

# MIL-STD-1553B Data Bus

## A Complete Family of Data Bus Products and Services

Phoenix Logistics provides a full-range family of MIL-STD-1553 Data Bus Couplers and Interconnect Components. These products were developed for a variety of US Military and Aerospace programs and as such have been fully qualified to various qualification test specifications including those of the International Space Station.

*Phoenix Logistics brings:*

*Experience*

*Expertise*

*Capability*

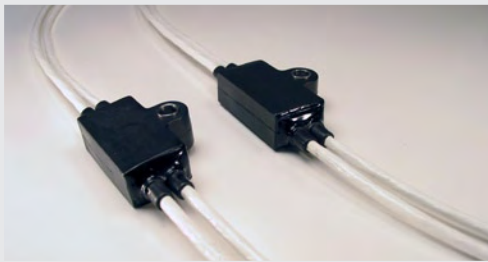
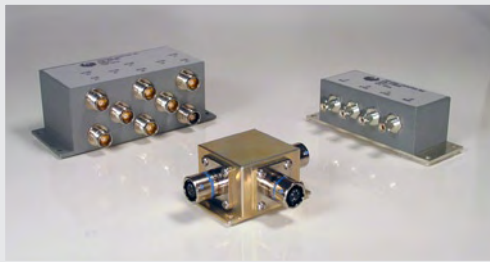
*Competitiveness*

*Responsiveness*

*Breadth of Products*

### The products include:

- **In-Line Couplers** (connectorized or flying lead)
  - Lightweight
  - Low Profile
  - Space Qualified
  - Custom Configurations
- **Box Couplers** (Raychem & North Hills equivalent)
  - Traditional
  - Low Profile
  - Space Qualified
  - Custom Configurations
- **Harnesses** (connectorized or flying lead)
- **Connectors** (Raychem DK621 equivalent)
- **Cable** (Raychem equivalent +26 awg light-weight)
- **Contacts** (including equivalent to Radiall EPX® for C-17)
- **Splice Kits** (Raychem D150-xxx equivalent)
- **Bus and Stub Terminators** (Raychem D602 equivalent)
- **Jumpers** (Utilizing Phoenix Logistics or Trompeter connectors)



# MIL-STD-1553B Data Bus

*A Complete Family of Data Bus Products and Services*

*We provide comprehensive engineering services to assist the customer in designing and configuring the bus system for optimum electrical performance and to maximize reliability and flexibility.*



## **Phoenix Logistics data bus components provide:**

- Weight savings
- Design flexibility
- Performance up to 150° C
- Extremely small form factors due to high density packaging



\* EPX® is a registered trademark of Radiall Corporation.



# MIL-STD-1553B Data Bus

## In-Line and Box Couplers

Phoenix Logistics offers a fully qualified range of standard and micro-miniature MIL-STD-1553 In-line Data Bus Couplers.

Standard single and dual stub couplers are available for immediate delivery. In addition, Phoenix Logistics has designed and can provide numerous special in-line couplers including 3, 4, 5, and 6 stub couplers with available internal terminations (if required). Both standard and micro-miniature couplers allow system designers to optimize coupler locations while eliminating connections (thereby increasing reliability) and maximizing weight savings.

The couplers are environmentally sealed and operate in the following environment:

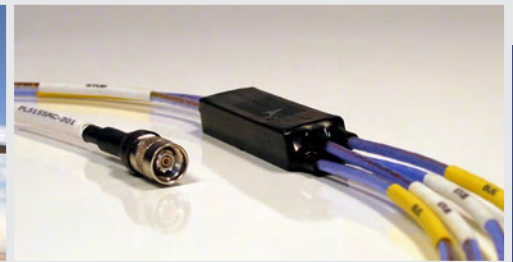
<b>Temperature:</b>	-55°/+150° C
<b>Jet Fuels:</b>	Per MIL-STD-202F, Method 213, Condition K
<b>Vibration:</b>	Sinusoidal per MIL-STD-202F, Method 201A, 5-50Hz Random per MIL-STD-202F, Method 514.5, Procedure 1
<b>Thermal Shock:</b>	Per MIL-STD-810, Method 503.4, -55°/+150° C

Additional environmental features are detailed in a Phoenix Logistics complete environmental qualification test report which can be obtained upon request.

Standard splice kits and connectors are available as separate items or can be included as part of a kit or an integrated harness assembly.

