

## 8782 Multi-Conductor - High-Conductivity Copper Speaker Cable Parallel Zip Const



### Description:

24 AWG stranded (7x32) ETP high-conductivity copper conductors, PVC insulation, parallel: (1) Tinned, (1) Bare.

### Physical Characteristics (Overall)

#### Conductor

##### AWG:

# Conductors	AWG	Stranding	Conductor Material
1	24	7x32	High Conductivity TC - Tinned Copper
1	24	7x32	High Conductivity BC - Bare Copper

#### Insulation

##### Insulation Material:

Insulation Material	Wall Thickness (in.)
PVC - Polyvinyl Chloride	.017

#### Outer Shield

##### Outer Shield Material:

Outer Shield Material
Unshielded

#### Outer Jacket

##### Outer Jacket Material:

Outer Jacket Material
PVC - Polyvinyl Chloride

#### Overall Cabling

Overall Nominal Diameter: 0.058 x 0.116 in.

### Mechanical Characteristics (Overall)

Operating Temperature Range: -20°C To +75°C

Non-UL Temperature Rating: 75°C

Bulk Cable Weight: 5.600 lbs/1000 ft.

Max. Recommended Pulling Tension: 12 lbs.

Min. Bend Radius (Install)/Minor Axis: 1.250 in.

### Applicable Specifications and Agency Compliance (Overall)

#### Applicable Standards & Environmental Programs

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

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MII Order #39 (China RoHS): Yes

### Plenum/Non-Plenum

Plenum (Y/N): No

### Electrical Characteristics (Overall)

#### Nom. Inductance:

Inductance (µH/ft)

.22

#### Nom. Conductor DC Resistance:

DCR @ 20°C (Ohm/1000 ft)

23.3

#### Max. Operating Voltage - Non-UL:

Voltage

300 V RMS

#### Max. Recommended Current:

Current

2.0 Amp per conductor @ 25°C

### Put Ups and Colors:

Item #	Putup	Ship Weight	Color	Notes	Item Desc
8782 001U1000	1,000 FT	6.000 LB	BROWN		2#24 FRPVC PARALLEL
8782 0091000	1,000 FT	6.000 LB	WHITE		2#24 FRPVC PARALLEL
8782 060U1000	1,000 FT	6.000 LB	CHROME		2#24 FRPVC PARALLEL
8782 3681000	1,000 FT	6.000 LB	CLEAR, TRANSPARENT		2#24 PVC PARALLEL

# Speaker Wire and Cable

## Overview



### Electrolytic Tough Pitch (ETP) High-conductivity Copper Speaker Cables

Speaker cables are used to connect receivers or power amplifiers to speakers and are also used for the internal wiring of the speakers themselves.

#### High-conductivity Copper

All Belden® speaker cables utilize only high-conductivity copper produced by a process called Electrolytic Tough Pitch. This refining process produces a conductor that is 99.95% pure copper resulting in high-conductivity per ASTM B115. The high purity obtained from ETP copper results in audio cable performance that is comparable to that of oxygen-free copper cables.

#### Gage Selection

Because the impedance of the loud-speaker is quite low (typically 3 to 10 ohms) much of the power conducted through the cable is carried in the current domain which is affected by conductor resistance. The resistance of the cable between the speaker and the amplifier turns some of the amplifier's power into heat and does not get to the speaker.

The feedback from the speaker is altered by the cable. This feedback is used by the amplifier to correct the speaker's non-linearity. It is measured as the Damping factor by amplifier designers and is called "Servoing" by the Hi-Fi community.

In general, the higher the cable resistance, the lower the power level getting to the speaker, resulting in "sloppier" speaker performance due to damping.

Ultimately, the system designer must decide how to compromise system performance against system cost. In general, one of the least expensive ways to squeeze more and better performance out of the system hardware is to use larger speaker cables and cut your losses where they occur rather than try to "Band-Aid" the system later with equalization or more power.

The Cable Selection Guide can aid in determining the proper gage selection depending on the speaker impedance, acceptable power loss and cable run length.

### Speaker Cable Selection Guide

AWG	4Ω Speaker			8Ω Speaker			70V Speaker*		
	Power (%) / Loss (dB/Ft.)								
	11% .5	21% 1.0	50% 3.0	11% .5	21% 1.0	50% 3.0	11% .5	21% 1.0	50% 3.0
12	140	305	1150	285	610	2285	6920	14890	56000
14	90	195	740	185	395	1480	4490	9650	36300
16	60	125	470	115	250	935	2840	6100	22950
18	40	90	340	85	190	685	2070	4450	16720
20	25	50	195	50	105	390	1170	2520	9500
22	15	35	135	35	70	275	820	1770	6650
24	10	25	85	20	45	170	520	1120	4210

The number of feet of cable you can run for a given loss and performance budget.

