

# Specifications

Model	#LKEH-□12F□ FC014
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App.by	Chk.by	Drn.by
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17.Sep.'09	17.Sep.'09	16.Sep.'09

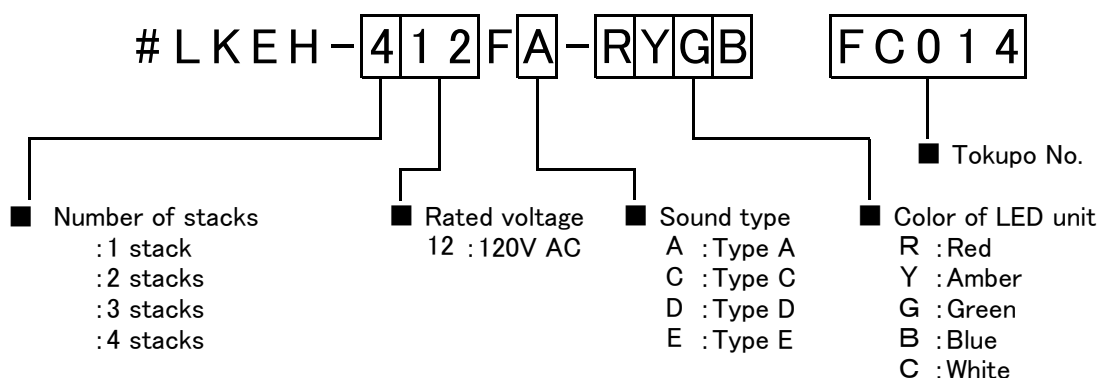
**PATLITE Corporation**



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## 1. Model Indicating Format



## 2. General specifications

Model	LKEH-□12F□
Rated voltage	120V AC 50/60Hz
Operating voltage	120V AC±10%
Power consumption	LKEH-112F□ MAX.17.0W
	LKEH-212F□ MAX.20.0W
	LKEH-312F□ MAX.23.0W
	LKEH-412F□ MAX.26.0W
Operating temperature range	-10 ~ +50°C
Relative humidity	85%RH or lower (no condensation)
Mounting direction	Upright direction only
Protection level	IP 53 ( Upright direction only )
Insulation resistance	DC 500V 1MΩ or more ( Between live parts and dead metal parts )
Dielectric Voltage-Withstand	1000V AC for 1 minute Between live parts and dead metal parts
Vibration proof	19.6m/s <sup>2</sup> (30Hz, Back and force 2h · Right and Left 2h · Up and down 4h)
Mass	LKEH-112F□ 2.1kg±10%
	LKEH-212F□ 2.3kg±10%
	LKEH-312F□ 2.5kg±10%
	LKEH-412F□ 2.7kg±10%
Notes	•This product complies with the RoHS Directive(DIRECTIVE 2002/95/EC)

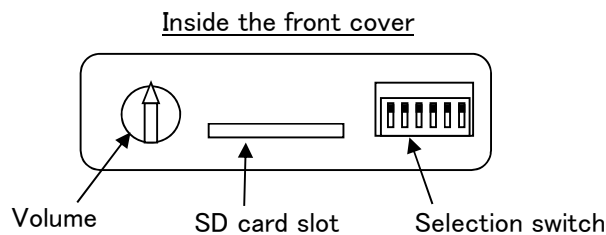
### 3.Performance specifications

Sound pressure level	MAX. 105dB Volume-adjustable (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.) The sound pressure level may be lowered depending on the tone and the usage environment.
Sound reduction level	20dB±2dB(Playing of the sound 5 "Rapid Hi-Lo" at a maximum volume)
Light source	LED
Brightness	Red(R): 2100mcd or more Amber(Y): 2400mcd or more Green(G): 5200mcd or more Blue(B): 700mcd or more White (C): 5500mcd or more
Number of flashes	60±3 times/minute
Input interface	Signal line:16 lines (LED:5 lines, Sound:8 lines, Sound reduction, Blinking common, Common) Selection switch,SD card slot
Input method of sound signal line	Bit input: Level hold/Binary input:level hold(Changeover by selection switch)※1
Number of playing channels	Bit input: 8 channels/Binary input: 32 channels
Priority order for the channel	CH8>CH7>CH6>CH5>CH4>CH3>CH2>CH1 (Only bit input)
Incorporated number of sound	32
Memory card	SD card Recommendation :SDV-128P (Sold separately)
SD card format	FAT16
Starting time	At the start of power supply :500ms or less At the start of signal line :300ms or less

