

The Centi Line - .075" Contact Spacing



The Cannon Centi connectors are especially suitable for commercial applications such as computers, instrumentation, communications and audio equipment. They are available in D subminiature size metal shell rectangular, plastic shell rectangular and strip configurations.

All Centi connectors use the reliable twist pin contact design in a 5 amp version terminated on .075 (1.91) and .100 (2.54) centers. The Centi contact is crimp removable, connectors are available for customer assembly. Standard crimp and assembly tools are available.

The twist pin contact is recessed within the insulator housing while the rugged cylindrical socket is exposed. When the connector halves are mated, the chamfered sockets guide the pins into positive alignment. The Centipin™ contact, now under compression, forms a multi-point contact with the Centisocket™ to provide a high degree of reliability.

Standard Data

- Contact rating: 5 amps max, except BR Series (2 amps max.)
- Minimum contact centers: 0.075 (1.91).
- Wire sizes: #22 thru #26 AWG, stranded or solid.
- Contact termination: Multiple indent crimp.
- Contact retention: Crimp snap-in/removable.
- Contact materials and finish: Copper alloy, gold-plated per ASTM B488, Type II, Code C, Class 1.25.
- Mating/unmating force: 12 oz. per contact, max.

Performance Data

Test	Method	Criteria of Acceptance
Dielectric Withstanding Voltage	Method 301: 1,000 VAC at sea level 300 VAC at 70,000 ft altitude	No breakdown No breakdown
Insulation Resistance	Method 302, Condition A	5,000 megohms minimum
Thermal Shock	Method 107, Condition A +55°C to +85°C	No physical damage
Physical Shock	Method 213, Condition I: 100 G, 3 axes, 6 millisecond duration sawtooth pulse	No physical damage No loss of continuity > 1μsec
Vibration	Method 204, Condition B: 15 G, 10-2,000 Hz, 12 hours	No physical damage No loss of continuity > 1μsec
Durability	500 cycles of mating and un mating, 500 CPH max.	No mechanical or electrical defects
Moisture Resistance	Method 106, Omit 7a and 7b	Insulation resistance > 100 megohms
Salt Spray	Method 101, Condition B: 48 hours	Shall be capable of mating and unmating and meet contact resistance requirements
Contact Resistance	Method 307: At 5 amps	9 milliohms maximum
Contact Retention	-	4 lb. minimum axial load (after 10 insertion extraction cycles)

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

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Double Density D - .075" Contact Spacing

2D

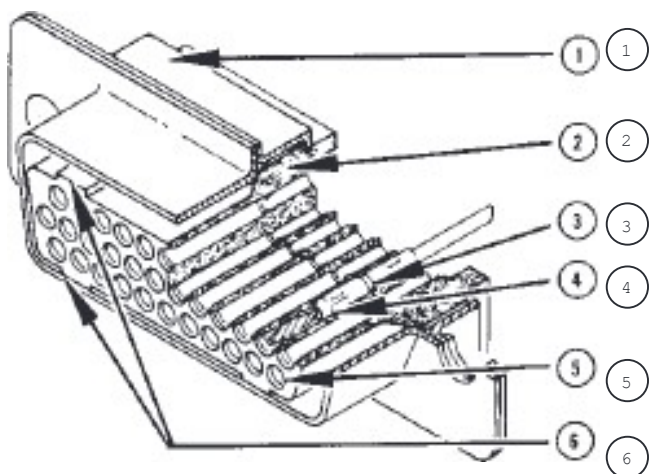
The Double Density D is a rectangular connector in the popular D Subminiature shell configuration featuring double the contact density in the same insert area. The Double Density D connector can thus accommodate up to 100 contacts instead of 50.

This double contact density is achieved by using field-proven, highly reliable Centipin™/Centisocket™ contacts on .075 (1.91) centers, in the positive contact alignment design. In this design contact

positions are reversed; the flexible Centipin™ contacts are recessed in the insulator and the more rugged Centisocket™ contacts are exposed. This reversal of positions, and the chamfered-entry of the sockets, assures positive mating even under severe misalignment conditions. The contacts are retained in the monobloc insulator by a resilient internal shoulder that snaps into a locking groove in the contact. The chamfered front of the contact will not damage the internal shoulder in the insulator.

Contacts are crimp removable type.

The Double Density D connector is available in the five popular shell and insert sizes accommodating up to 100 contacts. These connectors mate exclusively with other Double Density D connectors. A wide range of accessories can be used, including junction shells, potting cups, switching shells, guide pin plates, and dust caps.



