

9451SB Multi-Conductor - Audio, Control and Instrumentation Shipboard Cable



Description:

22 AWG stranded (7x30) tinned copper conductors, polypropylene insulation, twisted pair, overall Beldfoil shield (100% coverage), 22 AWG stranded TC drain wire, LSZH jacket.

Usage (Overall)

Suitable Applications: Audio, Control, or Instrumentation for Marine Shipboard and Offshore use

Physical Characteristics (Overall)

Conductor

AWG:

# Pairs	AWG	Stranding	Conductor Material
1	22	7x30	TC - Tinned Copper

Insulation

Insulation Material:

Insulation Material	Wall Thickness (in.)
PP - Polypropylene	.008

Outer Shield

Outer Shield Material:

Outer Shield Trade Name	Type	Outer Shield Material	Coverage (%)
Beldfoil®	Tape	Aluminum Foil-Polyester Tape	100

Outer Shield Drain Wire AWG:

AWG	Stranding	Drain Wire Conductor Material
22	7x30	TC - Tinned Copper

Outer Jacket

Outer Jacket Material:

Outer Jacket Material	Nom. Wall Thickness (in.)
LSZH - Low Smoke Zero Halogen	.032

Overall Cabling

Overall Nominal Diameter: 0.160 in.

Pair

Pair Color Code Chart:

Number	Color
1	Black & Red

Pair Lay Length & Direction:

Lay Length (in.)	Twists/ft. (twist/ft)
1.750	6.860

Mechanical Characteristics (Overall)

Operating Temperature Range: -30°C To +105°C

UL Temperature Rating: 105°C

Bulk Cable Weight: 19.100 lbs/1000 ft.

Max. Recommended Pulling Tension: 27 lbs.

9451SB Multi-Conductor - Audio, Control and Instrumentation Shipboard Cable

Min. Bend Radius (Install)/Minor Axis: 1.500 in.

Applicable Specifications and Agency Compliance (Overall)

Applicable Standards & Environmental Programs

NEC/(UL) Specification:	CMG-LS
CEC/C(UL) Specification:	CMG-LS
IEEE Specification:	Std. 45 clause 23
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):	08/01/2005
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
Other Specification:	UL444, ABS Type Approval Certificate 05-HS500072B

Flame Test

UL Flame Test:	UL1685 FT4 Loading, Limited Smoke
C(UL) Flame Test:	FT4, Limited Smoke
IEC Flame Test:	60332-1, 60332-3-22 (Category A)
IEEE Flame Test:	1202

Suitability

Suitability - Indoor:	Yes
Suitability - Outdoor:	Yes
Sunlight Resistance:	Yes

Plenum/Non-Plenum

Plenum (Y/N):	No
---------------	----

Electrical Characteristics (Overall)

Nom. Characteristic Impedance:

Impedance (Ohm)

45

Nom. Inductance:

Inductance (µH/ft)

.17

Nom. Capacitance Conductor to Conductor:

Capacitance (pF/ft)

35

Nom. Capacitance Cond. to Other Conductor & Shield:

Capacitance (pF/ft)

67

Nominal Velocity of Propagation:

VP (%)

66

Nominal Delay:

Delay (ns/ft)

1.5

Nom. Conductor DC Resistance:

9451SB Multi-Conductor - Audio, Control and Instrumentation Shipboard Cable

DCR @ 20°C (Ohm/1000 ft)

14.1

Nominal Outer Shield DC Resistance:

DCR @ 20°C (Ohm/1000 ft)

14.3

Max. Operating Voltage - UL:

Voltage

300 V RMS

Max. Recommended Current:

Current

2.9 Amps per conductor @ 25°C

Notes (Overall)

Notes: The jacket and shield are bonded so both can be removed on automatic stripping equipment. Drain wire is inside foil shield.

Put Ups and Colors:

Item #	Putup	Ship Weight	Color	Notes	Item Desc
9451SB 0101000	1,000 FT	20.000 LB	BLACK	C	2 #22 PP FS FRNHPO

Notes:

C = CRATE REEL PUT-UP.

Line Level Analog Audio Cable

Single-Pair Cables




Belden analog audio cables are used for connecting line level audio equipment in either permanent or semi-permanent installations. They consist of one or two individually foil-shielded, twisted pairs. Once installed, they are not intended to be moved while in service. For cables that are in motion during use, refer to the Microphone and Musical Instrument Cable section in this catalog.

no. 8451 utilizes a paper tape separator to facilitate easy long length jacket stripping. Part no. 9451 comes with a bonded Beldfoil® shield so that the shield and jacket strip simultaneously. A special matte PVC jacket material is employed on part no. 1508A making it a highly flexible construction. Double pair cables are available in a round construction (part no. 8723) or in a ZIP cord style (part no. 1504A) for easy separation in two-channel or stereo hook-ups.

