

## 8148 Multi-Conductor - Low Capacitance Computer Cable for EIA RS-232/485

**Description:**

28 AWG stranded (7x36) TC conductors, Datalene® insulation, overall Beldfoil® (100% coverage) + TC braid shield (65% coverage), 28 AWG stranded TC drain wire, PVC jacket.

**Physical Characteristics (Overall)****Conductor****AWG:**

| # Pairs | AWG | Stranding | Conductor Material |
|---------|-----|-----------|--------------------|
| 18      | 28  | 7x36      | TC - Tinned Copper |

**Insulation****Insulation Material:**

| Insulation Trade Name | Insulation Material     |
|-----------------------|-------------------------|
| Datalene®             | FPE - Foam Polyethylene |

**Outer Shield****Outer Shield Material:**

| Layer # | Outer Shield Trade Name | Type  | Outer Shield Material                        | Coverage (%) |
|---------|-------------------------|-------|--|--------------|
| 1       | Beldfoil®               | Tape  | Aluminum Foil-Polyester Tape w/Shorting Fold | 100          |
| 2       |                         | Braid | TC - Tinned Copper                           | 65           |

**Outer Shield Drain Wire AWG:**

| AWG | Stranding | Drain Wire Conductor Material |
|-----|-----------|-------------------------------|
| 28  | 7x36      | TC - Tinned Copper            |

**Outer Jacket****Outer Jacket Material:**

| Outer Jacket Material    |
|--------------------------|
| PVC - Polyvinyl Chloride |

**Overall Cabling**

**Overall Nominal Diameter:** 0.467 in.

**Pair****Pair Color Code Chart:**

| Number | Color                       |
|--------|-----------------------------|
| 1      | White/Blue & Blue/White     |
| 2      | White/Orange & Orange/White |
| 3      | White/Green & Green/White   |
| 4      | White/Brown & Brown/White   |
| 5      | White/Gray & Gray/White     |
| 6      | Red/Blue & Blue/Red         |
| 7      | Red/Orange & Orange/Red     |
| 8      | Red/Green & Green/Red       |
| 9      | Red/Brown & Brown/Red       |
| 10     | Red/Gray & Gray/Red         |
| 11     | Black/Blue & Blue/Black     |
| 12     | Black/Orange & Orange/Black |
| 13     | Black/Green & Green/Black   |
| 14     | Black/Brown & Brown/Black   |
| 15     | Black/Gray & Gray/Black     |
| 16     | Yellow/Blue & Blue/Yellow   |

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|    |                               |
|----|-------------------------------|
| 17 | Yellow/Orange & Orange/Yellow |
| 18 | Yellow/Green & Green/Yellow   |

## Pair Lay Length &amp; Direction:

| Lay Length (in.) | Twists/ft. (twist/ft) |
|------------------|-----------------------|
| 1.000            | 12.000                |

## Mechanical Characteristics (Overall)

|  |                          |
|--|--------------------------|
| Operating Temperature Range:           | -30°C To +80°C           |
| UL Temperature Rating:                 | 80°C (UL AWM Style 2919) |
| Bulk Cable Weight:                     | 99 lbs/1000 ft.          |
| Min. Bend Radius (Install)/Minor Axis: | 4.650 in.                |

## Applicable Specifications and Agency Compliance (Overall)

## Applicable Standards &amp; Environmental Programs

|                                       |                           |
|---------------------------------------|---------------------------|
| NEC/(UL) Specification:               | CL2                       |
| AWM Specification:                    | UL Style 2919 (30 V 80°C) |
| EU CE Mark:                           | Yes                       |
| EU Directive 2000/53/EC (ELV):        | Yes                       |
| EU Directive 2002/95/EC (RoHS):       | Yes                       |
| EU RoHS Compliance Date (mm/dd/yyyy): | 01/01/2004                |
| EU Directive 2002/96/EC (WEEE):       | Yes                       |
| EU Directive 2003/11/EC (BFR):        | Yes                       |
| CA Prop 65 (CJ for Wire & Cable):     | Yes                       |
| MII Order #39 (China RoHS):           | Yes                       |

## Flame Test

|                |                   |
|----------------|-------------------|
| UL Flame Test: | UL1685 UL Loading |
|----------------|-------------------|

## Plenum/Non-Plenum

|               |    |
|---------------|----|
| Plenum (Y/N): | No |
|---------------|----|

## Electrical Characteristics (Overall)

## Nom. Characteristic Impedance:

| Impedance (Ohm) |
|-----------------|
| 120             |

## Nom. Capacitance Conductor to Conductor:

| Capacitance (pF/ft) |
|---------------------|
| 11                  |

## Nom. Capacitance Cond. to Other Conductor &amp; Shield:

| Capacitance (pF/ft) |
|---------------------|
| 20                  |

## Nominal Velocity of Propagation:

| VP (%) |
|--------|
| 78     |

## Nom. Conductor DC Resistance:

| DCR @ 20°C (Ohm/1000 ft) |
|--------------------------|
| 65                       |

## Nominal Outer Shield DC Resistance:

| DCR @ 20°C (Ohm/1000 ft) |
|--------------------------|
| 2.6                      |

## Max. Operating Voltage - UL:

**8148 Multi-Conductor - Low Capacitance Computer Cable for EIA RS-232/485****Voltage**

30 V RMS (UL AWM Style 2919); 150 V RMS

**Max. Recommended Current:****Current**

0.6 Amps per conductor @ 25°C

**Notes (Overall)**

**Notes:** Datalene® insulation features include low dielectric constant and a dissipation factor for high-speed, low-distortion data handling. Physical properties include good crush resistance and light weight.

