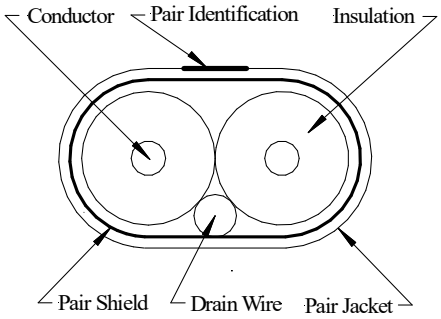
8 PAIR 30 AWG 25G TURBOTWIN™ CABLE

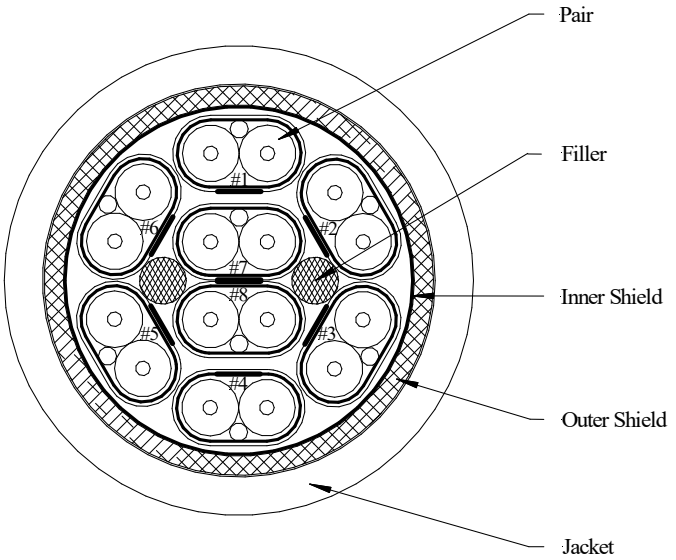
PROPRIETARY DESIGN

THIS CONFIDENTIAL DOCUMENT HAS BEEN RELEASED WITH THE UNDERSTANDING THAT IT SHALL NOT BE SENT TO ANYONE OTHER THAN THE ORIGINAL INTENDED RECIPIENT WITHOUT PRIOR AUTHORIZATION FROM TE CONNECTIVITY / MADISON CABLE

Pair Component



Final Assembly



CONSTRUCTION

Pair Component
Conductor: 30 AWG Solid Silver Plated Copper, 0.010 Inch [0.25 mm] Diameter
Insulation: 0.0115 Inches [0.29 mm] of Polyolefin, 0.033 Inch [0.84 mm] Diameter, Color – Natural
Pair: 2 Singles Laid Flat and Parallel
Drain Wire: 30 AWG Solid Silver Plated Copper, 0.010 Inch [0.25 mm] Diameter
Pair Shield: Metallic Tape
Pair Jacket: Polyester Tape
Pair Minor Diameter: 0.042 Inches [1.07 mm] Nominal
Pair Major Diameter: 0.073 Inches [1.85 mm] Nominal
Pair Identification: To be printed on entire length of pair in 1/2 Inch [13 mm] intervals, see Table 1

Final Assembly
Core: 8 Pairs (#1-8) Cabled Together with Optional Fillers
Inner Shield: Aluminum/Polyester Tape, Aluminum Side Facing Out, 25% Overlap
Outer Shield: 38 AWG Tin Plated Copper Braid, 85% Coverage
Jacket: 0.020 Inches [0.51 mm] of PVC, Color – Black
Diameter: 0.242 Inches [6.15 mm] Nominal

Print Legend (White Ink): "MADISON CABLE (UL) TYPE CL2 75°C 30 AWG C(UL) TYPE CM 75°C TurboTwin™ 25G 104-2218 --- SUBSTANCE COMPLIANT 2011/65/ EU {Equipment Asset Number}[1] {Reel Number}[2] {Time Stamp}[3]"

[1] Equipment Asset Number is the asset number for the machine that the cable is made on. Example - R-131 for the cable made on taper R-131.
[2] Reel Number is a code like TYYMMDDSNNNRRR, where T indicates a taped pair; YY = year; MM= month; DD = day; S = shift A, B or C; NNN = taper number; RRR = sequential reel number. Example - T230101A049005 for the fifth reel of the A shift made on #049 taper on January 1st, 2023.
[3] Time Stamp is the time that print the legend, it is like YYYY/MM/DD HH:MM:SS in 24 hours format

