

# SOUKA



## **SK-24M**

### **24 IN 1 ANALOG MODULATOR**

### **USER MANUAL V2.0**

# A Note from SOUKA about this Manual

## Intended Audience

This user manual has been written to help people who have to use, integrate and to install the product. Some chapters require some prerequisite knowledge in electronics and especially in broadcast technologies and standards.

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## 1. INTRODUCTION

The SK-24M is a 24 channels modulator with 1 RF output port in 3RU height. There is a build-in active combiner to eliminate unnecessary cabling and potential connection problem and ensure the high output level. We also provide an extra combiner in the chassis for RF loop to connect the RF signals from different modulators.

## 2. FEATURES

1. SAW (surface acoustic wave) filtering on IF for adjacent channel performance
2. Front panel access controls enable easy setup
3. Two cooling fans ensure long life performance
4. The MAX combiner output level is as high as 42dBmV
5. Extra combiner for easy RF signals combination

## 3. SPECIFICATION

MODULATOR CARD		
INPUT	Video Input Connector	Yellow RCA
	Audio Input Connector	White and Red RCA (MONO)
OUTPUT	Output Connector	F Connector
	Output Frequency	45 ~ 860 MHz any one frequency
	Output level	95 dB $\mu$ V (Adj.)
	Frequency Stability	$\pm$ 5KHz
	A / V Ratio	-11 ~ -18 dB (Adj.)
GENERAL	Voltage	DC 5V in F type
CHASSIS		
RF	Frequency Range	45 ~ 860 MHz
	Output Connector	F Connector
	Output Level	102 dB $\mu$ V (Adj.)
	Test Point	-20 dB
	Isolation Port to Port	$\geq$ 35 dB
	Return Loss	$\geq$ 12 dB
	Gain	+ 4 dB
GENERAL	Modulator Capacity	16
	Input Voltage Range	110V or 220V
	Cooling Fan	2
	Consumption	70W (Fully Loaded)
	Dimension	42 * 13 *20 cm
	Net Weight	10 KG (Fully Loaded)
	Shipping Weight	3.7 KG (Chassis Only)
		11 KG ( Fully Loaded)
	Carton Size	53 * 30 * 24 cm

**TO REDUCE THE RISK OF ELECTRICAL SHOCK,  
DO NOT REMOVE COVER FROM THIS UNIT.  
NO USER-SERVICEABLE PARTS INSIDE.  
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

WARNING: TO PREVENT SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE



## CAUTION

RISK OF ELECTRIC SHOCK  
DO NOT OPEN

### 4. SAFETY INSTRUCTIONS

1. Read all safety and operating instructions before you operate the modulator
2. Retain all safety and operating instructions for future reference
3. Heed all warnings on the modulator and in the safety and operating instructions
4. Follow all installation, operating and use instructions.
5. Unplug the modulator from the AC power outlet before cleaning. Use only a damp cloth for cleaning the exterior of the modulator
6. Do not use accessories or attachments not recommended by us, as they may cause hazards, and will void the warranty
7. Do not operate the modulator in high-humidity areas, or expose it to water or moisture.
8. Do not place the modulator on an unstable cart, bracket or table. The modulator may fall, causing serious personal injury and damage to the modulator. Install the modulator only in a mounting rack designed for 19" rack-mounted equipment.
9. Do not block or cover slots and openings in the modulator. These are provided for ventilation and protection from overheating. Never place the modulator near or over a radiator or heat register.
10. We strongly recommend using an outlet that contains surge suppression or ground fault protection. For added protection during a lightning storm, or when the modulator is left unattended for long periods of time, unplug it from the wall outlet or PDU and disconnect the lines between the modulator and its source. This will prevent damage caused by lightning or power line surges.
11. Do not overload wall outlets or extension cords, as this can result in a risk of fire or electrical shock.
12. Never insert objects of any kind into the modulator through openings as the objects may touch dangerous voltage and will void the warranty. Refer all servicing to authorized service personnel.
13. Unplug the modulator from the wall outlet or PDU and refer servicing to authorized service personnel whenever the following occurs:
  - The power supply cord or plug is damaged
  - Liquid has been spilled into or objects have fallen into modulator
  - The modulator has been exposed to rain or water
  - The modulator has been dropped or the chassis has been damaged
  - The modulator exhibits a distinct change in performance

When replacement parts are required, ensure that the service technician uses replacement parts specified by us. Unauthorized substitutions may damage the modulator or cause electrical shock or fire, and will void the warranty.

