



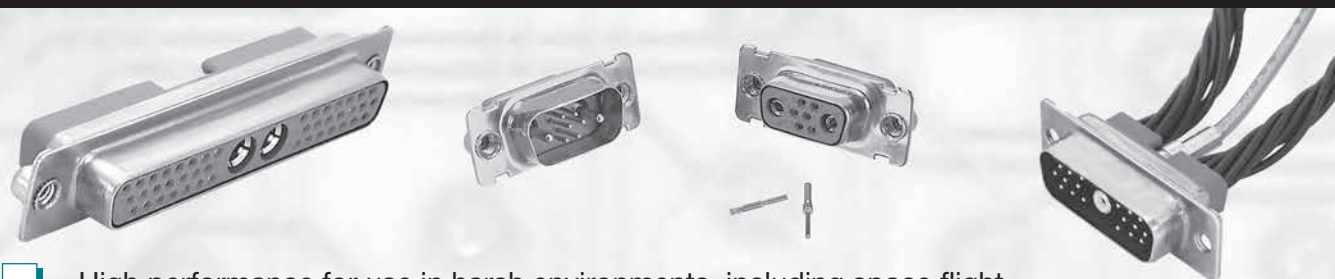
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# SCBCD SERIES

## MILITARY / SPACE FLIGHT QUALITY

### HIGH DENSITY REMOVABLE CONTACTS

High  
Performance  
D-sub



- High performance for use in harsh environments, including space flight.
- Size 22, Size 16 and Size 8 **removable** contacts.
- All female closed entry signal contacts utilize the “PosiBand®” system. See page 1 for details. GSFC S-311-P-4/08 offers two contact engagement test options. Size 22 PosiBand contacts meet the higher 40 gram requirements per 4.2.2.b.
- Three 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.

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

- GSFC S-311-P4 & GSFC S-311-P10
- 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 22:</b>	Precision machined copper alloy. 0.000050 inch [1.27 microns] gold over copper plate. Other finishes are available; see page 95.
<b>Size 16:</b>	Precision machined high conductivity copper alloy. 0.000050 inch [1.27 microns] gold over copper plate. Other finishes are available; see page 95.
<b>Size 8:</b>	
<b>Power:</b>	Precision machined high conductivity copper alloy. 0.000050 inch [1.27 microns] gold over copper plate. Other finishes are available; see page 95.
<b>Shielded:</b>	For material and finishes, see page 77.
<b>High Voltage:</b>	For material and finishes, see page 77.
<b>Connector Housing (Shells):</b>	Brass with 0.000050 inch [1.27 microns] gold over copper plate.
<b>Mounting Spacers and Brackets:</b>	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.

### MECHANICAL CHARACTERISTICS:

<b>Size 22 Removable:</b>	Male contact - 0.030 inch [0.76 mm] mating diameter. Female contact - PosiBand closed entry design; see page 1 for details. For removable size 22 contacts, see page 79.
<b>Size 16 Removable:</b>	Male - 0.062 inch [1.57mm] mating diameter. Female contact - PosiBand closed entry design; see page 1 for details. For removable size 16 contacts, see page 81.
<b>Size 8 Removable:</b>	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. Closed crimp barrel. For removable size 8 contacts, see pages 81-85.

*continued on next page. . . .*

## TECHNICAL CHARACTERISTICS, *continued*

*continued from previous page. . . .*

### MECHANICAL CHARACTERISTICS, *continued*:

<b>Shielded:</b>	For mechanical characteristics, see page 77.
<b>High Voltage:</b>	For mechanical characteristics, see page 77.
<b>Contact Retention in Connector Insert:</b>	
<b>Size 22:</b>	9 lbs. [40N] minimum.
<b>Size 16:</b>	15 lbs. [67N] minimum.
<b>Size 8 Power / Shielded:</b>	22 lbs. [98N].
<b>Contact Terminations:</b>	
<b>Size 22:</b>	Closed barrel crimp - wire sizes 20 AWG [0.5 mm <sup>2</sup> ] through 30 AWG [0.05 mm <sup>2</sup> ]. Closed barrel solder - wire size 22 AWG [0.3 mm <sup>2</sup> ] maximum; see page 79 for details.
<b>Size 16:</b>	Closed barrel crimp - wire sizes 12 AWG [4.0 mm <sup>2</sup> ] through 24 AWG [0.25 mm <sup>2</sup> ].
<b>Size 8:</b>	
<b>Power:</b>	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.
<b>Shielded:</b>	Refer to RF Cable in chart on page 84 for contact terminations.
<b>High Voltage:</b>	Straight and right angle (90°) terminations - 0.041 inch [1.04 mm] minimum hole diameter.
<b>Connector Housing (Shells):</b>	Male connector housings may be dimpled for EMI/ESD ground paths.
<b>Polarization:</b>	Trapezoidally-shaped connector housings and polarized jackscrews.

