Headend Products

- Commercial Satellite Receiver
- Commercial Digital Satellite Receiver
- Broadcast Frequency Locked Modulator
- Agile Audio/Video Modulators
- Triple Channel Agile Audio/Video Modulators
- Channelized Agile Audio/Video Modulators
- Modular Headend System
- Heterodyne Processors
- Agile Audio/Video Demodulator - Stereo
- Active Combiners
- Strip Amplifiers
- Channel Converters
- Bandpass Filters
- Channel Elimination Filters
- Tunable Notch Traps
- Channelized Audio/Video Modulators
- Agile Audio/Video Demodulator Combiners
- Channel Converters
- FM Strip Amplifiers
- Agile FM Stereo Modulator
- Professional Agile Modulators
- Headend Racks and Panels
- Video All-Call Systems
- IF Demodulator/Modulator
Headend Products Overview

The Headend is the heart of Cable TV system (whether the signals are analog or digital). It handles many functions including reception and processing of broadcast or “off-air” television signals and reception, decryption and modulation of satellite delivered programming in preparation for distribution to cable television subscribers.

The broadcast signals routed to the headend are filtered to reject any unwanted signals from adjacent off-air channels and adjusted for proper aural & visual carrier levels in. They can be fed to a signal processor or a demodulator / modulator approach can also be used.

The majority of Cable TV channels are delivered to the headend via satellite. In this method signals are uplinked to a communications satellite in geosynchronous orbit from an uplink facility. The satellite then retransmits the signal back to earth where it is received by dish shaped antennas which focus the signals. At the dish, an LNB (low noise block converter) amplifies the signals and delivers them to the headend via a coaxial cable. Most satellite signals are scrambled and the satellite receiver in the headend is used to decode the signals. These units may have the ability to decode or decrypt the scrambling of a particular format or type of signal built in (IRD). The satellite receiver typically converts the signal to a baseband audio & video signal. This signal is then modulated onto any desired CATV channel.

Features & Benefits

- Blonder Tongue Headend Products Feature Superior Performance at Affordable Prices
- All Products Exceed FCC CATV Specifications and Typically Meet FCC Broadcast Specifications
- Commercial Quality Equipment Provides Exceptional Picture Quality
- High CNR/SNR Performance Permits Large Multi-Channel Headends, Even with Agile Units

Application Diagram

Headend Digital Tier (also see Digital Products Section)

The CATV headend uses frequency division multiplexing to combine signals from broadcast TV processors, satellite fed modulators and locally originated system specific channels onto a single feed. The combining process is passive since the signals already occupy discrete frequencies and have been adjusted to the same RF carrier level by their respective processing equipment. Passive combiners simply provide multiple signal ports where different signals are connected and are combined onto a single output containing all of the input signals. A post amplifier, sometimes called a launch or distribution amplifier, then amplifies the signals and provides slope control so that the entire range of carriers can be at the correct RF level for launching to the distribution system.
Headend Products Overview

Small System Headend

Cherry Picker Headend
The CESR-c is a professional quality, high performance, commercial satellite receiver. This unit is ideal for applications requiring a low cost, commercial grade satellite receiver. The CESR-c is C and Ku band compatible, accepting signals in the 950 to 1750 MHz frequency range. Frequency selection is accomplished via front panel push button switches, supporting both C band transponder and direct C and Ku band frequency settings. The receiver offers two modes of synthesized frequency control. A high-stability quartz crystal reference mode, with a 1 MHz tuning increment, allows for optimizing the receiver’s terrestrial interference immunity. An AFC mode is also included, which provides tracking of the LNB frequency drift of the input signal. The ultra-stable phase locked loop demodulator features superior C/N threshold extension. This design delivers excellent picture quality, even under weak signal conditions. The unit can be set to one of two aural subcarrier modes, including fixed (6.8 MHz) and variable (5.4 to 8.2 MHz). An external 70 MHz IF loop is provided, which allows TI filters to be inserted as needed. This receiver comes standard with a 32 MHz IF bandwidth filter installed.

**Specifications**

**RF**
- Frequency Range: 950 to 1750 MHz
- Tuning Increment: 1 MHz
- Input Level: -60 to -25 dBm
- Image Rejection: 45 dB
- Impedance: 75 Ohm

**IF**
- Frequency: 70 MHz
- Bandwidth: 32 (18, 20, and 25 optional) MHz
- Level: -10 dBm
- Static Threshold C/N: <8.0 dB
- Impedance: 75 Ohm

**Video**
- Standard Video Frequency Range: 25 Hz to 4.2 MHz
- Flat Video Frequency Range: 25 Hz to >8.0 MHz
- Composite Video Frequency Range: 25 Hz to >8.0 MHz
- Output Level: 1.0, ±3 dB adj. (V p-p)
- Format: NTSC, negative sync
- De-Emphasis: CCIR 405-1, 525 lines
- Polarity: standard or inverted
- Differential Gain: <5 %
- Differential Phase: <5 °
- Chrominance/Luminance Intermod Distortion: 3 %
- Gain Inequality: ±5, max IRE
- Delay Inequality: ±26 ns
- Distortion:
  - Short Time: <3 %
  - Line Time: <2 %
  - Field Time: <3 %
- Dispersion Removal: >40 dB

**Audio**
- Frequency Range: 20 Hz to 15 kHz
- Frequency Response: ±1.0 dB
- Output Level: 0 dBm
- Output Level Range: 0 to 12, minimum dB
- De-Emphasis: 50, 75, 117 µs
- Signal-to-Noise Ratio: 60 dB
- Harmonic Distortion: <1.0 %
- Impedance: 600, unbalanced Ohm

**General**
- Power Requirements:
  - Voltage: 117, ±10% VAC
  - Frequency: 60 Hz
  - Power: 15 W
- LNB Supply:
  - Voltage: 17, min VDC
  - Current: 250, max mA
  - Fuse: 1/4
- Temperature Range: 0 to +50 °C

**Mechanical**
- Dimensions (WxHxD):
  - 19.0 x 1.75 x 12.0 in.
  - 483 x 44 x 305 mm
- Weight: 7.50 lbs. (3.41 kg)

**Controls (Front Panel)**
- Frequency Selection: Push Button Switches
- Video Polarity (NORM/INV): Slide Switch
- Tuner Reference (XTAL/AFC): Slide Switch
- AFC Fine Tuning: Control
- Audio Subcarrier Select (6.8/VAR): Slide Switch
- Audio Subcarrier Tuning: Control
- Video Level: Control
- Audio Level: Control

**Controls (Rear Panel)**
- LNB Power (ON/OFF): Slide Switch
- Aural Bandwidth (Narrow/Wide): Slide Switch

**Indicators (Front Panel)**
- Power ON: LED, green
- Signal Strength OK: LED, green

**Connectors (Rear Panel)**
- RF Input/LNB Power: “F” type, female
- 70 MHz IF Output: “F” type, female
- 70 MHz IF Input: “F” type, female
- Video Output, Standard: “F” type, female
- Video Output, Flat: “F” type, female
- Audio Output, Composite: “F” type, female
- Audio Output: RCA Phono, female

Refer to product instruction manual for additional specification measurements and notes.
The CDSR-6198 is a professional quality, high performance, commercial digital satellite receiver. The unit is designed to receive MPEG-2, DVB compliant DISH Network™ programs. The CDSR-6198 is ideal for cable systems requiring a single small DBS antenna while maintaining the highest signal quality and reliability. The best possible video and audio quality is delivered by using a combination of forward error correction (FEC) techniques.

Each receiver has a unique address stored on the communication card. The receiver automatically handles virtual channel mapping using a programmer transmitted satellite transponder lookup table. Channels are user-selectable via push button switch on the front panel. Monaural and stereo audio outputs are provided.

### Features & Benefits
- Rack Mountable - 1 EIA (1.75") Rack Space
- DVB Compliant Decompression with FEC and Virtual Channel Mapping Support
- Front Panel Mounted Push Button Switches for Easy Channel Selection
- Professional Commercial Satellite Receiver for EchoStar Dish Network Compatibility

### Specifications

#### RF
- Frequency Range: 950 - 1450 MHz
- Impedance: 75 Ohm
- Input Level: -70 to -30 dBm
- IF Band Width: 32 (at -3 dB) MHz

#### Video
- Frequency Range Composite: ± 0.6 (100 KHz to 4.2 MHz) dB
- Level: 1.0 (± 3 % into 75 Ohm) Vp-p
- Format: QPSK, MPEG-2 DVB
- C/L Delay Inequality: ± 40 ns
- Differential Gain: < 3 % p-p
- Differential Phase: < 3 ° p-p
- Signal-to-Noise Ratio: > 55 dB (weighted)
- Luma Delay: < 40 ns
- Line Time Distortion: < 1.5 % TILT
- Field Time Distortion: < 1.5 % TILT

#### Audio
- Frequency Range: 20 Hz - 20 kHz (±1 dB)
- Output Level
  - (Left and Right): 0 (into 600 Ω) dBm
  - Mono: 1 (into 10K Ω) Vp-p
- Stereo L-R Separation: 50 dB
- Signal-to-Noise Ratio: 80 dB
- Harmonic Distortion: < 0.1 (at 1 KHz) % THD
- Dynamic Range: 90 dB
- Left to Right Balance: < 0.8 dB

#### General
- Power Requirements
  - Voltage: 110 (± 22%) VAC
  - Frequency: 54 to 66 Hz
  - Power: 23 W

#### System Specifications
- TV System: NTSC
- Input Symbol Rate: 20 Msps
- Inner FEC: Convolutional Rate 3/4
- Outer FEC: Reed Solomon coding (204,188) t=8
- Demultiplexing: ISO/IEC 13818-1
- Video Decoding: ISO/IEC 13818-2 (MP-ML)
- Audio Decoding: MPEG 1, layer 1 and 2

#### Connectors (Rear Panel)
- RF Input/LNB Power: “F” type, female
- Video Composite: “F” type, female
- Left And Right Audio Output: Terminal Strip
- Mono Audio Output: Terminal Strip

#### Controls (Front Panel)
- Channel Selector: Push Buttons

Refer to product instruction manual for additional specification measurements and notes.

### Ordering Information

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<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
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<tr>
<td>CDSR-6198A</td>
<td>6198A</td>
<td>Commercial Digital Satellite Receiver Dish Network DBS Programming</td>
</tr>
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</table>
The CDSR-6181 Series is a professional quality, high performance, commercial digital satellite receiver. The unit is designed to receive the MPEG-2, DVB compliant Bell ExpressVu programs. The CDSR-6181 Series is ideal for cable systems requiring a single small DBS antenna while maintaining the highest signal quality and reliability. Proprietary on-board software shields the receiver from consumer DBS transmitted instructions. Each receiver has a unique address stored on the communication card. The receiver automatically handles virtual channel mapping using a programmer transmitted satellite transponder lookup table. Channels are user-selectable via push button switches on the front panel. The CDSR-6181 delivers the best possible video and audio quality by using a combination of forward error correction (FEC) techniques. Monaural and stereo audio outputs are provided.

- **Rack Mountable - 1 EIA (1.75”) Rack Space**
- **DVB Compliant Decompression with FEC and Virtual Channel Mapping Support**
- **Front Panel Mounted Push Button Switches for Easy Channel Selection**
- **Professional Commercial Satellite Receiver for Bell ExpressVu Compatibility**

### Features & Benefits

### Specifications

**RF**
- Frequency Range: 950 - 1450 MHz
- Impedance: 75 Ohm
- Input Level: -70 to -30 dBm
- IF Band Width: 32 (at -3 dB) MHz

**Video**
- Frequency Range Composite: ± 0.6 (100 KHz to 4.2 MHz) dB
- Level: 1.0 (± 3 % into 75 Ohm) Vp-p
- Format: QPSK, MPEG-2 DVB
- C/L Delay Inequality: ± 40 ns
- Differential Gain: < 5 %p-p
- Differential Phase: < 5° p-p
- Signal-to-Noise Ratio: > 50 dB (weighted)
- Luma Delay: < 40 ns
- Line Time Distortion: < 1.5 % TILT
- Field Time Distortion: < 1.5 % TILT

**Audio**
- Frequency Range: 20 Hz - 20 kHz (±1 dB)
- Output Level
  - (Left and Right): 0 (into 600 Ohm) dBm
  - Mono: 1 (into 10K Ohm) Vp-p
- Stereo L-R Separation: 50 dB
- Signal-to-Noise Ratio: 80 dB
- Harmonic Distortion: < 0.1 (at 1 KHz) % THD
- Dynamic Range: 90 dB
- Left to Right Balance: < 0.8 dB

**General**
- Power Requirements
  - Voltage: 110 (± 22%) VAC
  - Frequency: 54 to 66 Hz
  - Power: 23 W

- LNB Supply RHCP Polarity Switching: +13.3 (±7%) V
- LHCP Polarity Switching: +18.3 (±7%) V
- Current: 300 (max) mA
- Protection: lightning, short circuit
- Safety: UL listed 1409

**Mechanical**
- Dimensions (WxHxD):
  - 19.00 x 1.75 x 14.5 in
  - 482.6 x 44.4 x 368.3 mm
- Weight: 5.00 lbs, 2.27 kg
- Operating Temperature:
  - 32 to 122 ˚F
  - (0 to 50) ˚C

**System Specifications**
- TV System: NTSC
- Input Symbol Rate: 20 Msps
- Inner FEC:
  - Convolutional Rate 1/2, 3/4, 2/3, 5/6, 7/8
- Outer FEC:
  - Reed Solomon coding (204,188) t=8
- Demultiplexing: ISO/IEC 13818-1
- Video Decoding: ISO/IEC 13818-2 (MP-ML)
- Audio Decoding: MPEG 1, layer 1 and 2

**Connectors (Rear Panel)**
- RF Input/LNB Power: “F” type, female
- Video Composite: “F” type, female
- Left And Right Audio Output: Terminal Strip
- Mono Audio Output: Terminal Strip

**Controls (Front Panel)**
- Channel Selector: Push Buttons

Refer to product instruction manual for additional specification measurements and notes.
The CDSR-6199 & CDSR-6182 are professional quality, high performance commercial digital satellite receivers. The CDSR-6199 and the CDSR-6182 are single receivers. Both Units occupy one 1.75” EIA Rack Space. The units are designed to receive MPEG-1 & MPEG-2 DirecTV programs. They are ideal for cable systems requiring a single small DBS antenna while maintaining the highest signal quality and reliability.

Each receiver has a unique address stored on the communication card. The receiver automatically handles virtual channel mapping using a programmer transmitted satellite transponder lookup table. Channels are user-selectable via Push Button Switch on the front panel. Monaural and stereo audio outputs are provided.

### Features & Benefits
- Rack Mountable - 1 EIA (1.75”) Rack Space
- Professional Commercial Satellite Receiver for DirecTV Compatibility
- Front Panel Mounted Push Button Switches for Easy Channel Selection
- DirecTV MPEG-1 & MPEG-2 Decompression and Virtual Channel Mapping Supported

### Specifications

#### RF
- Input Frequency Range: 950 - 1450 MHz
- Impedance: 75 Ohm
- Return Loss: -10 dB (max into 75 Ohms)
- Input Level: -65 to -25 dBm
- Total Bandwidth: 24 MHz
- Adj. Chan. Power: ±4 dBm
- Modulation: QPSK
- Pulse Shaping Sq. Root: Nyquist 20% excess BW
- Transmit Symbol Rate: 20 MSPS

#### Video
- Level: 1.0 (± 3 into 75 Ohm) Vp-p
- Chrominance to Luminance Delay: ±75 ns
- Luminance K Factor (2T Pulse): ≤5 %
- Differential Gain: ≤10 %

#### Audio
- Output Voltage:
  - 0.2 (min) to 2.0 (max) Vrms
- Impedance: 10 K Ohm
- S/N: >90 dB
- THD: ≤0.05 %
- Dynamic Range: >90 dB
- A/V Time Differential: ≤20 ms
- Gain Differential L-R: ≤1.5 dB (50 Hz - 15 kHz)
- Phase Differential L-R: ≤3 deg (50 Hz - 15 kHz)

#### General
- Power Requirements
  - Voltage: 110 (± 20%) VAC
  - Frequency: 54 to 66 Hz
  - Power: 20 (max) W
- LNB Supply
  - Current: 300(max) mA
- Protection: Lightning, Short Circuit
- Safety: UL Listed 1409

#### System Specifications
- TV System: NTSC

#### Connectors (Rear Panel)
- RF Input/LNB Power: “F” female
- Video: “F” female
- Mono, L/R Audio: Terminal Strip
- Phone Line Connection: RJ-11

#### Controls (Front Panel)
- Channel Selector: Push Button Switch
- Enter Channel: Toggle Switch
- Power: Toggle Switch
- LED Indicator: Green LED

#### Mechanical
- Dimensions: 19 x 1.75 x 18 in.
- Weight: 5.4 lbs.
- Operating Temperature: 0 to 50 °C

Refer to product instruction manual for additional specification measurements and notes.

### Ordering Information

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<th>Model</th>
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<th>Description</th>
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<tr>
<td>CDSR-6199</td>
<td>6199</td>
<td>Commercial Digital Satellite Receiver DIRECTV DBS Programming</td>
</tr>
<tr>
<td>CDSR-6182</td>
<td>6182</td>
<td>Commercial Digital Satellite Receiver DIRECTV DBS Programming with Balanced Audio</td>
</tr>
</tbody>
</table>
The BFLM is a product system that corrects and cures the unacceptable picture flutter and moiré patterns that manifest on viewer televisions when using local VHF broadcast channel assignments to deliver program content that is received via satellite or is originated locally. The BFLM accomplishes this correction via automatic frequency locking and tracking circuits which ensure that the output frequency is exactly & continuously the same as that of the local VHF broadcast carrier frequency.

The BFLM-IF is a professional quality Broadcast Frequency Locked IF Modulator. A professional grade saw filter is employed to provide true vestigial sideband selectivity with built-in FCC group delay pre-distortion. The unit accepts standard polarity (sync negative) video in the range of 0.7 to 2.8 V p-p. An integrated BTSC stereo encoder module is standard. The unit accepts a SAP audio input from a SAP generator.

The BFLM includes a "Stand By Carrier" feature that substitutes an alternate clean IF signal if the off-air broadcast station stops transmitting. The BFLM automatically detects the loss of the VHF broadcast signal input and activates the alternate IF signal. This will ensure that the signal from the satellite receiver is undisturbed and continues to be transmitted to the distribution system.

