

Amphenol

MIL-STD-1553B Data Bus Couplers and Interconnect Systems



MIL-STD 1553B

- In-Line Couplers to PAN6465/JN1042 and JN1052
- R.T. Connector Coupler
- R.T. Multiway Connector Couplers
- Loom Assemblies using In-Line Couplers
- Cable Assemblies for Connector Coupled Systems
- Customised Coupler Boxes

Description

A wide range of R.T. Couplers providing transformer coupling between MIL-STD-1553 Def Stan 00-18 (Part 2) Data Bus and Single, Dual or Multiple Remote Terminals (RT). Coupling transformers and associated isolation resistors are contained in a continuous shield providing electro-magnetic and environmental shielding. Transformers used in the range of R.T. Couplers are fully compliant with the requirement of MIL-STD-1553B clauses 4.5.1.5.1.1. to 4.5.1.5.1.3, in respect of turns ratio, input impedance, waveform integrity and common mode rejection.

Transformers used are compatible with currently available transceivers and meet all

electrical requirements of Manchester Series II serial bi-phase data transmission, and are designed to meet the requirements of MIL-T-21038 Grades 5 and 7/Class S/Life X.

Amphenol provide a wide range of R.T. Couplers designed to meet the requirements of a large number of users. R.T. Couplers fitted with flying leads (e.g. 711-6116) are used where space and weight restrictions are critical, such as aircraft. R.T. Can Couplers are used in panels and control boxes where multiple couplers are required in a small area.

Electrical Characteristics

Transformer turns ratio $1:\sqrt{2}$.

Series resistors 57ohms.

Characteristic Impedance 77.05ohms.

R.T. Coupler units with alternative transformer characteristics to suit particular bus impedances are available.

The wide range of R.T. Couplers are compliant with MIL-STD-1553B clauses 4.5.1.5.1.2 and 4.5.1.5.1.4 in respect of fault isolation, cable coupling, shielding coverage, signal waveform, frequency and modulation.

Operating Conditions

Ambient temperature range -55°C to 125°C (3Kohms minimum impedance at 55°C)

R.T. Couplers – connector coupling are used in prototype or test harnesses where adaptability is required but space and weight are not major considerations. The ruggedised R.T. coupler has been designed for military applications such as fighting vehicles where robustness and intermateability with military connectors are required. The coupler mates with 38999 Series III and utilises Amphenol Ltds size 8 data bus contacts. Amphenol Ltd provides a full design and manufacturing facility and can supply inter-connection systems for specialised customer requirements



Applicable Specifications

R.T. Couplers are designed to conform to the following documents:

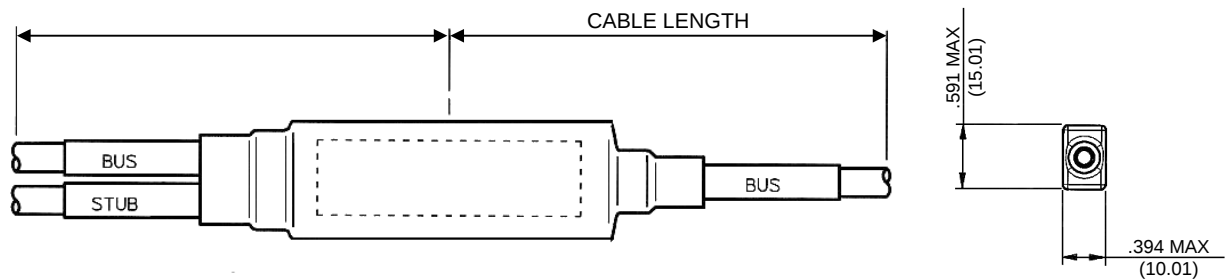
- MIL-STD-1553B - Material Time Division Command / Response Multiplexed Data Bus
- MIL-STD-4546 - Standard General Requirements for Electronic Equipment
- MIL-STD-810C – Environmental Test Methods
- MIL-E-6051 – Electromagnetic Compatibility Requirements Defence Standard 18 (Part 2) – Avionics

Data Transmission Interface System

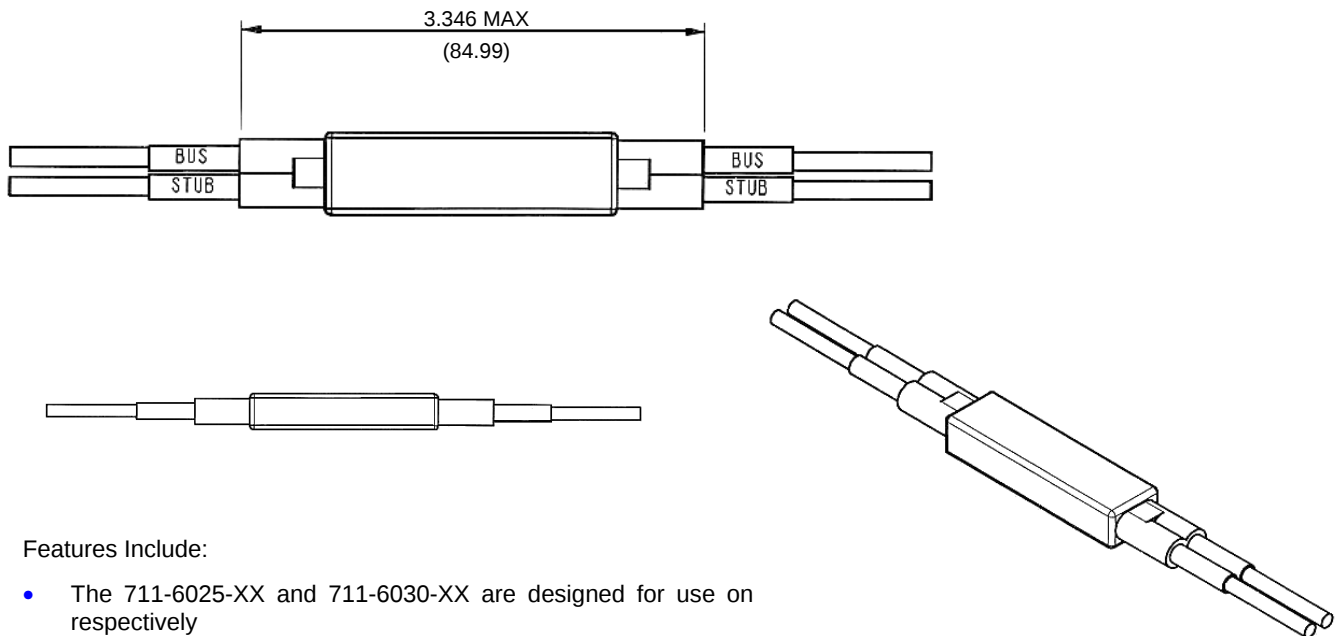
- BS9522 F0042 Single Way – Data Bus Connectors
- BS9522 F0043 Multi Way – Data Bus Connectors

