

# Horn Type Annunciator Instruction Manual [ TYPE : EHV/EHS ]

Thank you for purchasing Patlite's horn type annunciator for your application. Prior to installation, please read through this manual for proper installation and precautionary steps. In addition, please store this manual for future reference when performing maintenance, repairs or inspections. When performing maintenance and repairs, etc., please be sure to reread this book. In addition, if there are any questions concerning this product, feel free to contact your PATLITE Sales Representative.

This book describes precautions of the product, as well as installation and wiring method, etc. For further details, please visit the PATLITE homepage (<http://www.patlite.com/>) to download the "Complete Operation Manual".

## Safety Precautions

In order to prevent any damage to the user and other personnel or to assets, note the following:

- The following symbols classifies the following precautions into two categories and explains the level of harm inflicted when caution is disregarded while using this product.

**WARNING** Displays the warning "Failure to follow warning may lead to death or severe injury".

**CAUTION** Displays the warning "Failure to follow caution may lead from light to medium injury or maylead to property loss or injury to others".

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

## 1. For safe application, observe the following:

### WARNING

- Prior to installation and wiring, ensure the power is disconnected and the Main Unit is turned off. More important, perform proper insulation of the cable connection when using for outdoor applications. Failure to comply may result in electric shock or fire.
- Be sure the wiring is correct. If an error is made in wiring, the internal circuit will be damaged and may cause a fire.
- Please be sure the power source is in the voltage tolerance when using it. Failure to comply may result in malfunction or fire.
- Do not disassemble or modify this product. Possibility of fire or electric shock may occur. Refer to the "Troubleshooting" section, or ask for technical consultation from the addresses indicated in this manual for repair, etc. of this product.
- Request the installation and wiring be performed by a professional contractor. There is a risk of an electric shock, fire, or falling.

### CAUTION

- Be sure to operate the product with the cover attached, and use the recommended torque. Failure to comply can result in water and dust entering and causing product damage. (Recommended Torque: 0.7 N·m)
- Do not install the product in a location where vibrations exceeding the specifications exist. Failure to comply may result in the prevention of the product detaching and falling, causing injury to a passer-by, etc.

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

- Connect an external fuse between the power supply circuit and the Main Unit to protect the internal circuitry.
- Do not use in an environment exposed to strong radio waves or inductance noise. Failure to comply will result in malfunction due to the influence of noise.
- Do not use in an environment where corrosive gas is present. Possible cause of failure may occur.
- Discharge any static electricity from the body before handling static sensitive parts, such as the SD Card. 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.
- Use the recommended torque when attaching parts for installation, etc.
- Be sure not to lose parts for the cover, waterproofing ground, etc. when removing while performing work on the product.
- If this product is used for the purpose of preserving safety, please be sure to implement daily inspections and include a back-up system design which can respond at the time of emergency, in case any defect or failure may occur.

- 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 the PATLITE Corporation belongs to PATLITE. It is strictly prohibited to copy/reprint whole or partial contents of audio/music data belonging to the PATLITE Corporation, or to transfer/sell such material on computer networks, etc., without permission of the rightful holder.

Although copyright licensing in Japan for the EHS-□□□□ (Type A, C, D) and EHV-□□□□ (Type F) has been obtained at PATLITE, since the copyright licensing of countries other than Japan is not included, it is the responsibility of the customer to acquire permission, themselves. However, since copyright consent is not necessary when using the required tones for the EHS-□□□□ (Type E) and EHV-□□□□ (Type G), it can be used for countries outside of Japan.

