PATLITE

Audible Alarm
Instruction Manual

TYPE : BK

We thank you for purchasing PATLITE Audible Alarm. Before you start using the product, please read this instruction manual carefully to use the product correctly. Please store this document in a safe place. Be sure to read this document again when you are about to perform tasks such as maintenance and repair.
And if you have any questions, contact a branch office or the technical support printed on the last page.

Safety Precautions

The precautions which must be observed to prevent damage to the person using the product, to people around it, or to property are described in a manner shown below
■The seriousness of injury or damage caused by ignoring the indication and using the product in a wrong way is categorized with the indications below and descriptions are added to each of them

| ⚠ Warning | The sections with this indication contain "items which could cause death or serious injury" if ignored. |
| ⚠ Caution | The sections with this indication contain "items which could cause injury or property damage only" if ignored. |

1. Cautions Which Must Be Observed for Safety Use

⚠ Warning

● Be sure to turn the power off before wiring or installing the product. Failure to do so may cause electric shock.
● Do not disassemble or modify the product.There is a risk of fire,electrical shock etc.For repair, check etc of inside the product, please inquire to each sales office or technical consultation service written in the last page.
● Take care to perform wiring correctly. If the wiring in incorrect, internal circuit may be damaged by fire, and it may also be a cause of fire.
● As for the power source, be sure to use this product within the allowable range of voltage. Failure to do so may be a cause of fire or damage to the product.
● Be sure to let specialists perform installation task which requires construction work. Failure to do so may cause electric shock, fire, or falling.
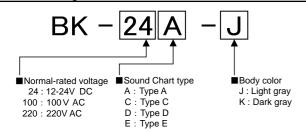
⚠ Caution

● To protect power source circuit and internal circuit of the product, be sure to install external fuse.

Failures caused by using the product in ways not observing the Warnings and Cautions, by disassembling or converting the product, or by natural disaster are not covered under warranty. And do not use the product in ways other than the ways described in this document.
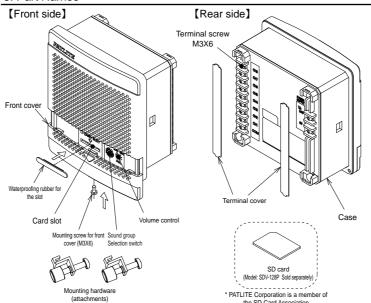
Other Precautions

● Use the product in an environment where there is no electromagnetic or inductive noise. Speakers are known to generate noise.
● Use the product in an environment where there is no corrosive gas. Failure to do so may cause malfunction.
● Before you start working on the product, discharge static electricity from your body. By touching another grounded metal part with bare hand, the static electricity can be discharged.
● Perform fitting of each part at a recommended torque value.
● Pay attention not to lose the parts such as the front cover, Terminal cover etc. which are to be detached at performing work.
● When the product is used for security purposes in which safety is emphasized, be sure to perform daily maintenance, and design a system which is capable of tackling the occurrence of unlikely event such as malfunctioning or failure.
● Do not use it at the place where vibration exists that is exceeding the specification.There is a risk of damage and/or falling of the main body.
● Do not use the product as fire alarm.

2. Model Indicating Format

BK – 24 A – J

■Normal-rated voltage
24 : 12-24V DC
100 : 100V AC
220 : 220V AC

■Sound Chart type
A : Type A
C : Type C
D : Type D
E : Type E

■Body color
J : Light gray
K : Dark gray

3. Part Names

【Front side】 【Rear side】

Terminal screw M3X6

Front cover

Waterproofing rubber for the slot

Card slot

Volume control

Mounting screw for front cover (M3X6)

Sound group Selection switch

Terminal cover

Case

Mounting hardware (attachments)

SD card
(Model: SDV-128P Sold separately)

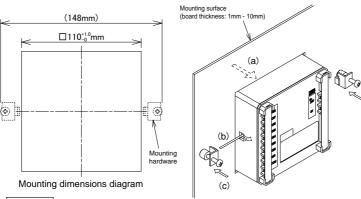* PATLITE Corporation is a member of the SD Card Association

4. How to Install

Install the product according to the procedure below.
① Create mounting holes on a mounting surface (board thickness: 1mm - 10mm) where there is enough space for the mounting hardware. (See the mounting dimensions diagram)
② (a) Insert the product from the front of the mounting surface.
 (b) Attach the mounting hardware which comes with the product to the holes on the side of the product.
 (c) Then fasten the screws of the mounting hardware. (Recommended fastening torque: 0.7±0.1N・m)
③ Confirm that the product and the mounting hardware are installed properly.