## 5. UNPACKING AND HANDLING

A full SK-24M is shipped with all equipment assembled, wired, factory tested, and then packaged in an appropriate shipping container.

### 5.1 Mechanical Inspection

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

### 5.2 Precautions

Avoid heat buildup

Ensure easy access to rack wiring

Facilitate servicing and maintenance

Avoid direct heating or air conditioning

Make sure rack supports are sufficiently rigid to support racks

Beware of dripping water onto equipment from leaky roofs, waveguide roof entries and cold water pipe condensations

### 5.3 Damage in Shipment

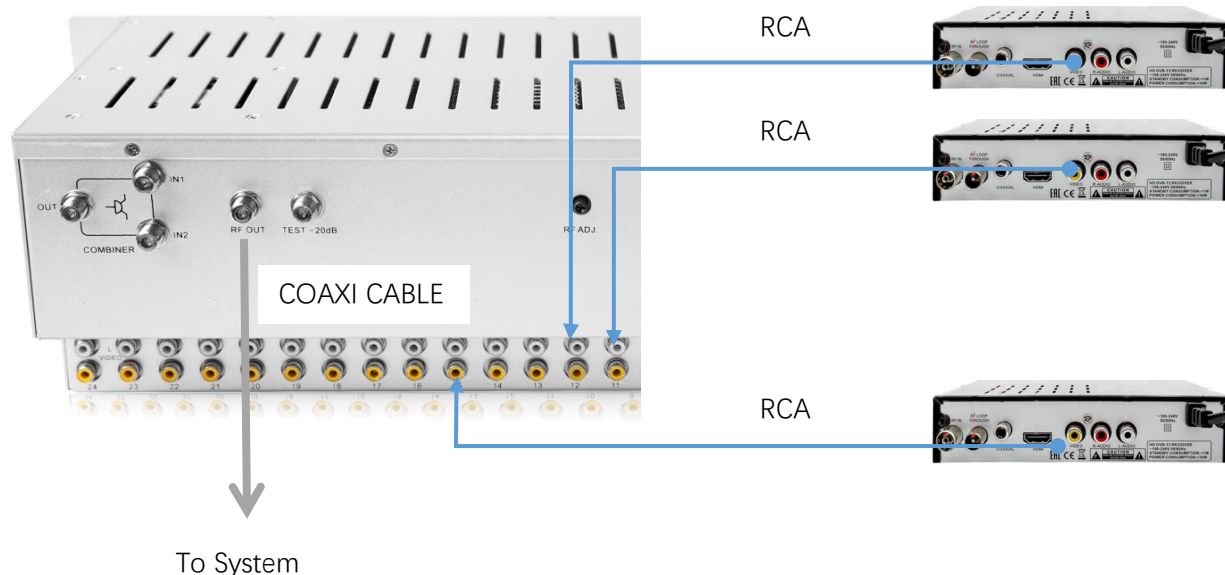
Should any damage be discovered after unpacking the unit, immediately file a claim with the carrier. A full report of the damage shall be made and a copy forwarded to Seller.

## 6. INSTALLATION

The SK-24M 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.

