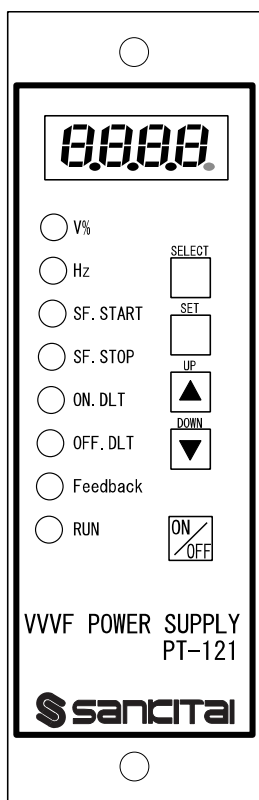


PT-121 Piezoelectric Vibration Machine Controller (Edition issued: Version 3, Date: 2014/9/4)

1. Specification (Applicable for software version v5.3 and hardware version 09-100E1):

Model	PT-121 Variable-frequency controller for piezoelectric vibration feeding machine		
Function	Voltage, Frequency, On Delay, Off Delay, Slow Start, Slow Stop, Amplitude Auto Compensation.		
Input Voltage	AC110V/220V Single-phase power	Frequency	50/60 Hz
Output Voltage	AC 225V±10% (Max)	Frequency	50~400 Hz
Temperature	0°C~40°C (cannot froze)	Humidity	10~99% Rh (cannot froze)

2. Panel operation descriptions



Button	Button Function Descriptions
SELECT	Select display parameter , corresponding LED moves down in sequence.
SET	Enter parameter setting mode Press SELECT until the desired parameter setting has been reached. Press the “SET” key to enter setting mode. When in the setting mode, the LED corresponding to the parameter will flash.
UP	Increase parameter value. After entering setting mode, press “UP” key to increase parameter value.
DOWN	Decrease parameter value. After entering setting mode, press “DOWN” key to decrease parameter value.
ON/OFF	Force Start or Stop

LED	Function description and parameter setting range
V%	Output voltage: 1.0%~99.8% percentage range, increase or decrease 0.2%/step
Hz	Output frequency: Range is 50.0Hz~400.0Hz, increase or decrease 0.1Hz/step
SF.START	Slow start: range is 0~3.0s, increase or decrease 0.1s/step
SF.STOP	Slow stop: range is 0~3.0s, increase or decrease 0.1s/step
ON.DLT	Start on delay: range is 10ms ~ 5.0s , increase or decrease 10ms/step
OFF.DLT	Start off delay: range is 10ms ~ 5.0s, increase or decrease 10ms/step
Feedback	Amplitude auto compensation: must be operated with J10 GSen, refer to 2-1 for parameter setting.
RUN	Operation status: normal start-LED light; force start-LED flash; not operating -LED light off.

2-1. Amplitude auto compensation: operate with J10 GSen. The speed of amplitude compensation must be set when the Feedback-LED is on.

Indicated Value	Description
SoFF	Compensation function off. Feedback-LED off. No compensation function.
Son1	Compensation function on: Feedback-LED on. Compensation speed -maximum.
Son2	Compensation function on: Feedback-LED on. Compensation speed - fast
Son3	Compensation function on: Feedback-LED on. Compensation speed –medium
Son4	Compensation function on: Feedback-LED on, Compensation speed - slow

Note: A. Parameter should be set before starting. Parameters change after starting will be updated at the next start.

B. When the auto compensation is on, the output range is: 1%~set value%*1.87 (Max output is 99.8%).

C. Six seconds after start, the device will automatically check the output amplitude and perform the compensation function. If the voltage, frequency, or operation mode changes, it will automatically check the output amplitude again after six seconds. During the 6 seconds of confirmation, the decimal point of the single-digit on display will flash. After the output amplitude is confirmed, the decimal point stop flashing.

3. Description of DIP switch SW1 function setting (factory setting is OFF)

.SW1-1: set DC power: +12v or +24v/80mA (max) output.

ON set +24v output, PCB LD1 is on.

OFF set +12v output, PCB LD1 is off.

.SW1-2: set Start signal active polarity.

