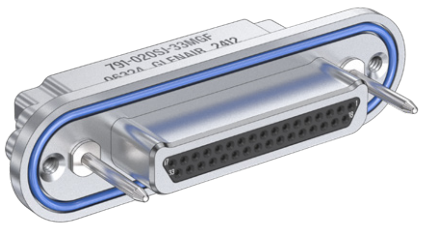
791-020
Panel Plug

- Crimp, rear-release
- Rear panel mount
- Socket contacts



791-020 panel mount plug has snap-in, rear-release M39029-type crimp contacts. High-density size 23 contacts are on .075 inch (1.9mm) centers and accept AWG 22-28 wire. Size 16 and size 12 cavities accept power contacts (supplied with connector) or coaxial RF contacts (ordered separately). Panel O-ring and wire grommet provide environmental protection. Shell has threaded holes for attaching EMI banding backshell (799-016, sold separately).

- Aerospace-grade ultraminiature connector with rugged scoop-proof duo-lobe shell
- Environmental
- 42 layouts with up to 153 contacts
- M39029-type crimp contacts

INSERT ARRANGEMENTS

FULL COMPLEMENT OF CONTACTS	#8, #12 OR #16 CONTACTS PURCHASED SEPARATELY	No. of Contacts #23	#16	#12	#8
A-5		5			
B-2P2	B-2W2		2		
B-9		9			
C-13		13			
D-15		15			
D-3P3	D-3W3		3		
D-7P2	D-7W2	5	2		
E-11P2	E-11W2	9	2		
E-19		19			
E-7P3	E-7W3	4	3		
F-14P3	F-14W3	11	3		
F-15P2	F-15W2	13	2		
F-23		23			
F-5P5	F-5W5		5		
G-13P2	G-13W2	11		2	
G-21P1	G-21W1	20		1	
G-3P3	G-3W3			3	
G-33		33			
H-10P4	H-10W4	6		4	
H-29P7	H-29W7	22	7		
H-36P2	H-36W2	34		2	
H-51P1	H-51W1	50		1	
H-54P2	H-54W2	52	2		
H-5P5	H-5W5			5	
H-66		66			
J-17P4	J-17W4	13	4		
J-25P2	J-25W2	23	2		
J-33		33			
J-7P7	J-7W7		7		
K-27P4	K-27W4	23	4		
K-35P2	K-35W2	33	2		
K-43		43			
K-9P9	K-9W9		9		
L-22P4	L-22W4	18		4	
L-48P2	L-48W2	46		2	
L-6P6	L-6W6			6	
L-78		78			
M-17P17	M-17W17		17		
M-102		102			
M-4P4	M-4W4				4
N-13P13	N-13W13			13	
N-153		153			

HOW TO ORDER

Sample Part Number 791-020S H-66 M P C B

Basic Part Number	**791-020S** Panel Plug, Socket Contacts
Shell Size-Insert Arr.	See "***Insert Arrangements***" Table
Shell Finish	**M** Electroless Nickel **MT** Nickel / PTFE **N** Olive Drab Cadmium **TZ** Tin-Zinc **ZR** Black Zinc-Nickel
Hardware Option *Table 1*	**B** Guide Bushing *For blind mating* **G** Guide Pins *For blind mating* **N** No Hardware *Threaded holes* **P** Female Jackposts
Panel O-Ring	**N** No O-ring **C** Conductive Fluorosilicone O-ring **F** Fluorosilicone O-ring
Polarization Key Option	Enter Letter Designator for Position **A**, **B**, **C**, **D**, **E**, or **F** per Mod Code 555 (see page B-8 for details) **Omit** for none

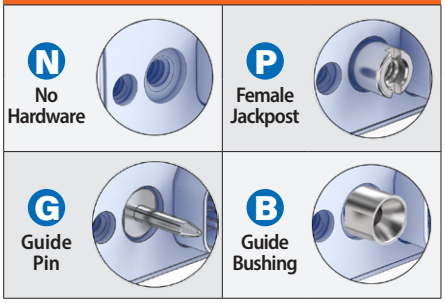
CONSTRUCTION

- **Contacts:** Copper alloy, gold over nickel finish
- **Shell:** Aluminum
- **Insulators:** High performance thermoplastic
- **Grommet:** Fluorosilicone/silicone blend
- **O-ring:** Code F- fluorosilicone, Code C- conductive fluorosilicone
- **Contact retaining clip:** Beryllium copper, unplated
- **Hardware:** Stainless steel