<b>Locking Systems:</b>	Jackscrews.
<b>Mechanical Operations:</b>	1,000 operations per IEC 60512-5.

### ELECTRICAL CHARACTERISTICS:

#### SIZE 22 CONTACTS

<b>Contact Current Rating:</b>	5 amperes, nominal
<b>Initial Contact Resistance:</b>	0.005 ohms maximum.
<b>Proof Voltage:</b>	1000 V r.m.s.

#### SIZE 16 CONTACTS

<b>Contact Current Rating, Tested per UL 1977:</b>	28 amperes
See temperature rise curves on page 4 for details.	
<b>Initial Contact Resistance:</b>	0.0016 ohms maximum, per IEC 60512-2, Test 2b.
<b>Proof Voltage:</b>	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

<b>Insulation Resistance:</b>	5 G ohms.
<b>Clearance and Creepage Distance:</b>	0.042 inch [1.06 mm], minimum.
<b>Working Voltage:</b>	300 V r.m.s.

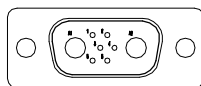
### CLIMATIC CHARACTERISTICS:

<b>Temperature Range:</b>	-55°C to +125°C.
<b>Damp Heat, Steady State:</b>	10 days.

### \*1 CONTACT VARIANT

FACE VIEW OF MALE OR REAR VIEW OF FEMALE

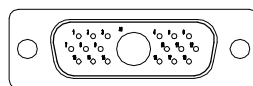
#### — SHELL SIZE 1 —



**8W2**

Six (6) Size 22 Signal Contacts and Two (2) Size 16 Power Contacts

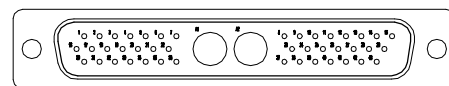
#### — SHELL SIZE 2 —



**19W1**

Eighteen (18) Size 22 Signal Contacts and One (1) Size 8 Power Contact

#### — SHELL SIZE 4 —



**\*2 45W2**

Forty-three (43) Size 22 Signal Contacts and Two (2) Size 8 Power Contacts

**OTHER VARIANTS WILL BE ADDED, CONSULT OUR WEBSITE OR CONTACT TECHNICAL SALES FOR UPDATED INFORMATION.**

#### NOTES:

- \*1 Additional contact variants may be tooled at customer request.
- \*2 45W2 variant currently available in female only. Contact Technical Sales for availability of male connector.



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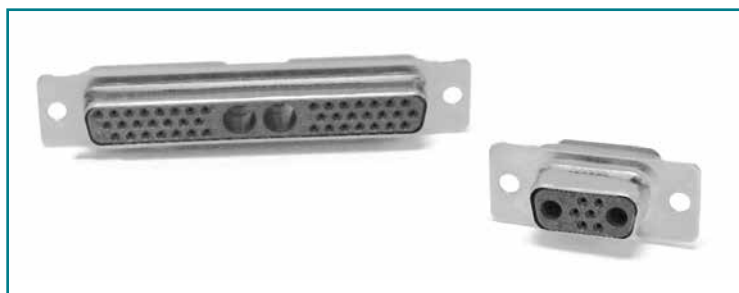
# SCBCD SERIES

## MILITARY / SPACE FLIGHT QUALITY

### HIGH DENSITY REMOVABLE CONTACTS

High  
Performance  
D-sub

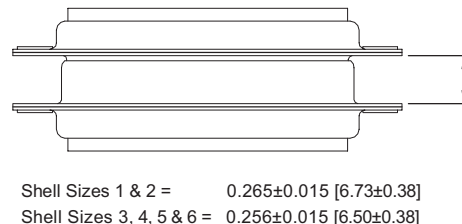
#### STANDARD CONNECTOR HOUSING (SHELLS) ASSEMBLY



