Slim MP3 Voice Annunciator
Instruction Manual

[TYPE BSV-24]

PATLITE Corporation

Table of Contents

Introduction

Thank you for purchasing the Patlite Slim Model MP3 Voice Annunciator. Prior to installation, please read through this manual for proper installation and precautionary steps. In additon, please store this manual for future reference when performing maintenance, repairs or inspections.
After reviewing this manual, if there are any inquiries, please direct them to your PATLITE Sales Representative.

• Markings in this book

The bit rate of 64 kbit/s is given as the standard rate for the MP3 file. When the bit rates differ, reproduction time differs.
Optional SDV-2GP should be used for the SD card. Using other SD cards is not guaranteed.
(Refer to pg 26 "11. Optional Sales Items")
Format the SD card using the FAT16 protocol. The SD card cannot be recognized if it is formatted in any form other than FAT16.

• Terms used in this book

[Message No.] is based on the playlist created by the application software, which included a collection for a maximum of 16 MP3 data files, where the channel (CH) input corresponds to the message number (i.e. Message No. 1 =CH1). For further details, please refer to the help section of the application software. In the case where the application software is not being utilized, then the CH input corresponds to the MP3 data message number.

- Caution on copyright -

Work that was recorded or copied from music CDs or other media used in public places may infringe upon copyrights and law enforcement may be imposed.

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1. Product Summary

This product is a slim sized MP3 voice annunciator which is primarily used for, but not restricted to, factory automation (FA). Since the MP3 protocol is used as compressed data, it is possible to reproduce a high-quality sound voice message in comparison to ADPCM, by using the MPEG1-Audio Layer III (MP3). Moreover, the registered voice message can be rewritten freely. (A maximum of 15 messages can be registered)

• Thin Design:
   With a thickness of 19.9mm, it can be installed in "space-saving" apparatuses.

• High Quality Sound Playback:
   In comparison to the ADPCM format, the MP3 Data can playback a total of 63 seconds.

• MP3 Data Rewriting Capability:
   With the optional SD Card, MP3 data can be freely rewritten, even out in the field.

• Playback corresponding to various applications
   • There are eight operation modes selectable, which can select the functions in combination with the commands.
   • The modes can be freely written by using an SD Card.
   • The input can be selected between "Binary Input" and "Bit Input".
   • The sound reduction can be controlled from a signal input and reduced with a designated sound reduction value.

2. Safety Precautions

In order to prevent any damage to the user and other personnel or to assets, note the following:
The warning indications are divided into the following classes according to the degree of danger or damage incurred when the warning is not taken into consideration and the product is not correctly used.

⚠ WARNING	Indicates an immediately dangerous condition: failure to follow the instructions may lead to death or serious injury.
⚠ CAUTION	Indicates a potentially dangerous condition: failure to follow the instructions may lead from slight to medium injury or to property or physical damage.

To operate this product properly, observe the following:

⚠ WARNING

- Do not modify or disassemble the product. Failure to do so may result in malfunction or fire. Do not attempt to repair the product. For questions concerning our product or for when repair is necessary, refer to the end of this document for contacting your nearest PATLITE Sales Representative.
- Be careful not to miswire this product, failure to comply can result in product failure or fire.
- Ensure the power is in the correct tolerance for voltage supply. Failure to comply may result in malfunction or fire.
- Request the installation and wiring be performed by a professional contractor. Otherwise, there is the possibility that fire, electric shock or falling from high places may result.

⚠ CAUTION

- Be sure the power is disconnected before wiring or installing this product. Possibility of electric shock, short-circuiting or product failure may occur.
- To protect the power supply and other internal circuitry, be sure to connect an external fuse.
- Don't install the product in a location where vibrations exceed the specifications. If installing where vibrations do exist, install the product in the upright position. Failure to comply may result in the prevention of the product detaching and falling, causing injury to a passer-by, etc.
- This product is not guaranteed from failure produced by transportation, handling, natural disasters, etc. or the disassembly and modification contrary to warnings and notes. Moreover, please avoid the use of this product outside the contents written in this book.

Contrary to Warnings and Cautions indicated in this document, product failure due to mishandling, disassembly, modifications or natural disasters, etc. is not covered by any Warranty. Moreover, avoid any applications outside those indicated in this document.

Please	Indicates something to observe before using this product.
Note	Notice regarding supplementary information or convenient explanation is indicated.

Please

- Do not use in an environment exposed to strong radio waves or inductance noise. Failure to the speaker may result from the inductive noise.
- Do not use in an environment where corrosive gas is present. Possible cause of failure may occur.
- To prevent damage from static electricity, touch hands or other body parts to metals or an earth ground to discharge the body from static charge before handling static sensitive parts, such as the SD Card.
- Use the recommended torque when attaching parts for installation, etc.
- Do not misplace or drop parts, such as the front cover, locking screw, etc., while performing any kind of work.
- When this product is used for security purposes, it should be inspected daily. In case a malfunction should occur, it is recommended that you use this product together with other security products.

3. Model Number Configuration

$$B\ S\ V\ -\ \boxed{2\ 4}\boxed{N}\boxed{M}\ -\ \boxed{W}$$

- ■ Rated Voltage
  24: 12 to 24 VDC
- ■ Transistor Type
  N: NPN
  P: PNP
- ■ Recorded Messages
  M: Pre-recorded Messages
  Blank: None (15 built-in Alarms)
- ■ Front Cover Color
  W: Off-white
  D: Dark Grey
  S: Silver
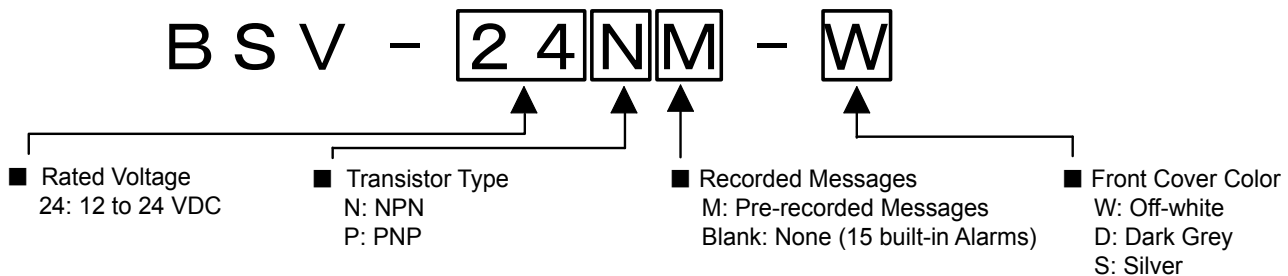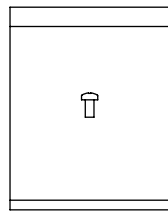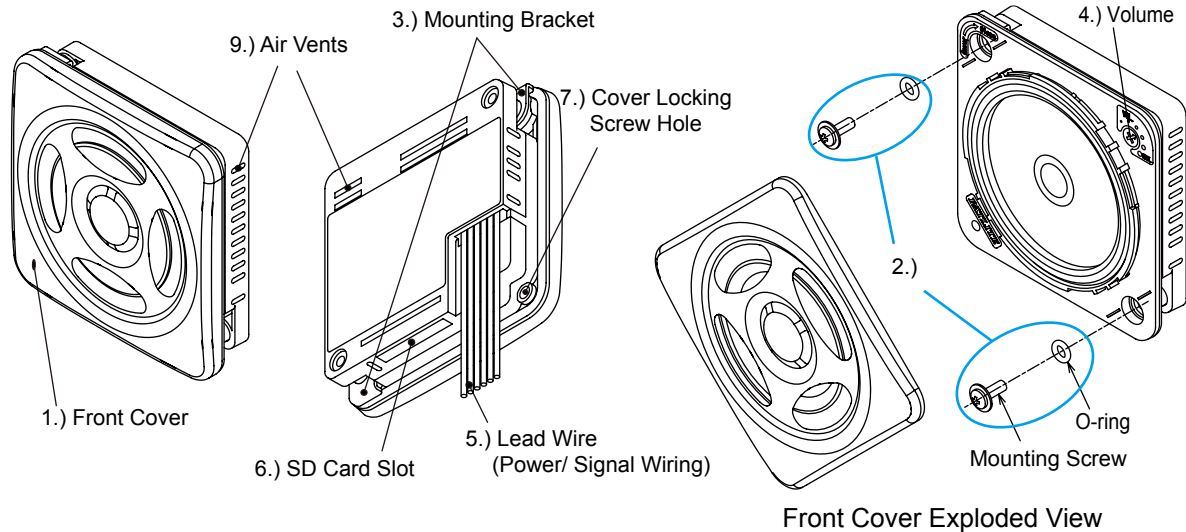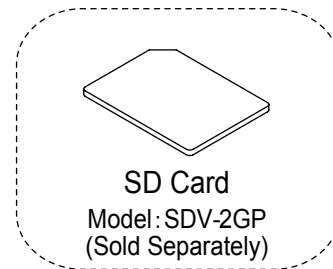
4. Part Names and Outside Appearance

4-1. Part Names

Refer to the following pages for the explanation of the individual functions.

9.) Air Vents
3.) Mounting Bracket
4.) Volume
7.) Cover Locking Screw Hole
1.) Front Cover
6.) SD Card Slot
5.) Lead Wire (Power/ Signal Wiring)
2.)
O-ring
Mounting Screw

Front Cover Exploded View

8.) Accessory: M3X6 Tapping Screw
(Cover Locking Screw)

SD Card
Model：SDV-2GP
(Sold Separately)

※ Patlite Corporation is a member of the SD Card Association.

1. **Front Cover**
   Remove and replace when adjusting the volume control.

2. **Mounting Screw and O-ring**

3. **Mounting Bracket**
   Use when installing for Wall or Panel mount applications.

4. **Volume**
   The volume is adjustable.

5. **Lead Wire (Power Supply / Signal)**
   Wire the power supply and individual signal inputs to the proper connections.

6. **SD Card Slot**
   It is used to insert the SD Card for rewriting MP3 data and for controlling the operation modes.
   [SD Card Insertion/Removal Method]
   1. When inserting the SD Card, push it all the way in until a clicking sound is heard.
   2. When extracting the SD Card, pull it straight out.

7. **Cover Locking Screw Hole**

8. **M3X6 tapping screw (Cover Locking Screw)**
   It is used to prevent easy front cover access.

9. **Air Vents**
   The vents are used for heat dissipation, as well as for acoustics. Do not block the air vents.