(148mm)

□110⁺¹·⁰₀mm

Mounting surface (board thickness: 1mm - 10mm)

(a)

(b)

(c)

Mounting hardware

Mounting dimensions diagram

⚠ Warning

● Be sure to turn the power off before installing the product. Failure to do so may cause electric shock.
● Be sure to let specialists perform installation task which requires construction work. Failure to do so may cause electric shock, fire, or falling.

⚠ Caution

● Choose a location for the mounting surface where it has enough strength to support the weight of the product, and where there is less vibration. Failure to do so may be the cause of injury or damage to the product.
● Be sure to use both pieces of mounting hardware, and fasten them with the recommended fastening torque. Failure to do so may be the cause of injury or damage to the product.

Other Precautions

● Secure a enough space in which the mounting hardware can also be installed when choosing a mounting surface.
● Install the product on a flat surface without bumps and dips. Failure to do so may weaken its resistance to water and dust.
● To prevent the product from falling in places where vibration may be generated, apply thread locking adhesive or the like, and perform periodic checking of the tightness of the mounting hardware.
● When mounting it at a high place, choose the place where a foothold exists for facilitating repair work.
● If it used under the connected state to the power supply, then provide a switch which can easily cut off power supply in proximity to the main body, for the safety purpose.

Information

● The vibration sound may occur when a mounting surface resonates depending on the material, thickness of a mounting surface or the volume of products.

5. How to Perform Wiring

Before wiring the product, remove the terminal cover. And after the completion of the wiring attach the terminal cover.
● For the external contact of CH, use no-voltage contact circuit such as relay switch or open collector circuit (NPN type). As for the contact capacity, see the table 1 to 3.
● The terminal screws should be fastened with the recommended fastening torque (0.3N・m).

■Wiring example

Wiring when NPN transistor is used

CH8 CH7 CH6 CH5 CH4 CH3 CH2 CH1 COM

Apply a voltage displayed below 'POWER SUPPLY'.And, in case of Type BK-24, connect - terminal of power supply to 0V

Fuse See Table2

⊕ Power supply ⊖

Apply a voltage for the signal line.Failure to do so may be damaged to the product.

Table1.CH circuit

No-voltage contact circuit

Outside contact

6mA
12V (15V)
Each CH
COM

( ) : BK-24

NPN open collector circuit

Outside contact

6mA
12V (15V)
Each CH
COM

( ) : BK-24

Table2.Inrush current and Fuse

Model	Inrush current	Fuse
BK-24	Max 20A/ 5ms	125V 1A
BK-100	None	125V 0.5A
BK-220	None	250V 0.5A

Table3.Contact capacity of CH

Current capacity	10mA or higher
Withstand voltage	DC20V or higher
Leakage current	0.1mA or lower
ON voltage(Vsat)	1V or lower

⚠ Warning

● Be sure to turn the power off before you start wiring. Failure to do so may cause electric shock.
● Be careful not to make a mistake in wiring. Failure to do so may cause damage to the internal circuit by fire, and it may cause fire.

⚠ Caution

● To protect the power source circuit and the internal circuit of the product, be sure to install an external fuse.
● The terminal screws should be fastened with the recommended fastening torque (0.3N・m). Failure to do so may cause short circuit due to disconnection of wire, and damage to the product.

Other Precautions

● Before switching on the power supply, confirm that the wiring is correctly performed.
● For countermeasure of noise, it is recommended to perform wiring as short as possible, and to use shielded wires. In addition, if a signal line is passing along high voltage cables or its wiring is located at the place likely to receive induction noise, there is a risk of malfunction by the effort of noise.
● If a no-voltage contact such as a relay or a switch etc. is used for power supply line, select the contact for which rush current is considered.If capacity is insufficient, it will become a cause of welding(deposition) of the contact and/or malfunction.
● The use of M3 ring terminals with insulating coating is recommended for the wiring of terminal block to prevent disconnection of wires.
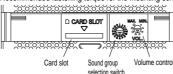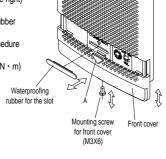
6. How to Use the Product

6-1 Opening and Closing the Front Cover

Open or close the front cover according to the procedure shown below when performing tasks such as adjusting the volume of the sound or selecting the sound group.

