



# CA-30/870AR

2-Way CATV Distribution Amplifier



## Installation and Operation Manual



Ph:800-421-6511 [www.picomacom.com](http://www.picomacom.com)

Operation Manual  
Rev. 06/06

# Safeguards



# CA-30/870AR

## Product Inspection

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

## Important Safety Instructions

To insure 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 **CA-30/870AR** Push-Pull Distribution Amplifier, 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 un-insulated "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 Instructions:** 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 Moisture:** 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 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 VAC 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.





## Safeguards

# CA-30/870AR

**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 or unused for long periods of time, the unit should be disconnected from power source.

**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 such power lines or 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.

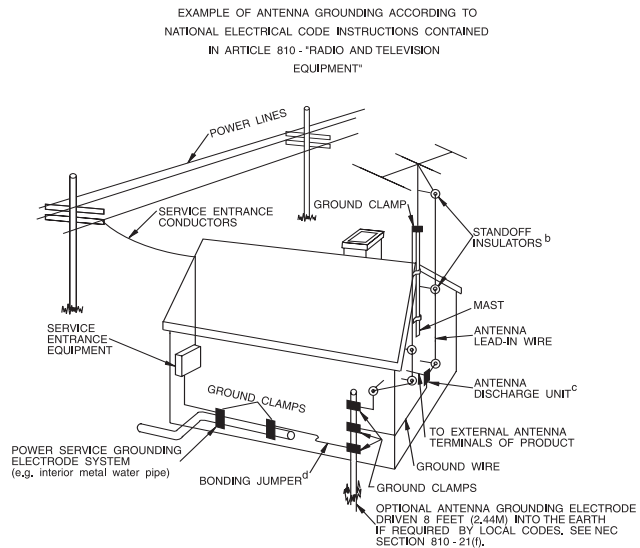
**17. Servicing:** Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

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

- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the product.
- If the product has been exposed to rain or water.
- 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.
- If the product has been dropped or the cabinet has been damaged.
- When the product exhibits a distinct change in performance—this indicates a need for service.

**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.

- 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.
- Secure antenna lead-in and ground wires to house with standoff insulators spaced from 4 feet (1.22m) to 6 feet (1.83m) apart.
- Mount antenna discharge unit as close as possible to where lead-in enters house.
- 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.
- 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.



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## Descriptions



# CA-30/870AR

## 2-Way CATV Distribution Amplifier

- ▶ **Forward path 54-870 MHz, channels 2-135; reverse path 5-42 MHz, channels T-8 – T-12**
- ▶ **30 dB gain for optimal carrier to noise ratio and superior picture quality**
- ▶ **±1.0 dB flatness across band provides low distortion and excellent frequency response**
- ▶ **Employs state-of-the-art hybrid push-pull technology on both forward and return path for distortion-free audio and video quality**
- ▶ **Adjustable gain and tilt controls for easy system balancing**
- ▶ **Shielded enclosure provides >95 dB RFI shielding, reducing leakage and ingress**
- ▶ **Built-in lightning and line voltage surge protection protects the unit from damage**

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A PICO MACOM REGISTERED TRADEMARK



# CA-30/870AR

## 2-Way CATV Distribution Amplifier

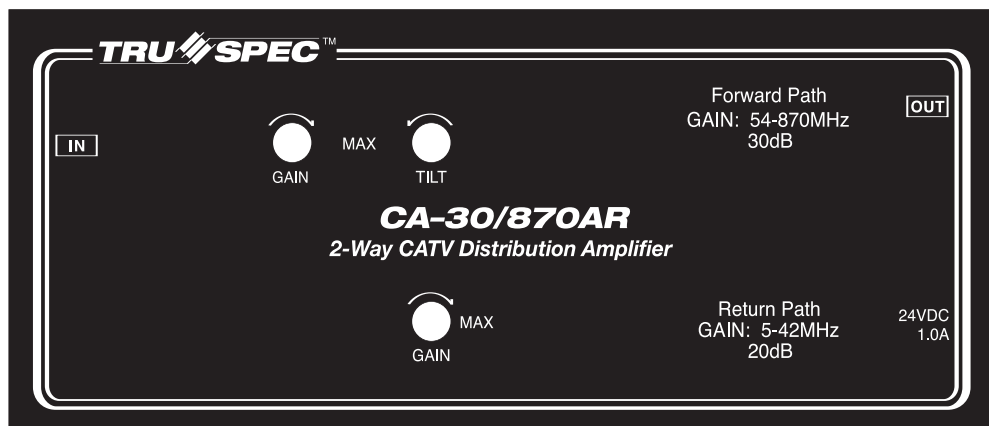
The CA-30/870AR distribution amplifier is a high quality push-pull amplifier producing signals with extremely low distortion and harmonic content. The forward bandwidth makes possible 135-channel operation while the two-way configuration allows the amplifier to be used in systems that utilize remote signal sources on the return path.

