

## Low Cost, High Performance Audio/Control Mux



*Multiplexes and transmits sixteen audio, two data signals, and two switch closures over just one optical fiber or a 75 Ohms coaxial cable*

The **Adder 161** is a compact audio, data and control multi-plexer that transmits large quantities of information on only one fiber or one ordinary 75 Ohms coaxial cable. Signals remain clean, distances increase, and costs and labor decrease.

### Transparent Transmission

The Adder 161 maintains full signal bandwidth and integrity over distances up to 30 km on fiber optic cable, or up to 1,000 feet on 75 Ohms coaxial cable. Fiber cable electrically isolates, and eliminates problems of ground faults and lightning. Fiber cable also eliminates all types of electromagnetic and radio-frequency interference. No clicks; no pops; no crosstalk; no hum.

### Audio—Flat, Wide and Quiet

Telecast provides outstanding audio quality. Sixteen (16) channels of audio, all on a single optical fiber. Each channel is flat from 20 Hz to 22 kHz! Signal to noise is better than 90 dB.

### High Speed Data

The dual data interfaces (determined by connector pin in/out selection) include RS232 and RS422.

### Switch Closures

The **Adder 161** also provides two (2) GPI switch closure paths for tally, call, or control of remote devices.

### Coax Port Feature

The BNC coaxial I/O port provides a high speed serial bit stream which you can use with your DiamondBack video multiplexer. This combination gives you up to 7 video plus 1 audio channels on one fiber.

### Applications

- *TV/Radio Production*
- *Professional Audio*
- *Interfacility Audio Trunks*
- *Campus Distribution*
- *PA Systems*

### Features

- *Wideband digital audio*
- *16 audio+2 data+4 closures*
- *One fiber or coax in/out*
- *Works with DiamondBack*
- *20 Hz to 22 kHz*
- *Audio S/N of 90 dB*
- *Switchable mic/line input*
- *Switchable input impedance*
- *RS422 or RS232 Data*
- *Switch closures for control*
- *Up to 30 kilometer range*
- *Compact indoor/outdoor unit*
- *AC or 12-24 VDC power*
- *Internal UPS supply*
- *Power efficient—no fans*

### Cool and Efficient

The power efficient Adder 161 only consumes 12 watts and runs cool. It needs no fans or wiring harnesses—everything is built in and simple to setup. Only Telecast fiber systems can operate in demanding worldwide environments—from -40° to +65°C.

The internal alarmed UPS supply keeps the Adder operating in the event of power loss or fluctuations.

# Specifications

## Audio

Transmission Method.....Digital, TDM, 18-bit, 48ksamples/sec  
 Input Impedance  
 .....600 Ohms (bal) or 5k Ohms (unbal) (switchable)  
 Output Impedance.....30 Ohms balanced  
 Maximum Input Level  
 .....(600 Ohms balanced mode "Low Z<sub>in</sub>" setting)  
 Unity Gain Setting.....+18 dBm (peak)  
 +10 dB Gain Setting.....+8 dBm (peak)  
 +40 dB Gain Setting.....-22 dBm (peak)  
 Max. Input Level (5k ohms balanced mode "High Z<sub>in</sub>" setting)  
 Unity Gain Setting.....+16 dBV (peak)  
 +10 dB Gain Setting.....+6 dBV (peak)  
 +40 dB Gain Setting.....-24 dBV (peak)  
 Maximum Output Level (from 30 ohms balanced)  
 Unity Gain Setting.....+ 18 dBm into 600 Ohms  
 10 dB Attenuate Setting.....+ 8 dBm into 600 Ohms  
 Frequency Response (@ 8 dBm)  
 from 20 Hz to 22 kHz.....±0.2 dB  
 Total Harmonic Distortion + Noise  
 from 20 Hz to 20 kHz (@ +8 dBm).....<0.05%  
 at 1 kHz (@ +18 dBm).....<0.01%  
 Intermodulation Distortion (SMPTE),  
 60 Hz + 3 kHz mixed 4:1 @ +8 dBm.....<0.04%  
 Signal to Noise Ratio, unweighted,  
 20 Hz -20 kHz, ref. to +18 dBm clip level.....>90 dB  
 Aggregate Digital Data Rate.....43 Mbaud

## High Speed Data (ports 1 & 2)

RS232.....±8 Vp-p level.....0 to 19.2 kBits/sec  
 RS422.....Balanced TTL levels.....0 to 150 kBits/sec  
 RS423.....TTL level.....0 to 150 kBits/sec\*  
 Higher data rates possible dependent on user jitter tolerance.  
 Jitter.....1.12 µsec

