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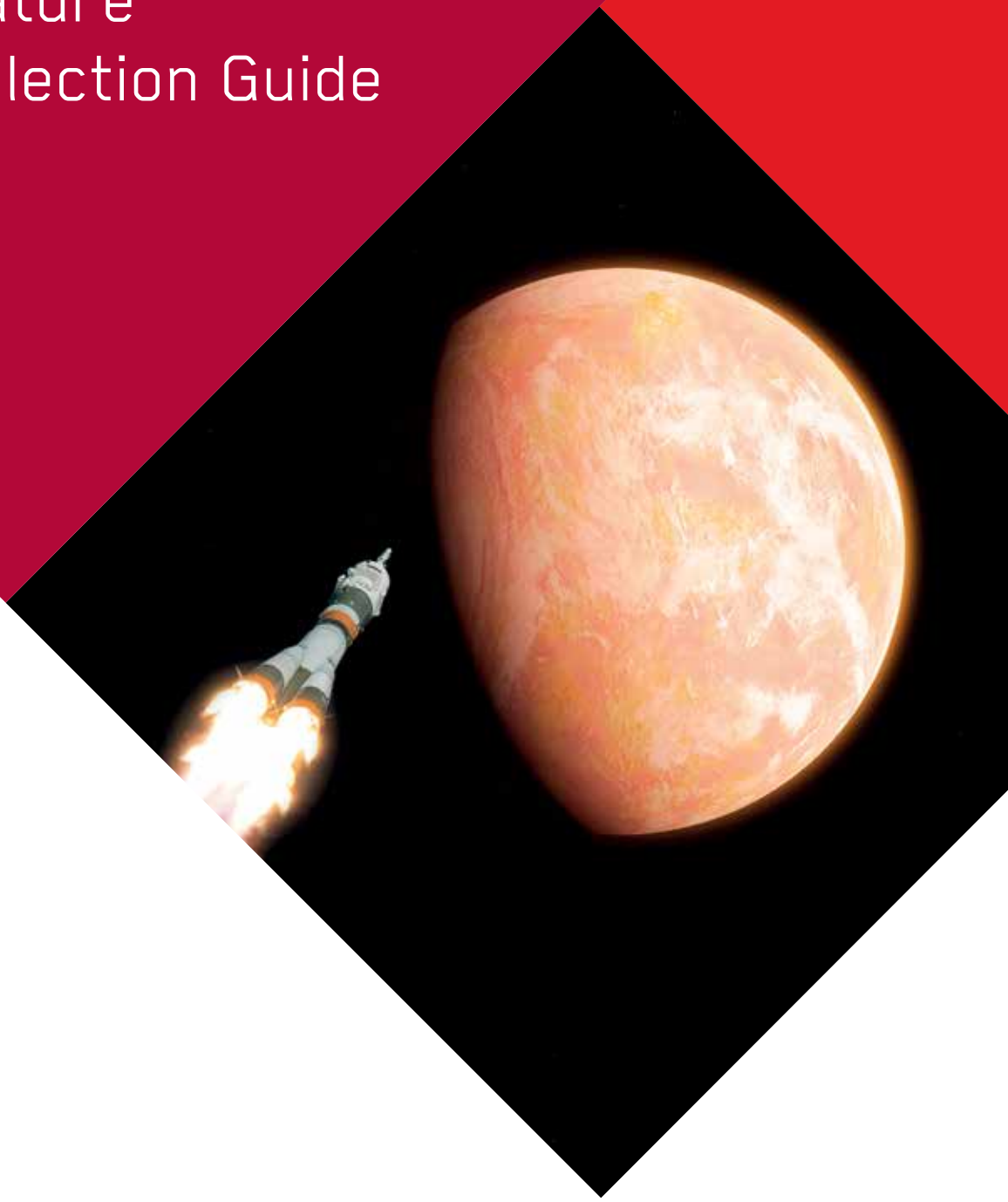
D-Subminiature Product Selection Guide



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D-Subminiature Connectors

Key Markets & Applications

Invented by Cannon engineers in 1952 for aircraft radio systems, the D-Subminiature was designed as a smaller, lightweight rectangular alternative to larger, heavier connectors of the time. Today, Cannon continues its legacy of innovation through highly engineered D-Sub connector styles, sizes, configurations and accessories. From rocket launchers and telecommunications, to avionics and high-speed rail, its performance, reliability and versatility have made this Cannon invention one of the most widely used connectors in the world.

Space & Satellites

Military Vehicles

Commercial Avionics

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D*M, D*MM, D*MA with NM, NMB option connectors are used when non magnetic characteristics are required.

