Positronic



www.connectpositronic.com



Sumo

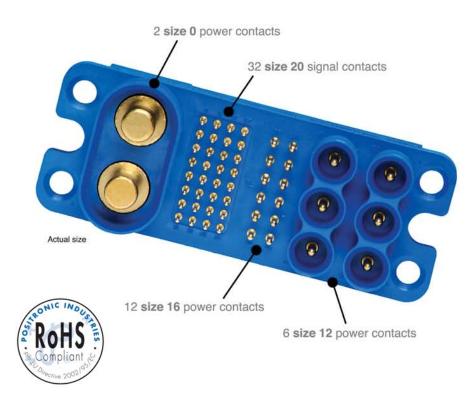






Contact us for more information on other Positronic interconnect products:

Technical Sales (800) 641-4054 E-mail info@connectpositronic.com Web www.connectpositronic.com



FEATURES:

- Compatible with existing power connectors for use in drawer applications
- Variety of contact sizes in a single package
- Available in cable, right angle and straight board mount versions
- Selective loading available on request
- Sequential mating options
- Outstanding blind mating



ABOUT US

Founded in 1966, Positronic Industries is a vertically integrated manufacturer of high quality interconnect products. Positronic has earned the worldwide reputation as a service oriented, quick-reaction, top quality connector supplier. We are committed to maintaining this reputation by continuous implementation of our **Complete Capability** concept.

COMPLETE CAPABILITY

Design & Development

- Designs new connectors and modifies existing connectors to meet industry requirements
- Continuously conducts marketing studies to identify industry needs for new products
- Ongoing interest in unique connector designs

Tooling

- Tooling support for all manufacturing areas within company
- Provides 80% of new tooling, punch press dies, molds, jigs and fixtures used at Positronic factory locations worldwide

Machining

- · Automatic screw machines produce finely crafted contacts and hardware for connector bodies
- Trained technicians operate machines from Tornos, Bechler and Brown & Sharpe

Molding

Plating

- · Molds all plastic connector components such as insulators, hoods, angle brackets and more
- · Overmold capability available

. . ..

- Applies gold and other metal finishes to connector components to any required thickness
- Plating conforms to all military specifications

Quality Assurance Lab

- Quality assurance system certified to ISO 9001
- Maintains aggressive TQM program
- Able to test to IEC, EIA, UL, MIL-DTL-24308, MIL-DTL-28748, MIL-C-39029 and MIL-C-85049 requirements

Finished Stock Inventory

- Each main factory location maintains a large inventory of connector components and accessories
- Same day shipments available on many standard connector products
- Stocking agreements available for qualified customers

Worldwide Sales & Service

- Responsive attitude toward customer needs
- Fully trained sales staff located worldwide



Machining



Molding



Finished Stock Inventory

Products described within this catalog may be protected by one or more of the following US. patents:

#4,721,472 #4,900,261 #5,255,580 #5,329,697 #6,260,268 #6,835,079

Patented in Canada, 1992 Other Patents Pending

Unless otherwise specified, dimensional tolerances are:

- 1) ±0.03 mm [0.001 inches] for male contact mating diameters.
- 2) ±0.08 mm [0.003 inches] for contact termination diameters.
- 3) ±0.13 mm [0.005 inches] for all other diameters.
- 4) ±0.38 mm [0.015 inches] for all other dimensions.

Positronic Industries believes the data contained herein to be reliable. Since the technical information is given free of charge, the User employs such information at his own discretion and risk. Positronic Industries assumes no responsibility for results obtained or damages incurred from use of such information in whole or in part.

SUMO

TECHNICAL INFORMATION



STANDARD TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulator: Glass-filled polyester, UL 94V-0,

blue color.

Contacts: Precision-machined copper alloy

with gold flash over nickel. Solder-coated terminations optional. Other

finishes available upon request.

Blind Mate Guides: Stainless steel, passivated.

Float Mount Screw: Stainless steel, passivated.

ELECTRICAL CHARACTERISTICS:

Contact Current Rating, per UL 1977:

Size 0 Contact: 200 amperes, continuous. Size 12 Contact: 35 amperes, continuous. Size 16 Contact: 15 amperes, continuous.

Size 20 Contact: 5 amperes.

Temperature Rise Curves per IEC 512-3, Test 5a. See next page for

performance curves.