① Remove the mounting screw (M3X6) for the front cover.
② Push the lower front cover section (part A in the figure on the right) lightly with finger to slide it downward.
③ When an SD card is to be used, remove the waterproofing rubber for the slot.
④ After completing tasks, attach the parts removed in the procedure from ① to ③ in the opposite order.
(Recommended fastening torque for the mounting screw: 0.3N・m)

CARD SLOT

Waterproofing rubber for the slot

Mounting screw for front cover (M3X6)

Front cover

Card slot

Sound group selection switch

Volume control

Other Precautions

● Attach the waterproofing rubber for the slot securely. Failure to do so may weaken the product's resistance to water and dust.
● Fasten the mounting screw for front cover with the recommended fastening torque. In places where vibrations occur, the front cover may fall or the product may be damaged.

6-2. Selecting a Sound Group

Use the sound group selection switch to select a group from the 16 types from A to P. Use a flat-blade screwdriver with the blade thickness of 1.0mm or thinner for turning the switch. (Factory default setting: Sound group A)

● Sound group A to H
By bit input, a sound is played which corresponds to each Sound Group.Regarding the operation, refer to "6-5-1.Bit input". In addition, Sounds can be freely combined by utilizing a SD card in the case of the sound group H.Refer to "6-3.How to Combine Sounds".

● Sound group I to O
A sound "5.Rapid Hi-Lo" is played.So, use it for confirming operation and at sound volume adjustment.

● Sound group P
By binary input, a sound is played which corresponds to Sound list.Regarding the operation, refer to "6-5-2.Binary input".

Other Precautions

● Make sure that there is no misalignment with the sound group selection switch when selecting.
If there is misalignment as shown in the figure on the right, the sound group selected may not play.

O

X

● Sound Chart type A (BK-□A)

Sound List

01	Beep (slow intermittent horn)	09	Stutter + Bell	17	London bridge is falling down	25	Amaryllis
02	Stutter (rapid intermittent horn)	10	Synthesized Melody	18	Holdiridia	26	Symphony No.40
03	Bell (clear highpitched bell)	11	Chime	19	Mary had a little Lamb	27	Silent Lakeside
04	Yelp (rapid siren)	12	Call sign	20	The camptown Races	28	Mountain musician
05	Rapid Hi-Lo	13	Fur Elise	21	Cuckoo	29	Romance De Amour
06	Melody Chime	14	Maiden's Prayer	22	Blacksmith in the village	30	Petrouchka
07	Synthesized Piano	15	Minuet	23	On the Avignon bridge	31	Grandfather's Clock
08	Synthesized Bell	16	Annie Laurie	24	Daydream Believer	32	Ave Maria

Author 13:BEETHOVEN VAN LUDWIG 14:BADARZEWSKA BARANOWSKA TEKLA 15:BACH JOHANN SEBASTIAN 16:SCOTT LADY JOHN DOUGLAS 17・18・21・25・28・29:TRADITIONAL 19・27:PD 20:FOSTER STEPHEN COLLINS 22:Song authorized by the Ministry of Education 23:WERNER HEINRICH (DE 2) 24:STEWART JOHN C26:MOZART WOLFGANG AMADEUS 30:BLANTER MATVEJ ISAAKOVICH 31:WORK HENRY CLAY 32:SCHUBERT FRANZ

Sound groups

Group	A	B	C	D	E
CH 1	Fur Elise	Mary had a little Lamb	Amaryllis	Grandfather's Clock	Romance De Amour
CH 2	Maiden's Prayer	The camptown Races	Symphony No.40	Ave Maria	The camptown Races
CH 3	Minuet	Cuckoo	Silent Lakeside	Daydream Believer	Minuet
CH 4	Annie Laurie	Blacksmith in the village	Mountain musician	London bridge is falling down	Ave Maria
CH 5	London bridge is falling down	On the Avignon bridge	Romance De Amour	Bell (clear highpitched bell)	Stutter + Bell
CH 6	Holdiridia	Daydream Believer	Petrouchka	Yelp (rapid siren)	Synthesized Melody
CH 7	Chime	Chime	Chime	Synthesized Piano	Synthesized Piano
CH 8	Call sign	Call sign	Call sign	Synthesized Bell	Synthesized Bell

