

SOFTEL



SFT162X

16 CHANNELS AGILE MODULATOR

REV210121

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A Note from SOFTEL 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 SFT162X is a professional quality agile modulator with 16 output channels in 1RU size. It is SAW filtered and microprocessor controlled with an output capability of 860MHz. Setup and tuning are easy and simple by the front panel. The unit offers high performance, low cost and compact design for the system operators.

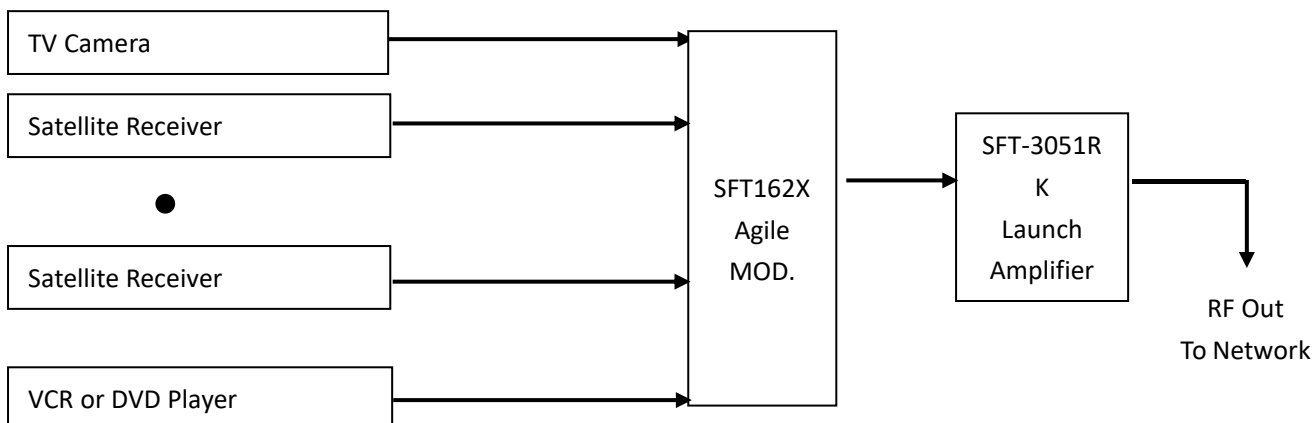
2. FEATURES

1. SAW filtering for maintenance free adjacent channel configuration
2. Double I.F loop for superior in band C/N
3. Fewer cables and connector but greater reliability
4. Rack mountable 1RU space saving shipping cost
5. Front panel accessible level controls for easy set-up and adjustment

3. SPECIFICATION

OUTPUT		
RF	Output Connector	F Connector @ 75Ohms
	Output Frequency	45~860MHz any 16 channels
	Output Level	113 dBμV (Adj.)
	Out-band Rejection	≥60dB
	A / V Ratio	-21~ -18 dB (Adj.)
	Frequency Stability	± 5kHz
	Test Point	-20 dB ± 3dB
INPUT		
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		
POWER AND SIZE	Voltage	AC 90 ~ 264V @ 47~63Hz
	Power Consumption	100W
	Cooling Fans	3
	Dimension	48.4*32.9*4.44 (CM)
	Carton Size	55*39*13 (CM)
	Shipping Weight	6KG

4. SYSTEM MAP



**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

5. 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
14. 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.

5.1 Unpacking and Handling:

A full SFT-162X agile modulator is shipped with all equipment assembled, wired, factory tested, and then packaged in an appropriate shipping container.

5.2 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.

