

# Agil Modulator SK-4000

**COMCAST** GROUP



## Content

Cable Specification .....	<b>¡Error! Marcador no definido.</b>
Draw .....	<b>¡Error! Marcador no definido.</b>
Color code .....	<b>¡Error! Marcador no definido.</b>
Cable structure and parameter .....	<b>¡Error! Marcador no definido.</b>
Characteristic of Optical Cable .....	<b>¡Error! Marcador no definido.</b>
Main mechanical & environmental performance test .....	<b>¡Error! Marcador no definido.</b>
Characteristic of Optical Fiber .....	<b>¡Error! Marcador no definido.</b>

### Introduction

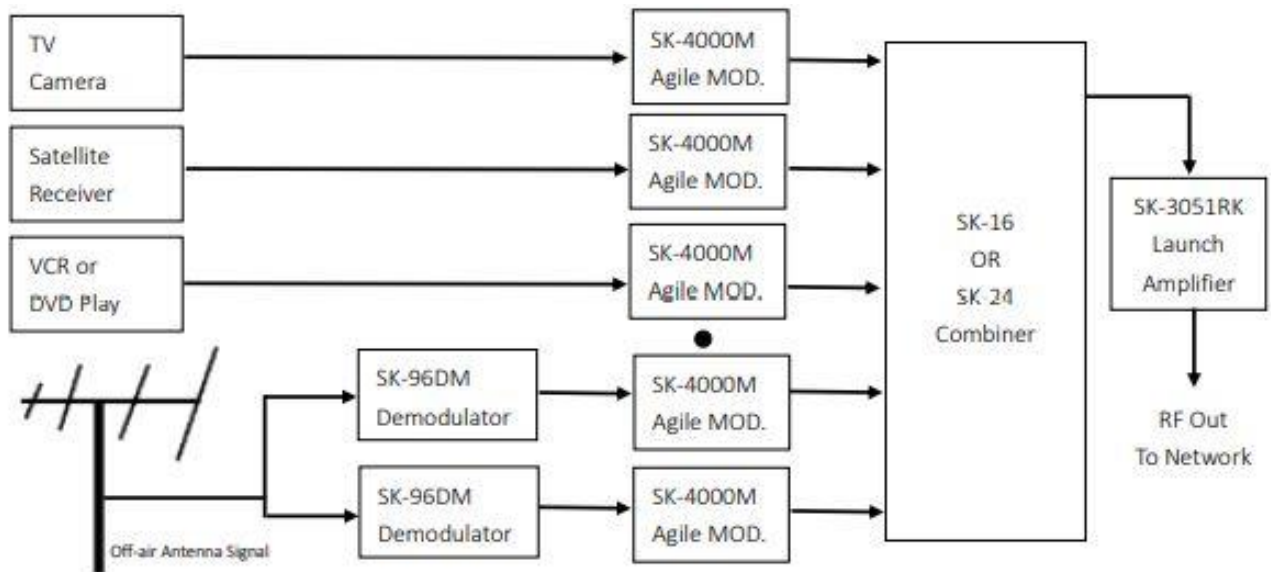
The SK-4000M is a commercial grade, SAW filtered, and frequency agile modulator. Setup and tuning are easy and straightforward taking advantage of the front panel access to all level controls and indicators. The SK4000M agile modulator provides system operators the engineering ease and flexibility associated with new headend deployments, upgrades and system maintenance.

### Features

1. SAW filtered for maintenance free adjacent channel configuration
2. 55dBmV RF output level
3. Phase lock loop frequency control
4. None-volatile memory maintains channel selection in event of power loss
5. Three-digit blue LED display and controls for convenient monitoring and operation
6. Switching power supply for installation flexibility and precise voltage regulation
7. Available in NTSC or PAL configurations

## Specification

RF	Output Frequency	45~860MHz any channel
	Output Connector	F Connector
	Output Level	115 dBμV (Adj.)
	Test Point	-20 dB ±3dB
	A / V Ratio	-11 ~ -18 dB (Adj.)
	Frequency Stability	±10KHz
	Output Impedance	75 Ohms
Video	Video Input Level	0.6-1.5Vp-p (87.5% Modulation)
	Input Connector	Yellow RCA Jack
	Video C/N	60dB
Audio	Input Level	0.8Vp-p(25KHz Peak Deviation)
	Input Connector	White RCA Jack
General	Voltage	AC 110 ~ 220V
	Power Consumption	10W
	Dimension	Dimension 19" x 1.75" x



## Front Panel



1. Test Point Output level read at this point will be down 20dB from the actual output
2. RF Level Adjustment for output level. The control is adjustable over a 17dB range. Turn clockwise to increase the level.
3. LED Channel Display Two-digit LED display for channel. See Appendix for more information.
4. Up & Down Select Button For selecting the channel
5. AV ADJ. Adjust the audio and video ratio over 18dB range. Please don't change since it's perfectly set in factory.
6. A ADJ. Used to adjust the deviation for audio modulation. Turn clockwise to increase deviation.
7. V ADJ. This control adjusts the video modulation index which is set to 87.5%. Turn clockwise to increase the brightness.

## Rear Panel Control



1. Video & Audio Input Feed the video and audio signal into the modulator
2. RF Output 110 dB $\mu$ V maximum output is provided at this port
3. Auxiliary AC Outlet For power loop 4. Power Cord 110V or 220V power source

## UNPACKING AND HANDLING

A full unit SK-4000M is shipped with all equipment assembled, wired, factory tested, and then packed in an appropriate shipping container. Ensure that all accessories are removed from the container and packing material before they are discarded.

