

# Short Form Catalog

SDI and AES Re-clockers and Fan-out Distribution Amplifiers  
Video and Audio Distribution Amplifiers  
Automatic Gain and Equalization Amplifiers and Selector Guide

## Product Catalog



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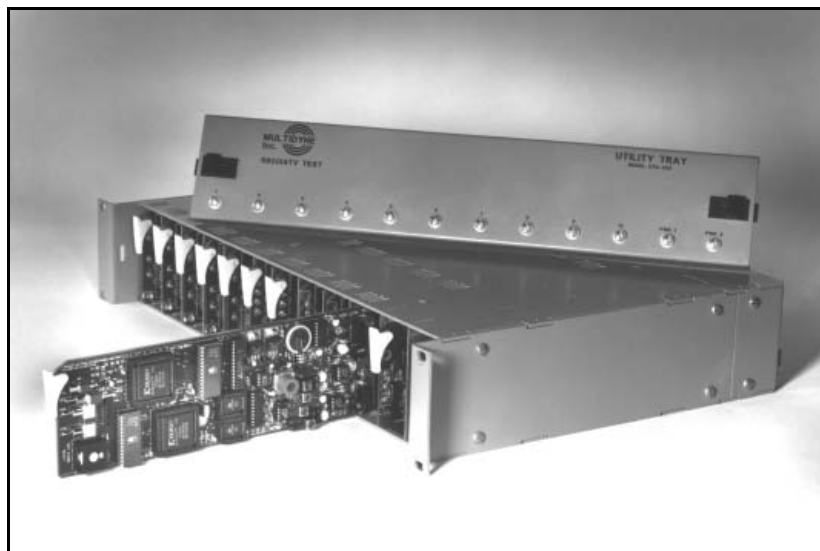
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## SDI and AES Re-clockers and Fan-out Distribution Amplifiers

The DTV-100 and DTV-200 Series of Serial Digital Video Distribution and Fiber Optic Transport Systems for DTV have been designed to ease the engineering and financial difficulties associated with the migration to DTV. The DTV-100/200 line will provide an economical solution for the coaxial and fiber optic transport of **virtually any digital signal from 10 to 400Mbps**. The supported standards include **SMPTE 259M Serial Digital Interfaces (SDI), 4:2:2 Component and Wide Screen, SONET/SDH and ATM**.

The DTV-200 Series of products are available in modular cards that plug into the MULTIDYNE UTIL-200 Series of Modular Trays as well as the Grass Valley™ 8500, 8800 and 8900 series of frames. The DTV-100 Series of products are available as portable or stand-alone units making them ideal for field applications. The user may mix and match both the DTV-100 and DTV-200 Series of products. The DTV-100/200 Series is ideal for the transport of digital television for applications such as studio to transmitter links (STL's), studio to studio, studio to CATV head-end, production, sporting events and backhaul feeds from special events.



### DTV-200 Series of Serial Digital Video Re-clockers and Fan-out DAs

- Designed to **ease** the **engineering** and **financial difficulties** associated with the **migration to DTV**.
- An economical solution for the **coaxial distribution** of virtually any digital signal from **50 to 400 Mbps**.
- Supported standards include **SMPTE 259M Serial Digital Interfaces (SDI), 4:2:2 Component and Wide Screen,/SDH and ATM**.
- Optionally supported standards of **SMPTE 305M (SDTi) SMPTE310M (19.4Mb/s), SMPTE 344M (540Mb/s)** and **M2S** (please call)
- Mix and match analog and digital distribution and fiber optic transport in the same tray. Cards are available for the UTIL-200, UTIL-200-DVM and UTIL-200-FIBER Utility Trays.
- The standard power supply PS-200-AC has a universal input voltage range from **85 to 265 VAC**. No need to set voltage selector switches; simply plug in and forget. The 48 VDC power supply PS-200-48VDC has an input voltage range from **36 to 60 VDC**. Ideal for Telephone Company central office applications.
- Two redundant power supplies with external alarm relay contacts and front panel LED indicators for each power supply are included.
- Designed and manufactured in the U. S. A.

## DTV-201 Serial Digital Video Fanout DA 1x4

- Economical solution for the distribution of digital signals from **10 to 400Mbps** when reclocking is not required.
- Automatic equalization for up to 300 meters of Belden 8281.
- Provides **1 coaxial input, 4 coaxial outputs** and supports **SMPTE 259M**,/SDH and ATM.
- Designed for the UTIL-200-FIBER and UTIL-200-DVM Serial Digital Video Distribution and Fiber Optic Transport Trays.

**Specifications:** **Input:** Type: 1 BNC. Impedance: 75 Ohms. Return Loss: >18dB up to 270MHz. **Output:** Type: 4 BNC. Return Loss: >18dB up to 270MHz.

**Ordering Information:** DTV-201 Serial Digital Video Fanout DA 1x4 for the UTIL-200-FIBER and UTIL-200-DVM Trays.

## DTV-202 Serial Digital Video Fanout DA 1x8

- Economical solution for the distribution of digital signals from **10 to 400Mbps** when reclocking is not required.
- Automatic equalization for up to 300 meters of Belden 8281.
- Provides **1 coaxial input, 8 coaxial outputs** and supports **SMPTE 259M**,/SDH and ATM.
- Designed for the UTIL-200 Serial Digital Video Distribution and Analog DA Tray.

**Specifications:** **Input:** Type: 1 BNC. Impedance: 75 Ohms. Return Loss: >18dB up to 270MHz. **Output:** Type: 8 BNC. Return Loss: >18dB up to 270MHz.

**Ordering Information:** DTV-202 Serial Digital Video Fanout DA 1x8 for the UTIL-200 Tray.

## DTV-210 Automatic Standard Re-clocking DA

- For applications that require reclocking and low jitter.
- Automatic reclocking of digital signals from **40 to 400Mbps**.
- Automatic equalization for up to 300 meters of Belden 8281.
- Automatic selection of 143, 177, 270 and 360 Mbps. LEDs indicate data rate. Custom data rates are available.
- **Jitter less than 130psec peak-peak at 270 Mbps.**
- Carrier detect and signal present LED indicators.
- Provides 1 coaxial input and up to 8 coaxial outputs.

**Specifications:** **Input:** Type: 1 BNC. Impedance: 75 Ohms. Return Loss: >18dB up to 270MHz. **Output:** Type: up to 8 BNC. Return Loss: >18dB up to 270MHz. Data rate selection: Automatic or Manual.

**Ordering Information:**

DTV-210 Automatic Standard Reclocking DA, 1 by 8, for the UTIL-200 Serial Digital Video and Analog DA Tray.

DTV-210F Automatic Standard Reclocking DA, 1 by 4, for the UTIL-200-FIBER and UTIL-200-DVM Serial Digital Video & Fiber Optic Transport Tray.

## AES-200 Series of AES Serial Digital Audio Re-clockers and DAs

- 110 Ohm balanced (AES3-1992) AES inputs and outputs
- Transformer coupled inputs. Optional output transformers.
- Single and Dual Channels versions.
- Data reclocking provides jitter reduction
- LED indication of Input Lock and other important errors
- Adjustable sampling rate to 96 KHz.
- Plugs into the Multidyne UTIL-200-AUDIO and UTIL-200-AV Trays



### Ordering Information:

AES-200D, Dual AES/EBU Re-clocking Fan-out DA, 1 by 8 or 2 by 4.

