



Cambridge Connectors

a division of Cambridge Electronic Industries Ltd

D Subminiature Connectors



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Contents

Standard 'D'

High Density 'D'

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Hoods

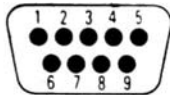
Accessories

D Sub-Miniature Connectors

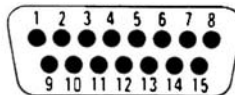
The standard series provides a high quality range of D subminiature connectors in 9, 15, 25, 37 and 50 way versions, and with the option of solder bucket, straight and PCB solder, wire wrap, edge mount, SMT, or press fit termination styles all of which are offered with a wide range of plating options. Connector shells are finished with tin plate over nickel or yellow chromate over zinc. Polarisation is achieved by the keystone shape of the mating plug and socket.



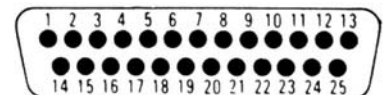
Contact Arrangements



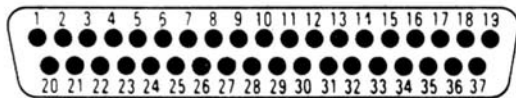
Size 1 = 9 contacts



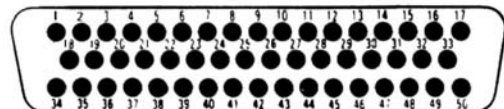
Size 2 = 15 contacts



Size 3 = 25 contacts



Size 4 = 37 contacts



Size 5 = 50 contacts

Note: view as seen from back of socket

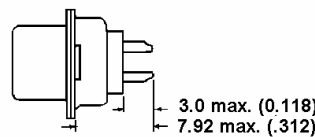
Materials and Finishes

- Insulator: thermoplastic rated UL94 V-O
- Shell: steel, yellow chromate or tin plate finish
- Contacts: copper alloy, screw machined or stamped, with gold, tin or selective plating

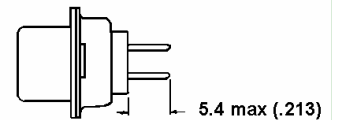
Operating Characteristics

- Current rating:
Machine contacts: 5 Amps typically
Stamped contacts: 3 Amps typically
- Temperature range: -55°C to 155°C typically
- Operating voltage: 250 V
- Resistance: per mated contact pair max. 35m ohm (MIL-C-24308)
- Insulation resistance: 5000M ohm per mated contact pair
- Volume resistance: 10⁶ ohm cm (ASTM-D257)
- Dielectric strength: 50 kV/mm

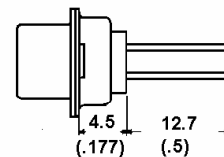
Termination Styles - straight contacts



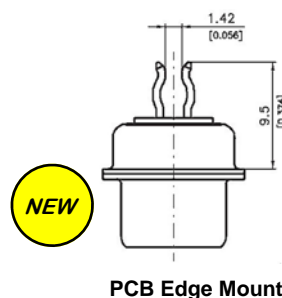
Style S
Solder Bucket



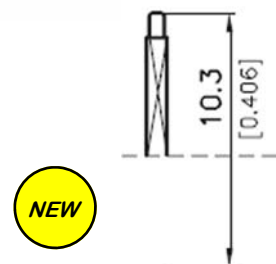
Style P
Printed Circuit
0.6 (.024) dia.



Style W
Wire Wrap
0.6 (.024) square

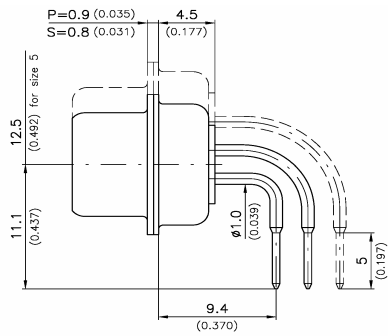


Style H
PCB Edge Mount

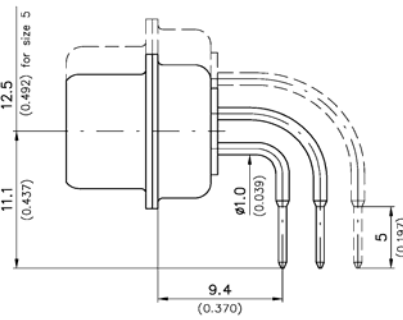


Style H
Press Fit
0.8mm (0.031") square

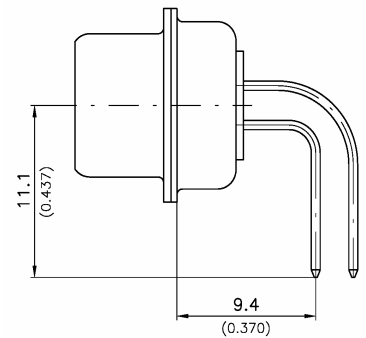
D Sub-Miniature Connectors Right Angle PCB Mounting
Termination Styles:- Turned Pin Contacts



