

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.

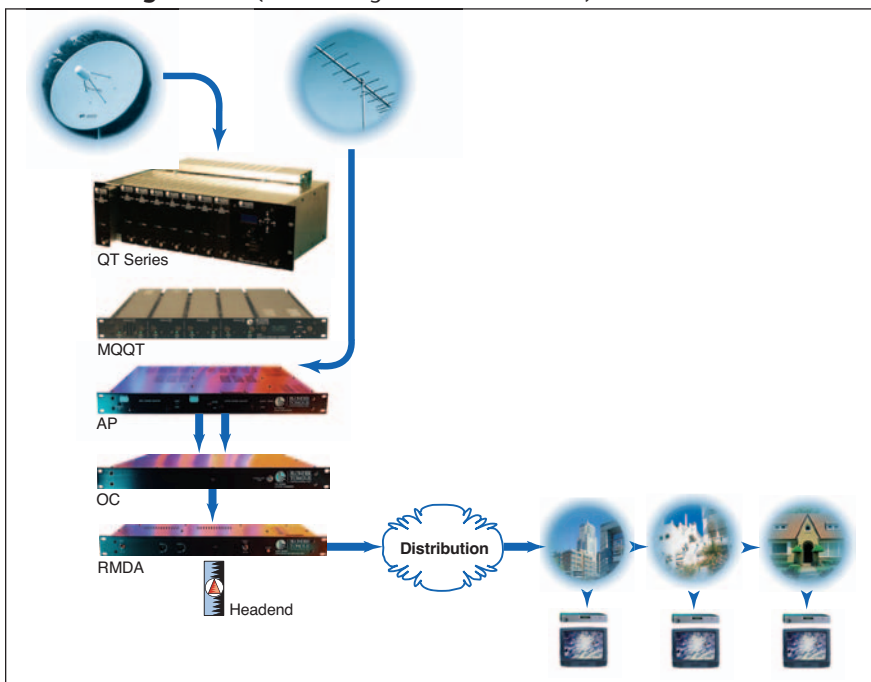
○ Features & Benefits

- 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

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.

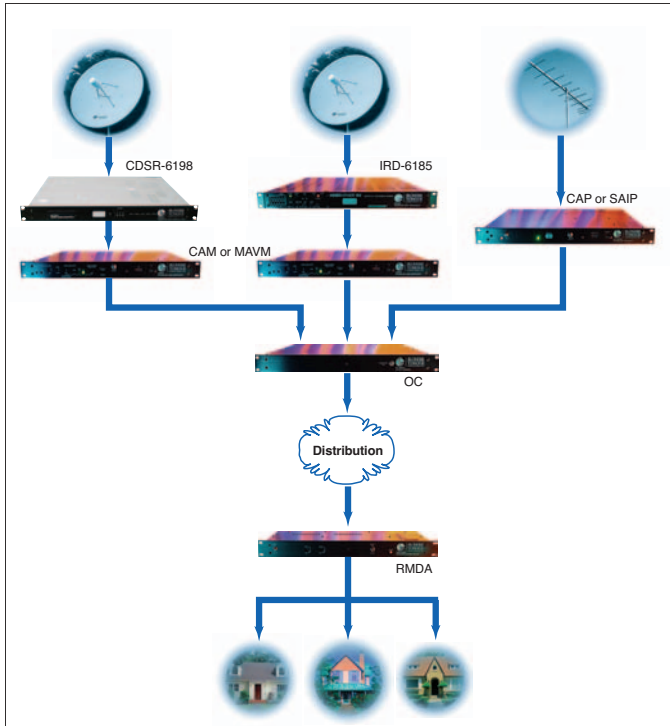
○ Application Diagram

Headend Digital Tier (also see Digital Products Section)

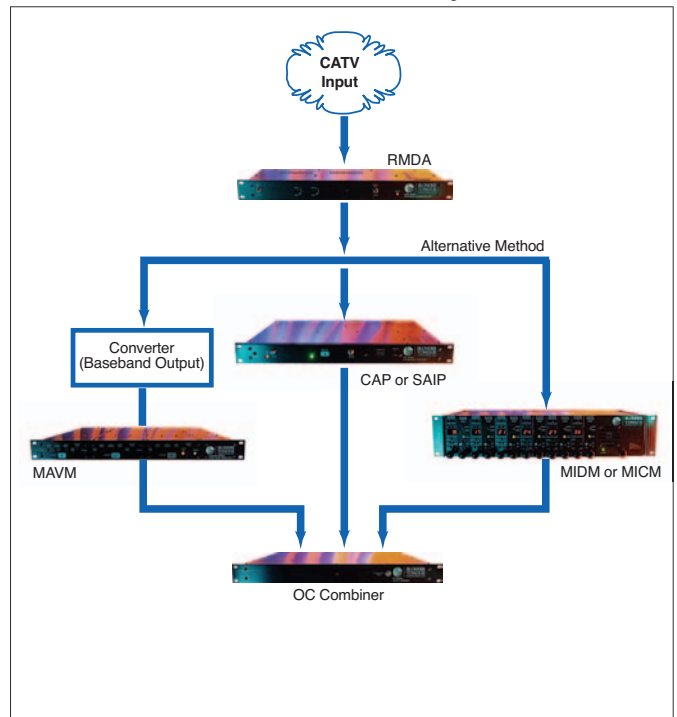


Headend Products Overview

Small System Headend



Cherry Picker Headend





Commercial Satellite Receiver

CESR Series

Headend



○ Features & Benefits

- C and Ku Band Compatible - 950 to 1750 MHz
- Push Button Tuning of Transponder Frequency
- External 70 MHz IF loop for Easy TI Management

○ Specifications

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.

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, J17 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
 Video Output, Composite: "F" type, female
 Audio Output: RCA Phono, female

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

○ Ordering Information

Model	Stock No.	Description
CESR-C ✱	6166	Commercial Satellite Receiver 950-1750 C & Ku Band Capable
CESR Options		
CESR-OPT 02	6470	CESR-c Option: Stereo Audio
CESR-OPT 03	6480	CESR-c Option: Second Audio Subcarrier



○ 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

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.

○ 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

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 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

Model	Stock No.	Description
CDSR-6198A	6198A	Commercial Digital Satellite Receiver Dish Network DBS Programming

Commercial Digital Satellite Receiver

CDSR-6181

Headend



○ 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 Bell ExpressVu Compatibility

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 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.

○ 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.

○ Ordering Information

Model	Stock No.	Description
CDSR-6181	6181A	Commercial Digital Satellite Receiver Bell ExpressVu DBS Programming

Commercial Digital Satellite Receiver

CDSR-6199



Headend

○ 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

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.

○ 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

Model	Stock No.	Description
CDSR-6199	6199	Commercial Digital Satellite Receiver DIRECTV DBS Programming
CDSR-6182	6182	Commercial Digital Satellite Receiver DIRECTV DBS Programming with Balanced Audio



Broadcast Frequency Locked Modulator

BFLM System

Headend



○ 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)

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.

○ Specifications

IF

- Frequency Output: 45.750 MHz
- Aural/Visual Carrier Ratio: -9 to -20 dB
- Visual Carrier Frequency: Locked via On Ch. CAP
- Aural Carrier Frequency: Offset from Visual Carrier: +4.5 MHz
Tolerance: ±50 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
- Output Impedance: 75 Ohm
- Aural Frequency: 41.25 MHz
- Visual Frequency: 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: 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 °
- 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

Model	Stock No.	Description
BFLM-XX ✱	5898	Broadcast Frequency Locked Modulator System Complete system of BFLM-IF and CAP-60-ON with Option 21
BFLM-IF ✱	5898 IF	Broadcast Frequency Locked Modulators - IF IF Unit Portion only

xx - Specify channel when ordering (UHF Channel 02-13)

Agile Audio/Video Modulators

AM-60-860 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
- 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

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 Blondertongue AM-60-860 is the ideal agile modulator for any demanding CATV headend need.