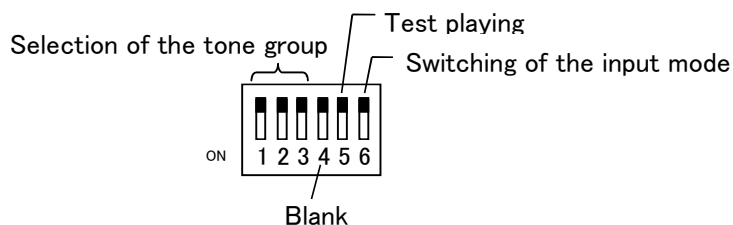
※1 Level hold means input of sound reduction, which works during line signal inputted.

#### 3-1. Setting Method

The following settings can be changed easily on the panel stored inside of front cover even after installation.

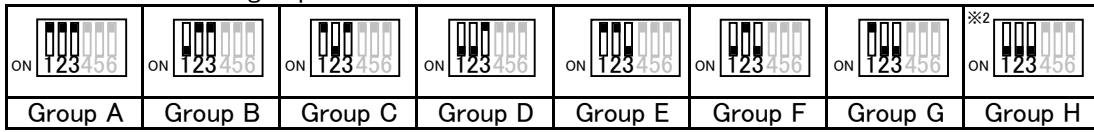


- Adjustment of sound volume  
Adjustment of sound volume is possible by means of the volume (knob).
- Combination method of the tones  
In the case of the group H, tones can be freely combined among 32 tones, by utilizing a SD card.
- Selection switch  
Selection of the following functions is possible.  
"Selection of the tone group," "Test playing" and "Switching of the input mode."

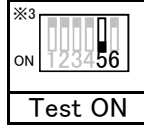


### 3-2. Selection switch setting

Selection of the tone group ※1



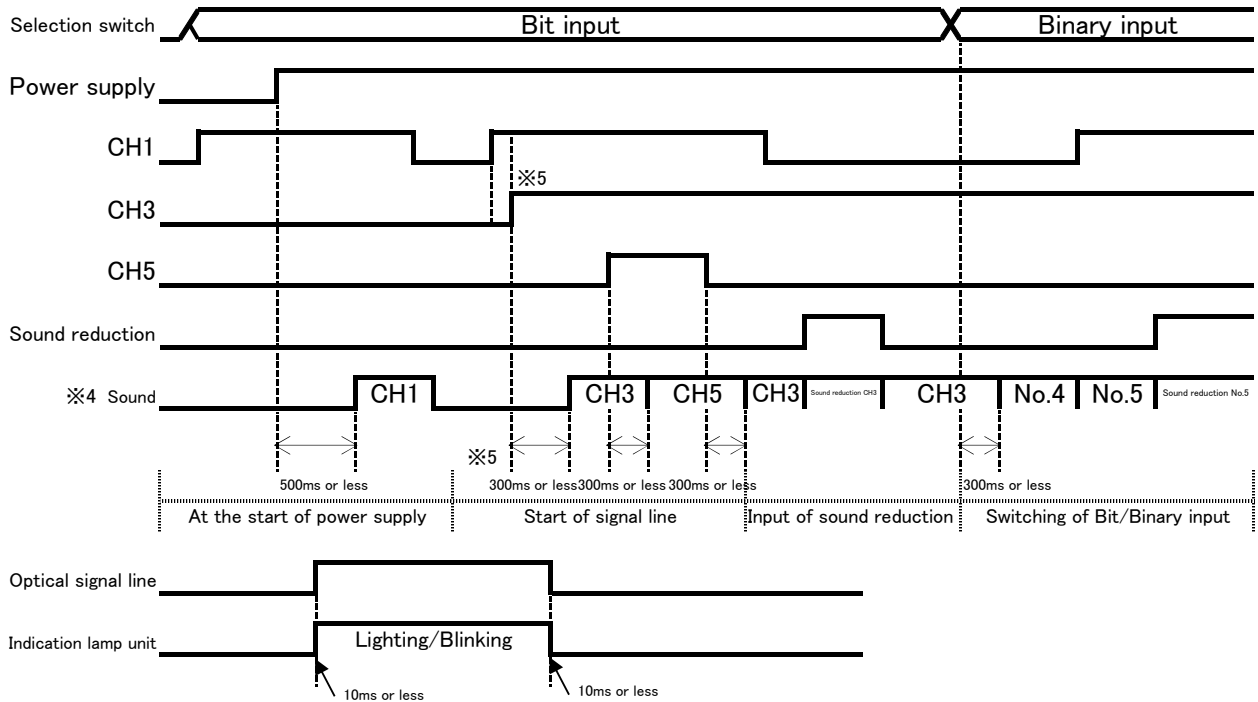
Test playing



Switching of Bit/Binary input



### 3-3. Input timing chart



※1 Each group has 8 tones, from CH1 to CH8. Refer to "3-6. List of the tones."

