

## FEATURES

- ▷ 1 SDI, up to 3Gbs
- ▷ Supports SMPTE
  - 424M -259M
  - 292M -310M
- ▷ Ethernet
- ▷ EQ's and re-clocks
- ▷ 4 analog audio or 2 (AES to Base)
- ▷ Two 4-wires for intercom
- ▷ 3 data (RS232, 422, 485)
- ▷ 4 GPIO
- ▷ 1 Tally
- ▷ 1, 2 or 3 fibers
- ▷ Multimode or Singlemode
- ▷ ST, SC or LC
- ▷ Rugged design
- ▷ Quiet - no fans
- ▷ Throw-down, rack or LightBox

## APPLICATIONS

- ▷ Remotely Controlled cameras, such as PZT and Goal Cams
- ▷ Surveillance Homeland Security
- ▷ Distance Learning
- ▷ Houses of Worship
- ▷ Medical Video
- ▷ Point Of View cameras

The perfect tool for POV/PTZ and other applications requiring a mix of analog and digital signals, in a very small package.



The HD-3500 series offers multi-rate HD-SDI fiber optic transport with options for multiple audio, intercom and bi-directional data over a single fiber, with high definition transport up to 1080p 3G HD-SDI, uncompressed.

MultiDyne's HD-3500 series gives broadcasters and A/V professionals an innovative solution for moving high definition video as well as analog or AES audio, intercom, GPIO's and tally. The data and GPIO channels can be used to control equipment in remote locations, and the tally relay can be used to control a camera tally light. The system has audio inputs for two channels of outbound digital AES audio or four analog audio channels with two more bi-directional audio channels for 4-wire intercom.

In addition, you can cross-convert audio signals, by inputting analog or AES audio and getting both analog and AES out, saving the cost of A/D converters. The HD-3500 also gives users three discreet bi-directional RS-232, 422 or 485\* data channels as well as four GPIO's and one tally. Embedded audio within the HDSDI video signal is supported as long as the resultant signal is SMPTE compliant.

The HD-3500 provides loop outs, equalized inputs, and reclocked dual outputs, supporting 5 to 2970 Mb/s, SDI, HD-SDI, 3G HD-SDI, DVB, ASI and SMPTE standards 424M, 292M, 259M and 310M. Applications for the HD-3500 include remote camera control in broadcast environments, point-of-view (POV) cameras, action sports shots, sky cams and intelligent

transportation systems as well as for high definition surveillance, casinos and Homeland Security.

The HD-3500 can be used as a stand-alone product or, alternately, can be rack mounted with our convenient Rack Kits. When integrated into the MultiDyne LightBox or LightCube and combined with our other industry-leading fiber transport products, a variety of completely custom solutions can be suited to most any purpose; from campus interconnects to remote outside broadcast applications.

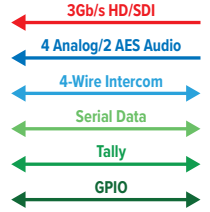
Rely on the MultiDyne HD-3500's to provide unsurpassed reliability with no quality loss or delay, whether within a studio or across town.



**PICK THE 3500 SERIES MODULE SET THAT BEST FITS YOUR APPLICATION:**

**HD-3500**

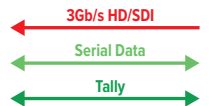
The HD-3500 system provides all of the signals needed to remotely operate any camera, up to 40km away from its base station. The 3G HD uncompressed video is transported without any loss or degradation of the signal. Data paths allow for easy remote control of critical camera parameters and the tally circuit lets the camera operator know when he is "hot". Audio paths allow for multiple line level audios from the camera-end of the link as well as bi-directional 4-wire circuits for intercom. In addition, you can take advantage of your digital audio sources and mics by inputting AES signals and get both analog and AES out at the control room.



The HD-3500 packs a lot of functionality into a very small package...and at a great price.

**HD-3521**

The HD-3521 system has everything from the 3500 system minus the audio and intercom functions. For customers looking for the capability to remotely control a distant camera with or without a PTZ (Pan-Tilt-Zoom) head minus the audio, intercom, GPIO AND 3rd DATA CHANNEL, this is the system for you. The system transports full resolution, uncompressed 3G HDTV from the camera and has two data paths for camera control, PTZ control and other accessories such as rain wipers. Why pay for audio and intercom if you don't need it? The HD-3521 is THE cost-effective way to operate your remote camera whether on the roof or across town.



