



Positronic  
connectpositronic.com

# SCBC SERIES

## MILITARY / SPACE FLIGHT QUALITY

### STANDARD DENSITY REMOVABLE CONTACTS

High  
Performance  
D-sub



- ❑ High performance for use in harsh environments, including space flight.
- ❑ Size 20 and Size 8 **removable** contacts.
- ❑ All female closed entry signal contacts utilize the “PosiBand®” system. See page 1 for details. GSFC S-311-P-4/10 offers two contact engagement test options. Size 20 PosiBand contacts meet the higher 40 gram requirements per 4.2.2.b.
- ❑ Sixteen connector variants with a mixture of signal, power, shielded and high voltage contacts.
- ❑ Terminations include cable or wire crimp and solder.
- ❑ Current ratings to 70 amperes. See temperature rise curves on page 3 & 4 for details.
- ❑ A wide variety of options and accessories.
- ❑ Applicable variants are qualified to GSFC and military specifications. See page 99 for details.

#### Conforming To Applicable Material, Dimensional and Performance Requirements:

- GSFC S-311-P4
- DSCC Specification 85039

#### Conforming To Outgassing Requirements:

- ASTM E-595 & NASA-RP-1124

## TECHNICAL CHARACTERISTICS

### MATERIALS AND FINISHES:

<b>Connector Insert:</b>	Glass-filled polyester per ASTM-D-5927, UL 94V-0, ASTM E-595, NASA-RP-1124 blue color.
<b>Contacts:</b>	
<b>Size 20:</b>	Precision machined copper alloy. 0.000050 inch [1.27 microns] gold over copper plate.
<b>Size 8:</b>	
<b>Power:</b>	Precision machined high conductivity copper alloy. 0.000050 inch [1.27 microns] gold over copper plate.
<b>Shielded:</b>	For material and finishes, see page 77.
<b>High Voltage:</b>	For material and finishes, see page 77.
<b>Connector Housing</b>	

#### (Shells):

Brass with 0.000050 inch [1.27 microns] gold over copper plate.

#### Mounting Spacers and Brackets:

Brass with 0.000050 inch [1.27 microns] gold over copper plate.

#### Jackscrew Systems:

Brass with 0.000050 inch [1.27 microns] gold over copper plate.

#### Cable Adapter (Hood):

Brass with 0.000050 inch [1.27 microns] gold over copper plate; aluminum with electroless nickel plate. Other finishes available, contact Technical Sales.

*continued on next page. . . .*



## TECHNICAL CHARACTERISTICS, *continued*

*continued from previous page. . .*

### MECHANICAL CHARACTERISTICS:

**Size 20 Removable:** Male contact - 0.040 inch [1.02 mm] mating diameter. Female contact - PosiBand closed entry design; see *page 1* for details. For removable size 20 contacts, see *page 79-80*.

**Size 8 Removable:**

**Power:** Male contact - 0.142 inch [3.61 mm] mating diameter. Female contact - features Large Surface Area (L.S.A.) closed entry design utilizing BeCu mechanical retention member. For removable size 8 contacts, see *pages 81-85*.

**Shielded:** For mechanical characteristics, see *page 77*.

**High Voltage:** For mechanical characteristics, see *page 77*.

**Contact Retention in Connector Insert:**

**Size 20:** 9 lbs. [40 N].

**Size 8 Power / Shielded:** 22 lbs. [98 N].

**Contact Terminations:**

**Size 20:** Closed barrel crimp - wire sizes 18 AWG [1.0 mm<sup>2</sup>] through 30 AWG [0.05 mm<sup>2</sup>].  
Closed barrel solder - wire size 20 AWG [0.5 mm<sup>2</sup>] maximum; see *page 80* for details.

**Size 8:**

**Power:** Closed barrel crimp or solder cup - wire sizes 8 [10.0 mm<sup>2</sup>], 10 [5.3 mm<sup>2</sup>], 12 [4.0 mm<sup>2</sup>], and 16 [1.5 mm<sup>2</sup>] AWG.

**Shielded:** Refer to *RF Cable in chart on page 84* for contact terminations.

**High Voltage:** Straight and right angle (90°) terminations 0.041 inch [1.04 mm] minimum hole diameter.

**Connector Housing (Shells):**

Male connector housings may be dimpled for EMI/ESD ground paths.

**Polarization:**

Trapezoidally-shaped connector housings and polarized jackscrews.

**Locking Systems:**

Jackscrews.

