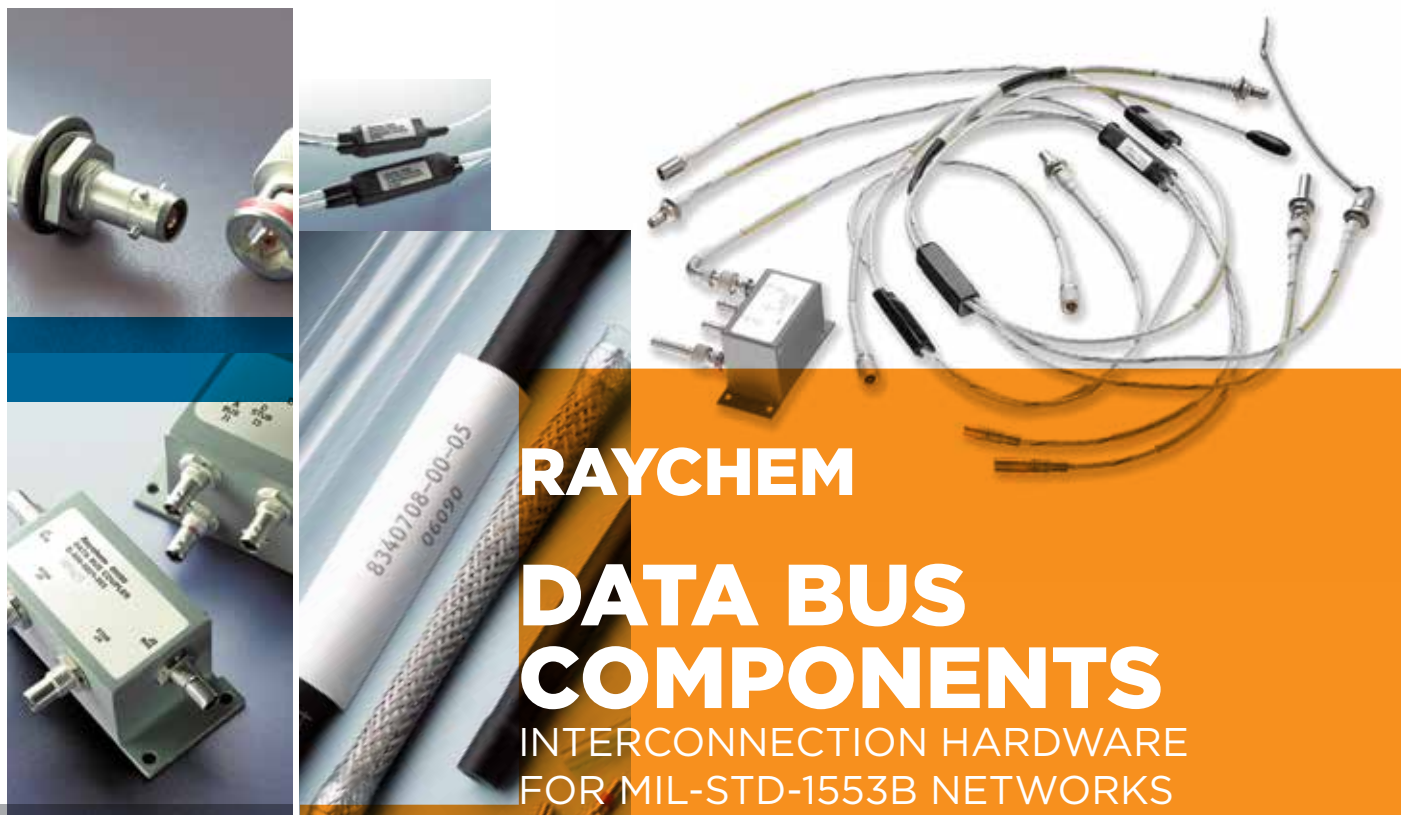




RAYCHEM

DATA BUS COMPONENTS

INTERCONNECTION HARDWARE
FOR MIL-STD-1553B NETWORKS

A Complete High-Performance System of
Interconnection Hardware For MIL-STD-1553B Networks

