

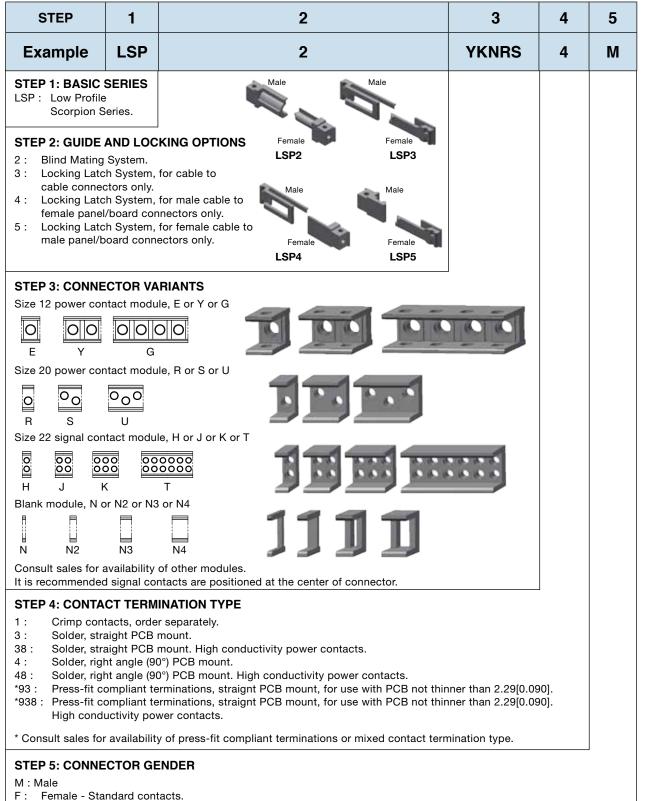


- Four power contact options:
 55 amps, 38 amps, 12 amps and 3 amps versions plus high density signal lines.
- Blind mating, float mount, panel mount and cable connector options with unique locking system.
- Ventilation option to offer increased air cooling.



Ordering Information - Code Numbering System

Specify complete connector by selecting an option from step 1 through 9 (Consult sales for connectors' length exceeding 101mm or part numbers using more than 30 characters)



S: Female - Posiband contacts



- Notes:
- 1 A Low Profile Scorpion part number can be a maximum of 30 characters. If the connector configuration exceeds this number, please consult sales for a special part number for your unique requirement.
- Consult sales for connector length exceeding 101.00 mm [3.976 inch]. 2
- 3 Alignment bar is only available for size 20 and size 22 right angle (90°) contacts.

6	7	8	9	10		11
0	N	9	A1	/AA	-	XXX
						STEP 11: SP Consult sales
				/AA : Com Example: Note: This not require	iplian LSP5 s step ed.	VIRONMENTA t per EU Directi SYN2HK4M000A will not be use SYN2HK4M000A
			STEP 9. C			
			1 : Crimp A1 : Gold f A2 : Gold f end. N C1 : 0.0007 C2 : 0.0007 termin D1 : 0.0012 D2 : 0.0012 termin	contacts ord lash over nic lash over nic lot available 76[0.000030] ation end. N 27[0.000050] 27[0.000050] ation end. N	dered kel o kel o with gold gold gold gold ot ava	-
		STEF 0 : 9 :	P 8: VENT OPT Connector bo Connector bo	dy is not ven	ted.	
	0 : Not B : 90° for coc LN : 90° for coc N : Pus	applicab metal mc right angle le 4 or 48, metal mc right angle le 4 or 48, sh-on fast	ING STYLE le / No additiona bunting bracket (e PCB mounted , see step 4. bunting bracket (e PCB mounted , see step 4. ener for PCB mo 38, 4 or 48, see	(through hole connectors (board lock), connectors	e), use use	5
0: N 6: E th 82: Fl	asy release n lick panel, fo loat mount fo	e / No add nounting c r male pai or 1.50 mn	ed accessories. clip for 1.50mm nel mount conne n [0.059 inch] th n [0.091 inch] th	ector only. ick panel.		1 9 V



PECIAL OPTIONS for Special Options AL COMPLIANCE OPTIONS tive 2002/95/EC (RoHS) DA1/AA ed if compliance to environmental legislation is)A1 ermination end. and 0.005[0.0002] tin-lead solder coat on termination n step 4. mating end and termination end. mating end and 0.005[0.0002] tin-lead solder coat on de 93, 938 in step 4. mating end and termination end. mating end and 0.005[0.0002] tin-lead solder coat on de 93, 938 in step 4. Code 9 Code 0 Code LN Code N Code B Code 82 or 83 Code 6