## 2. Model Number Configuration

### ● EHV Type

E H V - M1 H F M

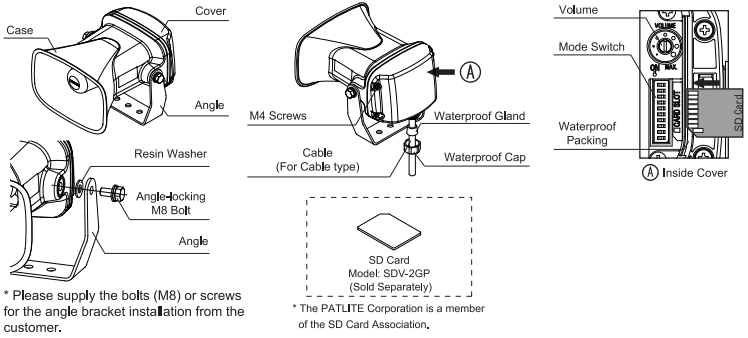
Rated Voltage	Wiring Type	Sound Type
M1 : 12-24 V DC	H : Cable	F : Type F
M2 : 100-240 V AC (50/60Hz)	T : Terminal Buss(※)	G : Type G
M3 : 12-48 V DC	※EHV-M1 and EHV-M2 Only	Blank : None
		M : Pre-recorded

### ● EHS Type

E H S - M1 H A

Rated Voltage	Wiring Type	Sound Type
M1 : 12-24 V DC	H : Cable	A : Type A
M2 : 100-240 V AC (50/60Hz)	T : Terminal Buss(※)	C : Type C
M3 : 12-48 V DC	※EHS-M1 and EHS-M2 Only	D : Type D
		E : Type E

## 3. Part Names

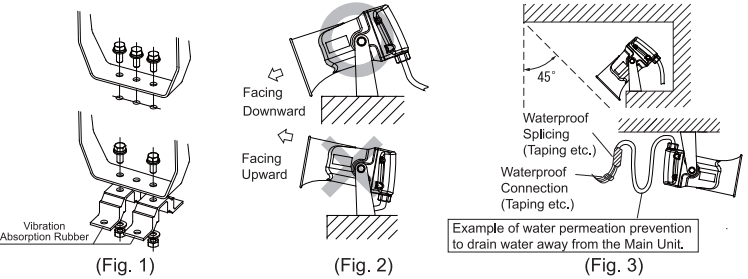


\* Please supply the bolts (M8) or screws for the angle bracket installation from the customer.

\* The PATLITE Corporation is a member of the SD Card Association.

## 4. Installation

- When installing, fix the angle bracket with the proper bolts [ M8 ] in the three holes on the angle bracket. (Fig. 1)
- When using in a location with strong vibrations, it is recommended to use the recommended Vibration Absorption Rubber. Affix the recommended Vibration Absorption Rubber in the two locations on the angle bracket.(EH□-M3 Only) (Fig. 1)
  - Recommended Parts: Vibration Absorption Rubber KE-30 (Kurashiki Kako Co., Ltd.)(RoHS Compliant)
- The recommended Vibration Absorption Rubber is suitable for a vibration resistance of up to 70.0 m/s<sup>2</sup> (JIS D 1601-1995, Class 3 Class B).
- Angle the case at a downward direction from the horizontal position and install it. Failure to do so may result in water collecting, causing damage. (Fig. 2)
- The angle adjustment bolt [ M8 ] is loosely tightened. Be sure to tighten when installing. (Recommended Torque: 6.0 N·m)
- It is recommended for outdoor installation, to install under a roof with about a 45 degree angle so that strong wind and rain water may not hit it directly. It is also recommended to add some slack to the cable and to insulate the sheath part of the cable and wires to waterproof them. Failure may result since water is susceptible to penetration through the cut sections of the cable. (Fig. 3)



### WARNING

- The power supply should be turned off prior to attachment at any cost. Failure to comply may result in electric shock.

### CAUTION

- Angle the case at a downward direction from the horizontal position and install it. Failure to do so may result in water collecting, causing damage.
- The clamping surface should be sufficient enough to tolerate the weight of the product. Do not use the product in a place where vibrations exceeds the specifications. Failure to comply may result in the prevention of the product detaching and falling, causing injury to a passer-by, etc.
- Be sure to attach the angle fixed bolt [ M8 ] 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. Failure to comply may result in the prevention of the product detaching and falling, causing injury to a passer-by, etc. (Recommended Torque: 6.0 N·m)
- Be sure to attach the rubber cushions to the angle bracket with the recommended torque value. (Recommended Torque: 12.0 N·m) (EH□-M3 Only)
- It is recommended to periodically replace the Vibration Absorption Rubber. The rubber can deteriorate and may cause a risk for injury due to the product falling and breaking. (EH□-M3 Only)

