RACK & PANEL APPLICATION

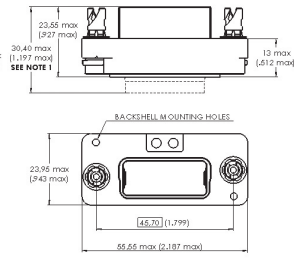
EPXB1 Shell Dimensions

WITHOUT GROUND BLOCK

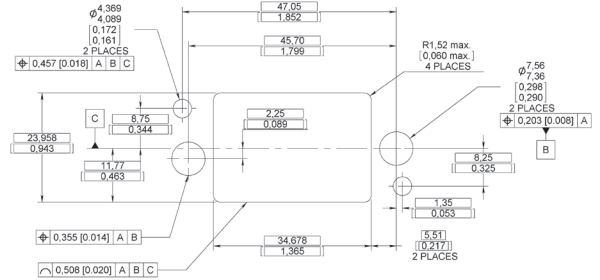
Receptacle



Plug

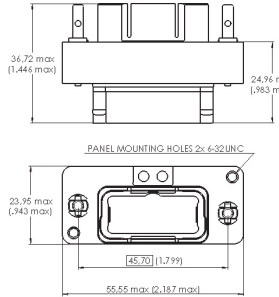


SINGLE PANEL CUT OUT (2)

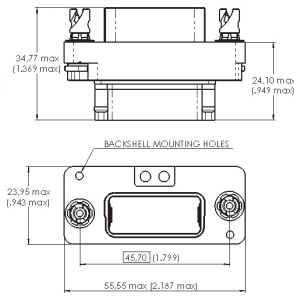


WITH GROUND BLOCK

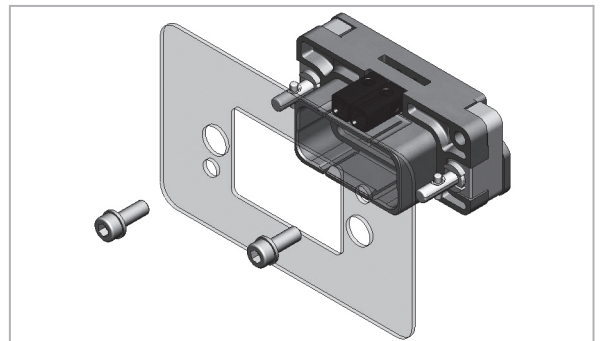
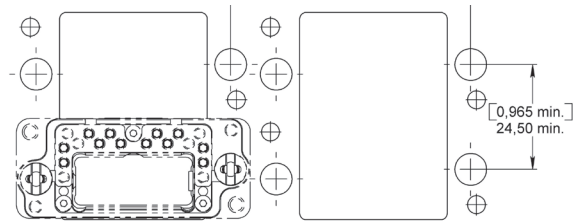
Receptacle



Plug



MULTIPLE PANEL CUT OUT (2)



NOTES:

- (1) Maximum dimension for insert with grommets. For inserts without grommets: Insert is flush to the shell. Maximum dimension for the receptacle is 25.55 mm(1.006 in) and for the plug is 23.52 mm(0.926 in). For inserts with optical contacts : the maximum dimension for the receptacle is 38.70 mm(1.524 in) and the plug is 36.00 mm (1.418 in)
- (2) Rear mounting side view with key post oriented to the upper side

Polarization Code

EASY READING OF POLARIZATION CODE

Caution: Read the polarization code from left to right, the same way the part number marking can be read on the connector

	Plug	Receptacle
EPXA		
EPXB1		
Coding device	<p>View A & B View C & D</p>	<p>View A & D View C & B</p>

There are 16 possible codings:

Key position 1	A	A	A	A	B	B	B	B	C	C	C	C	D	D	D	D
Key position 2	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D

EPX® SERIES

INSERTS

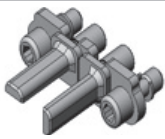
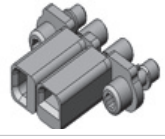
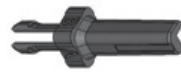



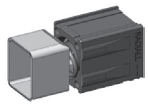



CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION




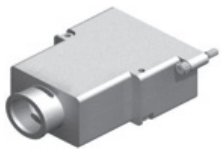

EPXA & EPXB1 Accessories

SPARE PARTS & DUST CAPS

	Part number		Description	Assembly tool	Assembly torque
	EPXA	EPXB1			
	617980032	-	Polarization kit for plug connector	282666002	0.8 Nm (7 In-lbs)
	617980033	-	Polarization kit for receptacle connector		
	-	617980030	Polarization post	N/A	
	-	617980031	Polarization key		
	617954006	617954008	Dust cap for plug shell (pink color)		
	617954007	617954009	Dust cap for receptacle shell (pink color)		
	617954044	617954034	ESD dust cap for plug shell (black color)		
	617954045	617954028	ESD dust cap for receptacle shell (black color)	N/A	
	617929033		Sealing inserts for fly away applications: mateable with pin insert		
		617929023			
	617929032		Sealing inserts for fly away applications: mateable with socket insert		
		617929022			

EPXA & EPXB1 Accessories

STRAIN RELIEF AND EMI BACKSHELLS

	Part number		Description	Assembly tool	Assembly torque
	EPXA	EPXB1			
	617921030	617921029	Straight strain relief (composite)	282666002	0.8 Nm (7 In-lbs)
	617921032	617921031	45° strain relief (composite)		
	-	617921035	Strain relief for fiber optic (anodized aluminium)		
	-	617924016	Straight EMI backshell (Nickel-plated aluminium)		
	-	617928002	Straight EMI backshell (Nickel-plated composite)		

NOTE:
For mounting instructions, please contact Radiall

EPX® SERIES

INSERTS

CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

EPXB2 Disconnect Connectors

When less is more.

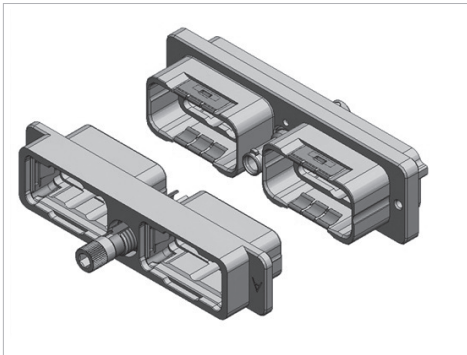
Radiall EPXB2 disconnect connectors have been widely used in aerospace industry for more than 10 years. As a worldwide leader in cable to cable and PCB to cable connections, Radiall is committed to constantly innovating to meet the demands of the industry with the most effective and reliable solutions.

Demand for weight saving connection solution is now growing more and more.

Radiall is proud to introduce:

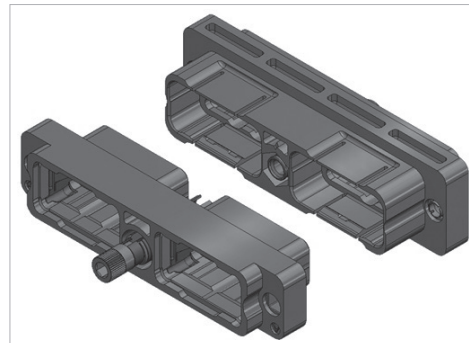
- EPXB2 class M (Nickel plated composite)
- EPXB2 class J (Weight optimized aluminium)

Two proven and available alternatives when you are facing weight issues in cable to cable and PCB to cable connections.



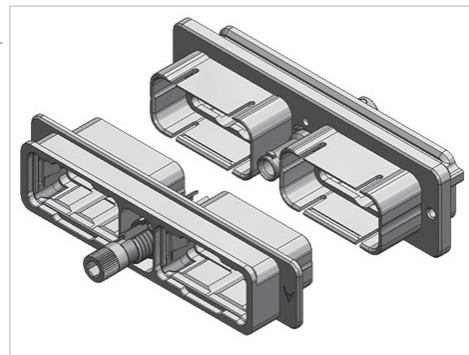
EPXB2 class N

- Performances :
- T° range -65°C / +175°C



EPXB2 class M

- Performances:
- Weight saving compared to class N EPXB2 : -15%
 - T° range: -65°C / +125°C

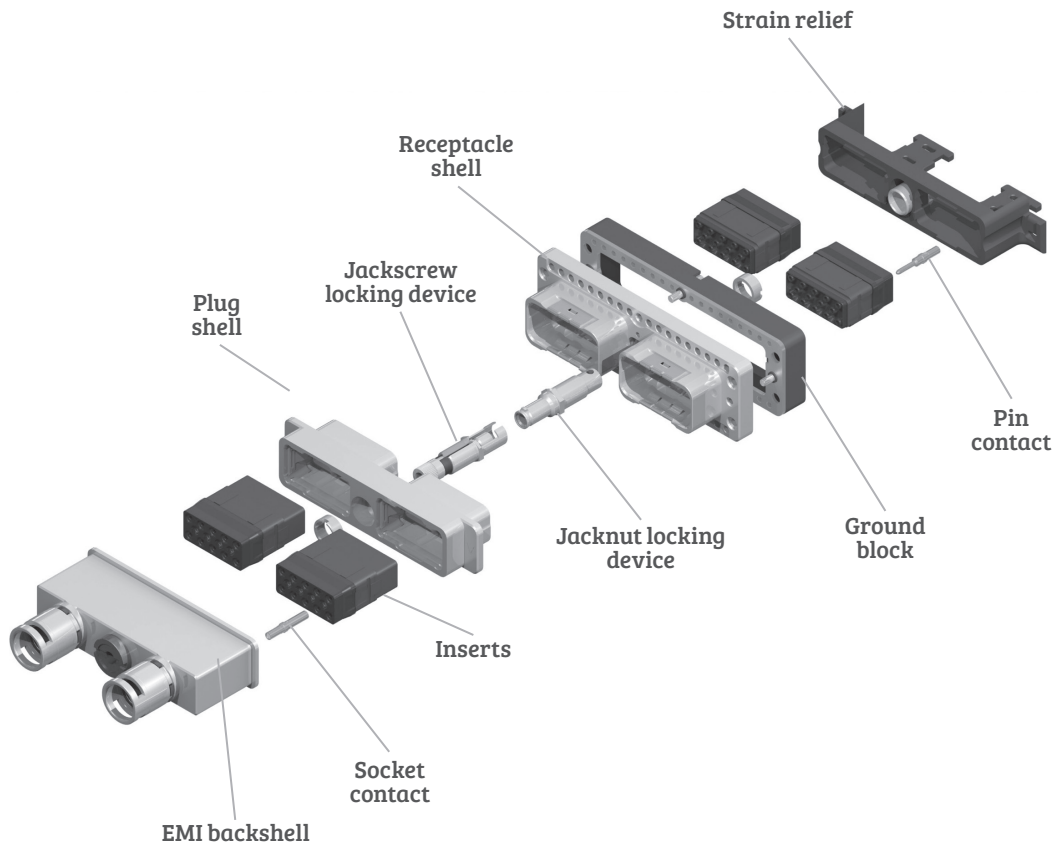


EPXB2 class J

- Performances:
- Weight saving compared to class N EPXB2: -15%
 - Cost effective solution
 - T° range: -65°C / +175°C

EPXB2 Product Overview

Detailed view of receptacle and plug with accessories for the EPXB2 disconnect connector.