**HD-3540**

The HD-3540 gives you the same uncompromised video quality and AES or analog audio for fixed camera positions such as weather or scoreboard cameras. As with the HD-3500, you have the capability of inputting either analog or digital AES audio signals and getting both analog and digital signals out at the control room. For fixed surveillance application, the HD-3540 is an extremely cost efficient and small package that will fit into most weatherproof enclosures and most budgets.



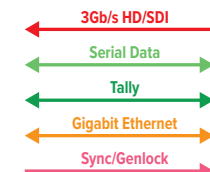
**HD-3500-GE Series (w/Gigabit Ethernet and Sync)**

The HD-3500 GE series includes all of the features and functionality of the 3500 family of transceivers, but also adds bi-directional Sync and GigE (Ethernet) transport capability to address unique applications where these two features are critical. The HD-3500-GE series includes a new and more rugged enclosure than the standard HD-3500 series, but can also be rack mounted when necessary. These units are ideal to drive remotely operated PTZ cameras that include a GigE port as well as support for Internet streaming and tally light applications. It's also ideal for accurately synchronizing multiple cameras.



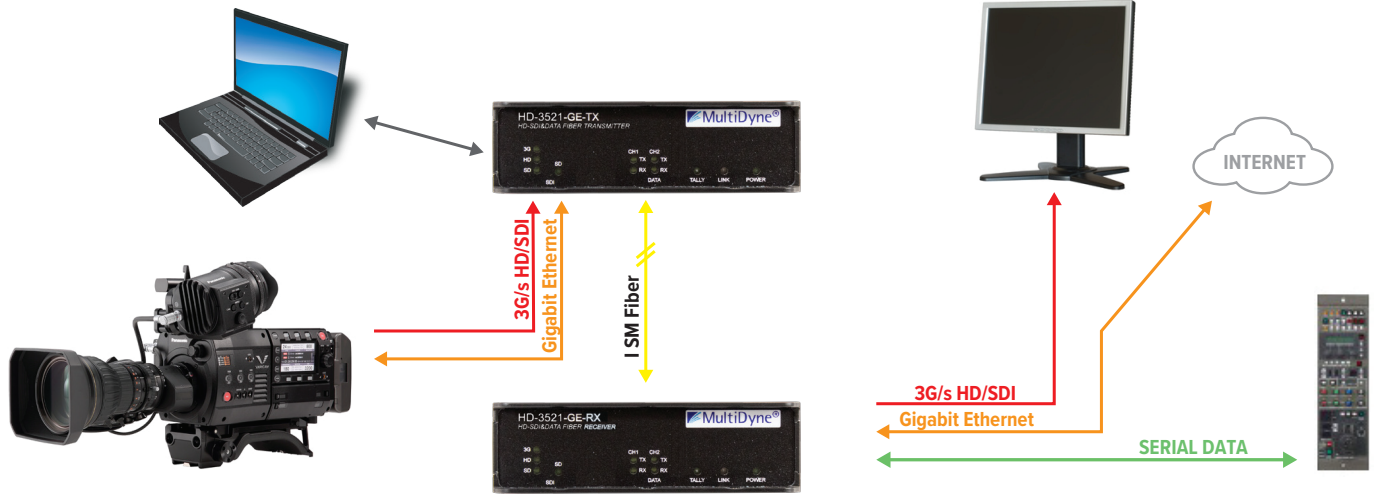
**HD-3521-GE Series (w/Gigabit Ethernet and Sync)**

The HD-3521-GE series includes all of the features and functionality of the 3521 family of transceivers, but also adds return sync/genlock, Sync and GigE (Ethernet) transport capability to address unique applications where these two features are critical. The HD-3521-GE series includes a new and more rugged enclosure than the standard HD-3521 series, but can also be rack mounted when necessary. These units are ideal to drive remotely operated PTZ cameras that include a GigE port as well as support for Internet streaming and tally light applications. It's also ideal for accurately synchronizing multiple cameras.

