



VM2450B VIDEO MODULATOR



The R.L. Drake VM2450B is a high quality, vestigial sideband agile modulator with synthesized visual and audio carriers. The VM2450B is designed to accept video and audio baseband signals from a satellite receiver or similar equipment and provides reliable operation in a densely crowded SMATV or cable environment.

- Frequency agility with 65 channel coverage from 54 MHz to 450 MHz.
  - High output power adjustable to +60 dBmV.
  - Emergency Alert System (EAS) ready using composite IF loop.
- Auto switching from standard programming to EAS status with optional Drake IFM80 EAS Modulator and IFS80 Switch.
  - IF loop-thru connections for scrambling encoders or IF stereo processors.
- Front panel modulation indicators and level controls to simplify installation and operation.
  - Automatic channel offsets where specified by FCC regulations.
- Video low-pass and SAW filtering offers quality performance in congested systems.

The R.L. Drake VM2450B Video Modulator is a high quality, vestigial sideband agile modulator with synthesized visual and audio carriers. The VM2450B is designed to accept video and audio baseband signals from a satellite receiver or similar equipment. Front panel video and audio level controls with accompanying modulation indicators permit setting the proper modulation levels. The A/V ratio and RF output level controls are also provided on the front panel. Composite video/audio IF input and output is also provided. Synthesized operation provides complete frequency agility, allowing front panel selection of any standard CATV channel from 2 to 61 and channels 95-99. FCC required offsets for aeronautical channels are automatically provided for each channel. The offsets are +12.5 kHz, +25 kHz, or none as required. The modulator accepts standard (sync negative) polarity video at a 0.7 - 1.5 Vp-p level. A high quality IF SAW filter eliminates adjacent channel interference. IF loop-thru capability in the VM2450B supplies an IF output prior to channel conversion. This feature provides the capability to replace the standard internally generated IF output with an alternate source of composite IF, or allows insertion of IF scrambling equipment. This model is compatible with EAS IF switching when used with a Drake IFM80 EAS modulator and IFS80 switch. All of the mentioned features, combined with a carefully designed low intermodulation output stage, provide reliable operation in a densely crowded SMATV or cable environment.

VM2450B Video Modulator Technical Specifications

IF	
Frequency Range:	56 channels, 54-550 MHz channels 2-61 and 95-99

Output Level:	+60 dBmV, (adjustable +50 to +60 dBmV)
Output Impedance:	75 Ohms
A/V Ratio:	Audio carrier -20 to -12 dB referenced to video carrier, adjustable.
Frequency Stability:	+/-10 ppm
Intercarrier Frequency:	4.5 MHz +/-10 ppm
FCC Frequency Offsets:	Automatic, (12.5 kHz, +25 kHz, or none as required for each channel).
Spurious Outputs:	-60 dBc typical -58 dBc minimum, measured at -15 dB A/V ratio and with modulator output level of +60 dBmV
Broadband Noise:	-75 dBc typical, referenced to video carrier (4 MHz BW @ +/-12 MHz offset
IN-Channel C/NP	65 dB typical
Video	
Input Level for 87.5%:	1 Vp-p +/-3dB manual gain adjustment and front panel modulation indicators.
Input Impedance:	75 ohms, return loss of 26 dB minimum
Frequency Response:	20 Hz to 4.2 MHz, +/-1.0 dB
Video S/N:	60 dB minimum, luminance weighted
Differential Gain:	+/-3% (10 to 90% APL)
Differential Phase:	+/-3 deg. (10 to 90% APL)
L/C Delay:	Within 50 nanoseconds of nanoseconds
Audio	
Input Level for 25 KHz :	-10 to +10 dBm manual gain
Deviation	Adjustment and fron panel modulation indicators
Input Impedance:	10K Ohms, unbalanced
Pre-emphasis:	75 microseconds
Frequency Response:	50Hz to 14kHz, +/-1 dB
Total Harmonic Distortion:	0.5% maximum
Hum and Noise:	-60 dBm minimum, referenced to 25 KHz peak deviation
Composite IF Loop	
Output Level (V carrier):	+28 dBmV +/-2 dB
Spurious Outputs:	-60 dBc minimum
Input Level (V carrier):	+28 dBmV nominal, +30 dBmV maximum
IF Input Impedance:	75 Ohms, return loss greater than 20 dB
IF Output Impedance:	75 Ohms, return loss greater than 15 dB

Isolation:	Greater than 60 dB
General	
AC Power Input;	115 VAC, +/- 10%, 60 Hz, 25 watts
Operating Temperature Range:	0° to +50° C, ambient
Size:	(W x H x D) Standard: 19" x 1.75" x 8.75"
Weight:	Standard: 6.8 lbs. Metric: 3.1 Kg
Connectors:	Video input, IF loop and RF output are all type F. Audio input is RCA phono.

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