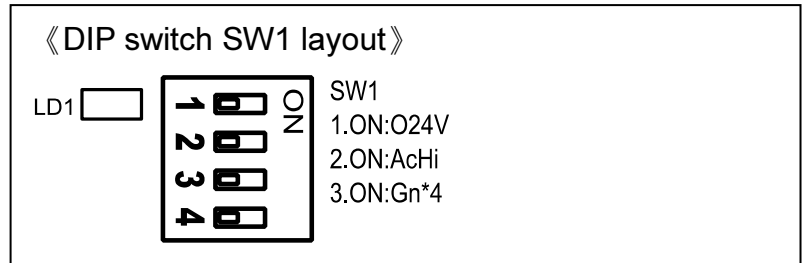
ON set active HI.

OFF set active LOW.

.SW1-3: set the strength of the output power.

ON set output power increase.

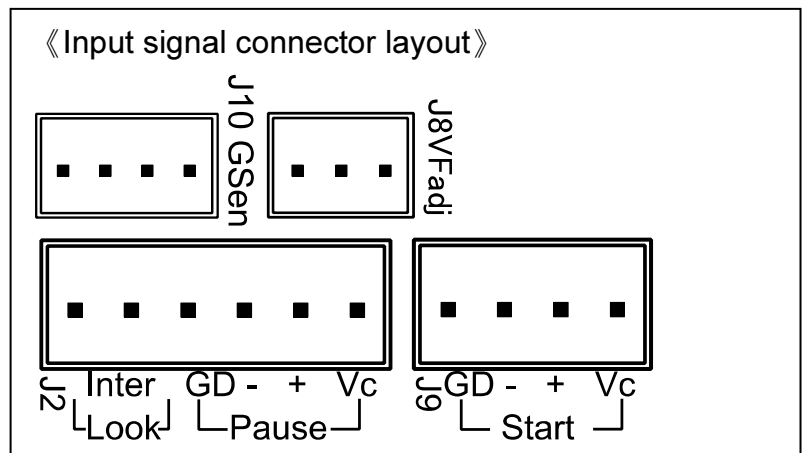
OFF set output power normal.



4. Start sync output signal terminal.

J2-Inter lock is dry contact, and is in is short status during operation.

Refer to 11, signal operation priority sequence.



5. Pause input signal (J2-Pause),

Stop operation when OPEN.

Refer to 11, signal operation priority sequence.

6. Start input signal (J9-Start),

Operating when OPEN.

Refer to 11, signal operation priority sequence.

Note: Keep function J8-VFadj.

7. Four groups of parameter were stored. Changing parameter groups must be done during non-operating status. To change the parameter group, press “UP” key for 5 seconds and then press “SEL” key. The change will be shown in frequency, which is set as 188.0 Hz, 200.0 Hz, 220.0 Hz, or 240.0 Hz.

8. Auto search function (must be started during non-operating status) start method is as follows:

LED light is at the frequency display (HZ-LED on). Press the “DOWN” key for 5 seconds and then simultaneously press the “UP” key. Release the buttons after auto search starts. The frequency starts from 48 Hz and ends at 400 Hz, and the red RUN-LED will flash. The software will stop at the best resonance point automatically. To stop searching, press the “ON/OFF.” If the best resonance point cannot be found, the frequency will be at 188.0 Hz.

9. Simple mode or full function mode

Press “DOWN” key for 5 seconds and simultaneously press “SEL” key to switch operation mode.

When switching to full function mode, the display shows “FSET” for approximately 1 second and all parameters can be set.

When switching to simple mode, the display shows “ESET” for approximately 1 second and **only the output voltage parameter can be set.**

10. Error code:

Hxx.x: output voltage has reached maximum value and cannot be increased further; however, it can be decreased.

When the output power exceeds the max value (approximately AC 230 V), the software will automatically reduce the power to the max value and display the “Hxx.x” for protection.

E-03: temperature sensor abnormal. This can be because the temperature sensor is broken, disconnected, or not connected. Please contact the vendor.

E-04: overheated. This can be caused by overloaded. Restart after the device cools down. If the issue repeats, please contact the vendor (please note the model number).

Note: When E-03 or E-04 occurs, shut down the power, solve the issues, and restart.

