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BXC Series

BETA TRANSFORMER TECHNOLOGY CORPORATION
A subsidiary of Data Device Corporation

MIL-STD-1553 Box Couplers, Cables, and Accessories

Product Brief



Beta's MIL-STD-1553 data bus couplers are designed for use in systems development, benchtop test, and flight line maintenance applications. All Beta couplers have EMI protection, use industry standard connectors, are low cost, and use Beta-manufactured and tested pulse transformers. These miniature couplers offer the advantages of lightweight and small size. Beta will also customize couplers to meet your particular configuration and voltage ratio requirements.

Features

- Box Coupler:
  - Full MIL-STD-1553 Compatibility
  - Standard Single, Dual, Triple, Quad- Stub Versions
  - Custom Multi-Stub Designs Accepted
  - Miniature Configurations
  - Industry Standard Connectors, Equivalent to Emerson P/N BJ-770
  - MIL-R-39007 Q.P.L. Resistors
- Cable:
  - M17/176-00002 Cable, Others Available
  - Standard Cable Lengths: 36", 72", 120"
  - Custom Lengths Available
  - Industry Standard Connectors, Equivalent to Emerson P/N PL-75
  - Other Connectors Available
  - -55°C to +200°C Operating Temperature Range
- Easy to Order MIL-STD-1553 Bus Kits (BXK) Available

Benefits

- Low Cost
- Lightweight
- Small Size
- Incorporates Beta's Industry-Leading Transformers
- MIL-STD-1553 Bus Kits Simplify Ordering Accessories

Applications

- Systems Development
- Benchtop Test
- Flight Line Maintenance

For more information: www.BTTC-Beta.com/BXC

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Printed on recycled paper.

Technical Data

BOX COUPLER ELECTRICAL PARAMETERS				
PARAMETER		CONDITION	VALUE	UNIT
Droop	Maximum	@ 250 kHz	20	%
Overshoot and Ringing		—	±1.0	Vpeak
Common-mode Rejection	Minimum	@ 1MHz	45	dB
Dielectric withstanding Voltage		—	500	Vrms
Operating Frequency	Minimum	—	75	kHz
	Maximum	—	1	MHz
Open Circuit Input Impedance (note 2)	Minimum	applies over operating temperature and frequency	3/N	kΩ
Operating Temperature (note 3)	Minimum	—	-55	°C
	Maximum	—	+130	°C
Fault Protection Isolation Resistors		2W, Q.P.L., MIL-R-39007	57.6	Ω
Optional Teminating Resistor		2W, Q.P.L., MIL-R-39007	78	Ω

Notes:
1. The electrical parameters above are characteristic for all data bus coupler versions in Beta's standard product line.
2. N represents the number of stubs in the coupler design.
3. Higher Operating Temperature options are available.

CABLE SPECIFICATIONS			
PARAMETER	UNIT	VALUE	REMARK
Nominal Outside Diameter	Inches	0.129 ± 0.005	—
Inner Conductor Diameter	Inches	0.024	—
Outer Conductor Diameter	AWG	38	Single Braid
Minimum Bend Radius	Inches	1.50	—
Insulation Resistance	Megohms	5000	—
Inductance, Minimum	nH	118	Per foot. Tested per MIL-C-17/176
Nominal Capacitance, Maximum	pF	24	Per foot
Nominal Input Impedance	Ω	77 ± 7	Tested at 1Hz
Attenuation, Maximum	dB	1.4	Per 100 feet at 1MHz
Operating Temperature Range	°C	-55 to +200	—
Weight	lbs	0.90	Per 50 feet. Cable only, without connectors

Notes:
1. Specifications above are for M17/176-00002 cable only, without connectors attached.
2. All Mechanical and Electrical values shown are from Military Specification Sheet MIL-C-17/176.
3. Other cables (and their specifications) are available upon request.

