cannon

Trident Series

(a)

000

When it matters most

For more than a century, ITT Cannon has developed innovative interconnect solutions for the world's harshest environments. With facilities in the United States, Germany, Italy, Mexico, China and Japan, each with its unique strengths, we offer our customers interconnect solutions that are truly Engineered for Life.

In addition to this truly global footprint, we offer highly specialized, segmented industry expertise. We have a proven track record as an industry leader in harsh-environment applications. This has equipped us with the knowledge needed to continue to produce the most resilient, reliable connectors for our customers' most challenging conditions.

Interconnect solutions for the harshest environments.

The ITT Cannon difference

- Global capabilities & local support
- Proven application expertise
- A century of interconnect leadership
- A committed innovator & business partner

About ITT

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ITT is a diversified leading manufacturer of highly engineered critical components and customized technology solutions for the energy, transportation and industrial markets. Building on its heritage of innovation, ITT partners with its customers to deliver enduring solutions to the key industries that underpin our modern way of life. Founded in 1920, ITT is headquartered in White Plains, N.Y., with employees in more than 35 countries and sales in a total of approximately 125 countries. For more information, visit www.itt.com.

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Commercial & Military Aerospace

Our connector portfolio remains the most extensive in the industry.

Offering a reliable and cost effective range of interconnect solutions.



Additional interconnect solutions utilizing the trusted and proven Trident contact system

ITT Cannon's Trident T2P and T3P contact technology is an extremely reliable and effective solution for harsh environment interconnects. In addition to the extensive Trident range, this contact technology is used in a number of ITT Cannon and Veam connector series including:



cannon



CTC Series

This cost-effective, footprint minimized solution for harsh environment vehicle wiring applications is available in 8 to 24-way layouts. Extremely simple to install and maintain it delivers an IP69K sealing without the need for wedge locks or blind seals.



APD Series

This full-plastic, proven bayonet series with IP69K sealing and color and mechanical coding is an ideal solution for multiple harsh transportation and industrial environments that require high sealing grades.



VRPC Series

This full plastic rectangular sealed connector series for multiple transport and industrial applications is extremely durable, small and light weight and meets stringent NFF fire and smoke resistance standards for Rail.



Cannon's Trident Connector System is a versatile range of electrical connectors based on a standard contact design. These contacts are fully interchangeable throughout the Trident Connector System. The connector options include low cost retangulars, rack and panel, industrial grade circulars, harsh environment circulars and shielded circulars.

Description

Trident Connector System

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| | Snap Together | | Flame Retardant | | | | |
|-----------------------------------|--|--|--|---|--|--|--|
| | Rectangular | Slimline | Rectangular | Ringlock | Neptune | Neptune Metal (TNM) | High Voltage (THV) |
| | | Comments Sinch | | 6 | | 60 in 100 | W |
| Operating Voltage ¹ | Up to 250 V ac rms | Up to 250 V ac rms | Up to 250 V ac rms | Up to 250 V ac rms Up to 380 V ac rms (7 position connector only) | Up to 250 V ac rms | Up to 250 V ac rms | Up to 500 V ac rms |
| Current Rating ² | Up to 13 A | Up to 10 A | Up to 13 A | Up to 13 A Up to 16 A with High Conductivity Contacts | Up to 13 A Up to 16 A with High Conductivity Contacts Up to 30 A with Power Contacts | Up to 13 A Up to 16 A with High Conductivity Contacts Up to 30 A with Power Contacts Up to 40 A with D Sub Contacts | Up to 34 A with Power Contacts |
| Operating Temperature | -55°C to +105°C (-67°F to +221°F) (from -40°C, -40°F for PCB versions) | -55°C to +105°C (-67°F to +221°F) (from -40°C, -40°F for PCB versions) | -55°C to +105°C (-67°F to +221°F) | -55°C to +105°C (-67°F to +221°F) | -55°C to +105°C (-67°F to +221°F) | -55°C to +105°C (-67°F to +221°F) | -40°C to +125°C (-40°F to +257°F) |
| Insulation Resistance | 5000 MΩ at 500 V dc | 5000 MΩ at 500 V dc | 5000 MΩ at 500 V dc | 5000 MΩ at 500 V dc | 5000 MΩ at 500 V dc | 5000 MΩ at 500 V dc | 5000 MΩ at 500 V dc |
| Durability ³ | Up to 500 Mating Cycles | Up to 500 Mating Cycles | Up to 500 Mating Cycles | Up to 500 Mating Cycles | | | Up to 200 Mating Cycles |
| Environmental Sealing | - | - | - | Up to IP65 | Up to IP67 | Up to IP67 | Up to IP67 |
| Flammability | UL 94 V-0 | UL 94 V-0 | I2/F2 according to NFF 16-101 (fire & smoke standards) UL 94 V-0 | UL 94 V-0 | UL 94 V-0 | UL 94 V-0 | UL 94 V-0 |
| Insulator | Black Nylon | Black Nylon | Gray Nylon | Black Nylon | Black Nylon | Black Nylon | Orange Nylon |
| Coupling Ring | - | - | - | Nickel Plated Brass | Nickel Plated Brass | Nickel Plated Brass | Nickel Plated Brass |
| Layouts | 2, 3, 4, 6, 12, 24, 36 | 3, 4, 6, 9, 10 | 2, 3, 4, 6, 12, 24, 36 | 4, 7, 8, 12, 19, 23, 28, 35, 48 | 12+0, 19+0 13+2, 20+4, 28+4, 48+0, 19+12 ** | 4+0, 8+0, 12+0, 3+3, 4+3, 0+4, 19+0 ** | 4 |
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* For details please consult the factory

** Signal + Power contacts

Depends on contacts used, layout, and degree of pollution
 Depends on number and type of contacts used
 Depends on plating and type of contacts used



These are low installed cost connectors rated for up to 13 A and 250 V ac. They are typically used for circuit board and internal wiring applications. Snap Together connectors facilitate easy assembly and removal of equipment such as motors, fans, transformers, etc. All Snap Together - Rectangular connectors are RoHS Compliant.

Applications:



- Vehicle Dashboards.
- Circuit board connections.
- Internal connections.

Product Features

- Easy cost effective installation.
- Integrally molded latches and connector polarization.
- Recognized under the component program of UL Inc.
- Inter-connector discrimination facilities available.
- Accepts formed (stamped) or machined contacts, see page 64.

Performance Specifications

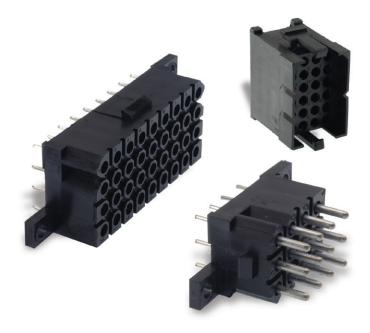
| Operating Voltage ¹ | Up to 250 V ac rms |
|-------------------------------------|---|
| Contact Current Rating ² | Up to 13 A |
| Operating Temperature | -55°C to +105°C (-67°F to +221°F) for free Plug and Receptacles |
| | -40°C to +105°C (-40°F to +221°F) for PCB Mounted Receptacles |
| Insulation Resistance | 5000M Ω min. at 500 V dc |
| Durability ³ | 150 N min. with latches engaged |
| Connector Latching Force | 500 N min. |
| Flammability | UL 94 V-0 |

¹ Depends on contacts used, layout, and degree of pollution

² Depends on number and type of contacts used

³ Depends on plating and type of contacts used

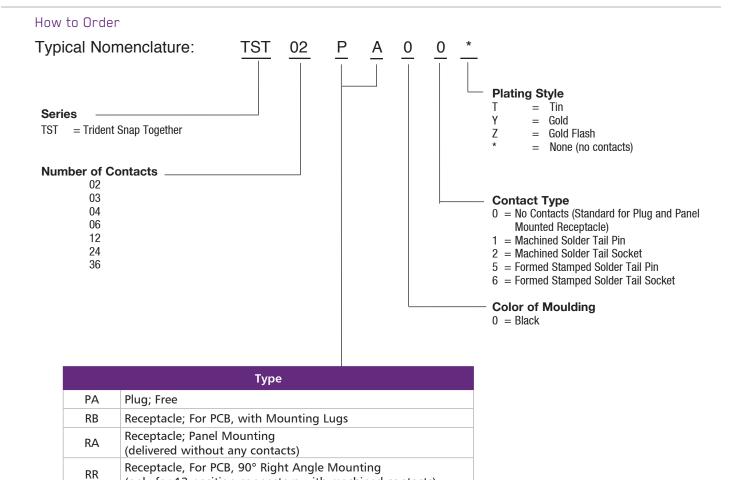




Materials and Finishes

Insulator Black Nylon, UL 94 V-0





| Test Spec | ifications |
|-----------|------------|

AS

AH

The table below summarizes the results of key tests. Data is applicable to standard connectors with standard contacts. Variations may affect this data, so please consult factory for further information on your requirements.

(only for 12 position connectors with machined contacts)

Accessory; Receptacle Shroud

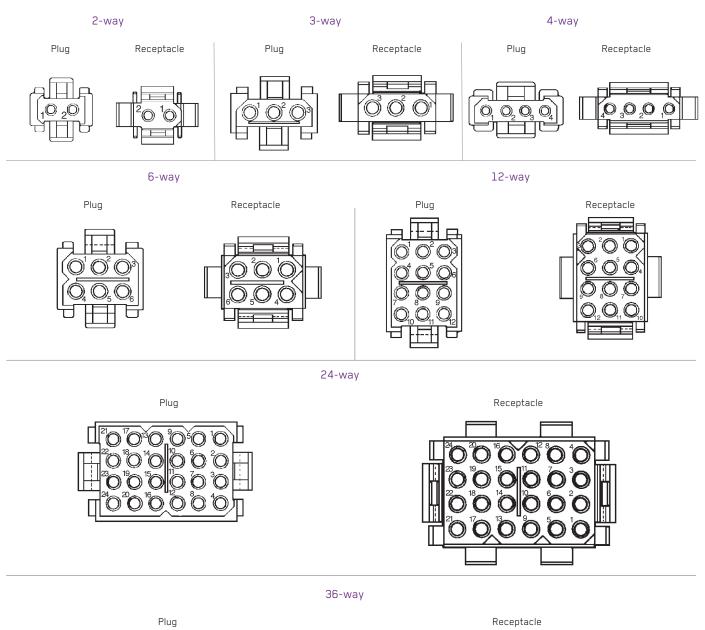
Accessory; Plug Strain Relief Hood

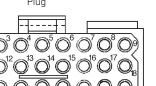
| Test | Method | Criteria of Acceptance |
|---------------------------------|---|---|
| Dielectric Withstanding Voltage | 2000 V ac | No breakdown |
| Thermal Shock | -55°C to +125°C (-67°F to +257°F), 5 cycles | No physical damage |
| Physical Shock | 50 g's peak, 3 axes, 11 millisecond duration half-sine pulse | No physical damage. No loss of continuity >1 sec |
| Vibration | 10 g's peak, 10-500 Hz, 9 hours | No physical damage, No loss of continuity >1 sec |
| Durability | 500 cycles of mating and unmating, 500 mating cycles max | No mechanical or electrical defects |
| Salt Spray | 48 hours and meet contact resistance requirements | Shall be capable of mating and unmating |
| High Temperature Endurance | 1000 hours at 125°C (+257°F) | Insulation Resistance $> 100 M\Omega$ |
| Humidy Steady State | RH 90-95%, 40°C (+104°F), 504 hours | Insulation Resistance $> 100 \text{ M}\Omega$ |
| Moisture Resistance | 10 Cycles | Insulation Resistance $> 100 \text{ M}\Omega$ |

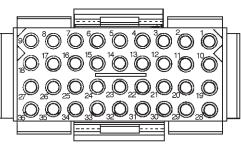


Dimensions shown in mm Specifications and dimensions subject to change

Contact Cavity Arrangements – Mating Face View









Dimensions shown in mm Specifications and dimensions subject to change

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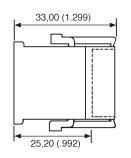
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Free Plug

- Accepts Pin or Socket contacts.
- Contacts to be ordered separately, see page 64.
- Mates with panel mounted receptacles, see page 11.
- Mates with PCB mounted receptacles, see pages 12-13.
- Connector Discriminating (Keying) Pins available, see page 69.

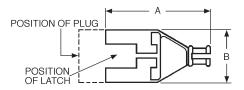


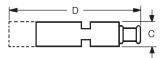
| Number of | Pack of 100 | | Dimensions (| max.) |
|-----------|-------------|--------------|---------------|---------------|
| Contacts | Part Number | Nomenclature | А | В |
| 2 | 192990-0350 | TST02PA00 | 15,50 (.610) | 17,00 (.669) |
| 3 | 192923-5920 | TST03PA00 | 19,00 (.748) | 17,00 (.669) |
| 4 | 192990-0370 | TST04PA00 | 24,00 (.944) | 17,00 (.669) |
| 6 | 192923-5930 | TST06PA00 | 19,00 (.748) | 22,00 (.866) |
| 12 | 192923-5940 | TST12PA00 | 19,00 (.748) | 32,00 (1.259) |
| 24 | 192923-5950 | TST24PA00 | 24,00 (.944) | 42,00 (1.653) |
| 36 | 192923-5960 | TST36PA00 | 49,50 (1.948) | 32,00 (1.259) |



Accessory – Plug Strain Relief Hood

- Provides strain relief and wire protection.
- Secure with a tie-wrap (customer supplies tie-wrap).





| Number of | Pack of 100 | | | | Dimensions | (max.) | |
|-----------|-------------|--------------|----------------------|---------------|---------------|---------------|---------------|
| Contacts | Part Number | Nomenclature | Wire Bundle Dia. | А | В | С | D |
| 2 | 192990-0460 | TST02AH00 | 2,30-8,30 (.090326) | 46,20 (1.818) | 16,10 (.633) | 11,00 (.433) | 56,50 (2.224) |
| 3 | 192990-0470 | TST03AH00 | 2,30-8,30 (.090326) | 46,20 (1.818) | 18,60 (.732) | 11,00 (.433) | 56,50 (2.224) |
| 4 | 192990-0480 | TST04AH00 | 3,00-10,00 (.118393) | 46,20 (1.818) | 23,70 (.933) | 11,00 (.433) | 56,50 (2.224) |
| 6 | 192923-5970 | TST06AH00 | 2,30-8,30 (.090326) | 46,20 (1.818) | 19,00 (.748) | 16,40 (.645) | 56,50 (2.224) |
| 12 | 192923-5980 | TST12AH00 | 3,00-10,00 (.118393) | 45,50 (1.791) | 19,00 (.748) | 26,40 (1.039) | 55,80 (2.196) |
| 24 | 192923-5990 | TST24AH00 | 4,60-12,70 (.181500) | 51,00 (2.007) | 24,10 (.948) | 36,80 (1.448) | 60,30 (2.374) |
| 36 | 192923-6000 | TST36AH00 | 7,00-15,90 (.275625) | 57,50 (2.263) | 49,50 (1.948) | 26,40 (1.039) | 68,00 (2.677) |

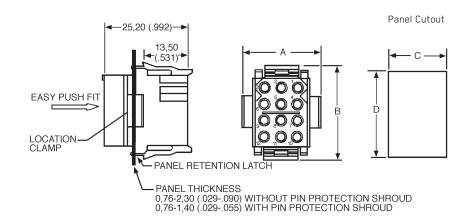


Dimensions shown in mm



Receptacle – Panel Mounted

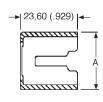
- Accepts Pin or Socket contacts.
- Contacts to be ordered separately, see page 60.
- Mates with Free Plugs, see page 10.
- Connector Discriminating (Keying) Pins available, see page 69.



| | Pack of 10 | 00 | | Dimensio | ins | |
|-----------|-------------|--------------|---------------|---------------|---------------|---------------|
| Number of | | | | | С | D |
| Contacts | Part Number | Nomenclature | А | В | ±0,13(.005) | ±0,13(.005) |
| 2 | 192990-0360 | TST02RA00 | 19,00 (.748) | 14,00 (.551) | 11,50 (.452) | 11,60 (.456) |
| 3 | 192923-6010 | TST03RA00 | 24,00 (.944) | 14,00 (.551) | 16,50 (.649) | 11,60 (.456) |
| 4 | 192990-0380 | TST04RA00 | 29,00 (1.141) | 14,00 (.551) | 21,70 (.854) | 11,60 (.456) |
| 6 | 192923-6020 | TST06RA00 | 24,00 (.944) | 19,00 (.748) | 16,50 (.649) | 16,70 (.657) |
| 12 | 192923-6030 | TST12RA00 | 24,00 (.944) | 29,00 (1.141) | 16,70 (.657) | 26,70 (1.051) |
| 24 | 192923-6040 | TST24RA00 | 29,00 (1.141) | 39,00 (1.535) | 21,80 (.858) | 36,90 (1.452) |
| 36 | 192923-6050 | TST36RA00 | 54,20 (2.133) | 29,00 (1.141) | 46,70 (1.838) | 26,40 (1.039) |



| - | — в —— |
|---|--------------|
| | ►X |
| | PLAN VIEW |
| | ►X |



Section X-X

| | | Pack of 10 | 00 | Dimens | sions |
|--------|-----------|-------------|--------------|---------------|---------------|
| | Number of | | | | |
| | Contacts | Part Number | Nomenclature | A | В |
| | 3 | 192990-0400 | TST03AS00 | 23,50 (.925) | 19,05 (.748) |
| | 4 | 192991-0668 | TST04AS00 | 28,60 (1.126) | 19,05 (.748) |
| | 6 | 192990-0420 | TST06AS00 | 23,50 (.925) | 24,13 (.948) |
| ounted | 12 | 192990-0430 | TST12AS00 | 23,60 (.929) | 34,20 (1.346) |
| | 24 | 192990-0440 | TST24AS00 | 29,70 (1.169) | 44,40 (1.748) |
| - la | 36 | 192990-0450 | TST36AS00 | 54,40 (2.141) | 34,00 (1.338) |

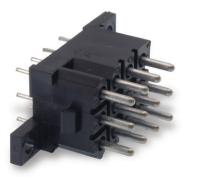
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| Accessory – |
|----------------------|
| Protection Shrouds |
| for Receptacles with |
| Pin Contacts |

- Provides protection for panel mounted receptacles with pin contacts.
- Shrouds can be fitted onto panels up to 1,40 (.055) thick.

Dimensions shown in mm Specifications and dimensions subject to change

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Receptacle – PCB Mounted with Pin Contacts

- Mates with Free Plug, see page 10.
- Integrally molded flanges.
- Contacts are on a 5,08 (.200) grid, symmetrical on center lines.
- Recommended PCB hole Ø1,15 (.045).
- Connector Discriminating Caps available, see page 69.



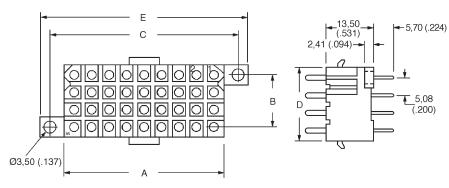
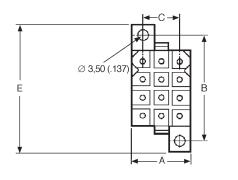
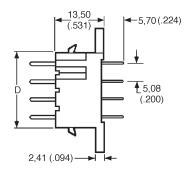


Figure 2





| | | Pack of 100 | | | | | | | | | |
|-----------|---------|---------------|--------------|-------------|--------------|--------|---------------|---------------|---------------|---------------|---------------|
| | | Formed (Stamp | oed) | Machine | d | _ | | | Dimensions | | |
| Number of | | | | | | | | В | С | | |
| Contacts | Plating | Part Number | Nomenclature | Part Number | Nomenclature | Figure | А | ±0,08 (.003) | ±0,08 (.003) | D | E |
| 2 | Gold* | 192900-0411 | TST02RB05Y | 192991-0270 | TST02RB01Z | 1 | 11,13 (.438) | N/A | 19,13 (.753) | 6,00 (.236) | 25,00 (.984) |
| 2 | Tin | 192990-3230 | TST02RB05T | 192991-0271 | TST02RB01T | 1 | 11,13 (.438) | N/A | 19,13 (.753) | 6,00 (.236) | 25,00 (.984) |
| 3 | Gold* | 192900-0412 | TST03RB05Y | 192991-0278 | TST03RB01Z | 2 | 16,21 (.638) | 14,05 (.553) | 10,24 (.403) | 6,00 (.236) | 20,10 (.791) |
| 3 | Tin | 192990-3240 | TST03RB05T | 192991-0279 | TST03RB01T | 2 | 16,21 (.638) | 14,05 (.553) | 10,24 (.403) | 6,00 (.236) | 20,10 (.791) |
| 4 | Gold* | 192900-0413 | TST04RB05Y | 192991-0286 | TST04RB01Z | 2 | 21,30 (.838) | 14,05 (.553) | 15,32 (.603) | 6,00 (.236) | 20,10 (.791) |
| 4 | Tin | 192990-3250 | TST04RB05T | 192991-0287 | TST04RB01T | 2 | 21,30 (.838) | 14,05 (.553) | 15,32 (.603) | 6,00 (.236) | 20,10 (.791) |
| 6 | Gold* | 192900-0414 | TST06RB05Y | 192991-0294 | TST06RB01Z | 2 | 16,20 (.637) | 19,12 (.752) | 10,23 (.402) | 11,00 (.433) | 26,00 (1.023) |
| 6 | Tin | 192990-3260 | TST06RB05T | 192991-0295 | TST06RB01T | 2 | 16,20 (.637) | 19,12 (.752) | 10,23 (.402) | 11,00 (.433) | 26,00 (1.023) |
| 12 | Gold* | 192900-0415 | TST12RB05Y | 192991-0302 | TST12RB01Z | 2 | 16,20 (.637) | 29,30 (1.153) | 10,26 (.404) | 21,20 (.834) | 35,20 (1.385) |
| 12 | Tin | 192990-3270 | TST12RB05T | 192991-0303 | TST12RB01T | 2 | 16,20 (.637) | 29,30 (1.153) | 10,26 (.404) | 21,20 (.834) | 35,20 (1.385) |
| 24 | Gold* | 192900-0416 | TST24RB05Y | 192991-0310 | TST24RB01Z | 2 | 21,30 (.838) | 39,37 (1.550) | 15,32 (.603) | 31,30 (1.232) | 45,60 (1.795) |
| 24 | Tin | 192990-3280 | TST24RB05T | 192991-0311 | TST24RB01T | 2 | 21,30 (.838) | 39,37 (1.550) | 15,32 (.603) | 31,30 (1.232) | 45,60 (1.795) |
| 36 | Gold* | 192900-0417 | TST36RB05Y | 192991-0402 | TST36RB01Z | 1 | 46,60 (1.834) | 15,24 (.600) | 54,64 (2.151) | 21,20 (.834) | 60,50 (2.382) |
| 36 | Tin | 192990-3290 | TST36RB05T | 192991-0403 | TST36RB01T | 1 | 46,60 (1.834) | 15,24 (.600) | 54,64 (2.151) | 21,20 (.834) | 60,50 (2.382) |

* Gold plating for Formed (Stamped) Contacts is 0,75 μ m (30 μ in.) min gold. Gold plating for Machined Contacts is gold flash.

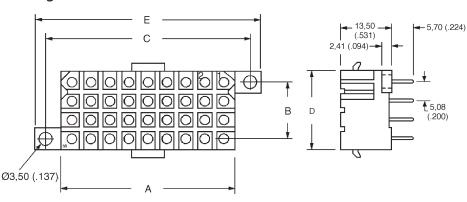




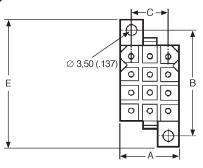
Receptacle – PCB Mounted with Socket Contacts

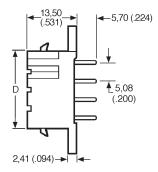
- Mates with Free Plug, see page 10.
- Integrally molded flanges.
- Contacts are on a 5,08 (.200) grid, symmetrical on center lines.
- Recommended PCB hole Ø 1,15 (.045).
- Connector Discriminating Pegs available, see page 69.











| | | Pack of 100 | | | | | | | | | |
|-----------|---------|------------------|--------------|-----------------|------------|--------|---------------|---------------|---------------|---------------|---------------|
| | | Formed (Stamped) | | Machined | | | | | Dimensio | ons | |
| Number of | | | | | | | | В | С | | |
| Contacts | Plating | Part Number | Nomenclature | Part Number Nom | nenclature | Figure | A | ±0,08 (.003) | ±0,08 (.003) | D | E |
| 2 | Gold* | 192900-0418 | TST02RB06Y | 192991-0213 | TST02RB02Z | 1 | 11,13 (.438) | N/A | 19,13 (.753) | 6,00 (.236) | 25,00 (.984) |
| 2 | Tin | 192990-3300 | TST02RB06T | 192991-0214 | TST02RB02T | 1 | 11,13 (.438) | N/A | 19,13 (.753) | 6,00 (.236) | 25,00 (.984) |
| 3 | Gold* | 192900-0419 | TST03RB06Y | 192991-0221 | TST03RB02Z | 2 | 16,21 (.638) | 14,05 (.553) | 10,24 (.403) | 6,00 (.236) | 20,10 (.791) |
| 3 | Tin | 192990-3310 | TST03RB06T | 192991-0222 | TST03RB02T | 2 | 16,21 (.638) | 14,05 (.553) | 10,24 (.403) | 6,00 (.236) | 20,10 (.791) |
| 4 | Gold* | 192900-0420 | TST04RB06Y | 192991-0229 | TST04RB02Z | 2 | 21,30 (.838) | 14,05 (.553) | 15,32 (.603) | 6,00 (.236) | 20,10 (.791) |
| 4 | Tin | 192990-3320 | TST04RB06T | 192991-0230 | TST04RB02T | 2 | 21,30 (.838) | 14,05 (.553) | 15,32 (.603) | 6,00 (.236) | 20,10 (.791) |
| 6 | Gold* | 192900-0421 | TST06RB06Y | 192991-0237 | TST06RB02Z | 2 | 16,20 (.637) | 19,12 (.752) | 10,23 (.402) | 11,00 (.433) | 26,00 (1.023) |
| 6 | Tin | 192990-3330 | TST06RB06T | 192991-0238 | TST06RB02T | 2 | 16,20 (.637) | 19,12 (.752) | 10,23 (.402) | 11,00 (.433) | 26,00 (1.023) |
| 12 | Gold* | 192900-0422 | TST12RB06Y | 192991-0245 | TST12RB02Z | 2 | 16,20 (.637) | 29,30 (1.153) | 10,26 (.404) | 21,20 (.834) | 35,20 (1.385) |
| 12 | Tin | 192990-3340 | TST12RB06T | 192991-0246 | TST12RB02T | 2 | 16,20 (.637) | 29,30 (1.153) | 10,26 (.404) | 21,20 (.834) | 35,20 (1.385) |
| 24 | Gold* | 192900-0423 | TST24RB06Y | 192991-0253 | TST24RB02Z | 2 | 21,30 (.838) | 39,37 (1.550) | 15,32 (.603) | 31,30 (1.232) | 45,60 (1.795) |
| 24 | Tin | 192990-3350 | TST24RB06T | 192991-0254 | TST24RB02T | 2 | 21,30 (.838) | 39,37 (1.550) | 15,32 (.603) | 31,30 (1.232) | 45,60 (1.795) |
| 36 | Gold* | 192900-0424 | TST36RB06Y | 192991-0261 | TST36RB02Z | 1 | 46,60 (1.834) | 15,24 (.600) | 54,64 (2.151) | 21,20 (.834) | 60,50 (2.382) |
| 36 | Tin | 192990-3360 | TST36RB06T | 192991-0262 | TST36RB02T | 1 | 46,60 (1.834) | 15,24 (.600) | 54,64 (2.151) | 21,20 (.834) | 60,50 (2.382) |

* Gold plating for Formed (Stamped) Contacts is 0,75 μ m (30 μ in.) min gold. Gold plating for Machined Contacts is gold flash.



This connector series is compliant to railway standards. The material properties are I2/F2 according to NFF 16-101 & NFF 16-102. These are low installed cost connectors rated for up to 13 A and 250 V ac. They are typically used for circuit board and internal wiring applications. All flame retardant connectors are RoHS Compliant.

Applications:



- Vehicle Dashboards.
- Circuit board connections.
- Internal connections.
- Railway.
- Lighting.
- Cabin Applications.
- Control Consoles.

Product Features

- Material properties I2/F2 according to NFF 16-101 & NFF 16-102
- Easy cost effective installation.
- Integrally molded latches and connector polarization.
- Accepts formed (stamped) or machined contacts, see page 64.

Performance Specifications

| Operating Voltage ¹ | Up to 250 V ac rms |
|-------------------------------------|---|
| Contact Current Rating ² | Up to 13 A |
| Operating Temperature | -55°C to +105°C (-67°F to +221°F) for free Plug and Receptacles |
| Insulation Resistance | 5000MΩ min. at 500 V dc |
| Durability ³ | Up to 500 Mating Cylces |
| Connector Latching Force | 150 N min. with latches engaged |
| Panel Retention Force | 500 N min. |
| Flammability | UL 94 V-0 |

¹ Depends on contacts used, layout, and degree of pollution

² Depends on number and type of contacts used

³ Depends on plating and type of contacts used

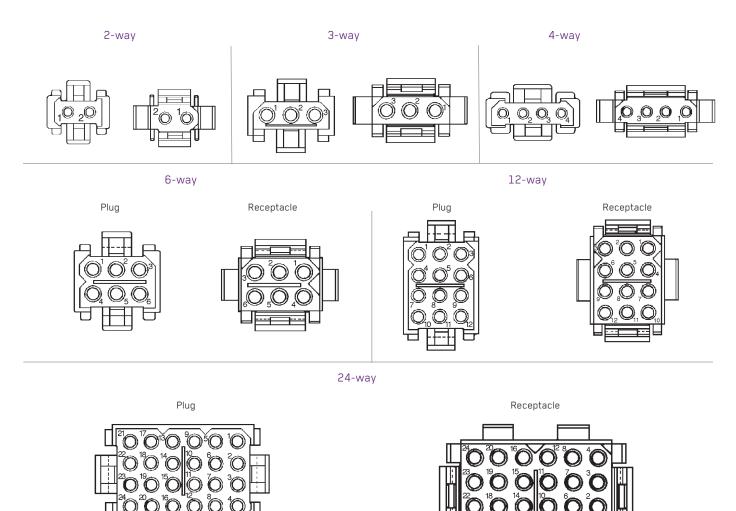


Materials and Finishes

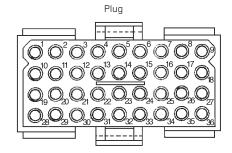
Gray Nylon

Insulator

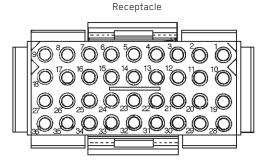
Contact Cavity Arrangements – Mating Face View



36-way



Dimensions shown in mm Specifications and dimensions subject to change



O)

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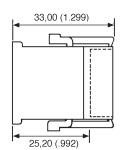
Free Plug

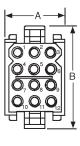
- Accepts Pin or Socket contacts.
- Contacts to be ordered separately, see page 60.
- Mates with panel mounted receptacles, see page 17.
- Connector Discriminating (Keying) Pins available, see page 68.



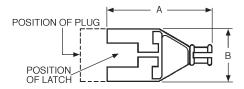
Accessory – Plug Strain Relief Hood

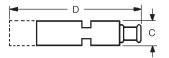
- Provides strain relief and wire protection.
- Secure with a tie-wrap (customer supplies tie-wrap).





| Number of | Pack of 10 | 00 | Dimensions (max.) | | | |
|-----------|-------------|--------------|-------------------|---------------|--|--|
| Contacts | Part Number | Nomenclature | А | В | | |
| 2 | 121587-0010 | TFR02PA10 | 15,50 (.610) | 17,00 (.669) | | |
| 3 | 121587-0011 | TFR03PA10 | 19,00 (.748) | 17,00 (.669) | | |
| 4 | 121587-0012 | TFR04PA10 | 24,00 (.944) | 17,00 (.669) | | |
| 6 | 121587-0013 | TFR06PA10 | 19,00 (.748) | 22,00 (.866) | | |
| 12 | 121587-0014 | TFR12PA10 | 19,00 (.748) | 32,00 (1.259) | | |
| 24 | 121587-0015 | TFR24PA10 | 24,00 (.944) | 42,00 (1.653) | | |
| 36 | 121587-0016 | TFR36PA10 | 49,50 (1.948) | 32,00 (1.259) | | |
| | | | | | | |





| Number of | Pack of 1 | 100 | _ | | Dimensions (| (max.) | |
|-----------|-------------|--------------|----------------------|---------------|---------------|---------------|---------------|
| Contacts | Part Number | Nomenclature | Wire Bundle Dia. | А | В | С | D |
| 2 | 121587-0020 | TFR02AH10 | 2,30-8,30 (.090326) | 46,20 (1.818) | 16,10 (.633) | 11,00 (.433) | 56,50 (2.224) |
| 3 | 121587-0021 | TFR03AH10 | 2,30-8,30 (.090326) | 46,20 (1.818) | 18,60 (.732) | 11,00 (.433) | 56,50 (2.224) |
| 4 | 121587-0022 | TFR04AH10 | 3,00-10,00 (.118393) | 46,20 (1.818) | 23,70 (.933) | 11,00 (.433) | 56,50 (2.224) |
| 6 | 121587-0023 | TFR06AH10 | 2,30-8,30 (.090326) | 46,20 (1.818) | 19,00 (.748) | 16,40 (.645) | 56,50 (2.224) |
| 12 | 121587-0024 | TFR12AH10 | 3,00-10,00 (.118393) | 45,50 (1.791) | 19,00 (.748) | 26,40 (1.039) | 55,80 (2.196) |
| 24 | 121587-0025 | TFR24AH10 | 4,60-12,70 (.181500) | 51,00 (2.007) | 24,10 (.948) | 36,80 (1.448) | 60,30 (2.374) |
| 36 | 121587-0026 | TFR36AH10 | 7,00-15,90 (.275625) | 57,50 (2.263) | 49,50 (1.948) | 26,40 (1.039) | 68,00 (2.677) |



Dimensions shown in mm



Kit – Plug and Strain Relief Hood

- Provides protection for panel mounted receptacles with pin contacts.
- Shrouds can be fitted onto panels up to 1,40 (.055) thick.



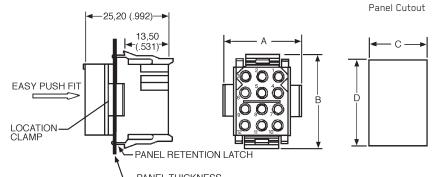
Receptacle – Panel Mounted

- Accepts Pin or Socket contacts.
- Contacts to be ordered separately, see page 60.
- Mates with Free Plugs, see page 16.
- Connector Discriminating (Keying) Pins available, see page 68.



Pack of 100

| Number of | Pack of 10 | JU | |
|-----------|-------------|--------------|--|
| Contacts | Part Number | Nomenclature | |
| 2 | 121587-0040 | TFR02PH10 | |
| 3 | 121587-0041 | TFR03PH10 | |
| 4 | 121587-0042 | TFR04PH10 | |
| 6 | 121587-0043 | TFR06PH10 | |
| 12 | 121587-0044 | TFR12PH10 | |
| 24 | 121587-0045 | TFR24PH10 | |
| 36 | 121587-0046 | TFR36PH10 | |
| | | | |



PANEL THICKNESS 0,76-2,30 (.029-.090) WITHOUT PIN PROTECTION SHROUD 0,76-1,40 (.029-.055) WITH PIN PROTECTION SHROUD

| | Pack of 10 | 0 | | Dimensions | | | | |
|-----------|-------------|--------------|---------------|---------------|---------------|---------------|--|--|
| Number of | | | | | С | D | | |
| Contacts | Part Number | Nomenclature | А | В | ±0,13(.005) | ±0,13 (.005) | | |
| 2 | 121587-0030 | TFR02RA10 | 19,00 (.748) | 14,00 (.551) | 11,50 (.452) | 11,60 (.456) | | |
| 3 | 121587-0031 | TFR03RA10 | 24,00 (.944) | 14,00 (.551) | 16,50 (.649) | 11,60 (.456) | | |
| 4 | 121587-0032 | TFR04RA10 | 29,00 (1.141) | 14,00 (.551) | 21,70 (.854) | 11,60 (.456) | | |
| 6 | 121587-0033 | TFR06RA10 | 24,00 (.944) | 19,00 (.748) | 16,50 (.649) | 16,70 (.657) | | |
| 12 | 121587-0034 | TFR12RA10 | 24,00 (.944) | 29,00 (1.141) | 16,70 (.657) | 26,70 (1.051) | | |
| 24 | 121587-0035 | TFR24RA10 | 29,00 (1.141) | 39,00 (1.535) | 21,80 (.858) | 36,90 (1.452) | | |
| 36 | 121587-0036 | TFR36RA10 | 54,20 (2.133) | 29,00 (1.141) | 46,70 (1.838) | 26,40 (1.039) | | |

Dimensions shown in mm

www.ittcannon.com



Materials and Finishes

The Slimline offers a low profile connector system that is well suited for circuit board applications. The precision machined contacts are ideal for power and sensitive signals. All Snap Together - Slimline connectors are RoHS Compliant.

Applications:



- Junction Boxes. Communications equipment.
- Test equipment.
- Instrumentation.

Product Features

- Less than 10,00 (.393) width on PC board.
- Pin headers pre-loaded with straight or 90° machined solder tail pins.
- Mating plug accepts all Trident signal crimp socket contacts, see page 60.
- Plugs have integrally molded quick connect/disconnect latches.
- Five single row contact arrangements available.
- Recognized under the component program of UL Inc.
- · Gold plated version available with earth pin capability.
- 10 A per circuit.

