

PART NUMBER CREATOR

6 0 0 7 W 2 S A M 6 2 B 3 O X

Product Line

- 6 = Shell: Brass tin plated with die-cast frame
- 4* = Shell: Brass tin plated with or without plastic frame
- 8* = Shell: Stainless steel with or without die-cast frame
- 9* = Shell: Stainless steel with plastic frame
- * on request

Variations

- Shell size 1 = 5W1, 2W2C
- Shell size 2 = 3W3, 7W2, 11W1, 3W3C
- Shell size 3 = 5W5, 9W4, 13W3, 17W2, 21W1
- Shell size 4 = 8W8, 13W6, 17W5, 21WA4, 25W3, 27W2
- Shell size 5 = 24W7, 36W4, 43W2, 47W1
- Empty positions ADD „0“ for example 007W2

Contact type

- P = Plug connector
- S = Socket connector

Plating code/Quality class for signal kontakte

- A = Quality class 3 = 50 mating cycles
- B* = Quality class 2 = 200 mating cycles
- C = Quality class 1 = 500 mating cycles
- * on request

Termination applies to signal contacts only

- M = Solder cup
- R = Solder pin – Straight
- T = Solder pin – Angled, .189" / 4.80 mm
- U = Solder pin – Angled, .276" / 7.00 mm
- Z = Solder pin – Angled, .465" / 11.80 mm

Termination for high power or coaxial contacts

- | | | |
|--|--|-------------------------------------|
| 61 / 41 = Solder cup 10 A | 85 / 65 = Solder pin – Angled 30 A | G9 / 78 = 3 solder pins angled 50 Ω |
| 62 / 42 = Solder cup 20 A | 81 / 66 = Solder pin – Angled 20 A | H1 / 79 = 3 solder pins angled 50 Ω |
| 68 / 48 = Solder pin – Straight 20 A, D= .077" / 1.95 mm | 82 / 67 = Solder pin – Angled 30 A | H2 / 88 = 3 solder pins angled 75 Ω |
| 69 / 49 = Solder pin – Straight 20 A, D= .102" / 2.60 mm | F9 / H4 = Cable connection straight 75 Ω | H3 / 89 = 3 solder pins angled 75 Ω |
| 70 / 50 = Solder pin – Straight 20 A, D= .112" / 2.85 mm | G1 / H5 = Cable connection straight 75 Ω | R1 = Screw/Crimp 10 A |
| 71 / 51 = Solder pin – Straight 30 A, D= .125" / 3.18 mm | G2 / H6 = Cable connection straight 50 Ω | R2 = Screw/Crimp 20 A |
| 72 / 52 = Solder pin – Straight 40 A, D= .148" / 3.75 mm | G3 / H7 = Cable connection straight 50 Ω | R3 = Screw/Crimp 30 A |
| 59 / 55 = Solder pin – Angled 15 A | G4 / H8 = Cable connection straight 50 Ω | R4 = Screw/Crimp 40 A |
| 73 / 56 = Solder pin – Angled 20 A | G5 / H9 = Cable connection straight 50 Ω | |
| 74 / 57 = Solder pin – Angled 30 A | G6 / K1 = Cable connection straight 50 Ω | |
| 75 / 58 = Solder pin – Angled 40 A | G7 / 76 = 3 solder pins straight 50 Ω | |
| 77 / 60 = Solder pin – Angled 40 A | G8 / 86 = 3 solder pins straight 75 Ω | |

Mounting style

- | | |
|---|---|
| A1 = Riveted through hole for hood assembly | S1 = Metal bracket, M3 threaded insert |
| B2 = M3 threaded insert | S2 = Metal bracket, 4-40 UNC threaded insert |
| B3 = 4-40 UNC threaded insert | S3 = Metal bracket, M3 threaded insert and PCB clip |
| B4 = M3 front spacer | S4 = Metal bracket, 4-40 UNC threaded insert and PCB clip |
| B5 = 4-40 UNC front spacer | R1 = Metal bracket, M3 threaded insert |
| E1 = M3 threaded rear spacer with PCB clip, PCB .063" / 1.60 mm | R2 = Metal bracket, 4-40 UNC threaded insert |
| E2 = 4-40 UNC threaded rear spacer with PCB clip, PCB .063" / 1.60 mm | R3 = Metal bracket, M3 threaded insert / PCB clip |
| | R4 = Metal bracket, 4-40 UNC threaded insert / PCB clip |

