### **Detailed Specifications & Technical Data**







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#### **Description:**

Miniature, 23 AWG solid .023" bare copper conductors, solid copper, gas-injected foam HDPE insulation, Duofoil® + tinned copper braid shield (95% coverage), overall PVC jacket.

Physical Characteristics (Overall)		
Conductor		
AWG:		
6 23 Solid BC - Bare Copper	023	
Insulation		
Insulation Material	Dia (in )	
Gas-injected FHDPE - Foam High Density Poly	vethylene .102	
Inner Shield Material:		
Layer # Inner Shield Trade Name Type Inne	er Shield Material	Coverage (%)
1 Duofoil® Tape Alun	minum Foil-Polyester Tape-Aluminum Foil	100
2 Braid TC -	- Tinned Copper	95
Inner Jacket		
Inner Jacket Material:		
Inner Jacket Material Nom. Dia. (in.)		
PVC - Polyvinyl Chloride .159		
Inner Jacket Color Code Chart:		
Number Color		
1 Red		
2 Green		
4 White		
5 Yellow		
6 Brown		
Outer Jacket		
Outer Jacket Material:		
Outer Jacket Material		
PVC - Polyvinyl Chloride		
Overall Cabling		
Overall Nominal Diameter:	0.597 in	
	0.597 m.	
Mechanical Characteristics (Overall)	)	
Operating Temperature Range:	-35°C To +75°C	
UL Temperature Rating:	60°C	
Non-UL Temperature Rating:	75°C	
Bulk Cable Weight:	163 lbs/1000 ft.	
Max. Recommended Pulling Tension:	216 lbs.	

## **Detailed Specifications & Technical Data**

#### ENGLISH MEASUREMENT VERSION

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#### 7790A Coax - Bundled Miniature