1. STANDARD D HARDWARE-
Including full range of D-Subminiature accessories
2. ONE PIECE MONOBLOCK INSULATOR-
glass-filled nylon material
3. CONTACT RETENTION-
thermoplastic internal shoulder snaps into a locking groove in the contact.
Retention Force: 8 lbs. min. initially, 4 lbs. min. after 10 cycles.
4. TWIST PIN CONTACTS-
seven outer wiping surfaces assure electrical continuity even under severe shock and vibration
5. POSTIVE CONTACT ALIGNMENT-
flexible pin is recessed in insulator cavity and rugged socket is exposed
6. GUIDE-IN KEYS AND KEYWAYS-
assure alignment during mating and prevent scooping

Specifications

WEIGHT

Part Number by shell size	Weight (in gr.)		Weight (in oz.)	
	Less With Contacts	Less With Contacts	Less With Contacts	Less With Contacts
2DE19P	4.05	5.02	.142	.177
2DE19S	3.75	5.17	.133	.182
2DA31P	5.20	6.78	.183	.239
2DA31S	4.90	7.22	.173	.255
2DB52P	8.75	11.40	.308	.402
2DB52S	7.15	11.05	.252	.390
2DC79P	11.70	15.73	.413	.555
2DC79S	9.70	15.62	.342	.551
2DD100P	12.85	17.95	.453	.633
2DD100S	10.95	18.45	.386	.651

MATERIALS AND FINISHES

*Shell	- Steel, cadmium plated with yellow chrome supplementary coating
Mounting Hardware and Float Mounts	- Stainless steel
Insulator	- Glass-filled nylon
Contacts	- Copper alloy, gold plate
Alternate finish,	- A106 Gold over brass
Modification Code	A156 Gold over brass A197 Tin/Lead over steel

*Brass non-magnetic also available

MECHANICAL FEATURES

Sizes	- Five shell sizes: E, A, B, C, and D
Coupling	- Friction or jackscrew
Polarization	- Keystone-shaped shells
Contact Spacing	- .075 (1.91)
Contact Termination	- Crimp snap-in

How to Order



RoHS COMPLIANCE

SERIES

SHELL SIZE

FLOAT MOUNTS

CONTACT ARRANGEMENT

CONTACT TYPE

TERMINATION

MODIFICATION

NOTE: Connectors may be ordered less contacts by adding the mod callout "FO" at end of number. Contacts are then supplied in bulk form.

CONTACT ARRANGEMENT

19, 31, 52, 79 and 100

CONTACT TYPE*

P - Pin

S - Socket

* Accommodates AWG #26 thru #22

TERMINATION

BR - 90° right angle PCB mounting
(For BR Series use "P" to designate jackpost)

MODIFICATION

F171 - Jackpost assembly
F172 - Standard jackscrew
F173 - Low profile jackscrew

For other modifications consult factory
Dimensions shown in inch (mm)