**Mechanical Operations:**

1,000 operations per IEC 60512-5.

### ELECTRICAL CHARACTERISTICS:

**SIZE 20 CONTACTS**

**Contact Current Rating:** 7.5 amperes, nominal  
**Initial Contact Resistance:** 0.004 ohms maximum.  
**Proof Voltage:** 1000 V r.m.s.

**SIZE 8 CONTACTS**

**POWER CONTACTS**

For electrical characteristics, see *page 21*.

**SHIELDED CONTACTS**

For electrical characteristics, see *page 77*.

**HIGH VOLTAGE CONTACTS**

For electrical characteristics, see *page 77*.

**CONNECTOR**

**Insulation Resistance:** 5 G ohms.

**Clearance and**

**Creepage Distance:** 0.039 inch [1.0 mm], minimum.

**Working Voltage:** 300 V r.m.s.

### CLIMATIC CHARACTERISTICS:

**Temperature Range:** -55°C to +125°C.

**Damp Heat, Steady State:** 21 days.



SCBM13W6M55R200D  
(shown left)

SCBC13W6S1000G WITH FC4008M CONTACTS  
(shown right)



Positronic  
connectpositronic.com

# SCBC SERIES

## MILITARY / SPACE FLIGHT QUALITY

### STANDARD DENSITY REMOVABLE CONTACTS

High  
Performance  
D-sub

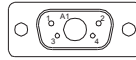
#### \*1 CONTACT VARIANTS

FACE VIEW OF MALE OR REAR VIEW OF FEMALE

#### NOTES:

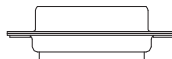
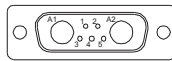
- \*1 Additional contact variants may be tooled at customer request.
- \*2 13W6 and 27W2 variant currently available in female only. Contact Technical Sales for availability of male connector.

#### — SHELL SIZE 1 —

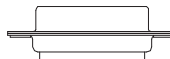
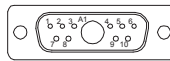


5W1

#### — SHELL SIZE 2 —

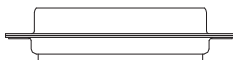
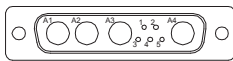


7W2

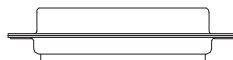
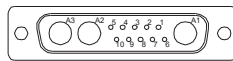


11W1

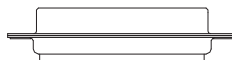
#### — SHELL SIZE 3 —



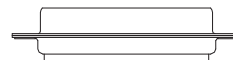
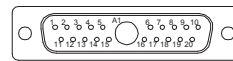
9W4



13W3

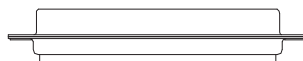
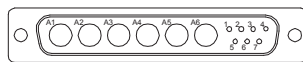


17W2

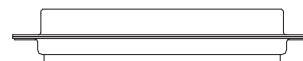
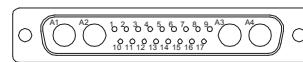


21W1

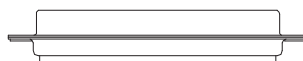
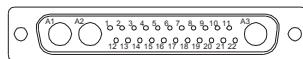
#### — SHELL SIZE 4 —



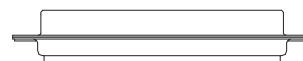
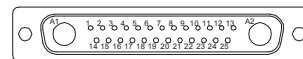
\*2 13W6



21WA4

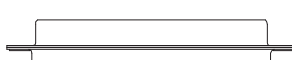
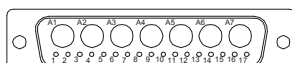


25W3

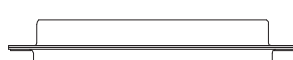
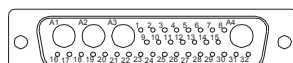


\*2 27W2

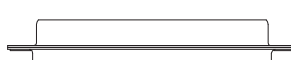
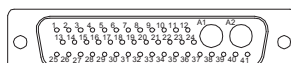
#### — SHELL SIZE 5 —



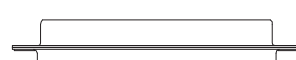
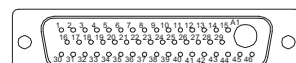
24W7



36W4

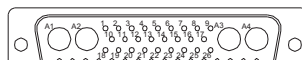


43W2



47W1

#### — SHELL SIZE 6 —



46W4

DIMENSIONS ARE IN INCHES [MILLIMETERS].  
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

