



***Agile Modulator***

***MW-2000M***

***USER'S MANUAL***

**SHENZHEN MAIWEI CABLE TV EQUIPMENT CO., LTD.**

## **Description**

The MW-2000M is a professional quality, agile audio/video modulator, Which can be used as an alternate IF input and is specifically designed for use of Headend systems of CATV.

This product provide audio and video modulated RF carrier on any channel in the 45 to 550MHz frequency range. Many standard audio/video sources can be used, such as satellite receivers and video tape recorders. This modulator has a wide range of standard and optional features that make it very suitable for advanced CATV systems.

A custom SAW filter is employed to provide true vestigial sideband selectivity to delay pre-distortion. This modulator has an external IF loop which allows interfacing with video all-call and signal scrambling system.

The Product features rock solid. Frequency selection is accomplished via front panel channel up/down buttons with LED channel readout for easy on-the-fly channel changes. A channel lockout mode is also provided to prevent accidental channel changes.

## **FEATURES**

- Front Panel Control and Easy to Operate
- Advanced Technique and Newest Circuit Design;
- Output Frequency Adjustable between 45MHz and 550MHz,Easy to Setup
- Adjacent Channel Capability
- IF Modulate Assure Superiority Capability
- Spurious Harmonics 60dB Down
- High Output Level and Power ,Low Spurious
- Three High Quality SAW Filter Applied for Accurate Side Band Response and High Adjacent Rejection.
- CPU Control Audio-IF & Video-IF.
- Apply Die-casting Case to Shield the RF and Local Oscillator
- PLL Technique is Applied to Audio IF,Video IF and Local Oscillator Ensure High Frequency Stability
- Clamp Circuit with High Anti-hum Performance.
- Adopt SMT on the Boards to Ensure the High Reliability and Stability
- MMIC Circuit and Surface-mounted Technique are Applied on Key Parts

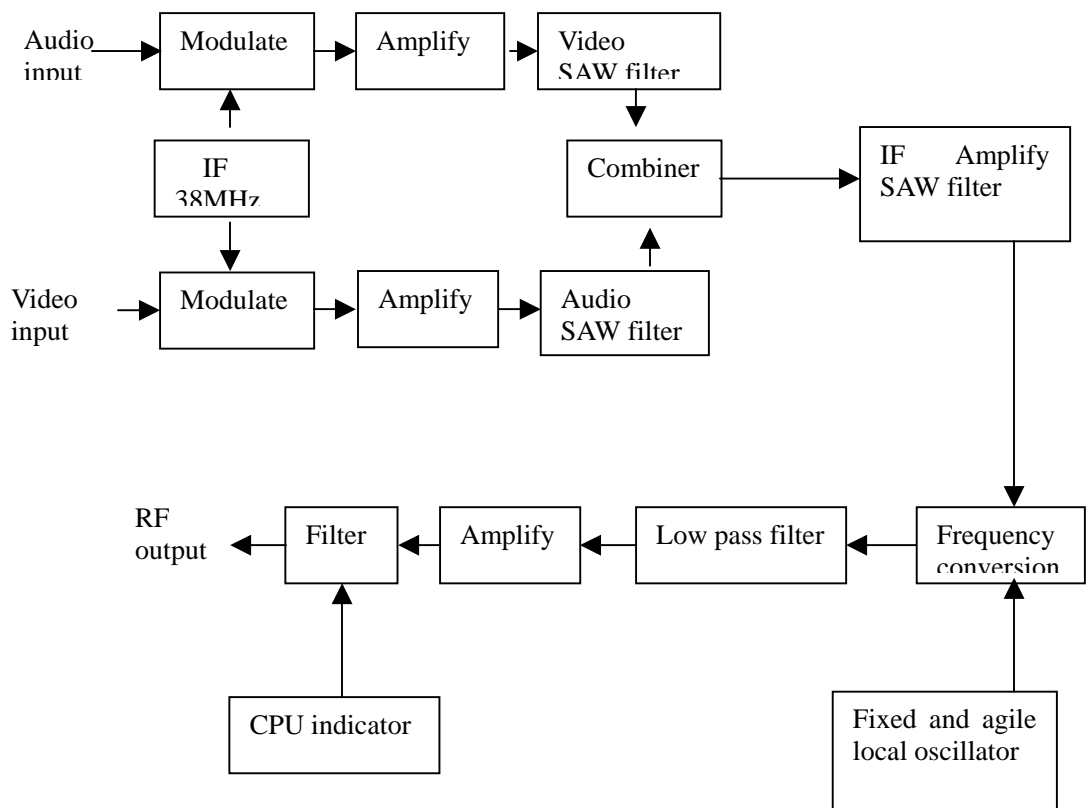
- LED Index Video Modulate Depth and Audio Frequency Deviation.
- Overmodulation Indicator in Video Frequency and Audio Frequency Modulation Depth
- High Performance Switching Mode Power Supply.
- 19" EIA Rack Mountabl

