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# MIL-STD-1553 Bus Couplers

## PCB TYPE



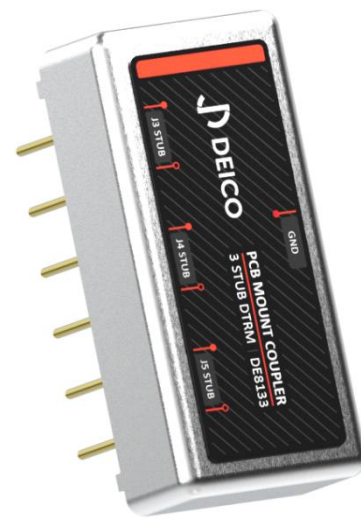
## MIL-STD-1553 PCB Type Bus Couplers

### Product Overview

The MIL-STD-1553 communication bus electrically connects multiple devices to facilitate reliable communication in various platforms, including both military and civil applications.

These bus configurations are built using various components such as cables, bus couplers, terminating resistors and connectors. In a data bus structure, bus couplers play a role in providing shielding, isolation resistance and transformer interfaces for connection points known as stubs. In this respect, bus couplers are the commercial off-the-shelf (COTS) solutions for easier and more reliable wiring.

DEICO bus couplers are designed to provide an economical solution for both platform and professional benchtop test systems. The product offers users the opportunity to have MIL-STD-1553 bus networks through fast delivery options at a fraction of the cost.



PCB Type Couplers with 3 Stubs			
Product Code	Transformer Ratio	Stub Resistor Value	Termination Type
DE8103	1:1.41	59 Ohms $\pm$ 1% 1W	Non-terminated
DE8113	1:1.41	59 Ohms $\pm$ 1% 1W	Right side terminated
DE8123	1:1.41	59 Ohms $\pm$ 1% 1W	Left side terminated
DE8133	1:1.41	59 Ohms $\pm$ 1% 1W	Dual terminated

PCB Type Couplers with 4 Stubs			
Product Code	Transformer Ratio	Stub Resistor Value	Termination Type
DE8104	1:1.41	59 Ohms $\pm$ 1% 1W	Non-terminated
DE8114	1:1.41	59 Ohms $\pm$ 1% 1W	Right side terminated
DE8124	1:1.41	59 Ohms $\pm$ 1% 1W	Left side terminated
DE8134	1:1.41	59 Ohms $\pm$ 1% 1W	Dual terminated

### 1. ELECTRICAL SPECIFICATIONS

- 1.1 **COMMON MODE REJECTION:** -45.0dB MAX @ 1.0MHz
- 1.2 **DROOP:** 20% MAX (250kHz)
- 1.3 **OVERSHOOT & RINGING:**  $\pm$  1.0V PEAK (250kHz SQUARE WAVE WITH 100ns)
- 1.4 **STUB VOLTAGE:** 1.0V TO 14.0V P-P, LINE TO LINE, SIGNAL VOLTAGE, TRANSFORMER COUPLING
- 1.5 **INPUT IMPEDANCE OF BUS:** 3000  $\Omega$ MIN. (75kHz – 1.0MHz), STUB WITH OPEN CIRCUIT

### 2. MECHANICAL SPECIFICATIONS

- 2.1 **ENCLOSURE MATERIAL:** TINPLATE 0.5mm THK.

### 3. ENVIRONMENTAL SPECIFICATIONS

- 3.1 **HIGH TEMPERATURE OPERATING:** MIL-STD-810G\_CHG-1 METHOD 501.6 PROCEDURE II, +125°C
- 3.2 **LOW TEMPERATURE OPERATING:** MIL-STD-810G\_CHG-1 METHOD 502.6 PROCEDURE II, -55°C
- 3.3 **HIGH TEMPERATURE STORAGE:** MIL-STD-810G\_CHG-1 METHOD 501.6 PROCEDURE I, +125°C
- 3.4 **LOW TEMPERATURE STORAGE:** MIL-STD-810G\_CHG-1 METHOD 502.6 PROCEDURE I, -55°C
- 3.5 **VIBRATION:** MIL-STD-810G\_CHG-1 METHOD 514.7 PROCEDURE I - CATEGORY 12, 15Hz TO 2000Hz, (Performance: W0=0.040 and A=0.02, Duration: half hour/axis), (Endurance: W0=0.053 and A=0.02, Duration: 1 hour/axis)
- 3.6 **SHOCK:** MIL-STD-810G\_CHG-1 METHOD 516.7 PROCEDURE V (40g, 11ms, Terminal Peak Sawtooth, Number of shocks: 12, two in each direction of three axes)
- 3.7 **RAIN:** MIL-STD-810G METHOD 506.5 PROCEDURE I

