

ITT Industries

AUTOMOTIVE
DEFENCE & ELECTRONICS
FLUID TECHNOLOGY

ITT Cannon
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October 28, 1996

PSP Electronics Ltd.,
Unit 22B, Abbey Manufacturing Estate,
Mount Pleasant,
Wembley.
Middlesex. HA0 1NR.

Attn: Colin Wright.

Dear Colin,

Subject: ITT Cannon D-Subminiature Standardisation - 'ORIGINAL D' Series.

ITT Cannon has traditionally manufactured D-Subminiature connectors in a number of sites around the world, offering essentially similar devices under different part numbers in different countries. As part of ITT Cannons ongoing globalisation strategy we have brought together all these product ranges to offer a standard world-wide package of D-Subminiature connectors.

The cornerstone of ITT Cannons D-Sub range is the 'Original D' series, and this will continue to be the case in the future. However, we have taken the opportunity to upgrade some of the materials used and to offer *three different levels of performance* - Classes 1, 2 & 3 according to the DIN 41652 Specification.

The benefits of this standardisation are;

1. Upgrade of Materials - 'Original D' is now upgraded to have a high performance thermoplastic insulator which is designed for reliable operation up to 150 °C. This means that 'Original D' with "A191" suffix is suitable for applications where previously we would have offered D*M. Consequently, although still available, *D*M now becomes a non-preferred series and should NOT be recommended for new applications.*

2. Three Performance Levels - Depending on performance and price needs, we can now offer product with three levels of plating that meet the requirements of Classes 1, 2 & 3 according to DIN 41652.

The standard offering will be with suffix "A191" - this means connectors with a mechanical endurance of 500 mating cycles. Also available are products with 500 cycles including Industrial Gas Test (suffix "A190") for high reliability applications, and a 50 mating cycle product for general use.

These changes are being introduced as a product upgrade. This means that you should continue to sell the remaining stocks of the current D-Sub connectors in your profile until they are exhausted. Then for all new applications you should offer parts in accordance with the details in the attached Product Information Release.

With regard to pricing, the upgraded range of "A191" connectors is being offered at the same Distributor buy price and recommended sell prices as the current 'Original D' series. Included with this package is a cross reference price list for existing part numbers to the new "A191" standard version.

These changes only relate to 'Original D' and 'D*M' turned pin products. The low cost range of stamped pin 'Solda D' connectors is unaffected by this change, as are the Crimp D products from ITT Cannon.

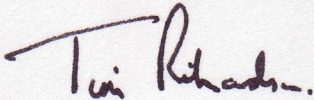
If you require assistance with part number cross references, or support in your discussions with customers, then please contact Dave Hillman (Tel: 01256 311420) or John Embleton (Tel: 01256 311415) on the Technical Desk at Basingstoke. Dave and John can also provide additional technical data for amending your catalogue copy.

In the next month we will be writing to you with details of the pricing for the High Reliability (500 cycles with Industrial Gas Test) and General Use (50 cycle) product.

A new consolidated D-Sub catalogue will be issued in November with all the ITT Cannon product ranges included. This will show one of the most comprehensive ranges of D-Subminiature connectors available from one manufacturer and ITT Cannon will be able to compete right across the spectrum, from low cost stamped pin product, through to general industrial turned pin connectors and up to the high reliability end where performance is critical to the end application.

If you need to discuss this change in further detail then please do not hesitate to contact the undersigned to arrange a meeting.

Sincerely,

A handwritten signature in black ink that reads "Tim Richardson". The signature is written in a cursive style with a long horizontal stroke at the beginning.

Tim Richardson.
Distribution Manager, UK.

cc: D.Jones, H.Grubb, M.Fuller.

Enclosed: 5 copies x "PRODUCT INFORMATION RELEASE D Subminiature Standardisation & Price List Extract".