> ⚠ **CAUTION**
>
> • When you insert an SD card into the SD card slot, be careful of the direction. Also, don't forcibly insert the SD card into the card slot. Failure to comply may result in damage to the product or the SD card.
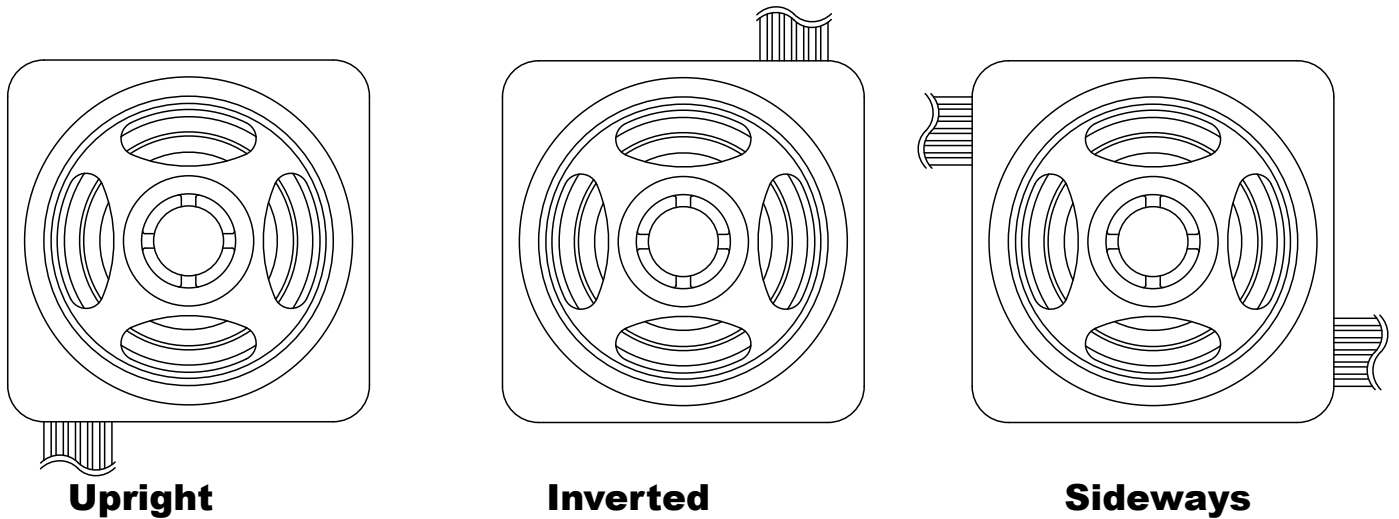
4-2. Outside Appearance

【Outer Appearance】 (mm)

AWG #22 UL1007
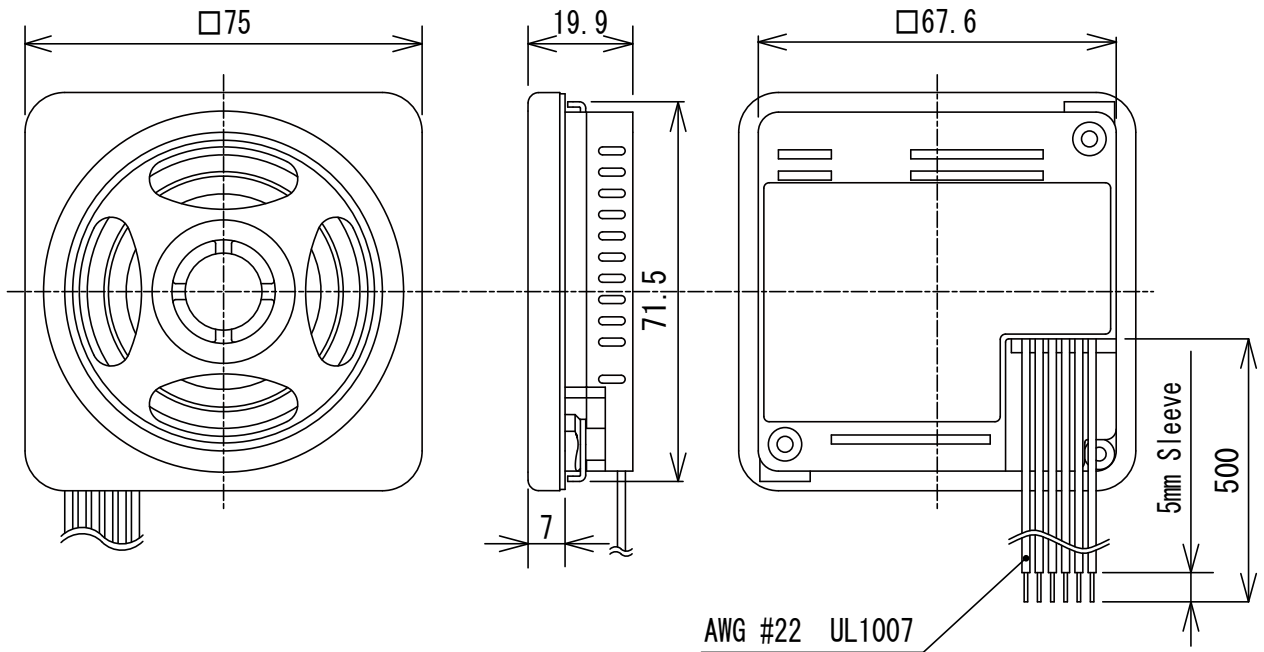
5. Installation

This product can be panel or wall mounted. Please attach in accordance with the procedure for mounting after removing the front cover. Refer to the following figure (front view) for the mounting direction.

Upright　　　　　　**Inverted**　　　　　　**Sideways**

⚠ **WARNING**

• Request the installation and wiring be performed by a professional contractor. Otherwise, there is the possibility that fire, electric shock or falling from high places may result.

5-1. Front Cover

When installing or adjusting the volume control to this product, please open and close the front cover in the following manner.

(1) Turn the front cover in the counter clockwise direction 45 degrees.
Assure there is ample rotation space available for the front cover when mounting.

(2) When attaching for wall-mounting, pull the front cover forward to remove, then pull-out the mounting screw and O-ring.

(3) Please attach the parts removed in steps 1 and 2 in the reverse order to reassemble. Attach the front cover so that the "↑UP" is on top. (Mounting Screw Recommended Torque: 0.3 N-m)

Use the M3X6 tapping screw indicated on the lower-right figure to fix the front cover.
(Recommended Torque: 0.3 N-m)

[mm]

(100)

Volume

Open

Mounting Screw

Attach the front cover so that the arrow is alligned as indicated above.

↑UP

Cover Locking Screw

Cover Locking Hole
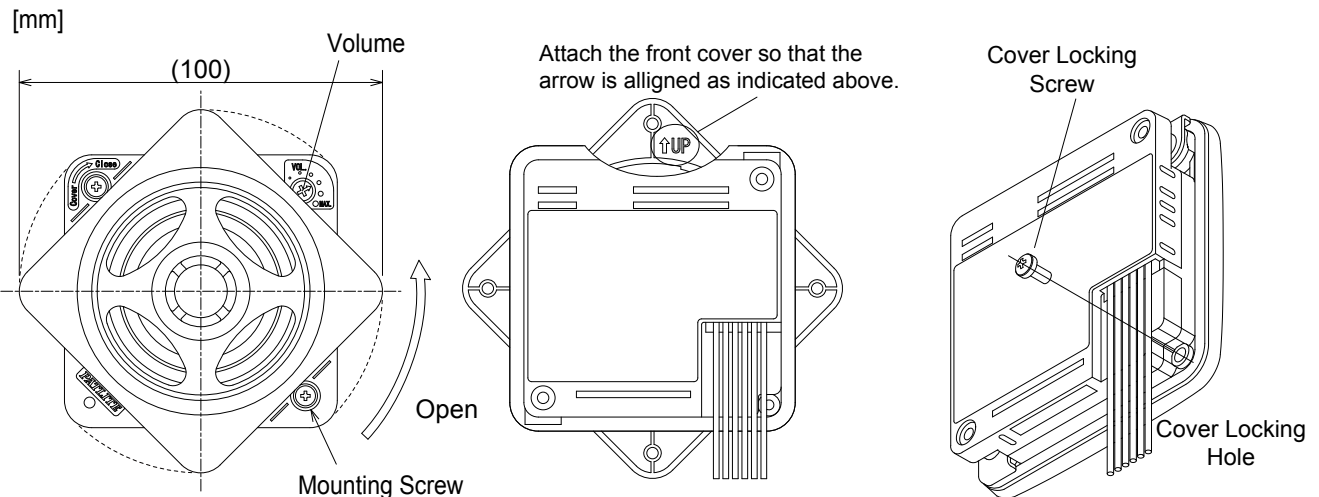
5-2. Panel Mounting

(1) Please mount on a flat surface with a panel thickness of 1 mm to 3.5 mm for proper clamping (Refer to Installation dimensional drawing).

(2) Rotate the front cover counter-clockwise 45 degrees, and loosen the mounting screws.

(3) Referring to the "Section C Rear View" drawing, check that the mounting bracket is in position (A) before inserting the product through the front of the panel. Place the mounting brackets as indicated in position (B) and secure it with the mounting screws, clamping the mounting nut to the rear of the mounting surface. (Recommended torque: 0.3 N-m)

(4) Check that the product is securely mounted before placing the front cover back on.
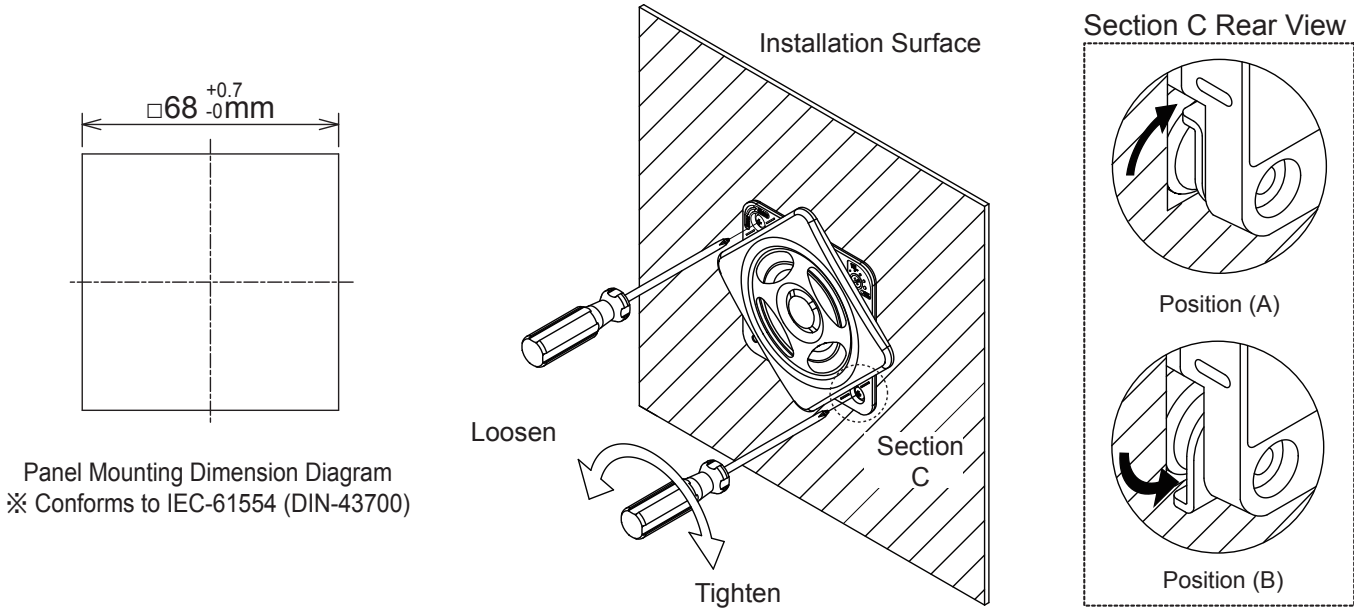
$\square 68 \, ^{+0.7}_{-0} \text{mm}$

Panel Mounting Dimension Diagram
※ Conforms to IEC-61554 (DIN-43700)

Installation Surface

Loosen

Tighten

Section C

Section C Rear View

Position (A)

Position (B)

⚠ **CAUTION**

- Be sure the power is disconnected before wiring or installing this product. Possibility of electric shock, short-circuiting or product failure may occur.