### Features & Benefits:

- *Lightweight*
- *Low profile*
- *Customer-defined bus and stub orientations*
- *Variety of cabling (single or double shielded; 22 AWG, 24 AWG, or 26 AWG)*
- *Reduced interconnects*
- *Small size facilitates wire bundling*
- *All solder connections accomplished to highest standards*
- *Altitude immersion resistant*
- *Gun-fire and launch vibration tolerant*
- *Completely potted for maximum durability and reliability (a variety of potting compounds are available to minimize weight)*
- *Ease of installation*
- *MTBF > 1,000,000 hours*
- *Temperature tolerant*
- *Optional and custom configurations available*
- *Available connectorized or with flying leads*
- *Fully integrated harnesses available to customer requirements*



# MIL-STD-1553B Data Bus

## In-Line and Box Couplers

**Phoenix Logistics offers box couplers designed for use in space, military, aerospace, and commercial applications.**

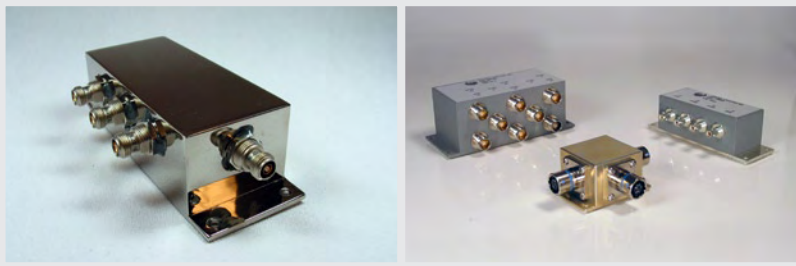
Box couplers are designed for ruggedized environments and can be supplied with various connectors arrayed in various configurations. These couplers allow a system designer to interconnect avionics boxes with minimum wire runs, and allow for future expansion and the addition of new boxes with minimal impact to the existing wiring system.

These couplers are also an excellent choice for bench testing complete systems. Phoenix Logistics box couplers are also available in standard versions with up to eight stubs, customized versions with up to 12 stubs, or low-profile versions with up to six stubs.

***Phoenix Logistics also designs and manufactures special box applications for demanding environments. We have designed special box applications for space platforms and for providing lightning protection for the data bus system when external aircraft probes are required.***

### **Features & Benefits:**

- ***Trompeter or Raychem bayonet or threaded connectors available***
- ***Mil-C-38999 connectors available for specialized units***
- ***Fully potted for ruggedization and reliability (a variety of potting compounds are available for weight reduction)***
- ***All solder connections accomplished to the highest standards***
- ***Customer-defined stub and bus connector locations***
- ***Low profile box couplers available***
- ***Lightning protection available***



# MIL-STD-1553B Data Bus

## Connectors, Terminators, & Contacts

**Phoenix Logistics provides a full range of standard Data Bus Connectors for use with MIL-STD-1553B systems.**

These connectors are equivalent to Raychem DK-621 series connectors and utilize a Solder Tac® equivalent contact, Phoenix Logistics' own Solder Tack System (STS) contacts. They feature high corrosion resistive finishes that provide environmental sealing for the interconnect system and easy to assemble contacts and housings. The bayonet and threaded designs coupled with the polarity of the contact offer 20 different keying arrangements.

Our connectors have been qualified on a variety of major US Military programs including: J-STARS, UH-60, C-17, FA-18.

Phoenix Logistics also offers other types of data bus connectors with keying options of up to 50 configurations.

**Phoenix Logistics designed, developed, and currently produces program specific contacts which cover a wide frequency spectrum.**

We entered this market to meet customer concerns regarding price and availability of unique contacts that have been worked into a program and become specified commodities for that program. For many of these contacts, there was only one supplier, leaving many programs vulnerable to the vagaries of a single supplier.

Such has been the case with Solder Tacs® provided by TYCO (Raychem Corporation). Phoenix Logistics developed STS Contacts which are the equivalent to D602-126 and D602-127 contacts. Phoenix Logistics has also designed replacements for discontinued Raychem Solder Tacs®.

We utilized the same approach to create equivalent contacts to Radiall EPX® Triaxial contacts. In this case, development was driven by C-17 Globemaster cost reductions.

Phoenix Logistics, Inc. has also developed Microwave Contacts utilizing a moldable plastic with a dielectric constant equivalent to Teflon®.