RATINGS

- **Voltage (DWV):** size 23 contacts 750 VAC, Size 8, 12 and 16: 1800 VAC
- **Current:** #23 5A, #16 13A, #12 23A, #8 46A
- **Operating temperature:** -65 to +150 °C
- **Durability:** 500 mating cycles
- **Shock:** 300 g
- **Vibration:** 20 g random
- **Altitude immersion:** 75,000 feet
- **Ingress protection:** IP67

TABLE 1 HARDWARE OPTIONS



Application Note
Panel Cutout
See page **B-53** for panel cutout dimensions.

Application Note
EMI Banding Backshell 799-016

See page **F-32** for backshell ordering information.

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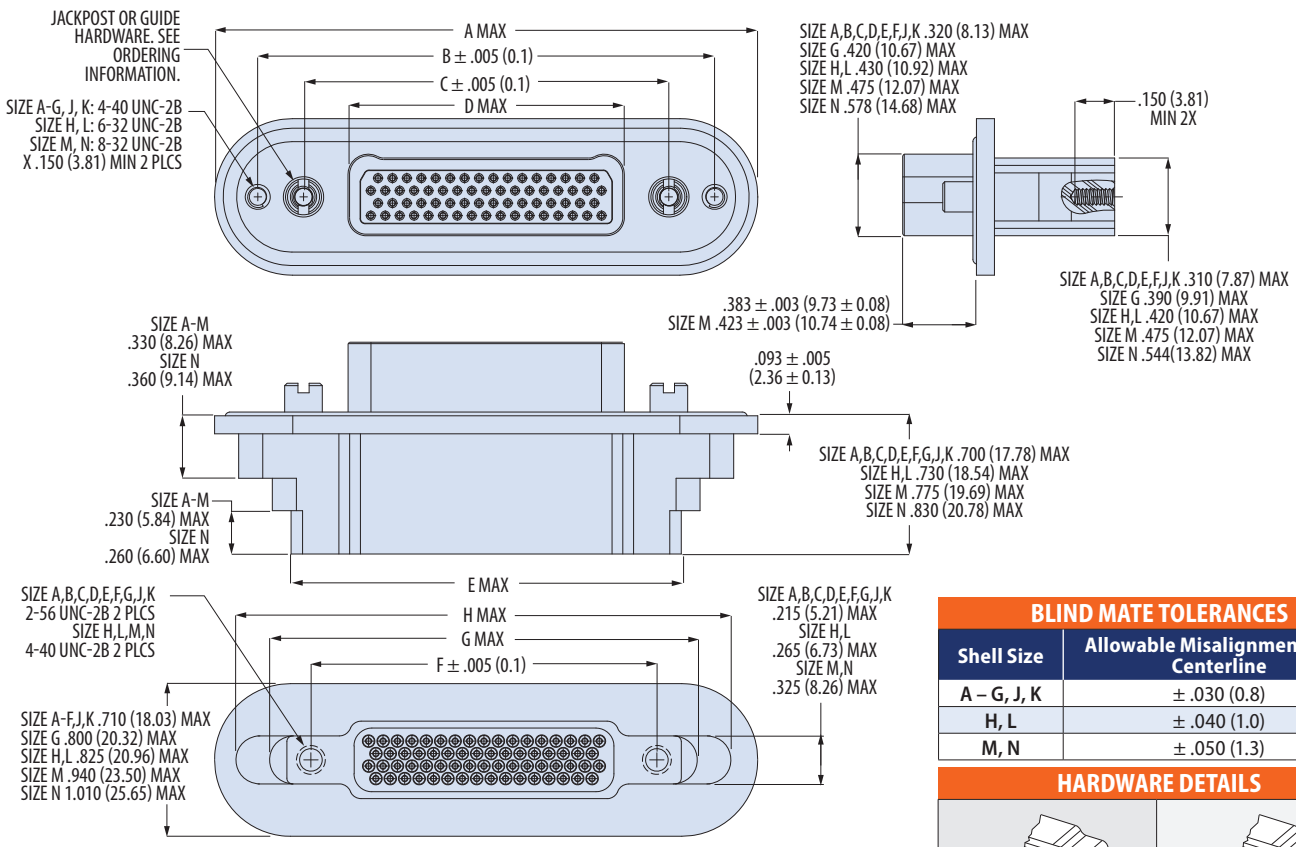
791-020
Panel Plug