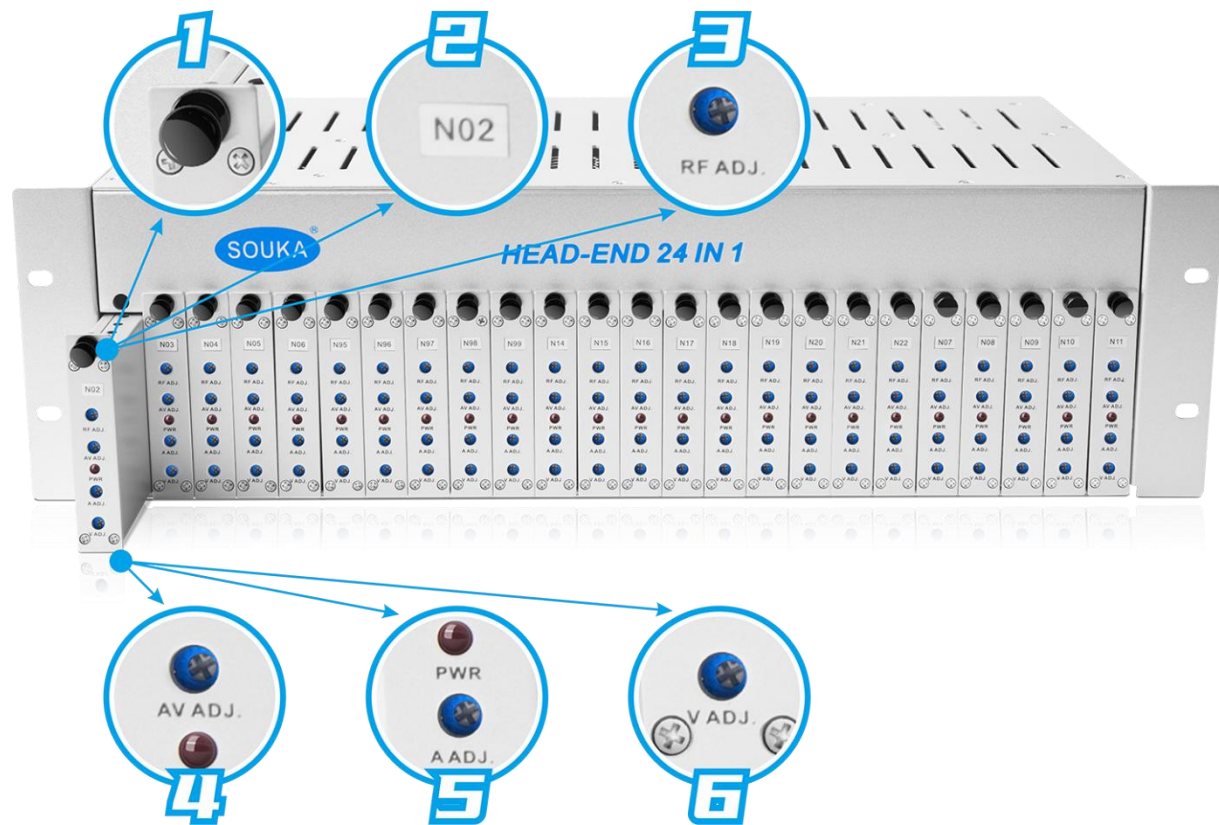
1.Feed in the Audio and Video connectors before turn on the power

2.Warm up the modulator and check the picture and audio



**DO NOT block the unit's ventilation holes.**

## 7. FRONT PANEL



**1. Button :** To hold the modulator card in the chassis (All modulator cards are plug-and-play designed)

**2. Channel Label:** To indicate the channel name

**3. RF ADJ.:**

Adjustment for output level. The control is adjustable over a 17dB range. Turn clockwise to increase the level

**4. AV ADJ:**

Adjust the audio and video ratio over 18dB range. Please don't change since it's perfectly set in factory.

**5. Power Light & A ADJ. :**

Red LED lights when power is applied to the modulator & Used to adjust the deviation for audio modulation. Turn clockwise to increase deviation.