※2 Tones can be freely combined with a SD card (sold separately) and transferred to group H. Refer to "3-6. List of the tones."

※3 In case of test play mode, the sound stored in CH1 is always played back.

※4 Refer to "List of the tones" about the sound played back. (Refer the CH number when bit input, and refer the tone number when binary input.)

※5 In case the input is changed within 300ms before the playback, it would take another 300ms or less to activate the sound again.

### 3-4. Binary code table

To select the binary input mode, set the DIP switch number 6 to ON.

In the binary input mode, the corresponding CH as shown in the below table is played back by short-circuiting the CH lines and common line.

In case the input which is not shown in the table is made, "5. Rapid Hi-Lo" is played back.

Input CH								Tones	Input CH								Tones
CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8		CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	
○								1	○				○				17
	○							2		○			○				18
○	○							3	○	○			○				19
		○						4			○		○				20
○		○						5	○		○		○				21
	○	○						6		○	○		○				22
○	○	○						7	○	○	○		○				23
			○					8				○	○				24
○			○					9	○			○	○				25
	○		○					10		○		○	○				26
○	○		○					11	○	○		○	○				27
		○	○					12			○	○	○				28
○		○	○					13	○		○	○	○				29
	○	○	○					14		○	○	○	○				30
○	○	○	○					15	○	○	○	○	○				31
				○				16						○			32

○ means short circuit of the sound signal line and the common line.

### 3-5. List of the tones (Tone number)

A T Y P E	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	For 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
C T Y P E	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

D T Y P E	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
E T Y P E	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	For Elise	31	Ave Maria
	08	Synthesized Bell	16	Falling Crystals	24	Minuet	32	Grandfather's Clock

The tone number is channel number of binary input, and it is selection number at the group rewriting.

### 3-6. Tone lists

	Group	A	B	C	D	E
A T Y P E	CH 1	For 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	/	
	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	Holdiridia	Bell (clear highpitched bell)	Petrouchka		
	CH 4	Daydream Believer	Yelp (rapid siren)	Grandfather's Clock		
	CH 5	Rapid Hi-Lo	Rapid Hi-Lo	London bridge is falling down		
	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			
C T Y P E	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	Romance De Amour
	CH 2	Top of the World	Rara Sanshain	Yozorano Mukou	Haruyo Koi	The camptown Races
	CH 3	The Entertainer	Uchuusenkan Yamato	Aiwa Katsu	Uchuusenkan Yamato	Minuet
	CH 4	Amazing Grace	Oshiete	Truth	Rara Sanshain	Ave Maria
	CH 5	Amairono Kamino Otome	Makenaide	Gattsudaze	Can't Take My Eyes off of You	Stutter + Bell
	CH 6	Les Champs-Elysees	Gonna Fly Now(Theme for "Rocky")	Odoru Ponpokorin	Gonna Fly Now(Theme for "Rocky")	Synthesized Melody
	CH 7	Chime	Chime	Chime	Chime	Chime
CH 8	Call sign	Call sign	Call sign	Call sign	Call sign	