Initial Contact Resistance (in free air at rated current);

Size 0 Contact: 0.074m ohms.
Size 12 Contact: 0.12m ohms.
Size 16 Contact: 0.32m ohms.
Size 20 Contact: 1.90m ohms.

Per IEC 512-2, Test 2b.

Insulator Resistance: 5 G ohms per IEC 512-2, Test 3a.

Voltage Proof:

 Size 0 Contact:
 3,000 VAC

 Size 12 Contact:
 3,000 VAC

 Size 16 Contact:
 2,000 VAC

 Size 20 Contact:
 1,700 VAC

Creepage Distances: Consult Technical

Sales.

Clearance Distance: Consult Technical

Sales.

Working Voltage:

 Size 0 Contact:
 250 V

 Size 12 Contact:
 600 V

 Size 16 Contact:
 250 V

 Size 20 Contact:
 250 V

MECHANICAL CHARACTERISTICS:

Blind Mating System: Blind mate guides allow for misalign-

ment up to 4.00 mm [0.157 inch]

Polarization: Provided by connector body design.

Removable Contacts: Insert contact in rear face of insula-Size 12, 16, 20 tor; release from front face of insula-

tor. Female contacts feature

"Closed Entry" design.

Removable Contact Retention

in Connector Body:

 Size 0 Contact:
 67N [15 lbs.] per IEC 512-8, Test 15a.

 Size 12 Contact:
 67N [15 lbs.] per IEC 512-8, Test 15a.

 Size 16 Contact:
 67N [15 lbs.] per IEC 512-8, Test 15a.

 Size 20 Contact:
 44N [10 lbs.] per IEC 512-8, Test 15a.

Fixed Contacts: Printed board terminations, both

straight and right angle. Size 12 and 16 female contacts feature "Closed Entry" design. Size 20 female contacts feature "Rugged

Open Entry" design.

Fixed Contact Retention

in Connector Body: 44N [10 lbs.], minimum.

Resistance to Solder Heat: 260°C [500°F] for 10 seconds dura-

tion per IEC 512-6, Test 12e, 25-

watt soldering iron.

Sequential Contact

Mating System: Three level systems featured for

size 12, 16 and 20. Consult Technical Sales for application assistance with contact sequenc-

ing.

Printed Board

and Panel Mounting Holes: Mounting holes provided in connec-

tor body for both printed board and

panel mounting.

Float Mount Shoulder Screw: Provides up to 2.36 mm [0.093 inch]

loat.

Mechanical Operations: 200 couplings.

CLIMATIC CHARACTERISTICS:

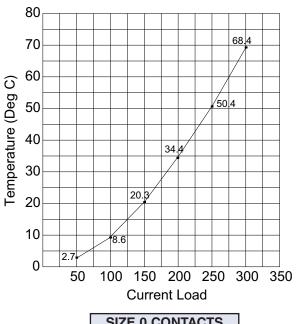
Working Temperature: -55°C to +125°C.

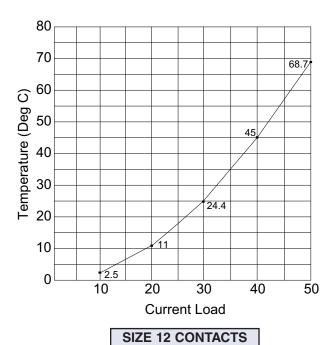


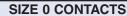


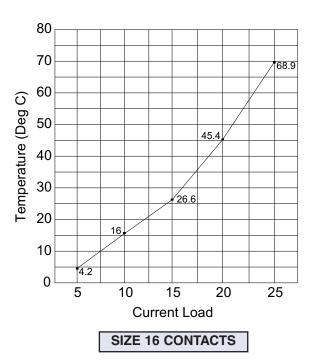
CONNECTOR TEMPERATURE RISE CURVES

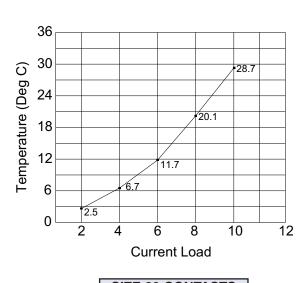
Tested per IEC Publication 512-3, Test 5a