Technical Characteristics

Materials and Finishes:

Insulators:	Glass-filled polyester, UL 94V-0.
	Black color (Blue optional).
Contacts:	Precision machined copper alloy with
	gold flash over nickel plate.
	Other finishes available upon request.
Mounting Brackets:	Brass with tin plate.
Push-on Fasteners:	Copper alloy with tin plate.
Float Mount Bushings:	Steel with zinc plate.
•	•

Electrical Characteristics:

Contact Current Rating (See Page 5 for Power Contact Details) Standard Conductivity Contacts:

Size 12 Contacts:	38 amperes, continuous.
Size 20 Contacts:	12 amperes, continuous.
Size 22 Contacts:	3 amperes, nominal.

High Conductivity Contacts:

Size 12 Contacts: 55 amperes, continuous.

Initial Contact Resistance (Standard Conductivity Contacts) per IEC 512-2, Test 2b:

Size 12 Contacts:	0.001 ohms, maximum.
Size 20 Contacts:	0.005 ohms, maximum.
Size 22 Contacts:	0.005 ohms, maximum.

Initial Contact Resistance (High Conductivity Contacts) per IEC 512-2, Test 2b:

Size 12 Contacts: 0.0007 ohms, maximum.

Insulation Resistance per IEC 512-2, Test 3a, Method A: 5 G ohms.

Voltage Proof per IEC 512-2, Test 4a, Method C: Size 12 and size 20 contacts, 2200 V r.m.s.

Size 22 contacts, 1800 V r.m.s

Working Voltage, Clearance and Creepage Distances:

Consult sales for information about your specific connector choice.

Hot Pluggable [50 Couplings per UL 1977, paragraph 15]: Size 12 Contacts: Contact sales for availability.

Climatic Characteristic:

Working Temperature: -55°C to +125°C.

Mechanical Characteristics:

Blind Mating System: Integral guide feature allows for misalignment up to 2.00 mm [0.079 inch].

Locking Latch System: Design of connector body provides locking system for cable to cable, cable to printed board and cable to panel mount applications.

al	Characteri	stics
	Polarization:	Design of connector body provides polarization features.
	Removable Crimp Contacts:	Size 12, 20 and 22 female contacts feature closed entry design for highest reliability. Install contacts from rear of insulator, To remove contacts, release from front of insulator with extraction tool and remove from rear of insulator.
		ct Retention in Connector Body
;)	per IEC 512-8, Tes Size 12 Contacts: Size 20 and	• t 15a: 67N [15 lbs.] minimum.
	Size 22 Contacts:	27N [6 lbs.] minimum.
	Non Removable Crimp Contacts (Size 22 only):	Size 22 female contacts feature closed entry design for highest reliability. Insert contact from rear of insulator.
	per IEC 512-8, Tes	rimp Contact Retention in Connector Body t 15a: 27N [6 lbs.] minimum.
	Fixed Contacts:	Printed board terminations, both straight and right angle. Size 12 female contacts feature closed entry design for highest reliability. Size 20 and 22 female contact has open entry design.
	per IEC 512-8, Tes Size 12 Contacts: Size 20 Contacts:	ention in Connector Body t 15a: 45N [10 lbs.] minimum. 45N [10 lbs.] minimum. 27N [6 lbs.] minimum.
	Sequential Contac Size 12 Contacts: Size 20 Contacts:	Two levels.

zu contacts.	One level.	
	(Two levels for Printed Board mount connectors.)	

Size 22 Contacts: One level.

(Two levels for Printed Board mount connectors.)

Printed Board and Panel Mounting Holes:

Mounting holes provided in connector body for both printed board and panel mounting. Self-tapping screws or push-on fastener options are available.

Mechanical Operations

per IEC 512-5: 1000 cycles minimum.

Recognized:

UL and TÜV: Consult sales.

Products described within this catalog may be protected Unless otherwise specified, dimensional tolerances are: by one or more of the following U.S. patents: 1) Male contact mating diameters : #4.721472 2) Contact termination diameters : #4,900,261 #5,255,580 #5,329,697 #6,260,268 Patented in Canada, 1992, Other Patents Pending,

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±0.08 [0.003] 3) All other diameters : ±0.13 [0.005]

|--|

Dimensions are in millimeters [inches]. All dimensions are subject to change.

