SPECIFICATIONS

MODEL	FV-127JP
	MP3 File Playback Circuit Board

Drawing Number : FV-127JP-APDFD-en

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1. Model Number

FV − 127 J P

■ 127: 127 Messages　■ J : DC 24V　　■ P : Printed Circuit Board

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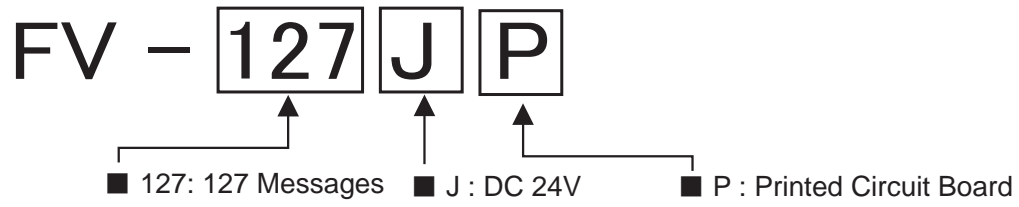
2. Specifications

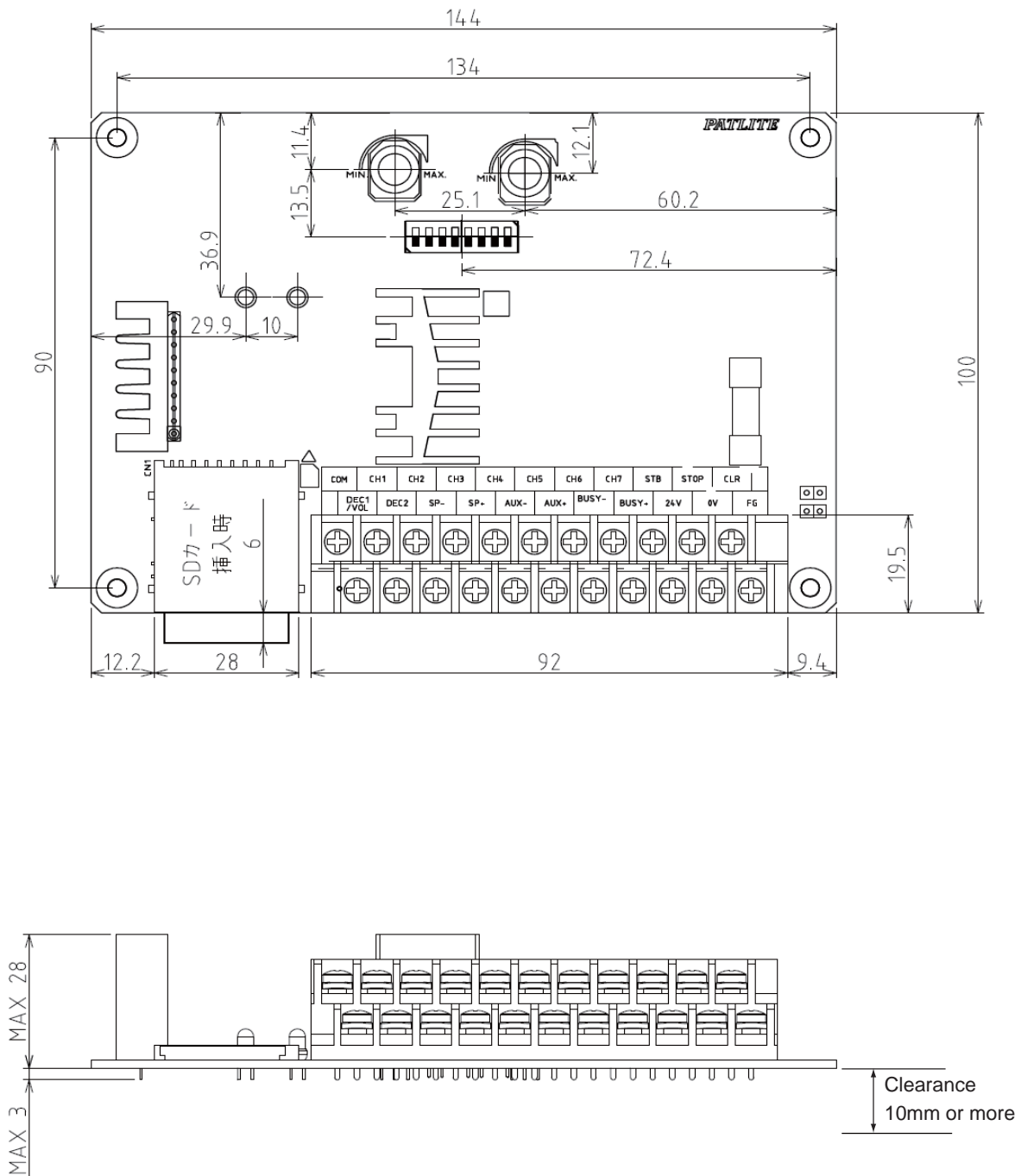| General Specifications	
Model Name	FV-127JP
Rated Voltage	DC 24V
Voltage Range	DC 19 to 29V
Wiring Method	M3 Terminal Bus
Current Consumption	Maximum 15W (1*)
Operating Temperature Range	-10 to 50°C
Storage Temperature	-40 to 80°C
Relative Humidity	85% RH or less
Operating Environment	Built-in Type Only
Installation Method	4 Screw Tie-down
Vibration Resistance	45m/s2 (30Hz forward and back/Left and right for 2hrs., up and down for 4hrs.)
Mass	160g ±10%
Outer Dimensions	144×100×28 [mm] (Lead Wires and Mounting Posts not included)
Audible Specifications	
Replay Message Number	For Binary: 127 For Bit Input: 7
Audio File Format	MPEG1-Audio Layer: (MP3)
Bit Rate	32kbit/s:64kbit/s(Standard), 128kbit/s Fs=44.1kHz
Maximum PlaybackTime	On-board Memory (4,360,191 byte): About 8 min (Recorded with standard bit rate) External Memory (SD Card): With 128MB about 240 min. (Standard Bit Rate Recording)
On-board Memory Size	4,360,191byte
Audio Start-up Time	About 260ms (When sound mute not added at beginning and end of messages)
Audio Pause Time	Unless specified, 100ms sound mute added at beginning and end of messages
Compatable Memory Card	SD Card Recommended Part: SDV-128P (Sold Separate)
Card Format	FAT16
Audio Rewrite Capability	Possible with SD Card and Special Software
Audio Replay Time	About 180 sec. (When changing the 4,360,191 byte on-board memory)
Input / Output Specifications	
Signal Input Section	CH1 , CH2 , CH3 , CH4 , CH5 , CH6 , CH7 , STB , CLR , STOP, DEC1/VOL, DEC2
Signal Input Priority	CLR Input > STOP Input > CH Input (Larger Channel takes Priority)
Sound Reduction Input	Speaker/AUX Output: Three Noise Reduction Levels of -10dB, -20dB, -30dB (1*)
Input Hold Time	More than 10ms or 50ms (Changeable Settings)
Signal Input Type	Non-voltage contact or NPN Open Collector
Speaker Output	8Ω compatable speaker of 4W or more, or 8Ω compatable speaker of 2W or more (Switchable Setting)
Maximum SoundPressure	Speaker Output at 4W: 105 dB; at 2W: 102dB (2*)
AUX Output	0dBV 600Ω (Adjustable with Volume Control or Sound Reduction Input)
BUSY Output	Maximum DC40V 500mA

