



# NILES®



## INSTALLATION GUIDE



FOR USE IN CABINET AND RACK SYSTEMS  
SYSTEM COOLING MODULE

# FM-1 FM-1R

## **CONGRATULATIONS!**

Thank you for choosing the **FM-1/FM-1R Cabinet and Rack System Cooling Module** from Niles. With proper installation and operation, you should enjoy years of trouble-free use.

Niles manufactures the industry's most complete line of custom installation components and accessories for audio/video systems. To see the complete Niles product assortment, visit us on the Internet at: **[www.nilesaudio.com](http://www.nilesaudio.com)**.



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## INTRODUCTION

The FM-1/FM-1R was developed to address the growing need for cabinet and rack system cooling, and it does so in a quiet, low profile and unobtrusive fashion.

This single-rack fan design will draw up to 150 cubic feet of air per minute. Dual 12VDC brushless motors maintain whisper quiet operation without noise feeding back into the 120V circuits.

Temperature-sensitive speed control provides just the right amount of cooling at just the right times, thus minimizing background fan noise. The remote trigger input turns the fan on and off when needed. The trigger loop output can be daisy chained to additional triggerable devices or FM-1s, and the two-minute turn off delay circuit prevents heat build up in the rack once the equipment has been turned off.



## FEATURES AND BENEFITS

- Temperature-sensing variable-speed fans
- Dual fan design moves 150 cu. ft. of air per minute
- Brushless motor design maintains whisper-quiet operation
- Remote Trigger ON/OFF
- Two-minute delayed shut-off
- Front panel “Fan ON” LED Indicator
- Power Consumption ..... 24W
- Trigger Input Voltage ..... 3-to-24 Volts AC or DC Input Control Voltage
- Control Output ..... Maximum Output 11VDC @20mA
- Dimensions
  - FM-1 (Freestanding Model) ..... 1.75 x 17.00 x 8.0 inches
  - FM-1R (Rackmount Model) ..... 1.75 x 19.0 x 8.0 inches

## INSTALLATION CONSIDERATIONS

### FM-1/FM-1R SUGGESTED PLACEMENT

The FM-1/FM-1R pulls air from the bottom of the unit through its chassis and out the top.

Place the FM-1/FM-1R on top of device to help cool:

- *When used in a closed shelf-type configuration.*
- *When the amplifiers vent from the bottom and top of the case like Niles SI-245, SI-275, SI-2125, SI-1230, SI-1260, ZR4630, ZR8630AV.*

NOTE: THE INTELLICONTROL® ICS GXR2 HAS BUILT IN FANS TO HELP WITH COOLING.

Mounting the FM-1/FM-1R at the top of the rack, with vents above the FM-1/FM-1R to allow heat to be removed from the rack is much more efficient than to try and force cool air into the rack.

When installed in a rack, proper planning of the air path inside the rack ensures that heat will be effectively removed. When a power amplifier has no vents leaving one rack space between the power amplifier and other devices is suggested. A vented front panel should be mounted over this space to maximize the flow of air over the amplifier. Some amplifier manufacturers suggest to mount the units directly on top of each other. These are usually amplifiers that have front and rear venting.

Remember to keep a clear air path inside the rack, the heat will be removed from the rack more effectively if there are no obstacles in the way. Make sure to use a vented shelf if it will block the air flow in the rack. Air flows hot to cold, you cannot remove the heat from the rack if the outside air is not cooler than the air in the rack.

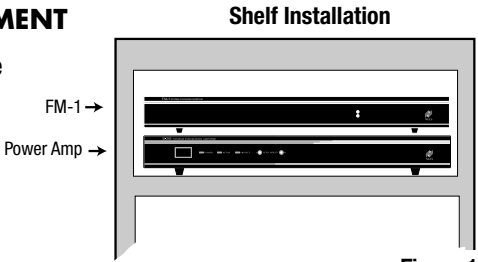


Figure 1

## OPERATION

### DELAYED SHUT-OFF

The FM-1/FM-1R has a built-in two minute delayed shut-off. This feature helps to dissipate heat buildup in the rack or cabinet even after the system has been powered down. The shut-off delay will always be active, even when using the trigger input to automatically turn on the FM-1/FM-1R.

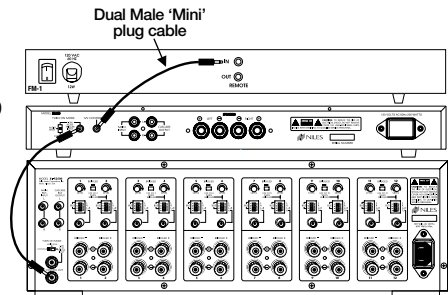


Figure 2

## LED'S

There are two LED's on the front panel of the FM-1/FM-1R.

- a) The red LED signals "power" (the unit is plugged into a wall receptacle and receiving power from the 120V outlet).
- b) A green LED signals when the fans are operational (blowing air).