AES-200S, Single AES/EBU Re-clocking Fan-out DA, 1 by 8.

## DTV-100 Series Stand-alone Serial Digital Video Fiber Optic Transport and Fan-out DAs

- Designed to ease the engineering and financial difficulties associated with the migration to DTV.
- An economical solution for the fiber optic and coaxial transport of virtually any digital signal from 40 to 400Mbps.
- Supported standards include **SMPTE 259M Serial Digital Interfaces (SDI), DVB-ASI (270Mb/s)**, 4:2:2 Component, 360 Mbps./SDH and ATM.
- Optionally supported standards of **SMPTE 305M (SDTi) SMPTE310M (19.4Mb/s), SMPTE 344M (540Mb/s) and M2S** (please call)
- Units to support Fiber Optic Transport, Fanout Distribution and Re-clocking are available.
- Jitter less than 130psec peak-peak at 270 Mbps.
- The system is available stand-alone or rack-mount for Multimode and Singlemode applications.
- **Coarse Wave-division Multiplexing (CWDM)** systems are available for up to **16 wavelengths** over **ONE optical fiber**.
- The units operate from 110 or 220 VAC using a wall-mount supply or from 12 VDC from a BP-90 battery.
- Applications include links from studio to transmitter (STL), studio to studio, studio to CATV head-end, distance learning, field and sporting production and back-haul feeds.
- Designed and manufactured in the U. S. A.



**Ordering Information:****FIBER OPTICS, 270 Mbps Serial Digital Transport for DTV:**

DTV-120-FTX-ST, 270 Mbps Serial Digital Video Fiber Optic Transmitter, 1310nm Multi-mode -14 dBm LED with ST connector, Stand-alone & Rack-mountable, wall-mount power supply included.

DTV-120-FRX-ST, 270 Mbps Serial Digital Video Fiber Optic Receiver Multi-mode with ST connector, sensitivity -24 dBm, Stand-alone & Rack-mountable, wall-mount power supply included.

**FIBER OPTICS, 400 Mbps Serial Digital Transport for DTV:**

DTV-130-FTX-50-ST or FC, 400 Mbps Serial Digital Video Fiber Optic Transmitter, 1300nm Single-mode Laser -11 dBm with ST connector, Stand-alone & Rack-mountable, wall-mount power supply included.

DTV-130-FTX-6-ST or FC, as above with 1550nm Single-mode Laser 0 dBm with FC connector

DTV-130-FTX -7-FC-XXXX, CWDM 1470, 1490, 1510, 1530, 1550, 1570, 1590 or 1610nm Single-mode Laser -8 dBm with FC connector

DTV-130-FRX-ST or FC, 400 Mbps Serial Digital Video Fiber Optic Receiver, 1100 to 1600nm Single-mode with FC connector, sensitivity -28 dBm, Stand-alone Rack-mountable, wall-mount power supply included.

**Synchronization, Re-clocking and Fan-out DAs**

DTV-110, 10-400 Mbps Automatic Standard Reclocking DA w/ cable EQ , Stand-alone & Rack-mountable, wall-mount power supply .

## HD-SDI Fiber Optic Transport and Fan-out DAs

### HD-1500 Series HD-SDI Fiber Optic Transport and Distribution for HDTV

The *NEW* HD-1500 Series of **1.5 GB/Sec** Serial Digital Video Distribution and Fiber Optic products. The product line is intended to ease the engineering and financial difficulties associated with the migration to HDTV. The HD-1500 line will provide an economical solution for the coaxial and fiber optic transport and distribution of **1.485 Gbps**. The systems supports the **SMPTE 292M Serial Digital Interfaces (HD-SDI)** standard. The HD-1500 Series of products are available in compact stand-alone and rack-mount packages making them ideal for applications including field remotes, sporting events, ENG/SNG, studio to transmitter links (STL's), studio to studio, studio to CATV head-end, production and backhaul feeds from special events.



- Designed to **ease** the **engineering** and **financial difficulties** associated with the **migration to HDTV**.
- An economical solution for the **fiber optic** and **coaxial transport** of **1.5 Gbps HDTV signals**.
- Meets the **SMPTE 292M 1.485 Gbps** standard.
- Units to support **Fiber Optic Transport, Fanout Distribution** and **Re-clocking** of 1.5 Gbps serial digital video.
- The system is available **stand-alone** or **rack-mount** for **Multimode** and **Singlemode** applications.
- **Coarse Wave-division Multiplexing (CWDM)** systems are available for up to **16 wavelengths** over **ONE optical fiber**.
- The units operate from **110 or 220 VAC** using a wall-mount supply or from **12 VDC** from a BP-90 battery.
- Applications include links from **studio to transmitter (STL), studio to studio, studio to CATV head-end, distance learning, field and sporting production** and **back-haul feeds**.
- Designed and manufactured in the U. S. A.

**ORDERING INFORMATION:****FIBER OPTICS, 1.5 Gbps Serial Digital Transport for DTV:**

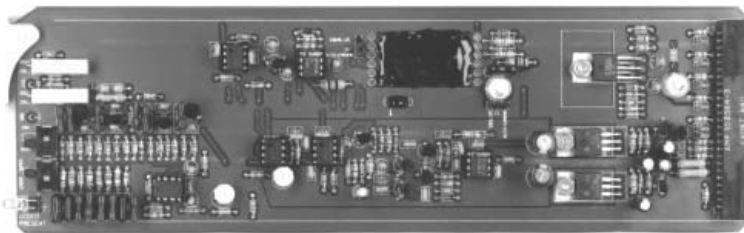
HD-1500-FTX-1-SC, 1.5 Gbps Serial Digital Video Fiber Optic Transmitter, 850nm Multimode Laser, 500 meters, with SC connector, Stand-alone & Rack-mountable, wall-mount power supply included.

HD-1500-FRX-SC-1, 1.5 Gbps Serial Digital Video Fiber Optic Receiver, 1.485 Gb/s SMPTE 292M Reclocker, 1300nm Multimode, with SC connector, Stand-alone & Rack-mountable, wall-mount power supply included.

**Synchronization, Re-clocking and Fan-out DAs**

HD-1510, 1.485 Gbps Automatic Standard Reclocking DA w/ cable EQ , Stand-alone & Rack-mountable, wall-mount power supply

## Distribution Amplifiers & Automatic Gain



### VAGC-100/200 Video Automatic Gain, EQ and Chroma Distribution Amplifier

- **Automatic video Gain** adjustment to **1 Volt peak to peak** with 100 IRE maximum luminance peak.
- **Automatic flatness Equalization** for more than **4000 feet of Belden 8281** and more than **3000 feet of Belden RG59U** to within **+/- 0.05dB at 3.58MHz**.
- **Supports two switch selectable cable types** (Belden 8281 and RG59U typical).
- **Automatic chrominance adjustment +/- 9 dB** to broadcast specifications. (VAGC-200 only)
- High impedance loop-through input and up to **8 outputs** with source terminations of 75 Ohms.
- Equalizers for other cable types are available
- **Back-porch clamp** with up to **60 Vp-p hum cancellation**.
- Video present LED indicator.
- The unit automatically compensates for signal degradation for Satellite, Cable TV Head-ends, ENG, Off-air Signals and roll-off due to coaxial cable.

