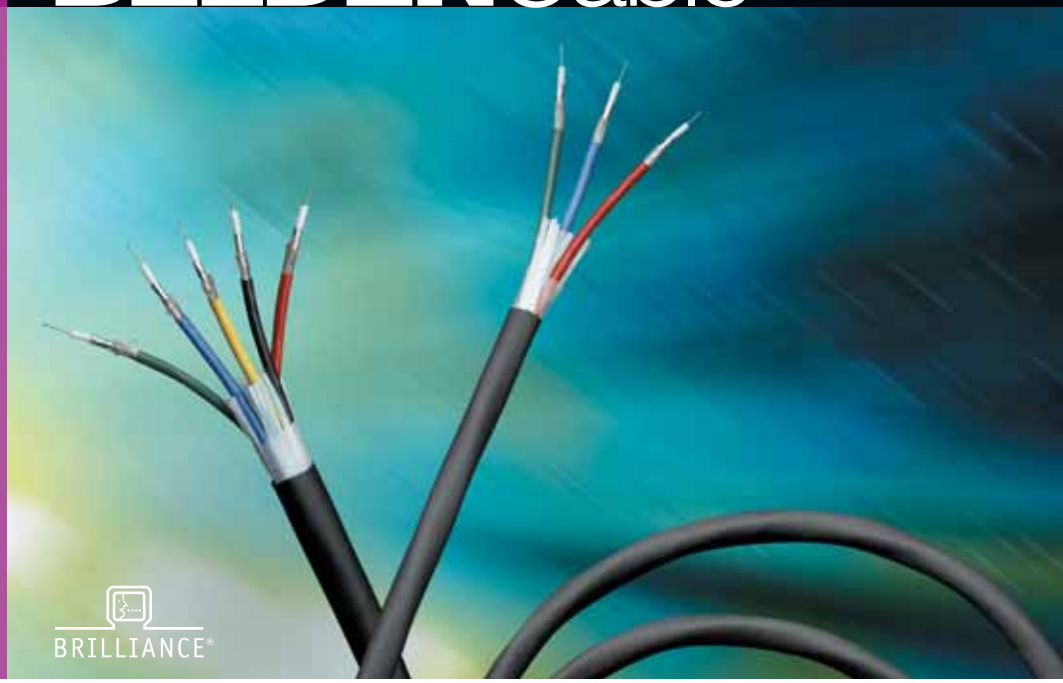
BELDENCable™

Belden Mini Component cables are the industry's first cables to offer true 75 ohm performance. With precise 75 ohm impedance, whole-system performance is optimized.



NEW PRODUCT BULLETIN

NP 198

Belden® Mini Hi-Res Component Video Cables are Designed for RGB, VGA, DTV and HDTV Applications

The RGB standards were designed to address analog video's ability to capture and transmit complex moving images, loaded with information, utilizing analog-only equipment and frequency-limited cables. Most RGB cables available today are still designed for these outdated standards, formats and frequencies.

Precision analog video, utilizing cables that provide greater signal integrity, delivers a better picture than typical RGB transmissions, but digital video and HDTV run at still higher frequencies and make better use of component video for even greater picture clarity.

To accommodate the need for higher frequency, longer distance transmissions and the ability to run more demanding applications such as high resolution VGA on large screens, HDTV, Hi-res CAD, animation, editing and special effects, a true 75 ohm, high-frequency cable with optimum design features is needed. Belden Mini Component cables meet these new high-end requirements.

The unique design of these cables also makes them ideal for multiple runs of composite video signals such as SDI or HDTV (video snake cable).

Construction Details

Bundled mini coaxial cables are used for component video formatted applications that segment the video signal into Red, Green and Blue elements, identified through use of corresponding cable jacket colors (RGB cables). Synchronization (Sync) and Vertical Hold (Hold) signals can be embedded within one of the elemental video components or they can be transmitted separately utilizing the 4th and 5th coaxes. When present, the 4th coax has a Yellow jacket; the 5th coax has a Black jacket. Contemporary applications sometimes include a 6th White-jacketed coax for digital audio, auxiliary audio or video.

Belden Mini Component cables are available in bundles comprised of 3, 4, 5 or 6 coaxes.

The conductors are 25 AWG (solid) tinned copper, rather than the traditional 26 AWG stranded analog style. The insulation is high-density foamed PE (CMR version) or foamed FEP Teflon® (CMP version). Shielding is Duobond® foil (100%) combined with Belden's unique interlocked serve shield. The individual coax jackets are either PVC (CMR) or PVDF (CMP). The overall jackets are PVC.

