



## Trident Ringlock, Trident Neptune & TNM

Trident circular connectors are a cost effective, reliable, and aesthetically pleasing method of making connections to and from an electronic package. There are three types of Trident circular connectors: Trident Ringlock, Trident Neptune, and TNM. Trident Ringlock connectors are designed to carry power or control signals and are waterproof up to IP67. Trident Neptune, which is a variation of the Ringlock line, allows mixing of high power and signal contacts within the same connector with amperage up to 30 amps per contact. Neptune is completely sealed and submersible up to IP67 for the most demanding applications. Both Trident Ringlock and Trident Neptune are UL94V0 circular plastic connectors, but with the critical addition of a metal coupling nut and metal bayonet retention mechanism. This unique construction combines

the low cost and weight of a plastic connector with the durability of an all metal connector. The Trident series uses the same contacts and accessories, reducing the number of parts necessary to cover any operating environment. Trident Ringlock connectors are completely interchangeable with Burndy Trim-Trio (UTG) series and use interchangeable contacts. Trident Neptune uses the same contacts as Ringlock, but is a unique product for transportation and harsh environments where full sealing and mixing of power and signal contacts is required.

### Applications

Industrial and vehicular connections to & from electronic cabinets and boxes. Any power and signal application requiring total moisture sealing.

- Trucks & Buses
- Off-road Vehicles
- Rail and Mass Transit
- Marine
- Process Control
- Industrial Machinery
- Control Cables
- Probes
- Hand Controllers
- Remote Sensors
- Inter-system Connections

### Features

#### Strong, Light Weight, Low Cost

Superior to plastic circular connectors and less costly than metal connectors. Trident's metal bayonet coupling nut and locking mechanism provide strength and life comparable to an all metal connector. Bodies are of durable UL94V0 thermoplastic with high strength nickel plated metal coupling nuts and bayonet ring. Molded rubber and silicone seals guarantee water-tightness.

#### Attractive Appearance

Nice enough for front panel mounting

#### Submersible or Waterjet-proof Versions

Neptune uses a rear individual wire sealing grommet and is fully submersible to IP67. Ringlock is protected against submersion to IP67 using gland seal cable clamp.

#### Wide Temperature Range

Trident will operate in temperatures from -55°C to +120°C (-67° to +248°F) under conditions of high humidity, severe vibration, ice and mud.

#### Wide Range of Wire Gauges and Current Carrying Capability

Up to 30 amps per contact with wire sizes from 28 AWG up to 12 AWG wire. New TNM 700 volt 40 amp power for up to 8 AWG.

#### Standard and Reverse Connector Housings

In the Trident STANDARD configuration, the receptacles use socket contacts and the plugs use pin contacts. A REVERSED version is also available for safety and/or polarization. Standard and reversed connectors will not intermate. 'Keying Pins' are also available to polarize connectors with the same orientation and layout used on the same panel to prevent mis-mating.

#### Wide Range of Contact Styles

Contacts are available in crimp, PC, coax, wire wrap or first make/last break for ground connections.



**TNM**  
**(Trident Neptune Metal)**  
➔ See pages 60-63

## Features

### Field Serviceable

The use of removable crimp contacts allows connections to be changed or modified in the field if necessary. Contacts are copper alloy with a range of gold or tin platings.

### Agency Approvals

- UL and CSA (Trident Ringlock)
- IP67 Submersible

## Technical Specifications

### MATERIALS & FINISHES

Shell	UL94V0 thermoplastic with nickel plated copper alloy coupling nut and bayonet lock ring
Contacts	High reliability copper alloy available in two versions, stamped and formed, or machined
Plating	Tin, gold flash, gold (1 micron), heavy gold (3 microns)
Seals	Rubber, silicone

### ELECTRICAL DATA

Operating Voltage	Up to 250 Vac rms degree of pollution permitting per IEC664 (TNM 700 volt power version)
Test Voltage	2000 Vac rms test potential
Current rating	30 Amps (Neptune Power contacts), 13 Amps (Signal contacts). 16 Amp contacts available. Use in accordance with derating curve, on fold out <a href="#">▶ page 57</a> New TNM 40 amp power.
Wire Range Sizes	28 - 14 AWG (stamped contacts), 28 - 16 AWG (machined), 18 -12 AWG (Power Neptune) 16-8 AWG (Power TNM)
Contact Resistance	5 Milliohms Initial
Insulation Resistance	5000 Megohms at 500Vdc

### MECHANICAL

Operating Temperature	-55° to +120°C (-67° to +248°F). 105°C maximum when 4 or more contacts are run near their maximum current. 105°C maximum when using tin contacts.
Sealing	Up to IP67
Wire Sealing Range	See column 9 on contact selection chart, <a href="#">▶ page 59</a>
Insulation Strip Lengths	See column 8 on contact selection chart, <a href="#">▶ page 59</a>
Mating Life	500 cycles (machined contacts) 200 cycles (stamped)
Salt Spray	To MIL-STD-1344 Method 1001 (48 hrs. no corrosion)
Heat	Damp Heat to BS 2011 Pt2 Ca, 21 days exposure +105°C to -50°C (5 cycles) remains within specifications
Chemical Resistance	Connectors show no damage when exposed to fluids used in industrial/vehicle applications.
Vibration	5 to 55 Hz (1 minute) No discontinuities longer than 1 microsecond
Shock	50g 11 ms MIL-STD-202 Method 213 condition A
Contact Type	Crimp, PC, first make/last break, co-ax, wire wrap
Number of Circuits	4 to 48
Contact Insertion	From rear. No insertion tool needed. Removable with proper extraction tool (front release).

# Technical Specifications

Contact Retention

CONTACT	FORCE (min)	
	Lbs.	Newtons
Machined	25	110
Stamped	15	65

Polarization	Standard or reversed sex shells and/or keying pins
Agency Listing	UL (E102053), CSA (LR68300), TNM: UL, C-UL, E151413
Color	Silver (TNM) or Black with silver coupling nut and ring (Ringlock and Neptune)

## Exploded View

### Neptune

**PLUG**

**FLANGED RECEPTACLE**

**JAM NUT RECEPTACLE**

### Ringlock

**PLUG**

**FLANGED RECEPTACLE**

### TNM

**PLUG**

**FLANGED RECEPTACLE**

**NEW! Light Rope**

**NEW! High Power**

**NEW! 700 Volt High Power**