## INSPECTION

Inspect the front and rear of the equipment for shipping damage. Make sure the equipment is clean, and no wire, cables, or connectors are broken, damaged or loose.

## DAMAGE IN SHIPMENT

Should any damage be discovered after unpacking the unit, immediately file a claim with the carrier. A full report of the damage shall be made and a copy forwarded to vendor.

## PRECAUTIONS

Precautions	Requirements
Avoid heat buildup	Allow rack space (1'')between powered headend product in the equipment
Ensure easy access to rack wiring	Allow a minimum of 18inches behind the equipment rack
Facilitate servicing and maintenance	Allow a minimum of 18inches behind the equipment rack
Avoid direct heating or air conditioning	If unavoidable, use deflector plates
AC power source outlets	Locate equipment near sufficient outlets to provide power for test equipment and power tools
Rack support	Make certain rack supports are sufficiently rigid to support racks
Building leakage	Beware of dripping water onto equipment from leaky roofs, waveguide roof entries, and cold water pipe condensations

## QUICK INSTALLATION

The SK-4000M is designed for indoor 19" rack. Make sure a space is left between modulators for air circulation. To prevent electric shock, never remove the ground pin. Insure that electrical input cables entering the building be connected to the building ground as close to the entry point as possible.

1. Feed in the Audio and Video connectors before turn on the power
2. Warm up the modulator and check the picture and audio
3. Set up the channels you want if the factory setting is not what you want

## ADJUSTMENT

All modulators are heat cycled at the factory and final adjustment are made with the units hot. Thus, allow a 20 minutes warmup before attempting any adjustments. You will need a signal level meter and a TV set.

1. Connect the video and audio cable from your source to the respective connector on the modulator. If you have several SK-4000M, please connect the RF OUTPUT to the proper combiner. Levels can be read at the test point output in the front panel.
2. The AV ADJ. should always be between -15dB to -17dB below the VIDEO ADJ.. Once this ratio is set it will track with the VIDEO ADJ. (All are proper set at the factory.)
3. AUDIO and VIDEO modulation levels are set at the factory for plus or minus 25KHz deviation and 87.5% depth of modulation respectively. Although proper test equipment should be used, minor adjustment can be made utilizing a TV set.
  - 3.1 Connect the TV set to the final output test point so that its signal level input from the modulator is about +69dB $\mu$ V. If the colors look bright and there is sufficient sound without audio buzz, leave the modulation adjustment alone. If there is occasional audio buzz, turn modulation control down slowly counter-clockwise until the audio is clean.
  - 3.2 If the modulator picture is dark, raise the V ADJ. control slowly until the picture just becomes over bright and begins to distort. Lower the control about 1/8 turn from this point.
  - 3.3 If the modulator audio is low, try and set TV audio level utilizing an off air signal. Subjectively match this level utilizing the A ADJ. control. Check that all audio levels are about the same when switching channels.



## COMMON TROUBLESHOOTING

### 1. Herringbone in TV



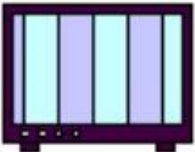
Disconnect modulator from local channels and check modulated channel. If there is programming move the modulated channel. If the picture is snowy, use a low pass filter to block noise or data coming in from cable.

### 2. Horizontal Bars Rolling Through TV Picture



Check for a component of the system that is introducing DC power into the system. Disconnect that component and check TV. If the hum bars stop, use a DC blocker down stream from that component to block the power from getting to the TVs. If the rolling is only on the modulated channels, check for impedance mismatch by adjusting the video level adjustment pot.

### 3. Vertical Bars Rolling Through TV Picture



Check for AC power getting on the line. Use a ground breaker in line.

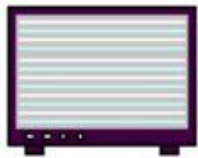
### 4. Ghost on the Picture



Check for low quality combiner/ splitter in system. Replace with high isolation combiner/splitter. Check the type of coax used in system. Inadequate shielding in coax will cause ghosting.

5. Snowy Picture Verify the modulator is set up for the proper TV channel band. Verify the TV is set up on the proper TV channel band.

### 6. Black and White Lines on one Local Channel



Move modulated channel up to a new channel. If problem persists and all of the inputs of a multiple input modulator are not being used, check default channels on modulator to see if default channel is set to the same channel that the problem channel is.

7. Modulated Picture is Too Bright or Washed out Adjust video level adjustment potentiometer on the modulator front panel or rear panel of chassis. If using a camera, check positioning of the lens to be sure it's not aimed at the sun or a reflection. Adjust camera lens.

8. Modulated Picture is Too Dark If the baseband video is being split, you might require a amplifier Try to adjust video level potentiometer on the front panel of modulator or rear panel of chassis If the video source is not being split, check input source directly into a TV Adjust the video level adjustment pot on the chassis of the set top units to the proper brightness.

9. Noise on the Audio Insert grounding block in line and ground coax cable before it enters the TV Use professional grade audio/video interconnect between the components and the modulator

10. Audio is Too Low Use a Y connector to combiner the left and right audio before entering the modulator

## WARRANTY ( 1 YEAR)

Our equipment has been thoroughly tested and found to be in proper operating condition when shipped from the factory and is warranted to be free from defects in materials or workmanship that may develop within one year of the date of purchase.

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### For More Information

Please visit our website [www.comcast-sa.com](http://www.comcast-sa.com) or contact your local sales representative.

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