Exceptional Benefits

Superior cable design means more benefits to both the installer and end-user. Key features and benefits include:

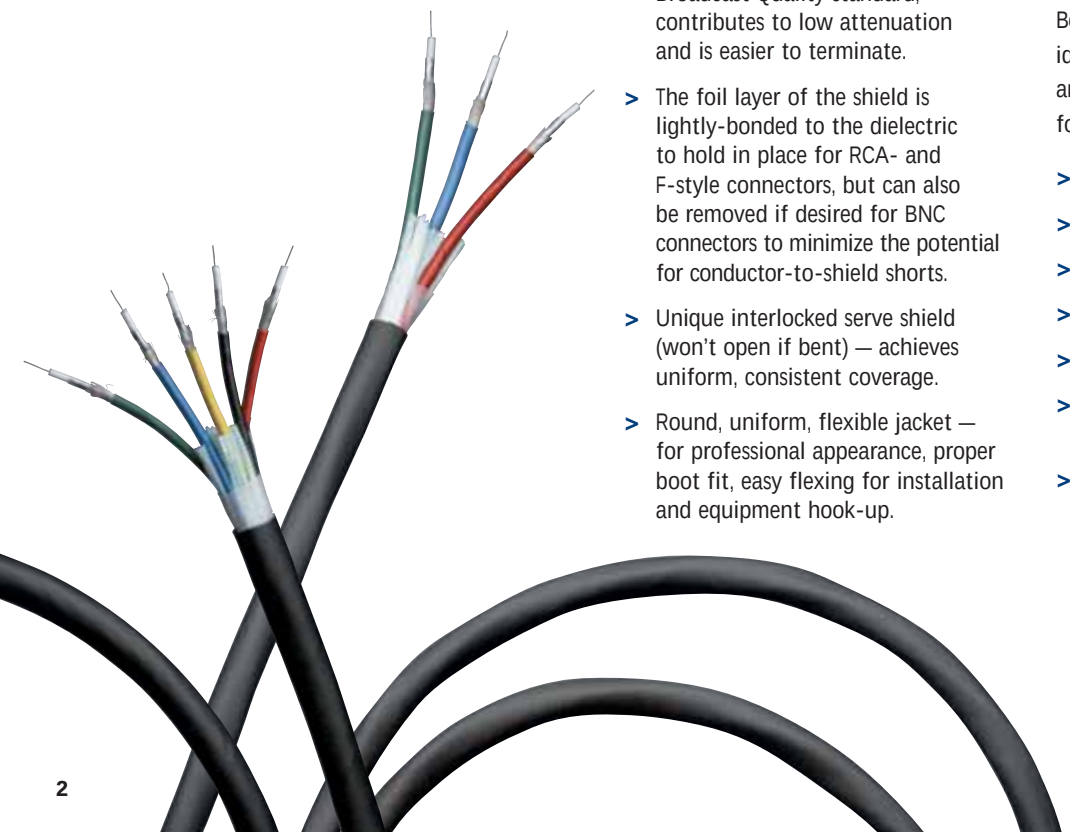
- Solid copper center conductor — low attenuation, easier termination.
- High velocity, low-loss PE and FEP Teflon insulations — low attenuation, long distances and improved timing.
- Foil under braid shielding — Broadcast Quality standard, contributes to low attenuation and is easier to terminate.
- The foil layer of the shield is lightly-bonded to the dielectric to hold in place for RCA- and F-style connectors, but can also be removed if desired for BNC connectors to minimize the potential for conductor-to-shield shorts.
- Unique interlocked serve shield (won't open if bent) — achieves uniform, consistent coverage.
- Round, uniform, flexible jacket — for professional appearance, proper boot fit, easy flexing for installation and equipment hook-up.
- Sweep tested — every reel is tested and verified to have a minimum Return Loss of 20dB at all frequencies up to 850 MHz.
- True 75 ohm impedance — ensures no impedance mismatches for optimal whole-system performance, quality signal transmission over long distances.
- Fits standard Mini RGB and coaxial connectors — for installation flexibility.
- Color-coded jackets — for easy circuit identification.
- Rip cord — included for easy jacket removal.
- Sequential marking — for usage tracking during installation.

See table (opposite page) for a features/benefits comparison of traditional analog Mini RGB cables vs. Belden Mini Component digital-ready cables.

