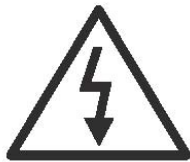




INSTALLATION MANUAL

CT-SFMM Fixed Channel Mono Audio/Video Micro Modulator

IMPORTANT INFORMATION



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING : TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DO NOT OPEN THE CABINET, REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

PACKAGE CONTENTS

This package contains:

- One CT-SFMM mono Audio/Video Micro Modulator
- One CT-SFMM Installation Manual

PRODUCT DESCRIPTION

The CT-SFMM is a professional quality, channelized, heterodyne audio/video SAW filtered micro modulator. The unit provides a mono audio and video modulated RF carrier output on any single CATV channel from 2-13 & 14-88 (A-ZZZ). The CT-SFMM is ideal for placing audio and video onto any unused CATV channel. Different standard audio/video sources, such as satellite receivers, television cameras, video tape recorders, or television demodulators can be used. The CT-SFMM takes baseband audio and video and modulates these signals onto the desired output channel. The heterodyne conversion process used in the CT-SFMM employs a crystal referenced, PLL synthesized local oscillator that guarantees a rock solid, no-drift output for the life of the modulator. The CT-SFMM also meets FCC Docket 21006 aeronautical frequency offset requirements. The modulator accepts standard composite video in the range of 0.7 to 2.5 V p-p.

SPECIFICATIONS

CT-SFMM

Fixed channel mono Audio/Video Micro Modulator Specifications (Typical)

RF	
1. Frequency Range	CATV Channels 2 – 88, fixed channel
2. Output Level	+45 dBmV
3. Output Level Adjust	0 ~ -10 dB
4. Aural/Visual Carrier Ratio	-9 ~ -20 dB
5. Visual Carrier Frequency Tolerance	
Standard Channels	±10kHz
FCC Aeronautical Channels	±5kHz
6. Aural Carrier Frequency	+4.5Mhz
7. Aural Carrier Accuracy, Settable	±1.5kHz
8. Spurious Outputs	-60 dBc
9. C/N Ration In Channel	60 dB typical
10. Broadband Noise	-90 dBc
11. Output Impedance	75 ohm
12. Output Return Loss	12 dB
VIDEO	
1. Input Level	0.5 to 2.0 V p-p
2. Frequency Response	±1.0 dB
3. Differential Gain	±4%
4. Differential Phase	±2°
5. Video SNR Weighted	60 dB typical
6. Input Impedance	75 Ohms
AUDIO	
1. Input Impedance	5K Ohms
2. Baseband Input Level	0.5V p-p for 25kHz peak deviation
3. Preemphasis	75 microseconds
4. Flatness	1.5 dB max. 50 Hz to 15 kHz
5. Test Tone	
Frequency	10.396kHz ±50Hz
Amplitude	0.5 V p-p ±10%
6. Pre-Emphasis Mono	75µs
Total Harmonic Distortion	1.00%
Input Impedance – Unbalanced	10kΩ
7. Sub-Carrier Audio	
Frequency	4.5MHz
Stability	±5kHz typical
GENERAL	
1. DC Input Power	+5VDC (35mA), +12VDC (35mA) maximum
2. Power	2.25 W maximum
2. Operating Temperature	32 °F ~ 122 °F
MECHANICAL	
1. Dimensions	1.15"(W)" x 3.5" (H) x 10.25" (D)
2 .Weight	0.65 lbs.

INSTALLATION AND OPERATION

NOTE TO SYSTEM INSTALLER

System installer must adhere to Article 820-40 of the NEC that provides guidelines for proper grounding and specifies that the cable ground shall be connected to *the grounding system of the building*, as close to the point of cable entry as practical.

1. UNPACKING and HANDLING

Each unit is shipped assembled and factory tested.

Ensure that all accessories are removed from the container before discarding packing material

2. MECHANICAL INSPECTION

Inspect the front and rear of the equipment for shipping damage. Make sure the equipment is clean, and no connectors are broken, damaged, or loose. If equipment appears to be damaged or defective please contact your distributor or Cabletronix at 1-610-429-1511 for assistance.

