• Featuring 200 Amp Size 0 Contacts
• Modular - 256 Possible Versions
• Hot Plug-Blind Mating
• “Safety Feature” Contacts
GG Modular Power Connectors

Typical Mating Systems

Cable to Cable

GG8888F1T

GG8888M1E

Panel Mount to Cable

GG8857F10

GG8857M10

Cable to Bus bar

GG8568F1T

GG8568M1EJ

Consult factory for availability of Bus bar contacts

Cable to Straight PCB Mount

GG8567M10

GG8567F10

Consult factory for availability of Straight PCB Mount Contacts

Unless otherwise specified, dimensional tolerances are:

1) Male contact mating diameters : ±0.03 [0.001]
2) Contact termination diameters : ±0.08 [0.003]
3) All other diameters : ±0.13 [0.005]
4) All other dimensions : ±0.38 [0.015]

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

Positronic 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 assumes no responsibility for results obtained or damages incurred from use of such information in whole or in part.


**Technical Characteristics**

**Materials and Finishes:**
- Insulators: Glass-filled nylon, UL 94V-0, Gold color
- Consult factory for high performance glass-filled polyester material option.
- Contacts: Precision machined copper alloy with gold flash over nickel. Other finishes available upon request.

**Electrical Characteristics:**
- Connector Current Rating (per UL 1977):
  - *Size 0 Contacts: 200 amperes, continuous (high conductivity material).
  - 175 amperes, continuous (standard material).
  - (Size 0 contact with 0 AWG wire)
  - Size 12 Contacts: 45 amperes, continuous (high conductivity material).
  - 35 amperes, continuous (standard material).
  - Size 16 Contacts: 28 amperes, continuous (high conductivity material).
  - 20 amperes, continuous (standard material).
  - Size 20 Contacts: 5 amperes, nominal (standard material).
- Initial Contact Resistance Max (per IEC 512-2, Test 2b):
  - Size 0 Contacts: 0.00012 ohms (high conductivity material).
  - 0.00038 ohms (standard material).
  - Size 12 Contacts: 0.0005 ohms (high conductivity material).
  - 0.0016 ohms (standard material).
  - Size 16 Contacts: 0.0012 ohms (high conductivity material).
  - 0.0024 ohms (standard material).
  - Size 20 Contacts: 0.0036 ohms (standard material).
- Insulator Resistance (per IEC 512-2, Test 3a): 5 G ohms.

**Mechanical Characteristics:**
- Blind Mating System: Molded in guides allow for misalignment up to 4.50 mm [0.177 inch]
- Polarization: Provided by connector body design.
- Removable Contacts (Size 0):
  - Insert contact in rear face of insulator and secure with locking clip; release from rear face of insulator by, first, removing locking clip. Female contacts feature “Closed Entry” design.
- Removable Contacts (Size 12, Size 16 and Size 20):
  - Insert/remove contacts via rear face of insulator; release contacts via front face of insulator with a contact extraction tool. Female contacts feature “Closed Entry” design.
- Removable Contact Retention in Connector Body (per IEC 512-8, Test 15a):
  - Size 0 Contacts: 132 N [30 lbs.]
  - Size 12 Contacts: 67 N [15 lbs.]
  - Size 16 Contacts: 67 N [15 lbs.]
  - Size 20 Contacts: 44 N [10 lbs.]
- Sequential Contact Mating System:
  - Two level systems featured for Size 16 and Size 20 Contacts.
- Consult factory for three levels of sequential contact mating option.
- Mechanical Operations: 1,000 cycles.

**Climatic Characteristic:**
- Working temperature: -55°C to +125°C.
- Recognized:
  - UL: Certification in process.
  - TüV: Consult factory.

**Connector Combination - Total of 256 combinations**

- Two (2) size 8 power contact
  (Consult factory for availability)
- Four (4) modules
  *Any combination of modules is possible*
  - One (1) size 0 power contact
  - Four (4) size 12 power contacts
  - Twelve (12) size 16 power contacts
  - Nineteen (19) size 20 signal contacts

Positronic Industries
www.connectpositronic.com
Temperature Rise Curves
Tested per IEC 512-3, Test 5a

**Temperature Rise (ºC)**

- **Size 0 Contact 0 AWG Wire**
  - High Conductivity
  - Standard Material
  
  Above curves developed separately using Size 0 contact with 0 AWG wire. Four (4) Size 0 contacts under load.

