SPECIFICATIONS

Model: LKEH-□□□F□

PATLITE Corporation

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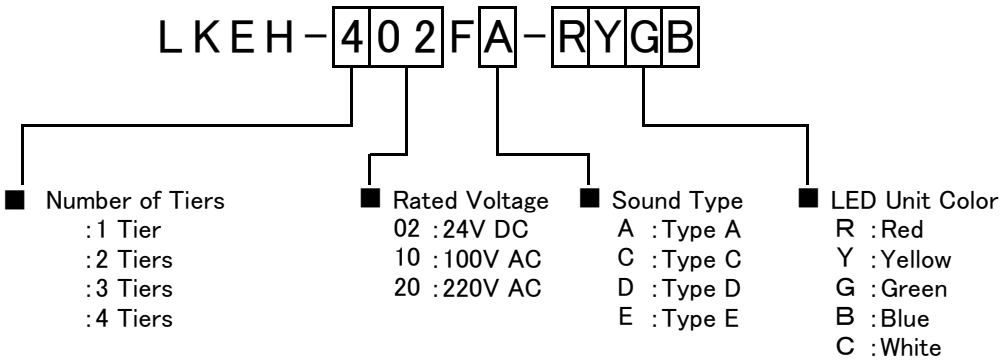
PATLITE Corporation has not applied for permission to use certain copyrighted music or songs recorded
in LKEH-FA, FC and FD types outside of Japan; therefore, please contact the local copyright association
for permission before using the product in case this product is used outside of Japan.
LKEH-FE type is recommended for use outside of Japan as this model does not include copyrighted music or songs, and the permission is not required.and/or falling of the main body.

1.Model Indicating Format



2.General Specifications

Model	LKEH-□02F□	LKEH-□10F□	LKEH-□20F□
Rated Voltage	24V DC	100V AC 50/60Hz	220V AC 50/60Hz
Operating Voltage Range	24V DC±10%	100V AC±10%	220V AC±10%
Power Consumption	LKEH-102F: 10.6W	LKEH-110F: 17.0W	LKEH-120F: .17.0W
	LKEH-202F: 12.4W	LKEH-210F: 20.0W	LKEH-220F: 20.0W
	LKEH-302F: 14.2W	LKEH-310F: 23.0W	LKEH-320F: 23.0W
	LKEH-402F: 16.0W	LKEH-410F: 26.0W	LKEH-420F: 26.0W
Operating Ambient Temperature	−10℃ to +50℃		
Operating Ambient Humidity	85%RH or less (No Condensation)		
Mounting Location	Indoors and Outdoors		
Mounting Direction	Upright		
Protection Rating	IP 53		
Environmental Condition	Upright Direction Only		
Insulation Resistance	More than 1MΩ at 500VDC between the terminals and the chassis		
Withstand Voltage	500V AC for 1 minute Between terminal and chassis	1000V AC for 1 minute Between terminal and chassis	1500V AC for 1 minute Between terminal and chassis
Vibration Resistance	19.6m/s^2 (30Hz back and forth for 2h･Right and left for 2h･Up and down for 4h)		
Mass (Tolerance ±10%)	LKEH-102F□ 1.4kg	LKEH-110F□ 2.1kg	LKEH-120F□ 2.1kg
	LKEH-202F□ 1.6kg	LKEH-210F□ 2.3kg	LKEH-220F□ 2.3kg
	LKEH-302F□ 1.8kg	LKEH-310F□ 2.5kg	LKEH-320F□ 2.5kg
	LKEH-402F□ 2.0kg	LKEH-410F□ 2.7kg	LKEH-420F□ 2.7kg
Conformity Standards	･EMC Directive (EN 55011, EN 61000-6-2) ･RoHS Directive(EN IEC 63000)		
Remarks	･Conforms to the CE Requirements ･Conforms to the UKCA Requirements	There are no contents of controlled substances exceeding the threshold for the RoHS Directive.	