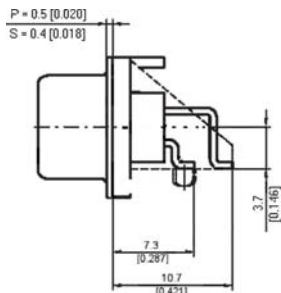
STYLE A
 Spacing 2.54mm (0.100")
 Pin Ø 0.6mm (0.024")



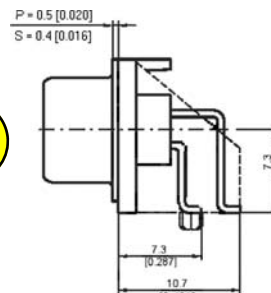
STYLE B
 Spacing 2.84mm (0.112")
 Pin Ø 0.6mm (0.024")



STYLE F
 Spacing 2.54mm (0.100")
 Pin Ø 0.6mm (0.024")



STYLE K—SMT (Supplied Reeled)



STYLE N (Supplied Reeled)

Ordering Code Straight & Right Angle

D S S - 15 - S D 1 (012)

Series:

D = D Subminiature

Product Gender:

P = Plug

S = Socket

Product Version:

S = Standard version with screw machined captive contacts

B = Low cost version with screw machined captive contacts

L = Standard version with stamped and formed captive contacts

A = SMT

No. of contacts:

9, 15, 25, 37, 50

Termination Style:

S = Solder Bucket

P = Straight PCB

W = Wire Wrap

H = Straight Press Fit

A = Right Angle PCB 2.54mm (0.100") spacing; pin Ø 0.6mm (0.024")

B = Right Angle PCB 2.84mm (0.112") spacing; pin Ø 0.6mm (0.024")

F - Right Angle PCB 2.54mm (0.100") spacing; pin Ø 0.6mm (0.024") over entire length

J - PCB Edge Mount 1.6mm thick

K - Low Profile (3.7mm PCB to centre line) SMT right angle (Supplied Reeled)

N - Std. profile (7.3mm PCB to centre line) SMT right angle (Supplied Reeled)

Contact Plating:

A = 0.2 microns (0.000008") Au over nickel

D = Gold flash over nickel

Mounting Style:

1 = Standard flanged mounting

2 = Float mount rear panel mounting

3 - Float mount front panel mounting

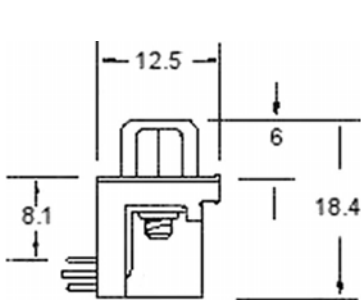
12 - 4-40 UNC clinch nuts, rear mounted for other styles refer to examples see over

Modification Code:

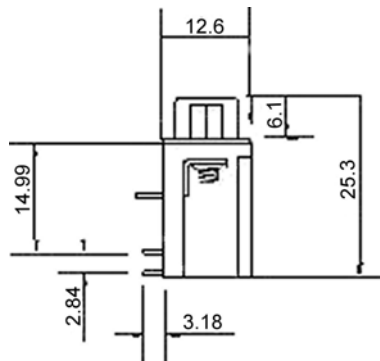
(011) = Socket with tin plated shell

(012) = Plug with tin plated indented shell

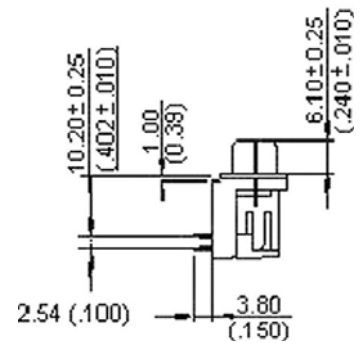
Right Angle PCB Mounting - Stamped and Formed



“Short American Footprint”
Footprint 8.08mm (0.318")
Spacing 2.84mm (0.112")
Pin Ø 0.6mm (0.024)