EPX® SERIES

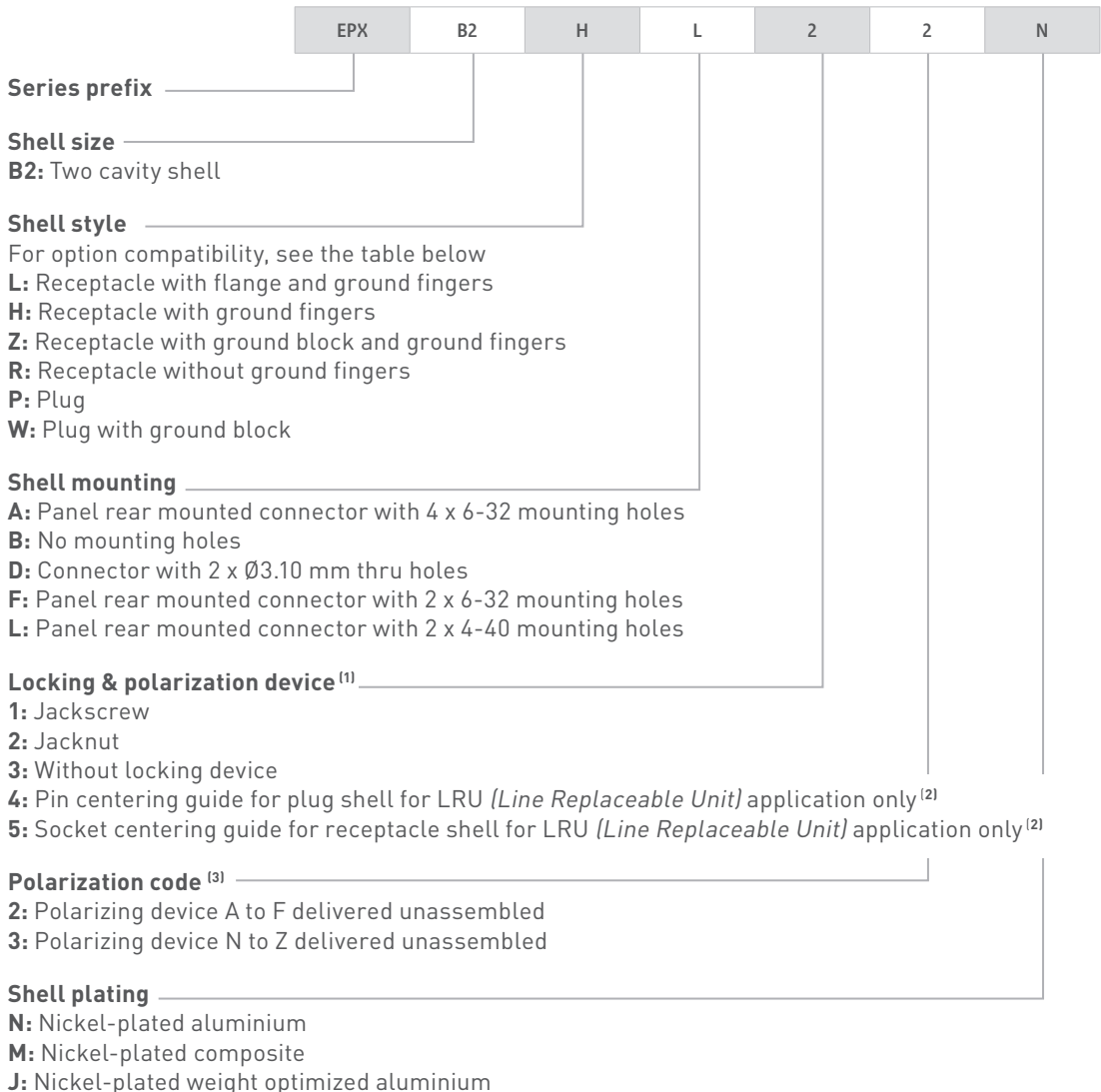
INSERTS

CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

How to Order EPXB2 Shell



AVAILABLE SHELL MOUNTING

	Shell style	A (4 x 6.32 UNC)	B (no holes)	D (2 x Ø3.10mm)	F (2 x 6.32 UNC)	L (2 x 4.40 UNC)
Class N (aluminium)	L			√	√	√
	H		√	√	√	√
	Z	√	√			
	R	√				
	P		√	√		√
	W	√	√			
Class J (weight optimized aluminium)	H					√
	P		√			
Class M (composite)	L			√		√
	P		√	√		√

NOTES:

- (1) Jackscrew/Jacknut can be mounted on either plug or receptacle shell. However, the standard options are:
 - Jackscrew for plug shells
 - Jacknut for receptacle shells
- (2) Pin/Socket centering guides can be mounted on either plug or receptacle shells. However, the standard options are:
 - Pin centering guide for plug shells
 - Socket centering guide for receptacle shells
- (3) Please see page 1-44 for how to use the the polarization coding

How to Order EPXB2 Assembly Kit

Assembly kits are delivered fully assembled including shell with inserts mounted, with or without contacts according to the selection. When selecting your insert codes, do not forget to place them in the order you want them assembled. Locking and polarizing devices are delivered uninstalled.

Tips to help you in your selection:

- You are free to use either pin or socket inserts in EPXB plug or receptacle.
- Crimp contacts can be delivered with a kit, check which contacts will be included on page 1-12.
- PC tail contacts can also delivered with a kit. Remember that only straight pin PC tail contacts are available, and in receptacle only.
- If PC tail contacts are selected then all cavities including signal, power and quadax are populated. Size 5 coax cavities are not populated.

All connector inserts will use the same insert class and the same contact termination.

	EPX	B2	H	B	2	N	N	BC	ZB
SHELL SELECTION PART									
Series prefix	_____								
Shell size	_____								
B2: Two cavity shell									
Shell style	_____								
For option compatibly, see table on page 1-36									
L: Receptacle with flange and ground fingers									
H: Receptacle with ground fingers									
Z: Receptacle with ground block and ground fingers									
R: Receptacle without ground fingers									
P: Plug									
W: Plug with ground block									
Shell mounting	_____								
A: Rear panel mounted connector with 4x 6-32 mounting holes									
B: No mounting holes									
D: Connector with 2 x Ø3.10 mm thru holes									
F: Rear panel mounted connector with 2 x 6-32 mounting holes									
L: Rear panel mounted connector with 2 x 4-40 mounting holes									
Polarization	_____								
1: Jackscrew polarizing device A to F									
2: Jacknut polarizing device A to F									
3: Without locking device									
4: Pin centering guide for plug shell for LRU application only, polarizing device A to F									
5: Socket centering guide for receptacle shell for LRU application only, polarizing device A to F									
6: Jackscrew polarizing device N to Z									
7: Jacknut polarizing device N to Z									
8: Pin centering guide for plug shell for LRU application only, polarizing device N to Z									
9: Socket centering guide for receptacle shell for LRU application only, polarizing device N to Z									
Shell plating	_____								
N: Nickel-plated aluminium									
M: Nickel-plated composite									
J: Nickel-plated weight optimized aluminium									
INSERTS SELECTION PART									
Insert class	_____								
E: Environmental									
N: Non-environmental									
H: Non-environmental insert with a rear grommet, available for pin insert only (recommended for crimp contact)									
T: Non-environmental insert with interfacial seal, available for pin insert only (recommended for PC tail contact)									
Insert code	_____								
Refer to page 1-12 to select code insert									
Contacts termination	_____								
XS: Socket insert without contacts									
XP: Pin insert without contacts									
SS: Socket insert with crimp contacts									
SP: Pin insert with crimp contacts									
] These contacts are delivered uninstalled									
YA: Gold PC tail contacts length A									
ZA: Tin-lead PC tail contacts length A									
RA: Pure tin (RoHS) PC tail contacts length A									
] Refer to pages 1- 40 to select PC tail contacts for receptacle									

INSERTS

CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

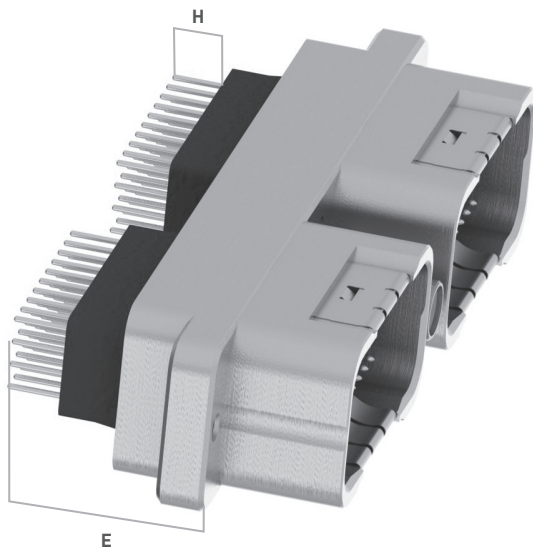
Contacts Termination for Receptacles

EPXB2 COMPOSITE SHELL

Straight PC Tail contact termination				
Min Length E mm (inch)	Min Length H mm (inch)	Gold	Tin-lead	Pure tin (RoHS)
14.20 (0.559) ⁽¹⁾	/	YA	ZA	RA
17.35 (0.683) ⁽¹⁾	/	YB	ZB	RB
19.20 (0.755) ⁽¹⁾	/	YC	ZC	RC
23.10 (0.909)	5.40 (0.212)	YD	ZD	RD

EPXB2 WEIGHT OPTIMIZED ALUMINIUM AND ALUMINIUM SHELL

Straight PC Tail contact termination				
Min Length E mm (inch)	Min Length H mm (inch)	Gold	Tin-lead	Pure tin (RoHS)
14.55 (0.572) ⁽¹⁾	/	YA	ZA	RA
17.75 (0.698) ⁽¹⁾	/	YB	ZB	RB
19.55 (0.769) ⁽¹⁾	/	YC	ZC	RC
23.50 (0.925)	5.40 (0.212)	YD	ZD	RD



NOTE:

(1) These PC tail lengths are not compatible with EPXBE and EPXBH inserts

INSERTS

CONTACTS

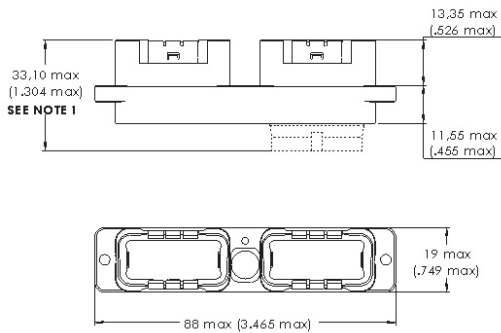
DISCONNECT APPLICATION

RACK & PANEL APPLICATION

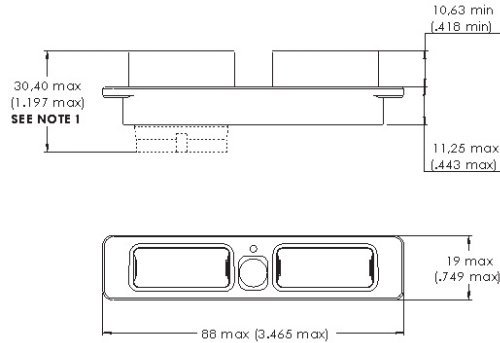
EPXB2 Metallic Shell Dimensions

WITHOUT GROUND BLOCK Class N & J

Receptacle

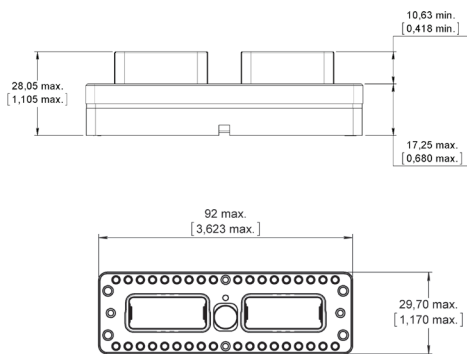


Plug

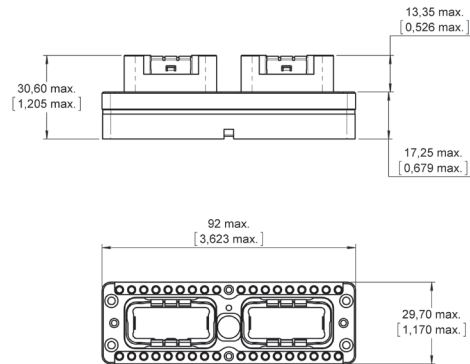


WITH GROUND BLOCK Class N

Receptacle

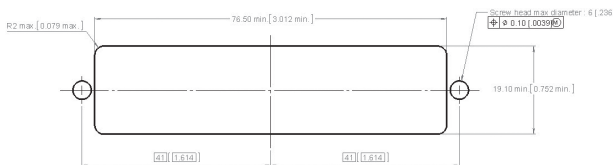


Plug

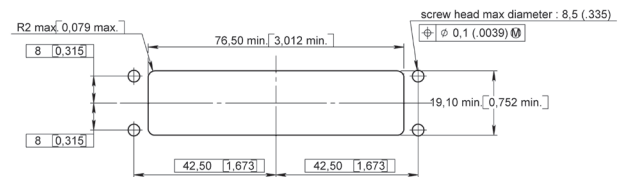


PANEL CUT OUT Class N & J

Shell mounting code D, F and L



Shell mounting code A



NOTES:

For inserts with grommets : maximum dimension is shown in the diagram

(1) For inserts without grommets: Insert is flush to the shell. Maximum dimension for the receptacle is 25.55 mm(1.006 in) and for the plug is 23.52 mm(0.926 in)

For inserts with optical contacts : the maximum dimension for the receptacle is 38.70 mm(1.524 in) and for the plug is 36.00 mm (1.418 in)

INSERTS

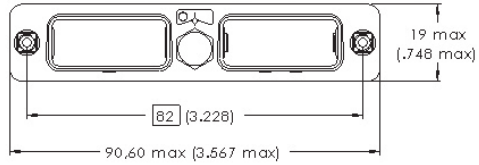
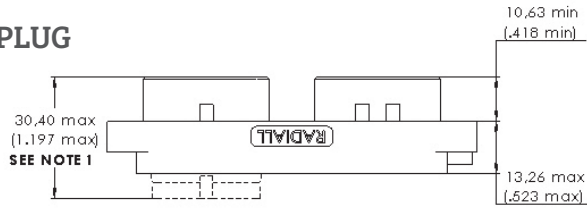
CONTACTS

DISCONNECT APPLICATION

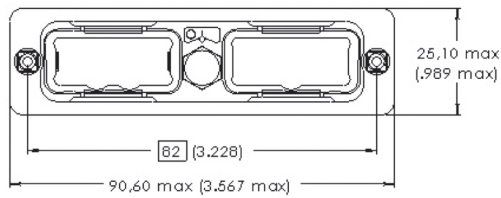
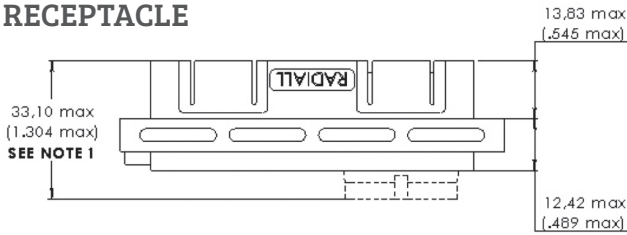
RACK & PANEL APPLICATION

EPXB2 Composite Shell Dimensions

PLUG

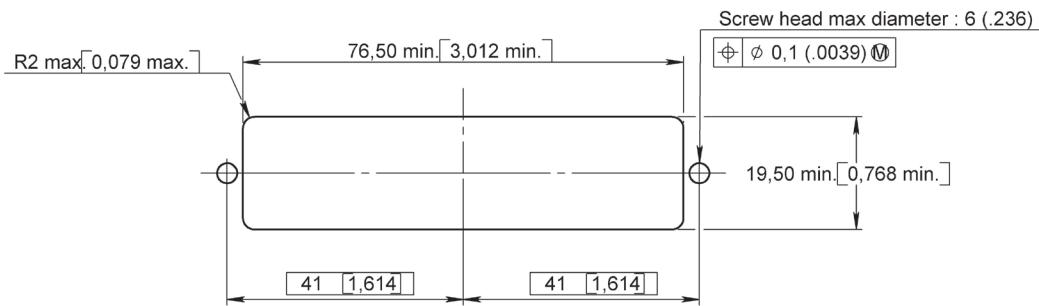


RECEPTACLE



PANEL CUT OUT

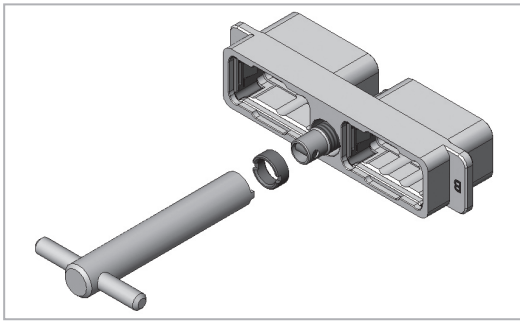
Shell mounting code D and L



NOTE:

- (1) For inserts with grommets (EPXBE and EPXBH) : maximum dimension is shown in the diagram
- For inserts without grommets (EPXBN) : Insert is flush to the shell. Maximum dimension for the receptacle is 25.55 mm(1.006 in) and for the plug is 23.52 mm(0.926 in)
- For inserts with optical contacts : the maximum dimension for the receptacle is 38.70 mm(1.524 in) and the plug is 36.00 mm (1.418 in)

EPXB2 Polarization Code



As a standard, jackscrews shall be installed in plugs and jacknuts in receptacle shells.

The polarizing device must be locked by the operator at 1.2 Nm (10.62 Lb-In.) for the metallic shell and 0.8Nm (7.08 Lb-In.) for composite shell. LOCTITE™ 272 resin shall be used to assemble them.

The nut can be fixed with your automatic screwdriver and the tool bit we provide (PN 282 664)

Designation	Polarization code	Coding device key	Part number	
Jackscrew	From A to F		617980012	
	From N to Z 30° offset compared to the key of jackscrew P/N 617980012		617980013	
	Universal		617980023	
Jacknut	From A to F		617980029	
	From N to Z 30° offset compared to the key of jacknut 617980029		617980028	
	Universal		617980022	

EPX® SERIES

INSERTS

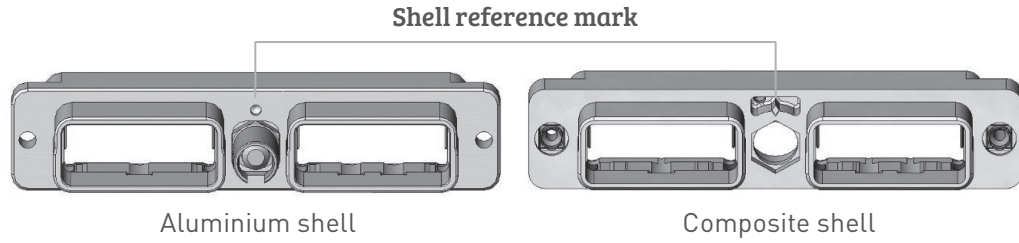
CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

EPXB2 Polarization Code

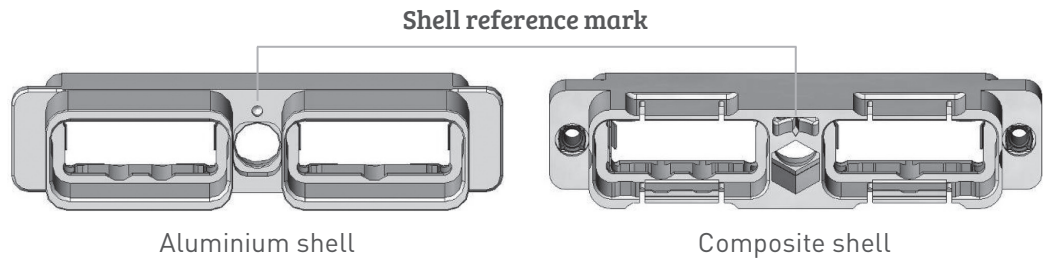
PLUG SHELL



Shell reference mark Coding device key

A	B	C	D	E	F
N	R	W	X	V	Z

RECEPTACLE SHELL

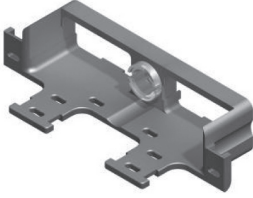


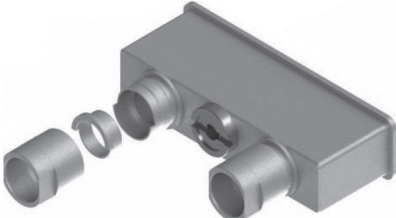
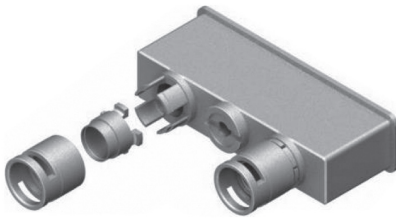



Shell reference mark Coding device key

A	B	C	D	E	F
N	R	W	X	V	Z

EPXB2 Accessories

EPX® SERIES

	Part number	Description	Assembly tool ⁽²⁾	Assembly torque
	617922007	Straight strain relief (composite)	282664 or 282665	0.8 Nm (7.08 in-lbs)
	617922014	Straight strain relief for fiber optic cable (anodized aluminium)		
	617928100	Straight EMI backshell (nickel-plated composite)	Allen wrench 1/4 inch	
	617925052	EMI backshell for braid shield termination (nickel-plated aluminium)	282664 or 282665	1.2 Nm (10.62 in-lbs)
	617925054	EMI backshell for screened twisted pair cables (nickel-plated aluminium)		
	617925056	Backshell for large sized wire harnesses (nickel-plated aluminium) ⁽¹⁾	282664 or 282665 and Allen wrench	

NOTE:

- (1) Not compatible with jackscrew
- (2) For more details, refer to page 1-47

INSERTS

CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

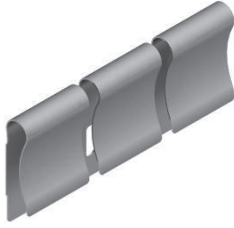



EPXB2 Spare Parts

INSERTS



CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

	Part number	Description
	617954101	Grounding spring (for EPXB2 aluminium only)
	617980029	Jacknut – A/B/C/D/E/F
	617980028	Jacknut – N/R/W/X/Y/Z
	617980022	Universal jacknut
	617980012	Jackscrew – A/B/C/D/E/F
	617980013	Jackscrew – N/R/W/X/Y/Z
	617980023	Universal jackscrew
	617954002	Dust cap for plug shell (pink color)
	617954003	Dust cap for receptacle shell (pink color)
	617954004	ESD dust cap plug shell (black color)
	617954005	ESD dust cap receptacle shell (black color)

Tools

	Part number	Description	To be used with		
			EPXA	EPXB1	EPXB2
	282664	1/4 inch hex. screwdriver bit to affix the nut of the jackscrew or the jacknut to the EPXB2 accessories			X
	282665	Spigot wrench to affix the nut of the jackscrew or the jacknut to the EPXB2 accessories			X
	282666	Allen wrench for 1/4 turn fastener (3/32 inch)	X	X	
	282666002	Allen wrench for rear accessories (5/64 inch)		X	
	282666001	Allen wrench for jackscrew (9/64 inch)			X
	282521002	Insert extraction tool		X	X
	282521004	Right angle insert extraction tool		X	X
	282521005	Insert extraction tool	X		
	617954020	Plastic box to protect wired inserts during handling	X	X	X
	F780855000	Hexagonal key 2mm (5/64inch) Flats for sleeve holder removal		X	X
	282668001	Tweezers to change polarizing posts and keys		X	