Specifications and dimensions subject to change

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SERIES

2D - Double Density D

SHELL SIZE

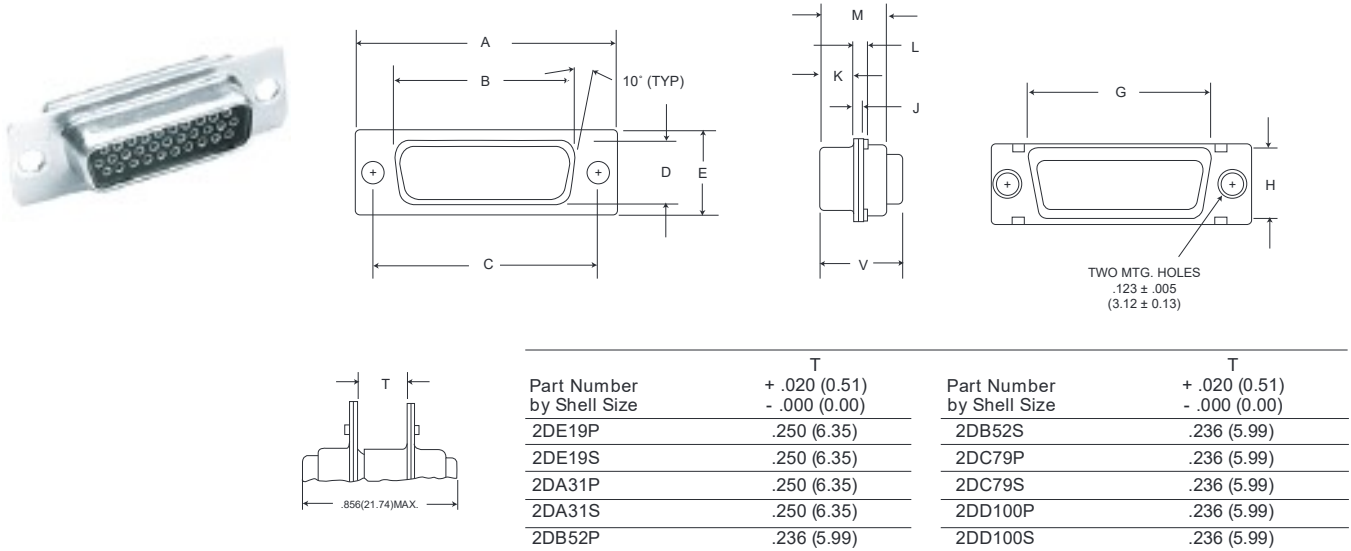
E, A, B, C and D

FLOAT MOUNTS

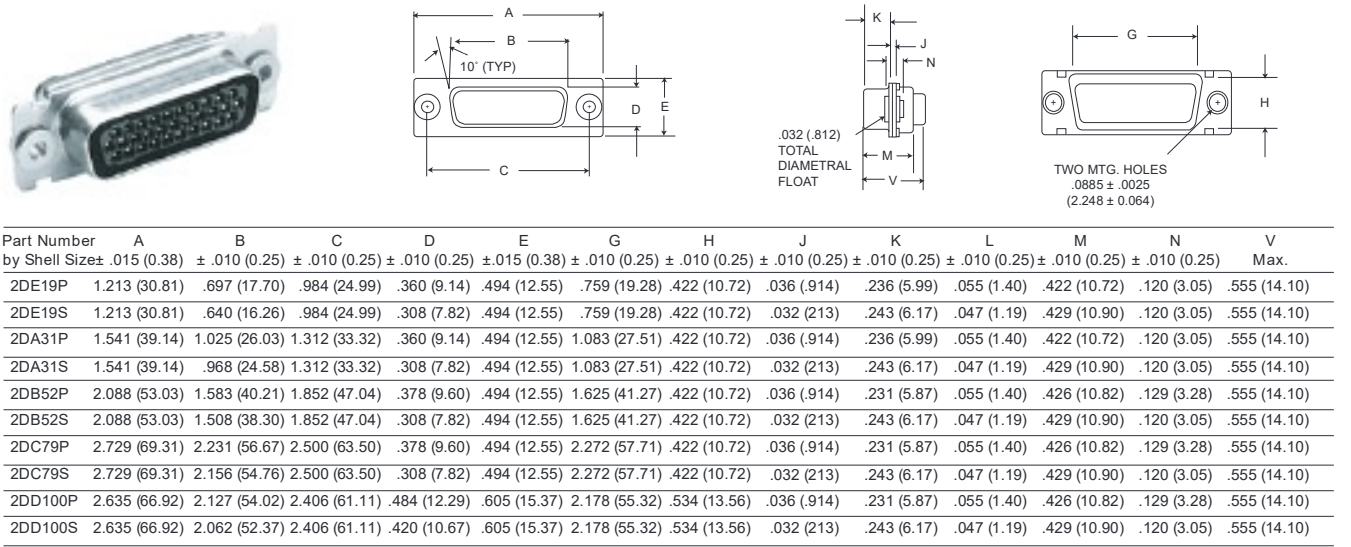
Omit if not required



Standard Shell

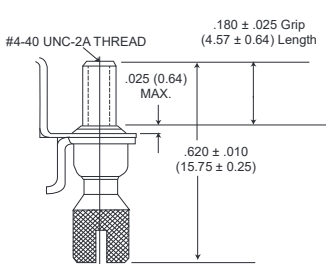


Float Mount

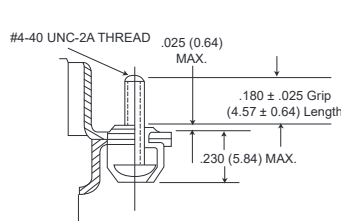


For shell with float mounts, add letter F after shell size, e.g., 2DEF19P.

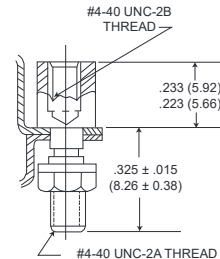
Jackscrow/Jackpost Assembly



Standard (F172) Jackscrew
(factory installed)



Low Profile (F173) Jackscrew
(factory installed)



Jackpost (F171)
Front Panel Connector Mounting Only

Dimensions shown in inch (mm)
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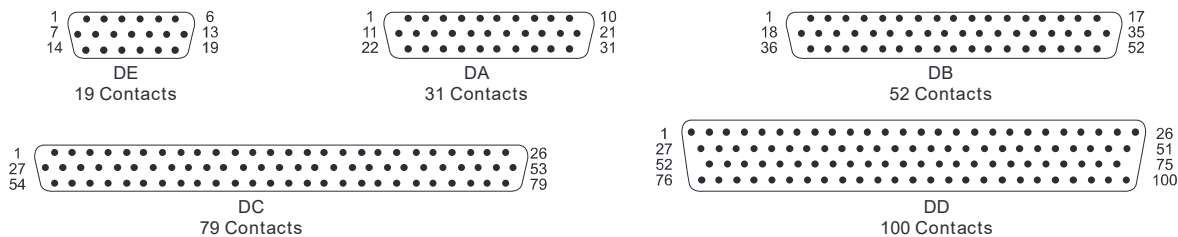