“Long American Footprint”
Footprint 14.99mm (0.590")
Spacing 2.84mm (0.112")
Pin Ø 0.6mm (0.024)



“European Footprint”
Footprint 10.2mm (0.402")
Spacing 2.54mm (0.100")
Pin Ø 0.6mm (0.024)

Ordering Code

D S Y - 25 - B D 12 AD

Series:
D = D Subminiature

Product Gender:
P = Plus
S = Socket

Product Version:
E = Euro footprint - .402" (10.2mm)
W = Short American footprint - .318" (8.08mm)
Y = Long American footprint - .590" (14.99mm)

No. of contacts:
9, 15, 25, 37

Termination Style:
A = .100" (2.54mm) row to row
B = .112" (2.84mm) row to row

Contact Plating:
D = 0.000004" (0.1 microns) approx. Gold over 0.000050" nickel
C = 0.000030" Gold over Nickel
T = Tin Lead over the w hole contact surface
F = Gold Flash on the mating surface w ith Tin lead tails
H = 0.000030" Gold on the mating surface and Tin Lead on the tails

Mounting Style Vertical Face:
12 = Clinch nut 4.40 UNC rear mounting
17 = Hex. Nut 4.40 UNC (female screw lock)

Mounting Style - Horizontal Face:
AA = Metal bracket w ith through hole
AD = Metal bracket w ith short grounding lock clip

Crimp Contact Connectors

A quality range of crimp connectors in the standard 9, 15, 25, 37 and 50 position configurations. The connector housings and contacts are offered as separate products, with contacts being available in screw machined and stamped and formed versions, and with a wide choice of plating options. The connector shells are supplied tin plated as standard, and the plug half is indented to maintain performance integrity. Polarisation is achieved by the keystone shape of the mating plug and socket.



Crimp Contacts and Tools (order separately)

Machined crimp contacts

wire sizes 20-28 AWG
Plating options: 0.2, 0.8, 1.3 microns
Gold over Nickel



31D-0084-08

31D-0085-08

Stamped Crimp Contacts

wire sizes 20-28 AWG
Plating options: 0.1, 0.8 micron
Gold over Nickel
Available loose or on reels



31D-0086-08

31D-0087-08

Crimp Tools and Insertion/Extraction Tools

A wide range of tools are available for crimping/inserting/extracting machined and stamped contacts.



TLG58 - Crimp tool for stamped & formed contacts



TLG52 - Crimp tool for machined contacts



TLG54 - Insertion/Removal

Ordering Code

D S C - 25 - Z Z 1 (012)

Series:
D = D Subminiature

Product Gender:
P = Plus
S = Socket

Product Version:
C = Crimp snap-in version
(contacts sold separately)

No. of contacts:
9, 15, 25, 37, 50

Termination Style:
This position is not used because contacts are sold separately - insert Z

Contact Plating:
This position is not used because contacts are sold separately - insert Z

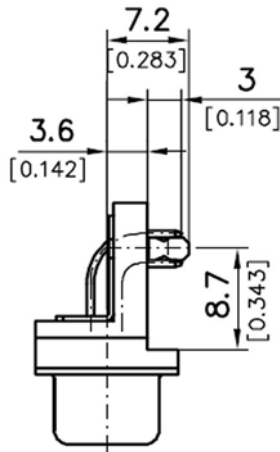
Mounting Style:
1 = Standard flanged mounting
12 = 4.40 UNC clinch nuts, rear mounting
(other mounting styles available)

Modification Code:
(011) = Socket with tin plated shell
(012) = Plug with tin plated indented shell

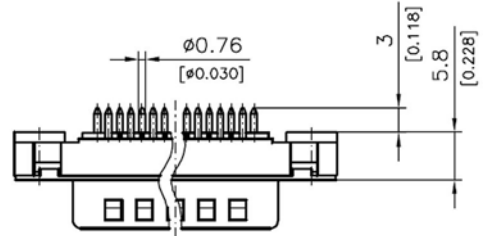
Low Profile D Subminiature Connectors

Due to their low profile the connectors can be used in typical applications such as in 19" assembly systems meeting DIN41494 standards.