## Contact Closure Ports (ports 1 through 4)

Input.....Normally High TTL level  
 Logic 1 to open remote contacts; ground (Logic 0) to actuate  
 Output.....Form 1A SPST, "Normally Open" isolated contacts  
 Switch Voltage Rating.....200 VDC  
 Switch Current Rating.....500 mA  
 Carry Current Rating.....1.2 A  
 Contact Resistance.....200 m Ohms

## System Margin Data

Maximum distance is limited by Link Loss Budget (dB cable loss) between Transmitter output and Receiver minimum input.  
Operating Wavelength     850 nm             1300 nm             1550 nm  
 TX Output into cable.....-17 dBm.....-10 dBm.....-10 dBm  
 RX Sensitivity.....-26 dBm.....-30 dBm.....-30 dBm

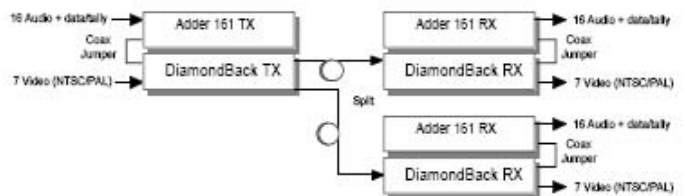
### For all Adder 161 systems

Coaxial cable, 75 Ohms, Belden 8281 or equivalent  
 .....1,000 feet (305 m)

## Electrical/Environmental

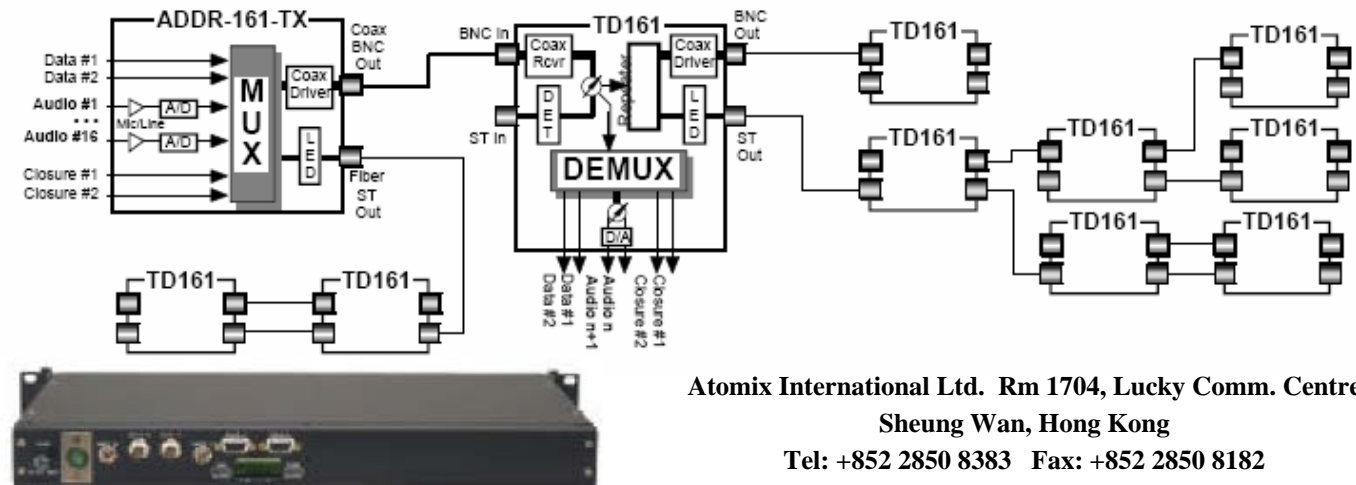
Dimensions: w/o mounting ears (WxLxD).....16.7" x10.5" x 3.5"  
 Weight.....8 pounds  
 Audio Connectors.....3-pin XLR (female on TX & male on RX)  
 Auxiliary Data/Closure Connectors.....9-pin D (female)  
 Optical Connector(s).....ST-type  
 Power Connector.....4-pin XLR (male)  
 Input Voltage Range.....12 to 24 VDC (30 VDC max.)  
 Power Consumption (per end, all channels at full level)....12 watts  
 Temperature Range.....-40° to +65°C  
 Humidity Range.....0 to 95% non-condensing

Use the Adder by itself, or to augment other systems like Telecast's **DiamondBack™** video multiplexer system.



Use the second laser optical path to create a split feed to two locations. The DiamondBack's high power laser source can be passively split into even more directions with a multipoint optical coupler.

For Tap/Drop and Repeat network applications, such as PA systems, use the Adder 161 Transmitter with Telecast's **TD161 Tap and Drop Repeater**.



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