 Battalion

Broadcast Frequency Locked Modulator

BFLM System

Features & Benefits

- Front Panel Accessible Level Controls for Easy Set-Up and Adjustments
- Two Product System Designed to Lock to a Local Off-Air Source to a Satellite Delivered Local Broadcast to Cure Flutter and Moire Patterns
- Consists of a BFLM-IF and a On Channel CAP with Option 21
- Rack Mountable - 1 EIA (1.75") Rack Space Each Unit - (2 Rack Spaces for System)

Specifications

<table>
<thead>
<tr>
<th>IF</th>
<th>Frequency Output: 45.750 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aural/Visual Carrier Ratio: -9 to -20 dB</td>
<td></td>
</tr>
<tr>
<td>Visual Carrier Frequency: Locked via On Ch. CAP</td>
<td></td>
</tr>
<tr>
<td>Aural Carrier Frequency Offset from Visual Carrier: +4.5 MHz</td>
<td></td>
</tr>
<tr>
<td>Tolerance: ±50 Hz</td>
<td></td>
</tr>
<tr>
<td>Channel Selectivity: Adjacent Aural and Below: -42, min dB</td>
<td></td>
</tr>
<tr>
<td>Adjacent Picture and Above: -45, min dB</td>
<td></td>
</tr>
<tr>
<td>Spurious Outputs: -60 dBc</td>
<td></td>
</tr>
<tr>
<td>C/N Ratio In Channel: 68 dB</td>
<td></td>
</tr>
<tr>
<td>Output Impedance: 75 Ohm</td>
<td></td>
</tr>
<tr>
<td>Aural Frequency: 41.25 MHz</td>
<td></td>
</tr>
<tr>
<td>Visual Frequency: 45.75 MHz</td>
<td></td>
</tr>
<tr>
<td>Composite IF Loop Output Aural Carrier Level: +20 dBmV</td>
<td></td>
</tr>
<tr>
<td>Visual Carrier Level: +35 dBmV</td>
<td></td>
</tr>
<tr>
<td>Output/Input Impedance: 75 Ohm</td>
<td></td>
</tr>
<tr>
<td>Output Return Loss: 18 dB</td>
<td></td>
</tr>
</tbody>
</table>

Video

| Input Level: 1.0 V p-p |
| Frequency Response: tv-0.5 MHz to tv+4.2 MHz: ±0.5 dB |
| P-P Video to RMS Hum Ratio: 65 dB |
| Video Signal-to-Noise Ratio, Weighted: 64 dB |
| Differential Gain: 2.0 % |
| C/L Delay Inequality: Over Modulation Indicator: 87.5, ±2.5 % |
| Input Impedance: 75 Ohm |
| Input Return Loss: 30 dB |

Audio

| Input Level: -10 to +10 dBm |
| Ext. 4.5 MHz Input Level: +40 dBmV |
| Frequency Response: Mono (30 Hz to 15 kHz): ±0.5 dB |
| Stereo (50 Hz to 10 kHz): 1.5 dB |
| Pre-Emphasis-Mono: 75 µs |

Audio Signal-to-Noise |
| Mono @ 25 kHz Deviation: 64 dB |
| Stereo @ 50 kHz Deviation: 60 dB |
| Total Harmonic Distortion: 0.6 % |
| Over Modulation Indicator: 25 ±2 kHz |
| Input Impedance: 600, balanced Ohm |

Sub-Carrier Audio

| Frequency: 4.5 MHz |
| Stability: ±5 KHz |

General

| Power Requirements |
| Voltage: 117, ±10% |
| Frequency: 60 Hz |
| Power: 14 W |
| Fuse: 1/4 A |
| Temperature Range: 0 to +50 °C |

Mechanical

| Dimensions (WxHxD): 19.0 x 1.75 x 14.5 in. |
| (483 x 44 x 368) mm |
| Weight: 6 lbs. (2.73 kg) |
| Connectors (Rear Panel): Video Input: “F” Type, Female |
| Audio Input: Standard - Mono: Barrier Strip |
| Optional - Stereo: Barrier Strip |
| 4.5 MHz Input: “F” type, Female |
| Composite IF Output: “F” Type, Female |

Controls (Front Panel)

| Video Level: Control |
| Aural Carrier Level: Control |
| Audio Level Stereo/Mono: Control |

Indicators (Front Panel)

| Power ON: LED, Green |
| Video Over Modulation: LED, Red |
| Audio Over Modulation: LED, Red |
| BTSC Stereo: LED, Red |

Ordering Information

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<tr>
<th>Model</th>
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<th>Description</th>
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<tbody>
<tr>
<td>BFLM-XX</td>
<td>5898</td>
<td>Broadcast Frequency Locked Modulator System Complete system of BFLM-IF and CAP-60-ON with Option 21</td>
</tr>
<tr>
<td>BFLM-IF</td>
<td>5898 IF</td>
<td>Broadcast Frequency Locked Modulators - IF IF Unit Portion only</td>
</tr>
</tbody>
</table>

xx - Specify channel when ordering (UHF Channel 02-13)
The AM-60-860 is a professional quality agile audio/video modulator. It is equipped with the Emergency Alert System (EAS) feature, which can also be used as an alternate IF input. The unit provides an audio and video modulated RF carrier on any channel from 54 to 860 MHz. Any standard audio/video source can be used, such as satellite receivers, television cameras, video tape recorders, or television demodulators.

Channel tuning is easily accomplished with the use of front panel push button switches. Frequency plans including CATV Standard EIA, IRC, HRC & Broadcast are available in the 54-860 MHz frequency range. All channel frequency information with appropriate FCC offsets is pre-programmed and tuned electronically via microprocessor.

The unit has a wide range of standard and optional features that make it ideal for advanced CATV systems. 4.5 MHz aural input, and 600 Ohm balanced audio have been incorporated as standard equipment on the AM-60-860. A stereo audio option, Option 05, allows the integration of a BTSC stereo encoder module. This optional stereo encoder converts stereo left and right audio into a composite BTSC stereo audio signal. The factory installed option provides 20 dB of stereo separation, less than 1.0% total harmonic distortion and 60 dB signal to noise ratio.

The AM-60-860 meets FCC Docket 21006 aeronautical frequency offset requirements (±5 kHz video carrier accuracy). Outstanding in channel carrier to noise performance of 67 dB typical is achieved by the unit. A custom SAW IF filter is employed to provide true vestigial sideband selectivity with built-in FCC group delay equalization. A state of the art converter design with preprogrammed microprocessor controlled channel tuning @ 60 dBmV output ensures the Blonder Tongue AM-60-860 is the ideal agile modulator for any demanding CATV headend need.

### Features & Benefits

- Supports All Broadcast and CATV Channels, Including All HRC and IRC Assignments
- EAS/ALT IF Ready Via Manual or Automatic Mode
- Superior Broadband Noise Performance (-76 dB)
- Fully Compatible With BTSC Encoded Stereo Audio
- All Level Controls are Conveniently Located on Front Panel For Easy Set Up and Adjustment
- Rack Mountable - 1 EIA (1.75") Rack Space
- Balanced Audio Input Standard

Specifications and Ordering Information are located on the following pages.
Agile Audio/Video Modulators
AM-60-860 Series

Specifications

RF
Frequency Range: 54-860 MHz
Channels: CATV, VHF, UHF (STD,HRC,IRC)
FCC Offset (pre-programmed):
0, +12.5, or 25 kHz
Output Level - Min: +60 dBmV
Output Level Adjust: 10 dB
Aural/Visual Carrier Ratio: -15 ± 5 dB
Visual Carrier Frequency Tolerance:
Standard Channels: ±10 kHz
FCC Aeronautical Channels: ±5 max kHz
4.5 MHz Aural Inter Carrier Frequency: ±150 Hz
Channel Selectivity:
Adjacent Aural and Below: -40 dB
Adjacent Picture and Above: -50 dB
Spurious Outputs: -60 dBc
C/N Ratio In Channel: 67 dB
Broadband Noise: -80 dBc
Output Impedance: 75 Ohm
Output Return Loss: 14 dB

IF
Aural Frequency Standard: 41.25 MHz
Visual Frequency Standard: 45.75 MHz
Composite IF Loop Output
Aural Carrier Level: +20 dBmV
Visual Carrier Level: +35 dBmV
Output/Input Impedance: 75 Ohm
Output Return Loss: 16 dB
Input Return Loss: 20 dB
EAS/ALT IF Input Level: 36 dBmV @ 45.75 MHz
EAS/ALT IF Switch Isolation: >60 dB

Video
Input Level: 1.0 V p-p
Frequency Response:
fv-0.5 MHz to fv+4.2 MHz: ±1.0 dB
P-P Video to RMS Hum Ratio: 65 dB
Video Signal-to-Noise Ratio, Weighted: 64 dB
Differential Gain: 2.0 %
Differential Phase: 1.0 °
Over Modulation Indicator: 87.5, ± 2.5 %
Input Impedance: 75 Ohm
Input Return Loss: 18 dB

Audio
Input Level: 140 mV RMS
Ext. 4.5 MHz Input Level: +35 to +45 dBmV
Frequency Range: 20 Hz to 20 kHz
Frequency Response: ±1.0 dB
Pre-Emphasis-Mono: 75 μs
Audio Signal-to-Noise: 60 dB
Total Harmonic Distortion: 0.6 %
Over Modulation Indicator: ±2 kHz
Input Impedance: 600, balanced Ohm

General
Power Requirements
Voltage: 117, ±10% VAC
Frequency: 60 Hz
Power: 25 W
Fuse: 0.40 A
Temperature Range: 0 to +50 °C

Mechanical
Dimensions (WxHxD):
19.0 x 1.75 x 14.5 in
483 x 44 x 368 mm
Weight: 7 lbs. (3.18 kg)

Refer to product instruction manual for additional specification measurements and notes.

Ordering Information

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<td>AM-60-860</td>
<td>S9415</td>
<td>Agile Audio/Video Modulator +60 dBmV, 54-860 MHz with EAS Feature</td>
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Options

<table>
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<th>Description</th>
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<tr>
<td>AM-OPT 02</td>
<td>S902</td>
<td>AM Series Option: Video Input, BNC Connector</td>
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<tr>
<td>AM-OPT 04</td>
<td>S904</td>
<td>AM Series Option: Sub-Band Output</td>
</tr>
<tr>
<td>AM-OPT 05</td>
<td>S905</td>
<td>AM Series Option: Integrated BTSC Stereo Audio</td>
</tr>
<tr>
<td>AM-OPT 07</td>
<td>S907</td>
<td>AM Series Option: Video AGC</td>
</tr>
<tr>
<td>AM-OPT 10</td>
<td>S910</td>
<td>AM Series Option: Composite Video &amp; 4.5 MHz Audio Input</td>
</tr>
</tbody>
</table>

(Not all options/combinations are available)
Agile Audio/Video Modulators
AM-550/750 Series

Features & Benefits
- Supports All Broadcast and CATV Channels, Including All HRC and IRC Assignments
- EAS/ALT IF Ready Via Manual or Automatic Mode
- Superior Broadband Noise Performance (-76 dB)
- Fully Compatible With BTSC Encoded Stereo Audio
- Rack Mountable - 1 EIA (1.75”) Rack Space

The AM-550/750 Series are professional quality, agile audio/video modulators. They are equipped with the Emergency Alert System (EAS) feature, which can also be used as an alternate IF input. These units provide audio and video modulated RF carrier on any channel in 54 to 550/750 MHz frequency range. The AM Series is ideal for placing audio and video onto any unused channel (broadcast CATV, including HRC and IRC assignments). Any standard audio/video source can be used, such as satellite receivers, television cameras, video tape recorders, or television demodulators.

Agile channel selection permits on-the-fly channel changes and reduces the need for large inventories of channelized products. Channel selection is accomplished with the use of simple to use front panel accessible dip switches.

These modulators have a wide range of standard and optional features that make them very suitable for advanced CATV systems. Four models are available with different output levels, frequency ranges and a variety of options.

All models feature rock solid, synthesized frequency control, with a tuning increment of 250 kHz. A custom SAW filter is employed to provide true vestigial sideband selectivity with built-in FCC group delay pre-distortion. These modulators have an external IF loop, which allows interfacing with video all-call and signal scrambling systems. The EAS Alternate IF feature allows the choice between manual and automatic selection of EAS/ALT IF input signal. This is done through a 3 position terminal strip on the rear of the unit.

The AM Series meets FCC Docket 21006 aeronautical frequency offset requirements (±5 kHz video carrier accuracy). These modulators provide extremely clean output signals with distortion products (-60 dB or better). An exceptionally low broadband noise floor (-76 dBc or better) makes the AM Series ideal for large, multiple channel headends without the need for additional filtering.

Specifications and Ordering Information are located on the following pages.
Agile Audio/Video Modulators
AM-550/750 Series

Specifications

RF
- Output Frequency Range
  AM xx-550B Ch. 2 to Ch. 78:  54 - 547.25 MHz
  AM xx-750B Ch. 2 to Ch. 116:  54 - 745.25 MHz
- Output Level
  AM 40-xxxB:  +42 dBmV
  AM 60-xxxB:  +60 dBmV
- Output Level Control Range Continuously Adjustable
  AM 40-xxxB:  32 to 42 dBmV
  AM 60-xxxB:  50 to 60 dBmV
- Aural/Visual Carrier Ratio Control:  -12 to -18 dB
  (Continuously Adjustable Factory Set to -15 dB)
- Visual Carrier Frequency Tolerance
  Standard Channels:  ±20 KHz
  Aeronautical Channels:  ±5.0 KHz
- 4.5 MHz Inter Carrier Frequency Tolerance:  ±300 Hz
- Channel Passband Response fv -0.5 to fv +4.2 MHz:
  +1 dB
- VSB Response
  fv -1.50 MHz:  -38 dB, lower channel aural
  fv -2.42 MHz:  -40 dB, lower channel color
  fv -3.58 MHz:  -40 dB, color carrier image
  fv -6.00 MHz:  -55 dB, lower channel visual
  fv + 6.00 MHz:  -55 dB, upper channel visual
- In Channel Carrier-To-Noise Ratio:  64 dB
- Broadband Noise:  -78 dBc
- Spurious Output for A/V = -15 dB & C/V = -17 dB
  - In Channel:  -60 dBc
  - Out of Channel (50 to 1000 MHz):  -60 dBc
- Output Impedance (14 dB Return Loss on Channel): 75 Ohm

IF
- IF Loop Level:  +35 dBmV@ 45.75 MHz
- IF Output Return Loss:  16 dB, over 41 to 47 MHz
- IF Input Return Loss:  16 dB, over 41 to 47 MHz
- EAS/ALT Input Level:  +37 dBmV, @ 45.75 MHz

Video
- Video Input for 87.5% Modulation:
  1.0 Vp-p, std. NTSC video
- Input Impedance:  75 Ohm, 30 dB Return Loss
- Video Over-Modulation LED Indicator Calibration:
  87 - 92 %
- Differential Gain:  2 % p-p
- Differential Phase:  1 ° p-p
- Group Delay:  Meets FCC specs.

Audio
- Audio Input Sensitivity:  140 mVrms
- Input Impedance:  10 K Ohm, unbalanced
- Audio Frequency Response (30 Hz to 15 KHz):
  ±0.5 dB (Ref. to std. 75 µsec pre-emphasis)
- Audio Distortion:
  0.6 % (30 Hz to 15 KHz, @25 KHz Dev.)
- Aural Over-Modulation LED Indicator Calibration:
  25 KHz, ±2 KHz

General
- Power Requirements:
  105-129 VAC, 60 Hz, 3/8 A Fuse, Slo-Blo
- Temperature Range:  0° to 50° C

Refer to product instruction manual for additional specification measurements and notes.

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM-40-550B</td>
<td>59402</td>
<td>Agile Audio/Video Modulator +40 dBmV, 54-550 MHz with EAS Feature</td>
</tr>
<tr>
<td>AM-40-750B</td>
<td>59403</td>
<td>Agile Audio/Video Modulator +40 dBmV, 54-750 MHz with EAS Feature</td>
</tr>
<tr>
<td>AM-60-550B</td>
<td>59417</td>
<td>Agile Audio/Video Modulator +60 dBmV, 54-550 MHz with EAS Feature</td>
</tr>
<tr>
<td>AM-60-750B</td>
<td>59418</td>
<td>Agile Audio/Video Modulator +60 dBmV, 54-750 MHz with EAS Feature</td>
</tr>
<tr>
<td>Options</td>
<td>Stock No.</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
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<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>AM-OPT 01</td>
<td>5901</td>
<td>AM Series Option:  4.5 MHz Audio Input</td>
</tr>
<tr>
<td>AM-OPT 02</td>
<td>5902</td>
<td>AM Series Option:  Video Input, BNC Connector</td>
</tr>
<tr>
<td>AM-OPT 04</td>
<td>5904</td>
<td>AM Series Option:  Sub-Band Output</td>
</tr>
<tr>
<td>AM-OPT 05</td>
<td>5905</td>
<td>AM Series Option:  Integrated BTSC Stereo Audio</td>
</tr>
<tr>
<td>AM-OPT 07</td>
<td>5907</td>
<td>AM Series Option:  Video AGC</td>
</tr>
<tr>
<td>AM-OPT 09</td>
<td>5909</td>
<td>AM Series Option:  Balanced Audio Input, 600 Ohm, Stocking Option</td>
</tr>
<tr>
<td>AM-OPT 10</td>
<td>5910</td>
<td>AM Series Option:  Composite Video &amp; 4.5 MHz Audio Input</td>
</tr>
<tr>
<td>AM-OPT H</td>
<td>5947</td>
<td>AM Series Option:  Option 2 &amp; 9 Video Input BNC Connnector &amp; Balanced Audio, 600 Ohm</td>
</tr>
</tbody>
</table>

(Not all options/combinations are available)
The FAxM Series is a professional quality, multiple channel agile audio/video modulator. This unit provides audio and video modulated RF carriers on any channel in the 54 to 860 MHz frequency range, using only one rack space. Any standard audio/video source can be used, such as satellite receivers, television cameras, video tape recorders, or television demodulators. Agile channel selection permits on-the-fly channel changes and reduces the need for large inventories of channelized products. Four modules are available with 2 basic distinctions. The FA3M-50-860, Stock No. 5961B, comes equipped with independent IF loops, which allows interfacing with video all-call and signal scrambling systems. IF loops are available in a triple channel configuration only. The FA1M; FA2M and FA3M, Stock No. 59711A, 59712A and 59713A respectively do not have IF loop capability.

**Specifications**

- **RF**
  - Frequency Range: 54-860 MHz
  - Channels: CATV, VHF, UHF (STD, HRC, IRC)
  - FCC Offset (pre-programmed): 0, +12.5, or 25 kHz
  - Output Level - Combined Min: +50 dBmV
  - Output Level Adjust: 15 dB
  - Aural/Visual Carrier Ratio: -10 to -17 dB
  - Visual Carrier Frequency Tolerance: ±1 kHz
  - Channel Selectivity: Adjacent Aural and Below: -40 dB, Adjacent Picture and Above: -50 dB
  - Spurious Outputs: -60 dBc
  - C/N Ratio In Channel: 63 dB
  - Broadband Noise: -70 dBc
  - Output Impedance: 75 Ohm
  - Output Return Loss: 12 dB

- **Video**
  - Input Level: 1.0 V p-p
  - Frequency Response: -0.5 MHz to +4.2 MHz: ±1.0 dB
  - P-P Video to RMS Hum Ratio: 65 dB
  - Video Signal-to-Noise Ratio, NTC-7 Weighted: 62 dB
  - Differential Gain: 2.0 %
  - Differential Phase: 1.0 °
  - Over Modulation Indicator: 87.5, ±2.5 %
  - Input Impedance: 75 Ohm
  - Input Return Loss: 24 dB, min

- **Audio**
  - Input Level: 140 mV RMS
  - Ext. 4.5 MHz Input Level: 40 ±1 dBmV
  - Frequency Range: 20 Hz to 20 kHz
  - Pre-Emphasis-Mono: 75 µs
  - Frequency Response: ±1.0 dB
  - IF Pre-Emphasis Defeated: +0.5 dB
  - Audio Signal-to-Noise: 58 dB
  - Total Harmonic Distortion: 0.6 %
  - Over Modulation Indicator: 25, ±2 kHz
  - Input Impedance: Greater than 10 KΩ, Unbalanced

- **General**
  - Power Requirements: 110 VAC to 260 VAC
  - Frequency: 47 to 63 Hz
  - Temperature Range: 0° to +50° C
  - AC Current: 0.32 Amp for 115 VAC
  - Output Voltage: +12 VDC, +5 VDC
  - Max Current Output/Voltage: 0.7 Amp

- **Mechanical**
  - Dimensions (WxHxD): 19 x 1.75 x 14.25 in
  - Weight: 7 lbs (approx)

**Connectors (Rear Panel)**
- Video Input: “F” Type, Female
- Audio Input: RCA Phono
- RF Output: “F” Type, Female

**Connectors (Front Panel)**
- Frequency Selection: Push-Button Switches
- Video Level: Control
- A/V Ratio: Control
- Audio Level: Control
- RF Output Level: Control
- Channel Enter: Push-Button

- **Indicators (Front Panel)**
  - Power ON/Status: 2 Color, LED, Red/Green
  - Video Over Modulation: LED, Red
  - Audio Over Modulation: LED, Red

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA3M-50-860-IF</td>
<td>5961B</td>
<td>Frequency Agile Modulator, Triple Channel Unit Agile Output 54-860 MHz, With Independent IF Loops</td>
</tr>
<tr>
<td>FA3M-50-860</td>
<td>59713A</td>
<td>Frequency Agile Modulator, Triple Channel Unit Agile Output 54-860 MHz, STD CATV, HRC, IRC, +50 dBmV</td>
</tr>
<tr>
<td>FA2M-50-860</td>
<td>59712A</td>
<td>Frequency Agile Modulator, Double Channel Unit Agile Output 54-860 MHz, STD CATV, HRC, IRC, +50 dBmV</td>
</tr>
<tr>
<td>FA1M-50-860</td>
<td>59711A</td>
<td>Frequency Agile Modulator, Single Channel Unit Agile Output 54-860 MHz, STD CATV, HRC, IRC, +50 dBmV</td>
</tr>
</tbody>
</table>

Refer to product instruction manual for additional specification measurements and notes.
The CAM-60 Series are professional quality, channelized, heterodyne audio/video modulators. These units provide audio and video modulated RF carrier output on any SUB, VHF, UHF, or CATV channel (7 to 450 MHz and 50 to 860 MHz). Any standard audio/video source can be used, such as satellite receivers, television cameras, video tape recorders, or television demodulators. These modulators feature a frequency agile output converter followed by a single channel removable output filter providing +60 dBmV output. This design configuration permits easy channel changes in the field by simply replacing the output filter module and setting the output converts dip switches to the new channel.

