

# 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 ( $\pm 5$  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:  $\pm 20$  KHz  
Aeronautical Channels:  $\pm 5.0$  KHz

4.5 MHz Inter Carrier Frequency Tolerance:  
 $\pm 300$  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) :  
 $\pm 0.5$  dB (Ref. to std. 75  $\mu$ sec pre-emphasis)

Audio Distortion:  
0.6 % (30 Hz to 15 KHz @25 KHz Dev.)

Aural Over-Modulation LED Indicator Calibration:  
25 KHz,  $\pm 2$  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:  $\pm 5$  kHz  
FCC Aeronautical Channels:  
 $\pm 3$  max kHz  
4.5 MHz Aural Inter Carrier Frequency:  $\pm 1$  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:  $\pm 1.0$  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,  $\pm 2.5$  %  
Input Impedance: 75 Ohm  
Input Return Loss: 24 dB, min

### Audio

Input Level: 140 mV RMS  
Ext. 4.5 MHz Input Level:  $40 \pm 1$  dBmV  
Frequency Range: 20 Hz to 20 kHz

Pre-Emphasis-Mono: 75  $\mu$ s  
Frequency Response:  $\pm 1.0$  dB  
IF Pre-Emphasis Defeated: +0.5 dB  
Audio Signal-to-Noise: 58 dB  
Total Harmonic Distortion: 0.6 %  
Over Modulation Indicator : 25,  $\pm 2$  kHz  
Input Impedance: Greater than 10 K  $\Omega$ ,  
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

# 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:  $\pm 5$  kHz  
FCC Aeronautical Channels:  $\pm 3$  kHz max  
4.5 MHz Aural Inter Carrier Frequency:  $\pm 1$  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:  $\pm 1.0$  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,  $\pm 2.5$  %  
Input Impedance: 75 Ohm  
Input Return Loss: 24 min, dB

### Audio

Input Level: 140 mV RMS  
Ext. 4.5 MHz Input Level:  $40 \pm 1$  dBmV  
Frequency Range: 20 Hz to 20 kHz  
Pre-Emphasis-Mono: 75  $\mu$ s

Frequency Response:  $\pm 1.0$  dB  
IF Pre-Emphases Defeated: +0.5 dB  
Audio Signal-to-Noise: 58 dB  
Total Harmonic Distortion: 0.6 %  
Over Modulation Indicator: 25,  $\pm 2$  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