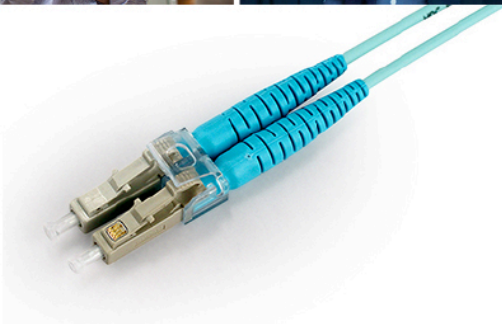




Common Termination Systems and AS81714 Mil Series II

TE Deutsch CTJ Series

Jen Camilleri Product Manager



Information is TE Confidential & Proprietary
Do Not Reproduce or Distribute

EVERY CONNECTION COUNTS



The Deutsch TE Advantage

- All of our assemblies, modules splices, etc are sold with our AS39029 contacts manufactured here for a more ruggedized application, withstanding more vibration.
- Deutsch is the only manufacturer that includes our manufactured contacts with the assemblies with our products. This ensures traceability and reliability. Other manufactures use and buy to supply contacts from outside sources with assemblies.
- All products can be design specific to any customers needs.
- Deutsch offers a single rail assembly, for single mount applications no other manufacture has this design.
- Deutsch offers easy removal insertion of single rails inside multi module assemblies.
- Deutsch offers bulk buy (in quantities of 100 per bag less contacts) for a more economic selling solution.

Features and benefits

- CTJ module housings are of all composite construction.
- Uses only standard SAE AS39029/22 socket contacts
- Buss Bars are impacted and are of one piece construction.
- 360 degrees Dielectric contact retention fingers.
- CTJ modules are designed to be mounted in rails, directly into chassis or onto circuit boards or in some instances in-line.
- Environmentally sealed to withstand hydraulic fluid immersion
- Environmentally sealed to prevent FOD issues



Common Termination Applications Examples

Grounding Applications for Commercial Aerospace

Lighting systems for Commercial Aerospace

Unmanned Flight and Ground Systems

Combat Systems and weaponry

Military Aerospace



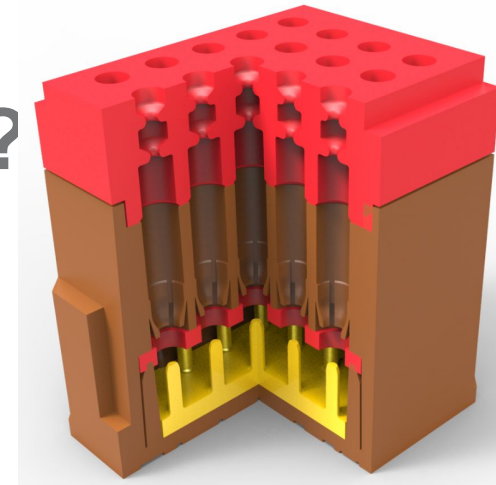
Information is TE Confidential & Proprietary
Do Not Reproduce or Distribute

TE Offerings

Module Offerings

- CTD – Bussing module for power distribution
- CTJ1 – Feedback modules with various bussing arrangements
- CTJ4 - Electronic component modules that house discrete components and circuits.
- CTJ5 - PC Board, Flat Flex Cable Mountable.
- CTJ6 & CTJ9 – Flange mountable inline connector design
- CTJ7 – Grounding modules using either flange mount, or stud mount designed to
Rail and mounting options
- CTJ3 - Metallic rail per arrangement needed
- DCR- Composite version of CTJ3 rail

The Bussed Overview-what is it?



The Deutsch Feedback modules offer a lightweight junction system with a full range of bussing arrangements and contact sizes. These are available in the CTD and CTJ1 series. Our Bussed connectors feature a single integrated buss bar which exceeds the industry standards from other manufacture offerings and features standard Mil AS39029 Deutsch contacts.

A buss bar, or buss, is a thin conductive strip connecting two or more contacts within the body of a connector. Buss bars allow power or data to be fed into a connector through one or more terminals and drawn out as needed through the other contacts on the same buss. Connectors can carry one or more buss bars, creating multiple independent electrical circuits within the same connector body and distributing power or data to many components. A single bussed connector can replace several standard connectors, or splices saving space, wiring and weight.

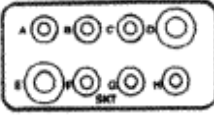
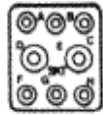
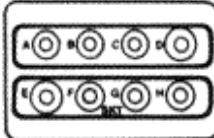
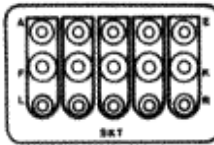
CTJ Series Specialized Modules