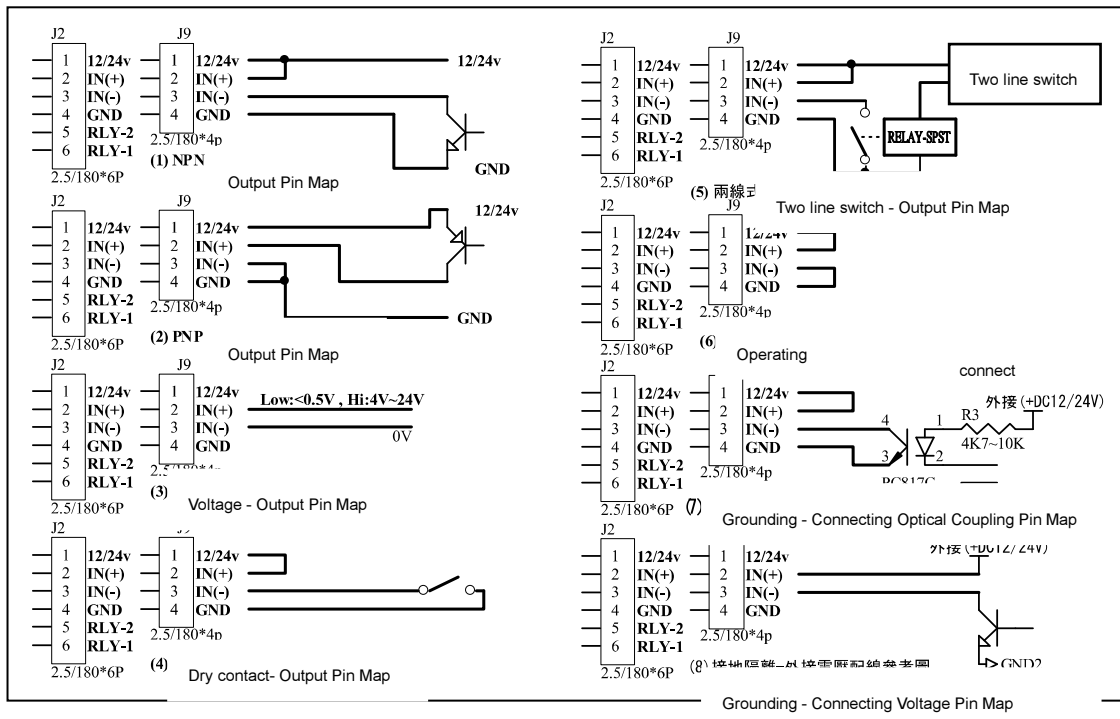
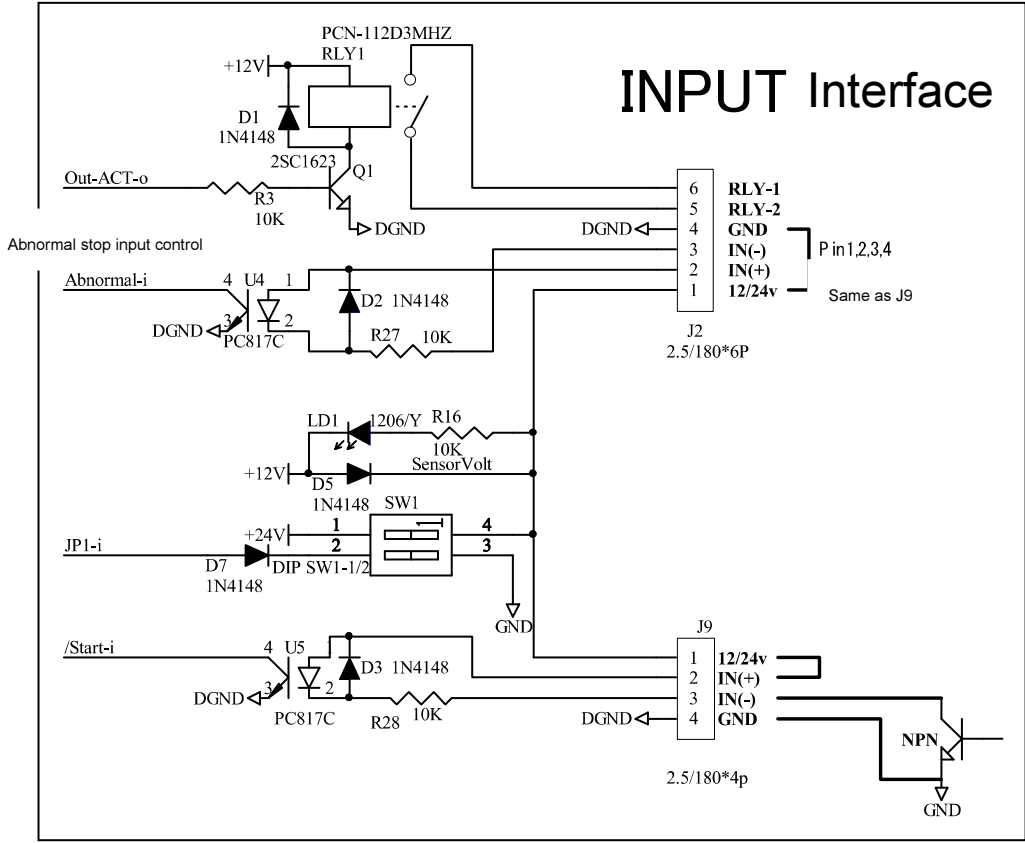
11. Signal operation priority sequence