DATA BUS COMPONENTS

Interconnection Hardware for MIL-STD-1553B Networks



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-C-38999 connectors

COMPLETE SYSTEMS

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

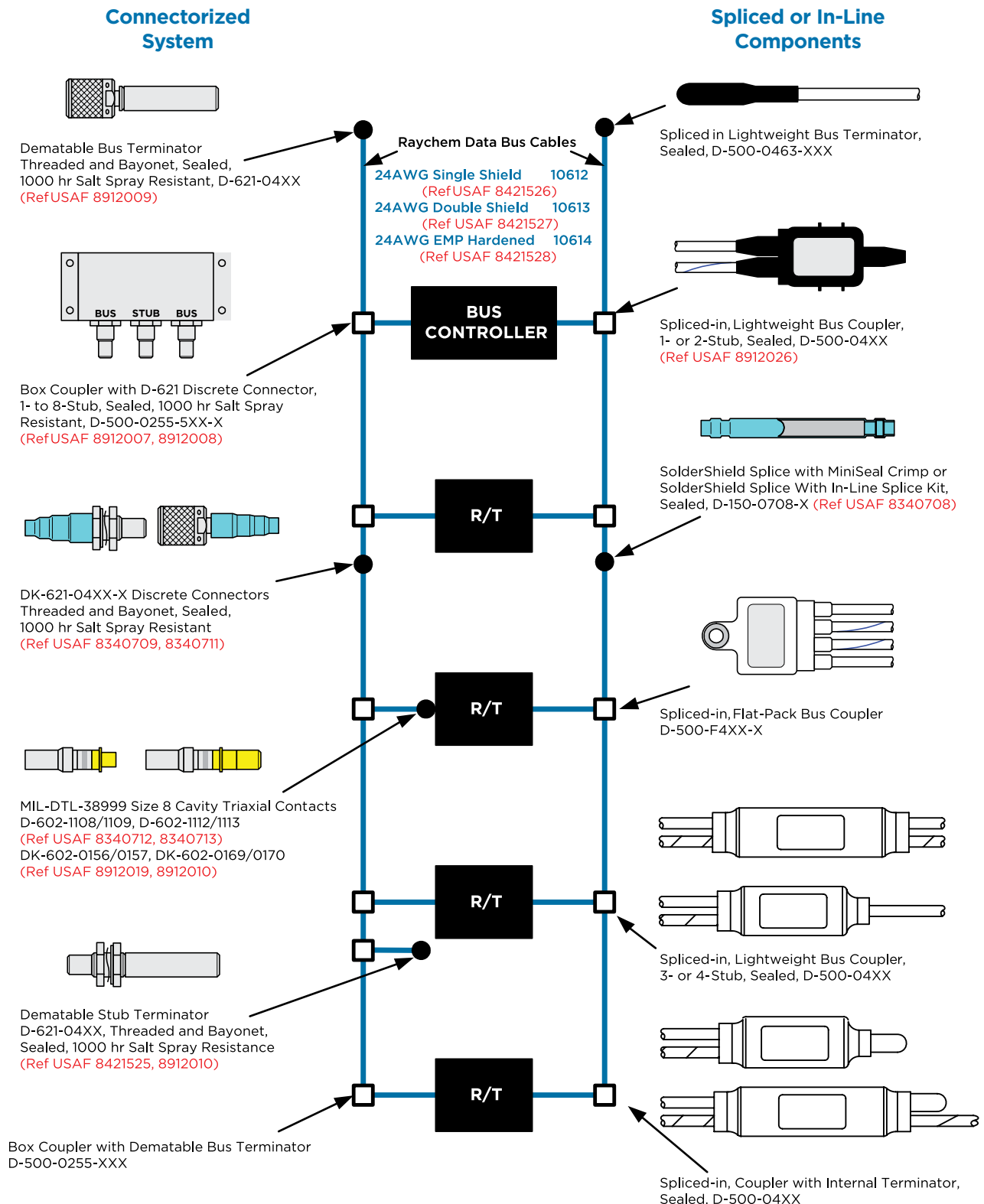
TE Components . . . TE Technology . . . TE Know-how . . .

AMP | Agastat | CII | Hartman | Kilovac | Microdot | Nanonics | Raychem | Rochester | DEUTSCH

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



System Illustration





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



Data Bus Components

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)

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 eyeletIn-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

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 Couplers Part Numbering System

D-500-L4 5 W - 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)

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, 2, 3, 4, 5 or 6

Design

5: Without internal terminator
6: Reverse bus without internal terminator
7: With internal terminator
8: Reverse bus with internal terminator

Boot

5: Without mounting eyelet

Specifications/Approvals

Series	Military	TE Connectivity
D-500-L4XX	MIL-STD-1553B	D-6020 (Same as current microcouplers)



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	



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 No.
24 AWG Single Optimized Shield		10612
24 AWG Double Optimized Shield		10613
24 AWG EMP Hardened		10614
26 AWG Single Optimized Shield		7726D0664



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 constructions

CONVENIENT

- Light weight
- Built-in strain relief
- Continuous 360° shield coverage

EASY INSTALLATION

- Low-skill assembly
- Fast termination time of 1 to 2 minutes
- Low total installed cost

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



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 Configuration

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 1553B Data Bus Cable

Bayonet Connectors

Panel Thickness	Connector	Contact	Connector Reference	Connector	Mate with	
					77 Ohm Bus Terminator	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
Standard 2.4 mm 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 12.5 mm 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

	Connector	Contact	Terminator Reference	Standard Connector	Mate with Long Reach Connector
77 Ohm bus terminator	Plug	Pin	DK-3716-F077-P	DK-3716-E102-TS	DK-3716-E112K-TS
	Plug	Socket	DK-3716-F077-S	DK-3716-E102-TP	DK-3716-E112K-TP
	Jack	Pin	DK-3716-F077-P	DK-3716-E201-TS	
	Jack	Socket	DK-3716-F077-S	DK-3716-E201-TP	
3K Ohm stub terminator	Plug	Pin	DK-3716-E03K-P	DK-3716-E102-TS	DK-3716-E112K-TS
	Plug	Socket	DK-3716-E03K-S	DK-3716-E102-TP	DK-3716-E112K-TP
	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 light weight connectors.
For more information, contact TE.



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

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-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.

Specifications/Approvals

Product Selection

Series		TE Connectivity
Size B		D-6020

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



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
77-ohm pin contact		D-621-0413	D-621-0453	D-621-0454	D-621-0455
77-ohm socket contact		D-621-0415	D-621-0469	D-621-0470	D-621-0471
3000-ohm pin contact		D-621-0417	D-621-0457	D-621-0458	D-621-0459
3000-ohm socket contact		D-621-0407	D-621-0473	D-621-0474	D-621-0475
D-621 Series Jack		Threaded	Bayonet A	Bayonet B	Bayonet C
77-ohm pin contact		D-621-0418	D-621-0477	D-621-0478	D-621-0479
77-ohm socket contact		D-621-0406	D-621-0461	D-621-0462	D-621-0463
3000-ohm pin contact		D-621-0423	D-621-0481	D-621-0482	D-621-0483
3000-ohm socket contact		D-621-0424	D-621-0465	D-621-0466	D-621-0467
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
All data bus cables	D-150-0708-5

For More Information

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Consult TE for the latest dimensions and design specifications.