D Subminiature ordering key

D B E - 25 P - OL2 - A191 - K87 - 146

Series

D - D Subminiature

Shell Size

E - 9 way A - 15 way
 B - 25 way C - 37 way
 D - 50 way

Mounting method

no code - through hole \varnothing 3.05
 E - clinch nut 4 -40 UNC
 X - clinch nut M3
 Y - float mount

Number of contacts

9,15,25,37,50

Contact type

P - pin contact
 S - socket contact

Contact termination

no code solder pot
 F179A wire wrap 13.0mm
 OL2 straight solder contact 5.3mm
 OL4 straight solder contact 6.8mm
 1A** see below

Termination dia

1 - 0.6mm

Row spacing

A - 2.54mm
 B - 2.84mm

C - HD Space Applications

1 A 5 N

Mounting hardware

0 - without bracket, 3.05mm \varnothing through holes
 5 - plastic bracket, 3.05mm \varnothing through holes
 6 - plastic bracket, 4--40 UNC post
 7 - metal bracket, 4--40 UNC captive nut
 8 - metal bracket, 4--40 UNC post
 9 - metal bracket,
 D - plastic bracket with grounding bracket and 3.05mm \varnothing through holes
 E - low profile metal bracket M3 captive nut (9-37 way)
 F - metal bracket, 3.05mm \varnothing through holes

PCB Boardlocks

146 straight pcb pins
 (OL2) 3.0/3.2mm pcb hole
 for 1.6mm board
 161 (OL4) 3.0/3.2mm pcb hole
 for 3.2mm board

 146 right angle pcb pins
 3.0mm pcb hole for 1.6mm board
 162 3.2mm pcb hole for 1.6mm board

Shell finish

no code Zinc plated shell
 K87 Tin plated with grounding indents
 (pins only)
 A197 Tin plated shell

Performance class

no code class 3 (50 mating cycles)
 A191 class 2 (~~200~~ Mating cycles)
 A190 class 1 (500 Mating cycles including gas test)

Termination type

N - 90 ° PCB

G - plastic bracket with grounding bracket and M3 post
 H - metal bracket, M3 post
 J - plastic bracket with grounding bracket and 4--40 UNC post
 P - plastic bracket, M3 UNC post
 T - plastic bracket, M3 captive nut
 U - plastic bracket, 4 -40 UNC captive nut
 V - plastic bracket with grounding bracket and M3 captive nut
 W - plastic bracket with grounding bracket and 4 -40 UNC captive nut

PRODUCT DATA SHEET

NEW D*INDUSTRIAL D SUBMINIATURE RANGE

Shell	Steel
Shell finish	Tin plating (standard) Yellow chromate over zinc(option)
Insulator	Green thermoplastic (DSM Arnite)
Insulator rating	UL 94 V0
Contacts	Copper alloy
Contact plating	Gold
Current rating	5A
Voltage rating (sea level)	1250V
Contact resistance(max)	10mΩ
Insulator resistance(min)	5000MΩ
Temperature range	-55 ⁰ C to +125 ⁰ C
Mating cycles	50 (without code) 200 (use A191 code) includes industrial gas test 500 (use A191 code) without gas test 500 (use A190 code) includes industrial gas test

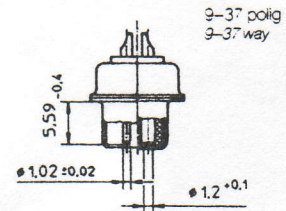
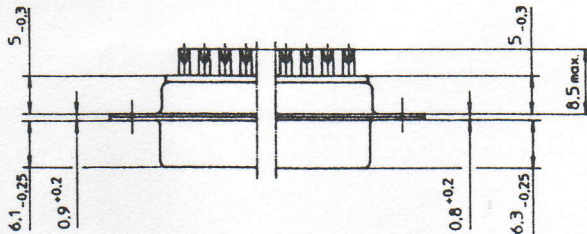
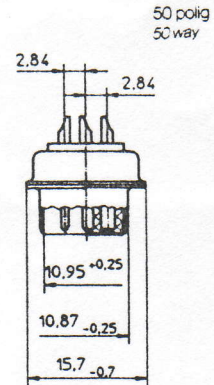
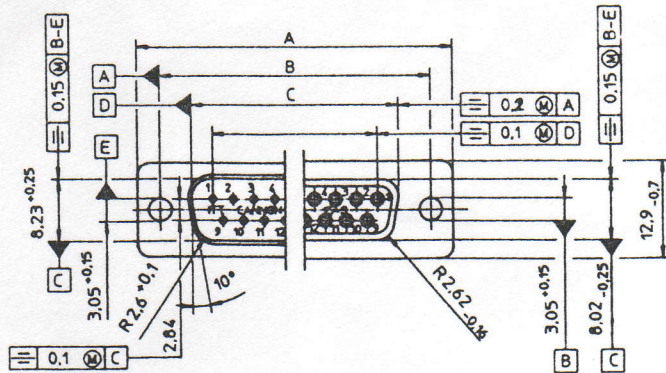
K87 :-shielding with grounding indents and tin plating (pin connector only)
A197 :- shell, tin plated, pin and socket connector.
OL2 :- straight solder pin for p.c.b mounting . 0,6 dia / 5,3 extention.
OL4 :- straight solder pin for p.c.b mounting . 0,6 dia / 6,8 extention
1A5N :- right angle connector with plastic brackets with bushings
1A6N :- right angle connector with plastic brackets and 4-40 UNC threaded post.