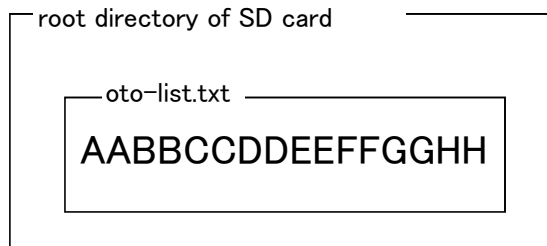
C T Y P E	Group	F	G	H	/	
	CH 1	Beep (slow intermittent horn)	Odoru Ponpokorin	Rara Sanshain		
	CH 2	Stutter (rapid intermittent horn)	Aiwa Katsu	Uchuusenkan Yamato		
	CH 3	Stutter + Bell	Truth	Odoru Ponpokorin		
	CH 4	Synthesized Melody	Les Champs-Elysees	Imasugu Kisu Mi		
	CH 5	Synthesized Piano	Amazing Grace	Amairono Kamino Otome		
	CH 6	Synthesized Bell	Yozorano Mukou	Les Champs-Elysees		
	CH 7	Chime	Chime	Aiwa Katsu		
CH 8	Call sign	Call sign	Truth			
D T Y P E	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	Beep (slow intermittent horn)	Bell (clear highpitched bell)
	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	
E T Y P E	Group	F	G	H	/	
	CH 1	Saafu Tengoku Sukii Tengoku	Doyoubino Koibito	Hi Ho		
	CH 2	Konnako Irukana	I've been working on the Railroad	I've been working on the Railroad		
	CH 3	Oribiao Kikinagara	She Wore a Yellow Ribbon	Yankee Doodle		
	CH 4	Iro Howaitoburendo	Yankee Doodle	When the Saints Go Marching In		
	CH 5	Rapid Hi-Lo	Synthesized Piano	Saafu Tengoku Sukii Tengoku		
	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			
E T Y P E	Group	A	B	C	D	E
	CH 1	For Elise	Minuet	For 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	Ringin Phone	Alarm Clock
	CH 6	The camptown Races	Ave Maria	Grandfather's Clock	Two Tone	Ringin Hi-Lo
	CH 7	Chime	Chime	Chime	Alarm Clock	Synthesized Piano
CH 8	Call sign	Call sign	Call sign	Ringin Hi-Lo	Synthesized Bell	
E T Y P E	Group	F	G	H	/	
	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		
	CH 4	Ringin 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 Piano	Mary had a little Lamb		
CH 8	Synthesized Bell	Synthesized Bell	The camptown Races			



### 3-7. Rewriting method of group H

Tones can be freely combined with a SD card (sold separately) and transferred to group H. In case of rewriting the sound combination, follow the following procedures.

1. Prepare a SD card, and store the following data in it.  
The file name must be one byte alphabetical characters. (Case insensitive)  
The tone numbers in the text file must be designated by one byte numbers.

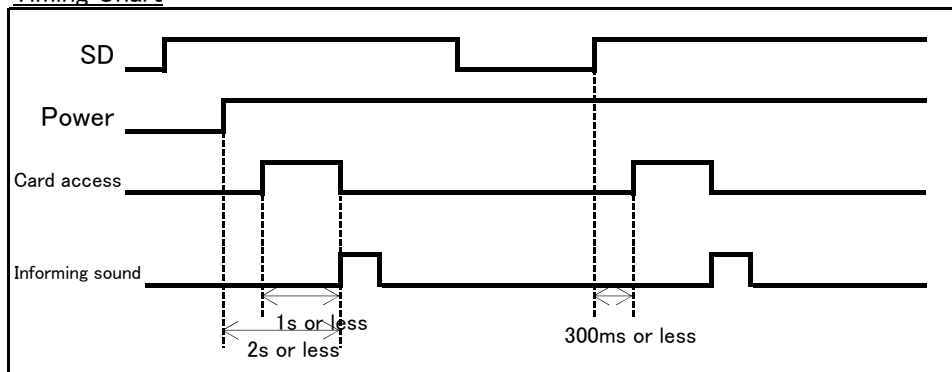


AA : Tone number of CH1  
BB : Tone number of CH2  
CC : Tone number of CH3  
DD : Tone number of CH4  
EE : Tone number of CH5  
FF : Tone number of CH6  
GG : Tone number of CH7  
HH : Tone number of CH8

(例) 0204081605101520 (A type)  
CH1:[2]Stutter (rapid intermittent horn) CH2:[4]Yelp (rapid siren) CH3:[8]Synthesized Bell  
CH4:[16]Annie Laurie CH5:[5]Rapid Hi-Lo CH6:[10]Synthesized Melody  
CH7:[15]Minuet CH8:[20]The camptown Races

