










# Raychem Data Bus Components

## Interconnection Hardware

A Complete High-Performance System of Interconnection Hardware for MIL-STD-1553B Networks and Space Applications

# Data Bus Components

## Interconnection Hardware for MIL-STD-1553B Networks and Space Applications





### Description

Based on unique material technologies, the TE Connectivity (TE) family of data bus components offers innovative solutions to today's aerospace, space, defense and marine data bus applications.

Used in MIL-STD-1553B multiplexing applications, coupled with proven field experience, the Raychem data bus system provides high packaging density, weight savings, design flexibility, and high performance to 150˚C.

Custom harnesses built to your drawing specifications are also available. Pre-tested, factory built harnesses provide quick, easy installation and eliminate unnecessary splices and connectors, reducing cost and increasing network reliability.

**MORE CHOICE**

- A wide selection of couplers such as micros, boxes, and ultra-lightweight versions
- Low outgassing components for use in space
- HARNWARE harness design software

**RUGGED RELIABILITY**

- Triax connectors and contacts with strain relief
- One-piece triaxial contacts for MIL-DTL-38999 connectors

**COMPLETE SYSTEMS**

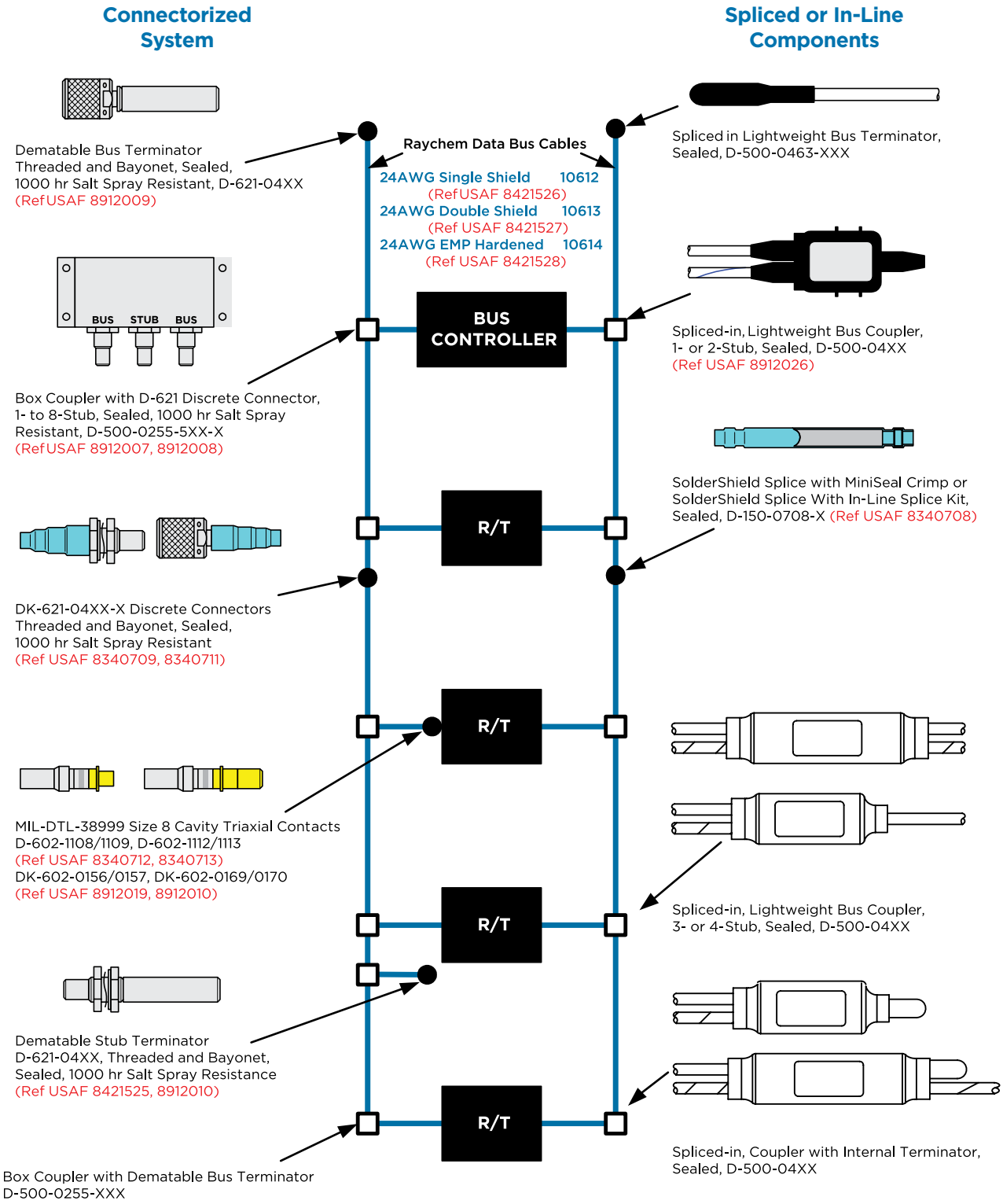
- Data bus cables and identification sleeves
- Bus and stub terminators
- Flexible cable splices

**TE Components . . . TE Technology . . . TE Know-how . . .**

AMP | AGASTAT | CII | HARTMAN | KILOVAC | MICRODOT | NANONICS | POLAMCO | Raychem | Rochester | DEUTSCH SEACON Phoenix | LL ROWE | Phoenix Optix | AFP | SEACON

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

## System Illustration





## Ultra Lightweight In-Line Microcouplers 1- through 6-Stub

### Applications

Building on over 20 years of experience and continuous improvement in data bus, including pioneering in-line microcouplers, TE offers a family of ultra lightweight in-line microcouplers, available in 1- through 6-stub configurations.

These couplers offer the same high performance and reliability as TE's current microcouplers, but their weight is further reduced. They are available in configurations up to 6-stub. There is no option with a mounting eyelet.

Combined with Raychem 24 AWG data bus cables, these ultra light couplers allow designers to significantly reduce weight.

They are also available assembled with other customer specified components into a complete factory-built and tested data bus harness.