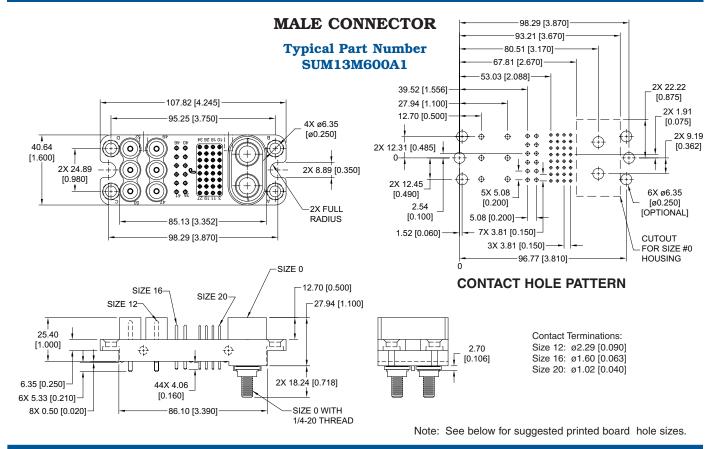
SIZE 20 CONTACTS

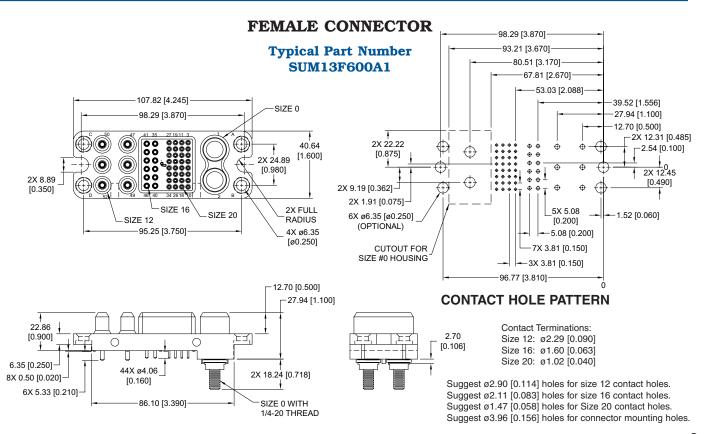
NOTE:

1) These temperature rise curves were developed in free air.

STRAIGHT PRINTED BOARD MOUNT CONNECTORS



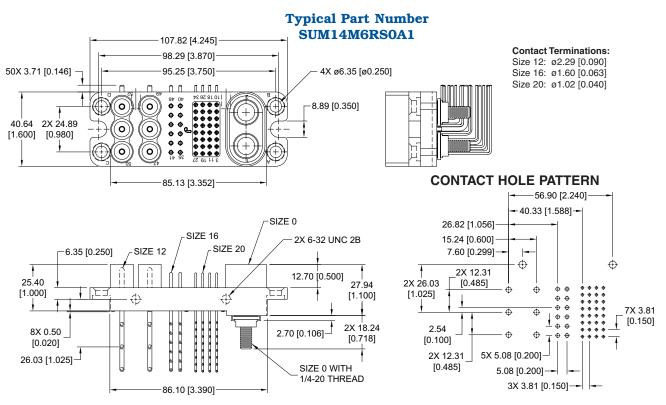






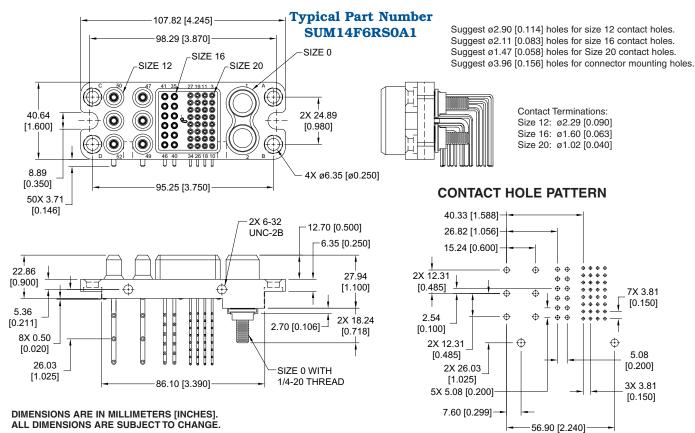
RIGHT ANGLE PRINTED BOARD MOUNT CONNECTORS

MALE CONNECTOR



Note: See below for suggested printed board hole sizes.