In Line Couplers

Single Way Data Bus Micro Coupler – 711-6030-XX / JN 1042-XX



Two Way Data Bus Micro Coupler – 711-6025-XX

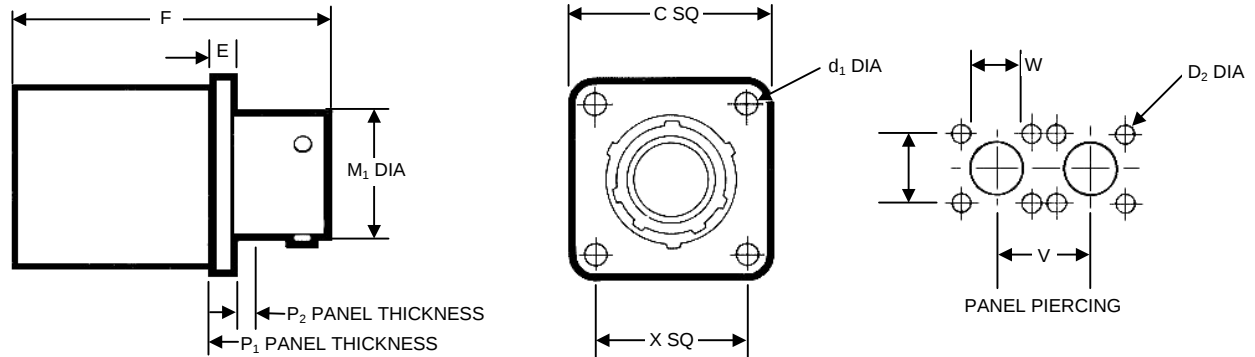


Features Include:

- The 711-6025-XX and 711-6030-XX are designed for use on respectively
- Complies with the requirements of MIL-STD-1553B
- Fully environmentally sealed
- Fully adaptable using Amphenol Ltd's range of 711 Series connectors
- Can be manufactured into complex multi-coupler looms up to 32 stub
- Lightweight and compact – ideal for use in aircraft systems
- Full fluid resistance to aviation fuels, hydraulic and brake fluids, lubricants and ancillary fluids
- EMI screened
- Eurofighter JN Approved