Dimensions



Right Angle PCB Mount



Straight PCB Mount



Ordering Code

D P S - 25 - G D 1 (012)

Series:
D = D Subminiature

Product Gender:
P = Plus
S = Socket

Product Version:
S = Standard version with screw machined captive contacts
L - Standard version with stamped and formed captive contacts

No. of contacts:
9, 15, 25, 37, 50

Termination Style:
G = Right Angled Low Profile
(centre to PCB 3.6mm) 2.54mm (.1")
row to row 0.6mm (.024") dia.
T = Straight low profile (PCB to flange 5.8mm)
2.84 row -row

Contact Plating:
A = 0.2 microns (0.000008") Au over nickel
C = 0.000030" Au over nickel
D = Gold flash over nickel

Mounting Style:
27 = 4-40 UNC thread, front mounted
28 = M3 thread, front mounted

Modification Code:
(011) = Socket with tin plated shell
(012) = Plug with tin plated indented shell

IDC Connectors

- Available in 9, 15, 25, 37 & 50 way shell sizes
- Compatible with standard D subminiature
- Suitable for use with 1.27m (0.050”) pitch flat cable
- Complete with crimping cover and strain relief
- Plastic and metal shells for all applications
- Insulator approved to UL94V-O
- Wide range of mounting variations
- Single and double termination



Ordering Code

D P I - 25 - D F 1

Series:

D = D Subminiature

Product Gender:

P = Plus

S = Socket

Product Version:

I = Insulation displacement w ith metal shell in plated

G = Insulation displacement w ith plastic shell

No. of contacts:

9, 15, 25, 37, 50

Termination Style:

D = Double 'V' termination

E = Single 'V' termination

Contact Plating:

F = Gold flash on the mating surface w ith tin on the termination area.

(Other plating finishes available.)

Mounting Style:

1 = Standard flanged mounting

12 = 4.40 UNC clinch nuts, rear mounting

(other mounting styles available)

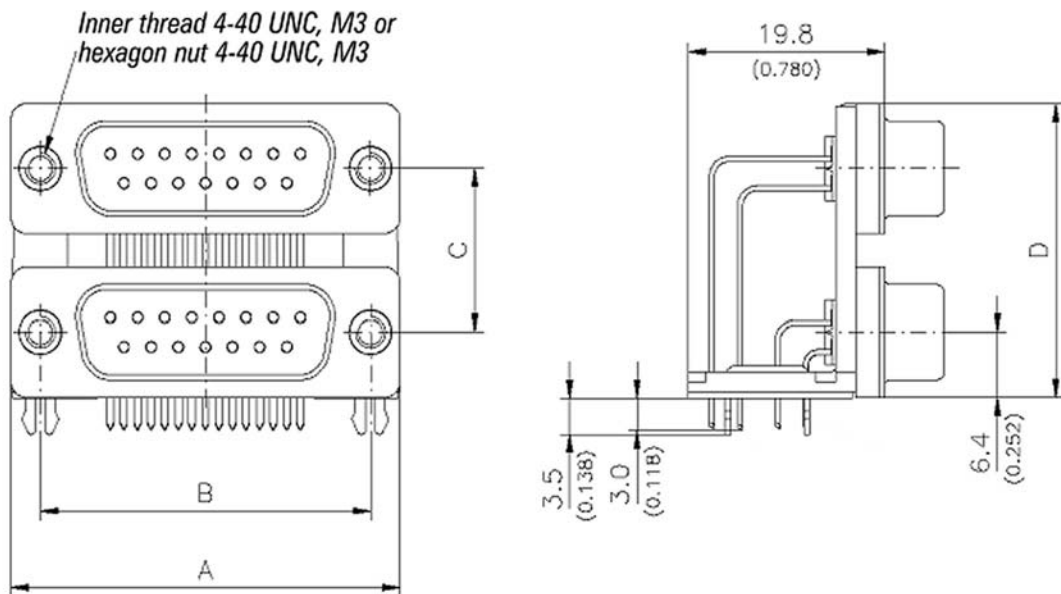
Dual Port connectors

Compatible with standard D Subminiature connectors

- Available in 3 height separation sizes: 22.86; 19.05; 15.88mm
- Standard shell sizes of 9, 15, 25 and 37 contacts
- Dual Port construction allows a higher number of connections per footprint area.
- Row to row spacing 2.84mm



Dimensions



No. of Contacts	A	B	C			D		
			Small	Medium	Large	Small	Medium	Large
2 * 9	30,8 (1.213)	25,0 (0.984)	15,88 (0.625)	19,05 (0.750)	22,86 (0.900)	28,48 (1.121)	31,65 (1.246)	35,46 (1.396)
2 * 15	39,1 (1.539)	33,3 (1.311)	15,88 (0.625)	19,05 (0.750)	22,86 (0.900)	28,48 (1.121)	31,65 (1.246)	35,46 (1.396)
2 * 25	53,0 (2.087)	47,04 (1.852)	15,88 (0.625)	19,05 (0.750)	22,86 (0.900)	28,48 (1.121)	31,65 (1.246)	35,46 (1.396)
2 * 37	69,3 (2.728)	63,5 (2.500)	15,88 (0.625)	19,05 (0.750)	22,86 (0.900)	28,48 (1.121)	31,56 (1.246)	35,46 (1.396)