Contact plating specifications.	
A190 :- performance class 1 (DIN 41652 specification)	500 mating cycles
A191 :- performance class 2 (DIN 41652 specification)	200 mating cycles
A191 :- performance class 2 (CS106 specification)	500 mating cycles
:- performance class 3 (DIN 41652 specification)	50 mating cycles

D*

Stiftstecker/Pin connector

Buchsenstecker/Socket connector

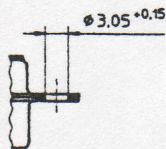


Abmessungen/Dimensions

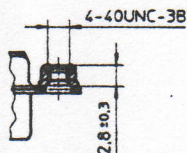
Polzahl No. of contacts		A -0,7	B ±0,1	C
9	P	31,2	25	16,79 ^{+0,25}
	S			16,46 ^{-0,25}
15	P	39,5	33,3	25,12 ^{+0,25}
	S			24,79 ^{-0,25}
25	P	53,4	47	38,84 ^{+0,25}
	S			38,50 ^{-0,25}
37	P	69,7	63,5	55,3 ^{+0,25}
	S			54,96 ^{-0,25}
50	P	67,30	61,1	52,68 ^{+0,25}
	S			52,55 ^{-0,25}

P - Stift/Pin
S - Buchse/Socket

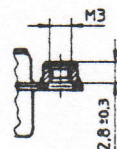
Befestigungsarten/Mounting methods



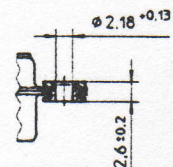
Standard
Durchgangsloch/
Through-hole



E - Mutter/
Clinch nut
4-40UNC



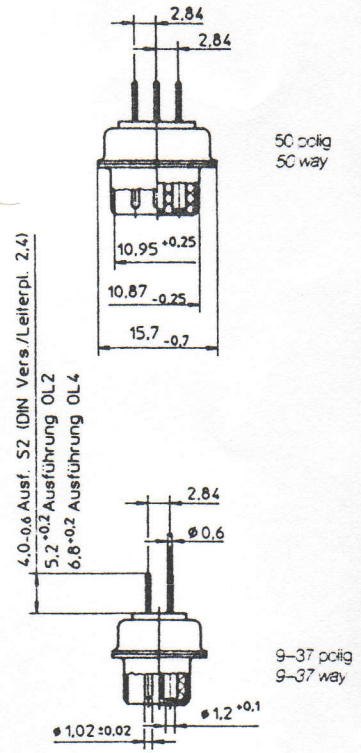
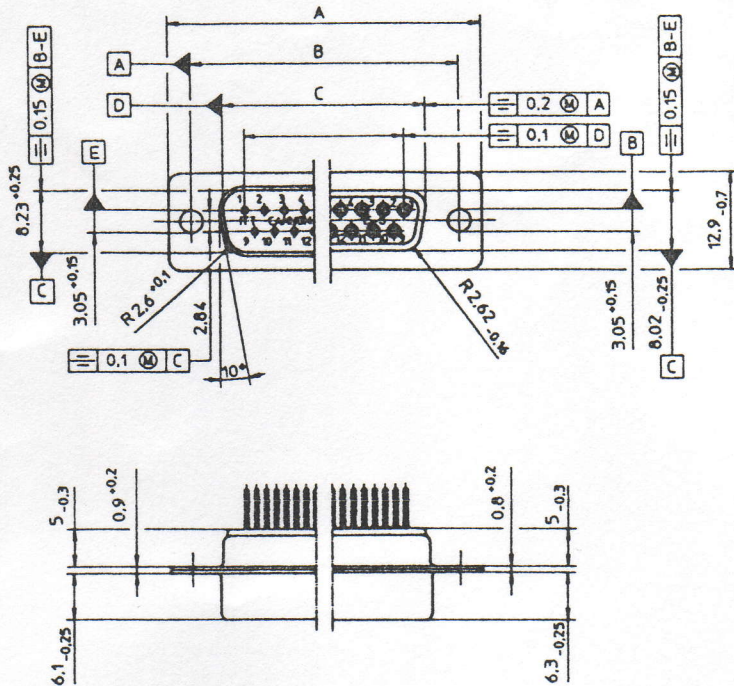
X - Mutter/
Clinch nut
M3



Y - schwimmend/
float mount

D*...OL...

