

Rugged Circular Connectors in Mil-Spec and Derivative Configurations to Meet the Widest Range of Harsh Environments and Applications



# **DEUTSCH 38999 CONNECTORS**

Series I, III, and IV



# Subminiature Circular Connectors Built for Harsh Environments

TE Connectivity (TE) is your one-stop source for MIL-DTL-38999 and 38999-style connectors. We offer mil-qualified Series I, III, and IV connectors in a wide array of configurations, materials and finishes to help meet the needs of ground, aerospace, and marine applications. The subminiature circular connectors are time tested for reliability in harsh environments. Our 38999 connectors include support for:

- Signals
- Power
- RF

- Optical
- Hermetic sealing
- EMI filtering

# **Beyond Mil Specs**

Because of the widespread popularity of 38999 Series III connectors, we have also used this form factor for designs to meet a variety of configurations beyond those of MIL-DTL-38999. This gives you a familiar, reliable connector and access to the full range of backshells and other accessories.

# **TE Components . . . TE Technology . . . . TE Know-how . . .** AMP | Agastat | CII | Hartman | Kilovac | Microdot | Nanonics | Polamco | Raychem | Rochester | DEUTSCH

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Get your product to market faster with a smarter, better solution.







# Recent 38999 Highlights

# **RoHS-Compatible Finishes**

Our 38999-qualified connectors are available with cadmium-free, environment-resisting plating options offering 500-hour salt spray resistance and a -65°C to +175°C temperature range.

Class T: Nickel-PTFE

Class Z: Black zinc nickel

# **PC Board-Mount Connectors**

TE offers hundreds of different sizes and types of standard and extended-tail contacts. Direct board mounting not only saves weight and space, it enhances system reliability and performance by replacing a separable interface with a more reliable soldered interconnection.



# **MC801 Connectors**

Expanding your options from our already broad fiber-optic portfolio, MC801 connectors combine a 38999 shell with the capability to use industrystandard 801 optical termini. We support a full range of interface styles to help allow you to achieve the full benefits of fiber's bandwidth, reach, and noise immunity.



# **CeeLok FAS-X Connectors**

Take control of high-speed networking with connectors that support up to four 10G Ethernet channels with excellent signal integrity. Using standard 39029 contacts, the connectors can be field terminated using standard tools.



# MIL-DTL-38999 Connectors

	Series I	Series III	Series IV
Coupling Mechanism	Bayonet 1/3 turn	Threaded 360° turn	Breech lock 1/4 turn
Shell Materials	Aluminum	Stainless steel Aluminum Composite	Aluminum
Features	Scoop proof Environmentally sealed Hermetic versions Filter versions Spring fingers for EMI control		
Shell Platings	Olive drab cadmium Passivated Electroless nickel Electrodeposited nickel Nickel PTFE (Series III) Black zinc-nickel (Series III)		
Contact Sizes, Std	23, 22, 20, 16, 12, 8		
Shell Sizes	9, 11, 13, 15, 17, 19, 21, 23, 25		
No. of Signal Contacts, Max.	187		
Contact Type	MIL-C-39029		
Contact Styles	Crimp Solder cup or eyelet PCB tail		
Operating Temperatures	-65°C to +200°C -65°C to +175°C -65°C to +150°C (Depends on shell finish)		
Durability (Mating Cycles)	(Hig	500 (High-durability versions available)	
	<b>Plugs</b> Straight, with or without EMI spring fingers Lanyard release		
Standard Configurations	<b>Receptacles</b> Box mounting, both front and rear panel mounting Wall mounting, both front and rear panel mounting Jam nut, rear panel mounting Solder mounting Through-bulkhead		

# **DEUTSCH 38999 Connectors**

### **MIL-DTL-38999 CONNECTORS**



MIL-DTL-38999 Series I

# Bayonet coupling ring with constant mating torque

Quick connect/disconnect: 1/3 turn

# **Corrosion Resistant**

- 500-hour salt spray resistance
- Thermoplastic clips molded directly with insert
- **RFI** fingers for EMI protection
- **Typical Applications**
- Ground vehicles

