

Voice Synthesized Horn Speaker and Rotating Light

Instruction Manual

TYPE : RT-VF

Thank you very much for purchasing our PATLITE product. Please read these instructions carefully before installation, maintenance and repair. Store this manual in a safe place for future reference. If you have any questions regarding this product, please contact our PATLITE Sales Representatives.

Notice for Safe Operation

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 imminently 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 to slight injury or property damage.

PLEASE Indicates something to observe before using this product. The disregard to this indication may lead to product malfunction or failure.

NOTE Notice regarding supplementary information or convenient explanation is indicated.

1. To operate this product properly, observe the following:

Warning

- Be sure the power is disconnected before wiring or installing this product. Possibility of electric shock may occur.
- Do not disassemble or modify this product. Possibility of fire or electric shock may occur. If repair is needed, refer to [8. Before Requesting Repair]. 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. Possible miswiring can cause product failure or fire.
- Be sure to stay within the operating voltage range. Possibility of fire, failure or malfunction may occur.
- Request the installation and wiring be accompanied by a professional contractor. Possibility of fire, electric shock or falling from high places may result.

Caution

- To protect the power supply and other internal circuitry, be sure to connect an external fuse.
- Do not use bulbs other than the type specified in [9. Specifications] or what is indicated on the name plate. Possibility of failure or product damage due to fire may occur.
- Do not operate with the globe removed. Possible burns from the heat of the bulb or injury from the mirror may occur.

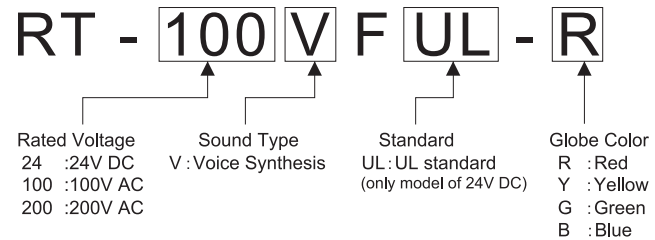
Contrary to Warnings and Cautions indicated by this document, product failure due to mishandling, disassembly, modifications or natural disasters, etc. is not covered by any Warranty. Moreover, avoid any applications outside those indicated in this document.

PLEASE

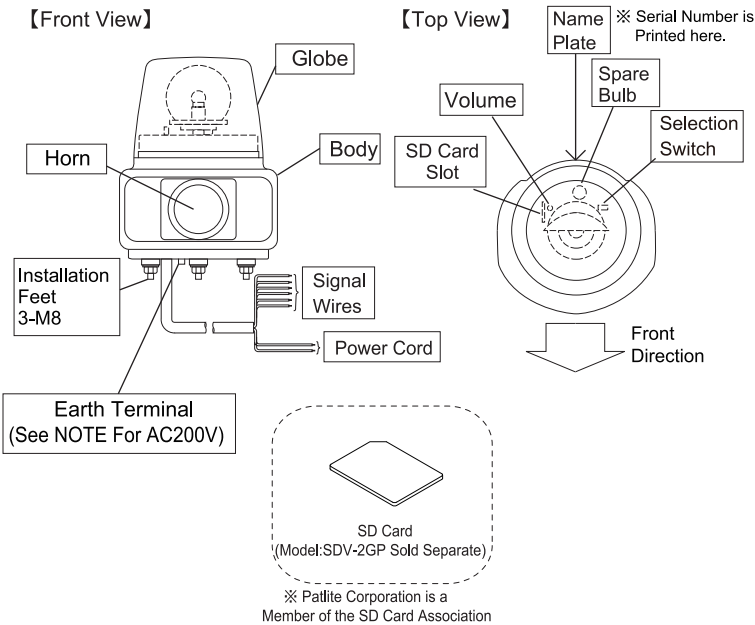
- Do not use in an environment exposing strong radio waves or inductance noise. Noise may be induced from the speaker horn causing malfunction or failure.
- Do not use in an environment where corrosive gas is present. Possible cause of failure may occur.
- To prevent damage from static electricity, touch 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.
- 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.
- Do not operate with the globe removed or broken. Water or dust entering the product may cause damage.

