



Live-
Link™



Remote Camera Interface System

Live-Link Camera End Unit
Live-Link Control Room Unit



STUDIO
TECHNOLOGIES
INC.

Live-Link™ System

Overview

Designed to handle news, sports, and other day-to-day remote interfacing needs with ease, the Live-Link remote camera interface system offers a comprehensive fiber-optic-connected solution for transporting video, audio, intercom, and data between a remote camera location and a truck or control room. The point-to-point system is comprised of a portable Camera End Unit and either a portable or rack-mounted Control Room Unit. The units interconnect using two strands of single-mode fiber-optic cable and allow a maximum distance of 10 km. The system provides full support for digital and analog video, on-air and cue audio, 2-channel intercom, 10/100 Ethernet, RS-232/RS-422 async data, and GPI/GPO.

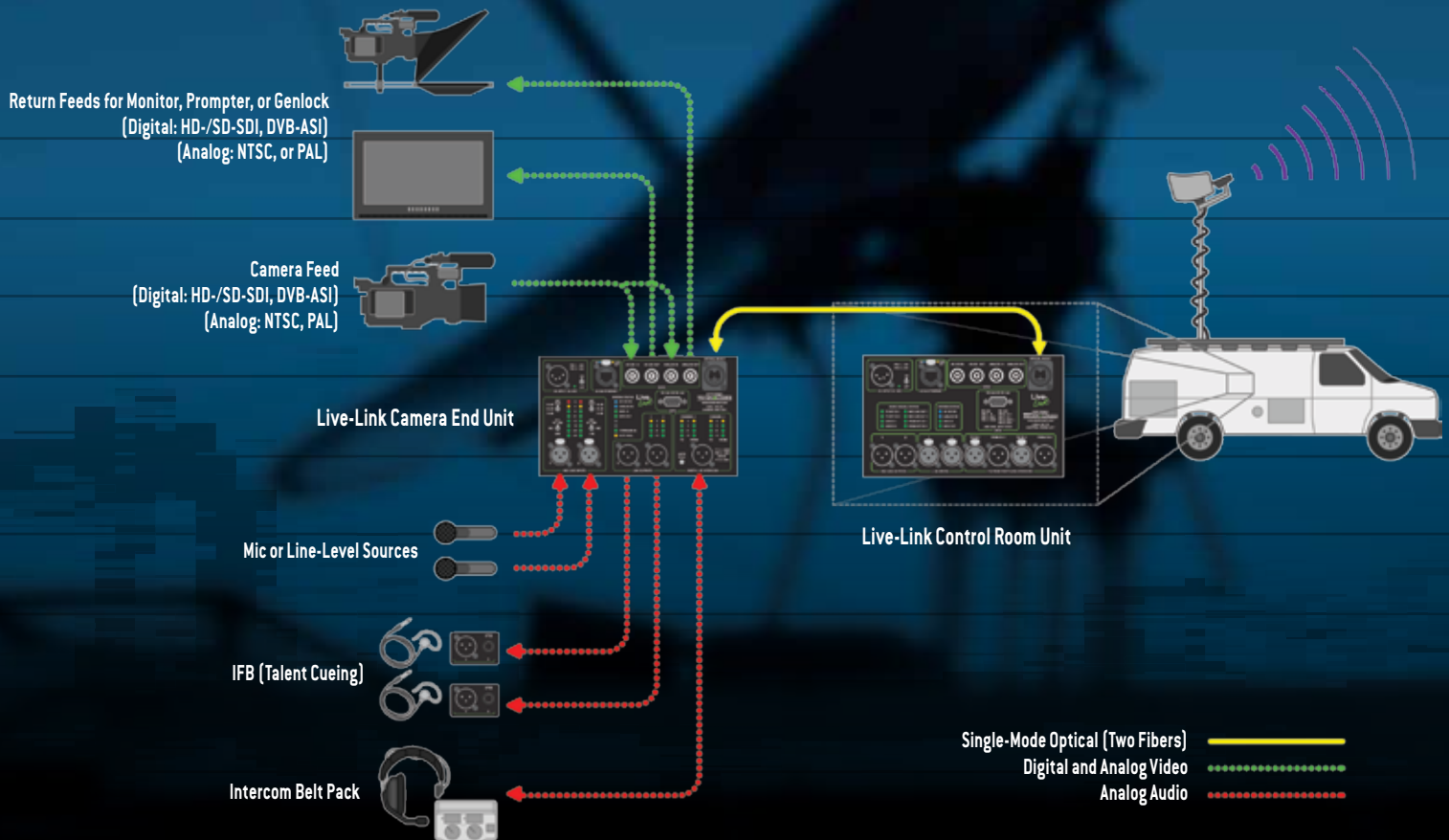
An intuitive connector layout, clear labeling, and numerous status indicators ensure speedy setup. Featuring the rugged opticalCON® DUO fiber-optic connector from Neutrik®, Live-Link is a reliable and convenient way of connecting a production camera crew to an ENG or OB van, SNG vehicle, or production trailer. Live-Link's portability and ease-of-deployment make it an ideal infrastructure solution for studio complexes, arenas, and campus environments.