The CAM-60 Series takes baseband audio and video and modulates these signals onto the desired output channel (each modulator has separate audio and video inputs). The heterodyne conversion process used in the CAM-60 Series employs a crystal referenced, PLL synthesized local oscillator, with a 12.5 kHz tuning increment. This guarantees rock solid, no-drift output for the life of the modulator. A custom SAW filter is employed to provide true vestigial sideband selectivity with built-in FCC group delay pre-distortion.

The CAMD-60 Series provide separate external visual and aural IF loops. An external IF loop is provided, which allows interfacing with video all-call and signal scrambling systems while CAMD-60 models have dual IF loops. The CAM-60 Series meets FCC Docket 21006 aeronautical frequency offset requirements (±5 kHz video carrier accuracy) and accepts standard polarity (sync negative) video in the range of 0.7 to 2.8 V p-p. A 4.5 MHz audio input is provided, which preserves the stereo audio available from most satellite receivers and demodulators. A rear panel switch allows selection of either baseband audio or 4.5 MHz audio.

- **Features & Benefits**
  - EAS/ALT IF Ready Via Manual or Automatic Mode
  - Front Panel Accessible Level Controls for Easy Set-Up and Adjustments
  - Rack Mountable - 1 EIA (1.75") Rack Space
  - Exceptional Broadband Noise Performance of -110 dBc
  - -60 dBc Spurious Response for the Entire Level Range
  - Works in Conjunction with High Performance Channelized Output Filter Modules (OFM)
Channelized Agile Audio/Video Modulators
CAM Series

Specifications

RF
- Frequency Range:
  - VHF, UHF, CATV: 54-860 MHz
  - SUB BAND: 5-36 MHz
- Channels: SUB, VHF, CATV, UHF
- Output Level - Min: +60 dBmV
- Output Level Adjust: 15 dB
- Aural/Visual Carrier Ratio: -9 to -20 dB
- Visual Sub Carrier Frequency Tolerance
  - Standard Channels: ±5 kHz
  - FCC Aeronautical Channels: ±3 kHz
- Aural Carrier Frequency
  - Offset from Visual Carrier: ±4.5 MHz
  - Tolerance: ±100 Hz
- Channel Selectivity:
  - Adjacent Aural and Below: -42, min dB
  - Adjacent Picture and Above: -45, min dB
- Spurious Outputs: -60 dBc
- C/N Ratio In Channel: 68 dB
- Broadband Noise: -110 dBc
- Output Impedance: 75 Ohm
- Output Return Loss: 18 dB

IF
- Aural Frequency: 41.25 MHz
- Visual Frequency: 45.75 MHz
- Separate IF Loops:
  - Aural Loop Level: +30 dBmV
  - Visual Loop Level: +40 dBmV
- Composite IF Loop Output
  - Aural Carrier Level: +20 dBmV
  - Visual Carrier Level: +35 dBmV
- Output/Input Impedance: 75 Ohm
- Output Return Loss: 18 dB

Video
- Input Level: 1.0 V p-p
- Frequency Response
  - fV-0.5 MHz to fV+4.2 MHz: ±0.5 dB
- P-P Video to RMS Hum Ratio: 65 dB
- Video Signal-to-Noise Ratio, Weighted: 64 dB
- Differential Gain: 2.0 %
- Differential Phase: 1.0 °
- Over Modulation Indicator: 87.5, ±2.5 %
- Input Impedance: 75 Ohm
- Input Return Loss: 30 dB

Audio
- Input Level: -10 to +10 dBm
- Ext. 4.5 MHz Input Level: +40 dBmV
- Frequency Response
  - Mono (30 Hz to 15 kHz): ±0.5 dB
  - Pre-Emphasis-Mono: 75 µs
  - Audio Signal-to-Noise: Mono @ 25 kHz Deviation: 64 dB
  - Total Harmonic Distortion: 0.6 %
- Over Modulation Indicator: 25 ±2 kHz
- Input Impedance: 600, Balanced Ohm

General
- Power Requirements
  - Voltage: 117, ±10% VAC
  - Frequency: 60 Hz
  - Power - CAMS-60: 14 W
  - Power - CAMD-60: 16 W
- Fuse
  - CAMS-60: 1/4 A
  - CAMD-60: 3/8 A
- Temperature Range: 0 to +50 °C

Mechanical
- Dimensions (WxHxD)
  - CAMS-60: 19.0 x 1.75 x 14.5 in. (483 x 44 x 368 mm)
  - CAMD-60: 19.0 x 1.75 x 14.5 in. (483 x 44 x 368 mm)
- Weight
  - CAMS-60: 6 lbs. (2.73 kg)
  - CAMD-60: 6 lbs. (2.73 kg)

Connectors (Rear Panel)
- Video Input: "F" type, female
- Audio Input
  - Standard - Mono: Barrier Strip
  - 4.5 MHz Input: "F" Type, Female
- Aural IF IN/OUT (CAMD-Only):
  - "F" Type, Female
- Visual IF IN/OUT (CAMD-Only):
  - "F" Type, Female
- Composite IF Output: "F" Type, Female
- Composite IF Input: "F" Type, Female
- RF Output: "F" Type, Female

Connectors (Front Panel)
- -20 dB Test Port: "F" Type, Female

Controls (Front Panel)
- Video Level: Control
- Aural Carrier Level: Control
- Audio Level: Control
- RF Output Level: Control

Indicators (Front Panel)
- Power ON: LED Green
- Video Over Modulation: LED, Red
- Audio Over Modulation: LED, Red
- External IF: LED, Green

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAMD-60</td>
<td>7895 300</td>
<td>Channelized Agile Stereo Compatible Audio/Video Modulator +60 dBmV, 54-300 MHz, Dual IF L</td>
</tr>
<tr>
<td>CAMD-60</td>
<td>7895 756</td>
<td>Channelized Agile Stereo Compatible Audio/Video Modulator +60 dBmV, 300-756 MHz, Dual IF Loops</td>
</tr>
<tr>
<td>CAMS-60</td>
<td>5895 300</td>
<td>Channelized Agile Stereo Compatible Audio/Video Modulator +60 dBmV, 54-300 MHz, Single IF Loop</td>
</tr>
<tr>
<td>CAMS-60</td>
<td>5895 756</td>
<td>Channelized Agile Stereo Compatible Audio/Video Modulator +60 dBmV, 300-756 MHz, Single IF Loop</td>
</tr>
<tr>
<td>CAMS-60</td>
<td>5895 860</td>
<td>Channelized Agile Stereo Compatible Audio/Video Modulator +60 dBmV, 756-860 MHz, Single IF Loop</td>
</tr>
<tr>
<td>CAMS-60</td>
<td>5589S 49</td>
<td>Channelized Agile Stereo Compatible Audio/Video Modulator +60 dBmV, 5-36 MHz (SUB) Single IF Loop</td>
</tr>
</tbody>
</table>

Refer to product instruction manual for additional specification measurements and notes.
Channelized Agile Audio/Video Modulator
MAVM Series

The MAVM Series are professional quality, channelized agile, heterodyne audio/video modulators. They provide audio and video modulated RF output on any VHF, UHF, or CATV channel (7 to 860 MHz). SUB-BAND channels T7-T11 are available.

Any standard audio/video source can be used, such as satellite receivers, television cameras, video tape recorders, or television demodulators. These modulators feature a low cost, removable single channel output filter module to provide a channelized configuration. Customer requests for individual channels can be easily accomplished by combining the frequency agile mainframe with the desired removable output filter module. Modulators may be ordered as completed assemblies or as configurable modules.

The MAVM Series takes baseband audio and video and modulates these signals onto the desired output channel (each modulator has separate audio and video inputs). The heterodyne conversion process used in the MAVM Series employs a crystal referenced, PLL synthesized local oscillator, with a 12.5 kHz tuning increment. This guarantees rock solid, no-drift output for the life of the modulator. A custom SAW filter is employed to provide true vestigial sideband selectivity with built-in FCC group delay pre-distortion.

An external IF loop is standard which allows interfacing with video all-call and signal scrambling systems as well as the ability to lock to either baseband or a 4.5 MHz aural carrier. The MAVM Series meets FCC Docket 21006 aeronautical frequency offset requirements (±5 kHz video carrier accuracy) and accepts standard polarity (sync negative) video in the range of 0.7 to 2.8 V p-p. Field-defeatable audio pre-emphasis enables transmission of BTSC standard composite stereo signals.

Output Filter Modules (OFM)
Output Filter Modules are factory tuned channelized units that are used with the CAM, CAP, MAVM & SAIP product lines. They are available with +40 dBmV or +60 dBmV output levels and can be order for any channel in the CATV (2-135), UHF (14-69) or Sub-Band (T7-T11) channel ranges.
The MAVM-861 is a single output modulator consisting of the MAVM-861-MF mainframe and a channelized OFM-40-860 output filter module. The MAVM-60-861 is a single output modulator consisting of the MAVM-861-MF mainframe and a channelized OFM-60-860 output filter module. The MAVM-863 is a triple output modulator consisting of a MAVM-863-FP faceplate to which are attached a MAVM-863-PS power supply and three MAVM-863-MB modulator bases. The MAVM-60-863 is a triple output modulator consisting of a MAVM-863-FP faceplate to which are attached a MAVM-863-PS power supply and three MAVM-863-MB modulator bases.

Specifications and Ordering Information are located on the following pages.
Channelized Agile Audio/Video Modulator
MAVM Series

Specifications

RF
Frequency Range: 7-37 and 54-860 MHz
Channels: SUB, CATV, VHF, UHF
Output Level - Min
7-37 MHz: +42/+60 dBmV
54-648 MHz: +42/+60 dBmV
648-860 MHz: +40/+58 dBmV
Output Level Adjust: 15 dB
Aural/Visual Carrier Ratio: -9 to -20 dB
Visual Carrier Frequency Tolerance
Standard Channels: ±5 kHz
FCC Aeronautical Channels: ±5 kHz
Aural Carrier Frequency
Offset from Visual Carrier: 4.5 MHz
Accuracy, Settable To (STD.): ±1.5 kHz
Channel Selectivity:
Adjacent Aural and Below: ±40 dB
Adjacent Picture and Above: ±40 dB
Spurious Outputs OFM-40: -66 dBc
Spurious Outputs OFM-60: -60 dBc
C/N Ratio In Channel: 65 dB
Broadband Noise (40/60): -95/-110 dBc
Output Impedance: 75 Ohm
Output Return Loss: 15 dB

IF
Frequency: 45.750 MHz
Output Level: +30 dBmV
Input Level Range: +25 to +32 dBmV
In/Out Return Loss: 12 dB
EAS/ALT Input: +32 dBmV

Video
Input Level: 1.0 V p-p
Frequency Response
fv-0.5 MHz to fv+4.2 MHz: ±1.0 dB
P-P Video to RMS Hum Ratio: 60 dB
Video Signal-to-Noise Ratio, Weighted: 62 dB
Differential Gain: ±2.0 %
Differential Phase: ±1.0 °
Over Modulation Indicator: 87.5, ±2.5 %
Input Impedance: 75 Ohm
Input Return Loss: 18 dB

Audio
Input Level: mV RMS
Frequency Range: 20 Hz to 20 kHz
Frequency Response: ±1.0 dB
Pre-Emphasis-Mono: 75 µs
Audio Signal-to-Noise: 60 dB
Total Harmonic Distortion: 0.5 %
Over Modulation Indicator: 25, ±2 kHz
Input Impedance: 10 k, unbalanced Ohm

Sub-Carrier Audio
Frequency: 4.5 MHz
Stability Standard: ±500 Hz

General
Power Requirements
Voltage: 117, ±10% VAC
Frequency: 60 Hz
Power
MAVM-40-861: 6.5 W
MAVM-60-861: 9.0 W
MAVM-40-863: 16.5 W
MAVM-60-863: 22.5 W
Fuse: 1/8 or 1/4 A
Temperature Range: 0 to +50 °C

Refer to product instruction manual for additional specification measurements and notes.
## Channelized Agile Audio/Video Modulator

### MAVM Series

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAVM-60-861</td>
<td>7977B 300</td>
<td>Channelized Agile Audio/Video Modulator +60 dBmV, 54-300 MHz</td>
</tr>
<tr>
<td>MAVM-60-861</td>
<td>7977B 756</td>
<td>Channelized Agile Audio/Video Modulator +60 dBmV, 300-756 MHz</td>
</tr>
<tr>
<td>MAVM-60-861</td>
<td>7977B 860</td>
<td>Channelized Agile Audio/Video Modulator +60 dBmV, 756-860 MHz</td>
</tr>
<tr>
<td>MAVM-60-861</td>
<td>S7977B 450</td>
<td>Channelized Agile Audio/Video Modulator +60 dBmV, 7-450 MHz (SUB &amp; VHF)</td>
</tr>
<tr>
<td>MAVM-60-861</td>
<td>U7977B 758</td>
<td>Channelized Agile Audio/Video Modulator +60 dBmV, 470-758 MHz (UHF)</td>
</tr>
<tr>
<td>MAVM-60-861</td>
<td>U7977B 806</td>
<td>Channelized Agile Audio/Video Modulator +60 dBmV, 758-806 MHz (UHF)</td>
</tr>
<tr>
<td>MAVM-60-863-1</td>
<td>7978B 300</td>
<td>Channelized Agile Audio/Video Modulator +60 dBmV, 54-300 MHz</td>
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<tr>
<td>MAVM-60-863-1</td>
<td>7978B 756</td>
<td>Channelized Agile Audio/Video Modulator +60 dBmV, 300-756 MHz</td>
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<tr>
<td>MAVM-60-863-1</td>
<td>7978B 860</td>
<td>Channelized Agile Audio/Video Modulator +60 dBmV, 756-860 MHz</td>
</tr>
<tr>
<td>MAVM-60-863-1</td>
<td>S7978B 450</td>
<td>Channelized Agile Audio/Video Modulator +60 dBmV, 7-450 MHz (SUB &amp; VHF)</td>
</tr>
<tr>
<td>MAVM-60-863-1</td>
<td>U7978B 758</td>
<td>Channelized Agile Audio/Video Modulator +60 dBmV, 470-758 MHz (UHF)</td>
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<tr>
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<tr>
<td>MAVM-60-863-3</td>
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<tr>
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<td>MAVM-60-863-3</td>
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<tr>
<td>MAVM-861</td>
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<tr>
<td>MAVM-863-FP</td>
<td>7963B</td>
<td>Channelized Agile Audio/Video Modulator 860 MHz, Front Panel</td>
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<tr>
<td>MAVM-863-MB</td>
<td>7983B</td>
<td>Channelized Agile Audio/Video Modulator, 860 MHz, Modulator Base</td>
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<tr>
<td>MAVM-863-PS</td>
<td>7972A</td>
<td>Channelized Agile Audio/Video Modulator, 860 MHz, Power Supply</td>
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### Output Filter Modules (OFM)

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<td>U7984A 806</td>
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<tr>
<td>OFM-40-860</td>
<td>U7984A 758</td>
<td>Output Filter Module +40 dBmV, 470-758 MHz (UHF)</td>
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<tr>
<td>OFM-40-860</td>
<td>S7984A 37</td>
<td>Output Filter Module +40 dBmV, 7-37 MHz (SUB)</td>
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<tr>
<td>OFM-40-860</td>
<td>7984A 860</td>
<td>Output Filter Module +40 dBmV, 756-860 MHz</td>
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<td>OFM-40-860</td>
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<td>Output Filter Module +40 dBmV, 54-300 MHz</td>
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<td>OFM-60-860</td>
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<td>OFM-60-860</td>
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<td>Output Filter Module +60 dBmV, 54-300 MHz</td>
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Modular Headend System Overview

The Modular Headend System is a combination of various components that are housed in extremely compact units which provide high performance while also optimizing space utilization. Blonder Tongue developed the revolutionary ‘Micro Modular’ approach in 1995. This approach was extremely unique at the time and has now become a standard for headends in the hospitality, multi-dwelling and private cable industries. In 2000, Blonder Tongue introduced the ‘Die-Cast Chassis’ and several vendors have copied this advancement reinforcing Blonder Tongue as the industry leader in modular headend products.

Today, Blonder Tongue’s Modular Headend System consists of a large family of products in the HE Series with several new introductions just released in the last year. The HE Series includes a fixed channel modulator with integrated stereo capability, an economical agile modulator that delivers superior performance, as well as a high-end agile modulator with integrated stereo capability.

Each system begins with a rack chassis, either a horizontal 4 slot or a vertical 12 slot. The available slots can then be populated with a variety of modular components, including a channelized audio/video modulators (MICM), agile demodulators (MIDM), agile micro modulators (AMCM & AMM), sub-band block converter (MSBC), micro stereo encoder (MISE), as well as digital products like the digital high-definition processor (DHDP) and the Agile QAM Modulator (AQM). These modules are designed to work together to create a complete system of modular headend products.

Although many vendors have imitated the modular approach and advances made by Blonder Tongue over the years, there is a difference among products and vendors and you should not be fooled.

Superior Quality

- Every Blonder Tongue modular unit is tested to meet or exceed all minimum specifications
- Units are designed to ensure a long operating lifetime and backed by an extensive 3 year warranty
- Complete adherence with all FCC requirements and specifications

Advanced Design

- Die-Cast chassis provides superior RFI shielding and protection
- Front panel controls and indicators make balancing and maintenance easy
- The rack chassis units are Listed by UL and the modular components are Recognized and Listed when used as a system
Modular Headend System
Rack Chassis and Power Supplies

4 Slot Vertical Chassis
MIRC-4D

12 Slot Horizontal Chassis
MIRC-12V

Specifications

General
- Power Requirements: 100 VAC to 240 VAC, ±10%
- Frequency: 50 to 60 Hz
- Temperature Range: 0° to +50° C
- Output: +5 VDC @ 5.5 Amps, +12 VDC @ 4 Amps

Mechanical
- Dimensions (WxHxD): 4.16” x 3.5” x 7.50”
- Weight: 1.10 lbs (0.50 kg)
- Connectors/Impedance
  - AC Input: IEC
  - DC Output: 37 pin D

Indicators
- Power 1 ON: LED, green

Accessories Supplied
- AC Power Cable: 6 Ft, IEC, USA

Surveillance Application

The MIRC-4CUBE is extremely well suited for use in surveillance or security type applications. A video camera’s baseband video output can be modulated to any cable television channel and combined with existing TV signals to permit any outlet to monitor the camera feeds. This compact chassis can support up to 4 fixed channel or agile modulators and can be mounted in practically any location. The use of Blonder Tongue high performance modulators easily permits placing camera signals on adjacent channels.

Ordering Information

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<th>Description</th>
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<tr>
<td>MIRC-4D</td>
<td>7711</td>
<td>HE-4 Series Rack Chassis &amp; Power Supply 19” Rack Mount</td>
</tr>
<tr>
<td>MIRC-12V</td>
<td>7715</td>
<td>HE-12 Series Vented Rack Chassis 19” Rack Mountable 2 RU Chassis for 12 Modular Units</td>
</tr>
<tr>
<td>MIPS-12C</td>
<td>7722C</td>
<td>HE-12 Series Power Supply 5.5 A on 5 VDC line, 4 A on 12 VDC line</td>
</tr>
<tr>
<td>MIRC-4CUBE-CH</td>
<td>7703</td>
<td>4 Slot Vertical Chassis Supports combinations of up to 4 MICM, AMCM or MIDM units</td>
</tr>
<tr>
<td>MIRC-4CUBE-PS</td>
<td>7702</td>
<td>4 Slot Vertical Chassis Power Supply Unit</td>
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<td>Accessories</td>
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<tr>
<td>Model</td>
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<tr>
<td>MIBP-1</td>
<td>7787</td>
<td>Blank Panel Insert Single Modular Panel compatible with HE-12 / MIRC-12 Chassis</td>
</tr>
<tr>
<td>MIBP-2</td>
<td>7788</td>
<td>Blank Panel Insert Dual Modular Panel compatible with HE-12 / MIRC-12 Chassis</td>
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The AMCM-860 is a professional quality agile audio/video modulator with an output frequency range of 54-860 MHz. It joins Blonder Tongue’s family of modular headend components and works in conjunction with the MIRC-12V rack chassis and MIPS-12C power supply.