- 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. When using a work that was recorded or copied from music CDs or other media, be sure to obtain permission from the author. In addition, copyright of audio/music data distributed or sold by PATLITE Corporation belongs to PATLITE. It is strictly prohibited to copy/reprint whole or partial contents of audio/music data belonging to PATLITE Corporation, or to transfer/sell such material on computer networks etc., without permission of the rightful holder.

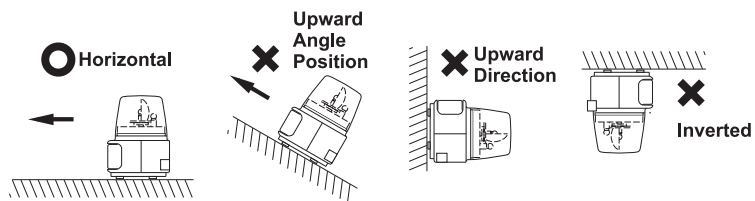
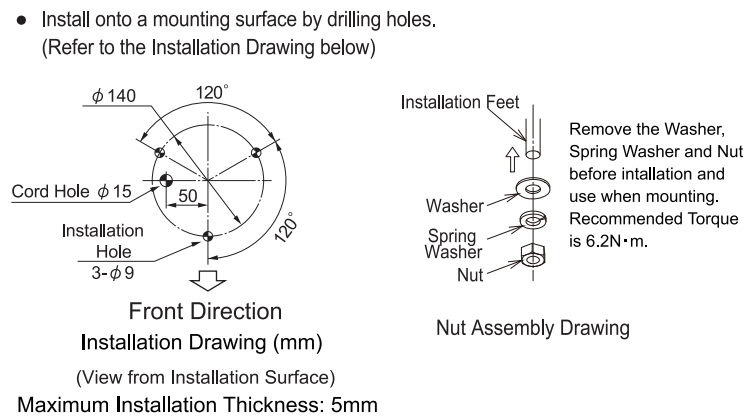
2. Model Number Configuration



3. Part Names



4. Installation



Warning

- Be sure the power is disconnected before wiring or installing this product. Possibility of electric shock may occur.
- Request the installation and wiring be accompanied by a professional contractor. Possibility of fire, electric shock or falling from high places may result.

Caution

- Ensure the installation surface is sufficient enough to handle the weight of the product.

PLEASE

- When installing in high places, choose a location which is accessible by a scaffold, ladder, etc., for repairs.
- 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 attach with the speaker horn in an upward angle. Water and dust can enter and cause failure.
- Do not install the product in an inverted or upright position.
- Do not pull the wires while wiring, or push it into the main body.
- Perform a periodic maintenance check, tightening screws, bolts, etc., to prevent the product from falling if installed in a place where vibration occurs.

NOTE

- Depending on the material quality and thickness of installation surface and volume, the product may resonate and cause an oscillating sound.
- The lifespan of the bulb will be shortened if installed in a location of intense vibrations.

5. Wiring

When wiring to external contacts, use non-voltage contacts such as relays or switches, or open collector circuits (NPN). Refer to the following circuit diagrams for circuit wiring configurations.

