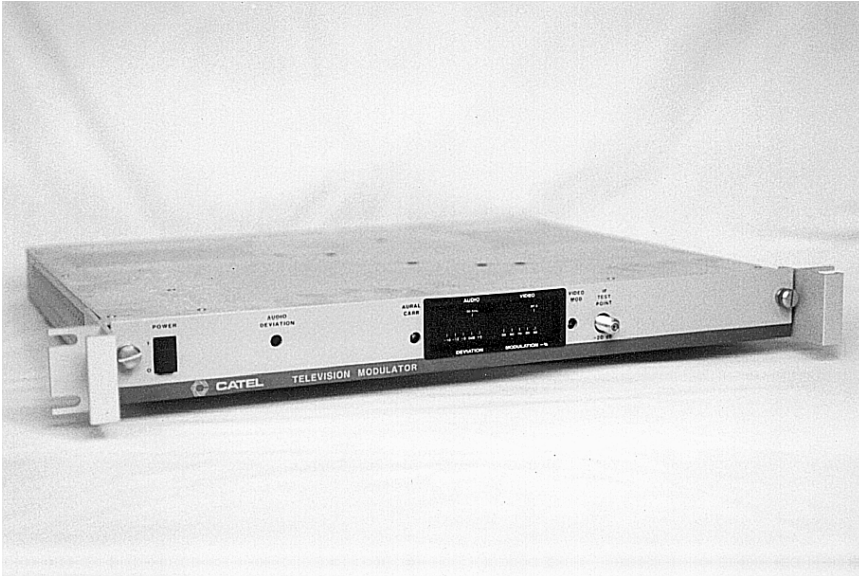




Broadcast - AM

NTSC Broadcast AM Television Modulator

Model ATM-1600 Series



The Meret ATM-1600 NTSC Broadcast Television Modulator accepts baseband video and audio signals and provides VSB-AM modulation to IF. The optional ATM-1600/4.5 Broadcast Television Modulator accepts either baseband video and a separate 4.5 MHz modulated aural subcarrier or composite baseband video with a 4.5 MHz modulated aural subcarrier included and provides VSB-AM modulation to IF.

The modulator's output can be either composite IF or separate visual and aural IF carriers. Used primarily as an exciter for television transmitters, the ATM-1600 is designed to meet the highest quality performance and reliability requirements.

The ATM-1600 has a low profile design requiring less rack space and lowers cooling requirements for the transmitter cabinet. The one rack unit format is self-contained, including its own power supply. The design uses plug-in circuit boards which can be accessed by removal of the front panel of the unit. Use of this format allows exchange of modules in the event of a failure in the unit.

The ATM-1600 contains a chassis/power supply, video modulator module and audio modulator module. All of the circuitry builds on Meret's tradition of providing only the highest quality modulators. The unit is specifically designed to assure that all FCC requirements are met. Specifications are based on conservative design to allow headroom for the user. A video presence sensor provides a contact closure for control of the transmitter carrier in case of a loss of signal.

The ATM-1600 provides +40 dBmV aural and visual IF loops to allow the introduction of IF scrambling.

APPLICATIONS

- Broadcast
- MDS
- MMDS
- ITFS

FEATURES

- Premium performance standards
- Multiple audio input
- 4.5 MHz subcarrier option
- Video presence circuit
- Low profile packaging

BENEFITS

- Performance with headroom
- Audio formats are easy to configure
- Provides video loss transmitter control
- Less room and less heat

The unit includes a precision, temperature controlled, 45.75 MHz internal reference, and has an input for an external 45.75 MHz reference.

The ATM-1600 standard audio system provides for input of either 600 ohm, balanced or unbalanced, or high impedance loopthrough for monaural audio, or a 75 ohm unbalanced coaxial input from an MTS generator. An internal jumper allows the user to disable the pre-emphasis network, depending on operational requirements. The system also provides an input for an external SCA when used in monaural operation.

The ATM-1600, with option for 4.5 subcarrier processor system, provides for input of either a 75 ohm unbalanced coaxial input from a 4.5 MHz aural subcarrier source or from a composite video plus 4.5 MHz aural subcarrier. The subcarrier can be monaural or MTS/BTSC stereo.

The video modulator includes a white clipper circuit which can be adjusted within a range of 85 - 95% depth of modulation.

Chassis circuit wiring is held to an absolute minimum. All front panel controls and indicators are mounted on the front edge of the circuit boards, eliminating separate wiring and boards. Circuit edge connectors are gold plated as are the mating chassis connectors. Power is connected through an IEC AC block. Input power from 95 to 260 VAC, 50/60 Hz is automatically handled by the power supply.

