

PCM55SAW

550MHz Single-Channel PLL SAW-filtered A/V Modulator



Installation and Operation Manual

PCM55SAW

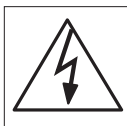
Important Information

Product Inspection

Inspect the equipment for shipping damage. Should any damage be discovered, immediately file a claim with the carrier.

Important Safety Instructions

To ensure proper installation and operation, take a moment to read this guide before proceeding with the installation. If you have any questions or comments about the PCM55SAW modulator, please contact your dealer or have him contact the PICO MACOM Service Center at the phone numbers at the bottom of the page



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.

CAUTION:

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENCION:

POUR PREVENIR LES CHOCS ELECTRIQUES, NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

- 1. Read Instructions:** All safety and operating instructions should be read before the appliance is operated.
- 2. Retain Instructions:** The safety and operating instructions should be retained for future reference.
- 3. Heed Warnings:** All warnings on the appliance should be adhered to.
- 4. Follow Instruction:** All operating and user instructions should be followed.
- 5. Cleaning:** Unplug this appliance from the wall outlet before cleaning. Use a damp cloth for cleaning. Do not use liquid cleaners or aerosol cleansers.

- 6. Do Not Use Attachments:** Use of attachments not recommended by the manufacturer may cause hazards.

- 7. Water and Moistures:** Do not use this product near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool - and the like.

- 8. Accessories:** Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the appliance.

- 9. Ventilation:** This video product should never be placed near or over a radiator or heat register. This video product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to. Any slots or opening in the cabinet are provided for ventilation. To ensure reliable operation of the

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video product and to protect it from overheating, these openings must not be blocked or covered. Openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface.

10. Grounding or Polarization: This video product is equipped with either a three prong plug for 110 VAC use or a two prong flat blade 220 volt type plug. Each type is to be inserted into only the type of receptacle for which they specifically designed. Do not cut off the round grounding pin in order to be able to fit into a two prong receptacle as this could cause injury and will void the warranty.

11. Power Sources: This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your appliance dealer or local power company.

12. Power-cord Protection: Power-supply cords should be routed so they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.

13. Lightning: For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet.

14. Power Lines: An outside antenna system should not be located in the vicinity of overhead power lines, other electric light or power circuits, where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching power lines or electrical circuits, as contact with them may be fatal.

15. Overloading: Do not overload wall outlets and extension cords as this can result in risk of fire or electric shock.

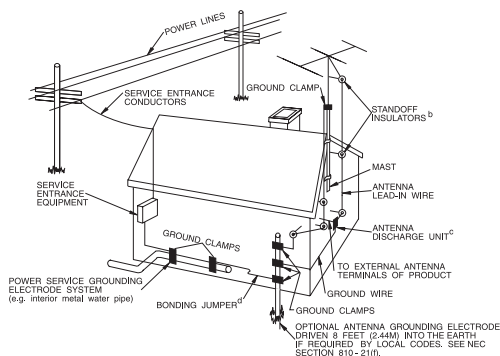
16. Object and Liquid Entry: Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

17. Servicing: Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

18. Damage Requiring Service: Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- a.** When the power-supply cord or plug is damaged.
- b.** If liquid has been spilled, or objects have fallen into the product.
- c.** If the product has been exposed to rain or water.
- d.** If the product does not operate normally by following the operating instruction. Adjust only those controls that are covered by the operating instructions. An improper adjustment may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- e.** If the product has been dropped or the cabinet has been damaged.
- f.** When the product exhibits a distinct change in performance - this indicates a need for service.

EXAMPLE OF ANTENNA GROUNDING ACCORDING TO
NATIONAL ELECTRICAL CODE INSTRUCTIONS CONTAINED
IN ARTICLE 810 - "RADIO AND TELEVISION
EQUIPMENT"



19. Replacement Parts: When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original parts. Unauthorized substitutes may result in fire, electric shock or other hazards.

20. Safety Check: Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating conditions.

21. Outdoor Antenna Grounding: Before attempting to install this product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges.

- a.** Use No.10 AWG (5.3mm) copper, No.8 AWG (8.4mm (aluminum, No.7 AWG (10mm) copper-clad steel or bronze wire or larger, as ground wire.
- b.** Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 feet (1.22m) to 6 feet (1.83m) apart.
- c.** Mount antenna discharge unit as close as possible to where lead-in enters house.
- d.** A driven rod may be used as the grounding electrode where other types of electrode systems do not exist. Refer to the National Electrical Code, ANSI/NFPA 70-1984 for information.
- e.** Use jumper wire not smaller than No.6 AWG (13.3mm) copper or equivalent, when a separate antenna grounding electrode is used.