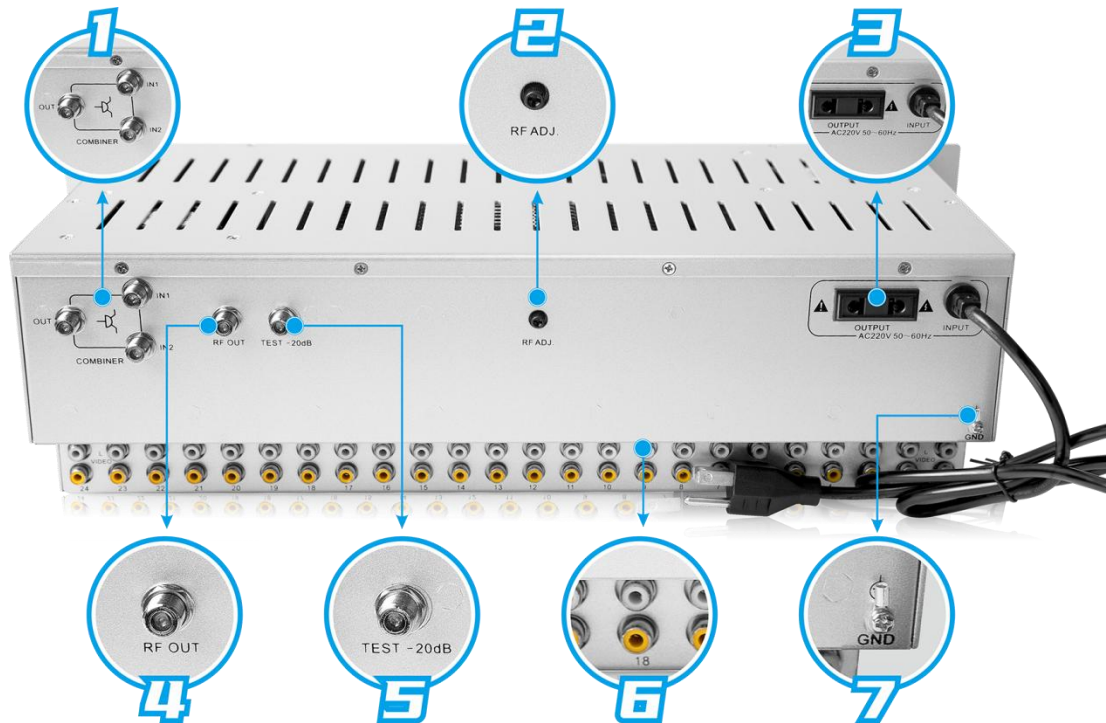
**6. V ADJ. :**

Adjust the video modulation index which is set to 87.5%. Turn clockwise to increase the brightness.



All the default settings are perfectly checked in the factory. Please leave what it is if you don't know them well.

## 8. REAR PANEL



### 1. The Extra Combiner :

To combiner 2 RF signals from different SK-24M into 1 RF.

### 2. RF ADJ. :

Adjustment for the combiner output level at the RF OUTPUT. The control is adjustable over a 4dB range. Turn clockwise to increase output level

### 3. Power Cord socket and Cord:

110V or 220V power source

### 4. RF Output:

24 modulated CATV signals at 103 dBμV maximum output is provided at this port

### 5. Test Point:

Output level read at this point will be down 20dB from the actual output

### 6. Video & Audio Input

Feed the video and audio signal into each modulator card

### 7. GND

For modulator grounding



#### WARNING:

For the protection of your equipment and its proper working is necessary to connect the SK-24M to a ground connection.



## 9.ADJUSTMENT

All SOUKA modulators are heat cycled at the factory and final adjustment are made with the units hot. Thus, allow a 20 minutes warm-up 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-24M, please connect the RF OUTPUT to the proper combiner. Or you can use its extra combiner to mix the signal [See How to Use the Extra Combiner]. Levels can be read at the test point output of combiner output in the rear 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.)