**Put Ups and Colors:**

| Item #       | Putup    | Ship Weight | Color  | Notes | Item Desc              |
|--------------|----------|-------------|--------|-------|------------------------|
| 8148 0601000 | 1,000 FT | 92.000 LB   | CHROME | C     | 18 PR #28 FHDPE SH PVC |
| 8148 060500  | 500 FT   | 47.500 LB   | CHROME | C     | 18 PR #28 FHDPE SH PVC |

**Notes:**

C = CRATE REEL PUT-UP.

## Introduction

Belden® paired cable products are manufactured in a variety of gage sizes, dimensions, insulation materials, shielding configurations, and jacketing materials including Plenum and High-Temperature versions to meet the technical requirements of many different types of systems.

Paired cables allow balanced signal transmission, which results in lower crosstalk through common mode rejection. Due to the improved noise immunity of twisted pairs, they generally permit higher data speeds than multi-conductor cables.

As an aid to proper cable selection, both the suggested working voltages and the maximum temperature ratings are indicated for each applicable paired cable selection.

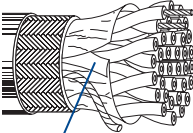
Most of our paired cables are available from stock. Many of these are available off the shelf from distributors. If you have a new or unusual application or you cannot find a paired cable in this catalog section that meets your technical requirements, contact Technical Support at 1-800-BELDEN-1.

### Paired Cables Packaging

Belden's unique UnReel® cable dispenser is available for many of the paired cable products listed in this section. The letter "U" before the specified put-up length denotes UnReel packaging.