(1*) 1kHz Sine Wave Data Playback at -6dB

(2*) At 1m with 1kHz Sine Wave Data Playback and SPW-5E Speaker (Sold Separate)

This product complies with the RoHS directive (DIRECTIVE 2002/95/EC)

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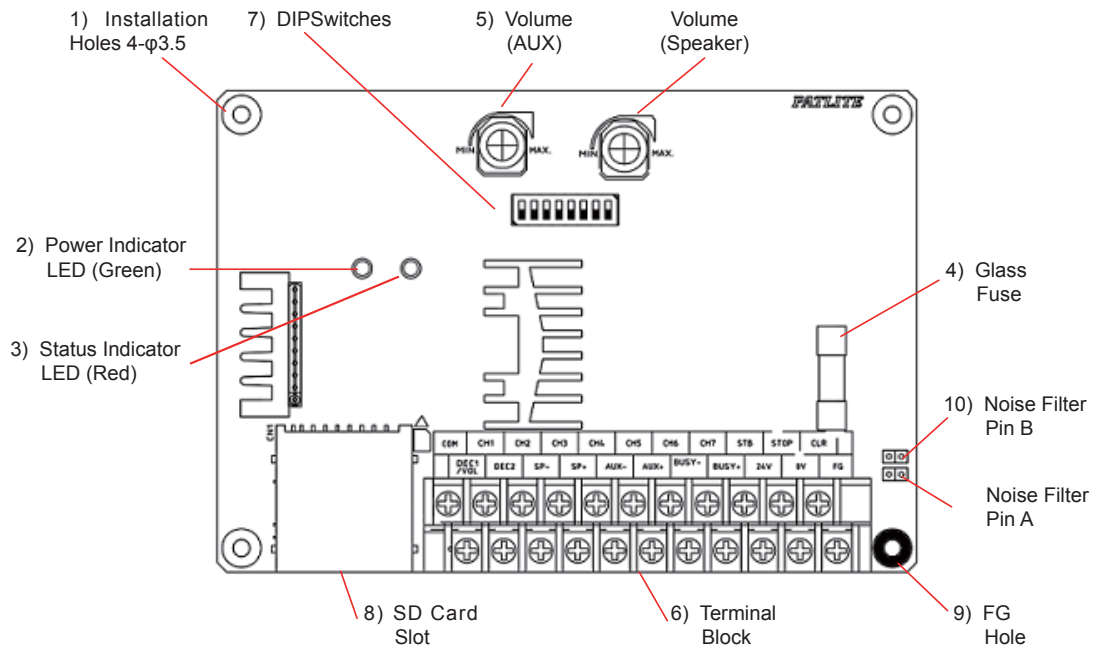# 3. Outside Dimensions

[mm]

- Mounting Installation Method

Using the four holes, mount with spacers at a length 10mm or more. Product specifications may change without advanced notice.

Note:

Due to changes, improvements, etc., contents of this manual may change without advanced notice.

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4. Part Names

1) Installation Holes 4-φ3.5
7) DIPSwitches
5) Volume (AUX)
Volume (Speaker)
2) Power Indicator LED (Green)
3) Status Indicator LED (Red)
4) Glass Fuse
10) Noise Filter Pin B
Noise Filter Pin A
8) SD Card Slot
6) Terminal Block
9) FG Hole

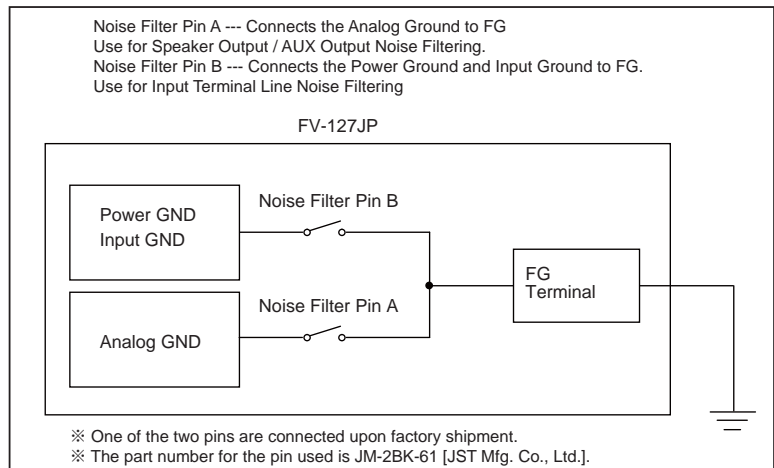1. Status Condition Indicator LED (Red)