Dual Port Connectors

Ordering Code

D C N - 09 09 A - A A 01 A A

Series:
D = D Subminiature

Product Gender:
A = Plug-Plug B = Plug-Socket
C = Socket-Plug D = socket-Socket
1st Gender - top connector

Product Version:
N = Dual Port

No. of contacts on top connector:
9, 15, 25, 37, 50

No. of connects on bottom connector:
9, 15, 25, 37, 50

Pitch between connectors:
A = 22.86
B = 19.05

Contact Termination Style:
A = Right angled stamped & formed short American footprint

Contact Plating:
A = 000008" Gold Flash over Nickel
B = 000020" Gold over Nickel
C = 000030" Gold over Nickel

Mounting Style - Vertical Face:
01 - Standard Flange Mounting
12 - Clinch nut mounting for right angled contacts, 4-40 UNC standard thread, rear mounting

Mounting Style - Horizontal Face:
A = Metal bracket with mounting holes, distances from connector flange face 7.75 and 15.62mm
B = Metal bracket with mounting holes, distances from connector flange face 9.50 and 16.26mm

Mounting Style - Horizontal Face:
A = With Board Lock
B = With Standard Thru Holes

High Density D Sub-Miniature Connectors

The high density D range incorporates 15, 26, 44, 62 & 78 contacts in standard D sub-miniature shell sizes.

Termination styles available include solder bucket, straight PCB mounting, right angle PCB mounting and crimp contacts. Crimp connector housings and crimp contacts are supplied as separate items. Contacts are available as machined or stamped and formed with a variety of plating finishes.

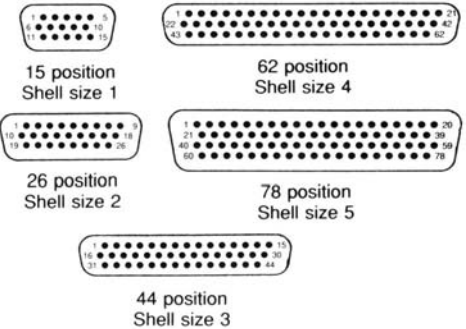
Specification:

Mechanical Data:

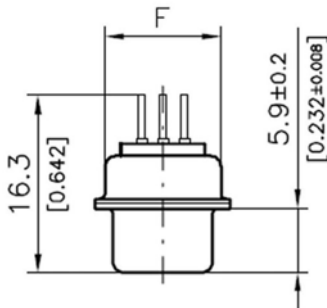
- Shell: steel, tin plated; pin shell with dimples
- Insulator: thermoplastic; glassfilled UL94V-O
- Pin contacts: Gold flash all over (other platings available)
- Socket contacts: Gold flash all over (other platings available)

Electrical Data:

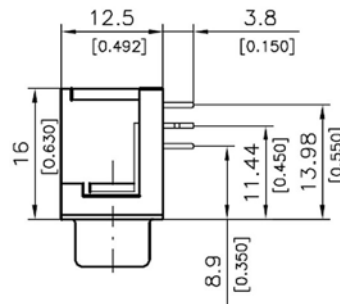
- Current Rating: 3A typically
- Contact resistance: ≤ 10 MOhm typically
- Insulation resistance: ≥ 5000 MOhm typically
- Test voltage: 1000V typically
- Operating temperature -55°C to 105°C



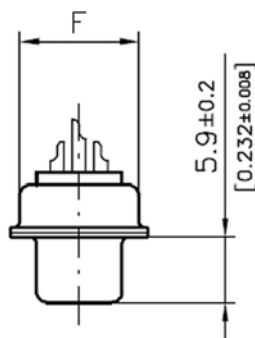
Note: arrangements show mating face of plug



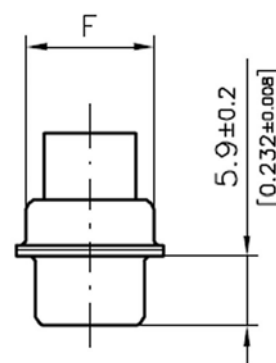
Straight PCB



Right Angle PCB



Solder Pot



Crimp

Shell sizes 1-4	F = 12.5 (0.492)	G = 10.7 (0.421)
Shell size 5	F = 15.4 (0.606)	G = 13.6 (0.535)