EPX® SERIES

INSERTS

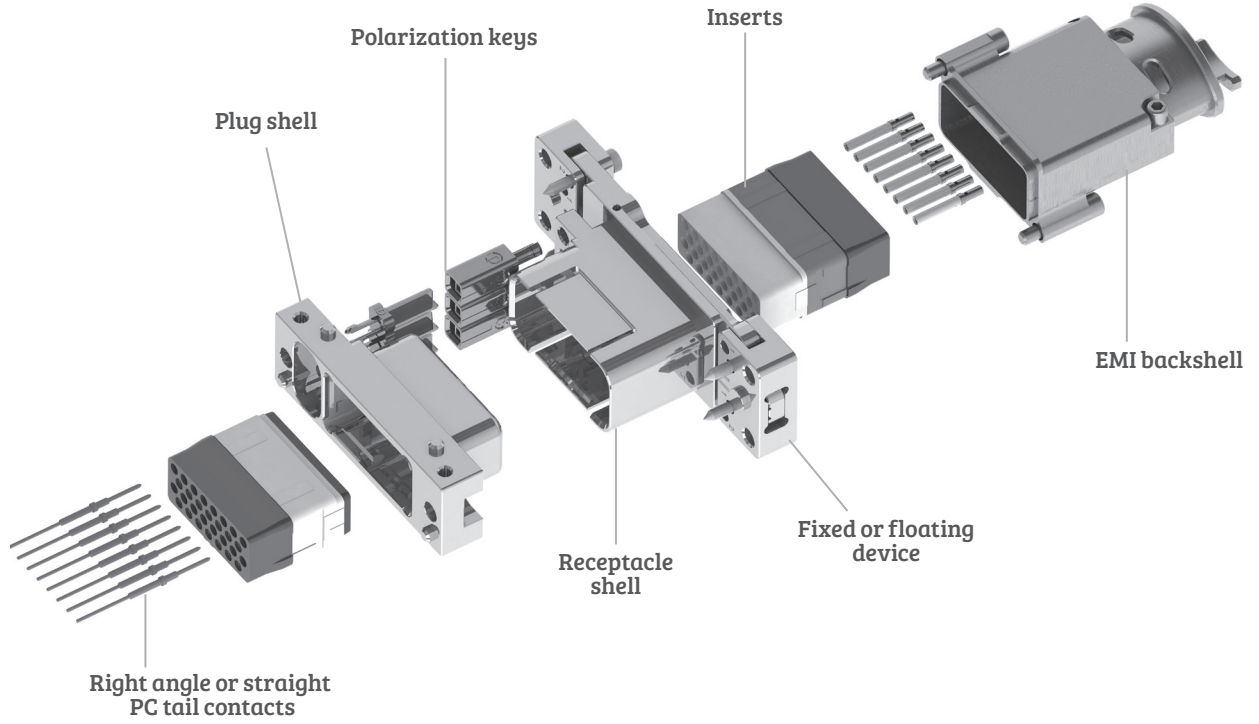
CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

EPXB1 Product Overview

Detailed view of receptacle and plug with accessories for the EPXB1 rack and panel connector.



INSERTS

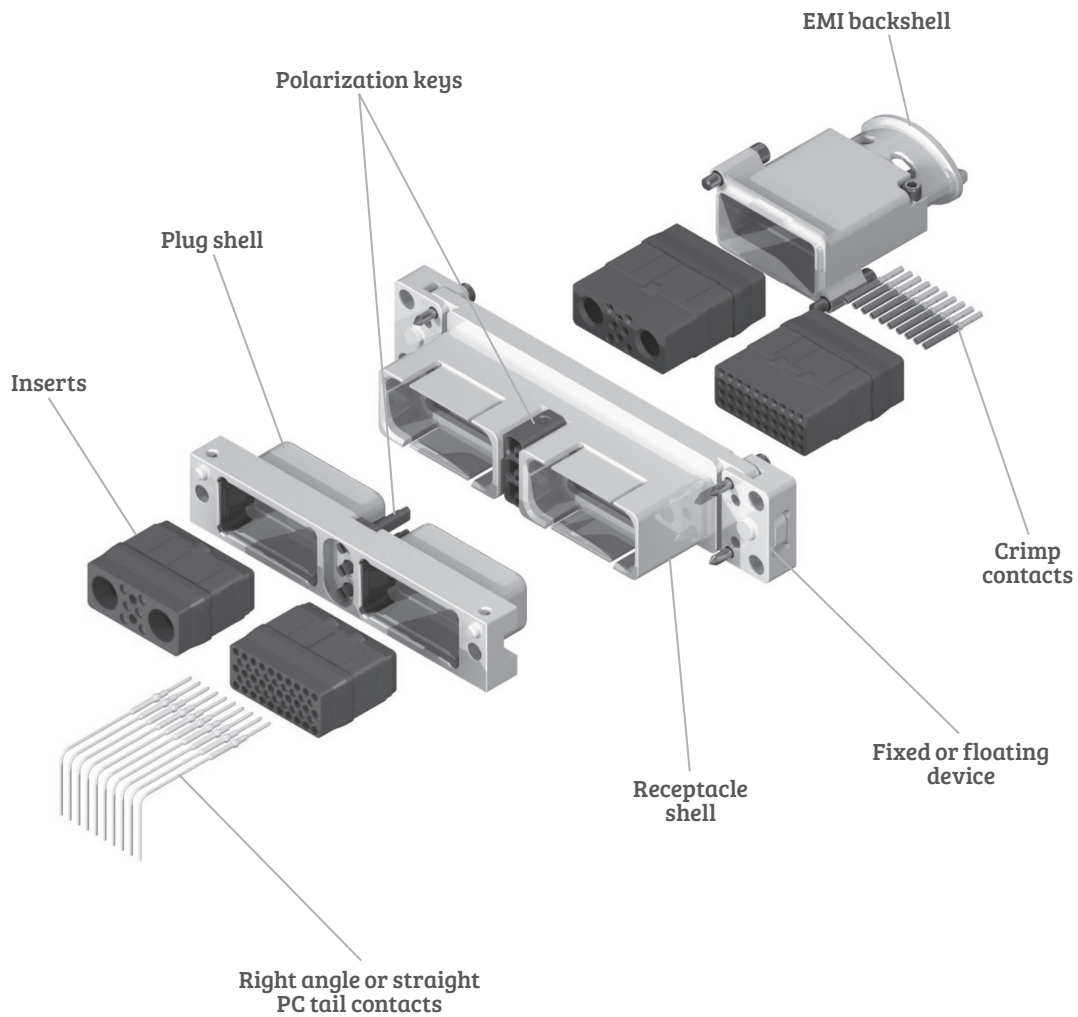
CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

EPXB2 Product Overview

Detailed view of receptacle and plug with accessories for the EPXB2 rack and panel connector.



EPX® SERIES

INSERTS

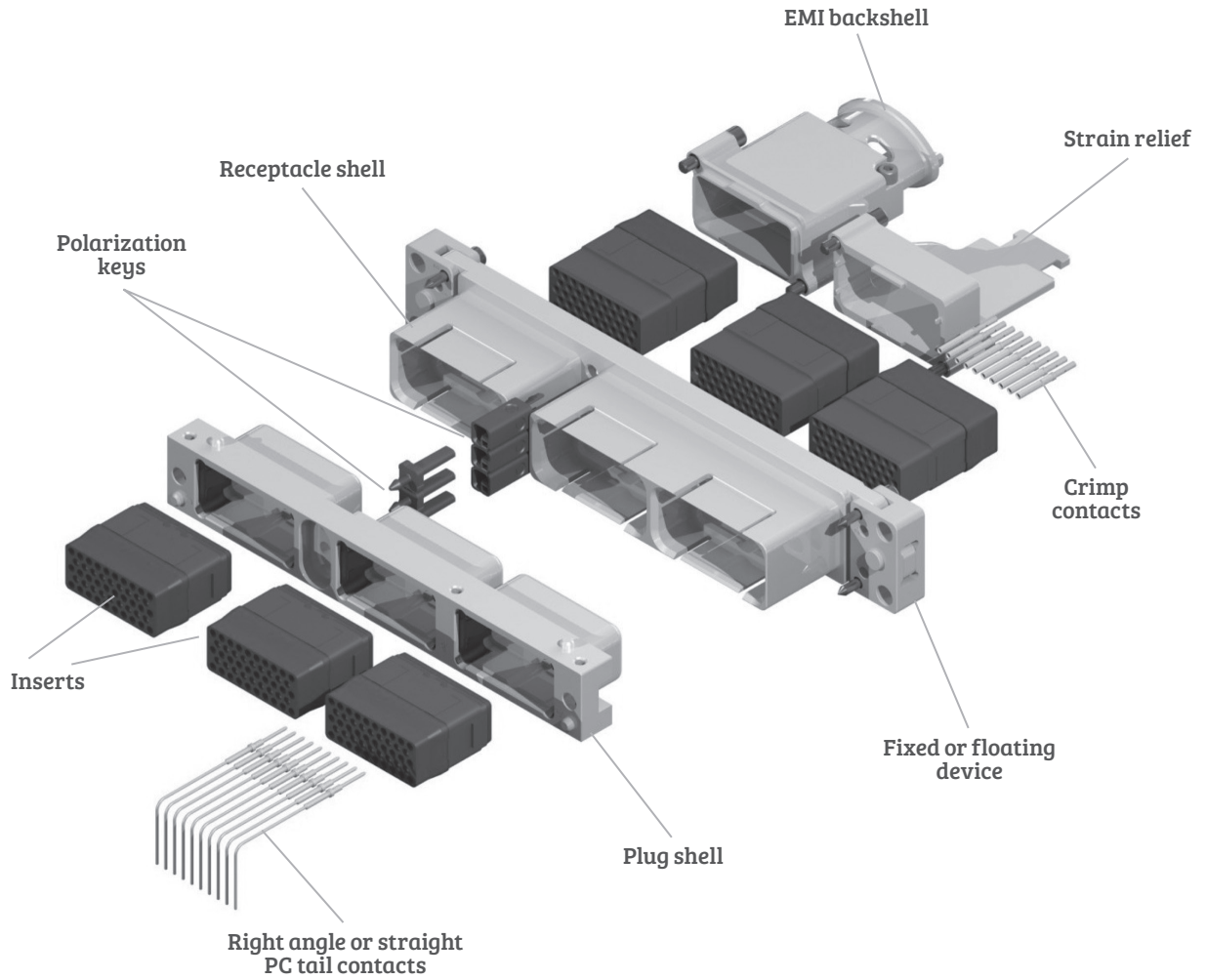
CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

EPXB3 Product Overview

Detailed view of receptacle and plug with accessories for the EPXB3 rack and panel connector