Applications

Belden Mini Component cables are ideal for high-resolution monitor and projection imaging in the following situations/facilities:

- Corporate boardrooms
- Command and control centers
- Multi-purpose auditoriums
- Teleconferencing centers
- Home theater
- Permanent and temporary performance venues
- Post-production facilities



Traditional Analog Styles vs. Belden Digital-Ready Mini Hi-Res Component Cables

Attribute	Traditional Analog Mini RGB Cables	Belden Digital and Precision Analog Component Cables
Conductor	26 AWG Stranded	25 AWG Solid Lower attenuation, lower DCR. Dramatically easier connectorization.
Dielectric (Non-Plenum)	Foam PE 78% to 81% Velocity Greater material and process variability. Low crush resistance and impedance stability.	Foam HDPE 81% Velocity. Hi-density foam, excellent crush resistance and impedance stability. Better Return Loss. Excellent material and process stability. Lower attenuation, longer distances, improved timing.
Dielectric (Plenum)	Foamed FEP	Foamed FEP Teflon® Improved material and process stability.
Shield	Foil over serve Higher attenuation. Serve opens if bent, serve bunches up under stress. Individual wires aren't stabilized. Lower shield effectiveness.	Unique interlocked serve over foil Individual wires are stabilized and locked in place by a counter-direction, single weave braided through. Uniform coverage and better shield effectiveness. Foil is under the tinned copper serve in accordance with Broadcast Quality cable design convention. This gives significantly lower attenuation and permits the foil to remain on the dielectric, and under the connector collar, for best practice terminations. The foil is lightly bonded to the dielectric, holding in place for RCA and F connectors, or is easily removed, if desired, for BNC connectors.
Impedance	68 to 72 ohms actual Don't be fooled by "nominal"	75 (±3) ohms
Design Frequency	244 MHz, VGA frequencies	850 MHz Meets or exceeds bandwidth required for: Analog Component/RGB: 5 MHz; SD Component (SMPTE 259M): 5 MHz; HD Component (SMPTE 240M): 75 MHz; SD Serial Digital Video (SMPTE 259M): 810 MHz; Digital Audio (AES/EBU): 25 MHz. Meets Fundamental Frequency Requirement for HD Serial Digital Video (SMPTE 292M): 750MHz.
Attenuation	Unnecessarily high	10% lower Provides increased transmission distances.
Return Loss and Sweep Test	No information available	-20dB min. Guaranteed 5 MHz to 850 MHz Tested at 75 ohms — fixed. Each cable of each spool tested.

Connector Availability

Manufacturer	Style	Part No.
ADC	BNC	BNC-16
Belden	BNC RCA	1B25A 1R25A
Extron	BNC	100-074-51
ICM	RCA	FSRCA-1RGB
Kings	BNC	2065-25-9
Liberty	BNC	112491-10
Trompeter	BNC	105-2053-9

