



Live-
Link™ 3G

with Dual 3G Capability



Remote Camera Interface System

Live-Link 3G Camera End Unit
Live-Link 3G Control Room Unit



STUDIO
TECHNOLOGIES
INC.

Live-Link™ 3G System

Overview

Designed to handle news, sports, and other day-to-day remote interfacing needs with ease, the Live-Link 3G Remote Camera Interface System offers a comprehensive fiber-optic-connected solution for transporting digital video, audio, intercom, and data between a remote camera location and a truck or control room. The point-to-point system consists of a portable Camera End Unit and either a portable or rack-mounted Control Room Unit. Both use industry-standard connectors that are clearly labeled for fast, intuitive setup.

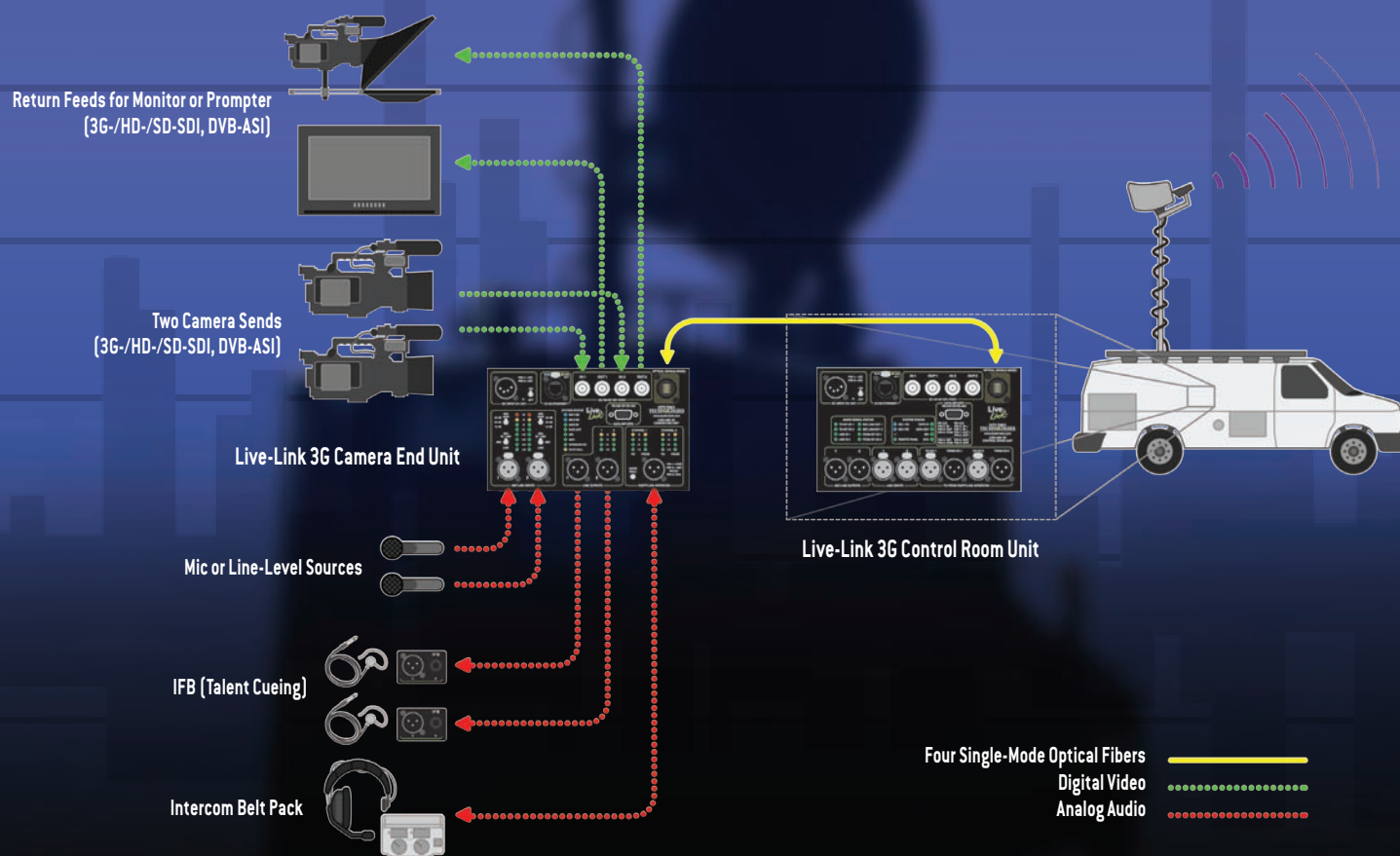
Live-Link 3G provides two digital video paths in each direction that support the 3G-/HD-/SD-SDI SMPTE®-standards. In addition, the system provides connectivity for two mic/line level signals, talent cueing, 2-channel party-line intercom, GPI/GPO, RS-232/RS-422 asynchronous data, and 10/100 Ethernet. A full complement of status LEDs simplifies monitoring and troubleshooting. Live-Link 3G systems are suitable for remote production or permanent installation and can be powered by a DC supply or battery.

