

**Part Number: 74004NH**

**DataTuff® Industrial Ethernet Cat 7 Permanent Installation Cable**



### Product Description

DataTuff Industrial ETHERNET, Cat 7 4 Pair, 10 Gb/s, AWG 23(1), Solid, Foil + 80% Braid, No Halogen Jacket, UL AWM 20851

### Technical Specifications

#### Product Overview

Environmental Space:	Indoor - Euroclass B2ca
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#### Physical Characteristics (Overall)

##### Conductor

Element	AWG	Stranding	Material	No. of Pairs
Individual shielded pair	23	Solid	BC - Bare Copper	4

Conductor Count:	8
Total Number of Pairs:	4
Conductor Size:	23 AWG

##### Insulation

Element	Type	Material	Nominal Diameter	Diameter +/- Tolerance
Individual shielded pair	Dielectric	FPE - Foamed Polyethylene	1.45 mm	0.05 mm

Bonded-Pair:	No
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##### Color Chart

Number	Color
Pair 1	White & Blue
Pair 2	White & Orange
Pair 3	White & Green
Pair 4	White & Brown

##### Inner Shield Material

Element	Type	Material	Coverage [%]
Individual shielded pair	Tape	Aluminum / Polyester	100 %

InnerShield, Table Note:	Aluminum outside
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##### Outer Shield Material

Type	Material	Min. Coverage [%]
Braid	TC - Tinned Copper	65 %

##### Outer Jacket Material

Material	Nominal Diameter	Diameter +/- Tolerance
LSZH / FRNC (UV stabilised and oil resistant)	8 mm	0.3 mm

#### Construction and Dimensions

Min Elongation at Breakof Conductors:	10 %
Min Elongation at Breakof Insulation:	100 %

##### Cabling

Description
4 pairs twisted to cable core

Min Elongation at Breakof Jacket:	100 %
Min Tensile Strength of Jacket:	9 MPa

## Electrical Characteristics

### Conductor DCR

Max. Conductor DCR	Max. DCR Unbalanced Within Pair [%]
75 Ohm/km	2 Ohm

### Capacitance

Max. Capacitance Unbalance	Max. Mutual Capacitance
1.6 pF/m	56 pF/m

### Impedance

Frequency [MHz]	Nominal Characteristic Impedance	Nominal Characteristic Tolerance	Nominal Input Impedance
4 - 100	100 Ohm	5 Ohm	100 Ohm
100 - 250	100 Ohm	22 Ohm	
250 - 600	100 Ohm	25 Ohm	

### High Frequency (Nominal/Typical)

Frequency [MHz]	Nom. Insertion Loss	Nom. NEXT [dB]	Nom. PSNEXT [dB]	Nom. ACR [dB]	Nom. PSACR [dB]	Nom. ACRF (ELFEXT) [dB]	Nom. PSACRF (PSELFEXT) [dB]
1 MHz	1.8 dB/100m	103 dB	100 dB	101 dB	98 dB	95 dB	92 dB
4 MHz	3.4 dB/100m	100 dB	97 dB	97 dB	94 dB	94 dB	91 dB
10 MHz	5.5 dB/100m	98 dB	95 dB	92 dB	89 dB	93 dB	92 dB
16 MHz	6.9 dB/100m	97 dB	94 dB	90 dB	87 dB	91 dB	88 dB
31.2 MHz	9.7 dB/100m	95 dB	92 dB	85 dB	82 dB	90 dB	87 dB
62.5 MHz	13.9 dB/100m	94 dB	91 dB	80 dB	77 dB	87 dB	84 dB
100 MHz	17.7 dB/100m	93 dB	90 dB	75 dB	72 dB	85 dB	82 dB
125 MHz	19.9 dB/100m	92 dB	89 dB	72 dB	69 dB	83 dB	80 dB
200 MHz	25.6 dB/100m	91 dB	88 dB	65 dB	64 dB	77 dB	74 dB
250 MHz	28.8 dB/100m	90 dB	87 dB	61 dB	58 dB	74 dB	71 dB
300 MHz	31.8 dB/100m	90 dB	87 dB	58 dB	55 dB	74 dB	71 dB
600 MHz	46.6 dB/100m	89 dB	86 dB	42 dB	39 dB	60 dB	57 dB
1000 MHz	62.2 dB/100m	88 dB	85 dB	26 dB	23 dB	50 dB	47 dB