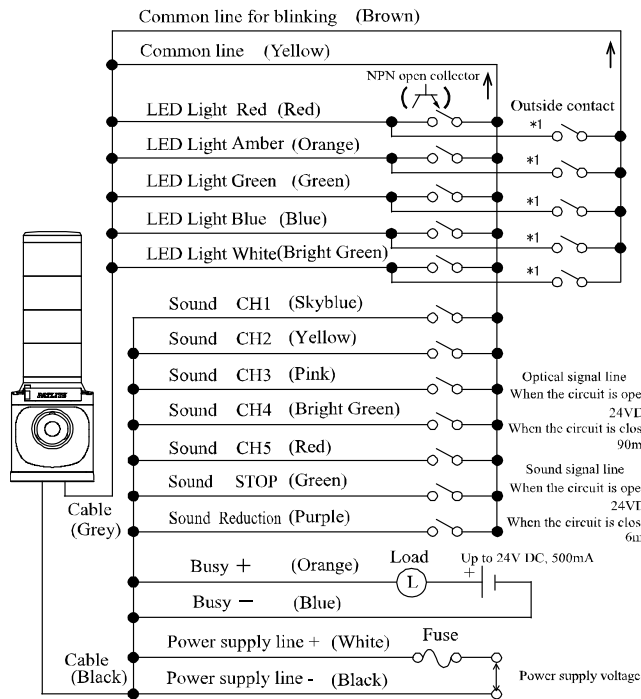
2. Make sure that the power is supplied to the product.
3. The data transfer is started automatically by inserting the SD card into the card slot.
4. When the data transfer is finished, the informing sound (continuous beep sound) is played. Then, take out the SD card from the product.  
If the informing sound or no beep is played, the data transfer is not completed successfully. The informing sound cannot be heard if the sound level is set to minimum.
5. Select the tone group to H, and confirm if the tone of each CH is stored as designated.

Timing Chart

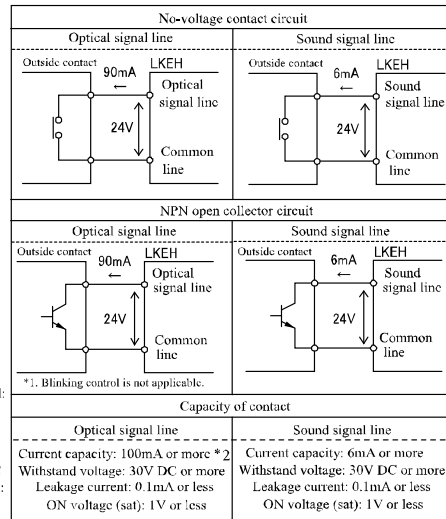


- \* Do not take out the SD card until the informing sound is played when transferring the data.
- \* Once the data transfer starts, the sound is not played back until the informing sound is played even if the signal is input to the product.
- \* If the SD card is inserted while playing a tone, data transfer is started after the playback is finished.