- Crimp, rear-release
- Rear panel mount
- Socket contacts

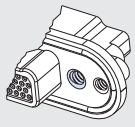


Shell Size	A Max		B ± .005 (0.1)		C ± .005 (0.1)		D Max		E Max		F ± .005 (0.1)		G Max		H Max	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
A	1.565	39.8	1.150	29.2	.750	19.1	.415	10.5	.760	19.3	.565	14.4	.960	24.4	1.345	34.2
B	1.715	43.6	1.300	33.0	.900	22.9	.565	14.4	.910	23.1	.715	18.2	1.110	28.2	1.495	38.0
C	1.865	47.4	1.450	36.8	1.050	26.7	.715	18.2	1.060	26.9	.865	22.0	1.260	32.0	1.645	41.8
D	1.940	49.3	1.525	38.7	1.125	28.6	.790	20.1	1.160	29.5	.965	24.5	1.360	34.5	1.745	44.3
E	2.090	53.1	1.675	42.5	1.275	32.4	.940	23.9	1.310	33.3	1.115	28.3	1.510	38.4	1.895	48.1
F	2.240	56.9	1.825	46.4	1.425	36.2	1.090	27.7	1.460	37.1	1.265	32.1	1.660	42.2	2.045	51.9
G	2.200	55.9	1.785	45.3	1.388	35.3	1.052	26.7	1.410	35.8	1.215	30.9	1.633	41.5	1.983	50.4
H	2.835	72.0	2.375	60.3	1.900	48.3	1.442	36.6	2.045	51.9	1.800	45.7	2.240	56.9	2.590	65.8
J	2.615	66.4	2.200	55.9	1.800	45.7	1.465	37.2	1.810	46.0	1.615	41.0	2.010	51.1	2.395	60.8
K	2.990	75.9	2.575	65.4	2.175	55.2	1.840	46.7	2.210	56.1	2.015	51.2	2.410	61.2	2.795	71.0
L	3.075	78.1	2.611	66.3	2.136	54.3	1.678	42.6	2.281	57.9	2.036	51.7	2.476	62.9	2.826	71.8
M	3.345	85.0	2.824	71.7	2.200	55.9	1.745	44.3	2.445	62.1	2.200	55.9	2.650	67.3	3.090	78.5
N	3.775	95.9	3.240	82.3	2.600	66.0	2.115	53.7	2.645	67.2	2.350	59.7	2.910	73.9	3.530	89.7

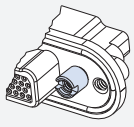
BLIND MATE TOLERANCES

Shell Size	Allowable Misalignment from Centerline
A – G, J, K	± .030 (0.8)
H, L	± .040 (1.0)
M, N	± .050 (1.3)

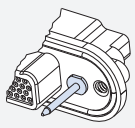
HARDWARE DETAILS



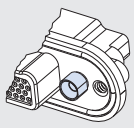
N No Hardware
Tapped holes.
Size A-G, J, K:6-32 UNC-2B
H, L: 8-32 UNC-2B
M: 10-32 UNF-2B
N: 12-24 UNC-2B
150 (3.8) min. depth



P Female Jackposts
Jackposts are non-removable.
Size A-G, J, K: 4-40 UNC-2B
H, L: 6-32UNC-2B
M: 8-32 UNC-2B
N: 10-32 UNF-2B



G Guide Pins
Guide pins for blind mate applications. Non-removable.



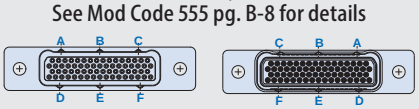
B Guide Bushings
Guide sockets for blind mate applications. Non-removable.

CRIMP CONTACTS AND TOOLS

Contacts are bulk packed with connector. Spare contacts are not included with connector and are ordered separately if required. See "Contacts and Tools" section for additional information.

