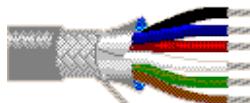


## 9931 Multi-Conductor - Low-Capacitance Computer Cable for EIA RS-232/423



### Description:

24 AWG stranded (7x32) TC conductors, Datalene® insulation, overall Beldfoil® (100% coverage) + TC braid shield (65% coverage), drain wire, PVC jacket.

### Physical Characteristics (Overall)

#### Conductor

AWG:

| # Conductors | AWG | Stranding | Conductor Material |
|--------------|-----|-----------|--------------------|
| 6            | 24  | 7x32      | 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 | 100          |
| 2       |                         | Braid | TC - Tinned Copper           | 65           |

Outer Shield Drain Wire AWG:

| AWG | Stranding | Drain Wire Conductor Material |
|-----|-----------|-------------------------------|
| 24  | Stranded  | TC - Tinned Copper            |

#### Outer Jacket

Outer Jacket Material:

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

#### Overall Cabling

Overall Cabling Color Code Chart:

| Color |
|-------|
| Black |
| White |
| Red   |
| Green |
| Brown |
| Blue  |

Overall Nominal Diameter: 0.254 in.

### Mechanical Characteristics (Overall)

Operating Temperature Range: -30°C To +80°C

UL Temperature Rating: 80°C (UL AWM Style 2919)

Bulk Cable Weight: 41 lbs/1000 ft.

Min. Bend Radius (Install)/Minor Axis: 2.500 in.

# Detailed Specifications & Technical Data



ENGLISH MEASUREMENT VERSION

## 9931 Multi-Conductor - Low-Capacitance Computer Cable for EIA RS-232/423

### Applicable Specifications and Agency Compliance (Overall)

#### Applicable Standards & Environmental Programs

|                                       |                           |
|---------------------------------------|---------------------------|
| NEC/(UL) Specification:               | CM                        |
| CEC/C(UL) Specification:              | CM                        |
| 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. Capacitance Conductor to Conductor:

|                     |
|---------------------|
| Capacitance (pF/ft) |
| 12                  |

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

|                     |
|---------------------|
| Capacitance (pF/ft) |
| 22                  |

#### Nominal Velocity of Propagation:

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

#### Nom. Conductor DC Resistance:

|                          |
|--------------------------|
| DCR @ 20°C (Ohm/1000 ft) |
| 24                       |

#### Nominal Outer Shield DC Resistance:

|                          |
|--------------------------|
| DCR @ 20°C (Ohm/1000 ft) |
| 4.4                      |

#### Max. Operating Voltage - UL:

|                              |
|------------------------------|
| Voltage                      |
| 30 V RMS (UL AWM Style 2919) |
| 300 V RMS                    |

#### Max. Recommended Current:

|                               |
|-------------------------------|
| Current                       |
| 1.5 Amps per conductor @ 25°C |

### Notes (Overall)

#### Notes:

handling. Physical properties include good crush resistance and light weight.

### Put Ups and Colors:

| Item #      | Putup  | Ship Weight | Color  | Notes | Item Desc          |
|-------------|--------|-------------|--------|-------|--------------------|
| 9931 060100 | 100 FT | 4.200 LB    | CHROME |       | 6 #24 FHDPE SH PVC |

# Detailed Specifications & Technical Data



ENGLISH MEASUREMENT VERSION

## 9931 Multi-Conductor - Low-Capacitance Computer Cable for EIA RS-232/423

|              |          |           |        |   |                    |
|--------------|----------|-----------|--------|---|--------------------|
| 9931 0601000 | 1,000 FT | 38.000 LB | CHROME | C | 6 #24 FHDPE SH PVC |
| 9931 060500  | 500 FT   | 17.500 LB | CHROME | C | 6 #24 FHDPE SH PVC |

**Notes:**

C = CRATE REEL PUT-UP.

## Introduction

Belden® multi-conductor cables are manufactured in a wide variety of gage sizes, dimensions, insulation materials, shielding configurations, and jacketing materials including Plenum and High-Temperature versions. These cables meet the technical requirements of many different types of systems. In fact, Belden offers one of the broadest lines of UL Listed, NEC and CEC multi-conductor cables available from any single source.

Applications for multi-conductor cables include computers, communications, instrumentation, sound, control, audio, and data transmission. Each of these cables is designed to protect signal integrity under critical conditions by reducing hum, noise, and crosstalk.