High Density D Subminiature Connectors

Ordering Code

D P H - 026 - B D 17 AD

Series:

D = D Subminiature

Product Gender:

P = Plus

S = Socket

Product Version:

H = High Density

No. of contacts:

015 - 15 contacts (size 1)

026 - 26 contacts (size 2)

044 - 44 contacts (size 3)

062 - 62 contacts (size 4)

078 - 78 contacts (size 5)

Termination Style:

B = Solder Bucket - stamped & formed

C - Solder bucket - machined

D - Right Angled - stamped & formed

E - Right Angle - machined

F - Straight dip solder contacts - stamped & formed

G - Straight Dip Solder - machined

Z - Crimp (order contacts separately)

Contact Plating:

C = 30µ Au over Nickel

D = Gold Flash over Nickel

F - Gold Flash on mating surface with Tin tails

Z - Crimp (order contacts separately)

Mounting Style - Vertical Face:

01 = Standard Flange Mounting

12 - Clinch nut - rear mounting 4-40 UNC

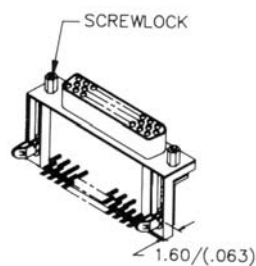
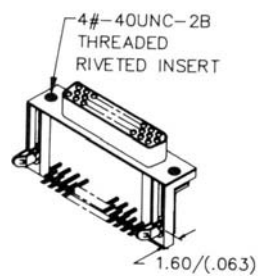
17 - Hex. Nut mounting 4-40 UNC

Mounting Style - Horizontal Face:

AD - Metal bracket with short grounding lock clip

ZZ = Use where a horizontal face is not applicable i.e. metal shell version (standard)

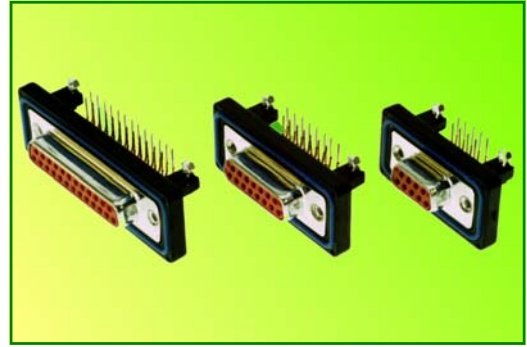
Mounting type - Unit: Millimeter (inch)



Waterproof Sub-Miniature D Connectors - meets DIN 40050 - IP67

Manufactured to comply with the rigorous standards of IP67, this new series is ideal for connecting cables to equipment or cables to cables in even the harshest environments. Cables with differing diameters are easily accommodated.

Shell sizes are standard 9, 15, 25, 37 and 50 way machined copper alloy contacts with gold plating are rated at 250V and 5 amps with an operating temperature range between -25 degrees C to +70 degrees C. Typical applications can be found in Telecommunications, Industrial Machines, Process Control, Instrumentation, Construction, Mobile equipment etc.



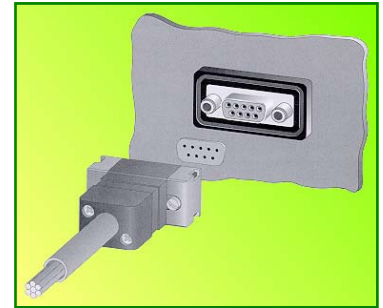
Uniquely designed using a watertight frame and a combination of silicone and rubber gaskets, the Waterproof D series is easily assembled giving the benefits of low production costs and ease of repair to cables in the field.

Mixed Layout version using coaxial, high power and high voltage contacts are also available on request. Please contact Sales Office.

Panel Mount

Waterproof connectors for Panel Mounting. Solder bucket styles can be front or rear mounted. Straight PCB, and Right Angle PCB styles are rear mounting only.