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: ±150Hz
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 : 25, ±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)

Connectors (Rear Panel)

Video Input Standard: "F" type, female
Option 02: BNC Video Input: BNC type, female
Option 10: Composite A/V: "F" type, female
Audio Input: Barrier Strip
Composite Video/Audio Input Option 10:
"F" type, female
IF Output: "F" type, female
IF Input: "F" type, female
RF Output: "F" type, female
EAS/ALT IF: "F" type, female

Controls (Front Panel)

Frequency Selection: Push-Button Switches
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
EAS/ALT IF: LED, green

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

○ Ordering Information

Model	Stock No.	Description
AM-60-860	59415	Agile Audio/Video Modulator +60 dBmV, 54-860 MHz with EAS Feature
Options		
Model	Stock No.	Description
AM-OPT 02	5902	AM Series Option: Video Input, BNC Connector
AM-OPT 04	5904	AM Series Option: Sub-Band Output
AM-OPT 05	5905	AM Series Option: Integrated BTSC Stereo Audio
AM-OPT 07	5907	AM Series Option: Video AGC
AM-OPT 10	5910	AM Series Option: Composite Video & 4.5 MHz Audio Input

(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

VSF 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 μ sec 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

Mechanical

Dimensions WxHxD:
9 x 1-3/4 x 14-1/4 in

Shipping Weight:
8 lbs. (Approximate)

Signal Connectors

RF OUT: Type "F"
IF IN: Type "F"
IF Out: Type "F"
Audio IN: Phono Jack
Video IN: Type "F"
EAS/ALT Input Control:
3 Position Terminal Strip
EAS/ALT IF Input: Type "F"

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

○ Ordering Information

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

(Not all options/combinations are available)

Triple Channel Frequency Agile Audio/Video Modulators

FAXM Series



Headend

○ Features & Benefits

- Rack Mountable - 1 EIA (1.75") Rack Space
- Supports All Broadcast and CATV Channels, Including HRC and IRC Assignments from 54 to 860 MHz
- Front Panel Accessible Level Controls for Easy Set-Up and Adjustments
- Fully Compatible With BTSC Encoded Stereo Audio

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
Standard Channels: ± 5 kHz
FCC Aeronautical Channels:
 ± 3 max kHz
4.5 MHz Aural Inter Carrier Frequency: ± 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
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,
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 μ s
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 K Ω ,
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

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

○ Ordering Information

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



Channelized Agile Audio/Video Modulators

CAM Series

Headend



○ 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)

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.



Channelized Agile Audio/Video Modulators

CAM Series

Headend

○ 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

Input 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

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

○ Ordering Information

Model	Stock No.	Description
CAMD-60 ✕	7895 300	Channelized Agile Stereo Compatible Audio/Video Modulator +60 dBmV, 54-300 MHz, Dual IF L
CAMD-60 ✕	7895 756	Channelized Agile Stereo Compatible Audio/Video Modulator +60 dBmV, 300-756 MHz, Dual IF Loops
CAMS-60	5895 300	Channelized Agile Stereo Compatible Audio/Video Modulator +60 dBmV, 54-300 MHz, Single IF Loop
CAMS-60	5895 756	Channelized Agile Stereo Compatible Audio/Video Modulator +60 dBmV, 300-756 MHz, Single IF Loop
CAMS-60	5895 860	Channelized Agile Stereo Compatible Audio/Video Modulator +60 dBmV, 756-860 MHz, Single IF Loop
CAMS-60	S5895 49	Channelized Agile Stereo Compatible Audio/Video Modulator +60 dBmV, 5-36 MHz (SUB) Single IF Loop

Channelized Agile Audio/Video Modulator

MAVM Series

Headend



○ 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

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)

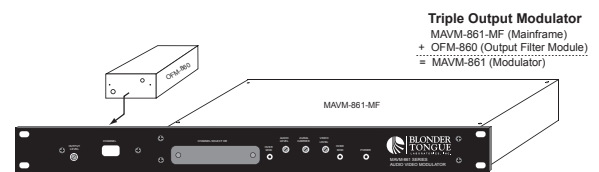
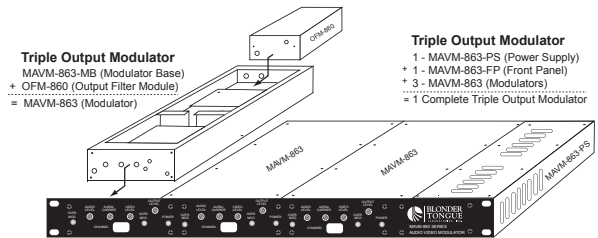
Output Filter Modules are factory tuned channelized units that are used with the CAM, CAP, MAVM & SAIP product lines. They are available with +40 dBmV or +60 dBmV output levels and can be order for any channel in the CATV (2-135), UHF (14-69) or Sub-Band (T7-T11) channel ranges.

Channelized Agile Audio/Video Modulator

MAVM Series

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.

Sample Diagrams



Headend

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

$f_v - 0.5$ MHz to $f_v + 4.2$ 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 μ s

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

Mechanical

Dimensions (WxHxD)

MAVM-861: 19.0 x 1.75 x 5.5 in.

(483 x 44 x 140) mm

MAVM-863-3: 19.0 x 1.75 x 16.25 in.

(483 x 44 x 413)

Weight

MAVM-861: 6.0 lbs. (2.73 kg)

MAVM-863-3: 10.8 lbs. (4.91 kg)

Connectors (Rear Panel)

Video Input: "F" Type, Female

Audio Input: RCA Phono, Female

IF Output: "F" Type, Female

IF Input: "F" Type, Female

RF Output: "F" Type, Female

EAS/ALT Input: 75 Ohm "F" Type Female

Controls (Front Panel)

Channel Selection: DIP Switches

Video Level: Control

Aural Carrier Level: Control

Audio Level: Control

RF Output Level: Control

Controls (Rear Panel)

EAS/ALT Manual/Auto: Barrier Strip

Indicators (Front Panel)