The unit provides a modulated aural & visual carrier on any channel in the 54 to 860 MHz range. Frequency plans including Standard CATV, IRC, HRC and Broadcast are accommodated via front panel selection. Channel tuning is easily accomplished with the use of front panel switches following the entry instructions. All channels with appropriate FCC offsets are pre-programmed and tuned electronically via microprocessor.

The unit accepts any standard audio/video source such as satellite receivers, television camera, video tape recorders or demodulators. The advanced design ensures access for all level and over-modulation controls via the front panel with LED indicators for each. Internal selectable jumper settings allow for compatibility of features such as defeatable audio pre-emphasis for BTSC compatibility.

Special features have been built into the unit firmware to ensure the best possible user experience. This includes the ability to alert an operator to any inadvertent or designed change to the unit switches by flashing a red error indicator. The indicator will continue to flash until the condition is corrected or the unit is reset.

**Features & Benefits**

- Meets FCC Docket 21006 Aeronautical Frequency Offset Requirements
- Fully Compatible With BTSC Encoded Stereo Audio
- Front Panel Accessible Level Controls for Easy Set-Up and Adjustments
- Die-Cast Chassis Offers Superior Protection Against Ingress or Egress
- Supports All Broadcast and CATV Channels, Including HRC and IRC Assignments from 54 to 860 MHz

**Specifications**

**RF**
- Frequency Range: 54-860 MHz
- Channels: CATV, VHF, UHF (STD,HRC,IRC)
- FCC Offset (pre-programmed): 0, +12.5, or 25 kHz
- Output Level - Min: +45 dBmV
- Output Level Adjust: 15 dB
- Aural/Visual Carrier Ratio: -10 to -17 dB
- Visual Carrier Frequency Tolerance
  - Standard Channels: ±5 kHz
  - FCC Aeronautical Channels: ±3 kHz max
  - 4.5 MHz Aural Inter Carrier Frequency: ±1 Hz
- Channel Selectivity:
  - Adjacent Aural and Below: -40 dB
  - Adjacent Picture and Above: -50 dB
- Spurious Outputs: -60 dBc
- C/N Ratio In Channel: 65 dB
- Broadband Noise: -76 dBc
- Output Impedance: 75 Ohm
- Output Return Loss: 12 dB

**Video**
- Input Level: 1.0 V p-p
- Frequency Response
  - f=0.5 MHz to f=4.2 MHz: ±1.0 dB
  - P-P Video to RMS Hum Ratio: 65 dB
- Video Signal-to-Noise Ratio, NTSC-7 Weighted: 62 dB
- Differential Gain: 2.0 %
- Differential Phase: 1.0 °
- Over Modulation Indicator: 87.5, ±2.5 %
- Input Impedance: 75 Ohm
- Input Return Loss: 24 min, dB

**Audio**
- Input Level: 140 mV RMS
- Ext. 4.5 MHz Input Level: 40 ±1 dBmV
- Frequency Range: 20 Hz to 20 kHz
- Pre-Emphasis-Mono: 75 µs
- Frequency Response: ±1.0 dB
- IF Pre-Emphases Defeated: +0.5 dB
- Audio Signal-to-Noise: 58 dB
- Total Harmonic Distortion: 0.6 %
- Over Modulation Indicator: 25, ±2 kHz
- Input Impedance: Greater than 10k Ohm, Unbalanced

**General**
- Power Requirements: 5 W
- Voltage:
  - 12 VDC @235 mA
  - 5 VDC @425 mA
- Temperature Range: 0 to +50 ° C

**Mechanical**
- Dimensions (WxHxD):
  - 11.5 x 3.5 x 7.5 in
  - 29 x 89 x 101 mm
- Weight: 0.8 lbs, .36 kg

**Connectors (Rear Panel)**
- Video Input: “F” Type, Female
- Audio Input: RCA Phono
- RF Output: “F” Type Female

**Controls (Front Panel)**
- Frequency Selection: Push-Button Switches
- Video Level: Control
- A/V Ratio: Control
- Audio Level: Control
- RF Output Level: Control
- Channel Enter: Push Button

**Indicators (Front Panel)**
- Power ON: 2 color LED, Red/Green
- Video Over Modulation: LED, Red
- Audio Over Modulation: LED, Red

Refer to product instruction manual for additional specification measurements and notes.

**Ordering Information**

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<td>7766A</td>
<td>Modular Agile Audio/Video Modulator (HE 12 Series) +45 dBmV, 54-860 MHz Agile</td>
</tr>
<tr>
<td>AMCM-860H</td>
<td>7766HA</td>
<td>Modular Agile Audio/Video Modulator (MIRC-4 Series) +45 dBmV, 54-860 MHz Agile</td>
</tr>
</tbody>
</table>
Stereo Agile Modulator
HE-12/HE-4 Series - AMCM-860S

Features & Benefits
- Integrated Stereo Encoder
- Meets FCC Docket 21006 Aeronautical Frequency Offset Requirements
- Front Panel Accessible Level Controls for Easy Set-Up and Adjustments
- Die-Cast Chassis Offers Superior Protection Against Ingress or Egress
- Supports All Broadcast and CATV Channels, Including HRC and IRC Assignments from 54 to 860 MHz

Specifications

RF
- Frequency Range: 54-860 MHz
- Channels: CATV, VHF, UHF (STD,HRC,IRC)
- FCC Offset (pre-programmed): 0, +12.5, or 25 kHz
- Output Level - Min: +45 dBmV
- Output Level Adjust: 15 dB
- Aural/Visual Carrier Ratio: -10 to -17 dB
- Visual Carrier Frequency Tolerance
  - Standard Channels: ±5 kHz
  - FCC Aeronautical Channels: ±3 max kHz
- 4.5 MHz Aural Inter Carrier Frequency: ±150 Hz
- Channel Selectivity:
  - Adjacent Aural and Below: -40 dB
  - Adjacent Picture and Above: -50 dB
- Spurious Outputs: -60 dBc
- C/N Ratio In Channel: 65 dB
- Broadband Noise: -76 dBc
- Output Impedance: 75 Ohm
- Output Return Loss: 12 dB

Audio
- Input Level: 140 mV RMS minimum
- Input Impedance: 10kΩ, Unbalanced
- Total Harmonic Distortion (%): 1.0
- Stereo Separation:
  - 50 Hz - 100 Hz: 15 dB
  - 100 Hz - 1 kHz: 25 dB
  - 12 kHz: 18 dB

General
- Power Requirement: 5 W
- Voltage:
  - 12 VDC @235 mA
  - 5 VDC @425 mA
- Temperature Range: 0 to +50 ° C

Mechanical
- Dimensions (WxHxD): 1.15 x 3.5 x 7.5 in
- Weight: 0.8 lbs, .36 kg
- Connectors (Rear Panel)
  - Video Input: "F" Type, Female
  - L/R Audio Input: RCA Phono (2)
- RF Output: "F" Type Female

Controls (Front Panel)
- Channel Selection: Push-Button Switches, UP/ON
- Video Level: Control
- A/V Ratio: Control
- Audio Level: Control
- RF Output Level: Control
- Channel Enter: Push Button

Indicators (Front Panel)
- Channel Indicator: 2 Digit LED, Red
- Power ON: LED, Green
- Video Over Modulation: LED, Red
- Audio Over Modulation: LED, Red
- Stereo Indicator: LED, Red

The AMCM-860S provides modulated aural and visual carriers on any channel in the 54 to 860 MHz range. Standard CATV, IRC, HRC and Broadcast channel frequency plans are all accommodated. Pre-programmed FCC 21006 offsets provides frequency compliance on all mandated channels automatically.

Setting the desired output channel is easily accomplished with the LED channel display and using push button up/down switches. Once the desired channel is reached on the display the “enter” push button must be depressed to evoke the change. This feature prevents interference to other channels in the headend by going directly to the desired output channel rather than stepping through channels as indicated on the display. The enter button feature also guards against accidental up/down button touches that would otherwise cause inadvertent channel change. Should the “enter” button not be pushed within 30 seconds, the display will return to the original channel in memory.

The modulator utilizes SAW filtering with FCC group delay pre-distortion to provide true vestigial sideband selectivity and superior adjacent channel performance. The AMCM-860S takes baseband L/R audio and video from any standard source such as satellite receivers, video tape recorders, DVD players or television demodulators and modulates to the desired output channel.

Ordering Information

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<td>7766S</td>
<td>Modular Agile Stereo Audio/Video Modulator (HE 12 Series) +45 dBmV, 54-860 MHz Agile</td>
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The AMM Series are economical CATV agile audio/video modulators. They join Blonder Tongue’s family of modular headend components and work in conjunction with the MIRC-12V rack chassis and MIPS-12C power supply. Two bandized models are available to cover channel frequencies between 54-806 MHz. The AMML-550 provides channel coverage from 2-78 (54-550 MHz) and the AMMH-806 from channels 55-125 (408-806 MHz).

The AMM-806 combines the frequency ranges of the AMML and AMMH into a single unit for CATV channels 2-125. Channel selection is done by easy to use front panel DIP switches. FCC frequency offsets per Docket 21006 are automatic via the units internal pre-programmed micro processor. The AMM Series accept standard audio/video sources such as satellite receivers, television camera, video tape recorders or demodulators. The advanced design ensures access for all level and over-modulation controls via the front panel. The audio pre-emphasis can be disabled internally for use with a BTSC Stereo Encoder.

### Features & Benefits
- Economical Frequency Agility
- Die Cast Chassis Offers Superior RFI Protection
- CATV Channel Range 2 to 125 via Two Models
- FCC Docket 21006 Compliance for Aeronautical Frequency Offsets
- BTSC Compatible

### Specifications

#### RF
- **CATV Frequency Range:**
  - AMML-550: 54-550 MHz (Ch’s 2-78, 95-99)
  - AMMH-806: 408-806 (Ch’s 55-94, 100-125)
  - AMM-806: 54-806 (Ch’s 2-125)
- **Output Level:** 35-45 dBmV, Continuously Variable
- **Aural/Visual Carrier Ratio:** -12 to -18 dB
- **Visual Carrier Frequency Tolerance**
  - Standard Channels: ±10 kHz
  - FCC Aeronautical Channels (AMML Only): ±5 kHz
- **4.5 MHz Aural Inter Carrier Frequency:** ±150 Hz (max)
- **Spurious Outputs:** -60 dBc
- **C/N Ratio In Channel:** 60 dB
- **Broadband Noise:** -75 dBc
- **Output Impedance:** 75 Ohm
- **Output Return Loss:** 10 dB

#### Video
- **Input Level:** 1.0 V p-p
- **Frequency Response**
  - f1-0.5 MHz to f1+4.2 MHz: ±1.0 dB
- **Input Impedance:** 75 Ohm
- **Input Return Loss:** 18 min, dB
- **Differential Phase:** 2.0°
- **Differential Gain:** 1.0%
- **Group Delay Response:**
  - Meets FCC CATV Predistortion Requirements for Color Operation

#### Audio
- **Input Level:** 0.4 to 4.0 V p-p
- **Frequency Range:**
  - 30 Hz to 15 kHz, ±0.5 dB
  - (Exceeds 100 kHz with Pre-emphasis Defeated)
- **Input Impedance:** 10k Ohm, Unbalanced
- **Distortion:** 30 Hz to 15 kHz 0.6%

#### General
- **Power Requirements**
  - 12 VDC @ 155mA
  - 5 VDC @ 265A
- **Temperature:** 0° to 50° C

#### Mechanical
- **Dimensions (WxHxD):**
  - 1.15 x 3.5 x 7.5 in
  - 29 x 89 x 191 mm
- **Weight:** 0.8 lbs, .36 kg

#### Connectors (Rear Panel)
- **Video Input:** “F” Type, Female
- **Audio Input:** RCA Phono
- **RF Output:** “F” Type Female
- **Power:** Header, 3 Pin

#### Controls (Front Panel)
- **Channel Selection:** Dip Switches
- **Video Level:** Control
- **A/V Ratio:** Control
- **Audio Level:** Control
- **RF Output Level:** Control

#### Indicator (Front Panel)
- **Power ON:** LED

### Ordering Information

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<td>7761</td>
<td>Modular Agile Audio/Video Modulator, +45 dBmV, 54-550 MHz Agile</td>
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<tr>
<td>AMMH-806</td>
<td>7762</td>
<td>Modular Agile Audio/Video Modulator, +45 dBmV, 408-806 MHz Agile</td>
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<tr>
<td>AMM-806</td>
<td>7763</td>
<td>Modular Agile Audio/Video Modulator, +45 dBmV, 54-806 MHz Agile</td>
</tr>
</tbody>
</table>
The MICM-45 is a professional quality, channelized, heterodyne audio/video modulator which provides modulated RF carrier output on any single VHF channel, including: broadcast TV (2-13), CATV (14-135). It is ideal for placing audio and video onto any unused VHF channel. Any standard audio/video source can be used, such as satellite receivers, television cameras, video tape recorders, or television demodulators. The MICM-45 utilizes SAW filtering with FCC group delay pre-distortion to provide true vestigial sideband selectivity which makes it perfect for use in adjacent channel systems.

The MICM-45C takes baseband audio and video and modulates these signals onto the desired output channel. The MICM-45S takes baseband L/R audio and video and modulates these signals into the desired output channel. The heterodyne conversion process used in the unit employs a crystal referenced, PLL synthesized local oscillator. This guarantees rock solid, no-drift output for the life of the modulator. The MICM-45 meets FCC Docket 21006 aeronautical frequency offset requirements (±5 kHz video carrier accuracy).

The modulator accepts standard polarity (sync negative) video in the range of 0.7 to 2.5 V p-p. It has field defeatable audio pre-emphasis to provide stereo compatibility with any external BTSC stereo generator providing a composite stereo baseband output.

The MICM-45S is a stereo A/V modulator providing a stereo audio and video modulated RF carrier on any single VHF channel. All other features and specifications are identical to the MICM-45C except as noted.

### Features & Benefits

- 5-860 MHz Channelized Audio/Video Modulator
- SAW Filtered to True Adjacent Channel Response
- Die-Cast Chassis Offers Superior Protection Against Ingress or Egress
- Front Panel Accessible Level Controls for Easy Set-Up and Adjustment
- Integrated Stereo Encoder Available

### Specifications

#### RF

- **Frequency Range:** 54-860 MHz (Broadcast 2-13, Cable 14-135)
- **Output Level:** +45 dBmV
- **Output Level Range:** 10 dB continuously adjustable
- **Aural/Visual Carrier Ratio:** -11 to -19 dB continuously adjustable
- **Visual Carrier Frequency Tolerance:** ±10 kHz (standard channels) ± 5 kHz (aeronautical channels)
- **Aural Carrier:** 4.5 MHz above visual
- **Frequency Setting:** ±1.5 kHz
- **Spurious Outputs:** -60 dBc, min
- **C/N Ratio In Channel:** 60 dB
- **Broadband Noise:** -90 dB
- **Output Return Loss:** 12 dB
- **IF (Internal) Frequency:** 45.750 MHz

#### Video

- **Input Level:** 1.0 V p-p for 87.5 % Modulation
- **Frequency Response:**
  - fv -0.5 MHz to fv +4.2 MHz: ±1.0 dB
  - Video C/N: 60 dB (4 MHz BW)
- **P-P Video to RMS Hum Ratio:** 60 dB
- **Differential Gain:** ±4.0 % @ 87.5% Modulation
- **Differential Phase:** ± 2° @ 87.5% Modulation
- **Input Return Loss:** 18 dB

#### Audio

- **Input Level:**
  - 140 mV RMS for 25 kHz Peak Deviation
- **Input Impedance:** 10k Ohm, Unbalanced
- **Frequency Range:**
  - 20 Hz to 20 kHz (MICM-45C)
- **Frequency Response:**
  - ±1.0 dB, (50 Hz to 12 kHz) Reference to Std.

#### General

- **Power Requirements**
  - External: 12 VDC @ 160 mA
  - +5 VDC @ 130 mA (MICM-C)
  - +5 VDC @ 180 mA (MICM-S)

- **Temperature Range:** 0° to +50° C

#### Mechanical

- **Dimensions (WxHxD):**
  - 1.20 x 3.5 x 7.50 in, 29 x 89 x 191 mm
- **Weight:** 0.65 lbs (0.30 kg)

#### Connectors/Impedance

- **Audio In:** RCA Phono, female (MICM-45C)
- **L/R Audio Inputs:** RCA Phono, female
- **Video Input:** 75 Ohm “F” type, female
- **RF Output:** 75 Ohm “F” type, female

#### Controls

- **Video Level:** Pot
- **Audio Level:** Pot
- **Aural Carrier Level:** Pot
- **RF Output Level:** Pot

#### Indicators

- **Power ON:** LED, green
- **Video Over Modulation:** LED, red (MICM-45S)
- **Audio Over Modulation:** LED, red (MICM-45S)
- **Stereo Indicator:** LED, red (MICM-45S)

Refer to product instruction manual for additional specification measurements and notes.
Agile Demodulator
HE-12/HE-4 Series - MIDM

The MIDM is a professional quality agile audio/video demodulator and is intended for both CATV and VHF & UHF applications. The unit is in a "single width" Die-Cast housing that allow deployment of up to 12 demodulator units in a MIRC-12 chassis.

The MIDM demodulates standard CATV, IRC and HRC channels and is capable for "Cherry Picking" of CATV channels in preparation for remodulation. The input frequency range is agile, allowing selection of any CATV channel from 54 to 806 MHz. Baseband audio and video are provided as outputs. It is ideal for off-air signal processing (audio/video processing and remodulation) applications. Baseband audio and video are provided as outputs. The MIDM features rock solid, phase lock loop (PLL) synthesized frequency control. Agile frequency selection is accomplished via front panel channel up/down buttons with a LED channel readout for easy on-the-fly channel changes. A channel lockout mode is also provided to prevent accidental channel changes. Non-volatile memory maintains the programmed channel selection in case of power loss. The MIDM is compatible with any modulators requiring a baseband input, and can be used in any combination with the MIPS-12C power supply in a MIRC-12 chassis.

Features & Benefits
- Die-Cast Chassis Offers Superior Protection Against Ingress or Egress
- Demodulates Any Channel 54-806 MHz
- LED Display Makes Agile Channel Selection Easy
- Compatible with MICM-45 Modulator for Compact Off-Channel Processor Solution

Specifications

RF
Frequency: Range:
54-806 MHz, VHF, UHF, CATV (Std., IRC, HRC)
Input Level Range: -5 to +30 dBm VHF/UHF,
+2 to +12 dBmV (CATV)
Noise Figure: 8 dB
Image Rejection: VHF 60 dB
Input Impedance: 75 Ohm

Video
Output Level: 1.0 V p-p
Output Impedance: 75 Ohm

Audio
Output Level: 1 Vp-p
Output Impedance: 600 Ohm, Unbalanced

General
Power Requirements - External:
12 VDC @ 140 mA
5 VDC @ 150 mA
Temperature Range: 0° to +50° C

Mechanical
Dimensions (WxHxD):
1.0 x 3.5 x 7.50 in
29 x 89 x 191 mm
Weight: 1.2 lbs (0.56 kg)

Connectors/Impedance
Audio Output: RCA Phono, Female
Video Output: 75 Ohm “F” Type, Female
RF Input: 75 Ohm “F” Type, Female
Power: Locking Header, 3 Pin

Controls
- Channel Selection: Push Buttons
- ANT/CATV: Push Button
- Power On/Off: Push Button
- Channel Lock: Push Button
- Audio Level: Pot
- Video Level: Pot

Indicators
- Channel: 2 Digit, 7 Segment LED

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIDM-806C</td>
<td>7740C</td>
<td>HE-12 Series Agile Audio/Video Demodulator 54-806 MHz UHF/VHF/CATV Input (STD, HRC, IRC)</td>
</tr>
</tbody>
</table>
The MSBC is a modular sub band block up-converter designed for use in Blonder Tongue’s HE Series rack chassis. The unit provides sub-band capability to MIDM-806C demodulators by block converting sub-band channels T7 to T13 to receivable VHF channels 7 to 13. The MIDM-806C A/V outputs can then be connected to a modulator such as a MICM-45C, AMCM 860 or AMM Series for a complete modular headend processing solution.

