PICMATES®

March 2017

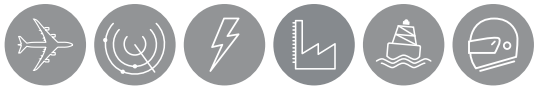
High Performance and Lightweight Aircraft Wire

ELECTRONIC CABLES, CONNECTORS and ASSEMBLIES

FOR MILITARY, CORPORATE and COMMERCIAL APPLICATIONS

OUR ADVANTAGES

- Lighter weight, by up to 80%
- Fast signal
- Tough and strong
- Tighter bend radius
- High temperature withstand
- Smaller diameter
- Ruggedised construction



OFFICIAL FRANCHISED PARTNER

PIC Wire & Cable is a global provider of aircraft cables, electronic cables, cable connectors and avionic cable assemblies for demanding military, corporate and commercial applications that include aeroplanes, helicopters, ground vehicles, rail transport, motorsport and marine vessels.

DATA HIGH SPEED CABLES
RF 50Ω COAXIAL CABLES
VIDEO 75Ω COAXIAL CABLES
MICRO HIGH FREQUENCY CABLES

PIC Wire and Cable is a global provider of aircraft cables, electronic cables, cable connectors and avionic cable assemblies for demanding military, corporate and commercial applications that include airplanes, helicopters, ground vehicles, rail transport and marine vessels.

Aircraft Cable Meets Stringent Criteria

Using the latest technologies, PIC aircraft cable and cable products are designed and manufactured to meet the stringent electrical and mechanical performance criteria required for these advanced electronic applications - EMI immunity, lightweight, low loss, high temperature, harsh environment.

As an experienced solutions partner, we can offer a broad selection of specialised coaxial, triaxial, high speed data, RF cable assemblies, and custom cable options. This includes 50 ohm coaxial and triaxial cable, 75 ohm coaxial and triaxial cable, high speed data cable, data bus cable and application specific cables, including IFE, RF, TCAS and USB cables. PIC cables withstand high temperature conditions and other harsh environments.

PIC WIRE & CABLE
A Division of The Angelus Corporation

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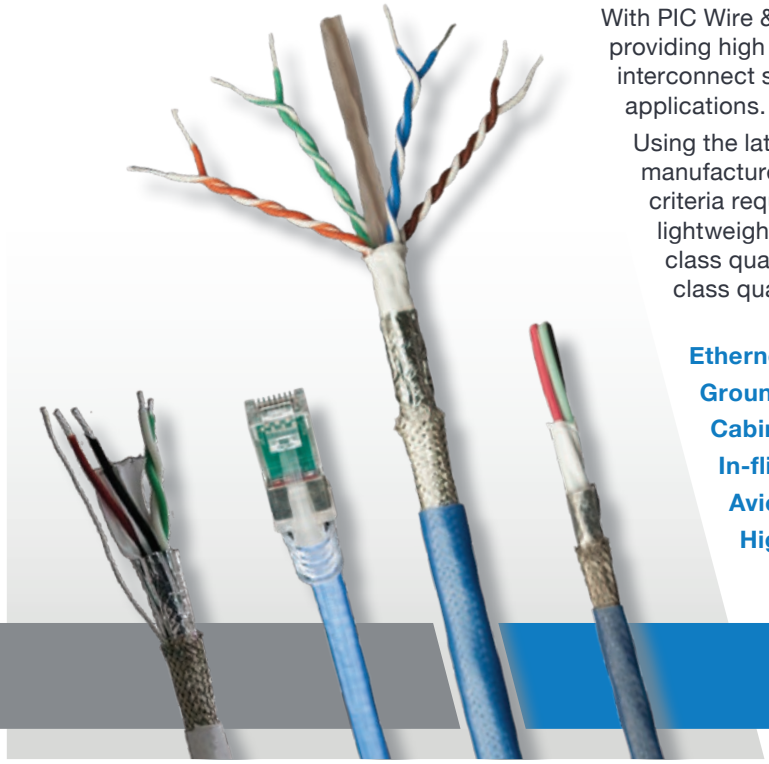
PIC DataMATES®