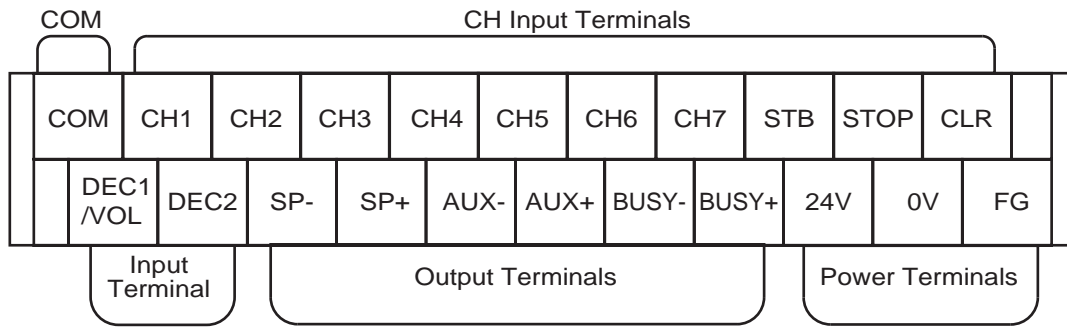| LED Status	Operation
Off	During standby or audio message playback.
On	When transferring voice message When exporting voice message
Flashing	Error during playback

2. Glass Fuse

Fuse to protect from overcurrent or overvoltage. Refer to the specifications below when replacing:

Glass Fuse: φ5.2×20 Rated Current: 1.0A Standard Fusion Type

Replacement Part: Nippon Seisen Co., Ltd. FBM 250V 1A / Fuji Terminal Industry FGMB 250V/A

3. Noise Filter Pin (A , B)

Depending on the pin setting, incoming noise can be reduced.

Both pins are connected upon shipment, but by removing any of them may increase noise susceptibility.

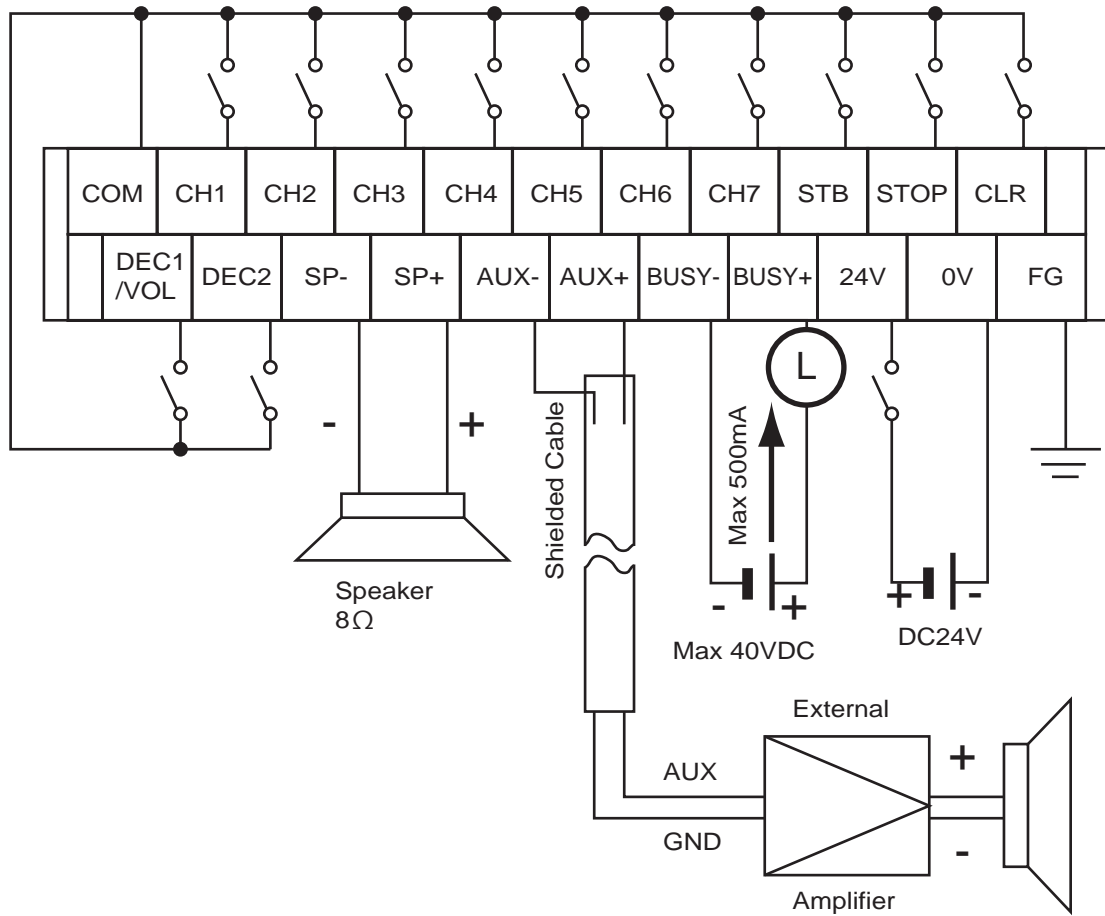Therefore, set the pins in accordance to the operating environment.

Noise Filter Pin A --- Connects the Analog Ground to FG
Use for Speaker Output / AUX Output Noise Filtering.
Noise Filter Pin B --- Connects the Power Ground and Input Ground to FG.
Use for Input Terminal Line Noise Filtering

FV-127JP

Power GND Input GND
Noise Filter Pin B
Analog GND
Noise Filter Pin A
FG Terminal

※ One of the two pins are connected upon factory shipment.
※ The part number for the pin used is JM-2BK-61 [JST Mfg. Co., Ltd.].