- OX = Standard

TECHNICAL DATA

Mechanical and electrical characteristics	Signal contacts	Coaxial contacts	High power contacts
Insulator	Polyester GF (UL 94V-0)	PTFE	
Shell	Brass tin plated		
Contact plating	Gold plated over nickel		
Contact material	CU alloy		
Retaining clip		CU alloy	CU alloy
Current rating	7.5 A (UL) / 5 A (CSA, VDE)		
Test voltage between 2 contacts shell and contact	1000 V, 50Hz 1 min.		
Resistance between mated contacts	≤ 2.7mΩ		
Insulation resistance	5GΩ	≤ 1GΩ	5GΩ
Volume resistivity	10 ¹⁶ Ωcm		
Dielectric with standing voltage	50KV/mm		
Impedance		50/75Ω	
Contact resistance inner- /outer conductor	≤ 2.7mΩ	≤ 2.7mΩ	≤ 1mΩ
VSWR-value at according MIL-C-39012 1.2GHz 1.5GHz 2.0GHz		≤ 1.2 ≤ 1.3 ≤ 1.5	
Dielectric with standing voltage		750 V 50Hz	
Frequency range		0-2GHz	
Working voltage	250 V	250 V	
Temperature range	-25°C to +105°C		
Degree of protection	Requirements according to IEC 60529 – IP67		
Insertion force per signal contact	≤ 3.4N	≤ 7N	≤ 7N
Extraction force per signal contact	≤ 0.2N	≤ 7N	ca. 5N
Quality class	A = Quality class 3 = 50 mating cycles B = Quality class 2 = 200 mating cycles C = Quality class 1 = 500 mating cycles		

Technical alterations are subject to change without notice.

TECHNICAL INFORMATIONS

SKIN EFFECT

Alternating currents do not uniformly occupy the entire cross section of the conductor, rather inductance effect in the conductor deflects the current towards the surface of the conductor, whereby this deflection increases with the frequency.
 The resistive attenuation of a transmission line increases with the frequency as a result of this skin effect.
 The skin depth (equivalent thickness of the layer in which current flows) can be determined using

$$\delta = \frac{1}{\sqrt{f \pi \sigma \mu_0 \mu_r}}$$

f = frequency

σ = conductivity of the conductor material

$\sigma_{Ag} = 62 \times 10^6 \text{ S/m}$

$\sigma_{Cu} = 58 \times 10^6 \text{ S/m}$

$\mu_0 = 1,256 \cdot 10^{-6} \text{ Vs / Am}$

μ_r ... relative permeability constant for the employed material

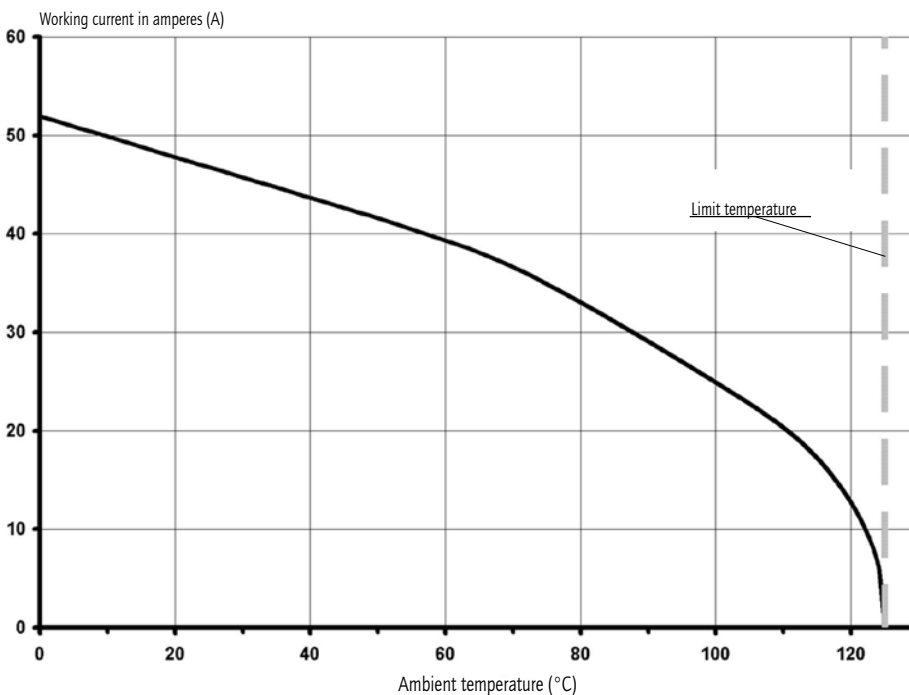
VSWR-VALUE

The ratio between the value of the largest and the smallest voltages on a loss-free line is known as the ripple or voltage standing wave ratio s (where $1 \leq s < \infty$). The reciprocal value of the VSWR is known as the inverse voltage standing wave ratio m (where $0 < m \leq 1$).
 (VSWR = Voltage standing wave ratio)