NOTE TO THE CATV SYSTEM INSTALLER

THIS REMINDER IS PROVIDED TO CALL THE CATV SYSTEM INSTALLER'S ATTENTION TO ARTICLE 820 - 22 OF THE NEC THAT PROVIDES GUIDELINES FOR PROPER GROUNDING AND, IN PARTICULAR, 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.

PCM55SAW

550MHz Single-Channel PLL SAW-filtered A/V Modulator



- 90-Channel Range 5.75-550 MHz (CATV T7-T13, 2-78, 95-99)
- Full 55dBmV output for optimum carrier-to-noise performance
- In-band carrier-to-noise ratio >62dB ensures superior picture quality
- Highly accurate DIP switch controlled digital phase-locked loop (PLL) design guarantees precise frequency locking for solid drift-free operation
- SAW filtered IF for superior adjacent channel performance enables drop-in channel expansion
- Easy lab retuning of output filter for reduced inventory of spares and less down time
- Front panel controls and test point enables easy setup and monitoring
- IRC and HRC offset capability allows for easy frequency settings in systems using offset channels
- Auxiliary AC outlet for convenience
- Optional PAL format channels available

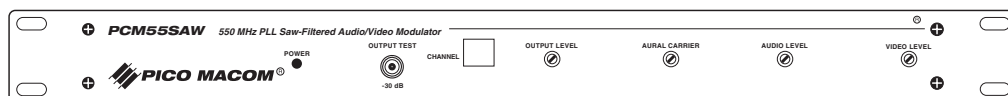
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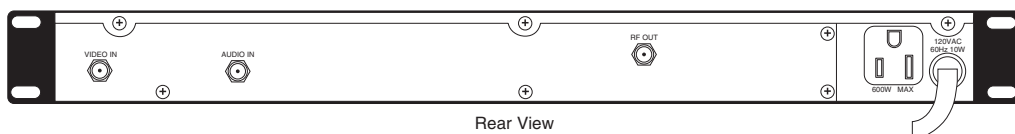
The Pico Macom PCM55SAW is a professional grade microprocessor controlled phase-locked-loop synthesized single channel audio-video modulator. The PCM55SAW provides a full 55dBmV minimum output from sub-band channels T7 through T13, and CATV channels 2 to 78 including channels 95 to 99 while accommodating HRC and IRC offset frequencies (5.75-550MHz). The unit is field re-tunable within band via internal dip-switch channel selection and minimum output filter retuning. This modulator is used in more heavily channel-loaded systems and where cost effective expansion up to 550MHz is desired and greater frequency stability and higher spurious free adjacent channel performance is required. Its phase-locked-loop frequency control, and superior SAW filtering enhances stability, minimizes adjacent channel interference and assures accurate and spurious free output. Superior out-of-band carrier-to-noise performance is achieved through band-pass filtering at the output amplifier. The modulator is shipped with all internal adjustments preset. FCC Docket 21006 offsets are standard. Pico Macom backs up this product with its industry leading 5-year limited warranty.

PCM55SAW

550MHz Single-Channel PLL SAW-filtered A/V Modulator



Front View



Rear View

RF

| | |
|-----------------------------|--|
| Channels: | 90 Channels (CATV T7-T13, 2-78, 95-99) |
| Frequency Range: | 5.75-550 MHz |
| Output Level: | 55 dBV min., 58 dBmV typ. adjustable from front panel |
| Output Impedance: | 75 Ohms |
| Output Return Loss: | -15 dB |
| Audio/Video Ratio: | Adjustable -7 to -22 dB below video carrier |
| Frequency Stability: | ±10 kHz (±5 kHz in aeronautical band) |
| Spurious Output: | 60 dB below video carrier with A/V ratio @ -15 dB |
| C/N (In-Band): | >60 dB |
| C/N (Out-of-Band): | >65 dB |
| Rejection: | Fv - 1.5 MHz >-60 dB Fv - 4.5 MHz >-63 dB Fa + 1.5 MHz >-63 dB Fa + 4.5 MHz >-63 dB |

