Introduction

BRILLIANCE®

- Mobile and Fixed Installations
  Foil-shielded multicore cables are mainly used for permanent installations while Belden's braid shield constructions are recommended for mobile (semi-permanent) applications.
- French Braid® Shield
  Belden's patented "French Braid" shield is a double spiral (double serve) bare copper shield with the two spirals tied together by one weave. This improves flex life over standard spiral shields, improves flexibility over conventional braid shields and lowers microphonic or triboelectric noise. The "French Braid" is easy to terminate since it is not fully woven. It also provides for lower DC loop resistance than the single spiral braid. The "French Braid" is featured in Belden's FleXnake® Cables (1900 Series) and quad snake cables (7880 Series).
- Beldfoil® Shield
  The foil shield of each pair is bonded to the jacket with the drain wire inside the foil. This makes the cable easier to strip. A standard stripping tool removes both the insulation and foil and greatly speeds up the installation time.

- **AES/EBU Digital Audio Cables:** The specification for digital audio was developed jointly by the Audio Engineering Society (AES) & European Broadcast Union (EBU). The key difference between twisted pair specifications for digital audio cable and standard analog audio cable is the impedance specification.

  The detailed specifications of this standard are:
  Sampling rate: from 32 KHz to 192 KHz
  Bandwidth: from 4.096 MHz to 24.5 MHz
  Impedance: 110 Ω ± 20%

Sampling Rate	Bandwidth
32 kHz	4.096 MHz
44.1 kHz	5.6448 MHz
48 kHz	6.144 MHz
96 kHz	12.228 MHz
192 kHz	24.576 MHz

  AES/EBU, with its broad tolerance, allows cables with impedances from 88 Ohm to 132 Ohm to be used. Standard analog audio cable impedance is 45 Ohm to 70 Ohm. This amount of potential mismatch can result in signal reflections and jitter, causing bit errors at the receiver. For this reason, Belden recommends 100 to 120 Ohm shielded twisted pair cables.

How to Choose a AES/EBU Cable.

Single and Double Pairs

- 9180
  26 Gage (0.14 mm²/0.5 mm), Beldfoil®, Datalene®
- 1800B
  24 Gage (0.22 mm²/0.6 mm), Beldfoil®, Datalene®
- 1802B
  24 Gage (0.22 mm²/0.6 mm), Beldfoil®, Datalene®, Double-Pairs
- 1800F
  24 Gage (0.22 mm²/0.6 mm), FrenchBraid®, Datalene®, several colors
- 1696A
  22 Gage (0.34 mm²/0.8 mm), Beldfoil®/FrenchBraid®, Datalene®

Multi-Pair Snake Cables

- 7880A Series
  26 Gage (0.14 mm²/0.5 mm),
  Beldfoil®/Overall Beldfoil®, Datalene®, Color coded
- BE46935 Series
  26 Gage (0.14 mm²/0.5 mm), Braid/Overall Braid, FRNC IEC 332-3C
- BE46266 SlimSnake™
  26 Gage (0.14 mm²/0.5 mm), Braid/Overall Braid, Halogen-Free
- 1803F Series
  24 Gage (0.22 mm²/0.6 mm),
  Beldfoil®/Overall Beldfoil®, Datalene®, Color coded

Maximum Recommended Transmission Distance at Digital Audio Data Rates

Part No.	AWG	2 MHz		4 MHz		5 MHz		6 MHz		12 MHz		25 MHz	
		ft.	m	ft.	m	ft.	m	ft.	m	ft.	m	ft.	m
110 Ohm													
9180, 7880A Series	26	1197	365	948	289	869	265	813	248	633	193	472	144
1800F	24	1233	376	922	281	764	233	666	203	423	129	279	85
1800B, 1802B, 1803F Series	24	1538	469	1282	391	1178	359	1105	337	876	267	649	198
1696A	22	2148	655	1738	530	1666	508	1538	469	1250	381	1014	309
75 Ohm													
179DT	28.5	1492	455	1197	365	1148	350	1004	306	722	220	522	159
1855A	23	3519	1073	2427	740	2175	663	1991	607	1538	469	1112	339
1505F	22	5881	1793	3772	1150	3332	1016	2985	910	2040	622	1387	423
1505A	20	4864	1483	3477	1060	3175	968	2909	887	2221	677	1538	469
1694A	18	5881	1793	4182	1275	3703	1129	3408	1039	2499	762	2001	610

Much longer transmission distance is achievable but is contingent upon system component quality.