Key Features

- Transports video, audio, intercom, and data over single-mode optical fibers
- Supports digital and analog video (HD-/SD-SDI, DVB-ASI, NTSC, and PAL)
- Two mic/line inputs with selectable gain and +48 V phantom power
- Two line-level audio paths for IFB or general-purpose use
- 2-wire-to-4-wire auto nulling hybrids for excellent intercom audio
- Party-line intercom interface with 28 volt belt-pack power
- 10/100 Ethernet with auto MDI/MDI-X
- RS-232/RS-422 for camera control
- GPI/GPO for tally support
- Neutrik opticalCON DUO for fast, reliable fiber connectivity
- Anton/Bauer battery mount standard on Camera End Unit
- Low power consumption allows extended battery operating time
- Industry-standard connectors for all inputs and outputs
- Control Room Unit available in two versions: portable or rack-mount ready

Example of a Typical “Throw-Down” Deployment



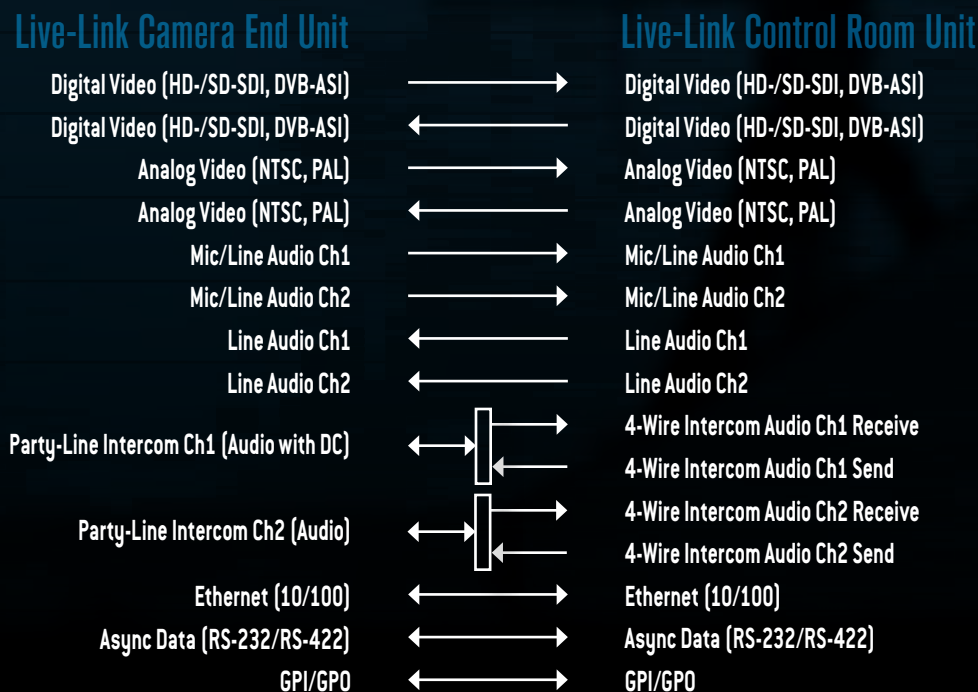
Live-Link Camera End Unit

The Live-Link Camera End Unit goes where the action is. Weighing less than 11 pounds (5 kg) the unit is truly portable. And with its rugged aluminum housing it's built to withstand the rigors of field use. The intuitive I/O panel uses industry-standard connectors: BNC for digital and analog video, 3-pin XLR for audio and intercom, RJ45 for Ethernet, and 9-pin D-Sub for async data. Status indicators and multi-segment audio level meters make setup and use a simple process. The 2-channel party-line intercom interface provides DC power for direct connection of intercom belt packs. The Ethernet interface features an auto MDI/MDI-X input eliminating the need for crossover cables. An Anton/Bauer battery mount allows for battery-powered operation. A maximum power draw of 30 watts allows battery operating time of four hours or greater. As an alternate to battery operation a source of 10-18 volts DC can be connected.

Live-Link Control Room Unit