The value of s is linked with the → reflection coefficient r on s transmission line according to the equation

$$s = \frac{(1 + |r|)}{(1 - |r|)}$$

CURRENT RATING



All connectors in the Water Resistant Combination D-Subminiature series are fully loaded with contacts. They are equipped with either signal, high voltage, high power or coaxial contacts according to requirements. Our production standard requires that all connectors are fully loaded.

Connectors 3W3, 5W5 and 8W8 female: Socket contacts are fingerprobe safe according to UL1950 and CSA 22.2.950 specifications.

IP-CODE FIGURE DEFINITIONS

1. Code figure	Definition	Remark
0	Not protected	
1	Protected against access to hazardous parts by the back of the hand. Protected against fixed foreign objects $\varnothing \geq 1.969'' / 50 \text{ mm}$.	
2	Protected against access to hazardous parts with a finger. Protected against fixed foreign objects $\varnothing \geq .492'' / 12.5 \text{ mm}$.	
3	Protected against access to hazardous parts with a tool. Protected against fixed foreign objects $\varnothing \geq .098'' / 2.5 \text{ mm}$.	
4	Protected against access to hazardous parts with a wire. Protected against fixed foreign objects $\varnothing \geq .039'' / 1 \text{ mm}$.	
5	Protected against access to hazardous parts with a wire. Dust protected.	Ingress of dust is not completely blocked. But dust may not penetrate to the extent that satisfactory operation of the device or safety is impaired.
6	Protected against access to hazardous parts with a wire. Dustproof. No ingress of dust.	

2. Code figure	Definition	Remark
0	Not protected	
1	Protected against dropper.	
2	Protected against dropper when the shell is tipped as much as 15°.	
3	Protected against spray water	Up to 60° of either side of the vertical, such spray water shall have no harmful effects.
4	Protected against splash water	On the shell from all directions, no harmful effects shall be incurred.
5	Protected against jets of water.	
6	Protected against strong jets of water.	
7	Protected against the effects of temporary submersion in water.	Water may not ingress in a volume that would cause harmful effects when the shell is submerged in water for 30 min at a depth of 1 m.
8	Protected against the effects of continuous submersion in water.	Water may not ingress in a volume that would cause harmful effects when the shell is continuously submerged in water under conditions agreed between manufacturer and user. However, these conditions must be more stringent than those described under code figure 7.
9k	Protected against water from high-pressure or steam cleaning.	

Explanation to spray water protected (IP) systems and their environment.

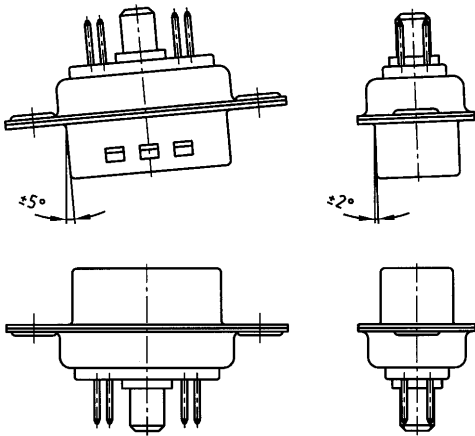
This system, described in IEC 60529, was developed to represent standard values for respective protection:

- a) Contact with, and ingress of, fixed foreign objects
- b) The ingress of liquids to which the inside is to be exposed.