Contact Size	Skt Contact Part No.	AWG Wire Size	Installing and Removal Tool	Crimp Tools		
				Tool	Positioner	Die Assembly
23	809-002	22 – 28	809-088	809-015	809-005	—
16	857-448-16	16 – 20	809-131	809-136	809-137	—
12	857-448-12	12 – 14	809-132	809-136	809-137	—
8	850-138F	8	859-049	859-025	859-046	859-026

Application Note
Polarization Key Positions
See Mod Code 555 pg. B-8 for details



Plug Receptacle

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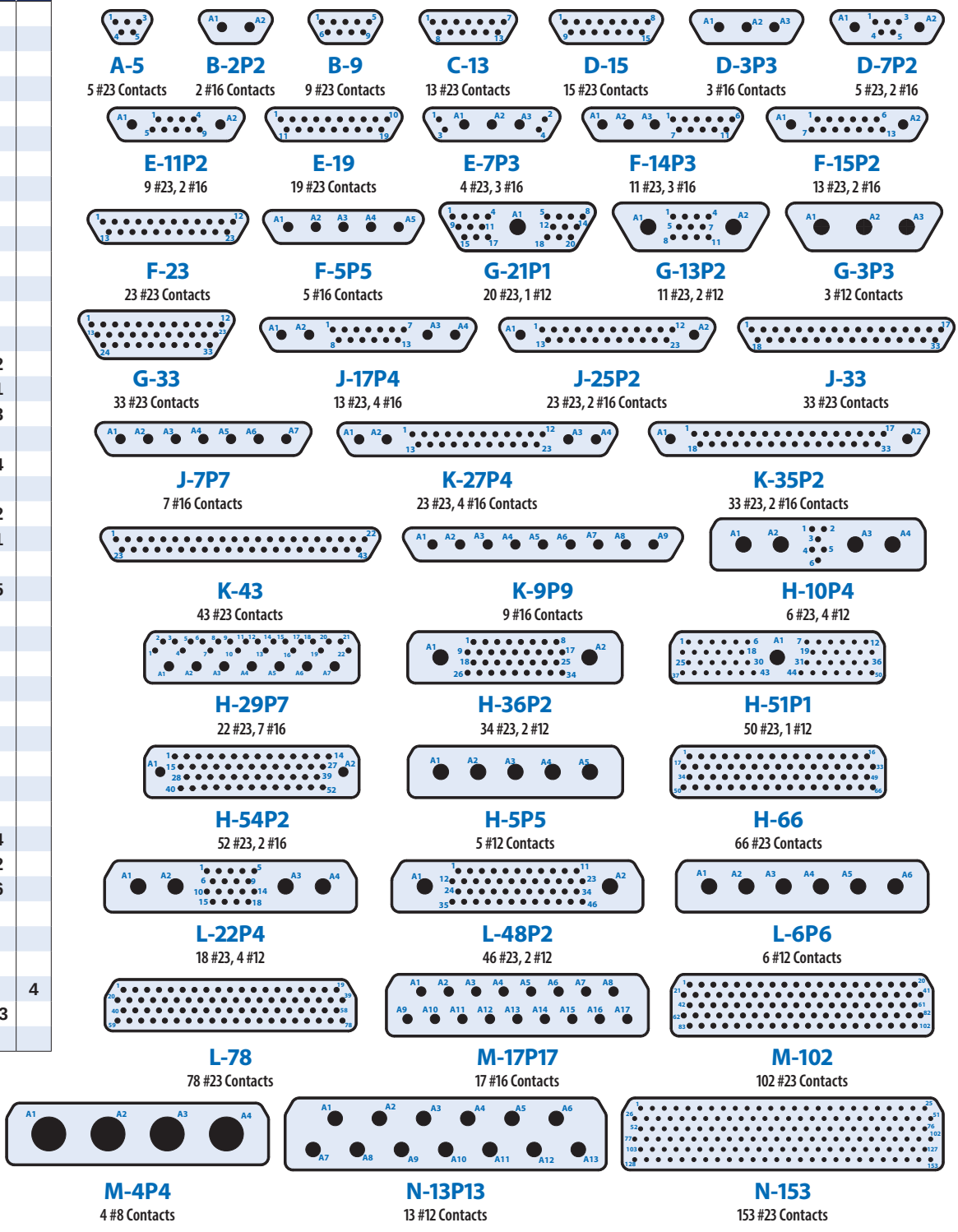
Insert Arrangements