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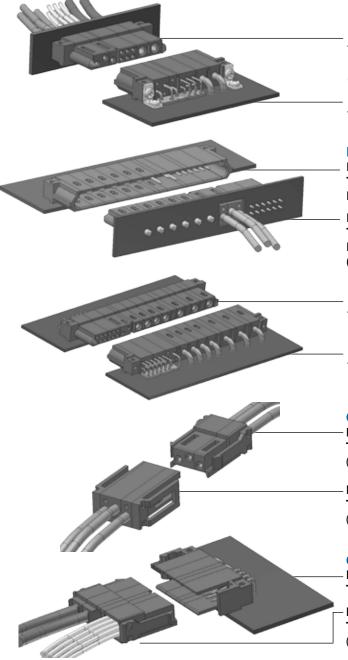
±0.03 [0.001]

±0.38 [0.015]









Low Profile

<u>Scorpion</u>

Board to Panel with Blind Mating System

Female Panel Mount Connector **Typical part number:** LSP2YKNRS1F0001 (Contacts ordered separately)

Male Right Angle PCB Mount Connector **Typical part number:** LSP2YKNRS4M0B0A1

Board to Board with Crimp Contacts Pass-through

Male Right Angle (90°) PCB Connector **Typical part number:** LSP2YGN2UN2T4M009A1

Female Straight PCB Connector **Typical part number:** LSP2YGN2UN2T3F009A1-PAxxx (Crimp contacts ordered separately)

Board to Board with Blind Mating System

Female Right Angle(90°) PCB Connector **Typical part number:** LSP2EN3EN3EN3GN2ST4F009A1

Male Right Angle(90°) PCB Connector, **Typical part number:** LSP2EN3EN3EN3GN2ST4M009A1

Cable to Cable with Locking Latch System

Female Cable Connector **Typical part number:** LSP3U1F0001 (Contacts ordered separately)

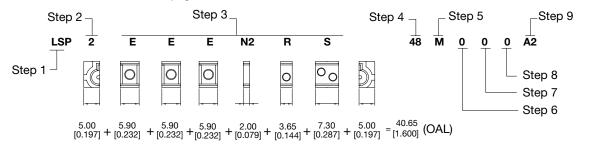
Male Cable Connector **Typical part number:** LSP3U1M0001 (Contacts ordered separately)

Cable to Board with Locking Latch System

Male Right Angle PCB Mount Connector Typical part number: LSP5YN2HK4M000A1

Female Cable Connector **Typical part number:** LSP5YN2HK1F0001 (Contacts ordered separately)

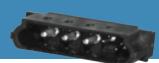
How to calculate Over All Length (OAL) of a Low Profile Scorpion connector: Overall Length (OAL) of a connector is the sum of all the modules length. Refer to example below for OAL calculation. See page 5 and 7 for individual module dimensions.





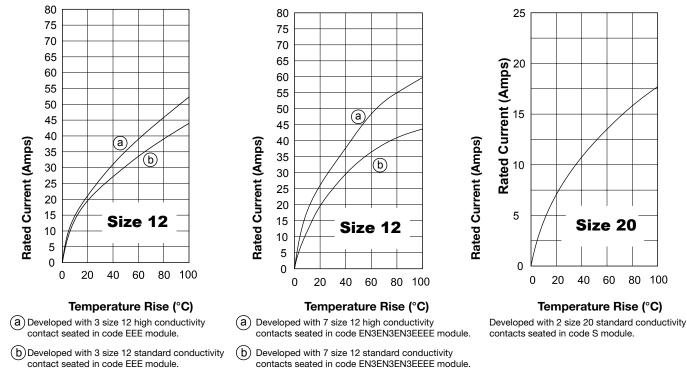


Temperature Rise Curves and Guide Systems, Locking Options.

