

Data Bus Components

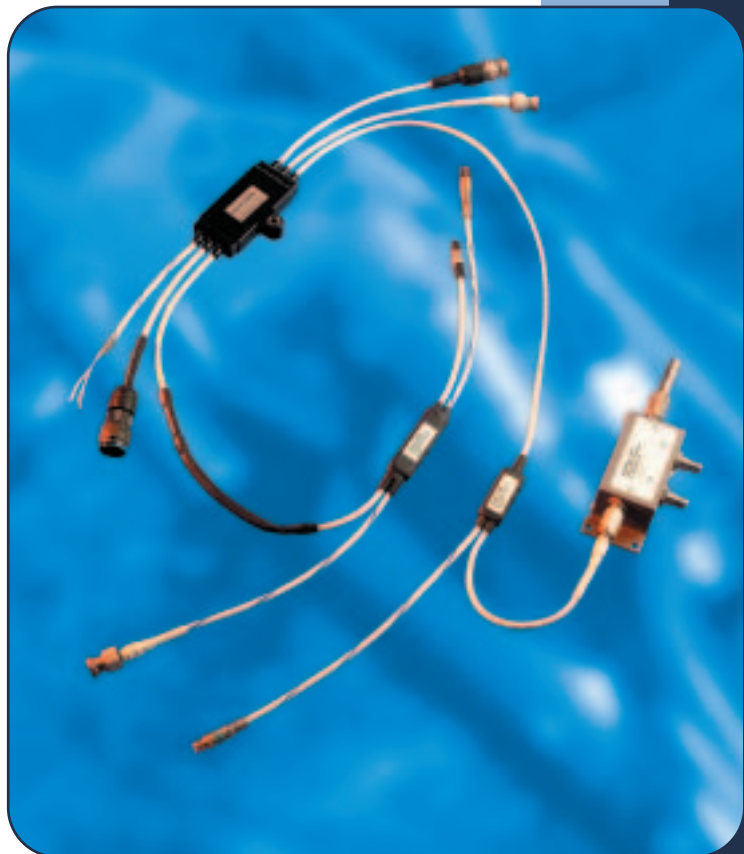
A complete system of interconnection hardware for MIL-STD-1553B networks.

Based on unique material technologies, the Tyco Electronics family of data bus components offers innovative solutions to today's aerospace data bus applications. Raychem Brand Data Bus components include:

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

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 degree C and beyond.

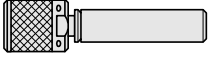
Custom harnesses built to your drawing specifications are also available. Pre-tested, factory-built harnesses provide quick, easy installation and eliminate unnecessary splices and connectors, reducing cost and increasing network reliability.



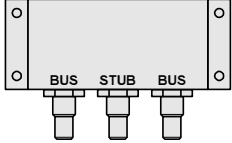
Tyco Electronics also supplies complete data bus harness in accordance with customer drawings. Using factory-built harnesses eliminates unnecessary splices and connectors, reducing the cost and increasing the reliability of the networks.

Connectorized System

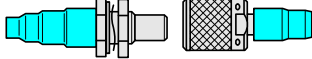
Spliced or In Line Components




Dematable Bus Terminator
Threaded and Bayonet, Sealed,
1000hr Salt Spray Resistant, D-621-04XX
(Ref USAF 8912009)



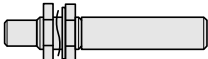
Box Coupler with D-621 Discrete Connector,
1- to 8-Stub, Sealed, 1000hr Salt Spray
Resistant, D-500-0255-5XX-X
(Ref USAF 8912007, 8912008)



DK-621-04XX-X Discrete Connectors
Threaded and Bayonet, Sealed,
1000hr Salt Spray Resistant
(Ref USAF 8340709, 8340711)



MIL-DTL-38999 Size 8 Cavity Triaxial Contacts
D-602-1108/1109, D-602-1112/1113
(Ref USAF 8340712, 8340713)
DK-602-0156/0157, DK-602-0169/0170
(Ref USAF 8912019, 8912010)



Dematable Stub Terminator
D-621-04XX, Threaded and Bayonet,
Sealed, 1000hr Salt Spray Resistance
(Ref USAF 8421525, 8912010)

Box Coupler with Dematable Bus Terminator
D-500-0255-XXX

Raychem Data Bus Cables

24AWG Single Shield	10612
<i>(Ref USAF 8421526)</i>	
24AWG Double Shield	10613
<i>(Ref USAF 8421527)</i>	
24AWG EMP Hardened	10614
<i>(Ref USAF 8421528)</i>	

