

NP 124E

**SMPTE311
HD Camera Assembly**



As the producer of one of the best-known SMPTE311 cables in the world, Belden has created a high-quality SMPTE311 HD Camera Assembly that supports 720p, 1080i and 1080p.

The Belden hybrid fiber SMPTE311 HD Camera Assembly was designed specifically for high definition (HD) fibered broadcast cameras and is ideal for studio and field camera applications, requiring multiplex audio and video signals and power.

HD cameras provide digital transmission, using a SMPTE311 standard fiber optic cable for connection to the camera control unit. In addition to their exceptional quality, HD cameras are able to transmit all digital bi-directional video and audio signals, one control line, power line, and prompter line over extremely long distances - up to 4000 meters with Belden SMPTE311 HD Camera Assemblies.

Ideal for Studio and Field Camera Applications

Network TV studios, sports arenas, stadiums and production facilities are just some of the venues that will benefit from this SMPTE311 HD Camera Assembly. Potential applications include interconnect of remote field cameras for Electronic News Gathering (ENG), and Electronic Field Production (EFP).

Standard definition (SD) cameras are gradually being phased out by high definition (HD) and multi-format cameras in the global digital broadcast and cinematography cameras market. The Belden SMPTE311 HD Camera Assembly is the perfect choice for next generation HD applications and will replace SD infrastructure where stiff, heavy, triax cable is currently employed, or in long haul situations. The global standard Belden SMPTE311 HD Camera Assembly significantly improves productivity – especially for rental companies. By eliminating the need for several different interface blocks, inventory can be reduced, leading to significant cost savings.

Ideal for use in studios or in the field as well as for permanent installations, these assemblies are suitable for

- HD video installers
- HD system integrators
- HD OB van users
- HD equipment rental companies
- Camera teams in:
 - Professional broadcasting
 - Studios
 - Sports stadiums
 - Concert venues
 - Live outdoor broadcasts

Designed specifically for high definition (HD) fibered broadcast cameras — this Belden® hybrid fiber SMPTE311 HD Camera Assembly can multiplex audio and video signals and power.



Supporting the Various Needs for HD

The global standard SMPTE311 HD Camera Assembly supports the SMPTE304 interface of all HD camera manufacturers. Today, no other medium can match fiber optics when it comes to bandwidth, distance and/or noise immunity. With fiber optics, the transmitted signals are not distorted by any form of outside electronic, magnetic or radio frequency interference. Therefore, optical cables are completely immune to EMI, RFI or high voltage interference.

Compared to conventional triax cables with the same signal carrying capability, the smaller diameter and lighter weight of the hybrid fiber cables allow relatively easier installation, especially in crowded areas or limited space. In addition, a hybrid fiber cable is about half the weight of a comparable triax 14 cable.

To improve upon the physical performance values at the connection point, there are several options to choose from. One of the best ways to provide ultimate connector performance is to terminate the fiber in the factory.

Using proper termination of the cable eliminates potential water ingress and/or damage to fiber within the connector, and reduces problems in handling power, because the connector is prevented from being filled with water.

Key Benefits

System-Integrators

- On-time delivery improve financial performances
- Faster inventory turnaround
- Zero inventory of cable and connector
- No investment in fiber termination equipment
- No investment in fiber testing equipment
- No investment in equipment maintenance
- Staff is able to concentrate on more important jobs, delivering higher productivity

End-Users

- Best quality thanks to factory-floor termination
- Best value through series production

Cable Construction

- 2x Single-mode tight-buffered optical fibers (video and audio)
- 2x 24AWG (0.61 mm) - stranded conductors (control)
- 4x 20AWG (0.94 mm) - stranded conductors (power)

All elements feature heat-resistant PE insulation for more dependable performance in high temperature environments, e.g. outside broadcast sports events. The 14AWG (1.8 mm) stranded steel strength member is cabled at the center of the cable core. In addition, the cable has an overall braid shield which provides superior structural integrity, while maintaining good flexibility and flex life.

On request, the cables can be produced with an additional sheath (OD 12 mm instead of 9.2 mm) specifically for large-sized TV cameras in studios, to avoid them being jammed between the camera pedestal dolly and the studio floor.





Cable Specifications

The single mode fibers used in the Belden® SMPTE hybrid cable assembly have a very high bandwidth (>100 Ghz.km) which is far greater than required for today's HDTV systems: 1080i – 750 MHz or 1080p – 1.5 GHz.

To meet the needs of the global broadcast market, Belden SMPTE311 HD Camera Assemblies are made from the finest materials:

- SMPTE311 cable Belden 7804x is available in three versions 7804E (PVC); 7804EPU (PUR); and 7804ELY (Halogen-free) - all three versions have flexible black jackets.

7804E	7804EPU	7804ELY
PVC	PUR	LSZH
Studio	Field	Studio/Field

- SMPTE304M with Lemo 3K.93C connectors, including bend relief and protection cap.