Double Density D - .075" Contact Spacing

2D

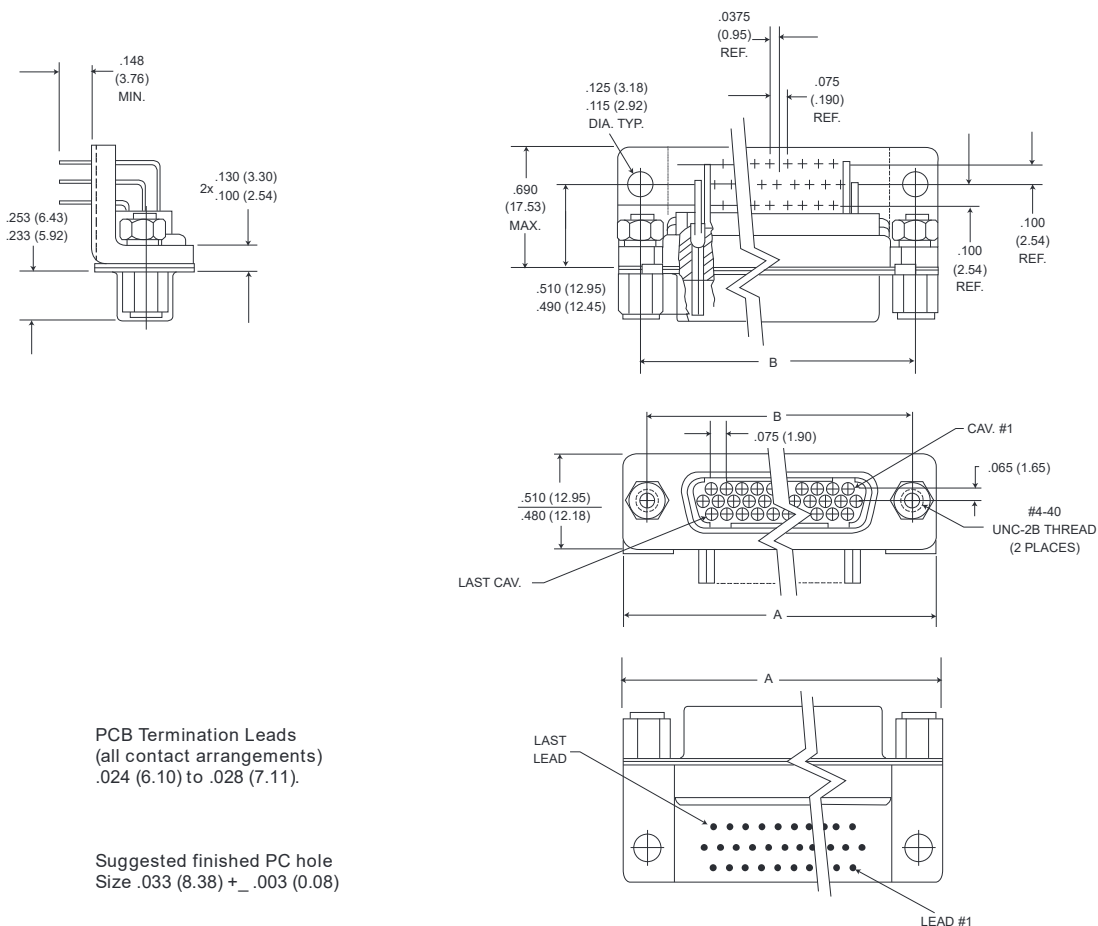
Contact Arrangements

All views are pin front face. Use reverse order for socket side.



Cavity identification numbers are shown for reference only and do not appear on insulator front face. However they do appear on rear of insulator.

90° PCB Mounting - 3 Row



PCB Termination Leads
(all contact arrangements)
.024 (6.10) to .028 (7.11).

Suggested finished PC hole
Size .033 (8.38) + .003 (0.08)