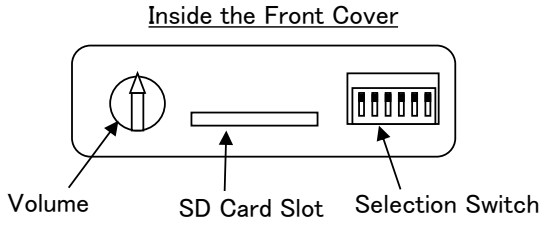
3.Performance Specifications

Sound Pressure Level		MAX. 105dB (Adjustable Volume)
	Environmental Condition	Product was placed on a 300mm^2 base at a distance of 1 meter from its epicenter and a sine wave of 1kHz was played back * The sound level will vary upon the message and surrounding environment.
Sound Reduction		20dB±2dB (Value based on maximum volume and sound 5 "Rapid Hi-Lo" playback)
Light Source		LED
Illumination (mcd)		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
Flashing Rate		60 fps ±3
Input Interface		Signal Wires: 16 (LED: 5 Wires/Sound: 8 Wires/Sound Reduction/Flashing Common/Common) Selection Switch, SD Card Slot
Signal Input		Bit Input/Binary Input (Selectable)※1
Number of Playback Messages		Bit Input: 8 Channels / Binary Input: 32 Channels
Channel Priority		CH8>CH7>CH6>CH5>CH4>CH3>CH2>CH1(Only bit input)
Number of Sounds		32
Memory Card		Recommended SD Card: SDV-2GP(Sold Separately)
Data Format		FAT16
Start-up Time		Power Start-up:500ms or less / Signal Wire Input Delay: 300ms or less (Refer to sect. 3-3)

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

3-1. Setup Method

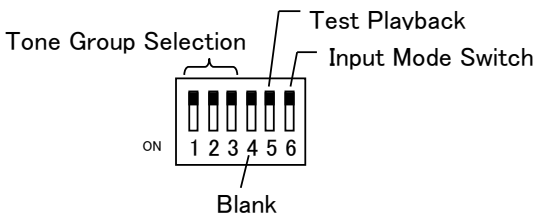
The settings for this product can be accessed from the front panel while in its installed condition.
The following diagram indicates the accessable functions:



・Sound Volume Adjustment
The sound can be adjusted by the volume control.

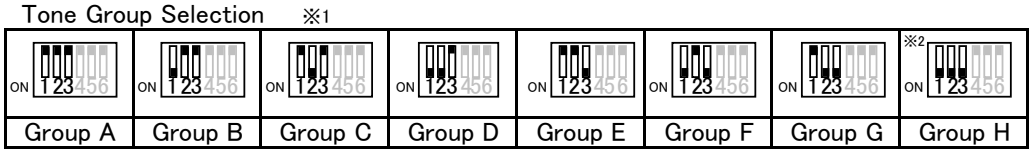
・Sound Playback Combination Method
By using an SD Card, the tones in Group H can be freely combined among the available 32 tones.

・Selection Switch
The following modes can be switched:
"Tone Group Selection," "Test Playback" and "Input Mode Switch" (DIP SW No. 4 is blank)