Min. Bend Radius (Install)/Minor Axis:	6 in.
Applicable Specifications and Agency Co	mpliance (Overall)
Applicable Standards & Environmental Progra	ams
NEC/(UL) Specification:	CMR
CEC/C(UL) Specification:	CMG
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
RG Type:	Mini
Flame Test	
UL Flame Test:	UL1666 Vertical Shaft
Suitability	
Suitability - Indoor:	Yes
Suitability - Outdoor:	Yes
Plenum/Non-Plenum	Ma
Pienum (f/N):	NO
Electrical Characteristics (Overall)	
Electrical Characteristics (Overall) Nom. Characteristic Impedance:	
Electrical Characteristics (Overall)   Nom. Characteristic Impedance:   Impedance (Ohm)   75	
Electrical Characteristics (Overall)   Nom. Characteristic Impedance:   Impedance (Ohm)   75   Nom. Inductance:	
Electrical Characteristics (Overall) Nom. Characteristic Impedance: Impedance (Ohm) 75 Nom. Inductance: Inductance (µH/ft) 0,106	
Electrical Characteristics (Overall) Nom. Characteristic Impedance: Impedance (Ohm) 75 Nom. Inductance: Inductance (µH/ft) 0.106 Nom. Canacitance Conductor to Shield:	
Electrical Characteristics (Overall) Nom. Characteristic Impedance: Impedance (Ohm) 75 Nom. Inductance: Inductance (µH/ft) 0.106 Nom. Capacitance Conductor to Shield: Capacitance (pF/ft)	
Electrical Characteristics (Overall) Nom. Characteristic Impedance: Impedance (Ohm) 75 Nom. Inductance: Inductance (µH/ft) 0.106 Nom. Capacitance Conductor to Shield: Capacitance (pF/ft) 16.5	
Electrical Characteristics (Overall) Nom. Characteristic Impedance: Impedance (Ohm) 75 Nom. Inductance: Inductance (µH/ft) 0.106 Nom. Capacitance Conductor to Shield: Capacitance (pF/ft) 16.5 Nominal Velocity of Propagation:	
Electrical Characteristics (Overall) Nom. Characteristic Impedance: Impedance (Ohm) 75 Nom. Inductance: Inductance (µH/ft) 0.106 Nom. Capacitance Conductor to Shield: Capacitance (pF/ft) 16.5 Nominal Velocity of Propagation: VP (%) 83	
Electrical Characteristics (Overall) Nom. Characteristic Impedance: Impedance (Ohm) 75 Nom. Inductance: Inductance (µH/ft) 0.106 Nom. Capacitance Conductor to Shield: Capacitance (pF/ft) 16.5 Nominal Velocity of Propagation: VP (%) 83 Nominal Delay:	
Electrical Characteristics (Overall) Nom. Characteristic Impedance: Impedance (Ohm) 75 Nom. Inductance: Inductance (µH/ft) 0.106 Nom. Capacitance Conductor to Shield: Capacitance (pF/ft) 16.5 Nominal Velocity of Propagation: VP (%) 83 Nominal Delay: Delay (ns/ft)	
Electrical Characteristics (Overall)   Nom. Characteristic Impedance:   Impedance (Ohm)   75   Nom. Inductance:   Inductance (µH/ft)   0.106   Nom. Capacitance Conductor to Shield:   Capacitance (pF/ft)   16.5   Nominal Velocity of Propagation:   VP (%)   83   Nominal Delay:   Delay (ns/ft)   1.24	
Electrical Characteristics (Overall)   Nom. Characteristic Impedance:   Impedance (Ohm)   75   Nom. Inductance:   Inductance (µH/ft)   0.106   Nom. Capacitance Conductor to Shield:   Capacitance (pF/ft)   16.5   Nominal Velocity of Propagation:   VP (%)   83   Nominal Delay:   Delay (ns/ft)   1.24   Nom. Conductor DC Resistance:   DCR @ 2050 (Ohm/d000 ft)	
Electrical Characteristics (Overall)   Nom. Characteristic Impedance:   Impedance (Ohm)   75   Nom. Inductance:   Inductance (µH/ft)   0.106   Nom. Capacitance Conductor to Shield:   Capacitance (pF/ft)   16.5   Nominal Velocity of Propagation:   VP (%)   83   Nominal Delay:   Delay (ns/ft)   1.24   Nom. Conductor DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   20.1	
Electrical Characteristics (Overall)   Nom. Characteristic Impedance:   Impedance (Ohm)   75   Nom. Inductance:   Inductance (µH/ft)   0.106   Nom. Capacitance Conductor to Shield:   Capacitance (pF/ft)   16.5   Nominal Velocity of Propagation:   VP (%)   83   Nominal Delay:   Delay (ns/ft)   1.24   Nom. Conductor DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   20.1   Nom. Inner Shield DC Resistance:	
Electrical Characteristics (Overall)   Nom. Characteristic Impedance:   Impedance (Ohm)   75   Nom. Inductance:   Inductance (µH/ft)   0.106   Nom. Capacitance Conductor to Shield:   Capacitance (pF/ft)   16.5   Nominal Velocity of Propagation:   VP (%)   83   Nominal Delay:   Delay (ns/ft)   1.24   Nom. Conductor DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   20.1   Nom. Inner Shield DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   20.1	
Electrical Characteristics (Overall)   Nom. Characteristic Impedance:   Impedance (Ohm)   75   Nom. Inductance:   Inductance (µH/ft)   0.106   Nom. Capacitance Conductor to Shield:   Capacitance (pF/ft)   16.5   Nominal Velocity of Propagation:   VP (%)   83   Nominal Delay:   Delay (ns/ft)   1.24   Nom. Conductor DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   20.1   Nom. Inner Shield DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   7.6	
Electrical Characteristics (Overall)   Nom. Characteristic Impedance:   Impedance (Ohm)   75   Nom. Inductance:   Inductance (µH/ft)   0.106   Nom. Capacitance Conductor to Shield:   Capacitance (pF/ft)   16.5   Nominal Velocity of Propagation:   VP (%)   83   Nominal Delay:   Delay (ns/ft)   1.24   Nom. Conductor DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   20.1   Nom. Inner Shield DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   7.6   Nom. Attenuation:   Freq. (MHz) Attenuation (dB/100 ft.)	
Electrical Characteristics (Overall)   Nom. Characteristic Impedance:   Impedance (Ohm)   75   Nom. Inductance:   Inductance (µH/ft)   0.106   Nom. Capacitance Conductor to Shield:   Capacitance (pF/ft)   16.5   Nominal Velocity of Propagation:   VP (%)   83   Nominal Delay:   Delay (ns/ft)   1.24   Nom. Conductor DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   20.1   Nom. Inner Shield DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   7.6   Nom. Attenuation:   Freq. (MHz) Attenuation (dB/100 ft.)   1 0.4	

