



**Part Number: 74010E**

DataTuff® Cat 6A Ethernet PROFINET Type A, PVC

**Product Description**

DataTuff PROFINET Type A, Cat 6A, 10 Gb/s, AWG 22(1), Solid, Foil+ 85% Braid, PVC Jacket, UL AWM 20726

**Technical Specifications**

**Product Overview**

|                        |                                 |
|------------------------|---------------------------------|
| Environmental Space:   | Indoor - Euroclass Eca          |
| Suitable Applications: | Profinet CAT6A, TCP/IP Ethernet |

**Physical Characteristics (Overall)**

**Conductor**

| Element                  | AWG | Stranding | Material         | No. of Pairs |
|--------------------------|-----|-----------|------------------|--------------|
| Individual shielded pair | 22  | Solid     | BC - Bare Copper | 4            |

|                        |   |
|------------------------|---|
| Conductor Count:       | 8 |
| Total Number of Pairs: | 4 |

**Insulation**

| Element                  | Type       | Material                  | Nominal Diameter |
|--------------------------|------------|---------------------------|------------------|
| Individual shielded pair | Dielectric | FPE - Foamed Polyethylene | 1.54 mm          |

|              |    |
|--------------|----|
| Bonded-Pair: | No |
|--------------|----|

**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 |
|--------------------------|------------------|

**Outer Shield Material**

| Type  | Material           | Min. Coverage [%] |
|-------|--------------------|-------------------|
| Braid | TC - Tinned Copper | 80 %              |

**Outer Jacket Material**

| Material | Nominal Diameter | Diameter +/- Tolerance |
|----------|------------------|------------------------|
| PVC      | 8.7 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 % |
|-----------------------------------|-------|

## Electrical Characteristics

### Conductor DCR

| Max. Conductor DCR | Max DCR Unbalanced Between Pairs [%] | Max. DCR Unbalanced Within Pair [%] |
|--------------------|--------------------------------------|-------------------------------------|
| 59.1 Ohm/km        | 4 %                                  | 2 %                                 |

### Capacitance

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

### Impedance

| Nominal Characteristic Impedance |
|----------------------------------|
| 100 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           | 1.9 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        | 88 dB          | 86 dB            | 42 dB         | 39 dB           | 60 dB                   | 57 dB                       |

### Delay

| Max. Delay Skew | Nominal Velocity of Propagation (VP) [%] |
|-----------------|--|
| 25 ns/100m      | 78 %                                     |

### High Freq

| Max. Insertion Loss (Attenuation) | Min. NEXT [dB] | Min. ACR [dB] | Min. PSACR [dB] | Min. ACRF (ELFEXT) [dB] | Min. RL (Return Loss) [dB] | Min. ELTCTL [dB] |
|-----------------------------------|----------------|---------------|-----------------|-------------------------|----------------------------|------------------|
| 2 dB/100m                         | 78 dB          | 76 dB         | 73 dB           | 78 dB                   | 20 dB                      | 35 dB            |
| 3.7 dB/100m                       | 78 dB          | 74.3 dB       | 71.3 dB         | 78 dB                   | 23 dB                      | 23 dB            |
| 5.9 dB/100m                       | 78 dB          | 72.1 dB       | 69.1 dB         | 75.3 dB                 | 25 dB                      | 15 dB            |
| 7.4 dB/100m                       | 78 dB          | 70.6 dB       | 67.6 dB         | 71.2 dB                 | 25 dB                      | 10.9 dB          |
| 10.4 dB/100m                      | 78 dB          | 67.6 dB       | 64.6 dB         | 65.4 dB                 | 23.6 dB                    | 5.1 dB           |
| 14.9 dB/100m                      | 75.5 dB        | 60.6 dB       | 57.6 dB         | 59.4 dB                 | 21.5 dB                    |                  |
| 19 dB/100m                        | 72.4 dB        | 53.4 dB       | 50.4 dB         | 55.3 dB                 | 20.1 dB                    |                  |
| 21.4 dB/100m                      | 70.9 dB        | 49.6 dB       | 46.6 dB         | 53.4 dB                 | 19.4 dB                    |                  |
| 27.5 dB/100m                      | 67.9 dB        | 40.4 dB       | 37.4 dB         | 49.3 dB                 | 18 dB                      |                  |
| 31 dB/100m                        | 66.4 dB        | 35.5 dB       | 32.5 dB         | 47.3 dB                 | 17.3 dB                    |                  |
| 34.2 dB/100m                      | 65.2 dB        | 31.1 dB       | 28.1 dB         | 45.8 dB                 | 17.3 dB                    |                  |
| 50.1 dB/100m                      | 60.7 dB        | 10.6 dB       | 7.6 dB          | 39.7 dB                 | 17.3 dB                    |                  |

|  |  |
|--|--|
| High Freq Table Note:                  | Limits below 4MHz are for information only |
| Coupling Attenuation Class:            | Type I                                     |
| Segregation class according EN50174-2: | d  |

### Transfer Impedance

| Description |
|-------------|
| Grade 1     |

### Current

| Max. Recommended Current [A] |
|------------------------------|
| 1.5 A                        |

## Voltage

|                           |
|---------------------------|
| <b>Voltage Rating [V]</b> |
| 30 V AC                   |

## Temperature Range

|                       |                |
|-----------------------|----------------|
| Storage Temp Range:   | -40°C To +80°C |
| Operating Temp Range: | -40°C To +80°C |

## Mechanical Characteristics

|                                      |               |
|--------------------------------------|---------------|
| Oil Resistance:                      | IEC 60811-404 |
| Min Bend Radius During Installation: | 90 mm         |
| Min Bend Radius During Operation:    | 45 mm         |

## Standards

|                     |  |
|---------------------|--|
| ISO/IEC Compliance: | ISO/IEC 11801 Ed. 2.2:2002/A2:2010/C1:2011 and ISO/IEC 24702 |
| CPR Euroclass:      | Eca  |
| CENELEC Compliance: | EN 50173-1 Ed. 3:2011  |
| Data Category:      | Category 6A  |

## Applicable Environmental and Other Programs

|                                       |            |
|---------------------------------------|------------|
| EU RoHS Compliance Date (yyyy-mm-dd): | 2017-04-11 |
|---------------------------------------|------------|

## Flammability, LSOH, Toxicity Testing

|                       |                |
|-----------------------|----------------|
| ISO/IEC Flammability: | IEC 60332-1-2  |
| Other Flammability:   | UL Cable flame |

## Part Number

### Variants

| Item #       | Color | Length |
|--------------|-------|--------|
| 74010E.00500 | Green | 500 m  |
| 74010E.00100 | Green | 100 m  |

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

|                      |   |
|----------------------|---|
| Update and Revision: | Revision Number: 0.56 Revision Date: 08-22-2019 |
|----------------------|---|

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