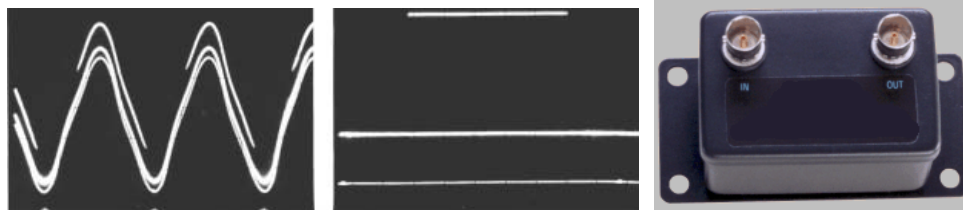
#### Model VAGC-200 Modular Plug-in

- **Plugs into the MULTIDYNE UTIL-200-2RU-AC**, 10 module, 8 output tray with 2 redundant power supplies.
- 85 - 265 VAC Auto-ranging Power Supply and 48 VDC Power Supply available for all trays.
- **Fully compatible with the Grass Valley™ 8500/8800/8900 Trays.**

#### Model VAGC-100 Portable Stand-alone or Rack-mount

- Stand-alone with L x W x H, 5 1/2" by 5 1/2" by 1 3/4" or triple rack-mount in 1 3/4" by 19" rack space with 5 1/2" depth.
- Operates from **110 and 220 VAC** (optional front panel switch) and from a **BP-90 Battery** or **external 12 VDC**.

## HUM BUCKER



### VDA-8505 Field DA with 3500 Ft. Equalizer, High Speed Clamp and Isolation Transformer

The VDA-8505 Field DA is ideal for applications where **clamping** and **long range cable equalization** are required. The **clamp** circuit in the **FAST** mode will remove differential mode hum from the video signal on a line by line basis. The DA will **cancel up to 40 Volts of common-mode hum**. The unit is optionally available with an **Isolation Transformer** for severe hum problems. The equalization feature compensates for up to 3500 feet of cable losses for two type of cable. The full line VDA-200 Distribution Amplifiers support the 75 Ohm coaxial distribution of AES/EBU digital audio signals. The modular design is compatible with the MULTIDYNE UTIL-200 and the Grass 8500/8800/8900 trays. **See page 45 for specifications.**



## AAGC-200 and ADA-200 Audio Automatic Gain Distribution Amplifier with VU Meters

The NEW AAGC-200 Modular Stereo Audio Automatic Gain Distribution Amplifiers is ideal for applications where consistent audio levels are required to prevent clipping and distortion. The **gain is adjustable from -6 to +30 dBm**. The **hold time** is adjustable from **1 to 12 seconds**. The unit includes **low level gating** to prevent amplification of noise during quiet periods. The DA is available with front panel **Bi-color VU LEDs** or a high accuracy **10 Segment LED VU Meters**. The AAGC-200 and the entire ADA-200 Series of Modular Audio Distribution Amplifiers plug into the NEW MULTIDYNE UTIL-200-AUDIO 10 Slot Audio DA Tray and the UTIL-200-AV 5 Slot Video and 5 Slot Audio DA Tray. The trays are available with universal redundant power supplies for 85 to 265 VAC and 48 VDC operation.

**Specifications:** INPUT: Impedance: 50K Ohms, balanced; Max. Level: +30 dBu; Common mode range: +/- 20 Volts; Common mode rejection: >90 dB @ 60 Hz. OUTPUT: Channel: 1 Mono, 2 Stereo; Output per channel: 8 Mono, 4 Stereo; Impedance: 100/600 Ohms standard/optional; Max. level: +30 dBu; Output to output isolation: > 70 dB. PERFORMANCE: Gain range: -6 to +33 dB; (+/- 15 dB on multi-turn pot, 0, 6, 10, 18 fixed); Signal to noise: >100 dB; Frequency response: <+/- 0.05 dB, 20 - 20 KHz; Total harmonic distortion: <0.02%; Intermodulation distortion: <0.01%; Isolation between cards: >100 dB; Interchannel crosstalk: >95 dB; Temperature range: 0 - 50 degrees C; Power consumption, MAX.: < 2 Watts

### Ordering Information:

- ADAM-200**, 50 or 600 Ohm Mono Audio Distribution Amplifier, 1 in 8 out, Gain -6 to +33 dB, S/N 100 dB, 50 Ohm standard output impedance.
- ADAS-200**, 50 or 600 Ohm Stereo Audio Distribution Amplifier, 1 in 4 out stereo, Gain -6 to +33 dB, S/N 100 dB, 50 Ohm standard output impedance.
- AAGC-200**, 50 or 600 Ohm Mono and Stereo Audio Distribution Amplifier and Automatic Gain Control with Low-level gating, 1 in 8 out mono, 2 in 4 out stereo, Gain -6 to +33 dB and S/N 100 dB, 50 Ohm standard output impedance.
- VUA**, Bi-colored LED VU Audio Indicator, optional (per channel)
- VUBAR**, 10 Segment LED VU Meter, optional (stereo only)
- UTIL-200-AUDIO-2RU-AC**, Analog Audio, 10 Slot, 2RU, Modular Audio Utility Tray, with one 85-265 VAC Power Supply & Line Cord
- UTIL-200-AV-2RU-AC**, Analog & Digital Video, Analog & Digital Audio, 5 Slot Video & 5 Slot Audio, 2RU, Modular Utility Tray, one 85-265 VAC Power Supply & Line cord
- PS-200-AC**, Modular 85-265 VAC Power Supply & Line Cord for 200 series trays
- UTIL-200-AUDIO-2RU-48VDC**, Analog Audio, 10 Slot, 2 RU, Modular Utility Tray, with one 35-60 VDC Power Supply
- UTIL-200-AV-2RU-48VDC**, Analog & Digital Video, Analog & Digital Audio, 5 Slot Video & 5 Slot Audio, 2RU, Modular Utility Tray, with one 35-60 VDC Power Supply
- PS-200-48VDC**, Modular 35-60 VDC Power Supply for 200 series trays



## UTIL-200 and UTIL-200-AUDIO Video DA, SDI Re-clocker & DA, Test Signal, Character ID and Audio DA Modular Utility Trays

- The model **UTIL-200** accommodates up to **10 modular Video DA, Character ID, Test Signal cards** and **2 redundant power supplies**.
- The model **UTIL-200-AUDIO** accommodates up to **10 modular Audio DA cards** and **2 redundant power supplies**.
- The model **UTIL-200-AV** accommodates up to **5 modular Video DA, Character ID, Test Signal cards**, up to **5 modular Audio DA cards** and **2 redundant power supplies**.
- Includes a differential loop-through input and **8 outputs** fully **GRASS VALLEY compatible**.
- Clamping, Hum Eliminating, Precision Equalizing, Test Signals VU Meters and Fiber Optic cards available for all applications.
- Each video DA card has a front panel **Video Present LED indicator** for quick **signal continuity verification**.
- Each audio DA card has a front panel **Bi-colored LED VU** or an optional **10 segment LED VU meter**.
- The standard power supply PS-200-AC has a universal input voltage range from **85 to 265 VAC**. No need to set voltage selector switches; simply plug in and forget.
- The 48 VDC power supply PS-200-48VDC has an input voltage range from **36 to 60 VDC**. Ideal for Telephone Company central office applications.
- External alarm relay contacts and front panel LED indicators for each power supply are included.
- Designed and manufactured in the U. S. A.
- Many GRASS compatible cards are available for the UTIL-200.
- **Hum canceling DAs** with high speed clamp and optional **Hum Bucking transformer**; VDA-8505T Field DA for Video, Pulse, Subcarrier and AES/EBU Digital Audio with 3500 Ft. Equalizer for 8281 & RG-59U cable & Back Porch Clamp and **-TRANS Video Isolation Transformer**.