### Lightweight In-Line Coupler Part Numbering

**D-500-L4 5 W - X - YYY - ZZZ**

**BOOT**
- **5** Without Mounting Eyelet

**DESIGN**
- **5** Without Internal Terminator
- **6** Same as 5 but with Reverse Bus
- **7** With Internal Terminator
- **8** Same as 7 but with Reverse Bus

**NUMBER OF STUBS**

1, 2, 3, 4, 5 or 6

**CABLE TYPE**
- **612** 10612 (24 AWG Single Optimized Shield)
- **613** 10613 (24 AWG Double Optimized Shield)
- **614** 10614 (24 AWG EMP Hardened)

**STANDARD CABLE LENGTH**
- **012** 12 In (1 Ft)
- **078** 78 In (6.5 Ft)
- **079** 79 In (2 m)
- **120** 120 In (10 Ft)
- **236** 236 In (6 m)
- **240** 240 In (20 Ft)

### Specifications/Approvals

| Series | Military | TE Connectivity |
|---|---|---|
| D-500-L4XX | MIL-STD-1553B | D-6020 |

# Ultra Lightweight In-Line Microcouplers 1- through 6-Stub

## Product Selection

### D-500-L455-X-YYY-ZZZ

| End View Left Side | | End View Right Side |
|---|---|---|
|  | 1 Stub |  |
|  | 2 Stub |  |
|  | 3 Stub |  |
|  | 4 Stub |  |
|  | 5 Stub |  |
|  | 6 Stub |  |

### D-500-L456-X-YYY-ZZZ

| End View Left Side | | End View Right Side |
|---|---|---|
|  | 1 Stub |  |
|  | 2 Stub |  |
|  | 3 Stub |  |
|  | 4 Stub |  |
|  | 5 Stub |  |
|  | 6 Stub |  |

### D-500-L457-X-YYY-ZZZ

| End View Left Side | | End View Right Side |
|---|---|---|
|  | 1 Stub |  |
|  | 2 Stub |  |
|  | 3 Stub |  |
|  | 4 Stub |  |
|  | 5 Stub |  |
|  | 6 Stub |  |

### D-500-L458-X-YYY-ZZZ

| End View Left Side | | End View Right Side |
|---|---|---|
|  | 1 Stub |  |
|  | 2 Stub |  |
|  | 3 Stub |  |
|  | 4 Stub |  |
|  | 5 Stub |  |
|  | 6 Stub |  |







## Microcouplers

Compact, in-line, splice-terminated data bus microcouplers feature a lightweight design that meets the MIL-STD-1553B requirements for hardware configuration and performance. The low profile configuration enables avionics system designers to plan for optimum coupler locations.

TE data bus microcouplers are qualified to TE Specification D-6020, European Specification EN3567, and are specified in the Air Force drawings listed in 8340707. Standard products are supplied with Raychem SPEC 55 data bus cables, including EMP-hardened versions. All of these products are available assembled with other components into a complete data bus harness without splices.

### EASY INSTALLATION

- No connectors
- Optional eyelet configurations for bulkhead mounting

### COMPACT

- Very small size, light weight: 1 stub: 10 g (max.); 2 stub: 15 g (max.) (Lighter weight versions are available)
- In-line profile to enable wire bundle mounting

### RUGGED RELIABILITY

- Reliable solder termination of all components
- Potted circuit elements for maximum durability and in-use reliability
- Altitude immersion resistance

### ROBUST

- Environmental sealing and 150°C temperature rating
- 360° continuous low-impedance cable shield terminations
- MTBF > 1,000,000 hours

## Specifications/Approvals

| Series | Military | TE Connectivity |
|---|---|---|
| D-500-04XX | MIL-STD-1553B | D-6020 |

## Data Bus Components

### MicroCoupler Part Numbering

**D-500-04 X X - X - YYY - ZZZ**

**BOOT**
- **5** Without Mounting Eyelet
- **6** With Mounting Eyelet

**DESIGN**
- **5** Without Internal Terminator
- **6** Same as 5 but with Reverse Bus
- **7** With Internal Terminator
- **8** Same as 7 but with Reverse Bus

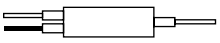
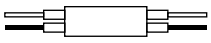
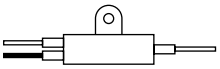
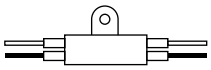
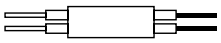
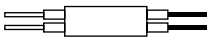
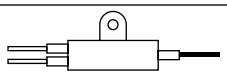
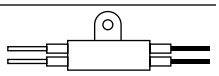
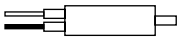
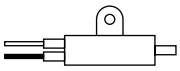
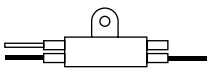
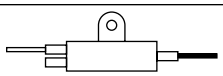
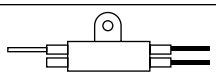
**NUMBER OF STUBS**

1 or 2

**CABLE TYPE**
- **612** 10612 (24 AWG Single Optimized Shield)
- **613** 10613 (24 AWG Double Optimized Shield)
- **614** 10614 (24 AWG EMP Hardened)

**STANDARD CABLE LENGTH**
- **012** 12 In (1 Ft)
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- **079** 79 In (2 m)
- **120** 120 In (10 Ft)
- **236** 236 In (6 m)
- **240** 240 In (20 Ft)

### In-Line Microcouplers: One and Two Stub

| Single Stub | | Double Stub | |
|---|---|---|---|
| D-500-0455-1-YYY-ZZZ |  | D-500-0455-2-YYY-ZZZ |  |
| D-500-0465-1-YYY-ZZZ |  | D-500-0465-2-YYY-ZZZ |  |
| D-500-0456-1-YYY-ZZZ |  | D-500-0456-2-YYY-ZZZ |  |
| D-500-0466-1-YYY-ZZZ |  | D-500-0466-2-YYY-ZZZ |  |
| D-500-0457-1-YYY-ZZZ |  | D-500-0457-2-YYY-ZZZ |  |
| D-500-0467-1-YYY-ZZZ |  | D-500-0467-2-YYY-ZZZ |  |
| D-500-0458-1-YYY-ZZZ |  | D-500-0458-2-YYY-ZZZ |  |
| D-500-0468-1-YYY-ZZZ |  | D-500-0468-2-YYY-ZZZ |  |

**Note:**
1. Bus cable
2. Stub cable



## Data Bus Box Couplers 1- through 8-Stub

Raychem data bus box couplers provide lightweight, robust coupler modules with connector versatility.

Up to eight stub connectors can be arrayed on the “face” of the box coupler. The bus connectors can also be on the “face” or on the “side” of the box.

Designed with Raychem D-621 series corrosion-resistant threaded or bayonet-type connectors, box couplers are qualified to TE Specification D-6021.

Customized data bus box couplers are available upon request.