High Speed and Lightweight Data Cables

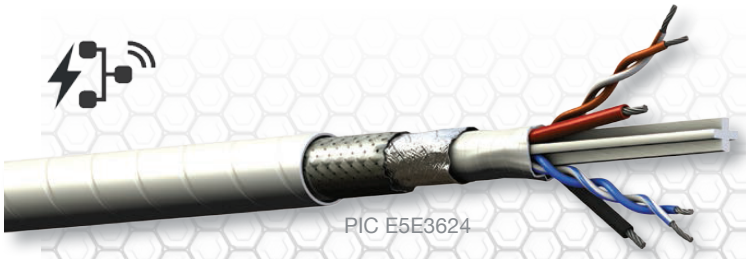


With PIC Wire & Cable, our aim is to make our customers job easier by providing high quality, high performance engineered electronic cables and interconnect solutions for demanding military, motorsport and aerospace applications.

Using the latest technologies, PIC cable products are designed and manufactured to meet the stringent electrical and mechanical performance criteria required for advanced electronic applications - EMI immunity, lightweight, low loss, high temperature, harsh environment. Ensuring world class quality and reliability is a top priority at PIC, as evidenced by world class quality certifications and consistently positive customer feedback.

Ethernet Communications Backbone
Ground Vehicle Bus
Cabin Management
In-flight Entertainment
Avionics Networks
High Definition Video

HIGH SPEED DATA SOLUTIONS
Cat 5e, 6, 6a, USB and Quadrax



PIC E5E3624

COMBINED POWER & DATA CABLE INNOVATION

The new E5E3624 Power over Ethernet CAT 5e cable has a bend radius of 20.32mm and is 50% more flexible than the previously specified cable for Honeywell's Ovation™ Select Cabin Management System.

Product Family	Max Distance	Weight	Flex	Shielding
PIC DataMATES®PLUS	75m - 101m	Light	Medium	V. High
PIC DataMATES®BASE	65m - 78m	Light	High	V. High
PIC DataMATES®LITE	59m - 82m	V. Light	V. High	High
PIC DataMATES®QUAD	65m - 96m	Light	High	High
PIC DataMATES®USB	5.5m	Light	High	High

ETHERNET CABLE

PIC has developed shielded aircraft ethernet cables which can carry high speed data up to CAT 6a, plus specially adapted RJ45 connectors to interface these cables with RJ45 sockets. Our DataMATES® product lines offer tailored solutions for many military and aerospace applications.

DATA BUS CABLE

PIC offers Data Bus cables for use in Military, Motorsport and Aerospace avionics bus and data transmission applications. Providing Data Bus cables for ARINC 429 (70 ohm), MIL-STD-1553B (77 ohm) and ASCB (125 ohm). All are 24 AWG shielded, twisted pairs and meet FAR flammability requirements.

USB CABLE

Specially designed for Airborne USB 2.0 high speed applications. The 100% foil and 80% braided shielding provides for further protection against EMI. This advanced design will allow cable runs up to 5.5 metres.

Meets or exceeds EIA-364-XX specifications. They are Skydrol resistant, RoHS compliant and meet the FAA flammability requirements of FAR Part 23 and 25 Appendix F.

Cable assemblies also available.