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5. Terminal Block Specifications

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      COM                          CH Input Terminals
  ┌────────┐   ┌─────────────────────────────────────────────────┐
┌──┬──────┬──────┬──────┬──────┬──────┬──────┬──────┬──────┬──────┬──────┬──┐
│  │ COM  │ CH1  │ CH2  │ CH3  │ CH4  │ CH5  │ CH6  │ CH7  │ STB  │ STOP │ CLR │  │
├──┼──────┼──────┼──────┼──────┼──────┼──────┼──────┼──────┼──────┼──────┼──────┤
│  │ DEC1 │ DEC2 │ SP-  │ SP+  │ AUX- │ AUX+ │BUSY- │BUSY+ │ 24V  │  0V  │ FG  │  │
│  │ /VOL │      │      │      │      │      │      │      │      │      │     │  │
└──┴──────┴──────┴──────┴──────┴──────┴──────┴──────┴──────┴──────┴──────┴──────┘
         └─────┘  └───────────────────────────────┘  └──────────────────┘
          Input           Output Terminals             Power Terminals
         Terminal
```

Name	Function
COM	Common connection for input terminals
CH1-7	Channel selection terminal for audio messages. Short to COM for the selected channel to playback message. Two input modes "binary" and "bit" can be selected.
STB	When in the Binary Mode, STB is used during playback. (Not applicable for the "Hold Playback" mode)
STOP	Stops the message during playback.
CLR	When used during the "memory playback" mode, the audio playback message is erased. For other modes, the function is the same as the "STOP" mode.
DEC1/VOL, DEC2	Depending on the input status, the speaker volume or AUX volume decreases. | DEC1/VOL	DEC2	Reduction Level | | Open | Open | No Reduction | | Short to COM | Open | -10dB | | Open | Short to COM | -20dB | | Short to COM | Short to COM | -30dB |
SP-, SP+	Speaker Terminal Connection
AUX-, AUX+	Amplifier Terminal Connection
BUSY-, BUSY+	Output is produced during message playback
24V,0V	Power Input Terminal. Connect DC24V only.
FG	When connecting to earth ground (FG), under certain environments can reduce the effect of noise. The FG is connected internally.

The DEC1/VOL, DEC2 reduction table:

DEC1/VOL	DEC2	Reduction Level
Open	Open	No Reduction
Short to COM	Open	-10dB
Open	Short to COM	-20dB
Short to COM	Short to COM	-30dB

6. Wiring Diagram

COM	CH1	CH2	CH3	CH4	CH5	CH6	CH7	STB	STOP	CLR	
DEC1/VOL	DEC2	SP-	SP+	AUX-	AUX+	BUSY-	BUSY+	24V	0V	FG	

Speaker 8Ω

Shielded Cable
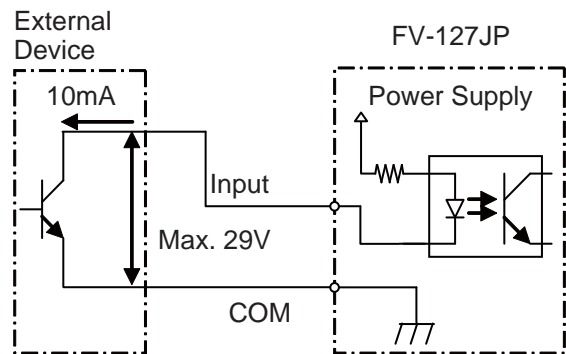
Max 500mA

Max 40VDC

DC24V

External

AUX

GND

Amplifier

- Use relays, switches or other non-voltage contacts or NPN open collector circuitry for operation
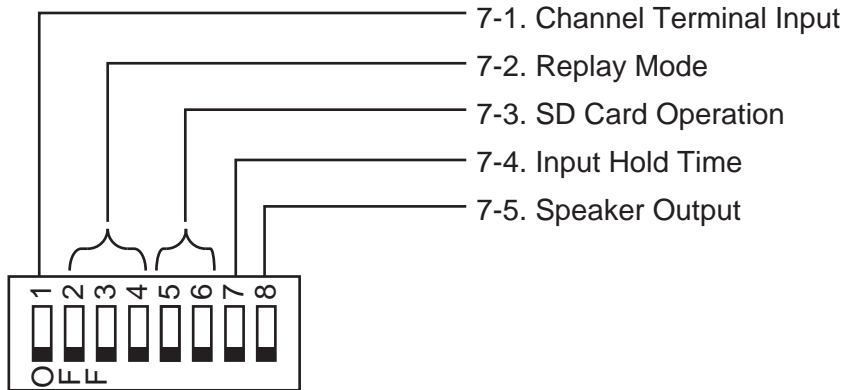
Non-voltage Contact Circuit Example

External Device   FV-127JP

10mA   Power Supply

Input

Max. 29V

COM
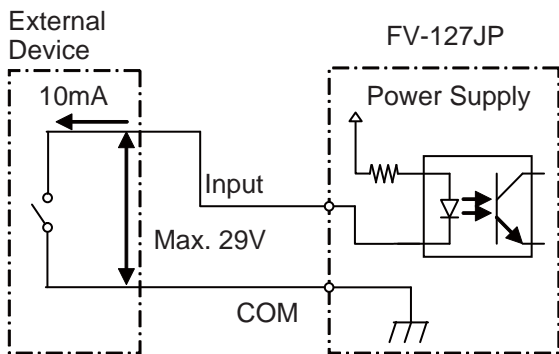
Open-collector Circuit Example

External Device   FV-127JP

10mA   Power Supply

Input

Max. 29V

COM

- Contact Capacity

Use the following table below to determine the capacity for external connections.

Voltage Capacity	15mA or more
Withstanding Voltage	DC35V or less
Leakage Current	0.1mA or less
"ON" Voltage (V_{sat})	1V or less