CTD

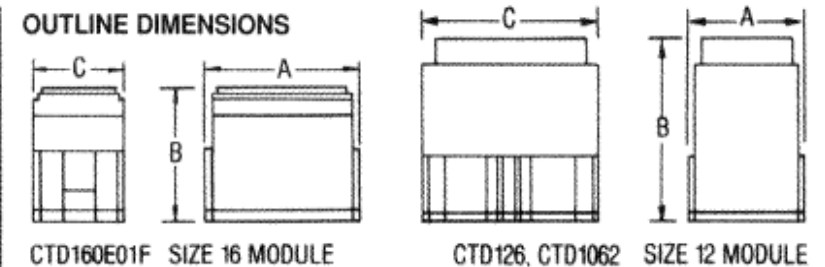
- Uses a rugged A39029 socket contact terminated to one piece (cold-headed) internal pin buss bars
- Accommodates common bussing of 6 to 20 contacts in a small area.
- CTD distribution modules accommodate varied sizes of contacts within the same buss
- Internal bussbars are configured to allow connections of various combinations of wires for protections against environmental resistance and vibration

CTD

DISTRIBUTION BUSSING ARRANGEMENTS

Distribution Buss	Bussing Arrangement	
26	01A 	1 Bus of 2 #12's 6 #16's
60	01F 	1 Bus of 2 #16's 6 #20's
26	02E 	2 Busses of 1 #12 3 #16's
062	05A 	5 Busses of 1 #16 1 #20 1 #22

OUTLINE DIMENSIONS



Part No.	Contact Quantity & Size	A ±.015	B Max.	C ±.030
CTD126E01A	2 Size 12 & 6 Size 16	.672	1.047	1.020
CTD160E01F	2 Size 16 & 6 Size 10	.672	.920	.510
CTD126E02E	2 Size 12 & 6 Size 16	.672	1.047	1.020
CTD1062E05A	5 Size 16, 20 & 22	.672	.920	1.020

ORDERING INFORMATION

Basic Identifier CTD 1 ** E 01A 513

Feedback _____

Distribution Buss _____

Environmental _____

Bussing Arrangements* _____

Modifications _____

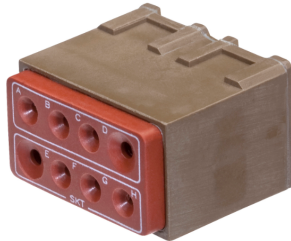
Military Part Number Requires — 513

*Consult factory for alternate bussing arrangements.

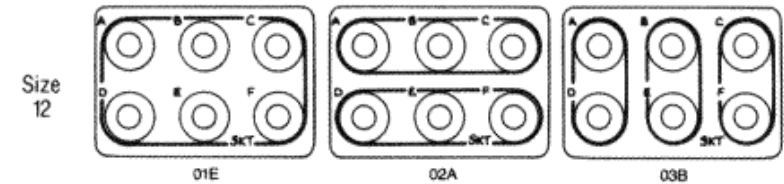
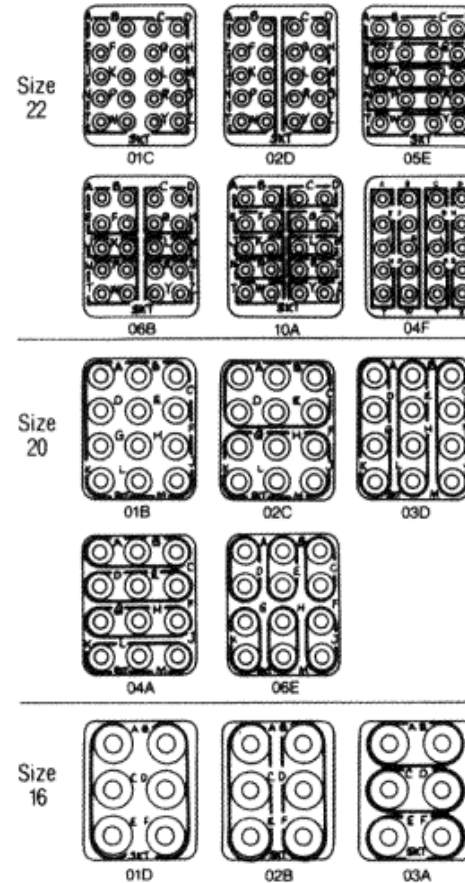
CTJ Series Specialized Modules

CTJ1

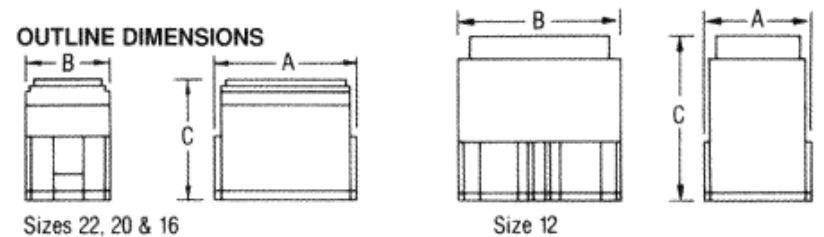
- Uses a rugged A39029 socket contact terminated to internal pin buss bars
- Accommodates common bussing of 6 to 20 contacts in a small area.
- Internal bussbars are configured to allow connections of various combinations of wires for protections against environmental resistance and vibration
- 360 degrees Dielectric contact retention fingers
- Uses a rugged A39029 socket contact terminated to one piece (headed) internal pin buss bars