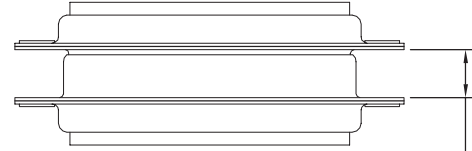
## STANDARD CONNECTOR HOUSING (SHELLS) ASSEMBLY



SCBC7W2S0000G

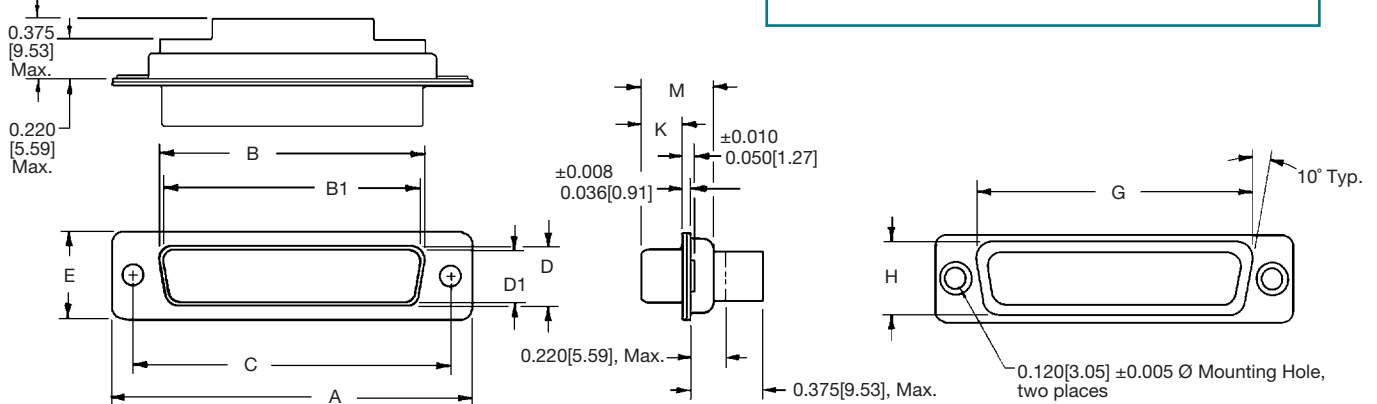
SCBC17W2M0000G

### RECOMMENDED MATING DIMENSIONS

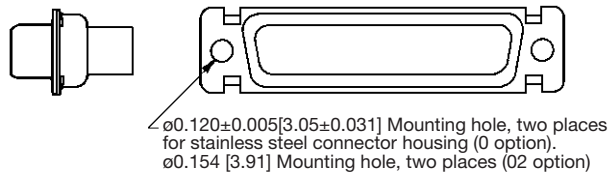


Shell Sizes 1 & 2 = 0.265±0.015 [6.73±0.38]  
Shell Sizes 3, 4, 5 & 6 = 0.256±0.015 [6.50±0.38]