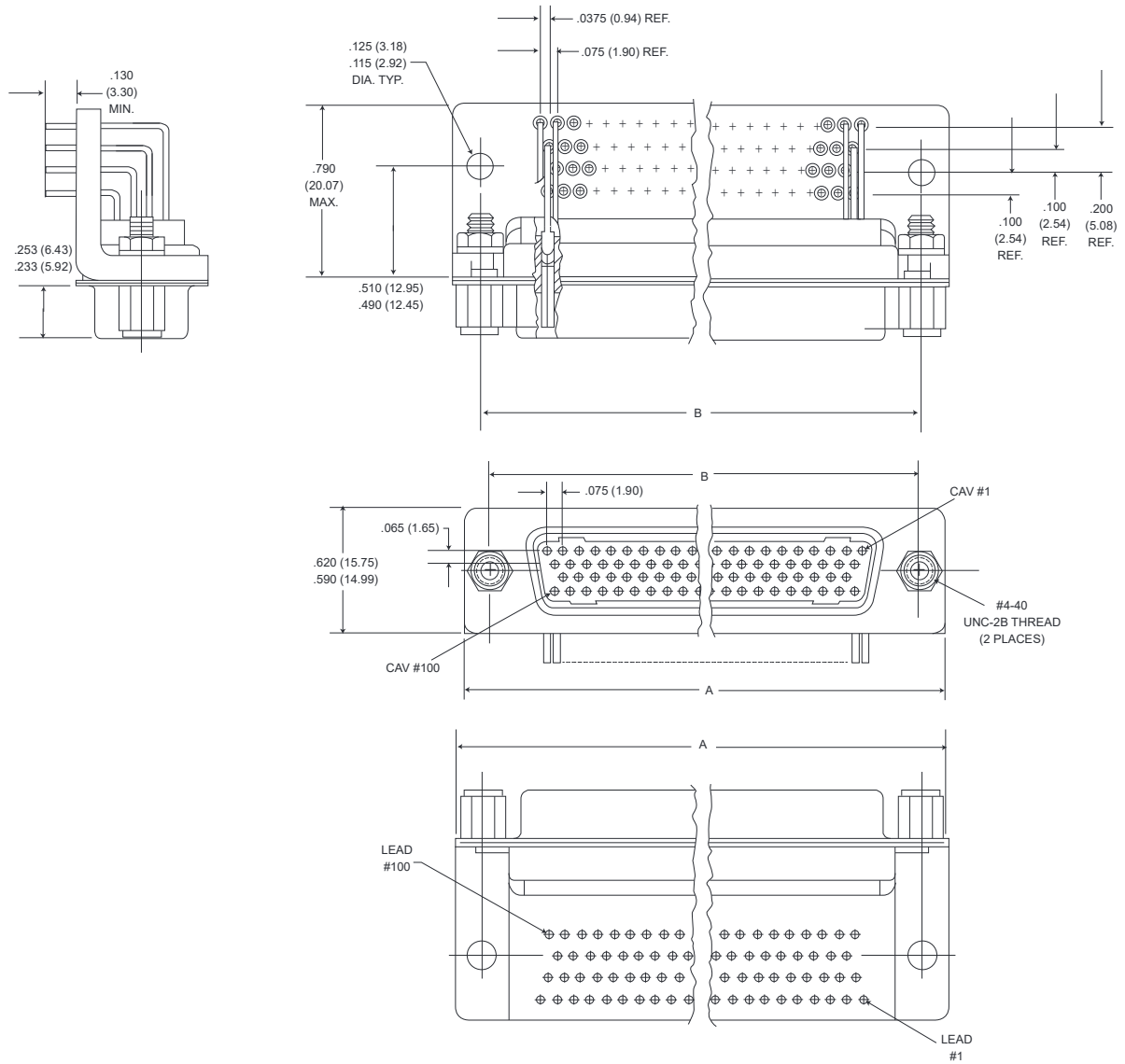
Part Number by Shell Size	A ± .015 (0.38)	B ± .010 (0.25)	C Max.
2DE19SBRP	1.215 (30.86)	.984 (24.99)	.690 (17.53)
2DA31SBRP	1.540 (39.12)	1.312 (33.32)	.690 (17.53)
2DB52SBRP	2.090 (53.09)	1.852 (47.04)	.690 (17.53)
2DC79SBRP	2.730 (69.34)	2.500 (63.50)	.690 (17.53)



Dimensions shown in inch (mm)
Specifications and dimensions subject to change

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90° PCB Mounting - 4 Row



Part Number by Shell Size	A ± .015 (0.38)	B ± .010 (0.25)	C Max.
2DD100SBRP	2.635 (66.93)	2.406 (61.11)	.790 (20.07)

Contact Arrangements - Page 56

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

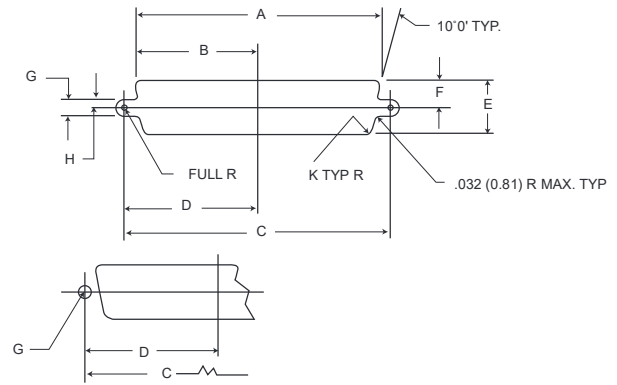
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Double Density D - .075" Contact Spacing

2D

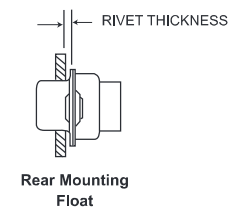
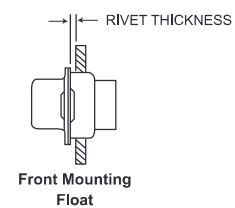
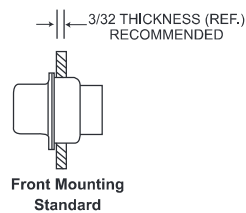
Panel Cutouts