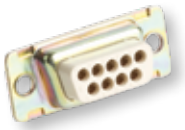
Hermetic Military D connectors are designed to meet environmental conditions of extreme pressure differential.

These high reliability D-Sub connectors are the finest quality and are qualified to MIL-DTL-24308.

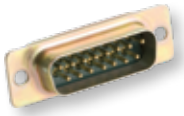
	Non-Magnetic Series	D*H	MIL-DTL-24308[2]
Space	X	X	
Military/Aerospace	X	X	X
Medical/Food Processing	X	X	
Mass Transit	X		
Industrial	X	X	
Telecom			
Wire Gauge Range AWG	AWG 18 - 28	up to AWG 20	AWG 20 - 24
Mating Cycles	50, 200, 500	500	500
RoHS Compliant	available	no	no
Layout	9, 15, 25, 37, 50, 15, 26, 44, 62, 78,104 (high density) and Combo D	9, 15, 25, 37, 50	9, 15, 25, 37, 50, 15, 26, 44, 62, 78,104 (high density)
Dielectric Withstanding Voltage[1]	1000 VAC	750 VAC	1000 VAC
Current Rating (Amps)	7.5 A max.	7.5 A max.	7.5 A max.
Contact Resistance	10 milli Ohm max.	15 milli Ohm max.	10 milli Ohm max. (Signal Contacts)
Operating Temperature	-55°C/125°C	-54°C/125°C	-50°C/150°C
Salt Spray Test Resistance in Hours	48 hrs	48 hrs	48 hrs
Shell			
Material	copper alloy	low carbon steel	steel
Finish	gold over copper	electro-deposited tin over cadmium over copper flash	yellow chromate over cadmium or zinc
Insulator	Glass-filled Thermoplastic, UL 94V-0	compression glass	Glass-filled Thermoplastic, UL 94V-0
Color	white or black	n/a	black
Contact	machined	machined	machined
Material	copper alloy	steel	copper alloy
Finish	gold over copper	electro-deposited tin over cadmium over copper flash	1.27 μm gold over nickel
Contact Termination/Styles			
Crimp	X		X
Solder Pot	X	X	X
Straight Solder	X		X
Right Angled Solder	X		X
IDC (insulation displacement connection)			
Wire Wrap			X
Coax	X		
Fiber Optic	X		
High Power	X		
High Voltage	X		
Press Fit			
Eyelet		X	

[1]At Sea Level

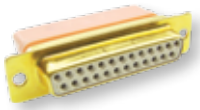
[2]Qualified to MIL-DTL-24308/1, /2, /3, /4, /23 and /24 for Finish Suffix F and Z



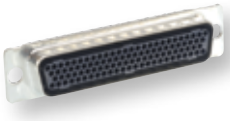
D*MAM crimp connectors are designed according to MIL-DTL-24308.



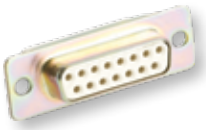
D*MM straight PCB connectors are designed according to MIL-DTL-24308.



GD* connectors provide high-density and moisture protection.

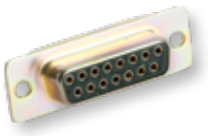


2D connectors feature double the contact density in the same insert area.



D*MA crimp connectors are designed according to MIL-DTL-24308

D*MAM	D*MM	GD*	2D	D*MA
X	X	X	X	X
X	X	X		X
			X	X
AWG 18 - 30	Not Applicable	AWG 20	AWG 22 -2 6	AWG 20 - 28
500	500	500	500	200, 500
available	available	no	available	available
9, 15, 25, 37, 50, 15, 26, 44, 62, 78,104 (high density)	9, 15, 25, 37, 50	9, 15, 25, 37, 50, 15, 26, 44, 62, 78,104 (high density)	19, 31, 52, 79, 100	9, 15, 25, 37, 50, 15, 26, 44, 62, 78,104 (high density)
1000 VAC	1000 VAC	1000 VAC	1000 VAC	1000 VAC
7.5 A max.	7.5 A max.	7.5 A max. (Standard Density)	5 A max. 2A max. (BR Series)	7.5 A max.
10 milli Ohm max. (Signal Contacts)	10 milli Ohm max. (Signal Contacts)	10 milli Ohm max.	9 milli Ohm max.	10 milli Ohm max.
-50°C/150°C	-50°C/150°C	-65°C/150°C	-55°C/125°C	-55°C/125°C
48 hrs	48 hrs	48 hrs	48 hrs	48 hrs
steel	steel	low carbon steel	low carbon steel/brass	steel
RoHS - Tin/Nickel yellow chromate over cadmium or zinc	RoHS - Tin/Nickel yellow chromate over cadmium or zinc	yellow chromate over cadmium or zinc	yellow chromate over cadmium	RoHS - Tin/Nickel yellow chromate over cadmium or zinc
Glass-filled Thermoplastic, UL 94V-0	Glass-filled Thermoplastic, UL 94V-0	Glass-filled Thermoplastic, UL 94V-0	glass filled nylon	Glass-filled Thermoplastic, UL 94V-0
black	black	white or black	black	white
machined	machined	machined	twist pin	machined
copper alloy	copper alloy	copper alloy	copper alloy	copper alloy
1.27 μm gold over nickel	1.27 μm gold over nickel	gold over nickel	gold plate	gold over nickel
X		X	X	X
	X			
X	X		X	X
X	X		X	X
	X			



