



## Description:

Belden's .050" pitch gray ribbon cable was designed for general purpose electronic interconnect applications. The cable provides reliable mass-termination to standard IDC connectors.

## Physical Characteristics (Overall)

### Conductor

#### AWG:

# Conductors	AWG	Stranding	Conductor Material
20	28	7x36	TC - Tinned Copper

Conductor Spacing Center to Center: .050 +/- .002

Conductor Spacing Outside Center to Outside Center: .95 +/- .008

### Insulation

#### Insulation Material:

Insulation Material	Wall Thickness (in.)
PVC - Polyvinyl Chloride	.010

Insulation Resistance: >10,000 Megaohms

### Outer Shield

#### Outer Shield Material:

Outer Shield Material
Unshielded

### Overall Cabling

Overall Nominal Thickness: .035 +/- .003

Overall Nominal Width: 1.00 +/- .008

## Mechanical Characteristics (Overall)

Operating Temperature Range: -40°C To +105°C

## Applicable Specifications and Agency Compliance (Overall)

### Applicable Standards & Environmental Programs

UL AWM Style:	2651
UL Rating:	105°C, 300 V RMS, VW-1
CSA Specification:	AWM I A 105°C 300 V FT1
CSA Rating:	105°C, 300 V RMS, FT1
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):	07/01/2005
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: VW-1

CSA Flame Test: FT1

### Plenum/Non-Plenum

Plenum (Y/N): No

## Surface Printing (Overall)

Surface Printing: BELDEN-T 28 AWG CSA AWM I A 105°C 300 V FT1 LL7874 (UL LOGO)  
AWM STYLE 2651 VW-1 E12683

## Electrical Characteristics (Overall)

### Nom. Characteristic Impedance:

Description	Impedance (Ohm)
(GS)	150
(GSG)	105

### Nom. Inductance:

Description	Inductance (µH/ft)
@ 1 MHz (GS)	.29
@ 1 MHz (GSG)	.20

### Nom. Capacitance Conductor to Conductor:

Description	Capacitance (pF/ft)
@ 1 kHz (GSG)	18
@ 1 MHz (GS)	10
@ 1 MHz (GSG)	15

### Nominal Velocity of Propagation:

Description	VP (%)
	72

### Nominal Delay:

Delay (ns/ft)
1.40 NS/FT. (GSG)

### Nom. Conductor DC Resistance:

DCR @ 20°C (Ohm/1000 ft)
68.2 OHMS/1000 FT. MAX.

### Nom. Attenuation:

Freq. (MHz)	Attenuation (dB/100 ft.)
10	2.8
20	4.8
30	6.5
40	8.3
50	9.8
60	12
70	13
80	14
90	15.8
100	17

### Max. Operating Voltage - UL:

Voltage
300 V RMS

### Max. Recommended Current:

Current
1 Amp per conductor @ 20°C

**Dielectric Withstand Voltage:** 2,000 V RMS

**Typical Unbalanced Crosstalk:**

Description	Pulse Rise Time (NS) (MHz)	Near End % (MHz)	Far End % (MHz)
10 ft. sample length	3	4.8	7
10 ft. sample length	5	3.5	4.7
10 ft. sample length	7	3	3

**Notes (Overall)**

**Notes:** GSG=Ground-Signal-Ground Mode

**Polarity Identification (Overall)**

**Polarity Identification:** RED POLARITY STRIPE ON #1 CONDUCTOR

**Put Ups and Colors:**

Item #	Putup	Ship Weight	Color	Notes	Item Desc
9L28020 008H100	100 FT	2.300 LB	GRAY		20 #28 STR PVC RIBBON

# Gray Ribbon 9L280XX Series

.050" Pitch, 28 AWG, PVC

## Product Description

Belden's (9L280XX Series) .050" pitch extruded gray ribbon cable was designed for general purpose electronic interconnect applications. The cable provides reliable mass-termination to standard .100" contact IDC connectors, flexibility, consistent electricals and break-outs can be made easily with the tear feature design. The cable is constructed of stranded 28 AWG (7x36) tinned copper conductors. Insulation material consists of Gray PVC, with a Red polarity stripe for proper circuit alignment. Various conductor counts are standard; other sizes are available upon request. The cable is UL approved and CSA certified, and passes the VW-1 Vertical Wire Flame Test.

