

**NP 124E**

**SMPTE311  
HD Camera Assembly**

Introducing the new hybrid  
fiber SMPTE311 HD  
Camera Assembly



**Now you can add range to reliability as new Belden HD Camera Assemblies enable transmission distances of up to 4.000 metres.**

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 new 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 new 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 new 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 new 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 7804ENH (Halogen-free) – all three versions have flexible black jackets.
- SMPTE304M with Lemo 3K.93C connectors, including bend relief and protection cap.

| 7804ENH             | 7804EPU            | 7804E               |
|---------------------|--------------------|---------------------|
| FRNC/LSNH           | PUR                | PVC                 |
| Halogen free        | Heavy-duty         | Flexible            |
| Studio applications | Field applications | Studio applications |

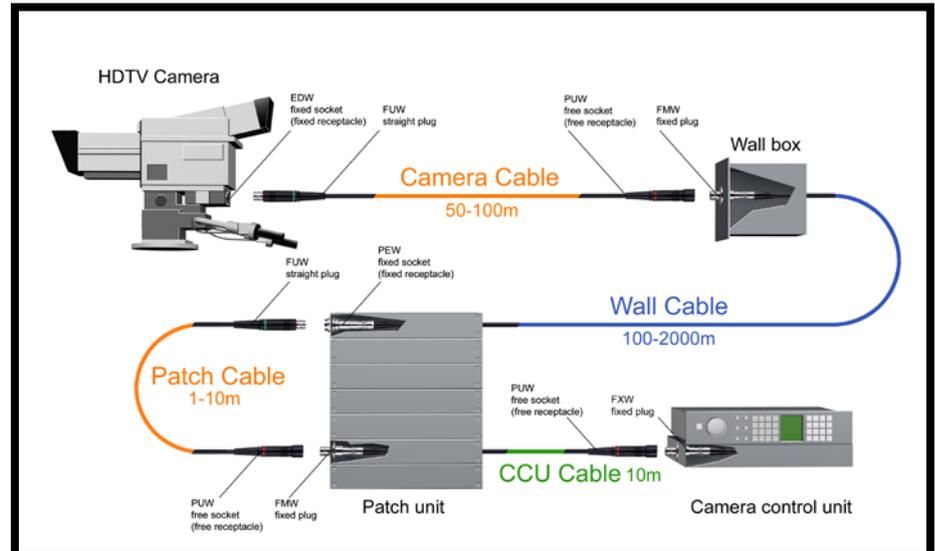
SMPTE304M connectors from Lemo, with F2 contact (2 mm) and UPC polish, are 94 mm long x 19.5 mm diameter. They have an insertion loss of 0.1 dB and a Return Loss (typical) of > 45 dB. Mating endurance is >20,000 cycles with an International Protection Rating of IP68.

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

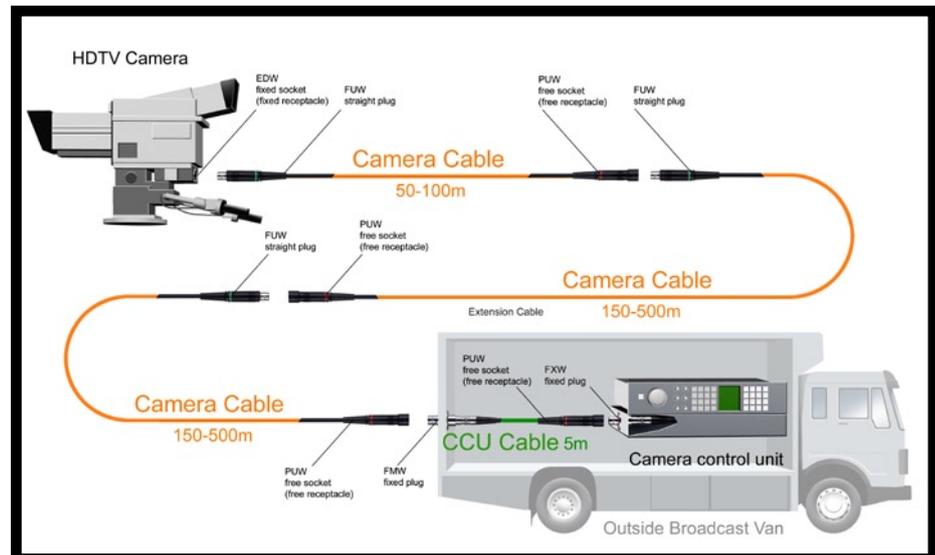
Factory terminated cable assemblies help to deliver the best possible physical performance values at the connection point, providing maximum security and reliability. Proper termination of the cable eliminates potential water ingress and/or damage to fiber within the connector, and reduces potential 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 |
| CA00275     | 7804ENH with Lemo 3K.93C (FUW PUW)           | Camera/Patch Cable |
| CA00277     | 7804ENH 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         |
| CA00274     | 7804ENH 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          |
| CA00278     | 7804ENH with Lemo 3K.93C (FMW PUW)           | CCU Cable          |
| CA00281     | 7804EPU with Lemo 3K.93C (FMW PUW)           | CCU 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

## Always the right solution

Belden is one of the world's leading suppliers of signal transmission solutions including cable, connectivity and active components for mission-critical applications ranging from industrial automation to data centers, broadcast studios, and aerospace. Belden offers an extensive and highly specialized product portfolio of signal transmission solutions for information, control and field levels, which the company produces and markets under its proprietary Belden®, Hirschmann™ and Lumberg Automation™ brands.

We would welcome the opportunity to tell you more about our extensive industry portfolio and Belden worldwide service. Further information and technical data are available online at [www.beldenemea.com](http://www.beldenemea.com). You can also contact our sales team directly by calling +31 (0) 77 3875 414.