CTJ (Feedback Module) BUSSING ARRANGEMENTS



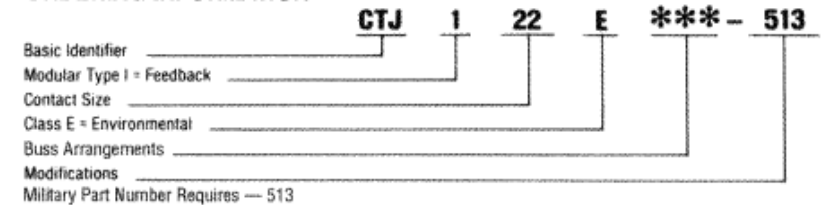
OUTLINE DIMENSIONS



Module Size	A ±.015	B ±.030	C Max.	Module *Weight/lbs
22	.672	.510	.760	0.01036
20	.672	.510	.920	0.01560
16	.672	.510	.920	0.01560
12	.672	1.020	1.047	0.02733

*Less Contacts

ORDERING INFORMATION



The Diodes and Resistors-what are they used for?

Deutsch **CTJ420 Series** and **In-line termination systems** (65049 and 65053 splices) are modules and splices that are useful anywhere you need to regulate power or protect a device against a potential power surge.

A diode allows the current to flow in one direction only. By preventing current from traveling a circuit in the wrong direction, a diode can protect an electronic device from damage. Devices with batteries will often use diodes to prevent power from flowing in reverse if the battery is not installed correctly.

A resistor limits or blocks current flow in both directions. Resistors protect sensitive electronics by limiting the amount of electricity that can flow to the device through the resistor, and therefore preventing power spikes. For example, the resistors are used to prevent power surges from burning out an LED by restricting current flow to the light.

Deutsch diode and resistor connectors are easily added to an application after the fact if unwanted power surges are discovered. We can design in any diode or resistor need for any customer's applications. This can be created quickly in design and deliverability.

CTJ Series Specialized Modules

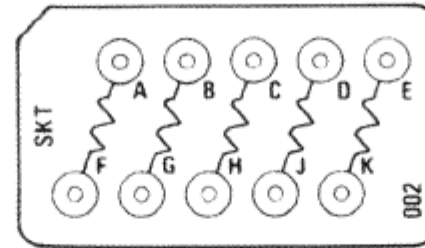
CTJ4 Series

- Each module houses small printed circuit boards incorporating diodes
- The input/output wiring is sealed with silicone rubber grommet
- Input /output wiring is sealed with silicone rubber grommet to protect against environmental hazards
- Designed to function in most fluids encountered in many military or aerospace environments.
- May be placed near transient suppression devices that they are designed to protect.



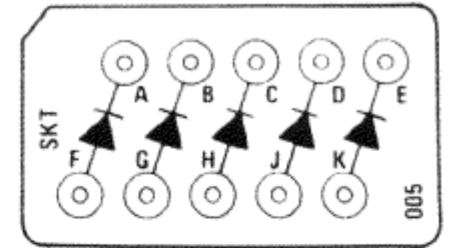
Typical Internal Circuit Diagrams

The figures are typical of the many standard configurations offered. Custom configurations are also available. Consult Deutsch for additional configurations.



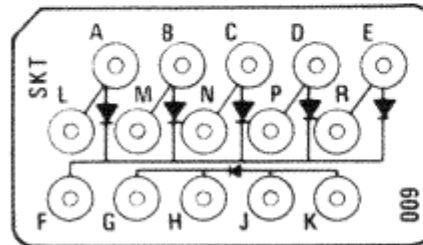
002

Qty.	Description	Type
5	Resistors	150 Ohms Each



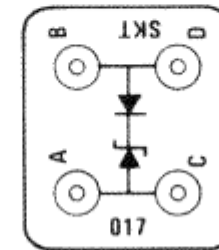
005

Qty.	Description	Type
5	Diodes	1N4246



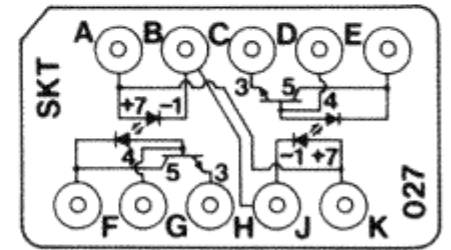
009

Qty.	Description	Type
6	Diodes	1N5618



017

Qty.	Description	Type
1	Zener Diode	1N4478
1	Diode	1N5618



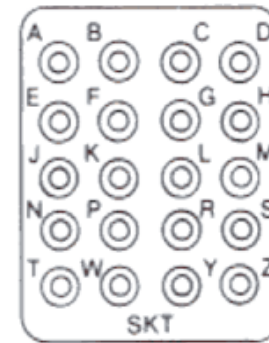
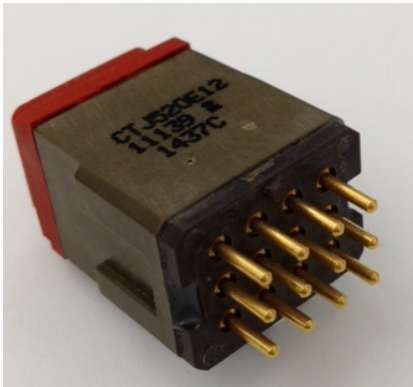
027

