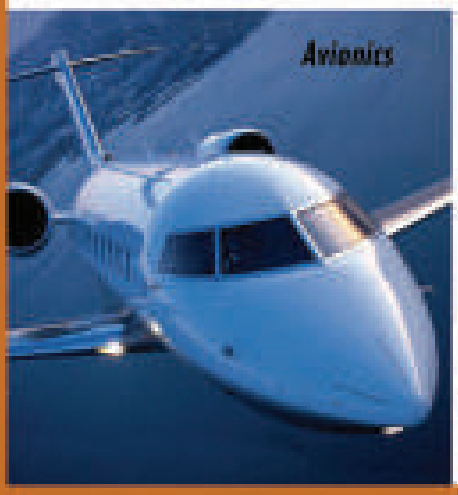
Harbour
INDUSTRIES

Aerospace High Speed Data Cable

Gigabit Ethernet
Quad Constructions
Twisted Pair Constructions



As the premier manufacturer of high performance wire and cable, Harbour Industries LLC has developed a full line of High Speed Data Cables called **Data Master®.**

◊ Gigabit Ethernet, Quad, Twisted Pair, and Composite designs offered are light weight, flexible, and easy-to-terminate ... all of which sets Harbour apart from the competition.

◊ Our design and process engineering experience and expertise ensures high quality and uniform products manufactured in accordance with customer specifications and requirements.

◊ Harbour is proud of their "First-in-Class" customer service supported by a wide range of manufacturing processes and large scale production.

◊ Through the use of special materials and innovative design techniques, Harbour offers **Aerospace Data Master® Cables** that are light weight and high speed. Twisted Pair, Quad, and Composite cables described in this catalog represent just a few of the cables Harbour offers.

◊ Harbour Industries' **Data Master®** cables are used in numerous applications on commercial and military aircraft and military land based vehicles at companies such as Boeing, Bombardier, Harris, Rockwell Collins, Raytheon, EDS, Sikorsky, BAE, L-3, Lockheed Martin, Northrop Grumman, General Dynamics, and Honeywell.

Harbour Industries' Facility in Shelburne, Vermont

AEROSPACE DATA CABLES

Design Considerations based on Application

◊ Harbour Industries carefully chooses center conductors and shields for the best combination of DC resistance, tensile strength, and flexibility. Insulation and jacketing compounds are chosen for cut-through, abrasion resistance, and resistance to solvents, hydraulic fluids, and chemicals.

◊ Cable designs are optimized to meet customers' electrical requirements taking into consideration FAA, ARINC, military, and industry specifications.

◊ Harbour has a long history of providing cost effective solutions to support even the most demanding program requirements.

◊ Cable designs in this catalog describe just a few of the many different constructions Harbour has manufactured and are available for specific customer requirements.

Harbour's High Speed Data Master® Cables

Innovative Cables for IFE and CMS Applications

Data Master® cable constructions utilize first in class design engineering along with cutting edge manufacturing techniques.

Proprietary Foamed Fluoropolymer Insulation: Harbour pioneered the process to manufacture closed cell Fluoropolymer insulation. Our composite primaries have enhanced characteristics when compared to other types of insulating materials. Such as:

Overall Weight Savings: Up to 10% reduction in cable weight.

Toughness: A closed cell insulation provides enhanced crush resistance when compared to other types of insulations such as expanded PTFE.

Ease of Termination: Harbour's composite fluropolymer insulation provides swift, clean-cut processing!

Longer lengths: Harbour's proprietary process yields longer average lengths when compared to other manufacturers.

Data Master® Cables meet the most demanding standards for Flame, Smoke, and Toxicity: FAR 25.0 Appendix F, Boeing and Airbus standards.

Whether it's Gigabit Ethernet, Quad, Twisted Pair or custom designs let Harbour unleash its reputation and provide a quality product, with the finest customer support, delivered on time at a competitive price!

To learn more go to www.harbourind.com or call 800-659-4733 today.

"Broadening our Foot Print,
Power of the Past is the Force of our Future"

Harbour's Gigabit Ethernet *Aero* Series

Harbour has employed years of experience manufacturing **High Speed Data Cables** to come up with a new line of Gigabit Ethernet Cables for Aerospace applications. These three cables have been engineered to exceed our customer's expectations for **performance, flexibility, ease of termination and low weight.**

Data Master Aero® cables are being used in **In-Flight-Entertainment Systems, Military and Commercial Avionics, Cabin Management Systems** just to name a few. Harbour's Data Master® cables meet the most demanding Boeing and Airbus smoke and toxicity requirements and also FAR 25.853 Flame tests.