D*M straight PCB connectors are equivalent to MIL-DTL-24308 qualified versions (except for finishes).

A broad range of D-Sub connectors are available with stainless steel shells for corrosion resistance.

D*NG pressfit connectors provide a low-cost alternative to traditional through hole solder contacts (straight only).

Speedy D connectors terminate ribbon cables without stripping and without splicing.

D*U is a low-cost, crimp type D-Subminiature series.

D*M	Stainless Steel	D*NG	D*SF	D*U
	X			
X	X			
	X			
X	X			
X	X	X	X	X
			X	
Not Applicable	AWG 18 - 30		AWG 26 - 28	AWG 18 - 30
50, 200, 500	50, 200, 500	50, 200, 500	50, 200, 500	50, 200, 500
available	yes	yes	yes	available
9, 15, 25, 37, 50	9, 15, 25, 37, 50, 15, 26, 44, 62, 78,104 (high density) and Combo D	9, 15, 25, 37, 50	9, 15, 25, 37	9, 15, 25, 37, 50
1000 VAC	1000 VDC	1200 VAC	780 VAC	1000 VAC
7.5 A max.	7.5 A max.	5.0 A at 25°C 3.5 A at 70°C	1.5 A max.	5.0 A max.
7.5 milli Ohm max.	10 milli Ohm max.	10 milli Ohm max.	15 milli Ohm max.	15 milli Ohm max.
-55°C/125°C	-55°C/125°C	-55°C/125°C	-55°C/125°C	-55°C/125°C
48 hrs	48 hrs	20 hrs	20 hrs	20 hrs
steel	stainless steel	steel	steel	steel
RoHS - Tin/Nickel yellow chromate over cadmium or zinc	passivated	tin	tin	RoHS - Tin/Nickel yellow chromate over cadmium
Glass-filled Thermoplastic, UL 94V-0	Glass-filled Thermoplastic, UL 94V-0	Thermoplastic, UL 94V-0	Thermoplastic, UL 94V-0	Glass filled Thermoplastic, UL 94V-0
black	black or white	black	black	black
machined	machined	stamped	stamped	stamped or machined
copper alloy	copper alloy	copper alloy	copper alloy	copper alloy
gold over nickel	gold over nickel	gold over nickel (standard); gold over PdNi	gold over nickel	gold over nickel
	X			X
X	X			
X	X			X
X	X			
			X	
X	X			
	X			
	X			
	X			
	X			
		X		

D* connectors are available for high performance uses according to DIN 41652.

ZD* connectors are available for applications where price is the primary driver.

ZD*A high density connectors are available for applications where price is the primary driver.

D*A crimp connectors are available for applications where price is the primary driver.

Combo-D connectors offer an industry standard shield I/O interconnect, with the flexibility of a customized special.