### 3-8. Wiring Method

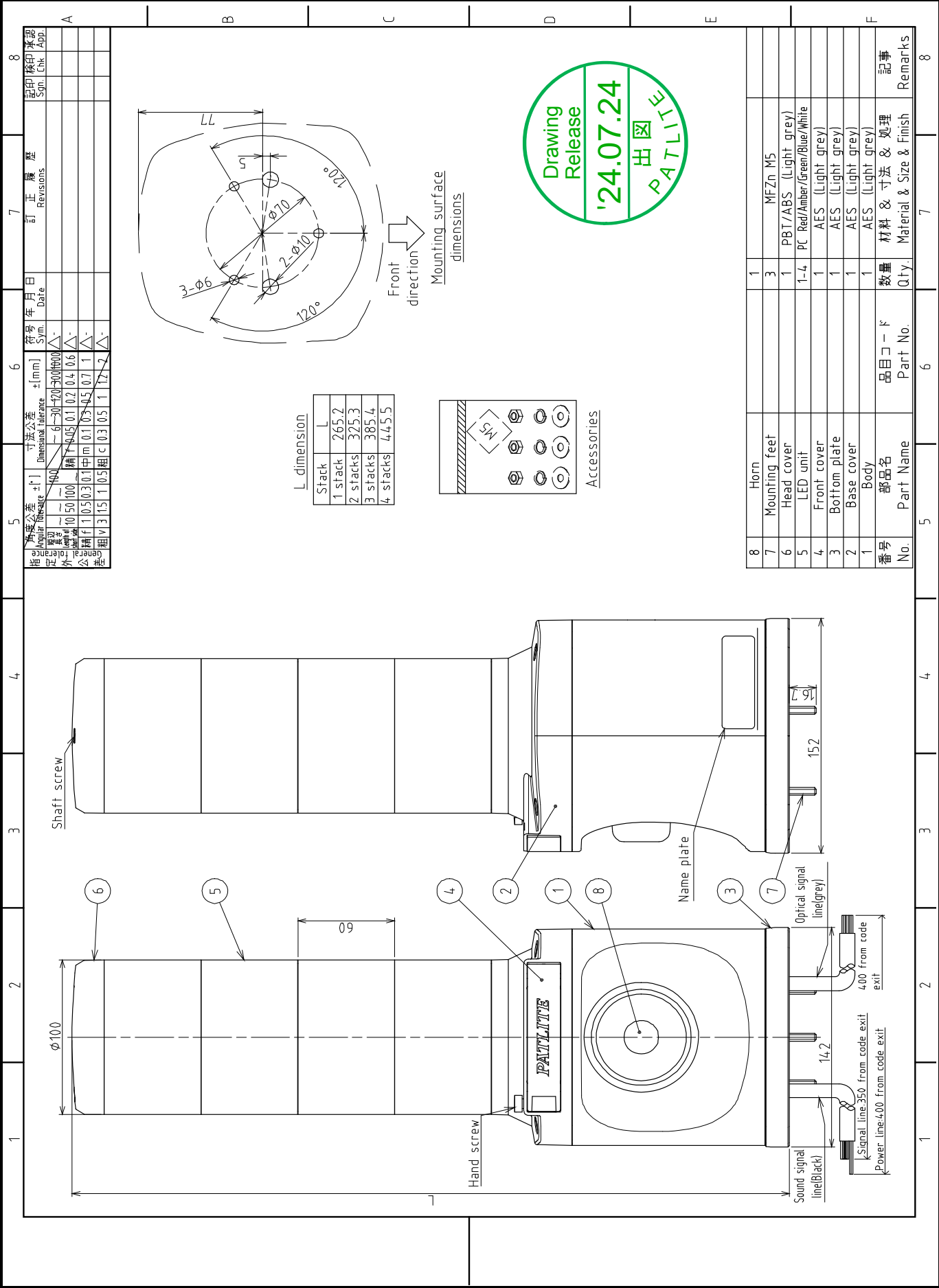


**\* Do not apply voltage on each signal line. Or else, there is a risk of breaking down the product.**



Model	Rated voltage	Rush current *2	Fuse capacity *4
LKEH-□12F□	120V AC	12A	0.5A(time lag)

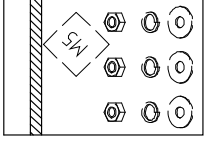
- \* 1. Blinking control is applicable only for the no-voltage contact circuit.
- \* 2. Current capacity of the contact per one stack of the LED light units.  
When using a plurality of LED light units with a same color, confirm the contents of following [Request](#).
- \* 3. At the maximum using voltage, and when power supply is switched on
- \* 4. For LKEH-□12FV, use a fuse of the time-lag type. If the normal type is used, there is a risk of melting down by rush current.



記号	年月日	訂正履歴	記号	年月日	訂正履歴
Sgn.	Chk.	App.	Sgn.	Chk.	App.
寸法公差		寸法公差	寸法公差		寸法公差
Dimensional tolerance		Dimensional tolerance	Dimensional tolerance		Dimensional tolerance
±(mm)		±(mm)	±(mm)		±(mm)
10		0.1	0.1		0.1
0.5		0.05	0.05		0.05
1.0		0.1	0.1		0.1
1.5		0.1	0.1		0.1
2.0		0.1	0.1		0.1
3.0		0.1	0.1		0.1
4.0		0.1	0.1		0.1
5.0		0.1	0.1		0.1
6.0		0.1	0.1		0.1
7.0		0.1	0.1		0.1
8.0		0.1	0.1		0.1
9.0		0.1	0.1		0.1
10.0		0.1	0.1		0.1
11.0		0.1	0.1		0.1
12.0		0.1	0.1		0.1
13.0		0.1	0.1		0.1
14.0		0.1	0.1		0.1
15.0		0.1	0.1		0.1
16.0		0.1	0.1		0.1
17.0		0.1	0.1		0.1
18.0		0.1	0.1		0.1
19.0		0.1	0.1		0.1
20.0		0.1	0.1		0.1

L dimension

Stack	L
1 stack	265.2
2 stacks	325.3
3 stacks	385.4
4 stacks	445.5



Accessories

8	Horn	1	
7	Mounting feet	3	MFZn M5
6	Head cover	1	PBT/ABS (Light grey)
5	LED unit	1-4	PC Red/Amber/Green/Blue/White
4	Front cover	1	AES (Light grey)
3	Bottom plate	1	AES (Light grey)
2	Base cover	1	AES (Light grey)
1	Body	1	AES (Light grey)
番号	部品名	数量	材料 & 寸法 & 処理
No.	Part Name	Qty.	Material & Size & Finish