### Data Bus Box Couplers

| Coupler Type | Part No. | | | |
|---|---|---|---|---|
| | Threaded | Bayonet A | Bayonet B | Bayonet C |
| Face - 1 Stub | D-500-0255-511-1 | D-500-0255-513-1 | D-500-0255-515-1 | D-500-0255-517-1 |
| Face - 2 Stub | D-500-0255-521-1 | D-500-0255-523-1 | D-500-0255-525-1 | D-500-0255-527-1 |
| Face - 3 Stub | D-500-0255-531-1 | D-500-0255-533-1 | D-500-0255-535-1 | D-500-0255-537-1 |
| Face - 4 Stub | D-500-0255-541-1 | D-500-0255-543-1 | D-500-0255-545-1 | D-500-0255-547-1 |
| Face - 5 Stub | D-500-0255-551-1 | D-500-0255-553-1 | D-500-0255-555-1 | D-500-0255-557-1 |
| Face - 6 Stub | D-500-0255-561-1 | D-500-0255-563-1 | D-500-0255-565-1 | D-500-0255-567-1 |
| Face - 7 Stub | D-500-0255-571-1 | D-500-0255-573-1 | D-500-0255-575-1 | D-500-0255-577-1 |
| Face - 8 Stub | D-500-0255-581-1 | D-500-0255-583-1 | D-500-0255-585-1 | D-500-0255-587-1 |
| | | | | |
| Side - 1 Stub | D-500-0255-512-1 | D-500-0255-513-2 | D-500-0255-515-2 | D-500-0255-517-2 |
| Side - 2 Stub | D-500-0255-522-1 | D-500-0255-523-2 | D-500-0255-525-2 | D-500-0255-527-2 |
| Side - 3 Stub | D-500-0255-532-1 | D-500-0255-533-2 | D-500-0255-535-2 | D-500-0255-537-2 |
| Side - 4 Stub | D-500-0255-542-1 | D-500-0255-543-2 | D-500-0255-545-2 | D-500-0255-547-2 |
| Side - 5 Stub | D-500-0255-552-1 | D-500-0255-553-2 | D-500-0255-555-2 | D-500-0255-557-2 |
| Side - 6 Stub | D-500-0255-562-1 | D-500-0255-563-2 | D-500-0255-565-2 | D-500-0255-567-2 |
| Side - 7 Stub | D-500-0255-572-1 | D-500-0255-573-2 | D-500-0255-575-2 | D-500-0255-577-2 |
| Side - 8 Stub | D-500-0255-582-1 | D-500-0255-583-2 | D-500-0255-585-2 | D-500-0255-587-2 |



## Data Bus Cables

Raychem 55 data bus cables meet or exceed the performance requirements of MIL-STD-1553B.

SPEC 55 insulation is a high-temperature, radiation-cross-linked, modified ETFE material that can be used in wire constructions rated up to 200°C. This insulation is qualified to SAE-AS22759/32-/35 and /41-/46. The cables are made with optimized shielding providing three standard levels of defined EMI/EMP protection. Other shielding options and cable constructions are available.

### PHYSICAL PROPERTIES

- Light weight
- Highly flexible
- Rated up to 200°C
- Flame resistant
- Chemical resistant to all known aircraft fluids
- Solder-iron resistant

## Product Selection

| Cable Type | | Part Description |
|---|---|---|
| 24 AWG Single Optimized Shield |  | 10612* |
| 24 AWG Double Optimized Shield |  | 10613* |
| 24 AWG EMP Hardened |  | 10614* |
| 26 AWG Single Optimized Shield |  | 7726D0664* |

* For part numbers and full descriptions, please contact TE.



## Data Bus Discrete Connectors

Raychem D-621 and DK-621 series connectors are designed specifically for MIL-STD-1553B data bus applications. In addition to utilizing Raychem's heat-shrink technology, the D-621 and DK-621 series connectors also feature:

### RUGGED RELIABILITY

- Low voltage drop and high reliability due to precisely controlled solder terminations
- 1000-hour salt spray resistance, rugged construction

### CONVENIENT

- Light weight, built-in strain relief
- Continuous 360° shield coverage

### EASY INSTALLATION

- Low-skill assembly, low total installed cost
- Fast termination time of 1 to 2 minutes
- **Installation Procedures:** ES-61162 and ES-61420

### VERSATILE

- Inspectable solder terminations
- Reworkable and repairable terminations
- Removable pin or socket contacts

### COMPATIBLE

- Termination with Raychem MIL SPEC and MIL-STD-1553B data bus cables, including EMP-hardened versions
- **Specification:** D-6025

## Connector Kit Part Numbering

**DK-621 - 04 XX - X X**

**D-621 CONNECTOR, KITTED WITH ACCESSORIES**

**BASIC CONNECTOR CONFIGURATIONS**

**Threaded Styles**

**11** Plug
**12** Jack

**Bayonet Styles**

| | | | |
|---|---|---|---|
| **33** | Plug, A Polarization | **34** | Jack, A Polarization |
| **35** | Plug, B Polarization | **36** | Jack, B Polarization |
| **37** | Plug, C Polarization | **38** | Jack, C Polarization |
| **39** | Plug, D Polarization | **40** | Jack, D Polarization |