Performance Specifications

| | | | 1 11101100 |
|-------------------------------------|---|-------------------------------------|---|
| Operating Voltage ¹ | Up to 250 V ac rms | Insulator | Black Nylon, UL 94 V-0 |
| Contact Current Rating ² | Up to 10 A | | Black NyION, OL 94 V-0 |
| Operating Temperature | -55°C to +105°C (-67°F to +221°F) for free Plug & Receptacles | _ | |
| | -40°C to +105°C (-40°F to +221°F) for PCB Mounted Receptacles | _ | |
| Insulation Resistance | 5000MΩ min. at 500 V dc | _ | |
| Durability ³ | Up to 500 Mating Cylces | _ | |
| Connector Latching Force | 150 N min. with latches engaged | ¹ Depends on con | tacts used, layout, and degree of pollution |
| Panel Retention Force | 500 N min. | ² Depends on nun | nber and type of contacts used |
| Flammability | UL 94 V-0 | Depends on plat | ing and type of contacts used |
| | | | |

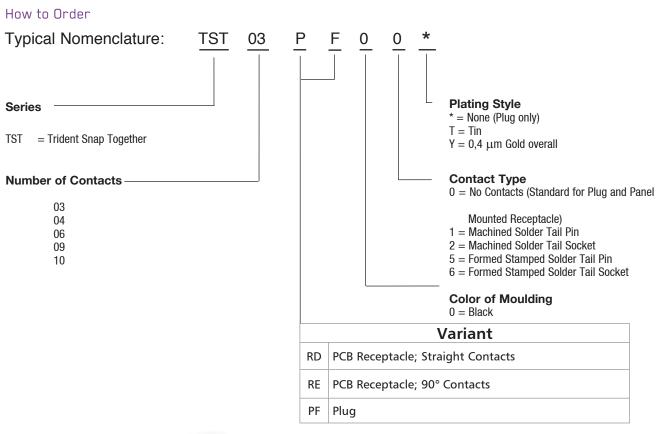
Test Specifications

The table below summarizes the results of key tests. Data is applicable to standard connectors with standard contacts. Variations may affect this data, so please consult factory for further information on your requirements.

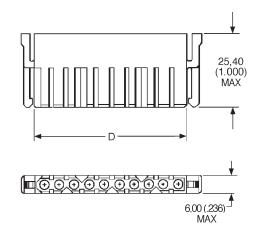
| Test | Method | Criteria of Acceptance |
|---|---|---|
| Dielectric Withstanding Voltage | 2000 V ac | No breakdown |
| Thermal Shock | -55°C to +125°C (-67°F to +257°F), 5 cycles | No physical damage |
| Physical Shock | 50 g's peak, 3 axes, 11 millisecond duration half-sine pulse | No physical damage. No loss of continuity >1 sec |
| Vibration | 10 g's peak, 10-500 Hz, 9 hours | No physical damage, No loss of continuity >1 sec |
| Durability 500 cycles of mating and unmating, 500 mating cycles max | No mechanical or electrical defects | |
| Salt Spray | 48 hours and meet contact resistance requirements | Shall be capable of mating and unmating |
| High Temperature Endurance | 1000 hours at 125°C (+257°F) | Insulation Resistance $> 100 M\Omega$ |
| Humidy Steady State | RH 90-95%, 40°C (+125°F), 504 hours | Insulation Resistance $> 100 M\Omega$ |
| Moisture Resistance | 10 Cycles | Insulation Resistance > 100 M Ω |



Dimensions shown in mm







• Socket contacts must be ordered separately for the plug connectors, see page 60.

Plug Connector

| Number of | Pack of 2 | 100 | D |
|-----------|--------------|--------------|---------------|
| Contacts | Part Number | Nomenclature | max. |
| 3 | 192990-0960* | TST03PF00 | 16,10 (.633) |
| 4 | 192990-0970 | TST04PF00 | 21,20 (.834) |
| 6 | 192990-0980 | TST06PF00 | 31,40 (1.236) |
| 9 | 192990-0990 | TST09PF00 | 46,60 (1.834) |
| 10 | 192990-1000 | TST10PF00 | 51,60 (2.031) |

*Available in gray (material properties I2/F2 according to NFF 16-101 & NFF 16-102), part number: 192990-0965.

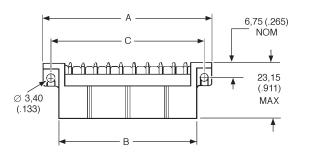
Dimensions shown in mm Specifications and dimensions subject to change

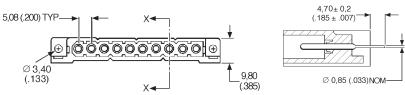




Receptacle with Straight Pin Contacts

• For gold plated versions extended earth pins are available in any one or two positions. Contact your local Cannon Sales Office for further details.

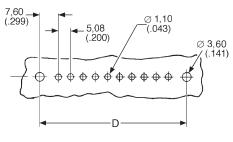




Pack of 100

| | Gold Plated Version 0,4 µm (16 µin.) min. Gold | | Tin Plated V | ersion | | | |
|-----------------------|---|--------------|--------------|--------------|---------------|---------------|---------------|
| Number of Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | В | С |
| 3 | 192991-0337 | TST03RD01Y | 192991-0316 | TST03RD01T | 31,40 (1.236) | 19,40 (.763) | 25,50 (1.003) |
| 4 | 192991-0347 | TST04RD01Y | 192991-0318 | TST04RD01T | 36,50 (1.437) | 14,50 (.964) | 30,60 (1.204) |
| 6 | 192991-0342 | TST06RD01Y | 192991-0320 | TST06RD01T | 46,70 (1.838) | 34,70 (1.366) | 40,70 (1.602) |
| 9 | 192991-0536 | TST09RD01Y | 192991-0322 | TST09RD01T | 61,90 (2.437) | 49,90 (1.964) | 56,00 (2.204) |
| 10 | 192991-0354 | TST10RD01Y | 192991-0324 | TST10RD01T | 67,00 (2.637) | 55,00 (2.165) | 61,10 (2.405) |

PCB Layout



| Number of | D |
|-----------|---------------|
| Contacts | max. |
| 3 | 25,50 (1.003) |
| 4 | 30,60 (1.204) |
| 6 | 40,70 (1.602) |
| 9 | 56,00 (2.204) |
| 10 | 61,10 (2.405) |

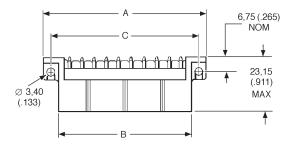


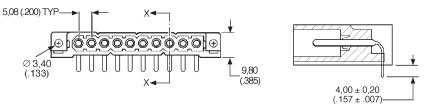
Dimensions shown in mm Specifications and dimensions subject to change



Receptacle with 90° Pin Contacts

• For gold plated versions extended earth pins are available in any one or two positions. Contact your local Cannon Sales Office for further details.



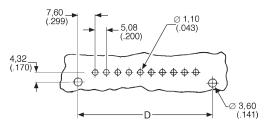


Pack of 100

| | Gold Plat | ed Version | | | | | | |
|-----------|----------------------------|--------------|-------------|--------------------|---------------|-------------------|---------------|--|
| | 0,4 µm (16 µin.) min. Gold | | | Tin Plated Version | | Dimensions (max.) | | |
| Number of | | | | | | | | |
| Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | В | С | |
| 3 | 192991-0532* | TST03RE01Y | 192991-0317 | TST03RE01T | 31,40 (1.236) | 19,40 (.763) | 25,50 (1.003) | |
| 4 | 192991-0533 | TST04RE01Y | 192991-0319 | TST04RE01T | 36,50 (1.437) | 14,50 (.964) | 30,60 (1.204) | |
| 6 | 192991-0534 | TST06RE01Y | 192991-0321 | TST06RE01T | 46,70 (1.838) | 34,70 (1.366) | 40,70 (1.602) | |
| 9 | 192991-0535 | TST09RE01Y | 192991-0323 | TST09RE01T | 61,90 (2.437) | 49,90 (1.964) | 56,00 (2.204) | |
| 10 | 192991-0538 | TST10RE01Y | 192991-0325 | TST10RE01T | 67,00 (2.637) | 55,00 (2.165) | 61,10 (2.405) | |
| | | | | | | | | |

*Available in gray (material properties I2/F2 according to NFF 16-101 & NFF 16-102), part number: 192991-0539.

PCB Layout



| Number of | D |
|-----------|---------------|
| Contacts | max. |
| 3 | 25,50 (1.003) |
| 4 | 30,60 (1.204) |
| 6 | 40,70 (1.602) |
| 9 | 56,00 (2.204) |
| 10 | 61,10 (2.405) |
| | |

Dimensions shown in mm Specifications and dimensions subject to change



Ringlock is a range of robust circular connectors for industrial and transportation applications. It uses a metal bayonet coupling system for quick and reliable connections and thermoplastic bodies for low installed cost. The connectors are available in several sizes ranging from 4 to 48 circuits for signals of up to 16 A. With the addition of a cable clamp, the connectors can be water sealed to meet IP65. All Ringlock Circular Connectors are RoHS Compliant.



Applications:

- Industrial Electronics.
- Robotic Systems.
- Manufacturing Equipment.
- Printing Equipment.
- Instrumentation.
- Machine Building.

- **Product Features**
- Rugged metal coupling.
- Available in unsealed and sealed versions.
- Positive bayonet locking.
- Shell to shell keying.
- Integrally molded combined plastic body and insulator.
- Wide range of accessories.
- Accepts all Trident signal contacts.
- PCB versions are available.
- Recognized under the component program of UL Inc.

Performance Specifications

| Operating Voltage ¹ | Up to 250 V ac rms |
|-------------------------------------|--|
| | Up to 380 V ac rms (Size 1807 only) |
| Contact Current Rating ² | Up to 13 A, Up to 16 A with High Conductivity Contacts |
| Operating Temperature | -55°C to +105°C (-67°F to + 221°F) |
| Insulation Resistance | 5000MΩ min. at 500 V dc |
| Durability ³ | Up to 500 Mating Cycles |
| Environmental Sealing | Up to IP65 |
| Flammability | UL 94 V-0 |

Materials and Finishes

| Connector Body | Black Nylon |
|---------------------------|----------------------------|
| Coupling Ring | Nickel Plated Copper Alloy |
| Bayonet Pins | Stainless Steel |
| Bayonet Pins Support Band | Nickel Plated Copper Alloy |

¹ Depends on contacts used, layout and degree of pollution

² Depends on number and type of contacts used

³ Depends on plating and type of contact used

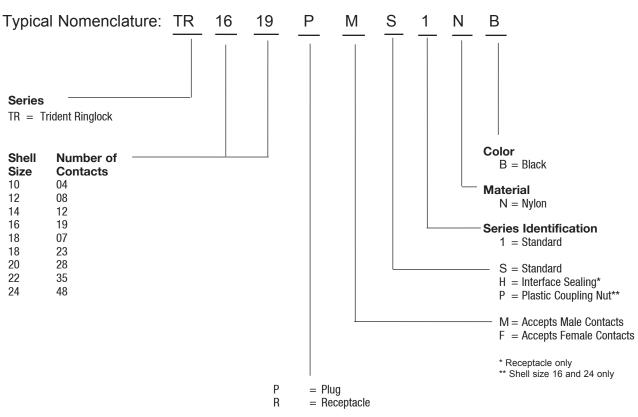


Test Specifications

The table below summarizes the results of key tests. Data is applicable to standard connectors with standard contacts. Variations may affect this data, so please consult factory for further information on your requirements.

| Test | Method | Criteria of Acceptance | |
|---|---|---|--|
| Dielectric Withstanding Voltage | 1550 V ac for 60 seconds 2500 V ac for 60 seconds (Size 1807 only) | No breakdown No breakdown | |
| Thermal Shock | -55°C to +125°C (-67°F to +257°F), 5 cycles | No physical damage. | |
| Physical Shock | 50 g's peak, 3 axes, 11 millisecond duration half-sine pulse No loss of continuity >1 si | | |
| Vibration | 10 g's peak,10-500 Hz, 9 hours | No physical damage. No loss of continuity >1 sec | |
| Durability 500 cycles of mating and unmating, 500 mating cycles max | No mechanical or Electrical defects | | |
| Salt Spray | 48 hours | Shall be capable of mating and unmating and meet contact resistance requirements | |
| High Temperature Endurance | 1000 hours at 125°C (+257°F) | Insulation Resistance > 100 M Ω | |
| Humidy Steady State | RH 90-95%, 40°C(+104°F), 504 hours | Insulation Resistance > 100 M Ω | |
| Moisture Resistance | 10 Cycles | Insulation Resistance > 100 M Ω | |

How to Order-Connectors



Dimensions shown in mm Specifications and dimensions subject to change

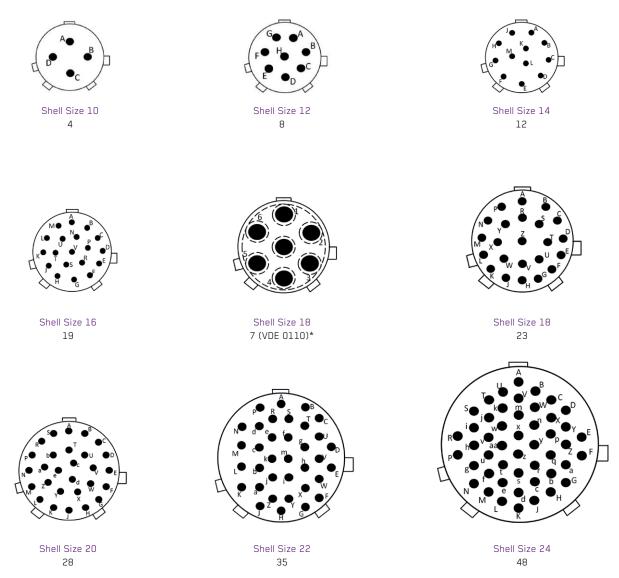


Contact Cavity Arrangements

Mating Face View, Standard Plug (Mating Face View, Reversed Plug is mirror image)

Shell Size

Number of Contacts

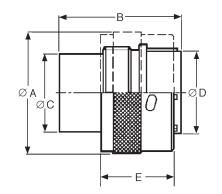


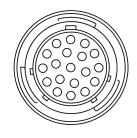
* Meets creepage and clearance requirements according to VDE 0110. Note: The shell size indicates the diameter of the interface in sixteenths of an inch. Example: Shell size 16 is 1.00 inch in diameter, 25,4 mm.



Dimensions shown in mm Specifications and dimensions subject to change







Standard Plug for Pin Contacts

- Mates with Standard Receptacles, see page 26.
- Accepts pin contacts, see page 60.
- Discriminating (Keying) Pins available, see page 68.
- Can be water sealed to IP65.

| Shell | Number of | Single Piece C | onnector | | Dimensior | าร | | Accessory | |
|-------|-----------|----------------|--------------|------------------|---------------|------------------|------------------|--------------------------|------------------|
| Size | Contacts | Part Number | Nomenclature | ØA ± 0,20 (.008) | B max. | ØC ± 0,15 (.005) | ØD ± 0,15 (.005) | E | Thread |
| 10 | 4 | 192922-1250 | TR1004PMS1NB | 21,60 (.850) | 31,80 (1.252) | 10,90 (.429) | 12,20 (.480) | 19,10 ±0,20 (.751 ±.007) | 9/16 - 24 UNEF |
| 12 | 8 | 192922-1260 | TR1208PMS1NB | 24,80 (.976) | 31,80 (1.252) | 13,80 (.543) | 15,10 (.594) | 19,10 ±0,20 (.751 ±.007) | 11/16 - 24 UNEF |
| 14 | 12 | 192922-1270 | TR1412PMS1NB | 28,00 (1.102) | 31,80 (1.252) | 17,00 (.669) | 18,30 (.720) | 19,10 ±0,20 (.751 ±.007) | 13/16 - 20 UNEF |
| 16 | 19 | 192922-1280 | TR1619PMS1NB | 31,20 (1.228) | 31,80 (1.252) | 19,90 (.783) | 21,40 (.842) | 19,10 ±0,20 (.751 ±.007) | 15/16 - 20 UNEF |
| 18 | 7 | 192990-1330 | TR1807PMS1NB | 34,30 (1.350) | 33,00 (1.299) | 22,50 (.885) | 24,00 (.944) | 19,10 ±0,20 (.751 ±.007) | 1-1/16 - 18 UNEF |
| 18 | 23 | 192990-1320 | TR1823PMS1NB | 34,30 (1.350) | 31,80 (1.252) | 22,40 (.881) | 24,00 (.944) | 19,10 ±0,20 (.751 ±.007) | 1-1/16 - 18 UNEF |
| 20 | 28 | 192922-1290 | TR2028PMS1NB | 37,50 (1.476) | 31,80 (1.252) | 25,60 (1.007) | 27,10 (1.066) | 19,10 ±0,20 (.751 ±.007) | 1-3/16 - 18 UNEF |
| 22 | 35 | 192922-1300 | TR2235PMS1NB | 40,70 (1.602) | 31,80 (1.252) | 28,50 (1.122) | 30,40 (1.196) | 19,10 ±0,20 (.751 ±.007) | 1-5/16 - 18 UNEF |
| 24 | 48 | 192990-1340 | TR2448PMS1NB | 43,90 (1.728) | 31,80 (1.252) | 31,70 (1.248) | 33,50 (1.318) | 14,72 ±0,15 (.580 ±.006) | 1-7/16 - 18 UNEF |

Note: For versions with plastic locking ring, please consult the factory.

IMPORTANT NOTE: Standard and Reversed Format Equipment design dictates whether the fixed connector is "live" or "dead" when disconnected. Connector housings are available that provide socket contacts on the live side of the equipment.

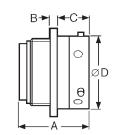
Standard Format: Receptacle with socket contacts. Reversed Format: Receptacle with pin contacts.

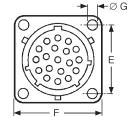
Standard and Reversed connectors are not intermateable.

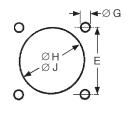
Dimensions shown in mm Specifications and dimensions subject to change











ØJ=Flange in Front of Panel

ØH= Flange at Rear of Panel

Standard Receptacle for Socket Contacts

- Mates with Standard Plugs, see page 25.
- Accepts socket contacts, see page 60.
- Printed circuit contacts are available, see page 60.

Dimensions

| Shell | Number of | А | В | С | ØD | Е | F | ØG | ØH | ØJ | Accessory |
|-------|-----------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------------------|
| Size | Contacts | max. | ± 0,15 (.005) | ± 0,20 (.007) | ± 0,15 (.005) | ± 0,15 (.005) | ± 0,25 (.009) | ± 0,10 (.003) | ± 0,10 (.003) | ± 0,10 (.003) | Thread |
| 10 | 4 | 24,00 (.945) | 2,30 (.091) | 11,15 (.439) | 15,00 (.591) | 18,00 (.709) | 23,50 (.925) | 3,25 (.128) | 17,30 (.681) | 15,10 (.594) | 9/16 - 24 UNEF |
| 12 | 8 | 25,80 (1.016) | 2,30 (.091) | 11,35 (.447) | 19,00 (.748) | 20,50 (.807) | 26,20 (1.031) | 3,25 (.128) | 21,80 (.858) | 18,20 (.716) | 11/16 - 24 UNEF |
| 14 | 12 | 24,00 (.945) | 2,30 (.091) | 11,35 (.447) | 22,20 (.874) | 22,60 (.890) | 28,15 (1.108) | 3,25 (.128) | 25,00 (.984) | 21,40 (.842) | 13/16 - 20 UNEF |
| 16 | 19 | 25,80 (1.016) | 2,30 (.091) | 11,35 (.447) | 25,40 (1.000) | 24,20 (.953) | 30,50 (1.200) | 3,25 (.128) | 28,10 (1.106) | 24,60 (.968) | 15/16 - 20 UNEF |
| 18 | 7 | 32,50 (1.280) | 2,50 (.098) | 18,20 (.716) | 28,50 (1.122) | 27,00 (1.063) | 33,30 (1.311) | 3,25 (.128) | 31,30 (1.232) | 27,80 (1.094) | 1-1/16 - 18 UNEF |
| 18 | 23 | 25,80 (1.016) | 2,50 (.098) | 11,35 (.447) | 28,50 (1.122) | 26,90 (1.059) | 33,30 (1.311) | 3,25 (.128) | 31,30 (1.232) | 27,80 (1.094) | 1-1/16 - 18 UNEF |
| 20 | 28 | 27,00 (1.063) | 2,50 (.098) | 14,50 (.571) | 31,70 (1.248) | 29,20 (1.150) | 36,50 (1.437) | 3,25 (.128) | 34,50 (1.358) | 30,90 (1.216) | 1-3/16 - 18 UNEF |
| 22 | 35 | 28,00 (1.102) | 3,50 (.138) | 14,50 (.571) | 34,90 (1.374) | 31,60 (1.244) | 39,70 (1.563) | 3,25 (.128) | 37,70 (1.484) | 34,10 (1.342) | 1-5/16 - 18 UNEF |
| 24 | 48 | 30,30 (1.193) | 3,50 (.138) | 15,30 (.602) | 38,05 (1.498) | 34,45 (1.356) | 42,90 (1.689) | 3,90 (.154) | 40,90 (1.610) | 37,30 (1.468) | 1-7/16 - 18 UNEF |

Part Numbers-Single Piece Connector

| Shell | Number of | Unsealed | | Sealed (see important no | te below) |
|-------|-----------|-------------|--------------|--------------------------|--------------|
| Size | Contacts | Part Number | Nomenclature | Part Number | Nomenclature |
| 10 | 4 | 192922-1190 | TR1004RFS1NB | 192990-1660 | TR1004RFH1NB |
| 12 | 8 | 192922-1200 | TR1208RFS1NB | 192990-1670 | TR1208RFH1NB |
| 14 | 12 | 192922-1210 | TR1412RFS1NB | 192990-1680 | TR1412RFH1NB |
| 16 | 19 | 192922-1220 | TR1619RFS1NB | 192990-1690 | TR1619RFH1NB |
| 18 | 7 | 192990-1300 | TR1807RFS1NB | 192990-1700 | TR1807RFH1NB |
| 18 | 23 | 192990-1290 | TR1823RFS1NB | 192990-1710 | TR1823RFH1NB |
| 20 | 28 | 192922-1230 | TR2028RFS1NB | 192990-1720 | TR2028RFH1NB |
| 22 | 35 | 192922-1240 | TR2235RFS1NB | 192990-1730 | TR2235RFH1NB |
| 24 | 48 | 192990-1310 | TR2448RFS1NB | 192990-1740 | TR2448RFH1NB |

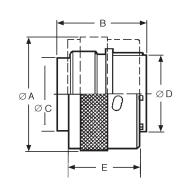
IMPORTANT NOTE: Sealed Connectors

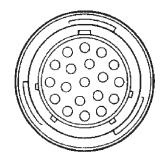
A sealed receptacle has an O-Ring seal that blocks moisture when the plug and receptacle are mated. However, the receptacle is not sealed in an unmated condition. For protection, dust caps are recommended for unmated receptacles, see page 34.

Plug connectors using a sealed cable clamp (see page 35) with jacketed cable will meet IP65 when mated to a sealed receptacle.









Reversed Plug for Socket Contacts

- Mates with Reversed Receptacles, see page 28.
- Accepts socket contacts, see page 60.
- Discriminating (Keying) Pins available, see page 69.
- Can be water sealed to IP65.

| Number of | Single Piece (| Connector | | Dimensio | ns | | | Accessory |
|-----------|---|---|---|--|--|---|--|---|
| Contacts | Part Number | Nomenclature | ØA±0,20(.008) | B max. | ØC ± 0,15 (.005) | ØD ± 0,15 (.005) | E | Thread |
| 4 | 192926-0500 | TR1004PFS1NB | 21,60 (.850) | 26,10 (1.027) | 11,00 (.433) | 12,20 (.480) | 19,10 ±0,20 (.751 ±.007) | 9/16 - 24 UNEF |
| 8 | 192926-0510 | TR1208PFS1NB | 24,80 (.976) | 25,60 (1.008) | 13,90 (.547) | 15,10 (.594) | 19,10 ±0,20 (.751 ±.007) | 11/16 - 24 UNEF |
| 12 | 192926-0520 | TR1412PFS1NB | 28,00 (1.102) | 26,80 (1.055) | 17,10 (.673) | 18,30 (.720) | 19,10 ±0,20 (.751 ±.007) | 13/16 - 20 UNEF |
| 19 | 192926-0530 | TR1619PFS1NB | 31,20 (1.228) | 27,60 (1.087) | 20,00 (.787) | 21,40 (.842) | 19,10 ±0,20 (.751 ±.007) | 15/16 - 20 UNEF |
| 7 | 192990-1390 | TR1807PFS1NB | 34,30 (1.350) | 31,50 (1.240) | 22,50 (.885) | 24,00 (.944) | 19,10 ±0,20 (.751 ±.007) | 1-1/16 - 18 UNEF |
| 23 | 192990-1380 | TR1823PFS1NB | 34,30 (1.350) | 25,60 (1.088) | 22,50 (.885) | 24,00 (.944) | 19,10 ±0,20 (.751 ±.007) | 1-1/16 - 18 UNEF |
| 28 | 192926-0540 | TR2028PFS1NB | 37,50 (1.476) | 31,30 (1.232) | 25,70 (1.011) | 27,10 (1.066) | 19,10 ±0,20 (.751 ±.007) | 1-3/16 - 18 UNEF |
| 35 | 192926-0550 | TR2235PFS1NB | 40,70 (1.602) | 31,30 (1.232) | 28,60 (1.126) | 30,40 (1.196) | 19,10 ±0,20 (.751 ±.007) | 1-5/16 - 18 UNEF |
| 48 | 192990-1400 | TR2448PFS1NB | 43,90 (1.728) | 31,30 (1.232) | 31,80 (1.225) | 33,50 (1.318) | 14,72 ±0,15 (.580 ±.006) | 1-7/16 - 18 UNEF |
| | Contacts 4 8 12 19 7 23 28 35 | Rumber of Contacts Part Number 4 192926-0500 8 192926-0510 12 192926-0520 19 192926-0530 7 192990-1390 23 192926-0540 28 192926-0540 35 192926-0550 | Contacts Part Number Nomenclature 4 192926-0500 TR1004PFS1NB 8 192926-0510 TR1208PFS1NB 12 192926-0520 TR1412PFS1NB 19 192926-0530 TR1619PFS1NB 7 192990-1390 TR1807PFS1NB 23 192990-1380 TR1823PFS1NB 28 192926-0540 TR2028PFS1NB 35 192926-0550 TR235PFS1NB | Admet of Contacts Part Number Nomenclature ØA ± 0,20 (.008) 4 192926-0500 TR1004PFS1NB 21,60 (.850) 8 192926-0510 TR1208PFS1NB 24,80 (.976) 12 192926-0520 TR1412PFS1NB 28,00 (1.102) 19 192926-0530 TR1619PFS1NB 31,20 (1.228) 7 192990-1390 TR1807PFS1NB 34,30 (1.350) 23 192990-1380 TR1823PFS1NB 34,30 (1.350) 28 192926-0550 TR2028PFS1NB 37,50 (1.476) 35 192926-0550 TR2235PFS1NB 40,70 (1.602) | Momenciature ØA ± 0,20 (.008) B max. 4 192926-0500 TR1004PF51NB 21,60 (.850) 26,10 (1.027) 8 192926-0510 TR1208PF51NB 24,80 (.976) 25,60 (1.008) 12 192926-0520 TR1412PF51NB 28,00 (1.102) 26,80 (1.055) 19 192926-0530 TR1619PF51NB 31,20 (1.228) 27,60 (1.087) 7 192990-1390 TR1807PF51NB 34,30 (1.350) 31,50 (1.240) 23 192990-1380 TR1823PF51NB 34,30 (1.350) 25,60 (1.088) 28 192926-0540 TR2028PF51NB 37,50 (1.476) 31,30 (1.232) 35 192926-0550 TR235PF51NB 40,70 (1.602) 31,30 (1.232) | Mained of Contacts Part Number Nomenclature ØA ± 0,20 (.008) B max. ØC ± 0,15 (.005) 4 192926-0500 TR1004PF51NB 21,60 (.850) 26,10 (1.027) 11,00 (.433) 8 192926-0510 TR1208PF51NB 24,80 (.976) 25,60 (1.008) 13,90 (.547) 12 192926-0520 TR1412PF51NB 28,00 (1.102) 26,80 (1.055) 17,10 (.673) 19 192926-0530 TR1619PF51NB 31,20 (1.228) 27,60 (1.087) 20,00 (.787) 7 192990-1390 TR1807PF51NB 34,30 (1.350) 31,50 (1.240) 22,50 (.885) 23 192990-1380 TR1823PF51NB 34,30 (1.350) 25,60 (1.088) 22,50 (.885) 28 192926-0540 TR2028PF51NB 37,50 (1.476) 31,30 (1.232) 25,70 (1.011) 35 192926-0550 TR233PF51NB 40,70 (1.602) 31,30 (1.232) 28,60 (1.126) | Mained of Contacts Part Number Nomenclature ØA ± 0,20 (.008) B max. ØC ± 0,15 (.005) ØD ± 0,15 (.005) 4 192926-0500 TR1004PFS1NB 21,60 (.850) 26,10 (1.027) 11,00 (.433) 12,20 (.480) 8 192926-0510 TR1208PFS1NB 24,80 (.976) 25,60 (1.008) 13,90 (.547) 15,10 (.594) 12 192926-0520 TR1412PFS1NB 28,00 (1.102) 26,80 (1.055) 17,10 (.673) 18,30 (.720) 19 192926-0530 TR1619PFS1NB 31,20 (1.228) 27,60 (1.087) 20,00 (.787) 21,40 (.842) 7 192990-1390 TR1807PFS1NB 34,30 (1.350) 31,50 (1.240) 22,50 (.885) 24,00 (.944) 23 19290-1380 TR1823PFS1NB 34,30 (1.350) 25,60 (1.088) 22,50 (.885) 24,00 (.944) 28 192926-0550 TR2028PFS1NB 37,50 (1.476) 31,30 (1.232) 25,70 (1.011) 27,10 (1.066) 35 192926-0550 TR2235PFS1NB 40,70 (1.602) 31,30 (1.232) 28,60 (1.126) 30,40 (1.196) | Mainter of Contacts Part Number Nomenclature ØA ± 0,20 (.008) B max. ØC ± 0,15 (.005) ØD ± 0,15 (.005) E 4 192926-0500 TR1004PFS1NB 21,60 (.850) 26,10 (1.027) 11,00 (.433) 12,20 (.480) 19,10 ± 0,20 (.751 ±.007) 8 192926-0510 TR1208PFS1NB 24,80 (.976) 25,60 (1.008) 13,90 (.547) 15,10 (.594) 19,10 ± 0,20 (.751 ±.007) 12 192926-0520 TR1412PFS1NB 28,00 (1.102) 26,80 (1.055) 17,10 (.673) 18,30 (.720) 19,10 ± 0,20 (.751 ±.007) 19 192926-0530 TR1619PFS1NB 31,20 (1.228) 27,60 (1.087) 20,00 (.787) 21,40 (.842) 19,10 ± 0,20 (.751 ±.007) 7 192990-1390 TR1807PFS1NB 34,30 (1.350) 31,50 (1.240) 22,50 (.885) 24,00 (.944) 19,10 ± 0,20 (.751 ±.007) 23 192990-1380 TR1823PFS1NB 34,30 (1.350) 25,60 (1.088) 22,50 (.885) 24,00 (.944) 19,10 ± 0,20 (.751 ±.007) 28 192926-0550 TR2028PFS1NB 37,50 (1.476) 31,30 (1.232) 25,70 (1.011) 27,10 (1.066) |

Note: For versions with plastic locking ring, please consult the factory.

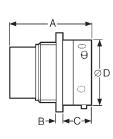
IMPORTANT NOTE: Standard and Reversed Format Equipment design dictates whether the fixed connector is "live" or "dead" when disconnected. Connector housings are available that provide socket contacts on the live side of the equipment.

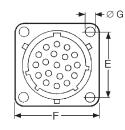
Standard Format: Receptacle with socket contacts. Reversed Format: Receptacle with pin contacts.

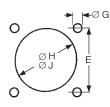
Standard and Reversed connectors are not intermateable.











Panel Cutout

ØJ = Flange in Front of Panel ØH = Flange at Rear of Panel

Reversed Receptacle for Pin Contacts

- Mates with Reversed Plugs, see page 27.
- Accepts pin contacts, see page 60.
- Printed Circuit contacts are available, see page 60.

Dimensions

| Shell | Number of | А | В | С | ØD | E | F | ØG | ØH | ØJ | Accessory |
|-------|-----------|---------------|--------------|--------------|---------------|---------------|---------------|--------------|---------------|---------------|------------------|
| Size | Contacts | max. | ±0,15 (.005) | ±0,20 (.007) | ±0,15 (.005) | ±0,15 (.005) | ±0,25 (.009) | ±0,10 (.003) | ±0,10 (.003) | ±0,10 (.003) | Thread |
| 10 | 4 | 31,50 (1.240) | 2,30 (.091) | 11,35 (.447) | 15,00 (.591) | 18,00 (.709) | 23,50 (.925) | 3,25 (.128) | 17,30 (.681) | 15,10 (.594) | 9/16 - 24 UNEF |
| 12 | 8 | 31,50 (1.240) | 2,30 (.091) | 11,35 (.447) | 19,00 (.748) | 20,50 (.807) | 26,20 (1.031) | 3,25 (.128) | 21,80 (.858) | 18,20 (.716) | 11/16 - 24 UNEF |
| 14 | 12 | 31,50 (1.240) | 2,30 (.091) | 11,35 (.447) | 22,20 (.874) | 22,90 (.902) | 28,15 (1.108) | 3,25 (.128) | 25,00 (.984) | 21,40 (.842) | 13/16 - 20 UNEF |
| 16 | 19 | 31,50 (1.240) | 2,30 (.091) | 11,35 (.447) | 25,40 (1.000) | 24,20 (.953) | 30,50 (1.200) | 3,25 (.128) | 28,10 (1.106) | 24,60 (.968) | 15/16 - 20 UNEF |
| 18 | 7 | 34,20 (1.346) | 2,30 (.091) | 17,80 (.700) | 28,50 (1.122) | 27,00 (1.063) | 33,30 (1.311) | 3,25 (.128) | 31,30 (1.232) | 27,80 (1.094) | 1-1/16 - 18 UNEF |
| 18 | 23 | 31,50 (1.240) | 2,50 (.098) | 11,35 (.447) | 28,50 (1.122) | 26,90 (1.059) | 33,30 (1.311) | 3,25 (.128) | 31,30 (1.232) | 27,80 (1.094) | 1-1/16 - 18 UNEF |
| 20 | 28 | 33,00 (1.299) | 2,50 (.098) | 14,55 (.573) | 31,70 (1.248) | 29,20 (1.150) | 36,50 (1.437) | 3,25 (.128) | 34,50 (1.358) | 30,90 (1.216) | 1-3/16 - 18 UNEF |
| 22 | 35 | 33,00 (1.299) | 3,50 (.138) | 14,55 (.573) | 34,90 (1.374) | 31,60 (1.244) | 39,70 (1.563) | 3,25 (.128) | 37,70 (1.484) | 34,10 (1.342) | 1-5/16 - 18 UNEF |
| 24 | 48 | 34,80 (1.370) | 3,50 (.138) | 15,35 (.604) | 38,05 (1.498) | 34,45 (1.356) | 42,90 (1.689) | 3,90 (.154) | 40,90 (1.610) | 37,30 (1.468) | 1-7/16 - 18 UNEF |

Part Numbers - Single Piece Connector

| Number of | Unsealed | | Sealed (see important | note below) |
|-----------|---|--|--|--|
| Contacts | Part Number | Nomenclature | Part Number | Nomenclature |
| 4 | 192926-0440 | TR1004RMS1NB | 192990-1760 | TR1004RMH1NB |
| 8 | 192926-0450 | TR1208RMS1NB | 192990-1770 | TR1208RMH1NB |
| 12 | 192926-0460 | TR1412RMS1NB | 192990-1780 | TR1412RMH1NB |
| 19 | 192926-0470 | TR1619RMS1NB | 192990-1790 | TR1619RMH1NB |
| 7 | 192990-1360 | TR1807RMS1NB | 192990-1800 | TR1807RMH1NB |
| 23 | 192990-1350 | TR1823RMS1NB | 192990-1810 | TR1823RMH1NB |
| 28 | 192926-0480 | TR2028RMS1NB | 192990-1820 | TR2028RMH1NB |
| 35 | 192926-0490 | TR2235RMS1NB | 192990-1830 | TR2235RMH1NB |
| 48 | 192990-1370 | TR2448RMS1NB | 192990-1840 | TR2448RMH1NB |
| | Contacts 4 8 12 19 7 23 28 35 | ContactsPart Number4192926-04408192926-045012192926-046019192926-04707192990-136023192990-135028192926-048035192926-0490 | Contacts Part Number Nomenclature 4 192926-0440 TR1004RMS1NB 8 192926-0450 TR1208RMS1NB 12 192926-0460 TR1412RMS1NB 19 192926-0470 TR1619RMS1NB 7 192990-1360 TR1807RMS1NB 23 192990-1350 TR1823RMS1NB 28 192926-0480 TR2028RMS1NB 35 192926-0490 TR2235RMS1NB | Contacts Part Number Nomenclature Part Number 4 192926-0440 TR1004RMS1NB 192990-1760 8 192926-0450 TR1208RMS1NB 192990-1770 12 192926-0460 TR1412RMS1NB 192990-1780 19 192926-0470 TR1619RMS1NB 192990-1790 7 192990-1360 TR1807RMS1NB 192990-1800 23 192990-1350 TR1823RMS1NB 192990-1810 28 192926-0480 TR2028RMS1NB 192990-1820 35 192926-0490 TR2235RMS1NB 192990-1830 |

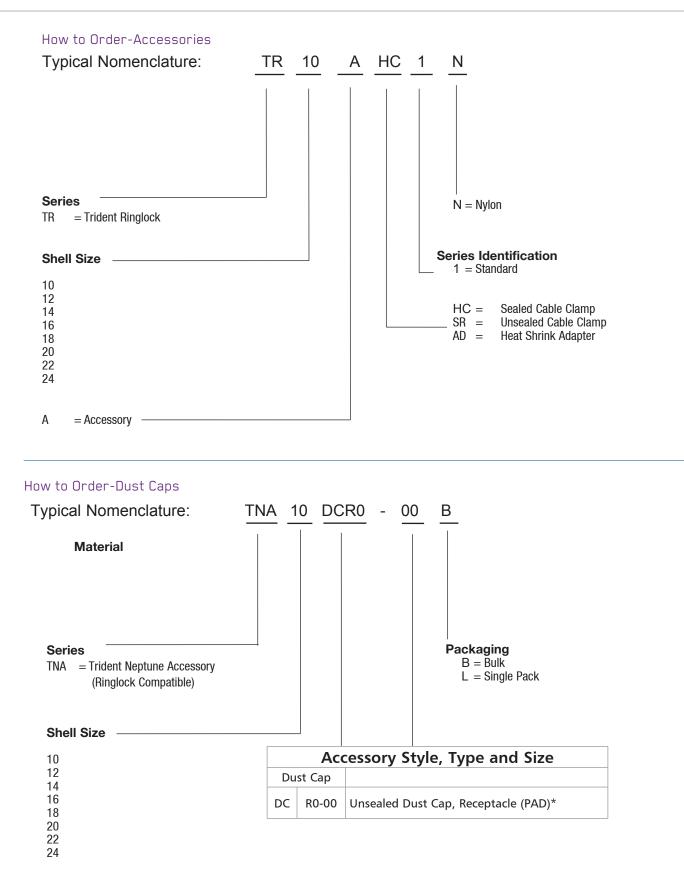
IMPORTANT NOTE: Sealed Connectors

A sealed receptacle has an O-Ring seal that blocks moisture when the plug and receptacle are mated. However, the receptacle is not sealed in an unmated condition. For protection, dust caps are recommended for unmated receptacles, see page 34.