Conn.	Mtg. Method	A ± .005 (0.13)	B ± .005 (0.13)	C ± .005 (0.13)	D ± .005 (0.13)	E ± .005 (0.13)	F ± .005 (0.13)	G ± .002 (0.05)	H ± .002 (0.05)	K ± .002 (0.05)
2DE	Front	.874 (22.20)	.437 (11.10)	.984 (24.99)	.492 (12.50)	.513 (13.03)	.257 (6.53)	.120 (3.05)	.060 (1.52)	.083 (2.11)
	Rear	.806 (20.47)	.403 (10.24)	.984 (24.99)	.492 (12.50)	.449 (11.40)	.225 (5.71)	.120 (3.05)	.060 (1.52)	.132 (3.35)
2DA	Front	1.202 (30.53)	.601 (15.26)	1.312 (33.32)	.656 (16.66)	.513 (13.03)	.257 (6.53)	.120 (3.05)	.060 (1.52)	.083 (2.11)
	Rear	1.134 (28.80)	.567 (14.40)	1.312 (33.32)	.656 (16.66)	.449 (11.40)	.225 (5.71)	.120 (3.05)	.060 (1.52)	.132 (3.35)
2DB	Front	1.743 (44.27)	.872 (22.15)	1.852 (47.04)	.926 (23.52)	.513 (13.03)	.257 (6.53)	.120 (3.05)	.060 (1.52)	.083 (2.11)
	Rear	1.674 (42.52)	.837 (21.26)	1.852 (47.04)	.926 (23.52)	.449 (11.40)	.225 (5.71)	.120 (3.05)	.060 (1.52)	.132 (3.35)
2DC	Front	2.391 (60.73)	1.196 (30.38)	2.500 (63.50)	1.250 (31.75)	.513 (13.03)	.257 (6.53)	.120 (3.05)	.060 (1.52)	.083 (2.11)
	Rear	2.326 (59.08)	1.163 (29.54)	2.500 (63.50)	1.250 (31.75)	.449 (11.40)	.225 (5.71)	.120 (3.05)	.060 (1.52)	.132 (3.35)
2DD	Front	2.297 (58.34)	1.149 (29.18)	2.406 (61.11)	1.203 (30.56)	.623 (15.82)	.312 (7.92)	.120 (3.05)	.060 (1.52)	.083 (2.11)
	Rear	2.218 (56.34)	1.109 (28.17)	2.406 (61.11)	1.203 (30.56)	.555 (14.10)	.278 (7.06)	.120 (3.05)	.060 (1.52)	.132 (3.35)

For contact part numbers, termination tooling and assembly see pages 67-69.

Panel Mounting



Dimensions shown in inch (mm)
Specifications and dimensions subject to change

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Strip Connectors - .100"/.075" Contact Spacing

CTA



CENTI-LOC connectors are low-cost nylon strip connectors designed for commercial applications such as instrumentation, communications, and medical equipment. They are available in continuous strip form up to a maximum length of 6 inches (152.40mm), accommodating from 1 to 60 rear insertion, front release, crimp snap-in size 22 CENTIPIN™/CENTISOCKET™ contacts. These contacts utilize a proven positive contact alignment

design, giving additional contact strength and positive contact alignment during mating.

These connectors can be ordered in kit or bulk form. The kit comprises all the parts necessary to assemble one complete 6-inch (152.40) strip connector with 60 contacts on .100 (2.54) centers or a 4-inch (101.60mm) strip with 53 contacts on .075 (1.91) centers. If more than one connector is required, the parts can be ordered in bulk and assembled as desired.

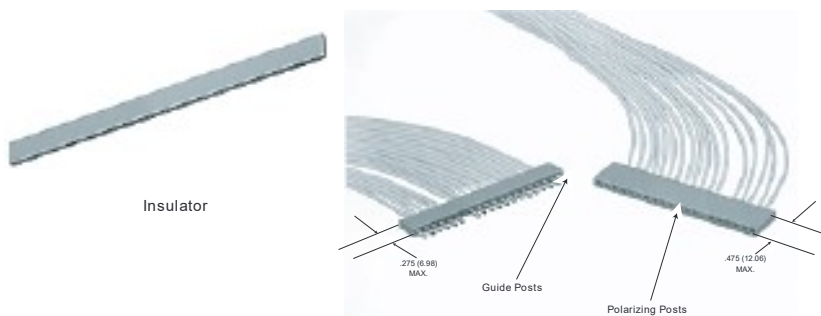
Components and Accessories

The CENTI-LOC strip connector can be ordered in kit or bulk form. The kit includes mating insulators with a full complement of contacts and two guide posts. If more than one connector is required, the parts can be ordered in bulk and assembled as desired.

Kit Form

Kits include mating insulators with full complement of contacts and two guide posts.