**Features & Benefits**

- Up-converts Entire Sub-band to Channels 7-13
- 3 dB Conversion Gain
- Die Cast Chassis Provides Unsurpassed RFI Shielding

**Specifications**

**RF**

- Input Frequency Range: 5.75-47.75 MHz (Channels T7-T13)
- Output Frequency Range: 174-216 MHz (Channels 7-13)
- Recommended Input Level Range: 0 to +20 dBmV
- Conversion Gain: 3 dB
- Flatness: 1.5 dB P/V168.25 MHz
- LO Frequency Accuracy @ 25° C: +/- 500 Hz
- Intermod Distortion: -60 dBc (In band Ch. 7-13 @ 0 to + 20 dBmV input)
- Input/Output Impedance: 75 Ohm
- Return Loss
  - Input: 15 dB
  - Output: 17 dB

**General**

- Power Requirement: 12 VDC @ 100 mA, 1.2 Watts
- Temperature Range: 0 to 50° C

**Mechanical**

- Dimensions: 1.15 x 3.5 x 7.5 in. / 29 x 89 x 191 mm
- Weight: 13.5 oz.

**Connectors (Rear)**

- Sub-Band Input: “F” Type Female
- RF Output: “F” Type Female
- Power: Locking Header 3 Pin

**Indicators**

- Power Green LED

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSBC</td>
<td>7727</td>
<td>HE12 &amp; HE4 Series Sub-Band Block Up-Converter</td>
</tr>
</tbody>
</table>
The MISE Stereo Encoder provides an economical solution for service providers wanting to deliver programs in stereo. The MISE is intended for use with Blonder Tongue’s MIRC-12 rack chassis’ with it’s associated power supply. The modular design provides an efficient compact means to accommodate 6 encoders coupled with 6 modulators or 12 encoders in 2RU’s of precious rack space. The MISE accepts baseband left and right audio inputs from sources such as a satellite receiver, demodulator, VCR or DVD and generates a composite BTSC stereo signal. The composite signal in turn is applied to a compatible modular audio/visual modulator such as a MICM-45B or AMCM-806. It is also compatible with any modulator that has a pre-emphasis defeat feature. The MISE features 24 dB stereo separation, a pilot lock indicator and a test tone generator to meet any demanding stereo insertion need.

### Features & Benefits
- Modular Design Minimizes Rack Space
- 24 dB Stereo Separation with low Distortion
- Build-in Test Tone for Audio Level Calibration with Modulator
- Pilot Lock & Power LED Indicator

### Specifications

#### Audio Input
- Input Impedance: 20K Ohms (unbalanced) 40K Ohms (balanced)
- Input Level: 250mVrms to 2.5Vrms

#### Video Input
- Input Impedance: 10K Ohms
- Input Level Range: 0.5 Vp-p to 2.0 Vp-p

#### Composite Output
- Output Impedance: 100 Ohms
- Output Level: 1.1 Vp-p at 100% Modulation

#### Stereo Performance
- Stereo Separation: 24 dB Typical, 20dB Min.
- Harmonic Distortion: 0.25%
- S/N Ratio: 65 dB
- Frequency Response: ±1dB from 50Hz to 12KHz

#### Test Tone
- Frequency: 10.396 KHz ± 50Hz
- Amplitude: 0.5 Vp-p ± 10%

#### General
- DC Power Input: +12 VDC @ 200 mA
- Operating Temp. Range: 0° to +50° C

#### Mechanical
- Dimensions W x H X D:
  - 1.15 x 3.5 x 7.5 in
  - 29 x 89 x 191 mm
- Weight: .73lbs., .33 Kg

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MISE</td>
<td>7725B</td>
<td>HE-12 &amp; HE-4 Series Micro Stereo Encoder</td>
</tr>
</tbody>
</table>

www.blondertongue.com • 800-523-6049
The CAP Series are professional quality, channelized heterodyne processors. These units convert any single SUB, VHF, or UHF channel to any single channel in the 5 to 890 MHz frequency range. The unit is ideally suited to convert any off-air channel (VHF or UHF) to any unused channel in the system.

The CAP Series takes a single channel in the 5 to 36 MHz (SUB), 54 to 552 MHz (VHF/CATV), or 470 to 806 MHz (UHF) frequency range and converts it to a channel in the 54 to 860 MHz frequency range. All models feature phase locked loop synthesized frequency control with accurate, no-drift output as well as high adjacent channel rejection (60 dB) and a very low noise figure and distortion output. A dual-detection IF with a true peak response AGC circuit that is delayed at the input stage automatically compensates for input signal variations and maintains a low noise figure even under weak signal conditions.

**Features & Benefits**

- Fully Compatible With BTSC Encoded Stereo Audio
- Front Panel Accessible Level Controls for Easy Set-Up and Adjustments
- Rack Mountable - 1 EIA (1.75") Rack Space
- Dual SAW Filtering for Adjacent Channel Systems

**Specifications**

**RF**

- **Input Frequency Range**
  - CAP-60-ON: 54-216 MHz
  - CAP-60-U/V: 470-806 MHz
  - CAP-60-V/V: 54-527 MHz
- **Output Frequency Range (MHz)**: 54-860 MHz
- **Channels**
  - Input: SUB, CATV, VHF, UHF
  - Output: CATV, VHF, UHF
- **FCC Offset (kHz)**: 0, +12.5 or +25
- **Input Level Range - Min**: -15 to +33 dBmV
- **Output Level - Min**: +60 dBmV
- **AGC Stiffness**: ±0.5 dB
- **AGC Indicator Range**
  - LED ON: -1.5 dB
  - LED OFF: +1.5 dB
- **Noise Figure**
  - VHF: 7.0 dB
  - UHF: 9.0 dB
- **Aural/Visual Carrier Ratio**: 0 to -11 dB
- **Visual Carrier Frequency Tolerance**
  - CAP-60-ON: same as input channel
  - All Others (Standard Channels): ±5 kHz
  - All Others (Aeronautical Channels): ±3 kHz
- **Channel Selectivity**
  - Adjacent Aural and Below: -60 dB
  - Adjacent Picture and Above: -60 dB
- **Spurious Outputs**: -60 dBc
- **Intermod Distortion**: -64 dBc
- **Broadband Noise**: -110 dBc
- **Image Rejection**
  - VHF: 70 dB
  - UHF: 60 dB

**IF**

- **Aural Frequency**: 41.25 MHz
- **Visual Frequency**: 45.75 MHz
- **Composite IF Loop Output**
  - Visual Carrier Level: +29 dBmV
  - Output/Input Impedance: 75 Ohm
- **Output Return Loss**: 16 dB
- **Input Return Loss**: 16 dB

**General**

- **Power Requirements**
  - Voltage: 117 ±10% VAC
  - Frequency: 60 Hz
  - Power: 22 W
- **Fuse**: 3/8 A
- **Temperature Range**: 0 to +50 °C

**Mechanical**

- **Dimensions (WxHxD)**: 19.0 x 1.75 x 15.0 in. (483 x 44 x 36 mm)
- **Weight**: 10 lbs. (4.54 kg)

**Connectors (Rear Panel)**

- **RF Input**: "F" Type, Female
- **IF Output**: "F" Type, Female
- **IF Input**: "F" Type, Female
- **Alternate IF Input**: "F" Type, Female
- **RF Output**: "F" Type, Female

**Controls (Front Panel)**

- **Aural Carrier Level**: Control
- **RF Output Level**: Control

**Indicators (Front Panel)**

- **Power ON**: LED, Green
- **Low Input Level**: LED, Red

Refer to product instruction manual for additional specification measurements and notes.
The AP Series are professional quality, agile heterodyne processors equipped with the Emergency Alert System (EAS) feature, which can also be used as an alternate IF input. These units convert any channel in the 50 to 806 MHz (7 to 43 MHz with Option 17) frequency range to any channel in the 50 to 550/750 MHz (7 to 550/750 MHz with Option 04) frequency range.

The AP Series is ideal for moving an off-air channel (VHF or UHF) or any single channel source to any unused channel (broadcast or CATV, including HRC and IRC assignments) in the system. Agile channel selection permits on-the-fly channel changes and reduces the need for large inventories of channelized products. Channel selection is accomplished with the use of simple to use front panel accessible dip switches. These processors have a wide range of standard and optional features that make them very suitable for advanced CATV systems. Four models are available with different output level and frequency ranges and a variety of options.

All models feature rock solid, synthesized frequency control, with a tuning increment of 250 kHz. True vestigial sideband SAW filtering guarantees superior broadcast picture quality. Two SAW filters are used to ensure proper adjacent channel rejection. Delayed AGC circuitry automatically compensates for input signal variations. These processors have an external IF loop, which allows interfacing with video all-call and signal scrambling systems. The AP Series utilizes a standby carrier oscillator to provide a blank picture when the input level drops below usable level. This prevents a snowy picture from being delivered to the distribution network in the event of signal degradation or complete loss of picture. The EAS/ALT IF feature allows the customer to choose between manual and automatic selection of EAS/ALT IF input signal.

These processors provide extremely clean output signals with distortion products (-60 dB or better). An exceptionally low broadband noise floor (-76 dBc or better) makes the AP Series ideal for large, multiple channel headends without the need for additional filtering.

**Features & Benefits**

- EAS/ALT IF Ready Via Manual or Automatic Mode
- Superior Broadband Noise Performance (-76 dB)
- Front Panel Accessible Level Controls for Easy Set-Up and Adjustments
- Rack Mountable - 1 EIA (1.75”) Rack Space

Specifications and Ordering Information are located on the following pages.
**Specifications**

### RF

- **Input Frequency Range**
  - Standard: 54-88 & 108-806 MHz
  - Option 17 - Sub-band Input: 7-49 MHz
- **Input Channels**: SUB, VHF, UHF, CATV (STD,HRC)
- **Output Frequency Range**
  - AP-40-750 & AP-60-750: 50-750 MHz
- **Input Channels**: SUB, CATV (STD,HRC,IRC)
- **Tuning Increment**: 250 kHz
- **FCC Offset**: 0, +12.5, or +25 kHz
- **Input Level Range**: -18 to +30 dBmV
- **AGC Stiffness**: 1.0 dB
- **Output Level - Min**
  - AP-40-550 & AP-40-750: +40 dBmV
  - AP-60-550 & AP-60-750: +60 dBmV
- **Output Level Adjust**: 10 dB
- **Noise Figure**
  - VHF: 8 dB
  - UHF: 10 dB
- **Aural/Visual Carrier Ratio**: 0 to -10 dB
- **Visual Carrier Frequency Tolerance**
  - Standard Channels: ±10 kHz
  - FCC Aeronautical Channels: ±3 kHz
- **Channel Selectivity**
  - Adjacent Aural and Below: -65 dB
  - Adjacent Picture and Above: -65 dB
- **Spurious Outputs**: -60 dBc
- **Intermod Distortion**: -64 dB
- **Broadband Noise**: -76 dBc
- **Image Rejection**: 65 dB
- **Bandpass Flatness f\textsubscript{v} to f\textsubscript{v}+4.5 MHz**: ±1.0 dB
- **Input/Output Impedance**: 75 Ohm
- **Input Return Loss**: 12 dB
- **Output Return Loss**: 14 dB

### IF

- **Aural Frequency**: 41.25 MHz
- **Visual Frequency**: 45.75 MHz
- **Composite IF Loop Output**
  - Aural Carrier Level: +13 dBmV
  - Visual Carrier Level: +28 dBmV
- **Output/Input Impedance**: 75 Ohm
- **Output Return Loss**: 12 dB
- **EAS/ALT IF Input Level**: 28 dBmV @ 45.75 MHz
- **EAS/ALT IF Switch Isolation**: >-60 dB

### General

- **Power Requirements**
  - Voltage: 117, ±10% VAC
  - Frequency: 60 Hz
- **Power**
  - AP-40-450 & AP-40-550: 20 W
  - AP-60-450 & AP-60-550: 24 W
- **Fuse**: 3/8 A
- **Temperature Range**: 0 to +50 °C

### Mechanical

- **Dimensions** (WxHxD)
  - 19.0 x 1.75 x 14.25 in.
  - 483 x 44 x 362 mm
- **Weight**: 9 lbs. (4.09 kg)

### Connectors (Rear Panel)

- **RF Input**
  - Standard - VHF/UHF: “F” Type, Female
  - Option 17 - Sub-band Input: “F” Type, Female
- **IF Output**: “F” Type, Female
- **IF Input**: “F” Type, Female
- **RF Output**: “F” Type, Female
- **Serial Data Input & Output Option 20**: Serial
- **Input**: RJ-12, Female
- **EAS/ALT IF**: “F” Type, Female

### Controls (Front Panel)

- **Frequency Selection**
  - Input: DIP Switches
  - Output: DIP Switches
- **Frequency Response Adjust**: Controls
- **Aural Carrier Level**: Control
- **FCC Offset Fine Tune**: Control
- **FCC Offset Selection Option 12**
  - ABOC: DIP Switches
- **RF Output Level**: Control

### Controls (Top Cover & Rear Panel)

- **Standby Oscillator Threshold Adjust**: Control
- **Sub-band Input Channels Option 17**: Slide Switch
- **EAS/ALT IF**: 3 Position, Terminal Strip

### Indicators (Front Panel)

- **Power ON**: LED, Green
- **EAS/ALT IF**: LED, Green

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP-40-550B</td>
<td>59802</td>
<td>Agile Heterodyne Processor with EAS +40 dBmV, 54-88/108-806 MHz Input, 50-550 MHz Output</td>
</tr>
<tr>
<td>AP-40-750B</td>
<td>59803</td>
<td>Agile Heterodyne Processor with EAS +40 dBmV, 54-88/108-806 MHz Input, 50-750 MHz Output</td>
</tr>
<tr>
<td>AP-60-550B</td>
<td>59817</td>
<td>Agile Heterodyne Processor with EAS +60 dBmV, 54-88/108-806 MHz Input, 50-550 MHz Output</td>
</tr>
<tr>
<td>AP-60-750B</td>
<td>59818</td>
<td>Agile Heterodyne Processor with EAS +60 dBmV, 54-88/108-806 MHz Input, 50-750 MHz Output</td>
</tr>
<tr>
<td>Accessories</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>Stock No.</td>
<td>Description</td>
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<tr>
<td>AP-OPT 04</td>
<td>59804</td>
<td>AP Series Option: Sub-Band Output</td>
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<tr>
<td>AP-OPT 12</td>
<td>59122</td>
<td>AP Series Option: Automatic Broadcast Offset Correction</td>
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<tr>
<td>AP-OPT 14</td>
<td>59144</td>
<td>AP Series Option: On Channel-lock</td>
</tr>
<tr>
<td>AP-OPT 17</td>
<td>59177</td>
<td>AP Series Option: Sub-Band Input, 7-49 MHz</td>
</tr>
</tbody>
</table>

Refer to product instruction manual for additional specification measurements and notes.
The SAIP Series are professional quality, agile input and channelized agile output heterodyne processors. These units convert any channel in the 54 to 806 MHz frequency range to any channel in the 5 to 860 MHz frequency range. The SAIP Series is ideal for moving an off-air channel (VHF or UHF) or any single channel source to any unused channel (broadcast or CATV, including HRC and IRC assignments) in the system. For “on-channel” applications (CH2 IN, CH2 OUT), we recommend AP Series with Option 14 or the “CAP-ON” processors.

### Specifications

**RF**
- Input Frequency Range: 54-88 MHz
- 108-806 MHz
- Output Frequency Range: 54-860 MHz
- Channels: VHF, CATV (STD, HRC, IRC), UHF
- Tuning Increment
  - Input Channels: 250 kHz
  - Output Channels: 12.5 kHz
- FCC Offset: 0, +12.5, or +25 kHz
- Output Level - Min: +60 dBmV
- Output Level Adjust: 15 dB
- Noise Figure
  - VHF: 8 dB
  - UHF: 10 dB
- Aural/Visual Carrier Ratio: 0 to -10 dB
- Visual Carrier Frequency Tolerance
  - Standard Channels: ±5 kHz
  - FCC Aeronautical Channels: ±3 kHz
- Channel Selectivity:
  - Adjacent Aural and Below: -65 dB
  - Adjacent Picture and Above: -65 dB
- Spurious Outputs: -60 dBc
- Intermod Distortion: -64 dB
- Broadband Noise: -95 dBc
- Image Rejection: 60 dB
- Input/Output Impedance: 75 Ohm
- Input Return Loss: 12 dB
- Output Return Loss: 14 dB

**IF**
- Aural Frequency: 41.25 MHz
- Visual Frequency: 45.75 MHz
- Composite IF Loop Output
  - Aural Carrier Level: +13 dBmV
  - Visual Carrier Level: +28 dBmV
- Output/Input Impedance: 75 Ohm

**Output Return Loss:** 12 dB  
**Input Return Loss:** 10 dB

### Features & Benefits
- EAS/ALT IF Ready Via Manual or Automatic Mode
- Front Panel Accessible Level Controls for Easy Set-Up and Adjustments
- Rack Mountable - 1 EIA (1.75”) Rack Space
- Works in Conjunction with High Performance Channelized Output Filter Modules (OFM)
- Excellent Broadband Noise Performance of -95 dBc

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>SAIP-60-860</td>
<td>5876B 300</td>
<td>Agile Input, Channelized Agile Output Processor +60 dBmV, 54-300 MHz</td>
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<tr>
<td>SAIP-60-860</td>
<td>5876B 756</td>
<td>Agile Input, Channelized Agile Output Processor +60 dBmV, 300-756 MHz</td>
</tr>
<tr>
<td>SAIP-60-860</td>
<td>5876B 860</td>
<td>Agile Input, Channelized Agile UHF Output Processor +60 dBmV, 756-860 MHz</td>
</tr>
<tr>
<td>SAIP 60-860 MF</td>
<td>58858</td>
<td>Agile Input, Channelized Agile Output Processor 860 MHz, Mainframe</td>
</tr>
</tbody>
</table>

Refer to product instruction manual for additional specification measurements and notes.
The AD-1 is a professional quality, agile audio/video demodulator. The unit provides audio and video outputs from any analog input channel in the 54 to 88 and 108 to 806 MHz frequency range. The AD-1 is ideal for signal monitoring and signal conditioning (audio/video processing and remodulation) applications. Agile channel selection permits on-the-fly channel changes.

The AD-1 takes a single NTSC channel in the 54 to 88 and 108 to 806 MHz frequency range and demodulates the audio and video information. Baseband audio and video as well as 4.5 MHz audio subcarrier and multiplex audio are provided as outputs. The AD-1 features phase locked loop synthesized frequency control with a tuning increment of 250 kHz. Channel selection is accomplished with the use of simple to use front panel accessible dip switches. A Nyquist filter provides stable, accurate demodulation of the vestigial sideband signal. Additionally, this filter minimizes distortion and preserves the timing of the signal. Delayed AGC circuitry automatically compensates for input level variations. A quadrature audio detector delivers a very low distortion audio output. The broadband multiplex audio, 4.5 MHz audio subcarrier, or the optional BTSC stereo (L/R) or SAP outputs make the AD-1 ideal for any stereo application.