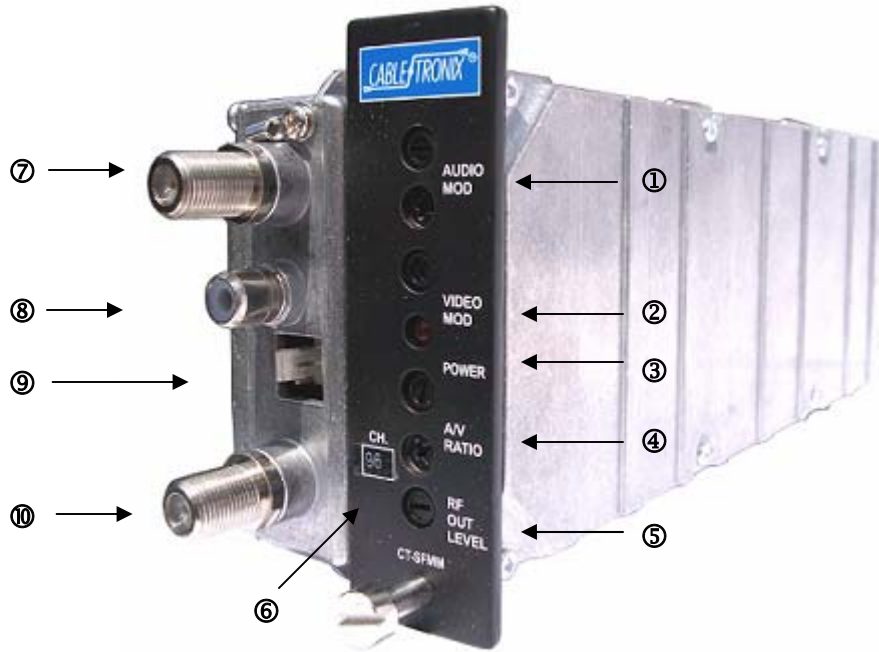
3. THE USE OF RACK MOUNTABLE CHASSES AND POWER SUPPLIES

The CT-SFMM is designed to be mounted in a rack chassis designed for micro modulators, and powered by power supplies intended for micro modulators and designed to fit in the micro modulator rack chassis. The Cabletronix CTRC-12 12-unit rack chassis, and the Cabletronix CTPS-12 single 12-unit power supply or Cabletronix CTPS-12DUAL redundant power supply should be used with the CT-SFMM. Up to 12 CT-SFMMs can be configured into a single CTRC-12.

Some chassis and power supplies from other vendors and distributors may also be used, but actual configurations will vary by vendor. It is critical to note that (a) the power supply harness being used **MUST** come from the vendor providing the power supply, (b) the power supply must be designed for powering micro modulators and installation in a micro modulator rack chassis, and (c) power supply harnesses and power supplies are **NOT** always interchangeable among vendors. Using the wrong power supply harness and/or power supply can damage the CT-SFMM. Contact your distributor for more information.

4. PRODUCT DIAGRAM

FRONT and REAR PANELS



1	Audio Modulation Adjust	Adjust aural carrier modulation (volume adjustment)
2	Video Modulation Adjust	Adjust video carrier modulation (brightness adjustment)
3	Power Indicator Light	Indicates when power is present
4	A/V Ratio	Adjust the amplitude of the aural RF carrier to change the aural/visual ratio
5	RF Output Level	Adjust the amplitude of aural and visual carriers to the final drive amplifier
6	Fixed Channel Indicator	Indicates fixed channel for this modulator
7	Video Input	F Type, female
8	Audio Input	RCA Type, female
9	Power	3 Pin Locking Header
10	RF Output	F Type, female