Stiftstecker/Pin connector Buchsenstecker/Socket connector

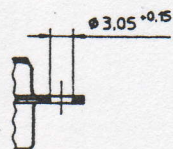


Abmessungen/Dimensions

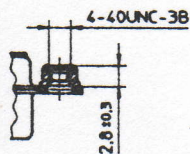
Polzahl No. of contacts	A -0,7	B ±0,1	C
9 P S	31,2	25	16,79 ^{+0,25} 16,46 ^{-0,25}
15 P S	39,5	33,3	25,12 ^{+0,25} 24,79 ^{-0,25}
25 P S	53,4	47	38,84 ^{+0,25} 38,50 ^{-0,25}
37 P S	69,7	63,5	55,3 ^{+0,25} 54,96 ^{-0,25}
50 P S	67,30	61,1	52,68 ^{+0,25} 52,55 ^{-0,25}

P - Stift/Pin
S - Buchse/Socket

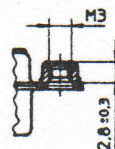
Befestigungsarten/Mounting methods



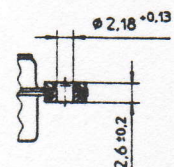
Standard
Durchgangsloch/
Through-hole



E - Mutter/
Cinch nut
4-40UNC



X - Mutter/
Cinch nut
M3

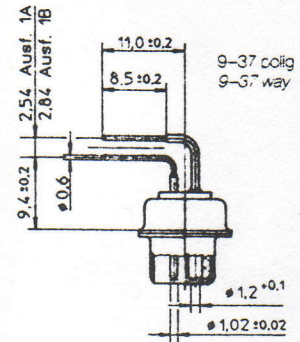
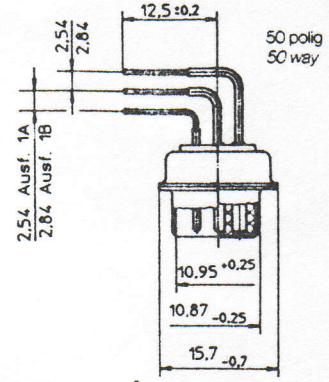
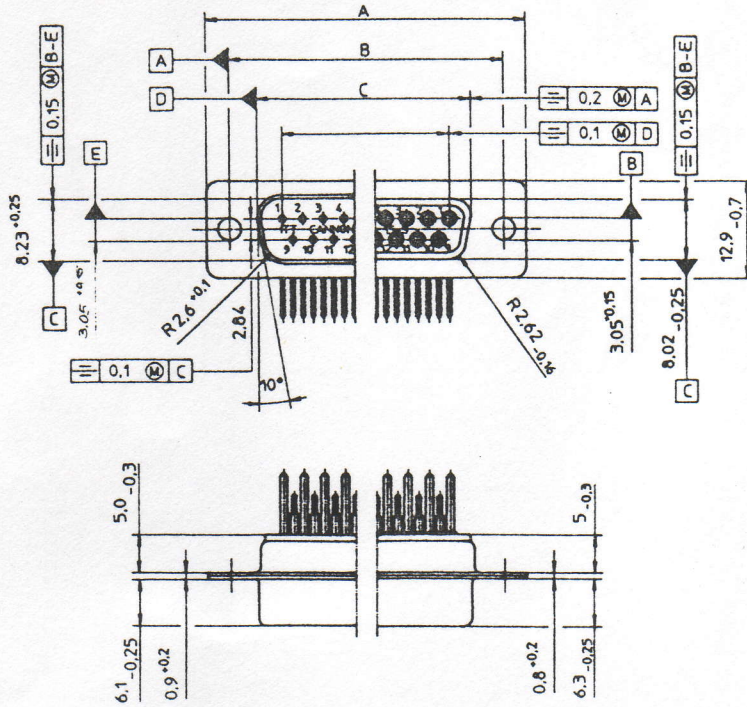