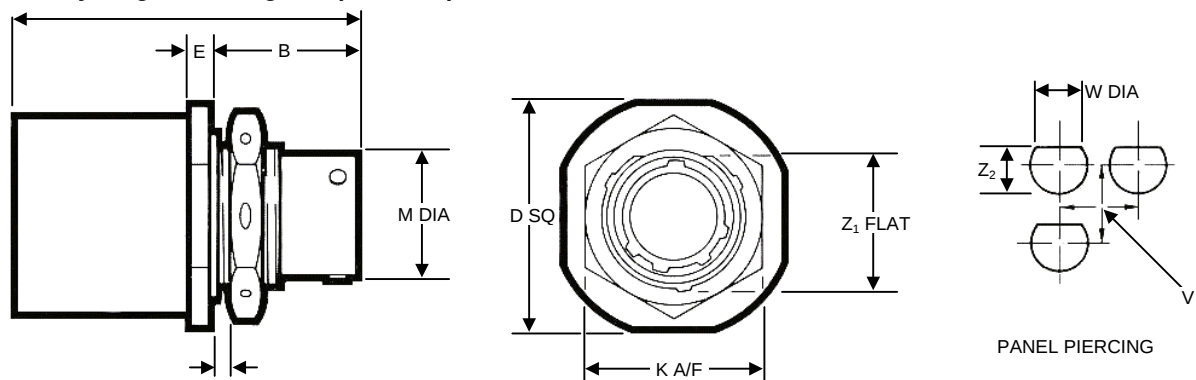
711 Series Multiway R.T. Can Couplers

Multiway Flange Mtg. Coupler Receptacle – 02AC/JN1168BC



Shell Size	Bi ±0.38 (±0.015)	C Sq Max	D ₁ dia. ±0.05 (±0.002)	D ₂ dia. ±0.13 (±0.005)	E ±0.41 (±0.016)	F Max	M ₁ dia. Max	P Max.	V Min.	W dia. ±0.13 (±0.005)	X Sq. ±0.13 (±0.005)
14	11.33 (0.446)	28.98 (1.141)	3.18 (0.125)	3.25 (0.128)	1.57 (0.062)	49.00 (1.929)	22.25 (0.876)	2.21 (0.087)	33.15 (1.305)	25.12 (0.989)	23.01 (0.906)
16	11.33 (0.446)	31.34 (1.234)	3.18 (0.125)	3.25 (0.128)	1.57 (0.062)	57.00 (2.244)	25.43 (1.001)	2.21 (0.087)	37.85 (1.490)	28.27 (1.113)	24.61 (0.969)
18	11.33 (0.446)	33.73 (1.328)	3.18 (0.125)	3.25 (0.128)	1.57 (0.062)	60.00 (2.362)	28.60 (1.126)	2.21 (0.087)	40.64 (1.600)	31.45 (1.238)	26.97 (1.062)
20	14.50 (0.571)	36.91 (1.453)	3.18 (0.125)	3.25 (0.128)	2.39 (0.094)	64.00 (2.520)	31.78 (1.251)	5.38 (0.212)	43.81 (1.725)	34.62 (1.363)	29.36 (1.156)
22	14.50 (0.571)	40.08 (1.578)	3.18 (0.125)	3.25 (0.128)	2.39 (0.094)	64.00 (2.520)	34.95 (1.376)	5.38 (0.212)	46.61 (1.835)	37.80 (1.488)	31.75 (1.250)
24	15.37 (0.605)	43.26 (1.703)	3.86 (0.152)	3.94 (0.155)	2.39 (0.094)	64.50 (2.539)	38.13 (1.501)	5.38 (0.212)	49.78 (1.960)	41.02 (1.615)	34.92 (1.375)

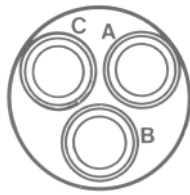
Multiway Single Hole Mtg. Coupler Receptacle – 03AC/JN1168AC



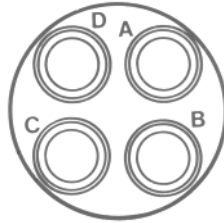
Shell Size	B Max.	D Sq.	E Max.	F Max.	K A/F Max.	M Max. dia.	P Panel Thickness		V Min.	W dia ±0.13 (±0.005)	Z ₁ ±0.13 (±0.005)	Z ₁ ±0.13 (±0.005)
							Max.	Min.				
14	17.96 (0.707)	35.33 (1.391)	2.87 (0.113)	49.00 (1.929)	30.61 (1.205)	22.25 (0.876)	4.75 (0.187)	1.57 (0.062)	36.82 (1.430)	25.65 (1.010)	23.80 (0.937)	24.08 (0.948)
16	17.96 (0.707)	38.51 (1.516)	2.87 (0.113)	57.00 (2.244)	33.76 (1.329)	25.43 (1.001)	4.75 (0.187)	1.57 (0.062)	39.88 (1.570)	28.83 (1.135)	26.95 (1.061)	27.23 (1.072)
18	17.96 (0.707)	41.68 (1.641)	2.87 (0.113)	66.50 (2.618)	36.96 (1.455)	28.60 (1.126)	4.75 (0.187)	1.57 (0.062)	43.69 (1.720)	32.00 (1.260)	30.12 (1.186)	30.40 (1.197)
20	19.61 (0.772)	46.43 (1.828)	3.76 (0.148)	69.00 (2.716)	40.11 (1.579)	31.78 (1.251)	6.35 (0.250)	1.57 (0.062)	47.37 (1.865)	35.18 (1.385)	33.30 (1.311)	33.58 (1.322)
22	19.61 (0.772)	49.63 (1.954)	3.76 (0.148)	69.00 (2.716)	43.31 (1.705)	34.95 (1.376)	6.35 (0.250)	1.57 (0.062)	50.93 (2.005)	38.35 (1.510)	36.47 (1.436)	36.75 (1.447)
24	19.61 (0.772)	52.78 (2.078)	3.76 (0.148)	69.00 (2.716)	46.46 (1.829)	38.13 (1.501)	5.56 (0.219)	1.57 (0.062)	54.61 (2.150)	41.53 (1.635)	39.65 (1.561)	39.93 (1.572)

Multiway Insert Circuit Configurations

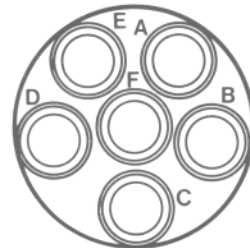
Lettering of Inserts shown here corresponds to views of Front (Mating) Surface of Pin Inserts