**Extreme Environments** 

temperature

and shock

steel shell

-65°C to +200°C operating

Withstands high vibration

Fire tested to +1093°C

aerospace, and UAVs

High-temperature, high-

Lightweight composite shell

-65°C to +200°C operating

Up to 1500-mating-cycle

Commercial and military

Excellent corrosion resistance:

withstands 2000-hour salt spray

• Engines in ground vehicles,

**Typical Applications** 

vibration areas

Weight Saving

temperature

durability

aerospace

UAVs

**Typical Applications** 

Rugged

Corrosion-resistant stainless

Connectors MIL-DTL-38999 Series III







Lanyard-Release

MIL-DTL-1760

Plugs

#### **Instant Disconnection**

- Designed for munitions stores
- MIL-DTL-38999/31 gualified

# MIL-DTL-1760 Types 1 and 2

- Type 1 available in aluminum and composite versions for drop launch
- replaceable buffer system for rail launch

- Ground and air-launched
- Smart bombs
- Type 2 incorporates a

# **Typical Applications**

- missiles

# **Reduced Profile**

- Based on 38999 Series I coupling interface lengths and Series II diameters
- Meets LN29729 standard Meets J 62.017 and DIN
- 65002 standards -55°C to +175°C operating
- temperature

# **Typical Applications**

Military aerospace

# Connectors MIL-DTL-38999 Series III **Classes K and S**

DTS-K and -S Series



**ACT Series Connectors** MIL-DTL-38999 Series III **Composite Shells** 

# **38999-DERIVED CONNECTORS**



Wildcat 38999 **High-Density** Connectors

# **High Density**

- Nearly double the contact density of standard M38999 connectors
- Four shell sizes, 11 to 64 contacts

- Rear removable crimp and
- -65°C to +175°C / +200°C
- (plating dependent)

# Universal soldier

UAV

•

Communications



**HDJ Series** Connectors 38999 Series 1.5



# • Disconnect: 360° turn Capable

Triple-start, self-locking

- Light weight
- - VG 95319 qualified EN3645 gualified

threaded coupling

# Versatile

• More choice in shell sizes, materials, inserts, filtering and EMI protection, and environmental sealing

#### **Typical Applications**

- Ground, aerospace, and marine
- Most widely used 38999 style

# **Breech lock coupling**

Quick connect/disconnect: Quarter turn

### **High Performance**

- Optimized for SWAMP area applications
- Visual, audible and tactile full-mate indicators

# **Typical Applications**

- Missiles
- Aircraft
- Ground vehicles

- 3 amps per contact
- **Lightweight and Space Saving**
- Aerospace grade aluminium
  - PCB contacts

# **Typical Applications**







# **DEUTSCH 38999 Connectors**

# **38999-DERIVED CONNECTORS**





**DTB Series** Connectors 38999 Series III **Bronze Shells** 

## **Designed for Marine Application** Marine bronze shell for marine

- applications Excellent corrosion resistance
- Dry mate sealing down to
- 4 m immersion -65°C to +175°C operating
- temperature

# Compliant

- STD CECC 75201-002
- RoHS compliant

# **Typical Applications**

 Shipboard Ground vehicles



MC3 shown

MC3 and MC4 **Optical Connectors** 

### MC3

- 5, 8, or 12 fibers (shell size 19, 23, or 25)
- Aluminum shell
- 2.5 mm termini

### MC4

- 2 fibers (shell size 9)
- Aluminum shell
- 2.5 mm termini

MC5 and MC6 **Optical Connectors** 

D38999 Series III **QPL Fiber-Optic** Connectors

# MC5

- 1, 2, 4, 6, 8, 10, 18, 30 fibers (shell sizes 11 through 25)
- Composite shell
- 1.25 mm termini

# MC6

- 12 or 24 fibers Composite shell
- MT ferrules

Capable

Rugged

Up to 36 fibers

/5 termini

resistant

Aluminum or

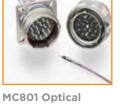
composite shells

MIL-PRF-29504/4 and

Moisture and corrosion



Connectors





**PRO BEAM Inserts** 

# **High Performance**

- Uses industry-standard ARINC 801 termini
- 1.25 mm ferrules for high contact density
- Multimode and single mode
- PC and APC finishes