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PIC DataMATES®

High Speed and Lightweight Data Cables

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DataMATES ETHERNET: Physical and Electrical data

All values nominal unless otherwise noted

Ethernet Family	Part No.	Temp.	Max Distance	Rating	Data Pairs	Conductors	Cable OD (mm)	Min. Radius (mm)	Weight per 100m	Inner Shield	Outer Shield	Cable Jacket
DataMATES PLUS	E10224	200°C	101m	Cat 5e	1 pair	24awg Silver PC	4.14	21.97	3.2 kg	Mylar Foil	90% Braid. Silver PC	Blue FEP Extruded
	E10424		82m		2 pairs		5.28	27.94	4.9 kg			
	E50824		82m	Cat 6a	4 pairs		6.73	35.56	7.4 kg			
	E6A0824		75m		4 pairs		6.99	35.56	7.9 kg			
DataMATES BASE	E12224	150°C	78m	Cat 5e	1 pair	24awg Tin PC	3.71	19.05	2.4 kg	Mylar Foil	85% Braid Tin PC	White ETFE Extruded
	E12424		78m		2 pairs		5.28	25.40	3.4 kg			
	E6A2824		65m	Cat 6a	4 pairs		6.99	35.56	6.8 kg			
DataMATES LITE	E13226	200°C	68m	Cat 5e	1 pair	26awg Stranded SPCA	3.40	10.16	2.5 kg	None	80% Braid Silver PC	White PTFE Sintered
	E13426		68m		2 pairs		3.99	12.7	2.9 kg			
	E6A3826		65m	Cat 6a	4 pairs		5.59	16.76	4.9 kg			
	E6A3824		75m		4 pairs	24awg Stranded SPCA	6.60	19.81	6.8 kg	Mylar Foil		
	E5E3624		82m	Cat 5e	2 pairs	Data Pair: 24 awg SPCA Power Pair: 20 awg SPC	6.35	20.32	6.7 kg		90% Braid Silver PC	White PTFE

DataMATES QUADRAX: Physical and Electrical data

All values nominal unless otherwise noted

Quadrax	Part No.	Temp.	Max Distance	Rating	Data Pairs	Conductors	Cable OD (mm)	Min. Radius (mm)	Weight per 100m	Inner Shield	Outer Shield	Cable Jacket
DataMATES QUAD	E51424	150°C	78m	Quadrax	4 Core	24awg SPCA	4.06	20.32	3.3 kg	90% Braid Tin PC	85% Braid Tin PC	White ETFE Extruded
	E51426		65m	Quadrax		26awg Stranded SPCA	3.48	17.78	2.7 kg			
	E50424		96m	Quadrax		24awg SPC	4.32	25.40	4.0 kg	Mylar Foil	85% SPC	FEP blue

DataMATES USB 2.0: Physical and Electrical data

All values nominal unless otherwise noted

USB 2.0	Part No.	Conductor	Attenuation per 100m	Time Delay per m	Cable OD (mm)	Min. Radius (mm)	Weight per 100m	Temp. Range	DC Resistance per km
DataMATES USB	USB2422	Data: 24 AWG Power: 22 AWG Drain Wire: 28 AWG Stranded SPC	@ 96 MHz: 29.5 db @ 200 MHz: 49.6 db @ 400 MHz: 89.9 db	4.56 ns	4.57	25.40	3.6 Kg	-55°C to +150°C	Data: 90.0 Ω Power: 49.9 Ω
	USB2624	Data: 26 AWG Power: 24 AWG Drain Wire: 28 AWG Stranded SPC	@ 96 MHz: 34.6 db @ 200 MHz: 58.3 db @ 400 MHz: 105.7 db	4.86 ns	4.17	12.70	3.3 Kg	-55°C to +200°C	Data: 90.0 Ω Power: 82.0 Ω