Power ON: LED, Green

Video Over Modulation: LED, Red

Audio Over Modulation: LED, Red

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

Channelized Agile Audio/Video Modulator

MAVM Series

Ordering Information

Model	Stock No.	Description
MAVM-60-861	7977B 300	Channelized Agile Audio/Video Modulator +60 dBmV, 54-300 MHz
MAVM-60-861	7977B 756	Channelized Agile Audio/Video Modulator +60 dBmV, 300-756 MHz
MAVM-60-861	7977B 860	Channelized Agile Audio/Video Modulator +60 dBmV, 756-860 MHz
MAVM-60-861	S7977B 450	Channelized Agile Audio/Video Modulator +60 dBmV, 7-450 MHz (SUB & VHF)
MAVM-60-861	U7977B 758	Channelized Agile Audio/Video Modulator +60 dBmV, 470-758 MHz (UHF)
MAVM-60-861	U7977B 806	Channelized Agile Audio/Video Modulator +60 dBmV, 758-806 MHz (UHF)
MAVM-60-863-1	7978B 300	Channelized Agile Audio/Video Modulator +60 dBmV, 54-300 MHz
MAVM-60-863-1	7978B 756	Channelized Agile Audio/Video Modulator +60 dBmV, 300-756 MHz
MAVM-60-863-1	7978B 860	Channelized Agile Audio/Video Modulator +60 dBmV, 756-860 MHz
MAVM-60-863-1	S7978B 450	Channelized Agile Audio/Video Modulator +60 dBmV, 7-450 MHz (SUB & VHF)
MAVM-60-863-1	U7978B 806	Channelized Agile Audio/Video Modulator +60 dBmV, 758-806 MHz (UHF)
MAVM-60-863-3	7979B 300	Channelized Agile Audio/Video Modulator +60 dBmV, 54-300 MHz, Three Channel Modulator
MAVM-60-863-3	7979B 756	Channelized Agile Audio/Video Modulator +60 dBmV, 300-756 MHz, Three Channel Modulator
MAVM-60-863-3	7979B 860	Channelized Agile Audio/Video Modulator +60 dBmV, 756-860 MHz, Three Channel Modulator
MAVM-60-863-3	S7979B 450	Channelized Agile Audio/Video Modulator +60 dBmV, 7-450 MHz (SUB & VHF), Three Channel Modulator
MAVM-60-863-3	U7979B 758	Channelized Agile Audio/Video Modulator +60 dBmV, 470-758 MHz (UHF), Three Channel Modulator
MAVM-60-863-3	U7979B 806	Channelized Agile Audio/Video Modulator +60 dBmV, 758-806 MHz (UHF), Three Channel Modulator
MAVM-861	7992B 400	Channelized Agile Audio/Video Modulator +40 dBmV, 54-400 MHz
MAVM-861	7992B 756	Channelized Agile Audio/Video Modulator +40 dBmV, 400-756 MHz
MAVM-861	7992B 860	Channelized Agile Audio/Video Modulator +40 dBmV, 756-860 MHz
MAVM-861	S7992B 450	Channelized Agile Audio/Video Modulator +40 dBmV, 7-450 MHz (SUB & VHF)
MAVM-861	U7992B 758	Channelized Agile Audio/Video Modulator +40 dBmV, 470-758 MHz (UHF)
MAVM-861	U7992B 806	Channelized Agile Audio/Video Modulator +40 dBmV, 758-806 MHz (UHF)
MAVM-861-MF	7982C	Channelized Agile Audio/Video Modulator 54-860 MHz, Mainframe
MAVM-863-1	7993B 300	Channelized Agile Audio/Video Modulator +40 dBmV, 54-300 MHz
MAVM-863-1	7993B 756	Channelized Agile Audio/Video Modulator +40 dBmV, 300-756 MHz
MAVM-863-1	7993B 860	Channelized Agile Audio/Video Modulator +40 dBmV, 756-860 MHz
MAVM-863-1	S7993B 450	Channelized Agile Audio/Video Modulator +40 dBmV, 7-450 MHz (SUB & VHF)
MAVM-863-1	U7993B 758	Channelized Agile Audio/Video Modulator +40 dBmV, 470-758 MHz (UHF)
MAVM-863-1	U7993B 806	Channelized Agile Audio/Video Modulator +40 dBmV, 758-806 MHz (UHF)
MAVM-863-3	7999B 300	Channelized Agile Audio/Video Modulator +40 dBmV, 54-300 MHz, Three Channel Modulator
MAVM-863-3	7999B 756	Channelized Agile Audio/Video Modulator +40 dBmV, 300-756 MHz, Three Channel Modulator
MAVM-863-3	7999B 860	Channelized Agile Audio/Video Modulator +40 dBmV, 756-860 MHz, Three Channel Modulator
MAVM-863-3	S7999B 450	Channelized Agile Audio/Video Modulator +40 dBmV, 7-450 MHz (SUB & VHF), Three Channel Modulator
MAVM-863-3	U7999B 758	Channelized Agile Audio/Video Modulator +40 dBmV, 470-758 MHz (UHF), Three Channel Modulator
MAVM-863-3	U7999B 806	Channelized Agile Audio/Video Modulator +40 dBmV, 758-806 MHz (UHF), Three Channel Modulator
MAVM-863-FP	7963B	Channelized Agile Audio/Video Modulator 860 MHz, Front Panel
MAVM-863-MB	7983B	Channelized Agile Audio/Video Modulator, 860 MHz, Modulator Base
MAVM-863-PS	7972A	Channelized Agile Audio/Video Modulator, 860 MHz, Power Supply
Output Filter Modules (OFM)		
Model	Stock No.	Description
OFM-40-860	U7984A 806	Output Filter Module +40 dBmV, 758-806 MHz (UHF)
OFM-40-860	U7984A 758	Output Filter Module +40 dBmV, 470-758 MHz (UHF)
OFM-40-860	S7984A 37	Output Filter Module +40 dBmV, 7-37 MHz (SUB)
OFM-40-860	7984A 860	Output Filter Module +40 dBmV, 756-860 MHz
OFM-40-860	7984A 300	Output Filter Module +40 dBmV, 54-300 MHz
OFM-40-860	7984A 756	Output Filter Module +40 dBmV, 300-756 MHz
OFM-60-860	U7985A 758	Output Filter Module +60 dBmV, 470-758 MHz (UHF)
OFM-60-860	U7985A 806	Output Filter Module +60 dBmV, 758-806 MHz (UHF)
OFM-60-860	S7985A 37	Output Filter Module +60 dBmV, 7-37 MHz (SUB)
OFM-60-860	7985A 860	Output Filter Module +60 dBmV, 756-860 MHz
OFM-60-860	7985A 756	Output Filter Module +60 dBmV, 300-756 MHz
OFM-60-860	7985A 300	Output Filter Module +60 dBmV, 54-300 MHz

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 Components



AMCM-860S



AMCM-860



AMM



MICM



MISE



MSBC

Digital High Definition Processor Series



MIDM



Downconverter



Upconverter

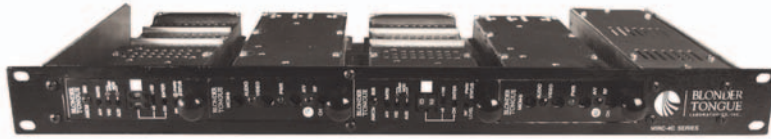


AQM

Modular Headend System

Rack Chassis and Power Supplies

4 Slot Vertical Chassis



MIRC-4D



MIPS-12C

○ Specifications

General

Power Requirements: 100 VAC to 240 VAC, $\pm 10\%$
 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

12 Slot Horizontal Chassis



MIRC-12V

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.

○ Specifications

General

Power Requirements: 100 VAC to 240 VAC
 Frequency: 50 to 60 Hz
 Temperature Range: 0° to +50°
 Output Voltage & Current Capacity:
 +12 VDC @ 1.8 Amps
 + 5 VDC @ 1.8 Amps



MIRC-4CUBE

○ Ordering Information

Model	Stock No.	Description
MIRC-4D	7711	HE-4 Series Rack Chassis & Power Supply 19" Rack Mount
MIRC-12V	7715	HE-12 Series Vented Rack Chassis 19" Rack Mountable 2 RU Chassis for 12 Modular Units
MIPS-12C	7722C	HE-12 Series Power Supply 5.5 A on 5 VDC line, 4 A on 12 VDC line
MIRC-4CUBE-CH	7703	4 Slot Vertical Chassis Supports combinations of up to 4 MICM, AMCM or MIDM units
MIRC-4CUBE-PS	7702	4 Slot Vertical Chassis Power Supply Unit
Accessories		
Model	Stock No.	Description
MIBP-1	7787	Blank Panel Insert Single Modular Panel compatible with HE-12 / MIRC-12 Chassis
MIBP-2	7788	Blank Panel Insert Dual Modular Panel compatible with HE-12 / MIRC-12 Chassis

Agile Modulator

HE-12/HE-4 Series - AMCM-860 Series



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
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,
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 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 μ s

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):
1.15 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

Model	Stock No.	Description
AMCM-860	7766A	Modular Agile Audio/Video Modulator (HE 12 Series) +45 dBmV, 54-860 MHz Agile
AMCM-860H	7766HA	Modular Agile Audio/Video Modulator (MIRC-4 Series) +45 dBmV, 54-860 MHz Agile

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

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,
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 min, dB

Audio

Input Level: 140 mV RMS minimum
Input Impedance: 10k Ω , 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
29 x 89 x 191 mm
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

Model	Stock No.	Description
AMCM-860S	7766S	Modular Agile Stereo Audio/Video Modulator (HE 12 Series) +45 dBmV, 54-860 MHz Agile

Agile Modulator

HE-12/HE-4 Series - AMM Series



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
 - fv-0.5 MHz to fv+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

Stock No.	Model	Description
AMML-550	7761	Modular Agile Audio/Video Modulator, +45 dBmV, 54-550 MHz Agile
AMMH-806	7762	Modular Agile Audio/Video Modulator, +45 dBmV, 408-806 MHz Agile
AMM-806	7763	Modular Agile Audio/Video Modulator, +45 dBmV, 54-806 MHz Agile

Audio/Video Modulator

HE-12/HE-4 Series - MICM Series



○ 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

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.

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: f_v -0.5 MHz to f_v +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: $\pm 2^\circ$ @ 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.