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7. Mode Switch Settings

7-1. Channel Terminal Input

7-2. Replay Mode

7-3. SD Card Operation

7-4. Input Hold Time
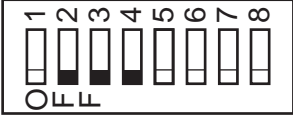
7-5. Speaker Output

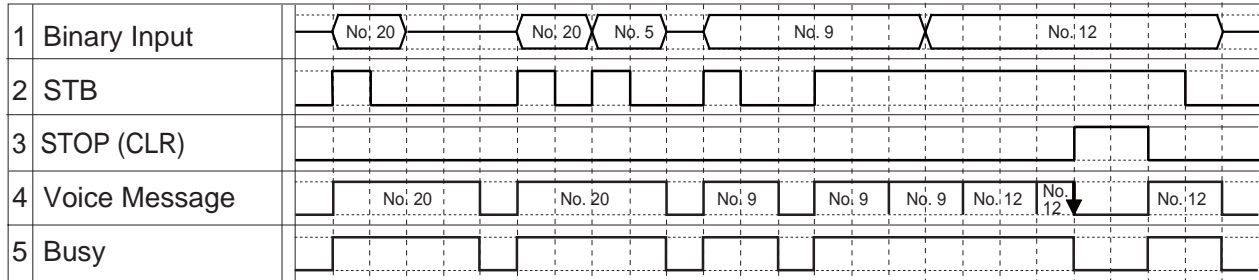*** Factory Settings:All Switches in the "OFF" positon**

7-1. Channel (CH) Terminal Input

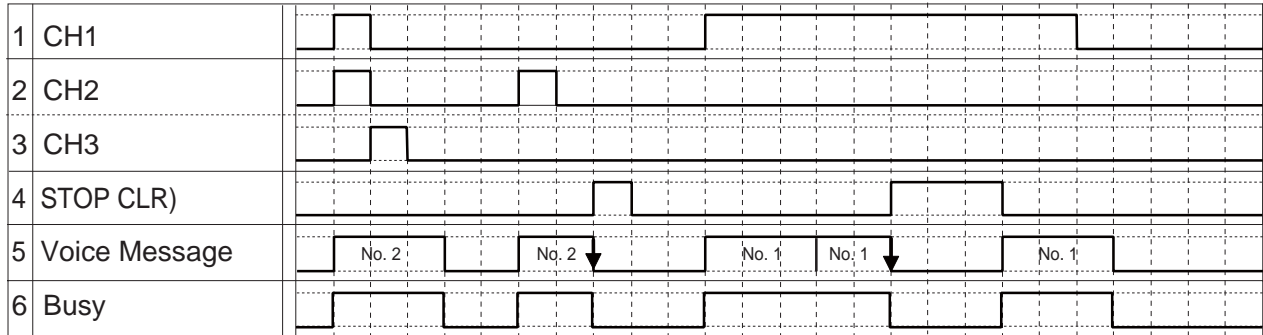| Binary Input	When terminals CH1 to CH7 are shorted to COM, if terminal STB and terminal COM are short-circuited, the voice message will be played back. (The hold playback mode is excluded) For inputs relating to the playback message and channel input, A maximum of 127 messages can be reproduced.
Bit Input	When terminals CH1 to CH7 are shorted to the COM terminal, the voice message will playback. The terminals CH1 to CH7 corresponds to voice messages No.1 to 7, respectively. Do not use the STB terminal. A maximum of seven messages can be played back. When two inputs or more are selected at the same time, the channel is selected in order of precedence. In memory playback mode, the memory is selected in order of the channel with the highest priority level.

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7-2. Playback Modes

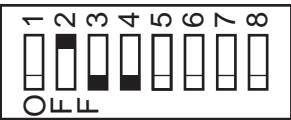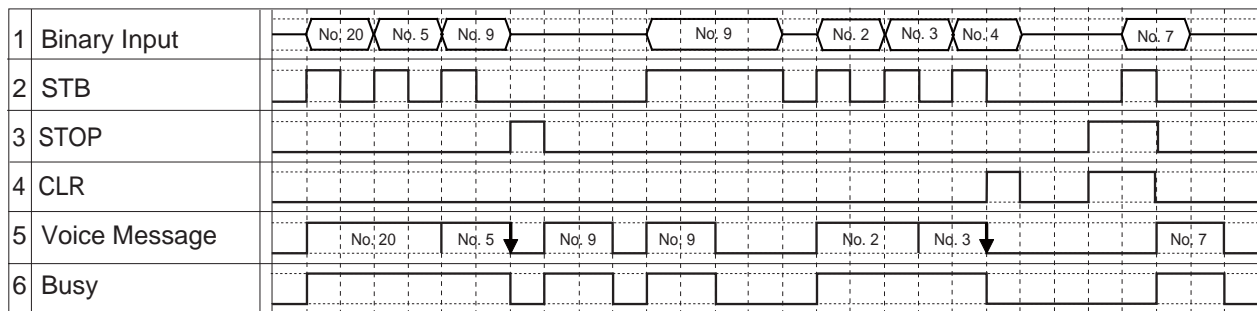| (A) Normal Playback	The message is played back in conjunction with the input. With a oneshot input, play back the message only once and repeat it with the input held on.
	The input becomes invalid when the message is in playback Stop the voice message during playback by shorting the CLR terminal or STOP terminal to the COM terminal.

【Pulse Train for Binary Input】

1	Binary Input
2	STB
3	STOP (CLR)
4	Voice Message
5	Busy

【Pulse Train for Bit Input】

1	CH1
2	CH2
3	CH3
4	STOP CLR)
5	Voice Message
6	Busy

⑳・・・Displays playback of voice message No.20

↓・・Displays the voice message being played back was stopped.

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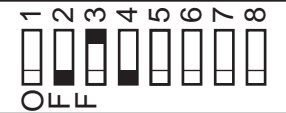| (B) Memory Playback	A maximum of 23 voice messages can be stored in memory in order of priority. When the playback voice message ends, the next message in memory will be played. Inputs that exceed the maximum memory becomes invalid.
	Stop the voice message during playback by shorting the STOP terminal to theCOM terminal to playback the next voice message in memory
	Stop the voice message during playback by connecting the CLR terminal to COM to delete all voice messages contained in the memory.
	Even when holding the input on, the voice message playback ends after completion.
	Even while holding the CLR or STOP input on, the voice message in memory can be paused. After releasing the held-down input, the next voice message in the memory will be played back.

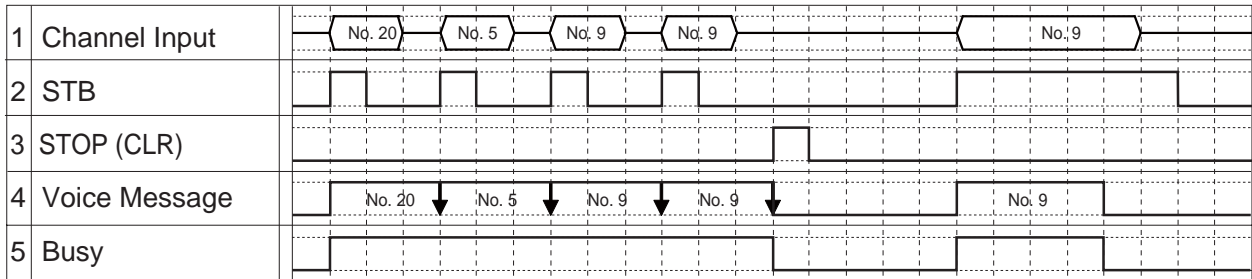【Pulse Train for Binary Input】

【Pulse Train for Bit Input】
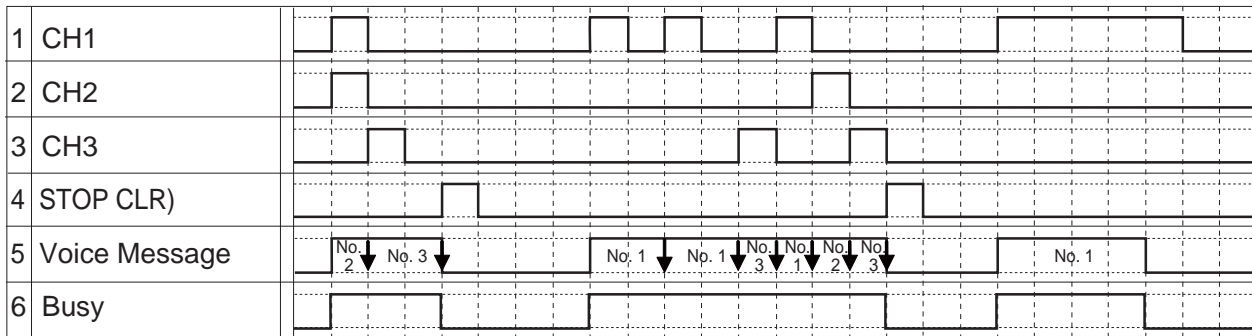

⑳・・・Displays playback of voice message No.20

↓・・Displays the voice message being played back was stopped.