- Ensure the installation surface is sufficient enough to handle the weight of the product, and where there is less vibration. Also, do not install in places which exceeds the specifications, such as a vehicle, etc. Failure to comply may result in the prevention of the product detaching and falling, causing injury to a passer-by, etc.

- Always use both mounting screws and tighten with the recommended torque. Failure to comply may result in the prevention of the product detaching and falling, causing injury to a passer-by, etc.

- Do not apply a heavy load to the lead wires. Possibility of electric shock, short-circuiting or product failure may occur.

- Do not turn the front cover more than 45 degrees. Failure to comply may result in product damage.

- Be sure to throw away the chips generating when install the cover locking screw. When mixed inside the product, There is a case may result in malfunction.

- Be sure to Waterproof treatment at the cover locking screw attachment point, when install the cover locking screw. There is a case may result in enter the water from it.

5-3. Wall Mounting

(1) Mount on a flat surface with a panel thickness of 1 mm to 3.5 mm for proper clamping.
(Refer to the "Panel-mount Dimension drawing")

(2) Rotate the front cover counter-clockwise 45 degrees, and pull straight out to remove, then loosen and remove the mounting screws and O-ring.

(3) Place the front cover in the same position as when removing it, insert the product onto the mounting surface from the front, then install the mounting screws from the rear of the mounting surface.
(Recommended torque: 0.3 N-m)

(4) Check that the product has been properly clamped before placing the front cover back on.

[mm]

□57.5±0.2

2-φ3.5
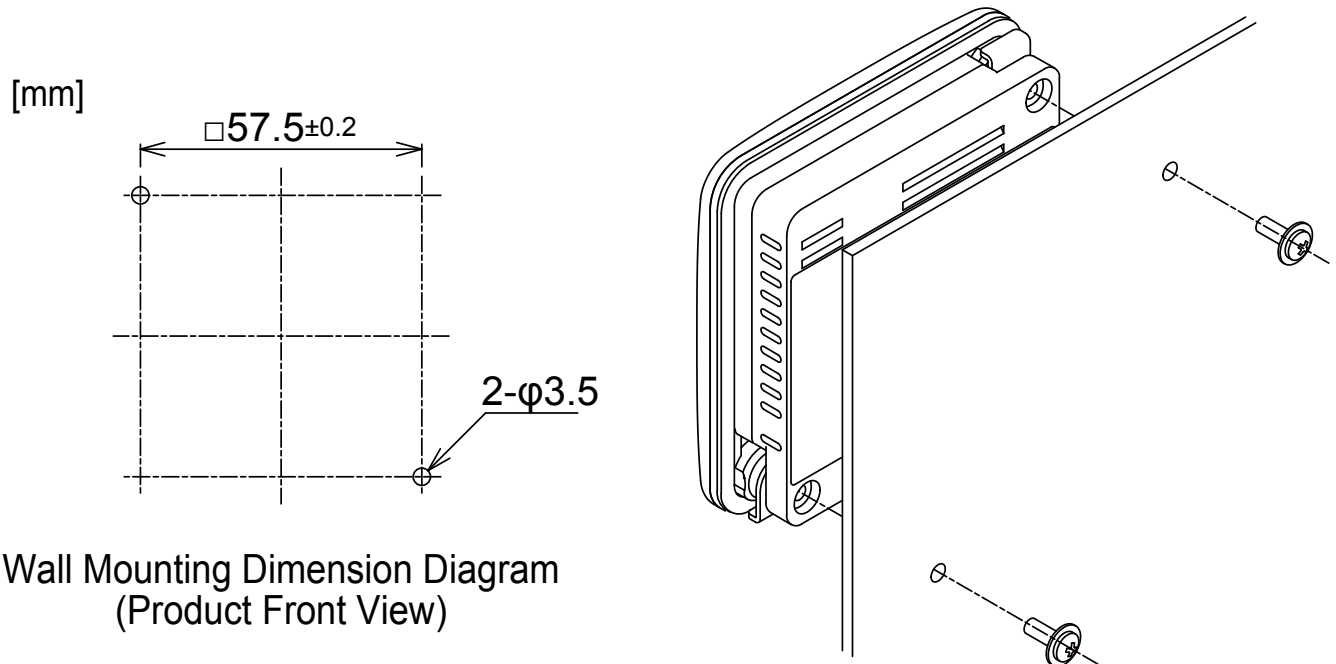
Wall Mounting Dimension Diagram
(Product Front View)

* For proper mounting, the length of the mounting screw can be changed to match the thickness of the panel.

Please

- Install the product on a flat surface with no uneven surfaces. Failure to comply will weaken its resistance to water and dust.
- If installing the product where vibrations exist, it is recommended to make periodic inspections to ensure the mounting screws are properly tightened.
- If installing the product where vibrations exist, it is recommended to make periodic inspections to ensure the mounting screws are properly tightened.
- When operating the product by controlling the power ON/OFF, be sure to include a switch by which the power supply can be easily cut near the main power for safety.
- Do not block the air vents when installing.
- Do not apply thread locking adhesive to the cover locking screw, it may result in damage to the product.
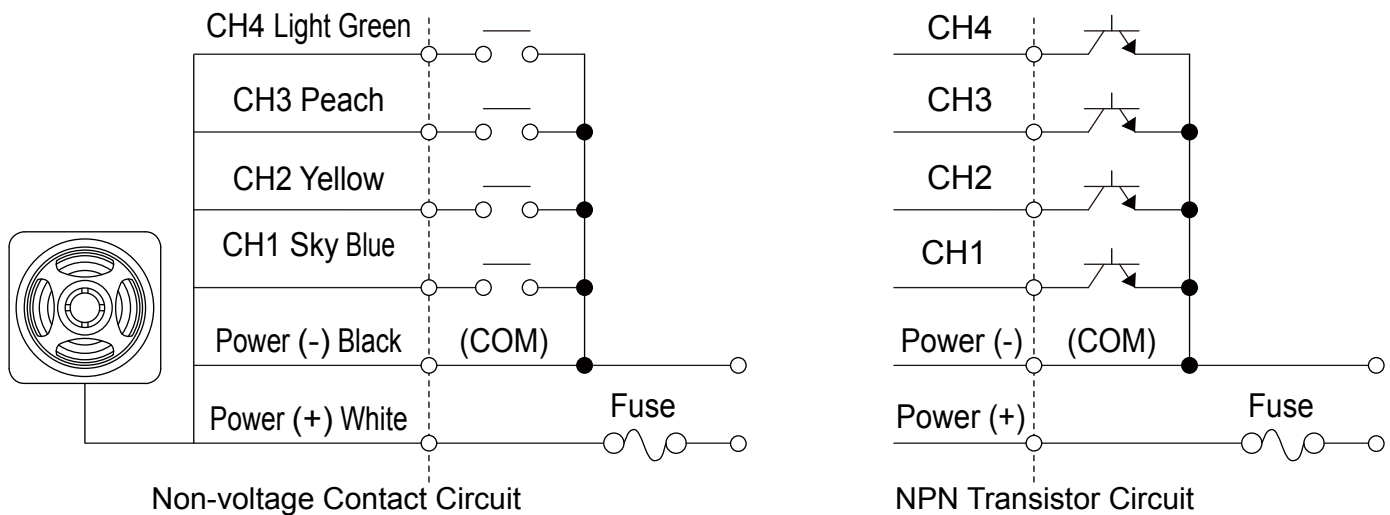

Note

- Depending on the mounting surface material, thickness and the volume of the product, a vibration sound may be generated from the mounting screws. Take countermeasure steps by reinforcing the mounting screws to reduce vibration.

6. Wiring

When wiring to external contacts for the signal line, use non-voltage contacts such as a relay, switch or an NPN (PNP type also available) open collector circuit. Refer to table 1 below for contact capacity.

Refer to table 3 "Contact Capacity" on the following page.

- Wiring Example
  - BSV-24N (NPN Transistor Type)

<div style="border: 1px solid red; color: red;">
Do not short Power (+) to the CH lines. Failure do to so will result in damage to the product.
</div>

Non-voltage Contact Circuit	NPN Transistor Circuit

CH4 Light Green
CH3 Peach
CH2 Yellow
CH1 Sky Blue
Power (-) Black   (COM)
Power (+) White   Fuse

CH4
CH3
CH2
CH1
Power (-)   (COM)
Power (+)   Fuse

* The power (-) shares the same common as the signal ground.

⚠ **WARNING**

- Double check the wiring to prevent mistakes. Failure to conform may result in product damage, resulting in damage to the circuitry or fire.

⚠ **CAUTION**

- Be sure the power is disconnected before wiring or installing this product. Possibility of electric shock, short-circuiting or product failure may occur.
- Do not pull or tug at the wires with excessive force. Failure to comply will result in damage to the product.