**POLARIZATION (BAYONET STYLES ONLY) (JACK VIEW)**

1 = A 2 = B 3 = C 4 = D



**CONTACT (SUPPLIED IN DK-621 KITS ONLY)**

**P** Pin
**S** Socket



# Triaxial Connectors
# 1553B Data Bus Cable

## Bayonet Connectors

| Panel Thickness | Connector | Contact | Connector Reference | Connector | Mate with 77 Ohm Bus Terminator | Mate with 3K Ohm Stub Terminator |
|---|---|---|---|---|---|---|
| **Polarity A** | | | | | | |
| | Plug | Pin | DK-621-0433-1P | DK-621-0434-1S | D-621-0461(-L) | D-621-0465(-L) |
| | Plug | Socket | DK-621-0433-1S | DK-621-0434-1P | D-621-0477(-L) | D-621-0481(-L) |
| **Standard** | Jack | Pin | DK-621-0434-1P | DK-621-0433-1S | D-621-0469(-L) | D-621-0473(-L) |
| 2.4 mm max | Jack | Socket | DK-621-0434-1S | DK-621-0433-1P | D-621-0453(-L) | D-621-0457(-L) |
| **Long reach** | Jack | Pin | DK-621-0550-1P | DK-621-0433-1S | D-621-0469(-L) | D-621-0473(-L) |
| 12.5 mm max | Jack | Socket | DK-621-0550-1S | DK-621-0433-1P | D-621-0453(-L) | D-621-0457(-L) |
| **Polarity B** | | | | | | |
| | Plug | Pin | DK-621-0435-2P | DK-621-0436-2S | D-621-0462(-L) | D-621-0466(-L) |
| | Plug | Socket | DK-621-0435-2S | DK-621-0436-2P | D-621-0478(-L) | D-621-0482(-L) |
| **Standard** | Jack | Pin | DK-621-0436-2P | DK-621-0435-2S | D-621-0470(-L) | D-621-0474(-L) |
| 2.4 mm max | Jack | Socket | DK-621-0436-2S | DK-621-0435-2P | D-621-0454(-L) | D-621-0458(-L) |
| **Long reach** | Jack | Pin | DK-621-0448-2P | DK-621-0435-2S | D-621-0470(-L) | D-621-0467(-L) |
| 12.5 mm max | Jack | Socket | DK-621-0448-2S | DK-621-0435-2P | D-621-0454(-L) | D-621-0483(-L) |
| **Polarity C** | | | | | | |
| | Plug | Pin | DK-621-0437-3P | DK-621-0438-3S | D-621-0463(-L) | D-621-0467(-L) |
| | Plug | Socket | DK-621-0437-3S | DK-621-0438-3P | D-621-0479(-L) | D-621-0483(-L) |
| **Standard** | Jack | Pin | DK-621-0438-3P | DK-621-0437-3S | D-621-0471(-L) | D-621-0475(-L) |
| 2.4 mm max | Jack | Socket | DK-621-0438-3S | DK-621-0437-3P | D-621-0455(-L) | D-621-0459(-L) |
| **Long reach** | Jack | Pin | DK-621-0446-3P | DK-621-0437-3S | D-621-0471(-L) | D-621-0475(-L) |
| 12.5 mm max | Jack | Socket | DK-621-0446-3S | DK-621-0437-3P | D-621-0455(-L) | D-621-0459(-L) |
| **Polarity D** | | | | | | |
| | Plug | Pin | DK-621-0439-4P | DK-621-0440-4S | D-621-0464(-L) | D-621-0468(-L) |
| | Plug | Socket | DK-621-0439-4S | DK-621-0440-4P | D-621-0480(-L) | D-621-0484(-L) |
| **Standard** | Jack | Pin | DK-621-0440-4P | DK-621-0439-4S | D-621-0472(-L) | D-621-0460(-L) |
| 2.4 mm max | Jack | Socket | DK-621-0440-4S | DK-621-0439-4P | D-621-0456(-L) | D-621-0476(-L) |
| **Long reach** | Jack | Pin | DK-621-0551-4P | DK-621-0439-4S | D-621-0472(-L) | D-621-0460(-L) |
| 12.5 mm max | Jack | Socket | DK-621-0551-4S | DK-621-0439-4P | D-621-0456(-L) | D-621-0476(-L) |

## Threaded Connectors

| | | | | | | |
|---|---|---|---|---|---|---|
| **Polarity E** | | | | | | |
| | Plug | Pin | DK-621-0411-P | DK-621-0412-S | D-621-0406(-L) | D-621-0424(-L) |
| | Plug | Socket | DK-621-0411-S | DK-621-0412-P | D-621-0418(-L) | D-621-0423(-L) |
| **Standard** | Jack | Pin | DK-621-0412-P | DK-621-0411-S | D-621-0415(-L) | D-621-0407(-L) |
| 2.4 mm max | Jack | Socket | DK-621-0412-S | DK-621-0411-P | D-621-0413(-L) | D-621-0417(-L) |
| **Long reach** | Jack | Pin | DK-621-0412-P | DK-621-0411-S | D-621-0415(-L) | D-621-0407(-L) |
| 12.5 mm max | Jack | Socket | DK-621-0412-S | DK-621-0411-P | D-621-0413(-L) | D-621-0417(-L) |



# Triaxial Connectors and Terminators
# European NORME EN3716 for 1553B Data Bus Cables

## EN Connectors

| Panel Thickness | Connector | Contact | Connector Reference | Connector | Mate with 77 Ohm Bus Terminator | 3K Ohm Stub Terminator |
|---|---|---|---|---|---|---|
| | Plug | Pin | DK-3716-F101-TP | DK-621-E102-TS | D-621-E077-S | D-621-E03K-S |
| | Plug | Socket | DK-3716-F101-TS | DK-621-E102-TP | D-621-E077-P | D-621-E03K-P |
| | Plug | Pin | DK-3716-F201-TP | DK-621-E202-TS | D-621-E077-S | D-621-E03K-S |
| | Plug | Socket | DK-3716-F201-TS | DK-621-E202-TP | D-621-E077-P | D-621-E03K-P |
| | Jack | Pin | DK-3716-E102-TP | DK-621-F101-TS | D-621-F077-S | D-621-F03K-S |
| **Standard** | Jack | Socket | DK-3716-E102-TS | DK-621-F101-TP | D-621-F077-P | D-621-F03K-P |
| 2.4 mm max | Jack | Pin | DK-3716-E202-TP | DK-621-F201-TS | D-621-F077-S | D-621-F03K-S |
| | Jack | Socket | DK-3716-E202-TS | DK-621-F201-TP | D-621-F077-P | D-621-F03K-P |
| | Jack | Pin | DK-3716-E112-TP | DK-621-F101-TS | D-621-F077-S | D-621-F03K-S |
| **Long reach** | Jack | Socket | DK-3716-E112-TS | DK-621-F101-TP | D-621-F077-P | D-621-F03K-P |
| 12.5 mm max | Jack | Pin | DK-3716-E212-TP | DK-621-F201-TS | D-621-F077-S | D-621-F03K-S |
| | Jack | Socket | DK-3716-E212-TS | DK-621-F201-TP | D-621-F077-P | D-621-F03K-P |

## Terminators

| | Connector | Contact | Terminator Reference | Standard Connector | Mate with Long Reach Connector |
|---|---|---|---|---|---|
| | Plug | Pin | DK-3716-F077-P | DK-3716-E102-TS | DK-3716-E112K-TS |
| **77 Ohm bus** | Plug | Socket | DK-3716-F077-S | DK-3716-E102-TP | DK-3716-E112K-TP |
| terminator | Jack | Pin | DK-3716-F077-P | DK-3716-E201-TS | |
| | Jack | Socket | DK-3716-F077-S | DK-3716-E201-TP | |
| | Plug | Pin | DK-3716-E03K-P | DK-3716-E102-TS | DK-3716-E112K-TS |
| **3K Ohm stub** | Plug | Socket | DK-3716-E03K-S | DK-3716-E102-TP | DK-3716-E112K-TP |
| terminator | Jack | Pin | DK-3716-E03K-P | DK-3716-E201-TS | |
| | Jack | Socket | DK-3716-E03K-S | DK-3716-E201-TP | |