Color Code Chart

Cond.	Color
1	Red
2	Green
3	Blue
4	Yellow
5	Black
6	White

Mini Hi-Res Component Video Cables

Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Cond.	Standard Lengths Ft.	Standard Lengths m	Standard Unit Weight Lbs.	Standard Unit Weight kg	Conductor (stranding) Diameter Nom. DCR	Nominal Core OD Inch	Nominal Core OD mm	Shielding Materials Nom. DCR	Jacket Nom. Diameter Inch	Jacket Nom. Diameter mm	Nom. Imp. (Ω)	Nom. Vel. of Prop.	Nominal Capacitance pF/Ft.	Nominal Capacitance pF/m	Nominal Attenuation MHz	Nominal Attenuation dB/ 100 Ft.	Nominal Attenuation dB/ 100m
Miniature • 25 AWG Solid .018" Tinned Copper • Duobond® Foil (100%) + Tinned Copper Interlocked Serve Shield																				
Gas-injected Foam High-density PE Insulation • PVC Inner Jackets • Black PVC Jacket (Color Code: See chart below)																				
	**1277R**	NEC: CMR CEC: CMG	3	500 1000	152.4 304.8	25.5 48.0	11.6 21.8	25 AWG (solid) .018" TC 34.0Ω/M′ 111.5Ω/km	.074	1.88	Duobond (100%) + TC Serve 5.4Ω/M′ 17.7Ω/km	Single: .114 2.90 Overall: .320 8.13		75	80%	17.0	.8	1 5 10 20 50 71 100 135 180 200 270 400 750 1000 2250 3000	.50 1.2 1.6 2.4 3.8 4.4 4.9 5.6 6.4 6.7 7.7 9.5 13.4 15.8 26.1 32.2	1.6 3.9 5.2 7.9 12.1 14.1 16.1 18.4 21.0 22.0 25.2 31.1 44.0 51.8 85.6 102.3
	1278R	NEC: CMR CEC: CMG	4	500 1000	152.4 304.8	31.5 60.0	14.3 27.3	same as above	.074	1.88	same as above	Single: .114 2.90 Overall: .351 8.92								
	1279R	NEC: CMR CEC: CMG	5	500 1000	152.4 304.8	40.5 80.0	18.4 36.4	same as above	.074	1.88	same as above	Single: .114 2.90 Overall: .403 10.24								
	1280R	NEC: CMR CEC: CMG	6	500 1000	152.4 304.8	44.0 87.0	20.0 39.5	same as above	.074	1.88	same as above	Single: .114 2.90 Overall: .423 10.74								
Foam FEP Teflon® Insulation • PVDF Inner Jackets • Gray PVC Jacket (Color Code: See chart below)																				
	**1277P**	NEC: CMP CEC: CMP	3	500 1000	152.4 304.8	23.0 45.0	10.5 20.5	25 AWG (solid) .018" TC 32.4Ω/M′ 106.1Ω/km	.074	1.88	Duobond (100%) + TC Serve 11.5Ω/M′ 37.7Ω/km	Single: .111 2.82 Overall: .276 7.01		75	81%	16.8	55.2	1 5 10 20 50 71 100 135 180 200 270 400 750 1000 2250 3000	.50 1.2 1.6 2.4 3.8 4.5 5.2 5.9 6.8 7.1 8.2 10.0 14.3 16.9 25.5 33.9	1.6 3.8 5.2 8.0 12.3 14.8 17.1 19.5 22.2 23.1 26.9 32.9 47.0 55.4 83.6 111.3
	1278P	NEC: CMP CEC: CMP	4	500 1000	152.4 304.8	27.0 53.0	12.3 24.0	same as above	.074	1.88	same as above	Single: .111 2.82 Overall: .304 7.72								
	1279P	NEC: CMP CEC: CMP	5	500 1000	152.4 304.8	35.0 69.0	15.9 31.4	same as above	.074	1.88	same as above	Single: .111 2.82 Overall: .335 8.51								
	1280P	NEC: CMP CEC: CMP	6	500 1000	152.4 304.8	41.0 80.0	18.6 36.4	same as above	.074	1.88	same as above	Single: .111 2.82 Overall: .369 9.37								

Sweep Tested 5 MHZ to 850 MHz.
Guaranteed Return Loss –20dB Max.

BC = Bare Copper • DCR = DC Resistance • TC = Tinned Copper

Maximum Recommended Transmission Distance (Without Amplifiers)

Resolution	VGA — 640 x 480			SVGA — 800 x 600			XGA — 1024 x 768			SXGA — 1280 x 1024			UXGA — 1600 x 1200			RGB	HDTV*
Image Refresh Rate (Hz)	60	76	85	60	75	85	60	75	85	60	75	85	60	75	85	30	30
Horizontal Scan Rate (KHz)	28.8	36.5	40.8	36	45	51	46.1	57.6	65.3	61.4	76.8	87	72	90	102	14.5	32.4
Primary Bandwidth Frequency (MHz)	9.2	11.7	13.1	14.4	18.0	20.4	23.6	29.5	33.4	39.3	49.2	55.7	57.6	72.0	81.6	3.3	31.1
BW (MHz)-3dB Nom. for 0.5 dB flatness	41.4	52.7	59.0	64.8	81.0	91.8	106.2	132.8	150.3	176.9	221.4	250.7	259.2	324.0	367.2	14.9	140.0
BW (MHz)-3dB Nom. for 0.1 dB flatness	91.1	114.7	129.7	142.6	178.2	202.0	233.6	292.1	330.7	389.1	487.1	551.4	570.2	712.8	807.8	32.7	307.9
Part Number	**Maximum Recommended Transmission Distance (in feet) -3 dB and 0.5 dB flatness**																
1277R - 1280R Series	98	86	81	77	68	64	59	52	48	44	39	37	36	32	30	172	50
Part Number	**Maximum Recommended Transmission Distance (in feet) -3 dB and 0.1 dB flatness**																
1277P - 1280P Series	64	56	53	50	44	41	38	34	31	29	25	24	23	21	19	112	33

*HDTV per SMPTE 240M Television - Signal Parameters - 1125-Line High-Definition Production Systems

For More Information: **www.belden.com**

Belden CDT Electronics Division Technical Support **1-800-BELDEN-1** or **1-800-BELDEN-3**

Rev-1