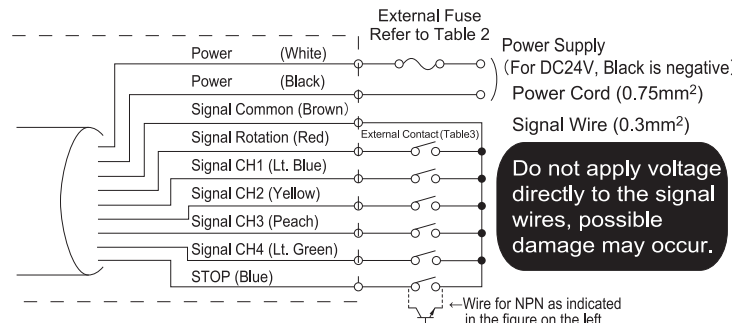


Table1. Signal Wire Circuit Diagram

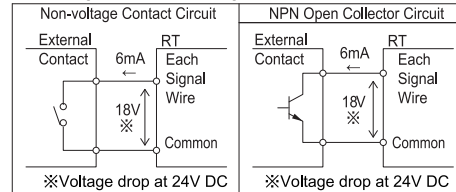


Table 2. Inrush Current/Fuse ※1

Model	Inrush Current	Fuse
RT-24VF/24VFUL	Max. 10A /20ms	250V 2A
RT-100VF	Max. 5.0A /20ms	250V 0.5A
RT-200VF	Max. 2.5A /20ms	250V 0.5A

Table 3. Signal Wire Contact Capacity

Withstanding Voltage	No more than 27V DC
Voltage Capacity	No more than 10 mA
Leakage Current	No more than 0.1 mA
ON Voltage(V _{sat})	1V or less

NOTE

※ For AC200V
Remove the M4 grounding terminal screw at the bottom of the product. Crimp an "O" terminal connector to the ground wire. Reconnect the ground terminal to its original position after checking the crimp connection. The recommended gauge for the earth wire is AWG 16. For wire gauge larger than AWG 16, please purchase additional connectors etc. It is recommended to use a crimping tool that corresponds to the crimp terminal being used.

Warning

- Ensure the power has been disconnected. Possible electric shock may occur.
- Ensure the wiring is correct before connecting the power. Miswiring may result in failure or product damage.

Caution

- To protect the power supply and other internal circuitry, be sure to connect an external fuse.

PLEASE

- Check for proper wiring before switching on the power supply.
 - To take countermeasure steps against noise, shorten the wiring as much as possible, and it is recommended to use shielded wire. Moreover, if a high-voltage line is in close proximity to the wiring where it is easy to intercept noise, it may influence signal inputs and possibility cause product malfunction.
 - When you control two or more products simultaneously, use independent contacts.
- *1 When using non-voltage contacts, such as relays, include the inrush current value. If the capacity is not enough, it will cause arcing, pitting or other malfunctions to the contacts.

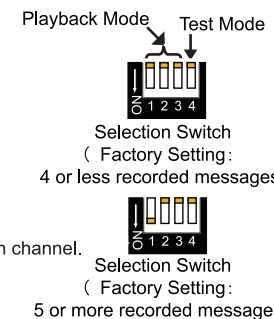
6. How to Operate

6-1. Playback Mode Selection

Nine Modes are possible with the selection switch

6-1-1 Playback Mode Selection Procedure

- Select the switch according to the desired mode.
- Re-insert the power supply.
- Verify the selected playback mode by playing each channel.



PLEASE

- Use tweezers, small flat-head driver, etc., to change the selection switch.
- Do not force the selection switch when changing it. The selection switch is delicate and easily breakable.
- Do not short-circuit the signal wire to ground in the TEST mode.

Playback Mode (Operation Mode Switch Settings)

Mode	Bit Input Mode	Binary Input Mode	Bit Input Sound Reduction Mode	Binary Input Sound Reduction Mode	Bit Input Interrupt Playback Mode	Binary Input Interrupt Playback Mode	Bit Input Hold Playback Mode	Binary Input Hold Playback Mode	Test Mode
ON1 2 3 4	A maximum of 4 messages can be used from CH1 toCH4	A maximum of 15 messages can be used from CH1 toCH4	A maximum of 3 messages can be used from CH1 toCH3. When an input is applied to CH4, the volume decrease by 20dB	A maximum of 7 messages can be used from CH1 toCH3. When an input is applied to CH4, the volume decrease by 20dB	A maximum of 4 messages can be used from CH1 toCH4. If an input is applied while a message is in playback, the message playing will stop and resume after the interrupted message ends.	A maximum of 15 messages can be used from CH1 toCH4. If an input is applied while a message is in playback, the message playing will stop and resume after the interrupted message ends.	A maximum of 4 messages can be used from CH1 toCH4. While the input is held on, the message will playback. When the input is released, the message playback will stop.	A maximum of 15 messages can be used from CH1 toCH4. While the input is held on, the message will playback. When the input is released, the message playback will stop.	Message number 1 will playback (selection switches1 to 3 will have no effect). To end the test mode, set switch 4 back to the "OFF" position.