75 μ s Pre-emphasis (MICM-45C)
 ± 0.3 dB (50 Hz to 50 kHz) (MICM-45S) in Stereo Configuration w/o pre-emphasis
Total Harmonic Distortion (%): 1.0 at 25 kHz Deviation
Stereo Separation (MICM-45S):
50 Hz - 100 Hz: 15 dB
100 Hz - 1 kHz: 25 dB
12 kHz: 18 dB
Aural Intercarrier: ± 5 kHz (0° to +50° C), 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 Input: 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.

○ Ordering Information

Model	Stock No.	Description
MICM-45C	7797C 600	HE-12 & HE-4 Series Channelized Audio/Video Modulator, +45 dBmV, 54-600 MHz
MICM-45C	7797C 860	HE-12 & HE-4 Series Channelized Audio/Video Modulator +45 dBmV, 600-860 MHz
MICM-45S	7797S 600	HE-12 & HE-4 Series Channelized Stereo Audio/Video Modulator +45 dBmV, 54-600 MHz
MICM-45S	7797S 860	HE-12 & HE-4 Series Channelized Stereo Audio/Video Modulator +45 dBmV, 600-860 MHz

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

Model	Stock No.	Description
MIDM-806C	7740C	HE-12 Series Agile Audio/Video Demodulator 54-806 MHz UHF/VHF/CATV Input (STD,HRC,IRC)

Modular Sub Band Converter

HE-12/HE-4 Series - MSBC



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

Model	Stock No.	Description
MSBC	7727	HE12 & HE4 Series Sub-Band Block Up-Converter

Stereo Encoder

HE-12/HE-4 Series - MISE



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 its 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: ± 1 dB from 50Hz to 12KHz

Test Tone

Frequency: 10.396 KHz \pm 50Hz
Amplitude: 0.5 Vp-p \pm 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

Model	Stock No.	Description
MISE	7725B	HE-12 & HE-4 Series Micro Stereo Encoder

Heterodyne Processors

CAP Series



Headend

○ 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

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.

○ Specifications

RF

Input Frequency Range
 CAP-60-ON: 54-88 & 174-216 MHz
 CAP-60-U/V: 470-806 MHz
 CAP-60-V/V: 54-427 MHz
 CAP-60-S/V: 5-36 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

AGC Stiffness: ±0.5 dB

AGC Indicator Range
 LED ON: -1.5 dB
 LED OFF: +1.5 dB

Output Level - Min
 CAP-60: +60 dBmV

Output Level Adjust: 15 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 dB

Broadband Noise: -110 dBc

Image Rejection
 VHF: 70 dB
 UHF: 60 dB

Input/Output Impedance: 75 Ohm
 Input Return Loss: 14 dB
 Output Return Loss: 16 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: 18 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.

○ Ordering Information

Model	Stock No.	Description
CAP-60-ON ✂	5894A	Channelized Agile Output Heterodyne Processor +60 dBmV, 54-216 MHz (VHF IN), 54-216 MHz (VHF OUT)
CAP-60-S/V ✂	S5894A 300	Channelized Agile Output Heterodyne Processor +60 dBmV, 5-37 MHz (SUB IN), 54-300 MHz (VHF OUT)
CAP-60-S/V ✂	S5894A 756	Channelized Agile Output Heterodyne Processor +60 dBmV, 5-37 MHz (SUB IN), 300-756 MHz (VHF OUT)
CAP-60-S/V ✂	S5894A 860	Channelized Agile Output Heterodyne Processor +60 dBmV, 5-37 MHz (SUB IN), 756-860 MHz (VHF OUT)
CAP-60-U/V ✂	U5894A 300	Channelized Agile Output Heterodyne Processor +60 dBmV, 470-806 MHz (UHF IN), 54-300 MHz (VHF OUT)
CAP-60-U/V ✂	U5894A 756	Channelized Agile Output Heterodyne Processor +60 dBmV, 470-806 MHz (UHF IN), 300-756 MHz (VHF OUT)
CAP-60-U/V ✂	U5894A 860	Channelized Agile Output Heterodyne Processor +60 dBmV, 470-806 MHz (UHF IN), 756-860 MHz (VHF OUT)
CAP-60-V/V ✂	V5894A 300	Channelized Agile Output Heterodyne Processor +60 dBmV, 54-550 MHz (VHF IN), 54-300 MHz (VHF OUT)
CAP-60-V/V ✂	V5894A 756	Channelized Agile Output Heterodyne Processor +60 dBmV, 54-550 MHz (VHF IN), 300-756 MHz (VHF OUT)
CAP-60-V/V ✂	V5894A 860	Channelized Agile Output Heterodyne Processor +60 dBmV, 54-550 MHz (VHF IN), 756-860 MHz (VHF OUT)

Heterodyne Processors

AP Series



○ 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

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 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.

Specifications and Ordering Information are located on the following pages.

Heterodyne Processors

AP Series

Headend

○ 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-40-550 & AP-60-550: 50-550 MHz
AP-40-750 & AP-60-750: 50-750 MHz

Option 04: AP-40-550 & AP-60-550: 7-550 MHz

Output 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_v to $f_v+4.5$ 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

Input 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
Power - AP-60-450 & AP-60-550: 24W

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

Frequency 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

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

○ Ordering Information

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

Heterodyne Processors

SAIP Series



○ 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

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

General

Power Requirements
Voltage: 117, $\pm 10\%$ VAC
Frequency: 60 Hz
Power - SAIP-60-860: 18 W

Fuse: 3/8 A
Temperature Range: 0 to +50 °C

Mechanical

Dimensions (WxHxD):
19.0 x 1.75 x 9.5 in.
483 x 44 x 241 mm

Weight: 6 lbs, 2.73 kg

Connectors (Rear Panel)

RF Input: "F" Type, Female
IF Output: "F" Type, Female
IF Input: "F" Type, Female
RF Output: "F" Type, Female

Controls (Front Panel)

Frequency Selection
Input: DIP Switches
Output: DIP Switches

Aural Carrier Level: Control
RF Output Level: Control

Indicators (Front Panel)

Power ON: LED, Green

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

○ Ordering Information

Model	Stock No.	Description
SAIP-60-860	5876B 300	Agile Input, Channelized Agile Output Processor +60 dBmV, 54-300 MHz
SAIP-60-860	5876B 756	Agile Input, Channelized Agile Output Processor +60 dBmV, 300-756 MHz
SAIP-60-860	5876B 860	Agile Input, Channelized Agile UHF Output Processor +60 dBmV, 756-860 MHz
SAIP 60-860 MF	5885B	Agile Input, Channelized Agile Output Processor 860 MHz, Mainframe

Agile Audio/Video Demodulator - Stereo Optional

AD-1 Series



○ Features & Benefits

- Stereo BTSC Outputs (Option 25)
- Rack Mountable - 1 EIA (1.75") Rack Space
- 250 kHz Tuning Increment - Supports Broadcast, CATV and UHF Assignments Including HRC & IRC
- AGC Circuitry Automatically Compensates for Input Level Variations
- 4.5 MHz Audio Subcarrier and Broadband Multiplex Audio Outputs

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 signal variations. The AD-1 also utilizes a quasi-synchronous video detector that has low differential gain and minimal phase distortion. 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 ± 1.0 dB
- Output Level: 1.0 V p-p
- Differential Gain: 3.0 %
- Differential Phase: 1.5 °
- Group Delay Response: ± 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

- Total Harmonic Distortion: <0.5%
- 4.5 MHz Subcarrier Output Level: +28 dBmV
- Impedance: 75 Ohm

General

- Power Requirements
 - Voltage: 117, $\pm 10\%$ 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
- Video 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.

○ Ordering Information

Model	Stock No.	Description
AD-1B	5932	Agile Audio/Video Demodulator 54-88/108-806 MHz
AD-1-OPT 17	59257	AD-1 Option: Sub-Band Input, 7-49 MHz
AD-1-OPT 20	59250	AD-1 Option: Digital Control, Serial RS-232
AD-1-OPT 09	59259	AD-1 Option: Balanced Audio, 600 Ohm
AD-1-OPT 25	59255	AD-1 Option: Stereo Audio Output, 600 Ohm Balanced

Passive Combiners

OC Series

Headend



○ 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")

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.