- Wiring Example
  - BSV-24P (PNP Transistor Type)

<div style="border:1px solid red; color:red">Do not short Power (-) to the CH lines. Failure do to so will result in damage to the product.</div>

Voltage Contact Circuit

PNP Transistor Circuit
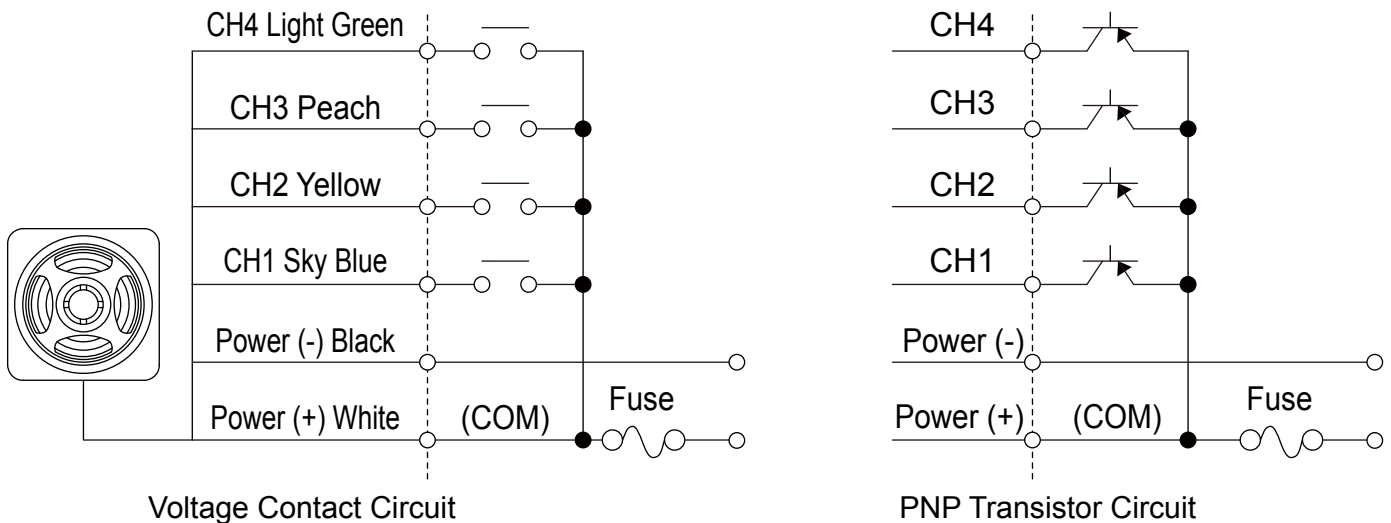
* The power (+) shares the same common as the signal return line.

Table 1. Signal Contact Capacity

Current Capacity	15mA or more	Leakage Current	0.1mA or less
Withstanding Voltage	DC35V or more	"ON" Voltage(V_{sat})	1V or less

Table 2. Recommended Fuse

Rated Voltage	250V	Standard Fusion	Slow-blow
Rated Current	0.25A		

Table 3. Inrush Current Ratings

Inrush Current	7A Max.

Please

- To protect the power supply and other internal circuitry, be sure to connect an external fuse.
- Be sure to check for proper wiring before connecting the power.
- To countermeasure against interference noise, make wiring as short as possible and use shielded wires whenever possible. In addition, separate any signal lines which pass along high voltage cables or is susceptible to receive induction noises.
- When operating the product by controlling the power ON/OFF, be sure to include a switch by which the power supply can be easily cut near the main power for safety.
- If a non-voltage contact, such as a relay or switch etc., is used for the power supply line, consider inrush current capacity when selecting the contact. If the capacity is insufficient, it will cause pitting or welding of the contacts, causing malfunction.

Note

- Even when starting two or more units simultaneously, a lag will occur during message playback.

7. Controlling The Volume

7-1. Volume Adjustment

The volume is adjustable from the minimum to maximum sound level.
The volume is to be used as the adjustment of the volume and not be used for muting.

- Volume adjustment should be done with a small Phillips screwdriver of about 0.5mm in width.
- The volume position is in reference to the increasing size of the "o" marking in conjunction with the position of the arrow.

Note

- As the sound increases, the possibility of distortion may also occur.
- Due to the surrounding environment and electrical tolerances, Even with the volume adjusted to minimum, the sound level may not be zero.

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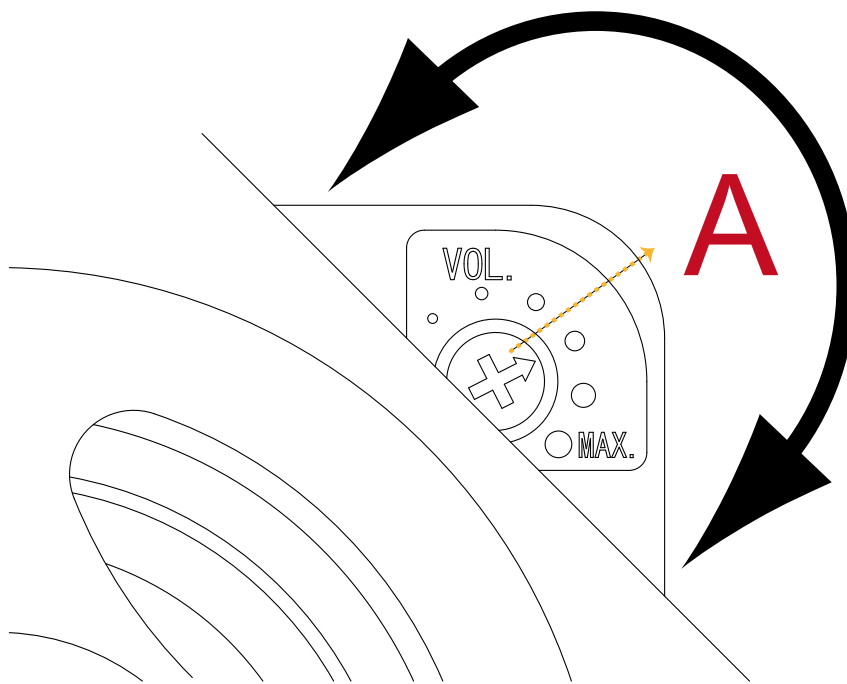
* At the time of factory shipment, the volume is set at the mid-center position (indicated as "A") as depicted in the figure.

⚠ **CAUTION**

- Turn the volume lightly when adjusting.
- If a torque more than 0.05 N-m is applied, there is a possibility of damaging the volume control.

7-2. Sound Reduction Function

- By using the CH4 signal line input, the sound can be reduced from 0 to -50dB during playback. Refer to 15 "8-1. Operation Modes".
- The sound reduction during message playback, when the sound reduction input is entered, is activated within 500ms after the input.

- Wiring Example
  - BSV-24N (NPN Transistor Type)

Do not short Power(+) to the CH line. Failure do to so will result in damage to the product.

CH4>Sound Reduction Light Green

CH3 Peach

CH2 Yellow

CH1 Sky Blue

Power (-) Black   (COM)

Power (+) White   Fuse

Non-voltage Contact Circuit

CH4> Sound Reduction

CH3

CH2

CH1

Power (-)   (COM)

Power (+)   Fuse

NPN Transistor Circuit
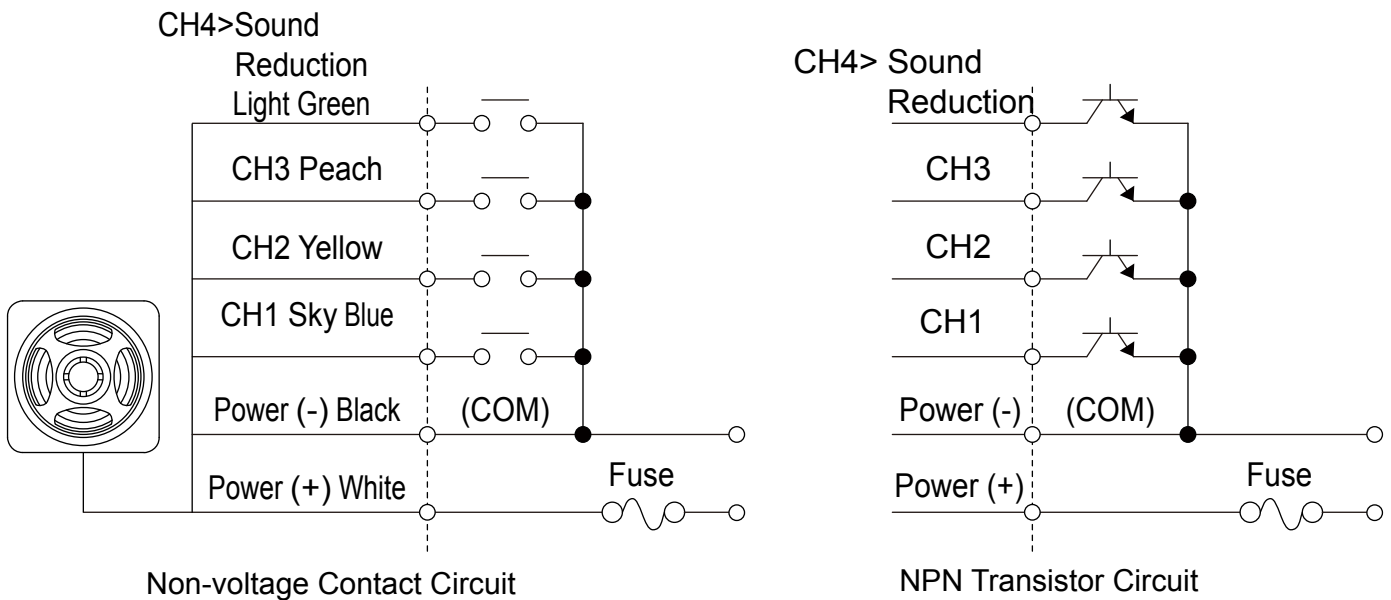
* The power (-) shares the same common as the signal ground.

8. Various Functions and Playback Methods

8-1. Operation Modes

The operation modes for this product are selectable by choosing the operation from the eight different modes available in Table 4, and creating the corresponding input in accordance with the application. Each alphabet in the table is used at the time of creation of the mode file.
Refer to 21 "8-2-1　　Operating Mode Configuration File".
Also refer to Table 5 for the factory default modes set prior to product shipment.

Table 4. Operating Mode

A	Bit Input/ Normal Playback Mode	E	Binary Input/ Normal Playback Mode
B	Bit Input/ Input Priority Playback Mode	F	Binary Input/ Input Priority Playback Mode
C	Bit Input/ Hold Playback Mode	G	Binary Input/ Hold Playback Mode
D	Bit Input/ Memory Playback Mode	H	Binary Input/ Memory Playback Mode

Table 5. Factory Default Mode Settings

Model	MP3 Data Registration Contents	Operating Mode
BSV-24 □ - □	No specified messages (15 pre-installed sounds)	Bit Input/ Hold Playback Mode
BSV-24 □ M- □	Four or less messages specified	Bit Input/ Normal Playback Mode
	Five or more messages specified	Binary Input/ Normal Playback Mode

* Refer to Table 6 for the reference of sound pressure for the initial 15 alarm sounds.
* Although there are 15 sounds registered, when using all 15, it is necessary to change the operational mode into the Binary Input Mode.
* All MP3 registered messages for the BSV-24 □ M- □ will be erased if written over.

Table 6. Initial Alarm Sound Pressure Reference

Message No.	Alarm Name	Reference Sound Pressure	Message No.	Alarm Name	Reference Sound Pressure
1	Chime	79 dB	9	Synthesized Bell	90 dB
2	Beep	74 dB	10	Stutter + Bell	81 dB
3	Stutter	83 dB	11	Synthesized Melody	86 dB
4	Bell	89 dB	12	Call Sign	91 dB
5	Yelp	85 dB	13	Inverted Reveille	87 dB
6	Rapid Hi Lo	87 dB	14	Galactic Motor	84 dB
7	Melody Chime	90 dB	15	Two Tone	83 dB
8	Synthesized Piano	89 dB			

• Measurement conditions: The product is attached to the center of a 300mm by 300mm board at a distance of 1 meter away from the front of the product.
• These values were recorded under controlled conditions and are for reference only. Actual sound pressure will depend on the surrounding environment.