Live-Link 3G is a reliable and convenient way of linking a production camera crew to an ENG or OB van, SNG vehicle, or production trailer. The system's portability and ease-of-deployment make it an ideal infrastructure solution for studio complexes, arenas, and campus environments. Live-Link 3G units interconnect using four strands of single-mode fiber-optic cable and provide a transmission distance of at least 10 km (per SMPTE 297). Featuring the rugged opticalCON® QUAD fiber-optic connector from Neutrik®, units can also be ordered with expanded beam or ST optical connectors.

Key Features

- Transports digital video, audio, and data over four single-mode optical fibers
- Supports standard 3G-/HD-/SD-SDI digital video formats
- Two mic/line inputs with selectable gain and +48 volt phantom power
- Two line-level audio paths for IFB or general-purpose use
- Party-line intercom interface with 28 volt belt-pack power
- 2-wire-to-4-wire auto nulling hybrids for excellent intercom audio
- 10/100 Ethernet with auto MDI/MDI-X
- RS-232/RS-422 for camera control
- GPI/GPO for tally support
- Neutrik opticalCON QUAD 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 portable or rack-mount ready versions

Example of a Typical “Throw-Down” Deployment



Live-Link 3G Camera End Unit



The Live-Link 3G 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 video, 3-pin XLR for audio and intercom, RJ45 for Ethernet, and 9-pin D-Sub for asynchronous 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 to 18 volts DC can be connected.

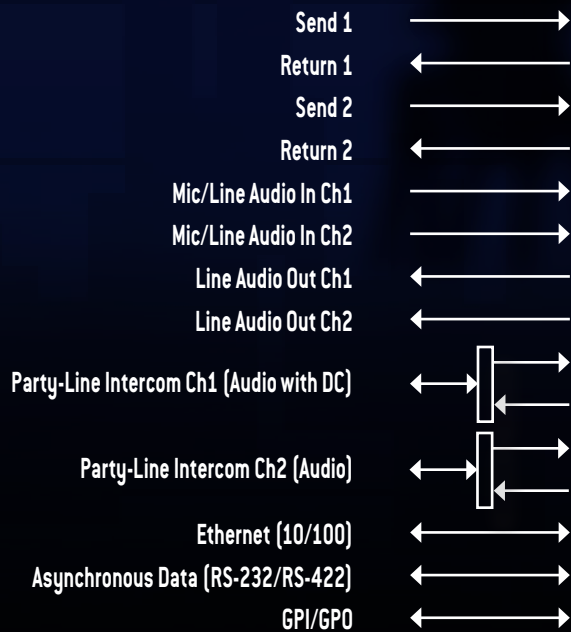
Live-Link 3G Control Room Unit



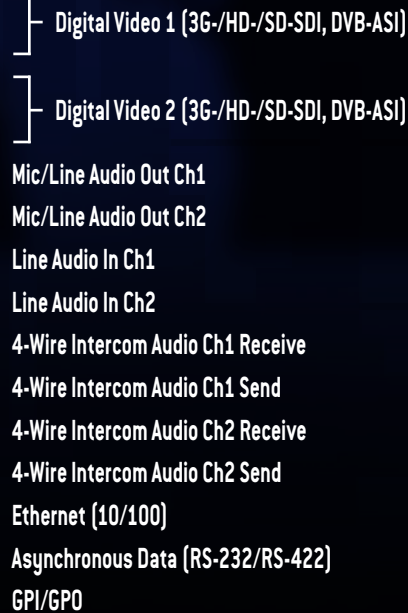
Typically residing in an ENG truck or at a control room location, Live-Link 3G's Control Room Unit serves as the I/O panel for signals going to and from the Camera End Unit. Four single-mode optical fibers carry WDM-multiplexed signals between the units. All video, audio, and data inputs and outputs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