Refer to [6-5. Message Playback Method] for a detailed explanation of operation.

6-2. Recording Message

By using our PATLITE Playlist Editor (download from our homepage is possible without extra charge), an SD card (Model: SDV-2GP sold separately), and an MP3 sound editing tool, the message can be rewritten. The maximum playback time for this product is 63 seconds (at a rate of 64kbit/s, Fs=44.1kHz and internal memory size of 504Kb). Refer to the "Help" section of the corresponding software for the procedure to create the MP3 Data and storing it onto an SD Card.

6-2-1 Message Registration Procedure

- Turn the globe counterclockwise to remove it.
- Turn the product on.
- Insert the SD card containing the stored messages into the slot, and a beeping sound will indicate the data is being registered.
- * Cautionary Note: The message registration cannot be performed during playback. Even if the power is turned on after the SD card has been inserted, the message registration will start.
- Once the data registration is complete, the product will indicate completion with a short beep and the SD card can be extracted.
- * Rewriting should be completed within 60 seconds. If an indication of long beeps are sounded, or no indication whatsoever occurs, it is an indication of an error while registering the data. Refer to "[8. Before Requesting Repair]" for troubleshooting. Also, verify the volume is not at a minimum level when the beeping sounds cannot be heard.
- Playback the messages for each channel to check that the rewriting was done properly.

PLEASE

- Optional SDV-2GP type should be used for the SD card. Using other SD cards is not guaranteed for proper operation.
- When formatting an SD card, please use the FAT16 format.
- Depending on formatting conditions, there is a possibility that the data stored in the SD card cannot be read if the format is not supported by this product. To avoid formatting issues, please make sure that your OS is compatible with FAT16 formatting, or that you use the formatting tool that is provided by the SD Association (link below).
<https://www.sdcard.org/downloads/formatter/index.html>
(Note: formatting tool requires administrative rights)
- To prevent the possibility of damage to the product or SD card, please beware of the following.
 - When inserting the SD card in the card slot, be careful of the direction of the SD card.
 - Do not forcibly insert the SD card into the card slot.
 - Do not operate the product with the SD card inserted.
 - Avoid any foreign substances from entering the card slot.

6-3. Volume Adjustment

The sound level is adjustable by the volume control.

- Remove the globe by turning counterclockwise. (Refer to [6-2. Recording Message])
- Turning the built-in volume clockwise will increase the volume.



PLEASE

- Turn the volume lightly, a torque over 0.3N·m can damage the volume control.

NOTE

- As the sound increases, the possibility of distortion may also occur.
- Due to environmental conditions and tolerances, the volume may not be at zero sound level.

6-4. Rotating Light Operation

Short the rotating light wire to common for the rotating light to operate.

6-5. Message Playback

Turn the product on and when the signal line to common is short-circuited, a message will playback.

- Short the signal wire to common for 100ms or more (pulse input) to play back a message once.
 - When controlling this product via the power supply, start-up time is at least 0.5 seconds.
 - The STOP input and CH input timing for message playback is common to all modes. Please refer to the following table for operation.
 - When two or more signal wires are simultaneously short-circuited to the common line for bit input, the larger number of the channels is played back.
- Input priority: STOP>CH4>CH3>CH2>CH1

Input Timing (Bit)	Input Timing (Binary)	Input Timing (STOP)
Other channel inputs are not received until the played back message finishes. (Priority input mode and test mode are the exception)	Input a binary channel within 5 ms, and hold it for 100 ms or more. Binary channel inputs are not received until the end of the played back message. (Priority input mode and test mode are the exception)	A STOP input is received at any time. (Test Mode is an exception)

NOTE

- Although a pop noise may occur when the playback is controlled via the power supply or playback start and finish, it is not an indication of failure.
- Even when starting two or more units simultaneously, a lag will occur during message playback.

