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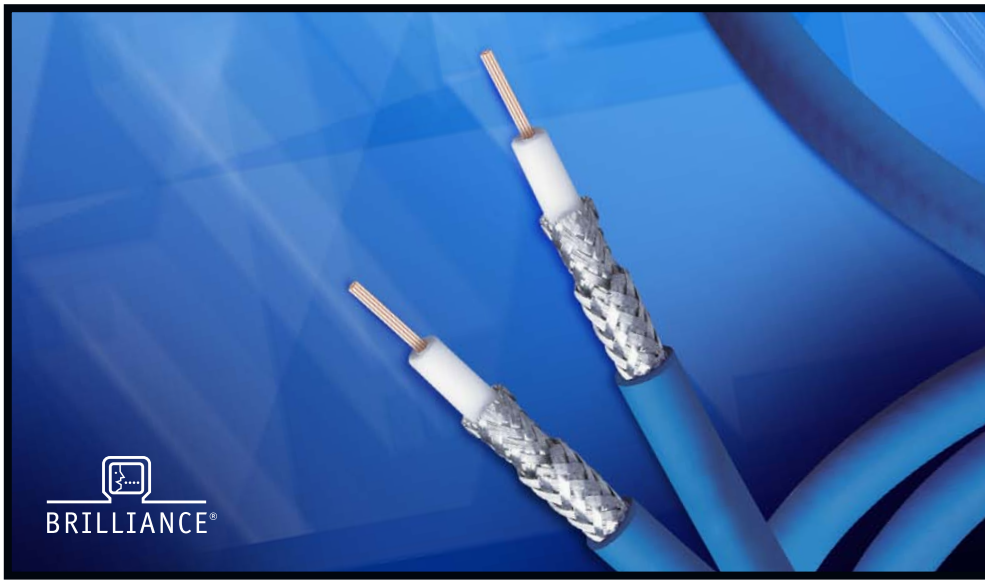
New Product Bulletin

NP 233

1694F Video Coax

1694F, a flexible version of Belden's ever-popular 1694A, offers outstanding signal transmission quality and reliability. Both 1694F and 1694A use the same connector type, eliminating the need for additional tooling and connectors.



Belden® Brilliance® RG-6/U Type Precision Digital Video Coaxial Cable Is a Flexible Version of 1694A

Belden Brilliance 1694F is an extremely flexible version of Belden's popular industry standard, 1694A. Like 1694A, this RG-6/U Type Low Loss Serial Digital coaxial cable provides top quality signal transmissions (both analog and digital). It also offers the user the benefit of superior cable life—whether it's used indoors or out-of-doors (Black jacket only). And unlike other manufacturers' cables, 1694F provides the end-user and the installer with some unique cost and labor-saving benefits since it accommodates the same connector as 1694A, and therefore the same type of tool, throughout its installation—even at the patch panel.

Exceptional Flexibility and Flex Life

Belden Brilliance 1694F's flexibility makes this CM-listed cable easy to route through building walls and conduit in studio settings and other fixed installations. But 1694F's exceptional physical and electrical characteristics really make this cable ideal for use in patch bays, mobile studio trucks, remote outdoor field locations, and more. Today's on-the-move broadcast crews routinely subject the cables they use to repeated pulling, flexing, bending and crushing situations. Under these circumstances a conventional cable might develop discontinuities that could lead to degraded signal transmission—or the cable could even break. But Belden 1694F offers outstanding flexibility and long-life characteristics and an abrasion-resistant PVC jacket—in conjunction with superior electrical performance.

In addition, digital audio signals are increasingly run through coax in accordance with Audio Engineering Society standard AES-3id. Belden 1694F is an excellent choice for AES-3id applications where optimum flexibility and flex life are required.

Low Return Loss = High Performance

Return Loss relates to the measurement of the reflected signals that occur when there are impedance discontinuities in the channel. These discontinuities can be caused by the connectors, transition devices, patch panels or the cable itself—or they could be the result of improper handling, poor installation practices or repeated flexing of the cable.

