

# SURVEILLANCE BOARD

# SV-200MA

## 1. GENERAL DESCRIPTION

The SV-200MA Surveillance Board consists of an SV-200M board and an SV extension board to be used in combination. Installing the SV-200MA board inside the VM-2120 or VM-2240 amplifier adds the functions in the following Features section to the existing VM amplifier's functions.

## 2. FEATURES

- Permits monitoring of individual speaker line or power amplifier failures for status indication. For the SV-200MA's surveillance function, refer to the descriptions about the SV-200M in the VM-2120/2240 instruction manual.
- Enables the VM amplifier to bypass external attenuators on individual zone calls.  
Individual zone calls on the current VM amplifier do not bypass external attenuators. However, the SV extension board enables the VM amplifier to bypass external attenuators when an individual zone broadcast is made in a 4-wire attenuator system.  
Either enabling or disabling this function depends on the jumper setting of JP1 on the SV extension board.  
For setting, refer to **Step 2** in the following Installation section.
- Backup amplifier function  
The SV extension board has a relay for BGM/paging operation with backup amplifier function, which is introduced in Sections 4-5-9 and 4-5-10 of the VM COOK BOOK as a customized relay circuit. So, the additional amplifier normally works as a BGM/paging amplifier and also acts as a backup amplifier when the internal power amplifier fails.  
Connections between the SV-200MA and the VM amplifier differ depending on whether this function is used or not.  
For details, refer to **Step 6** in the following Installation section.
- Control inputs and outputs corresponding to individual zone selection status  
Although current VM amplifiers have expandable zone handling capability, the arrangement of speaker lines is fixed (i.e. 5 zones with 120 W or 240 W). The SV extension board permits flexible designs on speaker lines because it outputs control signals corresponding to individual zone selection status. The SV extension board also has control inputs to allow zone selections from external equipment, for Emergency messages, for example.

### [Additional pin functions of the Surveillance I/O connector]

Pin No.	Signal Name	IN/OUT	Logic/Signal *3	Function/Status
15	PA FAULT LINK	INPUT	Open	No amplifier in the system has failed.
			Short	Another amplifier in the system has failed.
16	ZONE 5	OUTPUT	Low (0 V)	The internal Amplifier has failed.*1
			High (24 V)	Zone 5 is activated.
		INPUT	Short	Selection of Zone 5 is canceled by external equipment.*2
			Low (0 V)	Zone 5 is not activated.
17	ZONE 4	OUTPUT	High (24 V)	Zone 4 is activated.
			Low (0 V)	Zone 4 is not activated.
		INPUT	Short	Selection of Zone 4 is canceled by external equipment.*2
			High (24 V)	Zone 4 is activated.
18	ZONE 3	OUTPUT	High (24 V)	Zone 3 is activated.
			Low (0 V)	Zone 3 is not activated.
		INPUT	Short	Selection of Zone 3 is canceled by external equipment.*2
			High (24 V)	Zone 3 is activated.
19	ZONE 2	OUTPUT	High (24 V)	Zone 2 is activated.
			Low (0 V)	Zone 2 is not activated.
		INPUT	Short	Selection of Zone 2 is canceled by external equipment.*2
			High (24 V)	Zone 2 is activated.
20	ZONE 1	OUTPUT	High (24 V)	Zone 1 is activated.
			Low (0 V)	Zone 1 is not activated.
		INPUT	Short	Selection of Zone 1 is canceled by external equipment.*2
			High (24 V)	Zone 1 is activated.
21	RY_INTATT	OUTPUT	High (24 V)	The internal Zone Attenuators are bypassed.
			Low (0 V)	The internal Zone Attenuators are not bypassed.
		INPUT	Short	Internal Zone Attenuator Bypass is canceled by external equipment.*2
			High (24 V)	The internal Zone Attenuators are bypassed.
22	RY_EXTAMP	OUTPUT	High (24 V)	External SP Input is active.
			Low (0 V)	External SP Input is not active.
		INPUT	Short	Activated external SP Input is canceled by external equipment.*2
			High (24 V)	External SP Input is active.

\*1 The VM amplifier whose internal power amplifier has first failed outputs the signal so that the BGM/paging amplifier changes its current operation to back up the failed amplifier.