- **Size 12 Contact 10 AWG Wire**
  - High Conductivity
  - Standard Material
  
  Above curves developed separately using Size 12 contact with 10 AWG wire. Four (4) Size 12 contacts under load.

- **Size 0 Contact 4 AWG Wire**
  - High Conductivity
  - Standard Material
  
  Above curves developed separately using Size 0 contact with 4 AWG wire. Four (4) Size 0 contacts under load.

- **Size 16 Contact 12 AWG Wire**
  - High Conductivity
  - Standard Material
  
  Above curves developed separately using Size 16 contact with 12 AWG wire. (A) Twelve (12) Size 16 contacts under load. (B) Six (6) Size 16 contacts under load.
Outline Dimensions & Accessories

Outline Dimensions

Male Connector

Female Connector

Panel Cutout

Panel Cutout Dimensions For Float Bushing

Panel Cutout Dimensions For Jackscrew System

Accessories

Float Bushing

Specify code 82 or 83 in Step 5.

Materials and Finishes:
Float Bushing: Brass, zinc plating.
Bushing Screw: Brass, zinc plating.

Jackscrew System

Specify code E for Turnable Male Jackscrew or T for Fixed Female Jackscrew in Step 5.

Materials and Finishes:
Fixed Female Jackscrew: Brass, zinc plate.
Turnable Male Jackscrew: Brass, zinc plate.

Contact factory for dimensions and details of accessories.
Hood & Removable Straight PCB Mount Contacts

Hood with Cable Clamp
Designate Code J in step 5 of ordering information.

Materials and Finishes:
Hood, Clamps and Screws: Steel, Zinc plating.

Application Without Hood
Removable contacts should be allowed to float after installation in the connector body. This enables superior mating performance. Therefore, wires must remain approximately perpendicular to the connector for a recommended minimum distance. See diagram.

Removable, Solder, Straight PCB Mount Contacts

Typical connector installed with removable, solder, straight PCB mount contacts and Push-on Fasteners

Consult factory for straight PCB mount contacts (size 20, 16, and 12 only), alignment bars and push-on fastener ordering details and availability.
Size 12 Removable Crimp Contacts

Female

Part Number (Standard Material) | Part Number (High Conductivity Material) | Wire Size AWG [mm²] | ∅ A | ∅ B | Sequential Mate | C
---|---|---|---|---|---|---
SFC1210N2 | SFC1210N2S | 10 [6.0] | 3.73 [0.147] | N/A* | 22.76 [0.896]
SFC1212N2 | SFC1212N2S | 12 [4.0] | 2.54 [0.100] | 4.19 [0.165] | 22.70 [0.894]

Male

Part Number (Standard Material) | Part Number (High Conductivity Material) | Wire Size AWG [mm²] | ∅ A | ∅ B | Sequential Mate | C
---|---|---|---|---|---|---
SFC1210BN | SFC1210BNS | 10 [6.0] | 3.73 [0.147] | N/A* | 22.76 [0.896]
SFC1212BN | SFC1212BNS | 12 [4.0] | 2.54 [0.100] | 4.19 [0.165] | 22.70 [0.894]

N/A* - Not applicable

Size 16 Removable Crimp Contacts

Female

Part Number (Standard Material) | Part Number (High Conductivity Material) | Wire Size AWG [mm²] | ∅ A | ∅ B | Sequential Mate | C
---|---|---|---|---|---|---
SFC1612N2 | SFC1612N2S | 12 [4.0] | 2.49 [0.098] | N/A* | 22.80 [0.898]
SFC1614N2 | SFC1614N2S | 14 [2.5] | 2.06 [0.081] | 2.64 [0.104] | N/A* | 23.68 [0.932]
SFC1616N2 | SFC1616N2S | 16 [1.5] | 1.70 [0.067] | 2.36 [0.093] | 23.93 [0.942]
SFC1620N2 | SFC1620N2S | 20 [0.5] | 1.14 [0.045] | 1.73 [0.068] | 23.93 [0.942]