Qty.	Description	Type
2	Iso-Cubes Relay Circuit	801-1

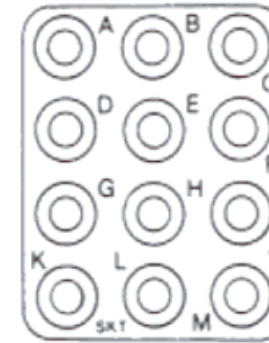
CTJ Series Rail Assemblies

CTJ5

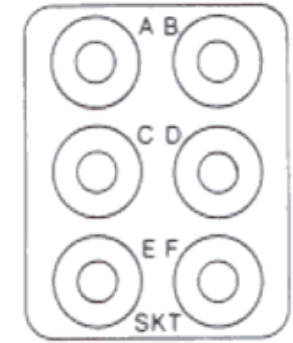
- PC Board, flat flex cable mountable
- Low mass termination device for printed circuit boards
- Uses A39029/22 sockets which accept wiring and connect through to straight solder pin contacts
- Connects through to straight solder pin contacts designed to plug in specialized components
- Uses a standard insertion/removal tool
- All contacts in a CTJ5 are discrete, mainly used to take single leads from a PC board out to wire
- Fluid resistant in Military or Aerospace environments. Available to operate in hydraulic fluid immersion.



Size 22



Size 20

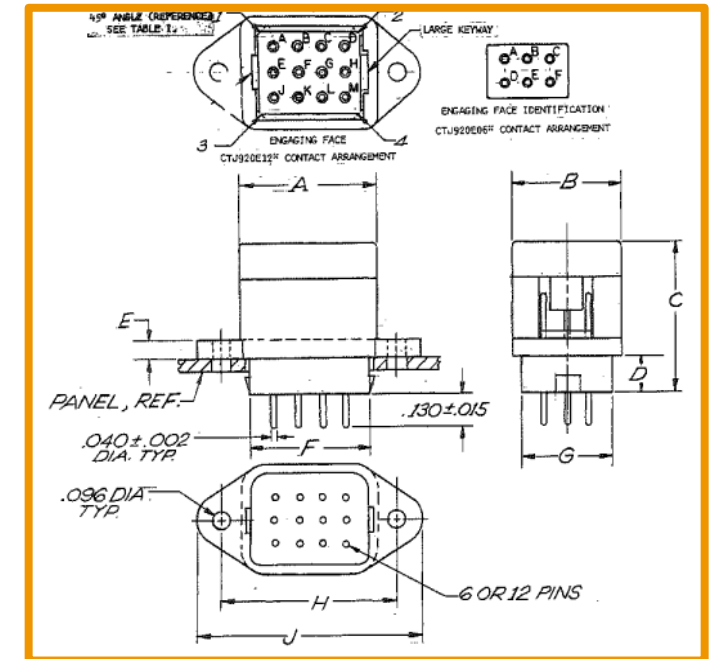
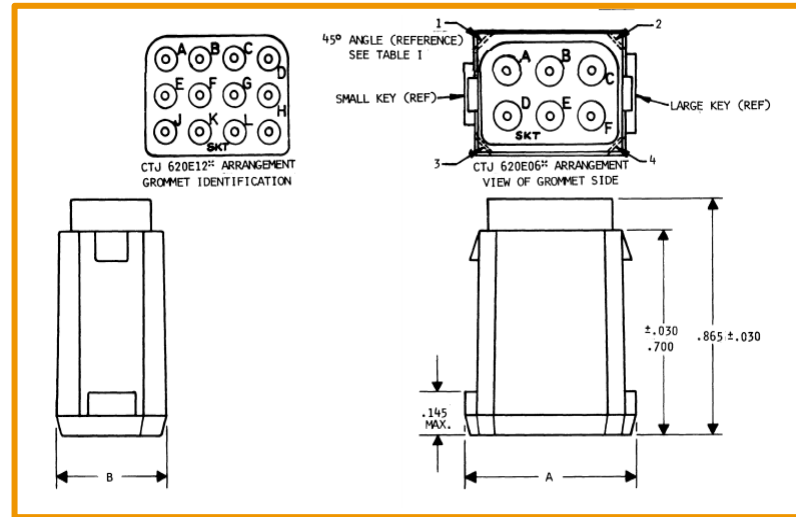


Size 16

CTJ Series Specialized Modules

CT6 and CT9

- Small, lightweight modules designed for flange mounting or in-line mounting for simultaneous connect/disconnect of many wires
- Flange or In-line mountable.
- Cork in bottle interfacial seal between the mating halves and environmentally resistant
- Available with strain relief
- PCB tail contacts or with crimp backpack