To assist you in selecting the proper cable for your application, both the suggested working voltages and the maximum temperature ratings are indicated for each applicable product in this section.

Most of our multi-conductor 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 multi-conductor cable in this catalog section that meets your technical requirements, contact Technical Support at 1-800-BELDEN-1.

### Multi-Conductor Cables Packaging

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

## Selection Guide

### Shielded Multi-Conductor Computer Cables for RS-232 Applications

| Specifications           |                    | Cable Series* |      |      |      |
|--------------------------|--------------------|---------------|------|------|------|
|                          |                    | 9925          | 9608 | 9533 | 9939 |
| Conductor Size:<br>(AWG) | 28                 |               |      |      |      |
|                          | 24                 | ✓             | ✓    | ✓    |      |
|                          | 22                 |               |      |      | ✓    |
|                          | 20                 |               |      |      |      |
|                          | 18                 |               |      |      |      |
| Page No.                 |                    | 4.18          | 4.17 | 4.11 | 4.19 |
| Insulation:              | S-R PVC            |               | ✓    | ✓    | ✓    |
|                          | Polyethylene       |               |      |      |      |
|                          | Polypropylene      |               |      |      |      |
|                          | DataLene®†         | ✓             |      |      |      |
| Shield:                  | Overall Foil       |               |      | ✓    |      |
|                          | Drain Wire         | ✓             |      | ✓    |      |
|                          | Overall Foil/Braid | ✓             | ✓    |      | ✓    |
|                          | Braid Coverage     | 65%           | 65%  |      | 65%  |
| Drain Wire Overall:      |                    | Yes           | No   | Yes  | No   |
| No. of Cond. Available:  | 1                  |               |      |      |      |
|                          | 2                  |               |      |      |      |
|                          | 3                  | ✓             | ✓    | ✓    | ✓    |
|                          | 4                  | ✓             | ✓    | ✓    | ✓    |
|                          | 5                  | ✓             | ✓    | ✓    | ✓    |
|                          | 6                  | ✓             | ✓    | ✓    | ✓    |
|                          | 7                  | ✓             | ✓    | ✓    | ✓    |
|                          | 8                  | ✓             | ✓    | ✓    | ✓    |
|                          | 9                  | ✓             | ✓    | ✓    | ✓    |
|                          | 10                 | ✓             | ✓    | ✓    | ✓    |
|                          | 11                 |               |      |      |      |
|                          | 12                 |               |      |      |      |
|                          | 13                 |               |      |      |      |
|                          | 15                 | ✓             | ✓    | ✓    | ✓    |
|                          | 17                 |               |      |      |      |
|                          | 18                 |               |      |      |      |
|                          | 19                 |               |      |      |      |
|                          | 20                 |               |      | ✓    |      |
|                          | 25                 | ✓             | ✓    | ✓    | ✓    |
|                          | 27                 |               |      |      |      |
|                          | 30                 |               |      | ✓    |      |
|                          | 31                 |               |      |      |      |
|                          | 37                 | ✓             | ✓    |      | ✓    |
|                          | 40                 |               |      | ✓    |      |
|                          | 50                 |               | ✓    | ✓    | ✓    |
| Capacitance ** (pF/ft.)  |                    | 12.0          | 30.0 | 30.0 | 35.0 |

\*All cables are UL-listed.

\*\*Capacitance may vary on some cables.

† Foam high density polyethylene.

## Overall Foil/Braid Shield

Low-Capacitance Computer Cables for EIA RS-232 and EIA RS-423 Applications

| Description | Part No. | UL NEC/C(UL) CEC Type | No. of Cond. | Color Code | Standard Lengths |   | Standard Unit Weight |    | Nominal OD |    | Nominal DCR |        | Nom. Vel. of Prop. | Nominal Capacitance |         |            |
|-------------|----------|-----------------------|--------------|------------|------------------|---|----------------------|----|------------|----|-------------|--------|--------------------|---------------------|---------|------------|
|             |          |                       |              |            | Ft.              | m | Lbs.                 | kg | Inch       | mm | Cond.       | Shield |                    | * pF/ Ft.           | * pF/ m | ** pF/ Ft. |

**24 AWG** Stranded (7x32) TC Conductors • Overall Beldfoil® (100% Coverage) + TC Braid Shield (65% Coverage) • Drain Wire<sup>††</sup>