Male

Part Number (Standard Material) | Part Number (High Conductivity Material) | Wire Size AWG [mm²] | ∅ A | ∅ B | Sequential Mate | C
---|---|---|---|---|---|---
SMC1612AN | SMC1612ANS | 12 [4.0] | N/A* | 2.49 [0.098] | First | 19.87 [0.782]
SMC1612BN | SMC1612BNS | 12 [4.0] | N/A* | 2.49 [0.098] | Standard | 19.87 [0.782]
SMC1614AN | SMC1614ANS | 14 [2.5] | 2.06 [0.081] | 2.64 [0.104] | First | 19.87 [0.782]
SMC1614BN | SMC1614BNS | 14 [2.5] | 2.06 [0.081] | 2.64 [0.104] | Standard | 19.87 [0.782]
SMC1616AN | SMC1616ANS | 16 [1.5] | 1.70 [0.067] | 2.36 [0.093] | First | 19.87 [0.782]
SMC1616BN | SMC1616BNS | 16 [1.5] | 1.70 [0.067] | 2.36 [0.093] | Standard | 19.87 [0.782]
SMC1620AN | SMC1620ANS | 20 [0.5] | 1.14 [0.045] | 1.73 [0.068] | First | 19.87 [0.782]
SMC1620BN | SMC1620BNS | 20 [0.5] | 1.14 [0.045] | 1.73 [0.068] | Standard | 19.87 [0.782]

N/A* - Not applicable

Size 20 Removable Crimp Contacts

Female

Part Number (Standard Material) | Part Number (High Conductivity Material) | Wire Size AWG [mm²] | ∅ A | ∅ B | Sequential Mate | C
---|---|---|---|---|---|---
SFC2020N2 | SFC2020N2S | 20 [0.5] | 1.14 [0.045] | 1.73 [0.068] | N/A* | 23.30 [0.878]

Male

Part Number (Standard Material) | Part Number (High Conductivity Material) | Wire Size AWG [mm²] | ∅ A | ∅ B | Sequential Mate | C
---|---|---|---|---|---|---
SMC2020AN | SMC2020ANS | 20 [0.5] | 1.14 [0.045] | 1.73 [0.068] | First | 20.12 [0.792]
SMC2020BN | SMC2020BNS | 20 [0.5] | 1.14 [0.045] | 1.73 [0.068] | Standard | 20.12 [0.792]

N/A* - Not applicable

Please use correct wire size and it should be smaller than ∅ A of the contact. Consult factory for other contact sizes, materials, finishes and termination styles.

Removable contacts should be allowed to float after installation in the connector body. This enables superior mating performance.

Materials:
Contacts: Copper alloy.
Retention Clips: Beryllium copper.

Finishes:
Gold flash over nickel plate.

Safety Features of Insulator and Size 0 Contact

The connector was designed to pass the IEC 60950 (figure 2C) test probe which provides protection from electric shock and energy hazards.
**Size 0 Removable Crimp Contacts**

**Male**

<table>
<thead>
<tr>
<th>Part Number (Standard Material)</th>
<th>Part Number (High Conductivity Material)</th>
<th>Wire Size [AWG [mm²]]</th>
<th>∅ [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGFC00N</td>
<td>GGFC00NS</td>
<td>0[55]</td>
<td>10.50</td>
</tr>
<tr>
<td>GGFC04N</td>
<td>GGFC04NS</td>
<td>4[25]</td>
<td>7.50</td>
</tr>
</tbody>
</table>

**Female**

<table>
<thead>
<tr>
<th>Part Number (Standard Material)</th>
<th>Part Number (High Conductivity Material)</th>
<th>Wire Size [AWG [mm²]]</th>
<th>∅ [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGMC00N</td>
<td>GGMC00NS</td>
<td>0[55]</td>
<td>10.50</td>
</tr>
<tr>
<td>GGMC04N</td>
<td>GGMC04NS</td>
<td>4[25]</td>
<td>7.50</td>
</tr>
</tbody>
</table>