TABLE 1

Pair #	Pair Identification
1	|-|1 |-|1 |-|1 |-|1
2	|--|2 |--|2 |--|2 |--|2
3	|---|3 |---|3 |---|3 |---|3
4	||-||4 ||-||4 ||-||4 ||-||4
5	||--||5 ||--||5 ||--||5 ||--||5
6	||---||6 ||---||6 ||---||6 ||---||6
7	|||-|||7 |||-|||7 |||-|||7 |||-|||7
8	|||--|||8 |||--|||8 |||--|||8 |||--|||8

ELECTRICAL CHARACTERISTICS[4]

Production Performance Testing:
Differential Impedance: 100 ± 5 Ohms @ TDR
Attenuation (SDD21)[5]: 15 db/3m Maximum @ 12.89 GHz
Return Loss (SDD11): $\leq -19.5 + 2\sqrt{f}$ for 0.01 GHz $< f <$ 4.1 GHz
$\leq -13.6 + 14 \text{ Log}^*(f/5.5)$ for 4.1 GHz $< f <$ 19 GHz
SCD21-SDD21:
≤ -12 for 0.01 GHz $< f <$ 12.89 GHz
$\leq -29 + (29/22)^* f$ for 12.89 GHz $< f <$ 15.7 GHz
≤ -8.3 for 15.7 GHz $< f <$ 19 GHz
Pair-to-Pair IL Variation: 0.5 dB @ 12.89 GHz Nominal (abs(Max IL – Min IL)) among all pairs

Qualification Testing:
Mutual Capacitance[6]: 12 pF/ft [39 pF/m] Nominal
Insertion Loss Deviation: $ILD_{min} = -0.8$
$ILD_{max} = +0.8$

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(508) 752-2884 (877) MADISON

REVISION HISTORY

1	03/20/18	JT	Initial Release
2	04/02/18	JT	Revised Cross-Sectional Drawing
3	04/16/18	JT	Revised Insulation, Pair and Cable ODs
4	08/08/18	JT	Revised Electrical and Mech. Characteristics
5	03/06/19	HL	Revised "Under Development"
6	04/01/24	JG	Update print

Spec Number:	**104-2218**	**Prepared By:**	J. Gu0		**Page**
Part Number:	**16PB2LF018**	**Reviewed By:**	A.Wang		1 of 2
Customer:					
Customer #:					

Users should evaluate the suitability of this product for their application. Contact factory for latest revision of specification. TE Connectivity reserves the right to make changes in materials or processing, which do not affect compliance with any specification, without notification to the Buyer.

Differential to Common Mode Return Loss (SCD11):
≤ -24 + (20/25.78)*f for 0.01 GHz < f < 12.89 GHz
≤ -17 + (6/25.78)*f for 12.89 GHz < f < 19 GHz
NEXT: -50 dB Maximum from 0.01 GHz to 19 GHz
FEXT: -50 dB Maximum from 0.01 GHz to 19 GHz
Conductor DC Resistance[6]: 0.10 Ohms/ft [330 Ohms/km] Nominal @ 20°C

[4] All SI measurments made @ 20°C
[5] Tested/Functional to 25 GHz over a 3 meter length
[6] Values are for informational purposes only

PHYSICAL CHARACTERISTICS

Temperature Rating:
Operating: -10°C to +60°C
Transport/Installation: -25°C to +80°C

MECHANICAL CHARACTERISTICS

Dynamic/Static Bend Radius: **(7 X OD)**: 1.7 Inches [43 mm] Minimum
Cable Stress Test: Per QS-505 (Exhibit A)
Temperature Cycle Test: Per QS-506 (Exhibit A)
Humidity Cycle Test: Per QS-507
Flex Cycle Test Conductor Failure: Per QS-508
Flex Cycle Test – SI Dynamic Bend: Per QS-509 (Exhibit A)
Bend Radius Test – Static: Per QS-510

INDUSTRY STANDARDS

IEEE 802.3bj: Physical Layer Specifications and Management Parameters for 100 Gb/s Operation Over Backplanes and Copper Cables
InfiniBand™ Architecture (Extended Data Rate): 1X = 25 Gb/s
4X = 100 Gb/s

SAFETY CERTIFICATION

UL Listing: Type CL2 as specified in Article 725 of the National Electrical Code
C(UL) Listing: Type CM as specified in Article 800 of the National Electrical Code
RoHS II Material Compliance: In accordance with EU Directive 2011/65/EU for the Restriction of Hazardous Substances

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