\*2 The external equipment can access this pin only when the corresponding OUTPUT status is High (24 V).

\*3 Input: No-voltage make contact input, open voltage: 24 V DC, short-circuit current: under 60 mA  
Output: Open collector output, withstand voltage: 24 V DC (used with VM 24 V DC output), control current: under 20 mA

### 3. INSTALLATION

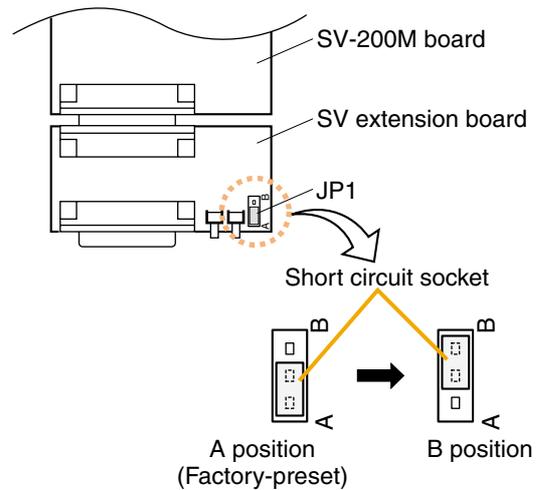
**Step 1.** Set the DIP switch on the SV-200M board referring to the installation manual for the VM-2120 and VM-2240.

**Step 2.** JP1 on the SV extension board is a 3-pin jumper header and its short circuit socket is normally set to A position. If you need to bypass the external attenuator not only on all-zone broadcast but also individual zone broadcast, set the socket to B position.

**Note**

External attenuator bypass function with individual zone broadcast can be used only with 4-wire attenuators.

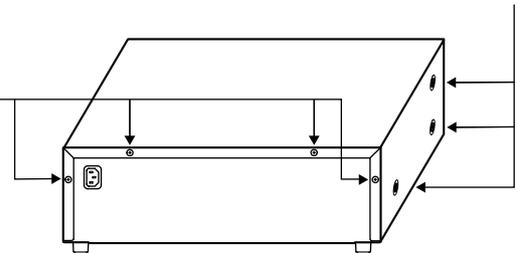
This function basically cannot be used with BGM/Paging function.



**Step 3.** Remove 4 screws on the amplifier rear panel and a total of 6 screws on the sides to remove the cover.

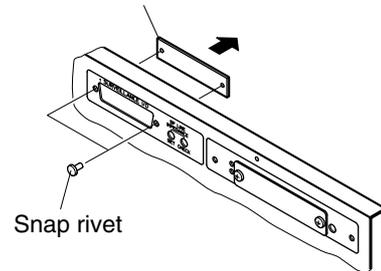
Side: M4 x 8 machine screw ..... 3 pieces each

Rear: M3 x 6 machine screw  
and M3 plain washer ..... 4 pieces



**Step 4.** Detach the surveillance I/O blank panel on the amplifier rear panel by removing 2 fixing snap rivets.

Surveillance I/O blank panel

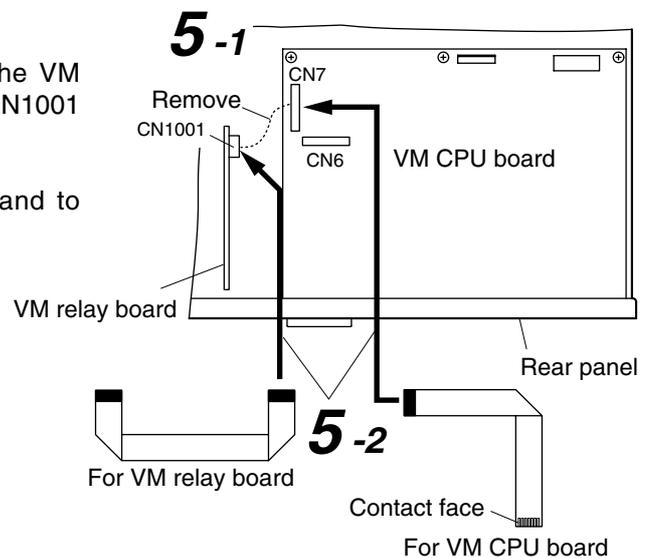
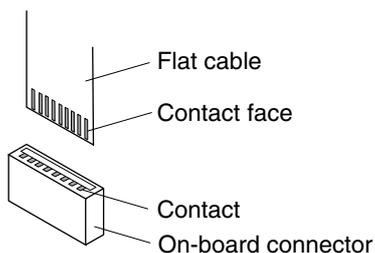


**Step 5.** Make connections of the supplied flat cables.

**5-1** Remove the flat cable connected between the VM CPU board's CN7 and the VM relay board's CN1001 of the VM amplifier.