Typically residing in an ENG truck or at a control room location, Live-Link's Control Room Unit serves as the I/O panel for signals going to and from the Camera End Unit. Two single-mode optical fibers carry three wavelengths of optically multiplexed signal between the units. All video, audio, and data inputs and outputs use standard connectors. Multiple LEDs provide audio, video, and system status information. The Control Room Unit is available in a portable or rack-ready version. The portable version can be powered by 10-18 Vdc or via battery using the Anton/Bauer mount. Consuming a maximum of 20 watts, battery operation in excess of 6 hours is easily achieved. The rack-ready version is optimized for use in permanent (fixed or mobile) installations. Using the optional Live-Link rack enclosure, one or two units can be mounted in three spaces (3U) of a standard equipment rack.

Live-Link Camera End Unit and Control Room Unit Connectivity



System Specifications

Optical

Cable; Connector Requirement	2 single-mode fibers; Neutrik® opticalCON® DUO
Maximum Cable Length	10 km
Wavelengths Utilized	1310 nm, 1490 nm, 1550 nm

Digital Video

Number of Paths	2, one in each direction
Data Rate	1.485 Gbps maximum
Supported Standards	HD-SDI, SD-SDI, DVB-ASI

Analog Video

Number of Paths	2, one in each direction
Supported Standards	NTSC, PAL

Mic/Line Audio

Number of Channels	2 (Camera End Unit to Control Room Unit)
Frequency Response	20 Hz to 20 kHz ±0.2 dB
Distortion	0.1%, DC to 40 kHz
Signal-to-Noise Ratio	84 dB, DC to 40 kHz
Dynamic Range	104 dB

Line-Level Audio

Number of Channels	2 (Control Room Unit to Camera End Unit)
Frequency Response	20 Hz to 20 kHz ±0.1 dB
Distortion	0.03%, DC to 40 kHz
Signal-to-Noise Ratio	84 dB, DC to 40 kHz
Dynamic Range	104 dB

2-Wire-to-4-Wire Interface

Frequency Response	100 Hz to 8 kHz ±2.5 dB
Distortion	0.1%
Signal-To-Noise Ratio	65 dB
Nulling Method	automatic upon user initiation; null settings stored in non-volatile memory

Nulling Cable Length Range

Data Transport

Ethernet	10/100 Mbps
RS-232	200 kbps, auto sensing
RS-422	2 Mbps, auto sensing
GPI/GPO	normally open isolated relay contact