## SPECIFICATIONS

Items	Unit	Specifications
Output Channel		CH1~CH22、Z1~Z37
Difference Between V/A Carriers		6.5MHz±5KHz
Video Input Level		1V <sub>p-p</sub>
Video Input Impedance	Ω	75
Video to Audio Carrier Ratio	dB	10 ~20 adjustable (17dB, Preset Value)
Video Modulation Depth	%	87.5
Video Frequency Response	dB	≤2(Within 5MHz)
C/L Delay Inequality	ns	≤45
Audio Input Level	dB	0± 10
Spurious	dB	≥60
Video S/N	dB	≥50
Audio S/N	dB	≥55
Differential Gain		< 5%
Differential Phase		< 5°
K <sub>2T</sub>		≤4%
Video Clamp	dB	≥26
Audio Pre-emphasis	μs	50
Audio Band Flatness	dB	±1.5(40Hz~ 10KHz)
Video Carrier Accuracy	KHz	VHF≤5 UHF≤10

RF Output Return Loss	dB	VHF $\geq 12$ UHF $\geq 10$
Video Output Level	dB $\mu$ V	$\geq 115$
Spurious Output Suppression Ratio	dB	$\geq 60$
Adjacent Channel Rejection Ratio	dB	$\leq -50$
Power Supply		AC220 $\pm$ 10% 50Hz <10W
Operation Temperature & Humidity		5 $^{\circ}$ C~40 $^{\circ}$ C、5%~75%
Storage Temperature & Humidity		-10 $^{\circ}$ C~55 $^{\circ}$ C、 $\leq 80\%$ (Without Acidity Substance)
Mechanical Dimensions	mm	482.6*280*44(For 19" Standard Rack)

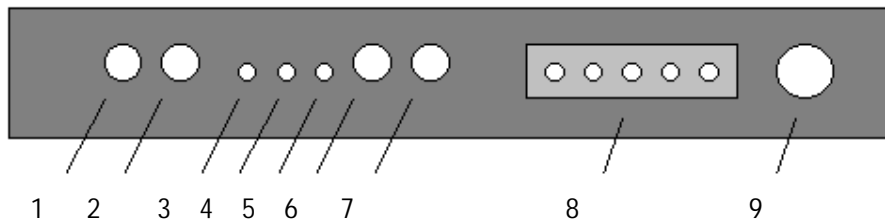
## FLOW DIAGRAM



## PANEL ILLUSTRATION

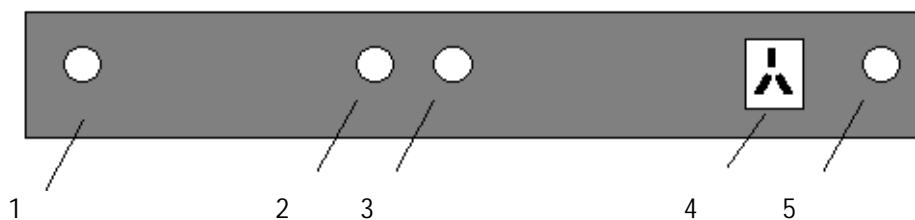
### Front Panel

1. Video modulation depth adjustment. The modulation depth increases when turning clockwise. (Factory preset on 87.5%)



2. Audio frequency deviation Adjustment. The deviation increases when turning clockwise. (Preset on  $\pm 50\text{KHz}$ )
3. Power Indicator. Lit while power supply is in proper state.
4. Video Overmodulation Indicator: Lit when the video deviation is too high.
5. Audio Overmodulation Indicator: Lit when the audio deviation is too high.
6. Output Level Adjustment: Adjust the RF Output Level.
7. A/V adjustment.
8. Channel Reset: Reset the channel of the modulator with this five switch.
9. RF Signal Test Port: 20dB, Female connector.

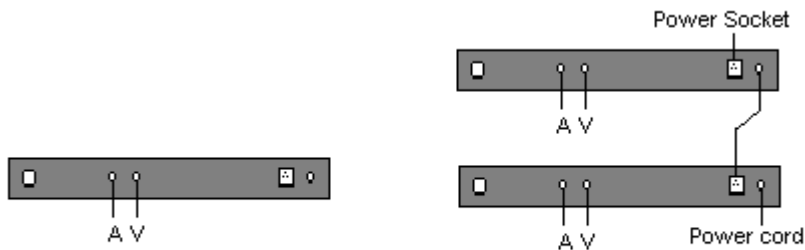
### Rear Panel



1. RF input
2. Video Input, RCA Female
3. Audio Input, RCA Female
4. 220V Power socket
5. 220V Power cord

## **GENERAL OPERATION**

1. Connect the standard audio and video cables to the audio input and video input socket on the rear panel respectively.
2. When using one modulator only, insert the power plug of the modulator to a power supply socket directly. When using more than one modulators, please insert the first modulator's power plug into the next modulator's power socket, and so on. Remember to insert the last modulator's power plug into a power supply socket.



3. Connect the RF Output on the rear panel to the Channel Mixer of the CATV head-end equipment.
4. Adjust the output levels to make the output levels of different modulators almost equal.
5. Adjust the frequency deviation and video modulation depth to obtain best sound and picture.
6. The A/V has been preset before sold. Don not attempt to adjust the "A/V" in case of unnecessary.

## **NOTICE**

1. Avoid storing in a damp place.
2. Be sure to operate carefully since the modulator has no power on/off switch.
3. Any problem, please resort to the supplier for help.