BELDEN
SENDING ALL THE RIGHT SIGNALS

New Product Bulletin

NP 110E

Belden's new line of halogen-free component video cables delivers optimum performance whilst helping to reduce installation and labor costs.

Belden VideoFlex® Snake Cable – FRNC 1855ENx

Belden offers another innovative new cable designed to provide important benefits. Belden VideoFlex® FRNC 1855ENx is the latest extension of the highly popular range of VideoFlex® Snake Cables. Like all products in the range, this cable has extremely good signal transmission and performs at higher frequencies for digital applications (SD/HD). However, it can also be used at lower frequencies such as for analog applications. Another major benefit is that it can be used for distributing RGB and Sync signals over extended distances.

This new cable has benefits for all types of users, ranging from video installer to expert media installers (such as for large screen visualization, conferences and events) and from system integrators to large screen, LED and LCD display solution manufacturers, in fact anyone who is looking for the very best performance.

Construction and Operation

The cable is halogen-free and is supplied in an easy-to-install bundle of 1855ENH which has the very common European video coaxial dimension of 0.6/2.8. All cables are available with 250 and 500 m put-ups in bundles of 3, 5 and 6 coaxes. The insulation is gas-injected foam HDPE. Shielding is Duofoil® (100 %) combined with 90 % tinned copper braid. The individual coax jackets and the overall jacket are FRNC/LSNH.

Component video formatted applications that segment the video signal into Red, Green and Blue elements are 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. The 4th coax has a White jacket; the 5th coax has a Yellow jacket and the 6th coax is Brown-jacketed for digital audio or as auxiliary audio or video.

The conductors are 22 AWG/0.6 mm (solid) tinned copper. VideoFlex® snake cables are designed to fit in BNC, RCA and F-style connectors. More details about BNC connectors can be found on page 19.7 in the new EMEA Master Catalog.

Where Are the Cables Used?

One of Belden's design objectives was to produce a cable which would perform in tough and demanding situations and also be suitable for the widest spread of applications. These include:

- High-end computer graphics and animation
- Live studio
- Field and mobile television broadcasting
- Projecting imaging in business and corporate boardrooms
- Command and control centres
- Multi-purpose auditoriums
- Teleconferencing centres
- Home theatres
- Performance venues
- Post-production facilities.

Technically this covers both High or Standard definition serial digital video; Digital audio (such as AES3id or SPDIF); High resolution RGB component analog video; Studio interconnect; Permanent installation. It also means the cable is ideal for multiple runs of composite video signals such as SDI or HDTV and can be used for unbalance mode analog or digital audio (AES/EBU).

Flexible Halogen-free Design

PVC normally provides cable flexibility. However, Belden has designed the cables to provide greater than normal flexibility compared with other halogen-free products.
On the back are the values for the flexibility of PVC compared with halogen-free materials.

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Flexible Test acc. ASTM D747	Mpa
Standard PVC material	23
Halogen-free video cable	56
Flexible (expensive) halogen-free material	70
Standard halogen-free material	110

Benefits and Features

Belden VideoFlex® snake cables 1855ENx are priced to be comparable with cables of similar construction and performance. However, an important difference is that this cable has many advantages and customer-friendly benefits compared with competitive products. These include:

- The solid copper center conductor – means low attenuation and easier termination
- High velocity, low-loss PE – means low attenuation, long distances and improved timing
- Foil under braid shielding – this Broadcast quality standard contributes to low attenuation and is easier to terminate
- The dielectric, surrounded by the foil layer of the shield, can be removed very easily for BNC connectors to minimize any potential for conductor-to-shield shorts; it can also be held in place for RCA and F-style connectors
- Round, uniform, matte black flexible FRNC jacket protects the cable – providing a professional appearance and proper boot fit together with easy flexing for installation and equipment hook-up
- Cables have a Minimum Return Loss of 24dB at all frequencies up to 1500 MHz
- The coaxes are pre-timed to less than 4.0 ns/m delay difference between each coax
- It is cold flexible up to -40°C
- It can be used inside or out and is UV resistant
- Color-coded coaxes provide easy identification
- Bundled halogen-free coax cables are notoriously stiff and difficult to strip for termination, especially when rated for IEC 332-1 use. This cable overcomes these problems because it is designed with flexible halogen-free plastic (rated IEC: 60332-1) – with the added advantage of no toxic gases and low smoke density
- Cable jackets are meter-marked – for tracking during installation.

HDTV Testing

For your peace of mind Belden has used an independent test laboratory to take an in-depth look at the HD performance of the video coaxes used in TV studios. To get a true comparison of performance, cables from different manufacturers were tested for return loss, attenuation and maximum cable run on HD (1080i and 720p). The most popular precision video coaxial cables for HDTV/SDI, Belden Brilliance™ 179DT, 1855A, 1855ENH, 1505A, 1505F, 1694A and 7731A were all subjected to extended testing. The exceptional results showed that all Belden products delivered performance values that exceeded those listed in Belden's own catalogs. Another good example is 1855ENH, the single coax inside the VideoFlex® snake cable, which showed 100 m for HDTV compared with the nearest competitive product which showed only 90 m.

Belden at Your Service

Belden offers a complete line of cables available from a single source. All cables are featured in the new EMEA Master Catalog (section 19).

HDTV/SDI Digital Coax

RGB Component Video Multicore Cables
VideoFlex® Snake Cables

Description	Part No.	UL NEC/ C(UL)CEC Type IEC	Standard Lengths ft.	Standard Lengths m	Standard Unit Weight lbs.	Standard Unit Weight kg	Conductor (Stranding) Diameter Nom. DCR	Nominal Insulation OD inch	Nominal Insulation OD mm	Shielding Material Nom. DCR	Nominal OD inch	Nominal OD 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/ 100 m
22 AWG • Solid 0.6 mm Tinned Copper • **Duofoil®** • 90% Tinned Copper Braid (Coaxes)																			
Gas-injected Foam HDPE Insulation • Overall Matte Black FRNC/LSNH Jacket																			
HDTV/SDI Digital Video 75°C		IEC 332-1					0.64 mm 22 AWG Solid TC 69.0 Ω/km* 52.0 Ω/km**	0.110	2.80	Duofoil® + 90% TC Braid 17.0 Ω/km***	0.175	4.45	75	84%	16.2	53.0	71.5	2.6	8.6
																	135	3.5	11.5
																	270	4.9	16.1
																	360	5.7	18.6
																	540	7.0	22.8
																	750	8.2	26.9
																	1500	11.8	38.7
																	3000	17.1	56.1
1855ENH Bundled 0.6/2.8																			Pulling Tension:
	1855EN3	3 Coax	820	250	82.0	37.0					0.476	12.10							480 N
			1640	500	163.0	74.0													
	1855EN5	5 Coax	820	250	128.0	58.0					0.583	14.80							800 N
			1640	500	254.0	115.0													
	1855EN6	6 Coax	820	250	143.0	65.0					0.634	16.10							960 N
			1640	500	287.0	130.0													
Nominal Delay: 4.068 ns/m • Color Code: see chart																			

* DC loop resistance • ** DC resistance inner conductor • *** DC resistance outer conductor • DCR = DC resistance • TC = Tinned Copper

Color Code

Cond.	Color
1	Red
2	Green

Cond.	Color
3	Blue
4	White

Cond.	Color
5	Yellow
6	Brown