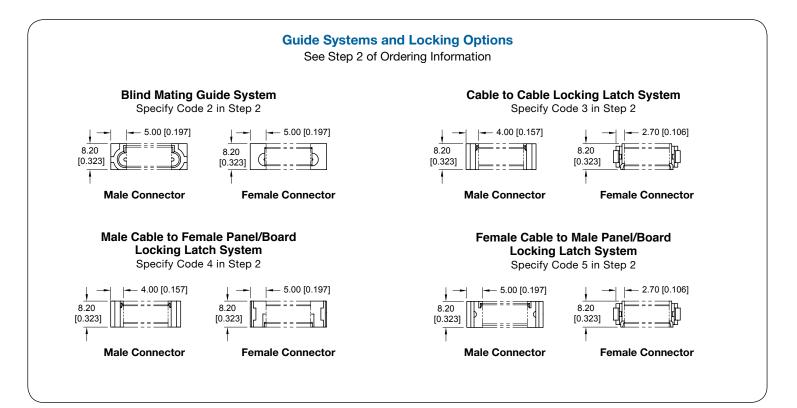


Temperature Rise Curves

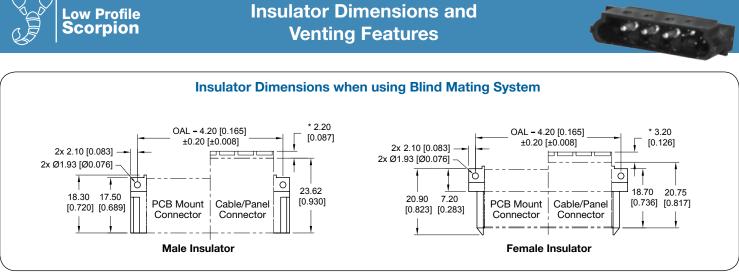
Tested per IEC Publication 512-3, Test 5a



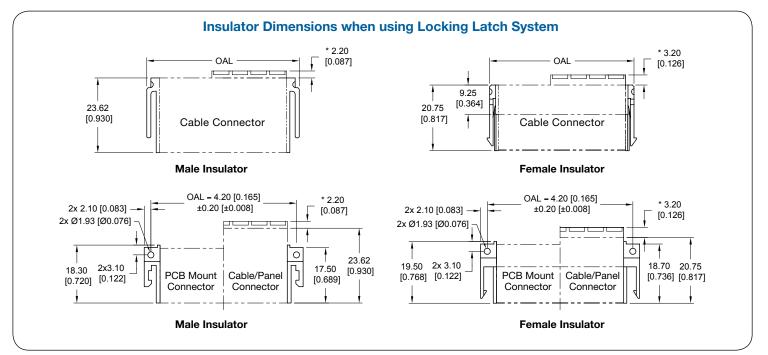
Contact sales if additional testings and current ratings are required.



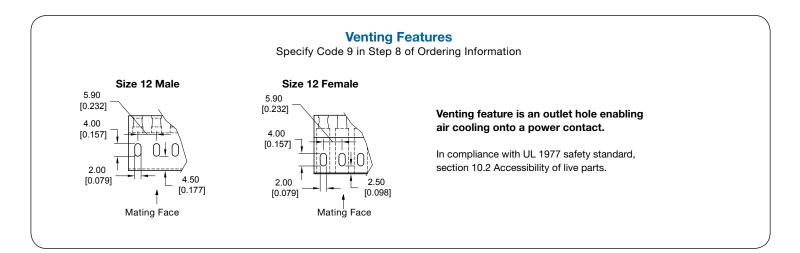


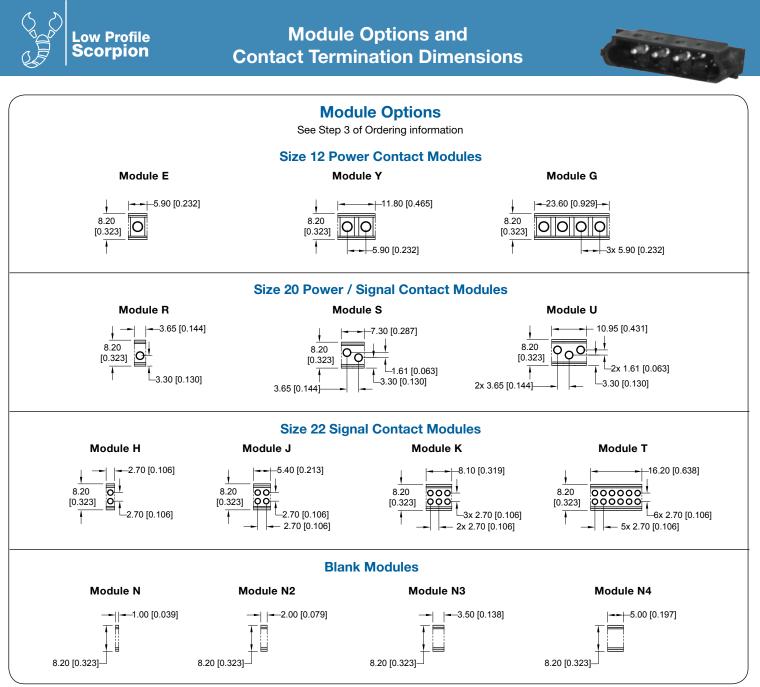


* Dimension applicable for Size 12 power contact module only.