### Delay

Max. Delay Skew	Nominal Velocity of Propagation (VP) [%]
40 ns/100m	78 %

### High Freq

Frequency [MHz]	Max. Insertion Loss (Attenuation)	Min. NEXT [dB]	Min. PSNEXT [dB]	Min. ACR [dB]	Min. PSACR [dB]	Min. ACRF (ELFEXT) [dB]	Min. PSACRF (PSELFEXT) [dB]	Min. RL (Return Loss) [dB]
1 MHz	2 dB/100m	78 dB	75 dB	76 dB	73 dB	78 dB	75 dB	20 dB
4 MHz	3.7 dB/100m	78 dB	75 dB	74.3 dB	71.3 dB	78 dB	75 dB	23 dB
10 MHz	5.9 dB/100m	78 dB	75 dB	72.1 dB	69.1 dB	75.3 dB	72.3 dB	25 dB
16 MHz	7.4 dB/100m	78 dB	75 dB	70.6 dB	67.6 dB	71.2 dB	68.2 dB	25 dB
31.2 MHz	10.4 dB/100m	78 dB	75 dB	67.6 dB	64.6 dB	65.4 dB	62.4 dB	23.6 dB
62.5 MHz	14.9 dB/100m	75.5 dB	72.5 dB	60.6 dB	57.6 dB	59.4 dB	56.4 dB	21.5 dB
100 MHz	19 dB/100m	72.4 dB	69.4 dB	53.4 dB	50.4 dB	55.3 dB	52.3 dB	20.1 dB
125 MHz	21.4 dB/100m	70.9 dB	67.9 dB	49.6 dB	46.6 dB	53.4 dB	50.4 dB	19.4 dB
200 MHz	27.5 dB/100m	67.9 dB	64.9 dB	40.4 dB	37.4 dB	49.3 dB	46.3 dB	18 dB
250 MHz	31 dB/100m	66.4 dB	63.4 dB	35.5 dB	32.5 dB	47.3 dB	44.3 dB	17.3 dB
300 MHz	34.2 dB/100m	65.2 dB	62.2 dB	31.1 dB	28.1 dB	45.8 dB	42.8 dB	17.3 dB
600 MHz	50.1 dB/100m	60.7 dB	57.7 dB	10.6 dB	7.6 dB	39.7 dB	36.7 dB	17.3 dB
1000 MHz	66.9 dB/100m	57.4 dB	54.4 dB			35.3 dB	32.3 dB	15.1 dB

High Freq Table Note:	Limits below 4MHz are for information only; Values at 1000 MHz are for information only
Coupling Attenuation Class:	Type Ib
Segregation class according EN50174-2:	c

### Transfer Impedance

Frequency [MHz]	Transfer Impedance
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1 Mhz	Max. 5 mOhm/m
10 Mhz	Max. 5 mOhm/m
30 Mhz	Max. 30 mOhm/m
100 Mhz	100 mOhm/m

#### Current

Element	Max. Recommended Current [A]
Conductor	1.4 A

#### Voltage

UL Voltage Rating	Voltage Rating [V]
30 V RMS	125 V (non UL)

#### Temperature Range

Installation Temp Range:	-15°C To +60°C
Storage Temp Range:	-40°C To +80°C
Operating Temp Range:	-40°C To +80°C

#### Mechanical Characteristics

Oil Resistance:	IEC 60811-2-1
Max Recommended Pulling Tension:	80 N
Min Bend Radius (W/o Pulling Strength):	80 mm
Min Setting Radius:	40 mm

#### Standards

UL AWM Style:	AWM 20851
ISO/IEC Compliance:	ISO/IEC 11801 Ed. 2.2:2002/A2:2010/C1:2011 and ISO/IEC 24702
CPR Euroclass:	B2ca-s1,d1,a1
CENELEC Compliance:	EN 50173-1 Ed. 3:2011
Data Category:	Category 7
ANSI Compliance:	ANSI/TIA/EIA 568-C.2 (2009)
IEEE Specification:	PoE: IEEE 802.3bt Type 1, Type 2, Type 3, Type 4

#### Applicable Environmental and Other Programs

EU RoHS Compliance Date (yyyy-mm-dd):	2005-01-01
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#### Flammability, LS0H, Toxicity Testing

ISO/IEC Flammability:	IEC 60332-1-2 and IEC 60332-3-24
Other Flammability:	EN 50266-2-4
Amount of Halogen acc. to IEC 60754-1 & EN50267-1:	Zero

#### Part Number

##### Variants

Item #	Color
74004NH.011000	Black
74004NH.01305	Black
74004NH.01500	Black
74004NH.01B100	Black
74004NH.02500	Gray

Patent:	<a href="https://www.belden.com/resources/patents">https://www.belden.com/resources/patents</a>
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#### History

Revision Number:	5
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