Camera End Unit Specifications

Optical Connector	Neutrik opticalCON DUO (duplex LC compatible)
Digital Video Input	1
Connector; Type; Impedance; Level	BNC; unbalanced; 75 ohms; 800 mV p-p
Digital Video Output	1
Connector; Type; Impedance; Level	BNC; unbalanced; 75 ohms; 800 mV p-p
Analog Video Input	1
Connector; Type; Impedance; Level	BNC; unbalanced; 75 ohms; 1 V p-p
Analog Video Output	1
Connector; Type; Impedance; Level	BNC; unbalanced; 75 ohms; 1 V p-p
Mic/Line Audio Inputs	2
Connector; Type; Impedance; Level	3-pin female XLR-type; electronically balanced; 2 k ohms; +24 dBu maximum including mic gain
Gain	15 dB, 30 dB, 45 dB, switchable
Phantom Power	+48 Vdc nominal, meets IEC 61938
Line-Level Audio Outputs	2
Connector; Type; Impedance; Level	3-pin male XLR-type; electronically balanced; 100 ohms; +24 dBu maximum
Party-Line Intercom (2-Wire)	1
Connector; Type; Impedance; Level	3-pin male XLR-type; 2-channel party-line (PL); 200 ohms; -10 dBu
Compatibility	single- and dual-channel intercom systems such as from RTS® and Clear-Com®
2-Wire Power Source	28 volts DC nominal, 300 milliamperes maximum
Ethernet Connector	RJ45 (auto MDI/MDI-X)
RS-232/RS-422 and GPI/GPO Connector	9-pin D-subminiature female
Power	
DC Input Range	10 V to 18 V
Requirements	30 watts maximum
DC Input Connector	4-pin male XLR-type
Battery Mount	Anton/Bauer Gold Mount System
Dimensions	8.36 in. w (21.2 cm) x 6.54 in. h (16.6 cm) x 13.33 in. d (33.9 cm) including protective bumpers and handle
Weight	10.85 pounds (4.9 kg)

Accessories

Options

Live-Link Rack-Mount Enclosure	3U, holds one or two rack-ready Control Room Units
Remote Status Panel	1U, LED status panel for use with rack-ready Control Room Unit



Anton/Bauer battery mount standard on Camera End Unit and portable version of Control Room Unit. Battery not included.

At Studio Technologies we design and manufacture dependable, high-performance audio products for demanding professionals. For over 30 years we have never wavered in our commitment to building rock-solid products and offering outstanding customer service. Our products are used worldwide in broadcast, studio, stadium, and corporate environments.

Control Room Unit Specifications

Optical Connector	Neutrik opticalCON DUO (duplex LC compatible)
Digital Video Input	1
Connector; Type; Impedance; Level	BNC; unbalanced; 75 ohms; 800 mV p-p
Digital Video Output	1
Connector; Type; Impedance; Level	BNC; unbalanced; 75 ohms; 800 mV p-p
Analog Video Input	1
Connector; Type; Impedance; Level	BNC; unbalanced; 75 ohms; 1 V p-p
Analog Video Output	1
Connector; Type; Impedance; Level	BNC; unbalanced; 75 ohms; 1 V p-p
Mic/Line Audio Outputs	2
Connector; Type; Impedance; Level	3-pin male XLR-type; electronically balanced; 100 ohms; +24 dBu maximum
Line-Level Audio Inputs	2
Connector; Type; Impedance; Level	3-pin female XLR-type; electronically balanced; 10 k ohms; +24 dBu maximum
Inputs from 4-Wire Intercom	2
Connector; Type; Impedance; Level	3-pin female XLR-type; transformer coupled; 10 k ohms; +4 dBu nominal, +22 dBu maximum
Outputs to 4-Wire Intercom	2
Connector; Type; Impedance; Level	3-pin male XLR-type; transformer coupled; 50 ohms nominal; +4 dBu nominal, +20 dBu maximum into 2 k ohms
Ethernet Connector	RJ45 (auto MDI/MDI-X)
RS-232/RS-422 and GPI/GPO Connector	9-pin D-subminiature female
Power	
DC Input Range	10 V to 18 V
Requirements	20 watts maximum
DC Input Connector	4-pin male XLR-type
Battery Mount	Anton/Bauer Gold Mount System (Portable Version only)
Dimensions	
Portable Version	8.36 in. w (21.2 cm) x 6.54 in. h (16.6 cm) x 13.33 in. d (33.9 cm) including protective bumpers and handle
Rack-Ready Version	8.36 in. w (21.2 cm) x 5.00 in. h (12.7 cm) x 12.60 in. d (32.0 cm)
Weight	
Portable Version	10.75 pounds (4.9 kg)
Rack-Ready Version	7.65 pounds (3.5 kg)

Specifications subject to change without notice. © by Studio Technologies, Inc., 2009.