Audio

| | |
|----------------------------------|--------------------------------|
| Frequency Response: | ±0.4 dB @ 50 Hz to 15 kHz |
| Harmonic Distortion: | 0.5% @ 50 Hz to 15 kHz |
| Preemphasis: | 75 microseconds |
| Signal to Noise Ratio: | 60 dB |
| Audio Baseband Impedance: | 600 Ohms |
| Input level: | 0.5 V p-p for 25 kHz deviation |

Video

| | |
|-------------------------------|---------------------------|
| Input Level: | 1.0 V p-p for 87.5% mod. |
| Input Level Range: | 0.5 V p-p to 1.5 V p-p |
| Input Type: | Clamped video neg. sync |
| Frequency Response: | ±1.5 dB, DC to 4.2 MHz |
| Differential Gain: | <5% (10 to 90% APL) |
| Differential Phase: | >5° (10 to 90% APL) |
| Hum and Noise: | -60 dB @ 87.5% modulation |
| Video Signal to Noise: | -60 dB minimum (weighted) |

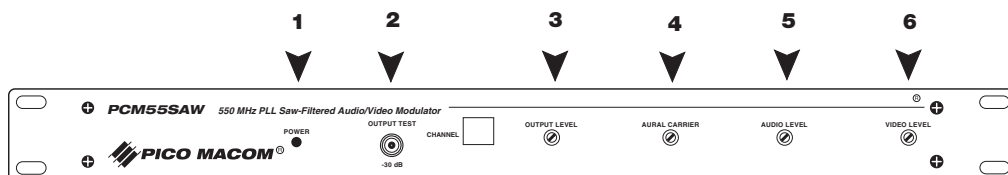
General

| | |
|-------------------------------|----------------------------|
| Power Input: | 120 VAC @ 60 Hz |
| Operating Temperature: | -10°C to 50°C |
| Dimensions: | 19"(L) x 3"(D) x 1 3/4"(H) |
| Weight: | 3.5 lbs. |
| Connectors: | "F" Type |

Ordering Information

PCM55SAW - Channel

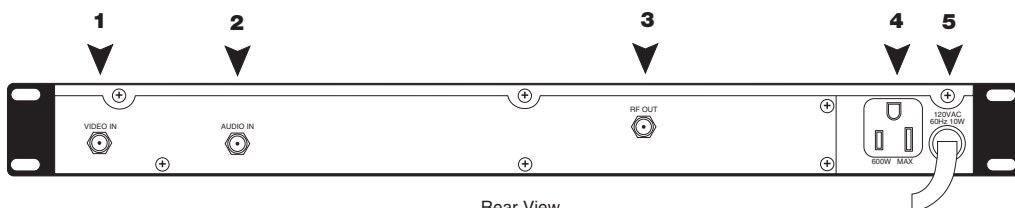
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Front View

Front Panel Control

- 1. Power On Indicator:**
The LED indicates unit is operating.
- 2. Output Test Point:**
The -30 dB RF output test point is used to set the RF output level and monitor channel performance.
- 3. Output Level:**
This rugged PC Board mounted control sets the RF output level.
- 4. Aural Carrier:**
The heavy duty PC mounted control is used to set the audio modulation level.
- 5. Audio Level:**
This potentiometer controls the level of the audio RF carrier.
- 6. Video Level:**
The PC Board mounted control is used to set the video modulation level.