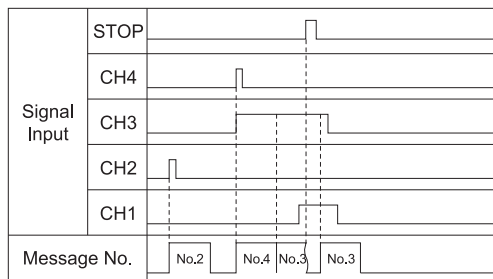
6-5-1. Bit Input Mode

(Selection Switch : ON1 2 3 4)

If the signal wires from CH1 to 4 are short-circuited to common, the message of the selected channel will play back.

- Any input other than STOP will not be received during message playback.

Signal Input Timing Chart (Bit Input)



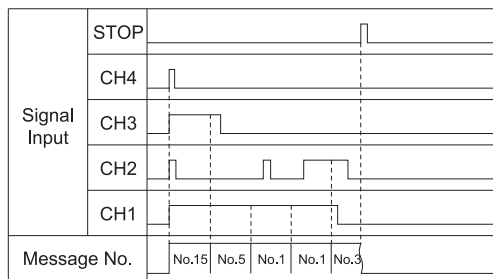
6-5-2. Binary Input Mode

(Selection Switch : ON1 2 3 4)

If the signal wires from CH1 to 4 are short-circuited to common, the message corresponding to the binary input conversion table will be played back. (Refer to the binary input conversion table)

- Any input other than STOP will not be received during message playback.

Signal Input Timing Chart (Binary Input)



Binary Input Table

Message No.	CH1	CH2	CH3	CH4	Message No.	CH1	CH2	CH3	CH4
1	1	0	0	0	9	1	0	0	1
2	0	1	0	0	10	0	1	0	1
3	1	1	0	0	11	1	1	0	1
4	0	0	1	0	12	0	0	1	1
5	1	0	1	0	13	1	0	1	1
6	0	1	1	0	14	0	1	1	1
7	1	1	1	0	15	1	1	1	1
8	0	0	0	1					

※ A "1" in the table refers to the short-circuit of the signal line to the common line.

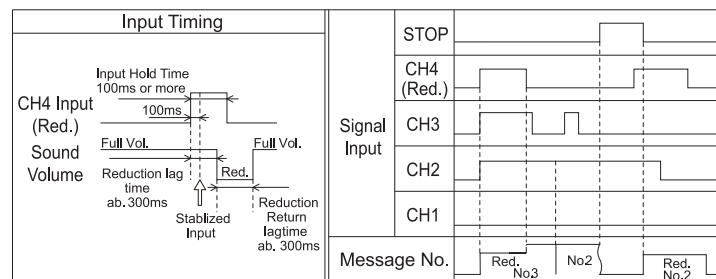
6-5-3. Bit Input Sound Reduction Mode

(Selection Switch : ON1 2 3 4)

Channel 1 to 3 corresponds to a bit input. Channel 4 corresponds to a 20dB sound reduction of the message.

- Channel 4 is not a priority in this mode.
- Any input other than STOP or sound reduction will not be received during message playback.

Signal Input Timing Chart (Bit Input Sound Reduction)



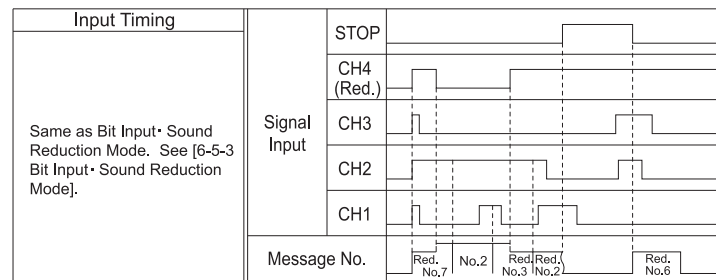
6-5-4. Binary Input Sound Reduction Mode

(Selection Switch : ON1 2 3 4)

Channel 1 to 3 corresponds to a binary input. Channel 4 corresponds to a 20dB sound reduction of the message.