Group	F	G	H	I~O	P
CH 1	Mary had a little Lamb	Beep (slow intermittent horn)	The camptown Races		
CH 2	Symphony No.40	Stutter (rapid intermittent horn)	Cuckoo		
CH 3	Bell (clear highpitched bell)		Petrouchka		
CH 4	Daydream Believer	Yelp (rapid siren)	Grandfather's Clock		32 sounds of the Sound 01~32 are playable by using CH 1~ CH 6. (Binary input)
CH 5	Rapid Hi-Lo	Rapid Hi-Lo	London bridge is falling down	The sound 5."Rapid Hi-Lo"	
CH 6	Melody Chime	Melody Chime	Mary had a little Lamb		
CH 7	Synthesized Piano	Synthesized Piano	Silent Lakeside		
CH 8	Synthesized Bell	Synthesized Bell	Mountain musician		

● Sound Chart type C (BK-□C)

Sound List

01	Beep (slow intermittent horn)	09	Stutter + Bell	17	Amairono Kamino Otome	25	I Don't Want to Miss a Thing
02	Stutter (rapid intermittent horn)	10	Synthesized Melody	18	Les Champs-Elysees	26	Yozorano Mukou
03	Bell (clear highpitched bell)	11	Chime	19	Canon	27	Aiwa Katsu
04	Yelp (rapid siren)	12	Call sign	20	Rara Sanshain	28	Truth
05	Rapid Hi-Lo	13	Can't Take My Eyes off of You	21	Uchuusenkan Yamato	29	Gattsudaze
06	Melody Chime	14	Top of the World	22	Oshiete	30	Odoru Ponpokorin
07	Synthesized Piano	15	The Entertainer	23	Makenaide	31	Imasugu Kisu Mi
08	Synthesized Bell	16	Amazing Grace	24	Gonna Fly Now(Theme for "Rocky")	32	Haruyo Koi

Author 13:CREWE BOB 14:CARPENTER RICHARD LYNN 15:JOPLIN SCOTT 16:CARRELL JAMES P 17:Kouichi Sugiyama 18:WILSHAW MICHAEL 19:PACHELBEL JOHANN 20:Ijichi Hiromasa 21:Hiroshi Miyagawa 22:Takeo Watanabe 23、30:Tetsuro Oda 24:CONTI BILL 25:WARREN DIANE EVE 26:Yuka Kawamura 27:KAN 28:Mashairo Andoh 29:Totasu Matsumoto 31:Tatsuya Hirakawa 32:Yumi Matsutoya

Sound groups

Group	A	B	C	D	E
CH 1	Can't Take My Eyes off of You	Canon	I Don't Want to Miss a Thing	Imasugu Kisu Mi	Amairono Kamino Otome
CH 2	Top of the World	Rara Sanshain	Yozorano Mukou	Haruyo Koi	Makenaide
CH 3	The Entertainer	Uchuusenkan Yamato	Aiwa Katsu	Uchuusenkan Yamato	Gattsudaze
CH 4	Amazing Grace	Oshiete	Truth	Rara Sanshain	Top of the World
CH 5	Amairono Kamino Otome	Makenaide	Gattsudaze	Can't Take My Eyes off of You	Canon
CH 6	Les Champs-Elysees	Gonna Fly Now(Theme for "Rocky")	Odoru Ponpokorin	Gonna Fly Now(Theme for "Rocky")	Haruyo Koi
CH 7	Chime	Chime	Chime	Chime	Chime
CH 8	Call sign	Call sign	Call sign	Call sign	Call sign

Group	F	G	H	I~O	P
CH 1	Beep (slow intermittent horn)	Odoru Ponpokorin	Rara Sanshain		
CH 2	Stutter (rapid intermittent horn)	Aiwa Katsu	Uchuusenkan Yamato		
CH 3	Stutter + Bell	Truth	Odoru Ponpokorin		
CH 4	Synthesized Melody	Les Champs-Elysees	Imasugu Kisu Mi		32 sounds of the Sound 01~32 are playable by using CH 1~ CH 6. (Binary input)
CH 5	Synthesized Piano	Amazing Grace	Amairono Kamino Otome	The sound 5."Rapid Hi-Lo"	
CH 6	Synthesized Bell	Yozorano Mukou	Les Champs-Elysees		
CH 7	Chime	Chime	Aiwa Katsu		
CH 8	Call sign	Call sign	Truth		