Metal frame version is available in shell sizes 1-5
Plastic frame version is available in shell sizes 1-3



Cable Mount

Waterproof connectors and hoods for use with cables.
Metal frame version is available in shell sizes 1-5
Plastic frame version is available in shell sizes 1-3



General Information

- Specification: DIN 40050 - IP67
- Operating temperature range: -25 Degs. C +70 degs. C
- Current Rating: 5 amps
- Operating Voltage: < 250 Veff
- Voltage: 1000V
- Front Shell: Brass, tin plated over nickel
- Insulator & watertight frame: Thermoplastic, glass filled, UL94V-O
- Contacts: Machined: copper alloy, 0.8 microns Au over Ni



Waterproof Sub-Miniature D Connectors

- Specification: DIN 40050—IP67
- Mating Force per contact: <3,4N
- Operating temperature range: -25°C +70°C

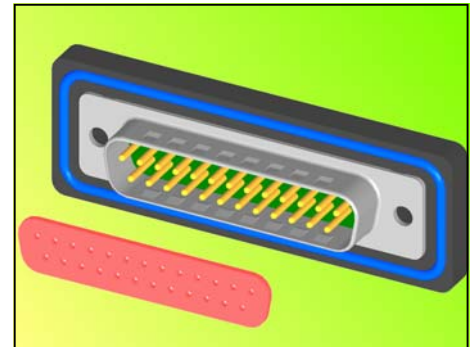


Seals for Pin Connectors

General Information

Front seals are used to seal off the connection area of the signal contacts and are mounted in male connectors.

Material = Silicone



Part No.	Shell Size	No. of Contacts
DAC272	1	9
DAC 273	2	15
DAC 274	3	25
DAC 310	4	37
DAC 311	5	50

Ordering Code

Series:
D = D Subminiature

Product Gender:
P = Plus
S = Socket

Product Version:
N - Metal Waterproof Frame
P - Plastic Waterproof Frame and Cable Mount Connectors

No. of contacts:
9, 15, 25, (37 & 50 - metal frame only)

Termination Style:
S - Solder Bucket
P - Straight PCB
A - Right Angle PCB

Contact Plating:
C = 0.8 micron (0.000031") Au over nickel

Mounting Style - Vertical Face:
90 - 4-40 UNC right angle moulded in bracket with board locks
91 - 4-40 UNC straight board lock
92 - Solder Bucket rear mounting with 4-40 UNC moulded in surround plate
93 - Solder Bucket front mounting with 4-40 UNC moulded in surround plate
94 - Solder Bucket cable mount for use with waterproof hood

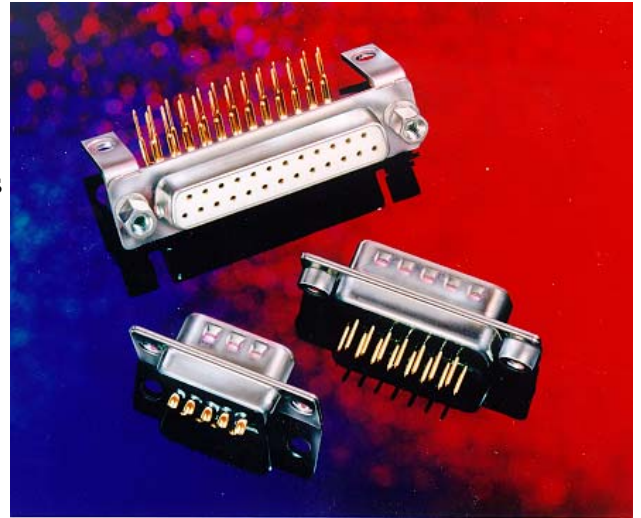
D P P - 25 - S A 90

Filtered Sub-Miniature Connectors

Recently introduced European legislation requires equipments to meet stringent electromagnetic interference and emission limits. Cambridge Connectors' new range of Filtered Sub-miniature D Connectors assists in achieving this.

Available in 9, 15, 25 & 37 way shell sizes, filtering of RFI and EMI is achieved by connecting each contact to ground by a capacitance of 1.0nF.

Featuring gold plated turned pin contacts and bright tin plated steel shells for additional EMI/RFI shielding the range is fully compatible with standard D connectors.

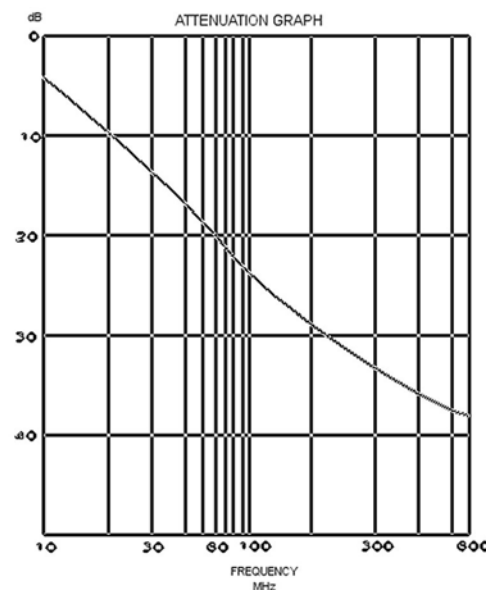


Typical applications are in data transmission, telecommunications, instrumentation and transport industries.