#### Lightweight

Aluminum shell

# Convenient

Compatible with LC termination processes and tooling

# Versatile

- Expanded beam for size 11 and 15 shells
- 1, 2, 4, or 8 fibers

### Durable

- No wear on fiber optic interface
- Vibration resistant

**High Current Capacity** 

Space Saving

Rugged

•

• Single and multicontact configurations

Variety of shell sizes

• Up to 1000 A in a size 25 shell

Hybrid configurations with

signal and power contacts

Rear removable crimp contacts

Dedicated sealed backfitting

and cable support grommet Excellent contact retention

under severe vibration

 Highly resistant to dirt and debris



**PRO BEAM EB16** Termini

# Convenient

Expanded beam termini for 38999 Series III size 16 cavities

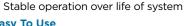
Shock and vibration resistant

# Durable

- No wear on fiber optic interface
- Very vibration resistant
- Highly resistant to dirt and debris

# **Repeatable Low-Loss Performance**

 Low sensitivity to thermal fluctuations and interface contamination



**Easy To Use** Drop-in replacement for M29504/4 and /5 physical contact termini



**High Power** 38999-Style Connectors

# **DEUTSCH 38999 Connectors**



# **38999-DERIVED CONNECTORS**



**CBC Series Bussed** Connectors

# Simple, Reliable Wire Bussing

- Internal pc board connects contacts for grounding distribution. power distribution, and similar needs
- Range of standard and custom bussing configurations

# Weight and Space Saving

- Composite and aluminum shells Eliminates external
- bussing components
- Shell sizes 9 through 25

Glass-to-metal sealing

Airtight under high pressures,

vibration, and temperatures

Resists extreme changes in

temperature or pressure



Ruggedized Commercial Connectors

#### Versatile

- RJ45, with Cat 5e, 6, or 6A performance
- USB 2.1. up to 480 Mb/s
- USB 3.0, up to 5 Gb/s
- SIM card receptacle
- Micro SD card receptacle
- LC, for multimode and singlemode fiber

# Rugged

**EMI Protection** 

requirements

strike, or ESD

**EMP Protection** 

- Shell options include aluminum, bronze, stainless steel, titanium, and composite
- Sealed up to IP68 for fluid and dust-laden environments

Pi, LC, CL, C configurations

to  $1\,\mu\text{F}$ , subject to specific

or feedthrough lines Filter values from 100 pF

Fast transient clamping

Mixed capacitance, grounded

Transient voltage suppression

Resists EMP, NEMP, lightning

Hermetic Connectors

### -65°C to 200°C Wide range of special configurations

**High Performance** 

Rugged

# **Typical Applications**

- Pressurized systems
- Fuel tanks and other hazardous materials
- Harsh environments

# **High Speed, High Density**

- Up to 8 Quadrax contacts in a size 25 shell One Quadrax contact in a
- size 9 shell Integral ground plane

# Rugged

- High-strength aluminum alloy shell
- Nickel, zinc cobalt, or olive drab cadmium plating
- 360° shielding
- -65°C to +175°C

# **Typical Applications**

High-speed networking

# Convenient

- Suited to bulkhead pass-through and connector-saver applications
- Wide range of gender matching, materials, and sizes



**Backshells and** Accessories



- **High Speed** Supports 10G Ethernet
  - and beyond One 10G Ethernet channel in size 11 shell
  - Four channels in size 25 shell

# Compatible

- AS39029 contacts
- Fast field termination and repair, using standard tools
- Available with aluminum or composite shells with a variety of finishes

# **Typical Applications**

High-speed networking

# Wide Backshell Range

- AS85049-compliant band straps and adapters
- Available in all materials and finishes
- Straight, 45°, or 90°
- Options on low profile, extended length and alternative angles

# Shielded or Unshielded

Shielded for individual or overall 360° screening options

# Compatible

Compatible with Mil-Spec dimensions and performance



**Quadrax Connectors** 

Feedthrough Connectors







- Connectors
- CeeLok FAS-X

# For More Information

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Consult TE for the latest dimensions and design specifications.



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