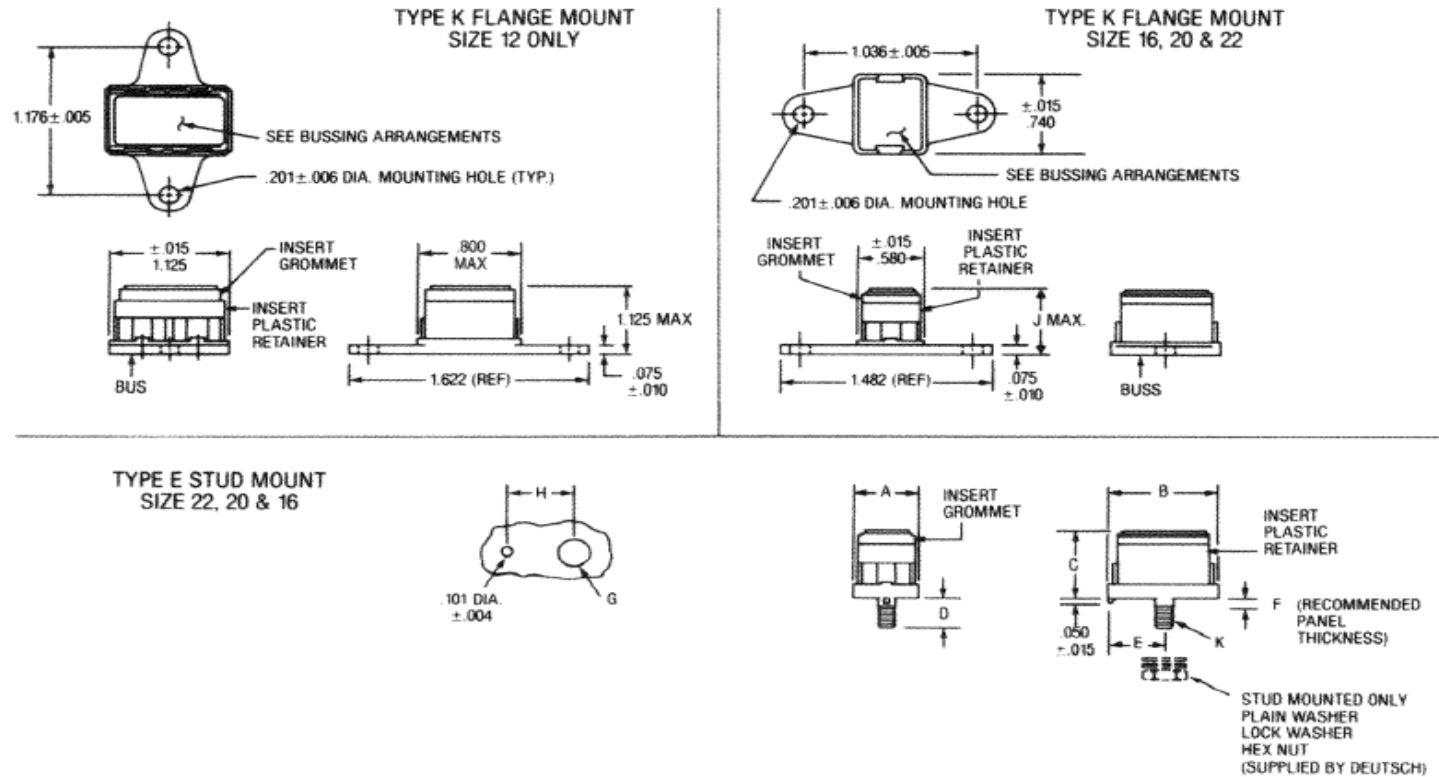
CTJ Series Specialized Modules

CTJ7

- Grounding modules designed for grounding applications that need a small rugged device that also offers sealing and assembly ease
- Can be used to adapt any electromechanical component using screw type termination. The threaded stud can replace the screw terminals.
- One piece construction resistant to shock and vibration, lightweight and dissipates heat.
- Two configurations for mounting Stud and Flange.



CTJ7 OUTLINE DIMENSIONS



CTJ Series Specialized Junctions

CTG-Grounding Junctions

- Provides a simple method of terminating a wire to the ground.
- Wires with Crimp type contacts inserted into grounding junctions and be attached to any grounding surface.
- Available in four sizes, 22-12.
- Provide environmental sealed ground protection against shock and vibration



Contacts

- Uses Mil Spec AS39029 type contacts.
- Standardized assembly tools, sockets and pins to reduce inventory and simplify maintenance
- Available in four sizes, 22, 20, 16 and 12

Size	Contact Part No	Equivalent Military Part No.	Color Bands			A Max.	B Dia.	C Max.	D Min.	E Max.	Weight (Lbs.)
			1st	2nd	3rd						
22	CTS-S22/22	M39029/22-191	Brown	White	Brown	.336	.033/ .031	.0615	.033	.048	.0011
20	CTS-S20/20	M39029/22-192	Brown	White	Red	.358	.044/ .042	.094	.046	.070	.0027
16	CTS-S16/16	M39029/22-193	Brown	White	Orange	.358	.064/ .066	.130	.066	.103	.0050
12	CTS-S12/12	M39029/22-605	Blue	Black	Green	.455	.100/ .097	.171	.096	.152	.0145