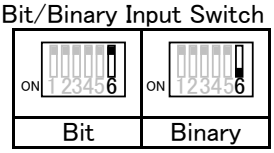
3-2. Selection Switch Setting

Tone Group Selection ※1



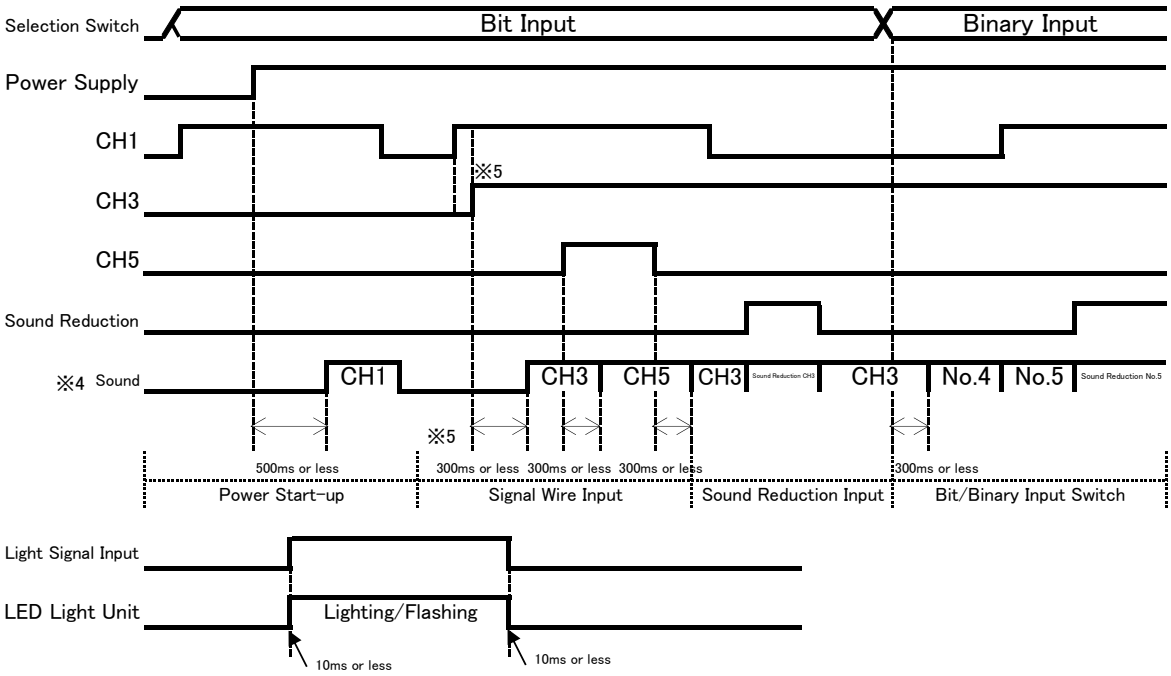
Test Playback

Bit/Binary Input Switch



Factory Settings

3-3. Input Timing Chart



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

※2 Tones can be freely combined with an SD card (sold separately) and transferred to group H. Refer to "3-7. Group H Rewriting Method"

※3 In the Test Mode, the sound stored in CH1 is always played back.

※4 Refer to the "List of Tones" section for playback sounds. (Refer to the CH number with Bit Input, and the tone number with Binary Input.)

※5 If the input is changed within 300ms before playback, it will take about another 300ms to activate the sound again.

3-4. Binary Input Mode Table

To select the Binary Input Mode, set DIP switch number 6 to the "ON" position.
The corresponding channels indicated below is played back for the
Binary Input Mode by short-circuiting the CH wires to the common wire.
Tone No. 5 "Rapid Hi-Lo" is played back if an input not shown in the table is made.
(CH7 and CH8 are reserved for the "STOP" and "Sound Reduction Function" inputs)

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

○ Indicates a short-circuit between the signal wire and common wire.

3-5. Tone Chart (Sound/Group Type)

A TYPE	01	Beep	09	Stutter + Bell	17	London Bridge	25	Amaryllis
	02	Stutter	10	Synthesized Melody	18	Hol-Di-Li-Dia	26	Symphony No.40
	03	Bell	11	Chime	19	Mary's Lamb	27	Silent Lakeside
	04	Yelp	12	Call Sign	20	Camptown Races	28	Mountain Musician
	05	Rapid Hi-Lo	13	Fur Elise	21	Cuckoo	29	Spanish Romance
	06	Melody Chime	14	Maiden's Prayer	22	Village Blacksmith	30	Katyusha
	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 TYPE	01	Beep	09	Stutter + Bell	17	Amairo no Kami no Otome	25	I Don't Want to Miss a Thing
	02	Stutter	10	Synthesized Melody	18	Aux Champs-Elysees	26	Yozora no Mukou
	03	Bell	11	Chime	19	Canon	27	Ai wa Katsu
	04	Yelp	12	Call Sign	20	La-la Sunshine	28	Truth
	05	Rapid Hi-Lo	13	Can't take my eyes off of You	21	Space Battleship Yamato	29	Guts Daze!!
	06	Melody Chime	14	Top of the World	22	Oshiete	30	Odoru Ponpokorin
	07	Synthesized Piano	15	The Entertainer	23	Makenai de	31	Ima sugu Kiss Me
	08	Synthesized Bell	16	Amazing Grace	24	"Rocky" Theme Song	32	Haru yo, Koi

D TYPE	01	Beep	09	Chime	17	Surf Tengoku, Ski Tengoku	25	Shubert's Lulluby
	02	Stutter	10	Call Sign	18	Iro, White Blend	26	Rudolph the Red-nosed Reindeer
	03	Bell	11	Runner	19	Happy Birthday	27	She Wore a Yellow Ribbon
	04	Yelp	12	Mamotte Agetai	20	Hi Ho	28	My Darling Clementine
	05	Rapid Hi-Lo	13	While listening to Olivia	21	I've been working on the Railroad	29	Yellow Rose of Texas
	06	Melody Chime	14	September	22	The Bear Song	30	Yankee Doodle
	07	Synthesized Piano	15	Douyobi no Koibito	23	Toys Go Cha Cha Cha	31	When the Saints Go Marching In
	08	Synthesized Bell	16	Aki no Kihai	24	Konnako Irukana	32	Londonderry Aire
E TYPE	01	Beep	09	Stutter + Bell	17	Inverted Revellie	25	Annie Laurie
	02	Stutter	10	Synthesized Melody	18	Galactic Motor	26	London Bridge
	03	Bell	11	Chime	19	Ringing Phone	27	Mary's Lamb
	04	Yelp	12	Call Sign	20	Two Tone	28	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