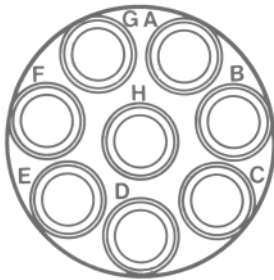
14 - 3



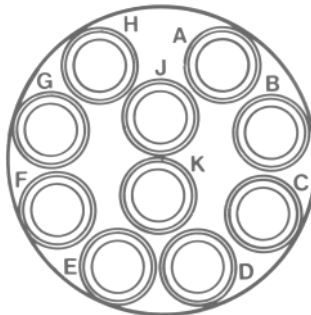
16 - 4



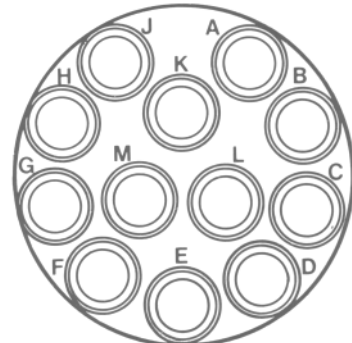
18 - 6



20 - 8



22 - 10



24 - 12

Technical Data

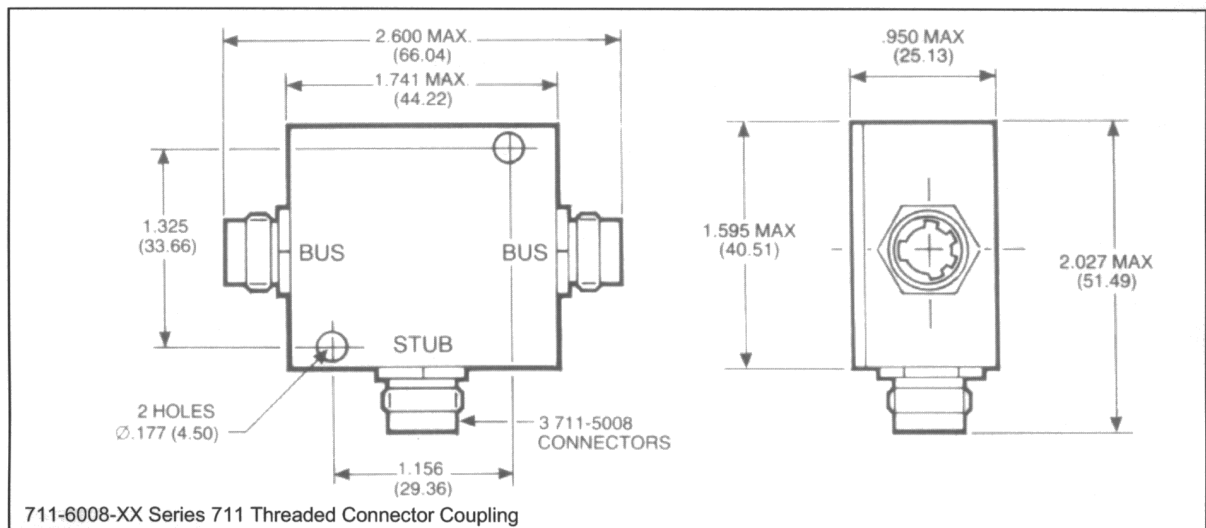
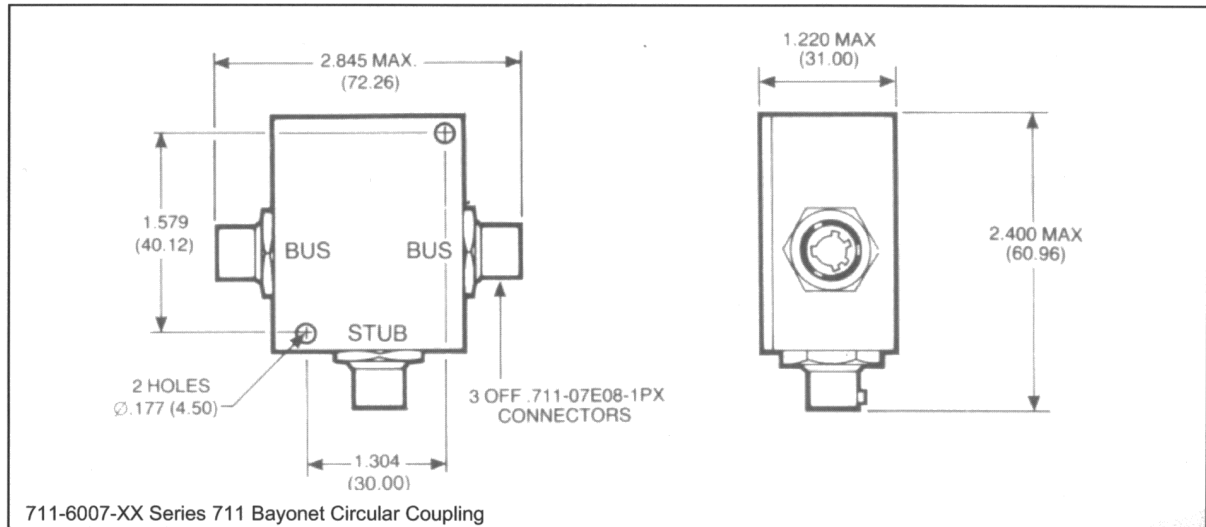
Standard product available as shown. Planforms up to 24-12 can be supplied to customer specification. 711 Series R.T. Can Couplers have been designed to give a larger coupler capability in a small package. They utilise the design concepts of Amphenol Ltd's widely accepted and proven 711 series Multiway connectors.