#### ENGLISH MEASUREMENT VERSION



#### 7790A Coax - Bundled Miniature

71.5	3.1
135	3.8
270	5.4
360	6.2
540	7.7
720	9.1
750	9.5
1000	10.5
1500	13.0
2500	16.9
3000	18.5

#### Max. Operating Voltage - UL:

#### Voltage

300 V RMS

**Other Electrical Characteristic 1:** 

Other Electrical Characteristic 2:

Impedance tested in accordance with ASTM D-4566 paragraph 43.2, option 2 using a 75 Ohm fixed bridge and termination.

## Return Loss Tested in Accordance With ASTM D-4566 Paragraph 45.3, Using a 75 Ohm Fixed Bridge and Termination.

#### Minimum Return Loss:

Start Freq. (MHz)	Stop Freq. (MHz)	Min. RL (dB)
5	650	23
650	725	15
725	850	23
850	3000	15

#### **Sweep Test**

Sweep Testing:

Sweep tested 5 MHz to 3 GHz.

#### Put Ups and Colors:

Item #	Putup	Ship Weight	Color	Notes	Item Desc
7790A B591000	1,000 FT	178.000 LB	BLACK, MATTE	С	6 #23 PE/GIFHDPE SH PVC PVC
7790A B59500	500 FT	90.000 LB	BLACK, MATTE	С	6 #23 PE/GIFHDPE SH PVC PVC

Notes:

C = CRATE REEL PUT-UP.

#### Introduction

BRILLIANCE<sup>®</sup>

Broadcast — there is perhaps no other industry which values performance so highly, for the lack of broadcast performance has immediate, far-reaching, and embarrassing results.

That's why the broadcast industry prefers Belden<sup>®</sup> cable. From major network events such as the Olympics, space launches, and presidential news conferences to everyday audio and video applications, Belden is the local, regional, and national choice. The overwhelming reason? Performance.

In broadcast, cable performance means ensured product quality, absolute signal integrity, and no system downtime. Belden products provide performance for both critical field applications (where cable is dragged, crunched, trod, and tread upon) and permanent studio installations (where the long run is all important). Belden products are an important link in network and cable broadcasts (NBC Nightly News, Lifetime Cable Network, CNN News, and CNN Headline News), film studios (Lucasfilm) and corporate broadcasting (USA Today, Merrill Lynch).

Watch television last night or listen to the radio this morning? Chances are the link was made with Belden cable. And with dedication to development and innovation, the chance the link will be Belden increases.

#### Committed to Product Innovation and Technical Excellence

Belden's commitment to product innovation and technical excellence in the broadcast industry has resulted in a line of dependable audio and video cabling products called Brilliance®. Named for the sound and picture brilliance obtainable through new product innovations and improved signal integrity, Brilliance encompasses all Belden Audio/Video products. The line includes:

- High-Conductivity Microphone Cables
- Analog/Digital Audio Cables
- Speaker Cables
- Precision Analog/Digital Video Cables
- Triaxial Cables
- Audio/Video Composite Cables
- RGB & Component Video Cables
- Multimedia Cables
- Fiber Optic Cable (See Fiber Optic Section)

Most of our Brilliance 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 Brilliance cable in this catalog section that meets your technical requirements, contact Technical Support at 1-800-BELDEN-1.

#### **Performance Features**

#### **Innovative Shielding**

Belden shielded cable ensures signal integrity and provides confidence in audio and video transmissions, preventing downtime and maintaining sound and picture clarity. Among the shield types available are: braid shields, foil shields, combination shields and Belden's patented "French Braid" shield.