Hardware Accessories



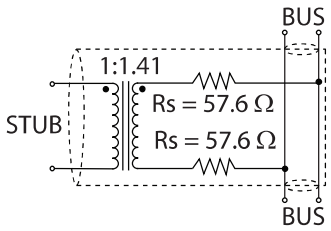
- Bus Terminators
- Stub Terminators
- Adapters

HARDWARE ACCESSORIES						
BETA PART NO.	DESCRIPTION	SPECIFICATIONS				TYPICAL USAGE
		RESISTANCE	CHAIN TYPE	MATING CONNECTOR	LUG ORIENTATION	
13218	Bus Terminator	78 Ω ± 1%, 0.5W	No Chain	TRB Series Jack	Standard Polarization (120°)	Terminating Box Coupler Bus Connector(s)
13290	Stub Terminator	2000 Ω ± 1%, 0.5W				
13249		3000 Ω ± 1%, 0.5W				
13291	Adapter	—	—	TRB Series Plug		Connecting 2 Cables Together
13184	Tee Adapter					Connecting 2 Cables to One Cable

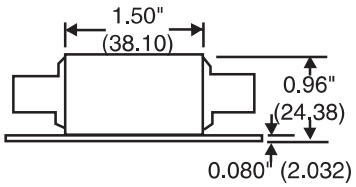
Notes:
1. Terminators with other mating styles available.
2. Additional hardware accessories are available. Contact Beta for pricing and availability.

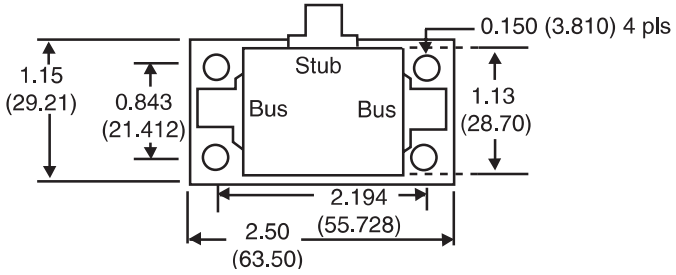
Technical Drawings

Single-Stub Sub-Miniature Coupler

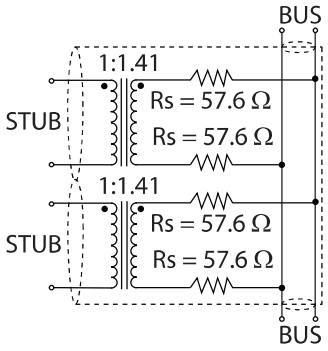




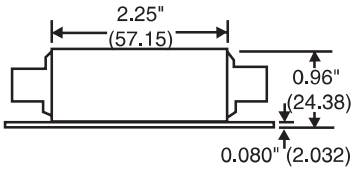


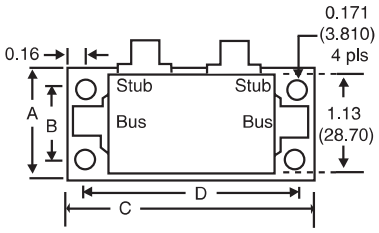


Dual-Stub Sub-Miniature Coupler





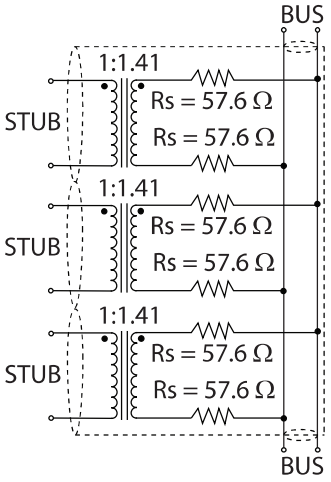




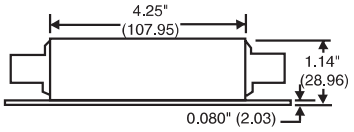
	Case Type*	
	-1 option	-2 option
A	1.15 (29.21)	1.50 (38.1)
B	0.843 (21.412)	1.06 (26.9)
C	3.25 (82.55)	3.575 (90.8)
D	2.944 (74.778)	3.12 (79.2)

