# MultiDyne®

Video & Fiber Optic Systems

# HUT Systems

### Hybrid Universal Transmission Extenders for SMPTE-Based Camera Chains

## FEATURES

▷ SMPTE Standard

▷ Operate Cameras on Plain Single Mode Fiber

▷ Take Advantage of Installed Fiber Backbones

▷ Extend Distance Without Sacrificing Performance

▷ Plug & Play Operation

▷ Carry Less Hybrid Cable

▷ Choice of Optical Connectors

▷ Choice of Hybrid Connectors

▷ Can Provide Power for Cameras Up to 1km

▷ Supports Camera Chains from Sony, Ikegami, Hitachi, Panasonic & Grass Valley

▷ Optional Optical Repeating/ Remapping

▷ Rugged Design

▷ Designed and Manufactured in New York

▷ Optional Remote Camera Shut-Off

## APPLICATIONS

▷ Remote Broadcasting

▷ Sports

▷ Shared Control Rooms

▷ Campus Facilities

▷ Arenas and Stadiums

## Extend Camera Chains Beyond SMPTE Cable Limitations Via Standard Single Mode Fiber

The **HUT** system frees camera chains from the limitations of hybrid copper and/or fiber cabling permitting cameras to be separated from their CCUs by distances of over 10km using inexpensive, conventional single mode fiber. This has many advantages over SMPTE hybrid cable including:

• Eliminating RF, EMI and grounding issues

• Faster set and strike times saves time and money

• Reduced weight makes for lighter OB trucks, B-units and cable shipments



### CONNECT ANYWHERE EASILY

The plug and play system allows camera chains to connect via a facility's fiber infrastructure or on tactical fiber cable in the field using industry-standard connectors, such as STs, LCs, SCs, or OpticalCON. The HUT system works by "spoofing" (or "tricking") the camera and CCU into seeing a physical copper connection between them when connected only by single mode fiber cable.

### LOCAL OR REMOTE POWER

After a long run of single mode fiber, HUT-enabled camera systems can be configured in one of two ways:

• Power the camera with the HUT-CP over 1Km of hybrid cable. Power is sufficient for hand held cameras or cameras installed in sleds with long lenses and other high-power accessories.

• Power the camera locally with 12VDC

### ROUTE AND MULTIPLEX CAMERAS

Once the hybrid cable is removed, a camera chain can be easily routed through optical routers, such as the LightningSwitch or EOS-5000. Use MultiDynes FiberSaver systems to multiplex up to nine cameras onto just one strand of single mode fiber.

### PASSIVE OR ACTIVE OPTICS

While typically passive to the camera chain optics, the HUT system is also available with active optics, that can be used to:

• Multiplex a camera chain onto a single fiber strand

• Boost the optical range

• Remap the camera & CCU optics to different wavelengths or extended distances of up to 80km. In addition to the below example, signals can be configured to run in either direction on the fiber.



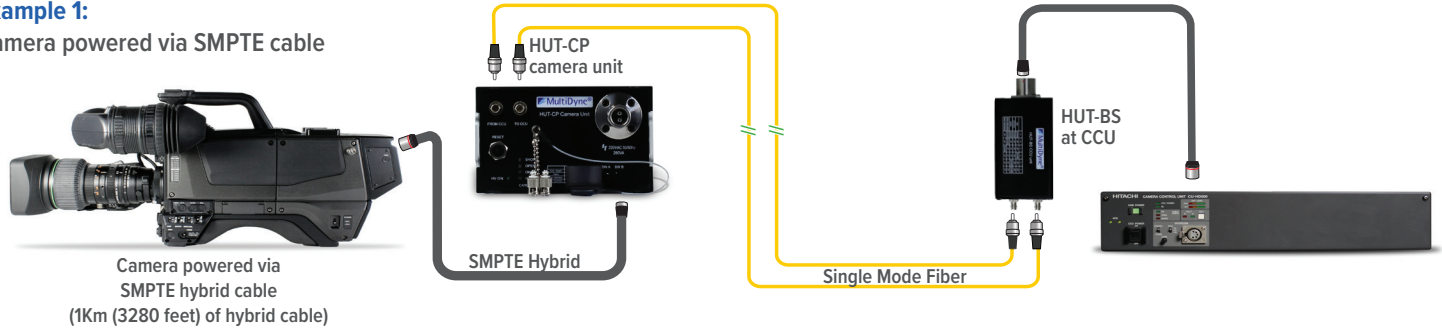| | |
|---|---|
| Panasonic | AK-UC4000, AK-UC3300, AK-UC3000, AK-HC3800, AK-HC3500, AK-HC5000, AK-PLV100 camera chains |
| Sony* | HDC-1000/2000/3000/4300 series camera chains with SMPTE fiber connections, HDFX-100/200 fiber/triax adapters or HSC series, HKCT950 series cameras, HXC-FB80N/HXCU-FB8ON (DC Cameras) |
| Ikegami | All HDK series camera chains with SMPTE fiber connections |
| Hitachi | Z-HD, SK-HD, series camera chains with SMPTE fiber connections |
| Grass Valley* | -Please Reference The HUT-APE Data Sheet- |

*Grass Valley, Sony HSC and HXC are separate DC models from the universal model for AC cameras. Camera remote shut off and optical repeater/remapper not available for these units.