### **Features & Benefits:**

- **Compliance with Mil-STD-1553B hardware requirements.**
- **Light weight.**
- **Removable pin or socket contacts.**
- **Termination with a variety of 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.**
- **Connectors for bench-top and mock up.**



# MIL-STD-1553B Data Bus

## Connectors, Terminators, & Contacts

**Phoenix Logistics offers a full range of Data Bus Terminations.** These terminators are equivalent to the Raychem DK-621 series, the D500 in-line series, and the Trompeter BJ series. The in-line series can also be provided as a kit that includes the necessary splice kit to accomplish installation. Terminations can also be supplied with lanyards to affix the terminator to a harness or to a bulkhead.



*\* Solder Tacs® is a registered trademark of Raychem Corporation. Teflon® is a registered trademark of DuPont Corporation. EPX® is a registered trademark of Radiall Corporation.*



# MIL-STD-1553B Data Bus

## Harnesses & Jumpers

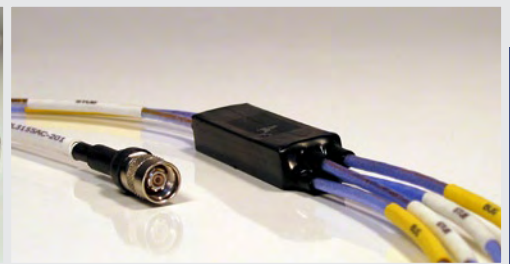
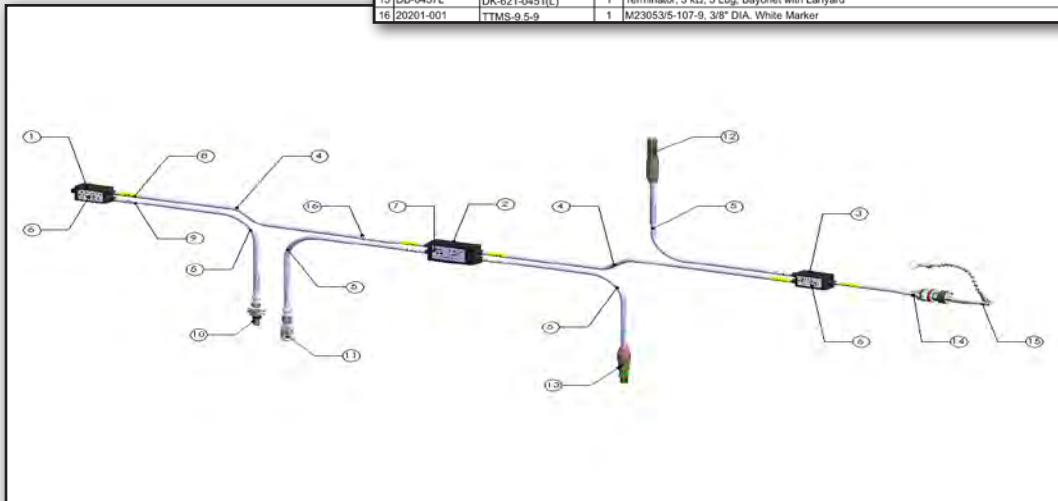
Phoenix Logistics provides MIL-STD-1553B multi-coupler harnesses for virtually every major US Military Aerospace data bus requirement. These harnesses combine multiple variations of one, two, three, four, five, and six stub couplers. In addition, these harnesses employ a variety of connectors and contacts.

*Harness analysis and evaluation services for optimization of integration are also available directly from Phoenix Logistics.*

Phoenix Logistics provides logistical services for the delivery of data bus harnesses in kits ready to install on the platform, on the assembly line, or in the field (as a Field Mod Kit.)

All harnesses, whether stand alone or integrated into a larger harness network, are fully tested for continuity, insulation resistance, DWV, and signal integrity. Marking, serialization, and testing can be provided as required.