#### **"French Braid" Shields**

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 construction provides improved flex life over standard spiral shields, improved flexibility over conventional braid shields, and lower levels of microphonic or triboelectric noise than either spiral or conventional braid shields. The "French Braid" is easier to terminate than a standard braid since it is not fully woven. It also provides for a lower DC loop resistance than a single spiral braid for improved performance.



French Braid

#### Special Noise/Interference Problems in Broadcasting

Triboelectric noise is generated by mechanical motion of a cable, causing movement in the cable's shield. Belden detects and measures triboelectric noise through the use of Low Noise Test equipment. Belden developed the test procedure and the equipment based on a combination of three low noise standards: NBS, ISA-S, and MIL-C-17.

Mechanically induced noise is a critical and frequent concern in the use of guitar cords and microphone cables. Belden rigorously employs the properties of special conductive tapes and insulations to prevent these noise problems.

#### Insulations

Belden formulates its own insulations to provide superior performance under a variety of broadcast environment conditions while meeting the electrical requirements of specific applications. Belden cables are available in a number of UL Listed and CSA Approved insulation compounds. Insulation materials include polyethylene, polypropylene, PVC, fluorinated ethylene-propylene (FEP) and Belden's Datalene® — a crushresistant, lightweight insulation that provides a low dielectric constant and dissipation factor that's well suited to high-speed, low-distortion data handling.

#### Jackets

Belden broadcast cables are manufactured in a wide selection of standard jacketing materials. Special compounds and variations of standard compounds are used to meet critical broadcast application requirements and unusual environmental conditions. Proper matching of cable jackets to their working environment can prevent deterioration due to intense heat and cold, sunlight, mechanical abuse, impact and crowd or vehicle traffic. Jacket materials offered include PVC (in standard and matte finishes), polyethylene, FEP, Neoprene, Hypalon<sup>®</sup>, silicone rubber and natural rubber.

For more detailed information and assistance in selecting the correct cable component features for your needs, please refer to the Technical Information section of this catalog.



# VideoFLEX<sup>®</sup> Snake Cable for Precision Digital and Analog

Bundled Miniature and RG-59/U Type

Description	Part	UL NEC/	No.	Star Ler	ndard 1gths	Stan Unit V	dard Veight	Conductor (stranding)	Nom Core	inal OD	Shielding	Nomin	Nominal OD		Nom. Vel.	Nom Capac	inal itance	At	lomina tenuatio	i on
Description	No.	Type	Cond.	Ft.	m	Lbs.	kg	Diameter Nom. DCR	Inch	mm	Nom. DCR	Inch	mm	(Ω)	of Prop.	pF/Ft.	pF/m	MHz	dB/ 100 Ft.	dB/ 100m
Miniature •	23	AWG Sol	id .02	23" Bar	e Coppe	er Con	ductor	rs • Duofoi	l® (100	)% Cc	verage) +	Tinne	d Cop	per B	raid S	Shield	l (95%	% Cov	erage	;)
<b>Gas-inject</b>	ed F	oam HD	PE I	Insula	tion • (	Overa	all Ma	atte Blac	k PV	C Ja	cket (Co	lor Co	de: Se	e cha	irt be	low)				
SDI/HDTV Digital Video 75°C/60°C (UL) (1855A Bundled)	7787A	NEC: CMR CEC: CMG FT4	3	500 1000	152.4 304.8	47.5 94.0	21.6 42.7	23 AWG (solid) .023″ BC 20.1Ω/M′ 65.9Ω/km	.102 Coax .159	2.55 0D: 4.03	Duofoil + 95% TC Braid 7.6Ω/M' 24.9Ω/km	.432	10.97	75	83%	16.5	54.1	1 3.6 10 71.5 135 270 360 540 720	.4 .8 1.2 3.1 3.8 5.4 6.2 7.7 9.1	1.3 2.6 3.9 10.0 12.5 17.7 20.3 25.3 29.8
	7788A	NEC: CMR CEC: CMG FT4	4	1000	304.8	110.0	49.9	same as above	.102 Coax .159	2.55 0D: 4.03	same as above	.481	12.22					750 1000 1500 2500 3000	9.5 10.5 13.0 16.9 18.5	31.2 34.4 42.6 55.4 60.7
	7789A	NEC: CMR CEC: CMG FT4	5	500 1000	152.4 304.8	73.0 142.0	33.1 64.4	same as above	.102 Coax .159	2.55 0D: 4.03	same as above	.539	13.69							
	7790A	NEC: CMR CEC: CMG FT4	6	500 1000	152.4 304.8	88.5 176.0	40.2 79.8	same as above	.102 Coax .159	2.55 0D: 4.03	same as above	.597	15.16		Current			- 40 0 0		
	7791A	NEC: CMR CEC: CMG FT4	10	500 1000	152.4 304.8	155.5 304.0	70.5 137.9	same as above	.102 Coax .159	2.55 0D: 4.03	same as above	.796	20.22		Sweep	lested	плис	2 10 3 6	ITZ.	
	7792A	NEC: CMR CEC: CMG FT4	12	500 1000	152.4 304.8	178.5 367.0	81.0 166.5	same as above	.102 Coax .159	2.55 0D: 4.03	same as above	.825	20.96							
RG-59/U Ty	pe •	20 AWC	Sol	id .032	" Bare C	Copper	Cond	luctors • D	uofoil	(100%	6 Coverag	e) + T	inned	Copp	er Bra	aid Sl	nield	(95%	Cove	rage)
<b>Gas-inject</b>	ed F	oam HD	PE	nsula	tion •	Overa	all Ma	atte Blac	k PV	C Ja	cket (Co	lor Co	de: Se	e cha	ırt be	low)				
	77944	NEC	3	500	152 /	Q/ 5	/13 0	20 AWG	1/15	3 68	Duofoil	631	16.03	75	83%	16.2	53 1	1	3	10