DataMATES DATABUS MIL-STD-1553B: Physical and Electrical data

All values nominal unless otherwise noted

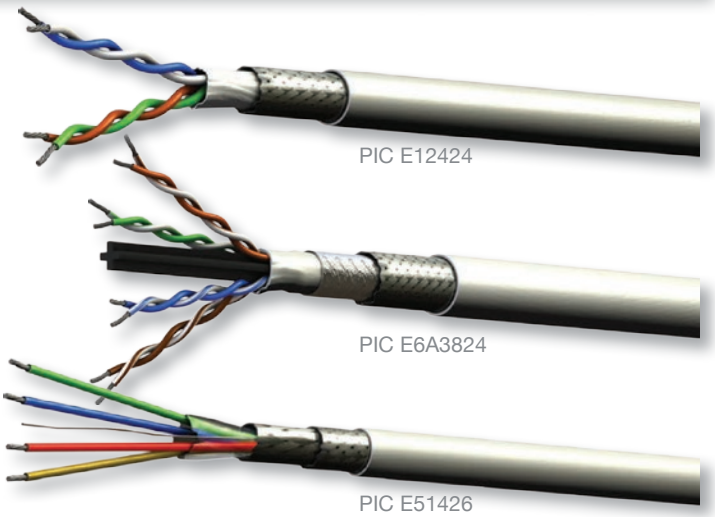
1553B	Part No.	Conductor	Attenuation per 100m	Shield Coverage	Cable OD (mm)	Min. Radius (mm)	Weight per 100m	Temp. Range	Impedance
DataMATES DATABUS	G771553	24 AWG Stranded SPCA	@ 1 MHz: 4.6 db	90% Min.	3.18	16.51	2.5 Kg	-55°C to +200°C	77 Ω

MEETS STRINGENT CRITERIA

Using the latest technologies, PIC cable and cable products are designed and manufactured to meet the stringent electrical and mechanical performance criteria required for these advanced electronic applications such as aerospace - EMI immunity, lightweight, low loss, high temperature, harsh environment. Ensuring world class quality and reliability is a top priority at PIC, as evidenced by world class quality certifications and consistently positive customer feedback.

PIC Wire & Cable continues to advance high speed data communication technology with their expanded **DataMATES®** product lines that offer tailored solutions for many military, motorsport and aerospace applications including:

Ethernet Communications | HD Video | Ground vehicle Bus



PIC E12424

PIC E6A3824

PIC E51426

PIC RFMATES®

70% LIGHTER than equivalent RG cable

Rayfast

RFMATES® is PIC Wire & Cable's line of 50 ohm coaxial and triaxial cables.

ULTRALITES continue PICs tradition of developing lighter-weight components. When comparing PIC to RG models, ULTRALITES deliver considerable weight savings which can save thousands of dollars/pounds/euros over the lifetime of an aircraft.

The PIC cable range is built to be light weight, highly flexible and resistant to corrosion and harsh environments, ofering users excellent high standards and high quality. For example, the low loss 50 ohm coax cable construction consists of: 1) An outer FEP jacket; 2) Silver-plated copper shield; 3)Aluminium/polyimide shield; 4)Silver-plated copper flat strip braid; 5) PTFE Dielectric; and 6) Silver-plated copper conductor.

Navigation: DME | GPS | Radio Altimeter | VOR | Marker Beacon
Collision Avoidance: TCAS | TAS | ACAS | Mode S | Skywatch
Communications: HF | VHF | UHF | AirCell | Cellular | Satcom

50 Ohm RF Coaxial/Triaxial CABLE SOLUTIONS

PIC RFMATES® ULTRALITE

80% LIGHTER than equivalent RG cable

NEXT GENERATION LITEWEIGHT RF COAXIAL CABLES

RFMATES ULTRALITE - Comparison Guide vs RG393

Coaxial Cable		Weight		Loss @ 1.0 GHz	Shield'g Effect'
ULTRALIGHT	UH67163	80%	5.1 kg/100m	20.3 dB/100m	-110 dB
LIGHT	S67163	70%	8.0 kg/100m	23.0 dB/100m	-90 dB
STANDARD	RG393	-	26.4 kg/100m	25.2 dB/100m	-75 dB

More flexible | Tighter bend radius | Smaller outside diameter | Lower attenuation | Better shielding

RFMATES - Replacement Guide for Standard RG

Part No.	PIC Replacement	% Weight Saving
RG393	S67163	70%
RG214	S33141	63%
RG142	S88207	58%
RG400	S86208	64%

The enhanced PIC RF cable design offers engineers the best solution for high performance applications, where enhanced technical requirements are called for...

Inner flat or strip braid, high temperature polyimide foil and dual braided shields offers reduced loss and improved EMI shielding.