PARTS LIST			
Phoenix Logistics, Inc.	Raychem		Description
1 D50777-123	D-500-L457-1	1	Databus Coupler, Internally Terminated
2 D50777-243	D-500-0455-2	1	Databus Coupler, Dual Stub
3 D50777-133	D-500-0455-1	1	Databus Coupler, Single Stub
4 C24812	10612	150"	Cable, 24 AWG, Single Shield
5 C24813	10613	210"	Cable, 24 AWG, Single Shield
6 20080-001	MP-178095-10-8A	2	Silver Label, .38" X .70"
7 20062-001	MP-25427-10-8A	1	Silver Label, .50" X 1.00"
8 R20155-001	TTMS-4-8-4	5	Marker, Yellow, 3/16" DIA, BUS
9 R20199-001	TTMS-4-8-9	4	Marker, White, 3/16" DIA, STUB
10 DB-0434-1P	DK-621-1434-1P	1	Connector, Triaxial, Jack, (.125 Max. Panel), Bayonet, Interface "A", Pin
11 DB-0411-S	DK-621-0411-S	1	Connector, Triaxial, Plug, Threaded, Socket
12 DB-0157-1	DK-602-0157-1	1	Contact, Size 8, Triax, Pin, Cable OD .140 MAX, for Connector MIL-C-38999 Series I
13 DB-0156-1	DK-602-0156-1	1	Contact, Size 8, Triax, Socket, Cable OD .140 MAX, for Connector MIL-C-38999 Series I, III, IV
14 DB-0433-1S	DK-621-0433-1S	1	Connector, Triaxial, Plug, Bayonet, Interface "A", Socket
15 DB-0457L	DK-621-0457(L)	1	Terminator, 3 kΩ, 3 Lug, Bayonet with Lanyard
16 20201-001	TTMS-9-5-9	1	M23053/5-107-9, 3/8" DIA, White Marker



# MIL-STD-1553B Data Bus

## Harnesses & Jumpers

### *Available mold materials include:*

- Silicon
- Fluorosilicone
  - EPDM
  - Neoprene
- Viton® Fluoroelastomer

Phoenix Logistics offers single or harnessed jumper assemblies with any variety of connectors or contacts. These assemblies can also be provided in combination with DC type harnesses.



*We also design and supply special laid-up jumper harnesses with special jackets, over-molded connectors, and contacts.*



\* Viton is a registered trademark of DuPont Dow Elastomers L.L.C.



# MIL-STD-1553B Data Bus

## Cable & Splice Kits

Phoenix Logistics offers a standard series of Data Bus cables for use in Military and Aerospace applications. Several of our cables are direct equivalents to Raychem 10612 and 10613 cable.

**All of our cables are offered in various configurations of:**

*Single Shield*

*Dual Shield*

*With or without fillers*

*Barrier tapes*

*Custom jacket materials*

*Custom colored jackets*

*Custom marking*

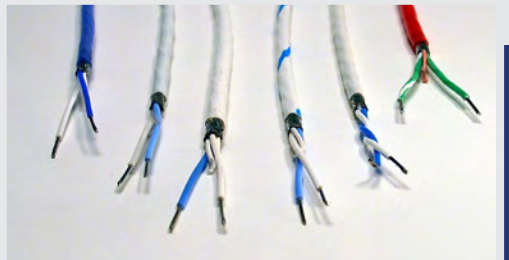
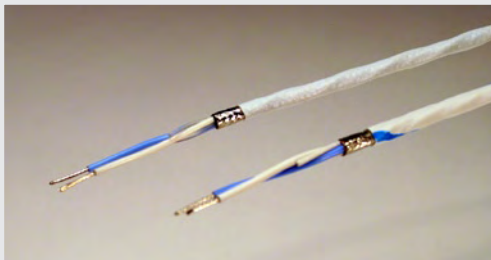
We offer both single and double shielded cable and additionally, a lightweight 26 awg cable which has the equivalent strength of 24 awg cable.

Phoenix Logistics manufactures specialty impedance cable for use in MIL-STD-1394 applications.

**Phoenix Logistics also manufactures cable qualified to the requirements of USAF specs 8421526 and 8421527.**

These cables are equivalent to the Raychem 10612 and 10613 data bus cables. We also utilize a number of other manufacturer's data bus cables when called for. The most common is Mil-C-17/176-00002.

***Phoenix Logistics, Inc. has the capability to customize groups of cables and bundles, jackets, terminates, and over-molds as required by the customer.***



# MIL-STD-1553B Data Bus

## Cable & Splice Kits

*Extra-Flexible Splice Kit: Used for splicing data bus cable together for repair, modification or creation of a data bus transmission system.*

**Phoenix Logistics provides Data Bus splice kits equivalent to Raychem D500 series splice kits.**

The splice kit accommodates several gauges of cable and is considered an extra flexible splice after termination.



Splice kits feature sealing dams to insure moisture resistance. The units are also fluid/fuel resistant and can be easily applied in the field.