### PLEASE

- If installed in a place where large vibrations are generated, screws and bolts should be periodically tightened, and the product inspected.
- Since the product may shake vigorously from heavy vibration, when attaching rubber cushions, ensure sufficient space is available to avoid the product from colliding with surrounding obstacles. (EH□-M3 Only)
- When installing in high places, choose a location which is accessible by a scaffold, ladder, etc., for repairs.
- A resin washer is recommended for use with the Angle Bracket.
- It is recommended to locate a switch near the product, if it is connected directly to the power supply, for safety in case the power supply has to be cut immediately.
- Install the product in a location where the cover can be removed for maintenance or setup of message contents, etc.

## 5. Wiring and Proper Use

Please use contacts, such as relay switches or transistor circuits (NPN/PNP type) for external contacts. Refer to Tables 1 to 3 for Contact Capacity values.

Table 1: Signal Contact Capacity

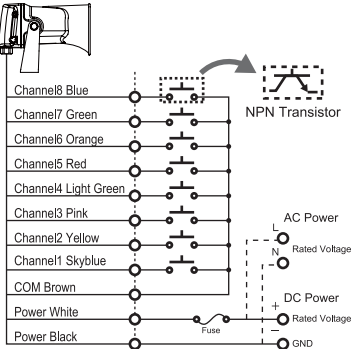
	Non-Voltage Contact	Voltage Contact (for EH□-M1)	
		Applied Voltage : less than 26.4 V DC	Applied Voltage : 26.4 V DC or more
Current Capacity	10 mA or more	10 mA or more	15 mA or more
Withstand Voltage		35 V DC or more	
Leakage Current		0.1 mA or less	
ON Voltage(Vsat)		1 V or less	

Table 2: Recommended Fuse

	Rated Voltage (Fuse withstand voltage)	Rated Current (Fuse capacity)	Fusing Type
EH□-M1	250 V	500 mA	Normal Blow, PSE Class A
EH□-M2	250 V	800 mA	Normal Blow, PSE Class A
EH□-M3	250 V	800 mA	Normal Blow, PSE Class A

### ■ Wiring Example (Cable Type)

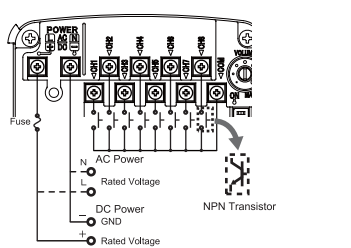
#### ● Non-voltage Contact



\* The voltage contact input should be in the range of 10.8 V DC to 31.6 V DC.

### ■ Wiring Example (Terminal Buss Type)

#### ● Non-voltage Contact



\* The voltage contact input should be in the range of 10.8 V DC to DC 31.6 V DC.

- The following are recommended specifications when connecting a cable to a terminal buss:
  - Diameter: φ8.5mm to φ10.5mm.
  - Terminal: M3 insulated O-ring crimping connector corresponding to the RoHS directive.

### WARNING

- Be sure wiring is carried out correctly. Failure to conform may result in product damage, resulting in damage to the circuitry or fire.
- Wiring should be done after the power supply is turned off. Failure to comply may result in electric shock.
- When using a terminal buss model, ensure the terminal screws are tightened with the recommended torque value when wiring. Failure to comply may result in wires coming loose from vibration and causing shorting between wires, causing possible malfunction or even electric shock.(Recommended Torque: 0.3 N·m)

### CAUTION

- Be sure to operate the product with the cover attached, and use the recommended torque. Failure to comply can result in water and dust entering and causing product damage. (Recommended Torque: 0.7 N·m)
- If the product is used in an environment with a lot of water or dust, it is recommended to use a 8.5 to 10.5mm cable with a waterproof gland. The protection rating value cannot be assured in such environments, and a risk of failure may occur.