○ Specifications

RF	OC-8d	OC-12D	OC-16	OC-24	OC-32
Number of Inputs:	8	12	16	24	32
Frequency Range:	5-1000	5-1000	5-1000	50-1000	50-1000
Flatness - Relative to Slope:	0.4	±0.20	0.4		
Slope:	2.75	1.50	2.5		
Insertion Loss - Individual Port					
40 to 450 MHz:	11.5	18	24	18	18
450 to 1000 MHz:	13	18	26	20	20
Isolation - Adjacent Ports					
40 to 450 MHz:	25	38	40	30	30
450 to 1000 MHz:	25	38	36	25	25
Isolation - Non-Adjacent Ports					
40 to 1000 MHz:	40	65	62	>40	>40
Test Port Level:	-20	-20	-20	-20	-20
Impedance - All Ports:	75	75	75	75	75
Input Return Loss					
40 to 450 MHz:	20	20	18	20	20
450 to 1000 MHz:	19	20	16/14	18	18
Output Return Loss					
40 to 450 MHz:	20	16	18	18	18
450 to 1000 MHz:	19	16	15	16	16
Mechanical					
Dimensions (WxHxD):	19.0 x 1.75 x 15.25 in. 483 x 44 x 387 mm	19.0 x 3.5 x 15.25 in. 483 x 89 x 387 mm	19.0 x 1.75 x 8.0 in. 483 x 44 x 203 mm		
Weight:	6.5 lbs. 2.95 kgs.	6.95 lbs. 3.18 kgs.	9.0 lbs. 4.77 kgs.	6.95 lbs. 3.16 kgs.	6.95 lbs. 3.16 kgs.
Connectors (Rear Panel)					
RF Input & Outputs:	"F" type, female				
Connectors (Front Panel)					
Test Port:	"F" type, female				

○ Ordering Information

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

Active Combiners

OCA Series

Headend



○ 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

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.

○ 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, $\pm 10\%$ 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

Model	Stock No.	Description
OCA-8b	5956	Active Combiner 50-450 MHz, 8 Ports
OCA-12	5954	Active Combiner 50-540 MHz, 12 Ports

Strip Amplifiers

MCA-b

Headend



○ Features & Benefits

- Rack Mountable - 1 EIA (1.75") Rack Space
- Accessory AC Outlet
- True Peak Detector AGC with 40 dB Range

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.

○ 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 dB: 10
 - FM - Off Channel: 14

General

- Power Requirements
 - Voltage VAC: 117, $\pm 10\%$
 - 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

Model	Stock No.	Description
MCA-b	4454 216	Single Channel VHF/FM Strip Amplifier 54-216MHz, Channels: 2-6, FM, 98-99, 14-22, 7-13

Channel Converters

MCX Series



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.

Specifications

RF	MCX-V	MCX-V/U
Frequency Range		
Input MHz:	5-300	50-300
Output MHz:	5-300	470-806
Flatness dB:	0.5	0.5
Input Signal Level		
Minimum dBmV:	-3.5	-4.5
Recommended dBmV:	+22	+22
Frequency Stability - Max. dBmV:	±25	±25
Selectivity ±9 MHz:	-45	-26
Spurious Outputs-L.O. Related dBmV:	-20	-60
Image Rejection dB:	-55	-55
Hum Modulation dB:	-54	-70
Impedance - All Ports Ohm:	75	75
Return Loss		
Input dB:	16	16
Output dB:	18	18
General		
Power Requirements		
Voltage VAC:	117, ±10%	117, ±10%
Frequency Hz:	60	60
Fuse A:	1/8	1/8
Temperature Range °C:	-20 to +50	-20 to +50
Mechanical		
Dimensions (WxHxD)		
in:	19.0 x 1.75 x 5.13	19.0 x 1.75 x 5.13
mm:	483 x 44 x 130	483 x 44 x 130
Weight	5.0 lbs, 2.27 kg.	5.0 lbs, 2.27 kg.
Connectors (Front Panel)		
RF Input & Output:	"F" Type, Female	"F" Type, Female
Indicators (Front Panel)		
Power ON:	Neon Bulb	Neon Bulb

Ordering Information

Model	Stock No.	Description
MCX-V/U ✱	1459	Channel Converter 50-300 MHz (VHF), 470-806 MHz (UHF)
MCX-V	1448	Channel Converter 5-300 MHz (SUB/VHF), 5-300 MHz (SUB/VHF)

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

Forbidden Conversions MCX-V		Forbidden Conversions MCX-V/U	
VHF INPUT	VHF OUTPUT	VHF INPUT	VHF OUTPUT
2	3,6,21,22,7	14	20,25,26,27
3	2,4,5,6,14,15,8,9	15	20,26,27
4	3,5,16,17,11,12	16	20,21,26,27,28
5	3,4,6,15,19,20,21,26,27	17	21,27,28
6	2,3,5,17,21,22,7,29	18	21,27,28,29
14	3,5,14-22	19	21,22,28,29
15	3,5,6,14-22,10,13	20	22,28,29,30
16	4,14-22	21	22,29,30
17	5,6,14-22,7	22	22,7,29,30,31
18	14-22,7,9,10	23	7,30,31
19	14-22,25	24	7,30,31,32
20	5,14-22,8,9,10,13	25	7,8,31,32
21	2,5,6,14-22,9,11,25	26	8,31,32,33
22	2,6,14-22,7-10,13	27	8,32,33
7	8,12	28	8,9,32,33,34
8	3,7,9,11	29	9,33,34
9	3,8,10	30	9,33,34,35
10	9,11	31	9,10,34,35
11	8,10,12	32	10,34,35,36
12	7,11,13	33	10,35,36
13	12,23	34	10,11,35,36
23	4,13,23-36	35-36	11,36
24	10,23-36	37	11,12
25	9,10,23-36	38-39	12
26	9,23-36	40	12,13
27	5,9,10,13,23-36	41-42	13
28	6,9,23-36	43	13,23
29	8,23-36	44-45	23
30	23-36	46	23,24
31	23-36	47-48	24
32	6,10,23-36	49	24,25
33	23-36	50-51	25
34	9,13,23-36	52	25,26
35	23-36	53-54	26
36	2,3,413,23-36	55	26,27
T7	Consult Factory	56-57	27
T8	Consult Factory	58	27,28
T9	Consult Factory	59-60	28
T10	Consult Factory	61	28,29
T11	Consult Factory	62-63	29
T12	Consult Factory	64	29,30
T13	Consult Factory	65-66	30
		67	30,31
		68-69	31

Bandpass Filters

BPF Series



BPF-A



BPF-U

○ Features & Benefits

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

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.

○ Specifications

RF	BPF-A	BPF-U
Frequency Range MHz:	54-216	470-806
Channels dB:	VHF & FM	UHF
Bandpass Response dB:	±0.75 (2-6) ±0.75 (FM) ±1.00 (7-13)	±0.2 (14-69)
Lower Adjacent Audio dB:	-60	NA
Upper Adjacent Video dB:	-60	NA
Lower Alternate (-9 MHz) dB:	-40	-17
Upper Alternate (+9 MHz) dB:	-50 (2-6) -45 (14-22,7-13)	-17
FM Filter		
@ 82 MHz dB:	-30	NA
@ 114 MHz dB:	-22	NA
@ Channel 6 dB:	-70	NA
Insertion Loss:	3.5 (2-6) 3.0 (FM) 8.0 (14-22) 8.0 (7-13)	1.8 (14-69)
Impedance - All Ports Ohm:	75	75
Input Return Loss dB:	13 (2-6,14-22,7-13)	14 16 (FM)
Output Return Loss dB:	13 (2-6, 14-22, 7-13)	14 16 (FM)
Mechanical		
Dimensions (WxHxD)		
in:	19.0 x 1.75 x 6.13	6.38 x 3.13 x 2.63
mm:	483 x 44 x 156	162 x 80 x 67
Weight		
lbs:	3.0	2.0
kg:	1.36	0.91
Connectors		
RF Input:	"F" Type, Female	"F" Type, Female
RF Output:	"F" Type, Female	"F" Type, Female

○ Ordering Information

Model	Stock No.	Description
BPF-A ✱	4414	Single Channel VHF/FM Bandpass Filter 54-216 MHz
BPF-U	4805	Single Channel UHF Bandpass Filter 470-806 MHz

Bandpass Filters

BPF-Z and MXF Series



Headend



BPF-Z

The BPF-z is a low cost, professional quality, VHF bandpass filter. This unit is designed to provide an additional level of bandpass selectivity when used in adjacent channel configurations. The BPF-z features high-Q filters and phase cancellation traps that provide excellent adjacent channel rejection. Trap adjustments can be made at the factory for improving the rejection characteristics of the filter. These adjustments are then locked in place to prevent inadvertent changes. The BPF-z is designed to work in conjunction with Blonder Tongue's low cost Single Channel VHF Strip Amplifier (ZSCA).