Size	Wire		Crimp Tool	Crimp Tool Positioner	Strip Length	Insertion & Extraction Tool	Unwired Removal Tool
	Gauge						
22	22-26	MH860 (M22520/7-01)	MH860 (M22520/7-01)	86-19 (M22520/7-11)	.207 ± .030	81515-23	81517-23
20	20-24	MH860 (M22520/7-01)	MH860 (M22520/7-01)	86-20 (M22520/7-12)	.207 ± .030	M15570-20	M15574-20
16	16-20	MH860 (M22520/7-01)	MH860 (M22520/7-01)	86-21 (M22520/7-13)	.207 ± .030	M15570-16	M15574-16
12	12 & 14	AFB (M22520/1-01)	AFB (M22520/1-01)	M22520/1-16	.225 ± .020	81515-12	M15574-16

CTJ

MIL-T-81714 (Series II)

CTL, CTM & CTN Series

- In-line junctions for connection two to four wires
- In-line, and multi-junctions for housing and sealing individual components.
- In-Line Mountable
- Use crimp style contacts A39029
- CTM Connects and busses four wires. It can be used to replace the “Y” splice and terminal strips
- Special configurations and designs available



CTJ MIL-T-81714 (Series II)

65049 and 65053 In-line Termination System

- Universal Housings with diodes, fuses, resistors, etc. per customer specifications
- Quick electrical solution
- Crimp socket contacts (AS39029)
- Environmentally sealed.
- Fluid resistant materials



CTJ Rail and Mounting Assemblies

CTJ3-Rail Assembly

- Designed to hold up to 50 variations
- Extruded Aluminum Alloy
- Lightweight yet strong against shock and vibration

CTJ-Mounting brackets

- Provides space-saving ability to mount two sizes 22,20,16 or one size 12 type modules.
- Also acts as a heat sink.

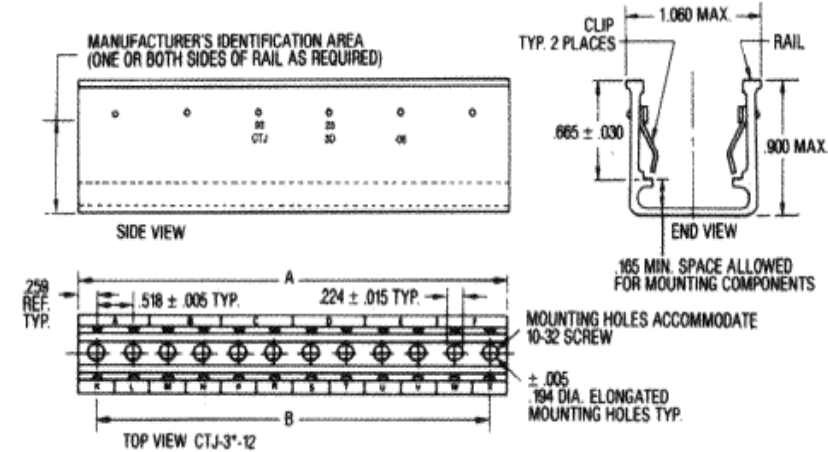
CTJ8-RFI/EMI Rail Shield

Lightweight package that is assembled onto Rails including those already to mounted to shield and protect the enclosed wiring and circuitry.

DCR

- Composite lightweight corrosion-proof mounting system available multiple rail lengths

Deutsch Metal Rail ASSEMBLY DIMENSIONS



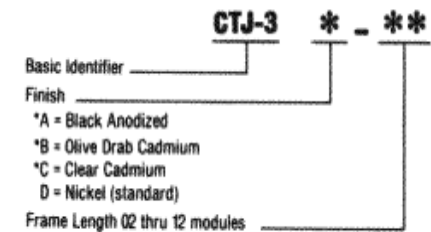
Frame Length	Frame Capacity		A ±.015	B ±.010	Rail Weight/lbs.
	22, 20, 16	12			
02	2	1	1.036	.518	.022
03	3	1**	1.554	1.036	.033
04	4	2	2.072	1.554	.043
05	5	2**	2.590	2.072	.054
06	6	3	3.108	2.590	.065
07	7	3**	3.626	3.108	.075
08	8	4	4.144	3.626	.086
09	9	4**	4.662	4.144	.097
10	10	5	5.180	4.662	.108
12	12	6	6.216	5.698	.130

(Longer rail sizes also available, consult the factory)

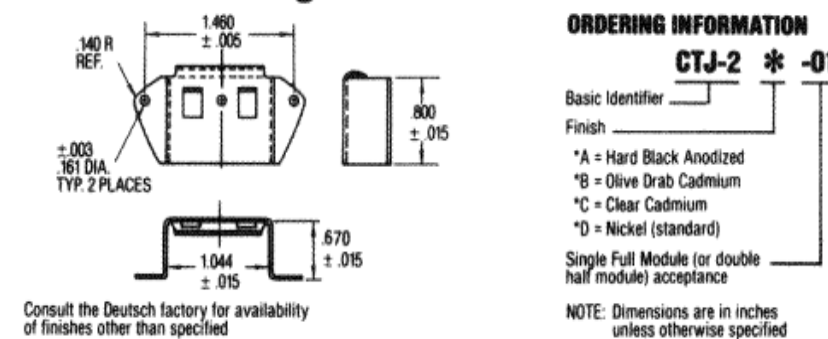
*Consult factory for availability of these finishes.