### Datalene® Insulation • Chrome PVC Jacket

|  |      |                    |    |                                  |     |      |      |     |      |       |                   |                  |     |    |      |    |      |
|--|------|--------------------|----|----------------------------------|-----|------|------|-----|------|-------|-------------------|------------------|-----|----|------|----|------|
| UL AWM Style 2019 (30V 80°C)   | 9925 | NEC: CM<br>CEC: CM | 3  | See Chart 1 (Tech Info Section)  | 100 | 30.5 | 3.5  | 1.6 | .215 | 5.46  | 24.0Ω/M' 78.7Ω/km | 5.2Ω/M' 17.0Ω/km | 78% | 12 | 39.4 | 22 | 72.2 |
|  | 9927 | NEC: CM<br>CEC: CM | 4  | See Chart 1 (Tech Info Section)  | 100 | 30.5 | 3.6  | 1.6 | .230 | 5.84  | 24.0Ω/M' 78.7Ω/km | 5.3Ω/M' 17.4Ω/km | 78% | 12 | 39.4 | 22 | 72.2 |
|  | 9929 | NEC: CM<br>CEC: CM | 5  | See Chart 1 (Tech Info Section)  | 100 | 30.5 | 4.0  | 1.8 | .246 | 6.25  | 24.0Ω/M' 78.7Ω/km | 4.2Ω/M' 13.9Ω/km | 78% | 12 | 39.4 | 22 | 72.2 |
|  | 9931 | NEC: CM<br>CEC: CM | 6  | See Chart 1 (Tech Info Section)  | 100 | 30.5 | 4.2  | 1.9 | .265 | 6.73  | 24.0Ω/M' 78.7Ω/km | 4.4Ω/M' 14.4Ω/km | 78% | 12 | 39.4 | 22 | 72.2 |
|  | 9932 | NEC: CM<br>CEC: CM | 7  | See Chart 1 (Tech Info Section)  | 100 | 30.5 | 4.5  | 2.0 | .265 | 6.73  | 24.0Ω/M' 78.7Ω/km | 4.4Ω/M' 14.4Ω/km | 78% | 12 | 39.4 | 22 | 72.2 |
|  | 9933 | NEC: CM<br>CEC: CM | 8  | See Chart 1 (Tech Info Section)  | 100 | 30.5 | 4.9  | 2.2 | .280 | 7.11  | 24.0Ω/M' 78.7Ω/km | 4.4Ω/M' 14.4Ω/km | 78% | 12 | 39.4 | 22 | 72.2 |
|  | 9934 | NEC: CM<br>CEC: CM | 9  | See Chart 1 (Tech Info Section)  | 100 | 30.5 | 5.2  | 2.4 | .300 | 7.62  | 24.0Ω/M' 78.7Ω/km | 3.9Ω/M' 12.6Ω/km | 78% | 12 | 39.4 | 22 | 72.2 |
|  | 9935 | NEC: CM<br>CEC: CM | 10 | See Chart 1 (Tech Info Section)  | 100 | 30.5 | 5.7  | 2.6 | .306 | 7.77  | 24.0Ω/M' 78.7Ω/km | 3.2Ω/M' 10.4Ω/km | 78% | 12 | 39.4 | 22 | 72.2 |
|  | 9936 | NEC: CM<br>CEC: CM | 15 | See Chart 2R (Tech Info Section) | 100 | 30.5 | 7.2  | 3.3 | .350 | 8.89  | 24.0Ω/M' 78.7Ω/km | 3.6Ω/M' 11.7Ω/km | 78% | 12 | 39.4 | 22 | 72.2 |
|  | 9937 | NEC: CM<br>CEC: CM | 25 | See Chart 2R (Tech Info Section) | 100 | 30.5 | 9.9  | 4.5 | .445 | 11.30 | 24.0Ω/M' 78.7Ω/km | 2.8Ω/M' 9.1Ω/km  | 78% | 12 | 39.4 | 22 | 72.2 |
|  | 9938 | NEC: CM<br>CEC: CM | 37 | See Chart 2R (Tech Info Section) | 100 | 30.5 | 12.9 | 5.9 | .500 | 12.7  | 24.0Ω/M' 78.7Ω/km | 2.4Ω/M' 7.8Ω/km  | 78% | 12 | 39.4 | 22 | 72.2 |

<sup>†</sup>24 AWG Stranded TC Drain Wire

DCR = DC Resistance • TC = Tinned Copper

\*Capacitance between conductors.

\*\*Nominal capacitance conductor to conductor and shield.

<sup>††</sup>Final put-up may vary -10% to +20%. May contain two pieces, minimum length of any one piece is 1500 ft.

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