**Available options include right-angle and lightweight connectors.**
**For more information, contact TE.**



# Accessories — Terminator and Connector and Compatibility

## Bayonet and Threaded Connectors

| Panal Thickness | Connector | Contact | Terminator Reference | Mate with | |
|---|---|---|---|---|---|
| | | | | Standard Connector | Long Reach Connector |
| **Bayonet Connectors** | | | | | |
| **Polarity A** | | | | | |
| 77 Ohm bus terminator | Plug | Pin | D-621-0453(-L) | DK-621-0434-1S | DK-621-0550-1S |
| | Plug | Socket | D-621-0469(-L) | DK-621-0434-1P | DK-621-0550-1P |
| | Jack | Pin | D-621-0477(-L) | DK-621-0433-1S | — |
| | Jack | Socket | D-621-0461(-L) | DK-621-0433-1P | — |
| 3K Ohm stub terminator | Plug | Pin | D-621-0457(-L) | DK-621-0434-1S | DK-621-0550-1S |
| | Plug | Socket | D-621-0473(-L) | DK-621-0434-1P | DK-621-0550-1P |
| | Jack | Pin | D-621-0481(-L) | DK-621-0433-1S | — |
| | Jack | Socket | D-621-0465(-L) | DK-621-0433-1P | — |
| **Polarity B** | | | | | |
| 77 Ohm bus terminator | Plug | Pin | D-621-0454(-L) | DK-621-0436-2S | DK-621-0548-2S |
| | Plug | Socket | D-621-0470(-L) | DK-621-0436-2P | DK-621-0548-2P |
| | Jack | Pin | D-621-0478(-L) | DK-621-0435-2S | — |
| | Jack | Socket | D-621-0462(-L) | DK-621-0435-2P | — |
| 3K Ohm stub terminator | Plug | Pin | D-621-0458(-L) | DK-621-0436-2S | DK-621-0548-2S |
| | Plug | Socket | D-621-0474(-L) | DK-621-0436-2P | DK-621-0548-2P |
| | Jack | Pin | D-621-0482(-L) | DK-621-0435-2S | — |
| | Jack | Socket | D-621-0466(-L) | DK-621-0435-2P | — |
| **Polarity C** | | | | | |
| 77 Ohm bus terminator | Plug | Pin | D-621-0455(-L) | DK-621-0438-3S | DK-621-0546-3S |
| | Plug | Socket | D-621-0471(-L) | DK-621-0438-3P | DK-621-0546-3P |
| | Jack | Pin | D-621-0479(-L) | DK-621-0437-3S | — |
| | Jack | Socket | D-621-0463(-L) | DK-621-0437-3P | — |
| 3K Ohm stub terminator | Plug | Pin | D-621-0459(-L) | DK-621-0438-3S | DK-621-0546-3S |
| | Plug | Socket | D-621-0475(-L) | DK-621-0438-3P | DK-621-0546-3P |
| | Jack | Pin | D-621-0483(-L) | DK-621-0437-3S | — |
| | Jack | Socket | D-621-0467(-L) | DK-621-0437-3P | — |
| **Polarity D** | | | | | |
| 77 Ohm bus terminator | Plug | Pin | D-621-0456(-L) | DK-621-0440-4S | DK-621-0551-4S |
| | Plug | Socket | D-621-0472(-L) | DK-621-0440-4P | DK-621-0551-4P |
| | Jack | Pin | D-621-0480(-L) | DK-621-0439-4S | — |
| | Jack | Socket | D-621-0464(-L) | DK-621-0439-4P | — |
| 3K Ohm stub terminator | Plug | Pin | D-621-0460(-L) | DK-621-0440-4S | DK-621-0551-4S |
| | Plug | Socket | D-621-0476(-L) | DK-621-0440-4P | DK-621-0551-4P |
| | Jack | Pin | D-621-0468(-L) | DK-621-0439-4S | — |
| | Jack | Socket | D-621-0484(-L) | DK-621-0439-4P | — |
| **Threaded Connectors** | | | | | |
| 77 Ohm bus terminator | Plug | Pin | D-621-0413(-L) | DK-621-0412-S | DK-621-0512-S |
| | Plug | Socket | D-621-0415(-L) | DK-621-0412-P | DK-621-0512-P |
| | Jack | Pin | D-621-0418(-L) | DK-621-0411-S | — |
| | Jack | Socket | D-621-0406(-L) | DK-621-0411-P | — |
| 3K Ohm stub terminator | Plug | Pin | D-621-0417(-L) | DK-621-0412-S | DK-621-0512-S |
| | Plug | Socket | D-621-0407(-L) | DK-621-0412-P | DK-621-0512-P |
| | Jack | Pin | D-621-0423(-L) | DK-621-0411-S | — |
| | Jack | Socket | D-621-0424(-L) | DK-621-0411-P | — |



## Triaxial Contacts
## MIL-DTL-38999 Type

Now, both high-density packaging and full shield coverage are available with a simple, quick and reliable termination system. 24 AWG twisted-pair data bus cables are terminated to triaxial SolderTacts contacts, which fit size 8 cavities of MIL-DTL-38999, Series I, III, or IV connectors.

Raychem triaxial 38999-type data bus contacts deliver the signals.

### EASY INSTALLATION

- One-step termination, requiring only 1 to 2 minutes
- No special termination tools needed
- No requirements for special skills
- **Installation Procedures:** ES-61231 and ES-612315

### HIGH PERFORMANCE

- Rugged construction
- Low voltage drop and high reliability due to precisely controlled solder termination
- Triaxial mating face for least susceptibility to damage

### RELIABLE

- Reworkable and repairable terminations
- Built-in strain relief
- Continuous 360° shield coverage
- Inspectable solder terminations

Size 8 triaxial data bus contacts for MIL-DTL-38999 connectors have interfaces that comply with MIL-DTL-39029/90 and /91 to provide intermatability with crimp contacts.

These contacts provide a fast and convenient method of implementing MIL-STD-1553B connections in MIL-STD-1760 applications.