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(C) Input Priority Playback	If the next voice message input is turned on while the current message is in playback, the next message will be played back and the current message will playback after the input is turned on.
	The voice message being played back can be stopped by shorting the input to the CLR or STOP terminal.
	Even when holding the input on, the voice message playback ends after completion.

【Pulse Train for Binary Input】

1	Channel Input
2	STB
3	STOP (CLR)
4	Voice Message
5	Busy

【Pulse Train for Bit Input】

1	CH1
2	CH2
3	CH3
4	STOP CLR)
5	Voice Message
6	Busy

⑳・・・Displays playback of voice message No.20

↓・・Displays the voice message being played back was stopped.

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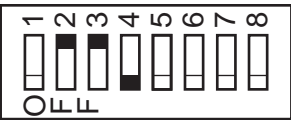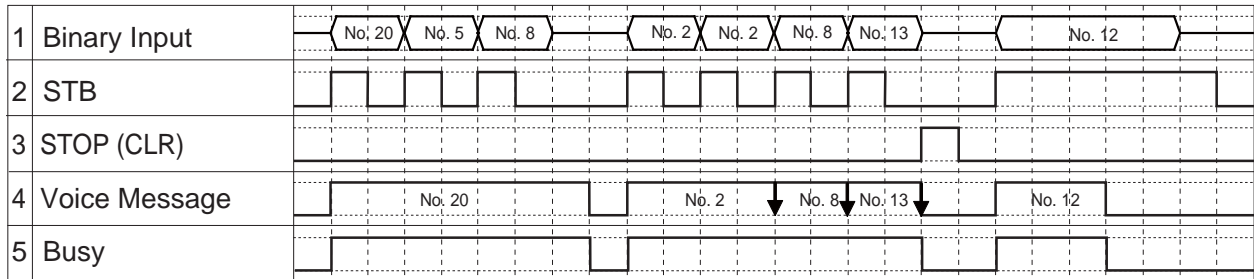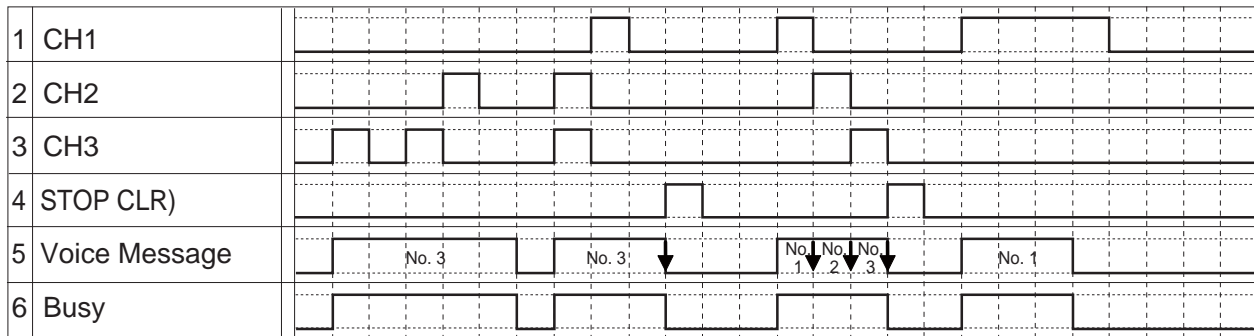| (D) Top Priority Channel Playback	While the message is in playback, if a message of a higher number is entered, the current message will stop and the message with the higher number will be played. The previous voice message will playback afer the input is turned on.
	The voice message being played back can be stopped by shorting the input to the CLR or STOP terminal.
	Even when holding the input on, the voice message playback ends after completion.

【Pulse Train for Binary Input】

1	Binary Input	No. 20 / No. 5 / No. 8 / No. 2 / No. 2 / No. 8 / No. 13 / No. 12
2	STB	
3	STOP (CLR)	
4	Voice Message	No. 20 / No. 2 ↓ / No. 8 ↓ No. 13 ↓ / No. 12
5	Busy	

【Pulse Train for Bit Input】

1	CH1	
2	CH2	
3	CH3	
4	STOP CLR)	
5	Voice Message	No. 3 / No. 3 ↓ / No. 1 No. 2 No. 3 ↓ / No. 1
6	Busy	

⑳・・・Displays playback of voice message No.20

↓・・Displays the voice message being played back was stopped.

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(E) Hold Playback	While the input is held on, the voice message playback is possible.
	When the input is released, the voice message playback stops.
	In this mode, the STB does not operate for the Binary Input Mode. Shorting the CH terminal wire to the COM terminal will play back the message.
	The playback will play repeatedly as long as the input is held on.
	In this mode, the One-shot input will not operate.
	The message playback can be stopped by shorting the CLR or STOP terminals.

【Pulse Train for Binary Input】
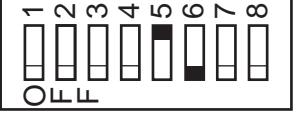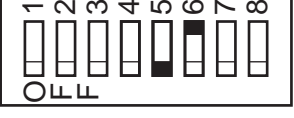
1	Channel Input	No. 20	No. 20	No. 8	No. 12
2	STB				
3	STOP (CLR)				
4	Voice Message	No. 20 / No. 20	No. 20 / No. 8	No. 8 / No. 8	No. 12 / No. 12 / No. 12
5	Busy				

【Pulse Train for Bit Input】

1	CH1
2	CH2
3	CH3
4	STOP CLR)
5	Voice Message
6	Busy

No. 1 / No. 1 / No. 3 / No. 2 / No. 1 / No. 1 / No. 1 / No. 1

⑳・・・Displays playback of voice message No.20

↓・・・Displays the voice message being played back was stopped.

For the Binary Input mode, hold the CH terminal for 10ms or less (※).

If the input is not held within 10ms, another message will start playback (※).

The input delay time is set for 10ms. The input delay can be set for 50ms, for a 50ms delay.