○ 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-1: ± 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-1: 5.0 dB
 7-13: 7.0 dB
 Impedance - All Ports: 75 Ohm

Mechanical

Dimensions (WxHxD):
 19.0 x 1.75 x 3.5 in.
 483 x 44 x 89 mm
 Weight: 2.0 lbs., 0.91 kg
 Connectors (Rear Panel)
 RF Input: "F" Type, Female
 RF Output: "F" Type, Female

Controls (Front Panel)

Lower Aural Trap Adjust: Controls
 Upper Visual Trap Adjust: Controls

MXF



MXF-B



The MXF Series are 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.

○ Features & Benefits

- Modular Bandpass Filters
- VHF and FM Coverage
- Applications Include Filtered Channel Combiner and Separator

○ Specifications

RF

Frequency Range:: 54-108 & 174-216 MHz
 Channels: VHF, FM
 Selectivity @ ± 9 MHz: -10 dB
 Insertion Loss:
 MXF: 0.6 (2-6) dB, 1.1 (FM),
 1.1 (7-13) dB
 MXF-B: 0.9 (2-6) dB, 1.5 (FM),
 1.4 (7-13) dB
 Impedance - All Ports: 75 Ohm
 Input & Output Return Loss:
 17 (2-6), 8 (FM), 17 (7-13) dB

Mechanical

Dimensions (WxHxD)
 MXF: 2.00 x 2.00 x 2.00 in
 51 x 51 x 51 mm
 MXF-B: 9.75 x 4.00 x 5.38 in
 248 x 102 x 137 mm
 Weight:
 MXF: 0.25 lbs, 0.11 kg.
 MXF-B: 4.0 lbs, 1.82 kg.

Connectors

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

○ Ordering Information

Model	Stock No.	Description
BPF-Z	4419B	Single Channel VHF Bandpass Filter 54-216 MHz
MXF *	3437	Modular Single Channel VHF/FM Bandpass Filter 54-216MHz, CHANNELS: 2-6, FMA, FMB, 7-13
MXF-B *	3438	Modular Filter, Base Use with # 3437

Channel Elimination Filters

CEF Series

Headend



○ Features & Benefits

- Rack Mountable - 1 EIA (1.75") Rack Space
- Suppresses an Entire Analog Channel Allowing Insertion of Desired Signal
- Low Insertion Loss
- CEFs May Be Cascaded for Multiple Channel Deletions

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

○ Ordering Information

Model	Stock No.	Description
CEF-750	4446	Channel Elimination Filter 54-312 MHz Filtering, 50-750 MHz Passband

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

Tunable Notch Traps

MWT Series

Headend



MWT



MWT-U

○ 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

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

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

○ Ordering Information

Model	Stock No.	Description
MWT-2b	4505	Tunable Notch Trap 54-108 MHz
MWT-3b	4529	Tunable Notch Trap 174-216 MHz
MWT-4	4898	Tunable Notch Trap 108-174 MHz
MWT-U	4614	Tunable Notch Trap 470-890 MHz

Channelized Audio/Video Modulators

BAVM-860SAW



○ 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

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 out-board stereo generator that provides a composite baseband output. A -30 dB output test point and all user controls are provided on the front panel.

○ 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

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

○ Ordering Information

Model	Stock No.	Description
BAVM-860SAW	5990 300	Channelized Audio/Video Modulator, Saw Filtered 54-300 MHz
BAVM-860SAW	5990 860	Channelized Audio/Video Modulator, Saw Filtered 300-860 MHz

Agile Audio/Video Demodulator

ZDM-806



○ Features & Benefits

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

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.

○ 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, $\pm 10\%$ 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
483 x 44 x 102 mm
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

Model	Stock No.	Description
ZDM-806	5880	Agile Audio/Video Demodulator 54-806 MHz UHF/VHF/CATV Input



Combiners

ZHC Series

Headend



○ Features & Benefits

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

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 over all unity gain and is commonly referred to as a "zero loss" combiner.

○ Specifications

RF	ZHC-12a	ZHCA-16c
Number of Inputs:	12	16
Frequency Range MHz:	40-1000	54-750
Input Level - Max dBmV:	NA	+57
Output Level - Max dBmV:	NA	+48
Cross Modulation dBc:	NA	-57
Overall Unit Gain dB:	NA	0 to -3
Gain Control Range dB:	NA	9
Insertion Loss dB:	40-450 MHz 17 dB 450-1000 MHz 20 dB	NA
Isolation dB:	30	40
Flatness dB:	3	3
Impedance - All Ports Ohm:	75	75
General		
Power Requirements		
Voltage VAC:	NA	117 ± 10%
Frequency Hz:	NA	60
Power W:	NA	10
Temperature Range °C:	NA	0 to +50
Mechanical		
Dimensions (WxHxD):	19.0 x 1.75 x 2.88 in. 483 x 44 x 73 mm	19.0 x 1.75 x 2.88 in. 483 x 44 x 73 mm
Weight lbs:	2.0 lbs., 0.91 kg.	3.0 lbs., 1.36 kg.
Connectors (Rear Panel)		
RF Input & Output:	"F" Type Female	"F" Type Female
Connectors (Front Panel)		
Test Port:	"F" Type Female	"F" Type Female
Controls (Front Panel)		
Gain:	NA	Control

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

○ Ordering Information

Model	Stock No.	Description
ZHC-12a	5959A	Passive Combiner 40-1000 MHz, 12 Ports
ZHCA-16C-750 ✱	7757	Active Combiner 50-750 MHz, 16 Ports

Channel Converters

MCX-Uz Series



○ Features & Benefits

- Rack Mountable - 1 EIA (1.75") Rack Space
- UHF to VHF Channel Conversion
- Crystal Controlled PLL Synthesizer Permits Use in Adjacent Channel Systems
- Balanced Mixer Design Provides Maximum Isolation Between Local Oscillator, Input and Output
- Excellent Image Rejection Characteristics

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).

○ Specifications

RF

- Frequency Range
 - Input: 470-806 MHz
 - Output: 50-216 MHz
- Flatness: 0.8 dB
- Input Signal Level
 - Minimum: -4.0 dBmV
 - Gain: 20 dB
 - Gain Control Range: 10 dB
- Noise Figure: 9.0 dB
- Frequency Stability: ± 15 kHz
- Selectivity
 - ± 9 MHz: -25 dB
 - ± 21 MHz: -50 dB
- Spurious Outputs - L.O. Related
 - At Output: -38 dBmV
 - At Input: -30 dBmV
- Image Rejection: -55 dB
- Hum Modulation: -60 dB
- Impedance - All Ports: 75 Ohm
- Return Loss
 - Input: 14 dB
 - Output: 14 dB

General

- Power Requirements
 - Voltage: 117, $\pm 10\%$ VAC
 - Frequency: 60 Hz
 - Power: 12 W
- Temperature Range: -20 to +50 °C

Mechanical

- Dimensions (WxHxD):
 - 19.0 x 1.75 x 2.00 in.
 - 483 x 44 x 51 mm
- Weight: 4.0 lbs., 1.82 kg

Connectors (Rear Panel)

- RF Input: "F" Type, Female
- RF Output: "F" Type, Female

Connectors (Front Panel)

- Test Port: "F" Type, Female

Controls (Front Panel)

- RF Output Level: Control

Indicators (Front Panel)

- Power ON: LED, Green

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

○ Ordering Information

Model	Stock No.	Description
MCX-UZ	1479	Channel Converter 470-806 MHz (UHF), 50-220 MHz (VHF)

FM Strip Amplifier

ZSCA-FM Series

Headend



○ 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

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).