D*	ZD*	ZD*A	D*A	Combo-D
				X
X				X
X	X	X	X	X
	X	X	X	
Not Applicable	AWG 20 - 28	AWG 24 - 26	AWG 20 - 28	AWG 8 - 26
50, 200, 500	50, 200	50, 200	50, 200	50, 200, 500
yes	yes	yes	yes	yes (Mil: no)
9, 15, 25, 37, 50	9, 15, 25, 37, 50	15, 26, 44, 62, 78	9, 15, 25, 37, 50	E: 2W2; 2WK2; 5W1 A: 3W3; 3WK3; 7W2; 11W1 B: 5W5; 9W4; 13W3; 17W2; 21W1 C: 8W8; 13W6; 17W5; 21WA4; 25W3; 27W2 D: 24W7; 36W4; 43W2; 47W1
1250 VAC	1000 VAC	500 VAC	500 VAC	varies
5.0 A at 25°C 3.5 A at 70°C	5.0 A max.	2.0 A max.	5.0 A max.	7.5 A max. (Signal contacts) 5.0 A max. (Coaxial contacts) 65 A max. (HEP) 5.0 A max. (HV contacts)
10 milli Ohm max.	20 milli Ohm max.	15 milli Ohm max.	15 milli Ohm max.	10 milli Ohm max. (Signal contacts)
-55°C/125°C	-55°C/105°C	-55°C/105°C	-55°C/105°C	-55°C/125°C (Mil: 150°C)
20 hrs	12 hrs	12 hrs	12 hrs	20 hrs (Mil: 48 hrs)
steel	steel	steel	steel	steel
tin	tin	tin	tin	tin
Thermoplastic, UL 94V-0	Glass-filled Thermoplastic, UL 94V-0	Glass-filled Thermoplastic, UL 94V-0	Thermoplastic, UL 94V-0	Glass-filled Thermoplastic, UL 94V-0
black	black	black	black	black
machined	stamped	stamped	stamped	machined
copper alloy	brass (male) phosphore bronze (female)	copper alloy	copper alloy	copper alloy
gold over nickel	gold over nickel in contact area, balance tin	gold over nickel	gold over nickel	gold over nickel
		X	X	X
X	X	X		X
X	X	X		X
X	X	X		X
X				
				X
				X
				X
				X
				X

Cannon Combo-D Part Number Configurator
US Version

DBM	E	9C4	P	J	K87

Product Family Designator

D*M = Solder Cup
(Industrial & Space/Non-Magnetic)

D*MM = Solder Cup
(Military / Hi-Rel, 50 microinch gold plating)

D*A = Crimp

Hardware Modifier

blank = .120" (3.05mm) Through Hole
C = 90° Metal Bracket, #4-40 Fastener and Boardlock
D = 90° Metal Bracket, #4-40 Fastener and #4-40 Screwlock
E = #4-40 Clinchnut
G = 90° Metal Bracket, #4-40 Fastener, #4-40 Screwlock, Boardlock
H = .300" (7.6mm) Standoff, #4-40 Screwlock
J = 90° Metal Bracket, M3 Fastener, M3 Screwlock, Boardlock
K = .162" (4.11mm) Through Hole
L = 90° Metal Bracket, M3 Fastener, Boardlock
N = .300" (7.6 mm) Standoff, #4-40 Screwlock, Boardlock
O = 90° Metal Bracket, M3 Fastener, M3 Screwlock
P = 90° Metal Bracket, #4-40 Fastener
Q = .300" (7.6 mm) M3 Standoff
S = 90° Metal Bracket, M3 Fastener
T = .300" (7.6 mm) M3 Standoff
U = .300" (7.6 mm) Standoff, M3 Screwlock and Boardlock
V = .300" (7.6 mm) #4-40 Standoff
W = .300" (7.6mm) Standoff, M3 Screwlock
X = M3 Clinchnut
Y = Dual Float Mount
Z = .300" (7.6mm) #4-40 Standoff, Boardlock

Shell Material and Plating Modification Code

blank = Carbon steel, Yellow chromate over zinc
A101 = Carbon steel, Yellow chromate over cadmium
A197 = Carbon steel, Pure Tin over Nickel (socket side only) **RoHS**
K87 = Carbon steel Pure Tin over Nickel (pin shell with grounding dimples) **RoHS**
F225 = Stainless steel, Passivated **RoHS**
NMBK52 = Gold plated, non-magnetic for space applications

Contact Termination Code

blank = Solder cup (D*M/D*MM), Crimp (D*A)
J = 90° PCB signal contact, (ø.030" × .170" long)
N = Straight PCB signal contact, (ø.030" × .178" long)
V = 90° PCB signal contact, (ø.024" × .157" long)
Y = Straight PCB signal contact, (ø.024" × .178" long)

Contact Gender

P = Pin /Male (plug)
S = Socket /Female (receptacle)

Layout (Example: 5W1- Total number of 5 contacts with 1 size 8 cavity)

Shell Size E: 2W2, 2WK2, 5W1
Shell Size A: 3W3, 3WK3, 7W2, 11W1
Shell Size B: 5W5, 9W4, 13W3, 17W2, 21W1
Shell Size C: 8W8, 13W6, 17W5, 21WA4, 25W3,27W2
Shell Size D: 24W7, 36W4, 43W2, 47W1

W = Empty size 8 cavities
C = 75 Ohm Coax installed (straight or 90°)
X = 50 Ohm Coax installed (straight or 90°)
H = High power installed (straight)
P = High power installed (Euro, 90°only)
V = High voltage installed (available in straight PC only)
G = Guide pin or guide socket installed
R = Mini High Power 90° installed
E = HEP Contact (installed or loose)

