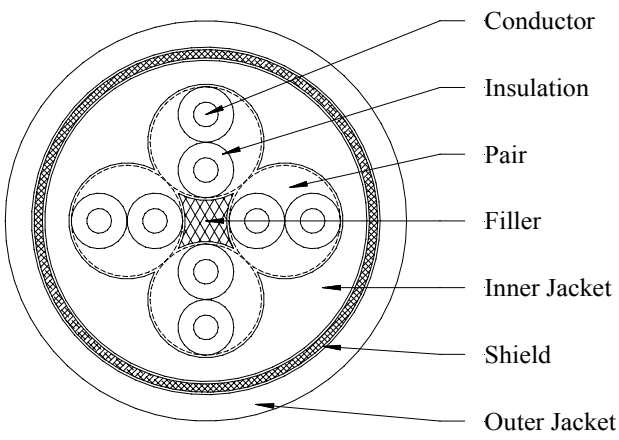
4 PAIR 24 AWG INDUSTRIAL ETHERNET CATEGORY 5E CABLE



CONSTRUCTION

Pair Component
Conductor: 24 AWG 19/36 Bare Copper, 0.024 Inch Diameter
Insulation: 0.013 Inches of High Density Polyethylene, 0.050 Inch Diameter
Pair: 2 Insulated Conductors Twisted Together, Lay Lengths Varied Between Pairs to Minimize Crosstalk

Final Assembly
Core: Cotton Filler
Layer 1: 4 Pairs (#1-4) Cabled Around Core
Inner Jacket: 0.016 Inches of Thermoplastic Elastomer, Color – Natural
Shield: 38 AWG Tin Plated Copper Braid, 80% Coverage
Jacket: 0.024 Inches of Polyurethane, Color – Orange
Diameter: 0.300 Inches Nominal
Print Legend (Black Ink): "MADISON CABLE 4PR/24 AWG Industrial Ethernet Category 5e RoHS COMPLIANT {Date Code}[1]

[1] Date Code is a 4-digit code with the first two digits identifying the calendar week and the last two identifying the calendar year of manufacturing. Example – 0206 for cable manufactured in the second week of January 2006.

COLOR CODE

Pair #	Conductor #1	Conductor #2
1	White	Blue
2	White	Orange
3	White	Green
4	White	Brown

ELECTRICAL CHARACTERISTICS

Frequency (MHz)	Attenuation[2] (dB/100 m Nom.)	NEXT[3] (dB Min.)	PSNEXT[4] (dB Min.)	ACR[5] (dB Min.)
0.772	2.7	67.0	64.0	65.2
1	3.0	65.3	62.3	63.3
4	6.2	56.3	53.3	52.2
8	8.7	51.8	48.8	46.0
10	9.8	50.3	47.3	43.8
16	12.3	47.2	44.2	39.0
20	14.0	45.8	42.8	36.5
25	15.6	44.3	41.3	33.9
31.25	17.6	42.9	39.9	31.2
62.5	25.5	38.4	35.4	21.4
100	33.0	35.3	32.3	13.3

[2] Values shown are examples. Attenuation at any frequency between 0.772 and 100 MHz is $1.5(1.967\sqrt{f}+0.023+0.050/\sqrt{f})$ dB/100 meter Maximum, where f is frequency in MHz and measurement is on a length ≥ 100 meters.
[3] Values shown are examples. NEXT at any frequency between 0.772 and 100 MHz is $35.3 - 15\ \mathrm{Log}_{10}(f/100)$ dB Minimum, where f is frequency in MHz and measurement is on a length ≥ 100 meters.
[4] Values shown are examples. Power Sum NEXT at any frequency between 0.772 and 100 MHz is $32.3 - 15\ \mathrm{Log}_{10}(f/100)$ dB Minimum, where f is frequency in MHz and measurement is on a length ≥ 100 meters. Power Sum Crosstalk is defined as total energy that a pair receives when all other pairs are energized.
[5] Attenuation Crosstalk Ratio. The difference between attenuation and crosstalk measured in dB at given frequency.

Frequency (MHz)	ELFEXT[6] (dB Min.)	PSELFEXT[7] (dB Min.)	RL[9] (dB Min.)
1	63.8	60.8	20.0
4	51.8	48.8	23.0
8	45.7	42.7	24.5
10	43.8	40.8	25.0
16	39.7	36.7	25.0
20	37.8	34.8	25.0
25	35.8	32.8	24.2
31.25	33.9	30.9	23.3
62.5	27.9	24.9	20.7
100	23.8	20.8	19.0

[6] Values shown are examples. ELFEXT at any frequency between 1 and 100 MHz is $23.8 - 20\ \mathrm{Log}_{10}(f/100)$ dB Minimum, where f is frequency in MHz and measurement is on a length ≥ 100 meters.
[7] Values shown are examples. Power Sum ELFEXT at any frequency between 1 and 100 MHz is $20.8 - 20\ \mathrm{Log}_{10}(f/100)$ dB Minimum, where f is frequency in MHz and measurement is on a length ≥ 100 meters.
[8] Values shown are examples. Time delay at any frequency between 1 and 100 MHz Is $534 + 36/\sqrt{f}$ ns/100 m Maximum from 1 - 100 MHz, where f is frequency in MHz.
[9] Values shown from 1-100 MHz are examples. Return Loss at any frequency between1 and 10 MHz is $20 + 5\ \mathrm{Log}_{10}(f)$ dB Minimum, between 10 and 20 MHz is 25 Minimum, and between 20 and 100 MHz is $25 - 8.6\ \mathrm{Log}_{10}(f/20)$ dB Minimum, where f is frequency in MHz and measurement is on a length ≥ 100 meters.

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REVISION HISTORY

1	09/16/08	DC	Initial Release
2	11/03/08	DC	Revised Elect, Added Flex Life, et. al.
3	12/17/08	DC	Revised jacket wall and diameter

Spec Number:	**101-8018**			
Part Number:	**08QFLLF001**			
Customer:		**Prepared By:**	D.M. Card	
Customer #:		**Reviewed By:**	K. Arsenault	M. Dupuis

Impedance[10]: 100 ± 15 Ohms
Pair-to-Ground Capacitance Unbalance: 330 pF/100 m Maximum @ 1 kHz
Velocity of Propagation: 67% Nominal
Time Delay Skew: 45 ns/100 m Maximum from 1 – 100 MHz
Conductor DC Resistance: 14.0 Ohms/100 m Maximum @ 20°C
Conductor DC Resistance Unbalance: 5% Maximum

[10] An Impedance-Like Function Fit to Data By Least Square Method.

MECHANICAL CHARACTERISTICS

Flex Life: 2 million cycles minimum on C-track machine @ 1 ¾ inch minimum bend radius

SAFETY CERTIFICATION

RoHS Compliance: In Accordance to European Directive 2002/95/EC, Issue 13.2.2003

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