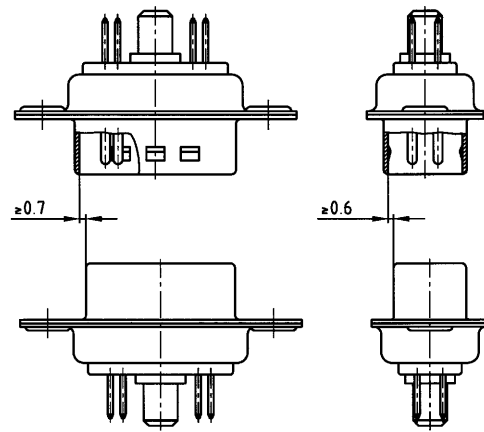
The first digit describes the level of protection for life, contacting objects and the intrusion of foreign bodies. The second digit describes the level of protection against the ingress of liquids. The larger the first and second digits are, the greater afforded protection is, e.g. IP55 must also meet the requirements of all lower protection levels, such as IP22, IP23, IP34 and IP54.

MATING CONDITIONS

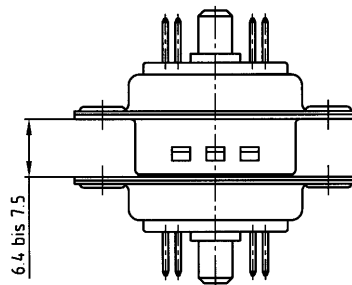
Float mount tolerance guide



Rigid mount tolerance guide



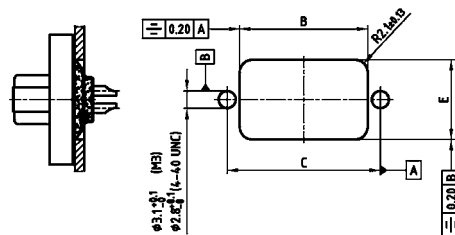
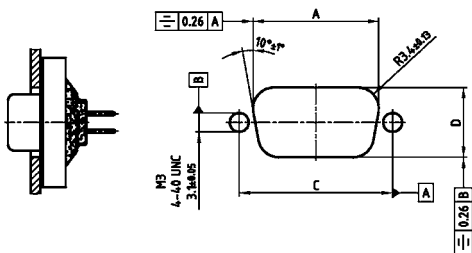
Rigid mount vertical to tolerance guide



PANEL CUT-OUT

Rear panel mounting

Front panel mounting



Shell size	A ± 0.1	B ± 0.1	C ± 0.1	D ± 0.1	E ± 0.1
1	20.50	20.90	25.00	11.40	13.00
2	28.80	29.20	33.30	11.40	13.00
3	42.50	42.90	47.04	11.40	13.00
4	59.10	59.40	63.50	11.40	13.00
5	56.30	57.00	61.10	14.10	15.80

PANEL MOUNTING

Front panel mounting

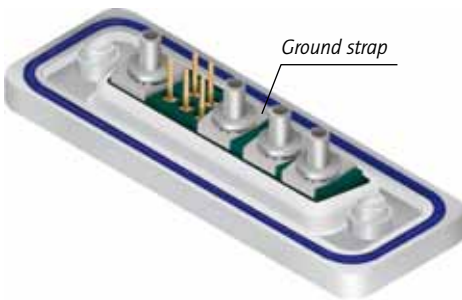


Rear panel mounting



Grounding for Coaxial contacts

To optimize a perfect ground connection from the coaxial outer conductor to the metal shell (Factory installed).



Hole plug

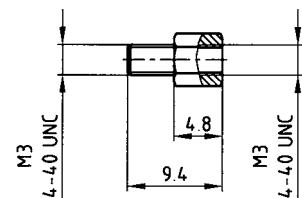
The hole plug can be used for both male and female connector. The assembly is implemented from the mating side. The hole plug is used to plug unwanted holes in the insulator. (Factory installed)



Threaded insert

Suitable hex bolts with either 4-40 UNC or M3 thread are supplied with the IP67 rated connectors.

Hex bolt material: Stainless steel



SOLDER PROFILE

Connector Type	Preheating		Solder terminal dipping parameters	
	max. Temperature	Duration	max. Solder bath Temperature	max. Terminal Immersion Time
Filter D-SUB	100°C	30s	260°C	5s
Combo D-SUB Filter	120°C	120s	260°C	5s
Filter D-SUB Water Resistant	100°C	30s	240°C	5s
Combo D-SUB Water Resistant	120°C	120s	240°C	5s
D-SUB Water Resistant	120°C	120s	240°C	5s
D-SUB Solid Body Type Water Resistant	150°C	180s	265°C	8s
RJ45 Modular Jack Filtered	150°C	180s	265°C	8s
Filter Plates	150°C	180s	265°C	8s

Recommended wave-solder parameters for CONEC connectors.