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7-3. SD Card Operation

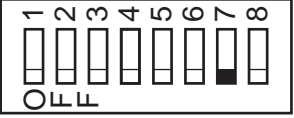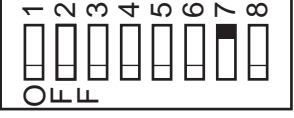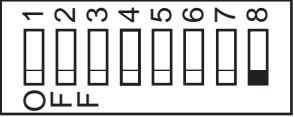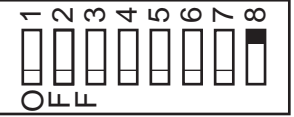|	
Normal Mode	When DIP switches 5 and 6 are in the 'OFF' position, the downloaded voice message can be played back from the internal memory. • Even with the SD card inserted, no effect in operation will occur.
Write Mode	The voice message in the internal memory can be overwritten. To write voice messages into the memory, special software is necessary • Messages cannot be played while in the rewrite mode.
Export Mode	The voice messages located in the internal memory can be read into the SD card. With the read data, message reorganization can be done. Even while the data is being read, the internal data can remain intact. • Messages cannot be played while in the rewrite mode. * Caution: Before exporting data from the internal memory to the SD card, ensure no volatile memory is stored on the SD card. (Data on the SD card will be overwritten.)
Permanent SD Mode	Without the use of the internal memory, the voice message data is taken from the SD card for playback. A maximum 240 minutes of playback is available with the optional SD card (SDV-128P). • The SD card in combination with the internal data won't play back messages. • If the SD card is not inserted, no voice message will play back.

7-4. Input Hold Time

10msec	The factory input hold time setting for the input terminals is set for 10ms. When shorting the individual channel terminal wires to the common (COM), ensure the input is held for at least the duration set for the input hold time. In case the environment contains a lot of noise, by setting the Input Hold Time to 50ms, it might make it more difficult to receive the incoming noise.
50msec	The input hold time for the input terminals can be set for 50ms. When shorting the individual channel terminal wires to the common (COM), ensure the input is held for at least the duration set for the input hold time. The factory setting is for 10ms, but in case the environment contains a lot of noise, by setting the Input Hold Time to 50ms, it might make it more difficult to receive the incoming noise.

7-5. Speaker Output

4W	The speaker output is set for a 4W output	**2W**	The speaker output is set for a 2W output

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8. Timing Charts

Signal inputs requre the proper timing to prevent from unplayed messages, incorrect message playback and other functions from operating incorrectly.

Follow the pulse train below to synchronize the channels for the proper playback times.

[Binary Input Pulse Train]

1	Channel Input
2	STB
3	STOP (CLR)
4	Voice Message
5	Busy

10ms or more(*1)   500ms or less
10ms or more(*1)   10ms or more(*1)
260ms or less
100ms or less

[Bit Input Pulse Train]

1	Channel Input
2	STOP (CLR)
3	Voice Message
4	Busy

10ms or more(*1)   500ms or less
10ms or more(*1)
260ms or less