Data Master® Aero A lightweight easily terminated with 1000 Base T Cat 5e performance.

Data Master® AeroBit A 10 Gigabit solution providing future proof headroom for demanding aerospace applications.

Data Master®AeroFit Proprietary construction provides Cat 5e performance with second-to-none bend radius. Extremely low weight and small overall diameter.

GIGABIT ETHERNET CABLE

Data Master® Aero

Construction

Four Pair Cable Design
Proprietary Fluropolymer Insulation
Fluropolymer Tape Binder
Aluminum Inner Shield
Round Wire Outer Braid
FEP Jacket (laser markable ETFE and PFA available)

	E10024064	E10024087	E10026088	E10026089
Conductor	24(19) SPCA	24(19) SPCA	26(19) SPCA	26(19) SPCA
Outer Braid	SPC	TPC	SPC	TPC
Overall Diameter	.275"	.275"	.230"	.230"
Weight (lbs/mft)	50	50	37	37
Temp Rating	-55°C +200°C	-55°C +150°C	-55°C +200°C	-55°C +150°C

1000 Base T Cat 5e Performance
Impedance 100.0 +/- 15 Ohms
All Cables Comply with RoHS and REACH Directives
Cables pass FAR 25.853, Airbus ABD0031, and Boeing Smoke & Toxicity Requirements

- ◊ Easy to install, superior electrical performance
- ◊ Ideal for a wide range of high speed Ethernet applications
- ◊ Small size, light weight, and durable
- ◊ Exceptional mechanical and electrical performance
- ◊ Applications: In-Flight Entertainment Systems, Cabin Management Systems, Ethernet Backbone Avionics, and Ground Vehicle Trunk and Bus

GIGABIT ETHERNET CABLE

Data Master® AeroBit

Construction

Four Pair Cable Design
Proprietary Fluropolymer Insulation
Fluropolymer Tape Binder
Aluminum Inner Shield
Round Wire Outer Braid
FEP Jacket (laser markable ETFE and PFA available)

	E10024065	E10024090	E10026091	E10026092
Conductor	24(19) SPCA	24(19) SPCA	26(19) SPCA	26(19) SPCA
Outer Braid	SPC	TPC	SPC	TPC
Overall Diameter	.275"	.275"	.230"	.230"
Weight (lbs/mft)	50	50	37	37
Temp Rating	-55°C +200°C	-55°C +150°C	-55°C +200°C	-55°C +150°C

10 Gigabit allows future-proof signal headroom
Impedance 100.0 +/- 15 Ohms
All Cables Comply with RoHS and REACH Directives
Cables pass FAR 25.853, Airbus ABD0031, and Boeing Smoke & Toxicity Requirements

◊ Highly durable cables are a perfect match for a wide range of demanding data applications
◊ Reduces crosstalk and elminates the need for individual pair shielding
◊ Applications: In-Flight Entertainment Systems, Cabin Management Systems, Ethernet Backbone Avionics, and Ground Vehicle Trunk and Bus

GIGABIT ETHERNET CABLE

Data Master® AeroFit

Construction

Four Pair Cable Design
Proprietary Fluropolymer Insulation
Fluropolymer Tape Binder
Aluminum Inner Shield
Round Wire Outer Braid
FEP Jacket (laser markable ETFE and PFA available)

	E10026093	E10026094
Conductor	26(19) SPCA	26(19) SPCA
Outer Braid	SPC	TPC
Overall Diameter	.205"	.205"
Weight (lbs/mft)	30	30
Temp Rating	-55°C +200°C	-55°C +150°C

1000 Base T Cat 5e Performance
Lighter Weight and Smaller Diameter with a tighter bend radius
Impedance 100.0 +/- 15 Ohms
All Cables Comply with RoHS and REACH Directives
Cables pass FAR 25.853, Airbus ABD0031, and Boeing Smoke & Toxicity Requirements

◊ These highly flexible designs provide the same electrical performance as Harbour's Gigabit Aero and AeroBit constructions.
◊ The cables are ideal for routing in tight spaces.
◊ Applications: In-Flight Entertainment Systems, Cabin Management Systems, Ethernet Backbone Avionics, and Ground Vehicle Trunk and Bus

Harbour
INDUSTRIES
High Performance Wire & Cable

Want to lose some weight?

Data Master® Q100

Data Quad constructions are the Data Cable workhorses in countless applications in today's aircraft. For example often many, many thousands of feet will be used in a single In-Flight-Entertainment system. No surprise Engineers need the **lightest** quad cable they can get their hands on.

Enter Harbour Industries Data Master® Q100! Harbour's proprietary Fluoropolymer insulation Delivers!

How does 10% sound?

Do the math!