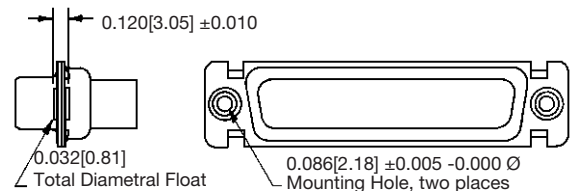
### TYPICAL CONNECTOR TOP VIEW



### OPTIONAL CONNECTOR HOUSING ASSEMBLY (0, 02)



### OPTIONAL CONNECTOR HOUSING ASSEMBLY WITH UNIVERSAL FLOAT MOUNTS (F)



SHELL SIZE	GENDER	A ±0.015 [0.38]	B ±0.005 [0.13]	B1 ±0.005 [0.13]	C ±0.005 [0.13]	D ±0.005 [0.13]	D1 ±0.005 [0.13]	E ±0.015 [0.38]	G ±0.010 [0.25]	H ±0.010 [0.25]	K ±0.005 [0.13]	M ±0.010 [0.25]
1	MALE	1.213 [30.81]		0.666 [16.92]	0.984 [24.99]		0.329 [8.36]	0.494 [12.55]	0.759 [19.28]	0.422 [10.72]	0.233 [5.92]	0.422 [10.72]
	FEMALE	1.213 [30.81]	0.643 [16.33]		0.984 [24.99]	0.311 [7.90]		0.494 [12.55]	0.759 [19.28]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
2	MALE	1.541 [39.14]		0.994 [25.25]	1.312 [33.32]		0.329 [8.36]	0.494 [12.55]	1.083 [27.51]	0.422 [10.72]	0.233 [5.92]	0.422 [10.72]
	FEMALE	1.541 [39.14]	0.971 [24.66]		1.312 [33.32]	0.311 [7.90]		0.494 [12.55]	1.083 [27.51]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
3	MALE	2.088 [53.04]		1.534 [38.96]	1.852 [47.04]		0.329 [8.36]	0.494 [12.55]	1.625 [41.28]	0.422 [10.72]	0.230 [5.84]	0.426 [10.82]
	FEMALE	2.088 [53.04]	1.511 [38.38]		1.852 [47.04]	0.311 [7.90]		0.494 [12.55]	1.625 [41.28]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
4	MALE	2.729 [69.32]		2.182 [55.42]	2.500 [63.50]		0.329 [8.36]	0.494 [12.55]	2.272 [57.71]	0.422 [10.72]	0.230 [5.84]	0.426 [10.82]
	FEMALE	2.729 [69.32]	2.159 [54.84]		2.500 [63.50]	0.311 [7.90]		0.494 [12.55]	2.272 [57.71]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
5	MALE	2.635 [66.93]		2.079 [52.81]	2.406 [61.11]		0.441 [11.20]	0.605 [15.37]	2.178 [55.32]	0.534 [13.56]	0.230 [5.84]	0.426 [10.82]
	FEMALE	2.635 [66.93]	2.064 [52.43]		2.406 [61.11]	0.423 [10.74]		0.605 [15.37]	2.178 [55.32]	0.534 [13.56]	0.243 [6.17]	0.429 [10.90]
6	MALE	2.729 [69.32]		2.212 [56.18]	2.500 [63.50]		0.503 [12.78]	0.668 [16.97]	2.302 [58.47]	0.596 [15.14]	0.230 [5.84]	0.426 [10.82]
	FEMALE	2.729 [69.32]	2.189 [55.60]		2.500 [63.50]	0.485 [12.32]		0.668 [16.97]	2.302 [58.47]	0.596 [15.14]	0.243 [6.17]	0.429 [10.90]



Positronic  
connectpositronic.com

# SCBC SERIES

## MILITARY / SPACE FLIGHT QUALITY

### STANDARD DENSITY REMOVABLE CONTACTS

High  
Performance  
D-sub

## REMOVABLE CONTACT ORDERING ASSISTANCE CHART

### SCBC SERIES CRIMP AND SOLDER TERMINATION CONTACTS

TYPE	PAGE NUMBER REFERENCE IN CATALOG	CONTACT SIZE	FEMALE PART NUMBER	MALE PART NUMBER	WIRE SIZE AWG [mm <sup>2</sup> ]
CRIMP	see page 79 for additional information	20	FC6020M2	MC6020M	20 [0.5] / 22 [0.3] / 24 [0.25]
			FC6026M2	MC6026M	26 [0.12] / 28 [0.08] / 30 [0.5]
			FC6018M2	MC6018M	18 [1.0] max.
	see page 81 for additional information	8	FC4008M	MC4008M	8 [10.0]
			FC4010M	MC4010M	10 [5.3]
			FC4012M	MC4012M	12 [4.0]
			FC4016M	MC4016M	16 [1.5]
SOLDER	see page 80 for additional information	20	FS6020M2	MS6020M	20 [0.5] max.
SOLDER CUP	see page 82 for additional information	8	FS4008M	MS4008M	8 [10.0]
			FS4012M	MS4012M	12 [4.0]
			FS4016M	MS4016M	16 [1.5]
HIGH VOLTAGE <i>Straight Solder Wire</i>	see page 83 for additional information	8	FS4820M	MS4820M	20 [0.5]
HIGH VOLTAGE <i>Right Angle (90°) Solder Wire</i>			FS4920M	MS4920M	20 [0.5]
SHIELDED	see page 84 for additional information	SOLDER / CRIMP	FC4101M	MC4101M	RG 178 B/U, 196 B/U
			FC4102M	MC4102M	RG 179 BU/, 316 B/U
			FC4103M	MC4103M	RG 180 B/U
			FC4104M	MC4104M	RG 58 B/U
		SOLDER / SOLDER	FS4101M	MS4101M	RG 178 B/U, 196 B/U
			FS4102M	MS4102M	RG 179 B/U, 316 B/U
			FS4103M	MS4103M	RG 180 B/U
			FS4104M	MS4104M	RG 58 B/U
		CRIMP / CRIMP	FCC4101M	MCC4101M	RG 178 B/U, 196 B/U
			FCC4102M	MCC4102M	RG 179 BU/, 316 B/U
			FCC4103M	MCC4103M	RG 180 B/U
			FCC4104M	MCC4104M	RG 58 B/U