Cannon Combo-D Part Number Configurator
European Version

DBM	E	9C4	P	P00	1A5N	A191	K87	146

Product Family Designator

D*M = D*M Combo-D

* = Shell size – E, A, B, C and D

Hardware Modifier

blank = 3,05mm (.120") Through Hole

E = #4-40 Clinchnut (solder cup, straight solder pin and 1A0N)

N = 7,66 mm (.300") with #4-40 post and pushfit, only OL4

Q = 7,66 mm (.300") M3 standoff, only OL4

T = 7,66 mm (.300") M3 post, only OL4

U = 7,66 mm (.300") standoff, M3 Post with pushfit, only OL4

V = 7,66 mm (.300") #4-40 standoff, only OL4

X = M-3 Clinchnut (solder cup, straight solder pin and 1A0N)

Y = Dual Float Mount, only solder cup

Z = 7,66 mm (.300") #4-40 with pushfit, only OL4

Layout (Total number of contacts + number of size 8 cavities)

Shell Size E: 2W2, 2WK2, 5W1

Shell Size A: 3W3, 3WK3, 7W2, 11W1

Shell Size B: 5W5, 9W4, 13W3, 17W2, 21W1

Shell Size C: 8W8, 13W6, 17W5, 21WA4, 25W3,27W2

Shell Size D: 24W7, 36W4, 43W2, 47W1

W = Empty size 8 cavities

C = 75 Ohm Coax installed (straight or 90°)

X = 50 Ohm Coax installed (straight or 90°)

H = High power installed (straight)

P = High power installed (Euro, 90°only)

V = High voltage installed (available in straight PC only)

G = Guide pin or guide socket installed

R = Mini High Power 90° installed

Contact Gender

P = Pin /Male (plug)

S = Socket /Female (receptacle)

Code only applicable for Pressfit High Power size 8 contact

P00 = Pessfit High power PCB dia 2,9 mm

P01 = Pessfit High power PCB dia 3,1 mm

P02 = Pessfit High power PCB dia 3,5 mm

PCB Mounting Method

146 = Pushfit for PCB hole dia. 3,0 mm

161 = Pushfit for PCB hole dia. 3,2 mm, straight version only

162 = Pushfit for PCB hole dia. 3,2 mm, 90° version only

Shell Plating Modification Code

blank = Yellow chromate over zinc

A197 = Pure Tin over Nickel (socket side only) **RoHS**

K87 = Pure Tin over Nickel (pin shell with grounding dimples) **RoHS**

Contact Plating Modification Code

blank = performance class 3 (50 mating cycles)

A191 = performance class 2 (200 mating cycles)

A190 = performance class 1 (500 mating cycles)

Contact Tail Modifier

blank = Solder cup (size 8 contacts not loaded on these versions)

OL2 = Not standard, please call factory

OL3 = Solder pin /pc tail, straight

1A0N = Without mouting bracket, hole dia. 3,05 mm

1A5N = Plastic bracket with bushing dia. 3,05 mm

1A6N = Plastic bracket with #4-40 threaded post

1A7N = Metal bracket and #4-40 captive nut

1A8N = Metal bracket with #4-40 threaded post

1A9N = Metal bracket and M3 captive nut

1ADN = Plastic bracket with grounding bracket and bushing dia. 3,05 mm

1AFN = Metal bracket with bushing dia. 3,05 mm

1AGN = Plastic bracket with grounding bracket and M3 threaded post

1AHN = Metal bracket with M3 threaded post

1AJN = Plastic bracket with grounding bracket and #4-40 threaded post

1APN = Plastic bracket with M3 threaded post – Not available, please use 1AHN instead

1ATN = Plastic bracket and M3 captive nut – Not available, please use 1A9N instead

1AUN = Plastic bracket and #4-40 captive nut

1AVN = Plastic bracket with grounding bracket and captive M3 nut – Not available, please use 1A9N instead

1AWN = Plastic bracket with grounding bracket and captive #4-40 nut – Not available, please use 1A7N instead

1AEN = 90° low profile metal bracket with M3 captive nut

1AAN = Low profile metal bracket and #4-40 captive nut – Not available, please use 1A7N instead

1ABN = Low profile metal bracket and M3 threaded post – Not available, please use 1AHN instead

1ACN = Low profile metal bracket and #4-40 threaded post – Not available, please use 1A8N instead

1ALN = Low profile metal bracket and bushing dia. 3,05 mm – Not available, please use 1AFN instead

RoHS COMPLIANT PART NUMBERS

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