### Specifications

**RF**
- Input Frequency Range
  - Standard: 54-88 & 108-806 MHz
  - Option 17: Sub-band Input: 7-49 MHz

- Channels: VHF, UHF (Input) CATV (STD,HRC,IRC)
- Tuning Increment: 250 kHz
- Input Level - Max: +20 dBmV
- Noise Figure: VHF: 8-11 dB
- UHF: 10 dB
- Image Rejection - Min: VHF: 65 dB
- UHF: 50 dB
- Input/Output Impedance: 75 Ohm

**Video**
- Frequency Response $f_v + 25$ Hz to $f_v + 4.0$ MHz: Settable to $\pm 1.0$ dB
- Output Level: 1.0 V p-p
- Differential Gain: 3.0 %
- Differential Phase: 1.5 °
- Group Delay Response: $\pm 50$ ns
- Output Impedance: 75 Ohm
- Output Return Loss: 25 dB

**Audio**
- **Mono**
  - Baseband Frequency Response: 50 Hz to 15 KHz: ±0.75 dB
  - Output Level: 500 mv RMS (Opt 29, 1.4 V RMS)
  - Impedance: 600 Ohms, Unbalanced (STD)
  - (Opt. 29, 600 Ohms, Balanced)
  - Audio Signal-to-Noise: 57 dB
  - Total Harmonic Distortion: 0.6%
  - Multiplexed Frequency Response: 50 Hz to 100 kHz: ±0.2 dB
  - Output Level: 500 mV RMS
  - Impedance: 600, unbalanced Ohm

- **Stereo (Option 25)**
  - Baseband Frequency Response 50 Hz to 12 KHz (in-phase L/R inputs): +/- 0.75 dB
  - Output Level Left or Right: 4.0 Vp-p
  - Impedance: 600 Ohms, Balanced
  - Separation 50 Hz – 10 KHz: 20 dB
  - Audio Signal-to-Noise: 60 dB

**General**
- Power Requirements
  - Voltage: 117, ±10% VAC
  - Frequency: 60 Hz
  - Power: 16 W
  - Fuse: 1/4 A
  - Temperature Range: 0 to +50 °C

**Mechanical**
- Dimensions (WxHxD): 19.0 x 1.75 x 14.5 in.
- 483 x 44 x 368 mm
- Weight: 5.5 lbs., 2.50 kg

**Connectors (Rear Panel)**
- RF Input
  - Standard - VHF/UHF: “F” Type, Female
  - Option 17: Sub-band Input: “F” Type, Female

- Video Output: “F” Type, Female
- Baseband Audio Output: RCA Phono, Female (STD)
- Terminal Strip (Opt 25 + 29)
- Multiplexed (MPX) Audio Output: RCA Phono, Female (STD Only)
- 4.5 MHz Subcarrier Audio Output: “F” Type, Female
- Serial Data Input & Output: Option 20: Serial Input: RJ-12, Female

**Controls (Front Panel)**
- Frequency Selection: DIP Switches
- Audio Response: Controls

**Controls (Top Cover & Rear Panel)**
- Sub-band Input Channels Option 17: Slide Switch
- L/R or SAP Audio Output Option 15: Contact Closure

**Indicators (Front Panel)**
- Power ON: LED, Green
- Stereo: LED, RED (Opt 25)

Refer to product instruction manual for additional specification measurements and notes.
The OC Series are professional quality, passive output combiners. These units are designed for use in headends to combine the outputs of multiple modulators and processors. The OC Series employs radiation-proof passive components that provide excellent reliability and performance. Five models are available for combining 8, 12, 16, 24 or 32 inputs. The OC Series features high isolation between ports and a low net combining loss from each of the broadband inputs (5 to 1000 MHz). A 20 dB test port is provided for signal monitoring without disrupting service.

### Features & Benefits
- -20 dB Test Port
- High Isolation, Low Net Combining Loss
- Rack Mountable - 1 EIA (1.75”) Rack Space, (OC-16 is 2 Rack Spaces 3.5”)

### Specifications

#### RF

<table>
<thead>
<tr>
<th></th>
<th>OC-8d</th>
<th>OC-12D</th>
<th>OC-16</th>
<th>OC-24</th>
<th>OC-32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Inputs:</td>
<td>8</td>
<td>12</td>
<td>16</td>
<td>24</td>
<td>32</td>
</tr>
<tr>
<td>Frequency Range:</td>
<td>5-1000</td>
<td>5-1000</td>
<td>5-1000</td>
<td>5-1000</td>
<td>5-1000</td>
</tr>
<tr>
<td>Flatness - Relative to Slope:</td>
<td>0.4</td>
<td>±0.20</td>
<td>0.4</td>
<td>1.5</td>
<td>2.0</td>
</tr>
<tr>
<td>Slope:</td>
<td>2.75</td>
<td>1.50</td>
<td>2.5</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Insertion Loss - Individual Port 40 to 450 MHz:</td>
<td>11.5</td>
<td>18</td>
<td>24</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>450 to 1000 MHz:</td>
<td>13</td>
<td>18</td>
<td>26</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Isolation - Adjacent Ports 40 to 450 MHz:</td>
<td>25</td>
<td>38</td>
<td>40</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>450 to 1000 MHz:</td>
<td>25</td>
<td>38</td>
<td>36</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Isolation - Non-Adjacent Ports 40 to 1000 MHz:</td>
<td>40</td>
<td>65</td>
<td>62</td>
<td>&gt;40</td>
<td>&gt;40</td>
</tr>
<tr>
<td>Test Port Level:</td>
<td>-20</td>
<td>-20</td>
<td>-20</td>
<td>-20</td>
<td>-20</td>
</tr>
<tr>
<td>Impedance - All Ports:</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Input Return Loss 40 to 450 MHz:</td>
<td>20</td>
<td>20</td>
<td>18</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>450 to 1000 MHz:</td>
<td>19</td>
<td>20</td>
<td>16/14</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Output Return Loss 40 to 450 MHz:</td>
<td>20</td>
<td>16</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>450 to 1000 MHz:</td>
<td>19</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

#### Mechanical

<table>
<thead>
<tr>
<th>Dimensions (WxHxD):</th>
<th>19.0 x 1.75 x 15.25 in.</th>
<th>19.0 x 3.5 x 15.25 in.</th>
<th>19.0 x 1.75 x 8.0 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight:</td>
<td>6.5 lbs.</td>
<td>6.95 lbs.</td>
<td>9.0 lbs.</td>
</tr>
<tr>
<td>Connectors (Rear Panel)</td>
<td>RF Input &amp; Outputs:</td>
<td>“F” type, female</td>
<td></td>
</tr>
<tr>
<td>Connectors (Front Panel)</td>
<td>Test Port:</td>
<td>“F” type, female</td>
<td></td>
</tr>
</tbody>
</table>

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OC-8d</td>
<td>5957</td>
<td>Passive Combiner 5-1000 MHz, 8 Ports</td>
</tr>
<tr>
<td>OC-12D</td>
<td>5953</td>
<td>Passive Combiner 5-1000 MHz, 12 Ports</td>
</tr>
<tr>
<td>OC-16</td>
<td>5950</td>
<td>Passive Combiner 5-1000 MHz, 16 Ports, High Isolation, Front/Rear Test Ports</td>
</tr>
<tr>
<td>OC-24E</td>
<td>5794</td>
<td>Passive Combiner 5-1000 MHz, 24 Ports, Front Test Ports</td>
</tr>
<tr>
<td>OC-32E</td>
<td>5795</td>
<td>Passive Combiner 5-1000 MHz, 32 Ports, Front Test Ports</td>
</tr>
</tbody>
</table>

www.blondertongue.com • 800-523-6049
The OCA Series are professional quality, amplified output combiners. These units are designed for use in headends to combine and amplify the outputs of multiple modulators and processors. The OCA Series employs radiation-proof passive components that provide excellent signal reproduction and years of reliable service. Two models are available, including: OCA-8b, 8 inputs; and OCA-12, 12 inputs.

The OCA Series features a single push-pull hybrid amplifier which supplies sufficient gain for driving a distribution system directly. The overall gain of the unit is variable using a built-in manual gain control, accessible via the front panel. The OCA Series provides high isolation between ports and net combining gain from each of the broadband inputs (50 to 450 MHz). A 20 dB test port is provided for signal monitoring without disrupting service.

**Features & Benefits**
- Rack Mountable - 1 EIA (1.75") Rack Space
- -20 dB Test Port
- Single Push-Pull Hybrid Module Design for High Output with Low Distortion

**Specifications**

**RF**
- Number of Inputs: 8
- Frequency Range: 50-450 MHz
- Flatness - Relative to Slope: ±0.25
- Output Level: +56 dBmV
- Overall Unit Gain: 22 dB
- Gain Control Range: 14 dB
- Cross Modulation: -57 dB
- Slope: ±0.75 dB
- Test Port Level: -20 dB
- Impedance - All Ports: 75 Ohm
- Input Return Loss: 16 dB
- Output Return Loss: 16 dB

**General**
- Power Requirements
  - Voltage: 117, ±10% VAC
  - Frequency: 60 Hz
  - Power: 10 W
- Fuse: 3/8 A
- Temperature Range: 0 to +50 °C

**Mechanical**
- Dimensions (WxHxD):
  - 19.0 x 1.75 x 15.0 in.
  - 483 x 44 x 381 mm
- Weight: 6.0 lbs, 2.73 kg

**Connectors (Rear Panel)**
- RF Input: "F" Type, Female
- RF Outputs: "F" Type, Female

**Connectors (Front Panel)**
- Test Port: "F" Type, Female

**Controls (Front Panel)**
- Gain Control: Control

**Indicators (Front Panel)**
- Power ON: LED, Green

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCA-8b</td>
<td>5956</td>
<td>Active Combiner 50-450 MHz, 8 Ports</td>
</tr>
<tr>
<td>OCA-12</td>
<td>5954</td>
<td>Active Combiner 50-540 MHz, 12 Ports</td>
</tr>
</tbody>
</table>
The MCA-b is professional quality VHF strip amplifier. The unit is designed to amplify and stabilize the level of a single VHF channel in a headend system. The strip amplifier features a low noise, high gain amplifier with exceptional output capability. A wide AGC window ensures a large dynamic range that provides a stable, quality signal, with low distortion and intermodulation products. The MCA-b employs an adjustable aural carrier trap at the input and an adjacent channel intermodulation trap at the output, permitting adjacent channel operation at high levels without the need for an external sound trap or additional output filtering.

### Features & Benefits
- Rack Mountable - 1 EIA (1.75”) Rack Space
- Accessory AC Outlet
- True Peak Detector AGC with 40 dB Range

### Specifications

#### RF
- Frequency Range MHz: 54-216
- Channels: VHF, FM, CATV
- Output Level dBmV
  - Maximum: 71.0
  - For Adjacent Channel: 66.0
- Output Level Range dB
  - VHF, CATV or UHF: 23
  - FM: 23
- Gain dB
  - VHF, CATV or UHF: 61.0
  - FM: 54.0
- Noise Figure @ Full Gain dB
  - VHF, CATV or UHF: 7.0
  - FM: 7.5
- AGC Range dB
  - VHF, CATV or UHF: 40
  - FM: 40
- AGC Stiffness dB
  - VHF, CATV or UHF: <0.5 (68), <1.0 (59)
  - FM: <1.5 (55)
- Bandpass Flatness dB
  - VHF, CATV or UHF: ±0.75
  - FM: ±1.00
- Alternate Channel Rejection dB: -30
- Aural Carrier Trap Range dB: 0-10
- Impedance - All Ports Ohm: 75
- Input Return Loss dB
  - VHF, CATV or UHF: 14
  - FM: 10
- Output Return Loss dB
  - VHF, CATV or UHF - On Channel: 18
  - VHF, CATV or UHF - Off Channel: 18 (>9 MHz)
  - FM - On Channel: 10
  - FM - Off Channel: 14

#### General
- Power Requirements
  - Voltage VAC: 117, ±10%
  - Frequency Hz: 60
- Fuse A: 1/8
- Temperature Range °C: 0 to +50

#### Mechanical
- Dimensions (WxHxD)
  - in: 19.0 x 1.75 x 4.0
  - mm: 483 x 44 x 102
- Weight
  - lbs: 4.0
  - kg: 1.82

#### Connectors (Front Panel)
- RF Input: “F” Type Female
- Thru Input: “F” Type Female
- Diplexed Output: “F” Type Female
- Test Port: “F” Type Female

#### Controls (Front Panel)
- Output Level: Control
- Aural Carrier Trap: Control
- AGC: Control

#### Indicators (Front Panel)
- Power ON: Neon Bulb

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCA-b</td>
<td>4454 216</td>
<td>Single Channel VHF/FM Strip Amplifier 54-216MHz, Channels: 2-6, FM, 98-99, 14-22, 7-13</td>
</tr>
</tbody>
</table>
The MCX Series are professional quality, single channel converters. These units are designed to convert a single VHF or UHF channel to a desired output channel (VHF or UHF). These converters feature crystal controlled oscillators for use in adjacent channel systems.

The MCX Series is electrically and mechanically compatible with Blonder Tongue's strip amplifiers and bandpass filters. The MCX Series features single conversion circuitry for channel changes without double conversion or external traps and filters. Some channel conversions are forbidden (refer to the chart and/or consult the BT sales department) and require the double conversion process used in Blonder Tongue's heterodyne processors. These converters utilize a balanced mixer design and a highly stable crystal oscillator, thereby allowing operation in adjacent channel headends. The MCX Series offers excellent image rejection.

**Features & Benefits**
- Rack Mountable - 1 EIA (1.75”) Rack Space
- High Input Capability with Low Noise Figure Provides Wide Dynamic Range
- Crystal Controlled Design Permits Use in Adjacent Channel Systems
- Excellent Image Rejection

### Specifications

#### RF

<table>
<thead>
<tr>
<th></th>
<th>MCX-V</th>
<th>MCX-V/U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>5-300</td>
<td>50-300</td>
</tr>
<tr>
<td>Flatness dB</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Input Signal Level</td>
<td>-3.5</td>
<td>-4.5</td>
</tr>
<tr>
<td>Recommended dBmV</td>
<td>+22</td>
<td>+22</td>
</tr>
<tr>
<td>Frequency Stability</td>
<td>±25</td>
<td>±25</td>
</tr>
<tr>
<td>Selectivity ±9 MHz</td>
<td>-45</td>
<td>-26</td>
</tr>
<tr>
<td>Spurious Outputs-L.O. Related dBmV</td>
<td>-20</td>
<td>-60</td>
</tr>
<tr>
<td>Hum Modulation dB</td>
<td>-55</td>
<td>-55</td>
</tr>
<tr>
<td>Impedance - All Ports Ohm:</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Return Loss</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Output dB</td>
<td>18</td>
<td>18</td>
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</table>

#### General

<table>
<thead>
<tr>
<th></th>
<th>MCX-V</th>
<th>MCX-V/U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Requirements</td>
<td>117, ±10%</td>
<td>117, ±10%</td>
</tr>
<tr>
<td>Voltage VAC</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Fuse A</td>
<td>1/8</td>
<td>1/8</td>
</tr>
<tr>
<td>Temperature Range °C</td>
<td>-20 to +50</td>
<td>-20 to +50</td>
</tr>
</tbody>
</table>

#### Mechanical

<table>
<thead>
<tr>
<th></th>
<th>MCX-V</th>
<th>MCX-V/U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (WxHxD)</td>
<td>19.0 x 1.75 x 5.13</td>
<td>19.0 x 1.75 x 5.13</td>
</tr>
<tr>
<td>Weight</td>
<td>5.0 lbs, 2.27 kg.</td>
<td>5.0 lbs, 2.27 kg.</td>
</tr>
</tbody>
</table>

#### Connectors (Front Panel)

<table>
<thead>
<tr>
<th></th>
<th>MCX-V</th>
<th>MCX-V/U</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Input &amp; Output</td>
<td>&quot;F&quot; Type, Female</td>
<td>&quot;F&quot; Type, Female</td>
</tr>
</tbody>
</table>

#### Indicators (Front Panel)

<table>
<thead>
<tr>
<th></th>
<th>MCX-V</th>
<th>MCX-V/U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power ON</td>
<td>Neon Bulb</td>
<td>Neon Bulb</td>
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### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCX-V</td>
<td>1448</td>
<td>Channel Converter 5-300 MHz (SUB/VHF), 5-300 MHz (SUB/VHF)</td>
</tr>
<tr>
<td>MCX-V/U</td>
<td>1459</td>
<td>Channel Converter 50-300 MHz (VHF), 470-806 MHz (UHF)</td>
</tr>
</tbody>
</table>
The BPF Series are professional quality, VHF/FM & UHF bandpass filters. These filters provide extremely high rejection of out of band signals and adjacent channels. The BPF-A utilizes a high-Q, six-stage bandpass filter and two phase cancellation traps to provide excellent rejection of out of band signals. The BPF-U passes a single UHF channel and offers excellent rejection of all channels outside the bandpass of the filter. These filters provide exceptional selectivity with minimum insertion loss. The BPF-A is housed in a single height, 1.75” high, rack mountable, aluminum chassis. The BPF-U is housed in a rugged, die-cast case that can be antenna or flat surface mounted.

**Features & Benefits**
- Low Insertion Loss
- Designed for Adjacent Channel Use
- Excellent Rejection of Undesired Signals Outside Passband

**Specifications**

<table>
<thead>
<tr>
<th>RF</th>
<th>BPF-A</th>
<th>BPF-U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range MHz:</td>
<td>54-216</td>
<td>470-806</td>
</tr>
<tr>
<td>Channels dB:</td>
<td>VHF &amp; FM</td>
<td>UHF</td>
</tr>
<tr>
<td>Bandpass Response dB:</td>
<td>±0.75 (2-6) ±0.75 (FM) ±1.00 (7-13)</td>
<td>±0.2 (14-69)</td>
</tr>
<tr>
<td>Lower Adjacent Audio dB:</td>
<td>-60</td>
<td>NA</td>
</tr>
<tr>
<td>Upper Adjacent Video dB:</td>
<td>-60</td>
<td>NA</td>
</tr>
<tr>
<td>Lower Alternate (-9 MHz) dB:</td>
<td>-40</td>
<td>NA</td>
</tr>
<tr>
<td>Upper Alternate (+9 MHz) dB:</td>
<td>-50 (2-6) -50 (7-13) -45 (14-22, 7-13)</td>
<td>-17</td>
</tr>
<tr>
<td>FM Filter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>@ 82 MHz dB:</td>
<td>-30</td>
<td>NA</td>
</tr>
<tr>
<td>@ 114 MHz dB:</td>
<td>-22</td>
<td>NA</td>
</tr>
<tr>
<td>@ Channel 6 dB:</td>
<td>-70</td>
<td>NA</td>
</tr>
<tr>
<td>Insertion Loss:</td>
<td>3.5 (2-6) 3.0 (FM) 8.0 (14-22) 8.0 (7-13)</td>
<td>1.8 (14-69)</td>
</tr>
<tr>
<td>Impedance - All Ports Ohm:</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Input Return Loss dB:</td>
<td>13 (2-6, 14-22, 7-13)</td>
<td>14 (FM)</td>
</tr>
<tr>
<td>Output Return Loss dB:</td>
<td>13 (2-6, 14-22, 7-13)</td>
<td>14 (FM)</td>
</tr>
</tbody>
</table>

**Mechanical**

| Dimensions (W x H x D) |
| in: | 19.0 x 1.75 x 6.13 |
| mm: | 483 x 44 x 156 |
| Weight | |
| lbs: | 3.0 |
| kg: | 1.36 |

| Connectors |
| RF Input: | "F" Type, Female |
| RF Output: | "F" Type, Female |

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPF-A</td>
<td>4414</td>
<td>Single Channel VHF/FM Bandpass Filter 54-216 MHz</td>
</tr>
<tr>
<td>BPF-U</td>
<td>4805</td>
<td>Single Channel UHF Bandpass Filter 470-806 MHz</td>
</tr>
</tbody>
</table>
Bandpass Filters
BPF-Z and MXF Series

Features & Benefits
• Rack Mountable - 1 EIA (1.75") Rack Space
• Single Channel VHF Bandpass Filter
• Sharp Skirt Selectivity
• Superior Adjacent Channel Rejection

Specifications

RF
Frequency Range: 54-88 & 120-216 MHz
Channels: VHF
Bandpass Response
2-6: ±0.75 dB
A-I: ±0.80 dB
7-13: ±1.20 dB
Selectivity
Lower Adjacent Audio: -55 dB
Upper Adjacent Video: -50 dB
Lower Alternate (-9 MHz): -35 dB
Upper Alternate (+9 MHz): -45 dB
Insertion Loss
2-6: 3.5 dB
A-I: 5.0 dB
7-13: 7.0 dB
Impedance - All Ports: 75 Ohm

Mechanical
Dimensions (WxHxD):
MXF: 19.0 x 1.75 x 3.5 in
483 x 44 x 89 mm
MXF-B: 9.75 x 4.00 x 5.38 in
248 x 102 x 137 mm
Weight:
MXF: 2.0 lbs, 0.91 kg
MXF-B: 4.0 lbs, 1.82 kg.

Connectors
RF Input & Output:
MXF: "F" Type, Male
MXF-B: "F" Type, Female

Features & Benefits
• Modular Bandpass Filters
• VHF and FM Coverage
• Applications Include Filtered Channel Combiner and Separator

Specifications

MXF Series
Professional quality, modular VHF/FM bandpass filters. This filter system consists of the MXF-B mounting base and up to 8 MXF bandpass filter modules. Filters are available for all of the standard broadcast TV channels (2-13) and two FM bands (88-108 MHz and 92-108 MHz). The MXF System may be used to separate channels from a single broadband antenna or combine two groups of four non-adjacent channels. Two filters are available for adding FM onto a system; FM-A for systems that include TV channel 5 and FM-B for systems that include TV channel 6. The MXF filter modules mount onto the MXF-B mounting base and can also be used as stand-alone filters.