### 4. ORDERING INFORMATION

**TYPE 1: PCB TYPE**

**2: BOX TYPE**

**TERMINATION 0: NOT TERMINATED**

**1: RIGHT SIDE TERMINATED**

**2: LEFT SIDE TERMINATED**

**3: DOUBLE/DUAL TERMINATED [NOT OPTIONAL FOR 1 STUB]**

**NUMBER OF STUBS (1-8 STUB FOR BOX TYPE) – [3-4 STUB FOR PCB TYPE]**

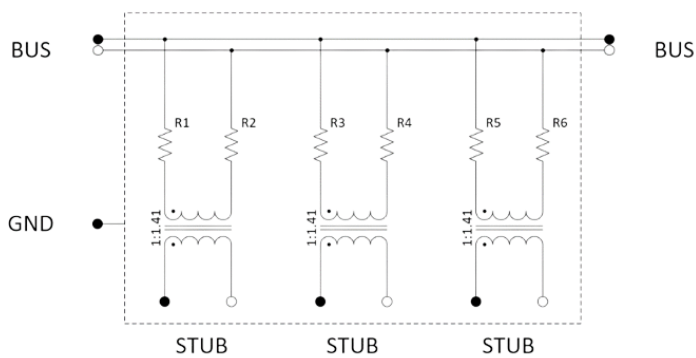
**EXAMPLE DE8228 – BOX TYPE LEFT SIDE TERMINATED 8 STUBS**

**DE8103 Technical Specifications**

- CHARACTERISTIC IMPEDANCE:**  $Z_0 = 78 \text{ OHMS}$
- FAULT PROTECTION:** 59 OHMS  $\pm 1\%$  1W (R1-R6) IN SERIES WITH TRANSFORMER WINDING ON BUS SIDE
- TERMINATION RESISTOR VALUE:** NOT TERMINATED



**Schematics**

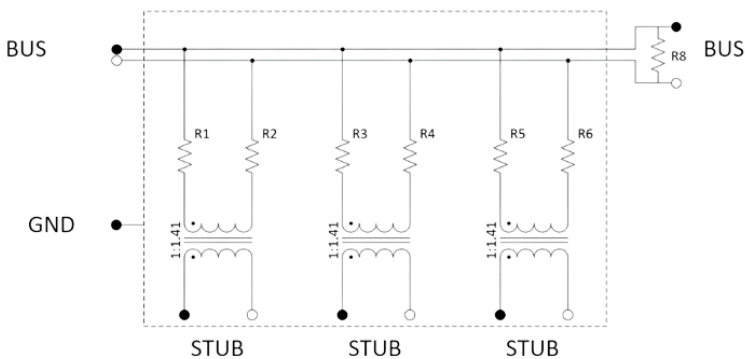


**DE8113 Technical Specifications**

- CHARACTERISTIC IMPEDANCE:**  $Z_0 = 78 \text{ OHMS}$
- FAULT PROTECTION:** 59 OHMS  $\pm 1\%$  1W (R1-R6) IN SERIES WITH TRANSFORMER WINDING ON BUS SIDE
- TERMINATION RESISTOR VALUE:** 78.7 OHMS  $\pm 1\%$  2W (R8) BUS TERMINATION



**Schematics**

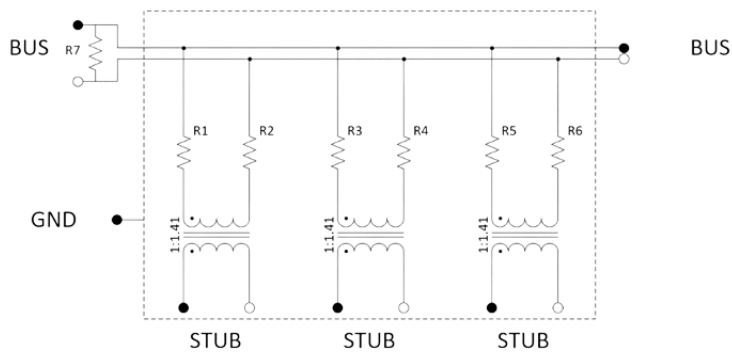


**DE8123 Technical Specifications**

- CHARACTERISTIC IMPEDANCE:**  $Z_o = 78 \text{ OHMS}$
- FAULT PROTECTION:** 59 OHMS  $\pm 1\%$  1W (R1-R6) IN SERIES WITH TRANSFORMER WINDING ON BUS SIDE
- TERMINATION RESISTOR VALUE:** 78.7 OHMS  $\pm 1\%$  2W (R7) BUS TERMINATION