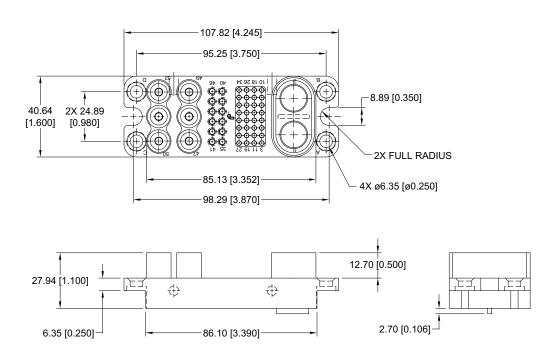
FEMALE CONNECTOR





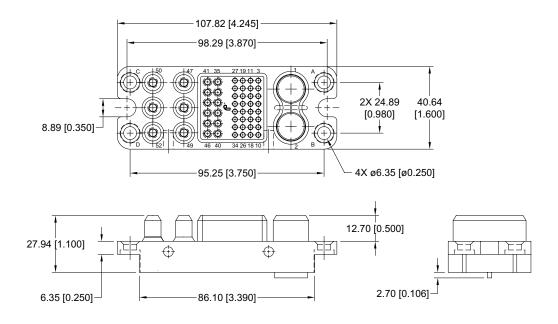
MALE CONNECTOR

Typical Part Number SUM10M0000



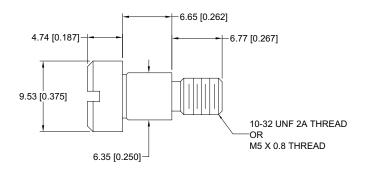
FEMALE CONNECTOR

Typical Part Number SUM10F0000



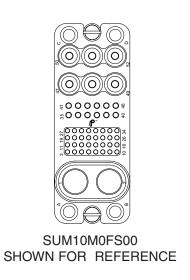


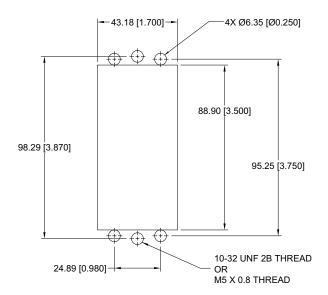
FLOAT MOUNT



PANEL CUTOUT

MAXIMUM PANEL THICKNESS 4.76 [0.188]

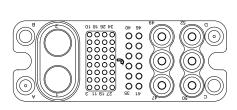




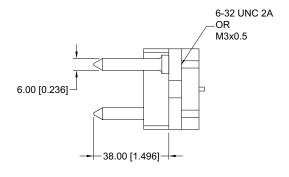
BLIND MATING SYSTEMS AND SEQUENTIAL MATING CONTACTS



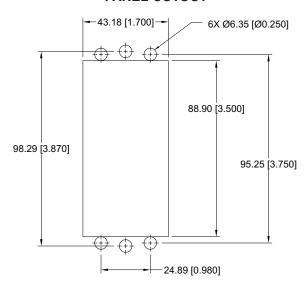
BLIND MATING SYSTEM



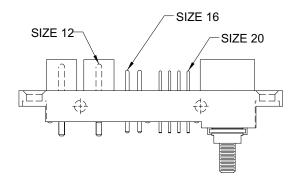
SUM10M00110 SHOWN FOR REFERENCE



PANEL CUTOUT



SEQUENTIAL MATING



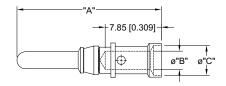
CONTACT SIZE	FIRST MATE	STANDARD	LAST MATE
Size 12	11.68 [0.460]	10.92 [0.430]	9.90 [0.390]
Size 16	12.19 [0.480]	8.38 [0.330]	7.36 [0.290]
Size 20	11.93 [0.470]	8.12 [0.320]	6.85 [0.270]



SIZE 12, 16 AND 20 REMOVABLE CRIMP CONTACTS

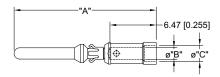
Contacts are rear insertion front release style

SIZE 12



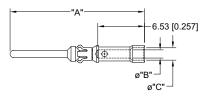
PART NUMBER	WIRE SIZE mm²[AWG]	A	øB	øC	SEQUENTIAL MATE
SMC1210AN	5.3 [10]	23.46 [0.924]	N/A	3.73 [0.147]	FIRST
SMC1210BN	5.3 [10]	22.70 [0.894]	N/A	3.73 [0.147]	STANDARD
SMC1210CN	5.3 [10]	21.68 [0.854]	N/A	3.73 [0.147]	THIRD
SMC1212AN	4.0 [12]	23.46 [0.924]	2.54 [0.100]	4.19 [0.165]	FIRST
SMC1212BN	4.0 [12]	22.70 [0.894]	2.54 [0.100]	4.19 [0.165]	STANDARD
SMC1212CN	4.0 [12]	21.68 [0.854]	2.54 [0.100]	4.19 [0.165]	THIRD