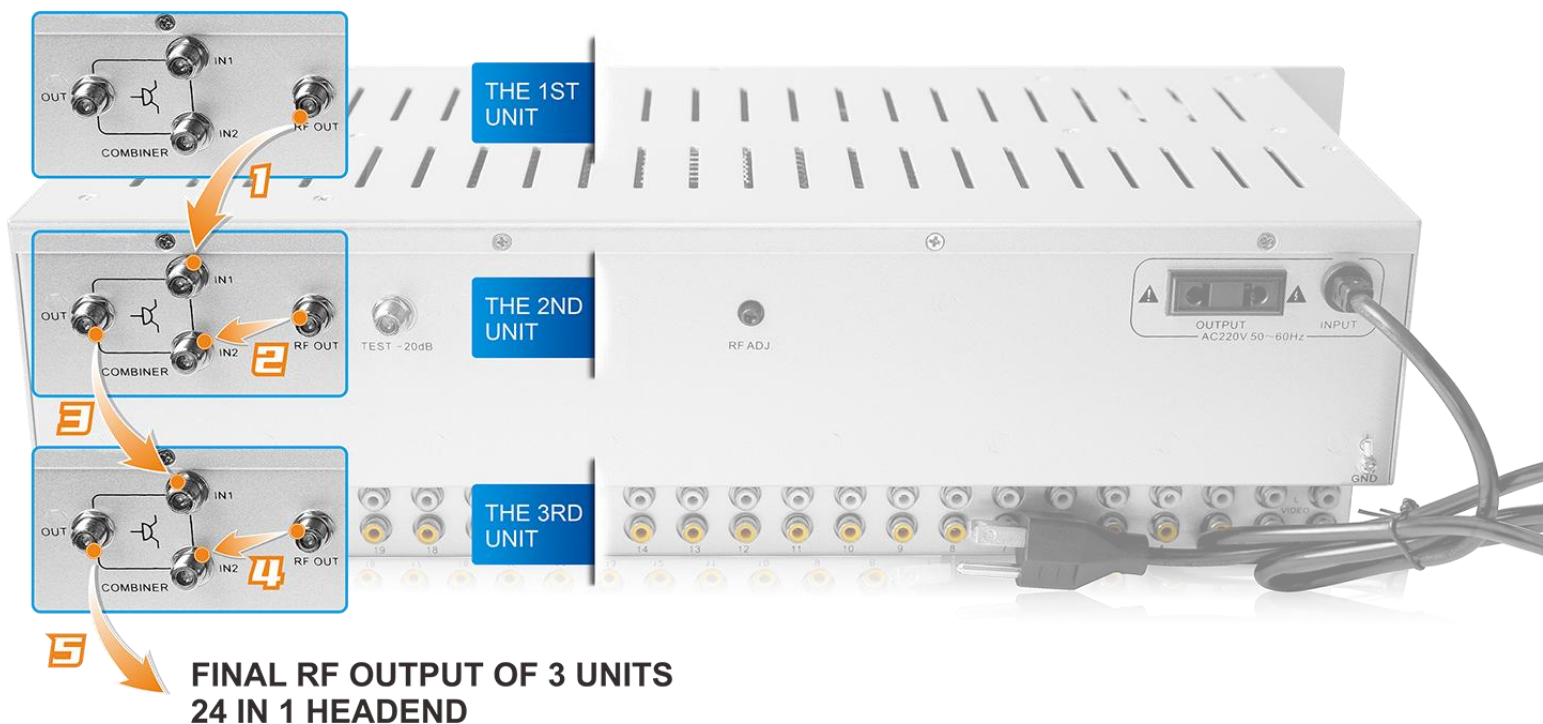
3. AUDIO and VIDEO modulation levels are set at the factory for plus or minus 25KHz deviation and 87.5% depth of modulation respectively. Although proper test equipment should be used, minor adjustment can be made utilizing a TV set.

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.

## 10.THE EXTRA COMBINER





## 11. COMMON TROUBLESHOOTING

PROBLEM	PICTURE	SOLUTION
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.
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.
Vertical Bars Rolling Through TV Picture		Check for AC power getting on the line. Use a ground breaker in line.
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.
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.
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.
Modulated Picture is Too Bright or Washed out		Adjust video level adjustment potentiometer on the modulator front panel. 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.
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.
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
Audio is Too Low		Use a Y connector to combiner the left and right audio before entering the modulator. Adjust sound level potentiometer on the modulator front panel.

## 12. WARRANTY ( 1 YEAR)

Dingshengwei Electronics 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. DSW agrees to remedy such or furnish a new part, or at its option an entire unit, or any part of a unit that disclosed such defect, provided that the unit or part is returned to DSW or DSW authorized service facility according to the terms listed below.

Prior authorization with a return authorization number issued by DSW or its representative is required for all returns. The purchaser shall be responsible for all freight charges on shipment to DSW unless otherwise authorized. Charges to return a unit or part to purchaser will be paid by DSW. Claim for damage in shipment to the purchaser must be filed by the purchaser with the carrier in accordance with the carrier's regulations.

DSW shall not be responsible for the shipping charge if the returned unit turns out to be flawless.

**A Return Material Authorization (RMA) Number is required on all products returned to DSW.** Regardless if the product is being returned for repair or credit. Before returning product, please contact the DSW sale who you contact with.

Buyer :		RMA Number:
Mode Number	Products ID Number	Problem

If there's not enough space in this form, please attach a separate sheet of paper.

Thanks for using our products.  
For more products, please visit our  
website: <http://www.soukacatv.com>