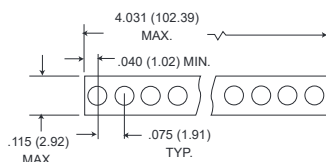
Part Number	Contact Center spacing
CTA3-KIT	.075 (1.91)
CTA4-KIT	.100 (2.54)
CTA3-CTA4-KIT	.075 (1.91) & .100 (2.54)



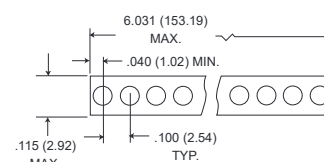
The guide posts and polarizing posts are inserted in the same manner as the contacts. The guide posts are inserted into the socket insulator and the polarizing posts are inserted into the pin insulator. The corresponding contact in the mating insulator must be removed for each. See assembly instructions.

	Part Number	Contact Center Spacing	Type	Material
Insulator	CTA3-IP-53	.075 (1.91)	Pin	Nylon
	CTA3-IS-53	.075 (1.91)	Socket	Nylon
	CTA4-IP-60	.100 (2.54)	Pin	Nylon
	CTA4-IS-60	.100 (2.54)	Socket	Nylon
Guide Post	CTA-GP	P/N 230-9507-000		Passivated Stainless Steel
Polarizing Post	CTA-PP	P/N 230-9506-000		Passivated Stainless Steel

Dimensional Data



CTA3-.075(1.91) Centers



CTA4-.100(2.54) Centers

Weights

Part Number	No. of Contacts	Contacts Type	Avy. Weight oz.	± 5% gm.
CTA3	53	pin	.185	5.25
		socket	.203	5.75
CTA4	60	pin	.230	6.30
		socket	.241	6.90



Dimensions shown in inch (mm)
Specifications and dimensions subject to change

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Contacts

A resilient internal shoulder retains the contacts in the insulator housing. The front of the contact is chamfered to prevent damage to the internal shoulder as the contact is pushed into position.

P.C. Tail Contacts

Subtract .064 (1.63) ± .010 (.25) from pigtail length when used in 2D pin insulator for potting well of connector assembly.

Subtract .081 (2.08) ± .010 (.25) from pigtail length when used in 2D socket insulator for potting well of connector assembly.

Contact Part Number

Part Number		Type	Pin		Socket	
Pin	Socket		Pin	Socket		
031-9540-000	030-9542-001	Standard 30µin. plating				
031-9540-004	030-9542-002	50µ in. plating				
031-9540-005	030-9542-004	With inspection hole; 50µ in. plating				
N/A	030-9542-011	P.C. tail .026 dia. x .083 lg. Soc.				
*031-9540-013	030-9542-012	P.C. tail .020 dia. x .183 lg. Soc. .020 dia. x .183 lg. Pin				
031-9540-016	030-9542-014	Long crimp barrel **				
031-9540-022	030-9556-000	Small crimp bore For AWG #32 & 30				
031-9540-007	030-9542-022	Small crimp bore For AWG #28 & 30				
*031-9540-015	030-9542-015	P.C. tail .020 dia. x .232 lg. Soc. .020 dia. x .255 lg. Pin				
*031-9540-019	030-9542-016	P.C. tail .018 dia. x .444 lg. Soc. .018 dia. x .445 lg. Pin 50µ in. plating				

NOTE: Plating, except as noted, is 30 micro-inch gold.

* Consult factory for any tail size or plating requirements.

** Special crimp locator required. Part number: 995-0001-714. (L3198-CL-PSL)

*** Use special insertion tip (323-9510-016 & -017).

2D and Centi-Loc Crimp and Assembly Tools



M22520/2-01



CIET-CTA Handle

Insertion Tips



CTA-AB Assembly Holding Block

Part Number: 328-9508-000



Socket Extraction Tip

Pin Extraction Tip

Description	Tool	Locators	
		Pin	Socket
M22520/2-01	M22520/2-01	L3198-CLP	L3198-CLS
995-0001-584	995-0001-584	995-0001-338	995-0001-353

Insertion Tools For Standard Contact

AWG Size*	Kit Part Number (handle and tip)	Tip Part Number**	Handle Part Number**
22	CIT-PS-CTA-22	323-9510-001	204-9500-000
24	CIT-PS-CTA-24	323-9510-002	204-9500-000
26	CIT-PS-CTA-26	323-9510-003	204-9500-000
28	CIT-PS-CTA-28	323-9510-004	204-9500-000
30/P.C. Tail	CIT-PS-CTA-30	323-9510-005	204-9500-000

* Based on wire size per MIL-W-16878 with Type E insulation, use smaller tool for wire with thin insulation, larger tool for wire having thick insulation.

** The 5 insertion tips (part numbers 323-9510-001 thru -005), plus handle, and the pin and socket extraction tips maybe ordered as a SINGLE KIT by specifying the part number CIET-CTA-2. [Part number: 070143-0002].

Insertion Tools For Long Crimp barrel Contacts

AWG Size*	Tip Part Number *** Pin Contact	Tip Part Number *** Socket Contact	Handle Part Number***
22	323-9510-008	323-9510-012	204-9500-000
24	323-9510-009	323-9510-013	204-9500-000
26	323-9510-010	323-9510-014	204-9500-000

*** To order the SINGLE KIT for the long crimp barrel contact (tip part numbers 323-9510-008 thru -014, handle and pin and socket extraction tips) please specify CIET-CTA-3.