Features Include:

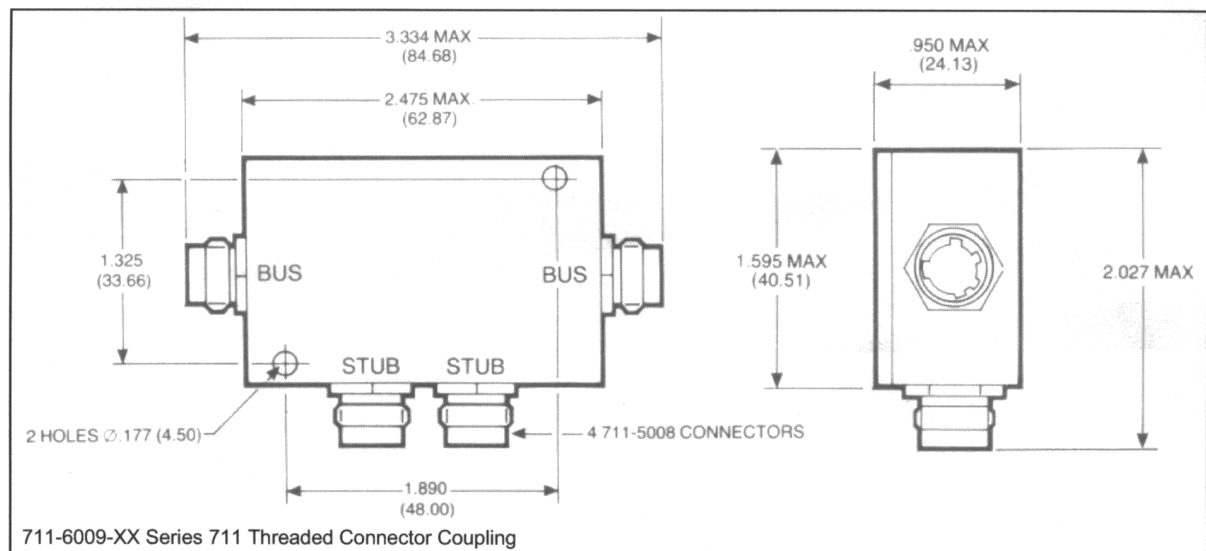
- Qualified to Eurofighter Specification J64.520 (JN1168)
- Complies with the requirements of MIL-STD-1553B
- Utilises ceramic substrate technology
- Compact design
- Fully potted for sealing purposes and rigidity
- Box or panel mounted
- Intermateable with Amphenol Ltd 711 Multiway connectors
- EMI screened

711 Series R.T. Couplers

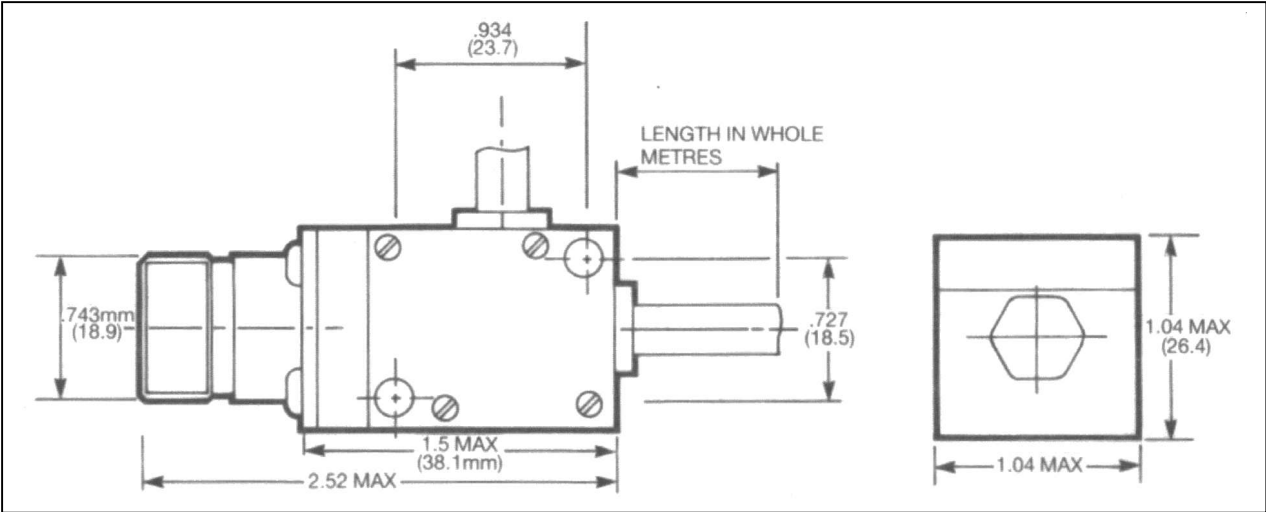
Single R.T. Coupler Boxes, Connector Coupling



Dual R.T. Coupler Boxes, Connector Coupling



TV99 Ruggedised R.T. Couplers



Technical Data

The Ruggedised R.T. Coupler is designed for use in fighting vehicles and other military uses where robustness and intermateability with military style connectors is required.

Features Include:

- Complies with the requirements of MIL-STD-1553B
- Olive drab plating as standard
- Robust design
- Intermateable with MIL-C-38999 Series III connectors
- Utilises Amphenol Ltd size 8 Data Bus contacts (Intermateable with M39029/90 and M39029/91 contacts)
- EMI Screened