5. HARDWARE CONNECTIONS

- a. The CT-SFMM is designed for installation in a chassis designed for micro modulators. Micro modulator chassis such as the Cabletronix CTRC-12 can be mounted in standard 19" EIA racks.
- b. The Cabletronix CTRC-12 12-unit rack chassis and Cabletronix CTPS-12 single 12-unit power supply or CTPS-12DUAL redundant power supply should be used with the CT-SFMM. Up to 12 CT-SFMMs can be configured into a single CTRC-12/CTPS-12. Some chassis and power supplies from other vendors and distributors may also be used, but actual configurations will vary by vendor. Contact your distributor for more information.
- c. The CTRC-12 rack chassis can hold up to 12 CT-SFMMs and other micro modulators and demodulators of the same size. However, note that some other products such as the Cabletronix CT-AHP require two slots in a CTRC-12 resulting in the chassis supporting 6 units instead of 12.
- d. When configuring the CT-SFMM in the chassis and power supply it is critical that the power harness being used is from the same vendor as the power supply, and is designed for that specific supply. Power supply harnesses among vendors are not interchangeable and can severely damage the CT-SFMM.
- e. The use of a surge protector is highly recommended. Product warranty does not cover surge damages.
- f. Connect a 75 ohm coaxial cable with proper connectors from the **video source's Video Output port to the CT-SFMM's Video Input port** (F-female connector).
- g. Connect a 75 ohm coaxial cable with proper connectors from the **source's Audio Output port to the CT-SFMM's Audio Input port** (RCA female connector).
- h. Connect a 75ohm coaxial cable with F-connectors from the **CT-SFMM's RF Output port to the headend combiner or amplifier**.

6. ADJUSTMENT

- a. After installation and completing all hardware connections power the unit and wait 20 minutes before making the following adjustments.
- b. For testing purposes no more than 15 dB from the **RF Output** should be going to a TV or RF input monitor. Use an attenuator to reduce the signal level if testing with an RF input monitor. Individual CT-SFMM setup and level settings can be performed from the **RF Output port**. However, system level testing should be done from the combiner.
- c. With a nominal 1 V p-p video source connected, use the **Video Modulation Adjust** control to adjust the video modulation level for correct percentage of modulation (87.5%) if the video input is greater than 2.0 V p-p. If test equipment is not available then adjust for proper picture contrast when viewed on a TV monitor and compare with known Off-Air broadcast picture quality.
- d. With the audio source connected, adjust the **Audio Modulation Adjust** control for 25kHz deviation. If you do not have an audio modulation meter and a precision demodulator, use a TV set or a signal level meter with an audio speaker and adjust for equal volume as compared to a known Off-Air broadcast. Monitor for a few minutes to

assure the maximum volume does not over modulate, which can cause distortion.

- e. To adjust the picture carrier to audio sub-carrier ration of the output signal, rotate the **A/V Ratio** adjustment.
- f. To adjust the output, rotate the **RF Output Level** control.

7. TROUBLESHOOTING

- a. Ensure you are using quality multiple shielded cables with quality radial or compression F-connectors. It is recommended Belden 9167 cable be used to prevent signal ingress or egress.
- b. Ensure the cables' center conductors are making solid contact with the CT-SFMM's **Video Input, Audio Input, and RF Output ports**.
- c. If the CT-SFMM is receiving power but no signal, check to be sure the video and/or audio input cables are securely connected to their respective Video Output and Audio Output ports on the video source, and the Video Input and Audio Input ports on the CT-SFMM. Ensure the cable is securely connected at the CT-SFMM's **RF Output port** and the combiner's input ports.
- d. When taking measurements it is always best to use a quality signal level meter. For individual CT-SFMM setup measurements may be taken from the unit's **RF Output port**. System level measurements, however, should be taken from the combiner's output.
- e. If the CT-SFMM is not receiving power make sure the power cable is firmly connected. Be sure the power source is properly rated to handle the CT-SFMM's load especially if other equipment is being powered by that same source.
- f. It is highly recommended the **CT-FANRK** 3-unit rack mountable fan be used as significant heat reduction may double the CT-SFMM's life span.
- g. Further troubleshooting assistance can be found on-line at www.cabletronix.com in addition to support from Cabletronix sales engineers at 1-610-429-1511.

This is a notice to inform you that content passing through this device may contain strong language or depictions of violence, sex, or substance abuse. This unit contains no parental control features. Parental discretion is advised.