Y - schwimmend/
float mount

D*...1A0N/1B0N

Stiftstecker/Pin connector

Buchsenstecker/Socket connector

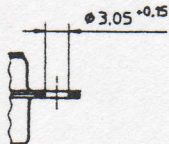


Abmessungen/Dimensions

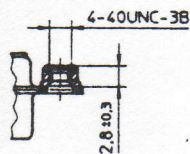
Polzahl No. of contacts		A -0,7	B ±0,1	C
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25	P S	53,4	47	38,84 ^{+0,25} 38,50 ^{-0,25}
37	P S	69,7	63,5	55,3 ^{+0,25} 54,96 ^{-0,25}
50	P S	67,30	61,1	52,68 ^{+0,25} 52,55 ^{-0,25}

P - Stift/Pin
S - Buchse/Socket

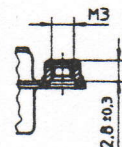
Befestigungsarten/Mounting methods



Standard
Durchgangslloch/
Through-hole



E - Mutter/
Clinch nut
4-40UNC

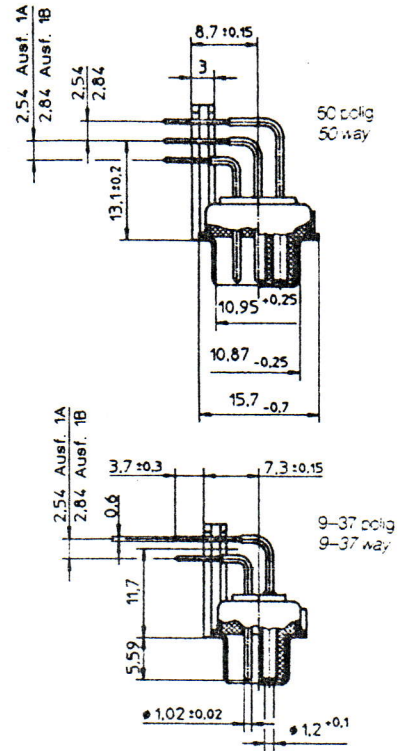
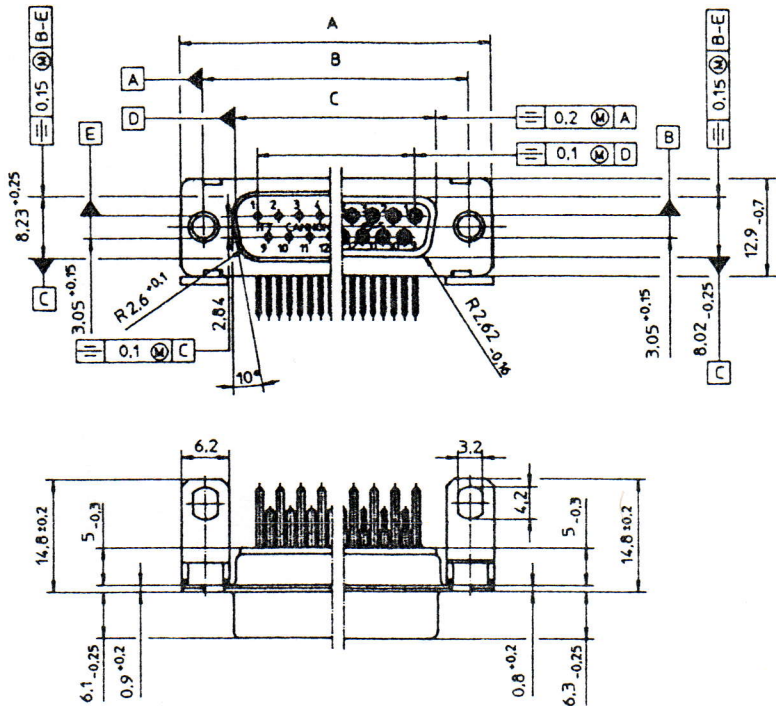


X - Mutter/
Clinch nut
M3

D*...1A5N/1B5N

Stiftstecker/Pin connector

Buchsenstecker/Socket connector

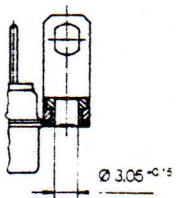


Abmessungen/Dimensions

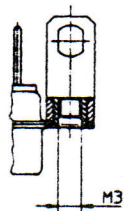
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P - Stift/Pin
S - Buchse/Socket

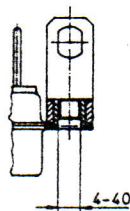
Befestigungsarten/Mounting methods



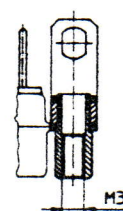
5N - Buchse mit Durchgangsloch
Bushing with through-hole