* Dimension applicable for Size 12 power contact module only.



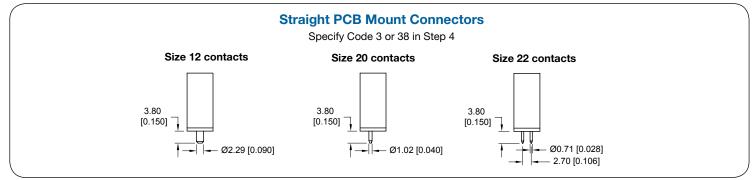


All modules shown above are male modules.

Avaliable in female straight and right angle (90°) PCB mount. Consult sales for availability of other modules.

Contact Termination Dimensions

See Step 4 of Ordering information



Code 3 is standard conductive material contact and code 38 is high conductivity material power contact.



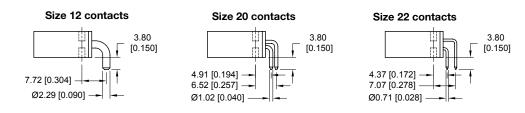
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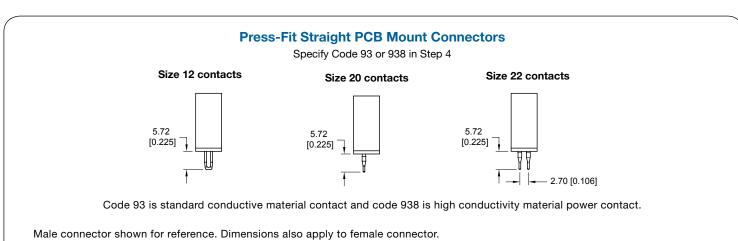


Right Angle (90°) PCB Mount Connectors

Specify Code 4 or 48 in Step 4



Code 4 is standard conductive material contact and code 48 is high conductivity material power contact.



Note: Outline dimensions for Press-Fit Connectors are the same as those of Straight PCB Mount Versions. For Suggested Straight Mount PCB Holes Sizes of Compliant Press-Fit Connectors, please refer to SK6370 or consult sales for more informations.

Press-Fit User Information

Connectors-to-PCB installation instructions:

- 1. Insert the connector into the PCB or backplane and seat connector fully with seating/ support tool.
- 2. Secure the connector to the PCB or backplane using two self-tapping screws for plastic.
- 3. Consult factory for appropriate installation tools.

Mounting Screw

Material Options	Part Number	Thread Length	P.C.B Thickness
Steel 4546-7-1-16		6.35±0.76 [0.250±0.030]	2.36 [0.093]
Steel	4546-7-2-16	7.93±0.76 [0.312±0.030]	3.18 [0.125]
Steel	4546-7-3-16	9.53±0.76 [0.375±0.030]	4.45 [0.175]
Stainless Steel	4546-7-6-4	6.35±0.76 [0.250±0.030]	2.36 [0.093]
Stainless Steel	4546-7-7-4	7.93±0.76 [0.312±0.030]	3.18 [0.125]
Stainless Steel	4546-7-8-4	9.53±0.76 [0.375±0.030]	4.45 [0.175]