Silver plated copper throughout offering reduced loss, increase in temperature withstand and reduced corrosion.

The tables opposite are intended as a guide, for additional technical information, alternative cable choices or additional technical information, plus product data sheets please contact us.

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PIC RFMATES®

LIGHTER than equivalent RG cable

Rayfast

RFMATES 50 ohm COAXIAL - Physical and Electrical data

All values nominal unless otherwise noted

Part No.	Conductor	Loss 1.0 GHz	Cable O.D.	Weight	Temp. Range	Shielding
S22089	10 AWG Stranded SPC	11.5 dB/100m	11.05 mm	26.8 kg/100m	-55°C to +200°C	-90 dB
S55122	12 AWG Stranded SPC	16.7 dB/100m	7.87 mm	12.4 kg/100m	-55°C to +200°C	-90 dB
S33141	14 AWG Stranded SPC	22.0 dB/100m	6.86 mm	9.7 kg/100m	-55°C to +200°C	-90 dB
S65161-A	16 AWG Stranded SPC	26.9 dB/100m	4.95 mm	5.2 kg/100m	-65°C to +200°C	-110 dB
S44191	20 AWG Stranded SPC	38.7 dB/100m	4.95 mm	6.4 kg/100m	-55°C to +200°C	-90 dB
S86208	21 AWG Stranded SPC	46.3 dB/100m	3.30 mm	2.9 kg/100m	-55°C to +200°C	-80 dB
S31601	26 AWG Stranded SPC	86.3 dB/100m	2.59 mm	1.5 kg/100m	-55°C to +200°C	-90 dB
S67163	15 AWG Solid SPC	23.0 dB/100m	5.72 mm	8.0 kg/100m	-55°C to +200°C	-90 dB
S44193	19 AWG Solid SPC	36.4 dB/100m	4.95 mm	6.4 kg/100m	-55°C to +200°C	-90 dB
S88207	20 AWG Solid SPC	42.0 dB/100m	3.30 mm	2.8 kg/100m	-55°C to +200°C	-80 dB
S40501	24 AWG Solid SCCS	63.6 dB/100m	2.54 mm	2.1 kg/100m	-55°C to +200°C	-110 dB
S46191	20 AWG Stranded TPC	70.5 dB/100m	4.95 mm	4.0 kg/100m	-55°C to +150°C	-75 dB

RFMATES ULTRALIGHT 50 ohm COAXIAL - Physical and Electrical data

All values nominal unless otherwise noted

Part No.	Conductor	Loss @ 1.0 GHz	Cable O.D.	Weight	Temp. Range	Shielding
UH67163	14 AWG Solid SPCCA	20.3 dB/100m	5.77 mm	5.1 kg/100m	-65°C to +200°C	-110 dB
UH22089	10 AWG Solid SPCCA	11.5 dB/100m	8.76 mm	10.7 kg/100m	-65°C to +200°C	-110 dB
UH44193	19 AWG Solid SPCCS	34.1 dB/100m	3.86 mm	2.9 kg/100m	-65°C to +200°C	-110 dB

RFMATES 50 ohm TRIAXIAL - Physical and Electrical data

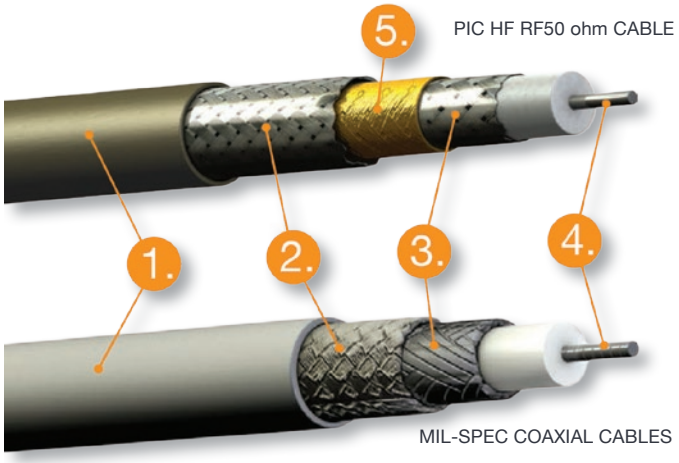
All values nominal unless otherwise noted