Plug connectors using a sealed cable clamp (see page 35) with jacketed cable will meet IP65 when mated to a sealed receptacle.

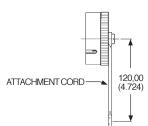


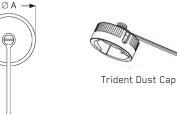
Dimensions shown in mm Specifications and dimensions subject to change



Dimensions shown in mm Specifications and dimensions subject to change









Unsealed Plastic Dust Caps for Receptacles

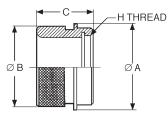
- Protects unmated receptacles.
- Durable construction for long-term use.
- For use with Ringlock receptacles.



| Shell | Part Number | Part Number | Dimension |
|-------|-------------|--------------------------|---------------|
| Size | (Each) | (Pack of 100) | Ø A max. |
| 10 | 192900-0666 | 192900-0676 | 21,80 (.858) |
| 12 | 192900-0667 | 192900-0677 | 25,40 (1.000) |
| 14 | 192900-0668 | 192900-0678 | 28,60 (1.126) |
| 16 | 192900-0669 | 192900-0679 | 31,70 (1.248) |
| 18 | 192900-0670 | 192900-0680 | 34,90 (1.374) |
| 20 | 192900-0671 | 192900-0681 | 38,10 (1.500) |
| 22 | 192900-0672 | 192900-0682 | 41,20 (1.622) |
| 24 | 192900-0673 | 192900-0683 | 44,40 (1.748) |
| | | | |
| 16 | 192900-0718 | Trident Dust Cap Special | 31,7 (1.248) |

 (\mathbf{O})

∽ Ø 3,60 (.141)



Adapters for Heat Shrink Boots or Sleeving

| | Part Number | | | Dimensions | | |
|------------|-------------|--------------|---------------|----------------|--------------|---------------------|
| Shell Size | (Each) | Nomenclature | ØA ±0,3(.012) | ØB ±0,3 (.012) | C ±0,3(.012) | H Thread |
| 10 | 192990-1430 | TR10AAD | 21,00 (.827) | 18,10 (.712) | 19,20 (.755) | 9/16 - 24 UNEF-2B |
| 12 | 192990-1440 | TR12AAD | 24,00 (.944) | 23,40 (.921) | 19,20 (.755) | 11/16 - 24 UNEF-2B |
| 14 | 192990-1450 | TR14AAD | 27,00 (1.063) | 24,20 (.952) | 19,20 (.755) | 13/16 - 20 UNEF-2B |
| 16 | 192990-1460 | TR16AAD | 30,20 (1.189) | 29,60 (1.165) | 21,50 (.846) | 15/16 - 20 UNEF-2B |
| 18 | 192990-1470 | TR18AAD | 33,30 (1.311) | 31,70 (1.248) | 21,50 (.846) | 1-1/16 - 18 UNEF-2B |
| 20 | 192990-1480 | TR20AAD | 36,50 (1.437) | 35,80 (1.409) | 22,80 (.897) | 1-3/16 - 18 UNEF-2B |
| 22 | 192990-1490 | TR22AAD | 39,70 (1.563) | 38,20 (1.503) | 22,80 (.897) | 1-5/16 - 18 UNEF-2B |
| 24 | 192990-1500 | TR24AAD | 42,90 (1.689) | 41,30 (1.626) | 21,90 (.862) | 1-7/16 - 18 UNEF-2B |

Shell Size

10

12

14

16

18

20

22

24



Panel Gaskets for Ringlock Receptacles

For sealed versions



Dimensions shown in mm Specifications and dimensions subject to change

Part Number (Pack of 100)

075-8543-011

075-8543-012

075-8543-013

075-8543-014

075-8543-015

075-8543-016

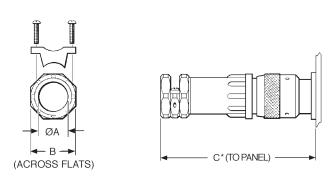
075-8543-017

075-8543-018



Sealed Cable Clamps for Use With Ringlock Circular Connectors

- For use with jacketed cables.
- Provides strain relief and wire protection.
- Can be water sealed to IP65. See notes on pages 26 and 28.
- For assembly instructions, see page 75.

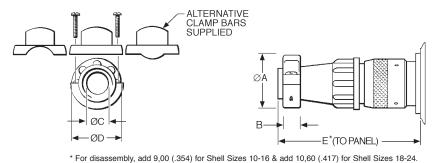


* For disassembly, add 9,00 (.354) for Shell Sizes 10-16 & add 10,60 (.417) for Shell Sizes 18-24.

| | Part Number | | Dimensions | | | | | | |
|------------|-------------|--------------|---------------|-----------------|----------------|--|--|--|--|
| Shell Size | (Each) | Nomenclature | Ø A max. | B ± 0,20 (.007) | C* max. | | | | |
| 10 | 192990-1530 | TR10AHC1N | 11,10 (.437) | 18,80 (.740) | 76,50 (3.011) | | | | |
| 12 | 192990-1540 | TR12AHC1N | 13,60 (.535) | 20,80 (.818) | 77,80 (3.063) | | | | |
| 14 | 192990-1550 | TR14AHC1N | 14,60 (.574) | 22,80 (.897) | 85,50 (3.366) | | | | |
| 16 | 192990-1560 | TR16AHC1N | 16,60 (.653) | 24,70 (.972) | 89,80 (3.535) | | | | |
| 18 | 192990-1570 | TR18AHC1N | 16,60 (.653) | 24,70 (.972) | 93,00 (3.661) | | | | |
| 20 | 192990-1580 | TR20AHC1N | 22,10 (.870) | 31,80 (1.252) | 107,50 (4.232) | | | | |
| 22 | 192990-1590 | TR22AHC1N | 22,10 (.870) | 31,80 (1.252) | 114,50 (4.507) | | | | |
| 24 | 192990-1600 | TR24AHC1N | 29,60 (1.165) | 41,80 (1.645) | 128,50 (5.059) | | | | |

* Assumes a uniformly cylindrical cable. Variations in the diameter could effect sealing.





Unsealed Cable Clamps for Use With Ringlock Circular Connectors

- Provides strain relief and wire protection.
- For assembly instructions, see page 79.

| | Part Number | | | Dimensions | | | | | | |
|------------|-------------|--------------|---------------|-----------------|---------------|---------------|---------------|--|--|--|
| Shell Size | (Each) | Nomenclature | Ø A max. | B ± 0,15 (.005) | ØC max. | ØD±0,15(.005) | E* max. | | | |
| 10 | 192922-1310 | TR10ASR1N | 21,50 (.846) | 6,40 (.251) | 8,70 (.342) | 21,00 (.826) | 61,30 (2.413) | | | |
| 12 | 192922-1320 | TR12ASR1N | 24,90 (.980) | 6,40 (.251) | 12,80 (.503) | 24,00 (.944) | 61,30 (2.413) | | | |
| 14 | 192922-1330 | TR14ASR1N | 27,00 (1.063) | 6,40 (.251) | 13,80 (.543) | 27,00 (1.063) | 67,10 (2.641) | | | |
| 16 | 192922-1340 | TR16ASR1N | 30,10 (1.185) | 6,40 (.251) | 17,00 (.669) | 30,20 (1.189) | 67,10 (2.641) | | | |
| 18 | 192990-1510 | TR18ASR1N | 32,00 (1.259) | 7,00 (.275) | 19,90 (.783) | 33,20 (1.307) | 70,80 (2.787) | | | |
| 20 | 192922-1350 | TR20ASR1N | 34,30 (1.350) | 7,00 (.275) | 21,00 (.827) | 36,40 (1.433) | 79,30 (3.122) | | | |
| 22 | 192922-1360 | TR22ASR1N | 37,10 (1.460) | 8,20 (.322) | 23,00 (.905) | 39,60 (1.559) | 85,30 (3.358) | | | |
| 24 | 192990-1520 | TR24ASR1N | 41,80 (1.645) | 8,20 (.322) | 27,00 (1.063) | 42,80 (1.685) | 90,80 (3.574) | | | |

Dimensions shown in mm

www.ittcannon.com



Neptune is a range of circular connectors specifically designed for harsh environment applications. They come with membrane wire seals that meet the requirements for IP67 and do not require blanking plugs for unused cavities. They will accept various combinations of signal (13 A) and power (30 A) contacts. The receptacle connectors feature stainless steel bayonet pins integrally molded into the bodies. The plug connectors are available with either high strength metal or corrosion resistant plastic coupling rings. All Neptune Circular Connectors are RoHS Compliant.



Applications

- Off Road Vehicles.
- Truck and Bus.
- Agricultural Equipment.
- Construction Equipment.
- Printing Machines.
- Industrial Automation.
- Stamping Machines.

Product Features

- Mixes signal and 30 A power contacts in one housing.
- Printed circuit contacts available.
- Full interface and cable sealing up to IP67.
- Large range of support accessories.
- Robust, cost effective connector for harsh environments.

Materials and Finishes

Black Nylon

Bayonet Pins Support Band Nickel Plated Copper Alloy

Stainless Steel

Nickel Plated Copper Alloy

Connector Body

Coupling Ring

Bayonet Pins

Performance Specifications

| Operating Voltage ¹ | Up to 250 V ac rms | | | |
|-------------------------------------|---|--|--|--|
| Contact Current Rating ² | Up to 13 A, Up to 16 A with High Conductivity | | | |
| | Contacts, Up to 30 A with Power Contacts | | | |
| Operating Temperature | -55°C to + 105°C (-67°F to +221°F) | | | |
| Insulation Resistance | 5000MΩ min. at 500 V dc | | | |
| Durability ³ | Up to 500 Mating Cycles | | | |
| Environmental Sealing | Up to IP67 | | | |
| Flammability | UL 94 V-0 | | | |
| | | | | |

¹ Depends on contacts used, layout, and degree of pollution

² Depends on type and number of contacts used

³ Depends on plating and type of contacts used



Test Specifications

The table below summarizes the results of key tests. Data is applicable to standard connectors with standard contacts. Variations may affect this data, so please consult factory for further information on your requirements.

| Test | Method | Criteria of Acceptance |
|---------------------------------|--|---|
| Dielectric Withstanding Voltage | 2000 V ac for 60 seconds | No breakdown |
| Thermal Shock | -55°C to +120°C (-67°F to +248°F) | No physical damage |
| Physical Shock | 40 g's peak, 3 axes, 6 millisecond duration half-sine pulse | No physical damage. No loss of continuity >10 sec |
| Vibration | 10 g's peak,10-500 Hz | No physical damage, No loss of continuity >10 sec |
| Durability | 500 cycles of mating and unmating, 500 mating cycles max | No mechanical or electrical defects |
| Salt Spray | 48 hours | Shall be capable of mating and unmat ing and meet contact resistance requirements |
| High Temperature Endurance | 1000 hours at 85°C (+185°F) 250 hours at 120°C (+248°F) | Insulation Resistance $> 100 \text{ M}\Omega$ |
| Humidy Steady State | RH 90-95%, 40°C (+104°F), 504 hours | Insulation Resistance > 100 M Ω |

How to Order-Connectors

| Typical Nomenclatur | e: <u>TN</u> | 7 <u>S</u> 24 | 4 - 1 <u>219 F</u> | $\frac{P}{ } \frac{1}{ } \frac{B}{ } \frac{01}{ }$ |
|---|-------------------------|---------------------------|--------------------|--|
| Series TN = Trident Neptune Shell Style 0 = Flange Receptacle (4 ho | | | | Modification * = Standard 01= Jam Nut Receptacles bulk packages are delivered without nut See page 50 for Spare Jam Nuts |
| 6 = Plug 7 = Jam Nut Receptacle Sealing Class | | | | Packaging B = Bulk (100 pcs) L = Single Pack |
| G = Grommet, no nut LS = Large Grommet, extend S = With Grommet and nut U = Unsealed | er and nut <i>(Size</i> | 24-0048 only) | | Connector Finish Materials 1 = Standard (Nickel Plated Metal Parts) 2 = Plastic Coupling Nut (TN plug shell sizes 16 and 24 only) |
| | Shell Size | e and Conta | ct Arrangeme | Contact Type P = Pin |
| | Shell Size | Number of Power Contac | Number of | S = Socket |
| | 14 · | 00 | 12 | |
| | 16 · | 00 | 19 | |
| | 16 · | 02 | 13 | |
| | 24 · | 12 | 19 | |
| | 24 · | 04 | 20 | |
| | 24 · | 04 | 28 | |
| | 24 · | 00 | 48 | |
| shown in mm as and dimensions subject to change | | | | 🗢 ІТТ |

Dimensions shown Specifications and dimensions subject to change

Downloaded from Arrow.com.

Contact Cavity Arrangements

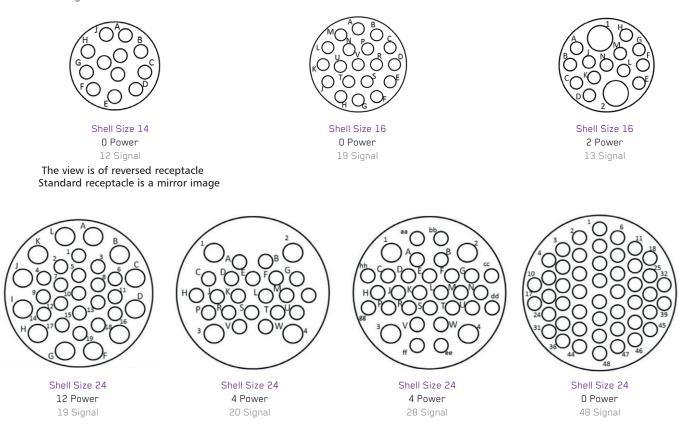
Neptune Circular Connectors offer combinations of Signal and Power contacts. The Signal cavities will accept any of the standard Trident contacts, including signal contacts up to 16 A. The power cavities will accept power contacts rated at 30 A. PCB contacts are also available, for more information, see page 60.

Mating Face Views of Reversed and Standard Receptacles.

Shell Size

Number of Power Contacts

Number of Signal Contacts



Note: The Signal cavities will accept any of the standard Trident contacts, including signal contacts up to 16 A. The power cavities will accept power contacts rated at 30 A. PCB contacts are also available.

Wire Sealing Range*

| Contact | Signal | Power |
|--------------------------|---------------------|---------------------|
| Arrangement | (Overall Diameter) | (Overall Diameter) |
| (Power- Signal Contacts) | | |
| 0-12 | 1,70-2,70 (.066106) | N/A |
| 0-19 | 1,70-2,70 (.066106) | N/A |
| 2-13 | 1,70-2,70 (.066106) | 2,70-4,00 (.106157) |
| 4-20 | 1,70-2,70 (.066106) | 2,70-4,00 (.106157) |
| 4-28 | 1,70-2,70 (.066106) | 2,70-4,00 (.106157) |
| 0-48 | 1,70-2,20 (.066086) | N/A |
| 0-48 (L) | 2,60-3,20 (.102126) | N/A |
| 12-19 | 1,70-2,70 (.066106) | 2,70-4,00 (.106157) |

(L) Larger overall sealing diameter for thick insulation wires

* Describes the range of cable diameters to be used respective layout



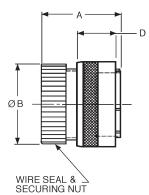
Dimensions shown in mm Specifications and dimensions subject to change

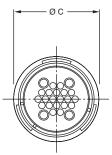


Standard Plug for Pin Contacts Metal Locking Ring

- For Wire Sealing Ranges, see page 34.
- Accepts pin contacts, see page 60.
- Water sealed to IP67.

With Wire Seal and Securing Nut





| | | | | | ckages | | | | | |
|-------|----------------|----------|----------------|-----------------|------------------|-----------------|---------------|---------------|---------------|--------------------------|
| | Contact Layout | | Single Piece (| Connector | (100 Connectors) | | | | | |
| Shell | Power | Signal | | | | | | | | |
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | ØB | ØC | D |
| 14 | 00 | 12 | 192900-0303 | TN6S14-0012P1L | 192900-0318 | TN6S14-0012P1B | 38,80 (1.527) | 24,30 (.957) | 28,00 (1.102) | 19,10 ±0,20 (.751 ±.007) |
| 16 | 00 | 19 | 192900-0017 | TN6S16-0019P1L | 192900-0013 | TN6S16-0019P1B | 38,90 (1.532) | 27,00 (1.063) | 30,20 (1.189) | 19,10 ±0,20 (.751 ±.007) |
| 16 | 02 | 13 | 192900-0507 | TN6S16-0213P1L | 192900-0510 | TN6S16-0213P1B | 38,90 (1.532) | 27,00 (1.063) | 30,20 (1.189) | 19,10 ±0,20 (.751 ±.007) |
| 24 | 00 | 48 | 192900-0469 | TN6S24-0048P1L | 192900-0472 | TN6S24-0048P1B | 39,80 (1.566) | 40,50 (1.594) | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 04 | 20 | 192900-0014 | TN6S24-0420P1L | 192990-9430 | TN6S24-0420P1B | 39,80 (1.566) | 40,50 (1.594) | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 04 | 28 | 192900-0015 | TN6S24-0428P1L | 192900-0012 | TN6S24-0428P1B | 39,80 (1.566) | 40,50 (1.594) | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 12 | 19 | 192900-0016 | TN6S24-1219P1L | 192990-9380 | TN6S24-1219P1B | 39,80 (1.566) | 40,50 (1.594) | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 00 | 48 (L) | 192991-0628 | TN6LS24-0048P1L | 192991-0637 | TN6LS24-0048P1B | 50,70 (2.000) | 40,50 (1.594) | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |

Without Securing Nut

| | Contact L | ayout | | | | lk Packages | | | | |
|-------|-----------|----------|--------------|----------------|-------------|----------------|---|------------------|---------------|--------------------------|
| Shell | Power | Signal | Single Piece | Connector | (100 |) Connectors) | | | | |
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | ØB | ØC | D |
| 14 | 00 | 12 | * | TN6G14-0012P1L | 192900-0319 | TN6G14-0012P1B | - | 13/16 – 20 UNEF | 28,00 (1.102) | 19,10 ±0,20 (.751 ±.007) |
| 16 | 00 | 19 | * | TN6G16-0019P1L | 192900-0095 | TN6G16-0019P1B | - | 15/16 – 20 UNEF | 30,20 (1.189) | 19,10 ±0,20 (.751 ±.007) |
| 24 | 00 | 48 | * | TN6G24-0048P1L | 192900-0473 | TN6G24-0048P1B | - | 1-7/16 – 18 UNEF | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 04 | 20 | * | TN6G24-0420P1L | 192900-0092 | TN6G24-0420P1B | - | 1-7/16 – 18 UNEF | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 04 | 28 | * | TN6G24-0428P1L | 192990-0093 | TN6G24-0428P1B | - | 1-7/16 – 18 UNEF | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 12 | 19 | * | TN6G24-1219P1L | 192900-0094 | TN6G24-1219P1B | - | 1-7/16 – 18 UNEF | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |

Unsealed - Without Wire Seal and Securing Nut

| | Con | tact Layout | | | Bulk | Packages | | | | |
|-------|----------|-------------|--------------|----------------|------------------|----------------|---------------|------------------|---------------|--------------------------|
| Shell | Power | Signal | Single Piece | e Connector | (100 Connectors) | | | | | |
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | ØB | ØC | D |
| 16 | 02 | 13 | * | TN6U16-0213P1L | * | TN6U16-0213P1B | 34,70 (1.366) | 15/16 – 20 UNEF | 30,20 (1.189) | 19,10 ±0,20 (.751 ±.007) |
| 24 | 04 | 20 | * | TN6U24-0420P1L | * | TN6U24-0420P1B | 35,70 (1.406) | 1-7/16 – 18 UNEF | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 04 | 28 | * | TN6U24-0428P1L | * | TN6U24-0428P1B | 35,70 (1.406) | 1-7/16 – 18 UNEF | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 12 | 19 | * | TN6U24-1219P1L | * | TN6U24-1219P1B | 35,70 (1.406) | 1-7/16 – 18 UNEF | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |

* For details please consult the factory

Dimensions shown in mm Specifications and dimensions subject to change

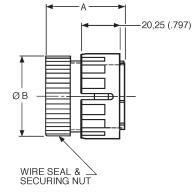


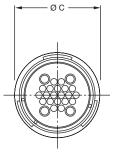


Standard Plug for Pin Contacts Plastic Locking Ring

- For Wire Sealing Ranges, see page 34.
- Accepts pin contacts, see page 60.
- Water sealed to IP67.

With Wire Seal and Securing Nut





| | Contact La | avout | | | Bulk Pa | ackages | | | |
|-------|------------|----------|------------------------|-----------------|-------------|-----------------|---------------|---------------|---------------|
| Shell | Power | Signal | Single Piece Connector | | (100 Cor | nnectors) | | | |
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | ØB | ØC |
| 16 | 00 | 19 | 192900-0557 | TN6S16-0019P2L | * | TN6S16-0019P2B | 38,90 (1.532) | 27,00 (1.063) | 32,80 (1.291) |
| 16 | 02 | 13 | 192900-0561 | TN6S16-0213P2L | * | TN6S16-0213P2B | 38,90 (1.532) | 27,00 (1.063) | 32,80 (1.291) |
| 24 | 00 | 48 | 192900-0539 | TN6S24-0048P2L | * | TN6S24-0048P2B | 39,80 (1.566) | 40,50 (1.594) | 45,75 (1.800) |
| 24 | 04 | 20 | 192900-0537 | TN6S24-0420P2L | * | TN6S24-0420P2B | 39,80 (1.566) | 40,50 (1.594) | 45,75 (1.800) |
| 24 | 04 | 28 | 192900-0549 | TN6S24-0428P2L | 192900-0551 | TN6S24-0428P2B | 39,80 (1.566) | 40,50 (1.594) | 45,75 (1.800) |
| 24 | 12 | 19 | 192900-0538 | TN6S24-1219P2L | * | TN6S24-1219P2B | 39,80 (1.566) | 40,50 (1.594) | 45,75 (1.800) |
| 24 | 00 | 48 (L) | 192991-0660 | TN6LS24-0048P2L | * | TN6LS24-0048P2B | 50,70 (2.000) | 40,50 (1.594) | 45,75 (1.800) |
| | | | | | | | | | |

Unsealed - Without Wire Seal and Securing Nut

| Shell | Contact Layout Shell Power Signal | | Single Piece | Bulk Packages e Connector (100 Connectors) | | | | | |
|-------|--------------------------------------|----------|--------------|---|-------------|----------------|---------------|------------------|---------------|
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | ØB | ØC |
| 16 | 02 | 13 | * | TN6U16-0213P2L | * | TN6U16-0213P2B | 34,70 (1.366) | 15/16 – 20 UNEF | 32,80 (1.291) |
| 24 | 04 | 20 | * | TN6U24-0420P2L | * | TN6U24-0420P2B | 35,70 (1.406) | 1-7/16 – 18 UNEF | 45,75 (1.800) |
| 24 | 04 | 28 | * | TN6U24-0428P2L | 192900-0692 | TN6U24-0428P2B | 35,70 (1.406) | 1-7/16 – 18 UNEF | 45,75 (1.800) |
| 24 | 12 | 19 | * | TN6U24-1219P2L | 192900-0691 | TN6U24-1219P2B | 35,70 (1.406) | 1-7/16 – 18 UNEF | 45,75 (1.800) |

* For details please consult the factory

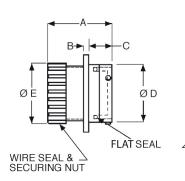


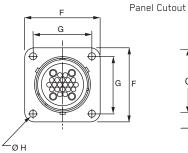


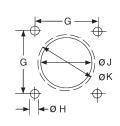
Standard Receptacle for Socket Contacts Flange Mounting

- For Wire Sealing Ranges, see page 34.
- 3,00 (.118) max with Panel Gasket.
- For Panel Gaskets, see page 47.

With Wire Seal and Securing Nut







ØJ = Flange in Front of Panel ØK = Flange at Rear of Panel

| Shell | Contact La Power | ayout Signal | Single Piece | Connector | | ackages Innectors) | | | | | | | | | | |
|-------|---------------------|-----------------|--------------|-----------------|-------------|-----------------------|------------------|----------------|-----------------|------------------|------------------|------------------|------------------|----------------|------------------|------------------|
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | В | C | ØD | ØE | F | G | ØH | ØJ | ØK |
| 14 | 00 | 12 | 192900-0308 | TN0S14-0012S1L | 192900-0323 | TN0S14-0012S1B | 39,70 (1.563) | 3,50 (.137) | 11,40 (.448) | 22,20 (.874) | 24,30 (.956) | 28,60 (1.122) | 22,90 (.901) | 3,20 (.125) | 24,60 (.968) | 24,60 (.968) |
| 16 | 00 | 19 | 192900-0039 | TN0S16-0019S1L | 192900-0029 | TN0S16-0019S1B | 39,80 (1.566) | 2,30 (.090) | 11,40 (.448) | 25,40 (1.000) | 27,00 (1.063) | 31,00 (1.220) | 24,50 (.964) | 3,20 (.125) | 28,10 (1.106) | 28,10 (1.106) |
| 16 | 02 | 13 | 192900-0509 | TN0S16-0213S1L | 192900-0512 | TN0S16-0213S1B | 39,80 (1.566) | 2,30 (.090) | 11,40 (.448) | 25,40 (1.000) | 27,00 (1.063) | 31,00 (1.220) | 24,50 (.964) | 3.20 (.125) | 28,10 (1.106) | 28,10 (1.106) |
| 24 | 00 | 48 | 192900-0475 | TN0S24-0048S1L | 192900-0478 | TN0S24-0048S1B | 41,80 (1.645) | 3,50 (.137) | 15,40 (.606) | 38,10 (1.500) | 40,10 (1,578) | 50,80 (2.000) | 39,70 (1.563) | 4,20 (.165) | 41,00 (1.614) | 41,00 (1.614) |
| 24 | 04 | 20 | 192900-0030 | TN0S24-0420S1L | 192990-9420 | TN0S24-0420S1B | 41,80 (1.645) | 3,50 (.137) | 15,40 (.606) | 38,10 (1.500) | 40,10 (1,578) | 50,80 (2.000) | 39,70 (1.563) | 4,20 (.165) | 41,00 (1.614) | 41,00 (1.614) |
| 24 | 04 | 28 | 192900-0033 | TN0S24-0428S1L | 192900-0024 | TN0S24-0428S1B | 41,80 (1.645) | 3,50 (.137) | 15,40 (.606) | 38,10 (1.500) | 40,10 (1,578) | 50,80 (2.000) | 39,70 (1.563) | 4,20 (.165) | 41,00 (1.614) | 41,00 (1.614) |
| 24 | 12 | 19 | 192900-0036 | TN0S24-1219S1L | 192990-9390 | TN0S24-1219S1B | 41,80 (1.645) | 3,50 (.137) | 15,40 (.606) | 38,10 (1.500) | 40,10 (1,578) | 50,80 (2.000) | 39,70 (1.563) | 4,20 (.165) | 41,00 (1.614) | 41,00 (1.614) |
| 24 | 00 | 48 (L) | 192991-0640 | TN0LS24-0048S1L | * | TNOLS24-0048S1B | 52,70 (2.075) | 3,50 (.137) | 15,40 (.606) | 38,10 (1.500) | 40,10 (1,578) | 50,80 (2.000) | 39,70 (1.563) | 4,20 (.165) | 41,00 (1.614) | 41,00 (1.614) |

| Withou | hout Securing Nut Bulk Packages | | | | | | | | | | | | | | | |
|--------|---------------------------------|------------------|-------------|----------------|-------------|--------------------------------|---|--------|--------|---------|------------------|---------|---------|--------|---------|---------|
| Shell | Contact Power | Layout Signal | Single Piec | ce Connector | | ulk Packages 10 Connectors) | | | | | | | | | | |
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | В | С | ØD | ØE | F | G | ØH | ØJ | ØK |
| 14 | 00 | 12 | * | TN0G14-0012S1L | 192900-0324 | TN0G14-0012S1B | - | 2,30 | 11,40 | 22,20 | 13/16 – 20 UNEF | 28,60 | 22,90 | 3,20 | 24,60 | 24,60 |
| | | | | | | | | (.090) | (.448) | (.874) | | (1.122) | (.901) | (.125) | (.968) | (.968) |
| 16 | 00 | 19 | * | TN0G16-0019S1L | 192900-0105 | TN0G16-0019S1B | - | 2,30 | 11,40 | 25,40 | 15/16 – 20 UNEF | 31,00 | 24,50 | 3,20 | 28,10 | 28,10 |
| | | | | | | | | (.090) | (.448) | (1.000) | | (1.220) | (.964) | (.125) | (1.106) | (1.106) |
| 24 | 00 | 48 | 192900-0479 | TN0G24-0048S1L | * | TN0G24-0048S1B | - | 3,50 | 15,40 | 38,18 | 1-7/16 - 18 UNEF | 50,80 | 39,70 | 4,20 | 41,00 | 41,00 |
| | | | | | | | | (.137) | (.606) | (1.500) | | (2.000) | (1.563) | (.165) | (1.614) | (1.614) |
| 24 | 04 | 20 | * | TN0G24-0420S1L | 192900-0096 | TN0G24-0420S1B | - | 3,50 | 15,40 | 38,18 | 1-7/16 - 18 UNEF | 50,80 | 39,70 | 4,20 | 41,00 | 41,00 |
| | | | | | | | | (.137) | (.606) | (1.500) | | (2.000) | (1.563) | (.165) | (1.614) | (1.614) |
| 24 | 04 | 28 | * | TN0G24-0428S1L | 192900-0099 | TN0G24-0428S1B | - | 3,50 | 15,40 | 38,18 | 1-7/16 – 18 UNEF | 50,80 | 39,70 | 4,20 | 41,00 | 41,00 |
| | | | | | | | | (.137) | (.606) | (1.500) | | (2.000) | (1.563) | (.165) | (1.614) | (1.614) |
| 24 | 12 | 19 | * | TN0G24-1219S1L | 192900-0102 | TN0G24-1219S1B | - | 3,50 | 15,40 | 38,18 | 1-7/16 - 18 UNEF | 50,80 | 39,70 | 4,20 | 41,00 | 41,00 |
| | | | | | | | | (.137) | (.606) | (1.500) | | (2.000) | (1.563) | (.165) | (1.614) | (1.614) |

* For details please consult the factory

Dimensions shown in mm

Specifications and dimensions subject to change

Downloaded from Arrow.com.

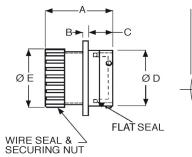


Neptune Circular Connectors



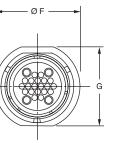
Standard Receptacle for Socket Contacts Jam Nut Mounting

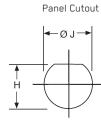
With Wire Seal and Securing Nut



• Bulk packages are not supplied with Jam Nuts, to order Jam Nuts, see page 46.

• For Wire Sealing Ranges, see page 34.





- Panel thickness 4,00 (.157) max.
- 3,00 (.118) max with Panel gasket.
- For Panel Gaskets, see page 47.

| | | | .9 | | | | | | 10110 | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | ce pag | c 17. | | |
|-------|------------|----------|---------------|-----------------|-------------|----------------------|---------|--------|--------|---------|---|---------|---------|---------|---------|
| | Contact La | , | Single Piece | Connector | | ackages nnectors) | | | | | | | | | |
| Shell | Power | Signal | JIIIgle Flece | CUITIECTUI | (100 CU | Inectors) | | | | | | | | | |
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | В | С | ØD | ØE | ØF | G | Н | ØJ |
| 14 | 00 | 12 | 192900-0313 | TN7S14-0012S1L | 192900-0328 | TN7S14-0012S1B01 | 39,70 | 3,50 | 22,10 | 22,20 | 24,30 | 35,80 | 32,20 | 25,10 | 27,30 |
| | | | | | | | (1.563) | (.137) | (.870) | (.874) | (.956) | (1.409) | (1.267) | (.988) | (1.075) |
| 16 | 00 | 19 | 192900-0490 | TN7S16-0019S1L | 192900-0493 | TN7S16-0019S1B01 | 39,80 | 2,30 | 23,00 | 25,40 | 27,00 | 39,80 | 38,40 | 28,00 | 30,50 |
| | | | | | | | (1.566) | (.090) | (.905) | (1.000) | (1.063) | (1.566) | (1,511) | (1.102) | (1.200) |
| 16 | 02 | 13 | 192900-0508 | TN7S16-0213S1L | 192900-0511 | TN7S16-0213S1B01 | 39,80 | 2,30 | 23,00 | 25,40 | 27,00 | 39,80 | 38,40 | 28,00 | 30,50 |
| | | | | | | | (1.566) | (.090) | (.905) | (1.000) | (1.063) | (1.566) | (1.511) | (1.102) | (1.200) |
| 24 | 00 | 48 | 192900-0481 | TN7S24-0048S1L | 192900-0484 | TN7S24-0048S1B01 | 41,80 | 3,50 | 23,40 | 38,10 | 40,10 | 51,00 | 47,50 | 41,50 | 43,20 |
| | | | | | | | (1.645) | (.137) | (.921) | (1.500) | (1,578) | (2.007) | (1.870) | (1.633) | (1.700) |
| 24 | 04 | 20 | 192900-0032 | TN7S24-0420S1L | 192990-9460 | TN7S24-0420S1B01 | 41,80 | 3,50 | 23,40 | 38,10 | 40,10 | 51,00 | 47,50 | 41,50 | 43,20 |
| | | | | | | | (1.645) | (.137) | (.921) | (1.500) | (1,578) | (2.007) | (1.870) | (1.633) | (1.700) |
| 24 | 04 | 28 | 192900-0035 | TN7S24-0428S1L | 192900-0026 | TN7S24-0428S1B01 | 41,80 | 3,50 | 23,40 | 38,10 | 40,10 | 51,00 | 47,50 | 41,50 | 43,20 |
| | | | | | | | (1.645) | (.137) | (.921) | (1.500) | (1,578) | (2.007) | (1.870) | (1.633) | (1.700) |
| 24 | 12 | 19 | 192900-0038 | TN7S24-1219S1L | 192900-0028 | TN7S24-1219S1B01 | 41,80 | 3,50 | 23,40 | 38,10 | 40,10 | 51,00 | 47,50 | 41,50 | 43,20 |
| | | | | | | | (1.645) | (.137) | (.921) | (1.500) | (1,578) | (2.007) | (1.870) | (1.633) | (1.700) |
| 24 | 00 | 48 (L) | 192991-0644 | TN7LS24-0048S1L | * | TN7LS24-0048S1B01 | 52,70 | 3,50 | 23,40 | 38,10 | 40,10 | 51,00 | 47,50 | 41,50 | 43,20 |
| | | | | | | | (2.075) | (.137) | (921) | (1.500) | (1,578) | (2.007) | (1.870) | (1.633) | (1.700) |

| | а H ØJ 20 25,10 27,30 267) (.988) (1.075) |
|---|---|
| Shell Power Signal | ,20 25,10 27,30 |
| 14 00 12 * TN7G14-0012S1L 192900-0329 TN7G14-0012S1B01 - 2,30 22,10 22,20 13/16 - 20 UNEF 35,80 32 | ,20 25,10 27,30 |
| | |
| (.090) (.870) (.874) (1.409) (1. | 67) (.988) (1.075) |
| | |
| 16 00 19 * TN7G16-0019S1L * TN7G16-0019S1B01 - 2,30 23,00 25,40 15/16 - 20 UNEF 39,80 38 | ,40 28,00 30,50 |
| (.090) (.905) (1.000) (1.566) (1, | 511) (1.102) (1.200) |
| 24 00 48 * TN7G24-0048S1L * TN7G24-0048S1B01 - 3,50 23,40 38,10 1-7/16 - 18 UNEF 51,00 47 | ,50 41,50 43,20 |
| (.137) (.921) (1.500) (2.007) (1. | 370) (1.633) (1.700) |
| 24 04 20 * TN7G24-0420S1L 192900-0098 TN7G24-0420S1B01 - 3,50 23,40 38,10 1-7/16 - 18 UNEF 51,00 47 | ,50 41,50 43,20 |
| (.137) (.921) (1.500) (2.007) (1. | 370) (1.633) (1.700) |
| 24 04 28 * TN7G24-0428S1L 192900-0101 TN7G24-0428S1B01 - 3,50 23,40 38,10 1-7/16 - 18 UNEF 51,00 47 | ,50 41,50 43,20 |
| (.137) (.921) (1.500) (2.007) (1. | 370) (1.633) (1.700) |
| 24 12 19 * TN7G24-1219S1L 192900-0104 TN7G24-1219S1B01 - 3,50 23,40 38,10 1-7/16 - 18 UNEF 51,00 47 | ,50 41,50 43,20 |
| (.137) (.921) (1.500) (2.007) (1. | 370) (1.633) (1.700) |

Unsealed - Without Wire Seal and Securing Nut

| | Contact La | yout | Single I | Piece Connector | (| Bulk Packages (100 Connectors) | | | | | | | | | |
|-------|------------|----------|----------|-----------------|--------|-----------------------------------|---------------|------------|-------------|--------------|------------------|--------------|--------------|--------------|--------------|
| Shell | Power | Signal | Part | | Part | | | | | | | | | | |
| Size | Contacts | Contacts | Number | Nomenclature | Number | Nomenclature | A | В | С | ØD | ØE | ØF | G | Н | ØJ |
| 16 | 02 | 13 | * | TN7U16-0213S1L | * | TN7U16-0213S1B01 | 35,60 (1.402) | 2,30(.090) | 23,00(.905) | 25,40(1.000) | 15/16 – 20 UNEF | 39,80(1.566) | 38,40(1,511) | 28,00(1,511) | 30,50(1.200) |
| 24 | 04 | 20 | * | TN7U24-0420S1L | * | TN7U24-0420S1B01 | 37,65 (1.482) | 3,50(.137) | 23,40(.921) | 38,10(1.500) | 1-7/16 – 18 UNEF | 51,00(2.007) | 47,50(1.870) | 41,50(1.633) | 43,20(1.700) |
| 24 | 04 | 28 | * | TN7U24-0428S1L | * | TN7U24-0428S1B01 | 37,65 (1.482) | 3,50(.137) | 23,40(.921) | 38,10(1.500) | 1-7/16 – 18 UNEF | 51,00(2.007) | 47,50(1.870) | 41,50(1.633) | 43,20(1.700) |
| 24 | 12 | 19 | * | TN7U24-1219S1L | * | TN7U24-1219S1B01 | 37,65 (1.482) | 3,50(.137) | 23,40(.921) | 38,10(1.500) | 1-7/16 – 18 UNEF | 51,00(2.007) | 47,50(1.870) | 41,50(1.633) | 43,20(1.700) |

* For details please consult the factory



Dimensions shown in mm

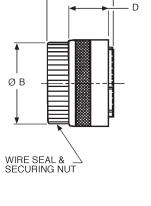
Specifications and dimensions subject to change

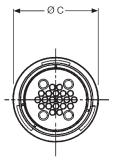


Reversed Plugs for Socket Contacts Metal Locking Ring

- For Wire Sealing Ranges, see page 34.
- Accepts socket contacts, see page 60.
- Water sealed to IP67.