8-1-1   Signal Input

There are two kinds of signal inputs, bit input and binary input.
The difference in a signal input is explained below.

(1) Bit Input
   • The short-circuiting of the signal lines CH1 through CH4 to the common line will playback MP3 data.
     Signal lines CH1 to CH4 corresponds to message Numbers 1 to 4, respectively.
   • A maximum of 4 message channels can be played back. (When the sound reduction function is active, a maximum of 3 message channels can be played back)
   • When two or more inputs are simultaneously entered, the input is chosen in accordance to priority, in which the higher number is of higher priority.
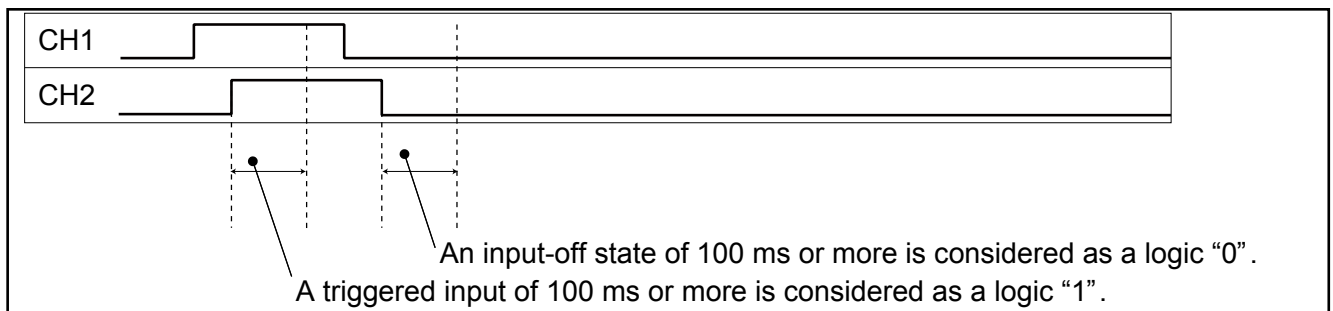   In the memory playback mode, the memory saves the input based on the priority of the higher number.
     When the sound reduction function is activated, the CH4 signal line turns into the sound reduction signal line.
     Refer to pg 14 "7-2. Sound Reduction Function".

The order of input priority is from right to left:
CH4 > CH3 > CH2 > CH1

[Time Chart]

An input-off state of 100 ms or more is considered as a logic "0".
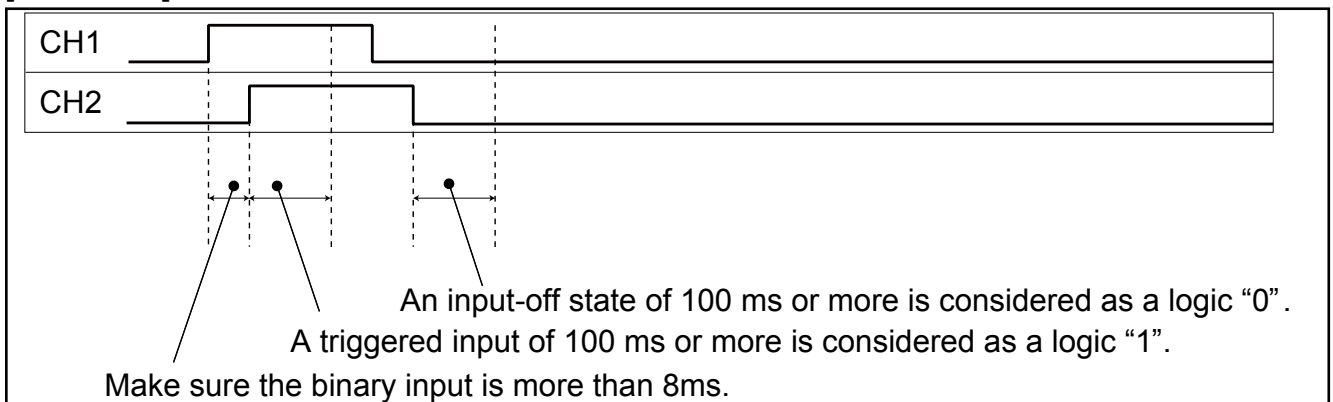A triggered input of 100 ms or more is considered as a logic "1".

   •   Refer to the corresponding playback mode for a detailed explanation of the time chart.

(2) Binary Input
   • The short-circuiting of the signal lines CH1 through CH4 to the common line will playback MP3 data.
     About the relation between message No. to reproduce and CH signal line input,
     refer to pg. 25 "10. Binary Input Table"
   • A maximum of 15 message channels can be played back. (When the sound reduction function is active, a maximum of 7 message channels can be played back)
   • When the sound reduction function is activated, the CH4 signal line turns into the sound reduction signal line.
     Refer to pg. 14 "7-2. Sound Reduction Function"

[Time Chart]

An input-off state of 100 ms or more is considered as a logic "0".
A triggered input of 100 ms or more is considered as a logic "1".
Make sure the binary input is more than 8ms.

   •   Refer to the corresponding playback mode for a detailed explanation of the time chart.
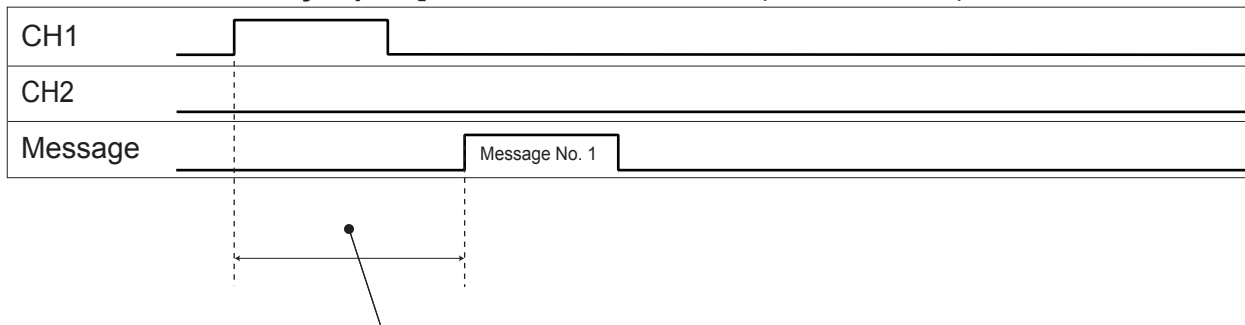
8-1-2 Playback Mode

The operation for reproducing MP3 data with this product can be chosen from four playback modes of "Normal Playback", "Input Priority Playback", "Hold Playback", and "Memory Playback".
   (1) Normal Playback Mode
      MP3 data is reproduced in correspondence to an input. When an input is a one shot, the corresponding message number is reproduced once, and playback is repeated when the input is maintained.
      • Any channel input is ignored during MP3 data playback.

[Time Chart: Bit/Binary Inputs] The time chart is an example for the bit input mode.

CH1	
CH2	
Message	Message No. 1

The MP3 data is played back within 300ms after the input.

[Time Chart: Binary Inputs]

CH1							
CH2							
CH3							
CH4							
Message	No. 3	No. 1	No. 6	No. 8	No. 15	No. 15	No. 3

[Time Chart: Bit Inputs]

CH1							
CH2							
CH3							
CH4							
Message	No. 1	No. 1	No. 2	No. 2	No. 4	No. 3	No. 1
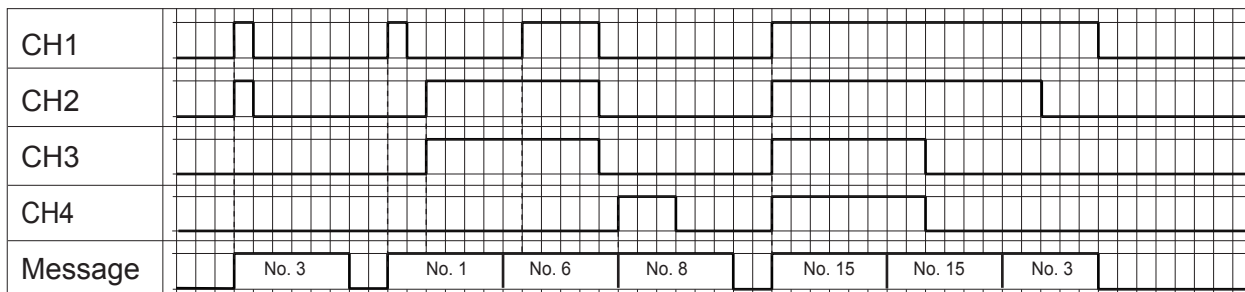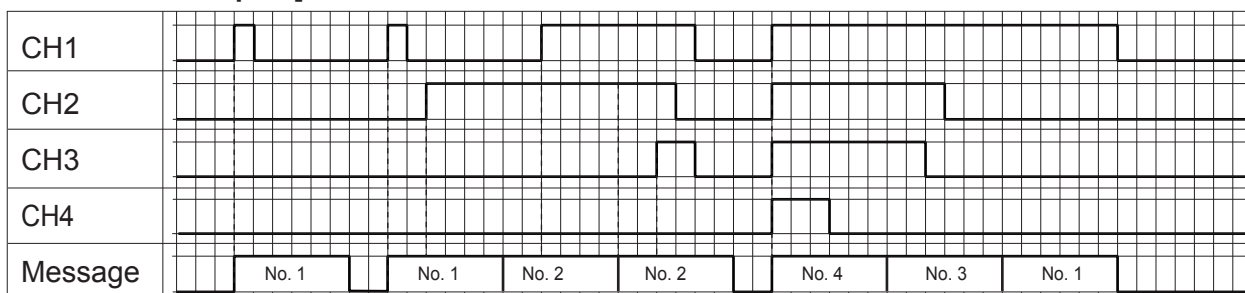
(2) Input Priority Playback Mode

During an MP3 message playback, the message will stop when a different channel input is entered and the message will continue after the previous channel's message has ended.

- Even if an input is held, playback is only played once.