● Sound Chart type D (BK-□D)

Sound List

01	Beep (slow intermittent horn)	09	Chime	17	Saafu Tengoku Sukii Tengoku	25	Wiegenlied
02	Stutter (rapid intermittent horn)	10	Call sign	18	Iro Howaitoburendo	26	Rudolph the Red-nosed Reindeer
03	Bell (clear highpitched bell)	11	Runner	19	Happy Birthday	27	She Wore a Yellow Ribbon
04	Yelp (rapid siren)	12	Mamotte Agetai	20	Hi Ho	28	Oh My Darling Clementine
05	Rapid Hi-Lo	13	Oribiao Kikinagara	21	I've been working on the Railroad	29	Yellow Rose of Texas
06	Melody Chime	14	A September	22	Bear Song	30	Yankee Doodle
07	Synthesized Piano	15	Doyoubino Koibito	23	Toys Go Cha Cha Cha	31	When the Saints Go Marching In
08	Synthesized Bell	16	Akino Kehai	24	Konnako Irukana	32	Londonderry Air

Author 11:New Funky Sueyoshi 12:Yumi Matsutoya 13:Ami Ozaki 14:Tetsuji Hayashi 15:Tatsuro Yamashita 16:Kazumasa Oda 18:Maria Takeuchi 19:HILL MILDRED J 20:CHURCHILL FRANK E 21・22・27・29・30・31・32:TRADITIONAL 23:Nobuyoshi Koshibe 24:Takeshi Shibuya 25:SCHUBERT FRANZ 26:MARKS JOHN D 28:American folk song

Sound groups

Group	A	B	C	D	E
CH 1	Runner	Happy Birthday	She Wore a Yellow Ribbon	Yellow Rose of Texas	Runner
CH 2	Mamotte Agetai	Hi Ho	Oh My Darling Clementine	Yankee Doodle	Iro Howaitoburendo
CH 3	Oribiao Kikinagara	I've been working on the Railroad	Yellow Rose of Texas	When the Saints Go Marching In	Wiegenlied
CH 4	A September	Bear Song	Yankee Doodle	Londonderry Air	Hi Ho
CH 5	Doyoubino Koibito	Toys Go Cha Cha Cha	When the Saints Go Marching In	Bell (clear highpitched bell)	Beep (slow intermittent horn)
CH 6	Akino Kehai	Konnako Irukana	Londonderry Air	Stutter (rapid intermittent horn)	Yelp (rapid siren)
CH 7	Saafu Tengoku Sukii Tengoku	Wiegenlied	Runner	Chime	Chime
CH 8	Iro Howaitoburendo	Rudolph the Red-nosed Reindeer	Mamotte Agetai	Call sign	Call sign

Group	F	G	H	I~O	P
CH 1	Saafu Tengoku Sukii Tengoku	Doyoubino Koibito	Hi Ho		
CH 2	Konnako Irukana	Akino Kehai	I've been working on the Railroad		
CH 3	Oribiao Kikinagara	She Wore a Yellow Ribbon	Yankee Doodle		
CH 4	Iro Howaitoburendo	Iro Howaitoburendo	Yankee Doodle		32 sounds of the Sound 01~32 are playable by using CH 1~ CH 6. (Binary input)
CH 5	Rapid Hi-Lo	Synthesized Piano	Saafu Tengoku Sukii Tengoku	The sound 5."Rapid Hi-Lo"	
CH 6	Melody Chime	Synthesized Bell	Iro Howaitoburendo		
CH 7	Chime	Chime	She Wore a Yellow Ribbon		
CH 8	Call sign	Call sign	Oh My Darling Clementine		

JASRAC
T-06B0152
T-0710139
T-0710140

● Sound Chart type E(BK-□E)

Sound List

01	Beep (slow intermittent horn)	09	Stutter + Bell	17	Inverted Revellie	25	Annie Laurie
02	Stutter (rapid intermittent horn)	10	Synthesized Melody	18	Galactic Motor	26	London bridge is falling down
03	Bell (clear highpitched bell)	11	Chime	19	Ringing Phone	27	Mary had a little Lamb
04	Yelp (rapid siren)	12	Call sign	20	Two Tone	28	The camptown Races
05	Rapid Hi-Lo	13	Train Ride	21	Alarm Clock	29	Amaryllis
06	Melody Chime	14	Galloping Hi-Lo	22	Ringing Hi-Lo	30	Symphony No.40
07	Synthesized Piano	15	Alien Chatter	23	Fur Elise	31	Ave Maria
08	Synthesized Bell	16	Falling Crystals	24	Minuet	32	Grandfather's Clock