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPF-Z</td>
<td>4419B</td>
<td>Single Channel VHF Bandpass Filter 54-216 MHz</td>
</tr>
<tr>
<td>MXF</td>
<td>3437</td>
<td>Modular Single Channel VHF/FM Bandpass Filter 54-216MHz, CHANNELS: 2-6, FMA, FMB, 7-13</td>
</tr>
<tr>
<td>MXF-B</td>
<td>3438</td>
<td>Modular Filter, Base Use with # 3437</td>
</tr>
</tbody>
</table>
The CEF is a professional quality, 750 MHz channel elimination filter. This filter is designed to remove one 6 MHz wide television channel, permitting another channel to be re-inserted onto the now vacated channel. Attenuation of greater than 52 dB can be obtained on both visual and aural carriers with only negligible loss to adjacent channel carriers. This results in clean removal of any channel (50 to 312 MHz, CH 2-38) and provides a means for substituting local origination or a desired channel for an unwanted channel. The CEF-750 has a passband to 750 MHz and is completely bidirectional, allowing the input and output connections to be interchanged.

**Specifications**

**RF**
- Frequency Range:
  - Channel Elimination: 54-312 MHz
  - Passband: 50-750 MHz
- Channels: VHF, CATV
- Insertion Loss - Max.:
  - Ch. 2 to 6 (50 - 312 MHz): 2.1 dB
  - Ch. 2 to 6 (312 - 750 MHz): 3.1 dB
  - Ch. 98 to 23 (50 - 312 MHz): 1.9 dB
  - Ch. 98 to 23 (312 - 750 MHz): 2.5 dB
  - Ch. 24 to 38 (50 - 312 MHz): 1.6 dB
  - Ch. 24 to 38 (312 - 750 MHz): 2.1 dB
- Channel Suppression: 52 dB

**Adjacent Channel Insertion Loss**
- 2 to 23: 3.0 dB
- 24 to 38: 4.0 dB

**Impedance - All Ports:** 75 Ohm

**Return Loss - Min.**
- Input: 10 dB
- Output: 10 dB

**Mechanical**
- Dimensions (WxHxD): 19.0 x 1.75 x 10.25 in.
  - 483 x 44 x 260 mm
- Weight: 6.0 lbs., 2.73 kg

**Connectors**
- RF Input: F” Type, Female
- RF Output: ”F” Type, Female

Refer to product instruction manual for additional specification measurements and notes.
The MWT Series are professional quality, tunable notch traps. These units are designed to trap a very narrow band of frequencies while passing the rest of the band with very low insertion loss. Two tunable traps are employed which can be tuned to the same frequency to provide up to 60 dB of attenuation. The MWT Series can be used in conjunction with an off-air antenna feed to eliminate interference (i.e. adjacent channels). The MWT Series features a rugged die cast housing and can be mast or flat surface mounted.

**Specifications**

<table>
<thead>
<tr>
<th>RF</th>
<th>MWT-2b</th>
<th>MWT-3b</th>
<th>MWT-4</th>
<th>MWT-U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range MHz</td>
<td>54-108</td>
<td>174-216</td>
<td>108-174</td>
<td>470-890</td>
</tr>
<tr>
<td>Trap Tuning: Bandpass:</td>
<td>54-116</td>
<td>54-216</td>
<td>54-300</td>
<td>54-890</td>
</tr>
<tr>
<td>Insertion Loss (Max) - Outside Notch dB</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>54-118 MHz:</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>108-174 MHz:</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>470-890 MHz:</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Notch Depth - Maximum dB</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Notch Depth Range dB</td>
<td>0.5-40</td>
<td>0.5-40</td>
<td>0.5-40</td>
<td>NA</td>
</tr>
<tr>
<td>Notch Width dB vs. Freq.:</td>
<td>-3 (1.9 MHz)</td>
<td>-3 (2.0 MHz)</td>
<td>-3 (2.0 MHz)</td>
<td>-3 (10 MHz)</td>
</tr>
<tr>
<td>54-118 MHz:</td>
<td>-30 (120 kHz)</td>
<td>-30 (100 kHz)</td>
<td>-30 (100 kHz)</td>
<td>-12 (3 MHz)</td>
</tr>
<tr>
<td>108-174 MHz:</td>
<td>-40 (45 kHz)</td>
<td>-40 (35 kHz)</td>
<td>-40 (35 kHz)</td>
<td>-20 (1.8 MHz)</td>
</tr>
<tr>
<td>470-890 MHz:</td>
<td>-30 (400 kHz)</td>
<td>-40 (100 kHz)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Impedance - All Ports Ohm:</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Return Loss - Input &amp; Output dB</td>
<td>-20</td>
<td>-20</td>
<td>-20</td>
<td>-10</td>
</tr>
<tr>
<td>54-118 MHz:</td>
<td>-20</td>
<td>-20</td>
<td>-20</td>
<td>-10</td>
</tr>
<tr>
<td>108-174 MHz:</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>470-890 MHz:</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>15</td>
</tr>
</tbody>
</table>

**General**

- Power Passing Ability: NO NO NO YES
- Voltage (VAC): NA NA NA 100
- Frequency Hz: NA NA NA 0-60
- Current A: NA NA NA 6

**Controls (Front Panel)**

- Trap Coarse & Fine Tune: NA NA NA Controls
- Trap Depth: NA NA NA Control

**Mechanical**

- Dimensions (LxWxD): 6.38 x 2.75 x 3.25 in (162 x 70 x 83) mm
- Weight: 1.5 lbs, (0.68 kg)

**Connectors (Front Panel)**

- RF Input & Output: “F” Type Female

**Features & Benefits**

- Low Insertion Loss
- VHF and UHF Tunable Notch Traps
- Ideal for Eliminating Interference from Off-Air Antennas
- Rugged Die-Cast Housing with Mast and Flat Surface Mount Ability

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWT-2b</td>
<td>4505</td>
<td>Tunable Notch Trap 54-108 MHz</td>
</tr>
<tr>
<td>MWT-3b</td>
<td>4529</td>
<td>Tunable Notch Trap 174-216 MHz</td>
</tr>
<tr>
<td>MWT-4</td>
<td>4898</td>
<td>Tunable Notch Trap 108-174 MHz</td>
</tr>
<tr>
<td>MWT-U</td>
<td>4614</td>
<td>Tunable Notch Trap 470-890 MHz</td>
</tr>
</tbody>
</table>
The Blonder Tongue BAVM-860SAW is an economical commercial quality TV modulator. It provides a +55 dBmV RF output on any specified CATV channel from 2 to 135 (54 to 860 MHz). HRC and IRC frequency plans are also available. The BAVM-860SAW is ideal for placing A/V program sources such as satellite receivers, VCR's, DVD's, cameras or TV demodulators onto standard 6 MHz NTSC TV channels for broadband distribution. The BAVM-860SAW features IF SAW filtering with built-in FCC group delay pre-distortion assuring excellent adjacent channel performance and color operation. The modulator complies with FCC 21006 with +/- 5 kHz visual carrier stability and required frequency offsets on all aeronautical channels. For BTSC stereo applications, a field-defeatable audio pre-emphasis network is provided making the BAVM-860SAW compatible with any outboard stereo generator that provides a composite baseband output. A -30 dB output test point and all user controls are provided on the front panel.

Features & Benefits

- Meets FCC Docket 21006 Aeronautical Frequency Offset Requirements
- Fully Compatible With BTSC Encoded Stereo Audio
- Front Panel Accessible Level Controls for Easy Set-Up and Adjustments
- Low Cost High Performance Channelized Audio/Video Modulator
- AC Convenience Outlet

Specifications

RF
- Frequency Range: CATV Channels 2 to 135
- Output Level: 55 dBmV, Min
- Output Level Range: 15 dB, Continuously Adjustable by Front Panel Output Level Control
- Audio/Video Carrier Ratio Control: -7 dB to -20 dB
- Frequency Tolerance: ±10 kHz - Standard Channels
- ±5 kHz FCC 21006 Offsets
- Audio Carrier Frequency Setting: ±1 kHz, Max
- 4.5 MHz Above Video Carrier
- RF to Video Response from Fv -0.5 MHz to Fv +4.2 MHz: 1 dB P/V
- Broadband Noise -90 dBc
- Spurious Output in 50 – 860 MHz Range @ +55 dBmV Output: -60 dBc
- Output Match (Return Loss): 12 dBc
- Vestigial Sideband Response: @Channel Edge -20 dB
  @Adjacent Channel -40 dB

Video
- Input for 87.5% Modulation: 0.7V to 2.5 V P-P
- Video Input Return Loss: 18 dB
- Video Carrier-To-Noise Ratio in 4 MHz Bandwidth: 62 dB
- P-P Video to 60 Hz RMS Hum Ratio: 60 dB
- Differential Gain at 87.5% Modulation: ≤ 5%
- Differential Phase at 87.5% Modulation: ≤ 5°
- Group Delay: 170 ± 50 nS

Audio
- Input Impedance: 10K Ohms, Unbalanced
- Input for 25 KHz Peak Deviation: 140 mV RMS
- Audio Frequency Response: ±1.0 dB
  (50 Hz to 15 KHz ref to std 75 msec Pre-emphasis)
- 4.5 MHz Intercarrier Stability: ±5.0 kHz

General
- Power Requirements: 105-130 VAC, 60 Hz, 10.5 W
- Temperature Range: 0 to +50 °C

Mechanical
- Dimensions WxHxD: 19 x 13/4 x 3 in
- Mounting: 19" Single Rack Space
- Line Cord: 3 Wire Grounded,
  3 Wire Convenience Outlet
- Finish: Plated
- Shipping Weight: 4 lbs. (approx)

Connectors
- Audio In: “F” Type Female
- Video In: “F” Type Female
- RF Out: “F” Type Female
- RF Output Test - 30 dB: “F” Type Female

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAVM-860SAW</td>
<td>5990 300</td>
<td>Channelized Audio/Video Modulator, Saw Filtered 54-300 MHz</td>
</tr>
<tr>
<td>BAVM-860SAW</td>
<td>5990 860</td>
<td>Channelized Audio/Video Modulator, Saw Filtered 300-860 MHz</td>
</tr>
</tbody>
</table>

Refer to product instruction manual for additional specification measurements and notes.
The ZDM-806 is an agile audio/video demodulator. The ZDM-806 can demodulate any single VHF, UHF and CATV channel in the 54 to 806 MHz frequency range. It is ideal for off-air signal processing (audio/video processing and remodulation) or CATV "Cherry Picking" applications. Baseband audio and video are provided as outputs. Agile channel selection is via a front panel LED display and channel up/down buttons. A channel lockout mode is also provided to prevent accidental channel changes.

**Features & Benefits**
- Rack Mountable - 1 EIA (1.75") Rack Space
- Agile Demodulator
- LED Display for Easy Channel Selection
- Superior Performance, Broadcast Applications

**Specifications**

**RF**
- Frequency Range: 54-806 MHz
- Channels: VHF, UHF, CATV
- Input Level - Range: -5 to +30 dBmV
- Noise Figure: 8-11 dB
- Image Rejection
  - VHF: 65 dB
  - UHF: 50 dB
- Input/Output Impedance: 75 Ohm

**Video**
- Output Level: 1.0 V p-p
- Output Impedance: 75 Ohm

**Audio**
- Output Level: 1.0 V p-p
- Impedance - Unbalanced: 600

**General**
- Power Requirements
  - Voltage: 117, ±10% VAC
  - Frequency: 60 Hz
  - Power: 2.5 W
- Temperature Range: 0 to +50 °C

**Mechanical**
- Dimensions (WxHxD): 19.0 x 1.75 x 4.00 in
- Weight: 4.00 lbs, 1.82 kg

**Connector (Rear Panel)**
- RF Input: "F" Type, Female
- Video Output: "F" Type, Female
- Audio Output: RCA Phono, female

**Controls (Front Panel)**
- Channel Selection: Push buttons
- Video Level: Control
- Audio Level: Control

**Indicators (Front Panel)**
- Power ON: LED, Green
- Channel: LED, 7 Segment, 3 Digit

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZDM-806</td>
<td>5880</td>
<td>Agile Audio/Video Demodulator 54-806 MHz UHF/VHF/CATV Input</td>
</tr>
</tbody>
</table>
The ZHC Series are professional quality, passive and active output combiners. These units are designed for use in headends to combine the outputs of multiple modulators and processors. The ZHC-12 has twelve (12) broadband input ports and one combined output port. The ZHCA-16c is a 16 port active combiner, providing overall unity gain and is commonly referred to as a “zero loss” combiner.

### Specifications

<table>
<thead>
<tr>
<th>RF</th>
<th>ZHC-12a</th>
<th>ZHCA-16c</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Inputs:</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Frequency Range MHz:</td>
<td>40-1000</td>
<td>54-750</td>
</tr>
<tr>
<td>Input Level - Max dBmV:</td>
<td>NA</td>
<td>+57</td>
</tr>
<tr>
<td>Output Level - Max dBmV:</td>
<td>NA</td>
<td>+48</td>
</tr>
<tr>
<td>Cross Modulation dBC:</td>
<td>NA</td>
<td>-57</td>
</tr>
<tr>
<td>Overall Unit Gain dBC:</td>
<td>NA</td>
<td>0 to -3</td>
</tr>
<tr>
<td>Gain Control Range dBC:</td>
<td>NA</td>
<td>9</td>
</tr>
<tr>
<td>Insertion Loss dBC:</td>
<td>40-450 MHz 17 dB</td>
<td>450-1000 MHz 20 dB</td>
</tr>
<tr>
<td>Isolation dBC:</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>Flatness dBC:</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Impedance - All Ports Ohm:</td>
<td>75</td>
<td>75</td>
</tr>
</tbody>
</table>

### General

- Power Requirements
  - Voltage VAC: NA
  - Frequency Hz: NA
  - Power W: NA
  - Temperature Range °C: NA

### Mechanical

- Dimensions (WxHxD): 19.0 x 1.75 x 2.88 in. | 19.0 x 1.75 x 2.88 in.
- Weight lbs: 2.0 lbs., 0.91 kg. | 3.0 lbs., 1.36 kg.

### Connectors (Rear Panel)

- RF Input & Output: "F" Type Female
- Test Port: "F" Type Female

### Connectors (Front Panel)

- Gain: NA

### Controls (Front Panel)

- Control

### Features & Benefits

- Rack Mountable - 1 EIA (1.75”) Rack Space
- High Isolation
- -20 dB Test Port

Refer to product instruction manual for additional specification measurements and notes.

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZHC-12a</td>
<td>5959A</td>
<td>Passive Combiner 40-1000 MHz, 12 Ports</td>
</tr>
<tr>
<td>ZHCA-16C-750</td>
<td>7757</td>
<td>Active Combiner 50-750 MHz, 16 Ports</td>
</tr>
</tbody>
</table>
The MCX-Uz is a low cost, professional quality, single channel converter. This unit is designed for use in commercial grade, MATV or SMATV headends. The MCX-Uz features single conversion circuitry for channel changes, eliminating the need for double conversion or external traps and filters. Some channel conversions are forbidden (see chart) and will require the double conversion process used in Blonder Tongue’s CAP Series (Channelized Heterodyne Processor) or SAIP Series (Agile Input, Channelized Agile Output Heterodyne Processor). The MCX-Uz converts any UHF channel (470 to 806 MHz) to any VHF channel in the 50 to 216 MHz frequency range (with exceptions). These converters feature crystal controlled PLL synthesizers and a balanced mixer design, thereby allowing operation in adjacent channel systems. The unit is both electrically and mechanically compatible with Blonder Tongue’s Low Cost Single Channel VHF Strip Amplifier (ZSCA) and Bandpass Filter (BPF-z).
The ZSCA is a low cost, professional quality, 1 Volt, VHF strip amplifier. This unit is designed to amplify and stabilize the level of a single or multiple FM channel in a MATV or SMATV headend. This strip amplifier offers low noise, high output capability, and a wide AGC window, thereby providing a very stable, low distortion signal.

An integrated diplexer allows combining of alternate channels by looping the strip amplifiers in series. Input and output test ports allow for easy setup and testing without disrupting service. Level control is provided for output level. All controls and test ports are located on the front panel for ease of operation. The unit is both electrically and mechanically compatible with Blonder Tongue’s Low Cost Bandpass Filter (BPF-z), Strip Amplifier ZSCA and UHF to VHF Channel Converter (MCX-Uz).

**Features & Benefits**
- Rack Mountable - 1 EIA (1.75") Rack Space
- Front Panel Level Controls, Rear AC Convenience Outlet
- Low Noise, High Output Capability VHF Strip Amplifier
- Automatic Gain Control with Wide Dynamic Range
- Adjustable Aural Carrier for Lower Distortion
- Input & Output Test Ports

**Specifications**

**RF**
- Frequency Range: 88-108/92-108 MHz
- Maximum Output Level: 64 dBmV
- Maximum Input Level: 42 dBmV
- Minimum Input Level: 12 dBmV
- Output Level Range: 15 dB
- Gain - Min: 52.0 dB
- AGC Range: 30 dB
- AGC Stiffness: ±1 at output dB
- Aural Carrier Trap Range: 10 dB
- Impedance - All Ports: 75
- Input Return Loss: 5.5 dB
- Output Return Loss: 5.5 dB

**General**
- Power Requirements
  - Voltage: 108-120 VAC
  - Frequency: 60 Hz
  - Power: 10 W
- Fuse: 1/8 A
- Temperature Range: 0 to +50 °C

**Mechanical**
- Dimensions (WxHxD):
  - 19.0 x 1.75 x 3.0 in
  - 483 x 44 x 76 mm
- Weight: 4.0 lbs. 1.82 kg

**Connectors (Rear Panel)**
- RF Input: "F" Type, Female
- Thru Input: "F" Type, Female
- Diplexed Output: "F" Type, Female

**Connectors (Front Panel)**
- Input Test Port: -20 dB "F" Type, Female
- Output Test Port: -30 dB "F" Type, Female

**Controls (Front Panel)**
- AGC RF Gain: 15 dB

**Indicators (Front Panel)**
- Power ON: LED, Green

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZSCA-FM</td>
<td>4465</td>
<td>FM Strip Amplifier Low Noise 88-108 MHz Strip Amplifier</td>
</tr>
</tbody>
</table>
The ZFMSM is a low cost, professional quality, agile FM stereo modulator. The unit accepts either monaural or stereo (left & right) inputs and modulates the input to any standard FM channel assignment in the frequency range of 88-108 MHz. Frequency selection is via a front panel up/down switch with a digital display. The ZFMSM modulator retains the frequency setting in the even of power interruption. The modulator can be used in a stand alone configuration or in conjunction with the ZSCA-FM wide band (88-108 MHz) amplifier. An output test port allows for easy setup and testing without disrupting service. All controls and test ports are located on the front panel for ease of operation.

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZFMSM</td>
<td>5872</td>
<td>Agile FM Stereo Modulator Agile Low Noise 88-108 MHz Modulator</td>
</tr>
</tbody>
</table>

**Specifications**

**RF**
- Frequency Range: 88-108 MHz
- Frequency Step: 200 KHz
- Output Level - Min: +32 dBmV
- Output Level Adjust: 10 dB
- Frequency Stability: ±10 KHz
- Audio Input Level
  - Min: 0.2 Vp-p
  - Max: 2.0 Vp-p
- Audio Frequency Range: 30 Hz to 15 kHz
- Audio S/N Ratio: >60 dB
- Audio Separation: >30 dB

**Mechanical**
- Dimensions (WxHxD): 19.0 x 1.75 x 3.01 in
- Weight: 4 lbs, 1.82 kg

**Connectors (Rear Panel)**
- Audio Input: L/R “F” Type Female
- RF Output: “F” Type Female
- Test Port: “F” Type Female

**Controls (Front Panel)**
- Frequency Setting: Up/Down Control
- Aural Modulation Adj.: Control
- RF Output Level: Control

**Indicators (Front Panel)**
- Power ON: LED, Green
- Frequency Display: 4 Digit LED Screen

**Features & Benefits**
- Rack Mountable - 1 EIA (1.75”) Rack Space
- High Performance FM Audio Modulator
- Superior Signal to Noise and Audio Separation Performance
- Switchable Mono or Stereo Capability
- Front Panel Level Controls, Rear AC Convenience Outlet
- Rack Mountable - 1 EIA (1.75”) Rack Space
The HAVM Series includes consumer quality, double side band agile modulators, designed for use in multi-room video distribution systems to provide additional video sources, such as security cameras, laser disks, etc. Four models are available, including 1 or 2 channels and 300 to 550 MHz or 470 to 806 MHz frequency coverage. The HAVM Series has a rear panel switch for selecting either CATV (Hyperband) or UHF (Broadcast) channels, depending on the desired application. These economically priced modulators provide very good picture quality for non-adjacent channel use. Agile channel selection makes setup fast and easy. Non-volatile memory ensures last channel recall even after a power outage. The HAVM Series products are housed in a standard cable converter style case with a rugged plastic front panel. LED display(s) and channel up/down buttons permit easy selection of the desired channel(s).
The RMX, FDX and RAX Series are professional quality, headend rack cabinets designed for mounting standard 19 inch rack components. These cabinets are rigidly constructed of 16 gauge steel and are welded throughout. Two pairs of 12 gauge, fully adjustable, steel panel mounting angles with standard EIA spaced panel mounting holes included.