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

3-6. Tone Lists

A TYPE	Group	A	B	C	D	E
	CH 1	Fur Elise	Mary's Lamb	Amaryllis	Grandfather's Clock	Spanish Romance
	CH 2	Maiden's Prayer	Camptown Races	Symphony No.40	Ave Maria	Camptown Races
	CH 3	Minuet	Cuckoo	Silent Lakeside	Daydream Believer	Minuet
	CH 4	Annie Laurie	Village Blacksmith	Mountain Musician	London Bridge	Ave Maria
	CH 5	London Bridge	On the Avignon Bridge	Spanish Romance	Bell	Stutter + Bell
	CH 6	Hol-Di-Li-Dia	Daydream Believer	Katyusha	Yelp	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's Lamb	Beep	Camptown Races		
	CH 2	Symphony No.40	Stutter	Cuckoo		
	CH 3	Hol-Di-Li-Dia	Bell	Katyusha		
	CH 4	Daydream Believer	Yelp	Grandfather's Clock		
	CH 5	Rapid Hi-Lo	Rapid Hi-Lo	London Bridge		
	CH 6	Melody Chime	Melody Chime	Mary's Lamb		
	CH 7	Synthesized Piano	Synthesized Piano	Silent Lakeside		
	CH 8	Synthesized Bell	Synthesized Bell	Mountain Musician		

C TYPE	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	Ima sugu Kiss Me	Spanish Romance
	CH 2	Top of the World	La-la Sunshine	Yozora no Mukou	Haru yo, Koi	Camptown Races
	CH 3	The Entertainer	Space Battleship Yamato	Ai wa Katsu	Space Battleship Yamato	Minuet
	CH 4	Amazing Grace	Oshiete	Truth	La-la Sunshine	Ave Maria
	CH 5	Amairo no Kami no Otome	Makenai de	Guts Daze!!	Can't Take My Eyes off of You	Stutter + Bell
	CH 6	Aux Champs-Elysees	"Rocky" Theme Song	Odoru Ponpokorin	"Rocky" Theme Song	Synthesized Melody
	CH 7	Chime	Chime	Chime	Chime	Chime
	CH 8	Call Sign	Call Sign	Call Sign	Call Sign	Call Sign

C TYPE	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		

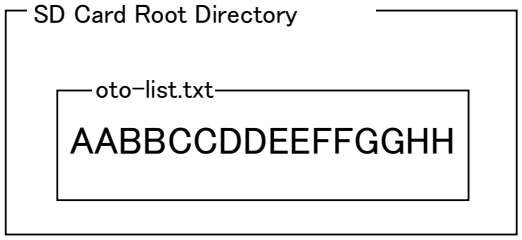
D TYPE	Group	A	B	C	D	E
	CH 1	Runner	Happy Birthday	She Wore a Yellow Ribbon	Yellow Rose of Texas	Runner
	CH 2	Mamotte Agetai	Hi Ho	Oh My Darling Clementine	Yankee Doodle	Iro Howaitoburendo
	CH 3	Oribiao Kikinagara	I've been working on the Railroad	Yellow Rose of Texas	When the Saints Go Marching In	Wiegenlied
	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
	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 TYPE	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	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		
	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	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 Piano	Mary had a little Lamb		
	CH 8	Synthesized Bell	Synthesized Bell	The camptown Races		

3-7. Group H Rewriting Method

With an SD Card (sold separately) , tones can be freely combined and transferred to group H.
Follow the procedure below when rewriting the sound combination.

1. Prepare the SD card with the following data shown below.
   The file name must contain alphabetical characters. (Case Insensitive)
   The tone numbers in the text file must be designated by digits.