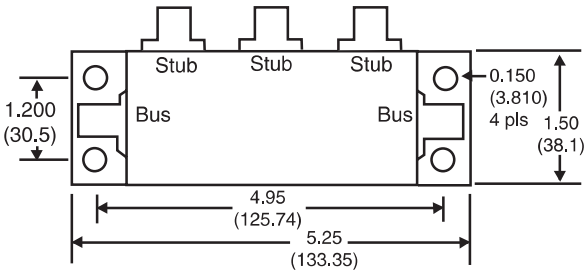
measurements in inches (mm)
*see ordering information

Triple-Stub Coupler

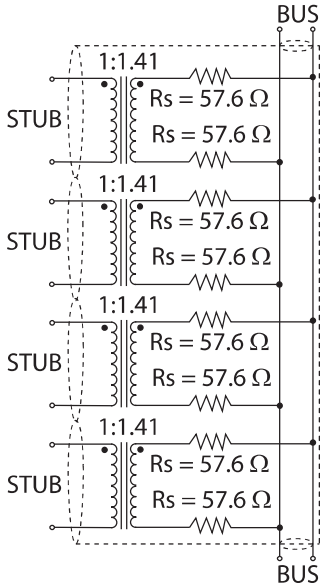




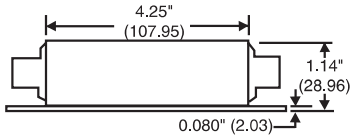


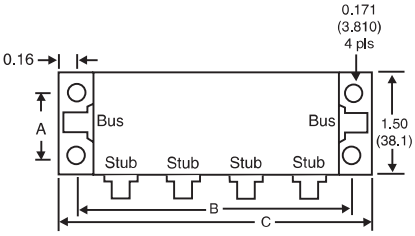


Quad-Stub Coupler









	Case Type*	
	-1 option	-2 option
A	1.200 (30.5)	1.00 (25.4)
B	4.95 (125.74)	4.88 (124)
C	5.25 (133.35)	5.35 (136)

measurements in inches (mm)
*see ordering information

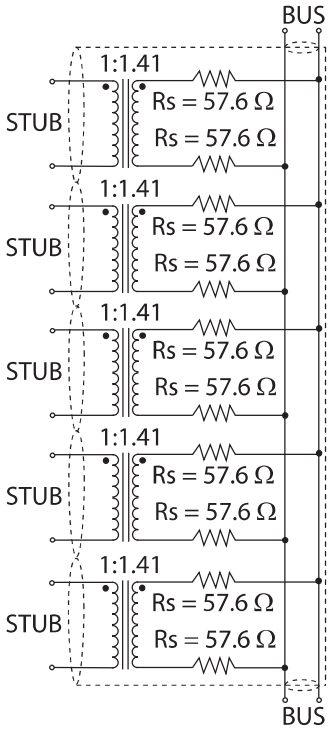
Materials:
Die Cast Aluminum Shell, Alloy #A380 or #A384.
Blue Baked Enamel Finish per Fed. Std. 595 #25109.
Over Primer Wash DOD-P-15328.
Aluminum Mounting Plate, Alloy 6061-T6 with clear Anodize finish per MIL-A-8625.

Tolerances:
3 decimal pls .xxx = ± .005 (.127), 2 decimal pls .xx = ± .02 (.508)

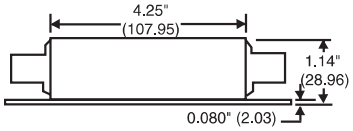
Diagrams:
All dimensions are in inches (mm).
Drawings are not to scale.