***Special markers can be provided, and splices can also be provided as kits for field maintenance and repair.***



# MIL-STD-1553B Data Bus Systems & Components

## Connectorized Box Coupler System



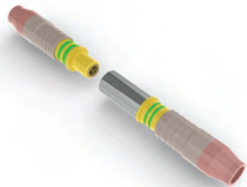
Demateable Bus Terminator ~78Ω: Threaded or Bayonet and sealed.



Box Couplers: 1 – 10 Stubs with customer designated connectors – threaded or bayonet (3 lugs – bus; 4 lugs – stub)



Discrete Connectors: Threaded or Bayonet to connect the stub to the "black box" or to connect the stub or bus to the box coupler.



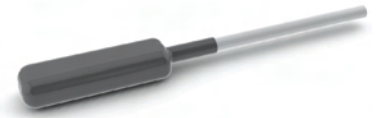
Mil-DTL-38999 Size 8 Cavity Triaxial Contacts: Equivalent to the Radiall EPX® and Raychem D-602 and DK-602 Contacts.



Demateable Stub Terminator: 3000Ω load to simulate a Stub Termination. Threaded or Bayonet. Useful for future upgrade or expansion of the system.

Data Bus Cable: PLI manufactures cable equivalent to the requirements of the USAF spec 8421526 and 8421527 and equivalent to the Raychem 10612 and 10613 data bus cables. We also utilize a number of other manufacturer's data bus cables when called for. The most common is Mil-C-17/176-00002.

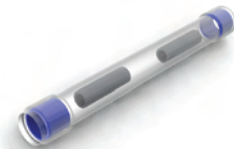
## In-Line Coupler System



In-Line Bus Terminator ~ 78Ω: lightweight; integrated into the harness or spliced in.



In-Line Lightweight Standard Single Stub Coupler: Available in numerous configurations; Internal terminations; Micro-miniature sizes. Can be built as a part of an integrated harness with or without connectors or spliced into the system.



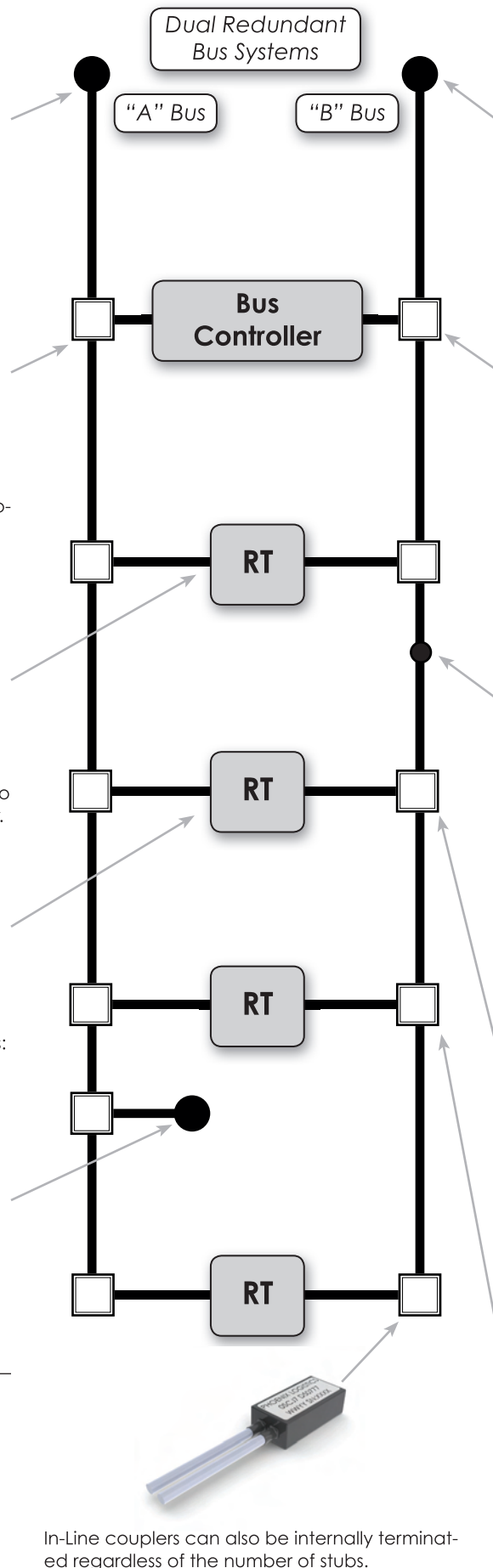
Extra-Flexible Splice Kit: Used for splicing Data Bus Cable together for repair, modification, or creation of a data bus transmission system. Kits accommodate several gauges of cable. They feature sealing dams to ensure moisture resistance and are fluid/fuel resistant. The kits are designed to be easily applied in the field.