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

(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

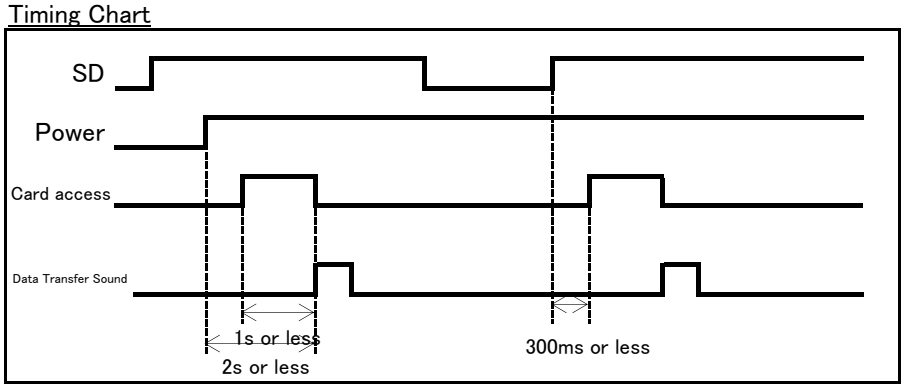
2. Make sure that the power is supplied to the product.

3. The data transfer starts automatically when the SD card is inserted into the card slot.

4. When the data transfer is finished, a continuous beeping sound is heard.
   When it is heard, pull the SD card out from the product.
   If there is no data transfer completion sound or any sound heard, the data transfer is not
   Ensure the volume is at an audible level so the beeping alarms can be heard
   during the rewriting procedure.

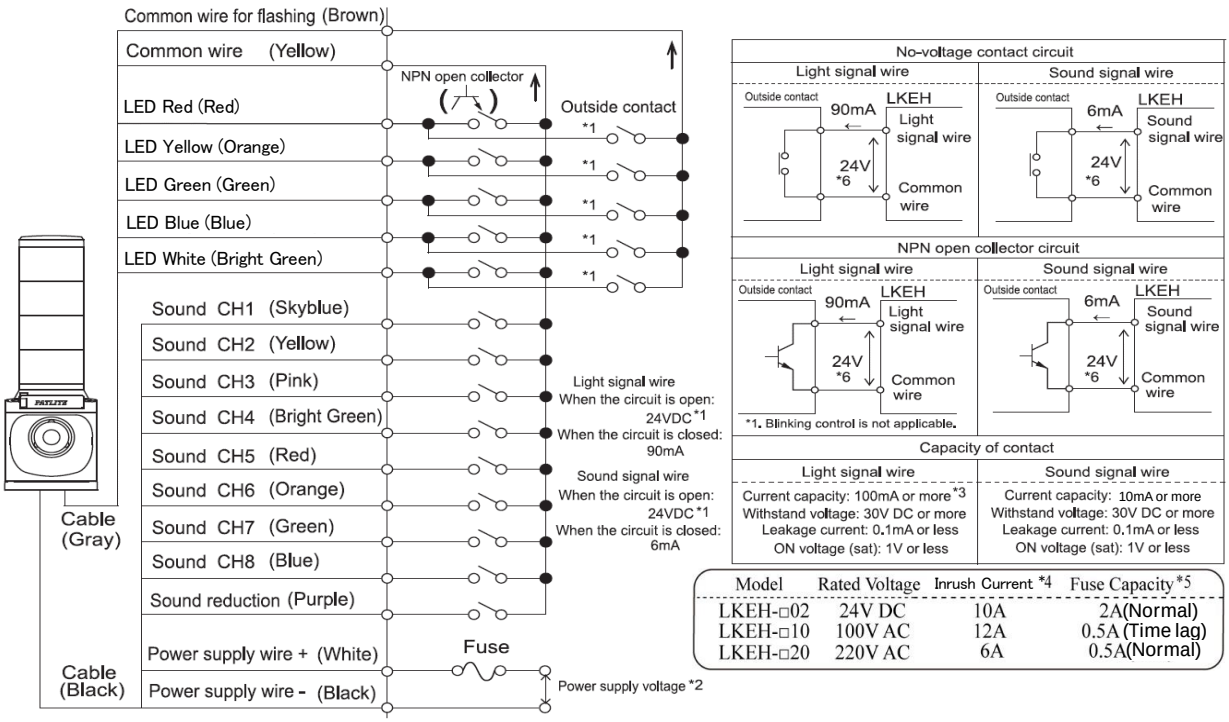
5. Select the tone for Group H, and confirm that the tone for each CH is stored as expected.