Part No.	Conductor	Loss @ 1.0 GHz	Cable O.D.	Weight	Temp. Range	Shielding
L8620TX	21 AWG stranded SPC	49.5 dB/100m	4.39 mm	4.3 Kg/100m	-55°C to +150°C	-90 dB
L2201TX	20 AWG stranded SPC	66.9 dB/100m	6.22 mm	8.9 Kg/100m	-55°C to +150°C	-75 dB

PIC Triaxial cables can be used in many coax applications, but offers an additional, separate shield, not just another layer of shielding. The outer shield covers the “coax” inside and can add an extra measure of EMI protection. The outer shield is customarily grounded in order to provide a bypass for both induced and electric field noise currents.

PIC L8620TX

Honeywell has approved L8620TX for use as the 10base2 LAN cable in their Apex/Epic system.



PIC HF RF50 ohm CABLE

MIL-SPEC COAXIAL CABLES

Compare PIC to standard MIL-SPEC

1. FEP Jacket
2. Silver Plated Copper Round Braid
3. **PIC: Silver-Copper Flat Strip or Braid**
   MIL: Silver-Copper Round Braid
4. **PIC: Solid or Stranded available SPC**
   MIL: Stranded SPC
5. **PIC: Polyimide foil**

Lower Loss | Lower Weight | Better EMI Immunity

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PIC VideoMATES®

70% LIGHTER than equivalent RG cable

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VIDEOMates® is our 75 ohm coaxial and triaxial line of cables, all constructed with silver-plated conductors. They are designed to minimise EMI while delivering low loss transmission of video signals; ideal for cabin security, in flight entertainment and cockpit displays. Features include high flexibility, light weight and resistance to harsh environments.

Our PIC interconnect products are widely specified for use in major aerospace and military systems throughout the world and VIDEOMates® products can be found in the following applications...

Cockpit Displays
Surveillance Cameras
Cabin Entertainment
RS170 Video
SMPTE 292M
SMPTE 424M Video

75 Ohm VIDEO Coaxial/Triaxial CABLE SOLUTIONS

The Best Made Solution

PIC V75268

PIC V78209

PIC L7626TX

VIDEOMates Features and Benefits

- Lower Attenuation
- Smaller OD
- Tighter Bend Radius
- More Flexible
- Associated Connectors

VIDEOMATES 75 ohm COAXIAL - Physical and Electrical data

All values nominal unless otherwise noted

Part No.	Conductor	Application Notes	Loss (dB/100m)	Cable OD	Weight	Temp. Range	Shielding
V75268	26 AWG Stranded	SMPTE 259M RG179	19.4 @ 135 MHz	3.10 mm	1.9 kg/100m	-55°C to +150°C	-50 dB
V76261	26 AWG Stranded	SMPTE 259M RG179	19.0 @ 135 MHz	3.10 mm	1.7 kg/100m	-55°C to +150°C	-90 dB
V73263	26 AWG Stranded	SMPTE 292M Video	67.6 @ 1.5 GHz	3.18 mm	2.2 kg/100m	-55°C to +150°C	-110 dB
V78209	20 AWG Stranded	SMPTE 424M Video	62.3 @ 3.0 GHz	5.36 mm	4.7 kg/100m	-55°C to +150°C	-90 dB

VIDEOMATES 75 ohm TRIAXIAL - Physical and Electrical data

All values nominal unless otherwise noted

Part No.	Conductor	Application Notes	Loss (dB/100m)	Cable OD	Weight	Temp. Range	Shielding
L7626TX	26 AWG Stranded	Radar Systems	18.0 @ 100 MHz	3.99 mm	3.3 kg/100m	-50°C to +150°C	-90