**5-2** Connect the supplied 2 flat cables to CN7 and to CN1001, respectively.

**[Orientation of the flat cable]**



**Note**

Pay attention to the orientation of the cable so that its contact face touches the connector's contacts.

**Step 6.** Connect the SV-200MA board to the VM amplifier's boards with the connection cables.

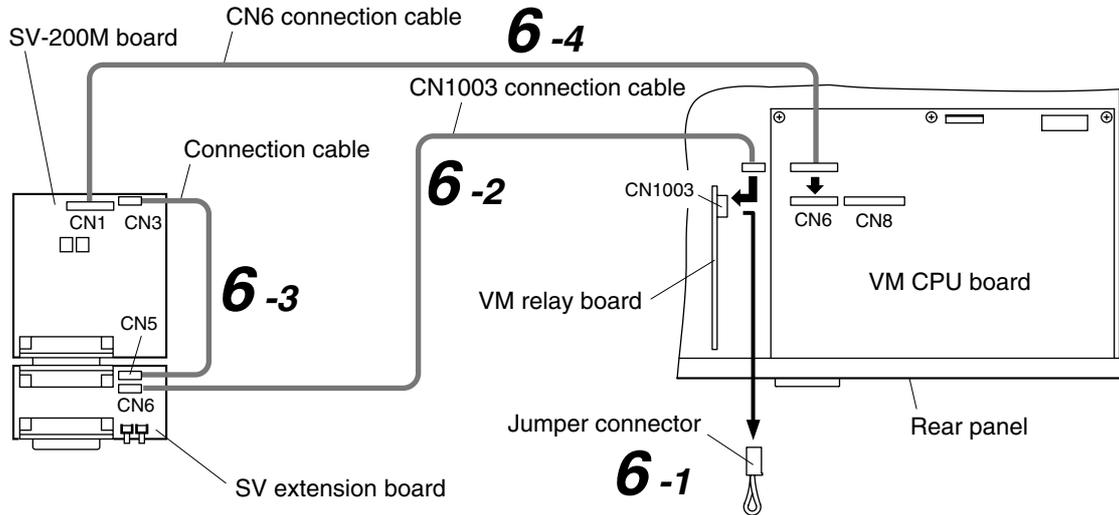
**[BGM/PAGE operation with backup amplifier function necessary]**

**6-1.** Plug out the jumper connector from the VM relay board connector CN1003.

**6-2.** Plug out CN5 connector on the SV extension board, and plug it into CN1003 on the VM relay board.

**6-3.** Connect CN3 on the SV-200M board to CN5 on the SV extension board.

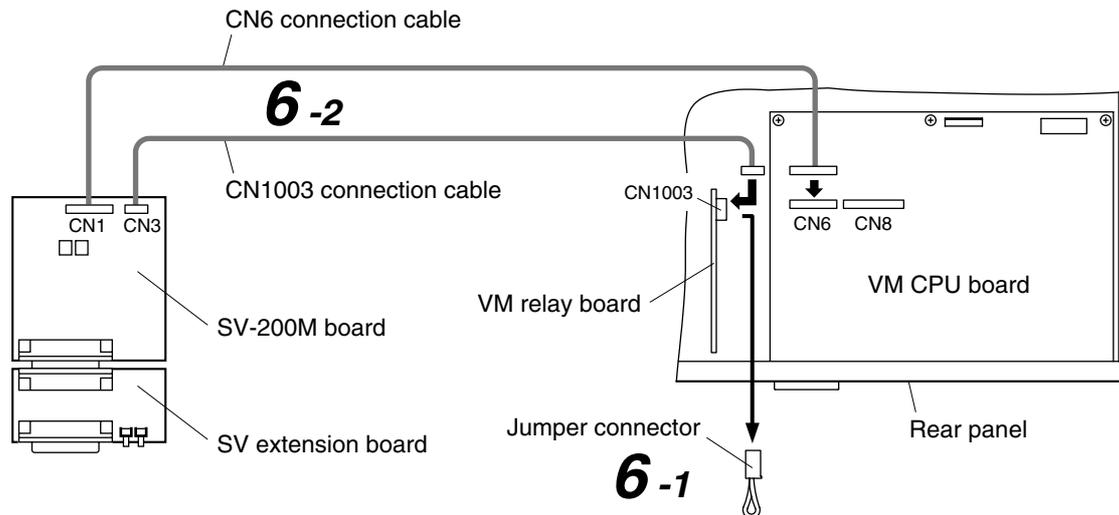
**6-4.** Connect CN1 on the SV-200M board to CN6 on the VM CPU board.