With Wire Seal and Securing Nut





| | Contact La | yout | Single Piece | Connector | | ackages nnectors) | | | | |
|-------|------------|----------|--------------|-----------------|-------------|----------------------|---------------|---------------|---------------|--------------------------|
| Shell | Power | Signal | | | (100 00) | inector 3) | | | | |
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | ØB | ØC | D |
| 14 | 00 | 12 | 192900-0236 | TN6S14-0012S1L | 192900-0241 | TN6S14-0012S1B | 31,60 (1.244) | 24,30 (.957) | 28,00 (1.102) | 19,10 ±0,20 (.751 ±.007) |
| 16 | 00 | 19 | 192900-0057 | TN6S16-0019S1L | 192990-9970 | TN6S16-0019S1B | 31,70 (1.248) | 27,00 (1.063) | 30,20 (1.189) | 19,10 ±0,20 (.751 ±.007) |
| 16 | 02 | 13 | 192900-0581 | TN6S16-0213S1L | * | TN6S16-0213S1B | 31,70 (1.248) | 27,00 (1.063) | 30,20 (1.189) | 19,10 ±0,20 (.751 ±.007) |
| 24 | 00 | 48 | 192900-0425 | TN6S24-0048S1L | 192900-0428 | TN6S24-0048S1B | 32,40 (1.275) | 40,50 (1.594) | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 04 | 20 | 192900-0054 | TN6S24-0420S1L | 192990-9450 | TN6S24-0420S1B | 32,40 (1.275) | 40,50 (1.594) | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 04 | 28 | 192900-0055 | TN6S24-0428S1L | 192900-0053 | TN6S24-0428S1B | 32,40 (1.275) | 40,50 (1.594) | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 12 | 19 | 192900-0056 | TN6S24-1219S1L | 192990-9240 | TN6S24-1219S1B | 32,40 (1.275) | 40,50 (1.594) | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 00 | 48 (L) | 192991-0648 | TN6LS24-0048S1L | * | TN6LS24-0048S1B | 43,00 (1.693) | 40,50 (1.594) | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |

Without Securing Nut

| Contact Layout Shell Power Signal | | Single Piec | e Connector | | 5 | | | | |
|--------------------------------------|---|--|--|--|--|--|--|---|--|
| Power | Signal | | | (100 00) | IIIECTOI S) | | | | |
| Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | ØB | ØC | D |
| 00 | 12 | * | TN6G14-0012S1L | 192900-0242 | TN6G14-0012S1B | - | 13/16–20 UNEF | 28,00 (1.102) | 19,10 ±0,20 (.751 ±.007) |
| 00 | 19 | * | TN6G16-0019S1L | 192900-0109 | TN6G16-0019S1B | - | 15/16-20 UNEF | 30,20 (1.189) | 19,10 ±0,20 (.751 ±.007) |
| 00 | 48 | * | TN6G24-0048S1L | 192900-0429 | TN6G24-0048S1B | - | 1-7/16–18 UNEF | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 04 | 20 | * | TN6G24-0420S1L | 192900-0106 | TN6G24-0420S1B | - | 1-7/16–18 UNEF | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 04 | 28 | * | TN6G24-0428S1L | 192900-0107 | TN6G24-0428S1B | - | 1-7/16-18 UNEF | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 12 | 19 | * | TN6G24-1219S1L | 192900-0108 | TN6G24-1219S1B | - | 1-7/16-18 UNEF | 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| | Power Contacts 00 00 00 00 04 04 | Power Signal Contacts Contacts 00 12 00 19 00 48 04 20 04 28 | Power Signal Contacts Contacts Part Number 00 12 * 00 19 * 00 48 * 04 20 * 04 28 * | Power Signal Contacts Contacts Part Number Nomenclature 00 12 * TN6G14-001251L 00 19 * TN6G16-001951L 00 48 * TN6G24-004851L 04 20 * TN6G24-042051L 04 28 * TN6G24-042851L | Contact Layout Single Piece Connector (100 Col Power Signal Nomenclature Part Number Contacts Contacts Part Number Nomenclature Part Number 00 12 * TN6G14-001251L 192900-0242 00 19 * TN6G16-001951L 192900-0109 00 48 * TN6G24-004851L 192900-0429 04 20 * TN6G24-042051L 192900-0106 04 28 * TN6G24-042851L 192900-0107 | Power Signal (100 Connectors) Contacts Contacts Part Number Nomenclature Part Number Nomenclature 00 12 * TN6G14-0012S1L 192900-0242 TN6G14-0012S1B 00 19 * TN6G16-0019S1L 192900-0109 TN6G16-0019S1B 00 48 * TN6G24-0048S1L 192900-0429 TN6G24-048S1B 04 20 * TN6G24-042SS1L 192900-0107 TN6G24-042SS1B | Contact Layout Single Piece Connector (100 Connectors) Power Signal (100 Connectors) Contacts Contacts Part Number Nomenclature Part Number Nomenclature A 00 12 * TN6G14-0012S1L 192900-0242 TN6G14-0012S1B - 00 19 * TN6G16-0019S1L 192900-0109 TN6G24-0048S1B - 00 48 * TN6G24-0048S1L 192900-0429 TN6G24-0048S1B - 04 20 * TN6G24-042SS1L 192900-0107 TN6G24-0428S1B - 04 28 * TN6G24-0428S1L 192900-0107 TN6G24-0428S1B - | Contact Layout Single Piece Connector (100 Connectors) Power Signal (100 Connectors) Contacts Contacts Part Number Nomenclature Part Number Nomenclature A ØB 00 12 * TN6G14-0012S1L 192900-0242 TN6G14-0012S1B - 13/16-20 UNEF 00 19 * TN6G16-0019S1L 192900-0109 TN6G16-0019S1B - 15/16-20 UNEF 00 48 * TN6G24-0048S1L 192900-0109 TN6G24-0048S1B - 1-7/16-18 UNEF 04 20 * TN6G24-042S1L 192900-0107 TN6G24-0428S1B - 1-7/16-18 UNEF 04 28 * TN6G24-0428S1L 192900-0107 TN6G24-0428S1B - 1-7/16-18 UNEF | Contact Layout Single Piece Connector (100 Connectors) Power Signal (100 Connectors) Contacts Contacts Part Number Nomenclature Part Number Nomenclature A ØB ØC 00 12 * TN6G14-0012S1L 192900-0242 TN6G16-0019S1B - 13/16-20 UNEF 28,00 (1.102) 00 19 * TN6G16-0019S1L 192900-0109 TN6G16-0019S1B - 15/16-20 UNEF 30,20 (1.189) 00 48 * TN6G24-0048S1L 192900-0429 TN6G24-0048S1B - 1-7/16-18 UNEF 44,00 (1.732) 04 20 * TN6G24-042S1L 192900-0107 TN6G24-0428S1B - 1-7/16-18 UNEF 44,00 (1.732) 04 28 * TN6G24-0428S1L 192900-0107 TN6G24-0428S1B - 1-7/16-18 UNEF 44,00 (1.732) |

Unsealed - Without Wire Seal and Securing Nut

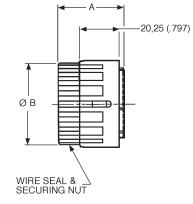
| | Conta | ct Layout | Single | Piece Connector | | | Packages | | | | |
|-------|----------|-----------|-------------|-----------------|-------------|-----------|----------------|------------|-------------------|-----------------|--------------------------|
| Shell | Power | Signal | | | | (100 C | Connectors) | | | | |
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclat | ture | А | ØB | ØC | D |
| 16 | 02 | 13 | * | TN6U16-02 | 13S1L | * | TN6U16-0213S1B | 27,55 (1.0 | 35) 15/16–20 UNE | F 30,20 (1.189) | 19,10 ±0,20 (.751 ±.007) |
| 24 | 04 | 20 | * | TN6U24-042 | 20S1L | * | TN6U24-0420S1B | 28,10 (1.1 | 06) 1-7/16–18 UNI | F 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 04 | 28 | * | TN6U24-042 | 28S1L | * | TN6U24-0428S1B | 28,10 (1.1 | 06) 1-7/16–18 UNI | F 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |
| 24 | 12 | 19 | * | TN6U24-12 | 19S1L | * | TN6U24-1219S1B | 28,10 (1.1 | 06) 1-7/16–18 UNI | F 44,00 (1.732) | 14,72 ±0,15 (.580 ±.006) |

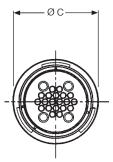
* For details please consult the factory





Réverseurrags for Socket Contacts Plastic Locking Ring





- For Wire Sealing Ranges, see page 34.
- Accepts socket contacts, see page 60.
- Water sealed to IP67.

With Wire Seal and Securing Nut

| | Contact La | yout | Cinala Diago (| annestan | | ackages Innectors) | | | |
|-------|------------|----------|----------------|-----------------|-------------|-----------------------|---------------|---------------|---------------|
| Shell | Power | Signal | Single Piece C | Unnector | (100 COI | Inectors) | | | |
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | ØB | ØC |
| 16 | 00 | 19 | 192900-0558 | TN6S16-0019S2L | 192900-0560 | TN6S16-0019S2B | 31,70 (1.248) | 27,00 (1.063) | 32,80 (1.291) |
| 16 | 02 | 13 | 192900-0562 | TN6S16-0213S2L | 192900-0564 | TN6S16-0213S2B | 31,70 (1.248) | 27,00 (1.063) | 32,80 (1.291) |
| 24 | 00 | 48 | 192900-0542 | TN6S24-0048S2L | 192900-0548 | TN6S24-0048S2B | 32,40 (1.275) | 40,50 (1.594) | 44,00 (1.732) |
| 24 | 04 | 20 | 192900-0540 | TN6S24-0420S2L | * | TN6S24-0420S2B | 32,40 (1.275) | 40,50 (1.594) | 44,00 (1.732) |
| 24 | 04 | 28 | 192900-0550 | TN6S24-0428S2L | 192900-0552 | TN6S24-0428S2B | 32,40 (1.275) | 40,50 (1.594) | 44,00 (1.732) |
| 24 | 12 | 19 | 192900-0541 | TN6S24-1219S2L | 192900-0547 | TN6S24-1219S2B | 32,40 (1.275) | 40,50 (1.594) | 44,00 (1.732) |
| 24 | 00 | 48 (L) | 192991-0664 | TN6LS24-0048S2L | * | TN6LS24-0048S2B | 43,00 (1.693) | 40,50 (1.594) | 44,00 (1.732) |

Unsealed - Without Wire Seal and Securing Nut

| Shell | Contact Layout Power Signal | | Single Piece | e Connector | | lk Packages) Connectors) | | | |
|-------|--------------------------------|----------|--------------|----------------|-------------|------------------------------|---------------|------------------|---------------|
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | ØB | ØC |
| 16 | 02 | 13 | * | TN6U16-0213S2L | * | TN6U16-0213S2B | 27,55 (1.085) | 15/16 – 20 UNEF | 32,80 (1.291) |
| 24 | 04 | 20 | * | TN6U24-0420S2L | * | TN6U24-0420S2B | 28,10 (1.106) | 1-7/16 – 18 UNEF | 44,00 (1.732) |
| 24 | 04 | 28 | * | TN6U24-0428S2L | * | TN6U24-0428S2B | 28,10 (1.106) | 1-7/16 – 18 UNEF | 44,00 (1.732) |
| 24 | 12 | 19 | * | TN6U24-1219S2L | * | TN6U24-1219S2B | 28,10 (1.106) | 1-7/16 – 18 UNEF | 44,00 (1.732) |

* For details please consult the factory



Panel Cutout

ØJ = Flange in Front of Panel

ØK = Flange at Rear of Panel

G

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ሐ

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ØJ

∜ øк ⊕-



Reversed Receptacle for Pin Contacts Flange Mounting

• For Wire Sealing Ranges, see page 34.

• 3,00 (.118) max with Panel Gasket. For Panel Gaskets, see page 47.

With Wire Seal and Securing Nut

| Shell | Contact Layout Power Signal | Single Piece | Connector | | ackages nnectors) | | | | | | | | | | | |
|-------|--------------------------------|--------------|-------------|-----------------|----------------------|-----------------|------------------|----------------|-----------------|------------------|------------------|------------------|------------------|----------------|------------------|------------------|
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | В | С | ØD | ØE | F | G | ØH | ØJ | ØK |
| 14 | 00 | 12 | 192900-0256 | TN0S14-0012P1L | 192900-0261 | TN0S14-0012P1B | 39,70 (1.563) | 2,30 (.090) | 11,40 (.448) | 22,20 (.874) | 24,30 (.956) | 28,60 (1.122) | 22,90 (.901) | 3,20 (.125) | 24,60 (.968) | 24,60 (.968) |
| 16 | 00 | 19 | 192900-0078 | TN0S16-0019P1L | 192990-9980 | TN0S16-0019P1B | 39,80 (1.566) | 2,30 (.090) | 11,40 (.448) | 25,40 (1.000) | 27,00 (1.063) | 31,00 (1.220) | 24,50 (.964) | 3,20 (.125) | 28,10 (1.106) | 28,10 (1.106) |
| 16 | 02 | 13 | 192900-0582 | TN0S16-0213P1L | * | TN0S16-0213P1B | 39,80 (1.566) | 2,30 (.090) | 11,40 (.448) | 25,40 (1.000) | 27,00 (1.063) | 31,00 (1.220) | 24,50 (.964) | 3.20 (.125) | 28,10 (1.106) | 28,10 (1.106) |
| 24 | 00 | 48 | 192900-0431 | TN0S24-0048P1L | 192900-0434 | TN0S24-0048P1B | 41,80 (1.645) | 3,50 (.137) | 15,40 (.606) | 38,10 (1.500) | 40,10 (1,578) | 50,80 (2.000) | 39,70 (1.563) | 4,20 (.165) | 41,00 (1.614) | 41,00 (1.614) |
| 24 | 04 | 20 | 192900-0069 | TN0S24-0420P1L | 192990-9440 | TN0S24-0420P1B | 41,80 (1.645) | 3,50 (.137) | 15,40 (.606) | 38,10 (1.500) | 40,10 (1,578) | 50,80 (2.000) | 39,70 (1.563) | 4,20 (.165) | 41,00 (1.614) | 41,00 (1.614) |
| 24 | 04 | 28 | 192900-0072 | TN0S24-0428P1L | 192900-0064 | TN0S24-0428P1B | 41,80 (1.645) | 3,50 (.137) | 15,40 (.606) | 38,10 (1.500) | 40,10 (1,578) | 50,80 (2.000) | 39,70 (1.563) | 4,20 (.165) | 41,00 (1.614) | 41,00 (1.614) |
| 24 | 12 | 19 | 192900-0075 | TN0S24-1219P1L | 192990-9250 | TN0S24-1219P1B | 41,80 (1.645) | 3,50 (.137) | 15,40 (.606) | 38,10 (1.500) | 40,10 (1,578) | 50,80 (2.000) | 39,70 (1.563) | 4,20 (.165) | 41,00 (1.614) | 41,00 (1.614) |
| 24 | 00 | 48 (L) | 192991-0652 | TNOLS24-0048P1L | * | TNOLS24-0048P1B | 52,70 (2.075) | 3,50 (.137) | 15,40 (.606) | 38,10 (1.500) | 40,10 (1,578) | 50,80 (2.000) | 39,70 (1.563) | 4,20 (.165) | 41,00 (1.614) | 41,00 (1.614) |

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WIRE SEAL & SECURING NUT

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FLAT SEAL

Without Securing Nut

| Shell | Contact La Power | ayout Signal | Single Piec | e Connector | | Packages onnectors) | | | | | | | | | | |
|-------|---------------------|-----------------|-------------|----------------|-------------|------------------------|---|----------------|-----------------|------------------|------------------|------------------|------------------|----------------|------------------|------------------|
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | A | В | С | ØD | ØE | F | G | ØH | ØJ | ØK |
| 14 | 00 | 12 | * | TN0G14-0012P1L | 192900-0262 | TN0G14-0012P1B | - | 2,30 (.090) | 11,40 (.448) | 22,20 (.874) | 15/16 – 20 UNEF | 28,60 (1.122) | 22,90 (.901) | 3,20 (.125) | 24,60 (.968) | 24,60 (.968) |
| 16 | 00 | 19 | * | TNOG16-0019P1L | 192900-0119 | TN0G16-0019P1B | - | 2,30 (.090) | 11,40 (.448) | 25,40 (1.000) | 15/16 – 20 UNEF | 31,00 (1.220) | 24,50 (.964) | 3,20 (.125) | 28,10 (1.106) | 28,10 (1.106) |
| 24 | 00 | 48 | * | TN0G24-0048P1L | 192900-0435 | TN0G24-0048P1B | - | 3,50 (.137) | 15,40 (.606) | 38,10 (1.500) | 1-7/16 – 18 UNEF | 50,80 (2.000) | 39,70 (1.563) | 4,20 (.165) | 41,00 (1.614) | 41,00 (1.614) |
| 24 | 04 | 20 | * | TN0G24-0420P1L | 192900-0110 | TN0G24-0420P1B | - | 3,50 (.137) | 15,40 (.606) | 38,10 (1.500) | 1-7/16 – 18 UNEF | 50,80 (2.000) | 39,70 (1.563) | 4,20 (.165) | 41,00 (1.614) | 41,00 (1.614) |
| 24 | 04 | 28 | * | TN0G24-0428P1L | 192900-0113 | TN0G24-0428P1B | - | 3,50 (.137) | 15,40 (.606) | 38,10 (1.500) | 1-7/16 – 18 UNEF | 50,80 (2.000) | 39,70 (1.563) | 4,20 (.165) | 41,00 (1.614) | 41,00 (1.614) |
| 24 | 12 | 19 | * | TN0G24-1219P1L | 192900-0116 | TN0G24-1219P1B | - | 3,50 (.137) | 15,40 (.606) | 38,10 (1.500) | 1-7/16 – 18 UNEF | 50,80 (2.000) | 39,70 (1.563) | 4,20 (.165) | 41,00 (1.614) | 41,00 (1.614) |

* For details please consult the factory

Dimensions shown in mm Specifications and dimensions subject to change



Single Piece Connector

Neptune Circular Connectors



Reversed Receptacle for Pin Contacts Jam Nut Mounting

With Wire Seal and Securing Nut

Signal

Contact Layout

Power

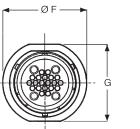
Shell

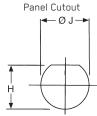
WIRE SEAL & SECURING NUT

• For Wire Sealing Ranges, see page 34.

Bulk Packages

(100 Connectors)





• Panel thickness 4,00 (.157) max

- 3,00 (.118) max with Panel gasket.
- For Panel Gaskets, see page 47.
- Bulk packages are not supplied with Jam Nuts. To order Jam Nuts see page 47.

| SHEII | FUWEI | Siyildi | | | (100 0 | 01110010137 | | | | | | | | | | |
|-------|------------|----------|------------------|-----------------|-------------|-----------------------|-------|----------------|-----------------|------------------|-------------|---------|------------------|------------------|------------------|------------------|
| Size | Contacts | Contacts | Part Number | Nomenclature | Part Number | Nomenclature | А | В | С | Ø | D ØE | ØF | G | Н | ØJ | |
| 14 | 00 | 12 | 192900-0266 | TN7S14-0012P1L | 192900-0271 | TN7S14-0012P1B01 | 39,7 | 0 3,50 |) 22, | 10 22 | 20 24,30 | 35,80 | 32,20 | 25,10 | 27,30 |) |
| | | | | | | | (1.56 | 3) (.137 | 7) (.87 | 70) (.8 | 74) (.956) | (1.409) | (1.267) | (.988) | (1.075 | i) |
| 16 | 00 | 19 | 192900-0353 | TN7S16-0019P1L | 192900-0395 | TN7S16-0019P1B01 | 39,8 | 0 2,30 |) 23, | 00 25 | 40 27,00 | 39,80 | 38,40 | 28,00 | 30,50 |) |
| | | | | | | | (1.56 | 6) (.090 | 0) (.90 | 05) (1.0 | 00) (1.063) | (1.566) | (1,511) | (1.102) |) (1.200 |)) |
| 16 | 02 | 13 | 192900-0583 | TN7S16-0213P1L | 192900-0586 | TN7S16-0213P1B01 | 39,8 | 0 2,30 |) 23, | 00 25 | 40 27,00 | 39,80 | 38,40 | 28,00 | 30,50 |) |
| | | | | | | | (1.56 | 6) (.090 | 0) (.90 | 05) (1.0 | 00) (1.063) | (1.566) | (1.511) | (1.102) |) (1.200 |)) |
| 24 | 00 | 48 | 192900-0437 | TN7S24-0048P1L | 192900-0440 | TN7S24-0048P1B01 | 41,8 | 0 3,50 |) 23, | 40 38 | 10 40,10 | 51,00 | 47,50 | 41,50 | 43,20 |) |
| | | | | | | | (1.64 | 5) (.137 | 7) (.92 | 21) (1.5 | 00) (1,578) | (2.007) | (1.870) | (1.633) |) (1.700 |)) |
| 24 | 04 | 20 | 192900-0071 | TN7S24-0420P1L | 192990-9470 | TN7S24-0420P1B01 | 41,8 | 0 3,50 |) 23, | 40 38 | 10 40,10 | 51,00 | 47,50 | 41,50 | 43,20 |) |
| | | | | | | | (1.64 | 5) (.137 | 7) (.92 | 21) (1.5 | 00) (1,578) | (2.007) | (1.870) | (1.633) |) (1.700 |)) |
| 24 | 04 | 28 | 192900-0074 | TN7S24-0428P1L | 192900-0066 | TN7S24-0428P1B01 | 41,8 | 0 3,50 |) 23, | 40 38 | 10 40,10 | 51,00 | 47,50 | 41,50 | 43,20 |) |
| | | | | | | | (1.64 | 5) (.137 | 7) (.92 | 21) (1.5 | 00) (1,578) | (2.007) | (1.870) | (1.633) |) (1.700 |)) |
| 24 | 12 | 19 | 192900-0077 | TN7S24-1219P1L | 192900-0068 | TN7S24-1219P1B01 | 41,8 | 0 3,50 |) 23, | 40 38 | 10 40,10 | 51,00 | 47,50 | 41,50 | 43,20 |) |
| | | | | | | | (1.64 | 5) (.137 | 7) (.92 | 21) (1.5 | 00) (1,578) | (2.007) | (1.870) | (1.633) |) (1.700 |) |
| 24 | 00 | 48 (L) | 192991-0656 | TN7LS24-0048P1L | * | TN7LS24-0048P1B01 | 52,7 | 0 3,50 |) 23, | 40 38 | 10 40,10 | 51,00 | 47,50 | 41,50 | 43,20 |) |
| | | | | | | | (2.07 | 5) (.137 | 7) (92 | .1) (1.5 | 00) (1,578) | (2.007) | (1.870) | (1.633) |) (1.700 |)) |
| Witho | ut Securin | g Nut | | | D | | | | | | | | | | | |
| | Contact La | | Single Piece | Connector | | ackages nnectors) | | | | | | | | | | |
| Shell | Power | Signal | | | | | | _ | | | | | | | | |
| Size | Contacts | Contacts | Part Number * | Nomenclature | Part Number | Nomenclature | A | B | 0 | ØD | ØE | | ØF | G | H | ØJ |
| 14 | 00 | 12 | ^ | TN7G14-0012P1L | 192900-0370 | TN7G14-0012P1B01 | - | 2,30 | 22,10 | 22,20 | 15/16 – 20 | | 35,80 | 32,20 | 25,10 | 27,30 |
| 16 | 00 | 19 | * | TN7C1C 0010011 | 102000 0200 | TN7C1C 001001001 | | (.090) | (.870) | (.874) | 15/10 20 | | (1.409) | (1.267) | (.988) | (1.075) |
| 10 | 00 | 19 | | TN7G16-0019P1L | 192900-0396 | TN7G16-0019P1B01 | - | 2,30 | 23,00 | 25,40 | 15/16 – 20 | | 39,80 | 38,40 | 28,00 | 30,50 |
| 24 | 00 | 48 | 102000 0420 | TN7C24 0049011 | 102000 0441 | TN7C24 004901001 | | (.090) | (.905) | (1.000) | | | (/ | (1,511) | (1.102) | (1.200) |
| 24 | 00 | 40 | 192900-0438 | TN7G24-0048P1L | 192900-0441 | TN7G24-0048P1B01 | - | 3,50 | 23,40 | 38,10 | 1-7/16 – 18 | | 51,00 | 47,50 | 41,50 | 43,20 |
| 24 | 04 | 20 | * | TN7G24-0420P1L | 192900-0112 | TN7G24-0420P1B01 | | (.137) | (.921) | (1.500) | | | (2.007) | (1.870) | (1.633) | (1.700) |
| 24 | 04 | 20 | | 1W/G24-0420F1L | 192900-0112 | 1107024-042081801 | - | 3,50 | 23,40 (.921) | 38,10 | 1-7/16 – 18 | | 51,00 | 47,50 | 41,50 | 43,20 (1.700) |
| 24 | 04 | 28 | * | TN7G24-0428P1L | 192900-0115 | TN7G24-0428P1B01 | | (.137) 3,50 | (.921) 23,40 | (1.500) 38,10 | 1-7/16 – 18 | | (2.007) 51,00 | (1.870) 47,50 | (1.633) 41,50 | 43,20 |
| 24 | 04 | 20 | | 111/024-0420F1L | 192900-0113 | 1117 024-0420F I BU I | - | | (.921) | (1.500) | , | | , | | 41,50 (1.633) | 43,20 |
| 24 | 12 | 19 | * | TN7G24-1219P1L | 192900-0118 | TN7G24-1219P1B01 | | (.137) 3,50 | (.921) 23,40 | (/ | 1-7/16 – 18 | | (2.007) | (1.870) | (1.633) | (/ |
| 24 | 12 | 19 | | 111/024-1219P1L | 192900-0118 | 1W/GZ4-1219P1B01 | - | | | 38,10 (1.500) | | | 51,00 (2.007) | 47,50 | | 43,20 |
| | | | | | | | | (.137) | (.921) | | | | | (1.870) | (1.633) | (1.700) |

Unsealed- Without Wire Seal and Securing Nut Bulk Packages Contact Layout Single Piece Connector Shell (100 Connectors) Power Signal Contacts Part Number Part Number Nomenclature С ØD ØF Н ØJ Size Contacts Nomenclature Δ R ØF G * TN7U16-0213P1L TN7U16-0213P1B01 25,40 15/16 - 20 UNEF 30,50 16 02 13 35,60 2,30 23,00 39,80 38,40 28,00 (1.000) (1.200) (1.402) (.090) (.905) (1.566) (1,511) (1.102) 24 04 * TN7U24-0420P1L * 20 TN7U24-0420P1B01 37,65 3,50 23,40 38,10 1-7/16 - 18 UNEF 51,00 47,50 41,50 43,20 (1.482) (.137) (.921) (1.500) (2.007) (1.870) (1.633) (1.700) 24 04 28 * TN7U24-0428P1L * TN7U24-0428P1B01 37,65 3,50 23,40 38,10 1-7/16 - 18 UNEF 51,00 47,50 41,50 43,20 (1.482) (.137) (.921) (1.500) (2.007) (1.870) (1.633) (1.700) 24 12 19 * TN7U24-1219P1L * TN7U24-1219P1B01 37,65 3,50 23,40 38,10 1-7/16 - 18 UNEF 51,00 47,50 41,50 43,20 (1.482) (.137) (.921) (1.500) (2.007) (1.870) (1.633) (1.700)

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* For details please consult the factory

Dimensions shown in mm

Specifications and dimensions subject to change

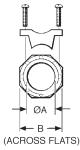
How to Order-Accessories

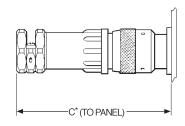
| ypical Nomenclatur Series TNA = Trident Neptune Ac Shell Size | | <u>CA01</u> - | 20 L Packaging B = Bulk L = Single Pack |
|---|----------------------|---------------|--|
| 14 | | Accessory S | tyle, Type, and Size |
| 16 24 | Conduit Adapte | r | |
| ** Blanking Plug | CA CA | 01-xx | Type 1, xx=diameter of conduit* |
| | _ | 02-xx | Type 2, xx=diameter of conduit* |
| | (CA | 03-xx | Type 3, xx=diameter of conduit* |
| | Cable Clamp | | |
| | CC | HC-00 | Sealed |
| | СС | SR-00 | Unsealed |
| | Panel Gasket | | |
| | PG | 01-00 | Flange Type |
| | PG | 03-00 | Jam Nut Type |
| | Dust Cap | | |
| | DC | P0-00 | Sealed Dust Cap, Plug |
| | DC | R0-02 | Sealed Dust Cap, Receptacle (Top Hat)** |
| | Spare Jam Nut | | |
| | JN | 00-00 | |
| | Blanking Plug | | |
| | BP | SG-00 | For Signal Holes |

| *Conduit Adap | ter Sizes | |
|---------------|-----------|---------------|
| Shell Size | Туре | Diameter (mm) |
| 14 | 01 | 12 |
| 16 | 01 | 20 |
| 16 | 02 | 18 |
| 24 | 01 | 20 |
| 24 | 01 | 25 |
| 24 | 02 | 25 |
| 24 | 02 | 26 |
| 24 | 03 | 34 |









* For disassembly, add 9,00 (.354) for shell sizes 14 and 16 and add 10,60 (.417) for shell size 24.

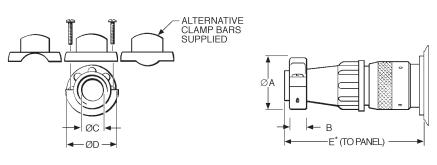
Sealed Cable Clamps for Use With Neptune Circular Connectors

- For use with jacketed cables.
- Provides Strain relief and wire
- Provides sealing to IP67.
- Provides Strain relief and wire protection.
- For assembly instructions, see page 76.

| Shell | | | ØA | | С | Wire Sealing Dia | ameter |
|-------|-------------|---------------|---------------|---------------|----------------|------------------|---------------|
| Size | Part Number | Nomenclature | max. | В | max. | Minimum | Maximum |
| 14 | 192900-0496 | TNA14CCHC-00L | 14,60 (.574) | 22,80 (.897) | 85,50 (3.366) | 6,50 (.256) | 12,40 (.488) |
| 16 | 192900-0497 | TNA16CCHC-00L | 16,60 (.653) | 24,70 (.972) | 89,80 (3.535) | 6,50 (.256) | 12,40 (.488) |
| 24 | 192900-0498 | TNA24CCHC-00L | 29,60 (1.165) | 41,80 (1.645) | 128,50 (5.059) | 17,00 (.670) | 26,50 (1.040) |

* Assumes a uniformly cylindrical cable. Variations in the diameter could effect sealing.





* For disassembly, add 9,00 (.354) for shell sizes 14 and 16 and add 10,60 (.417) for shell size 24.

Unsealed Cable Clamps for Use With Neptune Circular Connectors

- Provides strain relief and wire protection.
- For use with discrete wires or

jacketed cables.

• For assembly instructions, see page 76.

| Shell | | | ØA | | ØC | | E |
|-------|-------------|---------------|---------------|-------------|---------------|---------------|---------------|
| Size | Part Number | Nomenclature | max. | В | max. | ØD | max. |
| 14 | 192900-0286 | TNA14CCSR-00L | 27,00 (1.063) | 6,40 (.251) | 13,80 (.543) | 27,00 (1.063) | 67,10 (2.641) |
| 16 | 192900-0343 | TNA16CCSR-00L | 30,10 (1.185) | 6,40 (.251) | 17,00 (.669) | 30,20 (1.189) | 67,10 (2.641) |
| 24 | 192900-0344 | TNA24CCSR-00L | 41,80 (1.645) | 8,20 (.322) | 28,00 (1.102) | 42,50 (1.673) | 90,80 (3.574) |



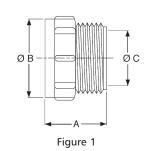
Conduit Adapters

Adapters facilitate the fitting of various accessories to the Neptune housings.



Figure 1

· External threads for use with conduit.



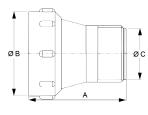


Figure 2

Single Piece Pack

| Shell | | Part | | | | |
|-------|--------|-------------|---------------|---------------|---------------|---------------|
| Size | Figure | Number | Nomenclature | А | ØB | ØC |
| 16 | 1 | 192900-0187 | TNA16CA01-20L | 28,60 (1.126) | 28,00 (1.102) | 21,50 (.846) |
| 24 | 2 | 192900-0184 | TNA24CA01-20L | 47,00 (1.850) | 44,00 (1.732) | 21,50 (.846) |
| 24 | 1 | 192900-0185 | TNA24CA01-25L | 32,00 (1.260) | 43,50 (1.713) | 28,50 (1.122) |
| | | | | | | |

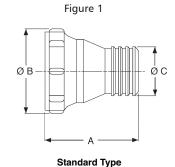


Type 2

Type 1

- External grooves for heat shrink tubing or conduit "push-fit" onto the adapter.
- Standard type is recommended for sealed connections to the adapter.
- Drain hole type is recommended for non sealed connections. E.g. split conduit.





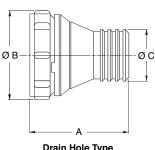
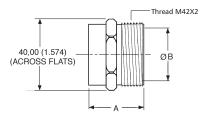


Figure 2

Drain Hole Type

| Cinala | | Deel |
|--------|-------|------|
| Single | Piece | Pack |

| Shell | | Part | | | | |
|-------|--------|-------------|---------------|---------------|---------------|--------------|
| Size | Figure | Number | Nomenclature | А | ØB | ØC |
| 16 | 1 | 192991-0015 | TNA16CA02-18L | 37,80 (1.488) | 27,50 (1.082) | 17,40 (.685) |
| 24 | 1 | 192991-0013 | TNA24CA02-26L | 46,70 (1.839) | 41,50 (1.634) | 24,00 (.945) |
| 24 | 2 | 192900-0654 | TNA24CA02-25L | 46,70 (1.839) | 41,50 (1.634) | 24,00 (.945) |



Single Piece Pack

| Shell | Part | | | | |
|-------|----------|--------|---------|-------|-----------------------------|
| Size | Number | Nomenc | lature | А | ØB |
| 24 | 192900-0 | 226 1 | NA24CA0 | 3-34L | 36,50 (1.437) 34,70 (1.366) |

Dimensions shown in mm Specifications and dimensions subject to change

• For use with a 90° elbow.

• External threads for use with conduit.

www.ittcannon.com

Downloaded from Arrow.com.