Belden's analog audio cable offering consists of a selection of designs to handle a variety of audio applications. Belden part


Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Pairs	Color Code	Standard Lengths		Standard Unit Weight		Insulation Thickness		Jacket Thickness		Nominal OD		Nominal Capacitance			
					Ft.	m	Lbs.	kg	Inch	mm	Inch	mm	Inch	mm	* pF/ Ft.	* pF/ m	** pF/ Ft.	** pF/ m

24 AWG Stranded (7x32) TC Conductors • Twisted Pair • Overall Beldfoil Shield (100% Coverage) • 24 AWG Stranded TC Drain Wire
Polypropylene Insulation • PVC Jacket (Available in Brown, Red, Green, Lt. Blue, Purple, Gray, White or Black)

 300V RMS 60°C Z-Fold®	1883A	NEC:	1	Black,	U-1000	U-304.8	11.0	5.0	.008	.20	.020	.51	.123	3.12	31	102	58	190
		CMR		Red	1000 [▲]	304.8	11.0	5.0	For cross-connect use with 1408R (et al.) Snake Cables, see page 19.18.									
		CEC:																
		CMG FT4																


▲1000 ft. put-up available in Gray only.
 Jacket and shield are bonded so both can be removed with automatic stripping equipment.

Polyolefin Insulation • Black Matte PVC Jacket


 High-Flex 300V RMS 60°C	1508A	NEC:	1	Black,	500	152.4	6.5	2.9	.008	.20	.024	.61	.131	3.33	31	102	58	190
		CM		Red	1000	304.8	11.0	5.0	For cross-connect use with 1408R (et al.) Snake Cables, see page 19.18.									
		CEC:																
		CM																

Jacket and shield are bonded so both can be removed with automatic stripping equipment.


24 AWG Stranded (7x32) TC Conductors • Twisted Pair • Overall Beldfoil Shield (100% Coverage)^{††} • 24 AWG Stranded TC Drain Wire
Polyethylene Insulation • Chrome PVC Jacket

 Low-Capacitance UL AWM Style 2092 (300V RMS 60°C)	8641	NEC:	1	Black,	100	30.5	2.3	1.0	.016	.41	.025	.64	.168	4.27	22	72	42	138
		CM		Clear	U-500	U-152.4	7.5	3.4	For Plenum versions of 8641, see 88641 or 82641.									
		CEC:			500	152.4	7.0	3.2										
		CM			U-1000	U-304.8	14.0	6.4										
					1000	304.8	14.0	6.4										
					2000	609.6	28.0	12.7										

Plenum • FEP Insulation • Red FEP Jacket

 300V RMS 200°C, Non-conduit	88641	NEC:	1	Black,	100	30.5	2.4	1.1	.006	.15	.014	.36	.106	2.69	31	102	59	194
		CMP		Red	500 [†]	152.4	6.0	2.7										
		CEC:			1000 [†]	304.8	9.0	4.1										
		CMP FT6																

Plenum • FEP Insulation • Natural Flamarrest® Jacket

 300V RMS 60°C, Non-conduit	82641	NEC:	1	Black,	U-1000 ^{††}	U-304.8	9.0	4.1	.006	.15	.014	.36	.106	2.69	31	102	59	194
		CMP		Red	1000 ^{††}	304.8	8.0	3.6										
		CEC:																
		CMP FT6																

FEP = Fluorinated Ethylene Propylene • TC = Tinned Copper

*Capacitance between conductors.

**Capacitance between one conductor and other conductors connected to shield.

[†]Spools and/or UnReel® cartons are one piece, but length may vary ±10% for spools and ±5% for UnReel from length shown.

^{††}Length may vary ±10% for UnReel.