INSERT ARRANGEMENTS

Insert Arr.	No. of Contacts #23	#16	#12	#8
A-5	5			
B-2P2		2		
B-9	9			
C-13	13			
D-15	15			
D-3P3		3		
D-7P2	5	2		
E-11P2	9	2		
E-19	19			
E-7P3	4	3		
F-14P3	11	3		
F-15P2	13	2		
F-23	23			
F-5P5		5		
G-13P2	11		2	
G-21P1	20		1	
G-3P3			3	
G-33	33			
H-10P4	6		4	
H-29P7	22	7		
H-36P2	34		2	
H-51P1	50		1	
H-54P2	52	2		
H-5P5			5	
H-66	66			
J-17P4	13	4		
J-25P2	23	2		
J-33	33			
J-7P7		7		
K-27P4	23	4		
K-35P2	33	2		
K-43	43			
K-9P9		9		
L-22P4	18		4	
L-48P2	46		2	
L-6P6			6	
L-78	78			
M-17P17		17		
M-102	102			
M-4P4				4
N-13P13			13	
N-153	153			

⚠ Cavity Numbers

Cavity numbers shown are for mating face of receptacle (pin) connector. Plug (socket) numbers are reversed.



A-5
5 #23 Contacts

B-2P2
2 #16 Contacts

B-9
9 #23 Contacts

C-13
13 #23 Contacts

D-15
15 #23 Contacts

D-3P3
3 #16 Contacts

D-7P2
5 #23, 2 #16

E-11P2
9 #23, 2 #16

E-19
19 #23 Contacts

E-7P3
4 #23, 3 #16

F-14P3
11 #23, 3 #16

F-15P2
13 #23, 2 #16

F-23
23 #23 Contacts

F-5P5
5 #16 Contacts

G-21P1
20 #23, 1 #12

G-13P2
11 #23, 2 #12

G-3P3
3 #12 Contacts

G-33
33 #23 Contacts

J-17P4
13 #23, 4 #16

J-25P2
23 #23, 2 #16 Contacts

J-33
33 #23 Contacts

J-7P7
7 #16 Contacts

K-27P4
23 #23, 4 #16 Contacts

K-35P2
33 #23, 2 #16 Contacts

K-43
43 #23 Contacts

K-9P9
9 #16 Contacts

H-10P4
6 #23, 4 #12

H-29P7
22 #23, 7 #16

H-36P2
34 #23, 2 #12

H-51P1
50 #23, 1 #12

H-54P2
52 #23, 2 #16

H-5P5
5 #12 Contacts

H-66
66 #23 Contacts

L-22P4
18 #23, 4 #12

L-48P2
46 #23, 2 #12

L-6P6
6 #12 Contacts

L-78
78 #23 Contacts

M-17P17
17 #16 Contacts

M-102
102 #23 Contacts

M-4P4
4 #8 Contacts

N-13P13
13 #12 Contacts

N-153
153 #23 Contacts

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Series 791 Material and Finish Options

The Series 791 Scoop-Proof connector is available in five preferred finishes: electroless nickel, nickel-PTFE, tin-zinc, cadmium, and zinc-nickel.

Additional material and finish options are available. Replace the preferred plating code with the alternate code from the table below.

TIN-ZINC PLATING

The United States Department of Defense (DOD) has mandated the elimination of cadmium from DOD weapons systems because of toxicity concerns. The European Union has also restricted the use of cadmium on electronics equipment (RoHS). Tin-Zinc is a RoHS cadmium-free sacrificial finish that offers high conductivity and shielding performance, corrosion resistance, solderability, and proven compatibility with legacy cadmium and zinc-nickel finishes. Tin-Zinc is DLA-qualified and RoHS compliant.

SERIES 791 SHELL FINISH OPTIONS

	Electroless Nickel	Nickel-PTFE	Tin-Zinc	Olive Drab Cadmium	Black Zinc-Nickel
Glenair Code	M	MT	TZ	N	ZR
Corrosion Resistance	Fair	Excellent	Excellent	Excellent	Excellent
Salt Spray Hours	48	500	500	500	500
Conductivity	Excellent	Excellent	Very Good	Very Good	Very Good
RoHS Compliant[1]	Yes	Yes	Yes	No	Yes

[1] Does not contain cadmium or hexavalent chromium. Meets EU requirements.