Type 3



Blanking Plugs

 Blanking plugs are used to repair damaged seals. If the membrane seal is pierced in a position that is not normally used, then the blanking plug will restore the seal.

Note: Replacement membrane seals are also available. Contact ITT for details.



Discriminating (Keying) Pins

- Discriminating (keying) pins are used to prevent cross-mating of similar connectors. These pins are used in place of a pin contact. The corresponding socket cavity must be left open. If a socket contact is present, the discriminating pin will prevent mating.
- The discriminating pin is installed from the mating side of the connector.

| | Part Number |
|----------|--------------|
| Pin Type | (Pack of 25) |
| Signal | 192990-0000 |
| Power | 192900-0189 |



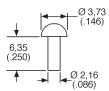
Spare Jam Nuts

• To order with Bulk packaged Jam Nut Receptacles.



| Shell | Pack of | f 100 | | | |
|-------|-------------|---------------|---------------|---------------|-------------|
| Size | Part Number | Nomenclature | ØA max. | B Nom | С |
| 14 | 192900-0489 | TNA14JN00-00B | 36,00 (1.417) | 31,00 (1.220) | 6,00 (.236 |
| 16 | 192900-0488 | TNA16JN00-00B | 40,60 (1.598) | 35,00 (1.378) | 6,00 (.236 |
| 24 | 192900-0487 | TNA24JN00-00B | 56,00 (2.205) | 49,00 (1.929) | 7,00 (.275) |

Blanking Plugs for Signal Cavities

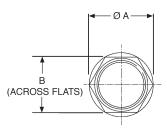


| | Pack of 100 |
|-------------|---------------|
| Part Number | Nomenclature |
| 192991-0018 | TNA**BPSG-00B |

Prevents Cross - Mating

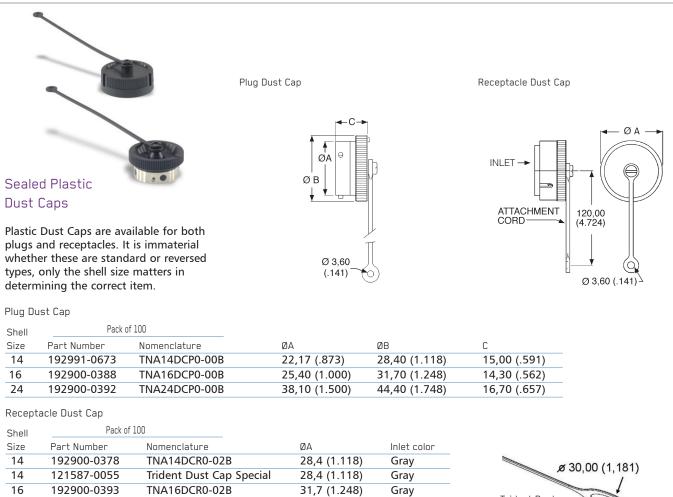


Discriminating Pin Insertion



Dimensions shown in mm

Specifications and dimensions subject to change



Trident Dust Cap Special

Jam Nut Type

Note: Receptacle Dust Caps are also suitable for Ringlock. For other shell sizes please consult the factory.

Flange Type



TNA24DCR0-02B

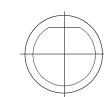
 \oplus

44,2 (1.740)

Gray

 \oplus

 \oplus



Panel Gaskets

24

192900-0383

| Flange Type | Pack of | 100 | Jam Nut Type | Pack o | f 100 | |
|-------------|-------------|---------------|--------------|-------------|---------------|--|
| Shell Size | Part Number | Nomenclature | Shell Size | Part Number | Nomenclature | |
| 14 | 192900-0565 | TNA14PG01-00B | 14 | 192900-0457 | TNA14PG03-00B | |
| 16 | 192900-0566 | TNA16PG01-00B | 16 | 192900-0402 | TNA16PG03-00B | |
| 24 | 192900-0567 | TNA24PG01-00B | 24 | 192900-0458 | TNA24PG03-00B | |

Dimensions shown in mm Specifications and dimensions subject to change



Downloaded from Arrow.com.

TNM (Trident Neptune Metal) is specifically designed to meet the needs of systems that require shielding, sealing, and the extra durability of a metal shell. The combination of Trident contacts, membrane seals, and the Universal Shielded Endbell* make TNM both cost effective and easy to assemble.

TNM features nickel plated zinc alloy shells and UL 94 V-0 rated thermoplastic insulators. All TNM receptacles are supplied with an interfacial seal to provide sealing between connectors to IP67. In addition, a membrane seal is available for those applications requiring the sealing of discrete wires a the rear of the connector.

In order to seal multicore jacketed cables to connectors an endbell is available. This has 'O' ring sealing to the connector and second seal to the cable jacket. All TNM Circular Connectors are RoHS Compliant.



*Patent pending Applications

- Antennas.
- Industrial electronics.
- Heavy duty equipment.

Robotics/ Control Panel.Industrial Instrumentation.

- Servo Motors.
- 360° shielding.

• Can be sealed to IP67.

Product Features

· Accepts all Trident signal contacts.

· Mixed signal and power contact version.

- Easy to assemble.
- Recognized under the component program of UL Inc. and CSA.

Performance Specifications

| Operating Voltage ¹ | Up to 250 V ac rms |
|-------------------------------------|-----------------------------------|
| Contact Current Rating ² | Up to 13 A; Up to 16 A with High |
| | Conductivity Contacts; |
| | Up to 30 A with Power Contacts; |
| | Up to 40 A with D Sub Contacts |
| Operating Temperature | -55°C to +105°C (-67°F to +221°F) |
| Insulation Resistance | 5000MΩ min. at 500 V dc |
| Durability ³ | Up to 200 Mating Cycles |
| Environmental Sealing | Up to IP67 |
| Flammability | UL 94 V-0 |

Materials and Finishes

| Shell | Nickel Plated Zinc Alloy |
|---------------|--------------------------|
| Insulator | Black Nylon |
| Coupling Ring | Nickel Plated Brass |
| Seal | Rubber |

¹ Depends on contacts used, layout, and degree of pollution

² Depends on type and number of contacts used

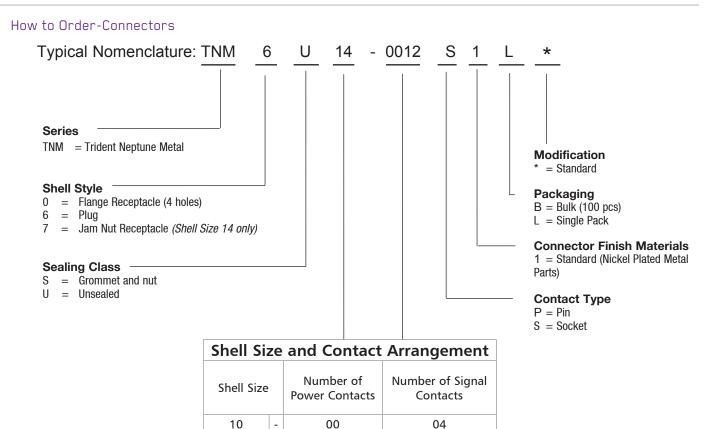
³ Depends on plating and type of contacts used

Test Specifications

The table below summarizes the results of key tests performed. Data is applicable to standard connectors with standard cotnacts. Variations may affect this data, so please consult factory for further information on your requirements.

| Test | Method | Criteria of Acceptance |
|---------------------------------|---|---|
| Dielectric Withstanding Voltage | 2000 V ac rms | No breakdown |
| Thermal Shock | -55°C to +125°C (-67°F to +257°F), 5 cycles | No physical damage |
| Physical Shock | 40 gʻs peak, 3 axes, 6 millisecond | No physical damage |
| | duration half-sine pulse | No loss of continuity > 10 μ sec |
| Vibration | 10 g's peak, 10-500 Hz, 9 hours | No physical damage |
| | | No loss of continuity > 10 μ sec |
| Durability | 200 cycles of mating and unmating | Capable of mating and unmating |
| | 200 mating cycles max. | and meeting contact resistance requirements |
| Salt Spray | 48 hours | Capable of mating and unmating |
| | | and meeting contact resistance requirements |
| High Temperature Endurance | 1000 hours at 85°C (+185°F), | |
| | 16 hours at 105°C (+221°F) | Insulation Resistance > 100 M Ω |
| Humidty Steady State | RH 90-95%, 40°C (+104°F), 504 hours | Insulation Resistance > 100 M Ω |





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| Contact Cavity Arrangement |
|----------------------------|
|----------------------------|

12

14

14

14

16

16

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Mating Face View

Shell Size

Number of Power Contacts

Number of Signal Contacts¹



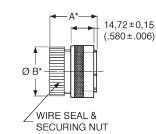
¹ Wire sealing range 1,70 to 2,70 (.066 to .106)

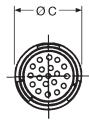
Dimensions shown in mm Specifications and dimensions subject to change





Standard Plugs for Pin Contacts





| With Wire S | Seal and Securing Nut | Single Piece (| Connector | | | |
|-------------|---------------------------|----------------|-----------------|---------------|---------------|---------------|
| Shell SizeC | Contact LayoutPart Number | Nomenclature | А | ØB | ØC | |
| 10 | 00 04 | 192993-0011 | TNM6S10-0004P1L | 42,50 (1.673) | 17,50 (.689) | 21,60 (.850) |
| 12 | 00 08 | 192993-0012 | TNM6S12-0008P1L | 42,50 (1.673) | 20,60 (.811) | 24,80 (.976) |
| 14 | 03 04 | 192993-0695 | TNM6S14-0304P1L | 42,50 (1.673) | 24,30 (.957) | 28,00 (1.102) |
| 14 | 00 12 | 192993-0013 | TNM6S14-0012P1L | 42,50 (1.673) | 24,30 (.957) | 28,00 (1.102) |
| 16 | 00 19 | 192993-0014 | TNM6S16-0019P1L | 42,50 (1.673) | 27,00 (1.063) | 31,20 (1.229) |

Unsealed – Without Wire Seal and Securing Nut ♦

| | | Single Piece (| Connector | | | |
|---------------|------------------------|----------------|-----------------|---------------|--------------|---------------|
| Shell SizeCon | tact LayoutPart Number | Nomenclature | A* | ØB* | ØC | |
| 10 | 00 04 | 192993-0001 | TNM6U10-0004P1L | 38,10 (1.500) | 13,80 (.543) | 21,60 (.850) |
| 12 | 00 08 | 192993-0002 | TNM6U12-0008P1L | 38,10 (1.500) | 16,90 (.665) | 24,80 (.976) |
| 14 | 00 12 | 192993-0003 | TNM6U14-0012P1L | 38,10 (1.500) | 20,10 (.791) | 28,00 (1.102) |
| 16 | 00 19 | 192993-0004 | TNM6U16-0019P1L | 38,10 (1.500) | 23,30 (.917) | 31,20 (1.229) |

* Dimensions A and B apply to connectors without wire seals and securing nuts.

♦ Can be sealed to IP67 with a sealed endbell, see page 55.



Standard Receptacles for Socket Contacts Flange Mounting

With Wire Seal and Securing Nut

| Shell | Contact | Single Piece (| Connector | | | | | | | | | |
|-------|---------|----------------|-----------------|---------------|---------------|--------------|---------------|--------------|-------------|---------------|--------------|--|
| Size | Layout | Part Number | Nomenclature | A | ØB | ØC | D | E | ØF | ØG | ØH | |
| 10 | 00 04 | 192993-0031 | TNM0S10-0004S1L | 34,70 (1.366) | 17,50 (.689) | 14,92 (.563) | 23,79 (.937) | 18,26 (.719) | 3,20 (.126) | 17,30 (.681) | 15,10 (.594) | |
| 12 | 00 08 | 192993-0032 | TNM0S12-0008S1L | 34,70 (1.366) | 20,60 (.811) | 18,98 (.747) | 26,15 (1.030) | 20,62 (.812) | 3,20 (.126) | 21,80 (.858) | 18,20 (.717) | |
| 14 | 03 04 | 192993-0698 | TNM0S14-0304S1L | 34,70 (1.366) | 24,30 (.957) | 22,16 (.872) | 28,54 (1.124) | 22,80 (.898) | 3,50 (.138) | 25,00 (.984) | 21,40 (.843) | |
| 14 | 00 12 | 192993-0033 | TNM0S14-0012S1L | 34,70 (1.366) | 24,30 (.957) | 22,16 (.872) | 28,54 (1.124) | 22,80 (.898) | 3,50 (.138) | 25,00 (.984) | 21,40 (.843) | |
| 16 | 00 19 | 192993-0034 | TNM0S16-0019S1L | 34,70 (1.366) | 27,00 (1.063) | 25,33 (.997) | 30,89 (1.216) | 24,40 (.961) | 3,50 (.138) | 28,10 (1.106) | 24,60 (.969) | |

11,60 (.457)

INTERFACE

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SEAL

øс

1,85

(.073)

øв

WIRE SEAL &

SECURING NUT

Unsealed - Without Wire Seal and Securing Nut ♦

| Shell | Contact | Single Piece Co | nnector | | | | | | | | | |
|-------|---------|-----------------|-----------------|---------------|--------------|--------------|---------------|--------------|-------------|---------------|--------------|--|
| Size | Layout | Part Number | Nomenclature | A* | ØB* | ØC | D | E | ØF | ØG | ØН | |
| 10 | 00 04 | 192993-0021 | TNM0U10-0004S1L | 30,30 (1.193) | 14,30 (.563) | 14,92 (.563) | 23,79 (.937) | 18,26 (.719) | 3,20 (.126) | 17,30 (.681) | 15,10 (.594) | |
| 12 | 00 08 | 192993-0022 | TNM0U12-0008S1L | 30,30 (1.193) | 17,40 (.685) | 18,98 (.747) | 26,15 (1.030) | 20,62 (.812) | 3,20 (.126) | 21,80 (.858) | 18,20 (.717) | |
| 14 | 00 12 | 192993-0023 | TNM0U14-0012S1L | 30,30 (1.193) | 20,60 (.811) | 22,16 (.872) | 28,54 (1.124) | 22,80 (.898) | 3,50 (.138) | 25,00 (.984) | 21,40 (.843) | |
| 16 | 00 19 | 192993-0024 | TNM0U16-0019S1L | 30,30 (1.193) | 23,80 (.937) | 25,33 (.997) | 30,89 (1.216) | 24,40 (.961) | 3,50 (.138) | 28,10 (1.106) | 24,60 (.969) | |

* Dimensions A and B apply to connectors without wire seals and securing nuts

♦ Can be sealed to IP67 with a sealed endbell, see page 50.



Dimensions shown in mm Specifications and dimensions subject to change

Panel Cutout

⊷Ø F

ØН ØG

⊕-

Æ

F

ØH = Flange in Front of Panel ØG = Flange at Rear of Panel

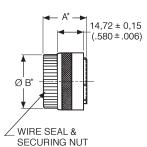
Ď E

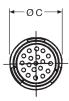
50



Reversed Plugs for Socket Contacts

With Wire Seal and Securing Nut





| with whe Searand | Securing Nuc | Single Piece | Connector | | | |
|------------------|----------------|--------------|-----------------|---------------|---------------|---------------|
| Shell Size | Contact Layout | Part Number | Nomenclature | А | ØB | ØC |
| 10 | 00 04 | 192993-0051 | TNM6S10-0004S1L | 34,20 (1.346) | 17,50 (.689) | 21,60 (.850) |
| 12 | 00 08 | 192993-0052 | TNM6S12-0008S1L | 34,20 (1.346) | 20,60 (.811) | 24,80 (.976) |
| 14 | 03 04 | 192993-0696 | TNM6S14-0304S1L | 34,20 (1.346) | 24,30 (.957) | 28,00 (1.102) |
| 14 | 00 12 | 192993-0053 | TNM6S14-0012S1L | 34,20 (1.346) | 24,30 (.957) | 28,00 (1.102) |
| 16 | 00 19 | 192993-0054 | TNM6S16-0019S1L | 34,20 (1.346) | 27,00 (1.063) | 31,20 (1.229) |
| | | | | | | |

Unsealed – Without Wire Seal and Securing Nut♦

| | | Single Piece | e Connector | | | |
|------------|----------------|--------------|-----------------|---------------|--------------|---------------|
| Shell Size | Contact Layout | Part Number | Nomenclature | A* | ØB* | ØC |
| 10 | 00 04 | 192993-0041 | TNM6U10-0004S1L | 29,80 (1.173) | 13,80 (.543) | 21,60 (.850) |
| 12 | 00 08 | 192993-0042 | TNM6U12-0008S1L | 29,80 (1.173) | 16,90 (.665) | 24,80 (.976) |
| 14 | 00 12 | 192993-0043 | TNM6U14-0012S1L | 29,80 (1.173) | 20,10 (.791) | 28,00 (1.102) |
| 16 | 00 19 | 192993-0044 | TNM6U16-0019S1L | 29,80 (1.173) | 23,30 (.917) | 31,20 (1.229) |

* Dimensions A and B apply to connectors without wire seals and securing nuts

♦ Can be sealed to IP67 with a sealed endbell, see page 55.

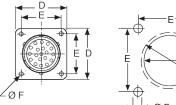
Panel Cutout

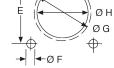


Reversed Receptacles for Pin Contacts Flange Mounting

With Wire Seal and Securing Nut

| — 1 ,85 (.073) |
|--------------------------|
|--------------------------|





ØH = Flange in Front of Panel ØG = Flange at Rear of Panel

| Shell | Contact | Single Piece | Connecter | | | | | | | | |
|-------|---------|--------------|-----------------|---------------|---------------|--------------|---------------|--------------|-------------|---------------|--------------|
| Size | Layouts | Part Number | Nomenclature | А | ØB | ØC | D | E | ØF | ØG | ØH |
| 10 | 00 04 | 192993-0071 | TNM0S10-0004P1L | 43,00 (1.693) | 17,50 (.689) | 14,92 (.563) | 23,79 (.937) | 18,26 (.719) | 3,20 (.126) | 17,30 (.681) | 15,10 (.594) |
| 12 | 00 08 | 192993-0072 | TNM0S12-0008P1L | 43,00 (1.693) | 20,60 (.811) | 18,98 (.747) | 26,15 (1.030) | 20,62 (.812) | 3,20 (.126) | 21,80 (.858) | 18,20 (.717) |
| 14 | 03 04 | 192993-0697 | TNM0S14-0304P1L | 43,00 (1.693) | 24,30 (.957) | 22,16 (.872) | 28,54 (1.124) | 22,80 (.898) | 3,50 (.138) | 25,00 (.984) | 21,40 (.843) |
| 14 | 00 12 | 192993-0073 | TNM0S14-0012P1L | 43,00 (1.693) | 24,30 (.957) | 22,16 (.872) | 28,54 (1.124) | 22,80 (.898) | 3,50 (.138) | 25,00 (.984) | 21,40 (.843) |
| 16 | 00 19 | 192993-0074 | TNM0S16-0019P1L | 43,00 (1.693) | 27,00 (1.063) | 25,33 (.997) | 30,89 (1.216) | 24,40 (.961) | 3,50 (.138) | 28,10 (1.106) | 24,60 (.969) |

Unsealed - Without Wire Seal and Securing Nut ♦

| Shell | Contact | Single Piece | e Connecter | | | | | | | | | |
|-------|---------|--------------|-----------------|---------------|--------------|--------------|---------------|--------------|-------------|---------------|--------------|--|
| Size | Layouts | Part Number | Nomenclature | Α* | ØB* | ØC | D | E | ØF | ØG | ØH | |
| 10 | 00 04 | 192993-0061 | TNM0U10-0004P1L | 38,60 (1.520) | 14,30 (.563) | 14,92 (.563) | 23,79 (.937) | 18,26 (.719) | 3,20 (.126) | 17,30 (.681) | 15,10 (.594) | |
| 12 | 00 08 | 192993-0062 | TNM0U12-0008P1L | 38,60 (1.520) | 17,40 (.685) | 18,98 (.747) | 26,15 (1.030) | 20,62 (.812) | 3,20 (.126) | 21,80 (.858) | 18,20 (.717) | |
| 14 | 00 12 | 192993-0063 | TNM0U14-0012P1L | 38,60 (1.520) | 20,60 (.811) | 22,16 (.872) | 28,54 (1.124) | 22,80 (.898) | 3,50 (.138) | 25,00 (.984) | 21,40 (.843) | |
| 16 | 00 19 | 192993-0064 | TNM0U16-0019P1L | 38,60 (1.520) | 23,80 (.937) | 25,33 (.997) | 30,89 (1.216) | 24,40 (.961) | 3,50 (.138) | 28,10 (1.106) | 24,60 (.969) | |
| | | | | | | | | | | | | |

* Dimensions A and B apply to connectors without wire seals and securing nuts

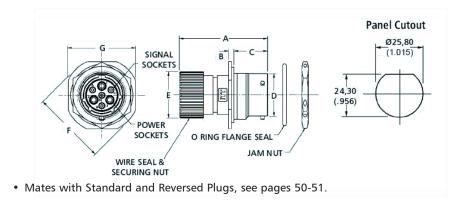
Can be sealed to IP67 with a sealed endbell, see page 55.

Dimensions shown in mm Specifications and dimensions subject to change





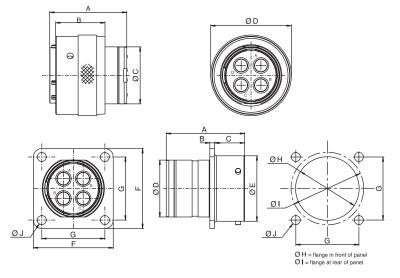
Standard/Reversed Receptacles for Pin/Socket Contacts Jam Nut Mounting



With Wire Seal and Securing Nut

| Shell | Contact | | Single Piece | e Connecter | | | | | | | |
|-------|---------|----------|--------------|-----------------|---------------|-------------|--------------|--------------|--------------|---------------|--------------|
| Size | Layout | Туре | Part Number | Nomenclature | А | В | С | ØD | ØE | ØF | ØG |
| 14 | 03 04 | Standard | 192993-0700 | TNM7S14-0304S1L | 50,00 (1.968) | 2,80 (.110) | 17,60 (.692) | 22,20 (.874) | 24,30 (.956) | 38,09 (1.500) | 34,90(1.374) |
| 14 | 03 04 | Reversed | 192993-0699 | TNM7S14-0304P1L | 50,00 (1.968) | 2,80 (.110) | 17,60 (.692) | 22,20 (.874) | 24,30 (.956) | 38,09 (1.500) | 34,90(1.374) |





4-way Reversed Plug/Receptacle for Power Contacts

This connector was developed for use on servomotors where high currents and high voltages are used.

• Uses Cannon D Subminiature power contacts, see page 67.

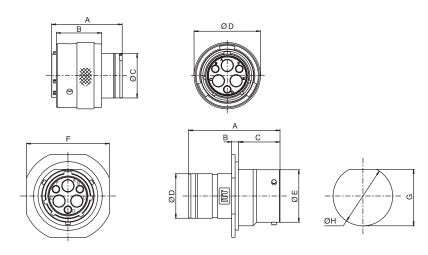
• Current rating 40A.

- Voltage rating 500V.
- Short receptacle to save space.

| | | | Single Piece Con | necter | | | | | | | | | | |
|-------|---------------------|---------|------------------|----------------|------|------|------|------|-------|------|------|------|------|-----|
| Shell | | Contact | | | | | | | | | | | | |
| Size | Туре | Layout | Part Number | Nomenclature | А | В | С | D | Е | F | G | Н | 1 | J |
| 16 | Reversed Receptacle | 04 00 | 192993-0106 | TNM192993-0106 | 30,3 | 1,85 | 11,6 | 23,7 | 25,33 | 30,9 | 24,4 | 24,6 | 28,1 | 3,5 |
| 16 | Reversed Plug | 04 00 | 192993-0105 | TNM192993-0105 | 29,8 | 19,1 | 23,2 | 31,2 | | | | | | |
| 16 | Earth Plug | 04 00 | 192993-0109 | TNM192993-0109 | 29,8 | 19,1 | 23,2 | 31,2 | | | | | | |







3-3 Connector

Designed for use as an antenna

standard Trident signal contacts.

connector, this design incorporates

• Can terminate wire sizes up to 8 AWG (10 mm²)

• Large cables with outside diameters up to 16,00 (.630) diameter can be accommodated.

D Subminiature power contacts and • Uses Cannon D Subminiature power contacts see page 67.

For more information, please contact your local Cannon sales office.

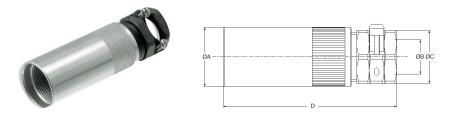
| Shell | Contact | | | | | | | | | | | |
|-------|---------|-------------------------|-------------|------|------|-------|------|-------|------|------|------|--|
| Size | Layouts | Туре | Part Number | А | В | С | D | E | F | G | Н | |
| 14 | 03 03 | Reversed Receptacle Pin | 192993-2013 | 38,6 | 2,8 | 17,6 | 18,8 | 22,16 | 34,9 | 24,2 | 25,8 | |
| 14 | 03 03 | Reversed Plug Socket | 192993-0261 | 29,8 | 19,1 | 18,85 | 28 | | | | | |

TNM Circular Accessories

| How to Order-Accessories | | | | |
|--------------------------------|---------------|-----|-------------|---|
| Typical Nomenclature: | <u>TNA 10</u> | | <u>SE</u> - | $ \begin{array}{c c} \underline{01} & \underline{L} \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $ |
| TNA- Trident Neptune Accessory | | | | |
| Shell Size | | | Acce | ssory Style, Type and Size |
| Shell Size | | Cab | le Clam | р |
| 10 | | CC | HC-00 | Sealed |
| 12 14 | | CC | SR-00 | Unsealed |
| 16 | | CC | SE-00 | Universal Shielded Endbell |
| | | СС | SE-01 | Shielded Endbell for larger Cable Sizes |
| | | Hea | t Shrink | Adapter |
| | | HS | AD-00 | Heat Shrink Adapter |
| | | Dus | t Cap | |
| | | DC | R0-01 | Sealed Dust Cap, Receptacle (Top Hat)*** |
| | | | | |

*** Can be sealed up to IP 67

Dimensions shown in mm Specifications and dimensions subject to change



Shielded Endbell for Larger Cable Sizes

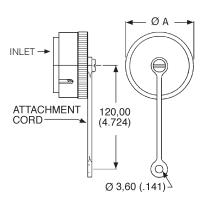
• Metal body with plastic cable clamp. • For assembly instructions, see page 77. • For use with jacketed cables.

| | Si | ngle Piece Pack | | Cable Accommodation | | | |
|------------|-------------|-----------------|---------------|---------------------|--------------|--------------|---------------|
| Shell Size | Part Number | Nomenclature | Ø A max | ØB min | ØB max | ØC | ØD max |
| 10 | 192993-0091 | TNA10CCSE-01L | 18,10 (.712) | 5,00 (.196) | 10,0 (.393) | 19,00 (.748) | 70,00 (2.755) |
| 12 | 192993-0092 | TNA12CCSE-01L | 21,20 (.834) | 6,00 (.236) | 12,00 (.472) | 21,00 (.826) | 72,00 (2.834) |
| 14 | 192993-0093 | TNA14CCSE-01L | 24,20 (.952) | 7,00 (.275) | 14,00 (.551) | 23,00 (.905) | 78,00 (3.070) |
| 16 | 192993-0094 | TNA16CCSE-01L | 27,60 (1.086) | 8,00 (.314) | 16,00 (.629) | 25,00 (.984) | 82,50 (3.248) |

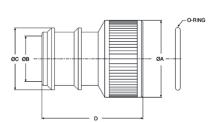
Receptacle Dust Cap

It is immaterial whether these are standard or reversed types, only the shell size matters in determining the correct item.

| Shell | Pack | of 100 | | |
|-------|-------------|---------------|--------------|--------------|
| Size | Part Number | Nomenclature | ØA | Inlet Colour |
| 10 | 192900-0376 | TNA10DCR0-01B | 21.6 (0.850) | Black |
| 12 | 192900-0377 | TNA12DCR0-01B | 25.2 (0.992) | Black |
| 14 | 192900-0394 | TNA14DCR0-01B | 28.4 (1.118) | Black |
| 16 | 192900-0379 | TNA16DCR0-01B | 31.7 (1.248) | Black |







Heat Shrink Adapter for use with TNM Circular Connectors

| | Single F | Piece Pack | | | | |
|------------|-------------|---------------|---------------|--------------|--------------|---------------|
| Shell Size | Part Number | Nomenclature | Ø Amax | ØB min | ØC | ØDmax |
| 10 | 192993-0631 | TNA10HSAD-00L | 18,10 (.712) | 10,20 (.401) | 16,00 (.629) | 35,50 (1.397) |
| 12 | 192993-0632 | TNA12HSAD-00L | 21,20 (.834) | 12,20 (.480) | 18,00 (.708) | 36,00 (1.417) |
| 14 | 192993-0633 | TNA14HSAD-00L | 24,20 (.952) | 14,20 (.559) | 20,00 (.787) | 36,00 (1.417) |
| 16 | 192993-0634 | TNA16HSAD-00L | 27,60 (1.086) | 16,30 (.641) | 22,00 (.866) | 36,50 (1.437) |





Universal Shielded Endbell*

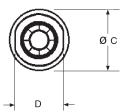
In order to meet EMC requirements it will be necessary to fit a shielded endbell to the TNM connectors. The TNM Shielded Endbell provides sealing to the connector shell, a cable braid grip and sealing to the outer sheath of the cable. Sealing rating is IP67.

Shielded endbells are used with unsealed plugs and receptacles.

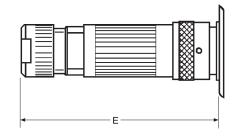
*Patent Pending

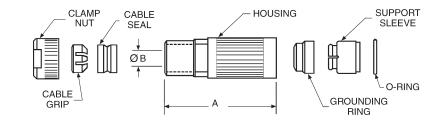
Materials and Finishes

| Description | Material/Finish |
|----------------|------------------|
| Housing | Aluminum/Nickel |
| Grounding Ring | Aluminum/Nickel |
| Clamp Nut | Aluminum/Nickel |
| Cable Grip | Nylon, UL 94 V-0 |
| Support Sleeve | Nylon, UL 94 V-0 |
| O-Ring | Rubber |
| Cable Seal | Rubber |
| | |



(ACROSS FLATS)





For assembly instruction, see page 80.

| | | | | | Dimensions | | | |
|-------|-------------|---------------|---------------|--------------|---------------|--------------|-----------------|-----------------|
| Shell | Part | | | | | | E max. | |
| Size | Number | Nomenclature | А | ØB | ØC | D | Standard Format | Reversed Format |
| 10 | 192993-0081 | TNA10CCSE-00L | 56,60 (2.228) | 8,00 (.315) | 17,90 (.705) | 16,00 (.630) | 88,50 (3.484) | 80,00 (3.150) |
| 12 | 192993-0082 | TNA12CCSE-00L | 56,70 (2.320) | 10,00 (.394) | 21,00 (.827) | 19,00 (.748) | 88,50 (3.484) | 80,00 (3.150) |
| 14 | 192993-0083 | TNA14CCSE-00L | 57,00 (2.441) | 11,30 (.449) | 24,00 (.945) | 22,00 (.886) | 88,50 (3.484) | 80,00 (3.150) |
| 16 | 192993-0084 | TNA16CCSE-00L | 57,40 (2.260) | 13,60 (.535) | 27,40 (1,079) | 25,00 (.984) | 88,50 (3.484) | 80,00 (3.150) |

Cables

The TNM Shielded Endbell covers a wide range of multicore cable used in industrial applications. The following table indicates the sizes that can be accommodated provided the outside sheath diameter is within the accommodation range shown.

For detail of contacts, see page 59.

Shielded cable to Endbell Assembly Instructions are supplied with the Endbell piece parts kit, also shown on page 76.

Dimensions shown in mm Specifications and dimensions subject to change





C* (TO PANEL)



Sealed Cable Clamps for use with TNM Circular Connectors

• For use with jacketed cables.

- Provides strain relief and wire protection.
- Provides sealing to IP67.
- For assembly instructions, see page 75.

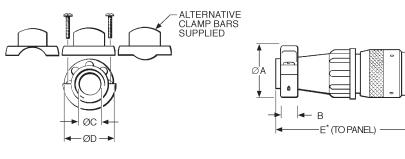
| | | | S | | | |
|-------------|---|---|--|--|--|--|
| | | | | C max. | | |
| Part Number | Nomenclature | ØA max. | В | Standard Format | Reversed Format | |
| 192900-0636 | TNA10CCHC-00L | 11,10 (.437) | 18,80 (.740) | 89,00 (3.504) | 80,70 (3.177) | |
| 192900-0637 | TNA12CCHC-00L | 13,60 (.535) | 20,80 (.818) | 92,00 (3.622) | 83,70 (3.295) | |
| 192900-0496 | TNA14CCHC-00L | 14,60 (.574) | 22,80 (.897) | 99,00 (3.898) | 90,70 (3.571) | |
| 192900-0497 | TNA16CCHC-00L | 16,60 (.653) | 24,70 (.972) | 103,00 (4.055) | 94,70 (3.728) | |
| | 192900-0636 192900-0637 192900-0496 | 192900-0636 TNA10CCHC-00L 192900-0637 TNA12CCHC-00L 192900-0496 TNA14CCHC-00L | 192900-0636 TNA10CCHC-00L 11,10 (.437) 192900-0637 TNA12CCHC-00L 13,60 (.535) 192900-0496 TNA14CCHC-00L 14,60 (.574) | Part Number Nomenclature ØA max. B 192900-0636 TNA10CCHC-00L 11,10 (.437) 18,80 (.740) 192900-0637 TNA12CCHC-00L 13,60 (.535) 20,80 (.818) 192900-0496 TNA14CCHC-00L 14,60 (.574) 22,80 (.897) | Part Number Nomenclature ØA max. B Standard Format 192900-0636 TNA10CCHC-00L 11,10 (.437) 18,80 (.740) 89,00 (3.504) 192900-0637 TNA12CCHC-00L 13,60 (.535) 20,80 (.818) 92,00 (3.622) 192900-0496 TNA14CCHC-00L 14,60 (.574) 22,80 (.897) 99,00 (3.898) | |

Ø - B (ACROSS FLATS)

* For disassembly, add 9,000 (.0354) for shell sizes 10-16.

* Assumes a uniformly cylindrical cable. Variations in the diameter could effect sealing.





* For disassembly, add 9,000 (.0354) for shell sizes 10-16.

Unsealed Cable Clamps for use with TNM Circular Connectors

- Provides strain relief and wire protection.
- For use with discrete wires or jacketed cables.
- For assembly instructions, see page 75.

| | | | | | Dimensions | | | |
|-------|-------------|---------------|---------------|-------------|--------------|---------------|-----------------|-----------------|
| Shell | Part | | | | | | E max. | |
| Size | Number | Nomenclature | ØA max. | В | ØC max. | ØD | Standard Format | Reversed Format |
| 10 | 192900-0639 | TNA10CCSR-00L | 21,50 (.846) | 6,40 (.251) | 8,70 (.342) | 21,00 (.826) | 74,50 (2.933) | 66,20 (2.606) |
| 12 | 192900-0640 | TNA12CCSR-00L | 24,90 (.980) | 6,40 (.251) | 12,80 (.503) | 24,00 (.944) | 74,50 (2.933) | 66,20 (2.606) |
| 14 | 192900-0286 | TNA14CCSR-00L | 27,00 (1.063) | 6,40 (.251) | 13,80 (.543) | 27,00 (1.063) | 80,50 (3.169) | 71,80 (2.826) |
| 16 | 192900-0343 | TNA16CCSR-00L | 30,10 (1.185) | 6,40 (.251) | 17,00 (.669) | 30,20 (1.189) | 80,50 (3.169) | 71,80 (2.826) |



This connector series is based on the Trident Neptune Metal housing. The insulator body has been designed for high voltage applications. These connectors rated for up to 34 A (for wire size 4,0 mm² at 20°C) and 500 V ac. This connector series is VDE certified.



Performance Specifications

Electrical Data

| Operating Voltage | Up to 500 V (dc and ac) |
|------------------------|---|
| Contact Current Rating | Max. 34 A for wire size 4,0 mm ² at 20°C |
| Contact Resistance | 5m0hm max. |
| Voltage Proof | 6kV rated impulse voltage |
| Insulation Resistance | 5000M0hm |

Mechanical Data

| Durability Up to 200 Mating cycles, depending on contact type | | | | | | |
|---|-----------------------------|--|--|--|--|--|
| Mating Torque Max. 2,3 Nm | | | | | | |
| Unmating Torque | Min. 0,25 Nm to max. 2,3 Nm | | | | | |

Environmental Data (acc. ISO 15170)

| Operating Temperature | -40°C to +125°C (-40°F to +257°F) |
|-----------------------|---------------------------------------|
| Humity Steady State | RH 90 to 95%, 40°C, 504 hours |
| Environmental Sealing | IP67 in mated condition |
| Salt Spray | 48 hours |
| Vibration | 10 g's peak, 10 to 500 Hz, 9 hours |
| Physical Shock | 40 g's peak, 6msec., half-spine pulse |

Materials and Finishes

| Shell | Nickel Plated Zinc Alloy |
|---------------|--------------------------|
| Insulator | Orange Nylon |
| Coupling Ring | Nickel Plated Brass |
| Flammability | UL 94 V-0 |



Attention! Connector must not be disconnected under load!