5.3 Precautions

Avoid heat buildup

Ensure easy access to rack wiring

Facilitate servicing and maintenance

Avoid direct heating or air conditioning

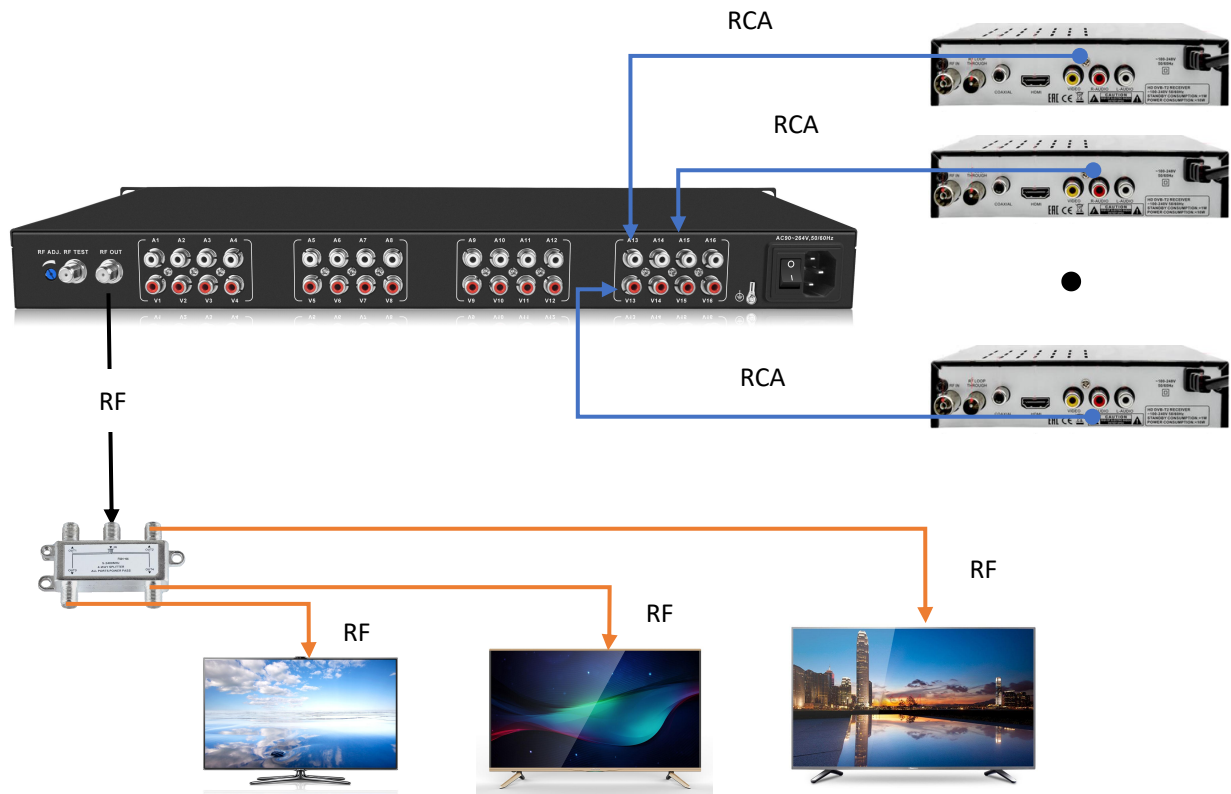
Make sure rack supports are sufficiently rigid to support racks

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

5.4 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 the Seller

6. INSTALLATION



Please follow the instructions below to install the SFT162X

1. Connect the power plug to the power jack
2. Connect the video source to the SFT162X like DVB or STB
3. Connect the SOFTEL to the TV
4. Power up the modulator and wait for 5 minutes to set it up

7. FRONT PANEL CONTROLS

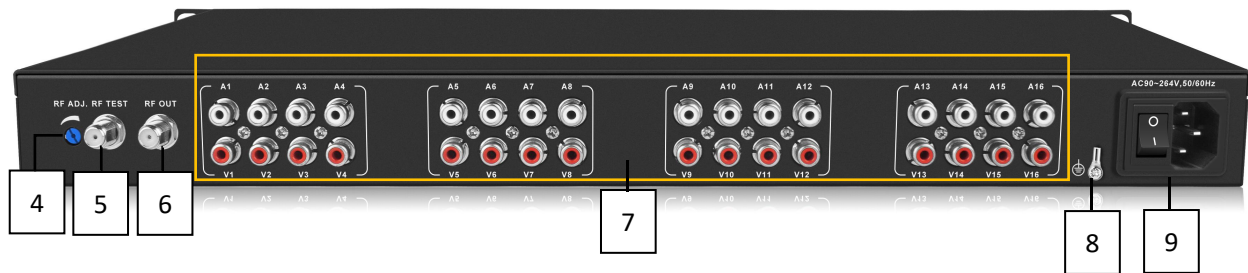


1. INDICATORS: Indicate power on, running and signal locked

2. LCD DISPLAY: To display all the setting information. The LCD will be locked without any action taken within 1 minute. Press any keys to active the screen.

3. CONTROL KEYS: Use UP, DOWN, LEFT and RIGHT to move, ENTER to save and ESC to quite.

8. REAR PANEL VIEW



4.RF OUTPUT ADJ.: Adjust the output level at the RF OUTPUT.

5.RF TEST: Output level read at this point will be down 20dB from the actual output

6.RF OUTPUT: 16 modulated signal at 113dB μ V output is provided at this port

7.VIDEO & AUDIO INPUT: Feed the video and audio signals into the modulator. The A1~A16 stands for the audio input with white RCA connectors while the V1~V16 stands for the video input with red RCA connector.

8.GND: For the modulator grounding.

9. POWER CORD SOCKET AND CORD: 110V~220V power source and switch

WARNING:

For the protection of your equipment and its proper working is necessary to connect the SFT162X to a ground connection.

9. SETTING UP THE MODULATOR: One-step set up design

This modulator is designed for easy setup and the only thing you need to do is set up the frequency in the modulator. You can go to **Channel Settings** and just lay out your 16 frequencies, the modulator will run the rest work.