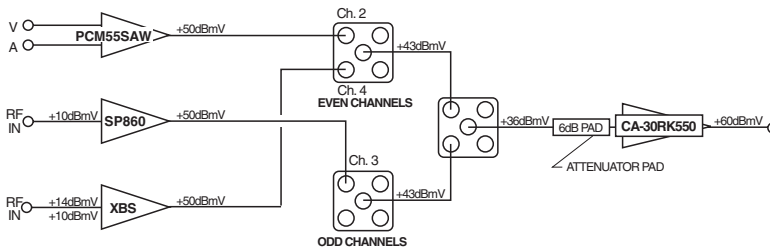
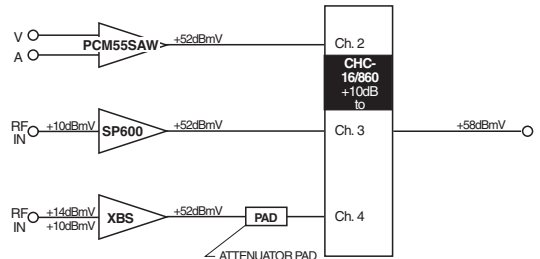
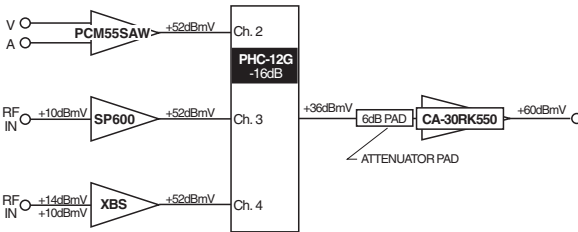
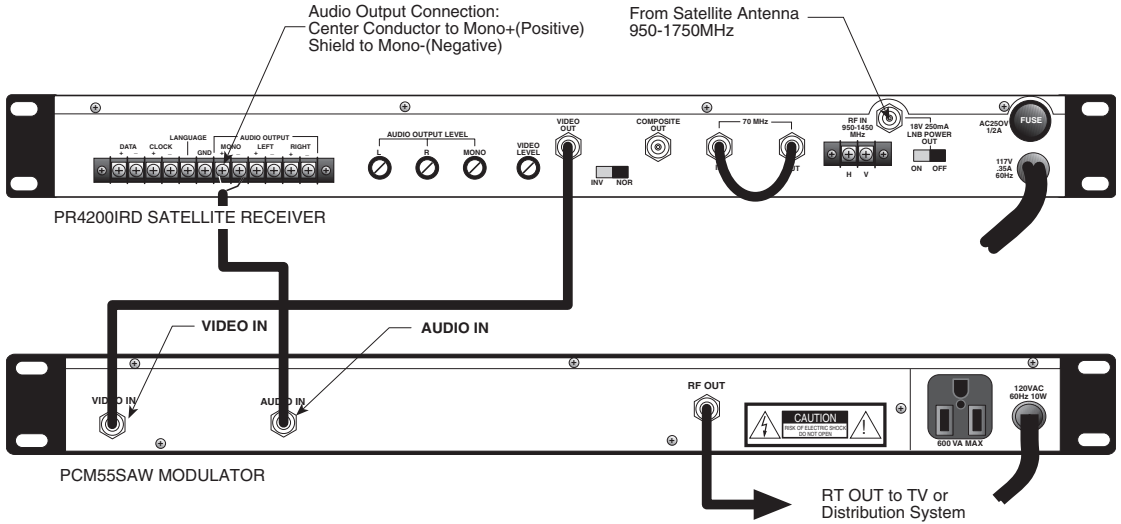


Rear View

Back Panel Control

- 1. Video In:**
The PC Board mounted "F" connector accepts the negative sync video information from a satellite receiver or VCR.
- 2. Audio In:**
The audio from the satellite receiver or VCR is connected to this PC Board mounted F connector.
- 3. RF Out:**
The modulated output signal is available on this PC Board mounted "F" connector.
- 4. Convenience Outlet:**
Allows looping of power between units.
- 5. Power Cord:**
The three prong type power plug connects to a 120 VAC, 60 Hz electrical output or if 220VAC, 60 Hz, a two prong flat blade type is used.

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Important Information

Five-Year Limited Warranty*

Pico Macom, Inc. warrants to the original purchaser this product shall be free of defects in material and craftsmanship with only the limitations or exclusions set out below.

During the warranty period Pico Macom Inc. or an authorized Pico Macom service facility will provide free of charge, the parts and labor necessary to correct defects in material and workmanship.

Warranty Duration

This warranty shall terminate five years* from the original date of purchase of the product or at a time the product is:

1. Misused or damaged due to neglect or improper installation
2. Modified
3. Repaired by someone other than the warrantor
4. Sold by the original purchaser

Statement of Remedy

To obtain warranty service, contact the salesperson where the product was obtained. You will be issued a Return Authorization (RA) number, which will be used to track your product.

Be prepared to provide:

1. The model number and channel number of the product
2. The serial number of the product
3. The date of purchase
4. A specific identification of the problem

Deliver the products to Pico Macom Inc. or ship the products in the original packing material at the address at the bottom of the page. Include satisfactory evidence of the date of purchase.

Products without the RA number clearly indicated on the shipping label will not be accepted by Pico Macom Inc..

The foregoing constitutes the Pico Macom, Inc. entire obligation with respect to this product and the original purchaser and any user or owner shall have no other remedy and no claim for incidental or consequential damages. Some states do not allow limitations on how long an implied warranty lasts or do not allow the exclusions or limitation of incidental or consequential damages, so the above limitation and exclusion may or may not apply to you.

This warranty gives you specific legal rights, and you also have rights, which vary from state to state.

** One Year Warranty if sold outside the U.S.A.*