Extraction Tools

Contact	Description	Kit Part Number (handle and tip)	Tip Part Number	Handle Part Number
CENTIPIN	CET-P-CTA-2	070112-0002	324-9502-000	204-9500-000
CENTISOCKET	CET-S-CTA-1	070113-0001	324-9501-000	204-9500-000

Dimensions shown in inch (mm)

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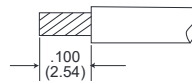
2D/CTA CENTI-LOC™ Connectors Assembly Instructions

The Double Density D/CTA CENTI-LOC Connectors are highly reliable and simple connectors to use. There are a few helpful suggestions that will assure complete satisfaction when followed:

1. The following instructions should be followed.
2. The proper crimp tool and locator (if required) must be used. These tools have been designed for use with this product. Substitutions of crimping equipment may result in connector failure at the assembly operation.
3. After crimping a contact to a lead it is of vital importance that the proper tool be used to assure seating the contact in the insulator in the proper position. Any substitution of insertion tools may result in over or under insertion of the contact which may damage the retention system of the insulator.
4. The female (socket) side of the connector has been designed with a controlled float to allow for ease of mating. To avoid reducing this float or causing a splaying of the contacts, any unnecessary strain caused by clamping the leads too close to the rear of the connector should be avoided.
Use of recommended tooling together with proper assembly techniques will pay dividends in reliability and reduced costs.

2D Assembly Instructions

WIRE STRIPPING



Cut the wires to length required and strip .100" of insulation from the end to be crimped. Check for cut or broken wires and frayed insulation.

CONTACT CRIMPING



Using the proper crimp tool and locator, insert the contact into the locator. Insert the stripped end of the wire into the contact crimp pot, and crimp the contact to the wire. Squeeze the handles firmly to insure a proper crimp (tool will not release if crimping is incomplete).
NOTE: Contact stop must be changed in tool locator when crimping pin and socket contacts.

CONTACT INSERTION



1. Place the proper insertion tip in the insertion/-extraction handle and put the tip over the wire as shown. The tool tip will butt up against the crimp pot. Connector must be firmly supported during both insertion and extraction operations.



2. Using a firm, steady pressure, push the contact into the cavity until the resilient internal shoulder in the insulator snaps into the locking groove in the contact. The shoulder of the tool tip bottoms against the rear of the insulator, preventing over-insertion. Repeat for balance of contacts.

CONTACT EXTRACTION



1. For contact extraction, remove the insertion tool tip and replace it with the proper extraction tool tip. (The socket tip will fit into the socket, and the pin tip will slide over the pin bundle). Insert the tool tip into the contact cavity: (the pin tip will butt up against the shoulder of the pin contact, and the socket tip will bottom out in the socket contact.)



2. Apply a firm, steady pressure until the contact is released from the internal shoulder in the insulator. The shoulder of the tool tip bottom against the insulator face to prevent damage to the internal shoulder. Remove the tool tip and pull the contact from the rear of the connector. Repeat for the balance of contacts to be removed.

CTA Assembly Instructions

INSERTION



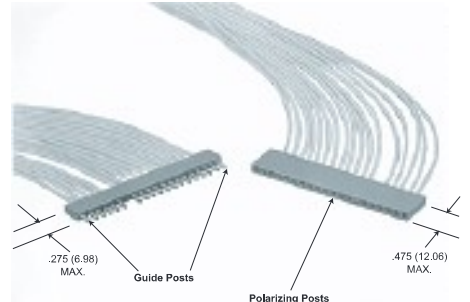
1. Place the connector into the slot in the assembly block with the arrows on the insulator pointing downward. The connector will bottom against the internal shoulder in the groove in the assembly block. Start contact insertion by placing the crimped contact in the cavity by hand.



2. Position the insertion tool tip on the rear of contact as shown. The insulation must be pulled back from the crimp pot approximately 1/32" to allow the tool tip to butt against the contact crimp pot.



3. With firm steady pressure, push the contact into the cavity until the resilient internal shoulder snaps into the locking groove in the contact. To prevent over insertion, the tool tip bottoms against the rear of the insulator.



4. The guide post and polarizing posts are inserted in the same manner as the contacts. The guide posts are inserted into the socket insulator, and the polarizing posts are inserted into the pin insulator. The corresponding contact in the mating insulator must be removed for each.

EXTRACTION



1. To extract the contacts, place the connector face up in the assembly block so that the contact to be extracted is in the end of the block that has a fully slotted opening.



2. The pin extraction tool tip is tubular, slides over the pin bundle and butts against the front shoulder of the pin. The socket extraction tool is a solid rod that fits into the socket contact, the external shoulder butts against the contact socket shoulder.



3. Insert the extraction tool into the cavity and apply firm pressure until the contact is pushed thru the rear of the connector.



4. Lift the insulator from the groove and pull the contact out. Repeat for balance of contacts to be removed.

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