The RMX and FDX Series features a louvered rear door that is hung on sturdy slip-jointed hinges and closes with a chrome handle (locking handle with 2 keys available at additional cost). The FDX Series also features a front door with locking handle and 2 keys. The RAX features open frame construction which accepts optional SPX side panels.

All three series of racks come standard in a matte black finish. The RMX and FDX Series are available in a choice of three heights (61", 70", and 77" panel spacing) and two depths (18" and 24"). The RAX Series are available in a choice of two heights (70", and 77" panel spacing) and 24" depth spacing. The 24" cabinets are required when using satellite IRDs.

The SWC-1528 is a professional quality, headend wall cabinet designed for mounting standard 19 inch rack components. This cabinet is constructed of 16 gauge steel with three removable sections, including: center body section, front door, and rear door. Both doors utilize removable pin hinges for easy assembly. The SWC-1528 features knockout holes that simplify wiring and center body section louvers for improved air circulation and heat dissipation. The center and rear sections are secured with locking rods and alignment pins. The front door section has a cylinder lock for added security. The SWC-1528 is available in a semi-gloss black finish.

Specifications and Ordering Information are located on the following pages.
## Specifications

<table>
<thead>
<tr>
<th>Stock Number</th>
<th>Model Name</th>
<th>Overall Dimensions (HxWxD)</th>
<th>Panel Dimensions (HxW)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>3971</td>
<td>RMX-6119-18</td>
<td>67.38&quot; x 22.0&quot; x 18.0&quot;</td>
<td>61.25&quot; x 19.0&quot;</td>
<td>150 lbs.</td>
</tr>
<tr>
<td></td>
<td>(171 cm x 56 cm x 46 cm)</td>
<td>(156 cm x 49 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3972</td>
<td>RMX-7019-18</td>
<td>76.13&quot; x 22.0&quot; x 18.0&quot;</td>
<td>70.00&quot; x 19.0&quot;</td>
<td>170 lbs.</td>
</tr>
<tr>
<td></td>
<td>(193 cm x 56 cm x 46 cm)</td>
<td>(178 cm x 49 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3973</td>
<td>RMX-7719-18</td>
<td>83.13&quot; x 22.0&quot; x 18.0&quot;</td>
<td>77.00&quot; x 19.0&quot;</td>
<td>190 lbs.</td>
</tr>
<tr>
<td></td>
<td>(211 cm x 56 cm x 46 cm)</td>
<td>(196 cm x 49 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3974</td>
<td>RMX-6119-24</td>
<td>67.38&quot; x 22.0&quot; x 24.0&quot;</td>
<td>61.25&quot; x 19.0&quot;</td>
<td>175 lbs.</td>
</tr>
<tr>
<td></td>
<td>(171 cm x 56 cm x 61 cm)</td>
<td>(156 cm x 49 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3975</td>
<td>RMX-7019-24</td>
<td>76.13&quot; x 22.0&quot; x 24.0&quot;</td>
<td>70.00&quot; x 19.0&quot;</td>
<td>200 lbs.</td>
</tr>
<tr>
<td></td>
<td>(193 cm x 56 cm x 61 cm)</td>
<td>(178 cm x 49 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3976</td>
<td>RMX-7719-24</td>
<td>83.13&quot; x 22.0&quot; x 24.0&quot;</td>
<td>77.00&quot; x 19.0&quot;</td>
<td>225 lbs.</td>
</tr>
<tr>
<td></td>
<td>(211 cm x 56 cm x 61 cm)</td>
<td>(196 cm x 49 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3981</td>
<td>FDX-6119-18</td>
<td>67.38&quot; x 22.0&quot; x 18.0&quot;</td>
<td>61.25&quot; x 19.0&quot;</td>
<td>175 lbs.</td>
</tr>
<tr>
<td></td>
<td>(171 cm x 56 cm x 46 cm)</td>
<td>(156 cm x 49 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3982</td>
<td>FDX-7019-18</td>
<td>76.13&quot; x 22.0&quot; x 18.0&quot;</td>
<td>70.00&quot; x 19.0&quot;</td>
<td>200 lbs.</td>
</tr>
<tr>
<td></td>
<td>(193 cm x 56 cm x 46 cm)</td>
<td>(178 cm x 49 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3983</td>
<td>FDX-7719-18</td>
<td>83.13&quot; x 22.0&quot; x 18.0&quot;</td>
<td>77.00&quot; x 19.0&quot;</td>
<td>220 lbs.</td>
</tr>
<tr>
<td></td>
<td>(211 cm x 56 cm x 46 cm)</td>
<td>(196 cm x 49 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3984</td>
<td>FDX-6119-24</td>
<td>67.38&quot; x 22.0&quot; x 24.0&quot;</td>
<td>61.25&quot; x 19.0&quot;</td>
<td>200 lbs.</td>
</tr>
<tr>
<td></td>
<td>(171 cm x 56 cm x 61 cm)</td>
<td>(156 cm x 49 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3985</td>
<td>FDX-7019-24</td>
<td>76.13&quot; x 22.0&quot; x 24.0&quot;</td>
<td>70.00&quot; x 19.0&quot;</td>
<td>255 lbs.</td>
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<tr>
<td></td>
<td>(193 cm x 56 cm x 61 cm)</td>
<td>(178 cm x 49 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3986</td>
<td>FDX-7719-24</td>
<td>83.13&quot; x 22.0&quot; x 24.0&quot;</td>
<td>77.00&quot; x 19.0&quot;</td>
<td>270 lbs.</td>
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<tr>
<td></td>
<td>(211 cm x 56 cm x 61 cm)</td>
<td>(196 cm x 49 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3979</td>
<td>RAX-7024</td>
<td>76.26&quot; x 25.75&quot; x 26.75&quot;</td>
<td>70.1&quot; x 19&quot;</td>
<td>150 lbs.</td>
</tr>
<tr>
<td></td>
<td>(193.7 cm x 65.4 cm x 67.95 cm)</td>
<td>(178.1 cm x 48.3 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3977</td>
<td>RAX-7724</td>
<td>85.01&quot; x 25.75&quot; x 26.75&quot;</td>
<td>78.8&quot; x 19&quot;</td>
<td>198 lbs.</td>
</tr>
<tr>
<td></td>
<td>(215.9 cm x 65.4 cm x 67.95 cm)</td>
<td>(200.2 cm x 48.3 cm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Wall Cabinet

<table>
<thead>
<tr>
<th>Stock Number</th>
<th>Model Name</th>
<th>Overall Dimensions</th>
<th>Panel Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>3695</td>
<td>SWC-1528</td>
<td>31&quot; x 20.625&quot; x 21.5&quot;</td>
<td>28&quot; x 19&quot;</td>
<td>75 lbs.</td>
</tr>
<tr>
<td></td>
<td>(78.7 cm x 52.4 cm x 54.6 cm)</td>
<td>(71.1 cm x 48.3 cm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Section Depth:**

- Front - Center - Rear: 2" x 15" x 4.5" (5.1 cm x 38.1 cm x 11.4cm)

## Ordering Information

### Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDX-6119-18</td>
<td>3981</td>
<td>Rack Cabinet, Front &amp; Rear Doors 61.25&quot; H x 19&quot; W x 18&quot; D</td>
</tr>
<tr>
<td>FDX-6119-24</td>
<td>3984</td>
<td>Rack Cabinet, Front &amp; Rear Doors 61.25&quot; H x 19&quot; W x 24&quot; D</td>
</tr>
<tr>
<td>FDX-7019-18</td>
<td>3982</td>
<td>Rack Cabinet, Front &amp; Rear Doors 70.00&quot; H x 19&quot; W x 18&quot; D</td>
</tr>
<tr>
<td>FDX-7019-24</td>
<td>3985</td>
<td>Rack Cabinet, Front &amp; Rear Doors 70.00&quot; H x 19&quot; W x 24&quot; D</td>
</tr>
<tr>
<td>FDX-7719-18</td>
<td>3983</td>
<td>Rack Cabinet, Front &amp; Rear Doors 77.00&quot; H x 19&quot; W x 18&quot; D</td>
</tr>
<tr>
<td>FDX-7719-24</td>
<td>3986</td>
<td>Rack Cabinet, Front &amp; Rear Doors 77.00&quot; H x 19&quot; W x 24&quot; D</td>
</tr>
<tr>
<td>RAX-7024</td>
<td>3979</td>
<td>Rack Assembly 70.00&quot; H x 19&quot; W x 24&quot; D</td>
</tr>
<tr>
<td>RAX-7724</td>
<td>3977</td>
<td>Rack Assembly 77.00&quot; H x 19&quot; W x 24&quot; D</td>
</tr>
<tr>
<td>RMX-6119-18</td>
<td>3971</td>
<td>Rack Cabinet, Rear Door 61.25&quot; H x 19&quot; W x 18&quot; D</td>
</tr>
<tr>
<td>RMX-6119-24</td>
<td>3974</td>
<td>Rack Cabinet, Rear Door 61.25&quot; H x 19&quot; W x 24&quot; D</td>
</tr>
<tr>
<td>RMX-7019-18</td>
<td>3972</td>
<td>Rack Cabinet, Rear Door 70.00&quot; H x 19&quot; W x 18&quot; D</td>
</tr>
<tr>
<td>RMX-7019-24</td>
<td>3975</td>
<td>Rack Cabinet, Rear Door 70.00&quot; H x 19&quot; W x 24&quot; D</td>
</tr>
<tr>
<td>RMX-7719-18</td>
<td>3973</td>
<td>Rack Cabinet, Rear Door 77.00&quot; H x 19&quot; W x 18&quot; D</td>
</tr>
<tr>
<td>RMX-7719-24</td>
<td>3976</td>
<td>Rack Cabinet, Rear Door 77.00&quot; H x 19&quot; W x 24&quot; D</td>
</tr>
<tr>
<td>SPX-7024</td>
<td>3980</td>
<td>Rack Side Panel 70.00&quot;</td>
</tr>
<tr>
<td>SPX-7724</td>
<td>3978</td>
<td>Rack Side Panel 77.00&quot;</td>
</tr>
<tr>
<td>SWC-1528</td>
<td>3695</td>
<td>Wall Cabinet 31.000&quot; H x 21.625&quot; W</td>
</tr>
</tbody>
</table>

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The IRH Series are professional quality, headend rack products designed for wall mounting standard 19 inch rack components. Three components are available, including: IRH-1924B-F, rack frame; IRH-1924B-C, locking cover; and IRH PANEL, perforated panel.

Heavy Duty Racks

The RR Series are professional quality, headend relay racks designed for mounting standard 19 inch rack components. The RR-2164, RR-2173, and RR-2180 are heavy duty, very rugged relays racks with 8" side rails. The RR-6119-3, RR-7019-3 and RR-8419-3 are economical, rugged relays racks with 3" side rails.

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR-2164</td>
<td>3960 3</td>
<td>Relay Rack 61.25&quot; H x 22&quot; W x 3&quot; D</td>
</tr>
<tr>
<td>RR-2173</td>
<td>3970 3</td>
<td>Relay Rack 70.00&quot; H x 22&quot; W x 3&quot; D</td>
</tr>
<tr>
<td>RR-2180</td>
<td>3950 3</td>
<td>Relay Rack 83.50&quot; H x 22&quot; W x 3&quot; D</td>
</tr>
<tr>
<td>RR-2180</td>
<td>3963</td>
<td>Relay Rack 80.25&quot; H x 22&quot; W x 8&quot; D, Heavy Duty</td>
</tr>
<tr>
<td>RR-2164</td>
<td>3961</td>
<td>Relay Rack 64.50&quot; H x 22&quot; W x 8&quot; D, Heavy Duty</td>
</tr>
<tr>
<td>RR-2173</td>
<td>3962</td>
<td>Relay Rack 73.25&quot; H x 22&quot; W x 8&quot; D, Heavy Duty</td>
</tr>
</tbody>
</table>
Headend Racks and Panel
Economy Series

The BH-1 is a professional quality housing designed for enclosing equipment in an indoor environment. This housing is an indoor, fully ventilated housing with a perforated mounting surface. Keyed slots allow both vertical and horizontal mounting.

- **Specifications**
  - **Dimensions:**
    - 20.0” x 27.0” x 10.5” inches
    - 51 cm x 69 cm x 27 cm
  - **Weight:** 18 lbs., 8.18 kg

The BFP Series includes black anodized blank panels used to finish the professional look of a Blonder Tongue headend. These panels have an identical look and finish as standard Blonder Tongue headend products. Three models are available, including: BFP-119 BLK, 1.75"; BFP-319 BLK, 3.50"; and BFP-519, 5.25".

The RR-6/8 RX is a universal 19 inch satellite receiver rack which holds up 6 or 8 satellite receivers (model dependent).

- **Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BFP19-3B</td>
<td>3991B</td>
<td>Blank Front Panel Black, 19” W x 5.25” H (3 Rack Unit High)</td>
</tr>
<tr>
<td>BFP-19-V</td>
<td>3988</td>
<td>Vented Blank Front Panel Black, 19” W x 1.75” H (1 Rack Unit High)</td>
</tr>
<tr>
<td>BFP19-2B</td>
<td>3990B</td>
<td>Blank Front Panel Black, 19” W x 3.50” H (2 Rack Unit High)</td>
</tr>
<tr>
<td>BFP19-1B</td>
<td>3989B</td>
<td>Blank Front Panel Black, 19” W x 1.75” H (1 Rack Unit High)</td>
</tr>
<tr>
<td>RR-6/8 RX</td>
<td>3932E</td>
<td>Universal 19 inch Satellite Receiver Rack (Holds 6 or 8 Satellite Receivers)</td>
</tr>
<tr>
<td>IRH PANEL</td>
<td>3693</td>
<td>Perforated Panel, 19” W x 5.25” H</td>
</tr>
<tr>
<td>RS-2U</td>
<td>3995</td>
<td>Rack Shelf (2 Rack Unit High)</td>
</tr>
</tbody>
</table>
Modern school systems often incorporate audio (paging or intercom throughout the school) with traditional video distribution (delivering a number of channels to each classroom). Video distribution allows the school to interface with local cable television and deliver topical programs to each classroom, originate local programming (either live or playback via a VCR) and provide to every room in the school. Additionally, emergency or general announcement information can be quickly delivered with both audio and video information to each television in the school. Blonder Tongue manufactures a complete line of products for implementing a Video All-Call System. These systems provide an integrated solution of allowing one channel to override all other channels on all televisions in a school system. In order to integrate all of these components into a complete all-call system, Blonder Tongue also offers the VACD-12 Distribution Amplifier and the AB-800 Pin Diode Switch. These two products are used to distribute the alternate audio/video program to each modulator and processor in the system. When invoked, the substitute IF program will override the normal IF programs available at each modulator and processor. Every channel in the system will be overridden with the new program.

### Specifications

**VACD-12**

*IF*
- Input Frequency Range: 41 to 47 MHz
- Input/Output Level: +28 dBmV
- Reserve Gain: 3 dB
- Output Frequency Range: 41 to 47 MHz

*Electrical*
- AB-800 Control Voltages: ±15 VDC
- Sensing: Contact Closure

*General*
- Power Requirements
  - Voltage: 117, ±10% VAC
  - Frequency: 60 Hz
  - Power: 12 W
- Fuse: 1/2 A
- Temperature Range: 0 to +50 °C

*Connectors (Rear Panel)*
- IF IN: “F” Type, Female
- IF OUTs (12): “F” Type, Female
- Control: MOLEX, Female, 4 PIN
- Sense: MOLEX, Female, 2 PIN

*Connectors (Front Panel)*
- IF Test Port: “F” type, female

*Controls (Front Panel)*
- IF Output Level: Control

*Indicators*
- Power ON: LED, Green

*Accessories*
- Control Plug Pigtail: MOLEX, 4 PIN, male

**AB-800**

*IF*
- Input Frequency Range: 41 to 47 MHz
- Insertion Loss: 0.5 dB
- Isolation: >60 dB

*Electrical*
- Control Voltages: ±15 VDC

*Mechanical*
- Dimensions (WxHxD):
  - 4.44 x 1.56 x 0.94 in
  - 113 x 40 x 24 mm
- Weight: 1.00 lbs. (0.45 kg)

*Connectors (Side Panels)*
- IF Input: "F" Type, Female
- All-Call Input: "F" Type, Female
- IF Output: "F" Type, Female
- Control: Locking Header, Female, 4 PIN

*Accessories*
- Control Plug: Locking Plug, Male, 4 PIN

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VACD-12</td>
<td>4019</td>
<td>Video All-Call Distribution Amplifier NOTE: Use with AB-800</td>
</tr>
<tr>
<td>AB-800</td>
<td>4018</td>
<td>A/B Pin Diode Switch</td>
</tr>
</tbody>
</table>
The IFDM is a high quality, commercial grade, IF signal processor. The unit consists of two sections, an IF demodulator and an IF modulator. The IFDM provides an external video loop, allowing for conditioning of the baseband video signal. These features make the IFDM an ideal interface to a wide variety of signal processing equipment, especially those requiring stringent performance characteristics. Some applications suited for IFDM include, digitally based noise reducers and ghost cancelers.

The IFDM demodulator section utilizes a keyed AGC, Nyquist filter, and a synchronous video detector. This design provides superior differential phase and gain characteristics over the entire IF input level range (+13 to +42 dBmV). The baseband video output of the demodulator is available via an external video loop. A wide array of signal processing and conditioning equipment can be inserted to achieve a desired video performance. The baseband video is then modulated onto the IF output carrier. This IF output section is phase locked to the IF input section, thereby ensuring minimal phase noise and exceptional signal reproduction. The 4.5 MHz aural subcarrier output of the demodulator is fed directly to the modulator circuitry. This feature preserves the integrity of the original aural signal. The modulator provides sufficient output level (+22 to +42 dBmV) to satisfy the IF input requirements of all professional, heterodyne processors.

### Specifications

**IF**
- **Frequency**
  - Visual: 45.750 MHz
  - Aural: 41.250 MHz
- **Input Level**: +13 to +42 dBmV
- **Input Visual Carrier Frequency Tolerance**: ± 25 kHz
- **Output Level Range**: +22 to +42 dBmV
- **Output Visual Carrier Frequency Tolerance**: ± 25 kHz
- **Aural Carrier Frequency Tolerance**: Same as input (fv - 4.5 MHz)
- **Aural/Visual Ratio Range**: -8 to -25 dB
- **Spurious Output**: 62 dBc
- **Intermod Distortion**: -60 dBc
- **Impedance - All Ports**: 75 Ohm
- **Return Loss**
  - Input: 16 dB
  - Output: 20 dB

**Video**
- **Video Output**: 1.0 V p-p
- **IF IN - Video OUT Response**: ± 0.75 dB
  - +0.75 / -2.0 dB
- **Video Output S/N**: 62 dB
- **Video Input Depth of Modulation**: 87.5 %
- **Maximum Video Modulation Depth**: 96 %
- **Video IN - IF OUT Response**: 1.0 dB P/V
- **Differential Gain**: 5 %
- **Differential Phase**: 3 °
- **Modulator Selectivity**
  - Sidebands (fv + 6 MHz): -36 dB
  - Sidebands (fv + 1.5 MHz): -30 dB
  - Ultimate Rejection: -60 dB

**Audio**
- **Distortion**: < 0.5 %
- **S/N**: 53 dB
- **Hum and Noise**: 60 dB

**General**
- **Power Requirements**
  - Voltage: 117, ±10% VAC
  - Frequency: 60 Hz
  - Power: 12 W
- **Fuse**: 3/16 A
- **Temperature Range**: 0 to +50 °C

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFDM</td>
<td>5979</td>
<td>IF Demodulator/Modulator</td>
</tr>
</tbody>
</table>

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