Live-Link 3G Camera End Unit and Control Room Unit Connectivity

Live-Link 3G Camera End Unit



Live-Link 3G Control Room Unit



System Specifications

Optical	
Cable	4 single-mode fibers
Optical Budget	14 dB minimum at 2.97 Gb/s; 17 dB minimum at 1.485 Gb/s and 270 Mb/s
Transmission Distance	10 km, minimum (per SMPTE® 297)
Wavelengths Utilized	1310 nm, 1550 nm
Digital Video	
Number of Paths	4, two in each direction
Data Rate	3.0 Gb/s maximum
Supported Standards	3G-SDI (SMPTE 424M), HD-SDI (SMPTE 292), SD-SDI (SMPTE 259M), DVB-ASI
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	0 to 3500 feet, typical
Data Transport	
Ethernet	10/100 Mb/s, auto MDI/MDI-X
RS-232	200 Kb/s, auto sensing
RS-422	2 Mb/s, auto sensing
GPI/GPO	normally open isolated relay contact

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 video, audio, and fiber optic 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.

Camera End Unit Specifications

Optical Connector	Neutrik® opticalCON® QUAD*
Digital Video Inputs	2
Connector, Type, Impedance	BNC, unbalanced; 75 ohms
Digital Video Outputs	2
Connector, Type, Impedance, Level	BNC, unbalanced; 75 ohms; 800 mV p-p
Mic/Line Audio Inputs	2
Connector, Type, Impedance, Level	3-pin female XLR; electronically balanced; 2 k ohms; +24 dBu maximum including mic gain
Gain	0 dB, 15 dB, 30 dB, 45 dB, selectable
Phantom Power	+48 volts DC nominal, selectable on/off
Line-Level Audio Outputs	2
Connector, Type, Impedance, Level	3-pin male XLR; electronically balanced; 100 ohms; +24 dBu maximum
Party-Line Intercom Interface	1, 2-channel
Connector, Type, Impedance, Level	3-pin male XLR; 2-wire party-line (PL); 200 ohms; -10 dBu nominal
Compatibility	single- and dual-channel intercom systems such as those 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 to 18 volts
Requirement	30 watts maximum
DC Input Connector	4-pin male XLR
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	10.9 pounds (5.0 kg)

Control Room Unit Specifications

Optical Connector	Neutrik opticalCON QUAD*
Digital Video Inputs	2
Connector, Type, Impedance	BNC, unbalanced; 75 ohms
Digital Video Outputs	2
Connector, Type, Impedance, Level	BNC, unbalanced; 75 ohms; 800 mV p-p
Mic/Line Audio Outputs	2
Connector, Type, Impedance, Level	3-pin male XLR; electronically balanced; 100 ohms; +4 dBu nominal, +24 dBu maximum
Line-Level Audio Inputs	2
Connector, Type, Impedance, Level	3-pin female XLR; electronically balanced; 10 k ohms; +4 dBu nominal, +24 dBu maximum
Inputs from 4-Wire Intercom	2
Connector, Type, Impedance, Level	3-pin female XLR; electronically balanced; 10 k ohms; +4 dBu nominal, +24 dBu maximum
Outputs to 4-Wire Intercom	2
Connector, Type, Impedance, Level	3-pin male XLR; electronically balanced; 100 ohms; +4 dBu nominal, +24 dBu 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 to 18 volts
Requirement	20 watts maximum
DC Input Connector	4-pin male XLR
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	10.9 pounds (5.0 kg)
Rack-Ready Version	7.7 pounds (3.5 kg)

*Optionally available with MX-4 Pro Beam® mini optical connector or four ST optical connectors.

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