- Any input other than STOP or sound reduction will not be received during message playback.

Signal Input Timing Chart (Binary Input • Sound Reduction)



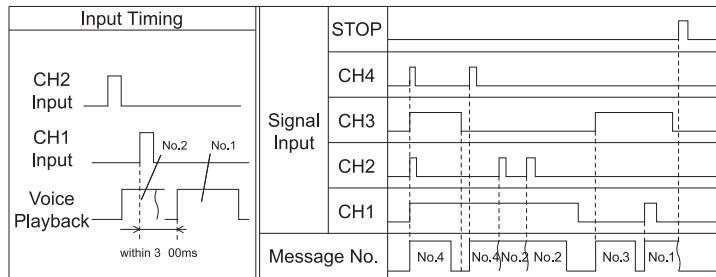
6-5-5. Bit Input Interrupt Playback Mode

(Selection Switch : ON1 2 3 4)

When the signal wires from channels 1 to 4 for a bit input are entered and the next input is during message playback, the message under playback is interrupted for the next message to playback, and resumes after the next message ends.

- Even if the input is held on, the message playback is only reproduced once.

Signal Input Timing Chart (Bit Input Interrupt Playback)



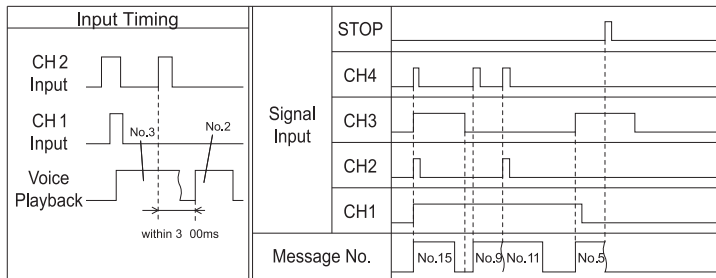
6-5-6. Binary Input Interrupt Playback Mode

(Selection Switch : ON1 2 3 4)

When the signal wires from channels 1 to 4 for a binary input are entered and the next input is during message playback, the message under playback is interrupted for the next message to playback, and resumes after the next message ends.

- Even if the input is held on, the message playback is only reproduced once.

Signal Input Timing Chart (Binary Input Interrupt Playback)

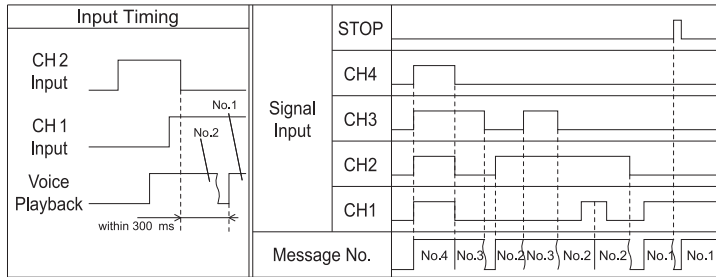


6-5-7. Bit Input Hold Playback Mode

(Selection Switch : ON1 2 3 4)

If the signal wires from CH1 to 4 are held down to common, a message is played while holding. Playback will be stopped if an input is lost.