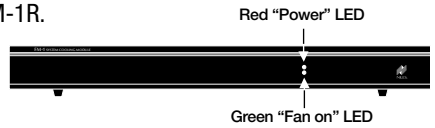


Figure 3

## OUT OF THE BOX OPERATION

When the FM-1/FM-1R is plugged into a 120V power outlet and no cable is plugged into the Trigger Input jack, both LED's will light and the fans will begin to move air.

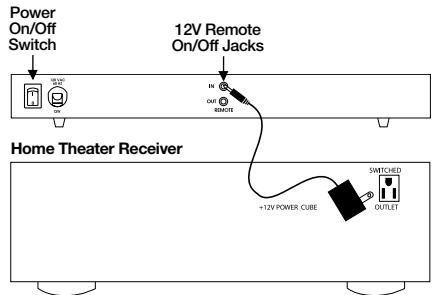


Figure 4

## UTILIZING THE REMOTE ON/OFF FEATURE

The FM-1/FM-1R contains a REMOTE ON/OFF feature that enables the fans to begin air movement only when your system's audio equipment "tells" it to do so. The fans will begin blowing and the green LED will light when the FM-1/FM-1R receives a 12V trigger from another source. At the rear of the FM-1/FM-1R are the "Trigger" input and control output jacks. Both jacks accept an 1/8" male "mini" plug.

The FM-1/FM-1R "Trigger" input jack accepts 3 to 24V (DC or AC) from either another audio component that transmits this type of trigger voltage or a standard 12V (DC or AC) power transformer plugged into the switched outlet of an audio source (remember, the FM-1/FM-1R only accepts a 1/8" inch mini plug—no cannon plugs!) The "Control" output passes 11VDC, 20mA (max) power along to the next component.

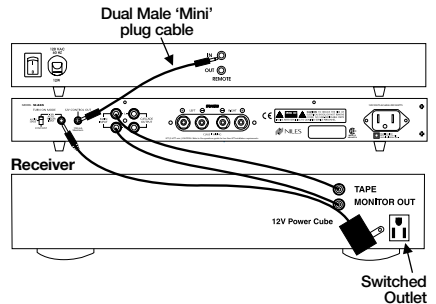


Figure 5

See Figures 4 and 5 on this page and Figure 2 on the previous page for some applications where the FM-1/FM-1R is utilized to cool a source and/or power amplification component.

## TEMPERATURE SENSING

The FM-1/FM-1R's temperature-sensing variable speed fans detect the amount of heat being generated by the components in its proximity and adjust the fan speeds accordingly—slowing them down when the system is first turned on or if listening at low levels where the system's amplifiers are not producing as much heat, or speeding them up in order to quickly dissipate more heat.

## IMPORTANT SAFETY INFORMATION

# **WARNING**

## **RISK OF ELECTRIC SHOCK DO NOT OPEN**

**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**



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 device or component.

## **WARNING: TO REDUCE THE RISK OF FIRE OR SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

**Read Information** – All the safety and operating information should be read before the unit is operated.

**Follow Information** – All operating and use information should be followed.

**Retain Information** – The safety and operating information should be retained for future reference.

**Heed Warnings** – All warnings on the unit and in the operating instructions should be heeded.

**Carts and Stands** – This unit should be used with a stationary shelf. Do not use any mobile carts.

**Wall Mounting** – Mounting of this unit should be done only by an authorized installer.

**Non-Use Periods** – Units that are left unattended and unused for long periods of time should be unplugged from the wall outlet.

**Power Sources** – This unit should be connected to a power supply only of the type described in the operating instructions or as marked on each unit. If you are not sure of the type of power supply to your home, consult your authorized ELAN dealer or local power company.

**Grounding or Polarization** – These products are equipped with a grounding-type alternating-current line plug. This plug will fit only into a grounding-type power receptacle. This is a safety feature. If the plug receptacle does not fit, contact an electrician to replace your obsolete receptacle. Do not defeat the safety purpose of the grounding-type plugs.



## IMPORTANT SAFETY INFORMATION *CONTINUED*

**Water and Moisture** – To reduce the risk of electric shock or fire, these appliances should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.

**Power Cord Protection** – Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the units. Do not damage or deform the power supply cord. If it is damaged or deformed, it may cause electric shock or fire when used. When removing from the wall outlet, be sure to remove by holding the plug attachment and not by pulling the cord.

**Cleaning** – Unplug this product from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.

**Overloading** – Do not overload wall outlets and extension cords, as this could result in fire or electric shock. Do not use speakers with a rating of less than 4 ohms when in “nonbridged” mode or less than 8 ohms in “bridged” mode.

**Object and Liquid Entry** – Never insert objects of any kind through the openings of this unit, as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Care should be taken so that objects do not fall and liquids are not spilled into the unit through openings in the enclosure.

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

**Damage Requiring Service** – This unit should be serviced by qualified service personnel when:

- A power supply cord or a plug has been damaged
- If liquid has been spilled into the unit or objects have fallen into the unit
- The unit has been exposed to water or moisture
- The unit does not appear to operate normally or exhibits a marked change in performance
- The unit has been dropped or the enclosure damaged.

**Replacement Parts** – When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards. The Master Control Unit battery should be replaced only after turning the power off and only by an authorized installer.