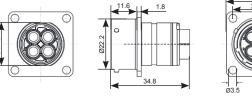
Dimensions shown in mm Specifications and dimensions subject to change





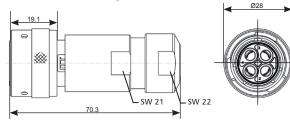


Dimensions: Standard Receptacle





Dimensions: Standard Plug with Endbell



High Voltage 4-way for Power Contacts

- Standard and reversed version available.
- Uses APK Power contacts, see page 61.
- For sealing the receptacle use panel gasket, see page 47.

| Shell Size | Туре | Contact Layout | Part Number | Nomenclature |
|------------|------------------------------|----------------|-------------|--------------------|
| 14 | Standard Plug with Endbell* | 04-00 | 192993-0702 | THV6U14-0400P1L-02 |
| 14 | Standard Receptacle* | 04-00 | 192993-0704 | THV0U14-0400S1L-02 |
| 14 | Reversed Plug with Endbell** | 04-00 | 192993-0706 | THV6U14-0400S1L-02 |
| 14 | Reversed Receptacle** | 04-00 | 192993-0708 | THV0U14-0400P1L-02 |

* Parts are VDE-qualified.

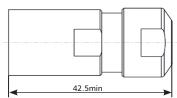
** Parts are not VDE-qualified.

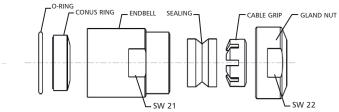


High Voltage 4-way Jam Nut Receptacle for Power Contacts

Information available upon request.







Shielded Endbell

Part Number (Pack of 100) 192993-0087



General recommendations for the selection of Trident contacts are listed below.

Platings: Tin is recommended for most applications (with 50 or fewer mating cycles). It is cost effective and matches well to most wires. Gold is preferred for special situations. Gold resists oxidation, has high surface conductivity, and has a low coefficient of friction. These features make gold the preferred plating for low level signals (a rule of thumb is <100 mA), corrosive environments (for unsealed connectors), and for increased mating cycles. The electrical performance of the contact is determined at the surface of the contact. For this reason, flash gold platings are suitable for applications with 50 or fewer mating cycles. Thicker gold platings are recommended for more than 50 mating cycles. All **Trident Contacts are RoHS** Compliant.

Stamped versus Machined: The two part stamped contacts are manufactured to precise tolerances and are field proven.



They can be supplied on reels which lowers assembly costs for volume production. Machined contacts offer improved precision and durability. They are recommended for applications with more than 200 mating cycles.

Crimp versus Solder: Crimp contacts offer improved electrical performance, strain relief and quality control compared to solder cup contacts. Solder cup contacts are recommended for low volume and prototype applications where the added cost of crimp tools is not justified.

High Conductivity: These contacts use a different base material then the standard contacts. They are recommended for high current applications. These contacts will also reduce the derating of connectors with several high current lines.

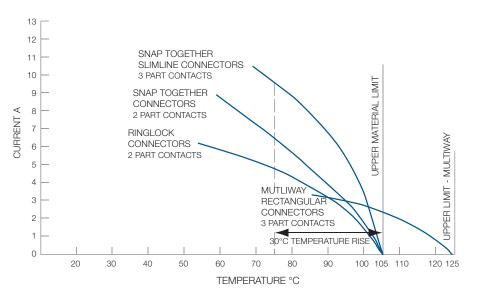
Temperature/Current Rating

Derating curves define the max. current that can be applied to a connector at a given ambient temperature so that the additional temperature rise caused by the current does not exceed the material limit of the connector.

The following curves show the max. currents based on the assumption attached: As factors like current load per contact, wire size etc. may be different in your application. This chart is an indication only.

- Derived in accordance with IEC 512-3, Test 5b.
- Figures are for maximum wire sizes. Smaller wires will reduce rating.
- All contacts equally loaded.
- PCB mounted connectors will be limited by PCB performance.
- Bunched cables will further reduce values.
- Cable insulation type will affect temperature and loading.
- Figures are for maximum connector sizes in each range. Smaller connectors will increase rating.

Dimensions shown in mm Specifications and dimensions subject to change





| | T2P • Two piece formed (• For up to 200 matir • Full support tooling | ng cycles | T3P • Three piece machined contact • For up to 500 mating cycles • Full support tooling available | | | |
|---|---|----------------------------|---|----------------------------------|----------------------------------|--|
| | Standard Crimp | High Conductivity Crimp | Machined Crimp | Solder Cup | Flow Solder (PCB) | |
| Technical and Performar | nce Data | | | | | |
| Supported wire sizes | AWG 14 to 26 | AWG 14 to 26 | AWG 16 to 26 | AWG 14 to 26 | - | |
| Current rating | 13 A | 16 A | 13 A | 13 A | Up to 30 A | |
| Contact Resistance (initial) | 5 m Ω | 5 m Ω | 5 m Ω | 5 m Ω | 5 m Ω | |
| Mechanical endurance | Up to 200 insertions | Up to 200 insertions | Up to 500 insertions | Up to 500 insertions | Up to 500 insertions | |
| Body material | Body material Brass | | Brass | Brass | Brass | |
| Retention spring material | | | Beryllium Copper | Beryllium Copper | Beryllium Copper | |
| Contact retention force (minimum) | 67 N | 67 N | 67 N | 67 N | 67 N | |
| Plating Availability | | | | | | |
| Tin | Yes | Yes | Yes | Yes | Yes | |
| Gold Flash (0,1 μm) | Yes | Yes | Yes | Yes | Yes | |
| Gold | 0,75 μm | 0,75 μm | 0,4 μm (pin) 0,75 μm (socket) | 0,4 μm (pin) 0,75 μm (socket) | 0,4 μm (pin) 0,75 μm (socket) | |
| Connector/Contact Capa | bility | | | | | |
| Snap Together Rectangular, Slimline (TST) and Flame Retardant (TFR) | Yes | Yes | Yes | Yes | Yes, pre-installed in connectors | |
| Ringlock (TR) | Yes | Yes | Yes | Yes | Yes | |
| Neptune (TN) | Yes | Yes | Yes | Yes | Yes | |
| Neptune Metal (TNM) | Yes | Yes | Yes | Yes | - | |
| High Voltage (THV) | | | | | | |
| Page Number | | | | | | |
| | 63 | 63 | 65 | 66 | 66 | |

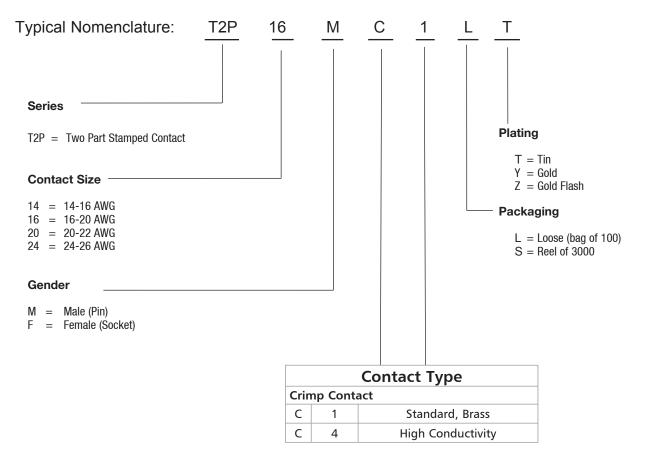


| | High Power • For mixed Neptune and TNM layouts • Full support tooling available APK25 D Sub | | | | | |
|---|---|----------------------|--|--|--|--|
| | APK25 | | | | | |
| Technical and Performar | nce Data | | | | | |
| Supported wire sizes | AWG 12 to 20 | AWG 8 to 14 | | | | |
| Current rating | 30 A | Up to 40 A | | | | |
| Contact Resistance (initial) | 2,5 mΩ | * | | | | |
| Mechanical endurance | Up to 200 insertions | Up to 500 insertions | | | | |
| Body material | Copper Alloy | Copper Alloy | | | | |
| Retention spring material | Stainless Steel | * | | | | |
| Contact retention force (minimum) | 100 N | * | | | | |
| Plating Availability | | | | | | |
| Tin | Yes | - | | | | |
| Gold Flash (0,1 μm) | - | - | | | | |
| Gold | - | 0,76 μm | | | | |
| Connector/Contact Capa | bility | | | | | |
| Snap Together Rectangular, Slimline (TST) and Flame Retardant (TFR) | - | - | | | | |
| Ringlock (TR) | - | - | | | | |
| Neptune (TN) | Yes | - | | | | |
| Neptune Metal (TNM) | - | Yes | | | | |
| High Voltage (THV) | Yes | | | | | |
| Page Number | | | | | | |
| | 67 | 67 | | | | |

* For details please consult the factory

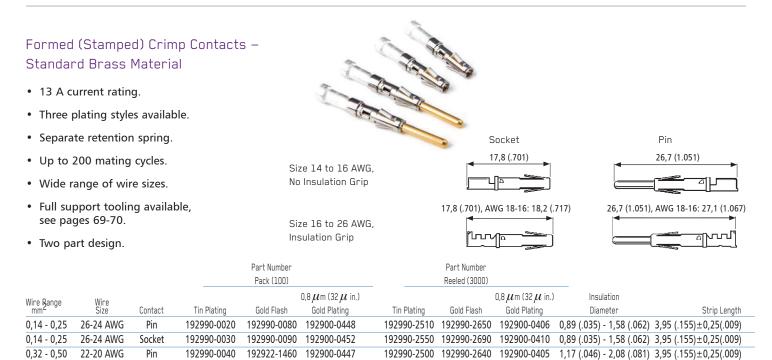
Dimensions shown in mm Specifications and dimensions subject to change

Overview - T2P Contacts



Note: This overview shows available options for formed (stamped) T2P contacts. The T2P nomenclature above appears as our description on ITT paperwork, etc, and this is for reference only. To order use the order codes on the following page.





192990-2540 192990-2680

192990-2530 192990-2670

192990-2480 192990-2620

192990-2520 192990-2660

192990-2630

192990-2490

| Formed (Stamped) Crimp Contacts – High |
|--|
| Conductivity Material |

Socket

Pin

Socket

Pin

Socket

192990-0050

192990-0060

192990-0070

192990-1240

192990-1250

192922-1470

192990-0100

192990-0110

192990-1220

192990-1230

192900-0451

192900-0446

192900-0450

192900-0445

192900-0449

• 16 A current rating.

0,32 - 0,50

0,75 - 1,50

0,75 - 1,50

1,50 - 2,50

1,50 - 2,50

• Recommended for elevated temperatures.

22-20 AWG

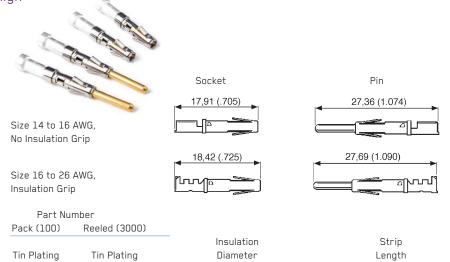
18-16 AWG

18-16 AWG

16-14 AWG

16-14 AWG

- High conductivity copper alloy with tin plating.
- For use with standard crimp tooling, see pages 69-70.
- Two part design.
- Up to 200 mating cylces.



192900-0409

192900-0404

192900-0408

192900-0403

192900-0407

1,17 (.046) - 2,08 (.081) 3,95 (.155)±0,25(.009)

2,00 (.078) - 2,70 (.106) 3,95 (.155)±0,25(.009)

2,00 (.078) - 2,70 (.106) 3,95 (.155)±0,25(.009)

Without insulation support 5,60 (.220) ±0,25(.009)

Without insulation support 5,60 (.220) ±0,25(.009)

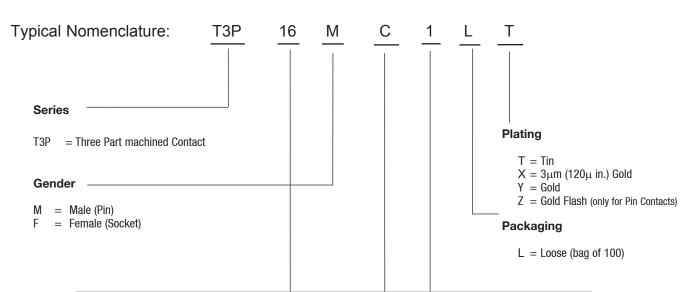
| Wire Range | Wire | | | | Insulation | Strip |
|-----------------|-----------|---------|-------------|-------------|----------------------------|-------------------------|
| mm ² | Size | Contact | Tin Plating | Tin Plating | Diameter | Length |
| 0,14 - 0,25 | 26-24 AWG | Pin | 192900-0122 | 192900-0120 | 0,89 (.035) - 1,58 (.062) | 3,95 (.155)±0,25 (.009) |
| 0,14 - 0,25 | 26-24 AWG | Socket | 192900-0123 | 192900-0121 | 0,89 (.035) - 1,58 (.062) | 3,95 (.155)±0,25 (.009) |
| 0,32 - 0,50 | 22-20 AWG | Pin | 192900-0126 | 192900-0124 | 1,17 (.046) - 2,08 (.081) | 3,95 (.155)±0,25 (.009) |
| 0,32 - 0,50 | 22-20 AWG | Socket | 192900-0127 | 192900-0125 | 1,17 (.046) - 2,08 (.081) | 3,95 (.155)±0,25 (.009) |
| 0,75 - 1,50 | 18-16 AWG | Pin | 192900-0002 | 192900-0000 | 2,00 (.078) - 2,70 (.106) | 3,95 (.155)±0,25 (.009) |
| 0,75 - 1,50 | 18-16 AWG | Socket | 192900-0003 | 192900-0001 | 2,00 (.078) - 2,70 (.106) | 3,95 (.155)±0,25 (.009) |
| 1,50 - 2,50 | 16-14 AWG | Pin | 192900-0005 | 192900-0004 | Without insulation support | 5,60 (.220)±0,25 (.009) |
| 1,50 - 2,50 | 16-14 AWG | Socket | 192900-0007 | 192900-0006 | Without insulation support | 5,60 (.220)±0,25 (.009) |

Dimensions shown in mm Specifications and dimensions subject to change



Downloaded from Arrow.com.

Overview - T3P Contacts



| Type and Configuration Variant | | | | | | | | | | | |
|--------------------------------|--------------------------------|--|--|----------------------------------|--|--|--|--|--|--|--|
| AWG Size | AWG Size Gender Crimp Contacts | | | | | | | | | | |
| 16 | | С | C 1 No insulation support, Black colorband | | | | | | | | |
| 20 | | C | 1 Insulation dia Ø1,6 (.062)-2,1 (.082), Green colorband | | | | | | | | |
| 22 | | С | 1 Insulation dia Ø1,6 (.062)-2,15 (.084), Red colorband | | | | | | | | |
| 24 | | C | C 1 Insulation dia Ø1,05 (.041)-1,6 (.062), Blue colorband | | | | | | | | |
| 26 | | C 1 Insulation dia Ø0,9 (.035)-1,4 (.055), Black colorbanc | | | | | | | | | |
| | Earth Contact | | | | | | | | | | |
| 16 | | E | 1 | Black colorband | | | | | | | |
| 20 | | E | 1 | Green colorband | | | | | | | |
| | | Solo | der C | up Contact | | | | | | | |
| 16 | | S | 1 | | | | | | | | |
| | | Flov | v Sol | der Contact | | | | | | | |
| 20 | | F | 1 | Ø0,72 (.028) short (female only) | | | | | | | |
| 20 | | F | 3 | Ø0,72 (.028) long (female only) | | | | | | | |
| 20 | | F | 5 Ø0,73 (.029) | | | | | | | | |
| 25 | | F | 5 | Ø1,52 (.060) (TN) | | | | | | | |

Note: This overview shows available options for formed (stamped) T3P contacts. The T3P nomenclature above appears as our description on ITT paperwork, etc, and this is for reference only. To order use the order codes on the following page.



Machined **Crimp Contacts** • 13 A current rating. • Separate contact and retention spring. • Up to 500 mating cycles. Pin Socket 26,10 (1.027) · Variety of plating options. 18,20 (.716) Size 16 AWG, No Insulation Grip · Full support tooling available, see pages 69-70. 10,90 (.429) 18.20 (.716) Size 20 to 26 AWG, Insulation Grip

| Wire Range | Wire | | Part Number (Pack of 100) | | Insulation | | | |
|-----------------|--------|---------|---------------------------|-----------------|-------------|----------------------------|-------------------------|------------|
| mm ² | Size | Contact | Gold Plating(X) | Gold Plating(Y) | Tin Plating | Diameter | Strip Length | Color Band |
| 0,08 - 0,23 | 26 AWG | Pin | 192991-0101 | 192991-0100 | 192991-0102 | 0,90 (.035) - 1,40 (.055) | 5,08 (.200)±0,25 (.009) | Black |
| 0,08 - 0,23 | 26 AWG | Socket | 192991-0054 | 192991-0042 | 192991-0048 | 0,90 (.035) - 1,40 (.055) | 5,08 (.200)±0,25 (.009) | Black |
| 0,20 - 0,24 | 24 AWG | Pin | 192991-0093 | 192991-0092 | 192991-0094 | 1,05 (.041) - 1,60 (.062) | 5,08 (.200)±0,25 (.009) | Blue |
| 0,20 - 0,24 | 24 AWG | Socket | 192991-0055 | 192991-0043 | 192991-0049 | 1,05 (.041) - 1,60 (.062) | 5,08 (.200)±0,25 (.009) | Blue |
| 0,25 - 0,50 | 22 AWG | Pin | 192991-0097 | 192991-0096 | 192991-0098 | 1,60 (.062) - 2,15 (.084) | 5,08 (.200)±0,25 (.009) | Red |
| 0,25 - 0,50 | 22 AWG | Socket | 192991-0056 | 192991-0044 | 192991-0050 | 1,60 (.062) - 2,15 (.084) | 5,08 (.200)±0,25 (.009) | Red |
| 0,44 - 0,64 | 20 AWG | Pin | 192991-0089 | 192991-0088 | 192991-0090 | 1,60 (.062) - 2,10 (.082) | 5,08 (.200)±0,25 (.009) | Green |
| 0,44 - 0,64 | 20 AWG | Socket | 192991-0058 | 192991-0046 | 192991-0052 | 1,60 (.062) - 2,10 (.082) | 5,08 (.200)±0,25 (.009) | Green |
| 0,60 - 1,51 | 16 AWG | Pin | 192991-0085 | 192991-0084 | 192991-0086 | Without insulation support | 7,11 (.279)±0,25 (.009) | Black |
| 0,60 - 1,51 | 16 AWG | Socket | 192991-0059 | 192991-0047 | 192991-0053 | Without insulation support | 7,11 (.279)±0,25 (.009) | Black |
| 1,50 - 2,50 | 14 AWG | Pin | 121587-0028 | on request | on request | Without insulation support | 7,11 (.279)±0,25 (.009) | White |
| 1,50 - 2,50 | 14 AWG | Socket | 121587-0039 | on request | on request | Without insulation support | 7,11 (.279)±0,25 (.009) | White |

(Y) Gold plating Pin: 0,4 μ m (16 μ in.). Gold plating Socket: 0,75 μ m (30 μ in.).

(X) Gold plating Pin & Socket: 3 μ m (120 μ in.).

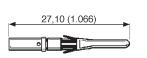
Machined Earth (First Mate/Last Break) Contacts

- 13 A current rating.
- Separate contact and retention spring.
- Up to 500 mating cycles.
- Variety of plating options.
- Full support tooling available, see pages 69-70.





Size 20 AWG, Insulation Grip



Pin

Socket 19,70 (.775)

| |
|---------|
| ليسمر |

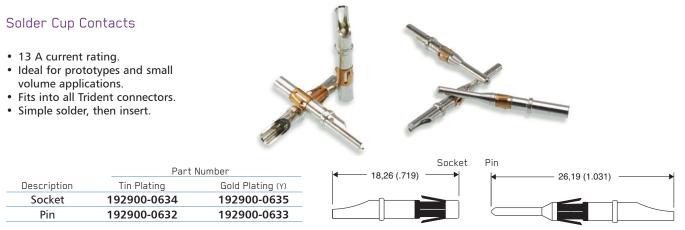
11,80 (.466)



| Wire Range | Wire | | Part Number (Pack | of 100) | Insulation | | Color |
|-----------------|--------|---------|-------------------|-------------|----------------------------|-------------------------|-------|
| mm ² | Size | Contact | Gold Plating(Y) | Description | Diameter | Strip Length | Band |
| 0,44 - 0,64 | 20 AWG | Pin | 192991-0164 | T3P20ME1LY | 1,60 (.062) - 2,10 (.082) | 5,08 (.200)±0,25 (.009) | Green |
| 0,44 - 0,64 | 20 AWG | Socket | 192991-0207 | T3P20FE1LY | 1,60 (.062) - 2,10 (.082) | 5,08 (.200)±0,25 (.009) | Green |
| 0,60 - 1,51 | 16 AWG | Pin | 192991-0160 | T3P16ME1LY | Without insulation support | 7,11 (.279)±0,25 (.009) | Black |
| 0,60 - 1,51 | 16 AWG | Socket | 192991-0208 | T3P16FE1LY | Without insulation support | 7,11 (.279)±0,25 (.009) | Black |

(Y) Gold plating Pin: 0,4 μ m (16 μ in.). Gold plating Socket: 0,75 μ m (30 μ in.). For Gold Flash Plating, please consult the factory.



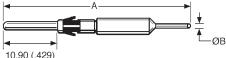


(Y) Gold plating 0,4 μ m (16 μ in.)

Flow Solder (PCB) Contacts

- 13 A current rating.
- · Available in different lengths depending on connector.
- 30 A power version available.





Part Number (Pack of 100)

| Connector Series | Туре | Tin Plating | Gold Flash Plating | A ±1,00 (.039) | ØB ±0,06 (.002) |
|------------------------------|--------|-------------|--------------------|----------------|-----------------|
| Ringlock Standard Receptacle | Socket | *** | 192991-0524 | 33,6 (1.323) | 0,72 (.028) |
| Ringlock Standard Receptacle | Socket | *** | 192991-0066 | 26,5 (1.043) | 0,72 (.028) |
| Neptune | Pin | 192900-0465 | 192900-0356 | 40,6 (1.598) | 0,73 (.029) |
| Neptune Power** | Pin | 192991-0617 | 192991-0618 | 40,6 (1.598) | 1,52 (.060) |

** Note: Appearance differs slightly from the picture. *** For details please consult the factory

Nominal lengths (x) of Flow Solder Contacts out of the connector*

Ringlock Standard Receptacle

| Shell Size | 192991-0066 | 192991-0524 |
|------------|-------------|-------------|
| 10 | 4,5 (.177) | 11,6 (.456) |
| 12 | 2,7 (.106) | 9,8 (.386) |
| 14 | 4,5 (.177) | 11,6 (.456) |
| 16 | 2,7 (.106) | 9,8 (.386) |
| 18 | 2,7 (.106) | 9,8 (.386) |
| 20 | 3,0 (.118) | 10,1 (.398) |
| 22 | 2,0 (.079) | 9,1 (.358) |
| 24 | 1,2 (.047) | 8,3 (.327) |

Ringlock Reversed Receptacle

| Shell Size | 192991-0119 192991-0122 |
|------------|----------------------------|
| 10 | 4,7 (.177) |
| 12 | 4,7 (.177) |
| 14 | 4,7 (.177) |
| 16 | 4,7 (.177) |
| 18 | 4,7 (.177) |
| 20 | 4,6 (.181) |
| 22 | 4,6 (.181) |
| 24 | 4,6 (.181) |

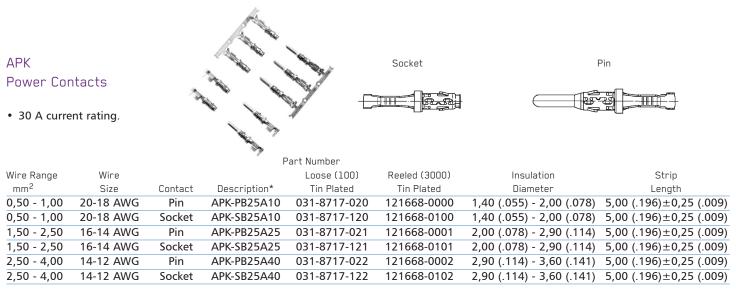
* For other connector series please consult the factory



Dimensions shown in mm Specifications and dimensions subject to change

0 0

C



* Referring to reeled contacts

D Subminiature Loose Contacts, Size 8- High Power-Crimp

C

Plug



| | 20,93 - 20,42 (.824804) |
|------|----------------------------|
| ØBØA | |

Recommended Wire Trim Length

| | 8,75 - 8,01 (.345315) | |
|---|------------------------------|--|
| ٢ | | |

| Part Number | | | Current | |
|------------------|-------------|-------------|---------|-----------|
| (30 µin) 0,76µm | Α | В | Rating | Wire Size |
| Gold over Copper | | | Α | AWG |
| DM130338 | 4,60 (.181) | 5,84 (.230) | 40 A | 8 AWG |
| DM130339 | 2,54 (.100) | 5,54 (.218) | 20 A | 12 AWG |

Receptacle



| ↓ ↓ | ← 20,93 (.824 | 3 - 20,42 804) → |
|-----|-------------------------|---------------------|
| | | |

| Recommended Wire Trim Length | | | |
|------------------------------|--------------------------|---|--|
| | 8,75 - 8,01 (.345315) | - | |
| 5 | | | |

| Part Number | | | Current | |
|------------------|-------------|-------------|---------|-----------|
| (30 μin) 0,76μm | А | В | Rating | Wire Size |
| Gold over Copper | | | A | AWG |
| DM130341 | 4,60 (.181) | 5,84 (.230) | 40 A | 8 AWG |
| DM130342 | 2,54 (.100) | 5,54 (.218) | 20 A | 12 AWG |



Accessories



| Description | Part Number | Pack Size |
|------------------------------|-------------|-----------------|
| Discriminating (Keying) Pin, | | |
| Signal Contacts | 192990-0000 | Bulk Pack (25) |
| Discriminating (Keying) Pin, | | |
| Power Contacts | 192900-0189 | Bulk Pack (25) |
| Discriminating (Keying) Cap, | | |
| Pin Contacts | 192990-0010 | Bulk Pack (100) |
| Discriminating (Keying) Peg, | | |
| Socket Contacts | 192990-7650 | Bulk Pack (100) |
| | | |

Discriminating (Keying) Pins and Caps

Discriminating (Keying) Pins are used to prevent cross-mating of similar connectors. These pins are used in place of a pin contact. The corresponding socket cavity must be left open. If a socket contact is present, the discriminating pin will prevent mating. There are two types of discriminating pins. Board Mount PCB connectors have caps and pegs. All other connectors have signal or power pins.



Hand Tools for Formed (Stamped) contacts

Ratcheted Hand Tool

A range of single action, factory calibrated tools are available to support the stamped contacts and 30 A power contacts.

| Signal Contact | Power Contact | Part Number |
|------------------|-------------------------|-------------|
| 14-16 AWG | N/A | 121586-5238 |
| 16-18 AWG | N/A | 121586-5237 |
| 20-22, 24-26 AWG | N/A | 121586-5236 |
| N/A | 12-14, 14-16, 18-20 AWG | 121586-5241 |



Hand Tool for Machined Contacts

This is a ratcheted, four indent crimptool that is fully adjustable. They crimp all sizes of machined contacts.

| | Hand Tool | |
|---------------------------------------|--------------|---------------------------------------|
| Description | Part Number | Locator |
| Machined Crimp* | 995-0001-585 | 192990-7600 (Calibrated) ¹ |
| ¹ Nomenclature: TH-Trident | | |

* M22520-1-01



Extraction Tools

Contacts can readily be removed from the housings using an extraction tool. The tool is placed over the contact and the sleeve rotated slightly as it is pushed home to release the spring. Light pressure on the knob then ejects the contact from the rear of the housing.

| | Part Number |
|--------------------|-------------|
| For Signal Contact | 192922-1450 |
| For Power Contact | 192900-0176 |

 Part Number

 For Power Contact
 121086-3278



Dimensions shown in mm Specifications and dimensions subject to change



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Wiring Assist Tool

These wiring needles are available as a wiring aid for high density layouts to ease insertion of individual contacts.

| Description | Part Number |
|--------------------|-------------|
| For Pin Contact | 192900-0605 |
| For Socket Contact | 192900-0606 |



Mini Applicators (for Stamped Contacts)

Mini Applicators are interchangeable modules that will fit into many standard crimping machines. They are available for all sizes of stamped signal and power contacts.

| AWG | Contact | Mecal |
|-------|--------------------|-------------|
| Size | Description | Part Number |
| 14-16 | Trident Signal | 121586-5240 |
| 16-18 | Trident Signal | 121586-5217 |
| 20-26 | Trident Signal | 121586-5239 |
| 12-14 | Trident 30 A Power | * |
| 14-16 | Trident 30 A Power | * |
| 18-20 | Trident 30 A Power | * |

Part Number

317-8675-133

* For details please consult the factory

Description

Testing Gauge



Testing Gauge (for Stamped Contacts)

The testing gauge will be helpful to check whether a crimp is ok or not. The contact should be inserted into the test fixture without scratching the test hole (diameter 3.3 mm).



Pneumatic Table Crimp Tool

(for Machined Contacts)

This Hand Crimp Tool fully meets the requirements of specification MIL-C-22520. The tool produces eight-indent crimp terminations of excellent quality. Together with the bench mount BM-2 and the food pedal WA-10 it becomes an installed tool facilitating the work: The Hands of the operator are free to insert the contact and the wire and to remove the terminated contact.

| | | Part | |
|----------|--------------------|------------------|-------|
| Nomena | lature Description | Number | AWG |
| WA27F-CE | Pneumatic Crimp | Tool 121586-5067 | 12-20 |
| WA22F-CE | Pneumatic Crimp | Tool 121586-5070 | 20-32 |
| BM-2 | Bench Mount | 121586-5068 | |
| WA10 | Foot Pedal | 121586-5069 | |



STRANDS NOT VISIBLE

STRANDS EXTEND TOO FAR

Crimping Instructions - Formed (Stamped) Crimp Contacts

Assembly Instructions:

1. Strip wires to length. For wire strip lengths, see page 63.

2. Open the hand tool and place the contact in the chosen die, ensuring that the locating plate is positioned between the collar and crimp saddle. Then squeeze tool gently to hold the contact in place.

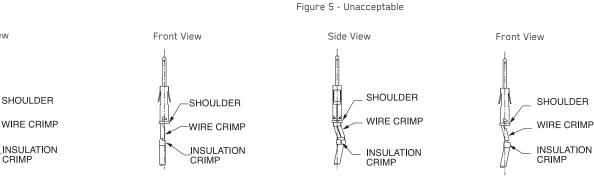
3. Insert the wire.

4. Cycle the tool.

Figure 4 - Correct

Side View

5. Remove the wire and inspect the crimp. The strands should be visible at both ends of the crimp. There should be no loose strands (see Figures 1-3). The contact should be co-linear with the wire (see Figure 4). Bent contacts are unacceptable (see Figure 5).



STRANDS MUST

BE VISIBLE

Crimping Instructions -Machined Crimp Contacts

Assembly Instructions:

1. Strip wires to length. For wire strip lengths, see page 65.

CRIMP

2. Attach the correct locator (turret) to the hand tool.

| Contact Type | Locator Color |
|--------------|---------------|
| Pin | Blue |
| Socket | Green |
| Earthing | Black |

3. Adjust the dial for the wire gauge.

4. Place the contact into the locator and insert the wire into the contact as indicated on the locator (turret) label.

Dimensions shown in mm Specifications and dimensions subject to change

Downloaded from Arrow.com.

6. Remove and inspect the contact.

Strands should be visible through the

inspection window (see Figure 6). There should be no loose strands (see Figure 7).

5. Cycle the tool.

Figure 6 - Correct

Figure 1 - Correct

2

FORMING

⚠

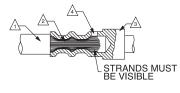
OF FUNNEL

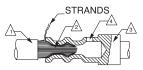
Figure 7 - Unacceptable

Figure 2 - Unacceptable

Figure 3 - Unacceptable

STRANDS.



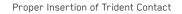


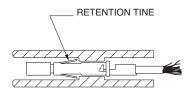
- Notes:
- Mire Insulation.
- Wire Strands. A
- Contact. A
 - Inspection Window Strands must be visible.



Contact Insertion

No insertion tool is required. Trident contacts are inserted from the rear of the connector and held in place by retention tines (cantilever springs). These tines compress during insertion. They expand once contact is in place and prevent the contact from backing out.





Contact Retention Forces

• Minimum retention force of the contact to the insulator.

| Contact | Newton(s) |
|--|-----------|
| Signal Contacts | 67 |
| (Formed Crimp, Machined Crimp, | |
| Solder Cup, Flow Solder) | |
| 30 A Power Contacts | 100 |
| Note: Newton is a metric unit of force. One pound = 4.45 Newtons | |

Trident Assembly Instructions

(For Neptune and TNM Assembly, see page 73)

Assembly instructions:

1. Grasp the crimped or soldered contact just behind where the wire enters the contact.

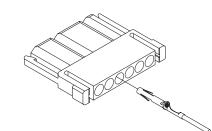
2. Push the contact into the connector cavity until it locks into place.

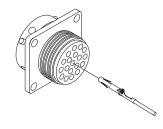
3. Pull on the wire slightly to verify that the contact is secure.

4. Inspect the mating face of the connector. The contacts should extend the same distance into the connector.

Contact Insertion - Slimline









Neptune and TNM Assembly Instructions

Contact Insertion For Neptune and TNM Connectors

(For Trident Assembly, see page 72)

Neptune and TNM connectors feature membrane seals. These seals have a thin membrane that seals unused contact cavities. No sealing plugs are required for unused cavities. Neptune connectors do not require insertion tools. Cannon offers stitching tools as an optional assembly aid for high volume usage. Many customers find that stitching tools reduce the assembly time.

Assembly Instructions:

1. On Neptune and TNM connectors do not remove the Securing Nut holding the Wire Seal in place, unless an accessory such as Metal Endbell, Conduit Adapter, HC or SR Clamp assembly is to be used in its place. Then remove the Securing Nut (to be replaced by the accessory), make sure the tab on the Seal is positioned in the receiving slot in the connector, fit the accessory over the cables/wires and proceed as follows.

2. Grasp the crimped or soldered contact just behind where the wire enters the contact. If using a stitching tool, insert the contact into the rear of the tool.

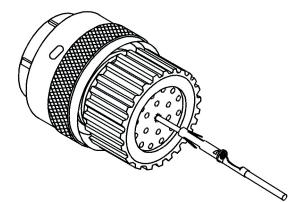
3. Push the contact through the membrane seal into the insulator. Continue to push until the contact locks into place. If using a stitching tool, first insert the tool into the required contact position in the seal and examine the mating face to confirm that the correct contact cavity has been entered, if not, this can be corrected by partially removing the tool and engaging the correct position. Then fit the contact to the stitching tool and push the CONTACT through until it locks into place; remove the stitching tool.

4. Pull on the wire slightly to verify that the contact is secure.

5. Inspect the mating face of the connector. The contacts should extend the same distance into the connector.

6. Secure the nut, or other accessory, to hold the membrane seal in place.

Dimensions shown in mm Specifications and dimensions subject to change



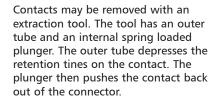
IMPORTANT NOTE: The stitching tool is not designed to pull the contact through; it is intended to ease the insertion process with high density connectors.

On the high density connectors, such as 0-48, it is beneficial to start loading contacts on a center row first and filling adjacent rows fully each side, so progressively filling the connector from the center in a controlled manner.



Contact Extraction

Contact Extraction



Extraction Instructions:

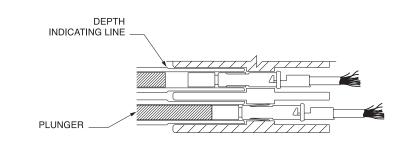
1. Grasp the extraction tool on the knurled portion of the outer tube. Do not push on the plunger knob yet.

2. Insert the tube into the contact cavity from the mating surface. Push the tube fully into the cavity.

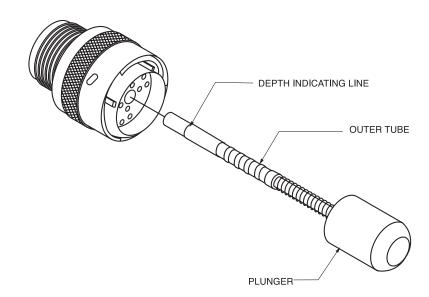
IMPORTANT: Verify that the depth indicating line on the tool is even with the mating face of the connector before depressing the plunger.

3. Depress the plunger. This should only require light pressure to eject the contact. The contact can now be removed from the back of the connector.

4. Inspect the contact. Verify the tines are not damaged.



Extraction Tool



Dimensions shown in mm Specifications and dimensions subject to change

Endbell – Unsealed

Assembly Instructions:

1. Separate the body of the clamp, the two screws, and the clamping bar.

2. Slide the body over the wires or cable and screw onto the threads on the back of the connector. The backshell should be hand-tight. For Neptune and TNM connectors, the cable clamp will fit over the membrane seal and will hold it in place.

3. There are three clamp bars supplied. Select the appropriate one for the wire bundle and attach to the clamp body with the screws.

Endbell - Sealed

Assembly Instructions:

1. Separate the body of the clamp body, the two pressure rings, the sealing grommet, the clamp, and O-ring.

2. Slide the backshell components over the cable prior to crimping the contacts and assembling the connector. The farthest part from the connector is the clamp, followed by a pressure ring, then the grommet, then the other pressure ring, then the clamp body and then the O-ring.

Assembly Note: The grommet is a layered design. For large cables one or more of the interior sections can be removed. If the grommet resists sliding over the cable, lubricate with isopropyl alcohol.

3. Crimp and insert the contacts.

4. Slide the O-ring up and over the back of the connector.

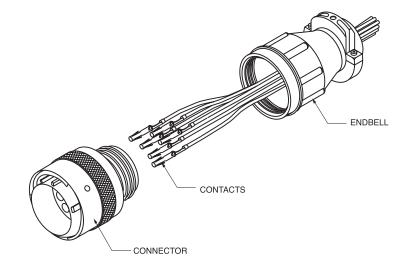
5. Screw the clamp body onto the back of the connector. It should be hand-tight. For Neptune and TNM connectors, the cable clamp will fit over the membrane seal and will hold it in place.