#### How to Use the Guide

**Step One** Select the appropriate speaker impedance column.

**Step Two** Select the appropriate power loss column deemed to be acceptable.

**Step Three** Select the applicable wire gage size and follow the row over to the columns determined in steps one and two. The number listed is the maximum cable run length.

**Example** The maximum run for 12 AWG in a 4 Ohm speaker system with 11% or .5 dB loss is 140 ft.

\*70 volt line drive systems, while considered a potential for Hi-Fi performance, follow the same cable loss physics as the higher current (lower impedance) system. For the sake of this calculation a 25 watt 70 volts system (196Ω) was used.

# Speaker Wire and Cable

Electrolytic Tough Pitch (ETP) High-Conductivity Copper Speaker Cables  
Parallel Zip Constructions

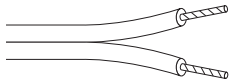


Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Cond.	Standard Lengths		Standard Unit Weight		Insulation Thickness		Nominal OD	
				Ft.	m	Lbs.	kg	Inch	mm	Inch	mm

**24 AWG** Stranded (7x32) ETP High-conductivity Copper Conductors • Parallel: (1) Tinned, (1) Bare

**PVC Insulation** (Available in Clear, White, Brown or Chrome)

300V 60°C (Clear)	<b>8782</b>	—	2	U-1000 ▲	U-304.8	7.0	3.2	.017	.43	.058	1.47
300V 75°C (Chrome, Brown, White)				1000 ♦	304.8	6.0	2.7			x .116	x 2.95

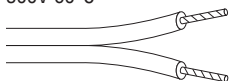


▲U-1000 ft. put-up available in Brown or Chrome only.  
♦1000 ft. put-up available in White or Clear only.

**22 AWG** Stranded (7x30) ETP High-conductivity Copper Conductors • Parallel: (1) Tinned, (1) Bare

**Clear PVC Insulation**

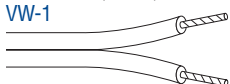
300V 60°C	<b>9712</b>	—	2	1000	304.8	9.0	4.1	.017	.43	.065 x	1.65 x
										.130	3.30



**20 AWG** Stranded (7x28) ETP High-conductivity Copper Conductors • Parallel: (1) Tinned, (1) Bare

**Clear or Chrome PVC Insulation**

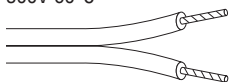
300V 60°C (Clear)	<b>8649</b>	—	2	1000	304.8	12.0	5.5	.018	.46	.073	1.85
300V 75°C (Chrome)										x .146	x 3.71



**18 AWG** Stranded (16x30) ETP High-conductivity Copper Conductors • Parallel: (1) Tinned, (1) Bare

**Clear PVC Insulation**

300V 60°C	<b>9708</b>	—	2	U-500	U-152.4	11.0	5.0	.032	.81	.110	2.79
				500	152.4	10.5	4.8			x	x
				U-1000	U-304.8	21.0	9.5			.220	5.59
				1000	304.8	21.0	9.5				



**16 AWG** Stranded (26x30) ETP High-conductivity Copper Conductors • Parallel: (1) Tinned, (1) Bare

**Clear PVC Insulation**

300V 60°C	<b>9716</b>	—	2	U-1000	U-304.8	27.0	12.2	.027	.69	.115	2.92
				1000	304.8	26.0	11.8			x .230	x 5.84



**14 AWG** Stranded (19x27) ETP High-conductivity Copper Conductors • Parallel: (1) Tinned, (1) Bare

**Clear PVC Insulation**

300V 60°C	<b>9717</b>	—	2	U-1000	U-304.8	42.0	19.1	.035	.89	.146	3.71
				1000	304.8	42.0	19.1			x .292	x 7.42



**12 AWG** Stranded (65x30) ETP High-conductivity Copper Conductors • Parallel: (1) Tinned, (1) Bare

**Clear PVC Insulation**

300V 60°C	<b>9718</b>	—	2	500	152.4	33.0	15.0	.045	1.14	.185	4.70
				1000	304.8	66.0	30.0			x .370	x 9.40