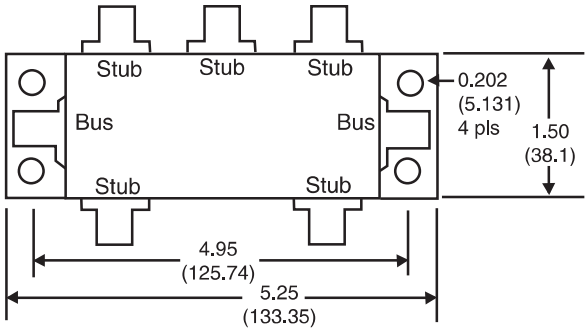
Technical Drawings

Five-Stub Coupler

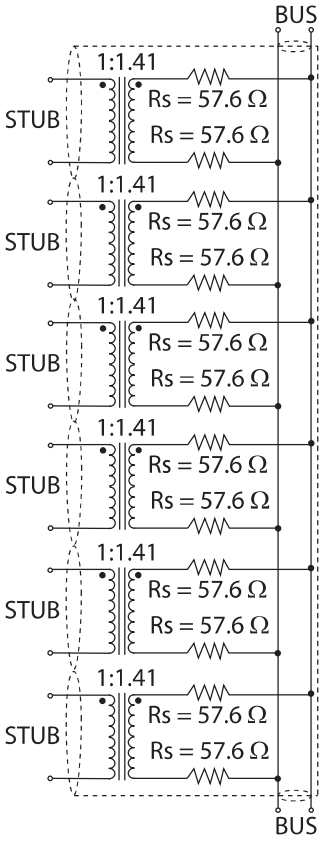




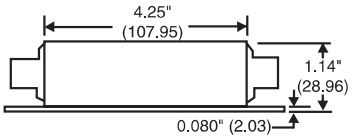


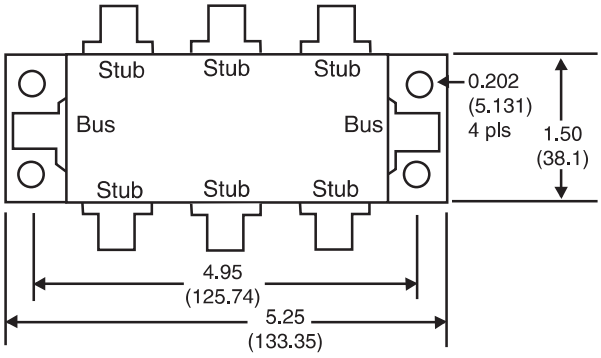


Six-Stub Coupler









Materials:

Die Cast Aluminum Shell, Alloy #A380 or #A384.
Blue Baked Enamel Finish per Fed. Std. 595 #25109.
Over Primer Wash DOD-P-15328.
Aluminum Mounting Plate, Alloy 6061-T6 with clear Anodize finish per MIL-A-8625.

Tolerances:

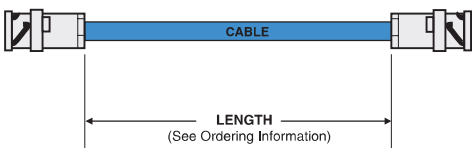
3 decimal pls .xxx = ± .005 (.127), 2 decimal pls .xx = ± .02 (.508)

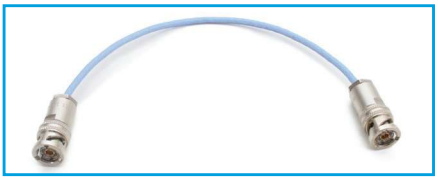
Diagrams:

All dimensions are in inches (mm).
Drawings are not to scale.