# Specifications



# CA-30/870AR

**2-Way CATV Distribution Amplifier**



## Specifications

<b>Frequency Range:</b>		<b>Return Path:</b>	
Forward path	54-870 MHz	Gain	20 dB
Return path	5-42 MHz	Flatness	±0.5 dB
<b>Impedance:</b>		Gain control range	10 dB
Input/Output	75 ohm	Return loss	-15 dB
<b>Forward Path:</b>		Input level	115 dBµV @ 36 MHz
Gain	30 dB	<b>Power Adaptor:</b>	
Flatness	±1.0 dB, 54-870 MHz	Input	100-240Vac 50/60Hz
Gain control range	10 dB	Output	24Vdc, 1A
Tilt control range	10 dB	<b>Connectors:</b>	
Noise figure	6 dB, 54-550 MHz	Input/Output	"F" type female
	4 dB, 550-870 MHz	Power	1.3mm DC power jack
Return loss	-14 dB, 54-550 MHz		
	-12 dB 550-870 MHz		
Input level	105dBµV @ 67.25 MHz		

## Ordering Information

**CA-30/870AR**



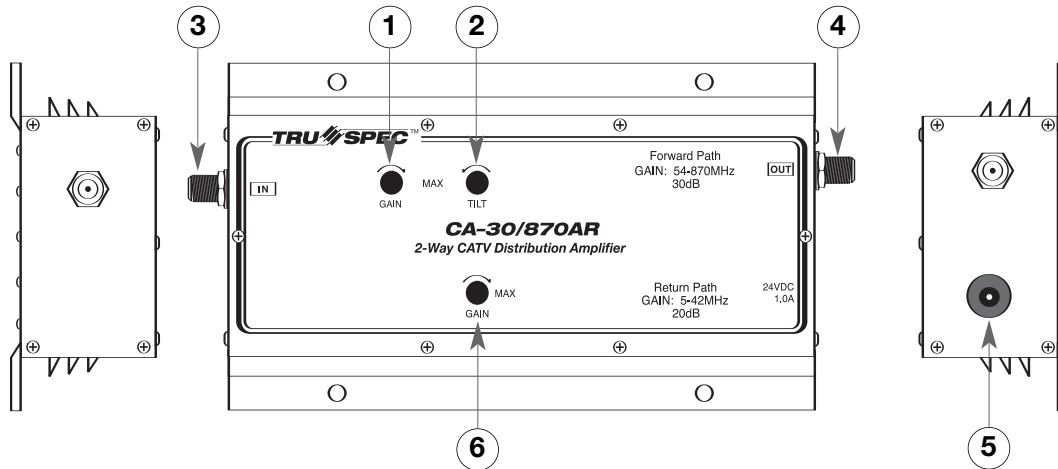
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# Operations and Controls



# CA-30/870AR



## Front Panel Controls

1. **Forward Gain Adjust:** Forward path adjust potentiometer for overall amplifier gain level.
2. **Tilt Adjust:** Forward path adjust potentiometer provides for slope adjustment over entire bandwidth.
3. **Input:** The input RF signal is connected to this port.
4. **Output:** The amplified RF signal is available at this port.
5. **DC Power Jack:** Plug from wall adaptor supplies 24Vdc to this jack.
6. **Reverse Gain Adjust:** Reverse path gain adjust potentiometer.

## Operating Guidelines

Below is a chart showing the proper operation level for the **CA-30/870AR**. Please note the listed performance criteria is for SPECIFIC numbers of channels, and must be de-rated accordingly when inserting additional channels. Also note the amplifier's gain does not change. However, as the number of channels increases from 7 channels, the input level (hence, the output level) must be reduced. Exceeding the input levels listed below will cause intermodulation and picture distortions.