10. FINE TUNER

All SOFTEL modulators are heat cycled at the factory and final adjustment are made with the units hot. Thus, allow a 5 minutes warmup before attempting any adjustments. You will need a signal level meter and a TV set.

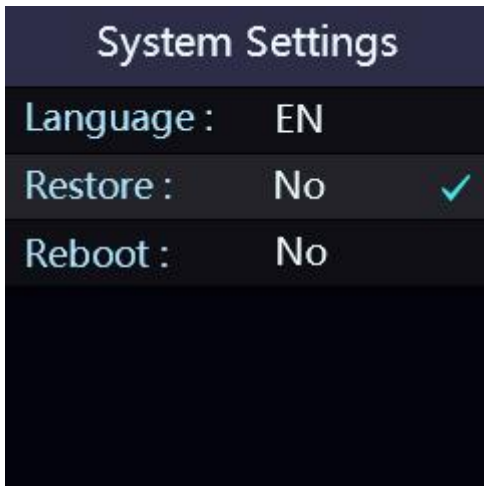
1. Connect the video and audio cable from your source to the respective connector on the modulator. If you have several SFT162X, please connect the RF OUTPUT to the proper combiner. Levels can be read at the test point output of combiner output in the rear panel.
2. AUDIO and VIDEO modulation levels 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. Connect the TV set to the final output test point so that its signal level input from the modulator is about +69dB μ 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.

11. SYSTEM INTERFACE

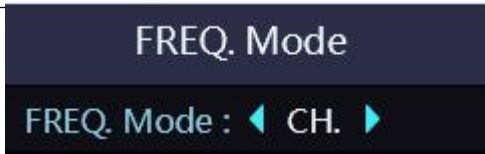
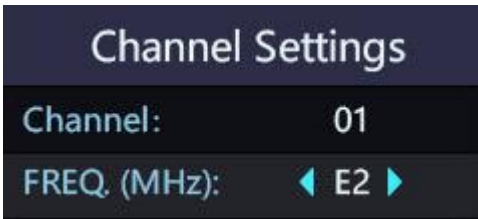
MAIN MENU

 MAIN MENU System Settings ✓ FREQ. Mode Channel Settings Channel Plan System Status	System Settings	System basic settings
	FREQ. Mode	Frequency input mode: Frequency or Channel
	Channel Settings	Each channel's settings
	Channel Plan	View all your frequency/channel
	System Status	View system working status

SYSTEM SETTINGS

 System Settings Language : EN Restore : No ✓ Reboot : No	LANGUAGE	English or 中文
	Restore	No: Quite Yes: Restore to factory settings
	Reboot	No: Quite Yes: Reboot the modulator

FREQ. Mode

 FREQ. Mode FREQ. Mode : ◀ CH. ▶	 Channel Settings Channel: 01 FREQ. (MHz): ◀ E2 ▶	
	In the CH mode, you will select the frequency by channel name directly.	

FREQ. Mode FREQ. Mode : ◀FREQ▶	Channel Settings Channel : 01 FREQ. (MHz) : 48.000	In the FREQ. mode, you will input the frequency

CHANNEL SETTINGS		
Channel Settings Channel: 01 FREQ. (MHz): ◀E2▶ RF Enable: ON ATT.(dB): 00 Video Adj(dB): 63 Audio Adj(dB): 80	Channel	System basic settings
	FREQ. Mode	Frequency input mode: Frequency or Channel
	RF Enable	Enable or disable the channel output
	ATT.	0~20 dB
	Video Adj.	Video brightness
	Audio Adj.	Audio volume
CHANNEL PLAN		
Channel Plan CH. 01(MHz) : 48.000 CH. 02(MHz) : 55.000 CH. 03(MHz) : 61.000 CH. 04(MHz) : 69.000 CH. 05(MHz) : 76.000 ◀ 1/6 ▶	You can view your channel plan here.	Channel Plan CH. 01(MHz) : E2 CH. 02(MHz) : E3 CH. 03(MHz) : E4 CH. 04(MHz) : E25 CH. 05(MHz) : E50 ◀ 1/6 ▶
System Status		
System Status	DEV. Name	Device mode

	Language	Current system language
	Video	Modulated video standard
	Bandwidth	PAL or NTSC bandwidth
	Audio	Audio standard

OTHER DISPLAY	
 Channel Plan CH. 01(MHz) : E2 ! CH. 02(MHz) : E2 ! CH. 03(MHz) : E4 CH. 04(MHz) : E25 CH. 05(MHz) : E50 ◀ 1/6 ▶	If your channels are double, the system will yellow out the double channel with a ! . Please modify the doubled channel to avoid system trouble.

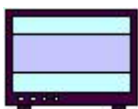
12. TROUBLESHOOTING

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.

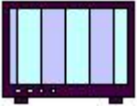
2. Horizontal Bars Rolling Through TV Picture



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

11. No power on

Check the power switch is ON

12. No picture

Check if there were two channels are set in the same frequencies.