Sound groups

Group	A	B	C	D	E
CH 1	Fur Elise	Minuet	Fur Elise	Alien Chatter	Train Ride
CH 2	Minuet	Annie Laurie	London bridge is falling down	Falling Crystals	Galloping Hi-Lo
CH 3	Annie Laurie	Amaryllis	Mary had a little Lamb	Inverted Revellie	Inverted Revellie
CH 4	London bridge is falling down	Symphony No.40	The camptown Races	Galactic Motor	Galactic Motor
CH 5	Mary had a little Lamb	Grandfather's Clock	Amaryllis	Ringing Phone	Alarm Clock
CH 6	The camptown Races	Ave Maria	Grandfather's Clock	Two Tone	Ringing Hi-Lo
CH 7	Chime	Chime	Chime	Alarm Clock	Synthesized Piano
CH 8	Call sign	Call sign	Call sign	Ringing Hi-Lo	Synthesized Bell

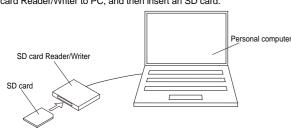| Group	F	G	H	I～O	P
CH 1	Rapid Hi-Lo	Beep (slow intermittent horn)	Two Tone		
CH 2	Chime	Stutter (rapid intermittent horn)	Alarm Clock		
CH 3	Stutter (rapid intermittent horn)	Bell (clear highpitched bell)	Symphony No.40	The sound 5."Rapid Hi-Lo"	32 sounds of the Sound 01～32 are playable by using CH 1～CH 6. (Binary input)
CH 4	Ringing Phone	Yelp (rapid siren)	Ave Maria		
CH 5	Stutter + Bell	Rapid Hi-Lo	Inverted Revellie		
CH 6	Synthesized Melody	Melody Chime	Galactic Motor		
CH 7	Synthesized Piano	Synthesized Bell	Mary had a little Lamb		
CH 8	Synthesized Bell	Synthesized Bell	The camptown Races		

6-3.How to Combine Sounds
When the sound group H is selected, sounds can be chosen from the 32 sounds and combined freely using an SD card.
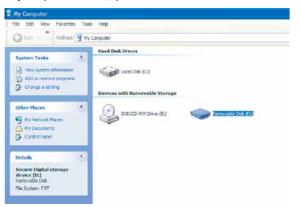
● Items prepared by customers
SD card (Type: SDV-128P Sold separately), Personal computer, SD card Reader/Writer

6-3-1.Creating the sound combination data
By using a personal computer, data consisting of different sounds is created
① Connect SD card Reader/Writer to PC, and then insert an SD card.

Personal computer
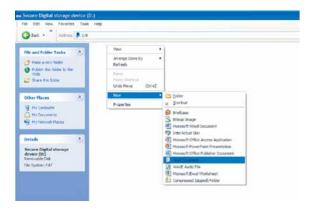SD card Reader/Writer
SD card

② In the My Computer of the PC, open the drive into which the SD card is inserted.

③ Within the window opened, click with the right mouse button, and point New Document and then choose Text Document.
　* The name may vary such as notepad depending on the OS and its version.

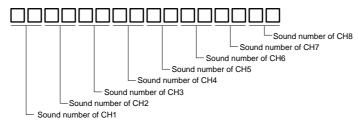④ Change the file name of the created text document to
【　OTO-LIST.txt　】

* Use half-size upper- or lowercase letters for the file name.
If the extension ".txt" is not displayed when the text document is created, change the file name to [OTO-LIST].

Enter the number of the sound (see 6-2. Selecting a Sound Group) you want to combine into the text document created in ④ and store it in the SD card.
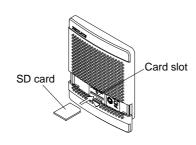* Enter the sound number with half-size numbers of 16 digits.