## Specifications/Approvals

| Series | TE Connectivity |
|---|---|
| Size B | D-6020 |

## Product Selection

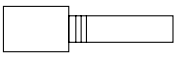
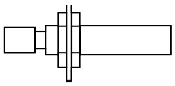
| Cable Type | Pin | Socket |
|---|---|---|
| 10612 | DK-602-0156-N-1 | DK-602-0157-N-1 |
| 10613 | DK-602-0156-N-2 | DK-602-0157-N-2 |
| 10614 | DK-602-0156-N-3 | DK-602-0157-N-3 |



## Data Bus Accessories

TE manufactures all of the Raychem products needed to build a MIL-STD-1553B data bus network. In addition to the main components, the following accessory components that may be necessary to complete a data bus system are also available:

- Bus and stub terminators spliced-in and connectorized (D-621 series)
- Cable splice kits
- EMI/environment-resistant connector caps
- Braid terminators and strain relief tubing for rework applications

**D-621 Plug**  **Spliced-in**  **D-621 Jack** 

## Bus and Stub Terminators

| Spliced-in | 12" Cable | | | | |
|---|---|---|---|---|---|
| 77-ohm 10612 cable | D-500-0463-612 | | | | |
| 77-ohm 10613 cable | D-500-0463-613 | | | | |
| 77-ohm 10614 cable | D-500-0463-614 | | | | |
| 77-ohm 7724E2664 cable | D-500-0463-E26 | | | | |
| **D-621 Series Plug** | **Threaded** | **Bayonet A** | **Bayonet B** | **Bayonet C** | **Bayonet D** |
| 77-ohm pin contact | D-621-0413 | D-621-0453 | D-621-0454 | D-621-0455 | D-621-0456 |
| 77-ohm socket contact | D-621-0415 | D-621-0469 | D-621-0470 | D-621-0471 | D-621-0472 |
| 3000-ohm pin contact | D-621-0417 | D-621-0457 | D-621-0458 | D-621-0459 | D-621-0476 |
| 3000-ohm socket contact | D-621-0407 | D-621-0473 | D-621-0474 | D-621-0475 | D-621-0460 |
| **D-621 Series Jack** | **Threaded** | **Bayonet A** | **Bayonet B** | **Bayonet C** | **Bayonet D** |
| 77-ohm pin contact | D-621-0418 | D-621-0477 | D-621-0478 | D-621-0479 | D-621-0480 |
| 77-ohm socket contact | D-621-0406 | D-621-0461 | D-621-0462 | D-621-0463 | D-621-0464 |
| 3000-ohm pin contact | D-621-0423 | D-621-0481 | D-621-0482 | D-621-0483 | D-621-0484 |
| 3000-ohm socket contact | D-621-0424 | D-621-0465 | D-621-0466 | D-621-0467 | D-621-0468 |
| **D-621 Series Lanyard** | **Lanyard 7"** | **—** | **—** | **—** | **—** |

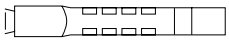
## Connector Caps



| D-621 Series | Threaded | Bayonet A | Bayonet B | Bayonet C | Bayonet D |
|---|---|---|---|---|---|
| Plug cap for jack connector Supplied with 7" Lanyard | D-600-0083 | D-600-0068 | D-600-0068 | D-600-0068 | D-600-0065 |



## Cable Splice Kits



| Cables | Flexible Crimp | Cable Splice Installation Procedure |
|---|---|---|
| All data bus cables | D-150-0708-5 | RCPS-150-0 |

# Data Bus PCB Connectors for MIL-STD-1553B Networks

## Robust, Reliable PCB-Mount Data Bus Interface





### RUGGED RELIABILITY

- 500-hour salt spray resistance
- Robust design for optimal electrical and mechanical performance
- Threaded coupling for optimum vibration and shock resistance

### COMPATIBLE

- Mates with standard data bus cable plug connectors
- Available with pin or socket contacts

## Advanced Performance for Military and Commercial Platforms

MIL-STD-1553B data bus networks have over 30 years of time-tested reliability in aerospace, military, marine, and space applications. In addition to our line of cable connectors, cable, couplers, and terminators, TE Connectivity (TE) offers a printed circuit board-mounting triaxial jack for data bus applications.

The data bus PCB jack, with socket contacts, is fully compatible with threaded data bus cable connectors. The four-leg mounting of ground leads offers robust mechanical and electrical connection to the PCB and helps withstand vibration and shock.

### ENVIRONMENTAL/MECHANICAL

- **Operating Temperature**: -65°C to 125°C
- **Dielectric Strength**: 900 VAC @ 60 Hz
- **Insulation Resistance**: 5000 megohms min.
- **Current Rating**: 3 A

### MATERIALS

- **Housing Body**: Beryllium copper and brass, plated tin over nickel
- **Contact Insulation**: Polyethersulfone
- **Conductor**: Tin-plated copper, 22 AWG, 0.027 diameter max.
- **Conductor Insulation**: Cross-linked PVDF
- **Ground Leads**: Brass, plated tin over nickel

### SPECIFICATIONS/APPROVALS

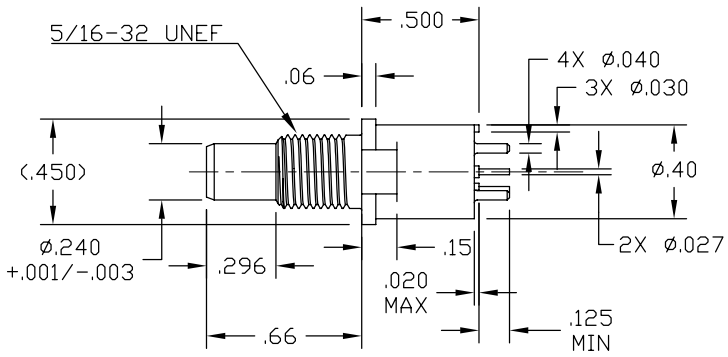
**Product Specification**: D-6025

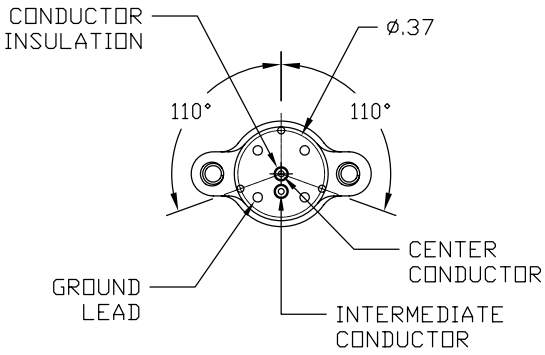
**Qualification Test Report**: ISTR-1408