ALTERNATE SHELL MATERIAL AND FINISH CODES

Code	Shell Material	Shell Finish	Finish Specification	Salt Spray Hrs.	Electrical Conductivity	RoHS[1]
C	Alum	Anodize, Black	MIL-PRF-8625	48	Non-Conductive	✓
E[2]	Alum	Chem Film, Gold	MIL-DTL-5541	168	Conductive	
J	Alum	Cadmium, Yellow	AMS-QQ-P-416	500	Conductive	
Z1	SST	Passivate	AMS2700	500	Conductive	✓
Z2	Alum	Gold	MIL-DTL-45204	48	Conductive	✓
ZM	SST	Electroless Nickel	AMS-C-26074	500	Conductive	✓
ZMT	SST	Nickel-PTFE	AMS2454	1000	Conductive	✓
ZW	SST	Cadmium, Olive Drab	AMS-QQ-P-416	500	Conductive	
ZZR	SST	Zinc-Nickel, Black	ASTM B841	500	Conductive	✓

[1] Does not contain cadmium or hexavalent chromium. Meets EU requirements.
[2] Maximum temperature = +125°C

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Specifications

Construction

Contacts	Copper alloy, gold over nickel finish
Hood, socket contact	Stainless steel, passivated
Clip, contact retaining	Beryllium copper
Clip, insert retaining	Beryllium copper
Insulators	High performance thermoplastic
Grommet and face seal	Fluorosilicone/silicone blend
Shell	Aluminum
O-ring	Fluorosilicone
EMI spring	Beryllium copper, electroless nickel plated
EMI shroud (90° PCB)	Aluminum
Encapsulant (PCB)	Epoxy
Hardware	Stainless steel, passivated

Ratings

Voltage (DWV)	Size 23 contacts: 750 VAC Size 8, 12 and 16 contacts: 1800 VAC
Current Rating	See table below
Operating Temperature	-65 to +150 °C
Ingress Protection	IP67
Durability	500 mating cycles

Contact Size	Current (A)
#23	5
#16	13
#12	23
#8	46

Product Specifications

Description	Requirement	Procedure
Contact Resistance	SAE AS39029 Table 5	EIA-364-06
Low Level Contact Resistance	SAE AS39029 Table 4	EIA-364-23
Insulation Resistance	5000 megohms minimum	EIA-364-21
Dielectric Withstanding Voltage	#23 contacts 750 volts, #8, 12 & 16 contacts 1800 volts	EIA-364-20
Current Rating	#23: 5A, #16: 13A, #12: 23A, #8: 46A	EIA-364-70 Method 1
Shell-to-shell Resistance	2.5 millivolt drop maximum (connector with EMI spring)	EIA-364-83
Shielding Effectiveness	100 – 1000MHz: >50 dB, 1 – 4GHz: >41dB, 4 – 10GHz: >35 dB	EIA-364-66
Ingress Protection	IP67 rating	IEC-60529
Vibration, Sine	20 g	EIA-364-28 Test Condition IV
Vibration, Random	16.91 g rms	EIA-364-28 Test Condition V Letter E
Mechanical Shock	300 g	EIA-364-27 Condition D
Thermal Shock	-65 to +150 °C	EIA-364-32 Test Condition IV
Humidity	10 Day, +25 to +65° C	EIA-364-31 Method IV, Step 7b vibration deleted
Mechanical Durability	500 mating cycles	EIA-364-09
Salt Spray	Plating code M: 48 hours, MT, ZR, N, TZ: 500 hours	EIA-364-26
Solderability, PC Tail Contacts	95% solder coverage. Smooth, bright and even finish.	EIA-364-52 Category 3, 8 hours steam aging
Resistance To Soldering Heat	260° C, 10 seconds	EIA-364-56
Fluid Immersion	No damage from immersion in various fuels and oils.	EIA-364-10
Altitude Immersion	75,000 feet	EIA-364-03
Contact Retention	MIL-DTL-38999 Table XVIII	EIA-364-29
Contact Separation Force	SAE AS39029 Table 9	EIA-364-37
Magnetic Permeability	2 µ maximum.	EIA-364-54