Unique couplers: configurations available with multiple stubs with or without mounting eyelets. Custom configurations can be created.



In-Line multiple stub couplers: PLI data bus couplers may be configured with a variety of cables (single or double-shielded; in 22 or 24 AWG). These couplers are all lightweight and can easily be integrated into aircraft harnesses. They are available connectorized or with flying leads.



In-Line couplers can also be internally terminated regardless of the number of stubs.

# Phoenix Logistics, Inc.

## Corporate Profile

At Phoenix Logistics, our Mission defines us:

**To enhance the success of our customers, Associates, and suppliers by providing unrivaled value, service, and quality in integrated data transmission solutions to global military and aerospace markets.**

*We are a proud supplier to:*

Lockheed Martin

Boeing

Northrop Grumman

Honeywell

NASA

Bell Helicopter

Raytheon

Sikorsky Aircraft

U.S. Department of Defense

Fermi Laboratories

L3 Communications

Phoenix Logistics provides comprehensive design, manufacturing, and test services for high speed and high frequency data transmission products. We are dedicated to serving the worldwide Military and Aerospace markets. Our products can be found on a wide range of major military and aerospace platforms from the Predator to the C-17 Globemaster to the International Space Station.

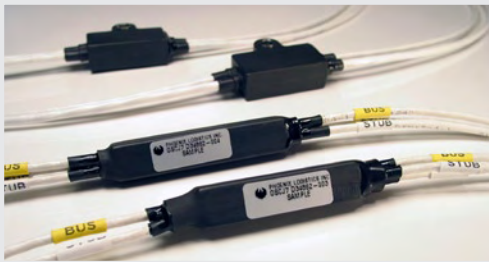
We provide custom as well as ready-made interconnect products, but we don't confine ourselves as only purveyors of product. We are first and foremost a solutions provider. We surround the aircraft, the platform, or the system by providing not only hardware, but also expertise and experience in reducing costs through program management and systems and subsystems integration.

We have over twenty years experience in RF and MIL-STD-1553B Data Bus product design, manufacture, and integration. Our expertise supplements and enhances our customers' in-house capabilities adding value at each step of the process while reducing costs.

Our facilities and work force are completely flexible to adapt to any manufacturing requirement, and allow us to offer delivery schedules of less than 10 weeks. One of our specialties is re-engineering obsolete components and supplying fully qualified units in minimum or production quantities.

No challenge is too great for us. From the heat at the heart of a nuclear reactor to the cold of the dark side of the moon our dedicated Associates design and produce data transmission solutions that get the data where it needs to be.

Our standards of quality, our proven track record in providing cost effective solutions to difficult engineering challenges, and our ability to deliver on time every time set us apart in the industry.



ISO 9001 / AS 9100 Certified

# Phoenix Logistics, Inc.

## Corporate Profile

### **Our Values: WE DO THE RIGHT THING**

*Respect and dignity for the Individual.*

*Integrity in each and every action.*

*Genuine concern for our Customers, Associates, and Suppliers.*

*Honor embodied by ethical and moral conduct.*

*Trust earned in every interaction.*



### **We are honored to have contributed to the success and longevity of platforms such as:**

#### **Space**

- International Space Station (ISS)
- Lunar Reconnaissance Orbiter (LRO)
- TDRS Satellite

#### **ECM**

- E-2C Hawkeye
- E-8C J-STARS
- EA6B Prowler
- LANTIRN

#### **Tactical Fighters**

- F-14 Tomcat
- F-16 Falcon
- F-18 Hornet
- F-22 Raptor
- F-117 Nighthawk
- C-130, C-130J Hercules

#### **Ground & Sea**

- ATNAVICS
- Aegis Cruiser
- Tomahawk

#### **Rotary Wing**

- AH-64 Apache, AH-64D Longbow
- AH-1P Cobra, AH-1W Super Cobra
- OH-58 Kiowa Warrior
- S-92 Utility Helicopter
- Griffon
- UH Series Blackhawk

#### **Transport**

- C-5 Galaxy
- C-17 Globemaster

*Phoenix Logistics is ISO9001 and AS9100 certified  
and is proud to manufacture all of its products in the U.S.A.*