## Modular DAs, Automatic Bypass, Test Signal & Character ID

### VDA-201, 20MHz, Utility DA for Video, Pulse, Subcarrier and AES/EBU Digital Audio, 1x8, Modular Card

The VDA-201 is an economical high performance distribution amplifier ideal for applications where clamping and cable equalization are not required. The DA will cancel up to 60 Volts of common-mode hum. The unit includes a differential loop-through input and eight outputs with a front panel video presence LED. The DA is ideal for short cable runs to monitors and for the distribution of color black burst reference signals. The full line VDA-200 Distribution Amplifiers support the 75 Ohm coaxial distribution of AES/EBU digital audio signals. The modular design is compatible with the MULTIDYNE UTIL-200 and the Grass 8500/8800/8900 trays.

**Specifications:** **Input:** Type: 2 BNC Loop-through. **Impedance:** 75 Ohms. **Return Loss:** > 40 dB up to 5 MHz. **Output:** Type: 8 BNC. **Impedance:** 75 Ohms. **Return Loss:** > 35 dB up to 5 MHz **Performance:** **Bandwidth,** 3 dB: 22 MHz. **Frequency Response,** 10 Hz to 5 MHz: +/-0.025 dB; 5 MHz to 8 MHz: +/-0.05 dB; 8 MHz to 10 MHz: +/-0.2 dB; 18 MHz: -1 dB. **Differential Gain:** <0.1 %; **Differential Phase:** <0.1°. **Line or Field Tilt:** <0.5 %. **Signal to Noise:** > 80 dB. **Common Mode Rejection (60 Hz):** >66 dB. **Return Loss, to 5 MHz:** >42 dB. **Power Consumption, MAX:** 2 Watts

### VDA-202, 20 MHz, Utility DA for Video, Pulse, Subcarrier and AES/EBU Digital Audio with Back-porch Clamp, 1x8, Modular Card

The VDA-202 is an economical high performance distribution amplifier ideal for applications where clamping is required and cable equalization is not required. The DA is ideal for long cable runs to monitors, for the distribution of color black burst reference signals and for studio to studio distribution of video signals where ground differences or DC off-sets may exist. The clamp circuit in the FAST mode will remove differential mode hum from the video signal on a line by line basis. The DA will cancel up to 60 Volts of common-mode hum. The unit includes a differential loop-through input and eight outputs with a front panel video presence LED. The full line VDA-200 Distribution Amplifiers support the 75 Ohm coaxial distribution of AES/EBU digital audio signals. The modular design is compatible with the MULTIDYNE UTIL-200 and the Grass 8500/8800/8900 trays.

**Specifications:** **Input:** Type: 2 BNC Loop-through. **Impedance:** 75 Ohms. **Return Loss:** > 40 dB up to 5 MHz. **Output:** Type: 8 BNC. **Impedance:** 75 Ohms. **Return Loss:** > 35 dB up to 5 MHz **Performance:** **Bandwidth,** 3 dB: 22 MHz. **Frequency Response,** 10 Hz to 5 MHz: +/-0.025 dB; 5 MHz to 8 MHz: +/-0.05 dB; 8 MHz to 10 MHz: +/-0.2 dB; 18 MHz: -1 dB. **Clamp type:** Back-porch, sampling, feedback. **Differential Gain:** <0.1 %; **Differential Phase:** <0.1°. **Line or Field Tilt:** <0.5 %. **Signal to Noise:** > 80 dB. **Common Mode Rejection (60 Hz):** >66 dB. **Return Loss, to 5 MHz:** >42 dB. **Power Consumption, MAX:** 2 Watts

### VDA-210, 20 MHz, Utility DA for Video, Pulse, Subcarrier and AES/EBU Digital Audio with 1500 Ft. Equalizer & Back Porch Clamp, 1x8, Modular Card

The VDA-210 is an economical high performance distribution amplifier ideal for applications where clamping and cable equalization are required. The DA is ideal for very long cable runs of up to 1500 feet to monitors, for the distribution of color black burst reference signals and for studio to studio distribution of video signals where ground differences or DC off-sets may exist. The clamp circuit in the FAST mode will remove differential mode hum from the video signal on a line by line basis. The DA will cancel up to 60 Volts of common-mode hum. The equalization feature compensates for up to 1500 feet of cable losses for one type of cable. Please specify the cable type to be used. The unit includes a differential loop-through input and eight outputs with a front panel video presence LED. **A 124-Ohm balanced input option, -BALIN, is available. The VDA-210-BALIN plugs into the UTIL-200-BALIN-2RU-AC.** The full line VDA-200 Distribution Amplifiers support the 75 Ohm coaxial distribution of AES/EBU digital audio signals. The modular design is compatible with the MULTIDYNE UTIL-200 and the Grass 8500/8800/8900 trays.

**Specifications:** **Input:** Type: 2 BNC Loop-through. **Impedance:** 75 Ohms. **Return Loss:** > 40 dB up to 5 MHz. **Output:** Type: 8 BNC. **Impedance:** 75 Ohms. **Return Loss:** > 35 dB up to 5 MHz **Performance:** **Bandwidth,** 3 dB: 22 MHz. **Frequency Response,** 10 Hz to 5 MHz: +/-0.025 dB; 5 MHz to 8 MHz: +/-0.05 dB; 8 MHz to 10 MHz: +/-0.2 dB; 18 MHz: -1 dB. **Clamp type:** Back-porch, sampling, feedback. **Equalization Range:** 8281 type cable 0 - 1500 Ft with single control; RG-59U type cable 0 - 1000 Ft with single control. **Equalization Accuracy:** 10 Hz to 5 MHz: +/- 0.05 dB; 5 MHz to 8 MHz: +/- 0.10 dB, 8 MHz to 10 MHz: +/- 0.20 dB. **Differential Gain:** <0.1 %; **Differential Phase:** <0.1°. **Line or Field Tilt:** <0.5 %. **Signal to Noise:** > 80 dB. **Common Mode Rejection (60 Hz):** >66 dB. **Return Loss, to 5 MHz:** >42 dB. **Power Consumption, MAX:** 2 Watts

## VDA-220, 20 MHz, Field DA for Video, Pulse, Subcarrier and AES/EBU Digital Audio with 1500 Ft. Equalizer for 8281 & RG-59U cable & Back Porch Clamp, 1x8, Modular Card

The VDA-220 is an economical high performance distribution amplifier ideal for applications where clamping and cable equalization are required. The DA is ideal for very long cable runs of up to 1500 feet to monitors, for the distribution of color black burst reference signals and for studio to studio distribution of video signals where ground differences or DC off-sets may exist. The clamp circuit in the FAST mode will remove differential mode hum from the video signal on a line by line basis. The DA will cancel up to 60 Volts of common-mode hum. The units is also ideal for field, remote, sporting and ENG field applications where multiple cable types may be in use. The equalization feature compensates for up to 1500 feet of cable losses for two type of cable. The user can switch select cable equalizers for either 8281 and RG-59U or any two types of cable. Please specify the cable type to be used. The unit includes a differential loop-through input and eight outputs with a front panel video presence LED. The full line VDA-200 Distribution Amplifiers support the 75 Ohm coaxial distribution of AES/EBU digital audio signals. The modular design is compatible with the MULTIDYNE UTIL-200 and the Grass 8500/8800/8900 trays.