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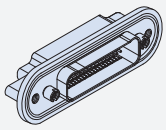
Panel Cutout, 791 Panel Mount Connectors

PANEL CUTOUT FOR SERIES 791 PANEL MOUNT CONNECTORS

This cutout is compatible with:

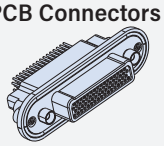
Panel Mount Connectors

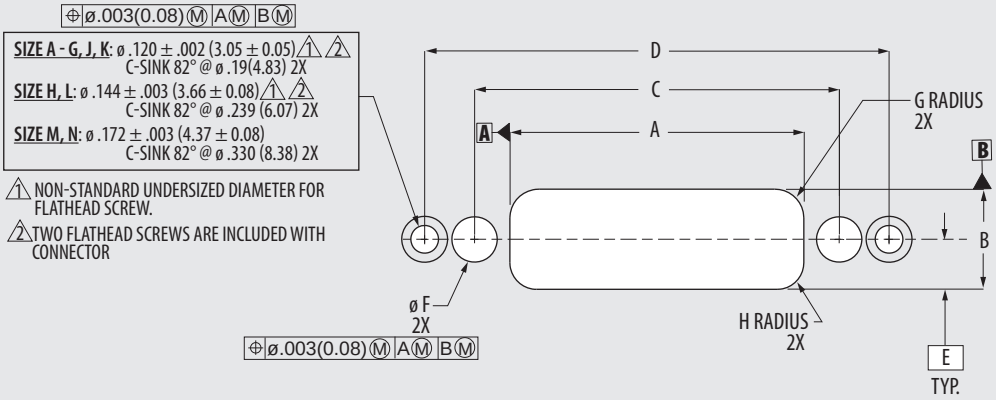
791-019
791-020



Panel Mount PCB Connectors

791-011
791-012
791-021
791-033





Shell Size	A ± .002 (0.05)		B ± .002 (0.05)		C Basic		D Basic		E Typ		ø F ± .002 (0.05)		G Rad ± .002 (0.05)		H Rad ± .002 (0.05)	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
A	.505	12.83	.418	10.62	.750	19.05	1.150	29.21	.199	5.05	.210	5.33	.110	2.79	.164	4.17
B	.655	16.64	.418	10.62	.900	22.86	1.300	33.02	.199	5.05	.210	5.33	.110	2.79	.164	4.17
C	.805	20.45	.418	10.62	1.050	26.67	1.450	36.83	.199	5.05	.210	5.33	.110	2.79	.164	4.17
D	.880	22.35	.418	10.62	1.125	28.58	1.525	38.74	.199	5.05	.210	5.33	.110	2.79	.164	4.17
E	1.030	26.16	.418	10.62	1.275	32.39	1.675	42.55	.199	5.05	.210	5.33	.110	2.79	.164	4.17
F	1.180	29.97	.418	10.62	1.425	36.20	1.825	46.36	.199	5.05	.210	5.33	.110	2.79	.164	4.17
G	1.142	29.01	.506	12.85	1.388	35.26	1.785	45.34	.244	6.20	.210	5.33	.110	2.79	.164	4.17
H	1.531	38.89	.521	13.23	1.900	48.26	2.375	60.33	.250	6.35	.236	5.99	.150	3.81	.139	3.53
J	1.555	39.50	.418	10.62	1.800	45.72	2.200	55.88	.199	5.05	.210	5.33	.110	2.79	.164	4.17
K	1.930	49.02	.418	10.62	2.175	55.25	2.575	65.41	.199	5.05	.210	5.33	.110	2.79	.164	4.17
L	1.767	44.88	.521	13.23	2.136	54.25	2.611	66.32	.250	6.35	.236	5.99	.150	3.81	.139	3.53
M	1.850	46.99	.623	15.82	2.200	55.88	2.824	71.73	.290	7.37	.262	6.65	.163	4.14	.153	3.89
N	2.244	57.00	.708	17.98	2.600	66.04	3.240	82.30	.332	8.43	.295	7.49	.163	4.14	.153	3.89