Line Level Analog Audio Cable

Single-Pair Cables



Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Pairs	Color Code	Standard Lengths		Standard Unit Weight		Insulation Thickness		Jacket Thickness		Nominal OD		Nominal Capacitance			
					Ft.	m	Lbs.	kg	Inch	mm	Inch	mm	Inch	mm	* pF/ Ft.	* pF/ m	** pF/ Ft.	** pF/ m

22 AWG Stranded (7x30) TC Conductors • Twisted Pair • Overall Beldfoil® Shield (100% Coverage) • 24 AWG Stranded TC Drain Wire

Polypropylene Insulation • PVC Jacket (Available in Brown, Red, Orange, Yellow, Green, Blue, Purple, Gray, White or Black)

	1266A	NEC:	1	Black, Red	U-1000	U-304.8	15.0	6.8	.010	.25	.020	.51	.143	3.63	30	99	54	177		
		CM			1000 [▲]	304.8	15.0	6.8												
		CEC: CM																		

[▲]1000 ft. put-up available in Black only.
Unique design features lower capacitance and greater flexibility than standard audio pair constructions.

PVC Insulation • PVC Jacket (Available in Brown, Red, Orange, Yellow, Green, Blue, Purple, Gray, White or Black)

	1503A	NEC:	1	Black, Red	U-1000	U-304.8	16.0	7.3	.010	.25	.020	.51	.142	3.61	53	174	97	318		
		CM																		
		CEC: CM																		

22 AWG Stranded (7x30) TC Conductors • Twisted Pair • Overall Beldfoil Shield (100% Coverage) • 22 AWG Stranded TC Drain Wire

Polypropylene Insulation • Paper Wrap • Gray or Black PVC Jacket

	8451	NEC:	1	Black, Red	100 [▼]	30.5	2.3	1.1	.008	.20	.020	.51	.138	3.51	34	111	67	220			
		CMR			U-500	U-152.4	8.5	3.9													
		CEC:			500	152.4	8.0	3.6													
		CMG FT4			U-1000	U-304.8	16.0	7.3													
					1000	304.8	16.0	7.3													

[▼]100 ft. put-up available in Black only.
Unique paper separator facilitates jacket stripping.

Polypropylene Insulation • PVC Jacket (Available in Brown, Red, Orange, Yellow, Green, Blue, Purple, Gray, White or Black)

	9451	NEC:	1	Black, Red	U-500*	U-152.4	8.5	3.9	.008	.20	.020	.51	.135	3.43	35	115	67	220			
		CMR			500*	152.4	8.0	3.6													
		CEC:			T-1000*	T-304.8	18.0	8.2													
		CMG FT4			U-1000	U-304.8	15.0	6.8													
					5000	1524.0	75.0	34.0													

For cross-connect use with 1814R (et al.) Snake Cables, see page 19.21

*U-500 ft., 500 ft. and T-1000 ft. put-ups available in Gray only.
The jacket and shield are bonded so both can be removed on automatic stripping equipment. Drain wire is inside foil shield.

Polypropylene Insulation • Black Low-Smoke, Zero-Halogen Jacket

	9451SB <small>new</small>	NEC:	1	Black, Red	1000	304.8	20.0	9.1	.008	.20	.032	.81	.160	4.06	35	114	67	220			
		LSZH and ABS Type Approved			CMG-LS																
		300V RMS 105°C			CEC:																
					CMG-LS FT4 Limited Smoke																

The jacket and shield are bonded so both can be removed on automatic stripping equipment. Drain wire is inside foil shield.

Plenum • FEP Insulation • Flamarest® Jacket (Brown, Red, Orange, Yellow, Green, Blue, Purple, Gray, White or Black)

	9451P <small>new</small>	NEC:	1	Black, Red	U-1000	U-304.8	16.0	7.3	.007	.18	.017	.43	.127	3.23	35	115	67	220			
		300V RMS 60°C			CMP	5000	1524.0	75.0	34.0												
					CEC:																
					CMP FT6																

The jacket and shield are bonded so both can be removed on automatic stripping equipment. Drain wire is inside foil shield.

22 AWG Solid Tinned Copper Conductors • Twisted Pair • Overall Beldfoil Shield (100% Coverage) • 22 AWG Solid TC Drain Wire

Polypropylene Insulation • Gray or Black PVC Jacket

	8450	NEC:	1	Black, Red	U-500*	U-152.4	7.5	3.4	.007	.18	.018	.46	.118	3.00	40	131	76	249			
		300V RMS 75°C			CM	U-1000*	U-304.8	14.0	6.4												
					CEC:	1000	304.8	13.0	5.9												
					CM																

*U-500 ft. and U-1000 ft. put-ups available in Black only.
Belden's Miniature Type Broadcast Audio and Instrumentation Cables occupy 1/2 to 2/3 less space than standard cables.

FEP = Fluorinated Ethylene Propylene • TC = Tinned Copper

*Capacitance between conductors.

**Capacitance between one conductor and other conductors connected to shield.