□□□□□□□□□□□□□□□□

└ Sound number of CH8
└ Sound number of CH7
└ Sound number of CH6
└ Sound number of CH5
└ Sound number of CH4
└ Sound number of CH3
└ Sound number of CH2
└ Sound number of CH1

[Example]
When a combination of the following sounds are to be created with the type BK-□A.
CH1. Beep(slow intermittent horn)　CH2. Amaryllis　CH3. Synthesized Piano
CH4. Grandfather's Clock　CH5. The camptown Races　CH6. Shutter
CH7. Cuckoo　CH.8 Mary had a little Lamb

Input the number [0125073120022119] in the text file, and store the file.

6-3-2.Transferring the sound combination data
The sound combination data created in "6-3-1. Creating the sound combination data" is transferred to this product.
① Turn on the power of this product, and check if the COM terminal and CH terminal is not short-circuiting.
② Open the front cover, and insert the SD card, in which the data created in "6-3-1. Creating the sound combination data" is stored, into the card slot. And then, data transfer is started automatically.
③ When transferring the sound data is completed, it is informed by the sound 'Pee.'Then, pull out the SD card.
　* The writing completes in 1 second or less. When it is informed by the sound 'Pipipipi' or there is no reaction, the data transfer is not normally completed.Confirm the contents of data and operation procedure.In addition, take note that if the volume control is set to the minimum, the informing sound cannot be heard.
⑤ Set the sound group selection switch to H, and confirm the sound of each channel .

SD card　　Card slot

6-4.Adjusting the Sound Volume
The sound volume can be adjusted using the volume control. Use a flat-blade screwdriver with the blade thickness of 1.0mm or thinner for turning the volume control.

Volume larger　MAX.
Volume smaller
VOL.
1mm

(Information)
● If sound volume is increased, sound cracking may occur depending on a sound.
● Even if the volume is set at the minimum level, the sound condition may not become silent, depending on the environment of usage.
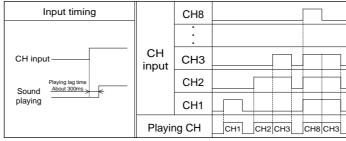

6-5.How to Play sounds
When the COM terminal and the terminal CH 1 - CH 8 are short-circuited after turning on the power, the sound of the channel of the selected group is played.
● Sound is played while the terminals are short-circuited.(Level hold input)
● When this product is operated by turning on the power, it takes about 1 second to play a sound.

6-5-1.Bit input (Sound group selection switch:A to H)
By short-circuiting the COM terminal and each CH terminal, the sound is played that corresponds to each channel.
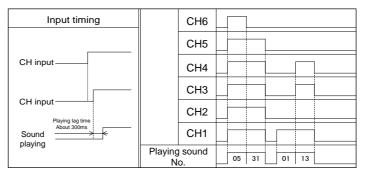● If there is short circuit of the two or more CH terminal and COM terminal at the same time, the sound of the CH with a larger number is played.
Priority order of CH　CH8＞CH7＞・・・・・＞CH2＞CH1

Input timing
CH input
Sound playing
Playing lag time About 300ms

CH input: CH8 ... CH3 CH2 CH1
Playing CH: CH1 | CH2 | CH3 | CH8 | CH3

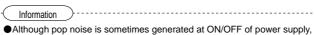## 6-5-2.Binary input (Sound group selection switch:P)
By short-circuiting the COM terminal and each from CH1 terminal to CH6 terminal, the sound among the No.1 to No.32 is played, depending on the state of each short circuit.
（Refer to the corresponding table for binary input）

Input timing
CH input
CH input
Sound playing
Playing lag time About 300ms

CH6 CH5 CH4 CH3 CH2 CH1
Playing sound No.: 05 | 31 | 01 | 13

Corresponding table for binary input

Sound No	CH1	CH2	CH3	CH4	CH5	CH6	Sound No	CH1	CH2	CH3	CH4	CH5	CH6	Sound No	CH1	CH2	CH3	CH4	CH5	CH6
01	1	0	0	0	0	0	12	0	0	1	1	0	0	23	1	1	1	0	1	0
02	0	1	0	0	0	0	13	1	0	1	1	0	0	24	0	0	0	1	1	0
03	1	1	0	0	0	0	14	0	1	1	1	0	0	25	1	0	0	1	1	0
04	0	0	1	0	0	0	15	1	1	1	1	0	0	26	0	1	0	1	1	0
05	1	0	1	0	0	0	16	0	0	0	0	1	0	27	1	1	0	1	1	0
06	0	1	1	0	0	0	17	1	0	0	0	1	0	28	0	0	1	1	1	0
07	1	1	1	0	0	0	18	0	1	0	0	1	0	29	1	0	1	1	1	0
08	0	0	0	1	0	0	19	1	1	0	0	1	0	30	0	1	1	1	1	0
09	1	0	0	1	0	0	20	0	0	1	0	1	0	31	1	1	1	1	1	0
10	0	1	0	1	0	0	21	1	0	1	0	1	0	32	0	0	0	0	0	1
11	1	1	0	1	0	0	22	0	1	1	0	1	0							