**Color Code:** Gray with Red polarity stripe (standard).

**Application:** Internal interconnection or internal wiring of electronic equipment.

## Physical Specifications

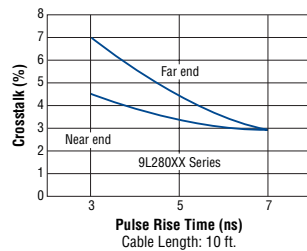
<b>Conductor</b>	28 AWG (7x36) Tinned Copper
<b>Insulation</b>	.010" Nom. Wall Gray PVC
<b>Pitch</b>	.050" ± .002"
<b>Temperature Rating</b>	-40 to +105°C
<b>Flammability Rating</b>	UL: VW-1; CSA: FT1
<b>UL Approval</b>	File #E12683, Style 2651
<b>CSA Approval</b>	File #LL7874, CSA AWM I A 105°C 300V FT1
<b>Packaging</b>	H100, H300, R300

## Electrical Specifications

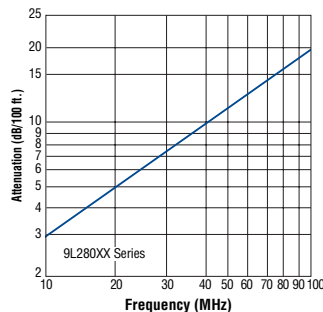
<b>Voltage Rating</b>	300V RMS
<b>Current Rating</b>	1A
<b>Conductor Resistance</b>	68.2Ω/1000 ft.
<b>Insulation Resistance</b>	>1 x 10 <sup>10</sup> Ω • 10 ft. (3m)
<b>Impedance*</b>	105Ω
<b>Capacitance* (@ 1 MHz)</b>	15 pF/ft. (49 pF/m)
<b>Inductance* (@ 1 MHz)</b>	.20 μH/ft. (.66 μH/m)
<b>Propagation Delay*</b>	1.40 ns/ft. (4.6 ns/m)

\*Test Configuration: G-S-G (ground-signal-ground).

## Unbalanced Crosstalk\*



## Attenuation\*



Part No. Standard [UL & CSA]	No. of Cond.	Dimensions			
		Width "A"		Span "B"	
		Inch	mm	Inch	mm
9L28009	9	.45 ±.008	11.43 ±.20	.40 ±.008	10.16 ±.20
9L28010	10	.50 ±.008	12.70 ±.20	.45 ±.008	11.43 ±.20
9L28014 <sup>†</sup>	14	.70 ±.008	17.78 ±.20	.65 ±.008	16.51 ±.20
9L28015**	15	.75 ±.008	19.05 ±.20	.70 ±.008	17.78 ±.20
9L28016	16	.80 ±.008	20.32 ±.20	.75 ±.008	19.05 ±.20
9L28020	20	1.00 ±.008	25.40 ±.20	.95 ±.008	24.13 ±.20
9L28024 <sup>†</sup>	24	1.20 ±.008	30.48 ±.20	1.15 ±.008	29.21 ±.20
9L28025	25	1.25 ±.008	31.75 ±.20	1.20 ±.008	30.48 ±.20
9L28026	26	1.30 ±.008	33.02 ±.20	1.25 ±.008	31.75 ±.20
9L28034	34	1.70 ±.008	43.18 ±.20	1.65 ±.008	41.91 ±.20
9L28036**	36	1.80 ±.012	45.72 ±.30	1.75 ±.012	44.45 ±.30
9L28037**	37	1.85 ±.012	46.99 ±.30	1.80 ±.012	45.72 ±.30
9L28040	40	2.00 ±.012	50.80 ±.30	1.95 ±.012	49.53 ±.30
9L28050	50	2.50 ±.012	63.50 ±.30	2.45 ±.012	62.23 ±.30
9L28060	60	3.00 ±.012	76.20 ±.30	2.95 ±.012	74.93 ±.30
9L28064	64	3.20 ±.012	81.28 ±.30	3.15 ±.012	80.01 ±.30

\*\* Available in H100 packaging only.  
<sup>†</sup> Not available in R300 packaging.

## Dimensions

