The RM-1 Series Remote Microphone is compatible with the Digital Voice Command (DVC), XPIQ Quad Intelligent Audio Transponder and AMG-1 Audio Message Generator in all systems that provide a means for remote speaker control through the ACS Series Annunciators. The RM-1 provides remote DVC/XPIQ/AMG message override and/or paging capabilities in these systems. The RM-1 microphone assembly can be installed on the back of an ADP-4 dress panel. The RM-1SA assembly can be installed in a CAB-RM Series cabinet.

Output from the RM-1 Series remote microphone is suitable for NFPA Class B operation only. Following is a list of features of the RM-1 Series.

- Automatic gain control circuit
- Supervised microphone
- Form-C trouble contacts
- Form-C contacts activated when microphone is in use
- Power On LED

- Trouble LED
- Pluggable terminal blocks
- Low level audio (LLA) IN and THRU
- Power IN and THRU screw terminals

This product has been certified to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864 9th Edition. The following products have not received UL 864 9th Edition certification and may only be used in retrofit applications. Operation of the RM-1 with products not tested for UL 864 9th Edition has not been evaluated and may not comply with NFPA 72 and/or the latest edition of UL 864. These applications will require the approval of the local Authority Having Jurisdiction (AHJ).

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**INSTALLATION**

**Slide-in Label**
A slide-in label (part number 51146) is provided with each RM-1 Series assembly. Enter the location of the microphone speakers on this label along with any instructions for speaker activation, then slide it into the label slot at the bottom of the assembly. (See Figure 2)

For a custom professional appearance, generate this label with Notifier’s LabelEase in Magni•Fire Version 3.0 or higher.

**RM-1SA**

1. Be sure all power is removed before installing the RM-1SA.

2. Pull the required wiring into the CAB-RM cabinet through the knockouts provided.

3. Attach wiring to the pluggable terminal blocks and plug onto the RM-1SA board. Attach grounding wire provided to the screw on the back wall of the cabinet with the washer and nut supplied. (See Figure 3). Attach the other end of the grounding wire to TB1 Earth on the RM-1SA.

4. Carefully slide the board into the cabinet until it rests in the slots on the back wall of the box (See Figure 4a).

5. Secure the RM-1SA in the cabinet with the two self-tapping screws provided (See Figure 4b).
ADP-4 Dress Panel Installation of the RM-1

The RM-1 mounts to the back of an ADP-4 dress panel inside an ADP-4 compatible cabinet that has a minimum depth of 3.75 in. (9.53 cm). It can be mounted in any of the four positions on the dress panel, with the following exceptions:

- Do not mount the RM-1 in front of an AA-100/AA-100E or AA-120/AA-120E amplifier; there is not enough room to shut the door of the cabinet if it is placed in front of one of these audio amplifiers.
- Do not mount the RM-1 in the first position to the right of an AA-30/AA-30E amplifier; there is not enough room for the RM-1 wiring in this position. An RM-1 can fit only in the far right position of a row if an AA-30/AA-30E is in the far left position of the same row. However, an RM-1 can fit into either of the two left positions of the row if the AA-30/AA-30E is in the far right position of that row.

Figure 5 RM-1 Installation

Installation Steps:
1. Be sure all power is removed before installing the RM-1.
2. Attach wiring to the pluggable terminal blocks. Plug terminal blocks onto the RM-1 board.
3. Place the RM-1 onto the top and bottom studs of one of the positions on the ADP-4 dress panel.
4. Fasten with the standoffs provided.
**Figure 6 RM-1/RM-1SA Wiring**

**TB1 - Power Supply Termination Points**
The RM-1/RM1-SA must be powered through the FACP for which it is supplying audio. Power must come from the DVC when connected to the DVC, from the XPIQ-RMI when connected to the XPIQ, and from the MPS-24 when connected to the AMG. Power supplied must meet the following requirements:

- 20 mA primary, non-fire alarm current
- 66 mA when microphone is activated
- 20 mA secondary, non-fire alarm current.

The secondary source for this power supply must be capable of supplying power for 24 hours or 60 hours (as required by NFPA-72) followed by 15 minutes of continuous microphone use.

**TB2 - Trouble Contacts**
These contacts transfer when trouble is detected; either when DC power has been removed or the microphone has been disconnected. The trouble contacts must be monitored by the FACP. Refer to the FACP manual for trouble contact monitoring information.