### PLEASE

- Connect an external fuse between the product and power supply to protect the internal circuitry.
- Be sure to check for proper wiring before connecting the power.
- To countermeasure against noise, shorten the wiring as much as possible, and it is recommended to use shielded wire. In addition, separate any signal lines which pass along high voltage cables or is susceptible to receive induction noises.
- Any of the unused wires for the cable should be individually insulated after wiring. Failure to comply may result in malfunction.
- 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 inrush capacity runs insufficient, it will result in contact arcing and malfunction.
- If this product is used in conjunction with our products other than EHV/EHS, the signal and COM lines are not to be connected together. (Since there is a voltage potential between the signal lines, the circuitry may become damaged.) Be sure to use a switch or relay to divide the two circuits at the point of contact.
- Use the same power source as the product when applying voltage to a voltage-contact signal line.Applying a voltage outside the power source used for the product may result in malfunction or damage to the product. (EH□-M1 Only)

## 6. Factory Settings

The following table corresponds to the factory-set message registration contents at the time of shipment for this machine.

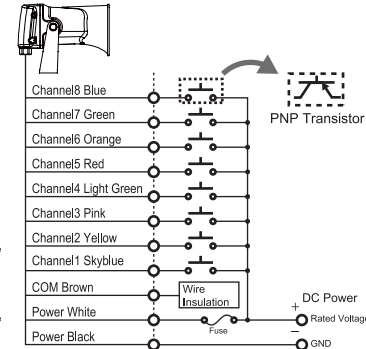
Model	Ch Msg. No.	EHV-□□□□	EHV-□□□	EHS-□□□
		Up to No. 8	No. 9 or more	
Channel Input Method	Bit	Binary	Bit	Bit
Playback Mode		Normal		
MP3 Setup		ON	OFF	

For more details regarding the various setups, visit the PATLITE homepage (<http://www.patlite.com/>) to download the "Complete Operation Manual".

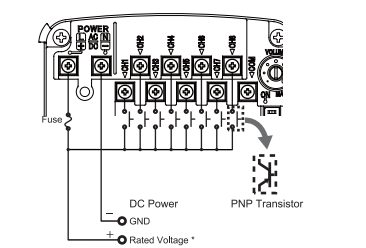
Table 3: Inrush Current

	Current value
EH□-M1	12.5 A
EH□-M2	23 A
EH□-M3	45 A

#### ● Voltage Contact (for EH□-M1)



#### ● Voltage Contact (for EH□-M1)



## 7. Specifications

### 7-1 Standard Specifications

Model	EH□-M1	EH□-M2	EH□-M3
Rated Voltage	12-24 V DC	100-240 V AC 50/60Hz	12-48 V DC
Operating Voltage Range	10.8-3.5 V DC	90-264 V AC 50/60Hz	10-60 V DC
Operating Ambient	-20°C to 50°C		
Operating Ambient Humidity	85 % or less RH (no condensation)		
Storage Ambient	-30°C to 60°C		
Storage Ambient Humidity	85 % or less RH (no condensation)		
Mounting	Indoor / Outdoor		
Location	Upright, Sideways, Inverted (Case is to be pointed in downward direction)		
Protection Rating	IP65 (IEC 60529)		
Condition	Upright Position		
Insulation Resistance	More than 1MΩ at 500V DC between terminal and chassis		
Withstand Voltage	Voltage applied between terminal and chassis without breaking insulation, 500 V AC for 1 min., 1500 V AC for 1 min., 1000 V AC for 1 min.		
Vibration Resistance	45.0 m/s <sup>2</sup> IEC 60068-2-6:2007 70.0 m/s <sup>2</sup> JIS D 1601-1995 Class 3 Class B (It is recommended only for the EH□-M3 to attach in the upright position when using the Vibration Absorption Rubber) Recommended Parts: Vibration Absorption Rubber KE-30 (Kurashiki Kako Co., Ltd.)(RoHS Compliant)		
Impact Resistance	250m/s <sup>2</sup> 6ms 1000times (one direction each of 3 axis), 500m/s <sup>2</sup> 11ms 31times (both directions each of 3 axis) IEC 60068-2-27:2008		
Mass (Tolerance ±10%)	1.25 kg		
Volume Adjustment	Volume adjustable from minimum to maximum Sound reduction input to reduce from current level (depending on settings)		
Supported Memory Card	SD Card, SDHC Card		
File Format	Recommended SD Card: SDV-2GP (Option) FAT16, 32		