Signal Input Timing Chart (Bit Input Hold Playback)

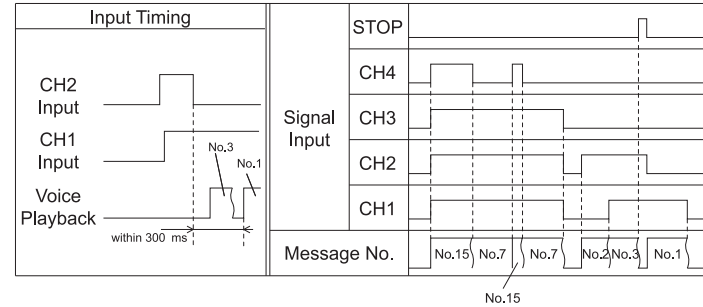


6-5-8. Binary InputHold Playback Mode

(Selection Switch : ON1 2 3 4)

If the signal wires from CH1 to 4 are held down to common, a message is played while holding. Playback will stop when an input is lost.

Signal Input Timing Chart (Binary Input • Hold Playback)



6-5-9. Test Playback Mode

(Selection Switch : ON1 2 3 4)

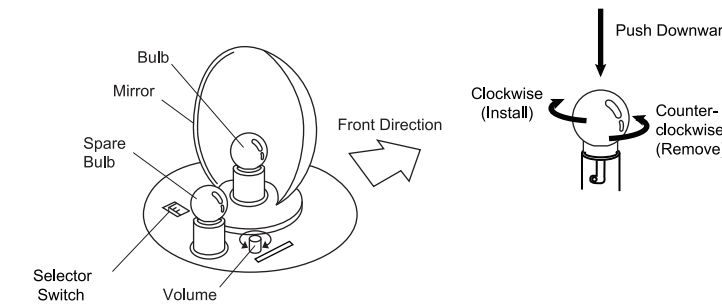
Message from CH1 continues being played back. Any other CH inputs are ignored during test playback.

- Use the "Test Playback Mode" when checking the operation or adjusting the volume.
- To operate in the "Test Playback Mode", select the "Operation Mode Switch" to any mode from "I" to "P".
- Because the "Test Playback Mode" automatically resets the "Operation Mode" to 'A', reboot the product after exiting the "Test Playback Mode" in order for the new settings to take effect.

7. Bulb Replacement

When the bulb is burned out, use the following steps to replace it with the spare bulb.

- Turn power "OFF".
- Remove the Globe. (Refer to [6-2. Recording Message])
- Push the bulb down and turn counterclockwise to remove it.
- Push the new bulb down and turn clockwise to install it.
- Place the globe back on, ensuring it is sealed tight.



Caution

- Before changing the bulb, be sure to disconnect the power. Possible short circuiting may occur.
- Remove the bulb after it has plenty of time to cool down. Handling while hot may inflict burns.
- Do not use bulbs other than what is specified in [9. Specifications] or what is indicated on the Name Plate located on the product. Possible damage, failure or fire may occur.

8. Before Requesting Repair

Problem	Where to Check	What to do
No Sound	Is there power supplied?	Double check the wiring. (5. Wiring)
	Is the signal line to common line short-circuited correctly?	
	Is the STOP input on?	
Different Channel Plays Back	Is the volume turned down to minimum?	Adjust the volume. (6-3. Volume Control)
	Is the signal line to common line short-circuited correctly?	Double check the wiring. (5. Wiring)
Cannot Record Message	Is the selection mode switch set correctly?	Double check the Selection Switch. (6-1. Playback Mode Selection)
	Is there power supplied?	Double check the wiring. (5. Wiring)
	Is the playlist created on the SD card?	
	Is the file name and contents of the playlist folder right?	Double check the contents of the SD Card Playlist and Data Folder. (Patlite Playlist Editor Help File.)
	Is the data storage location correct?	Double check the SD Card. (6-2. Recording Message)
	Is the SD card an option product from our company?	
	Is the SD card inserted correctly?	Double check the Selection Switch. (6-1. Playback Mode Selection)
Is the selection switch position 4 set to ON (test reproduction mode) during playback?		
Rotating Light Doesn't Work	Is there power supplied?	Double check the wiring. (5. Wiring)
	Is the signal line to common line short-circuited correctly?	