**TB3 - FORM-C Push-To-Talk Contacts**
Auxiliary contacts transfer when the microphone switch is pressed, and may be used to support ancillary functions. Do not exceed the contact ratings. All wiring must be installed in conduit and must remain within the room.

**TB4 - Low Level Audio IN and THRU**
TB4 is a dry contact relay: common, non-supervised, with a contact rating of 2A, 30VDC. The recommended wiring is a 14-18 AWG twisted pair wiring. The cable from the DVC/AMG low level audio output is connected at the IN terminals of TB4. Cable connected to the THRU terminals passes the signal on to another RM-1/RM-1SA, amplifiers, or back to the DVC or AMG (Class A wiring). Terminals on TB4 are not interrupted by use of the RM-1 microphone. Twisted shielded cable must be used for TB4 connections.

**TB5 - RM-1 OUTPUT**
TB5 is power-limited and supervised by its host, with an output signal strength of +12Vp-p maximum. The recommended wiring is a 14-18 AWG twisted pair wiring. Maximum impedance is 66 ohms. Distance is based upon impedance. The RM-1 output terminals provide the low level audio DVC/AMG signal from the LOW LEVEL AUDIO IN terminals unless the RM-1 microphone is activated by the push-to-talk button. When the microphone switch is pushed, the RM-1 microphone signal interrupts the signal from the LOW LEVEL AUDIO IN terminals and replaces it with the low level audio signal from the RM-1 microphone. Twisted shielded cable must be used for TB5 connections.

**LED 1** - This green LED will light when the RM-1 is powered.

**LED 2** - This yellow LED will light when the RM-1/RM-1SA microphone is disconnected.
AMG-1 APPLICATIONS

In these applications, the RM-1/RM-1SA will normally require an annunciator programmed to activate the desired speaker zones. An announcement made through an RM-1/RM-1SA microphone will be heard only when the speakers associated with the RM-1 output have been previously activated. Refer to the specific fire alarm control panel manual, voice alarm manual, transponder manual or annunciator manual applicable to your system for information on installing and mapping annunciators. Note that these applications do not apply to the DVC.

Cascade Configuration

Figure 7 illustrates a typical RM-1/RM-1SA configuration where the low level audio source signal or the microphone signal is passed from one remote microphone to another through the audio amplifiers in between. In this configuration, when more than one remote microphone is in use at the same time, the microphone farthest from the AMG-1/AMG-1E has priority over any that are closer to the AMG-1/AMG-1E. For example, when microphone #3 is in use, its signal is sent to audio amplifier #3 and to any remote microphones and audio amplifiers that follow. Activating microphone #1 does not change this; microphone #1 does not override microphone #3.
Figure 8 RM-1 Series Application, Branch Configuration

Figure 8 illustrates a typical RM-1 Series configuration, with the low level audio source signal being passed from remote microphone to remote microphone using the LLA IN and THRU connections of TB4. Each RM-1/RM-1SA then passes the low level audio source signal or the microphone signal on to audio amplifiers using the LLA OUT connections of TB5. In this configuration, the RM-1/RM-1SA in Branch 1 communicates its microphone signal only to the audio amplifiers in Branch 1. A message generated through the microphone in Branch 1 will not be passed along to Branch 2 or any other branches. Likewise, the RM-1/RM-1SA in Branch 2 will not communicate its microphone signal to Branch 1 or any other branches.
Figure 9 RM-1/RM-1SA Block Diagram

Specifications:

**Power Requirements:**
- 20 mA primary, non-fire alarm current
- 66 mA when microphone is activated
- 20 mA secondary, non-fire alarm current

17 V - 26.4 V Operating Voltage

<table>
<thead>
<tr>
<th>Relay Contact Ratings, Resistive</th>
</tr>
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<tbody>
<tr>
<td><strong>Trouble Contacts</strong></td>
</tr>
<tr>
<td><strong>Push-to-Talk Contacts</strong></td>
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</tbody>
</table>
Application Example

Speaker Zone Wiring to Eliminate Acoustic Feedback Between RM-1 and Nearest Speakers.

Decreasing acoustic coupling between microphone and speaker normally eliminates the acoustic feedback. This is done by locating the speaker away from microphone and/or selecting lower power tap on the speaker.

In situations when these methods do not guarantee desirable results it may be necessary to disconnect local speaker(s) during local page by using PTT contacts on the RM-1. In order to do this follow these steps:

1. Create separate speaker zone for speaker(s) in the same location where RM-1(SA) is.

2. Connect speaker zone wiring as shown in Figure 10.

![Figure 10 Speaker Zone Wiring](image-url)