INSERTS

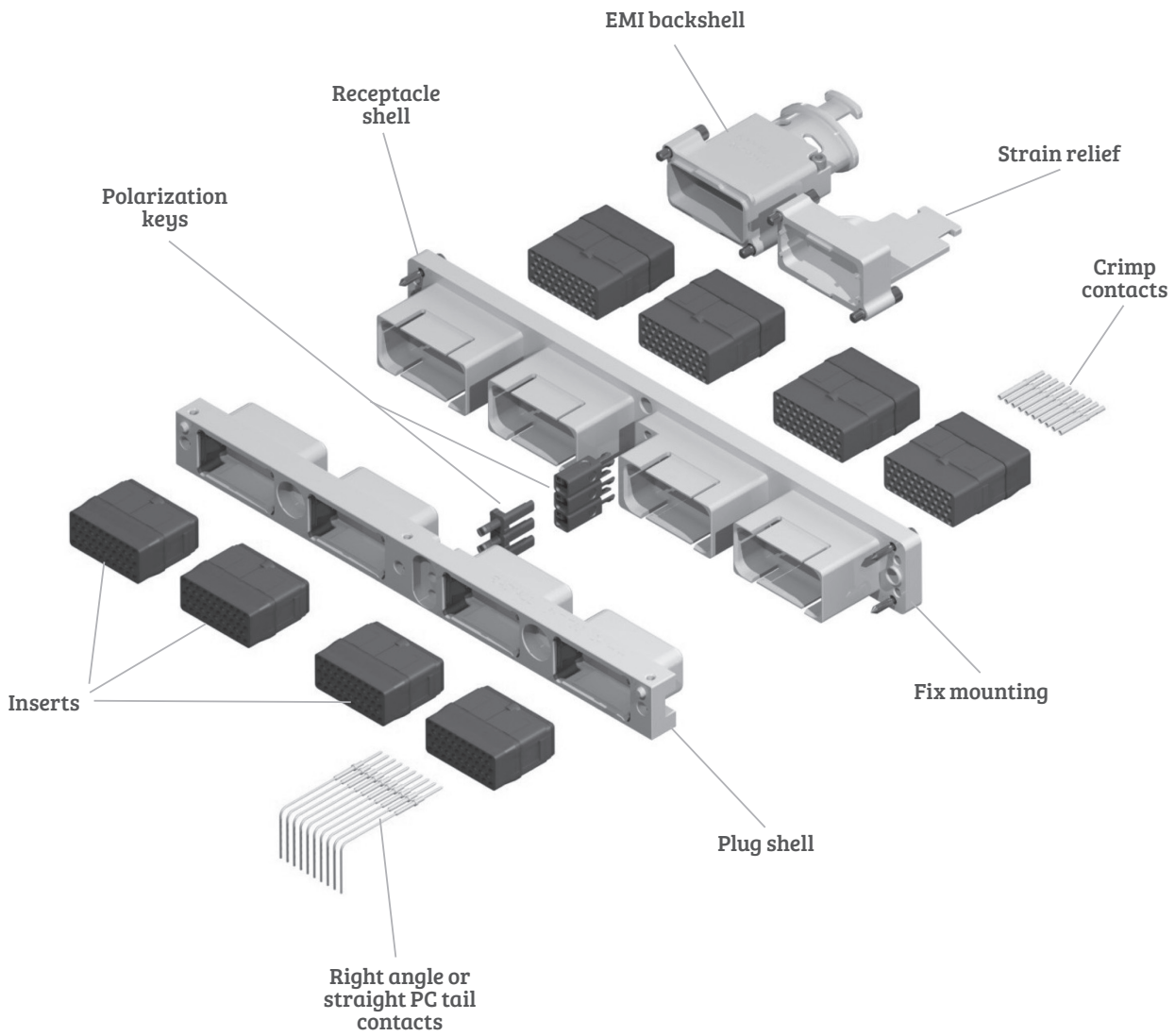
CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

EPXB4 Product Overview

Detailed view of receptacle and plug with accessories for the EPXB4 rack and panel connector



EPX® SERIES

INSERTS

CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

How to Order EPXB1, B2, B3 & B4 Shell

EPX	B3	P	N	1	0
-----	----	---	---	---	---

Series prefix _____

Shell size _____

- B1:** One cavity shell
- B2:** Two cavity shell
- B3:** Three cavity shell
- B4:** Four cavity shell

Shell style _____

- P:** Plug, nickel-plated
- R:** Receptacle, nickel-plated

Shell mounting (refer to page 1-54 for coding) _____

- M:** Plug, fixed connector with Ø3.96mm holes & 4-40UNC on side
- N:** Plug, fixed connector with 8-32 UNC & 4-40UNC on side
- S:** Receptacle, fixed with 4 x 8-32UNC
- T:** Receptacle, floating with 4 x 8-32 UNC (two axes)⁽¹⁾

Polarization code _____

- 1:** Shell delivered with polarizing keys unassembled
- 2:** Shell delivered with no polarizing keys

Panel cut-out coding _____

- A to Z:** Receptacle, refer to page 1-59 for the code selection
- 0 (zero):** Plug, no panel cut out coding

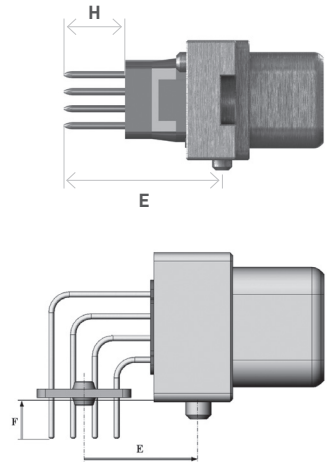
NOTE:

(1) This floating option is not available in EPXB4 version

Contacts Termination for EPXB1, EPXB2, EPXB3 and EPXB4 Plugs

Straight PC Tail contact termination				
Mini Length E mm (inch)	Mini Length H mm (inch)	Gold	Tin-lead	Pure tin (RoHS)
10.60 (0.417) ⁽¹⁾	/	YA	ZA	RA
13.80 (0.543) ⁽¹⁾	/	YB	ZB	RB
15.60 (0.614) ⁽¹⁾	/	YC	ZC	RC
19.55 (0.769)	5.40 (0.212)	YD	ZD	RD

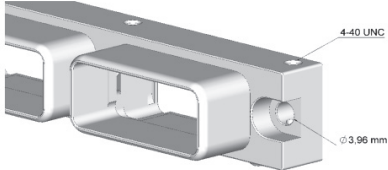
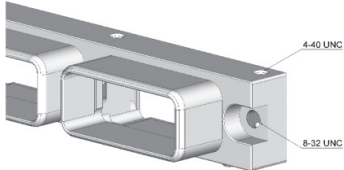
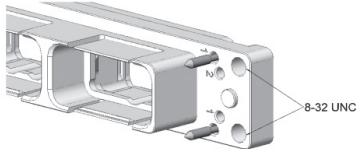
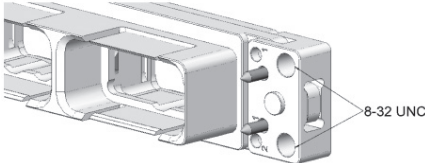
Right Angle PC Tail contact termination ⁽²⁾				
Mini length F mm (inch)	Mini length E mm (inch)	Gold	Tin-lead	Pure tin (RoHS)
2.20 (0.086)	12.85 (0.505) ⁽¹⁾	GA	LA	TA
3.60 (0.141)	20.10 (0.791)	GB	LB	TB
3.60 (0.141)	12.85 (0.505) ⁽¹⁾	GC	LC	TC
2.20 (0.141)	20.10 (0.791)	GD	LD	TD



NOTES:

- (1) These PC tail lengths are not compatible with EPXBE and EPXBH inserts
- (2) Right angle PC tail lengths GA, LA, TA and GD, LD, TD are not available for #5 and #8 power contacts

EPXB Shell Mounting

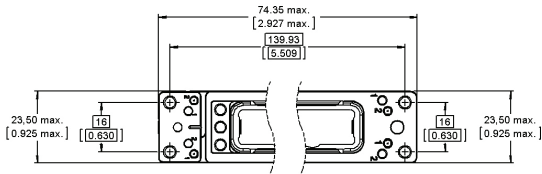
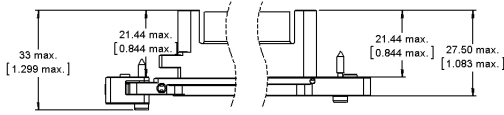
Receptacle side	Code	Plug sides
N/A	M	Fixed connector with Ø 3.96 mm holes & 4-40 UNC front or side mount 
N/A	N	Connector with 8-32 UNC & 4-40 UNC front or side mount 
Fixed with 4 x 8-32 UNC panel rear mount 	S	N/A
Floating with 4 x 8-32 UNC panel rear mount 	T	N/A

EPXB1 Shell Dimensions & Panel Cut-outs

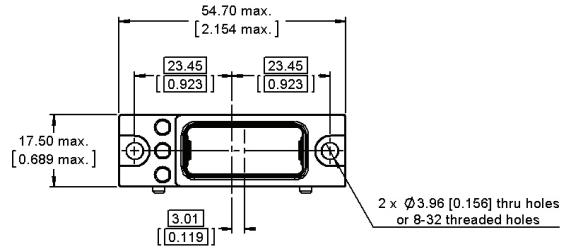
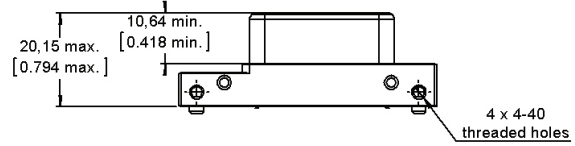
RECEPTACLE

Floating Mount

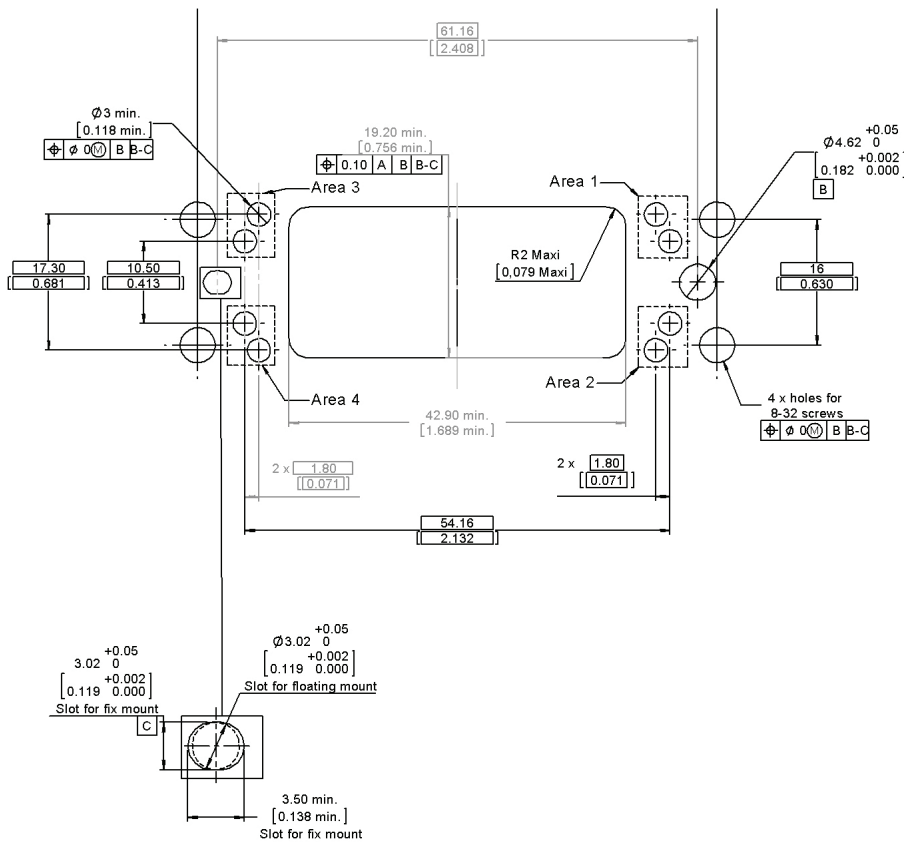
Fixed Mount



PLUG



PANEL CUT OUT (1)



NOTE:

(1) The panel cut-out is shown from the rear of the panel

EPX® SERIES

INSERTS

CONTACTS

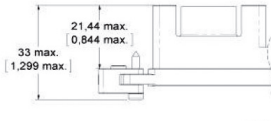
DISCONNECT APPLICATION

RACK & PANEL APPLICATION

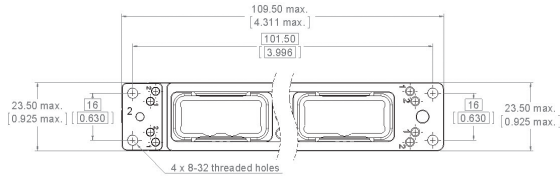
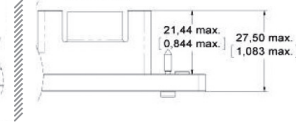
EPXB2 Shell Dimensions & Panel Cut-outs