**Specifications:** **Input Type:** 2 BNC Loop-through. **Impedance:** 75 Ohms. **Return Loss:** > 40 dB up to 5 MHz. **Output:** Type: 8 BNC. **Impedance:** 75 Ohms. **Return Loss:** > 40 dB up to 5 MHz **Performance: Bandwidth,** 3 dB: 22 MHz. **Frequency Response,** 10 Hz to 5 MHz: +/-0.025 dB; 5 MHz to 8 MHz: +/-0.05 dB; 8 MHz to 10 MHz: +/-0.2 dB; 18 MHz: -1 dB. **Clamp type:** Back-porch, sampling, feedback. **Equalization Range:** 8281 type cable 0 - 1500 Ft with single control; RG-59U type cable 0 - 1000 Ft with single control. **Equalization Accuracy:** 10 Hz to 5 MHz: +/- 0.05 dB; 5 MHz to 8 MHz: +/- 0.10 dB, 8 MHz to 10 MHz: +/- 0.20 dB. **Differential Gain:** <0.1 %; **Differential Phase:** <0.1°. **Line or Field Tilt:** <0.5 %. **Signal to Noise:** > 80 dB. **Common Mode Rejection (60 Hz):** >66 dB. **Return Loss, to 5 MHz:** >42 dB. **Power Consumption, MAX:** 2 Watts

## VDA-8505, 20 MHz, Long Range Field DA for Video, Pulse, Subcarrier and AES/EBU Digital Audio with 3500 Ft. Equalizer for 8281 & RG-59U cable & Back Porch Clamp, 1x8, Modular Card

The VDA-8505 is an economical high performance distribution amplifier ideal for applications where clamping and long range cable equalization are required. The DA is ideal for long range cable runs of up to 3500 feet to monitors, for the distribution of color black burst reference signals and for studio to studio distribution of video signals where ground differences or DC off-sets may exist. The clamp circuit in the FAST mode will remove differential mode hum from the video signal on a line by line basis. The DA will cancel up to 60 Volts of common-mode hum. For **severe hum** problems, the **VDA-8505 is optionally available with an Isolation Transformer; option –TRANS.** The rack-mounting kit for 5 transformers is option –RMTRANS. The units is also ideal for field, remote, sporting and ENG field applications where multiple cable types may be in use. The equalization feature compensates for up to 3500 feet of cable losses for two type of cable. The user can switch select cable equalizers for either 8281 and RG-59U or any two types of cable. The equalizer has switch selectable 1000 foot and 2000 foot fixed equalization stages and a 1000 foot adjustable stage for fine adjustments. Please specify the cable type to be used. The unit includes a differential loop-through input and eight outputs with a front panel video presence LED. The full line VDA-200 Distribution Amplifiers support the 75 Ohm coaxial distribution of AES/EBU digital audio signals. The modular design is compatible with the MULTIDYNE UTIL-200 and the Grass 8500/8800/8900 trays.

**Specifications:** **Input Type:** 2 BNC Loop-through. **Impedance:** 75 Ohms. **Return Loss:** > 40 dB up to 5 MHz. **Output:** Type: 8 BNC. **Impedance:** 75 Ohms. **Return Loss:** > 40 dB up to 5 MHz **Performance: Bandwidth,** 3 dB: 22 MHz. **Frequency Response,** 10 Hz to 5 MHz: +/-0.025 dB; 5 MHz to 8 MHz: +/-0.05 dB; 8 MHz to 10 MHz: +/-0.2 dB; 18 MHz: -1 dB. **Clamp type:** Back-porch, sampling, feedback. **Equalization Range:** 8281 type cable 0 - 3500 Ft with single control; RG-59U type cable 0 - 3000 Ft with single control. **Equalization Accuracy:** 10 Hz to 5 MHz: +/- 0.05 dB; 5 MHz to 8 MHz: +/- 0.10 dB, 8 MHz to 10 MHz: +/- 0.20 dB. **Differential Gain:** <0.1 %; **Differential Phase:** <0.1°. **Line or Field Tilt:** <0.5 %. **Signal to Noise:** > 80 dB. **Common Mode Rejection (60 Hz):** >66 dB. **Return Loss, to 5 MHz:** >42 dB. **Power Consumption, MAX:** 2 Watts

## VAGC-200, Video Automatic Gain, 3000 ft Equalizer & Chroma Distribution Amplifier & Automatic Proc-amp, 1x8, Modular Card

The VDA-8505 is an economical high performance distribution amplifier ideal for applications where clamping and long range cable equalization are required. The DA is ideal for long range cable runs of up to 3500 feet to monitors, for the distribution of color black burst reference signals and for studio to studio distribution of video signals where ground differences or DC off-sets may exist. The clamp circuit in the FAST mode will remove differential mode hum from the video signal on a line by line basis. The DA will cancel up to 40 Volts of common-mode hum. The units is also ideal for field, remote, sporting and ENG field applications where multiple cable types may be in use. The equalization feature compensates for up to 3500 feet of cable losses for two type of cable. The user can switch select cable equalizers for either 8281 and RG-59U or any two types of cable. The equalizer has switch selectable 1000 foot and 2000 foot fixed equalization stages and a 1000 foot adjustable stage for fine adjustments. Please specify the cable type to be used. The unit includes a differential loop-through input and eight outputs with a front panel video presence LED. The full line VDA-200 Distribution Amplifiers support the 75 Ohm coaxial distribution of AES/EBU digital audio signals. The modular design is compatible with the MULTIDYNE UTIL-200 and the Grass 8500/8800/8900 trays.

**Specifications:** **Input: Type:** 2 BNC Loop-through. **Impedance:** 75 Ohms. **Return Loss:** > 40 dB up to 5 MHz. **Output:** Type: 8 BNC. **Impedance:** 75 Ohms. **Return Loss:** > 40 dB up to 5 MHz **Performance: Bandwidth,** 3 dB: 22 MHz. **Frequency Response,** 10 Hz to 5 MHz: +/-0.025 dB; 5 MHz to 8 MHz: +/-0.05 dB; 8 MHz to 10 MHz: +/-0.2 dB; 18 MHz: -1 dB. **Input Video Level Range:** 0.2 to 2 Volts. **Gain Accuracy:** +/- 0.05 dB. **Chrominance Burst Amplitude Accuracy:** +/- 0.05 dB. **Clamp type:** Back-porch, sampling, feedback. **Equalization Range:** 8281 type cable 0 - 3500 Ft with single control; RG-59U type cable 0 - 3000 Ft with single control. **Equalization Accuracy:** 10 Hz to 5 MHz: +/- 0.05 dB; 5 MHz to 8 MHz: +/- 0.10 dB, 8 MHz to 10 MHz: +/- 0.20 dB. **Chrominance Adjustment Range:** +/- 9 dB. **Differential Gain:** <0.1 %; **Differential Phase:** <0.1°. **Line or Field Tilt:** <0.5 %. **Signal to Noise:** > 80 dB. **Common Mode Rejection (60 Hz):** >66 dB. **Return Loss, to 5 MHz:** >42 dB. **Power Consumption, MAX:** 2 Watts

## VDDA-200, Video Delay DA with 1500 Ft. Equalizer for 8281 & RG-59U cable & Back Porch Clamp, 1x8, Modular Card (Preliminary)

The VDDA-200 Video Delay DA supports adjustable delay from 0 to 600 nano-seconds with +/- 6 nano-second fine adjustment. The unit is ideal for production and synchronization applications where precise timing of signals is required. The equalization feature compensates for up to 1500 feet of cable losses for two type of cable. The user can switch select cable equalizers for either 8281 and RG-59U or any two types of cable. Please specify the cable type to be used. The clamp circuit in the FAST mode will remove differential mode hum from the video signal on a line by line basis. The DA will cancel up to 60 Volts of common-mode hum. The unit includes a differential loop-through input and eight outputs with a front panel video presence LED. Exceptionally versatile for NTSC, PAL, SECAM and composite or component television systems. The modular design is compatible with the MULTIDYNE UTIL-200 and the Grass 8500/8800/8900 trays.