BUS CONTROLLER


R/T

R/T

R/T

R/T


Spliced in Lightweight Bus Terminator,
Sealed, D-500-0463-XXX



Spliced-in, Lightweight Bus Coupler,
1- or 2-Stub, Sealed, D-500-04XX
(Ref USAF 8912026)



SolderShield Splice with MiniSeal Crimp or
SolderShield Splice With In-Line Splice Kit,
Sealed, D-150-0708-X *(Ref USAF 8340708)*



Spliced-in, Flat-Pack Bus Coupler
D-500-F4XX-X



Spliced-in, Lightweight Bus Coupler,
3- or 4- Stub, Sealed, D-500-04XX



Spliced-in, Coupler with Internal Terminator,
Sealed, D-500-04XX



Microcouplers

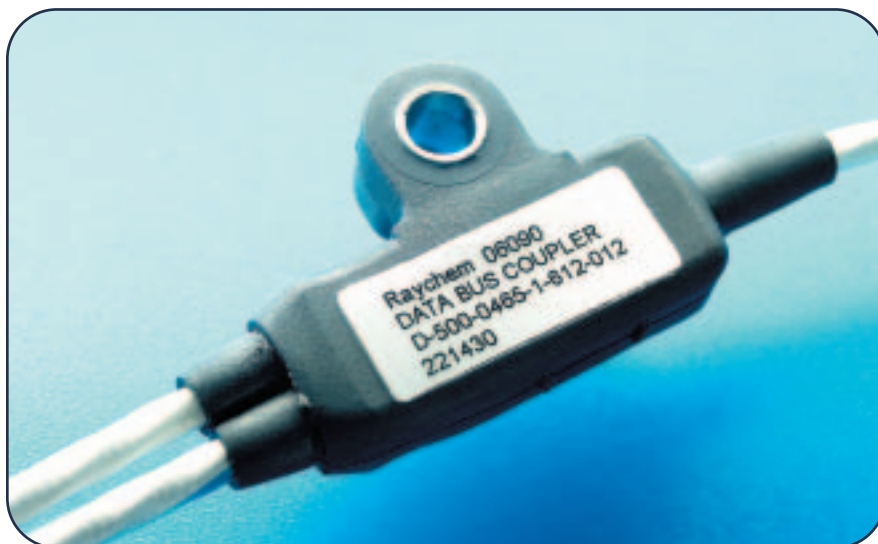
Compact, in-line, splice-terminated data bus microcouplers, feature lightweight design that meet the MIL-STD-1553B requirements for hardware configuration and performance. The low-profile configuration enables avionics system designers to plan for optimum coupler locations.

Tyco Electronics data bus microcouplers are qualified to Raychem Specification D-6020, European Specification EN-3567, 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.

The Raychem data bus microcoupler features:

- Environmental sealing
- No connectors
- 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
- 360° continuous low-impedance cable shield terminations
- Reliable solder termination of all components
- Potted circuit elements for maximum durability and in-use reliability
- Ease of installation
- Altitude immersion resistance
- Optional eyelet configurations for bulkhead mounting
- MTBF > 1,000,000 hours.
- 150°C temperature rating



Microcoupler Part Numbering System

D-500-04 XX-X-YYY-ZZZ

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)
- 360 = 360 in (30 ft)

Cable Type

- 612 = 10612 24 AWG single optimized shield
- 613 = 10613 24 AWG double optimized shield
- 614 = 10614 24 AWG EMP hardened

Number of Stubs

- 1 or 2

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

Boot

- 5 = Without mounting eyelet
- 6 = With mounting eyelet

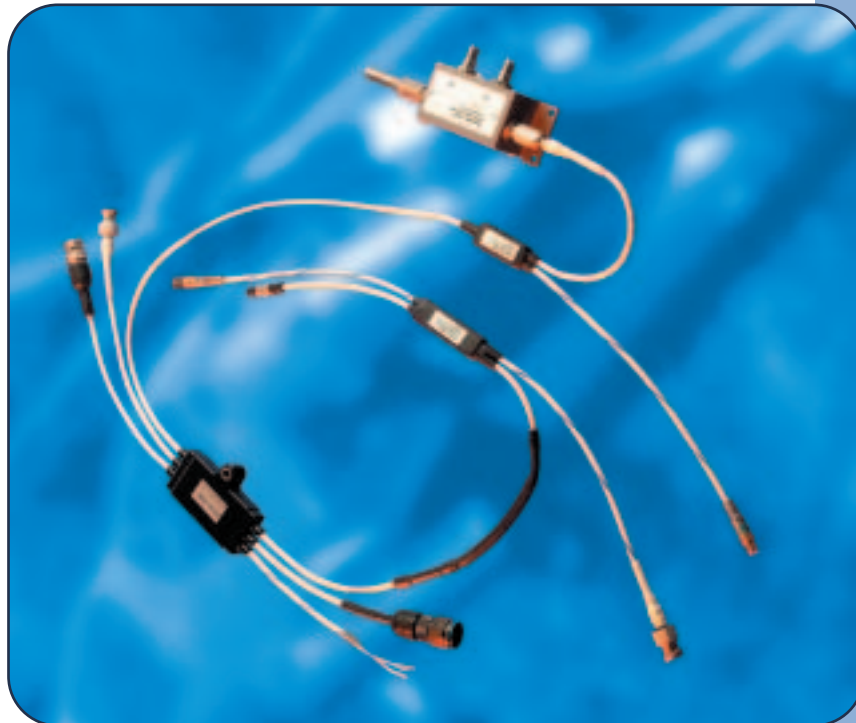
In-Line Microcouplers: One- and Two Stub