Cable

M17/176 Cable



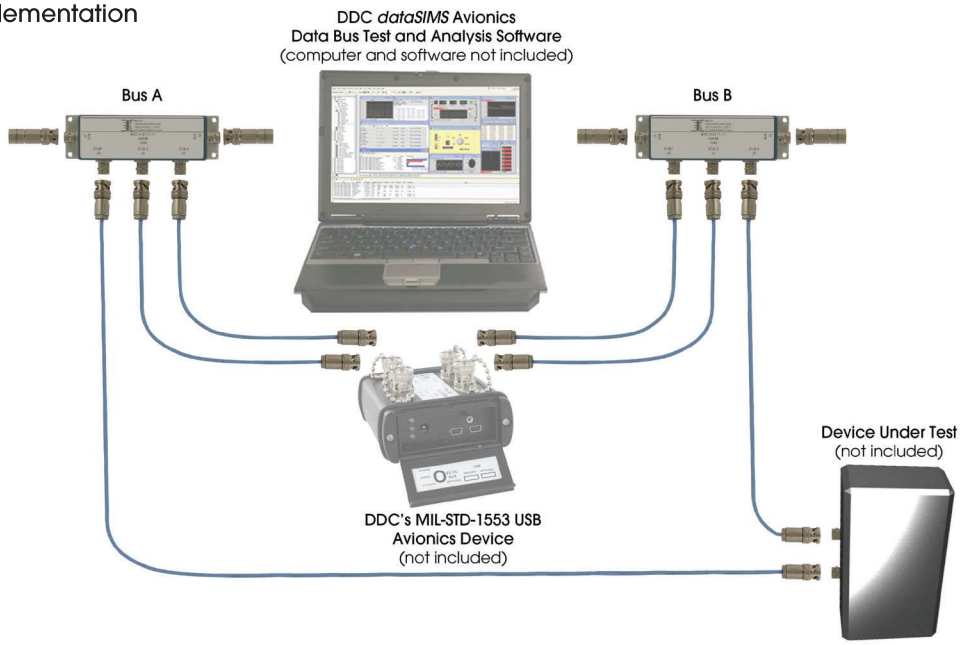


MIL-STD-1553 Bus Kits

Recommended Lab Implementation

Beta recommends the BXK-3 kit for new lab implementations. BXK-3 can be used with Data Device Corporation's (DDC's) MIL-STD-1553 Bus Analyzer Hardware and BusTrACEr or *dataSIMS* software, or a customer's own applications.

Example of BXK-3 Implementation

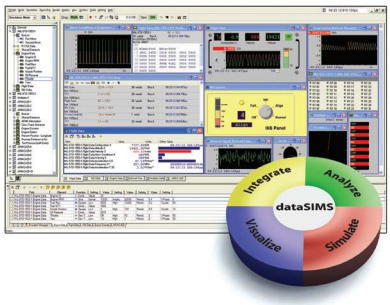


The above diagram is a possible implementation for the dual 3-stub box coupler kit (P/N BXK-3) and provides the user with the ability to use a 2 channel test device and emulate the Bus Controller (BC) and Remote Terminal (RT) for Bus A and Bus B. The remaining connection is for the device under test (DUT), which may be connected at a later time. The DUT may require a special connector or cable. Users can write and test their own software applications as needed. Additional cables, connectors, and couplers can be added as needed.

Recommended Software

data*SIMS*

Avionics Data Bus Test and Analysis Software



MIL-STD-1553
ARINC 429
DISCRETE
SYNCHRO
User Defined
ACE XTREME

Features:

- Accelerates development and deployment
- Eliminates cost of learning and maintaining separate software programs
- Easy-to-use and customize
- Supports all data protocols and I/O formats

Applications:

- New Product Development
- Systems Integration
- Bus or Network Analysis
- Production Testing
- Troubleshooting
- Data Recording
- Depot/Flight Line Testing
- Automatic Test

Complete Info: www.ddc-web.com/datasims

BusTrACEr™

Data Bus Analyzer and Monitor Software



MIL-STD-1553
DISCRETE
ACE XTREME

Features:

- Generate or monitor live MIL-STD-1553 data without writing any code
- Saves time and reduces development costs
- Program in minutes with one-click ANSI 'C' application source code generation
- Rapid creation and setup of custom applications

Applications:

- Software Development
- Box Level Testing
- Simulation
- Portable Test Equipment
- Flight Line Test and Diagnostic
- Systems Integration

Complete Info: www.ddc-web.com/bustracer

Ordering Information

Coupler

BXC-A-X1 1 1-1 X- XX

- Code for Special Orders Only. Blank for Standard Products
- Case Type:
  1 = Standard Case
  2 = Alternate Mounting Pattern
- Connector Type:
  1 = TRB-Type Concentric Connector with 3-lug Male, 120 Degree Spacing Equivalent to Emerson P/N BJ-770
- Termination of Bus Jacks:
  1 = Non-Terminated
- Resistor Values
  1 = 57.6 Ohms ±1%, 2 Watt, non-inductive MIL-R-39007
- Turns Ratio Value:
  1 = 1:1.41
- Number of Stubs:
  1 = 1 Stub
  2 = 2 Stubs
  3 = 3 Stubs
  4 = 4 Stubs
  5 = 5 Stubs
  6 = 6 Stubs
- "A" Series, MIL-STD-1553