## Overall Foil/Braid Shield

Low-Capacitance Computer Cables for EIA RS-232 and EIA RS-485 Applications

| Description  | Part No.    | UL NEC/<br>C(UL) CEC<br>Type     | No.<br>of Pairs                          | Color<br>Code                            | Standard<br>Lengths |       | Standard<br>Unit Weight |           | Nom. DCR  |          | Nominal<br>OD |      | Nom.<br>Imp.<br>(Ω) | Nom.<br>Vel.<br>of<br>Prop. | Nom. Capacitance |               |                  |                |
|--|-------------|----------------------------------|--|--|---------------------|-------|-------------------------|-----------|-----------|----------|---------------|------|---------------------|-----------------------------|------------------|---------------|------------------|----------------|
|  |             |                                  |  |  | Ft.                 | m     | Lbs.                    | kg        | Cond.     | Shield   | Inch          | mm   |                     |                             | *<br>pF/<br>Ft.  | *<br>pF/<br>m | **<br>pF/<br>Ft. | **<br>pF/<br>m |
| <b>28 AWG Stranded (7x36) TC Conductors • Overall Beldfoil® (100% Coverage) + TC Braid Shield (65% Coverage) • 28 AWG Stranded TC Drain Wire</b> |             |                                  |  |  |                     |       |                         |           |           |          |               |      |                     |                             |                  |               |                  |                |
| <b>Datalene® Insulation • Chrome PVC Jacket</b>  |             |                                  |  |  |                     |       |                         |           |           |          |               |      |                     |                             |                  |               |                  |                |
| <br>Shorting Fold   | <b>8132</b> | NEC:<br>CL2                      | 2  | See<br>Chart 5<br>(Tech Info<br>Section) | 100                 | 30.5  | 3.6                     | 1.6       | 65.0Ω/M'  | 5.1Ω/M'  | .220          | 5.59 | 120                 | 78%                         | 11.0             | 36.1          | 20.0             | 65.6           |
|  |             |                                  |  |  | 500                 | 152.4 | 14.5                    | 6.6       | 213.0Ω/km | 16.6Ω/km |               |      |                     |                             |                  |               |                  |                |
|  |             |                                  |  |  | 1000                | 304.8 | 29.0                    | 13.2      |           |          |               |      |                     |                             |                  |               |                  |                |
|  | <b>8133</b> | NEC:<br>CL2                      | 3  | See<br>Chart 5<br>(Tech Info<br>Section) | 100                 | 30.5  | 3.8                     | 1.7       | 65.0Ω/M'  | 5.2Ω/M'  | .270          | 6.86 | 120                 | 78%                         | 11.0             | 36.1          | 20.0             | 65.6           |
|  |             |                                  |  |  | 500                 | 152.4 | 15.0                    | 6.8       | 213.0Ω/km | 17.1Ω/km |               |      |                     |                             |                  |               |                  |                |
| 1000   |             |                                  |  |  | 304.8               | 34.0  | 15.5                    |           |           |          |               |      |                     |                             |                  |               |                  |                |
| <b>8134</b>  | NEC:<br>CL2 | 4                                | See<br>Chart 5<br>(Tech Info<br>Section) | 100                                      | 30.5                | 4.3   | 2.0                     | 65.0Ω/M'  | 4.4Ω/M'   | .290     | 7.37          | 120  | 78%                 | 11.0                        | 36.1             | 20.0          | 65.6             |                |
|  |             |                                  |  | 500                                      | 152.4               | 18.0  | 8.2                     | 213.0Ω/km | 14.3Ω/km  |          |               |      |                     |                             |                  |               |                  |                |
|  |             |                                  |  | 1000                                     | 304.8               | 39.0  | 17.7                    |           |           |          |               |      |                     |                             |                  |               |                  |                |
| <b>8135</b>  | NEC:<br>CL2 | 5                                | See<br>Chart 5<br>(Tech Info<br>Section) | 100                                      | 30.5                | 4.6   | 2.1                     | 65.0Ω/M'  | 4.2Ω/M'   | .300     | 7.62          | 120  | 78%                 | 11.0                        | 36.1             | 20.0          | 65.6             |                |
|  |             |                                  |  | 500                                      | 152.4               | 20.0  | 9.1                     | 213.0Ω/km | 13.8Ω/km  |          |               |      |                     |                             |                  |               |                  |                |
|  |             |                                  |  | 1000                                     | 304.8               | 42.0  | 19.1                    |           |           |          |               |      |                     |                             |                  |               |                  |                |
| <b>8138</b>  | NEC:<br>CL2 | 8                                | See<br>Chart 5<br>(Tech Info<br>Section) | 100                                      | 30.5                | 5.6   | 2.5                     | 65.0Ω/M'  | 3.7Ω/M'   | .330     | 8.38          | 120  | 78%                 | 11.0                        | 36.1             | 20.0          | 65.6             |                |
|  |             |                                  |  | 500                                      | 152.4               | 27.0  | 12.3                    | 213.0Ω/km | 12.3Ω/km  |          |               |      |                     |                             |                  |               |                  |                |
|  |             |                                  |  | 1000                                     | 304.8               | 52.0  | 23.6                    |           |           |          |               |      |                     |                             |                  |               |                  |                |
| <b>8142</b>  | NEC:<br>CL2 | 12.5<br>(12 pairs +<br>1 single) | See<br>Chart 5<br>(Tech Info<br>Section) | 100                                      | 30.5                | 6.8   | 3.1                     | 65.0Ω/M'  | 3.1Ω/M'   | .375     | 9.53          | 120  | 78%                 | 11.0                        | 36.1             | 20.0          | 65.6             |                |
|  |             |                                  |  | 500                                      | 152.4               | 33.0  | 15.0                    | 213.0Ω/km | 10.1Ω/km  |          |               |      |                     |                             |                  |               |                  |                |
|  |             |                                  |  | 1000                                     | 304.8               | 66.0  | 29.9                    |           |           |          |               |      |                     |                             |                  |               |                  |                |
| <b>8148</b>  | NEC:<br>CL2 | 18                               | See<br>Chart 5<br>(Tech Info<br>Section) | 100                                      | 30.5                | 8.5   | 3.9                     | 65.0Ω/M'  | 2.6Ω/M'   | .465     | 11.81         | 120  | 78%                 | 11.0                        | 36.1             | 20.0          | 65.6             |                |
|  |             |                                  |  | 500                                      | 152.4               | 47.5  | 21.6                    | 213.0Ω/km | 8.4Ω/km   |          |               |      |                     |                             |                  |               |                  |                |
|  |             |                                  |  | 1000                                     | 304.8               | 92.0  | 41.8                    |           |           |          |               |      |                     |                             |                  |               |                  |                |
| <b>8155</b>  | NEC:<br>CL2 | 25                               | See<br>Chart 5<br>(Tech Info<br>Section) | 100                                      | 30.5                | 11.1  | 5.0                     | 65.0Ω/M'  | 2.3Ω/M'   | .565     | 14.35         | 120  | 78%                 | 11.0                        | 36.1             | 20.0          | 65.6             |                |
|  |             |                                  |  | 500                                      | 152.4               | 64.0  | 29.1                    | 213.0Ω/km | 7.6Ω/km   |          |               |      |                     |                             |                  |               |                  |                |
|  |             |                                  |  | 1000                                     | 304.8               | 121.0 | 55.0                    |           |           |          |               |      |                     |                             |                  |               |                  |                |

DCR = DC Resistance • TC = Tinned Copper

\*Capacitance between conductors.

\*\*Capacitance between one conductor and other conductors connected to shield.

Datalene insulation features include low dielectric constant and a dissipation factor for high-speed, low-distortion data handling. Physical properties include good crush resistance and light weight.