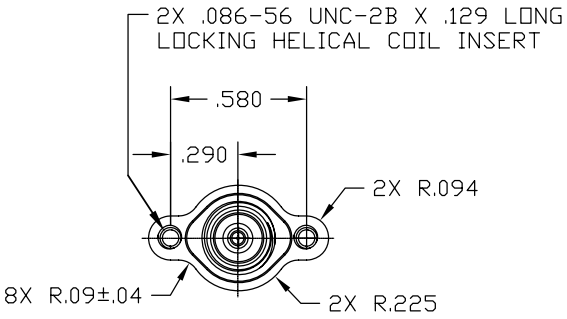
**Acceptance Test Report**: ISTR-1365

| | Part No. | | |
|---|---|---|---|
| | **Description** | **Contact** | **Mating Connector** |
| Socket Assembly | DK-621-0012-SM | D-602-0127 | DK-621-0011-P |
| Pin Assembly | DK-621-0012-PM | D-602-0126 | DK-621-0011-S |

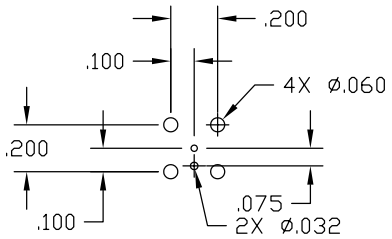
# Data Bus PCB Connectors for MIL-STD-1553B Networks




SOCKET CONTACT

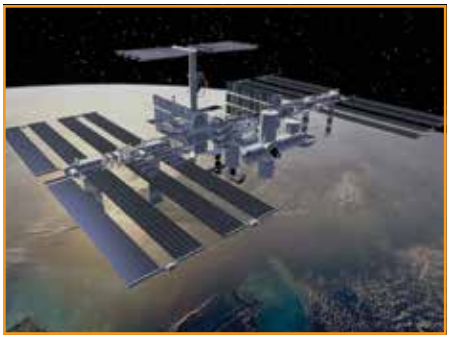



PCB HOLE LAYOUT
(PREFERRED)

# Space-Grade MIL-STD-1553B Data Bus Components

## A Complete System of Interconnection Hardware





### MORE CHOICE

- Complete line of space-qualified MIL-STD-1553B components
- Wide selection of couplers
- Design flexibility

### RUGGED RELIABILITY

- High packaging density and weight savings
- Low outgassing levels that meet NASA requirements
- Rugged construction

### COMPLETE HARNESS SYSTEMS

- Factory-built harnesses eliminate unnecessary splices and connectors
- Pre-tested to customer requirements and ready for installation
- Reduced cost and increased network reliability

## Description

A complete system of interconnection hardware for MIL-STD-1553B networks.

Complete collection of components include:

- A wide selection of couplers such as micros, boxes, flat-packs, and ultra-lightweight versions
- Data bus cables
- Triax connectors and contacts with strain relief
- One-piece triaxial contacts for MIL-DTL-38999 connectors
- Bus and stub terminators
- Low outgassing components for use in space
- Cable identification sleeves
- Harness design using HARNWARE software
- Flexible cable splices

### APPLICATIONS

- Used in MIL-STD-1553B multiplexing space applications
- Flight control for:
  - Launch Vehicles
  - Satellites
  - Human Spacecraft
  - Cargo Spacecraft
  - Deep Space Probes

### SPECIFICATION

Meets TE Specification D-6022 for space-grade data bus components.

# Space-Grade MIL-STD-1553B Data Bus Components

## Components



### In-Line Couplers and Terminators

- Tin/nickel-plated metallic parts
- Baked silicone rubber components
- Low outgassing tubing
- D-500-94XX-X-XXX series for couplers
- D-500-9463-XXX series for terminators



### Threaded Triaxial Connectors

- Tin/nickel-plated metallic parts
- Baked silicone rubber components
- Low outgassing tubing

- DK-621-0911P
- DK-621-0911S
- DK-621-0912P
- DK-621-0912S



### Bayonet Triaxial Connectors

- Tin/nickel-plated metallic parts
- Baked silicone rubber components
- Low outgassing tubing

**"A" Polarization**

- DK-621-0933-1P or S
- DK-621-0934-1P or S

**"B" Polarization**

- DK-621-0935-2P or S
- DK-621-0936-2P or S

**"C" Polarization**

- DK-621-0937-3P or S
- DK-621-0938-3P or S

**"D" Polarization**

- DK-621-0939-4P or S
- DK-621-0940-4P or S



### Splice Kits

- Flux-coated, solder-impregnated copper shield braid encased in a transparent heat-shrinkable insulation sleeve provides a controlled soldering process, encapsulation, inspectability, strain relief and insulation

- DK-150-9708-5



### Standard Space Cables

- Single- or double-braid shield—with optional mumetal layer for EMP hardening—and radiation crosslinked ETFE insulation and jacket for low outgassing

**Optimized Single Shield**

- S16 = 7724S1664-9
- S1L = 7724S1LL4 LF*

**EMP Hardened**

- S86 = 7724S8664-9
- S8L = 7724S8LL4-9 LF

**Optimized Double Shield**

- S36 = 7724S3664-9
- S3L = 7724S3LL4 LF

*LF = Low Fluoride



### Dematerable Terminators

- Available with and without lanyard
- DK-621-0937
- DK-621-0938
- DK-621-0939
- DK-621-0940
- DK-621-0933
- DK-621-0934
- DK-621-0935
- DK-621-0936

TE also manufactures complete harnesses to customer specifications and print.



## Space-Grade MIL-STD-1553B Data Bus Components

**Space-Grade In-Line Coupler Part Numbering** D-500-94 W W - X - YYY ZZZ

**STYLE**
- **5** Without Mounting Eyelet
- **6** With Mounting Eyelet

**DESIGN**
- **5** Without Internal Terminator
- **6** Same as 5 but with Reverse Bus
- **7** With Internal Terminator
- **8** Same as 7 but with Reverse Bus

**NUMBER OF STUBS**

1, 2, 3, or 4

**CABLE TYPE**
- **41L** 7724S1LL4 (24 AWG Single Optimized Shield)
- **43L** 7724S3LL4 (24 AWG Double Optimized Shield)
- **48L** 7724S8LL4 (24 AWG EMP Hardened)

**CABLE LENGTH**
- **012** 12 In (1 Ft)
- **078** 78 In (6.5 Ft)
- **079** 79 In (2 m)
- **120** 120 In (10 Ft)
- **236** 236 In (6 m)
- **240** 240 In (20 Ft)