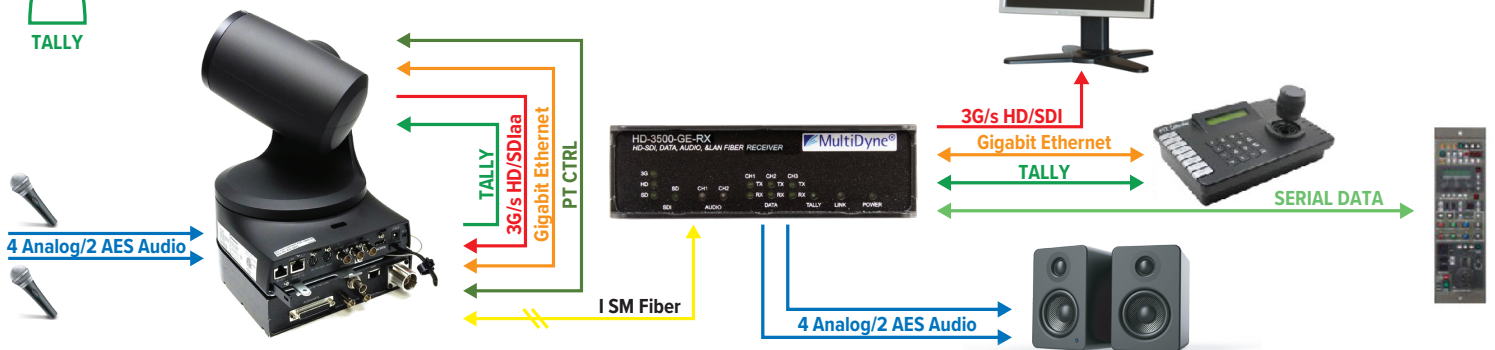


**APPLICATION**

**Broadcast Camera Setup**



**POV & High Rez Video/Audio Surveillance Setup**



## TECHNICAL SPECIFICATIONS

### Digital Video

Video connectors	BNC
# of Inputs	1 w/ loop out, Dual outs on RX
Interface	SMPTE 424M, 297M, 292M, M259M-C, DVB-ASI
Receiver	2 or 4 outputs
Standard	SMPTE 424M, 297M, 292M, M259M-C, DVB-ASI
Input Coax EQ	@3 Gbps; 80m @1.485 Gbps: 150m @143-360 Mbps: 350m
Input Level	100mV (peak to peak)
Input Impedance	75 Ohms
Bit-error Rate	10-12
Jitter	< 0.03IU under 1 MHzvz
Rise/fall Times	< 270ps
Return Loss	>15 dB at 5 MHz - 1.485 GHz >10 dB up to 3 GHz
Gigabit Ethernet	10/100/1000 Mbps
Sync	Analog NTSC-PAL, HDTV Tri-Level

### Data

232,422	DC-3Mbpsv
232 In V	+/- 25V max, 2V min
232 Out V	+/- 5V @ 3Kohm, 1.6V Sens.
422,485 In V	-7V to 12V, 0.2V diff min
GPI/GPO	Normally Open, Form 1 SPST

### Analog Audio

S/N	>90db
Frequency Response	< +/-0.1db (20Hz - 20kHz)
Distortion	< 0.05%
Level Adjust	28,16,10,4 dBu
Max I/O Level	28 dBu
Impedance In (bal)	600 Ohms +
Impedance Out (bal)	<10 Ohms
Icom level	4 dBu FS
Icom Impedance In	10 K Ohm
Icom Impedance Out	<50 Ohm

### Digital Audio

Input/Output	Balanced, AES3/AES3id
I/O Impedance	110 Ohm/75 Ohm (DIP Sw) +/-20%, 0.1MHz-6.0MHz
Min/Max Input	2-7 Vpp into 110 Ohms
Rise/Fall time	5-30ns for 10 Ohm
Jitter	< 20ns

### Electro-Optical

Operating Wavelengths	DFB 1271-1591nm
TX Laser output power	-2 - 0dBm, Class 1
Receiver Sensitivity	-20 dBm
Fiber Compatibility	single or multimode
Optical Connector	ST, LC, SC
Distance limit	40km w/singlemode

### Environmental

Temperature Range	-25° to +55°C
Humidity Range	0 to 95% RH Noncondensing

### Standard Box

Overall Dimensions (L x W x H)	7" x 5.5" x 1.75"
Weight	1.5lbs.

### GE Box

Overall Dimensions (L x W x H)	7" x 5.75" x 1.75"
Weight	1.5lbs.

### PT Box

Overall Dimensions (L x W x H)	7.25" x 8.75" x 1.75"
Weight	1.5lbs.