BNC connectors are used for video input and F connectors are used for IF/RF connections. Baseband audio connections are made on a standard screw terminal block. BNC IF and RF connectors are optional.

Specifications

Video

Input	Composite NTSC video, negative sync or with optional NTSC video with 4.5 MHz modulated subcarrier, negative sync
Input Level	1.0 V p-p for 87.5% modulation, ± 6 dB adjustment range
Input Impedance	High Impedance loop-through when configured for baseband or separate 4.5 MHz subcarrier. 75 ohms externally terminated when configured for composite input.
Return Loss	30 dB minimum, 25 Hz to 6.0 MHz with 75 ohm, 1% external terminator
Frequency Response	± 0.5 dB, 25 Hz to 4.2 MHz

White Level Limiter	Adjustable 85 - 95%
Modulation Range	To 95% modulation depth
Differential Gain	2% maximum at 87.5% modulation 10 - 90% APL
Differential Phase	0.5° maximum at 87.5% modulation 10 - 90% APL
Signal-to-Noise	>63 dB, weighted, measured by a Tektronix 1450-1 or equivalent demodulator
AM Hum and Noise	60 dB minimum below 87.5% modulation depth
Sync Compression	0.25 dB maximum at 87.5% modulation depth
Tilt	1% max on 60 Hz squarewave
K-Factor, 2T Pulse	2%
Group Delay	Meets FCC group delay requirements for broadcast excitors

Baseband Audio

Input Type	High-Z bridging or 75 ohm unbalanced input (MTS generators)
Capability	Monaural or MTS stereo, switchable pre-emphasis network stereo bandwidth to 120 kHz
Input Level	Mono 0 dBm, ± 10 dB MTS 1.0 V p-p, ± 10 dB
Frequency Response	
Monaural	Within ± 0.5 dB of 75 μ s pre-emphasis, 30 Hz to 15 kHz
MTS Stereo	Per BTSC recommended practice
Total Harmonic Distortion	
Monaural	0.5% maximum at 25kHz deviation 30 Hz to 15 kHz.
MTS Stereo	Per BTSC recommended practice
FM Hum and Noise	60 dB minimum below 25 kHz deviation
Intercarrier Frequency Accuracy/Stability	4.5 MHz, ± 100 Hz, any combination of specified modulation and operating temperature
BTSC Separation	40 dB minimum, 200 Hz to 10 kHz
SCA Input	High impedance input for use with external SCA generator

Specifications (cont'd)

Separate 4.5 MHz FM Subcarrier Input

Input Type	4.5 MHz modulated aural subcarrier
Input Impedance	75 ohms, unbalanced
Capability	Monaural or MTS stereo subcarrier
Input Level	+35 dBmV, ±5 dB

Composite 4.5 MHz Subcarrier Input

Input Type	Composite video (with included 4.5 MHz aural subcarrier)
Capability	Monaural or MTS stereo subcarrier
Input Level	Subcarrier to video ratio, 10 to 20% (p-p 4.5 MHz to p-p video)

IF Output

Output Type	Separate visual and aural IF outputs and a combined IF output
Output Impedance	75 ohms
Output Return Loss	>16 dB
Output Level	+40 dBmV minimum with normal setup
Frequency Accuracy	<±200 Hz of 45.75 MHz visual or 41.25 MHz aural IF, any combination of specified modulation and operating temperature Aural frequency accuracy is a function of the externally supplied 4.5 MHz aural subcarrier
ICPM	<3° at 87.5% modulation depth

Aural AM Noise	>-55 dB at 41.25 MHz
IF VSB Output	
Visual Carrier	0.7 to 4.18 MHz
Attenuation	±0.5 dB relative to +200 kHz
IF Output Attenuation & Visual Carrier performance meets FCC requirements for:	
Broadcast & LPTV	Part 73.687(a)
MDS, MMDS & ITFS	Part 74.936(b)

External Signal Source

Signal type	External 45.75 MHz CW carrier
Level	+30 to +50 dBmV

Electrical/Mechanical

Power	95-260 VAC, 47/63 Hz
Temperature	-30 to +50°C, operating
Humidity	95%, noncondensing
Size	19"Wx1¼"Hx14½"D 45mm x 483mm x 368mm
Weight	12 lbs. (5.4 kg.)
Chassis	Steel

Typical Configurations

ATM-1600-03-01/01	NTSC video, baseband audio
ATM-1600-03-01/01-1	NTSC video, baseband audio with Z-TAC option
ATM-1600-03-01/03	NTSC video, 4.5 MHz subcarrier
ATM-1600-03-01/03-1	NTSC video, 4.5 Mhz subcarrier with Z-TAC option

Specifications are subject to change without notice