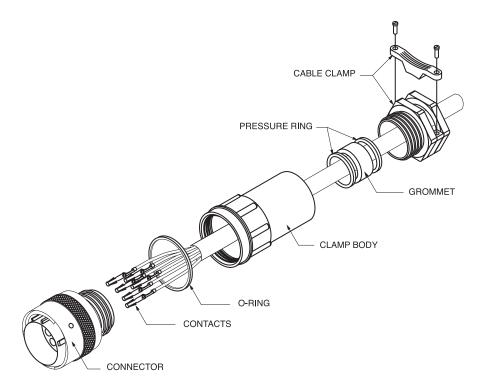
6. Slide the pressure rings and grommet forward into the body.

7. Screw the cable clamp into the clamp body. The cable clamp will apply pressure to the grommet causing it to seal the backshell to the cable.

8. Screw down the clamp bar to secure the cable. Note that the bar is reversible, depending on the size of the cable.

Dimensions shown in mm Specifications and dimensions subject to change







Universal Endbell

The Universal Endbell is suitable to accept shielded and unshielded cable. This cable is sealed with a highly flexible seal and an additional sealing ring with a flexible plastic cable clamp serving as a strain relief. The Universal Endbell can be screwed onto plug and receptacle connectors. The O-ring and the cable sealing meet IP67.

Assembly Instructions:

1. Slide O-ring over the back of the connector body.

2. Slide the endbell components onto the cable in the following order:

- Clamp Nut
- Cable Grip1
- Cable Seal2
- Housing
- Grounding Ring
- Support Sleeve
- O-Ring

Note: 1. The compression fingers of the Cable Grip face toward the connector.

Note: 2. Isopropyl alcohol will lubricate the Cable Seal making it easier to slide over the cable.

3. Cut back the Outside Jacket to expose 25,40 (1.000) of Braid followed by 12,70 (.500) of Insulated Wires.

4. Terminate the wires and insert contacts per assembly instructions, see page 73.

5. Slide the Support Sleeve down until it reaches the back of the connector.

6. Pull the Braid over the Grounding Ring.

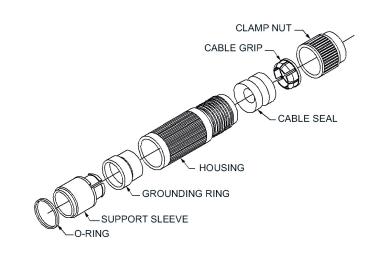
7. Slide the Grounding Ring down until it snaps onto the Support Sleeve. The Braid should be secured between the Support Sleeve and the Grounding Ring. Fold any excess shielding over the Grounding Ring.

8. Slide the Housing over the Grounding Ring and the Support Sleeve and screw it into the connector body. The recommended torque is $10 \pm 1 \text{ Nm}$ (88.50 in lbs).

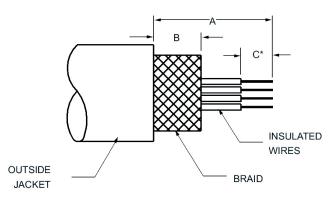
9. Slide the Cable Seal and Cable Grip onto the Housing.

10. Tighten the Clamp Nut into the Housing. The recommended torque is 10 ± 1 Nm (88.50 in lbs).

Universal Endbell Assembly



Wire Strip Length



| | | Wire Strip Length | |
|------------|---------------|-------------------|---|
| Shell Size | А | В | С |
| 10 | 38,00 (1.500) | 22,00 (.870) | * |
| 12 | 38,00 (1.500) | 22,00 (.870) | * |
| 14 | 40,00 (1.600) | 24,00 (.950) | * |
| 16 | 40,00 (1.600) | 24,00 (.950) | * |

* Strip length will vary based on the contact selected, see page 64-65.



Dimensions shown in mm Specifications and dimensions subject to change

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Cannon Trident Connectors

Shielded Endbell for Larger Cable Sizes

This Endbell is an alternative to the Universal Endbell for use with larger diameter cables. The outer body is sealed to the connector with an O-ring and the rear cable clamp also incorporates sealing rings for a complete sealed termination. The cable braid is terminated between metal cones. A rear cable clamp provides mechanical strain relief in addition to the clamping and holding of the rear cable seal.

Assembly Instructions:

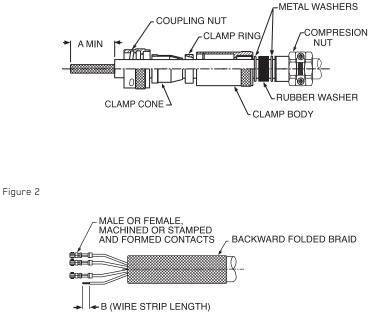
1. Assemble all parts onto the cable as shown (Figure 1). Strip sheath of cable to dimensions shown in table below.

| | Dimension She | | | | |
|-------------|---------------|--|--|--|--|
| Size A min. | | | | | |
| 10 | 22,30 (.877) | | | | |
| 12 | 22,30 (.877) | | | | |
| 14 | 26,20 (1.031) | | | | |
| 16 | 28,10 (1.106) | | | | |
| | | | | | |

2. Fold braid back over cable. Strip and terminate wires with selected contacts (Figure 2).

3. Assemble O-ring in groove of the shell after positioning coupling nut (Figure 3).

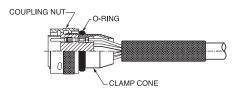
Figure 1



Wire Stripping Lengths

| Contact Type | Wire Size | Wire Range mm2 | Dimension B |
|--------------|-----------|----------------|---------------------------|
| Formed | 24-16 AWG | 0,08 - 1,50 | 3,95 ± 0,25 (.155 ± .009) |
| contact | 14 AWG | 1,50 - 2,50 | 5,60 ± 0,25 (.220 ± .009) |
| | | | |
| Machined | 26-20 AWG | 0,08 - 0,64 | 5,08 ± 0,25 (.200 ± .009) |
| contact | 16 AWG | 0,60 - 1,51 | 7,11 ± 0,25 (.279 ± .009) |

Figure 3



Cable Sizes

| | Endbell | Cable Outer Sheath I | Diameter |
|------------|-------------|----------------------|-------------|
| Shell Size | Part Number | Maximum | Minimum |
| 10 | 192993-0091 | 10,00 (.393) | 5,00 (.196) |
| 12 | 192993-0092 | 12,00 (.472) | 6,00 (.236) |
| 14 | 192993-0093 | 14,00 (.551) | 7,00 (.279) |
| 16 | 192993-0094 | 16,00 (.629) | 8,00 (.314) |

Dimensions shown in mm Specifications and dimensions subject to change



Shielded Endbell for Larger

Cable Sizes (continued from page 77)

4. Fold braid forward as shown and trim to length (Figure 4).

5. Slide on clamp ring in position shown (Figure 5).

6. Screw clamp body onto the connector using a strap wrench (Figure 6). Tighten to the recommended torque values in table below.

| Shell | Clamp body |
|-------|-------------|
| Size | Torque max. |
| 10 | 4 Nm |
| 12 | 6 Nm |
| 14 | 10 Nm |
| 16 | 10 Nm |
| | |

7. Push metal washers and rubber washer into rear of clamp body. Then screw compression nut to compress rubber washer. Avoid overtightening as this may twist the cable. Finally tighten screws to provide the mechanical strain relief (Figure 7).

8. Assembled connector (Figure 8).

Figure 4

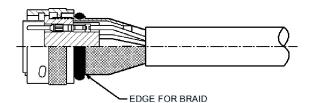


Figure 5

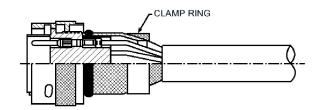


Figure 6

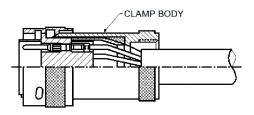


Figure 7

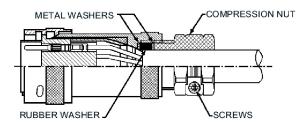
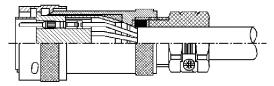


Figure 8



ASSEMBLED CONNECTOR



Dimensions shown in mm Specifications and dimensions subject to change

Chart 1 International Protection (IP) ratings for IEC 529

| Firs | t digit of IP N | umber | | | Second | digit of II | P Number | – Ingress | of water | | |
|------|---|--|-------------------|---|--|---|---|--|--|--|---|
| | gress of forei | | IP 0 | IP 1 | IP 2 | IP 3 | IP 4 | IP 5 | IP 6 | IP 7 | IP 8 |
| | Meaning for the protection of equipment against ingress of solid foreign objects | Meaning for the protection of persons against access to hazardous parts with | non- protected | Protected against vertically falling water drops | Protected against vertically falling water drops when device is tilt- ed up to 15° | Water sprayed an angle up to 60° on either side of the vertical shall have no harmful effects | Water splashed from any direction shall have no harmful effects | Water project- ed in jets from any direction shall have no harmful effects | Water project- ed in powerful jets from any direction shall have no harmful effects | Protected against temporary immersion | Protected against continuous immersion |
| IP 0 | non-protected | non-protected | IP 00 | | | | | | | | |
| IP 1 | Protected against solid foreign objects larger in diameter than 50 mm (1.97 in) | Protected against access to hazardous parts with the back of the hand | IP 10 | IP 11 | IP 12 | | | | | | |
| IP 2 | Protected against solid foreign objects larger in diameter than 12.5 mm (.49 in) | Protected against access to hazardous parts with a finger | IP 20 | IP 21 | IP 22 | IP 23 | | | | | |
| IP 3 | Protected against solid foreign objects larger in diameter than 2.5 mm (.10 in.) | Protected against access to hazardous parts with a tool larger in diameter than 2.5 mm (.10 in.) | IP 30 | IP 31 | IP 32 | IP 33 | IP 34 | | | | |
| IP 4 | Protected against solid foreign objects larger in diameter than 1.0 mm (.04 in.) | Protected against access to hazardous parts with a wire larger in diameter than 1.0 mm (.04 in.) | IP 40 | IP 41 | IP 42 | IP 43 | IP 44 | | | | |
| IP 5 | Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety | Protected against access to hazardous parts with a wire larger in diameter than 1.0 mm (.04 in.) | | | | | IP 54 | IP 55 | | | |
| IP 6 | No ingress of dust | Protected against access to hazardous parts with a wire larger in diameter than 1.0 mm (.04 in.) | | | | | | | IP 66 | IP 67 | IP 68 |

Dimensions shown in mm Specifications and dimensions subject to change



Chart 2 NEMA / IP Cross Reference

| IEC 529 | NEM. | A Rating | IS | | | | | | | |
|--------------------|------|----------|----|----|---|----|---|---|----|----|
| Protection Ratings | 1 | 2 | 3 | 3R | 4 | 4X | 5 | 6 | 12 | 13 |
| IP 00 | | | | | | | | | | |
| IP 10 | • | | | | | | | | | |
| IP 11 | | V | | | | | | | | |
| IP 20 | | | | | | | | | | |
| IP 21 | | | | | | | | | | |
| IP 22 | | | | | | | | | | |
| IP 23 | | | | | | _ | | | | |
| IP 30 | | | | | | | | | | |
| IP 31 | | | | | | | | | | |
| IP 32 | | | | • | | | | | | |
| IP 33 | | | | | | | | | | |
| IP 40 | | | | | | | | | | |
| IP 41 | | | | | | _ | | | | |
| IP 42 | | | | | | | | | | |
| IP 43 | | | | | | | | | | |
| IP 50 | | | | | | | | | | |
| IP 51 | | | | | | | • | | | |
| IP 52 | | | | | | | | | | |
| IP 53 | | | | | | | | | | |
| IP 54 | | | | | | | | | • | • |
| IP 55 | | | | | | | | | | |
| IP 56 | | | | | | _ | | | | |
| IP 60 | | | | | | | | | | |
| IP 61 | | | | | | _ | | | | |
| IP 62 | | | | | | _ | | | | |
| IP 63 | | | • | | | | | | | |
| IP 64 | | | | | | | | | | |
| IP 65 | | | | | | | | | | |
| IP 66 | | | | | | | | | | |
| IP 67 | | | | | • | • | | | | |
| IP 68 | | | | | | | | • | | |

The chart above provides a cross-reference from NEMA to International Protection (IP) Ratings. This cross-reference is an approximation based on the most current information available. It is not sanctioned by NEMA, IEC, or any other regulatory body. This chart should be used only as a guideline.



GLOSSARY OF TERMS

In every job speciality there are certain words and phrases used by "insiders" which after a time become almost a language unique to that speciality. Trident technology is a typical example of that condition.

This page provides some explanations, in an attempt to clarify some of the terms that are commonly used by engineers and sales staff at Cannon.

The list is not comprehensive, but highlights many of the expressions commonly used. Should you have any comments or additions please contact us. Feedback will be appreciated.

ADAPTER - A device used to modify the accessory threading on the rear of the connector. Typical adapters are used to attach conduit, heat shrink, overmolds, or tubing to the connectors. They are generally used in place of a cable clamp.

AWG - American Wire Gauge. A method of specifying wire diameter. The higher the number, the smaller the diameter (a size 16 AWG wire has a larger diameter than a size 22 AWG).

BAYONET COUPLING - A quick coupling mechanism for mechanically mating and unmating connector halves. The plug half has a coupling nut with internal ramps and the receptacle has three "bayonet" pins. The two halves are mated and unmated by rotating the coupling nut. The two haves are mated and unmated by rotating the coupling nut.

BACKSHELL - See ENDBELL.

BODY - The main portion of the connector made of the shell, insulator, and contacts.

CABLE CLAMP - A rear connector clamping accessory which tightens over a cable or wire bundle to provide strain relief to the cable. The cable clamp may be part of a more elaborate endbell or it may be used alone. Some cable clamps also provide cable jacket sealing using a resilient gland, others provide only strain relief.

CABLE SEAL - An endbell or cable clamp that is used to seal a round jacketed cable as it enters the rear of the connector. CONTACT - The conductive element in a connector which makes the actual connection between the wire and the mating connector for the purpose of transferring electrical energy. Ideally the contact should add nothing to the circuit. In the real world, however, contacts typically have a small CONTACT RESISTANCE and associated potential drop. Contacts come in many styles such as solder, crimp, printed circuit (PC), to name just those found in this catalog. Also see SOLDER CONTACT, CRIMP CONTACT, STAMPED AND FORMED CONTACT, PIN CONTACT, and SOCKET CONTACT.

CONTACT ALIGNMENT - The overall play that a contact has in the insulator cavity to allow the mating contacts to self align. Also called contact float.

CONTACT ARRANGEMENT - See LAYOUT.

CONTACT CAVITY - A defined hole in the connector insulator into which the contacts fit. The cavities are generally marked with a unique designation or number for ease of identification.

CONTACT RESISTANCE - The maximum amount of resistance which a contact introduces into the connection when carrying a specified current (usually stated in milliohms). When not stated, values are typically given for "Initial" or new contacts. Most specifications also limit the maximum resistance during or after each of a series of extreme tests, such as "Contact Resistance After Corrosion Test". These figures are typically slightly higher than "Initial".

CONTACT RETENTION – The maximum allowable axial load which can be applied to a contact from either direction without it being dislodged from the insulator. Usually stated in Newtons or pounds of force (4.45 = 1 lbf).

CONTACT SEPARATION FORCE - The force required to separate a pair of mated contacts. Usually stated in grams or ounces.

CONTACT SIZE – The size of the engaging pin and socket contacts in AWG size or metric diameter of the pin.

CONTACT SPACING - The distance between two centers of adjacent contacts.

COUPLING NUT (Also known as LOCKING RING) -The rotating ring on plug style connectors which mechanically locks the two connector halves together.

CRIMP CONTACT - A contact which is terminated to a wire by means of mechanical deformation of the receiving area by means of an appropriate tool.

CSA - Abbreviation for Canadian Standards Association.

CURRENT RATING - The maximum current that a particular wire, contact, or connector can accommodate. NOTE: When several wires are used in a single connector or elevated temperature or altitude is involved, derating curves must be applied to these ratings.

DERATING CURVE - A graph of the change in power handling capability of a connector as a function of ambient temperature or altitude. Typically the graphed function is curved, hence the name.

DISCRIMINATION - A method of ensuring that two similar size connectors cannot be mated. This may be achieved by inclusion of discriminating pins, which enter an empty contact cavity, or by other mechanical means.

DISCRIMINATING PINS - See KEYING. ENDBELL (also know as BACKSHELL) - The outer rear end of the connector, which is attached by means of internal threads or screws. It adapts the connector to its wire connections in a variety of ways. Typical endbells might have cable clamps to secure a wire bundle, ridges for heat shrink tubing, pipe threads, or shield termination mechanisms.

EXTRACTION TOOL - A device used to remove a contact from a connector insulator. The extraction tool is inserted into the mating face of the insulator and the contact comes out the rear, or wire side, of the connector.

FIRST-MAKE LAST-BREAK CONTACT - A contact which is longer than a standard contact or which sits in the insulator in such a way that it mates with the opposing connector half before any of the other contacts. Used to ensure that a ground connection between the connector halves mates before any of the other contacts.

FLANGED RECEPTACLE - The shell of this connector has a square flange with mounting holes at each corner. Mounting holes are usually clearance holes, but may

Dimensions shown in mm Specifications and dimensions subject to change



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be threaded. Receptacle flanges may be mounted in front or at the rear of the panel.

FLASH PLATING. - As commonly used in connector terminology, flash refers to extremely thin platings of metal. A flash plating is the minimum thickness required to ensure complete surface coverage. It is typically used on contacts that will have only occasional mating and unmating.

IEC - Abbreviation for the International Electrotechnical Commission. An international organization, which develops standards exclusively for electrical engineering. CENELEC is the equivalent organization at the European level.

INSULATOR - The insulating element into which the contacts are mounted in a connector.

IP67 - One classification from a rating system used in Europe covering the environmental sealing capability of an enclosure. The system uses two digits, the first digit relates to the degrees of protection the connector has from dirt and dust under the conditions defined in the specification. The second digit relates to the degrees of protection it has against moisture. The degree of protection against dirt ranges from 1 (no protection), to 6 (dust tight). Moisture sealing in the specification ranges from 1 (no protection), to 8 (protected against continuous submersion). The classification IP67 states that the connector is "dust-tight" (6), allowing no ingress of dust what-so-ever, and "protected against the effects of immersion" (7), the ingress of water in harmful quantity shall not be possible when the connector is immersed in water under defined conditions of pressure and time.

JAM NUT RECEPTACLE - A receptacle con-

nector that is mounted from the rear side of the panel and is held in place by a large hex nut (jam nut).

KEYING - A method of differentiating a connector if more than one connector with the same sex and layout is to be used in a system. The key is a pin which can be located in a contact cavity or slot. The key will prevent a connector without a matching orifice from mating.

LAYOUT - The number, size, and geometric arrangement of the contacts in a connector. When a connector is said to have a certain "layout" it refers to a specific contact configuration. For example, the Snap Together Connector series has a page of drawings showing the arrangement of the contacts in the insulator. Each of these arrangements can be referred to as a layout.

LOCKING RING - See COUPLING NUT.

PIN CONTACT - The contact that has a long shaft at the engagement end which enters the socket contact.

PLUG - The male portion of the connector pair usually employing a coupling nut to secure it to the receptacle half. A Plug may have either pin or socket contacts.

POLARIZATION - Polarization ensures that connector halves engage in such a way that the identified contact cavities always engage each other, A to A etc. The connector is polarized.

POLARIZING PIN - See KEYING.

REAR MOUNTING - A receptacle that mounts through the panel from the rear, with its mounting flange inside the equipment. Typically, rear mount

receptacles are slightly longer than front mount types to allow for the thickness of the panel. Flange mount receptacles usually come in front and rear mount versions. All Jam nut receptacles are rear mount.

RECEPTACLE - The connector which mates with the plug. The receptacle has threads, pins or ramps that engage the coupling nut on the plug, locking the two halves together. A receptacle may have either pin or socket contacts.

SHELL - The outside case of a connector into which the insulator and contacts are situated.

SHELL SIZE - A standard system developed for military circular connectors for indicating the diameter of the shell. The system is based upon 1/16" increments, that is, a size 16 shell is one inch in diameter.

SOCKET CONTACT - The contact that has an opening at the engagement end to accept the pin contact.

SOLDER CONTACT - A contact that is terminated to the wire or printed circuit with solder. The alternative is crimp contacts to which a wire is attached by crimping.

SOLDER CUP - The end of a SOLDER CONTACT designed to accept a wire, which will then be soldered to the contact.

STAMPED AND FORMED CONTACT - Contacts made by stamping and forming a sheet of metal rather than by machining metal stock.

UL - Abbreviation for Underwriter's Laboratories, a corporation supported by a group of underwriters for the purpose of establishing safety standards covering certain types of equipment and components in the United States. Product Safety Information



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| 121586-5237 | | 192900-0093 | | 192900-0421 | | 192900-0666 | | 192990-0110 | |
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| 121587-0042 | | 192900-0184 | | 192900-0475 | | 192922-1280 | | 192990-1350 | |
| 121587-0043 | | 192900-0185 | | 192900-0478 | | 192922-1290 | | 192990-1360 | |
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| 121587-0046 | | 192900-0189 | | | | 192922-1310 | | 192990-1380 | |
| 121668-0000 | | 192900-0236 | | 192900-0484 | | 192922-1320 | | 192990-1400 | |
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| 121668-0101 | | 192900-0261 | 41 | 192900-0490 | | 192922-1450 | 70 | 192990-1460 | |
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| 192900-0002 | | 192900-0286 | 44, 56 | 192900-0497 | | 192923-5930 | 10 | 192990-1500 | |
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| 192900-0004 | | 192900-0308 | 37 | 192900-0507 | | 192923-5950 | 10 | 192990-1520 | |
| 192900-0005 | | 192900-0313 | | 192900-0508 | | 192923-5960 | 10 | 192990-1530 | |
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| 192900-0014 | | | | 192900-0537 | | 192923-6010 | | 192990-1580 | ا ک 1 |
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| 192900-0017 | | 192900-0343 | | 192900-0539 | ۵۵ ۱۸ | 192923-6030 | | 192990-1600 | |
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| 192900-0028 | | | | 192900-0547 | 0 10 | 192926-0450 | | 192990-1690 | |
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| | | | 65 | | | TFR04PA10 | | TN6G14-0012P1L | 35 |
| 192990-1770 | | 192991-0097 | | 192993-0021 | | TFR04PH10 | | TN6G14-0012S1B | |
| | | 192991-0098 | | 192993-0022 | | TFR04RA10 | | TN6G14-0012S1L | |
| 192990-1790 | | 192991-0100 | | 192993-0023 | | TFR06AH10 | | TN6G16-0019S1B | |
| 192990-1800 | 28 | 192991-0101 | 65 | 192993-0024 | | TFR06PA10 | 16 | TN6G16-0019S1L | |
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| 192990-1820 | 28 | 192991-0119 | | 192993-0032 | 50 | TFR06RA10 | | TN6G16-0019P1L | |
| 192990-1830 | | 192991-0122 | | 192993-0033 | 50 | TFR12AH10 | 16 | TN6G24-0048S1B | |
| 192990-1840 | | 192991-0160 | | 192993-0034 | 50 | TFR12PA10 | | TN6G24-0048S1L | |
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| 192990-2510 | | 192991-0213 | | 192993-0044 | | TFR24PA10 | | TN6G24-0420P1L | |
| | 63 | 192991-0214 | | 192993-0051 | | TFR24PH10 | 17 | TN6G24-0420S1B | |
| 192990-2530 | | 192991-0221 | | 192993-0052 | | TFR24RA10 | | TN6G24-0420S1L | |
| 192990-2540 | | 192991-0222 | | 192993-0053 | | TFR36AH10 | | TN6G24-0428P1B | |
| 192990-2550 | | 192991-0229 | | 192993-0054 | | TFR36PA10 | | TN6G24-0428P1L | |
| 192990-2620 | | 192991-0230 | | 192993-0061 | | TFR36PH10 | | TN6G24-0428S1B | |
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| 192990-2660 | | 192991-0246 | | 192993-0004 | | THV6U14-0400S1L-02 | | TN6G24-1219F1L | |
| 192990-2670 | | 192991-0253 | | 192993-0072 | | THV0U14-040091L-02 | | TN6G24-121951L | |
| 192990-2680 | | 192991-0254 | | 192993-0073 | | TN0G14-0012P1B | | TN6L24-0048P1L | |
| 192990-2690 | | 192991-0261 | | 192993-0074 | | TN0G14-0012P1L | | TN6L24-0048P1B | |
| 192990-3230 | | 192991-0262 | | 192993-0081 | | TN0G14-0012S1B | | TN6L24-0048P2B | |
| 192990-3240 | | 192991-0270 | | 192993-0082 | | TN0G14-0012S1L | | TN6L24-0048P2L | |
| 192990-3250 | | 192991-0271 | | 192993-0083 | | TN0G14-0012P1B | 41 | TN6L24-0048S1B | 39 |
| 192990-3260 | | 192991-0278 | | 192993-0084 | | TN0G14-0012P1L | | TN6L24-0048S1L | |
| 192990-3270 | | 192991-0279 | | 192993-0087 | | TN0G16-0019S1B | | TN6L24-0048S2B | 40 |
| 192990-3280 | | 192991-0286 | | 192993-0091 | | TN0G16-0019S1L | | TN6L24-0048S2L | |
| 192990-3290 | | 192991-0287 | | 192993-0092 | | TN0G24-0048P1B | | TN6S14-0012P1B | |
| | | 192991-0294 | | 192993-0093 | | TN0G24-0048P1L | | TN6S14-0012P1L | |
| 192990-3310 | | 192991-0295 | | 192993-0094 | | TN0G24-0048S1B | | TN6S14-0012S1B | |
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| 192990-3350 | | 192991-0311 | | 192993-0261 | 53 | TN0G24-0420S1B | | TN6S16-0019P2B | |
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| 192990-7650 | | 192991-0317 | | 192993-0632 | | TN0G24-0428P1B | | TN6S16-0019S1B | |
| | | 192991-0318 | | 192993-0633 | | TN0G24-0428P1L | | TN6S16-0019S1L | |
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| 192990-9380 | | 192991-0320 | | 192993-0695 | | TN0G24-0428S1L | | TN6S16-0019S2L | |
| | | 192991-0321 | | 192993-0696 | | TN0G24-1219P1B | | TN6S16-0213P1B | 35 |
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| 192991-0090 | | 192993-0003 | | TFR03PA10 | 10 | TN0524-1219P1L | л | TN6S24-1219P1L | 36 |
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| 192991-0093 | | 192993-0012 | | TFR03RA10 | | TN0S24-121951L | 37 | | |
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Cannon Trident Connector

