

9938 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
37	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:

Number	Color
1	Black
2	White
3	Red
4	Green
5	Orange
6	Blue
7	White/Black
8	Red/Black
9	Green/Black
10	Orange/Black
11	Blue/Black
12	Black/White
13	Red/White
14	Green/White
15	Blue/White
16	Black/Red
17	White/Red
18	Orange/Red

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19	Blue/Red
20	Red/Green
21	Orange/Green
22	Black/White/Red
23	White/Black/Red
24	Red/Black/White
25	Green/Black/White
26	Orange/Black/White
27	Blue/Black/White
28	Black/Red/Green
29	White/Red/Green
30	Red/Black/Green
31	Green/Black/Orange
32	Orange/Black/Green
33	Blue/White/Orange
34	Black/White/Orange
35	White/Red/Orange
36	Orange/White/Blue
37	White/Red/Blue

Overall Nominal Diameter: 0.500 in.

Mechanical Characteristics (Overall)

Operating Temperature Range:	-30°C To +80°C
UL Temperature Rating:	80°C (UL AWM Style 2919)
Bulk Cable Weight:	126.500 lbs/1000 ft.
Min. Bend Radius (Install)/Minor Axis:	5 in.

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

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:

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VP (%)

78

Nom. Conductor DC Resistance:

DCR @ 20°C (Ohm/1000 ft)

24

Nominal Outer Shield DC Resistance:

DCR @ 20°C (Ohm/1000 ft)

2.37

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
9938 060100	100 FT	12.900 LB	CHROME	C	37 #24 FHDPE SH PVC
9938 0601000	1,000 FT	139.000 LB	CHROME	C	37 #24 FHDPE SH PVC
9938 060500	500 FT	71.500 LB	CHROME	C	37 #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: (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

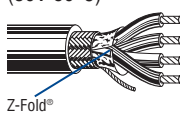
*All cables are UL-listed.

**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.	** pF/ m
24 AWG Stranded (7x32) TC Conductors • Overall Beldfoil® (100% Coverage) + TC Braid Shield (65% Coverage) • Drain Wire††																	
Datalene® Insulation • Chrome PVC Jacket																	
UL AWM Style 2919 (30V 80°C) 	9925	NEC:	3	See	100	30.5	3.5	1.6	.215	5.46	24.0Ω/M'	5.2Ω/M'	78%	12	39.4	22	72.2
		CM:		Chart 1	500	152.4	12.0	5.5			78.7Ω/km	17.0Ω/km					
		CEC:		(Tech Info Section)	1000	304.8	24.0	10.9									
	9927	NEC:	4	See	100	30.5	3.6	1.6	.230	5.84	24.0Ω/M'	5.3Ω/M'	78%	12	39.4	22	72.2
	CM:	Chart 1		500	152.4	14.5	6.6			78.7Ω/km	17.4Ω/km						
	CEC:	(Tech Info Section)		1000	304.8	32.0	14.5										
	9929	NEC:	5	See	100	30.5	4.0	1.8	.246	6.25	24.0Ω/M'	4.2Ω/M'	78%	12	39.4	22	72.2
	CM:	Chart 1		500	152.4	16.0	7.3			78.7Ω/km	13.9Ω/km						
	CEC:	(Tech Info Section)		1000	304.8	36.0	16.3										
	9931	NEC:	6	See	100	30.5	4.2	1.9	.265	6.73	24.0Ω/M'	4.4Ω/M'	78%	12	39.4	22	72.2
	CM:	Chart 1		500	152.4	17.5	8.0			78.7Ω/km	14.4Ω/km						
	CEC:	(Tech Info Section)		1000	304.8	39.0	17.7										
	9932	NEC:	7	See	100	30.5	4.5	2.0	.265	6.73	24.0Ω/M'	4.4Ω/M'	78%	12	39.4	22	72.2
	CM:	Chart 1		500	152.4	18.5	8.4			78.7Ω/km	14.4Ω/km						
	CEC:	(Tech Info Section)		1000	304.8	41.0	18.6										
	9933	NEC:	8	See	100	30.5	4.9	2.2	.280	7.11	24.0Ω/M'	4.4Ω/M'	78%	12	39.4	22	72.2
	CM:	Chart 1		500	152.4	21.0	9.6			78.7Ω/km	14.4Ω/km						
	CEC:	(Tech Info Section)		1000	304.8	46.0	20.9										
	9934	NEC:	9	See	100	30.5	5.2	2.4	.300	7.62	24.0Ω/M'	3.9Ω/M'	78%	12	39.4	22	72.2
	CM:	Chart 1		500	152.4	22.0	10.0			78.7Ω/km	12.6Ω/km						
	CEC:	(Tech Info Section)		1000	304.8	48.0	21.8										
	9935	NEC:	10	See	100	30.5	5.7	2.6	.306	7.77	24.0Ω/M'	3.2Ω/M'	78%	12	39.4	22	72.2
	CM:	Chart 1		500	152.4	28.0	12.7			78.7Ω/km	10.4Ω/km						
	CEC:	(Tech Info Section)		1000	304.8	53.0	24.1										
	9936	NEC:	15	See	100	30.5	7.2	3.3	.350	8.89	24.0Ω/M'	3.6Ω/M'	78%	12	39.4	22	72.2
	CM:	Chart 2R		500	152.4	35.0	15.9			78.7Ω/km	11.7Ω/km						
	CEC:	(Tech Info Section)		1000	304.8	68.0	30.9										
	9937	NEC:	25	See	100	30.5	9.9	4.5	.445	11.30	24.0Ω/M'	2.8Ω/M'	78%	12	39.4	22	72.2
	CM:	Chart 2R		500	152.4	54.5	24.8			78.7Ω/km	9.1Ω/km						
	CEC:	(Tech Info Section)		1000	304.8	108.0	49.0										
	9938	NEC:	37	See	100	30.5	12.9	5.9	.500	12.7	24.0Ω/M'	2.4Ω/M'	78%	12	39.4	22	72.2
	CM:	Chart 2R		500	152.4	71.5	32.5			78.7Ω/km	7.8Ω/km						
	CEC:	(Tech Info Section)		1000	304.8	139.0	63.1										

†24 AWG Stranded TC Drain Wire

DCR = DC Resistance • TC = Tinned Copper

*Capacitance between conductors.

**Nominal capacitance conductor to conductor and shield.

††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.