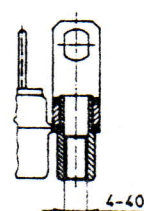
TN - Mutter M3
Captive nut M3



UN - Mutter 4-40
Captive nut 4-40



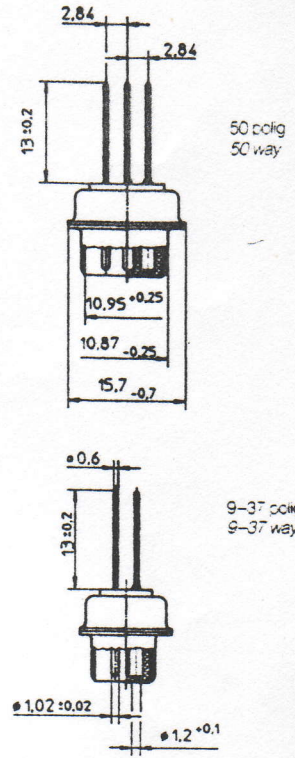
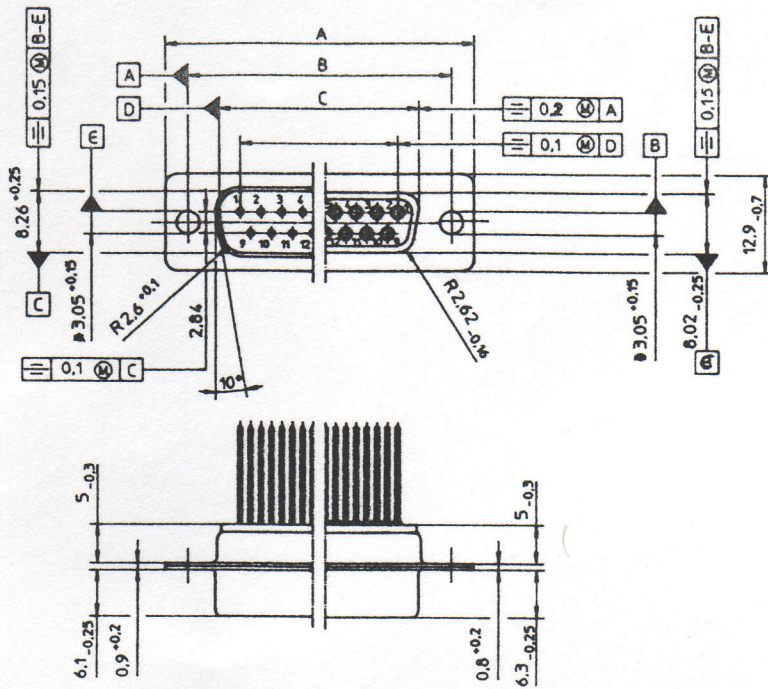
PN - Bolzen M3
Post M3



6N - Bolzen 4-40
Post 4-40

D*...F179A

Stiftstecker/Pin connector Buchsenstecker/Socket connector

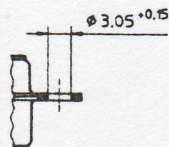


Abmessungen/Dimensions

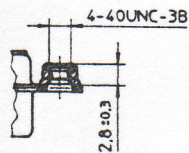
Polzahl No. of contacts	A -0,7	B ±0,1	C
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9 S			16,46 ^{-0.25}
15 P	39,5	33,3	25,12 ^{+0.25}
15 S			24,79 ^{-0.25}
25 P	53,4	47	38,84 ^{+0.25}
25 S			38,50 ^{-0.25}
37 P	69,7	63,5	55,3 ^{+0.25}
37 S			54,96 ^{-0.25}
50 P	67,30	61,1	52,68 ^{+0.25}
50 S			52,55 ^{-0.25}

P - Stift/Pin
S - Buchse/Socket

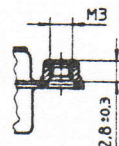
Befestigungsarten/Mounting methods



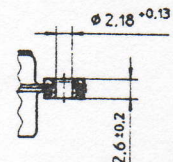
Standard
Durchgangslloch/
Through-hole



E - Mutter/
Clinch nut
4-40UNC

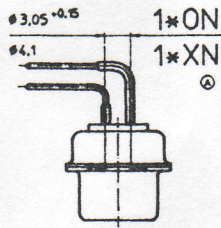


X - Mutter/
Clinch nut
M3

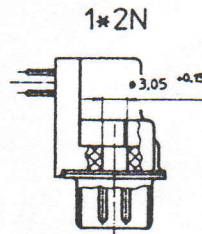


Y - schwimmend/
float mount

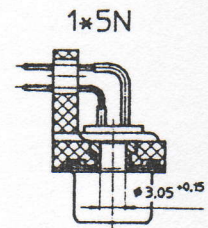
Befestigungsarten/Mounting types



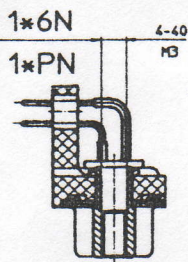
ohne Befestigungswinkel
without mounting bracket