A wide range of adaptors, hoods and accessories offering further EMI/RFI protection are also available from Cambridge Connectors.

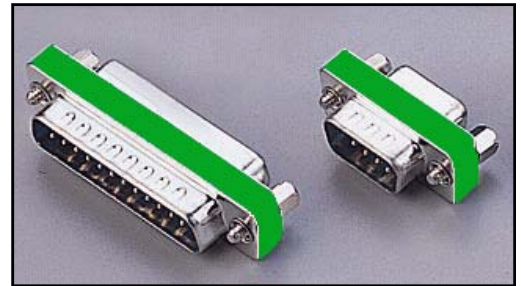
Materials and Operating Characteristics:

- ◆ Insulator: thermoplastic rated UL94V-O
- ◆ Shell: steel with tin plating:
- ◆ Contacts: screw-machined copper alloy
- ◆ Contact plating: gold over nickel
- ◆ Current rating: 7.5 amps max.
- ◆ Temperature range: -55°C to +105°C
- ◆ Operating Voltage: 200 V
- ◆ Capacitance: 1.0nF (standard)
- ◆ Tolerance of capacitance: -20/+20%



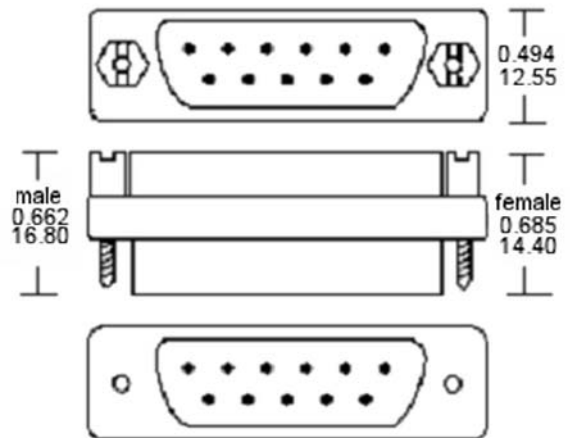
Filtered Sub-Miniature ‘D’ Adaptors

These adaptors provide a simple, economic and effective method of filtering a wide range of equipment. Available to fit all sizes of subminiature D connector shell sizes of 9, 15, 25 and 37 ways they enable existing connectors and cable assemblies to be used without further modification. Each contact is filtered with a 1000pF capacitance giving attenuation of 40 dB minimum at 100 MHz. Other capacitance values are available to order from 180 pF to 5600 pF.



Specification:

Type:	Male to Female only
Shell:	Steel, Tin plated, Gold plated
Pin Contact:	Brass gold plated over nickel
Insulator:	PBT & Glass fibre reinforced
Capacitance:	1000 pF ± 20%
Dielectric Strength:	1000V for one minute
Insulator Resistance:	3000 MOhm Min at 500V DC
Current Rating:	5A DC Max
Working Voltage:	100V DC Max
Attenuation:	40db min. @ 100MHz
Temperature:	-55°C to + 105°C



Ordering Code

D P S - 25 - S D 1/ F1 (012)

Series:

D = D Subminiature

Product Gender:

P = Plus

S = Socket

Product Version:

S = Standard version with screw machined contacts

No. of contacts:

Termination Style:

S - Solder Bucket

P - Straight PCB

A - Right Angle PCB

European footprint supplied as standard. Other configurations available on request

Contact Plating:

D = Gold flash over nickel

Mounting Style:

1 = Standard flanged mounting

21 = With clinch nut rear mounting one piece right angled plastic bracket with 4.3mm vertical face mounting hole, right angled earthing strap with through hole on the horizontal face and with a tin plated shell in which the front half provides a hexagonal mounting hole.

22 = Fitted with board lock part ;no. 71D-0019-33 with M3 internal thread.

23 = Fitted with board lock part no. 71D-0020-33 with 4-40 UNC internal thread.

26 = As 21 above but also fitted with 4-40 UNC screw locks

F1 - Product manufactured with built in capacitors and standard filtering capacitance is 1nF.

F2 - Product manufactured with build-in capacitors and standard filtering capacitance is 2nF.

Modification Code:

011 - Socket with tin plated shell

012 - Plug with tin plated indented shell