SIZE 16



PART NUMBER	WIRE SIZE mm²[AWG]	A	øB	øC	SEQUENTIAL MATE
SMC1612AN	4.0 [12]	23.68 [0.932]	N/A	2.49 [0.098]	FIRST
SMC1612BN	4.0 [12]	19.87 [0.782]	N/A	2.49 [0.098]	STANDARD
SMC1612CN	4.0 [12]	18.85 [0.742]	N/A	2.49 [0.098]	THIRD
SMC1614AN	2.5 [14]	23.68 [0.932]	2.06 [0.081]	2.67 [0.105]	FIRST
SMC1614BN	2.5 [14]	19.87 [0.782]	2.06 [0.081]	2.67 [0.105]	STANDARD
SMC1614CN	2.5 [14]	18.85 [0.742]	2.06 [0.081]	2.67 [0.105]	THIRD
SMC1616AN	1.5 [16]	23.68 [0.932]	1.70 [0.067]	2.36 [0.093]	FIRST
SMC1616BN	1.5 [16]	19.87 [0.782]	1.70 [0.067]	2.36 [0.093]	STANDARD
SMC1616CN	1.5 [16]	18.85 [0.742]	1.70 [0.067]	2.36 [0.093]	THIRD
SMC1620AN	0.5 [20]	23.68 [0.932]	1.14 [0.045]	1.73 [0.068]	FIRST
SMC1620BN	0.5 [20]	19.87 [0.782]	1.14 [0.045]	1.73 [0.068]	STANDARD
SMC1620CN	0.5 [20]	18.85 [0.742]	1.14 [0.045]	1.73 [0.068]	THIRD

SIZE 20



PART NUMBER	WIRE SIZE mm²[AWG]	А	øB	øC	SEQUENTIAL MATE
SMC2020AN	0.5 [20]	23.93 [0.942]	1.14 [0.045]	1.73 [0.068]	FIRST
SMC2020BN	0.5 [20]	20.12 [0.792]	1.14 [0.045]	1.73 [0.068]	STANDARD
SMC2020CN	0.5 [20]	18.80 [0.740]	1.14 [0.045]	1.73 [0.068]	THIRD

MATERIALS:

Contacts: Copper Alloy.

Retention Clips: Beryllium copper.

FINISH:

Gold flash over nickel plate.

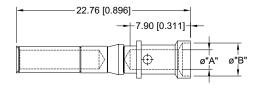
FEMALE REMOVABLE CONTACTS



SIZE 12, 16 AND 20 REMOVABLE CRIMP CONTACTS

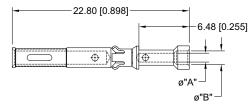
Contacts are rear insertion front release style

SIZE 12



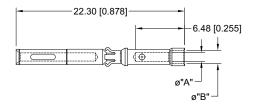
PART NUMBER	WIRE SIZE mm² [AWG]	øΑ	øΒ
SFC1210N2	5.3 [10]	3.73 [0.147]	N/A
SFC1212N2	4.0 [12]	2.54 [0.100]	4.19 [0.165]

SIZE 16



PART NUMBER	WIRE SIZE mm²[AWG]	øA	øΒ
SFC1612N2	4.0 [12]	N/A	2.49 [0.098]
SFC1614N2	2.5 [14]	2.06 [0.081]	2.64 [0.104]
SFC1616N2	1.5 [16]	1.70 [0.067]	2.36 [0.093]
SFC1620N2	0.5 [20]	1.14 [0.045]	1.73 [0.068]

SIZE 20



PART NUMBER	WIRE SIZE mm² [AWG]	øΑ	øΒ
SFC2020N2	0.5 [20]	1.14 [0.045]	1.73 [0.068]

MATERIALS:

Contacts: Copper Alloy.

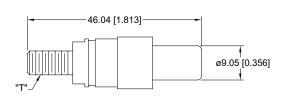
Retention Clips: Beryllium copper.

FINISH:

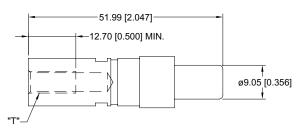
Gold flash over nickel plate.