100ms or less
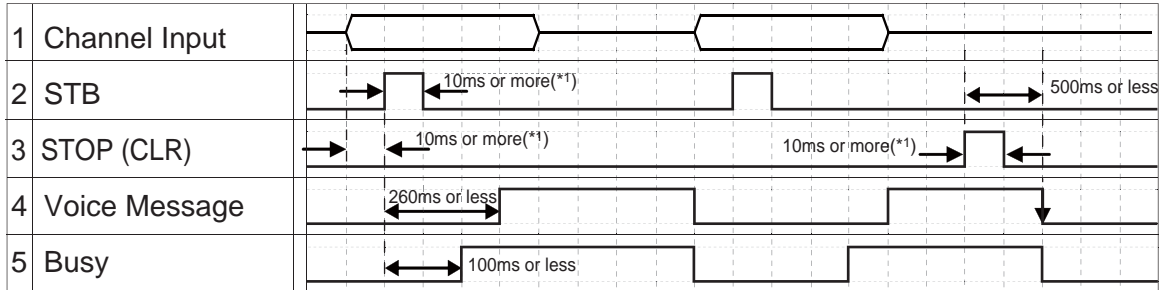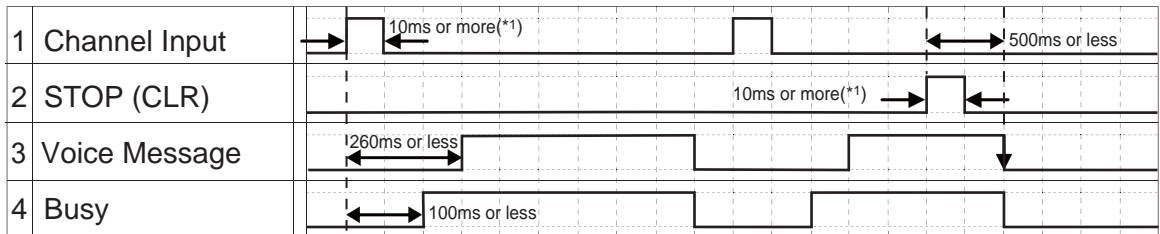
The timing chart above indicates a message stopped during playback.
- The timing duration between the input on and off can be no less than 10ms.

No less than 10ms
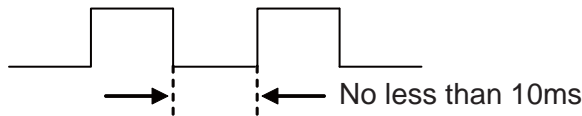
- When the message starts playback, this is the case when no silence is added at the head of the message.

- When using the Binary and Hold modes, the STB input cannot be used.

* The input is set for the 10ms hold time. When the hold time is set for 50ms, the timing duration will require a minimum of 50ms for an "ON" condition.

9. Binary Input Table

Voice Message	CH1	CH2	CH3	CH4	CH5	CH6	CH7	Voice Message	CH1	CH2	CH3	CH4	CH5	CH6	CH7
No. 1	●							No. 65	●						●
No. 2		●						No. 66		●					●
No. 3	●	●						No. 67	●	●					●
No. 4			●					No. 68			●				●
No. 5	●		●					No. 69	●		●				●
No. 6		●	●					No. 70		●	●				●
No. 7	●	●	●					No. 71	●	●	●				●
No. 8				●				No. 72				●			●
No. 9	●			●				No. 73	●			●			●
No. 10		●		●				No. 74		●		●			●
No. 11	●	●		●				No. 75	●	●		●			●
No. 12			●	●				No. 76			●	●			●
No. 13	●		●	●				No. 77	●		●	●			●
No. 14		●	●	●				No. 78		●	●	●			●
No. 15	●	●	●	●				No. 79	●	●	●	●			●
No. 16					●			No. 80					●		●
No. 17	●				●			No. 81	●				●		●
No. 18		●			●			No. 82		●			●		●
No. 19	●	●			●			No. 83	●	●			●		●
No. 20			●		●			No. 84			●		●		●
No. 21	●		●		●			No. 85	●		●		●		●
No. 22		●	●		●			No. 86		●	●		●		●
No. 23	●	●	●		●			No. 87	●	●	●		●		●
No. 24				●	●			No. 88				●	●		●
No. 25	●			●	●			No. 89	●			●	●		●
No. 26		●		●	●			No. 90		●		●	●		●
No. 27	●	●		●	●			No. 91	●	●		●	●		●
No. 28			●	●	●			No. 92			●	●	●		●
No. 29	●		●	●	●			No. 93	●		●	●	●		●
No. 30		●	●	●	●			No. 94		●	●	●	●		●
No. 31	●	●	●	●	●			No. 95	●	●	●	●	●		●
No. 32						●		No. 96						●	●
No. 33	●					●		No. 97	●					●	●
No. 34		●				●		No. 98		●				●	●
No. 35	●	●				●		No. 99	●	●				●	●
No. 36			●			●		No. 100			●			●	●
No. 37	●		●			●		No. 101	●		●			●	●
No. 38		●	●			●		No. 102		●	●			●	●
No. 39	●	●	●			●		No. 103	●	●	●			●	●
No. 40				●		●		No. 104				●		●	●
No. 41	●			●		●		No. 105	●			●		●	●
No. 42		●		●		●		No. 106		●		●		●	●
No. 43	●	●		●		●		No. 107	●	●		●		●	●
No. 44			●	●		●		No. 108			●	●		●	●
No. 45	●		●	●		●		No. 109	●		●	●		●	●
No. 46		●	●	●		●		No. 110		●	●	●		●	●
No. 47	●	●	●	●		●		No. 111	●	●	●	●		●	●
No. 48					●	●		No. 112					●	●	●
No. 49	●				●	●		No. 113	●				●	●	●
No. 50		●			●	●		No. 114		●			●	●	●
No. 51	●	●			●	●		No. 115	●	●			●	●	●
No. 52			●		●	●		No. 116			●		●	●	●
No. 53	●		●		●	●		No. 117	●		●		●	●	●
No. 54		●	●		●	●		No. 118		●	●		●	●	●
No. 55	●	●	●		●	●		No. 119	●	●	●		●	●	●
No. 56				●	●	●		No. 120				●	●	●	●
No. 57	●			●	●	●		No. 121	●			●	●	●	●
No. 58		●		●	●	●		No. 122		●		●	●	●	●
No. 59	●	●		●	●	●		No. 123	●	●		●	●	●	●
No. 60			●	●	●	●		No. 124			●	●	●	●	●
No. 61	●		●	●	●	●		No. 125	●		●	●	●	●	●
No. 62		●	●	●	●	●		No. 126		●	●	●	●	●	●
No. 63	●	●	●	●	●	●		No. 127	●	●	●	●	●	●	●
No. 64							●	The "●" mark indicates a COM to channel (CH) terminal contact.							

PATLITE Corporation