○ 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

Model	Stock No.	Description
ZSCA-FM	4465	FM Strip Amplifier Low Noise 88-108 MHz Strip Amplifier

Agile FM Stereo Modulator

ZFMSM Series



○ 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 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.

○ 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

General

- Power Requirements
 - Voltage: 120, $\pm 10\%$ VAC
 - Frequency: 60 Hz
 - Power: 10 W
- Temperature Range: 0 to +50 ° C

Mechanical

- Dimensions (WxHxD):
 - 19.0 x 1.75 x 3.01 in
 - 483 x 44 x 121 mm
- 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

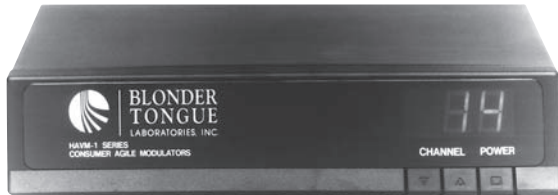
○ Ordering Information

Model	Stock No.	Description
ZFMSM	5872	Agile FM Stereo Modulator Agile Low Noise 88-108 MHz Modulator

Professional Agile Modulators

HAVM Series

Headend



○ Features & Benefits

- +28 dBmV Output Level (Combined)
- Agile Channel Via Front Panel Controls and LED Display
- CATV or UHF Channel Map Selection Via Rear Panel Switch
- Non-Volatile Memory Retains Channel Information after Power Interruptions

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).

○ Specifications

RF

Frequency Range

HAVM-1HA & HAVM-2HA - CATV: 300-550 MHz

HAVM-1HA & HAVM-2HA - UHF: 470-550 MHz

HAVM-1UA & HAVM-2UA - CATV: 550-800 MHz

HAVM-1UA & HAVM-2UA - UHF: 470-806 MHz

Output Level: +28 dBmV

Visual Carrier Frequency Tolerance: ± 25 kHz

Aural Carrier Frequency

Offset from Visual Carrier: +4.5 MHz

Spurious Outputs - Minimum: -50 dBc

Channel Memory: Non-Volatile

Output Impedance: 75 Ohm

Output Return Loss: 12 dB

Video

Input Level: 1.0 Vp-p

Frequency Response fv-0.5 MHz to fv+4.2 MHz:
 ± 2 dB

P-P Video to RMS Hum Ratio: 60 dB

Video Signal-to-Noise Ratio, Weighted: 55 dB

Input Impedance: 75 Ohm

Audio

Input Level: 1.0 (b) Vp-p

Frequency Range: 50 Hz to 15 kHz

Frequency Response: ± 2.0 dB

Input Impedance: 600, unbalanced Ohm

Sub-Carrier Audio

Frequency (MHz): 4.5 MHz

Stability (kHz): ± 10 (d) kHz

General

Power Requirements

Voltage: 117, $\pm 10\%$ VAC

Frequency: 60 Hz

Power: 6 / 10 W

Temperature Range: 0 to +50 °C

Mechanical

Dimensions (LxWxD):

8.00x2.00x5.75 in

203x51x146 mm

Weight: 2.25 lbs., 1.02 kg

Connectors (Rear Panel)

Video Input(s): RCA Phono, Female

Audio Input(s): RCA Phono, Female

RF Output: "F" Type, Female

Controls (Front Panel)

Power ON/OFF: Push Button

Channel UP/DOWN: Push Button

Controls (Rear Panel)

Hyper/UHF Select: Slide Switch

Indicators (Front Panel)

Power ON: LED

Channel(s) HAVM-1HA & HAVM-1UA:
1-3 Digit, 7

Segment LED HAVM-2HA & HAVM-2UA:
2-3 Digit, 7 Segment LED

○ Ordering Information

Model	Stock No.	Description
HAVM-1HA	5988HA	Professional Agile Modulator +30dBmV, 300-550MHz, 1 Channel
HAVM-1UA	5988UA	Professional Agile Modulator +30dBmV, 470-806MHz, 1 Channel
HAVM-2HA	5989HA	Professional Agile Modulator +30dBmV, 300-550MHz, 2 Channels
HAVM-2UA	5989UA	Professional Agile Modulator +30dBmV, 470-806MHz, 2 Channels

Headend Racks and Panels

Professional Series

Headend



RAX-7024



SPX-7024



FDX/RMX



SWC-1528

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.

Removable top panel for cable entry and exit

Innovative vented side panels "snap" into place

Frames may be joined together for modular use

Frames may be bolted to the floor for seismic applications

Specifications and Ordering Information are located on the following pages.

Headend Racks and Panel

Professional Series

○ Specifications

Stock Number	Model Name	Overall Dimensions (HxWxD)	Panel Dimensions (HxW)	Weight
3971	RMX-6119-18 (171 cm x 56 cm x 46 cm)	67.38" x 22.0" x 18.0" (156 cm x 49 cm)	61.25" x 19.0" (68 kg)	150 lbs.
3972	RMX-7019-18 (193 cm x 56 cm x 46 cm)	76.13" x 22.0" x 18.0" (178 cm x 49 cm)	70.00" x 19.0" (77 kg)	170 lbs.
3973	RMX-7719-18 (211 cm x 56 cm x 46 cm)	83.13" x 22.0" x 18.0" (196 cm x 49 cm)	77.00" x 19.0" (86 kg)	190 lbs.
3974	RMX-6119-24 (171 cm x 56 cm x 61 cm)	67.38" x 22.0" x 24.0" (156 cm x 49 cm)	61.25" x 19.0" (80 kg)	175 lbs.
3975	RMX-7019-24 (193 cm x 56 cm x 61 cm)	76.13" x 22.0" x 24.0" (178 cm x 49 cm)	70.00" x 19.0" (91 kg)	200 lbs.
3976	RMX-7719-24 (211 cm x 56 cm x 61 cm)	83.13" x 22.0" x 24.0" (196 cm x 49 cm)	77.00" x 19.0" (102 kg)	225 lbs.
3981	FDX-6119-18 (171 cm x 56 cm x 46 cm)	67.38" x 22.0" x 18.0" (156 cm x 49 cm)	61.25" x 19.0" (80 kg)	175 lbs.
3982	FDX-7019-18 (193 cm x 56 cm x 46 cm)	76.13" x 22.0" x 18.0" (178 cm x 49 cm)	70.00" x 19.0" (91 kg)	200 lbs.
3983	FDX-7719-18 (211 cm x 56 cm x 46 cm)	83.13" x 22.0" x 18.0" (196 cm x 49 cm)	77.00" x 19.0" (100 kg)	220 lbs.
3984	FDX-6119-24 (171 cm x 56 cm x 61 cm)	67.38" x 22.0" x 24.0" (156 cm x 49 cm)	61.25" x 19.0" (91 kg)	200 lbs.
3985	FDX-7019-24 (193 cm x 56 cm x 61 cm)	76.13" x 22.0" x 24.0" (178 cm x 49 cm)	70.00" x 19.0" (116 kg)	255 lbs.
3986	FDX-7719-24 (211 cm x 56 cm x 61 cm)	83.13" x 22.0" x 24.0" (196 cm x 49 cm)	77.00" x 19.0" (123 kg)	270 lbs.

RAX Series

3979	RAX-7024 (193.7 cm x 65.4 cm x 67.95 cm)	76.26" x 25.75" x 26.75" (178.1 cm x 48.3 cm)	70.1" x 19" (68 kg)	150 lbs.
3977	RAX-7724 (215.9 cm x 65.4 cm x 67.95 cm)	85.01" x 25.75" x 26.75" (200.2 cm x 48.3 cm)	78.8" x 19" (90 kg)	198 lbs.