**Size includes room for one or more size 22, 20, or 16 modules.

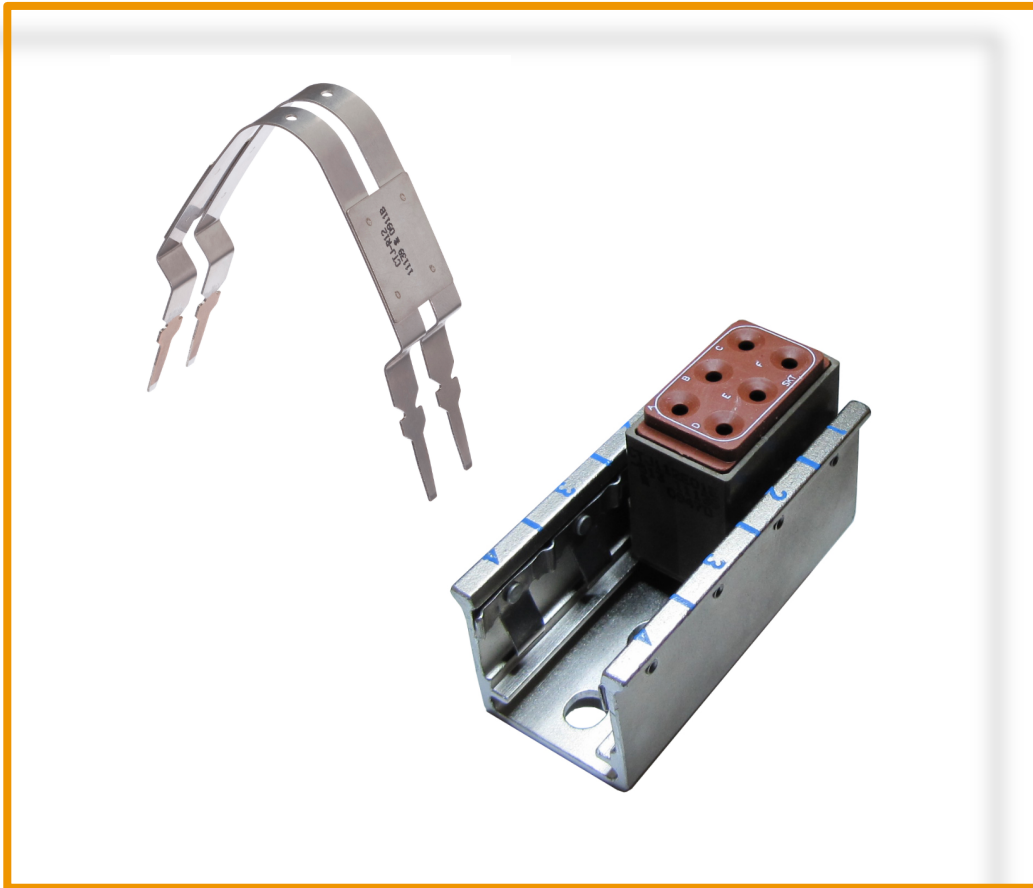
ORDERING INFORMATION



CTJ-2D-01 Single Module Metal Rail



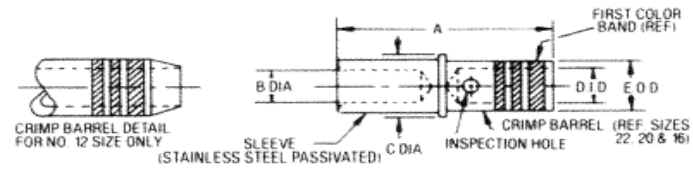
Easily insertable and removability



Information is TE Confidential & Proprietary
Do Not Reproduce or Distribute

Mil Cross Part number Cross References

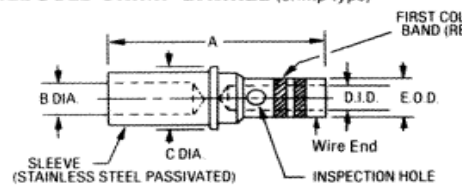
STANDARD CONTACT DIMENSIONS



Size	Contact Part No.	Equivalent Military Part No.	Color Bands			A Max.	B Dia.	C Max.	D Min.	E Max.	Weight (Lbs.)
			1st	2nd	3rd						
22	CTS-S22/22	M39029/22-191	Brown	White	Brown	.336	.033 / .031	.0615	.033	.048	.00011
20	CTS-S20/20	M39029/22-192	Brown	White	Red	.358	.044 / .042	.094	.046	.070	.00027
16	CTS-S16/16	M39029/22-193	Brown	White	Orange	.358	.064 / .066	.130	.066	.103	.00050
12	CTS-S12/12	M39029/22-605	Blue	Black	Green	.455	.100 / .097	.171	.096	.152	.00145

Size	Wire Gauge	Crimp Tool	Crimp Tool Positioner	Strip Length	Insertion & Extraction Tool	Unwired Removal Tool
22	22-26	MH860 (M22520/7-01)	86-19 (M22520/7-11)	.207 ± .030	81515-23	81517-23
20	20-24	MH860 (M22520/7-01)	86-20 (M22520/7-12)	.207 ± .030	M15570-20	M15574-20
16	16-20	MH860 (M22520/7-01)	86-21 (M22520/7-13)	.207 ± .030	M15570-16	M15574-16
12	12 & 14	AF8 (M22520/1-01)	M22520/1-16	.225 ± .020	81515-12	M15574-16

REDUCED CRIMP BARREL (crimp type)



1. Body Material: Per MIL-C-39029, Type A
2. Body Finish: Gold per MIL-G-45204, Type II, Class 1, over a suitable underplating, excluding silver.