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PIC MicroMATES

COMPLETE cable assembly solutions

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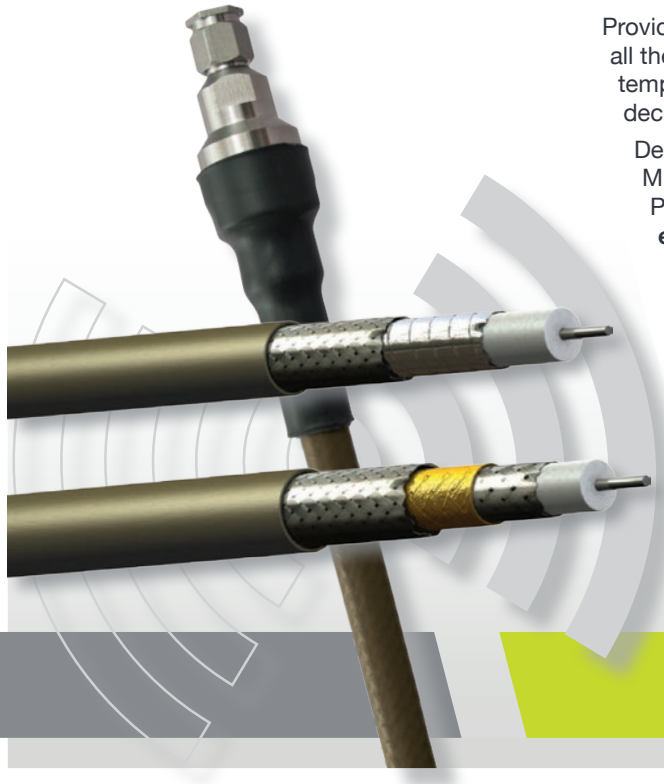


Provides high bandwidth for data and support satellite communications, like all the 50 ohm RF Cables, MICROMates® feature a minimum 200°C operating temperature on all materials, PIC high frequency cables reduce weight, decrease loss and improve EMI performance.

Designed specifically to serve Ku Band and X Band Applications, the MICROMates® Cables feature: Inner Flat Braid or Strip Braid; High Temp Polyimide Foil; Dual Braided Shields; and Silver Plated Copper throughout - **everything to make your job easier and your platform more productive**.

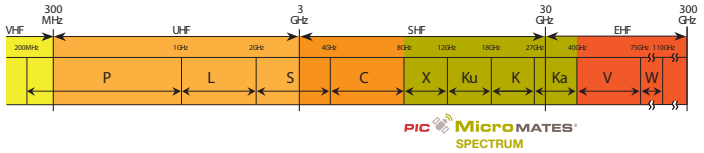
Custom Cable Assemblies

Proper cable assembly is critical to realising the full benefits of the cable and connector technology. Using special tooling and specialised technicians we ensure your job is done to precision. Maximize the performance of your Microwave Cables with:

- Certified Test Process & Equipment
- Phase-matched Ship Sets
- Qualified Assembly Experts
- ISO 9001; AS 9100 Certification

HIGH FREQUENCY CABLE SOLUTIONS

Electromagnetic Spectrum



Connector data

HT77300F	HT77210F	HH85295F	HH8521F	Connector Type
120208	120508	120608	120708	TNC Straight Plug
120209	120509	120609	120709	TNC 90° Plug
120221	120521	120621	120721	TNC Bulkhead Jack
120223	120523	120623	120723	TNCA Jack
120226	120526	120626	120726	TNCA Panel Jack
120210	120510	120610	120710	N Straight Plug
120211	120511	120611	120711	N 90° Plug
120222	120522	120622	120722	N Bulkhead Jack
120214	120514	120614	120714	SMA Straight Plug
120215	120515	120615	120715	SMA 90° Plug
n/a	120534	n/a	n/a	BMB JackSnap Mount
n/a	120535	n/a	n/a	BMB SZ 5 Jack