**Safety Check** – Upon completion of any service or repairs to this audio product, ask the service technician to perform safety checks to determine that the audio product is in proper operating condition.

**Lightning** – For added protection for this product during an electrical storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to this product due to lightning and power-line surges.

## LIMITED WARRANTY

Niles Audio Corporation (“NILES”) warrants its passive products (those not requiring AC or battery power) to the original purchaser to be free of manufacturing defects in material and workmanship for a period of ten years from date of purchase.

Niles Audio Corporation (“NILES”) warrants its passive loudspeaker products (those not requiring AC or battery power) to the original purchaser to be free of manufacturing defects in material and workmanship for a period of five years from date of purchase.

Niles Audio Corporation (“NILES”) warrants its outdoor loudspeaker products to the original purchaser to be free of manufacturing defects in material and workmanship for a period of two years from date of purchase.

Niles Audio Corporation (“NILES”) warrants its active products (those requiring AC or battery power) to the original purchaser to be free of manufacturing defects in material and workmanship for a period of two years from date of purchase.

This Warranty is subject to the following additional conditions and limitations. The Warranty is void and inapplicable if NILES deems that the product has been used or handled other than in accordance with the instructions provided by the manufacturer, including but not limited to damage caused by accident, mishandling, improper installation, abuse, negligence, or normal wear and tear, or any defect caused by repair to the product by anyone other than NILES or an authorized NILES dealer.

To obtain warranty service, take the unit to the nearest authorized NILES dealer, who will test the product and if necessary, forward it to NILES for service. If there are no authorized NILES dealers in your area, you must write to NILES and include your name, model and serial number of your unit, along with a brief description of the problem. A factory Return Authorization Number will be sent to you. **DO NOT RETURN ANY UNIT WITHOUT FIRST RECEIVING WRITTEN AUTHORIZATION AND SHIPPING INSTRUCTIONS FROM NILES.**

If the above conditions are met, the purchaser's sole remedy shall be to return the product to NILES, in which case NILES will repair or replace, at its sole option, the defective product without charge for parts or labor. NILES will return a unit repaired or replaced under warranty by shipping same by its usual shipping method from the factory (only) at its expense within the United States of America. **THERE ARE NO OTHER WARRANTIES, INCLUDING WITHOUT LIMITATION, EITHER EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE PRODUCT.**

**REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER/PURCHASER. NILES SHALL NOT BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES EXCEPT TO THE EXTENT PROVIDED (OR PROHIBITED) BY APPLICABLE LAW.**

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

For the name of your nearest authorized NILES dealer, contact:  
NILES AUDIO CORPORATION, P.O. BOX 160818, Miami, Florida 33116.

*Please fill in your product information and retain for your records.*

Model \_\_\_\_\_ Serial No. \_\_\_\_\_ Purchase Date \_\_\_\_\_

# WARRANTY REGISTRATION CARD

Model Purchased \_\_\_\_\_

Serial Number \_\_\_\_\_

Date Purchased (month/day/year) \_\_\_\_\_

Dealer Name and Location \_\_\_\_\_

\_\_\_\_\_

Dr.     Miss     Mr.     Mrs.     Ms.

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone (        ) \_\_\_\_\_

Please take a moment to fill out our warranty registration card. The information helps us to get to know you better and develop the products you want

**Age:**

- Under 25
- 25-34
- 35-44
- 45-54
- 55 & over

**Income:**

- Under \$24,999
- \$25,000-\$44,999
- \$45,000-\$74,999
- \$75,000-\$99,999
- \$99,999-\$129,999
- Over \$130,000

**Occupation:**

- Arts/Entertainment
- Business Owner
- Engineer
- Finance/Accounting
- General Office
- Management
- Professional
- Sales/Marketing
- Student
- Tradesperson

**Musical tastes:**

*(Please check all that apply)*

- Alternative
- Classical
- Country
- Jazz
- New Age
- Popular
- R&B
- Rock
- Other \_\_\_\_\_

**How did you hear about Niles?**

- Architect/Developer
- Custom Installer
- Direct Mail
- Friend/Family
- In-Store Display
- Interior Designer
- Magazine Ad
- Mail-Order Catalog
- Newspaper Ad
- Product Brochure
- Product Review
- Retail Salesperson
- E-Tailer

**What magazines do you read?**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Who will install the product?**

- Custom Installer
- Electrician
- Friend
- Myself
- Builder

**Which factor(s) influenced the purchase of your Niles product? (Please check all that apply)**

- Ease of Use
- Price/Value
- Product Features
- Quality/Durability
- Reputation/Brand
- Style/Appearance
- Warranty

**Do you . . . ?**

Own a House. If yes, how many square feet?

\_\_\_\_\_

- Own a Town House/Condominium/Co-op
- Rent an Apartment
- Rent a House

Are you interested in receiving literature on other Niles products?

Yes     No

Are there products/capabilities that you would like to see introduced?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



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Output size:	100%
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Stock:	80lb. Text Bright White Gloss
Folding:	Centerfold
Binding:	Saddlestich
Line screen:	150
Proofs:	Digital Proof, Match Print or Equivalent