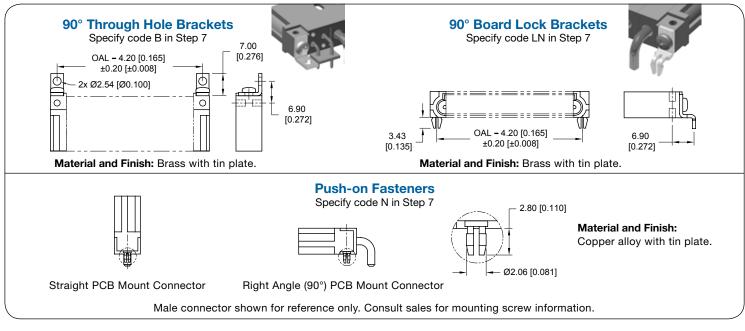


Accessories



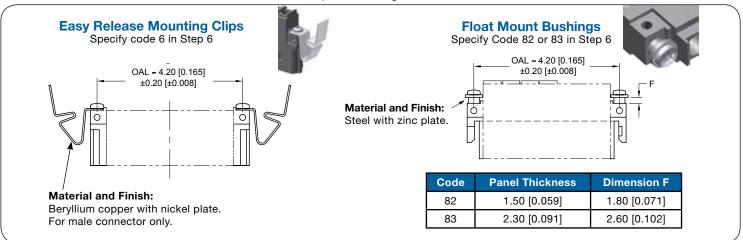
Accessories for PCB Mount

See Step 7 of Ordering Information

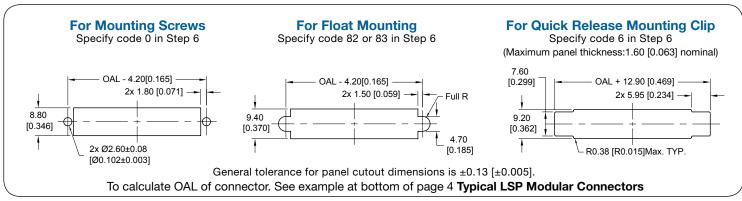


Accessories for Panel Mount

See Step 6 of Ordering Information



Panel Cutout Dimensions



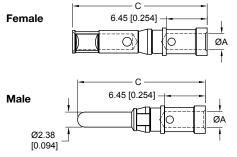


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(Contacts Ordered Separately)

Size 12 Removable Crimp Contacts

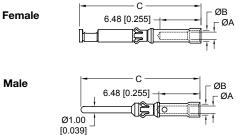


Part Number (Standard Conductivity Contacts)	Part Number (High Conductivity Contacts)	Wire Size AWG [mm²]	ØA	Sequential Mate	с
Female Contacts	3				
FC1210P2	FC1210P2S	10 [6.0]	3.10 [0.122]	N/A	21.25 [0.837]
FC1212P2	FC1212P2 FC1212P2S		2.54 [0.100]	N/A	21.23 [0.037]
Male Contacts	Male Contacts				
MC1210N-PA563	MC1210NS-PA563	10 [6.0]	3.10 [0.122]	First	23.18 [0.912]
MC1210N	MC1210NS		5.10 [0.122]	Standard	20.18 [0.794]
MC1212N-PA563	MC1212NS-PA563	10 [4 0]	0 54 [0 100]	First	23.18 [0.912]
MC1212N	MC1212NS	12 [4.0]	2.54 [0.100]	Standard	20.18 [0.794]

0000

N/A - Not Applicable

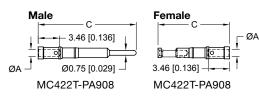
Size 20 Removable Crimp Contacts



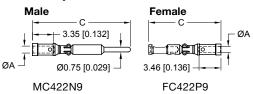
	Part Number (Standard Conductivity Contacts)	Wire Size AWG [mm²]	ØA	ØB	Sequential Mate	с	
4	Female Contacts						
	FC718P3	18 [1.0]	1.40 [0.055]	N/A	N/A	10 10 [0 756]	
	FC720P3	20-22-24 [0.5-0.3-0.25]	1.14 [0.045]	1.73 [0.068]	N/A	19.19 [0.756]	
	Male Contacts						
`	MC718N	18 [1.0]	1.40 [0.055]	N/A			
	MC720N	20-22-24 [0.5-0.3-0.25]	1.14 [0.045]	1.73 [0.068]	Standard	18.80 [0.740]	

N/A - Not Applicable

Size 22 Non Removable Crimp Contacts



Size 22 Removable Crimp Contacts



	Removable Contact	Non Removable Contact	Wire Size AWG [mm²]	ØA	с	
4	Female Contacts					
	FC422P9	FC422T-PA908	<u>22 - 26</u> [0.30] - [0.12]	0.89 [0.035]	11.41 [0.449]	
	Male Contacts					
	MC422N9	MC422T-PA908	<u>22 - 26</u> [0.30] - [0.12]	0.89 [0.035]	15.49 [0.610]	

Materials and Finishes:

Precision machined copper alloy with gold flash over nickel.

Consult sales for other contact sizes, materials, finishes, termination styles and more details.