**Specifications:** **Input: Type:** 2 BNC Loop-through. **Impedance:** 75 Ohms. **Return Loss:** > 40 dB up to 5 MHz. **Output:** Type: 8 BNC. **Impedance:** 75 Ohms. **Return Loss:** > 40 dB up to 5 MHz **Performance: Bandwidth,** 3 dB: 22 MHz. **Frequency Response,** 10 Hz to 5 MHz: +/-0.025 dB; 5 MHz to 8 MHz: +/-0.05 dB; 8 MHz to 10 MHz: +/-0.2 dB; 18 MHz: -1 dB. **Input Video Level Range:** 0.2 to 2 Volts. **Gain Accuracy:** +/- 0.05 dB. **Chrominance Burst Amplitude Accuracy:** +/- 0.05 dB. **Clamp type:** Back-porch, sampling, feedback. **Equalization Range:** 8281 type cable 0 - 3500 Ft with single control; RG-59U type cable 0 - 3000 Ft with single control. **Equalization Accuracy:** 10 Hz to 5 MHz: +/- 0.05 dB; 5 MHz to 8 MHz: +/- 0.10 dB, 8 MHz to 10 MHz: +/- 0.20 dB. **Chrominance Adjustment Range:** +/- 9 dB. **Differential Gain:** <0.1 %; **Differential Phase:** <0.1°. **Line or Field Tilt:** <0.5 %. **Signal to Noise:** > 80 dB. **Common Mode Rejection (60 Hz):** >66 dB. **Return Loss, to 5 MHz:** >42 dB. **Power Consumption, MAX:** 2 Watts

## WVDA-250, 200 MHz Wide Band Video & DS-3 Data DA with 500 Ft. Equalizer, Back Porch Clamp, 1x8, Modular Card

The 200 MHz Band-Width of the WVDA-250 DA is ideal for the distribution of Wide-Band Composite Video, IF Video and Audio Carriers and High Speed Data. The unit can distribute signal over 50 Mega Bit/Sec Data including DS3 Telephone Compressed Digital Video. The unit includes a differential loop-through input and eight outputs with a front panel video presence LED. The DA features Post-Equalize 0-500 feet or Pre-Equalize 0-200 feet of 8281 type cable with exceptional accuracy and Back-porch clamp with hum cancellation. The clamp circuit in the FAST mode will remove differential mode hum from the video signal on a line by line basis. Applications include the distribution of IF Video and Audio Carriers, HDTV, Computer Graphics, DS3, DS1 and Digital Data. The modular design is compatible with the MULTIDYNE UTIL-200 and the Grass 8500/8800/8900 trays.

**Specifications:** **Input:** Type: 2 BNC Loop-through. **Impedance:** 75 Ohms. **Return Loss:** > 38 dB up to 5 MHz. **Output:** Type: 8 BNC. **Impedance:** 75 Ohms. **Return Loss:** > 38 dB up to 5 MHz **Performance:** Conforms to the 44.736 Mb/s DS3 specifications. **Bandwidth, 3 dB:** 200 MHz. **Frequency Response:** 10 Hz to 5 MHz: +/-0.05 dB; 5 MHz to 10 MHz: +/-0.1 dB; 10 MHz to 40 MHz: +/-0.25 dB; 40 MHz to 80 MHz: +/-0.5 dB. **Post-Equalization Range:** 0 - 500 Ft of 8281 cable. **Pre-Equalization Range:** 0 - 200 Ft of 8281 cable. **Equalization Accuracy:** 0.05 dB/dB of loss to 10 MHz; 0.1 dB/dB of loss 10 MHz to 40 MHz; 0.2 dB/dB of loss 40 MHz to 90 MHz. **Differential Gain:** <0.2 %. **Differential Phase:** <0.2°. **Line or Field Tilt:** <0.5 %. **Signal to Noise:** > 80 dB. **Common Mode Rejection (60 Hz):** >65 dB. **Power consumption, MAX:** 2 Watts

## TS12-CARD, 10 Bit NTSC Test Signal Generator, Modular Card

(See page 38)

The TS12-CARD, Modular 10 Bit NTSC Test Signal Generator offers 16 precision test signals, 5 dedicated black burst outputs, character source ID, APL settings, bounce and stereo audio tone in a modular card for the MULTIDYNE UTIL-200 and the Grass Valley™ 8500/8800 Modular Trays. Include SMPTE Color Bars, Multiburst, Multipulse, Cable 5 MHz Sweep, Cable (SIN X)/X, NTC-7 Composite and Combination plus many others. Video/Audio Lip-sync Signal and vertical interval test signals (VITS), which are fully compatible with the TEK™ VM700A™.

## AB-200, Four Channel, Video Automatic Bypass and Signal Change-over Switch, switches to secondary source when primary source fails, 4 Channels, Modular Card

Automatically monitor 4 video channels. If the video signal goes off the air or if the video circuit is inactive, an alternate video signal is switched onto the line automatically. The system uses sync recognition and is not fooled by white noise of off air signals. Ideal for Satellite, Microwave, Off-air Antenna and Cable TV Head-end applications. If you loose a video feed, automatically put up an emergency message or alternate video signal. Automatically test continuity and performance of video feeds. Switch a test signal and character ID onto the circuit when there is a problem or when it is not in use. The unit features front panel LED status indicators and high impedance loop-through input for the secondary or test signal input. The user can loop the secondary inputs of several cards together. The unit offers low loss switching using RF relays. Program video will loop-through upon power failure. The modular design is compatible with the MULTIDYNE UTIL-200 and the Grass 8500/8800/8900 trays.

**Specifications:** **Input:** Nominal Levels Video: 1 Vp-p. **Return loss:** >40 dB. **Output:** Video Level: 1 Vp-p. **Source termination:** 75 Ohms. **Video:** Frequency ( DC to 5MHz ): +/-0.05 dB **Power consumption, MAX:** <2 Watts

## CG-200, Video Character ID and Audio Sweep Generator, Modular Card

(See page 52)

The CG-200 Video Character ID Generator inserts a character message over video; manual bypass from program to an alternate video source; 16+ page battery-backed memory; 6 lines with 15 characters; 30 character Vertical Interval ID; motion bar; alarm output; 20 to 20 KHz Audio Sweep and plugs into the MULTIDYNE UTIL-200 and the Grass Valley™ 8500/8800 Modular Trays. The CG-200 is ideal for identifying video feeds and audio feeds.