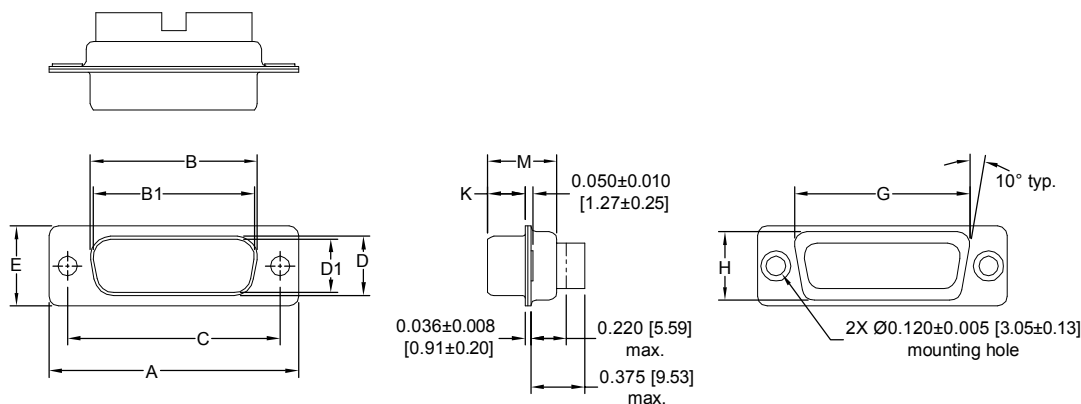
SCBCD45W2S0000G

SCBCD8W2S0000G

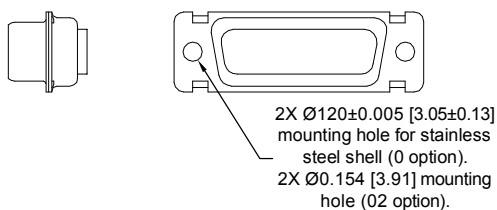
#### RECOMMENDED MATING DIMENSIONS



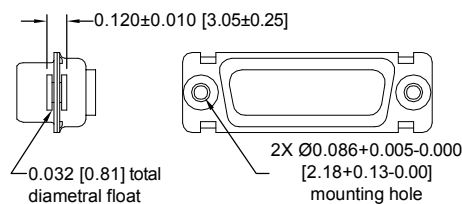
#### TYPICAL CONNECTOR TOP VIEW



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



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



SHELL SIZES	VARIANT	A $\pm 0.015$ [0.38]	B $\pm 0.005$ [0.13]	B1 $\pm 0.005$ [0.13]	C $\pm 0.005$ [0.13]	D $\pm 0.005$ [0.13]	D1 $\pm 0.005$ [0.13]	E $\pm 0.015$ [0.38]	G $\pm 0.010$ [0.25]	H $\pm 0.010$ [0.25]	K $\pm 0.005$ [0.13]	M $\pm 0.010$ [0.25]
1	8W2 M	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]
	8W2 S	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	19W1 M	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]
	19W1 S	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]
4	45W2 S	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]

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

## REMOVABLE CONTACT ORDERING ASSISTANCE CHART

### SCBCD 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 78 for additional information	22	FC8022M2	MC8022M	22 [0.3] / 24 [0.25] / 26 [0.12] / 28 [0.0 8] / 30 [0.5]
			FC8020M2	MC8020M	20 [0.5] max.
	see page 81 for additional information	16	FC112N4-50	MC112N-50-133.0	12 [4.0]
			FC114N4-50	MC114N-50-133.0	14 [2.5] / 16 [1.5]
			FC116N4-50	MC116N-50-133.0	16 [1.5] / 18 [1.0]
			FC120N4-50	MC120N-50-133.0	20 [0.5] / 22 [0.3] / 24 [0.25]
	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 79 for additional information	22	FS8022M2	MS8022M	22 [0.3] 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>		8	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.





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# SCBCD SERIES

## MILITARY / SPACE FLIGHT QUALITY

### HIGH DENSITY REMOVABLE CONTACTS

High  
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## 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	SCBCD	8W2	S	0	0	0	0	G	—

**STEP 1 - BASIC SERIES**  
SCBCD Series

**STEP 2 - CONNECTOR VARIANTS**  
Shell Size 1 - 8W2  
Shell Size 2 - 19W1  
\*1 Shell Size 4 - 45W2

**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 60 for details.  
1 - Signal contacts, 22 AWG-30 AWG [0.03mm<sup>2</sup>-0.05mm<sup>2</sup>].  
\*2 11 - Signal contacts, 22 AWG-30 AWG [0.03mm<sup>2</sup>-0.05mm<sup>2</sup>] with MC/FC 4012M power contact.  
\*2 12 - Signal contacts, 22 AWG-30 AWG [0.03mm<sup>2</sup>-0.05mm<sup>2</sup>] with MC/FC 4016M power contact.  
\*2 13 - Signal contacts, 22 AWG-30 AWG [0.03mm<sup>2</sup>-0.05mm<sup>2</sup>] with MCC/FCC 4101M shielded contacts.  
\*2 14 - Signal contacts, 22 AWG-30 AWG [0.03mm<sup>2</sup>-0.05mm<sup>2</sup>] with MCC/FCC 4102M shielded contacts.

**\*3 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).

**\*3 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.

**\*3 STEP 6 - CABLE ADAPTER (HOOD) AND PUSH-ON FASTENER**  
0 - None  
AN - Cable adapter, lightweight aluminum, electroless nickel plate, see page 91 for details.  
H - Cable adapter, top opening, brass  
N - Push-on fastener, for right angle (90°) mounting brackets

**NOTES**  
\*1 45W2 variant currently available in female only.  
\*2 Available on 19W1 and 45W2 connectors only.  
\*3 For additional information of options listed in steps 5, 6, and 7, see Accessories Section on pages 86-94.

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