Gas-Inject	led F	oam HD	PE	Insula	tion •	Overa	all Ma	atte Blad	CK PVC Ja	icket (Co	of Co	ae: Se	e cha	art bei	ow)				
SDI/HDTV Digital Video 75°C / 60°C (UL) (1505A Bundled	7794A )	NEC: CMR CEC: CMG FT4	3	500 1000	152.4 304.8	94.5 187.0	43.0 84.8	20 AWG (solid) .032″ BC 10.0Ω/M′ 32.8Ω/km	.145 3.68 Coax OD: .235 5.97	Duofoil + 95% TC Braid 3.8Ω/Μ' 12.5Ω/km	.631	16.03	75	83%	16.2	53.1	1 3.6 10 71.5 135 270 360 540	.3 .6 .9 2.1 2.7 3.8 4.4 5.5	1.0 1.8 2.9 6.9 12.5 14.4 18.0
	7795A	NEC: CMR CEC: CMG FT4	4	500 1000	152.4 304.8	116.5 237.0	53.0 107.7	same as above	.145 3.68 Coax OD: .235 5.97	same as above	.706	17.93					720 750 1000 1500 2500 3000	6.4 6.5 7.6 9.4 12.4 13.8	21.0 21.3 24.9 30.8 40.7 45.3
	7796A	NEC: CMR CEC: CMG FT4	5	500 1000	152.4 304.8	153.0 299.0	69.4 135.6	same as above	.145 3.68 Coax OD: .235 5.97	same as above	.790	20.07		Swaan	toctor	4 5 MI	da to 3	CH7	
:	7798A	NEC: CMR CEC: CMG FT4	10	500 1000	152.4 304.8	319.5 625.0	145.2 284.1	same as above	.145 3.68 Coax OD: .235 5.97	same as above	1.166	29.62		омеер	163161	u J IVII	12 10 3	UI12.	

BC = Bare Copper • DCR = DC Resistance • HDPE = High-density Polyethylene • TC = Tinned Copper

#### **Color Code Chart**

Cond.	Color	Cond.	Color	Cond.	Color
1	Red	5	Yellow	9	Purple
2	Green	6	Brown	10	Black
3	Blue	7	Orange	11	Pink
4	White	8	Gray	12	Tan