RECEPTACLE

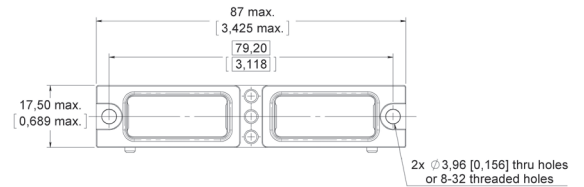
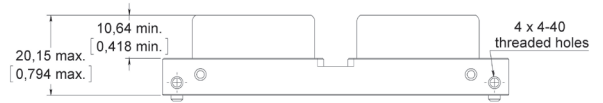
Floating Mount



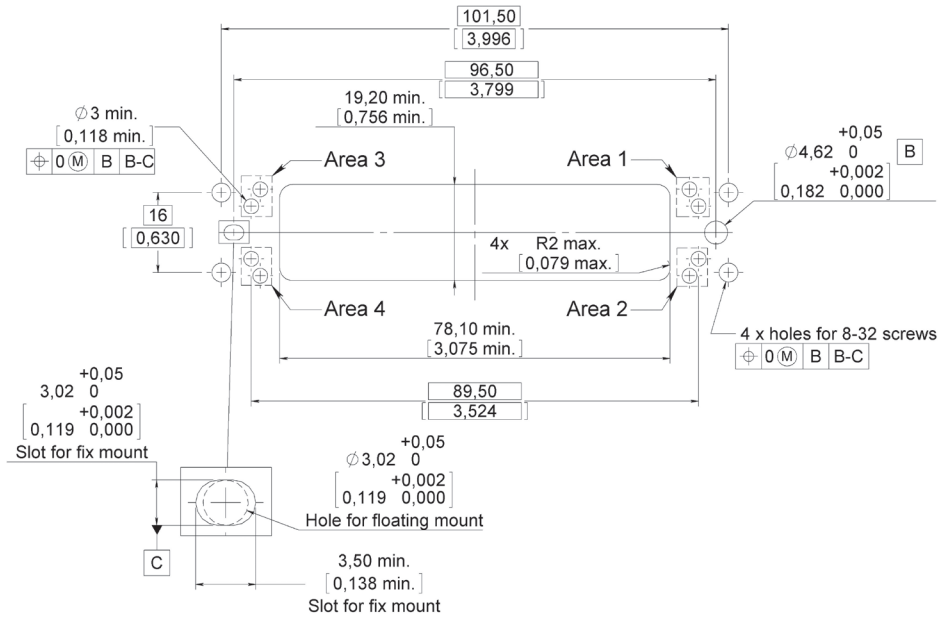
Fixed Mount



PLUG



PANEL CUT OUT (1)



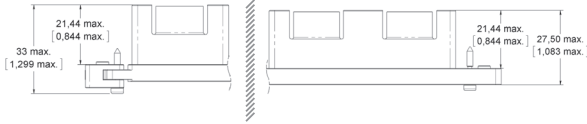
NOTE:
(1) The panel cut-out is shown from the rear of the panel

EPXB3 Shell Dimensions & Panel Cut-outs

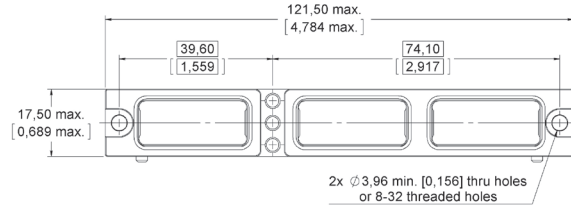
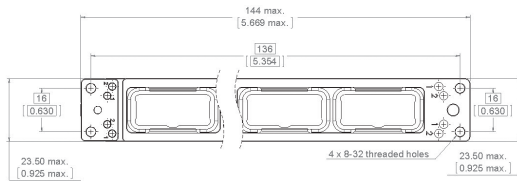
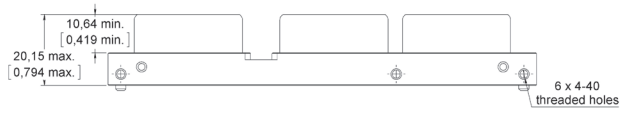
RECEPTACLE

x, y Floating Mount

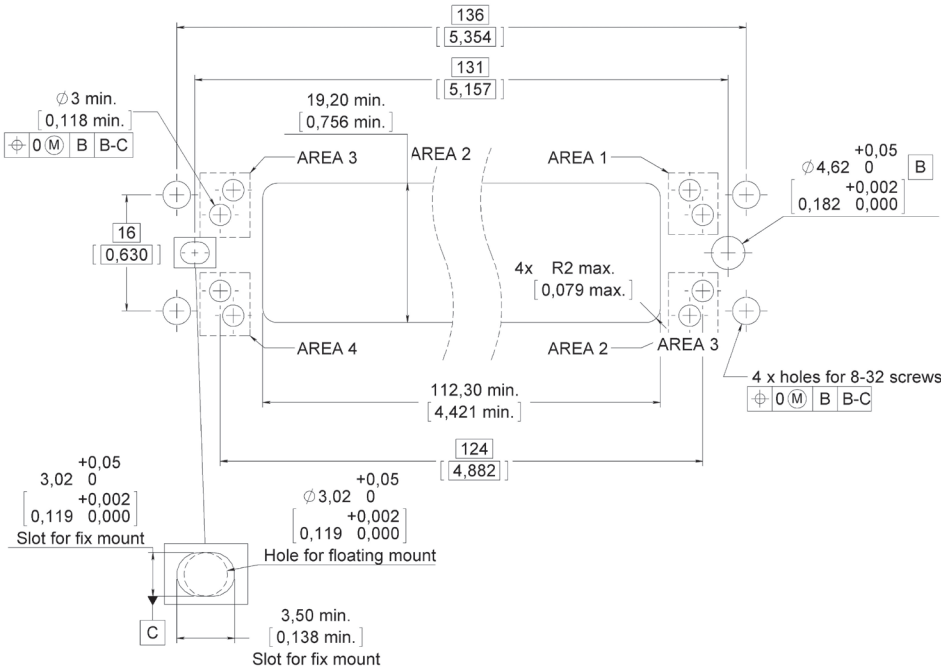
Fixed Mount



PLUG



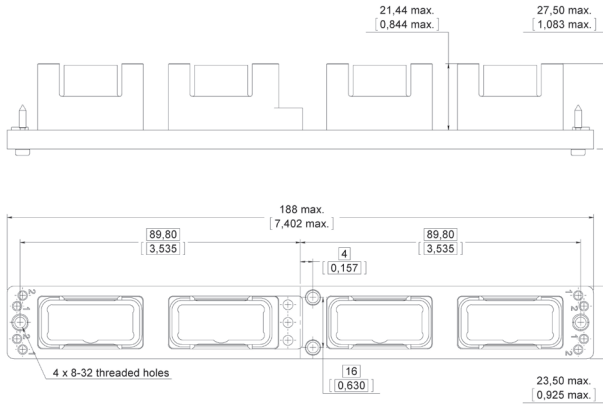
PANEL CUT OUT (1)



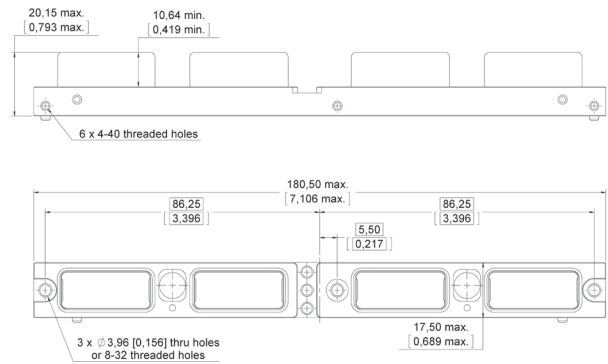
NOTE:
(1) The panel cut-out is shown from the rear to the panel

EPXB4 Shell Dimensions & Panel Cut-outs

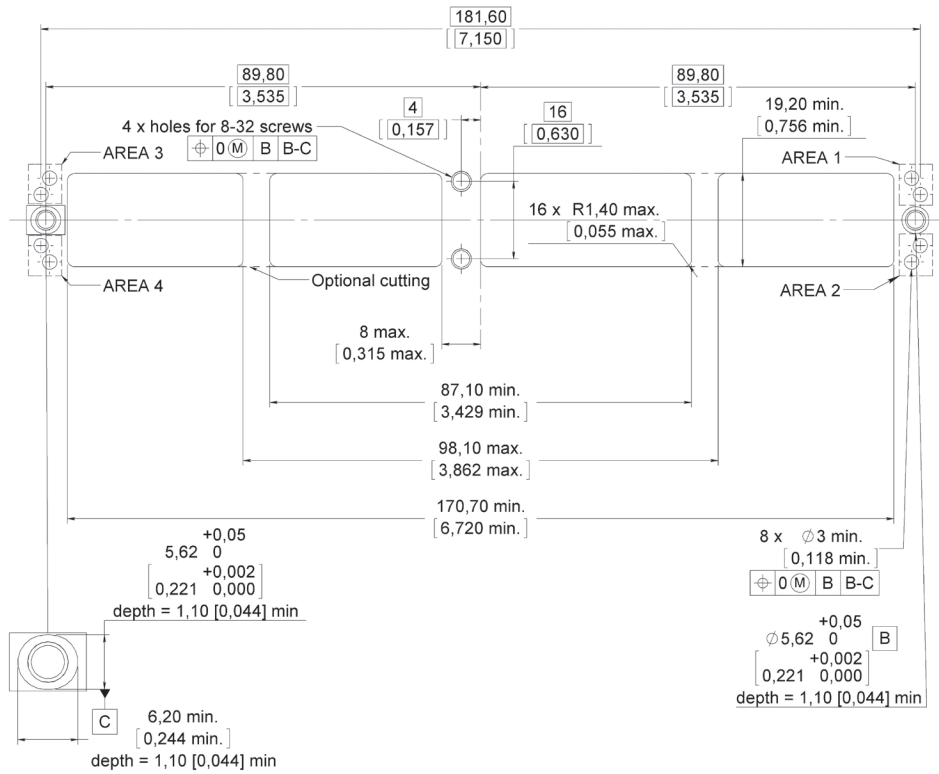
RECEPTACLE



PLUG



PANEL CUT OUT (1)



NOTE:
 (1) The panel cut-out is shown from the rear of the panel

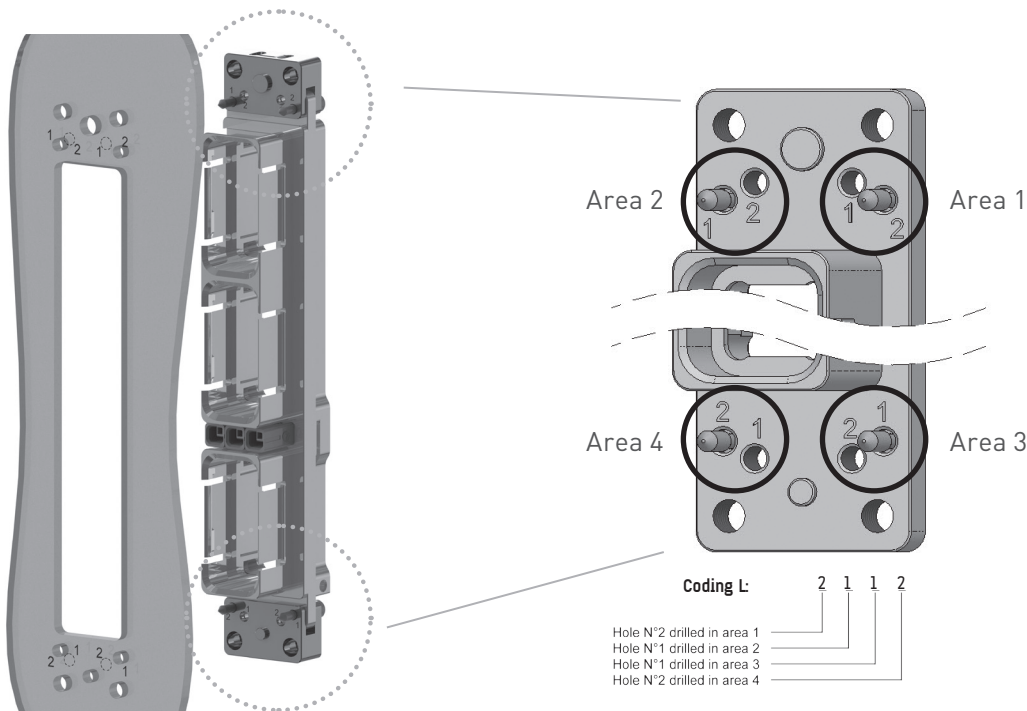
EPXB Panel Cut-out Coding

When several EPXB connectors are used with the same equipment, a coding is available on the shell to correlate the correct shell with the correct panel cut-out.