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

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

Raychem



Applications

Building on over 20 years of experience and continuous improvement in data bus, including pioneering in-line microcouplers, Tyco Electronics introduces a new family of ultra light-weight in-line Raychem Microcouplers, available in 1- through 6-stub configurations.

These couplers offer the same high performance and reliability as Raychem 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. An unfilled flat braid cable is available for additional weight savings.

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

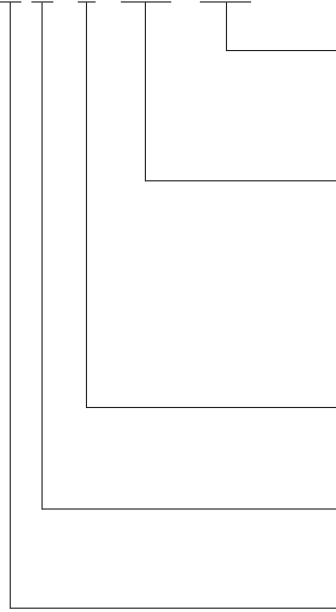
Specifications/approvals

Series	Military	Raychem
D-500-L4xx	MIL-STD-1553B	D-6020 (same as current microcouplers)

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

Lightweight In-Line Couplers Part Numbering System

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



Cable Length

012 = 12 in	079 = 79 in	236 = 236 in
078 = 78 in	120 = 120 in	240 = 240 in
		360 = 360 in

Cable Type

612 = 10612 (24 AWG single optimized shield)
 613 = 10613 (24 AWG double optimized shield)
 614 = 10614 (24 AWG EMP hardened)
 H06 = 7724H0664 (24 AWG flat shield, unfilled)
 Lightest cable

Number of Stubs

1, 2, 3, 4, 5 or 6

Design

5 = Without internal terminator
 7 = With internal terminator

Style













5 = Without eyelet

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













Raychem

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	

Legend
Bus cable □
Stub cable ■



Raychem brand 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 brand D-621 series corrosion-resistant threaded or bayonet-type connectors. Box couplers are qualified to Raychem 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

*The bayonet polarization listed is for the bus connector. All stub connectors are Bayonet D polarization. Polarizations are depicted as follows (jack view):



Data Bus Cables

SPEC 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 MIL-W-22759/32-/35 and 41-/46.

The cables are:

- Lightweight
- Highly flexible
- Flame-resistant
- Chemical-resistant to all known aircraft fluids
- Solder-iron-resistant

Made with optimized shielding providing three standard levels of defined EMI/EMP protection. Other shielding options and cable constructions are available.



Data Bus Discrete Connectors

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

- Compliance to MIL-STD-1553B hardware requirements
- Light weight
- Removable pin or socket contacts
- Termination with Raychem MILSPEC and MIL-STD-1553B data bus cables, including EMP-hardened versions
- Continuous 360° shield coverage
- Rugged constructions
- Termination time of 1 to 2 minutes
- Inspectable solder terminations
- Low-skill assembly
- Reworkable and repairable terminations
- Strain relief built into the design
- Low voltage drop and high reliability due to precisely controlled solder terminations
- Threaded coupling, with safety wire holes and bayonet coupling styles
- Low total installed cost
- 1000-hour salt spray resistance



Connector Kit Part Numbering System

DK-621-04 XX-XX

Contact (supplied in DK-621 kits only)

P = Pin

S = Socket

Polarization (bayonet styles only) (jack view)

1 = A

2 = B

3 = C

4 = D



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

D-621 connector, kitted with accessories

Example:

DK-621-0434-1P = D-621 connector, kitted with accessories, jack bayonet style with A polarization and pin contact.