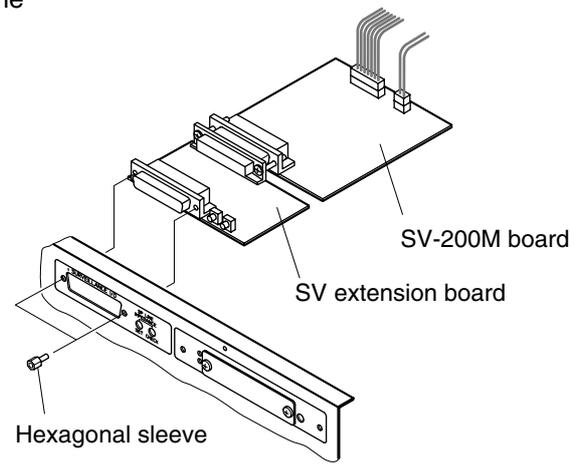
**[BGM/PAGE operation with backup amplifier function not necessary]**

**6-1.** Plug out the jumper connector from the VM relay board connector CN1003.

**6-2.** Connect the 2 cables attached to the SV-200M board to the connectors in the VM amplifier's boards as shown below.



**Step 7.** Using the removed 2 hexagonal sleeves, mount the SV-200MA assembly in the amplifier.

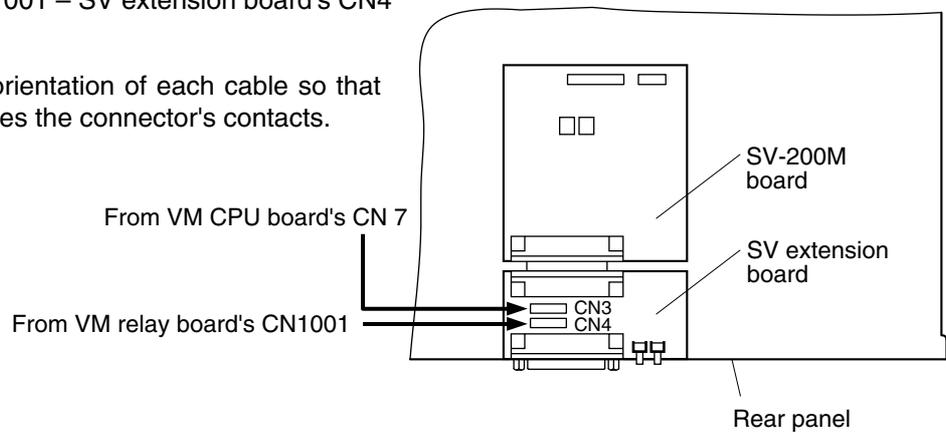


**Step 8.** Connect the flat cables to the SV extension board.

Be sure to correctly connect the flat cables between the following connectors:  
VM CPU board's CN 7 – SV extension board's CN3  
VM relay board's CN1001 – SV extension board's CN4

**Note**

Pay attention to the orientation of each cable so that its contact face touches the connector's contacts.



**IMPORTANT**

Ensure that all cables are correctly connected. Misconnection of the cables may cause the SV extension board to fail.

**Step 9.** Check the DIP switch on the SV-200M board again for correct setting. (Refer to the installation manual for the VM-2120 and VM-2240.)

**Step 10.** Using the 4 rear panel screws and 6 side panel screws removed in **Step 3**, replace the amplifier cover.