9. Specifications

Model Name	RT-24VF	RT-100VF	RT-200VF	RT-24VFUL
Rated Voltage	DC 24V	AC 100V (50/60Hz)	AC 200V (50/60Hz)	DC 24V
Operating Voltage Range	DC 21 - 27V	AC 90 - 110V	AC 180 - 240V	DC 21 - 27V
Consumption Current	24W ± 25%	32W ± 20%	30W ± 20%	24W ± 25%
Rotating Speed	115 ± 30rpm	105 ± 30rpm	95 ± 30rpm	115 ± 30rpm
Bulb Type	24V 20W		12V 15W	24V 20W
Sound Pressure Level	Maximum Volume 105dB : Placed on a 300mm* base at a distance of 1 meter with a 1kHz sine wave at a -6dB input. Volume Adjustable. ※Sound level of message will vary with the surrounding environment.			
Sound Reduction Function	-20dB ± 2dB drop at maximum volume with a 1kHz sine wave signal input at -6dB.			
Audio File	MPEG1 - Audio Layer III (MP3) Standard Bit Rate : 64kb/s, Sample Frequency (Fs)=44.1kHz			
File Format	FAT16			
Internal Memory Size	504kB (Total MP3 Data)/Maximum Playback time: 63 sec (at standard bit rate of 64kb/s)			
Signal Input Method	Bit/Binary Input (Dependent Upon Selection Switch Input)			
Start-up Delay	No less than 300ms (no less than 500ms when Power is controlled)			
Number of Playback Messages	Bit Input : 4 / Binary Input : 15			
Operating Temperature Range	-10°C to +50°C			
Relative Humidity	No more than 85% RH (No Condensation)			
Mounting Location	Indoor and Outdoor Use		Indoor Use Only	
Protection Rating	IP 23			
Insulation Resistance	1MΩ or more (at DC 500V) between conductive and non-conductive metal parts.			
Withstanding Voltage	AC 500V for 1 minute	AC 1000V for 1 minute	AC 1500V for 1 minute	AC 500V for 1 minute
Vibration Resistance	19.6m/s ² (30Hz Back and Forth: 2h • Right to Left: 2h • Up and Down: 4h)			
Mass	2.0kg ± 5%	2.4kg ± 5%	2.0kg ± 5%	

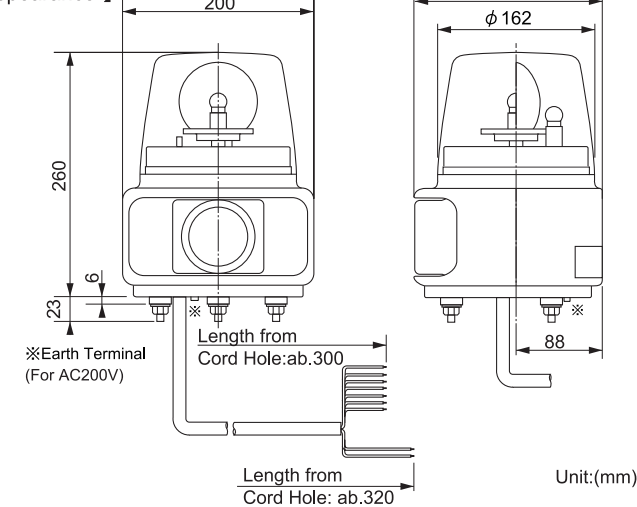
- This product conforms to EN standard and shows the CE Marking. (24V type).
- This product has been tested and found to comply with the limits for a Class A device, pursuant to EMC DIRECTIVE. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This product must not be used in residential areas.

10. Maintenance Parts

- Refer to the address and phone numbers below to contact your PATLITE Sales Representative for maintenance parts.

Part Name	Color
Globe	Red
	Yellow
	Green
	Blue
Globe Packing	
Bulb	12V 15W 24V 20W
Rotor Rubber	

【Outer Appearance】



- PATLITE Corporation disclaims all liability for any malfunction or damage occurring as a result of handling contrary to the instructions, cautions and warnings mentioned in this manual.
- Specifications may change without notice due to continual product improvement.

PATLITE Corporation G2J

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