On the panel cut-out, four areas are coded, area 1, 2, 3 and 4 (see figure below). For each area, one of the two holes should be drilled (hole n°1 or hole n°2). Each hole on the panel cut-out corresponds to the use of a coding pin on the shell.

Panel cut-out coding	Panel hole number to drill in Area 1	Panel hole number to drill in Area 2	Panel hole number to drill in Area 3	Panel hole number to drill in Area 4
A	Connector delivered with coding device uninstalled			
B	1	1	1	1
C	1	1	1	2
D	1	1	2	1
E	1	1	2	2
F	1	2	1	1
G	1	2	1	2
H	1	2	2	1
J	1	2	2	2
K	2	1	1	1
L	2	1	1	2
M	2	1	2	1
N	2	1	2	2
P	2	2	1	1
R	2	2	1	2
S	2	2	2	1
T	2	2	2	2
Z	Connector delivered without coding pin ⁽¹⁾			

CODING PINS ARE FOR RECEPTACLE ONLY



NOTE:
 (1) Z panel cut out coding is only available with fix mounting

INSERTS

CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

EPXB Polarization Code

EASY READING OF POLARIZATION CODE

Polarization device is included in the part number and could be installed as shown below

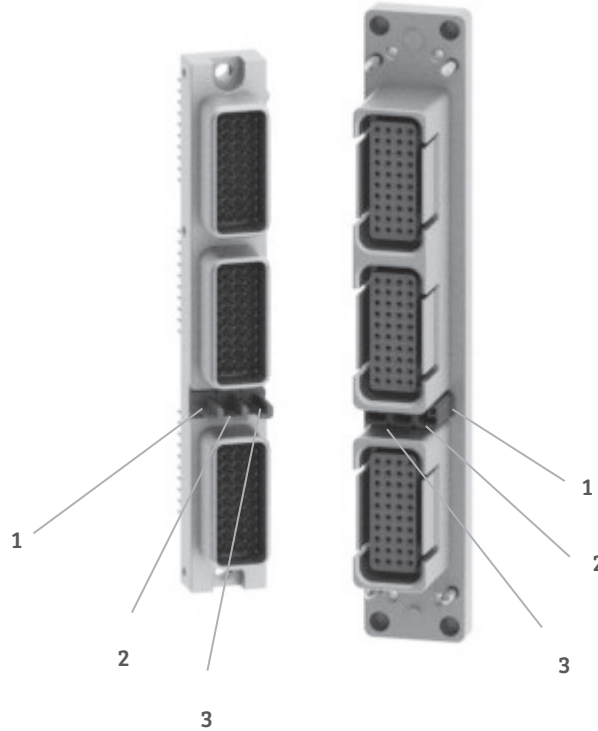
Each shell has 3 keys which can be in four different position

The three polarization keys can have their own position which allow a large range of codification

Plug size 3
Polarization post



Receptacle size 3
Polarization key


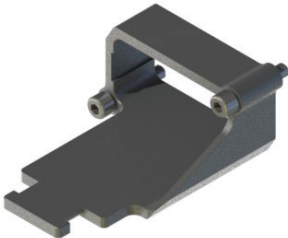


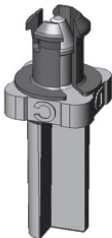



Connectors are shown front side with cavity A upwards

This is how you should read your code for either EPXB2 or EPXB3 or EPXB4

Rack & Panel Accessories

EPX® SERIES

	Part number	Description	Assembly torque
	617925073	EMI backshell for receptacle only (aluminium nickel-plated)	0.55±0.05 Nm (4.87±0.44 in-lbs)
	617922022	Straight strain relief for receptacle only (composite)	0.55±0.05 Nm (4.87±0.44 in-lbs)
	617954002	Dust cap for plug shell (pink color)	N/A
	617954003	Dust cap for receptacle shell (pink color)	N/A
	617954004	ESD dust cap plug shell (black color)	N/A
	617954005	ESD dust cap receptacle shell (black color)	N/A
	617980052	Coding Pin	0.8 Nm (7 in-lbs)
	617980054	Polarization post	N/A
	617980055	Polarization key	N/A

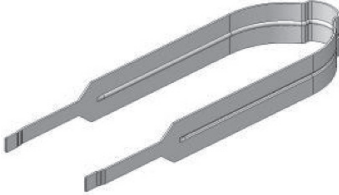
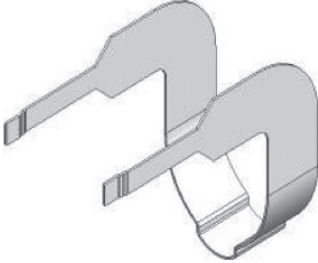
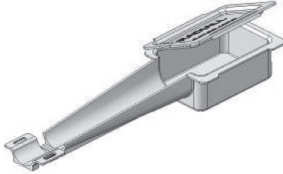


INSERTS

CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

Rack & Panel Tools

	Part number	Description	EPXB
	282521002	Insert extraction tool	X
	282521004	Right angle insert extraction tool	X
	617954020	Plastic box to protect wired inserts during handling	X
	F780855000	Hexagonal key 2mm (5/64inch) Flats for sleeve holder removal	X
	282549041	Removal tool for metal coding keys (M81969/30-06)	X

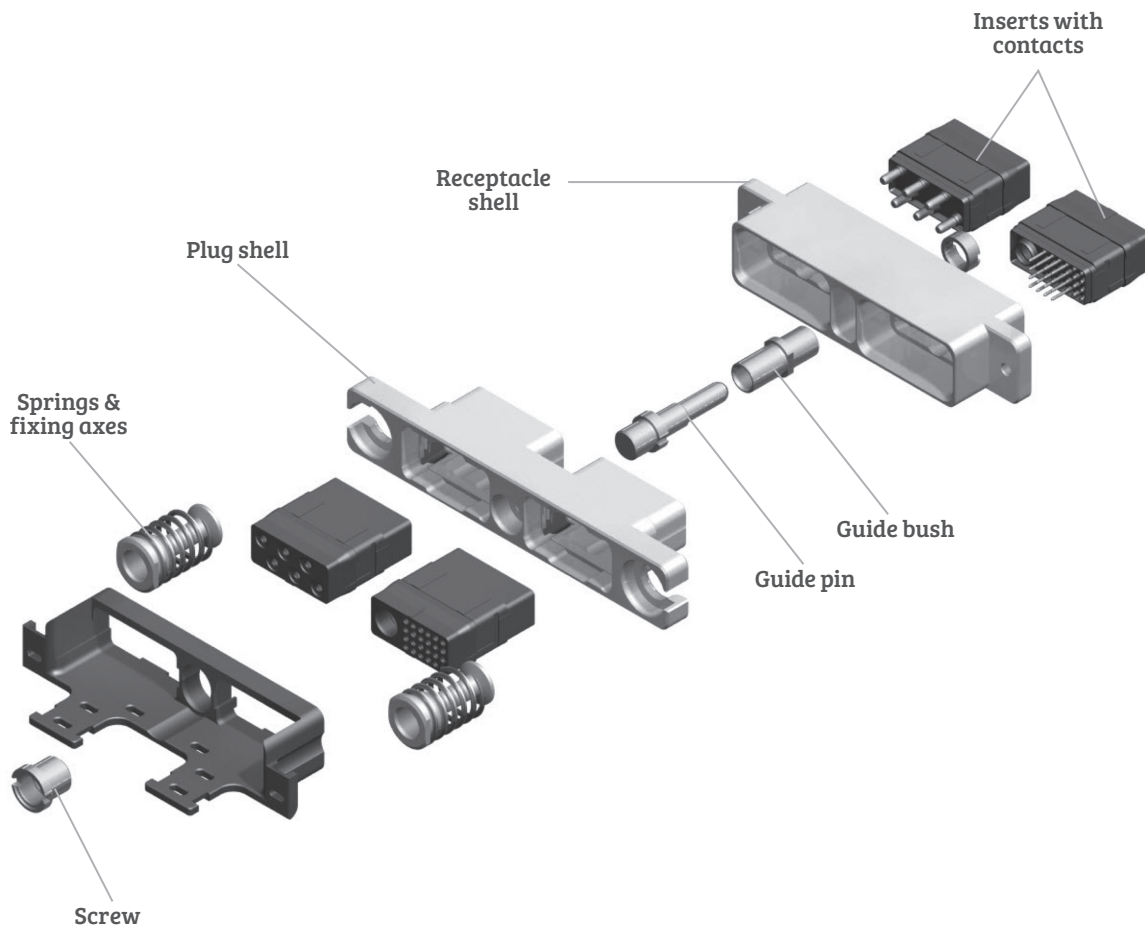
EPX Galley Product Overview

The new EPXB2 Galley connector was specially designed for the severe conditions required by galley equipment. A floating mechanism was developed to avoid any risk of jamming and to guarantee a fully sealed connection.

The EPXB2 is used on ovens, beverage makers, refrigerators, microwave ovens and other equipment which fit within the new standardized galley layouts.

The EPXB2 connector is modular and provides extra contact density to add new contacts such as the #8 Twinax CAN data bus contact. Backshell accessories are also available.

Detailed view of receptacle and plug with accessories for the EPXB2 galley connector



EPX® SERIES

INSERTS

CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION

How to Order EPX® Galley Equipment Connector

RECEPTACLE AND PLUG ASSEMBLY KIT

Part number	Description
617610188 or 617610558	Receptacle assembled kit (*)
617610189	Plug assembled kit (*)

(*)Part numbers for assembly kits include: plug or receptacle shell, inserts, contacts, sealing plugs and dust caps.