Cable

CBL-1 01 01 XXXX - XX

- Code for Special Orders Only. Blank for Standard Products
- Cable Length Between Connectors:
  0036 = 36 inches (91 cm)
  0072 = 72 Inches (182 cm)
  0120 = 120 Inches (304 cm)
- Connector 2 Types and Specification:
  01 = TRB-Type Concentric Connector with 3-Slot Female, 120 Degree Spacing, Equivalent to Emerson P/N PL-75
  00 = No Connector
- Connector 1 Type and Specification:
  01 = TRB-Type Concentric Connector with 3-Slot Female, 120 Degree Spacing, Equivalent to Emerson P/N PL-75
  00 = No Connector
- Cable Type and Specification:
  1 = M17/176-00002

Notes:
Tolerance (unless specified otherwise):
+0.75" - 0.25" when overall length is < 12 inches
+1.0" - 0.05" when overall length is 12 to 73 inches
+2.0" - 1.00" when overall length is 73 to 181 inches
+4.0" - 2.00" when overall length is 181 to 481 inches
+6.0" - 3.00" when overall length is 481 to 1202 inches

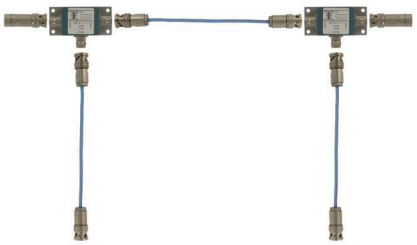
MIL-STD-1553 Bus Kits

MIL-STD-1553 Bus Kits simplify the ordering process with one part number that includes: Bus Terminators, Box Couplers, and Cables

BXK-1
Dual, 1-Stub Couplers with connecting center cable

Kit includes:

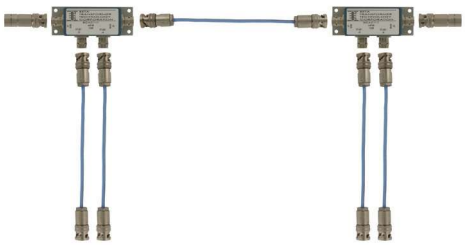
Part Number	Description	Qty
BXC-A-1111-11	1 Stub Box Coupler	2
CBL-101010072	72" (6 foot) Cable	1
CBL-101010036	36" (3 foot) Cable	2
13218	78 Ω Bus Terminator	2



BXK-2
Dual, 2-Stub Couplers with connecting center cable

Kit includes:

Part Number	Description	Qty
BXC-A-2111-11	2 Stub Box Coupler	2
CBL-101010072	72" (6 foot) Cable	1
CBL-101010036	36" (3 foot) Cable	4
13218	78 Ω Bus Terminator	2



BXK-3 (Recommended)
Dual, 3-Stub Couplers without connecting center cable

Kit includes:

Part Number	Description	Qty
BXC-A-3111-11	3 Stub Box Coupler	2
CBL-101010036	36" (3 foot) Cable	6
13218	78 Ω Bus Terminator	4



Certified System SAI GLOBAL AS9100 Aerospace
Certified System SAI GLOBAL ISO 9001 Quality



The information in this Brochure is believed to be accurate; however, no responsibility is assumed by Beta Transformer Technology Corporation for its use, and no license or rights are granted by implication or otherwise in connection therewith. Specifications are subject to change without notice.

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E-Mail: service@BTTC-Beta.com
Visit: BTTC-Beta.com Data Device Corporation
Call: HQ, N.Y., U.S.A (631) 224-7393
UK +44-(0)1635-811140
France +33-(0)1-41-16-3424
Germany +49-(0)89-1500-12-11
Japan +81-(0)3-3814-7688
Asia +65-6489-4801
India +91 080 301 10 200

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Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

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Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

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