**Schematics**

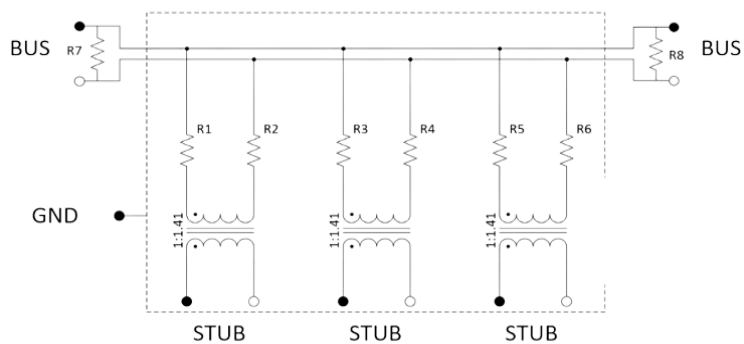


**DE8133 Technical Specifications**

- CHARACTERISTIC IMPEDANCE:**  $Z_o = 78 \text{ OHMS}$
- FAULT PROTECTION:** 59 OHMS  $\pm 1\%$  1W (R1-R6) IN SERIES WITH TRANSFORMER WINDING ON BUS SIDE
- TERMINATION RESISTOR VALUE:** 78.7 OHMS  $\pm 1\%$  2W (R7, R8) BUS TERMINATION



**Schematics**

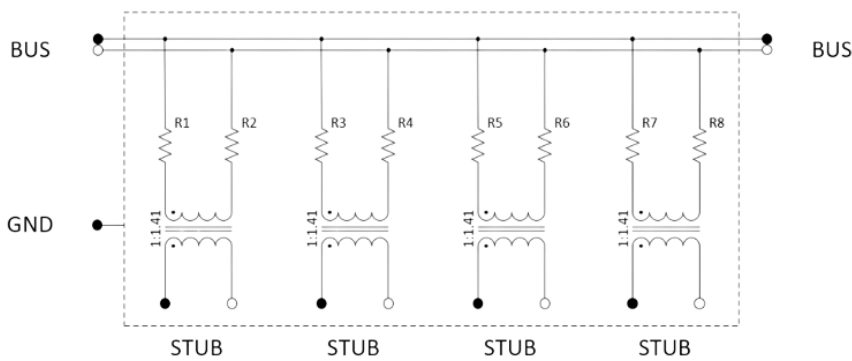


**DE8104 Technical Specifications**

- CHARACTERISTIC IMPEDANCE:**  $Z_0 = 78 \text{ OHMS}$
- FAULT PROTECTION:** 59 OHMS  $\pm 1\%$  1W (R1-R8) IN SERIES WITH TRANSFORMER WINDING ON BUS SIDE
- TERMINATION RESISTOR VALUE:** NOT TERMINATED

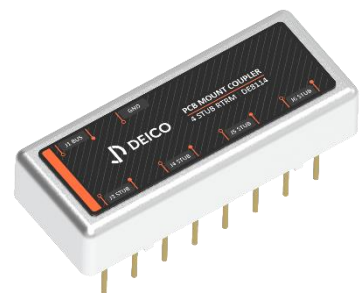


**Schematics**

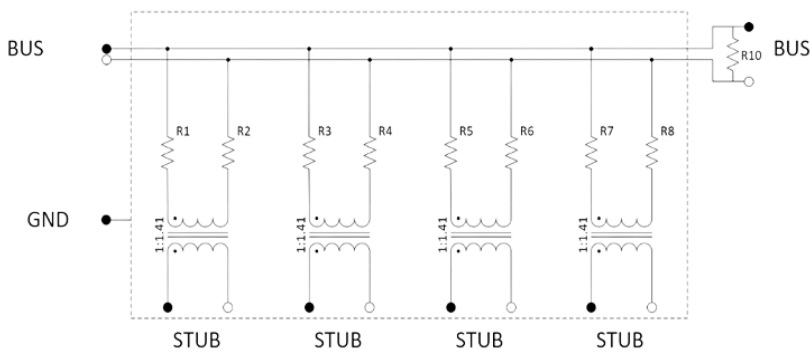


**DE8114 Technical Specifications**

- CHARACTERISTIC IMPEDANCE:**  $Z_0 = 78 \text{ OHMS}$
- FAULT PROTECTION:** 59 OHMS  $\pm 1\%$  1W (R1-R8) IN SERIES WITH TRANSFORMER WINDING ON BUS SIDE
- TERMINATION RESISTOR VALUE:** 78.7 OHMS  $\pm 1\%$  2W (R10) BUS TERMINATION