[Time Chart: Bit/Binary Inputs] The time chart is an example for the bit input mode.
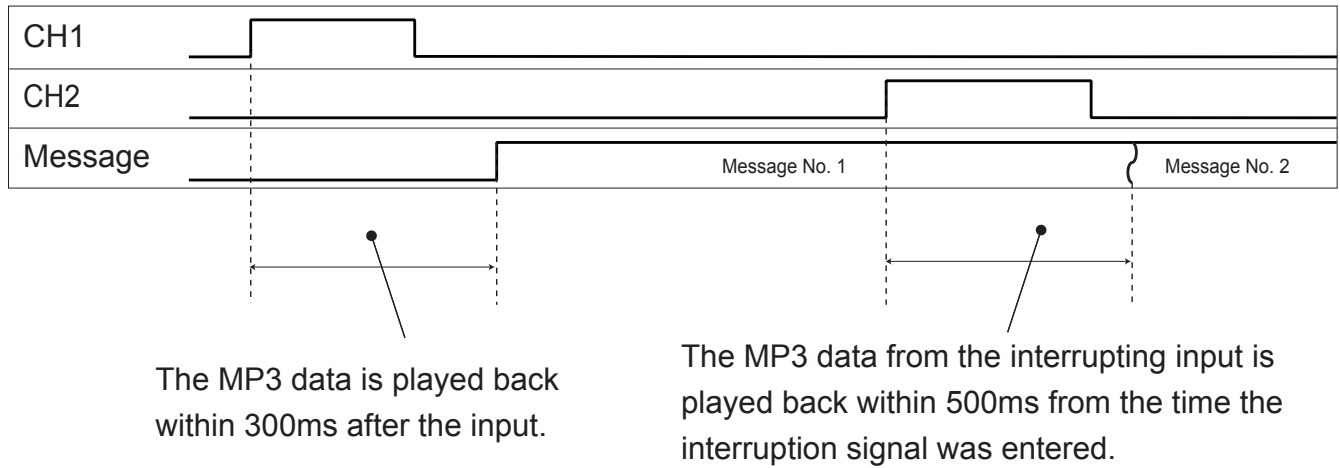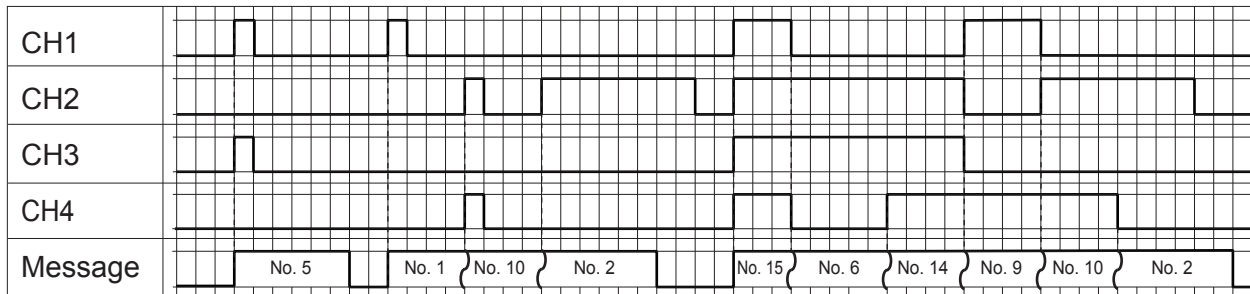

CH1	
CH2	
Message	Message No. 1 Message No. 2

The MP3 data is played back within 300ms after the input.

The MP3 data from the interrupting input is played back within 500ms from the time the interruption signal was entered.

[Time Chart: Binary Inputs]

CH1	
CH2	
CH3	
CH4	
Message	No. 5 No. 1 No. 10 No. 2 No. 15 No. 6 No. 14 No. 9 No. 10 No. 2

[Time Chart: Bit Inputs]

CH1	
CH2	
CH3	
CH4	
Message	No. 3 No. 1 No. 2 No. 2 No. 4 No. 4 No. 1 No. 2
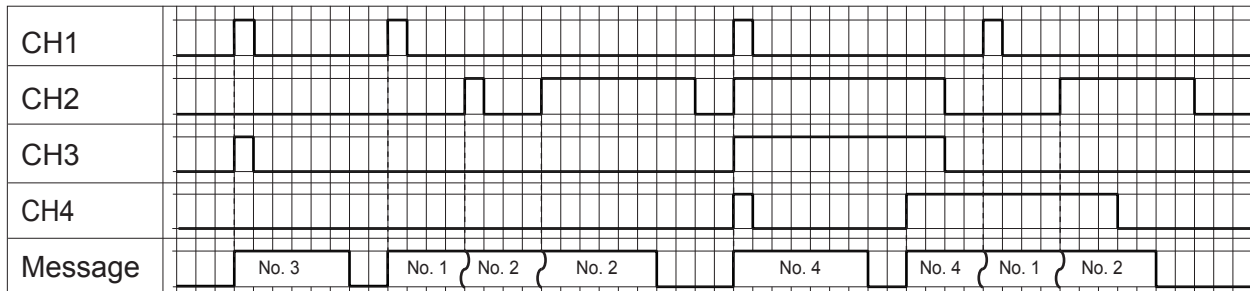
* Playback was stopped and the wavy line means the message No. corresponding to the input channel was played.

(3) Hold Playback Mode

The message will only play back while the input is held on. Playback will stop once the input is removed.

- While the input is held on, the message playback will be repeated.
- The higher channel input takes the highest priority.

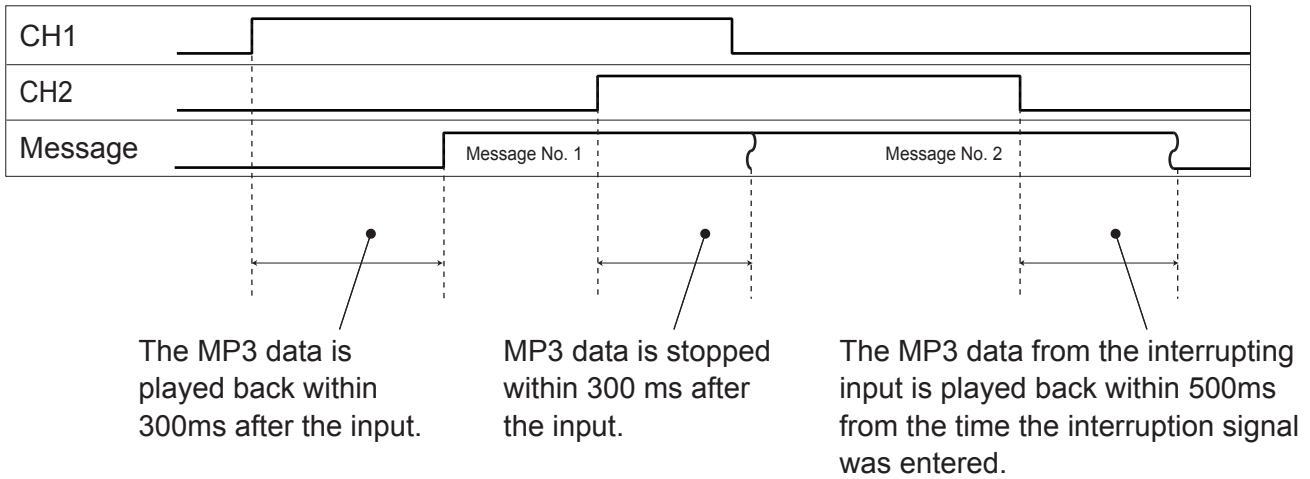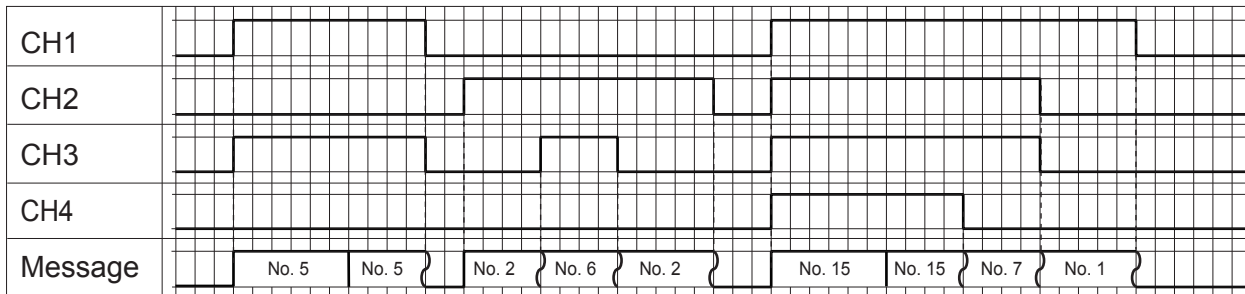**[Time Chart: Bit/Binary Inputs]** The time chart is an example for the bit input mode.

CH1	
CH2	
Message	Message No. 1 Message No. 2

The MP3 data is played back within 300ms after the input.

MP3 data is stopped within 300 ms after the input.

The MP3 data from the interrupting input is played back within 500ms from the time the interruption signal was entered.

[Time Chart: Binary Inputs]

CH1	
CH2	
CH3	
CH4	
Message	No. 5 No. 5 No. 2 No. 6 No. 2 No. 15 No. 15 No. 7 No. 1

[Time Chart: Bit Inputs]

CH1	
CH2	
CH3	
CH4	
Message	No. 1 No. 1 No. 2 No. 3 No. 2 No. 4 No. 4 No. 3 No. 1
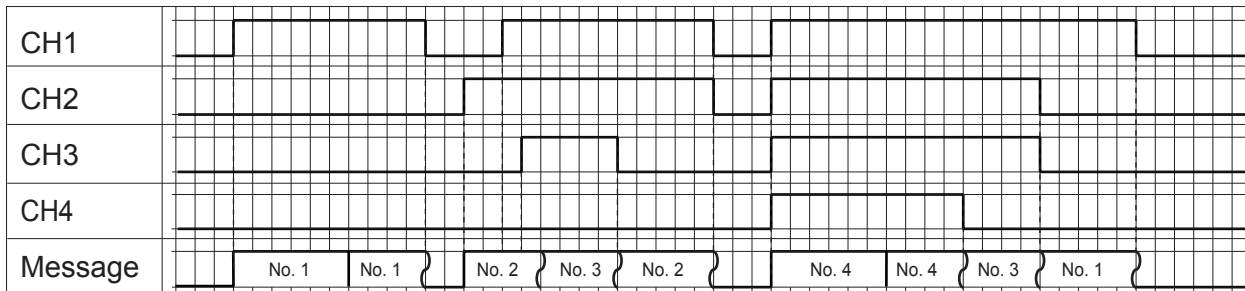
* Playback was stopped and the wavy line means the message No. corresponding to the input channel was played.