## Portable Video and Audio DAs



### VPDA-100 Video, Pulse & Subcarrier Distribution Amplifier with 3 Cable Equalizers, Back-Porch Clamp & Hum Bucker

- Over **20 MHz Band-Width** for the distribution of video, pulses and subcarrier for NTSC, PAL and SECAM.
- Up to **3 on-board equalizers** for 3 cable types, including **8281**, **RG-59U** and another video cable of choice.
- **Equalize up to 1500 Feet** of Belden 8281 cable.
- Front panel Gain and single knob EQ adjustment.
- High impedance, loop-through input and **6 outputs** with source terminations of 75 Ohms.
- **Back-porch clamp** with **40 Volts of hum cancellation**.
- Video present LED indicator.
- AC operation for 110 & 220 VAC.
- Applications include Broadcast TV, Electronic News Gathering, Sporting Events, Field Operations, Cable TV, Telephone, Distance Learning, Teleconferencing, CCTV, LAN, Surveillance, Medical, Industrial, Intelligent Transportation Systems and Production.

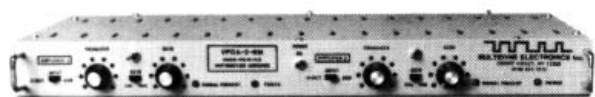
#### ORDERING INFORMATION:

VPDA-100 Portable Video Pulse Subc. DA.

-DUAL option for two cable type EQ.

-TRIPLE option for three cable type EQ.

-RMT option for the Triple Rack-mount Kit for 3 VPDA-100 units.



MODEL VPDA-2 RMD



MODEL VPDA-2

## VPDA-2 Video, Pulse & Subcarrier Distribution Amplifier with 2500 Feet Cable Equalizer, Back-Porch Clamp & Hum Bucker

- Over **35 MHz Band-Width** for the distribution of video, pulses and subcarrier for NTSC, PAL and SECAM.
- Up to **2 on-board equalizers** for 2 cable types, including **8281 and RG-59U**.
- Front panel Gain and single knob EQ adjustment.
- **Equalize up to 2500 Feet** of Belden 8281 cable.
- High impedance, loop-through input and 6 outputs with source terminations of 75 Ohms.
- **124 Ohm balanced input and output are available.**
- Back-porch clamp with hum cancellation.
- Video present LED indicator.
- **12 VDC** operation using BP-90 batteries.
- External AC switch for 110 and 220 VAC operation
- Applications include Broadcast TV, Electronic News Gathering, Sporting Events, Field Operations, Cable TV, Telephone, Distance Learning, Teleconferencing, CCTV, LAN, Surveillance, Medical, Industrial, Intelligent Transportation Systems and Production.

The **VPDA-2 Video, Pulse, Subcarrier Distribution Amplifier and Clamper** includes two on-board equalizers for two cable types. The unit **equalizes** from **0-2,500 feet** of 8281 and 59U cable with a single control. The unit features a fast AC/DC feedback clamping circuit which samples the error voltage on the video back porch. The clamping circuit will actually **extract** any **hum** present in the video picture on a line-by-line basis. Additional features include a loop-through input, 6 outputs, **cancellation** and **extraction** of up to **12 Volts** p-p of **hum, AC/DC powered**, less than 0.1% differential gain and 0.05 degrees differential phase and is available in portable, single rack-mount and dual rack-mount configurations.

A switch selectable **124 Ohm Balanced Video Cable Input** is optionally available for the VPDA-2. Switch select either a 75 Ohm loop-through BNC video cable input or a 124 Ohm balanced video cable input.

An **Automatic By-pass** feature is available with the VPDA-2. If the AC power should fail, the video input is automatically switched directly to output number 1.

### **ORDERING INFORMATION:**

VPDA-2 VIDEO, PULSE & SUBCARRIER DISTRIBUTION AMPLIFIER With 2500 Feet CABLE EQUALIZER, BACK-PORCH

CLAMP & HUM BUCKER

-RMS for Single Rack-mount Unit.

-RMD for Dual Rack-mount Unit.



## WVDA-100-RMD 200 MHz Wide Band Video & 50 Mega Bit/Sec Data Distribution Amplifier

- Over **200 MHz Band-Width** ideal for the distribution of **Wide-Band Composite Video** and **High Speed Data**.
- Distributes over **50 Mega Bit/Sec Data** including **DS3 Telephone Compressed Digital Video**.
- Designed to Bell Atlantic specifications.
- Includes 2 amplifiers in a 1 rack-unit package.
- Each amplifier features a 75 Ohm terminated input and 6 outputs with source terminations of 75 Ohms.
- **Post-Equalize 0-500 feet** or Pre-Equalize 0-200 feet of 8281 type cable with exceptional accuracy.
- DC restoration circuit provides AC or DC coupling.
- Video present LED indicator.
- AC power operation, 110 and 220 VAC.
- Applications include the distribution of **HDTV**, Computer Graphics, DS3, DS1 and Digital Data.



## ADA-7 Audio Distribution Amplifiers with Hum Bucking & Isolation Transformers

- High impedance, balanced, **transformer coupled**, bridging input.
- Six **transformer isolated**, balanced outputs.
- Ideal for the **cancellation** of **audio hum, buzz and ground loops**.
- XLR audio connectors.
- Front panel **VU meter**, Gain adjustment and popless **headset monitoring jack**.
- Low noise.
- Regulated power supply with selector switch for 110 and 220 AC operation.

The **ADA-7 Audio Distribution Amplifier** provides 6 transformer isolated outputs, bridging transformer coupled input, **eliminates hum** and DC, 0.005% total harmonic distortion and is available in portable, single rack-mount and dual rack-mount configurations.

### ORDERING INFORMATION:

ADA-7 Audio Distribution Amplifier.  
-RMD for Dual Rack-mount Unit.

## Video Distribution Amplifier Selector Guide:

	Bandwidth	Clamp	Hum-bucker	Isolation Transformer	Cable Equalizer	Automatic Gain & EQ	AES/EBU	Modular	Portable/ Stand-alone
VAGC-200	20 MHz	Yes	Yes		3500 feet, dual cable type	Yes		Yes	
VDA-8505	20 MHz	High Speed	Yes	Yes, optional	3500 feet, dual cable type		Yes	Yes	
VDA-220	20 MHz	Yes	Yes		1500 feet, dual cable type		Yes	Yes	
VDA-210	20 MHz	Yes	Yes		1500 feet		Yes	Yes	
VDA-202	6 MHz	Yes						Yes	
VDA-201	6 MHz							Yes	
VDDA-200	10 MHz	Yes	Yes		1500 feet, adj. delay			Yes	
WVDA-250	200 MHz	Yes	Yes		500 feet			Yes	
VAGC-100	20 MHz	Yes	Yes		3500 feet, dual cable type	Yes			Yes, 110/220 VAC, 12 VDC, optional -RMT kit
VPDA-2	20 MHz	Yes	Yes		2500 feet, single control		Yes		Yes, 110/220 VAC, 12 VDC, 2 bat., single & dual RM avail.
VPDA-100	20 MHz	Yes	Yes		1500 feet, triple cable type		Yes		Yes, 110/220 VAC, 12 VDC, optional -RMT kit
WVDA-100-RMD	250 MHz	Yes	Yes		500 feet		Yes		Yes, 110/220 VAC, standard dual RM

## Audio Distribution Amplifier Selector Guide:

	Bandwidth	Clamp	Hum-bucker	Isolation Transformer	Cable Equalizer	Automatic Gain & EQ	AES/EBU	Modular	Portable/ Stand-alone
AAGC-200	20-20KHz mono & Stereo		Yes			Yes		Yes	
ADAS-200	20-20KHz mono & Stereo		Yes		VU Meter option			Yes	
ADAM-200	20-20KHz mono		Yes		VU Meter option			Yes	
ADA-7	20-50KHz		Yes	Yes, Isolated in and outs	VU Meter				Yes, 110/220 VAC, 12 VDC, 2 bat., dual RM available

## Press Release

- June 28th, 2002

Multidyne Fiber Optic Transport chosen for the Capitol Visitors Center by Washington News Agencies.