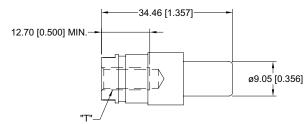
SIZE 1/0 REMOVABLE CRIMP CONTACTS MALE CONTACTS



PART NUMBER	"T" Thread
SMET10S	1/4-20 UNC 2A
SMET10M	M6 X 1

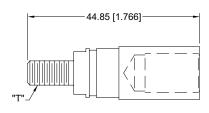


PART NUMBER	"T" Thread
SMIT10S	1/4-20 UNC 2A
SMIT10M	M6 X 1

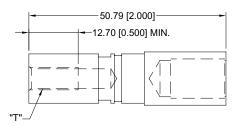


PART NUMBER	"T" Thread
SMSIT10S	1/4-20 UNC 2A
SMSIT10M	M6 X 1

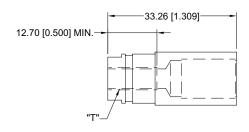
FEMALE CONTACTS



PART NUMBER	"T" Thread
SFET10S	1/4-20 UNC 2A
SFET10M	M6 X 1



PART NUMBER	"T" Thread
SFIT10S	1/4-20 UNC 2A
SFIT10M	M6 X 1



PART NUMBER	"T" Thread	
SFSIT10S	1/4-20 UNC 2A	
SFSIT10M	M6 X 1	

MATERIALS:

Contacts: Copper Alloy.

Retention Clips: Beryllium copper.

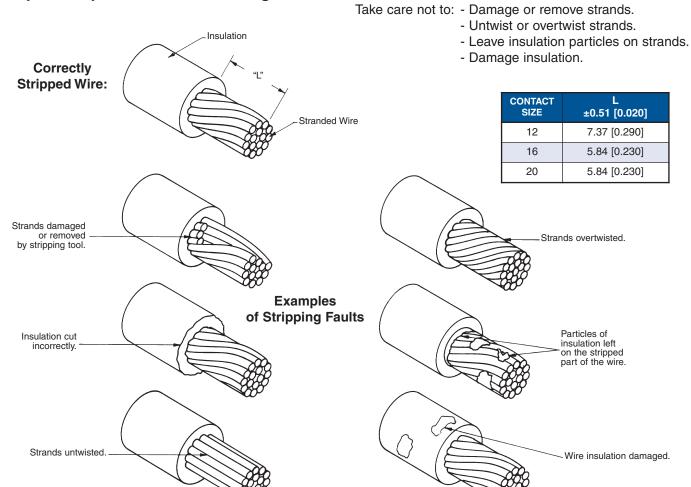
FINISH:

Gold flash over nickel plate.



CRIMPING INFORMATION FOR SUMO SERIES CRIMP CONTACTS

Step 1: Strip wire to indicated length.



Step 2: Crimp wire to contact.

For Hand Crimp Tool: - Place contact into crimping tool.

- Insert wire into contact.
- Center contact by slowly closing crimping tool until crimp indenters make contact with crimp barrel.
- Complete the cycle of the crimping tool in one smooth motion.
- Remove the crimped contact.

For Automatic Pneumatic Crimp Tool:

- Insert wire into the contact, positioned in the crimp tool by the plastic carrier.
- Depress the activating device of the crimping tool to start crimping cycle.
- Remove the crimped contact.

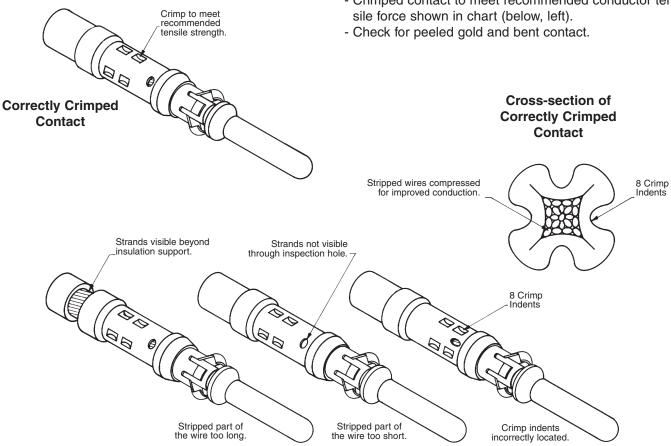


CRIMPING INFORMATION FOR SUMO SERIES CRIMP CONTACTS

Step 3: Inspect crimp.