Size	Contact Part No.	Color Bands		A Max.	B Dia.	C Max.	D Min.	E Max.	Max. Weight (Lbs.)	Wire Gauge
		1st	2nd							
20	1662-202-2031	RED	GREEN	.358	.044 / .042	.094	.033	.050	.00027	22 thru 26
16	1662-202-1631	BLUE	RED	.358	.064 / .066	.130	.046	.070	.00050	20 thru 24
12	1662-202-1231	YELLOW	BLUE	.460	.100 / .097	.171	.066	.103	.00145	16 thru 20

Size	Crimp Tool	Crimp Tool Positioner	Setting						Strip Length	Insertion & Extraction Tool	Unwired Removal Tool
			Wire Size								
			16	18	20	22	24	26			
20	M22520/1-01	TH343 RED				3	2	1	.207 ± .030	M15570-20	None
16	M22520/1-01	TH343 BLUE				4	3	2	.207 ± .030	M15570-16	M15574-20
12	M22520/1-01	TH343 YELLOW	6	5	4				.225 ± .020	81515-12	M15574-16

Information is TE Confidential & Proprietary
Do Not Reproduce or Distribute

Government Designation	Deutsch Designation	Government Designation	Deutsch Designation
M81714/60-12-01	CTJ112E01E-513	M81714/64-12	CTG-12-08-513
02	02A	16	16-08
03	03B	20	20-08
16-01	CTJ116E01D-513	22	22-08
02	02B	M81714/65-12-1	CTL-12-513
03	03A	12-2	CTM-12-513
20-01	CTJ120E01B-513	16-1	CTL-16-513
02	02C	16-2	CTM-16-513
03	03D	20-1	CTL-20-513
04	04A	20-2	CTM-20-513
06	06E	22-1	CTL-22-513
22-01	CTJ122E01C-513	22-2	CTM-22-513
02	02D	M81714/67-02	CTJ-3A-02-4032
04	04F	03	03
05	05E	04	04
06	06B	05	05
10	10A	06	06
M81714/61-0W	CTD1062E05A-513	07	07
0X	CTD126E02E-513	08	08
0Y	CTD160E01F-513	09	09
0Z	CTD126E01A-513	10	10
M81714/62-20-AH	CTJ420E009-7065	12	12
AL	012	13	13
AW	021	14	14
AZ	027	15	15
BA	028	16	16
BG	034	18	18
BP	041	19	19
CM	128	20	20
CN	129	21	21
		25	25
		30	30
		40	40
M81714/63-16F	CTJ716K01D-7067	M81714/69-01	CTJ-R06
20S	CTJ720E01B-7067	02	CTJ-R12
22F	CTJ722K01C-7067		
22S	CTJ722E01C-7067		

Composite Termination Systems

The Common Termination System consists of a system of wires and components that are interconnected to one another by the use of a standard AS39029 socket contact only. All of the pin contacts are housed within the modules. (more ruggedized solution)

Feedback Modules (CTJ1): Act like a terminal strip. Each module accommodates a single contact size bussed internally to a copper bar

Distribution Modules (CTD): Used when two or more contact sizes are needed per module. Buss bars are forged from single copper piece

Grounding Modules (CTJ7, CTG): Developed to provide multiple grounds made of common point. This is a feedback module grounded to structure.

Component Junction Modules (CTJ5): Provides a method of terminating wire to printed circuit boards, tape and flat cable

Electronic Modules (CTJ4): Designed to contain a variety of circuit arrangements for rectifying filtering and arc suppression

Plug and Receptacle (CTJ6, CTJ9): Designed for applications involving the simultaneous connection and disconnection of groups of wires. The receptacle module can also contain pins extended from the rear grommet to accept flat cable

In-Line Electronic Junctions (65049, 65053, CTN): Single and Double termination using AS39029 contacts. These house electronics (diodes resistors, etc, components) An environmental solution to add components.

In line Splices (CTL, CTM): in line splices designed to joins two to four wires (splice using crimp contacts). Designed to join two in-line junctions bussed together.

Module Rails: Designed to accommodate various modules which can be individually snapped in and out. Available in Composite and metalized with plating options as well.

Relay Modules rails systems (CTS, 65008,)- Component rail assemblies that replace relay racks. Consists of a rail, crimp style sockets, and seals.

Relay Socket Modules (CTS,65009) Modules that can be plugged in by hand and unlocked by a module removal tool. Contacts can be easily removed without disturbing the component or other circuits.