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| N652-11261 39 TV151622 P10055-000551. FT619851.N1 25 TT5198607. 12 N652-51262. 30 TV1516223 P10055-000551. FT6198607. 12 N652-51262. 27 TV1652-000551. FT6198607. 12 TV1655-000551. TT5198607. 12 N652-51262. 27 TV1652-00151. 50 TT8184-01. TT5198607. 12 N652-51262. 27 TV1652-00151. 50 TT8184-01. TT8184-01.< | TN6S24-1219P2L | | TN7S16-0019S1L | | TNM0S10-0004P1L | 51 | TR1619RFH1N | 26 | TST04RB01Z | 12 |
| Integrad Integrad Structure | TN6S24-1219S1B | 39 | TN7S16-0213P1B01 | 42 | | | | | TST04RB02T | 13 |
| 1654-1250 0 1715640150 0 1715640160 0 1715640160 0 1715640160 0 1715640160 171567640160 171567764160 171567764160 1715677764160 171567777777777777777777777777777777777 | TN6S24-1219S1L | 39 | TN7S16-0213P1L | 42 | TNM0S12-0008P1L | 51 | TR1619RMH1NB | 28 | | |
| Integrad | TN6S24-1219S2B | 40 | TN7S16-0213S1B01 | | TNM0S12-0008S1L | | | | TST04RB05T | 12 |
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| The U2 + 17 (port) 35 TNAI OCCH-OOL 56 TNM6U1 4-0012S1L 51 TR223SRFH INB 26 TST I OPFOO 19 TNRU24 - 12 (951 B. 39 TNAI OCCS-E00L 55 TNM6U I-6019S1L 51 TR223SRFH INB 26 TST I OPFOOI 20 TNRU24 - 12 (951 B. 39 TNAI OCCS-E00L 56 TNM6U I-6019S1L 51 TR223SRFH INB 28 TST I OPFOOI 20 TNRU24 - 12 (952 B. 40 TNAI OCCS-E01L 54 TNM751 4-034S1L 27 TR223SRFH INB 27 TST I OPFOO 10 TNRU4 - 20 (252 B.01 TNAI CCS-E00L 55 TPOBREDOV 13 TR244API INB 75 TST 12 AA0O 10 TN7G1 4-001 251 B.01 38 TNAI 2CSE-E01L 54 TPORAEDOV 12 TR244RPS INB 75 TST 12 AA0O 10 TN7G1 6-001 991 B.01 42 TNAI 4CCSE-00L 56 TPORAEDOV 12 TR244RPL INB 75 TST 12 AA0O 11 175 124 ABR 1N 155 124 ABR 1N 155 | | | | | | | | | | |
| TNRUZ 12 19921 36 TNA IOCSE 00. 55 TNM6U 16-01991L 50 TSI 06D011 20 TNRUZ 12 1951B 39 TNA IOCSE 00. 54 TNM751 4-030471L 51 TSI 06D011/ 20 TNRUZ 12 1951B 39 TNA IOCSE 01. 54 TNM751 4-030471L 52 TR2235RK51NB. 87 TSI 06E017 21 TNRUZ 12 1952L 40 TNA IOCSE 01. 54 TNM751 4-030471L 27 TX24ARK1N 31 TST1 24400. 10 TNG1 4-01 291L 40 TNA IOCSE 00. 56 TP03RE00V 13 TR24ARK1N 31 TST1 2400. 10 TN7G1 4-001251L 40 TNA IACSE 00. 56 TP03RE00V 13 TR2448RM51NB. 26 TST1 24800 10 TN7G1 6-001971B0 42 TNA IACSE 00. 56 TP03RE00V 12 TR2448RM51NB. 26 TST1 24800 10 12 TR3448RM11NB. 26 TST1 24801 12 17 17 1200. 10 17 120448RM51NB. | | | | | TNIVI6014-0012P1L | | | | | |
| The Liz 1: 1: 5: 18 39 TNA ID CSR-00L 66 TNM6U 1: 0: 0: 1: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: | TN6U24-1219P1L | 35 | | | | | TR2235RFHTINB | | | |
| TNR024-1219518 39 TNA IDE/SAD-000 36 TNN047 TNR23510 31 RE235R011108 28 151 DR011 31 TNR024-1219518 30 TNA IDE/SAD-000 54 TNN0514-030471 52 TR235R01108 30 TST10R017 11 TNR024-1219528 40 TNA IDE/SAD-000 54 TNN7514-030471 13 TR24ABC 30 TST10R017 10 TNR024-1219528 40 TNA IDE/SAD-000 57 TR235R017 13 TR2448P51N8 37 TST128A00 10 TN7G14-001251 38 TNA 124/SAD-001 54 TPOR8E00V 12 TR2448P51N8 26 TST128A00 11 TN7G16-0019F1 42 TNA 14/CCSE-01 56 TPOR8E00V 12 TR2448P11N8 26 TST128A00 12 TR2448P11N8 | TN6U24-1219P2L | 36 | | | | | | | ISTIORDOTT | |
| TNUG11195318 TR24AD TST10RE01Y TST10RE01Y TST10RE01Y TST10RE01Y TST10RE01Y TST10RE01Y TST10RE01Y TST10RE01Y TST10RE01Y TST12AH00 TST10RE01Y TST12AH00 TST10RE01Y TST12AH00 TST12AH01 | TN6U24-1219S1B | 39 | | | | | | | IST10RD01Y | |
| TNEUZ4-1219528 40 TNATUC24-019521 40 TNATUC24-1219528 40 TNATUC255-00 55 TPOBREDOV 12 TR244APCIN 31 TST12AM00 10 TNYG14-0012P11 42 TNATUC255-00 56 TPOBREDOV 12 TR244BPVS1NB 25 TST12AM00 11 TNYG14-0012S1L 38 TNA12CCS5-00 54 TPOBREDOV 12 TR244BPVS1NB 25 TST12AB017 12 TNYG16-0019P1L 42 TNA14CCSF-00 55 TPOBREDOV 12 TR244BPVS1NB 26 TST12AB017 12 TNYG16-0019S1B01 38 TNA14CCSF-00 54 TPOBREDOV 12 TR244BPVS1NB 26 TST12AB027 13 TNYG16-0019S1B01 38 TNA14CCSF-00 54 TPOBREDOV 12 TR244BPVS1NB 27 TT12AB027 13 TST12AB027 | TN6U24-1219S1L | 39 | | | | | | | | |
| TWDG4 401924 TMA12CSE-00L 55 TP03R4E00V 12 TR24ASRIN 31 TST12AS00 11 TWG64 40012P1L 2 TWA12CSE-00L 56 TP04R2E00V 13 TR24A8PFS1NB 27 TST12RA00 10 TWG64 40012P1L 2 TWA12CSE-00L 54 TP04R4E00V 12 TR2448PFS1NB 25 TST12RA00 11 TWG64 40012S1L 38 TWA12CSE-00L 55 TP05R2E00V 12 TR2448PK1NB 26 TST12R801Z 22 TWG66 6001991L 42 TWA14CSE-00L 55 TP05R2E00V 12 TR2448RM1NB 28 TST12R801Z 33 TWG66 6001951L 38 TWA14CSE-01L 54 TP10R2E00V 12 TST02R400 10 TST12R805Y 22 TWG64 60048160 38 TWA14CSE-01L 54 TP10R4E00V 12 TST02R400 10 TST12R805Y 22 TWG764 60485160 38 TWA14CSC9-016 47 TR10A4CIN 31 TST02R801T 12 | TN6U24-1219S2B | 40 | | | | | | | | |
| INVG4-0012PIL -24 TMA12CCSR-00L 56 TP04R3E00Y 13 TR2448PFS1NB -27 TS112PA00 10 INVG64-0012PIL 12 TR2448PFS1NB 26 TS112RA00 11 INVG64-0012PIL 12 TR2448PFN1NB 26 TS112RB01T 12 INVG64-0012PIL 42 TMA14CSE-00L 56 TP06R3E00Y 13 TR2448PFN1NB 26 TS112RB01Z 12 INVG64-0012PIL 42 TMA14CSE-00L 55 TP09R3E00Y 13 TR2448PK1N1NB 28 TS112RB02Z 13 INVG64-0015SIL 38 TMA14CSE-01L 50 TP109R3E00Y 13 TS124800L 10 TS112RB05T 12 INVG64-0015SIL 38 TMA14CSE-01L 50 TP108E00Y 13 TS102PA00 10 TS112RB05T 12 TS112RB05T 12 1712RB05T | TN6U24-1219S2L | 40 | | | | | | | | |
| ITV7614-0012P1L 42 ITVAL2CSF-001 35 IFVAR2E001 31 IFVAL2E073106 42 131 [2F00 10 ITVG7614-0012S1B01 38 TMA12HSAD-00L 54 TPV6R4E00Y 12 TR2448PNIS1NE 26 TST12RA01T 12 ITVG7614-0012S1L 38 TMA12CSE-00L 55 TPV6R4E00Y 12 TR2448PNIS1NE 26 TST12RA01Z 12 ITVG7616-001591B01 38 TMA14CCSE-00L 55 TPV9R3E00Y 13 TR2448RMINB 28 TST12RA02Z 13 TN7616-001591B01 38 TMA14CCSE-01L 54 TPV0R4E00Y 12 TST02A400 10 TST12R805Y 12 TN7624-0048P1B01 42 TMA14DCP0-00B 47 TR10AAD 30 TST02R400 11 TST12R805Y 12 TST12R401 10 17 TST02R400 10 TST12R805Y 12 TST12R401 10 17 TST02R400 10 17 TST02R400 10 17 TST02R400 10 17 <t< td=""><td>TN7G14-0012P1B01</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<> | TN7G14-0012P1B01 | | | | | | | | | |
| ITNG 24-01251 B01 38 ITNA1 24CSE-011 24 IFVAR2EUV 12 IE2448PRM IN IB 25 IS1 12RA00 11 ITNG 24-012511 38 TNA1 24CSE-001 54 TPO6REGOV 12 TR2448RFN INB 26 TST122RB011 22 ITNG 26-001591 B01 42 TNA1 4CCSE-001 55 TPO9REGOV 12 TR2448RFN INB 28 TST122RB02T 33 TNG 26-00151 B01 38 TNA1 4CCSE-011 50 TPO9REGOV 12 TR2448RM INB 28 TST122RB02T 32 TN/G26-0048P1 B01 42 TNA1 4CCSE-011 50 TP10REGOV 12 TST02AP00 10 TST122RB05T 22 TN/G24-0048P1 B01 42 TNA1 40CR0-018 47 TR10APC1N 31 TST02RA00 10 TST122RB05T 33 TST44A900 10 TN/G24-0048S1 B01 38 TNA144SAD-000 54 TR10APC1N 31 TST02RB01 22 TST24A900 10 TN/G24-0420F1 B01 42 TNA14FG03-00 < | TN7G14-0012P1L | | INA12CCSR-00L | | | | | | | |
| INVG14-001251L 38 INVA127AU-U0L 34 IPU6R500V 13 IRC2488HT INB 26 IST12R801 22 INVG16-0019P1B01 42 TNA14CCF-00L 55 TP09R3E00V 13 TR2448R51NB 28 TST12R802 33 INVG16-0019P1L 42 TNA14CCSP-00L 455 TP09R3E00V 13 TR2448R51NB 28 TST12R802 33 INVG16-001991L 38 TNA14CCSP-00L 44 56 TP09R3E00V 13 TST02AH00 10 TST12R8057 12 INVG24-0048P110 42 TNA14CCSP-01L 54 TP10R3E00V 13 TST02AH00 10 TST12R8057 12 INVG24-0048P10 42 TNA14DCP0-00B 47 TR10AHC1N 31 TST02R801Z 13 TST24AH00 10 INVG24-0048S1B0 38 TNA14JAC0-00.0 54 TR10AHCNN 25 TST02R801Z 13 TST244AB0 11 INVG24-0420F1 42 TNA14PG03-0.0 47 TR1004PR1NB 26 | | | | | | | | | | |
| TN7G16-0019P1B01 42 TN4 H4CSE-00L 50 PHoBRABUTY 12 TR2448NH1NB 26 511 FR3U12 23 TN7G16-0019P1L 42 TN414CSE-00L 44,56 TP09R3E00Y 13 TR2448RMH1NB 28 TS112R802T 13 TN7G16-0019F1B01 38 TN414CCSE-01L 50 TP09R3E00Y 13 TS122AR00 10 TS112R805T 12 TN7G16-0019F1B01 42 TNA14CCSE-01L 50 TP10R4E00Y 13 TS102AH00 10 TS112R805T 12 TN7G24-0048F1B01 42 TNA14DCP0-00B 47 TR10AAD 30 TS102R801T 12 TS12R806T 13 TN7G24-004851B01 38 TNA14H0CP0-00B 47 TR10AAPT NB 25 TS102R802T 13 TS124A800 10 TN7G24-0420F1B01 42 TNA14H2G01-00 47 TR104PHS1NB 26 TS102R805T 12 TS124R801T 12 TN7G24-04281B01 38 TNA16CA02-18L 45 TR1004PHF1NB 26 | | | | | | | | | | |
| TN7G16-0019P1L 42 INA14CSE-001 35 IPU998200V 13 TR2448NMT INB 86 IS1128002 35 TN7G16-0019S1E01 38 TNA14CCSE-001 50 TP1098400V 12 TR2448NMT INB 86 TS1128057 12 TN7G24-0048P1B01 42 TNA14CCSE-011 54 TP1048200V 12 TS102PA00 00 TS1128057 12 TN7G24-0048P1L 42 TNA14DCR0-00B 47 TR10AAC1N 31 TS102PA00 11 TS1128057 33 TN7G24-0048P1L 41 TNA14DCR0-00B 46 TR10AAC1N 31 TS102R801 2 TS1228057 33 TS124A500 10 TN7G24-04281E01 42 TNA14PG01-00 47 TR10APC1NB 27 TS10288027 33 TS124A500 10 TN7G24-042091L 42 TNA14PG01-00 47 TR104PFS1NB 25 TS10288027 23 TS124A500 11 17 1724A600 11 1724A602 11 1724A602 11 1724A500 11 11 11 11 11 11 < | | | | | | | | | IS112RB012 | |
| TN7G16-001951B01 38 TN414CSF-001 44CSF-001 55 TN7G16-001951L 38 TN414CSE-011 54 TP1083E00V 12 TST024H00 0 TST12RB0ST 22 TN7G24-0048P1L 42 TNA14CSE-011 54 TP1083E00V 12 TST024H00 0 TST12RB0ST 22 TN7G24-0048P1L 42 TNA14DCR-01B 47 TR10AAD 30 TST02RB01 2 TST12RB0SV 33 TN7G24-0048S1B01 38 TNA14DCR-01B 47 TR10AACN 31 TST02RB01Z 2 TST12RB0SV 33 TN7G24-0042S1B01 38 TNA14H0CR-00L 54 TR1004PFS1NB 27 TST02RB01Z 2 TST24AF00 11 TN7G24-0420F1L 42 TNA14FG3-00L 47 TR1004PFS1NB 25 TST02RB02Z 3 TST24AF00 00 TN7G24-0420F1L 42 TNA14CGA02-48 45 TR1004RH1NB 26 TST02RB02Z 3 TST24RA00 00 15 124RA00 17 17 17 17 17 17 12 15 1 | | | | | | | 1 KZ448 KIVIH I NB | | ISII2KBU21 | |
| TN7G24-0048P1801 38 TN414C2SE-01 54 TP10RE007 12 TS102PA00 10 TS112R805Y 12 TN7G24-0048P1801 42 TN414CCSE-01 54 TP10RE007 12 TS102PA00 10 TS112R805Y 12 TN7G24-0048P1801 42 TN414DCR0-018 47 TR10AAPC1N 31 TS102PA00 11 TS112R805Y 12 TN7G24-0048S1801 38 TN414DCR0-018 47 TR10APC1N 31 TS102PA00 11 TS12PA805T 12 TS12PA805T 13 TS12PA800 11 TN7G24-0420F1801 42 TNA144PG03-00 47 TR1004PMS1NB 25 TS102PR805T 12 TS12PA800 11 TN7G24-0420F1 42 TNA16CA02-18 45 TR1004PMS1NB 26 TS102PR805T 12 TS12PA800 10 TN7G24-0428F1 42 TNA16CA22-18 41 R1004PK51NB 26 TS102PR805T 12 17512PR801T 12 17512PR801T 12 17512PR801T 12 17512PR801T 12 17512PR801T 12 17512PR801T 12 | | | | | | | | | | |
| TN7G24-0048P1B01 42 TN44CUS-01L 54 TP10AEU0Y 12 TS102PA00 10 TS112PAB05T 12 TN7G24-0048P1L 42 TNA14DCP-01B 47 TR10AAD 30 TS102PA00 11 TS112PAB05T 13 TN7G24-0048S1L 38 TNA14DCP-01B 47 TR10AAPC1N 31 TS102PA00 10 TN7G24-0048S1L 38 TNA14HOCP-00L 54 TR104PK1NB 7 TS102PA00 10 TN7G24-004201E 42 TNA14PG01-00 47 TR1004PK1NB 25 TS102PA00 10 TN7G24-04201E 42 TNA14PG01-00 47 TR1004PK1NB 26 TS102PA00 10 TN7G24-042051B01 38 TNA14PG03-00 47 TR1004PK1NB 26 TS102PA00 11 TS124PA00 11 TN7G24-04281L 38 TNA16CA0-218 47 TR1004PK1NB 26 TS102PA00 10 TS124PA01 12 TS14PA001 11 TS124PA01 11 TS124PA01 | | | | | TP10R3E00Y | 13 | | | | |
| TNTG24-0048PIL 42 TNI 4DCPO-00B 47 TRIOARD 30 TSI 22R001 11 TSI 72R005 TSI 72R005 TSI 72R005 TSI 72R017 22 TSI 72R005 TSI 72R017 22 TSI 72R017 23 TSI 72R017 23 TSI 72R017 23 TSI 72R007 13 TN7G24-004851L 38 TNA149C0-00 47 TRI004PPS1NB 25 TSI02R057 12 TSI 72R00 10 TN7G24-042051L 38 TNA16CA0-120 45 TRI004RMH1NB 26 TSI02R057 12 TSI 724R017 12 TN7G24-04281B01 42 TNA16CA0-18 45 TRI004RMH1NB 28 TSI 724R017 12 17174R00 11 17174R00 11 17174R017 12 17174R017 12 17174R017 12 17174R007 13 17174R007 <td></td> | | | | | | | | | | |
| TN7G24-004851 B01 38 TNA14JN00-008 47 TR IOAPELIN 31 TSI02R801 12 TS124R001 10 TN7G24-004851 L 38 TNA14JN00-008 46 TR100APES1N8 27 TS102R8012 12 TS124AD00 10 TN7G24-0420P1 B01 42 TNA14PG0-00 47 TR1004PES1N8 25 TST02R802T 13 TS124R00 11 TN7G24-0420P1 L 42 TNA14PG0-00 47 TR1004PES1N8 26 TST02R802T 12 TST24R800 11 TN7G24-0420F1 L 42 TNA16CA01-20 45 TR1004RMH1N8 26 TST02R805T 12 TST24R801 12 TN7G24-0428F1 L 42 TNA16CA22-18L 41 TR1004RMH1N8 28 TST02R805C 13 TST24R801 13 TN7G24-0428F1 L 42 TNA16CA22-18L 41 TR1004RM1N8 28 TST02R805C 13 TST24R801 13 TST24R801 13 TST24R801 13 TST24R801 13 TST24R801 14< | | | | | | | | | ISIIZKBU01 | |
| TN7G24-0048S1L 38 TNA14JIN00-005 40 TRI UASKIN 31 15102R8072 12 15124A500 10 TN7G24-0420P1 B01 42 TNA14PSO1-00 47 TRI 004PFS1NB 27 TST02R802Z 13 TST24A500 10 TN7G24-0420P1 L 42 TNA14PSO1-00 47 TRI 004PFS1NB 26 TST02R802Z 13 TST24A500 10 TN7G24-0420P1 L 42 TNA14PSO1-00 47 TRI 004PK51NB 26 TST02R805Y 12 TST24R801Z 12 TN7G24-0428P1 L 38 TNA16CA0-218L 45 TR1004RMS1NB 28 TST02R806Y 13 TST24R801Z 12 TN7G24-0428P1 L 42 TNA16CAC-100 55 TR12AAD 30 TST03R800 10 TST24R802Z 13 TN7G24-0428S1 L 38 TNA16CCR-00L 55 TR12AAD 30 TST03A500 10 TST24R8057 12 TN7G24-129S1B01 38 TNA16CCR-00L 54 TR1208PK51NB 27 TST0 | | | | | | | | | | |
| TNTG24-0420P1B01 42 TNA14P601-00. 47 TR1004Ph51N8 27 TS102R8021. 13 TS124PA00 10 TNTG24-0420P1L 42 TNA14P601-00. 47 TR1004Ph51N8 26 TS102R8027. 13 TS124PA00. 11 TNTG24-0420S1B01 38 TNA16CA01-20L 45 TR1004RF51N8 26 TS102R805Y 12 TS124R8017 12 TNTG24-0420S1B01 38 TNA16CA02-18L 45 TR1004RM51N8 28 TS102R806Y 13 TS124R8017 13 TNTG24-0428P1L01 42 TNA16CCH-00L 56 TR12AAD 30 TS103AR00 10 TS124R8027 13 TN7G24-0428S1L0 38 TNA16CCSE-00L 55 TR12AAD 30 TS103AR00 10 TS124R8057 12 TN7G24-0428S1L0 38 TNA16CCSE-00L 54 TR12APCN 31 TS103PR00 10 TS124R8057 12 TN7G24-1219F1L0 42 TNA16FGD-00 47 TR1208PK51N8 25 TS | | | | | | | | | ISI24AH00 | |
| TNTG24-0420P1L 42 INA14PG01-0047 IR1004RFH1NB. 25 IS102Rb02L 13 IS124F00000 0 TNTG24-0420S1L 38 TNA14PG03-0047 TR1004RFH1NB. 26 TST02Rb05T12 TST24Rb01T12 TNTG24-0420S1L 38 TNA16CA01-20L45 TR1004RFH1NB. 26 TST02Rb05T12 TST24Rb01T12 TNTG24-0428P1L 42 TNA16CA02-18L45 TR1004RMINB28 TST02Rb06T13 TST24Rb01Z12 TNTG24-0428P1L 42 TNA16CCHC-00L55 TR12AAD30 TST03AH0010 TST24Rb02T13 TNTG24-0428S1B01 38 TNA16CCHC-00L55 TR12AAD30 TST03AB0011 TST04Rb05T12 TNTG24-1219S1B01 38 TNA16CCSF-00L44,65 TR12ABD31 TST03Rb0010 TST24Rb05T | | | | | | | | | ISI24AS00 | |
| TNTG24-042051B01 38 TNA16C01-20. 47 TR1004RF1NB 26 T5102R8057 12 T5124R801T 12 TNTG24-042051L 38 TNA16CA02-18L 45 TR1004RF51NB 26 T5T02R8057 12 T5124R801T 12 TNTG24-0428F1B01 42 TNA16CA02-18L 45 TR1004RF51NB 28 T5T02R8057 13 T5T24R801T 12 TNTG24-0428F1B01 42 TNA16CCH2-00L 56 TR12AAD 30 TST03AH00 10 TST24R802T 13 TNTG24-042851B01 38 TNA16CCSE-00L 55 TR12AHC1N 31 TST03A500 11 TST24R8057 12 TNTG24-121951B01 38 TNA16CCSE-00L 54 TR1208F51NB 27 TST03R00 11 TST24R806Y 13 TN7G24-121951L 42 TNA16CCP0-00B 47 TR1208RF1NB 26 TST03R8012 12 TST36A500 11 TN7G24-121951L 43 TNA160CP0-00B 47 TR1208RF1NB 26 TS | | | | | | | | | | |
| TN7G24-042051L 38 TNA16CA02-18L 45 TR 1004RMH NB 26 T3102R0051 12 13124R001 12 TN7G24-0428P1B01 42 TNA16CA02-18L 41 TR 1004RMM1NB 28 TST02R0667 13 TST24R8012 13 TN7G24-0428P1L 42 TNA16CA02-18L 41 TR 1004RMM1NB 28 TST02R066Y 13 TST24R8027 13 TN7G24-0428P1L 42 TNA16CC40C 56 TR12AHC1N 31 TST03A600 10 TST24R8057 12 TN7G24-1219F1801 38 TNA16CCSE-00L 44.56 TR12ASR1N 31 TST03A600 10 TST24R805Y 12 TN7G24-1219F1801 38 TNA16CCSE-01L 54 TR1208PF1NB 27 TST03R600 11 TST24R806Y 13 TN7G24-1219F1801 42 TNA16DCP0-00B 47 TR1208PF1NB 26 TST03R600 11 TST24R806Y 13 TN7G24-1219F1801 42 TNA16DCP0-00B 47 TR1208PF1NB 26 TST03R601T 12 TST36A500 11 TN7G24-0428F1801 3 | | | | | TR1004RFH1NB | | | | | |
| TN7G24-0428P1B01 42 TNA16CA22-18L 41 TR 1004RMS1NB 28 TST02R060* 13 TST24R802T 13 TN7G24-0428P1L 42 TNA16CCA22-18L 41 TR 1004RMS1NB 28 TST03AH00 10 TST24R802T 13 TN7G24-0428S1B01 38 TNA16CCSR-00L 55 TR12AAD 30 TST03AH00 10 TST24R805T 12 TN7G24-0428S1B01 38 TNA16CCSR-00L 54 TR12ASR1N 31 TST03PA00 10 TST24R805T 12 TN7G24-121951B01 38 TNA16CCSE-01L 54 TR1208PS1NB 27 TST03PA00 10 TST24R806T 13 TN7G24-121951B01 42 TNA16CA5CE-01L 54 TR1208PS1NB 25 TST03PA00 11 TST24R806T 13 TN7G24-121951L 42 TNA16CA5CE-01L 54 TR1208PS1NB 25 TST03R400 11 TST24R806T 13 TN7G24-042851801 42 TNA16CA5CH00 47 TR1208RF1NB 26 TST03R400 10 15 TST36A900 10 17 17 | | | | | | | | | | |
| TN7G24-042891L 42 TNA16C422-10L 41 TR VA10C422-10L 53102A000 13102A000 13102A000 10 TS124R0022 13102A000 10 TS124R0022 13102A000 10 TS124R002 12102A000 10 TS124R002 13102A000 10 TS124R002 13102A000 10 TS124R002 13102A000 10 TS124R002 13102A000 11 1102A002A000 11 1102A002A000 11 1102A002A000 11 1102A002A000 11 1102A002A000 10 1102A002A000 11 1102A002A000 11 1102A002A000 11 1102A002A000 11 1102A002A000 11 1102A002A000 11 1102A002A0000 11 1102A002A0000 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>15124KB01Z</td> <td></td> | | | | | | | | | 15124KB01Z | |
| TN7G24-0428S1B01 38 TNA IGCCRC-00L 30 TR12ALC 30 IST03AIGC 10 IST03AS00 11 TST24RB05T 12 TN7G24-0428S1L 38 TNA16CCSE-00L 44,56 TR12AHC1N 31 TST03AS00 10 TST24RB05T 12 TN7G24-1219S1B01 38 TNA16CCSE-00L 54 TR1208PTS1NB 27 TST03PA00 10 TST24RB05T 12 TN7G24-1219P1B01 42 TNA16CCSE-00L 54 TR1208PTS1NB 27 TST03RA00 11 TST24RB0FT 13 TN7G24-1219P1L 42 TNA16DCP0-00B 47 TR1208RFM1NB 26 TST03RB01T 12 TST36AD00 10 TN7G24-1219S1L 38 TNA16DCR0-01B 47 TR1208RFM1NB 26 TST03RB01T 12 TST36AD0 10 TN7L24-0048P1L 42 TNA16PG03-00 47 TR1208RM1NB 28 TST03RB02Z 13 TST36RB01T 12 TST36RB01T 12 TST36RB01Z 11 TST36RB02Z 13 | | | | | | | | | | |
| TN7G24-042851L 38 TNA16CCSR-00L 44.56 TR12ARCIN 31 TST03PA00 10 TST24R805Y 12 TN7G24-121951801 38 TNA16CCSR-00L 54 TR1208PF51NB 27 TST03PA00 10 TST24R805Y 12 TN7G24-1219P1801 42 TNA16HXAD-00L 54 TR1208PF51NB 27 TST03PA00 11 TST24R806Y 13 TN7G24-1219P1L 42 TNA16HXAD-00L 54 TR1208PF51NB 26 TST03RA00 11 TST24R806Y 13 TN7G24-1219S1L 38 TNA16DCP0-00B 47 TR1208RF1NB 26 TST03R801Z 12 TST36AB00 10 TN7L24-0048P1L 42 TNA16DCR0-01B 47 TR1208RM1NB 28 TST03R802Z 13 TST36RA00 11 TN7L24-0048S1B01 38 TNA16PG03-00 47 TR140ABCNNB 28 TST03R80ZZ 13 TST36R801Z 12 TST36R801Z 12 TST36R801Z 12 TST36R801Z 12 TST36R80Z 11 11 17 17 17 16 16 16 1 | | | | | | | | | | |
| TN7G24-1219S1B01 38 TNA16CCSE-01L 54 TR12ASR1N 1 TST03PF00 19 TST24RB06T 13 TN7G24-1219P1B01 42 TNA16HSAD-00L 54 TR1208PFS1NB 27 TST03PF00 19 TST24RB06T 13 TN7G24-1219P1L 42 TNA16DCP0-00B 47 TR1208PFS1NB 26 TST03RB01T 12 TST36Ab00 10 TN7G24-1219P1L 42 TNA16DCR0-01B 47 TR1208RFS1NB 26 TST03RB01T 12 TST36Ab00 10 TN7L24-0048P1L 42 TNA16PG03-00 47 TR1208RFS1NB 28 TST03RB02T 13 TST36RA00 11 TN7L24-0048S1L 38 TNA16PG03-00 47 TR14AAD 30 TST03RB05T 12 TST36RB01T 12 TN7L24-0048S1L 38 TNA24CA01-25L 45 TR14APL1N 31 TST03RB05T 12 TST36RB01Z 12 TST36RB02Z 13 TST36RB01Z 12 TST36RB01Z 12 TST36RB01Z 12 | | | TNA16CCSE-00L | 55 | | | | | TST24RB05T | 12 |
| INV324-121951B01 36 TNA16CCSE-01L 54 TR1208PFS1NB 27 TST03PF00 19 TST24RB06T 13 TN7G24-121991L 42 TNA16HSAD-00L 54 TR1208PK51NB 25 TST03RA00 11 TST24RB06T 13 TN7G24-121991L 42 TNA16DCP0-00B 47 TR1208RF1NB 26 TST03RB01T 12 TST36AH00 10 TN7L24-0048P1B01 42 TNA16DCR0-01B 47 TR1208RF51NB 26 TST03RB01Z 12 TST36AA00 10 TN7L24-0048P1B01 42 TNA16PG01-00 47 TR1208RM51NB 28 TST03RB01Z 13 TST36RA00 10 TN7L24-0048S1B01 38 TNA16PG03-00 47 TR1208RM51NB 28 TST03RB02Z 13 TST36RA00 11 TN7L24-0048S1L 38 TNA24CA01-20L 45 TR14AAD 30 TST03RB05T 12 TST36RB01Z 12 | | | | | | | | | | |
| TN7G24-1219P1L 42 TNA16DC0-00B 47 TR1208FF1NB 26 TST03RB01T 12 TST36AH00 10 TN7G24-1219S1L 38 TNA16DC0-00B 47 TR1208FF1NB 26 TST03RB01Z 12 TST36AH00 10 TN7L24-0048P1B01 42 TNA16DC0-00B 46 TR1208FF1NB 26 TST03RB01Z 12 TST36AA00 10 TN7L24-0048P1B01 42 TNA16PG01-00 47 TR1208RM51NB 28 TST03RB02Z 13 TST36RA00 11 TN7L24-0048S1L 38 TNA16PG03-00 47 TR14AAD 30 TST03RB05T 12 TST36RB01T 12 TN7L24-0048S1L 38 TNA24CA01-25L 45 TR14AHC1N 31 TST03RB05T 12 TST36RB02Z 12 TN7U16-0213P1L 42 TNA24CA02-25L 45 TR14APC1N 31 TST03RB01T 20 TST36RB02Z 13 TN7U16-0213P1L 42 TNA24CA02-26L 45 TR1412PFS1NB 27 TST03RB01T 20 TST36RB05T 12 TST36RB05T 12 TST36RB02Z <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<> | | | | | | | | | | |
| TN7G24-121951L 38 TNA16DCR-01B 47 TR1208RFS1NB 26 TST03RB012 12 TST36A500 11 TN7L24-0048P1B01 42 TNA16DCR0-01B 47 TR1208RFS1NB 26 TST03RB012 12 TST36A500 11 TN7L24-0048P1L 42 TNA16PG01-00 47 TR1208RFS1NB 28 TST03RB012 13 TST36A00 11 TN7L24-0048S1B01 38 TNA16PG03-00 47 TR14AAD 30 TST03RB05T 12 TST36RB01Z 12 TN7L24-0048S1L 38 TNA16PG03-00 47 TR14AAD 30 TST03RB05T 12 TST36RB01Z 12 TN7L24-0048S1L 38 TNA24CA01-25L 45 TR14ASR1N 31 TST03RB05T 12 TST36RB02Z 13 TN7U16-0213P1L 42 TNA24CA02-25L 45 TR1412PFS1NB 27 TST03RB01T 20 TST36RB05T 12 TN7U24-0420P1B01 42 TNA24CA02-26L 45 TR1412PFS1NB 27 TST03RB01T 20 TST36RB05T 12 TN7U24-0420P1B01 42 | | | | | TR1208PMS1NB | 25 | | | | |
| TN7L24-0048P1B01 42 TNA16JN00-00B 46 TR1208RMH1NB 20 TST03RB02T 12 TST36PA00 10 TN7L24-0048P1L 42 TNA16PG01-00 47 TR1208RM51NB 28 TST03RB02Z 13 TST36PA00 11 TN7L24-0048S1B01 38 TNA16PG03-00 47 TR14AAD 30 TST03RB05T 12 TST36RB01T 12 TN7L24-0048S1L 38 TNA24CA01-25L 45 TR14AAD 30 TST03RB05T 12 TST36RB01T 12 TN7L24-0048P1L 38 TNA24CA01-25L 45 TR14AAD 31 TST03RB05T 12 TST36RB01T 13 TN7U16-0213P1L 42 TNA24CA02-25L 45 TR14ASR1N 31 TST03RB06Y 13 TST36RB05T 12 TN7U24-0420P1B01 42 TNA24CA02-26L 45 TR1412PM51NB 25 TST03RB01T 20 TST36RB05T 12 TN7U24-0420P1B01 42 TNA24CA02-26L 45 TR1412PM51NB 25 TST03RB01T 20 TST36RB05T 12 TN7514-0012P1B01 42 | | | TNA16DCP0-00B | 47 | TR1208RFH1NB | | | | | |
| TN7L240048P1L 42 TNA16PG01-00 47 TR1208RW1NB 28 TST03RB02Z 13 TST36RA00 11 TN7L24-0048S1B01 38 TNA16PG03-00 47 TR14AAD 30 TST03RB05T 12 TST36RB01T 12 TN7L24-0048S1L 38 TNA24CA01-20L 45 TR14AHC1N 31 TST03RB05T 12 TST36RB01T 12 TN7L24-0048P1L 38 TNA24CA01-25L 45 TR14AHC1N 31 TST03RB05Y 12 TST36RB01Z 12 TN7U16-0213P1B01 42 TNA24CA02-25L 45 TR1412PFS1NB 27 TST03RB06T 13 TST36RB0ZZ 13 TN7U16-0213P1L 42 TNA24CA02-26L 45 TR1412PFS1NB 27 TST03RB01T 20 TST36RB05T 12 TN7U24-0420P1B01 42 TNA24CA03-34L 45 TR1412PFS1NB 26 TST03RD01T 20 TST36RB05T 12 TN714-0012P1B01 42 TNA24CA03-34L 45 TR1412PFS1NB 26 TST03RD01Y 20 TST36RB05Y 12 TN7514-0012P1L 42 | | | TNA16DCR0-01B | 47 | TR1208RFS1NB | | TST03RB01Z | 12 | | |
| IN7L24004891L 42 TNA16PG01-00. 47 TR1208RMS1NB. 28 TST03RB02Z. 13 TST36RA00. 11 TN7L24-004851B01. 38 TNA16PG03-00. 47 TR14AAD. 30 TST03RB05T. 12 TST36RB01T. 12 TN7L24-004851L 38 TNA16PG03-00. 47 TR14AAD. 30 TST03RB05T. 12 TST36RB01T. 12 TN7L24-004891L 38 TNA24CA01-25L. 45 TR14AHC1N. 31 TST03RB05Y. 12 TST36RB02Z. 13 TN7U16-0213P1B01 42 TNA24CA02-25L. 45 TR14ASR1N. 31 TST03RB06Y. 13 TST36RB02Z. 13 TN7U16-0213P1L 42 TNA24CA02-26L. 45 TR1412PMS1NB. 25 TST03RD01T 20 TST36RB05T. 12 TN7U24-0420P1B01 42 TNA24CA02-26L. 45 TR1412PM51NB. 26 TST03RD01T 20 TST36RB05T. 12 TN7514-0012P1B01 42 TNA24CA22-26L. 41 TR142RF1NB. 26 TST03RE01T. 21 TST36RB05T. 12 TN7514-0012P1B0 | | | TNA16JN00-00B | 46 | TR1208RMH1NB | | | | TST36PA00 | 10 |
| IN7L24-004851B01 38 TNA16PG03-00 47 TR14AAD 30 TST03RB05T 12 TST36RB01T 12 TN7L24-004851L 38 TNA24CA01-20L 45 TR14AHC1N 31 TST03RB05T 12 TST36RB01T 13 TN7L24-004851L 38 TNA24CA01-25L 45 TR14AHC1N 31 TST03RB06T 13 TST36RB01Z 12 TN7U16-0213P1B01 42 TNA24CA02-25L 45 TR14APF1NB 27 TST03RB06Y 13 TST36RB02Z 13 TN7U16-0213P1L 42 TNA24CA02-26L 45 TR1412PF51NB 27 TST03RB01T 20 TST36RB05T 12 TN7U24-0420P1B01 42 TNA24CA02-26L 45 TR1412PM51NB 26 TST03RD01T 20 TST36RB05T 12 TN7U24-0420P1L 42 TNA24CA03-34L 45 TR1412RF1NB 26 TST03RD01Y 20 TST36RB05T 12 TN7514-0012P1B01 42 TNA24CCHC-00L 44 TR1412RMH1NB 28 TST03RC01Y 21 TST36RB06Y 13 TN7514-0012S1B01 38 <td></td> <td></td> <td>TNA16PG01-00</td> <td>47</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | TNA16PG01-00 | 47 | | | | | | |
| TN7L24-0048P1L 38 TNA24CA01-25L 45 TR14ASR1N 31 TST03RB06T 13 TST36RB02T 13 TN7U16-0213P1B01 42 TNA24CA02-25L 45 TR1412PFS1NB 27 TST03RB06Y 13 TST36RB02Z 13 TN7U16-0213P1L 42 TNA24CA02-26L 45 TR1412PFS1NB 27 TST03RB06Y 13 TST36RB02Z 13 TN7U16-0213P1L 42 TNA24CA02-26L 45 TR1412PMS1NB 25 TST03RD01T 20 TST36RB05T 12 TN7U24-0420P1B01 42 TNA24CA02-26L 41 TR1412RFS1NB 26 TST03RD01T 20 TST36RB05Y 12 TN7514-0012P1B01 42 TNA24CCCSR-00L 44 TR1412RFS1NB 26 TST03RE01Y 21 TST36RB06Y 13 TN7514-0012P1L 42 TNA24CCSR-00L 44 TR1412RMS1NB 28 TST04AH00 10 TN7514-0012S1B01 38 TNA24DCP0-00B 47 TR16AAD 30 TST04PR00 10 TN7516-0019P1B01 42 TNA24DCR0-01B 47 TR16AAPCI <t< td=""><td>IN/L24-004851B01</td><td></td><td>TNA16PG03-00</td><td>47</td><td>TR14AAD</td><td></td><td>TST03RB05T</td><td>12</td><td>TST36RB01T</td><td>12</td></t<> | IN/L24-004851B01 | | TNA16PG03-00 | 47 | TR14AAD | | TST03RB05T | 12 | TST36RB01T | 12 |
| IN/L/24-0048P1L 38 TNA24CA01-25L 45 TR14ASR1N 31 TST03RB06T 13 TST36RB02T 13 TN7U16-0213P1B01 42 TNA24CA02-25L 45 TR1412PFS1NB 27 TST03RB06Y 13 TST36RB02T 13 TN7U16-0213P1B01 42 TNA24CA02-25L 45 TR1412PFS1NB 27 TST03RB06Y 13 TST36RB02T 12 TN7U16-0213P1L 42 TNA24CA02-26L 45 TR1412PFS1NB 25 TST03RD01Y 20 TST36RB05T 12 TN7U24-0420P1L 42 TNA24CA02-26L 41 TR1412RFS1NB 26 TST03RD01Y 20 TST36RB06T 13 TN7514-0012P1B01 42 TNA24CCC-00L 44 TR1412RFS1NB 26 TST03RE01Y 21 TST36RB06Y 13 TN7514-0012P1L 42 TNA24CCSR-00L 44 TR1412RM51NB 28 TST04AH00 10 TN7514-0012S1L 38 TNA24DCP0-00B 47 TR16AAD 30 TST04PA00 10 TN7516-0019P1B01 42 TNA24DCR0-01B 47 TR16AAPI 31 | TN7L24-0048S1L | | TNA24CA01-20L | 45 | | | TST03RB05Y | 12 | TST36RB01Z | 12 |
| IN/U16-0213P1801 42 TNA24CA02-25L 45 TR1412PFS1NB 27 TST03RB06Y 13 TST36RB02Z 13 TN7U16-0213P1L 42 TNA24CA02-26L 45 TR1412PFS1NB 25 TST03RB01T 20 TST36RB05T 12 TN7U24-0420P1B01 42 TNA24CA03-34L 45 TR1412PFS1NB 26 TST03RD01T 20 TST36RB05T 12 TN7U24-0420P1L 42 TNA24CA03-34L 45 TR1412FF1NB 26 TST03RD01T 20 TST36RB05T 12 TN7514-0012P1B01 42 TNA24CCCR-00L 44 TR1412RFS1NB 26 TST03RE01T 21 TST36RB06Y 13 TN7514-0012P1B01 42 TNA24CCSR-00L 44 TR1412RM51NB 28 TST04AH00 10 TN7514-0012S1B01 38 TNA24DCP0-00B 47 TR16AAD 30 TST04AS00 10 TN7516-0019P1B01 42 TNA24DCR0-01B 47 TR16AAC1N 31 TST04PR00 10 TN7516-0019P1B01 42 TNA24DCR0-01B 46 TR16ASR1N 31 TST04PR00 <t< td=""><td></td><td></td><td>TNA24CA01-25L</td><td>45</td><td></td><td></td><td>TST03RB06T</td><td>13</td><td>TST36RB02T</td><td>13</td></t<> | | | TNA24CA01-25L | 45 | | | TST03RB06T | 13 | TST36RB02T | 13 |
| TN7U16-0213P1L 42 TNA24CA02-26L 45 TR1412PMS1NB 25 TST03RD01T 20 TST36RB05T 12 TN7U24-0420P1B01 42 TNA24CA03-34L 45 TR1412RF1NB 26 TST03RD01Y 20 TST36RB05T 12 TN7U24-0420P1B01 42 TNA24CA03-34L 45 TR1412RF1NB 26 TST03RD01Y 20 TST36RB05Y 12 TN7U4-0420P1L 42 TNA24CA02-26L 41 TR1412RF1NB 26 TST03RE01T 21 TST36RB05Y 12 TN7514-0012P1B01 42 TNA24CCR-00L 44 TR1412RMH1NB 28 TST03RE01Y 21 TST36RB06Y 13 TN7514-0012S1B01 38 TNA24DCP0-00B 47 TR16AAD 30 TST04AS00 10 TN7516-0019P1B01 42 TNA24DCR0-01B 47 TR16AAPC1N 31 TST04PF00 19 TN7516-0019P1L 42 TNA24DCR0-00B 46 TR16ASR1N 31 TST04PR00 10 TN7516-0019P1L 42 TNA24DCR0-01B 47 TR16ASR1N 31 TST04PR00 10 | | | TNA24CA02-25L | 45 | | | TST03RB06Y | 13 | TST36RB02Z | 13 |
| IN/024-0420P1B01 42 TNA24CA03-34L 45 TR1412RFH1NB 26 TST03RD01Y 20 TST36RB05Y 12 TN7024-0420P1L 42 TNA24CA22-26L 41 TR1412RF51NB 26 TST03RD01Y 20 TST36RB05Y 12 TN7514-0012P1B01 42 TNA24CA22-26L 41 TR1412RF51NB 26 TST03RE01T 21 TST36RB06T 13 TN7514-0012P1L 42 TNA24CCCR-00L 44 TR1412RMH1NB 28 TST03RE01Y 21 TST36RB06Y 13 TN7514-0012P1L 42 TNA24CCSR-00L 44 TR1412RM51NB 28 TST04AH00 10 TN7514-0012S1B01 38 TNA24DCR0-01B 47 TR16AAD 30 TST04AA00 10 TN7516-0019P1B01 42 TNA24DCR0-01B 47 TR16AAC1N 31 TST04PA00 10 TN7516-0019P1B01 42 TNA24QDR0-00B 46 TR16ASR1N 31 TST04PA00 10 TN7516-0019P1L 42 TNA24QDR0-00M 47 TR16ASR1N 31 TST04PA00 10 TN7516-0019P | | | TNA24CA02-26L | 45 | | | TST03RD01T | 20 | TST36RB05T | 12 |
| IN/024-0420P1L 42 TNA24CA22-26L 41 TR1412RFS1NB 26 TST03RE01T 21 TST36RB06T 13 TN7514-0012P1B01 42 TNA24CCHC-00L 44 TR1412RMH1NB 28 TST03RE01Y 21 TST36RB06Y 13 TN7514-0012P1L 42 TNA24CCSR-00L 44 TR1412RM51NB 28 TST03RE01Y 21 TST36RB06Y 13 TN7514-0012S1L 38 TNA24CCSR-00L 44 TR1412RM51NB 28 TST04AH00 10 TN7514-0012S1L 38 TNA24DCP0-00B 47 TR16AAD 30 TST04PA00 10 TN7516-0019P1B01 42 TNA24JN00-00B 46 TR16ASR1N 31 TST04PA00 10 TN7516-0019P1L 42 TNA24PG01-00 47 TR16ASR1N 31 TST04PA00 10 TN7516-0019P1L 42 TNA24PG01-00 47 TR1619PFS1NB 27 TST04RA00 11 | | | TNA24CA03-34L | 45 | | | TST03RD01Y | 20 | TST36RB05Y | 12 |
| IN/S14-0012P1B01 42 TNA24CCHC-00L 44 TR1412RMH1NB 28 TST03RE01Y 21 TST36RB06Y 13 TN/S14-0012P1L 42 TNA24CCSR-00L 44 TR1412RMS1NB 28 TST04AH00 10 TN/S14-0012S1B01 38 TNA24CCP00B 47 TR16AAD 30 TST04AH00 11 TN/S14-0012S1L 38 TNA24DCP0-00B 47 TR16AHC1N 31 TST04PA00 10 TN/S16-0019P1B01 42 TNA24DC0-00B 46 TR16ASR1N 31 TST04PR00 10 TN/S16-0019P1L 42 TNA24PG01-00 47 TR16APF1NB 27 TST04RA00 11 | | | | | | | TST03RE01T | 21 | | |
| TN7514-0012P1L 42 TNA24CCSR-00L 44 TR1412RMS1NB 28 TST04AH00 10 TN7514-0012S1B01 38 TNA24DCP0-00B 47 TR16AAD 30 TST04AS00 11 TN7516-0019P1B01 42 TNA24DCR0-01B 47 TR16AHC1N 31 TST04PA00 10 TN7516-0019P1B01 42 TNA24JN00-00B 46 TR16ASR1N 31 TST04PF00 19 TN7516-0019P1L 42 TNA24PG01-00 47 TR16APF1NB 27 TST04PA00 11 | | | | | | | TST03RE01Y | 21 | | |
| TN7514-001251B01 | | | | | | | TST04AH00 | 10 | | |
| TN7514-001251L | | | | | | | | | | |
| TN7516-0019P1B01 | | | TNA24DCR0-01B | | TR16AHC1N | 31 | TST04PA00 | 10 | | |
| IN/S16-0019P1L | | | | | TR16ASR1N | 31 | TST04PF00 | 19 | | |
| | | | TNA24PG01-00 | | | | | | | |
| | TN7S16-0019S1B01 | 38 | | | | | | | | |



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, ionization 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/Catalog 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 carbonization 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

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.

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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. Circuit resistance and continuity check should be made to make certain that there are no high resistance joints or spurious conducting paths. Always use the correct application tools as specified in the Data Sheet/Catalog. 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

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

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