	START signal	PAUSE signal	Operation status(N)	ON/OFF Key	Operation status (N+1)	Description	Remove
1	Starting	ON	STOP	Press	Force start	If press ON/OFF Key in sequence and it operates/stops, ignore START signal.	When PAUSE is changed from ON to OFF, judge by START signal.
2	OFF	ON	STOP	Press	Forced start	Same as above	Same as above
3	Starting	OFF	Operation	Press	Forced OFF		When START signal is changed from ON->OFF, the forced off is removed. Control with the START and PAUSE signal.
4	OFF	OFF	OFF	Press	Force operation	Press ON/OFF key again for OFF, press it in sequence for operation/stop sequence.	After forced OFF, judge by START, PAUSE signal.

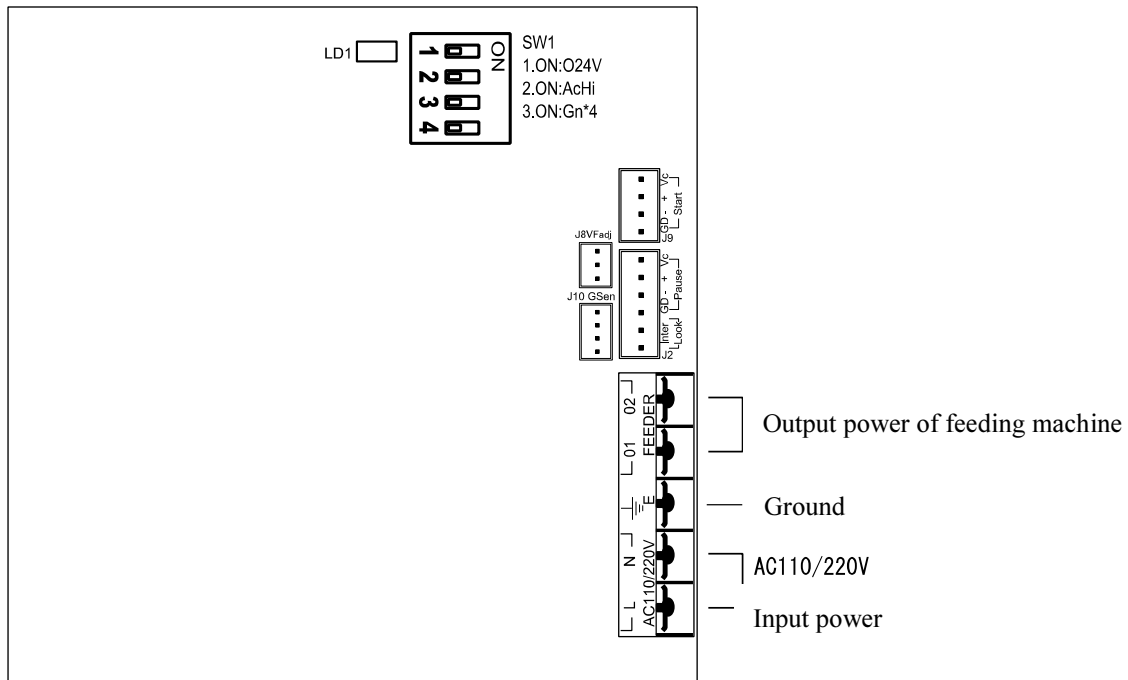
						In forced operation, the PAUSE and START signal is ignored.
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When "STOP" shows during 1 or 2 described above, press the "ON/OFF" key to generate output with current parameters.
 When parameters show during 3 or 4 described above, press the "ON/OFF" key to adjust the parameter of the output.

12. Description of outside signal connection



13. Description of input power and output power connection



Address: No. 125, Jianxing Rd., Taoyuan Dist.,
Taoyuan City 330021, Taiwan

TEL: 886-3-315-0309 FAX: 886-3-315-1009

Website: www.sankitai.com.tw