

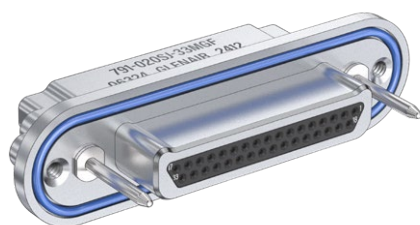
MICRO-CRIMP RECTANGULAR CONNECTORS

Series 791 Scoop-Proof



791-020

Panel Plug



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).

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

- 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 NF Olive Drab Cadmium TZ Tin-Zinc ZR Black Zinc-Nickel						
Hardware Option Table 1	B Guide Bushing <i>For blind mating</i> G Guide Pins <i>For blind mating</i> N No Hardware <i>Threaded holes</i> 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

N No Hardware		P Female Jackpost	
G Guide Pin		B Guide Bushing	

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.

MICRO-CRIMP RECTANGULAR CONNECTORS

Series 791 Scoop-Proof

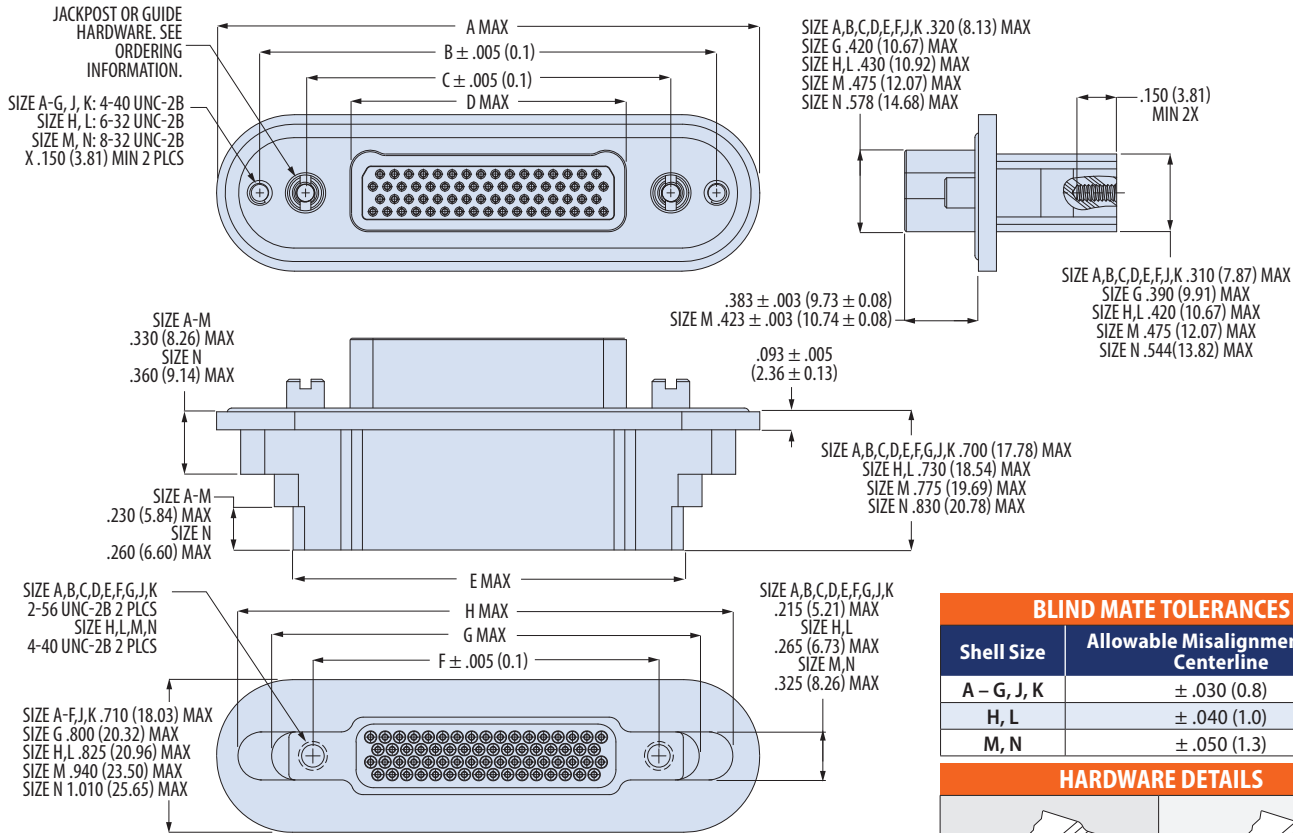
SERIES™
791
Scoop-Proof

791-020

Panel Plug

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

SERIES 791 SCOOP-PROOF



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: 6-32 UNC-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.