### 7-2 MP3 Specifications (EHV)

Playback File	MPEG1-Audio Layer III (MP3, Fs:44,1kHz)
Available Bit Rates	32 kb/sec., 64 kb/sec. (Standard), 128 kb/sec. Constant bit rate (CBR) Only
Maximum Playback Time	Total of 220 sec. (at standard bit rate, one MP3 file)
On-board Memory Size	2 MByte (including management domain)
Remarks	MPEG Layer-3 audio coding technology licensed from Fraunhofer IIS and Thomson Licensing. Joint Stereo and Dual Channel not available.

### 7-3 Model Specifications

Model	EHV	EHS
Sound Pressure Level	Alarm MP3	Max : 110 dB (Directly in front at 1m from horn, alarm Stutter (rapid intermittent) Max : 105 dB (Directly in front at 1m and -6 dB 1 kHz sound playback)
Rated Power Consumption	EH□-M1 EH□-M2 EH□-M3	4.0 W (Non-voltage contact · NPN, at 12 V DC) 5.0 W (Voltage contact · PNP, at 24 V DC) 5.0 W (Non-voltage contact · NPN, at 12 V DC) 5.9 W (Voltage contact · PNP, at 24 V DC) 5.3 W (at 240 V AC) 5.6 W (at 48 V DC) 5.9 W (at 240 V AC) 5.1 W (at 48 V DC)
Condition	Maximum Volume with +6 dB 1 kHz sound	Maximum Volume with "Rapid Hi-Lo" sound playback
Playback Sound	MP3 Data / Alarm / Melody (Standard)	Alarm / Melody (Standard)
Playback Channel Inputs	Bit : 8 / Binary : 63	Bit : 8 / Binary : 32
Playback Delay Time	300 ms or less (At Signal / Power Input)	

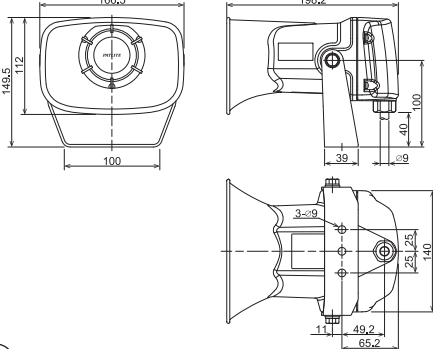
### 7-4 Conformity Standards

Conformity Standards	EH□-M1	EH□-M2	EH□-M3
EMC Directive (EN 61000-6-4, EN 61000-6-2)	○	-	-
EMC Directive (EN 13309)	-	-	○
RoHS Directive (EN 50581)	○	○	○
UL 464, CSA22.2 No. 205-M1983	○ ※2	○ ※2	-
FCC Part15 SubpartB Class A	○	○	-
KC (KN22, KN24)	○	○	○
ECE Regulation No. 10	○	-	○

※1 There are no contents of controlled substances exceeding the threshold for the RoHS Directive.

※2 UL Listed (File No.S24210)

### 7-5 Outer Dimensions (mm)



### NOTE

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:  
(1) This device may not cause harmful interference.  
(2) This device must accept any interference received, including interference that may cause undesired operation.  
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.  
These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.  
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- 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**  
PATLITE Corporation ※Head office  
4-1-3, Kyutaromachi, Chuo-ku, Osaka 541-0056 Japan

<http://www.patlite.com/>  
<http://www.patlite.eu/>  
<http://www.patlite.com/>  
<http://www.patlite.cn/>  
<http://www.patlite.co.kr/>  
<http://www.patlite.tw/>  
<http://www.patlite.co.th/>

**PATLITE (U.S.A.) Corporation**  
**PATLITE Europe GmbH** ※Germany  
**PATLITE (SINGAPORE) PTE LTD**  
**PATLITE (CHINA) Corporation**  
**PATLITE KOREA CO., LTD.**  
**PATLITE TAIWAN CO., LTD.**  
**PATLITE (THAILAND) CO., LTD.**