For All Tools: - Strands to be visible through the inspection hole.

- Strands not to be visible beyond the insulation support.
- Crimped contact to meet recommended conductor ten-



Positronic Recommended **Conductor Tensile** Strength

Examples of Crimping Faults

WIRE SIZE	AXIAL LOAD	
4.0 mm ² [12 AWG]	489N [110 lbs.]	
2.5 mm ² [14 AWG]	311N [70 lbs.]	
1.5 mm ² [16 AWG]	222N [50 lbs.]	
1.0 mm ² [18 AWG]	125N [28 lbs.]	
0.5 mm ² [20 AWG]	89N [20 lbs.]	
0.3 mm ² [22 AWG]	53N [12 lbs.]	
0.25 mm ² [24 AWG]	36N [8 lbs.]	
0.12 mm ² [26 AWG]	22N [5 lbs.]	

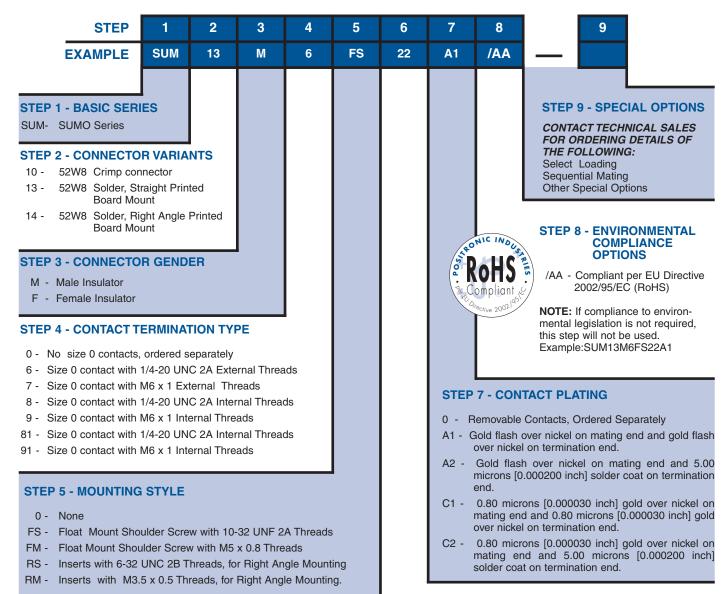
POSITRONIC RECOMMENDED TOOLS							
Tool Description	Size 12 Contact	Size 16 Contact	Size 20 Contact				
Hand Crimp Tool	9501 with 9502-19-0-0 positioner	9501 with 9502-17-0-0 positioner for Male Contacts	9507 with 9502-21-0-0 positioner for Male Contacts				
		9501 with 9502-26-0-0 positioner for Female Contacts	9507 with 9502-25-0-0 positioner for Female Contacts				
Contact Removal Tool	2711-0-0-0	9081-6-0-0	9081-5-0-0				

SUMO ORDERING INFORMATION

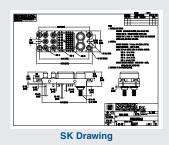


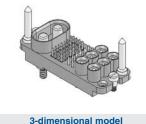
ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 7



NOTE: Once you have made a connector selection, contact Technical Sales if you would like to receive a drawing in DXF, PDF format or a 3-dimensional IGES file.





3-dimensional model

STEP 6 - BLIND MATE GUIDES

- 0 No guides
- 11 6-32 UNC 2A threaded guides located at positions A and D.
- 12 M3x0.5 threaded guides located at positions A and D.
- 21 6-32 UNC threaded guides located at positions B and C.
- 22 M3x0.5 threaded guides located at positions B and C.
- 31 6-32 UNC 2A threaded guides located at positions A and C.
- 32 M3x0.5 threaded guides located at positions A and C.
- 41 6-32 UNC 2A threaded guides located at positions B and D.
- 42 M3x0.5 threaded guides located at positions B and D.