**Removable Contacts, Internal Threads For Typical Ring Terminal**

**Male**

<table>
<thead>
<tr>
<th>Part Number (Standard Material)</th>
<th>Part Number (High Conductivity Material)</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGFIT00M</td>
<td>GGFIT00MS</td>
<td>M6 x 1</td>
</tr>
<tr>
<td>GGFIT00S</td>
<td>GGFIT00SS</td>
<td>1/4-20 UNC 2B</td>
</tr>
</tbody>
</table>

**Female**

<table>
<thead>
<tr>
<th>Part Number (Standard Material)</th>
<th>Part Number (High Conductivity Material)</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGMIT00M</td>
<td>GGMIT00MS</td>
<td>M6 x 1</td>
</tr>
<tr>
<td>GGMIT00S</td>
<td>GGMIT00SS</td>
<td>1/4-20 UNC 2B</td>
</tr>
</tbody>
</table>

**Removable Contacts, External Threads For Typical Ring Terminal**

**Male**

<table>
<thead>
<tr>
<th>Part Number (Standard Material)</th>
<th>Part Number (High Conductivity Material)</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGFET00M</td>
<td>GGFET00MS</td>
<td>M6 x 1</td>
</tr>
<tr>
<td>GGFET00S</td>
<td>GGFET00SS</td>
<td>1/4-20 UNC 2A</td>
</tr>
</tbody>
</table>

**Female**

<table>
<thead>
<tr>
<th>Part Number (Standard Material)</th>
<th>Part Number (High Conductivity Material)</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGMET00M</td>
<td>GGMET00MS</td>
<td>M6 x 1</td>
</tr>
<tr>
<td>GGMET00S</td>
<td>GGMET00SS</td>
<td>1/4-20 UNC 2A</td>
</tr>
</tbody>
</table>

**Removable Contacts, Right Angle Threads For Typical Ring Terminal**

**Male**

<table>
<thead>
<tr>
<th>Part Number (Standard Material)</th>
<th>Part Number (High Conductivity Material)</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGFRA00M</td>
<td>GGFRA00MS</td>
<td>M6 x 1</td>
</tr>
<tr>
<td>GGFRA00S</td>
<td>GGFRA00SS</td>
<td>1/4-20 UNC 2B</td>
</tr>
</tbody>
</table>

**Female**

<table>
<thead>
<tr>
<th>Part Number (Standard Material)</th>
<th>Part Number (High Conductivity Material)</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGMRA00M</td>
<td>GGMRA00MS</td>
<td>M6 x 1</td>
</tr>
<tr>
<td>GGMRA00S</td>
<td>GGMRA00SS</td>
<td>1/4-20 UNC 2B</td>
</tr>
</tbody>
</table>

**Materials:**
- Contacts: Copper alloy.
- Locking Clips: Copper alloy and nylon.
- Male Probe Plug: Nylon, UL 94V-O, black color

**Finish:**
- Gold flash over nickel plate.
- Consult factory for Silver plating option.

**Insertion, Extraction, and Retention of Size 0 Contacts**

**Insertion**

1. **STEP 1:** Insert the Contact from Rear Side.
2. **STEP 2:** Lock the Locking Clip.

**Extraction**

1. **STEP 1:** Unlock the Locking Clip.
2. **STEP 2:** Extract the Contact from Rear Side.
Recommended Tools for Removable Contacts

Crimping Tool Part Number 9504 -21 -0

Same crimping tool (9504 -21 -0) is used for crimping ‘0’ AWG wire and ‘4’ AWG wire

Disclosure Statement:
Positronic Industries cannot be held responsible for defective crimps when customer utilizes other vendor’s crimp tools. Samples of ‘0’ AWG wire with strands combination of 300/26, 478/28, 292/26 have been crimped and tested at factory and are deemed compatible with our crimp tool. Consult factory prior to utilizing strands combinations not called out above.

Recommended Assembly Procedure
For Crimp Termination:

1. Carefully strip back the cable insulation by 20.00mm [0.787 inch] without damaging any of the conductor strands.
2. Insert the conductor wire strands into the crimp barrel at the rear of the contact. Ensure that all of the conductor wire strands are captured within the crimp barrel and that the cable conductor wire is visible through the inspection hole.
3. Utilizing the crimping tool, crimp the contact (as shown) making sure that the cable remains straight, for a distance of one meter or the entire length of cable if less than one meter in length from the crimping die, and touches the contact stopper while performing the crimp operation as shown in figure A and B below.
4. Examine crimp joints to ensure that the crimp is satisfactory.
5. Insert the crimp contact into the insulator and then visually align the locking clip groove and press in the locking clip. (As shown in Insertion and Extraction of Size 0 contact on page 7)
6. Ensure that the locking clip is flush with insulator.