Recommended Tools for Crimp Contacts

Contact Extraction Tool

Contact Insertion Tool

Cycle-Controlled Step Adjustable Hand Crimp Tool

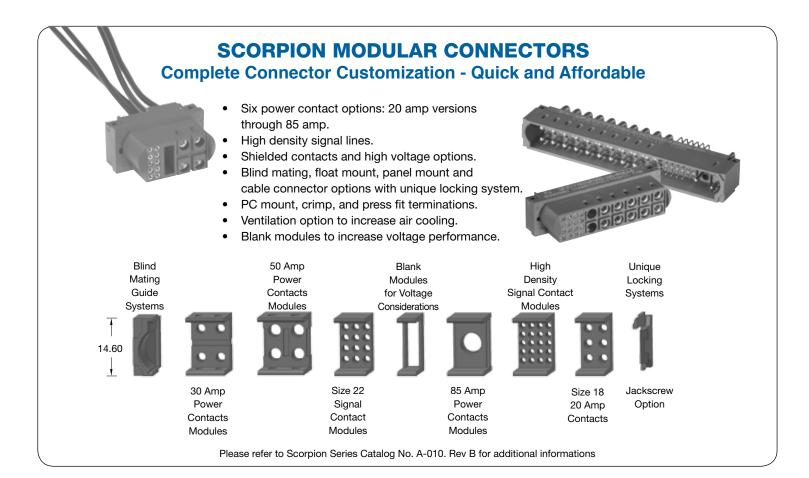






Contact Size	Contact Extraction Tool	Contact Insertion Tool	Hand Crimp Tool
Size 12	2711-0-0	9099-3-0	9509-6-1 with 9509-6-2 positioner (*C1210** contacts) 9501-0 with 9502-38-0 positioner (MC1212** contacts) 9501-0 with 9502-37-0 positioner (FC1212** contacts)
Size 20	9081-2-0	9099-4-0	9507-0 with 9502-21 positioner (male contacts) 9507-0 with 9502-22 positioner (female contacts)
Size 22	^ 9081-3-0	9099-7-0	9507-0 with 9502-12-0 positioner (male contacts) 9507-0 with 9502-13-0 positioner (female contacts)

^ Not Applicable for Size 22 non-removable crimp contacts. Consult sales for additional crimping tools and crimping information.





OTHER HIGH DENSITY CONNECTORS

High Density Rectangular Connectors



SGM/SGMC/SMPL Series

High Density D-subminiature Connectors



CRIMP & SOLDER TERMINATIONS FOURTEEN CONTACT VARIANTS 4 through 104 poles

CONTACTS: Fixed and removable. Precision machined of solid copper alloy. Female contact is "closed entry" design for highest reliability. Current rating to 5 amperes continuous per contact. Gold flash over nickel plate. Other finishes available upon request. TERMINATIONS: Crimp; solder cup; straight and right angle solder printed board mount.

INSULATORS: Glass-filled DAP, U.L. 94V-0. Variants of 4, 5, 7, 9, 11, 14, 20, 26, 29, 34, 44, 50, 75 and 104 contacts. POLARIZATION: Guide pilots and sockets, jackscrews and shells. LOCKING SYSTEM: Jackscrews and vibration lock system. CABLE ADAPTERS: Hoods, aluminum. MOUNTING: Panel and printed board. WORKING TEMPERATURE: - 55°C to +125°C. CRIMPING TOOLS: Automatic and manual. MILITARY QUALIFICATIONS: Conform to MIL-DTL-28748/7, /8, /13, and /14 and SAE AS 39029/34 and /35. IEC 807-7, performance level 1. U.L. recognized.

ODD-LOW COST

76% CONTACT DENSITY INCREASE. CONTACTS: Fixed and removable. Precision machined of solid high tensile copper alloy; female contact is rugged "Robi-D open entry" design. Current rating to 5 amperes. Gold flash over nickel plate. Other finishes available upon request. TERMINATIONS: Crimp; solder cup; straight or right angle solder printed board mount.

INSULATORS: Glass-filled polyester, U.L. 94V-0. Six variants of 15, 26, 44, 62, 78 and 104 contacts. SHELLS: Steel and brass; tin plate and zinc or cadmium plate with chromate seal. LOCKING SYSTEM: Jackscrews and slide lock system. CABLE ADAPTERS: Hoods; metal, thermoplastic, composite, EMI/RFI. MOUNTING: Panel and printed board. WORKING TEMPERATURE: -55°C to +125°C. CRIMPING TOOLS: Automatic and manual. MILITARY QUALIFICATIONS: Compatible with connectors conforming to MIL-DTL-24308. U.L. and CSA recognized.