Number of Channels	INPUT LEVELS	
	Maximum Input Level (dB)	Maximum Output Level (dBmV)
7	36	65
12	33	57
36	25	50
54	16	46
77	13	44
135	10	41



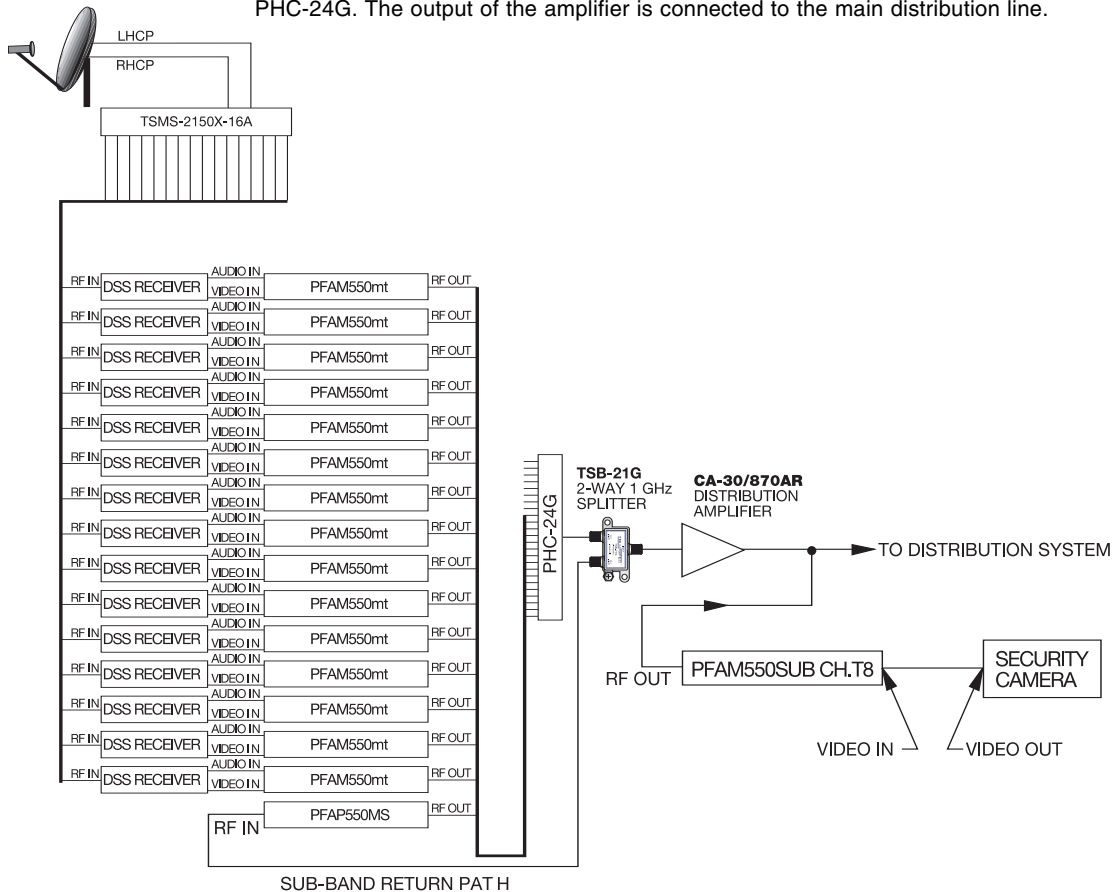
# Installation Procedure

## CA-30/870AR

### Installation

The output levels of all devices in a headend system, whether they be modulators, channel processors and/or strip amps / BPF combinations must be the same prior to combining into the PHC-12G or PHC-24G. The output of the combiner is then connected to the input of the CA-30/870AR. The return path is utilized via a remote signal source, such as a camera or DVD player, connected to a sub-band modulator and fed into the return path, which is then connected to a sub-band channel processor.

The **PHC-12G** twelve channel and **PHC-24G** twenty-four channel combiners consist of two rows of directional couplers combined by a hybrid splitter. The directional coupler combining provides high isolation (40 dB) between the inputs. Normally, the odd channels are combined on one row while even channels are combined on the other row of directional couplers. The combiner loss is 18 dB per channel for the PHC-12G and 21 dB per channel for the PHC-24G. The output of the amplifier is connected to the main distribution line.



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# Warranty



# CA-30/870AR

## 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 such a 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 date of purchase.
3. 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 will not be accepted by Pico Macom, Inc. without the RA number clearly indicated on the shipping label.

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, that vary from state to state. (U.S.A.)

\* One year warranty if sold outside U.S.A.

Pico Macom, Inc.  
6260 Sequence Drive  
San Diego, CA 92121