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Series 791 Polarization Keying Option

OPTIONAL POLARIZATION KEYS

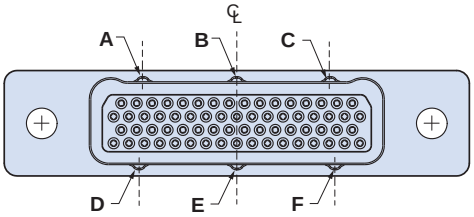
To prevent mis-mating of identical shell size and insert arrangement connectors

Series 791 connectors are available with an integral polarizing key. Keyed plug connectors have a raised boss on the shell. Receptacles have corresponding keyway. Ordering is simple—just add the keying position letter designator to the end of the part number.

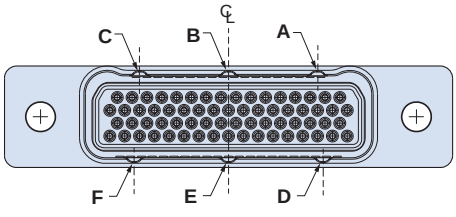
Note: keyed receptacles will mate with unkeyed plugs. Additional polarization keying positions are available, consult the factory for designators and key locations.

HOW TO ORDER		
Step 1	**Create a Series 791 connector part number:**	**791-003SH-66MP**
Step 2	**Add the keying position letter designator A, B, C, D, E, or F to the part number.**	**791-003SH-66MPB**

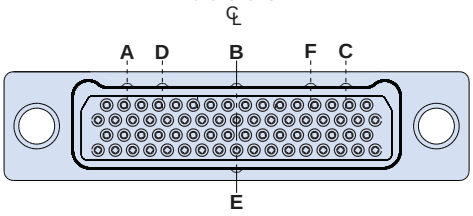
MOD-555 KEY LOCATIONS PLUG CONNECTOR MATING FACE
For Shell Sizes A-M



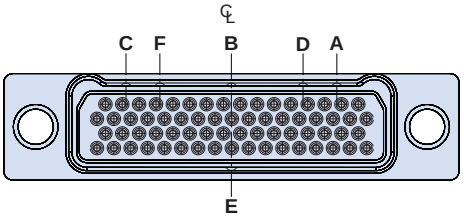
MOD-555 KEY LOCATIONS RECEPTACLE CONNECTOR MATING FACE
For Shell Sizes A-M



MOD-555 KEY LOCATIONS PLUG CONNECTOR MATING FACE
For Shell Size N



MOD-555 KEY LOCATIONS RECEPTACLE CONNECTOR MATING FACE
For Shell Size N



POLARIZING KEY LOCATIONS SHELL SIZES A–M

Shell Size	Key Position Offset From Vertical Centerline											
	Position A		Position B		Position C		Position D		Position E		Position F	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
A	N/A	N/A	.000	0.00	N/A	N/A	.025	0.64	.000	0.00	.025	0.64
B	.090	2.29	.000	0.00	.090	2.29	.050	1.27	.000	0.00	.050	1.27
C	.130	3.30	.000	0.00	.130	3.30	.100	2.54	.000	0.00	.100	2.54
D	.180	4.57	.000	0.00	.180	4.57	.125	3.18	.000	0.00	.125	3.18
E	.200	5.08	.000	0.00	.200	5.08	.150	3.81	.000	0.00	.150	3.81
F	.300	7.62	.000	0.00	.300	7.62	.250	6.35	.000	0.00	.250	6.35
G	.300	7.62	.000	0.00	.300	7.62	.200	5.08	.000	0.00	.200	5.08
H	.450	11.43	.000	0.00	.450	11.43	.500	12.70	.000	0.00	.500	12.70
J	.450	11.43	.000	0.00	.450	11.43	.400	10.16	.000	0.00	.400	10.16
K	.650	16.51	.000	0.00	.650	16.51	.550	13.97	.000	0.00	.550	13.97
L	.550	13.97	.000	0.00	.550	13.97	.600	15.24	.000	0.00	.600	15.24
M	.550	13.97	.000	0.00	.550	13.97	.600	15.24	.000	0.00	.600	15.24
N	.700	17.78	.000	0.00	.700	17.78	.475	12.06	.000	0.00	.475	12.06

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