- June 28th, 2002

The Department of Justice has chosen Multidyne Fiber Optic Equipment.



- May 14th, 2002

Traffic Control Systems Selects Multidyne Fiber Optic Link for Major Connecticut DOT Project.



- February 11, 2002

Multidyne Fiber Optic Equipment at the 2002 Winter Olympics



- June 1, 2000

Fox Digital and Multidyne at Campaign 2000



- May 1, 2000

SBC Communications and Multidyne at the Academy Awards®



## Company Profile

MULTIDYNE provides innovation and excellence in manufacturing a full line of television equipment including Fiber Optics for the transmission of video, audio, AES/EBU, D1, D3 and up to 1.5 Gbps data; Test Signal Generators to automatically test continuity and performance of video and audio circuits; NTSC Sync Generators; video and audio Source ID Generators; Video Cable Equalizers; Distribution Amplifiers for up to 150 MHz video, audio, data and DS3 Compress Digital Video; Universal Modular Trays for video, audio, test, ID and fiber optics; Routing Switchers; Video Loss Detectors, Automatic A/B Switchover devices, XLR Audio Break-out panels for industry standard Audio Distribution Amplifier Trays and Routing Switchers as well as television accessories.

MULTIDYNE equipment has been put in service around the globe for over 22 years by ABC, CBS, FOX, NBC, Turner Broadcasting, cable networks, telephone companies, the Department of Transportation, government agencies and production facilities. All products are designed and manufactured in the U. S. A. and carry a **7 year warranty**.

### Customers and Major Contracts

It would be impossible to name all of our valued customers. Below is a partial list of customers we have worked closely with in our more than 22-year history.

ABC/Disney Network News	Naval Air Warfare Center
AT&T Broadband	NBC Field Operations
Bell Atlantic (Verizon)	NBC Network News
Bell Canada	NBC News Channel
Bell South	Pacific Bell/SBC
CBS Network News	Southwestern Bell
CBS Network Television	Sprint
CNBC	TCI Cable
CNN	Time Warner Cable
Connecticut Department of Transportation	The Department of Transportation
Department of Justice	Turner Broadcasting
Falcon Cable	Minnesota Department of Transportation
FOX News Channel	United States Air Force
FOX Digital	VYVX - Williams
GTE	WABC
KNBC	WCBS
KRIV	WGN
KOMO	WNBC
NASA	WNYW

...just to name a few.

### Evaluation Equipment and On-Site Demonstrations

The complete MULTIDYNE product line is available for customer evaluation. On-site demonstrations are available by our sales staff. Please contact MULTIDYNE for further information.

### Custom Design and Development

We provide **custom products** built to **customer specifications**. Product applications include Broadcast TV, Cable TV, Telephone, Distance Learning, Teleconferencing, Satellite, Fiber Optics, CCTV, LAN, Surveillance, Medical, Industrial, Intelligent Transportation Systems, Electronic News Gathering and Production.

### Commitment to Customer Satisfaction

At MULTIDYNE, we're totally committed to providing 100% customer satisfaction. Our company motto "Innovations and Excellence..." describes our philosophy of providing innovative products that are of the highest quality and reliability. As leaders in our industry, MULTIDYNE is setting new standards in quality, performance, value, delivery and customer support. Our valued customers are guaranteed 100% satisfaction.

**QUALITY:** Our engineering staff has developed a full line of innovative products that deliver industry shattering performance and excellence. We are so committed to product quality and performance that we back up everything we sell with a 7 year warranty.

**VALUE:** Our superior products are very competitively priced. Our price to value ratio is one of the lowest in the industry. We are so sure of our price/value ration that we will match any competitors price for similar equipment. This commitment guarantees that you will always receive the most value for your money.

**DELIVERY:** When many companies in our industry are discontinuing or quoting long delivery times on their product lines, MULTIDYNE offers shipments in less than 48 hours on most of our core product line. Shipping schedules can be setup to meet every customer's needs. Please contact MULTIDYNE for further information.

**CUSTOMER SUPPORT:** MULTIDYNE is committed to helping our valued customers in every way possible. We work closely with every customer to determine the exact requirements for their individual application. With our extensive knowledge within the industry, our engineering and sales staff will always recommend the right product for the job. In those circumstances where we do not manufacture what is needed, we are always ready to recommend the right equipment for the job. After the sale, our engineering staff is at your disposal for assistance in the installation and maintenance of our equipment. We are only a toll-free phone call away.

## 7 Year Warranty

The entire MULTIDYNE product line is covered by a 7 year warranty (excluding the Laser and Pin optics in fiber optic equipment) on parts and labor covering defects in material and workmanship. The Laser and Pin optics in fiber optic equipment is covered by a 3 year warranty on parts and labor covering defects in material and workmanship. To receive warranty service the equipment is to be returned to Multidyne at the customers expense. The equipment is typically repaired or replaced in 48 hours and returned to the customer via two-day shipment. The parts labor and return shipping costs are paid for by Multidyne. The repair and service cost after the warranty period or for non-warranty repairs are billed for parts, labor and return shipment. The customer is responsible for shipping costs to Multidyne. The labor costs are \$75 per man-hour.

## Service and Repair

MULTIDYNE offers repair and traceable calibration on our complete product line. Certified traceable calibration is traceable to the National Bureau of Standards. The equipment is typically repaired within 48 hours and returned to the customer via two-day shipment. The parts labor and return shipping costs are paid for by the customer. The customer is responsible for shipping costs to Multidyne. The labor costs are \$75 per man-hour. A free estimate is given on all equipment repairs.

## On-Site Training

On-site training is available for the installation and maintenance procedures for the full MULTIDYNE product line. Please contact MULTIDYNE for further information.

## On-Site Proof of Performance

On-site out of box proof of performance is available using a Tektronix VM700A and a Video and Audio Precision Test Signal Generator for verification of performance prior to customer installation. Please contact MULTIDYNE for further information.

## Contact Information

### Worldwide Corporate Contact Information:

MULTIDYNE Video & Fiber Optic Systems  
191 Forest Avenue  
Locust Valley, NY 11560  
**1-800-488-8378, 1-516-671-7278**  
**Fax 1-516-671-3362**  
info@multidyne.com www.multidyne.com

### Government Sales

GSA FSS Contract # GS-03F-0004L

MULTIDYNE Video & Fiber Optic Systems  
191 Forest Avenue  
Locust Valley, NY 11560  
**1-800-488-8378, 1-516-671-7278**  
**Fax 1-516-671-3362**  
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### Local Representative or Dealer:

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