Baby King Cobra Circular Connectors



Miniature, Economical & Rugged Circular Connector Systems

CONTACTS: Removable or fixed. Precision machined of solid copper alloy. Screw termination contact is available. Current rating 7.5 amperes nominal. Gold flash over nickel plate. Other finishes available upon request. TERMINATIONS: Crimp; solder cup; straight and right angle solder printed board mount.

INSULATORS: Glass filled nylon, UL 94V-0. Two variants: three size 20, and 6 size 22. POLARIZATION: Provided by insulator. LOCKING SYSTEM: Threaded or Twist Locking Shroud. CABLE ADAPTERS: Hoods; nylon, IP65 with overmolded Assembles (Consult Factory for details). CABLIZED CONNECTORS: Customer specified wire or cable can be supplied terminated to connector with cable adapters or over-molded cable assemblies. MOUNTING: Panel and printed board. WORKING TEMPERATURE: -55° to +125°C. CRIMPING TOOLS: Automatic and manual.

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LSP2EE1M82001/AA LSP2EEE1M0091/AA LSP2EEE1M82091/AA LSP2EEE1S0091/AA LSP2EEE3M009A1/AA LSP2EEE3S009A1/AA LSP2EEE4S0LN9A1/AA LSP2EEEES1F82091/AA LSP2EEEES1F83091/AA LSP2EEEK1M0001/AA LSP2EEEK1S0001/AA LSP2EEEK3M000A1/AA LSP2EEEK3S000A1/AA LSP2EHE1F82091/AA LSP2EHE1F83091/AA LSP2EN3EN3K93M009A1/AA LSP2ENEN3K3S0N9A1/AA LSP2ENEN3K4M0LN9A1/AA LSP2EYK3S000A1/AA LSP2EYK4M000A1/AA LSP2GJT4M0LN9A1/AA LSP2GJT938F009A1/AA LSP2HN2EN2EN2EN21F0001 LSP2HN2EN2EN2EN21M0001 LSP2HN2EN2EN2EN21M83001 LSP2KKH1F82001/AA LSP2KKH1F83001/AA LSP2N2EN2EN2EN2EN2EN21F0001 LSP2SKRR1F0001/AA LSP2SKRR1M83001/AA LSP2SR1S0091/AA LSP2T1F82001/AA LSP2YJ38M000A1/AA LSP2GJT938S000A1/AA LSP2EEE1F0001/AA LSP3GN2H1M0001 LSP5EE1F0001 LSP5EEE1F0001 LSP5EEE1F0001/AA LSP5EEEE1F0001/AA LSP5EEEE3M009A1/AA LSP5EEEE4M009A1/AA LSP5EEE1F0001/AA LSP5EEEE1S0091/AA LSP5EEEE3M009A1/AA LSP5GN2H1M0001 LSP5GN2H1M0001 LSP5GN2H1S0001 LSP5GN2H48M000A1 LSP5NEEEEEN1F0001 LSP5NEEEEEN1M0001 LSP5NEEEEEN1S0001 LSP5KKHNRNKHR1S0091/AA LSP5SSNHNKKKNS1S0091/AA LSP5YNENY1F0091 LSP5YNENY1M0091

Other:

LSP2EEE48M009A1/AA LSP2EEE48S009A1/AA LSP2EEE48S0N9A1 LSP2EEEKJEEE38S0N0A1/AA LSP2EEEKJEEE48M0LN0A1/AA LSP2EEEKHEEE1S82001/AA LSP2EEEKHEEE93M000A1/AA LSP2EEEKHEEE93S000A1/AA LSP2EEN1S83001/AA LSP2EEN48M0N0A2/AA LSP2KN1S83001/AA LSP2KN4M0N0A2/AA LSP2SKKN3F0N0A2 LSP3EEEENHNS1M0001 LSP3EEEENHNS1S0001 LSP3EES1F0001 LSP3EES1M0001 LSP3EN3N3E1M0001/AA LSP3EN3N3E1S0001/AA LSP3UR1M0001/AA LSP3UR1S0001/AA LSP4HJK1M0001/AA LSP4HJK1S83001/AA LSP5EEEE1S0000/AA LSP5EEEENHNS1M0001 LSP5EEEENHNS1S0001 LSP5JHKKK1S0001/AA LSP5KK1S0001/AA