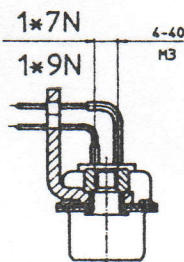
geschlossenes Befestigungsteil
closed mounting part



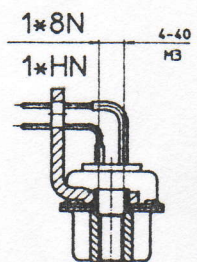
Kunststoffwinkel mit Buchse
plastic bracket with bushing



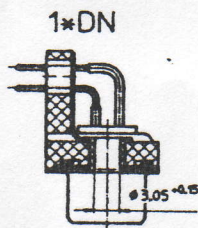
Kunststoffwinkel mit Bolzen
plastic bracket with post



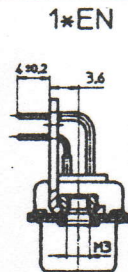
Metallwinkel mit Mutter
metal bracket and captive nut



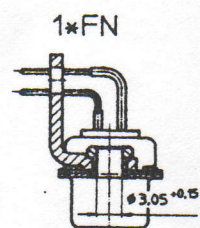
Metallwinkel mit Bolzen
metal bracket with post



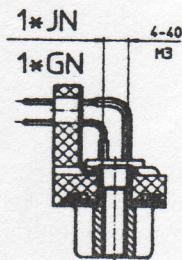
Kunststoffwinkel mit Erdungswinkel und Buchse
plastic bracket with grounding bracket and bushing



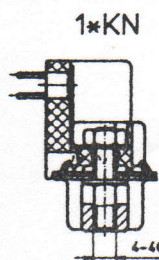
Metallwinkel niedrig, mit Mutter
nur 9-37 polig
metal bracket low style,
with captive nut, 9-37 way only



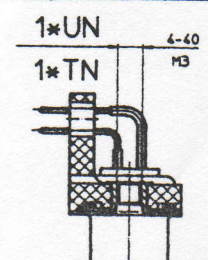
Metallwinkel mit Buchse
metal bracket with bushing



Kunststoffwinkel mit Erdungswinkel und Bolzen
plastic bracket with grounding bracket and post

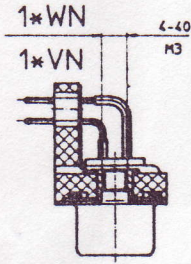


geschlossenes Befestigungsteil mit Erdungswinkel und Bolzen
closed mounting part with grounding bracket and post



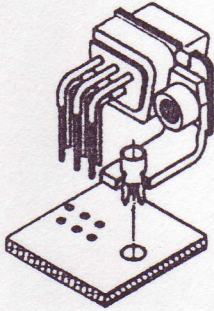
Kunststoffwinkel mit Mutter
plastic bracket and captive nut

Befestigungsarten/Mounting types



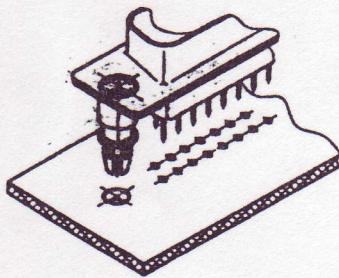
Kunststoffwinkel mit Erdungswinkel
und Mutter
*plastic bracket with grounding bracket
and captive nut*

Pushfit Einrast-Befestigungselement für 90°-Anschlüsse
Pushfit snap-in mounting clip for 90° terminations



	Code 146	Code 162
LP-Bohrung/PCB Hole \varnothing mm	$3,0 \pm 0,1$	$3,2 \pm 0,05$
LP-Dicke/PCB Thickness mm	$1,6 \pm 0,15$	$1,6 \pm 0,15$

Pushfit Einrast-Befestigungselement für gerade Lötstifte
Pushfit snap-in mounting clip for straight solder pins



Code OL2-146, OL4-146, OL4-161
LP-Bohrung/PCB Hole \varnothing mm
$3,0 \pm 0,1$
$3,2 \pm 0,1$
LP-Dicke/PCB Thickness mm
1,6
2,4
3,2

Product Safety Information

THIS NOTE MUST BE READ IN CONJUNCTION WITH THE PRODUCT DATA SHEET/CATALOGUE.