Each item included in the kit is indicated in the table below and can also be ordered separately

RECEPTACLE KITS

617610188

Shell with 2 self-locking threaded holes

Part number	Description	Quantity per kit
617610212	Receptacle shell	1
EPXBE25Q1PA	Insert for cavity A	1
EPXBE06PB	Insert for cavity B	1
617200	Pin crimp contacts/Size 22	15
617250	Pin crimp contacts/Size 12	6
616910	Filler plug	9
617954003	Dust cap	2

617610558

Shell with 2 thru holes

Part number	Description	Quantity per kit
617610419	Receptacle shell	1
EPXBE25Q1PA	Insert for cavity A	1
EPXBE06PB	Insert for cavity B	1
617200	Pin crimp contacts/Size 22	15
617250	Pin crimp contacts/Size 12	6
616910	Filler plug	9
617954003	Dust cap	2

PLUG KIT

617610189 contents

Part number	Description	Quantity per kit
617610213	Plug shell	1
EPXBE25Q1SA	Insert for cavity A	1
EPXBE06SB	Insert for cavity B	1
617300	Socket crimp contacts/Size 22	15
617350	Socket crimp contacts/Size 12	6
616910	Filler plug	9
617922007	Strain relief	1
617954002	Dust cap	2

CAN DATA BUS CONTACTS

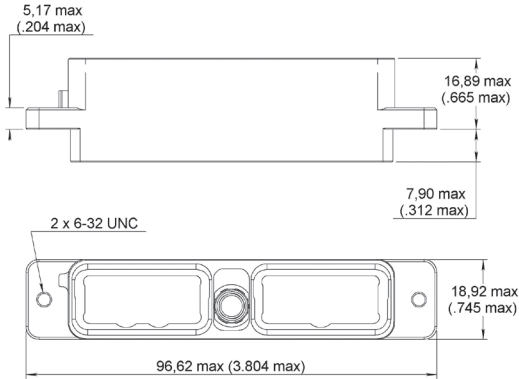
Part number	Description
617165011	Size 8 Twinax pin contact
617065011	Size 8 Twinax pin contact

Dimensions and Panel Cut Out

EPX® GALLEY EQUIPMENT CONNECTOR PER ARINC 800

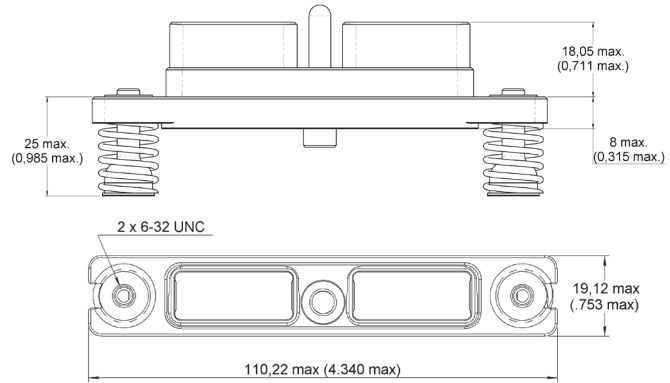
RECEPTACLE

Front mount

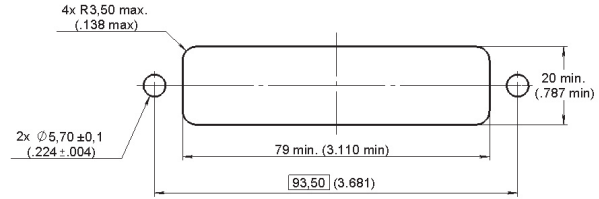
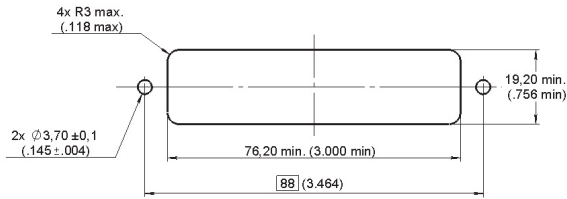


PLUG

Rear mount



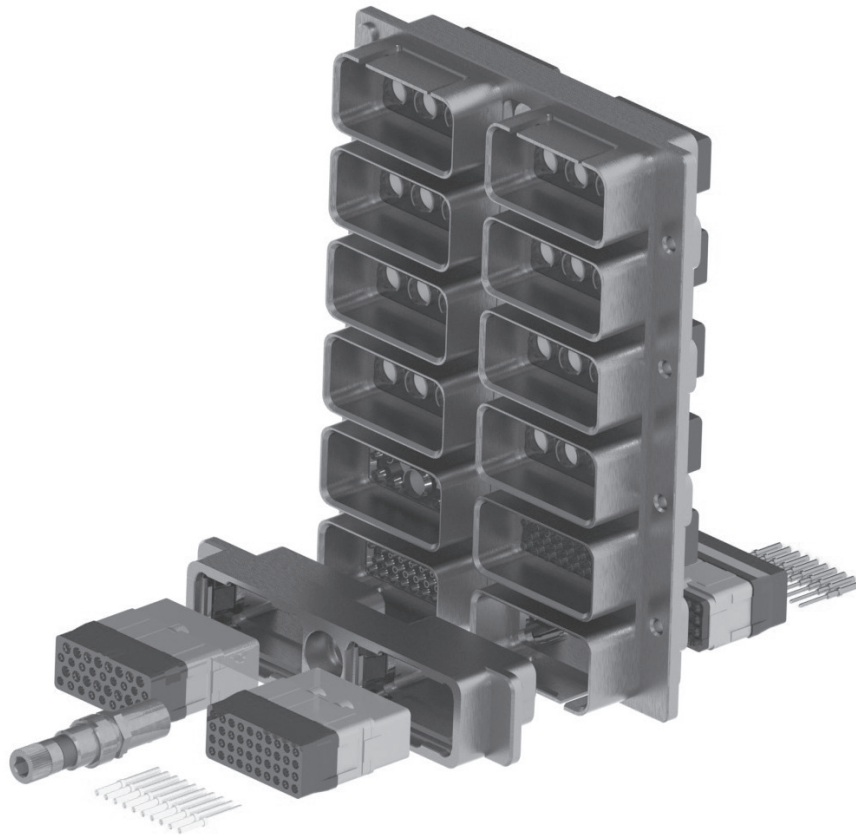
PANEL CUT OUT



Multi-gang EPX® Connectors

A whole range of multigang connectors is available for disconnect and rack and panel applications. Multigang connectors features and benefits:

- Weight saving design
- Make installation easier and quicker
- Utilize EPX modularity and its whole range of inserts
- Take advantage of EPX connectors functionalities and use EPXB2 standard plug shells with a multigang shell



Specifications

- Several cavities for EPXB inserts : from 4 to 20 cavities
- Standard EPX strain reliefs and backshells available
- In accordance with EN4644 performances

Several options are available:

- Grounding block
- Grounding spring fingers
- Float mounting
- Spring loaded mounting

INSERTS

CONTACTS

DISCONNECT APPLICATION

RACK & PANEL APPLICATION



Our most
important
connection
is with you.™

It's not just a slogan. It's a statement of our earnest desire to put you at the forefront of all our business practices. As part of Radiall's mission to be available and accessible, we make it a priority to have local offices around the globe ready and able to assist you – wherever you are, whenever you need us.

Europe

	ADDRESS	PHONE	FAX	EMAIL
FINLAND	Radiall Finland PO Box 202 - 90101 Oulu	+358 407522412		infofi@radiall.com
FRANCE	Radiall SA 101 Rue Philibert Hoffmann 93116 Rosny Sous Bois	+33 1 49 35 35 35	+33 1 49 35 35 14	infofr@radiall.com
GERMANY	Radiall GmbH Carl Zeiss Str. 10 Postfach 200143 D63307 Rödermark	+49 60 74 91 07 0	+49 60 74 91 07 70	infode@radiall.com
ITALY	Radiall Elettronica S.R.L Via della Resistenza 113 - 20090 Buccinasco Milano	+39 02 48 85 121	+39 02 48 84 30 18	infoit@radiall.com
NETHERLANDS	Radiall Nederland BV Hogebrinkerweg 15b - 3871 KM Hoevelaken	+31 33 253 40 09	+31 33 253 45 12	infofl@radiall.com
SWEDEN	Radiall AB Sjöängsvägen 2 - SE - 192 72 Sollentuna	+46 8 444 34 10	+46 8 754 49 16	infose@radiall.com
UNITED KINGDOM	Radiall Ltd Ground Floor 6 The Grand Union Office Park Packet Boat Lane UXBRIDGE Middlesex UB8 2GH United Kingdom	+44 (0)1895 425000	+44 (0)1895 425010	infouk@radiall.com

Asia

	ADDRESS	PHONE	FAX	EMAIL
CHINA	Shanghai Radiall Electronics CO, Ltd N° 390 Yong He Rd SHANGHAI 200072 P.R.C	+86 21 66523788	+86 21 66521177	infozh@radiall.com
HONG KONG	Radiall Electronics (Asia) Ltd Flat D, 6/F, Ford Glory Plaza, 37-39 Wing Hong Street - Cheung Sha Wan - Kowloon - Hong Kong	+852 29593833	+852 29592636	infohk@radiall.com
INDIA	Radiall India Pvt. Ltd 25.D.II phase Peenya Industrial Area. Bangalore-560058	+91 80 23720989	+91 80 28397228	infoin@radiall.com
JAPAN	Nihon Radiall Shibuya-Ku Ebisu 1-5-2, Kougetsu Bldg 405 - Tokyo 150-0013	+81 3 34406241	+81 3 34406242	infojp@radiall.com

Americas

	ADDRESS	PHONE	FAX	EMAIL
USA & CANADA	Radiall USA, Inc. 8950 South 52nd Street Ste 401 Tempe, AZ 85284	+1 480-682-9400	+1 480-682-9403	infousa@radiall.com

Also Represented In...

AUSTRALIA AUSTRIA BELGIUM BRAZIL CZECH REPUBLIC DENMARK ESTONIA GREECE HUNGARY INDONESIA ISRAEL KOREA LATVIA LITHUANIA
MALAYSIA NORWAY PHILIPPINES POLAND PORTUGAL RUSSIA SINGAPORE SPAIN SWITZERLAND TAIWAN THAILAND VIETNAM SOUTH AFRICA

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Radial:

[282521002](#) [617922007](#) [617980022](#) [EPXBEP3SB](#) [EPXB2ZA22N](#) [EPXBE28PA](#) [EPXBE3Q3PB](#) [EPXBE40PA](#)
[EPXBE14PB](#) [EPXBH30PA](#) [EPXBE28SB](#) [EPXBH13C1PA](#) [EPXBE13C1SA](#) [EPXBE06SA](#) [EPXB2HL22N](#)
[EPXBN40PA](#) [EPXBE30SA](#) [617954004](#) [EPXBE40SB](#) [EPXBE10Q2PB](#) [EPXBEF12CPA](#) [EPXBE17PA](#) [EPXBE06SB](#)
[EPXBE30PA](#) [EPX2P11NN](#) [617954003](#) [617921029](#) [EPXBEC3PA](#) [EPXB1RM05M](#) [617928100](#) [EPXBE30SB](#)
[EPXBEP3PA](#) [EPXB2LL3N](#) [EPXBE3Q3SA](#) [EPXBE14SB](#) [EPXBH17PB](#) [EPXBH30PB](#) [EPXB2HL13N](#) [EPXBE17SA](#)
[EPXBHP3PA](#) [EPXBE34SB](#) [EPXBE10Q2SA](#) [EPXB2PB12N](#) [EPXBE25P1SB](#) [EPXB1ZM05M](#) [EPXBE28PB](#)
[EPXBE34PA](#) [EPXBEP3PB](#) [EPXBN34SA](#) [EPXBE06PA](#) [EPXB2WB12N](#) [EPXBEF12PA](#) [EPXBN40SA](#) [EPXBE22PA](#)
[617954020](#) [EPXBE12F6PA](#) [EPXB2HL12N](#) [EPXBE10Q2PA](#) [EPXBE3Q3SB](#) [EPXBE48SB](#) [EPXBEP3SA](#)
[EPXBE28SA](#) [EPXB2PD12N](#) [EPXBHP3PB](#) [EPXBE30PB](#) [EPXBE17PB](#) [EPXBE06PB](#) [EPXB2HL23N](#) [EPXBE34PB](#)
[EPXBE17SB](#) [EPXBEF12SA](#) [EPX2H17NC](#) [EPXBE40PB](#) [EPXBE14PA](#) [EPXBE12F6SA](#) [EPXBE3Q3PA](#) [EPXBE14SA](#)
[EPXB1PB04M](#) [EPXBE34SA](#) [617954028](#) [EPXBEF12SB](#) [EPXBE10Q2SB](#) [EPXBE40SA](#) [EPXB1RM04M](#) [EPXBN00](#)
[617954005](#) [282515](#)