**NOTE:** For ordering crimp contacts on reels, add "R" to part number, see page 77 for details. Examples: FC4008MR or MC4008MR

For information regarding **REMOVABLE CONTACTS**, see contact illustration drawings and charts on pages 77-85.

For information regarding **CRIMP TOOLS & CRIMPING TOOL TECHNIQUES**, see page 96.





## ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 8

STEP	1	2	3	4	5	6	7	8	9
EXAMPLE	SCBC	7W2	M	14	0	0	E	D	—

### STEP 1 - BASIC SERIES

SCBC Series

### \*4 STEP 2 - CONNECTOR VARIANTS

Shell Size 1

5W1

Shell Size 2

7W2, 11W1

Shell Size 3

9W4, 13W3, 17W2, 21W1

Shell Size 4

\*113W6, 21WA4, 25W3, \*127W2

Shell Size 5

24W7, 36W4, 43W2, 47W1

Shell Size 6

46W4

### STEP 3 - CONNECTOR GENDER

M - Male

S - Female - PosiBand closed entry contacts,  
see page 1 for more information.

### STEP 4 - CONTACT TERMINATION TYPE

0 - Contacts ordered separately, see contact chart on page 43 for details.

\*3 1 - Signal contacts, 20 AWG - 24 AWG [0.5mm<sup>2</sup>-0.25mm<sup>2</sup>]

\*311 - Signal contacts, 20 AWG - 24 AWG [0.5mm<sup>2</sup>-0.25mm<sup>2</sup>]  
with MC/FC 4012M power contact.

\*312 - Signal contacts, 20 AWG - 24 AWG [0.5mm<sup>2</sup>-0.25mm<sup>2</sup>]  
with MC/FC 4016M power contact

\*313 - Signal contacts, 20 AWG - 24 AWG [0.5mm<sup>2</sup>-0.25mm<sup>2</sup>]  
with MCC/FCC 4101M shielded contacts.

\*314 - Signal contacts, 20 AWG - 24 AWG [0.5mm<sup>2</sup>-0.25mm<sup>2</sup>]  
with MCC/FCC 4102M shielded contacts.

### \*2 STEP 5 - MOUNTING STYLE

0 - Mounting hole, 0.120 [3.05] Ø.

02 - Mounting hole, 0.154 [3.91] Ø.

C5 - Swaged spacer, cul-de-sac style, 4-40 threads, 0.350 [8.89] length.

F - Float mounts, universal.

S2 - Swaged spacer, 4-40 threads, 0.125 [3.18] Length.

S5 - Swaged locknut, 4-40 threads.

### STEP 9 - SPECIAL OPTIONS

SEE APPENDIX ON PAGE 95.

### STEP 8 - CONNECTOR HOUSING (SHELLS) OPTION

G - Gold over copper plate.

D - Gold over copper plate and dimpled  
(male connectors only).

### \*2 STEP 7 - LOCKING AND POLARIZING SYSTEMS

0 - None.

T - Fixed female jackscrews.

T2 - Fixed female jackscrews.

T6 - Fixed male and female polarized jackscrews.

E - Rotating male jackscrews.

E2 - Rotating male screw locks.

E3 - Rotating male with internal hex for 3/32 hex drives

E6 - Rotating male and female polarized jackscrews.

### \*2 STEP 6 - CABLE ADAPTER (HOOD)

0 - None.

H - Cable adapter, top opening, brass.

AN - Cable adapter, lightweight aluminum, electroless nickel  
plate, see page 91 for details.

### NOTE:

\*1 13W6 and 27W2 variant currently available in female only.  
Contact Technical Sales for availability of male connector.

\*2 For additional information on accessories listed in Step 5, 6,  
and 7, see the Accessories section, pages 86-94.

\*3 Kitted contacts are supplied in sealed bags.

\*4 See SCBM series for removable contact versions of 2WK2,  
3W3, 3WK3, 5W5 and 8W8 variants.

For information regarding CRIMP TOOLS & CRIMPING TOOL TECHNIQUES, see page 96.