Wall Cabinet

3695	SWC-1528 (78.7 cm x 52.4 cm x 54.6 cm)	31" x 20.625" x 21.5" (71.1 cm x 48.3 cm)	28" x 19" (34 kg)	75 lbs.
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Section Depth: Front - Center - Rear

2" x 15" x 4.5"
(5.1 cm x 38.1 cm x 11.4 cm)

○ Ordering Information

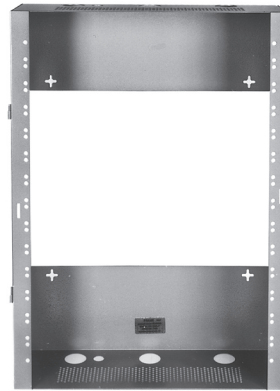
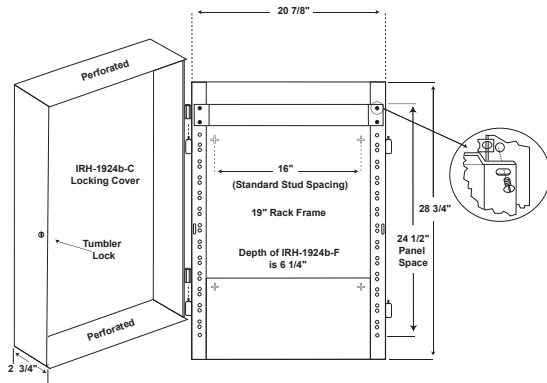
Model	Stock No.	Description
FDX-6119-18	3981	Rack Cabinet, Front & Rear Doors 61.25" H x 19" W x 18" D
FDX-6119-24	3984	Rack Cabinet, Front & Rear Doors 61.25" H x 19" W x 24" D
FDX-7019-18	3982	Rack Cabinet, Front & Rear Doors 70.00" H x 19" W x 18" D
FDX-7019-24	3985	Rack Cabinet, Front & Rear Doors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

Headend Racks and Panel

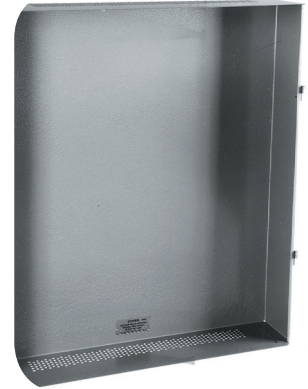
Economy Series

Headend

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.



IRH-1924B-F



IRH-1924B-C

Ordering Information

Model	Stock No.	Description
IRH-1924B-F	3690	Rack Frame 19" W x 24" H x 2.75" D
IRH-1924B-C	3691	Rack Frame, Locking Cover

Heavy Duty Racks



Economy 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

Mechanical	RR-2164	RR-2173	RR-2180	RR-6119-3	RR-7019-3	RR-8419-3
Dimensions (HxWxD) in:	64.50 x 22 x 8.13	73.25 x 22 x 8.13	80.25 x 22 x 8.13	61.25 x 22 x 3.00	70.00 x 22 x 3.00	83.50 x 22 x 3.00
Dimensions (HxWxD) cm:	164 x 56 x 21	186 x 56 x 21	204 x 56 x 21	156 x 56 x 8	178 x 56 x 8	212 x 56 x 8
Weight lbs:	85.0	90.0	95.0	37.0	41.0	43
kg:	38.64	40.91	43.18	16.82	18.64	19.5

Ordering Information

Model	Stock No.	Description
RR-6119-3	3960 3	Relay Rack 61.25" H x 22" W x 3" D
RR-7019-3	3970 3	Relay Rack 70.00" H x 22" W x 3" D
RR-8419-3	3950 3	Relay Rack 83.50" H x 22" W x 3" D
RR-2180	3963	Relay Rack 80.25" H x 22" W x 8" D, Heavy Duty
RR-2164	3961	Relay Rack 64.50" H x 22" W x 8" D, Heavy Duty
RR-2173	3962	Relay Rack 73.25" H x 22" W x 8" D, Heavy Duty

Headend Racks and Panel

Economy Series



BH-1

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.

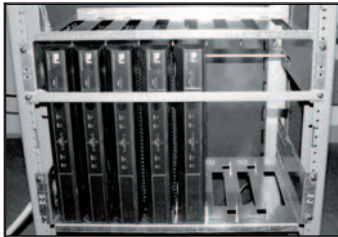
○ Specifications

Dimensions:
 20.0" x 27.0" x 10.5" inches
 51 cm x 69 cm x 27 cm
 Weight: 18 lbs., 8.18 kg



BPF-19-1V

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".



RR-6/8 RX

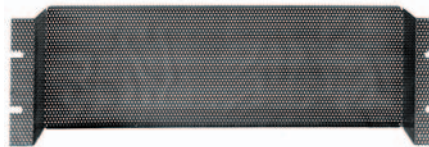
The RR-6/8 RX is a universal 19 inch satellite receiver rack which holds up 6 or 8 satellite receivers (model dependent).



Panels



2 RU Shelf



IRH Panel

○ Ordering Information

Model	Stock No.	Description
BFP19-3B	3991B	Blank Front Panel Black, 19" W x 5.25" H (3 Rack Unit High)
BFP-19-V	3988	Vented Blank Front Panel Black, 19" W x 1.75" H (1 Rack Unit High)
BFP19-2B	3990B	Blank Front Panel Black, 19" W x 3.50" H (2 Rack Unit High)
BFP19-1B	3989B	Blank Front Panel Black, 19" W x 1.75" H (1 Rack Unit High)
RR-6/8 RX	3932E	Universal 19 inch Satellite Receiver Rack (Holds 6 or 8 Satellite Receivers)
IRH PANEL	3693	Perforated Panel, 19" W x 5.25" H
RS-2U	3995	Rack Shelf (2 Rack Unit High)

Video All-Call Systems

VACD-12 AND AB-800



○ Features & Benefits

- Video All-Call System - Provides Override of All Channels on the System
- Compatible with CATV or Off-Air Systems
- Distributes Signals Throughout Installation Including Locally Originated Signals

Headend

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, $\pm 10\%$ VAC
Frequency: 60 Hz
Power: 12 W
Fuse: 1/2 A
Temperature Range: 0 to +50 °C

Mechanical

Dimensions (WxHxD):
19.0 x 1.75 x 15.25 in
483 x 44 x 387 mm

Weight: 11.00 lbs. (5.00 kg)

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

Model	Stock No.	Description
VACD-12	4019	Video All-Call Distribution Amplifier NOTE: Use with AB-800
AB-800	4018	A/B Pin Diode Switch



IF Demodulator/Modulator

IFDM Series

Headend



○ Features & Benefits

- Synchronous Video Detector Provides Exceptional Differential Phase and Gain Response
- External Video Loop - Allows Insertion of Video Signal Processing Equipment
- IF Output Carrier Phase Locked to IF Input Carrier
- Automatic IF Bypass Mode During Power Loss
- Manual External Video/IF Bypass Mode Selection
- Rack Mountable - 1 EIA (1.75") Rack Space

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 - 6.0 MHz): -36 dB
 Sidebands (fv +1.5 MHz): -30 dB
 Ultimate Rejection: -60 dB

Visual Carrier to Noise: 60 dB
 Visual Carrier to P-P Hum: 60 dB
 Overall Video S/N: 59 dB
 Video Input Return Loss: 19 dB

Audio

Audio Distortion: < 0.5 %
 Audio S/N: 53 dB
 Audio 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

Mechanical

Dimensions (WxHxD):
 19.0 x 1.75 x 18.0 in.
 483 x 44 x 457 mm
 Weight: 7.0 lbs., 3.2 kg

Connectors (Rear Panel)

IF IN: "F" Type, Female
 Video Out: BNC, Female
 Video In: BNC, female
 IF OUT: "F" Type, Female
 Manual IF Bypass: Barrier Strip, 2 Terminal

Controls (Rear Panel)

A/V Ratio: Var. Control
 IF Output Level: Var. Control
 Manual IF Bypass: Jumper, Barrier Strip

○ Ordering Information

Model	Stock No.	Description
IFDM-*	5979	IF Demodulator/Modulator