(4) Memory Playback Mode

During playback, when a channel input is entered, the message number corresponding to the input is put into memory. When the previous message playback is terminated, the message number entered afterward into the memory will be played next. After two channel inputs, any other input is ignored until the memory space is available.
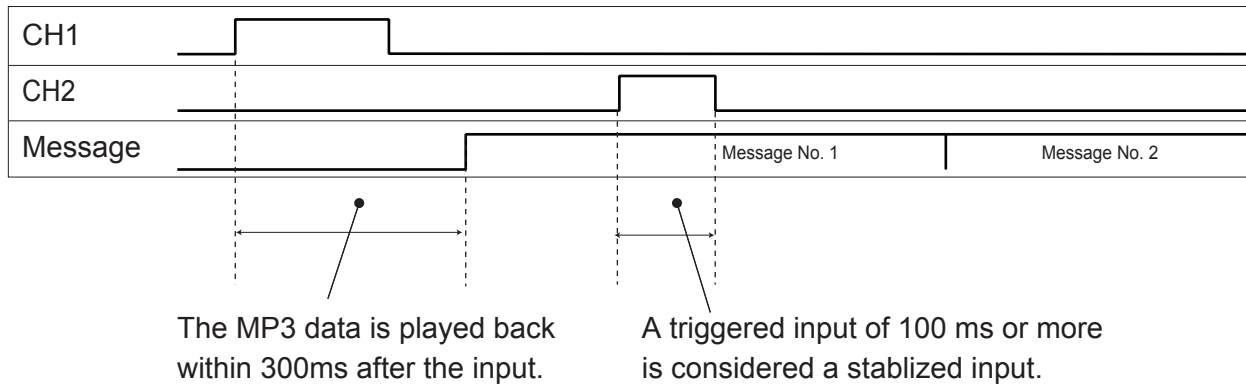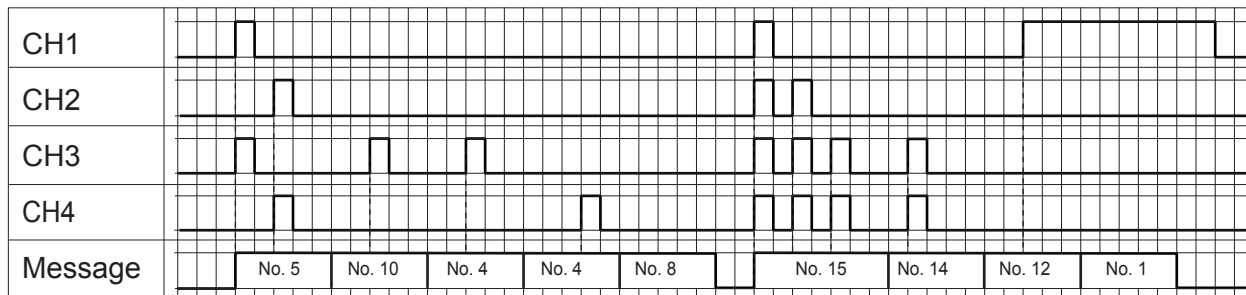
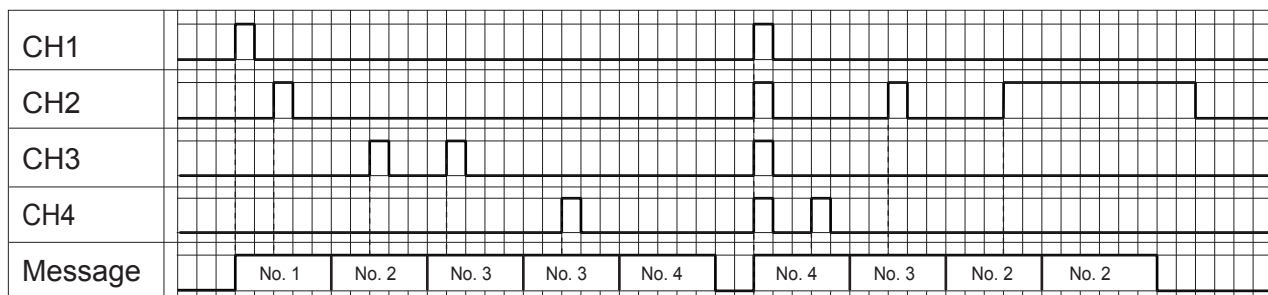• While the input is held on, the message playback will only be played once.

[Time Chart: Bit/Binary Inputs] The time chart is an example for the bit input mode.

CH1	
CH2	
Message	Message No. 1 / Message No. 2

The MP3 data is played back within 300ms after the input.

A triggered input of 100 ms or more is considered a stablized input.

[Time Chart: Binary Inputs]

CH1									
CH2									
CH3									
CH4									
Message	No. 5	No. 10	No. 4	No. 4	No. 8	No. 15	No. 14	No. 12	No. 1

[Time Chart: Bit Inputs]

CH1									
CH2									
CH3									
CH4									
Message	No. 1	No. 2	No. 3	No. 3	No. 4	No. 4	No. 3	No. 2	No. 2

8-2. SD Card Operation

SD cards can be used and the MP3 data and the memory inside the main unit can be used to control the operation modes.

  - The following is necessary for rewriting MP3 data.
    • The SDV-2GP type which saves the data for rewriting
      Refer to pg. 26 "11. Optional Sales Items"
      Refer to the PATLITE Playlist Editor "Help" menu for setting up the playlist and editing functions.
    • Personal computer
    • SD card reader/writer
    • Application Software (PATLITE Playlist Editor)
  * Even if the application software is not used, the data can still be created.

Note

  • When using the PATLITE Playlist Editor, even when the text file is registered, sometimes the MP3 file is not registered, therefore will not playback.
    (Refer to the PATLITE Playlist Editor Help Menu in the software)

8-2-1　Operating Mode Configuration File

The file for choosing the operational mode can be created and it can be changed into arbitrary operational modes just by rewriting.
Please refer back to pg. 15 "8-1. Operation Modes"

The operating mode configuration file can be created by using the file name of a text file as indicated below.

MODE - A 10 .txt

Please write the alphabet which shows operational mode with a half-width alphabetic character. The range is from A through H.
Refer to pg. 15 "8-1. Operation Modes"

The entered value, in double digits, sets the sound reduction in the range from 00 to 50.
When "00" or no numbers are written, the sound reduction function becomes invalid.
Refer to pg. 14 "7-2. Sound Reduction Function"

Example 1)
  MODE-C.txt -- Configuration file is set for the bit input hold playback mode (sound reduction function is deactivated)
Example 2)
  MODE-H05.txt -- Configuration file is set for the binary input memory playback mode (sound reduction function is activated for a -5 dB reduction)

* Since the sound pressure changes with the surrounding environment, there is no guarantee the change in the sound reduction value will make any noticeable difference.

* The file names can use both capital and small letters.

* The contents of text file is Unnecessary because text file for setting is used the File Name only.

8-2-2　MP3 Data

There are two ways to rewrite MP3 data. Please refer to the following considerations when selecting the creation method for data.
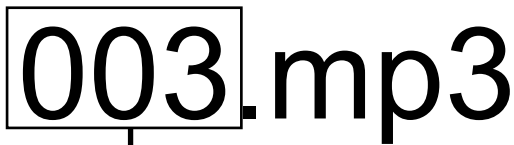
1.　When using the application software
　　Uses the application software to create a playlist file, then creates a playlist file to run with the MP3 data.

2.　When not using the application software
　　A file can be created out of the MP3 data without the application software. A maximum of 15 selections can be set up.

Please refer to the following table for the difference between the two methods when considering whether the application software will be used.

Table1　Comparison Chart for the PATLITE Playlist Editor vs. MP3 Data application

Item	When to use it	When not to use it
Every MP3 data message is played	A maximum of 16 selections can be set up (It is combined freely and can playback in order)	Only one selection can be set up
Individual MP3 data settings are made	The volume, interval and number of times repeated can be designated.	Setup is not possible

Refer to the following diagram and examples on how to create the MP3 data file

003.mp3

Enter the message number in three digits from the range of 001 to 015

Example 1)
　003.mp3 -- MP3 data which can be assigned to message No.3

Example 2)
　013.mp3 -- MP3 data which can be assigned to message No.13

* The file names can use both capital and small letters.

8-2-3 File Arrangement

Refer to pg. 21 "8-2-1   Operating Mode Configuration File" and pg. 22 "8-2-2   MP3 Data"
Data rewriting preparation is completed by sorting and arranging files in the SD card.
Moreover, the operational mode configuration files and MP3 data files can be individually rewritten. In that case, please arrange only one file to rewrite among the following data.
When using either the application software with the file, or not using it, if in the case it is intermingled, the file using the application will take priority when read.

(1) When application software is used:

DATA

001.mp3

playlist.slp
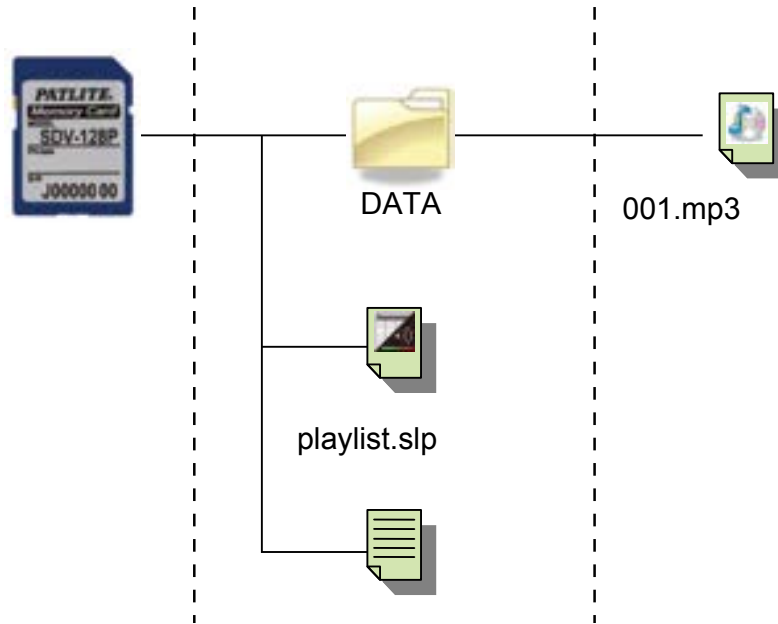
* Please do not change the MP3 data file name when setting it up from the application software.

(2) When application software is not used:

001.mp3

MODE-00.txt

- 23 -
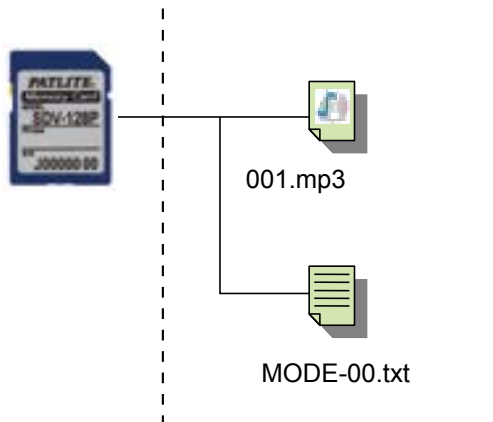
8-2-4 Rewriting procedure for setting MP3 data and Operation Mode

(1) Place the product into its standby condition (having no playback or signal inputs).

(2) Insert the SD card with the rewritten and saved data into the SD card slot.
Refer to pg. 21 "8-2. SD Card Operation" for rewriting and saving the data.