Triaxial Connectors for 1553B Data Bus Cable

Data Bus Discrete Connectors & Terminator Mating Guide

Panel Thickness	Connector	Contact	Connector Reference	Connector	Mate with	
					77 Ohm bus Terminator	3K Ohm stub Terminator
Bayonet Connectors						
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)
2.4mm 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)
12.5mm 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-621-0474(-L)
	Plug	Socket	DK-621-0435-2S	DK-621-0436-2P	D-621-0478(-L)	D-621-0458(-L)
Standard	Jack	Pin	DK-621-0436-2P	DK-621-0435-2S	D-621-0470(-L)	D-621-0474(-L)
2.4mm 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)
12.5mm 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)
2.4mm 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)
12.5mm 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-621-0476(-L)
2.4mm max	Jack	Socket	DK-621-0440-4S	DK-621-0439-4P	D-621-0456(-L)	D-621-0460(-L)
Long reach	Jack	Pin	DK-621-0551-4P	DK-621-0439-4S	D-621-0472(-L)	D-621-0476(-L)
12.5mm max	Jack	Socket	DK-621-0551-4S	DK-621-0439-4P	D-621-0456(-L)	D-621-0460(-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)
2.4mm 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)
12.5mm max	Jack	Socket	DK-621-0412-S	DK-621-0411-P	D-621-0413(-L)	D-621-0417(-L)

Triaxial Connectors and Terminators to European NORME EN3716 for 1553B Data Bus Cable

Triaxial Connectors

Panel Thickness	Connector	Contact	Connector Reference	Connector	Mate with	
					77 Ohm bus Terminator	3K Ohm stub Terminator
Standard 2.4mm max	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
	Jack	Socket	DK-3716-E102-TS	DK-621-F101-TP	D-621-F077-P	D-621-F03K-P
	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
Long reach 12.5mm max	Jack	Pin	DK-3716-E112-TP	DK-621-F101-TS	D-621-F077-S	D-621-F03K-S
	Jack	Socket	DK-3716-E112-TS	DK-621-F101-TP	D-621-F077-P	D-621-F03K-P
	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

Panel Thickness	Connector	Contact	Terminator Reference	Standard Connector	Mate with
					Long Reach Connector
77 Ohm bus terminator	Plug	Pin	DK-3716-F077-P	DK-3716-E#02-TS	DK-3716-E#12K-TS
	Plug	Socket	DK-3716-F077-S	DK-3716-E#02-TP	DK-3716-E#12K-TP
	Jack	Pin	DK-3716-F077-P	DK-3716-E#01-TS	
	Jack	Socket	DK-3716-F077-S	DK-3716-E#01-TP	
3K Ohm stub terminator	Plug	Pin	DK-3716-E03K-P	DK-3716-E#02-TS	DK-3716-E#12K-TS
	Plug	Socket	DK-3716-E03K-S	DK-3716-E#02-TP	DK-3716-E#12K-TP
	Jack	Pin	DK-3716-E03K-P	DK-3716-E#01-TS	
	Jack	Socket	DK-3716-E03K-S	DK-3716-E#01-TP	

MIL-DTL-38999-Type Triaxial Contacts for Data Bus Applications

Raychem

Now, both high-density packaging and full shield coverage are available with a simple, quick and reliable termination system. AWG24 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 brand triaxial 38999-type data bus contacts deliver the signals with:

- One-step termination
- Termination time of 1 to 2 minutes
- No needed special termination tools
- No requirements for special skills
- Reworkable and repairable terminations
- Strain relief that is built into the design
- Continuous 360° shield coverage
- Triaxial mating face for least susceptibility to damage
- Rugged construction
- Inspectable solder terminations
- Low voltage drop and high reliability due to precisely controlled solder termination.

Raychem size 8 triaxial data bus contacts for MIL-DTL-38999 connectors have interfaces that comply with MIL-C-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.



MIL-DTL-38999-Type Triaxial Contacts for Data Bus Applications

Specifications/Approval

Series	Raychem
Size 8	D-6002

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



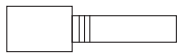
Data Bus Accessories



Tyco Electronics manufactures all 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

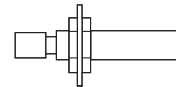




D-621 Plug



Spliced-in



D-621 Jack

Bus and Stub Terminators

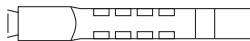
Spliced-in		12-inch Cable				
77-ohm 10612 cable	D-500-0463-612					
77-ohm 10613 cable	D-500-0463-613					
77-ohm 10614 cable	D-500-0463-614					
77-ohm 7724E2664 cable	D-500-0463-E26					
D-621 Series—Plug		Threaded	Bayonet A	Bayonet B	Bayonet C	Bayonet D
77-ohm pin contact	D-621-0413	D-621-0453	D-621-0454	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—L		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
All data bus cables	D-150-0708-5



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