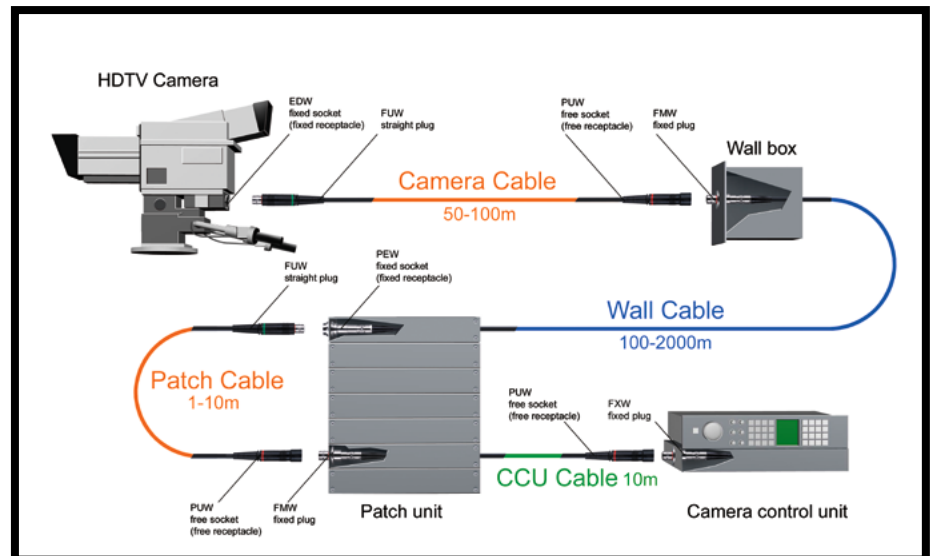
SMPTE304M connectors from Lemo, with F2 contact (2 mm) and UPC polish, are 94 mm long x 19.5 mm diameter. They have an insertion loss of 0.1 dB and a Return Loss (typical) of > 45 dB. Mating endurance is >20,000 cycles with an International Protection Rating of IP68.

Inside the assembly, the connector uses the cable's strength member to ensure improved pull strength.

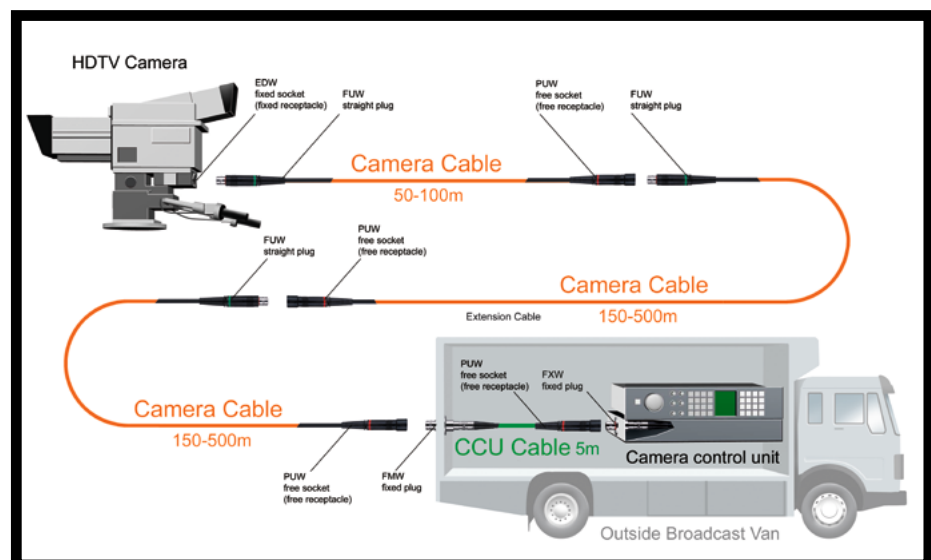
Factory terminated cable assemblies help to deliver the best possible physical performance values at the connection point, providing maximum security and reliability. Proper termination of the cable eliminates potential water ingress and/or damage to fiber within the connector, and reduces potential power issues, caused by water. In addition, secure water proof end caps are essential to prevent dirt and water from getting into the unconnected ends. All Belden assemblies feature the required end-caps and gaiters are available on request.

Camera Solution (SMPTE311 HD)

Studio Configuration



Outside Broadcast Van Configuration



The lengths shown are examples. Cables are available in various lengths.

Order Information

Part Number	Description	Application
CA00270	7804E with Lemo 3K.93C (FUW PUW)	Camera/Patch Cable
CA00272	7804E with Lemo 3K.93C (FUW/Green PUW/Red)	Camera/Patch Cable
CA00320	7804ELY with Lemo 3K.93C (FUW PUW)	Camera/Patch Cable
CA00311	7804ELY with Lemo 3K.93C (FUW/Green PUW/Red)	Camera/Patch Cable
CA00280	7804EPU with Lemo 3K.93C (FUW PUW)	Camera/Patch Cable
CA00283	7804EPU with Lemo 3K.93C (FUW/Green PUW/Red)	Camera/Patch Cable
CA00273	7804E with Lemo 3K.93C (FMW PEW)	Wall Cable
CA00319	7804ELY with Lemo 3K.93C (FMW PEW)	Wall Cable
CA00279	7804EPU with Lemo 3K.93C (FMW PEW)	Wall Cable
CA00276	7804E with Lemo 3K.93C (FMW PUW)	CCU Cable
CA00321	7804ELY with Lemo 3K.93C (FMW PUW)	CCU Cable
CA00281	7804EPU with Lemo 3K.93C (FMW PUW)	CCU Cable



Wall Cable



CCU Cable



Camera/Patch Cable

Fast delivery is guaranteed with our standard lengths product offering. On the other hand, all Belden SMPTE311 HD Camera Assembly can be ordered with customized lengths if needed.

Standard packaging:

short lengths on rings 5, 10 meters
wooden drums 50, 100, 150, 200, 300 and 500 meters



On field deployable drums

Part Number	Description	Schill Drum	length
CA00326	7804EPU with Lemo 3K.93C (FUW/Green PUW/Red)	HT 300K.RM	≤ 50m
CA00287	7804EPU with Lemo 3K.93C (FUW/Green PUW/Red)	GT 450.RM	≤ 150m
CA00350	7804EPU with Lemo 3K.93C (FUW/Green PUW/Red)	HT 485.RM	≤ 300m
CA00355	7804EPU with Lemo 3K.93C (FUW/Green PUW/Red)	SK 4602.RM	≤ 500m



CA00326



CA00287



CA00350



CA00355