Positronic Products

Contact Sizes: 0, 8, 12, 16, 20 and 22

Current Ratings: To 150 amperes Terminations: Crimp, wire solder, straight solder, right angle solder, straight press-fit and right angle press-fit

Configurations: Multiple variants in a variety of package sizes
Compliance: PICMG 2.11,
PICMG 3.0, VITA 41



FEATURES: Hot swap capability • AC/DC operation in a single connector • Signal contacts for hardware management • Blind mating • Sequential mating • Large Surface Area Contact Mating System • Wide variety of accessories • Customer specified contact arrangements

Contact Sizes: 16, 20 and 22
Current Ratings: To 13 amperes
Terminations: Crimp, wire
solder, straight solder and
right angle solder
Configurations: Multiple variants
in both standard
and high densities
Qualifications: MIL-DTL-28748,
MIL-C-39029, CCITT V.35



FEATURES: Two performance levels available: industrial quality and military quality provide two performance to cost choices • Large Surface Area Contact Mating System • A wide variety of accessories • Broad selection of contact variants and package sizes

All Positronic connector products can be supplied as part of cable assemblies whose technical characteristics would reflect those of the connectors being used within the assembly.



FEATURES: Shorten the supply chain and reduce additional costs and delays by "cablizing" ● Overmolding available ● Shielded and environmentally sealed versions available ● Power cables and access boxes which meet the SAE J2496 specification

Contact Sizes: 8, 20 and 22 Current Ratings: To 40 amperes nominal

Terminations: Crimp, wire solder, straight solder, right angle solder and straight press-fit
Configurations: Multiple variants in both standard and high densities
Qualifications: MIL-DTL-24308, Goddard Space Flight 311P, MIL-C-39029, IP65, IP67



FEATURES: Three performance levels available: professional quality, military quality and space-flight quality provide multiple performance to cost choices • Options include thermocouple contacts, filtered, environmentally sealed and dual port package including mixed density • Broad selection of accessories

Contact Sizes: 12, 16, 20 and 22 Current Ratings: To 25 amperes nominal

Terminations: Crimp, wire solder, straight solder and right angle solder Configurations: Multiple variants in two package sizes

Qualifications: Environmental protection to IP67



FEATURES: Non-corrodible / lightweight composite construction • EMI/RFI shielded versions • Thermocouple contacts • Environmentally sealed versions • Rear insertion/ front release of removable contacts • Two level sequential mating • Overmolding available on full assemblies

Contact Sizes: 8, 12, 16, 20 and 22

Current Ratings: To 40 amperes nominal

Terminations: Feed through is standard; flying leads and board mount available upon request

Configurations: See
D-Subminiature and
Circular Configurations above
Qualifications: Space-D32



FEATURES: Intended for use as an electrical feedthrough in high vacuum applications • Leakage rate: 1 x 10-9 mbar.l/s • Signal, power, coax and high voltage versions available • Connectors can be mounted on flange assembly per customer specification

For more information, visit www.connectpositronic.com or call your nearest Positronic sales office as given on the back of this catalog.

NORTH AMERICAN LOCATIONS

UNITED STATES, Springfield, Missouri, Corporate Headquarters

Factory Sales and Engineering Offices (800) 641-4054

PUERTO RICO, Ponce Factory

Factory Sales and Engineering Offices (800) 641-4054

MEXICO

Factory Sales and Engineering Offices (800) 872-7674

CANADA

Factory Sales and Engineering Offices (800) 327-8272

ASIA/PACIFIC LOCATIONS

SINGAPORE, Asia/Pacific Headquarters

Factory Sales and Engineering Offices (65) 6842-1419

ASIA, Direct Sales Offices

 Taiwan Sales Office
 (88) 62-2937-8775

 China Sales Office
 (86) 755-2643-7578

 Korea Sales Office
 (82) 31-909-8047/8

JAPAN

Sales and Engineering Offices (81) 3-5812-7720

INDIA

Factory Sales and Engineering Offices (91) 20-2439-4810

ASIA/PACIFIC, Technical Agents

Technical Agents in Malaysia, Australia, New Zealand, Philippines, Hong Kong, Vietnam, Thailand

EUROPEAN LOCATIONS

FRANCE, Auch Factory, European Headquarters

Factory Sales and Engineering Offices 33 (0)5 62 63 44 91

EUROPE. Direct Sales Offices

 Northern France Sales Office
 33 (0)1 45 88 13 88

 Southern France Sales Office
 33 (0)4 67 72 80 28

 Italy Sales Office
 39 (0)2 54 116 106

 Northern Germany Sales Office
 49 (0)30 34 504 307

 Southern Germany Sales Office
 49 (0)2351 63 47 39

EUROPE, Technical Agents

Technical Agents in Austria, Benelux, Eastern Europe Countries, Greece, Ireland, Scandinavia, Spain, Switzerland and the United Kingdom

MIDEAST, Technical Agents

Technical Agents in Israel and Turkey



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