＊ The "1" in this table means short circuit of the COM terminal and CH terminal.
＊ In the case of input contacts which are not described in the table or CH7,8, the sound "5.Rapid Hi-Lo" is played.
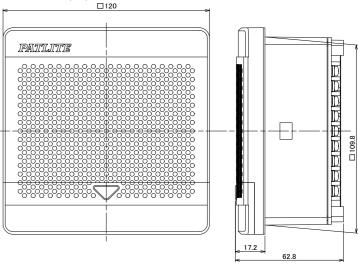
(Information)
● Although pop noise is sometimes generated at ON/OFF of power supply, it is not a failure.

7. Before You Request a Repair

Contents of trouble	Points to be checked	Method of action/treatment
Sound is not played	Is the power supplied?	Confirm the wiring.(5.How to perform wiring)
	Are the COM terminal and CH terminal short-circuited correctly?	
	Is the volume control not set to the minimum?	Adjust the volume.(6-4.Adjusting the Sound Volume)
A diffferent channel is played	Are the COM terminal and CH terminal short-circuited correctly?	Confirm the wiring.(5.How to perform wiring)
	It is correctly selected with the sound group selection switch?	Confirm the sound group selection switch.(6-2.Selecting a Sound Group)
SD card is not read.	Is the power supplied?	Confirm the wiring.(5.How to perform wiring)
	Is there a text document stored in the SD card?	Confirm a text document in the SD card. (6-3.How to Combine Sounds)
	Are the file name and the content of the text document correct?	
	Is the location of the stored file correct?	
	Is the SD card correctly inserted?	Confirm the SD card.
	Is the SD card of our company's optional item used?	(6-3-2.Transferring the sound combination data.)
	Is the volume set to the minimum level or not?	Adjust the volume.(6-4.Adjusting the Sound Volume)

● If the product does not operate correctly even after it is properly installed and handled, contact a branch office or the technical support printed on the last page.

---

8. Specifications

Model	BK-24□	BK-100□	BK-220□
Rated Voltage	12 - 24V DC	100V AC (50/60Hz)	220V AC (50/60Hz)
Voltage Range	10.8 - 26.4V DC	100V AC ± 10%	220V AC ± 10%
Power Consumption	Maximum 12W	Maximum 10W	Maximum 11W
Sound Pressure Level	Maximum 95dB (Fit the product on the plate of □300mm, and measure the level with the sound 5."Rapid Hi-Lo" at the distance of 1m from the center of the product, in the front direction.　Volume is adjustable. *The sound pressure level may be lowered depending on the sound and environment of usage. *The sound pressure level of type BK-24 may be lowered in case of usage by 17V DC or less.		
CH input method	Playing while short-circuiting between each CH terminal and COM terminal. Bit input (In case of setting of sound group from A to H) /Binary input(In case of setting of sound group from A to H)		
Number of playing channels	Bit input : 8 channels / Binary input : 32 channels		
Operating Temperature Range	-20 ～ 50℃		
Relative Humidity	RH 85% or lower (no condensation)		
Mounting Direction	Indoor: Normal, reverse, and lateral direction are possible (Normal direction only in places where water may be splashed on it). Outdoor: Normal direction only		
Protection Level	IP54　(When the panel is mounted in normal direction; Front only)		
Insulation resistance	1MΩ and above（At 500VDC),Between charged metal part and non-charged metal part.		
Withstand voltage	500VAC for 1 min.	1000VAC for 1 min.	1500VAC for 1 min.
	Between charged metal part and non-charged metal part.		
Resistance to Vibration	45m/s²		19.6m/s²
Mass	350g ±10%		530g ±10%

【External view】(mm)

□120
PATLITE
□109.8
17.2
62.8

● Please note that we will not be held responsible for the failure or damage caused by handling the product in ways not observing the warnings or cautions contained in this document.
● Please note also that the contents in this document may be changed for improvement without notification in advance.

4232－B