# Space-Grade MIL-STD-1553B Data Bus Components

## Space-Grade Connectors Part Numbering

**DK-621 - 09 XX - X X**

**D-621 CONNECTOR, KITTED WITH ACCESSORIES**

**BASIC CONNECTOR CONFIGURATIONS**

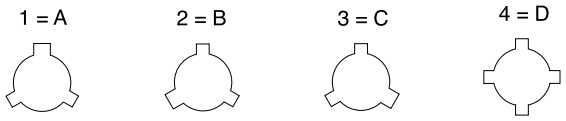
**Threaded Styles**

**11** Plug
**12** Jack

**Bayonet Styles**

**33** Plug, A Polarization
**34** Jack, A Polarization
**35** Plug, B Polarization
**36** Jack, B Polarization
**37** Plug, C Polarization
**38** Jack, C Polarization
**39** Plug, D Polarization
**40** Jack, D Polarization

**POLARIZATION (BAYONET STYLES ONLY) (JACK VIEW)**




**CONTACT (INSTALLED, DK-621 KITS ONLY)**

**P** Pin*
**S** Socket*

*May be ordered separately as D-602-0126 (pin) and D-602-0127 (socket)

## Space-Grade Terminators Part Numbering

**D-500-9463- ZZZ**

**CABLE TYPE**

**41L** 7724S1LL4 (24 AWG Single Optimized Shield)
**43L** 7724S3LL4 (24 AWG Double Optimized Shield)
**48L** 7724S8LL4 (24 AWG EMP Hardened)

## Space-Grade Splice Kit: **D-150-9708-5**





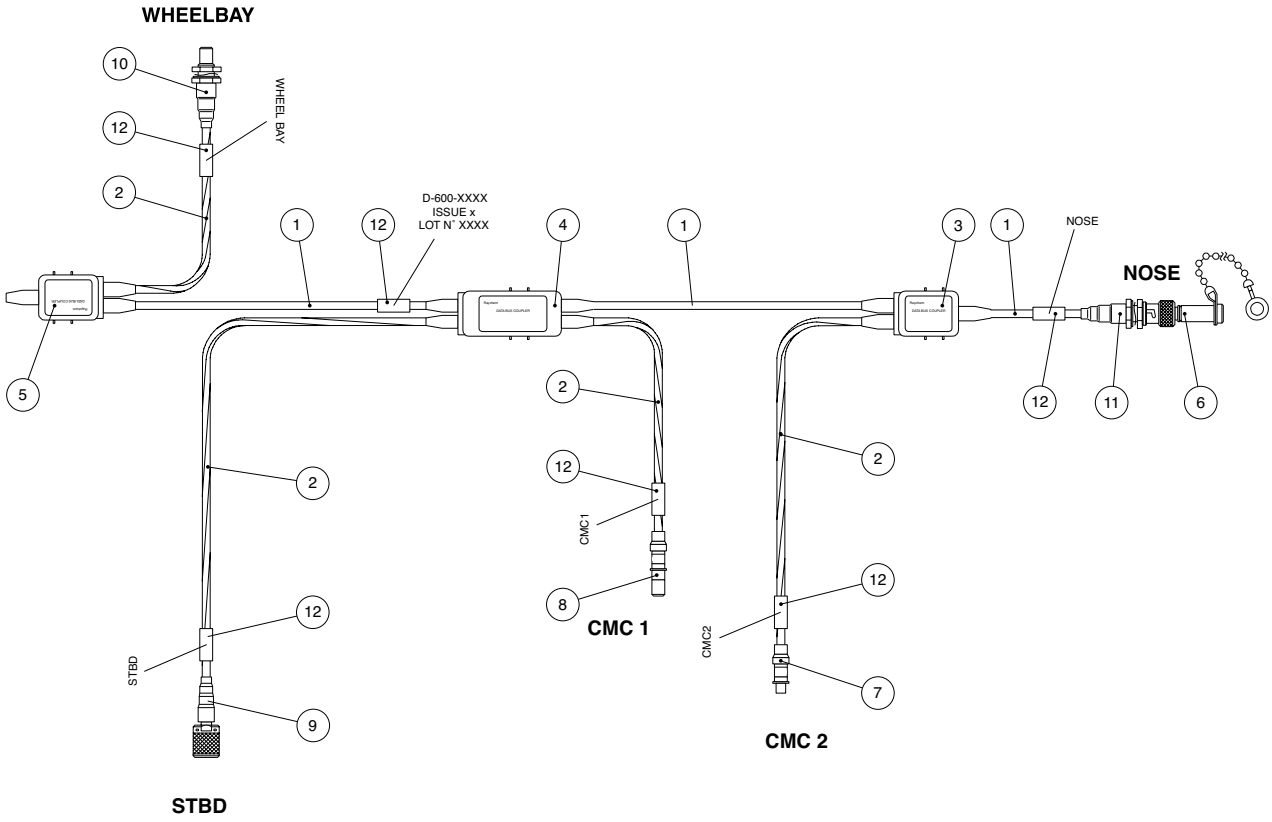


## Customer-Specified Harness Assemblies and HARNWARE Harness Design Software

TE supplies complete Raychem brand data bus networks in accordance with customer harness drawings, with any customer-specified cables and/or connectors. Using factory-built harnesses eliminates unnecessary splices and connectors, reducing the cost and increasing the reliability of the networks.

Factory built harnesses are pre-tested and ready for installation. HARNWARE Harness Design Software allows designers to draw a data bus harness in a matter of minutes, while selecting TE or others' components; a bill of materials is automatically generated.

## Sample Drawing




## Parts List

| Item | Description | Part No. | Spec/Remarks | Qty | Unit |
|---|---|---|---|---|---|
| 1 | Data Bus Cable | 10613-9 | TE | 5.3 | M |
| 2 | Data Bus Cable | 10613-96 | TE | 7 | M |
| 3 | Data Bus Coupler | D-500-0455-1 | TE | 1 | Pc |
| 4 | Data Bus Coupler | D-500-0455-2 | TE | 1 | Pc |
| 5 | Data Bus Coupler | D-500-0457-1 | TE | 1 | Pc |
| 6 | Data Bus Terminator | D-621-0469-L | TE | 1 | Pc |
| 7 | Data Bus Contact | DK-602-0156-N-2 | TE | 1 | Pc |
| 8 | Data Bus Contact | DK-602-0157-N-2 | TE | 1 | Pc |
| 9 | Data Bus Connector | DK-621-0411-P | TE | 1 | Pc |
| 10 | Data Bus Connector | DK-621-0412-P | TE | 1 | Pc |
| 11 | Data Bus Connector | DK-621-0434-1P | TE | 1 | Pc |
| 12 | Market Sleeve | TMS-SCE-3/16-2.0-9 | TE | 6 | Pc |

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