Ordering Information

TV99

-

6002

-

X

-

X

X

Series

Style

Shell Orientation

Contact Type

Cable Lengths

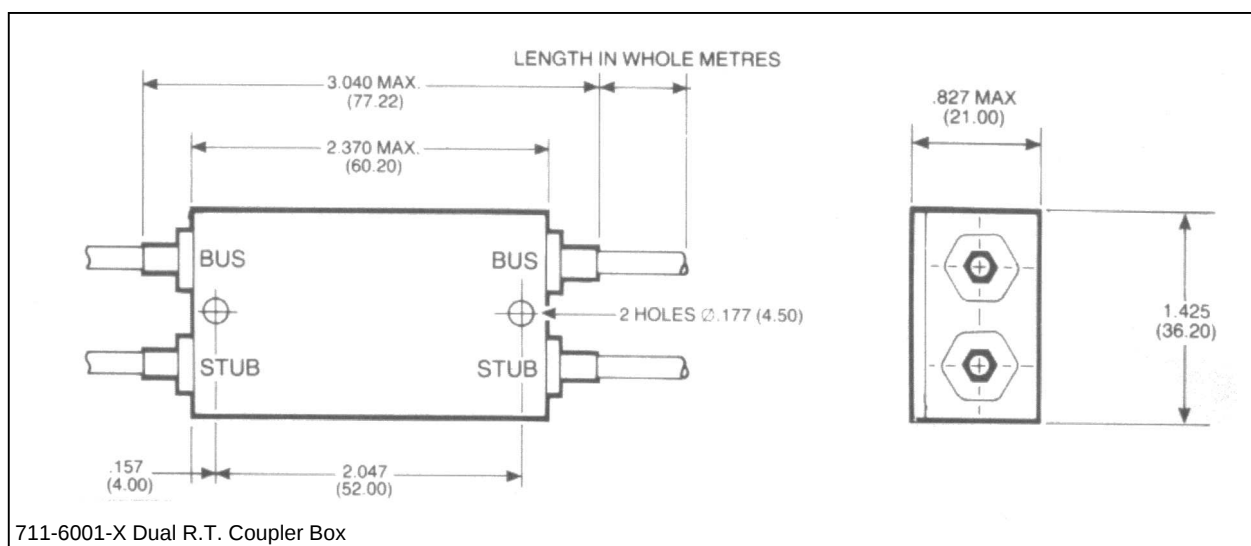
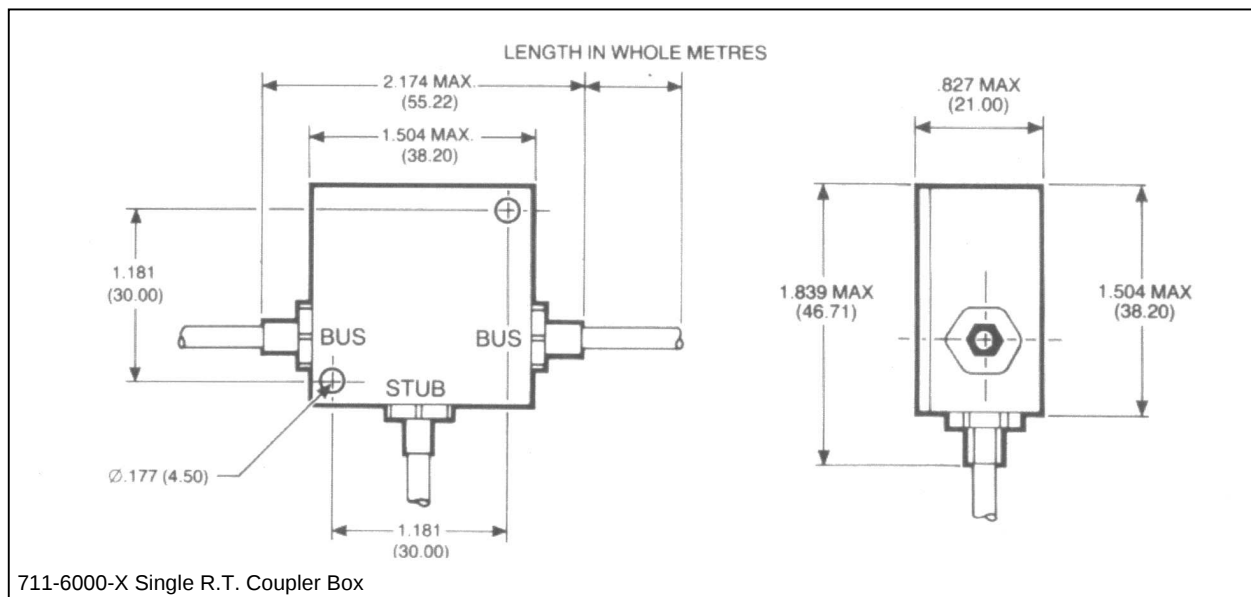
N – Normal (A, B)

S – Female
P – Male

(in whole)

711 Series R.T. Couplers

R.T. Couplers, Flying Lead Termination



Technical Data

The 711-6000-X and 711-6001-X R.T. Couplers conform to the requirements of MIL-STD-1553B.

Features Include:

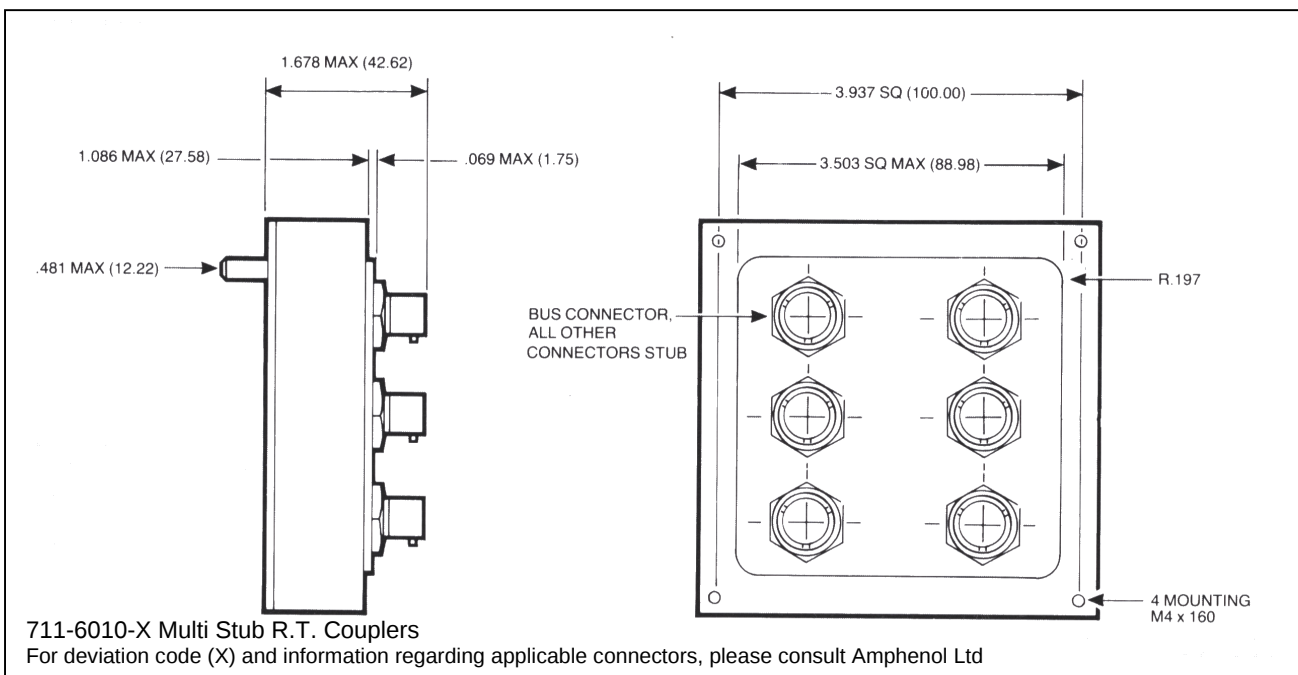
- Fully adaptable using Amphenol Ltd range of 711 Series connectors
- Box or wall mounting
- Robust design
- EMI Screened

Ordering Information

Cable Length (in whole metres) 711-600X- A **Cable Specification**
 OMT for PAN 6421 (711-6421)
 A – 10613
 B – EPD 29474D

711/715 Series R.T. Couplers

Multi R.T. Coupler Boxes, Connector Coupling



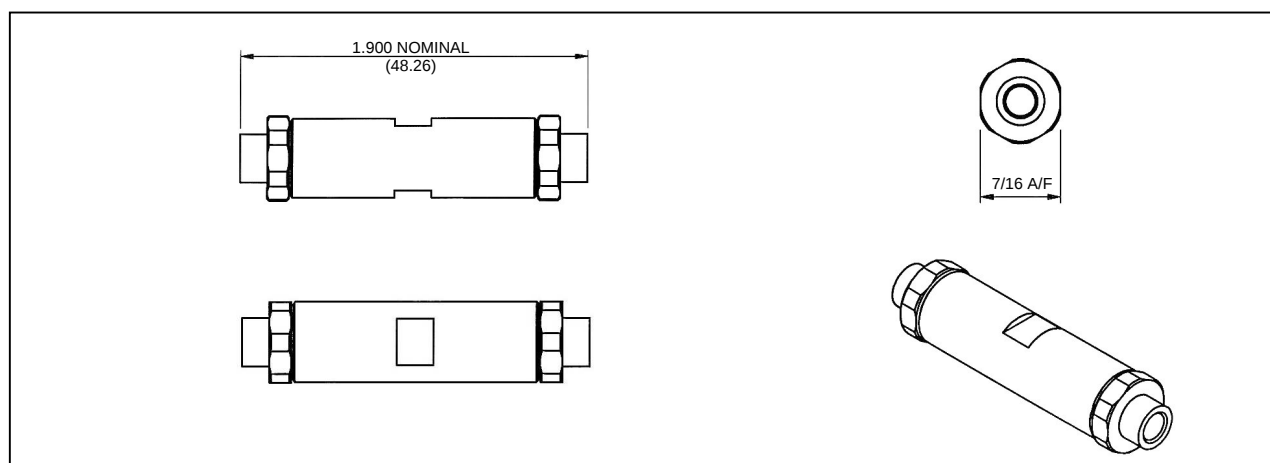
Technical Data

Amphenol Ltd produce a range of connector coupling R.T. boxes. These range from single R.T. Couplers to 5-Stub bus terminating devices.

Features Include

- Complies to the requirements of MIL-STD-1553B.
- Wall mounted, robust design.
- Adaptable for use in prototype and test looms.
- Fully intermateable with Amphenol Ltd 711 series single or multiway connectors
- Fully potted for sealing purposes and rigidity

In Line Mechanical Splice



Features Include:

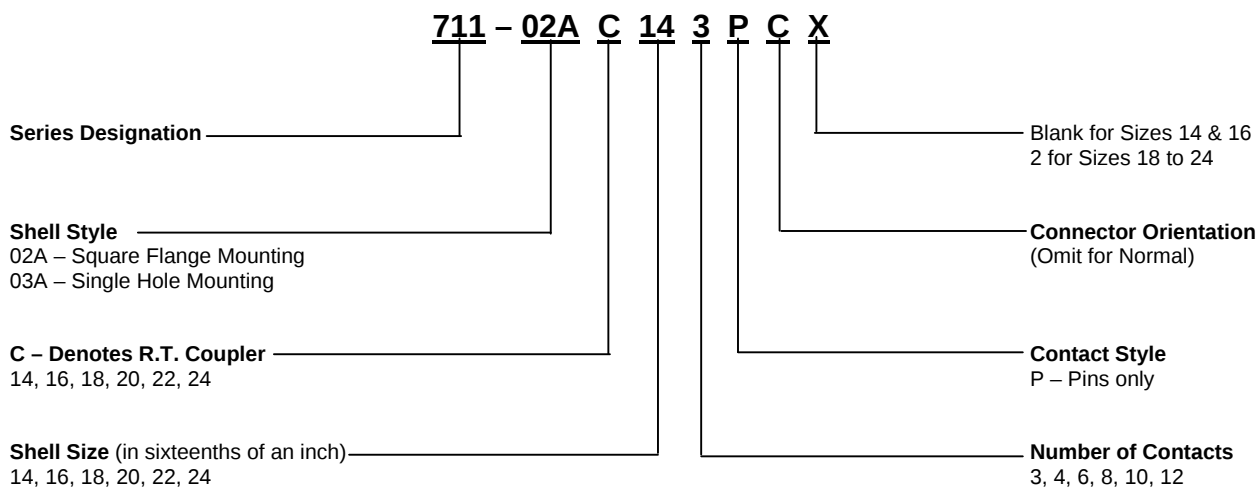
- Provides a low cost repair solution
- Utilises standard #10 Data Bus crimp contacts
- Uses standard tooling
- Environmentally Sealed

Ordering Information:

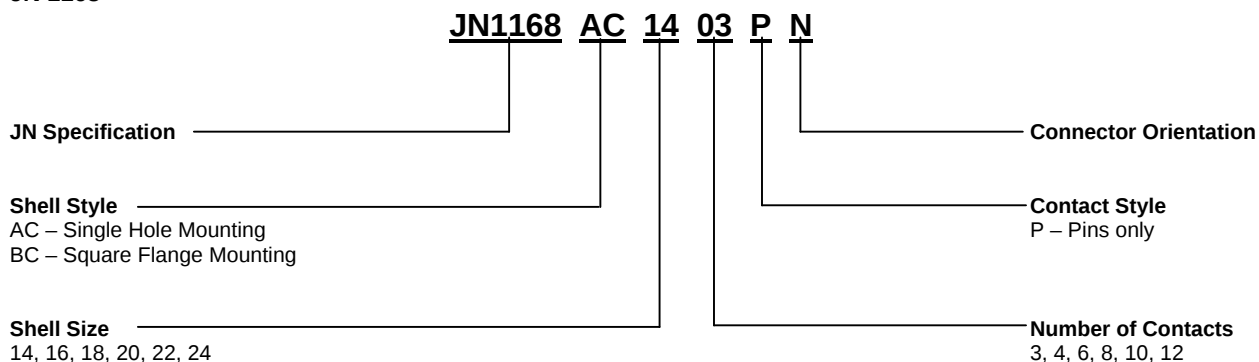
Part Number 711-5034 (462)

Ordering Information

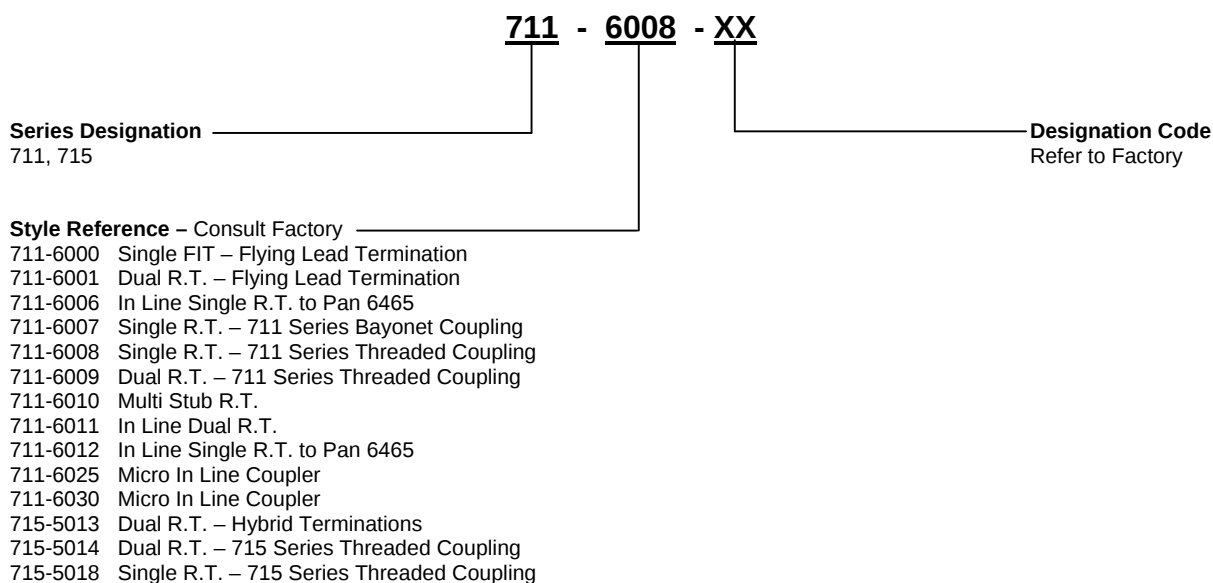
711 Series Multiway R.T. Can Coupler Connectors



JN 1168



711/715 Series Single, Dual and Multi Stub R.T. Couplers



Single, Dual or Multi Stub R.T. Couplers are available for connection to Data Highways. Amphenol's capability extends to the design, development and manufacture of R.T. Coupler Units to meet any specific customer requirement. For further information, please consult Amphenol Ltd.

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