To ensure best-in-class Return Loss performance, each shipping spool of Belden 1694F SDI/HDTV cable is 100% sweep tested to 4.5 GHz before being boxed. Belden is the only cable manufacturer that has extended its testing to 4.5 GHz—the 3rd harmonic frequency of 1080p. This should assure broadcasters and leading-edge broadcast equipment manufacturers of high performance and reliability as they begin to migrate to the emerging SMPTE 424M 1080p (progressive format)—where protocols and equipment require twice the bandwidth of 1080i.

Best-In-Class Design and Construction

The robust performance and enhanced flexibility of Belden 1694F is the result of its unique design and construction.

Optimum flexibility starts with a 19 AWG bare copper (compacted), stranded center conductor. Advanced impedance stability and Return Loss characteristics are achieved by the use of foam polyethylene insulation and state-of-the-art manufacturing processes.

The cable's shielding consists of a double tinned copper braid. This shielding construction provides superior flex characteristics over foil/braid shield designs, while offering 100 dB of shield isolation. An abrasion-resistant matte PVC jacket adds further protection and flexibility and is available in seven colors.

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FRG-6/U Type Precision Digital Video Coax
For Analog and Digital SDI/HDTV Applications

Description	Part No.	UL NEC/ C(UL) CEC Type	Standard Lengths		Standard Unit Weight		Conductor (stranding) Diameter Nom. DCR	Nominal Core OD		Shielding Materials Nom. DCR	Nominal OD		Nom. Imp Ω	Nom. Vel. of Prop.	Nominal Capacitance		Nominal Attenuation		
			Ft.	m	Lbs	kg.		Inch	mm		Inch	mm			pF/Ft.	pF/m	MHz	dB/ 100ft.	dB/ 100m
19 AWG Stranded (7x27) .040" Bare Compacted Copper* • Double Tinned Copper Braid Shield																			
Gas-injected Foam HDPE Insulation • PVC Jacket (Matte Black**, Red, Green, Blue, Yellow, White or Violet)																			
High Flex	**1694F**	NEC:	1000	304.8	54.0	24.7	19	0.18	4.57	Double	.274	7.00	75	81%	16.2	53.2	1	.2	.8
SD1/HDTV	new	CMR					AWG			93%							3.6	.5	1.5
Video Patch		CEC:					.040"			TC Braid							10	.7	2.3
75°C		CMG FT4					BC			99% Total							71.5	2.0	6.6
							8.5Ω/M′			Coverage							135	2.8	9.2
							27.9Ω/km			1.7Ω/M′							270	4.0	13.1
										5.6Ω/km							360	4.7	15.4
																	540	5.9	19.4
											Minimum Return Loss:						720	6.9	22.6
											20dB (5-850 MHz)						750	7.0	23.0
											15dB (850-4500MHz)						1000	8.2	26.9
																	1500	10.4	34.1
											100%*** Sweep tested. 5MHz to 4.5 GHz						2250	13.2	43.3
																	3000	15.6	51.2
For use with 1694A connectors																	4500	19.8	64.9

BC = Bare Copper • DCR = DC Resistance • HDPE = High-Density Polyethylene • TC = Tinned Copper
* Compacted conductor combines impedance uniformity of solid conductor and "nick-resistance" of stranded conductor.
** Black is suitable for outdoor use.
*** Each shipping spool is tested before being boxed.

Calculated* Serial Digital (SDI) Transmission Distance – 1694F

Data Rate:	143 Mb/s		177 Mb/s		270 Mb/s		360 Mb/s		540 Mb/s		1.5 Gb/s		3.0 Gb/s	
Spec:	**SMPTE 259M**		**ITU-R BT. 601**		**SMPTE 259M**		**SMPTE 259M**		**SMPTE 344M**		**SMPTE 292M**		**SMPTE 424M**	
Application:	**Composite NTSC**		**Composite PAL**		**Component Video**		**Component Widescreen**		**Component Widescreen**		**HDTV**		**Progressive Scan HDTV**	
Part No.	**Ft.**	**m**	**Ft.**	**m**	**Ft.**	**m**	**Ft.**	**m**	**Ft.**	**m**	**Ft.**	**m**	**Ft.**	**m**
1694F	1580	482	1420	433	1100	335	960	293	750	229	290	88	190	58

*Calculated values are conservative. Actual test results typically yield greater distances. Consult your equipment manufacturer's literature.

Note:

Consult The Belden Catalog Connector Cross Reference on www.belden.com.

1694F is intended for use with connectors designed for 1694A.