*** *Data Master® Q100* 24 AWG: 22 lbs/Mft**

*** Harbour's closest competitor's 24 Quad: 24.5 lbs/Mft**

Throw in a tougher, easier to terminate, longer lengths, COMPETITIVE…. It's game over!

* 22, 24 and 26AWG
* Operating Temperatures: -55°C through 200°C
* Jackets: FEP, laser printable ETFE (200°C available!)

Samples available! www.Harbourind.com Call 800-659-4733

Data Master® Aerospace Cable
Quad Ethernet Designs

Construction
Four Conductor Quadrax Design
Proprietary Fluropolymer Insulation
Fluropolymer Tape Binder
Flat TPC Inner Braid + Round Wire TPC Outer Braid
SPC and Other Shield Configurations Available
FEP Jacket (laser markable ETFE and PFA available)

	Q10022310	Q10024016	Q10026301	Q15022034	Q15024035	Q15026311
Conductor	22(19) SPC	24(19) SPCA	26(19) SPCA	22(19) SPC	24(19) SPCA	26(19) SPCA
Overall Diameter	.186"	.161"	.137"	.271"	.239"	.205"
Capacitance (pF/ft)	13.0	13.0	14.5	8.5	8.5	8.5
Weight (lbs/mft)	29	22	18	55	43	30

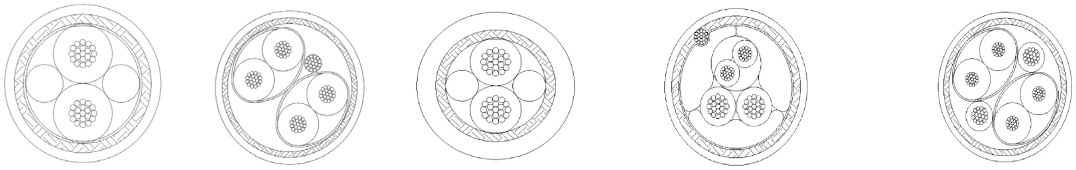
1000 Base T Cat 5e Performance
Temperature Rating -55°C +150°C
All Cables Comply with RoHS and REACH Directives
Cables pass FAR 25.853, Airbus ABD0031, and Boeing Smoke & Toxicity Requirements

- ◊ Stable electrical performance supporting 1000 Base T Ethernet and Cat 5e performance over defined distances
- ◊ Lightweight and small size for high speed airborne data applications
- ◊ Silver plated copper and silver plated copper alloy conductors with tin or silver plated copper braids
- ◊ Easy termination with non-shrinkback insulation, fits standard connectors
- ◊ 100 and 150 Ohm impedance, 150°C and 200°C rated
- ◊ Supports Gigabit Ethernet, FDDI, USB, and 1394 standards

Data Master® Aerospace Cable Twisted Pair and Composites

Construction

One through Four Pairs and Composite Designs
Proprietary Fluropolymer Insulation
Round Wire Braids, Tin and Silver
FEP Jacket (laser markable ETFE and PFA available)



Part Number	E10024095	E10024096	M17/176-00002	E09026097	E11024098
	1 pair 24(19) SPCA	2 pair 24(19) SPCA	Twinax Databus 24(19) SPCA	1 data pair + 2 power cond. USB 26(19) SPCA	2 data pair + 2 power cond. Fire Wire 24(19) SPCA
Outer Braid	TPC	TPC	SPC	SPC	SPC
Overall Diameter	.141"	.276"	.129"	.200"	.250"
Impedance (ohms)	100	100	77	90	110
Weight (lbs/mft)	17	35	18	29	40
Temperature Rating	150°C	150°C	200°C	200°C	200°C
Attenuation (db/100ft) typ/max @ 10 MHz	2.0 / 2.3	2.0 / 2.3	4.1 / 4.5	3.5 / 4.0	1.9 / 2.3
@ 100 MHz	6.8 / 7.5	6.8 / 7.5	15.4 / 17.0	12.2 / 14.6	6.5 / 7.2

All Cables Comply with RoHS and REACH Directives
Cables pass FAR 25.853, Airbus ABD0031, and Boeing Smoke & Toxicity Requirements

- ◊ Databus cable and twinax (such as the MIL-DTL-17 construction M17/176-00002) streamline communication between various electronic components and avionic units in commercial aircraft, military aircraft, and military ground vehicles.
- ◊ Composite cables have been designed for minimal insertion loss and superior protection against EMI and RFI.
- ◊ Applications: In-Flight Entertainment Systems, Cabin Management Systems, USB and VGA Multimedia, Standard Definition Video, and HDTV.

Harbour
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High Performance Wire & Cable

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