### Power

Power Input	2.5mm jack Center pin +
Power rating, nominal	50w max@14 VDC
Power Requirement	<10w @5-24VDCwww



## ORDERING INFORMATION

3500	
HD-3500-TX-2-LC	3 Gbps Serial Digital Video Transceiver, w/ 4-Ch Audio or 2-CH AES Audio, 2-Ch 4W Intercom, 2-way 3-Ch Data & Tally, 3 Multimode Fibers
HD-3500-RX-2-LC	3 Gbps Serial Digital Video Transceiver, w/ 4-Ch Audio or 2-CH AES Audio, 2-Ch 4W Intercom, 2-way 3-Ch Data & Tally, 3 Multimode Fibers
HD-3500-TX-ST	3 Gbps Serial Digital Video Transceiver, w/ 4-Ch Audio or 2-CH AES Audio, 2-Ch 4W Intercom, 2-way 3-Ch Data & Tally, 1 Singlemode Fiber
HD-3500-RX-ST	3 Gbps Serial Digital Video Transceiver, w/ 4-Ch Audio or 2-CH AES Audio, 2-Ch 4W Intercom, 2-way 3-Ch Data & Tally, 1 Singlemode Fiber
HD-3500-TX-CWDM-ST	3 Gbps Serial Digital Video Transceiver, w/ 4-Ch Audio or 2-CH AES Audio, 2-Ch 4W Intercom, 2-way 3-Ch Data & Tally, 3 Fiber for CWDM
HD-3500-RX-CWDM-ST	3 Gbps Serial Digital Video Transceiver, w/ 4-Ch Audio or 2-CH AES Audio, 2-Ch 4W Intercom, 2-way 3-Ch Data & Tally, 3 Fiber for CWDM
HD-3500-GE-TX-ST-S	All of the features above, plus Gigabit Ethernet connectivity and full camera Synchronization
HD-3500-GE-RX-ST-S	All of the features above, plus Gigabit Ethernet connectivity and full camera Synchronization

3520/3521	
HD-3520-TX-33-ST	3.0 Gbps Serial Digital Video Transceiver, with 2-Ch Two-way Data over 2 Single-mode fibers (RMT kit for rack mounting)
HD-3520-RX-33-ST	3.0 Gbps Serial Digital Video Transceiver, with 2-Ch Two-way Data over 2 Single-mode fibers (RMT kit for rack mounting)
HD-3521-TX-35-ST	3.0 Gbps Serial Digital Video Transceiver, with 2-Ch Two-way Data over 1 Single-mode fiber (RMT kit for rack mounting)
HD-3521-RX-53-ST	3.0 Gbps Serial Digital Video Transceiver, with 2-Ch Two-way Data over 1 Single-mode fiber (RMT kit for rack mounting)
HD-3521-GE-TX-ST-S	All of the features above, plus Gigabit Ethernet connectivity and full camera Synchronization
HD-3521-GE-RX-ST-S	All of the features above, plus Gigabit Ethernet connectivity and full camera Synchronization

3540	
HD-3540-TX-ST	3.0 Gbps Serial Digital Video Transmitter, with 4-Ch One-way Analog Audio over 1 Single-mode fiber (RMT kit for rack mounting)
HD-3540-RX-ST	3.0 Gbps Serial Digital Video Receiver, with 4-Ch One-way Analog Audio over 1 Single-mode fiber (RMT kit for rack mounting)

POV/PTZ	
PT-3500-TX-ST	HD-3500 Transmitter housed in Form-fitted Aluminum case for mounting under Panasonic AW-HE130 Series Cameras
PT-3521-TX-ST	HD-3521 Transmitter housed in Form-fitted Aluminum case for mounting under Panasonic AW-HE130 Series Cameras
PT-3500-GE-TX-ST-S	HD-3500-GE Transmitter housed in Form-fitted Aluminum case for mounting under Panasonic AW-HE130 Series Cameras
PT-3521-GE-TX-ST-S	HD-3521-GE Transmitter housed in Form-fitted Aluminum case for mounting under Panasonic AW-HE130 Series Cameras

ACCESSORIES	
MDS050-P120	Replacement Power Supply for HD-3500 units
PS3-12VDC	Three Output DC Power Supply for up to three HD-3500 Series modules
RMT	Triple Rack-mount Kit (1 kit)
BP-T	Blank panel for RMT rack-mounting kit
RM-BD-2LBU3	Rack Kit for mounting (3) HD-3500-GE/HD-3521-GE units in 1 RU
RM-BD-2LBU2	Rack Kit for mounting (2) HD-3500-GE/HD-3521-GE units in 1 RU
RM-BD-2LBU1	Rack Kit for mounting (1) HD-3500-GE/HD-3521-GE units in 1 RU
HDAUDIO35	Audio and Data screw terminal break-out adapter "diving Board"
XLR-HD-35-TX	XLR Audio Adapter Cable for HD-3500-FTX-ST transmitter
XLR-HD-35-RX	XLR Audio Adapter Cable for HD-3500-FRX-ST receiver