MICROMATES HIGH FREQUENCY - Physical and Electrical data

All values nominal unless otherwise noted

Part No.	VOP	Cable OD	Weight	Temp. Range	Shielding	Loss @ 1GHz	Loss @ 12GHz	Loss @ 18GHz
HT77300F	77.0%	7.62 mm	13.1 kg/100m	-55°C to +200°C	-90 dB	16.4 dB/100m	64.0 dB/100m	81.0 dB/100m
HT77210F	76.5%	5.28 mm	6.7 kg/100m	-55°C to +200°C	-90 dB	24.9 dB/100m	96.8 dB/100m	122.4 dB/100m
HH85295F	84.0%	7.49 mm	12.8 kg/100m	-55°C to +200°C	-110 dB	13.8 dB/100m	49.9 dB/100m	62.3 dB/100m
HH85210F	85.0%	5.33 mm	6.5 kg/100m	-55°C to +200°C	-90 dB	19.7 dB/100m	75.1 dB/100m	94.8 dB/100m

Attribute Overview

Part No.	Max Frequency	Size	EMI Resist	Loss	Weight	Flex Life
HT77300F	18GHz	Small	High	Low	Light	Very High
HT77210F	26GHz	Very Small	High	Low	Light	Very High
HH85295F	18GHz	Small	Very High	Very Low	Light	High
HH85210F	26GHz	Very Small	Very High	Very Low	Light	High

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PIC WIRE & CABLE
A Division of The Angelus Corporation

QUALITY TECHNOLOGY SERVICE

IS Rayfast

Connector Solutions

PIC Wire & Cable has an extensive line of high quality connectors and contacts for its cable offerings, including TNC, BNC, H, HN, N, C, SMA, ARINC, M39029 and D-Sub.

In addition, PIC has many innovative connectors that improve termination, installation, maintenance and reliability. To ensure proper field installation, termination instructions and crimp die sets are available for most connectors. PIC also offers complete certified cable assemblies built to your requirements.

Connectors for:

50 Ohm RF Coaxial and Triaxial Cable
75 Ohm Video Coaxial and triaxial Cable
High Speed Data Communications Cable

See below for features on more unique products. Each and every one of our exceptional products is designed with one overriding factor in mind - **Making your job easier.**

CONNECTOR SOLUTIONS

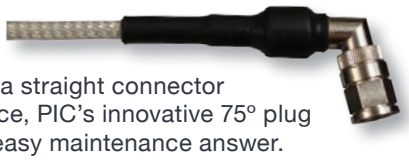
Cable Assembly Solutions

Proper cable assembly is critical to optimising the full benefits of interconnect technology. From our broad portfolio of cables and connectors, we can provide assemblies for the most advanced electronic applications required in avionics systems and manufacturer programs.

Certified Test Processes and Equipment | Precision Phase Matched Shipped Sets | ISO 9001: AS 9100 Certifications | Built and tested to Customer Requirements | Qualified Assembly Experts | Test Reports Included with Every Assembly | Complete Lot Traceability | Improved Supply Chain Efficiency

Unique Product Features

75 Degree TNC Plug



When a 90° connector creates interference and a straight connector consumes too much space, PIC's innovative 75° plug is the space saving and easy maintenance answer.

QUAD Connector™

Four hermetically-sealed connections through one circular hole in the bulkhead. Available in TNC and BNC 50 ohm and 75 ohm types. TCAS/Mode S installations can use three panel holes instead of as many as twelve space, saving time and money.

Size 16 Contact with Built-in Extraction Sleeve

Designed for 75 ohm video applications, size 16 contacts save space and include a built-in extraction mechanism for easier removal from rack or circular connectors. Compatible with V75268, V76261 and V73263 video cables.

BladePatch RJ45 Connector

Innovative design to lock into a standard RJ45 jack. Simply push the connector into the jack to lock; pull back on the connector body to release. Provides a secure connection and eliminates the standard RJ45 locking tabs that can break easily.

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