(3) Rewriting will start when the SD card is inserted into the SD card slot.
- When rewriting starts, a short beep sound will be heard to indicate rewriting has started. When a long beep sound is heard, it indicates the rewriting sequence is complete and the SD Card can be removed from the slot, and when there is an error, the alarm will sound in combination with the contents of the error.
(Refer to pg. 25 "9. Error Table")
- The data rewriting procedure should take a maximum of 60 seconds.
- If the power is turned off, or the SD card is extracted during data rewriting, the rewriting procedure will not be completed. In this case, please start over to rewrite again.
- When rewriting, all previous saved MP3 data will be erased.

(4) After the MP3 data rewrite sequence has been completed, check that the data has been rewritten properly.
- When MP3 data playback is not normal
Please create data after formatting the SD card for FAT16.
Please check whether any ID tags are attached. A tag may cause playback malfunctions.
Depending on the MP3 player, there is that the ID tag is added automatically.

Please

The optional SDV-2GP type should be used for the SD card. The use of other SD Cards is not guaranteed by PATLITE.

Format the SD card using the FAT16 protocol. The SD card cannot be recognized if it is formatted in any form other than FAT16.


Note

[Formatting the SD card]
Please open the "My Computer" file in the personal computer, right-click the drive containing the SD card, and choose "format." The type of format used should be either FAT or FAT16.
* Caution: The execution of a format will eliminate all the data in the SD Card.

When the slide switch is in the position indicated in the drawing to the right, it is in the protect condition. Move the swith in the direction of the arrows to change from "Protect" to "Release"

Release

Protect
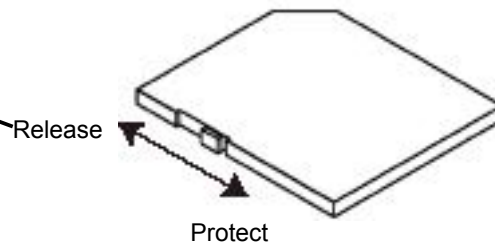
9. Error Table

When an error has occurred, an alarm will sound. Refer to the following table for troubleshooting and its solution.

- The type of alarm changes in conjunction with the type of error.

  * The alarm sound is not audible if the volume is not at a nominal level.

  * Even after the items below do not solve the problem, refer to the last page for assistance from your PATLITE Sales Representative.

Error Sound	Error Name	Solution
Four short beeps (Short Beep x4)	Hardware Error	• The SD Card is not pushed all the way into the socket, or there is a loose connection. Try re-inserting the SD Card. • The contents on the SD Card is not readable. The SD card may be formated for something other than FAT16. Reformat the SD card for FAT16 and reload the message data.
Three long beeps (Beep x3)	MP3 Data Related Error	• The playlist file on the SD card may be corrupted. Rewrite the data again, then re-insert the card into the product. • The MP3 data may not be in the data folder to be registered for the playlist file. Confirm the MP3 data is on the SD card before re-inserting it. • The MP3 data capacity may have exceeded the memory capacity of the product. rewrite the data and verify the capacity does not exceed the specifications.
Three short bursts (Short-burst beep x3)	Operating Mode Data Error	• The operating mode configuration file may be written incorrectly. Verify the file name before re-inserting it into the product.

10. Binary Input Table

Voice Message \ Terminal CH	CH1	CH2	CH3	CH4
No. 1	●			
No. 2		●		
No. 3	●	●		
No. 4			●	
No. 5	●		●	
No. 6		●	●	
No. 7	●	●	●	
No. 8				●
No. 9	●			●
No. 10		●		●
No. 11	●	●		●
No. 12			●	●
No. 13	●		●	●
No. 14		●	●	●
No. 15	●	●	●	●

The "●" mark indicates a COM to channel (CH) terminal contact.

11. Optional Sales Items

1. SD Card (MP3 Voice Message Upload)
   Model SDV-2GP

12. Replacement Parts

Part Name
Front Cover- Off-white
Front Cover- Dark Grey
Front Cover- Silver
Mounting Screw (2 O-rings included)

Parts available to customers for replacement, or repair.

13. Before Requesting Repair

Problem	Where to Check
No Sound Coming out of Speaker	• Make sure the polarity and rated voltage for the wiring is correct. (Refer to pg. 11 "6. Wiring") • Make sure the signal input wiring connections are correct. (Refer to pg. 11 "6. Wiring") • Double check the volume. (Refer to pg. 13 "7-1. Volume Adjustment") • Check that the proper operating mode is written into the product. (Refer to pg. 15 "8-1. Operation Modes") • Verify the SD card contents. (Refer to pg. 21 "8-2. SD Card Operation")
A different channel plays back	• Make sure the input wiring connections are correct. (Refer to pg. 11 "6. Wiring") • Make sure the input signals are correct. (Refer to pg. 15 "8. Various Functions and Playback Methods" or, pg. 25 "10. Binary Input Table") • Double check the data in the SD card. (Refer to pg. 21 "8-2-1 Operating Mode Configuration File")
The sound is low	• Check whether the sound reduction is active and the inputs are on or not. (Refer to pg. 14 "7-2. Sound Reduction Function") • Double check the volume. (Refer to pg. 13 "7-1. Volume Adjustment") • Check the sound level of the MP3 data and refer to the MP3 editing software document before editing.
Cannot rewrite the voice message	• Make sure the contents in the SD card are correct. (Refer to pg. 15 "8-1. Operation Modes") • Make sure the data size did not exceed 508KB. (Refer to pg. 28 "14-2. Performance Specifications") • Make sure the format for the SD card is FAT16. (Refer to pg. 24 "8-2-4 Rewriting procedure for setting MP3 data and Operation Mode") • Make sure the write protect to the SD card is disabled. (Refer to pg. 24 "8-2-4 Rewriting procedure for setting MP3 data and Operation Mode")
The sound reduction function doesn't operate	• Check whether the contents of the SD card is correct. (Refer to pg 14 "7-2. Sound Reduction Function") • Check whether the SD card is formatted for FAT16. (Refer to pg. 24 "8-2-4 Rewriting procedure for setting MP3 data and Operation Mode") • Check whether the operating mode configuration file is correct. (Refer to pg. 21 "8-2-1 Operating Mode Configuration File")
The Operating Mode doesn't operate at the mode it was set for.	• Check whether the operating mode configuration file is correct. Refer to pg. 21 "8-2-1 Operating Mode Configuration File".
The SD card is not being read	• Make sure the SD Card is from PATLITE. (Other SD Card's compatability is not guaranteed.) • Make sure the write protect to the SD card is diabled. (Refer to pg. 24 "8-2-4 Rewriting procedure for setting MP3 data and Operation Mode")
MP3 data is not being played back correctly	• Check the bit rate and sampling frequency of the MP3 data. (Refer to pg. 28 "14-2. Performance Specifications") • Check whether MP3 tags were attached to the MP3 data. (Refer to pg. 28 "14-2. Performance Specifications")

Even after proper connections and settings are performed, if the product does not operate properly, please see the information on the last page of this document to contact your PATLITE Sales Representative.

14. Specifications

14-1. General Specifications

Model Name	BSV-24 □□ - □		
Rated Voltage	12 to 24VDC		
Operating Voltage Range	10.8 to 26.4VDC		
Power Consumption	Max. 3.5W (Test Conditions: DC24V, Max. Vol., Ch 1 to 4 on, 1kHz sine wave at -6dB)		
Operating Temperature Range	-10°C to +50°C		
Storage Temperature Range	-20°C to +60°C		
Relative Humidity	85% RH or less (No Condensation)		
Protection Rating	Panel Mount	IP54 (Upright Direction Only)	
	Wall Mount	IP20	
Insulation Resistance	More than 1MΩ at 500V DC between the terminals and chassis		
Withstanding Voltage	500VAC applied for 1 minute between terminals and chassis without breaking insulation		
Inrush Current Rating	Maximum of 7A		
Vibration Resistance	70m/s^{2} at 30Hz in the X, Y and Z directions for 2 hours each		
Mass (Tolerance: 10%)	100g		
Standards, Conformities	RoHS Directive (EN50591) EMC Conformity (EN61000-6-4, EN61000-6-2) Complies to FCC CFR Title 47 Part 15 Subpart B		

14-2. Performance Specifications

Sound Pressure Level	No more than 87 dB (Panel Mount)		No more than 85 dB (Wall Mount)	
	Measurement Conditions: The product is attached to the center of a 300mm by 300mm board with a 1kHz sinusoidal wave played back at -6dB, and the decibel meter is set 1 meter away from the front of the product.			
	* The sound pressure level will vary with the surrounding environment and message contents.			
Volume Control	Volume Adjustment: Minimum to Maximum			
	Sound Reduction Function: -1dB to -50dB (CH4 is designated as the sound reduction input)			
Number of Playback Messages	Bit Input: 4 (3) / Binary Input: 15 (7)			
	* The brackets indicate channels available when the sound reduction function is activated.			
Initial Registered Data	The following alarm data is loaded when no set messages are ordered			

No. 1	Chime	No. 2	Beep	No. 3	Stutter	No. 4	Bell	No. 5	Yelp
No. 6	Rapid Hi Lo	No. 7	Melody Chime	No. 8	Synthesized Piano	No. 9	Synthesized Bell	No. 10	Stutter + Bell
No. 11	Synthesized Melody	No. 12	Call Sign	No. 13	Inverted Reveille	No. 14	Galactic Motor	No. 15	Two Tone

	* All MP3 registered messages for the BSV-24 □ M- □ will be erased if written over.
Audio File	MPEG1-Audio Layer III (MP3)
Bit Rate	32kbit/s and 64kbit/s (Standard): Fs=44.1kHz
Maximum Playback Time	Total of 63 seconds (at the standard bit rate of 64kbit/s)
Audio Startup Time	About 300ms (After a signal input or when the power supply is activated)
Internal Memory Size	508 KB (MP3 data sum total)
Compatible Memory Card	SD Card Recommended Part: SDV-2GP (Sold Separate)
SD Card Format	FAT16
Application Software	Patlite Playlist Editor
Mode Change	Selectable for a file name with an empty text file.

14-3. Signal Input Specifications

Item	Specification	
	BSV-24N	BSV-24P
Input Method	Pulse Input (Pulse Width: 100msec or more, excluding the hold input mode)	
Channel Priority	CH4 > CH3 > CH2 > CH1 (except for the binary input mode)	
Signal Input Voltage	N/A	12 to 24VDC
Open Circuit Voltage	Same as Input Voltage	N/A
Input Current	5mA±1mA (power supply/input voltage at 12VDC)	
	10mA±1mA (supply voltage at 24VDC)	
Relay Input (Circuit Diagram)	Non-voltage Contact Input	Voltage Contact Input
Transistor Input (Circuit Diagram)	NPN Transistor Circuit	PNP Transistor Circuit

- **Due to changes, improvements, etc., the contents of this manual may change without advance notice.**