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
A	1.565	39.8	1.150	29.2	.750	19.1	.415	10.5
B	1.715	43.6	1.300	33.0	.900	22.9	.565	14.4
C	1.865	47.4	1.450	36.8	1.050	26.7	.715	18.2
D	1.940	49.3	1.525	38.7	1.125	28.6	.790	20.1
E	2.090	53.1	1.675	42.5	1.275	32.4	.940	23.9
F	2.240	56.9	1.825	46.4	1.425	36.2	1.090	27.7
G	2.200	55.9	1.785	45.3	1.388	35.3	1.052	26.7
H	2.835	72.0	2.375	60.3	1.900	48.3	1.442	36.6
J	2.615	66.4	2.200	55.9	1.800	45.7	1.465	37.2
K	2.990	75.9	2.575	65.4	2.175	55.2	1.840	46.7
L	3.075	78.1	2.611	66.3	2.136	54.3	1.678	42.6
M	3.345	85.0	2.824	71.7	2.200	55.9	1.745	44.3
N	3.775	95.9	3.240	82.3	2.600	66.0	2.115	53.7

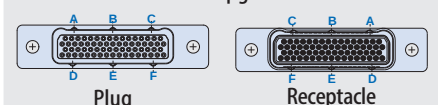
CRIMP CONTACTS AND TOOLS

Contact Size	Skt Contact Part No.	AWG Wire Size	Installing and Removal Tool	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