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## APPLICATIONS

Average overall optical budget from camera to CCU of 10dB is approximately 20Km (14.4 miles), dependent on camera and CCU specifications.
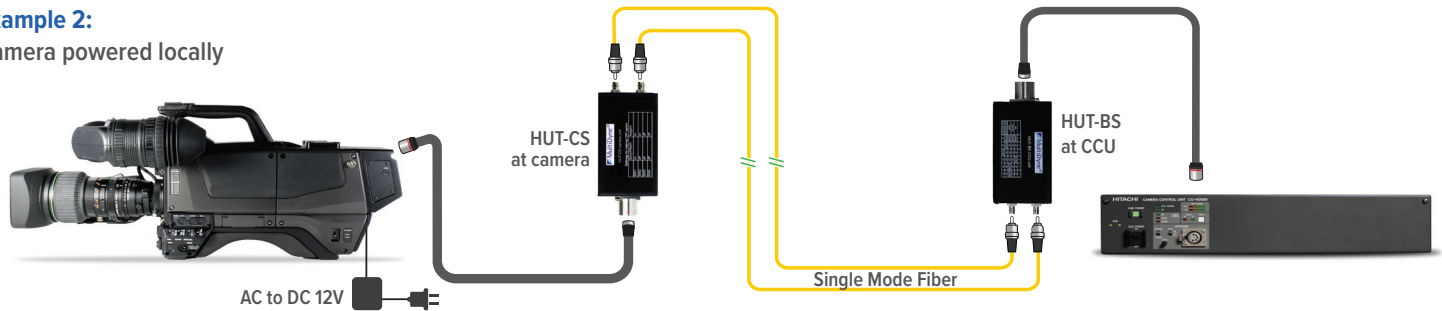
**Example 1:**
**Camera powered via SMPTE cable**



Camera powered via
SMPTE hybrid cable
(1Km (3280 feet) of hybrid cable)

HUT-CP camera unit

HUT-BS at CCU

SMPTE Hybrid

Single Mode Fiber

**Example 2:**
**Camera powered locally**



HUT-CS at camera

HUT-BS at CCU

AC to DC 12V

Single Mode Fiber

## TECHNICAL SPECIFICATIONS

**Connections**

| | |
|---|---|
| Electrical | IEC 320 (3-pin) |
| –Hybrid Optical | SMPTE 304M, Fischer FOH2, Tajimi OPS, OpticalCON |
| –Optical only | ST, SC, SC/APC, MX, OpticalCON |
| –Optical repeater by request | |
| HUT-CP Input Voltage | 110-240 VAC |
| Output Max Load | up to 260W |
| Power Consumption | 25W (standby) |

| | |
|---|---|
| Temperature Range | -25°C to +70°C |
| Humidity Range | 0 to 95% non-condensing |

**Overall**

| Dimensions | (LxWxH), Weight |
|---|---|
| HUT-CP | 11.25 x 5.75 x 3.5 inches, 10.3 lbs. |
| HUT-BS, BA, CS, CA | 7 x 2.5 x 2 inches, 0.7 lb. |

*Note: the length of hybrid cable that can be supported between the powered HUT and the camera is a function of many variables including thickness of the hybrid cable, number of connections, and current draw of camera accessories and lens size/type/servo.*

## ORDERING INFORMATION

| Part # | Description |
|---|---|
| HUT-BS-U2-SPR-ST2XXA | HUT - CCU Side, Portable, Hybrid cable SMPTE-304M socket connector, 2 singlemode fibers (ST connectors). **For Sony HDC series, Panasonic, Ikegami, and Hitachi cameras** |
| HUT-CP-U2-SPP-ST2XXF | Powered HUT - Camera side, Portable, 2 singlemode fibers (ST connectors), Hybrid cable SMPTE-304M plug connector. **For Sony HDC series, Panasonic, Ikegami, and Hitachi cameras** |
| HUT-CP-U2-SPP-D2RXXF | Powered HUT - Camera side, Portable, 2 singlemode fibers (Neutrik opticalCON Duo connector), Hybrid cable SMPTE-304M plug connector. **For Sony HDC series, Panasonic, Ikegami, and Hitachi cameras** |
| HUT-CS-U2-SPP-ST2XXA | Passive HUT - Camera Side, Portable, 2 singlemode fibers (ST connectors), SMPTE-304M plug connector. Local power required to provide power to the camera. **For Sony HDC series, Panasonic, Ikegami, and Hitachi cameras** |
| HUT-BA-NA-SPR-ST2XXA | Passive CCU Side SMPTE Breakout Adaptor, Portable, 2 singlemode fibers (ST connectors), SMPTE-304M socket connector, 2 singlemode fibers (ST connectors). Local power required to provide power to the camera. |
| HUT-CA-NA-SPP-ST2XXA | Passive Camera Side SMPTE Breakout Adaptor, Portable, 2 singlemode fibers (ST connectors), SMPTE-304M plug connector. Local power required to provide power to the camera. |
| HUT-CP-S3-SPP-ST2XXF | Powered HUT Camera Unit; SMPTE-304M Plug & 2 ST connectors; For use with Sony HXC-FB80 cameras only |
| HUT-BS-S3-SPR-ST2XXA | HUT Base/CCU Adaptor, SMPTE 304M receptacle & 2 ST connectors; For use with Sony HXC-FB80 Cameras Only |

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