FAILURE TO OBSERVE THE ADVICE IN THIS INFORMATION SHEET AND THE OPERATING CONDITIONS SPECIFIED IN THE PRODUCT DATA SHEET/CATALOGUE COULD RESULT IN HAZARDOUS SITUATIONS.

1 MATERIAL CONTENT AND PHYSICAL FORM

Electrical connectors do not usually contain hazardous materials. They contain conducting and non-conducting materials and can be divided into two groups.

a) Printed circuit types and low cost audio types which employ all plastic insulators and casings.

b) Rugged, Fire Barrier and High Reliability types with metal casings and either natural rubber, synthetic rubber, plastic or glass insulating materials. Contact materials vary with type of connector and also application and are usually manufactured from either: Copper, copper alloys, nickel, alumel, chromel or steel. In special applications, other alloys may be specified.

2 FIRE CHARACTERISTICS AND ELECTRIC SHOCK HAZARD

There is no fire hazard when the connector is correctly wired and used within the specified parameters. Incorrect wiring or assembly of the connector or careless use of metal tools or conductive fluids, or transit damage to any of the component parts may cause electric shock or burns. Live circuits must not be broken by separating mated connectors as this may cause arcing, ionisation and burning.

Heat dissipation is greater at maximum resistance in a circuit. Hot spots may occur when resistance is raised locally by damage, e.g. cracked or deformed contacts, broken strands of wire. Local overheating may also result from the use of the incorrect application tools or from poor quality soldering or slack screw terminals. Overheating may occur if the ratings in the product Data Sheet/Catalogue are exceeded and can cause breakdown of insulation and hence electric shock.

If heating is allowed to continue it intensifies by further increasing the local resistance through loss of temper of spring contacts, formation of oxide film on contacts and wires and leakage currents through carbonisation of insulation and tracking paths. Fire can then result in the presence of combustible materials and this may release noxious fumes. Overheating may not be visually apparent. Burns may result from touching overheated components.

3 HANDLING

Care must be taken to avoid damage to any component parts of electrical connectors during installation and use. Although there are normally no sharp edges, care must be taken when handling certain components to avoid injury to fingers.

Electrical connectors may be damaged in transit to the customers, and damage may result in creation of hazards. Products should therefore be examined prior to installation/use and rejected if found to be damaged.

4 DISPOSAL

Incineration of certain materials may release noxious or even toxic fumes.

5 APPLICATION

Connectors with exposed contacts should not be selected for use on the current supply side of an electrical circuit, because an electric shock could result from touching exposed contacts on an unmated connector.

Voltages in excess of 30 V ac or 42.5 V dc are potentially hazardous and care should be taken to ensure that such voltages cannot be transmitted in any way to exposed metal parts of the connector body. The connector and wiring should be checked, before making live, to have no damage to metal parts or insulators, no solder blobs, loose strands, conducting lubricants, swarf, or any other undesired conducting particles. Insulation resistance should be checked to make certain that no low resistance joints or spurious conducting paths are existing between contacts and exposed metal parts of the connector body. Further the contact resistance of the connectors should be measured within the electrical circuit in order to identify high resistances which result in excessive connector heating. Always use the correct application tools as specified in the Data Sheet/Catalogue.

Do not permit untrained personnel to wire, assemble or tamper with connectors. For operation voltage please see appropriate national regulations.

IMPORTANT GENERAL INFORMATION

(I) Air and creepage paths/Operating voltage

The admissible operating voltages depend on the individual applications and the valid national and other applicable safety regulations.

For this reason the air and creepage path data are only reference values. Observe reduction of air and creepage paths due to PC board and/or harnessing.

(II) Temperature

All information given are temperature limits. The operation temperature depends on the individual application.

(III) Other Important Information

ITT Cannon continuously endeavours to improve their products. Therefore, ITT Cannon products may deviate from the description, technical data and shape as shown in this catalogue and data sheets.

(IV) Harnessing and Assembly Instructions

If applicable, our special harnessing and/or assembly instruction has to be adhered to. This is provided on request.

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