**Schematics**

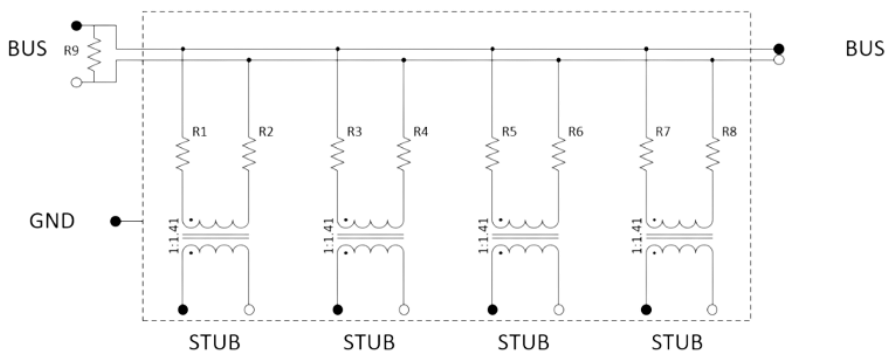


**DE8124 Technical Specifications**

- CHARACTERISTIC IMPEDANCE:**  $Z_o = 78 \text{ OHMS}$
- FAULT PROTECTION:** 59 OHMS  $\pm 1\%$  1W (R1-R8) IN SERIES WITH TRANSFORMER WINDING ON BUS SIDE
- TERMINATION RESISTOR VALUE:** 78.7 OHMS  $\pm 1\%$  2W (R9) BUS TERMINATION

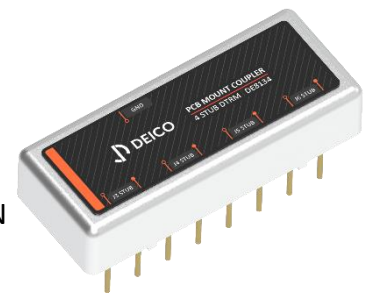


**Schematics**

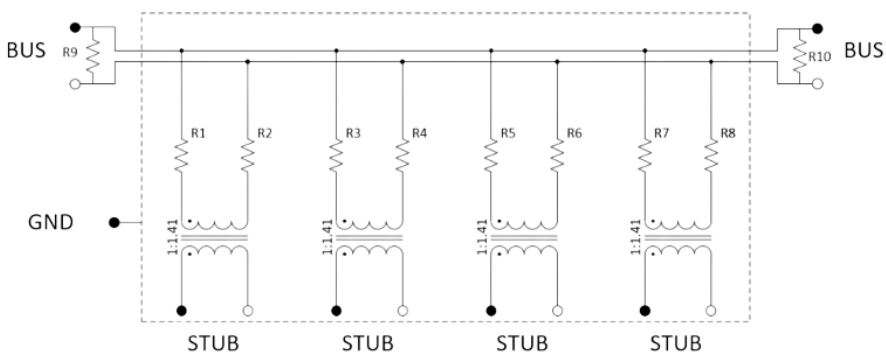


**DE8134 Technical Specifications**

- CHARACTERISTIC IMPEDANCE:**  $Z_o = 78 \text{ OHMS}$
- FAULT PROTECTION:** 59 OHMS  $\pm 1\%$  1W (R1-R8) IN SERIES WITH TRANSFORMER WINDING ON BUS SIDE
- TERMINATION RESISTOR VALUE:** 78.7 OHMS  $\pm 1\%$  2W (R9, R10) BUS TERMINATION



**Schematics**



# Contact

## DEICO Head Office

Teknopark Ankara, Serhat Mah.,  
2224. Cad., No:1 F Blok, Z-12,  
Yenimahalle, Ankara, Türkiye

support@deico.com.tr

+90 312 395 68 44



www.deico.com.tr

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