MICRO-CRIMP RECTANGULAR CONNECTORS

Series 791 Scoop-Proof

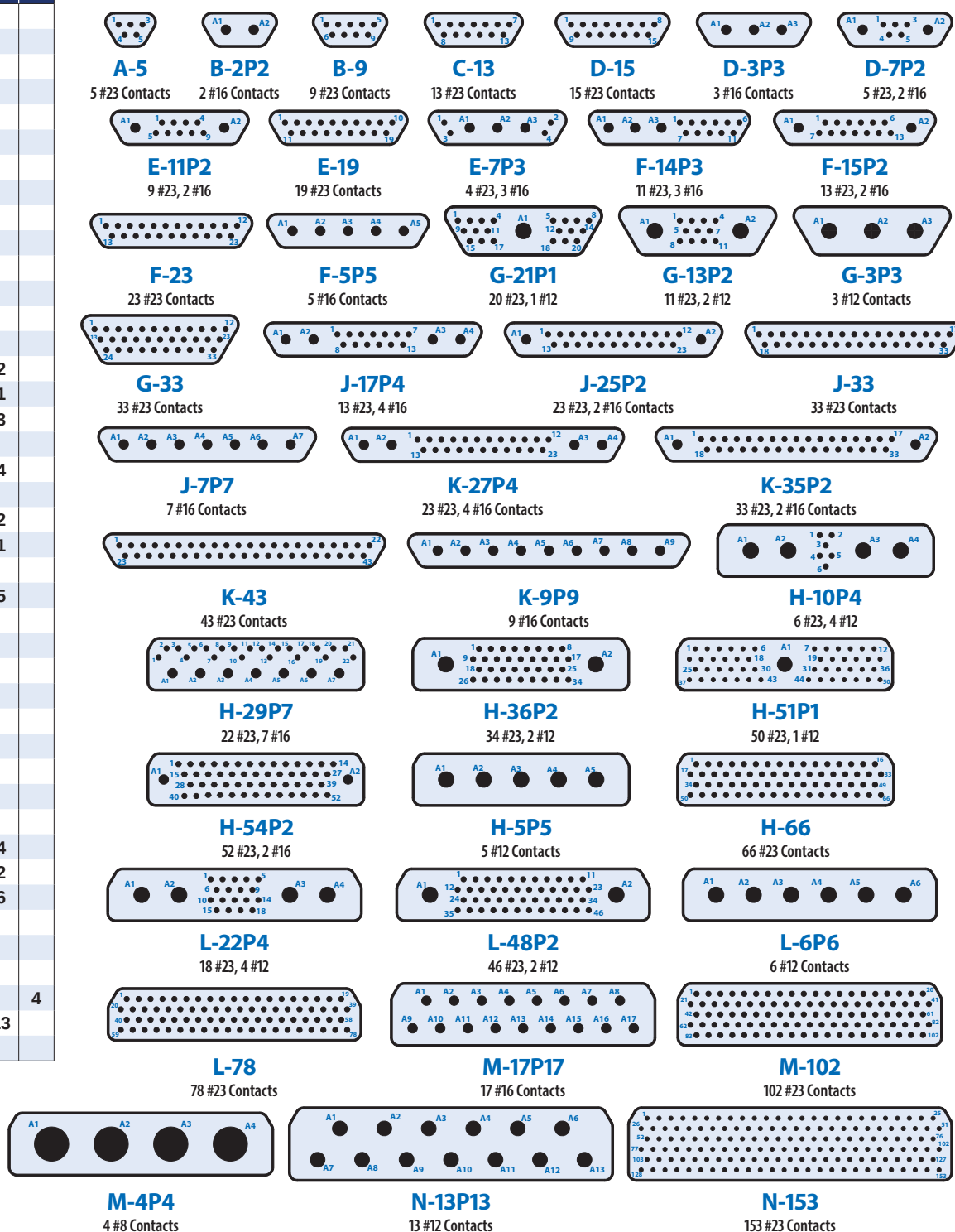


Insert Arrangements

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.



MICRO-CRIMP RECTANGULAR CONNECTORS

Series 791 Scoop-Proof



Series 791 Material and Finish Options

SERIES 791 SCOOP-PROOF

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 79 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

MICRO-CRIMP RECTANGULAR CONNECTORS

Series 791 Scoop-Proof



Specifications

SERIES 791 SCOOP-PROOF

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	Contact Size	Current (A)
	#23	5
	#16	13
	#12	23
	#8	46
	Operating Temperature -65 to +150 °C	
	Ingress Protection IP67	
	Durability 500 mating cycles	

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

MICRO-CRIMP RECTANGULAR CONNECTORS

Series 791 Scoop-Proof



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

$\oplus .003(0.08) \text{ (M) A (M) B (M)}$

SIZE A - G, J, K: $\phi .120 \pm .002 (3.05 \pm 0.05)$
C-SINK 82° @ $\phi .19(4.83)$ 2X

SIZE H, L: $\phi .144 \pm .003 (3.66 \pm 0.08)$
C-SINK 82° @ $\phi .239 (6.07)$ 2X

SIZE M, N: $\phi .172 \pm .003 (4.37 \pm 0.08)$
C-SINK 82° @ $\phi .330 (8.38)$ 2X

NON-STANDARD UNDERSIZED DIAMETER FOR FLATHEAD SCREW.

TWO FLATHEAD SCREWS ARE INCLUDED WITH CONNECTOR

$\oplus .003(0.08) \text{ (M) A (M) B (M)}$

ϕF 2X

H RADIUS 2X

G RADIUS 2X

E TYP.

Shell Size	± .002 (0.05)		± .002 (0.05)		C Basic		D Basic		E Typ		± .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

MICRO-CRIMP RECTANGULAR CONNECTORS

Series 791 Scoop-Proof



Series 791 Polarization Keying Option

OPTIONAL POLARIZATION KEYS



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

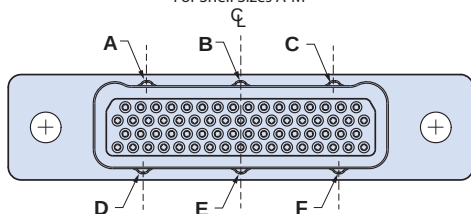
Series 791 connectors are available with an integral polarizing key. Keyed plug connectors have a raised boss on the shell. Receptacles have corresponding keyway. Ordering is simple—just add the keying position letter designator to the end of the part number.

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

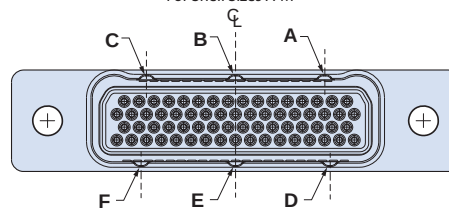
HOW TO ORDER

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

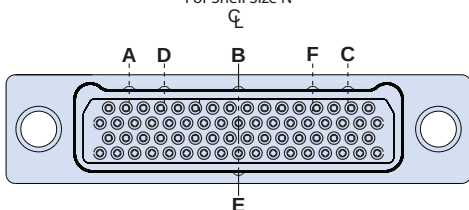
MOD-555 KEY LOCATIONS PLUG CONNECTOR MATING FACE
For Shell Sizes A-M



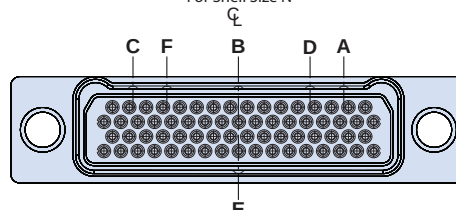
MOD-555 KEY LOCATIONS RECEPTACLE CONNECTOR MATING FACE
For Shell Sizes A-M



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