Recommended Tools for Size 12, Size 16 and Size 20 Contacts

Contact Extraction Tool

Cycle-Controlled Step Adjustable Hand Crimp Tool

Positronic Recommended Conductor Tensile Strength (Pull Test)

<table>
<thead>
<tr>
<th>Wire Size</th>
<th>Axial Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 AWG [55 mm²]</td>
<td>2803N [630 lbs.]</td>
</tr>
<tr>
<td>4 AWG [25 mm²]</td>
<td>1602N [360 lbs.]</td>
</tr>
<tr>
<td>10 AWG [6.0 mm²]</td>
<td>601N [135 lbs.]</td>
</tr>
<tr>
<td>12 AWG [4.0 mm²]</td>
<td>445N [100 lbs.]</td>
</tr>
<tr>
<td>14 AWG [2.5 mm²]</td>
<td>267N [60 lbs.]</td>
</tr>
<tr>
<td>16 AWG [1.5 mm²]</td>
<td>165N [37 lbs.]</td>
</tr>
<tr>
<td>20 AWG [0.5 mm²]</td>
<td>85N [19 lbs.]</td>
</tr>
</tbody>
</table>

As per SAE AS 39029

Contact | Contact Extraction Tool | Hand Crimp Tool
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Size 12</td>
<td>2711-0-0-0</td>
<td>9501 with 9502-19-0-0-0 positioner</td>
</tr>
<tr>
<td>Size 16</td>
<td>9081-6-0-0</td>
<td>9501 with 9502-17-0-0-0 positioner for Male Contacts 9501 with 9502-26-0-0-0 positioner for Female Contacts</td>
</tr>
<tr>
<td>Size 20</td>
<td>9081-5-0-0</td>
<td>9507 with 9502-21-0-0-0 positioner for Male Contacts 9507 with 9502-25-0-0-0 positioner for Female Contacts</td>
</tr>
</tbody>
</table>

Please see Positronic’s SUMO catalog or consult factory for crimping and wire stripping information on Size 12, 16 and 20 contacts.
Specify complete connector by following step 1 through step 5.

**STEP 1: Basic Series**
GG4 : GG Series

**STEPS 2: Connector Version**
256 versions available. Specify using Step 2A through Step 2D. Each Step (2A, 2B,2C, or 2D) can be any module.

- Code 8: One (1) size 0 power contact.
- Code 7: Four (4) size 12 power contacts.
- Code 6: Twelve (12) size 16 power contacts.
- Code 5: Nineteen (19) size 20 signal contacts.

**STEP 3: Connector Gender**
- F: Female
- M: Male

**STEP 4: Type of Contact**
- 1: Removable contact. Contacts ordered separately.

**STEP 5: Mounting Style**
- 0: No hardware.
- 82: Float mount 1.5 mm panel thickness.
- 83: Float mount 2.3 mm panel thickness.
- E: Turnable male jackscrews.
- T: Fixed female jackscrews.
- J: Hood.*
- EJ: Turnable male jackscrews with Hood.*
- TJ: Fixed female jackscrews with Hood.*
*Consult factory for Hood availability.

**STEP 6: Environmental Compliance options**
/AA : Compliant per EU Directive 2002/95/EC (RoHS)
Example: GG8567F10/AA
Note: If no environmental options are required, this step will not be used.
Example: GG8567F10

**STEP 7: Special Options**
Consult factory for customization.

**Part Number Example: GG8568M10**
Code 8 = 1 ea. Size 0 power contact (Step 2A)
Code 5 = 19 ea. Size 20 signal contacts (Step 2B)
Code 6 = 12 ea. Size 16 power contacts (Step 2C)
Code 8 = 1 ea. Size 0 power contact (Step 2D)

Consult factory for the availability of two (2) size 8 power contacts or other contact sizes.
Consult factory for high performance glass-filled polyester material option.
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