Timing Chart



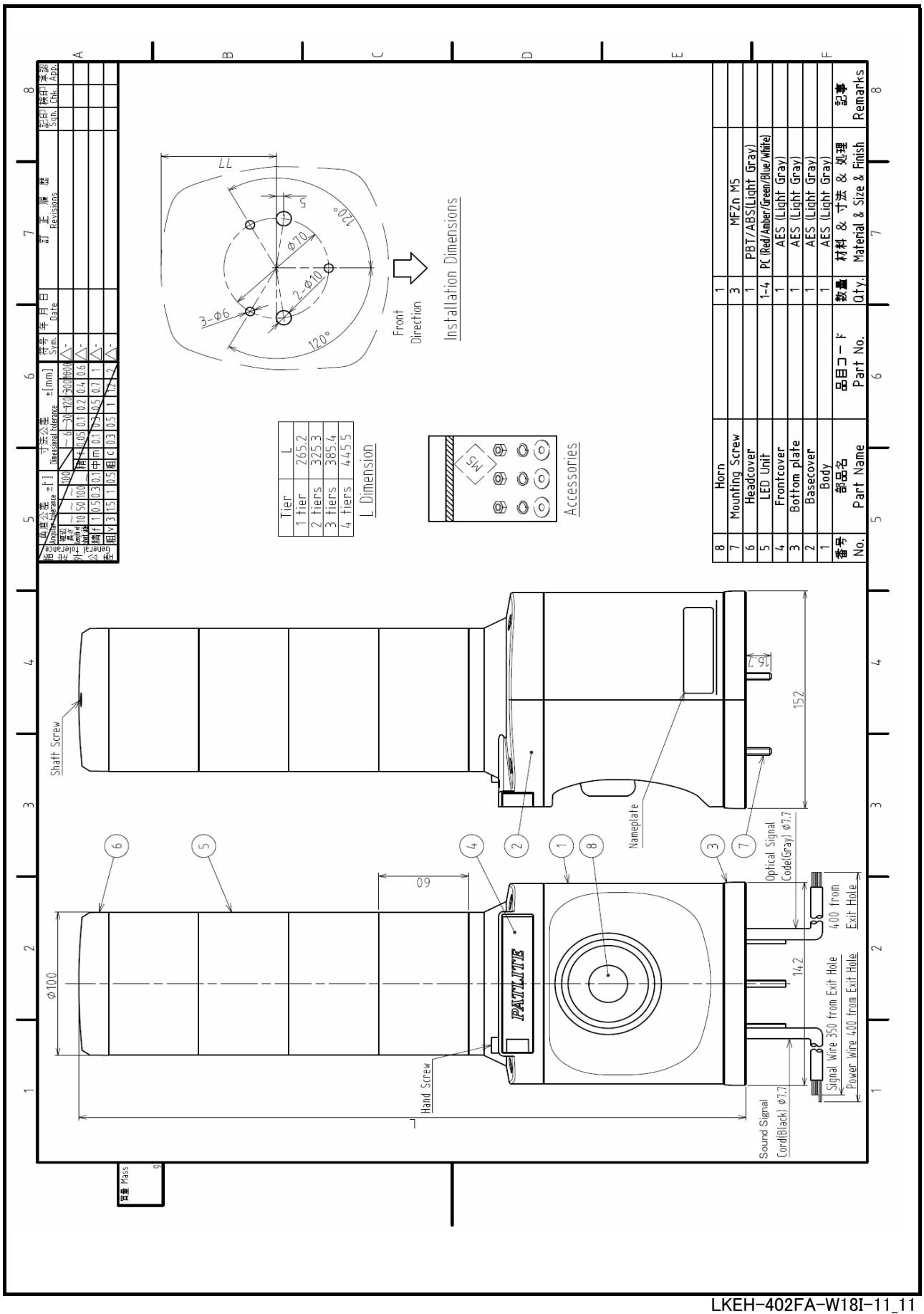
* Do not remove the SD card until the transfer complete sound is heard when transferring the data.
* Once the data transfer starts, no messages will play back until the transfer complete sound is played, even if a signal input is entered during the data transfer procedure.
* If the SD card is inserted while a message is being played back, data transfer will start after the playback is finished.

3-8. Wiring Method



Model	Rated Voltage	Inrush Current *4	Fuse Capacity *5
LKEH-□02	24V DC	10A	2A(Normal)
LKEH-□10	100V AC	12A	0.5A (Time lag)
LKEH-□20	220V AC	6A	0.5A(Normal)

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

*1. Blinking control is applicable only for the no-voltage contact circuit.
*2. Regarding LKEH-□02, connect the power supply wire(black) at the minus (terminal)
*3. Current capacity of the contact per one stack of the LED light units.
*4. At the maximum using voltage,and when power supply is switched on.
*5. For LKEH-□10,use a fuse of the time-lag type. If the normal type is used, there is a risk of melting down by Inrush current.
*6. In case of LKEH-□02,this is power supply voltage.

4. Dimensions