

# SHINCHANG F.A

Make sure to read this operation manual before use  
and to have accurat work.

## 「 Operation Manual 」

Frequency variable controller

SVF - 40E (AC 100/200V)

### ◆Content ◆

1. Caution before use
2. Caution at the time of use  
「 a. Dangerour b. Warning c. Caution 」
3. Function and characteristics
4. Outer Case and Name of Each Part
5. Method of Attachment
6. How to Connect and Output
7. How to Operate and Control
8. Change of Set Value
9. Indication of Setting Items
10. Trouble-shooting
11. Specification of the Product
12. Check Bowl Feeder

## 1. Caution before Use

In order to use this controller safely and to use its function to the maximum, be sure to refer to the following.

- a. If any damage is discovered in the course of transportation, please contact the company.
- b. This controller is for exclusive use of Shinchang F/A. If it is used for an object other than the applicable main body for its use, then it may surpass its scope of use and may cause trouble.
- c. Use this operation manual (Part's feeder)  
It means <Bowl Feeder , Linear Feeder, Hopper Feeder etc.>

## 2. Caution at the time of use

First of all, read this manual carefully and then use it.

Be sure to observe required caution for safety as follows:

### a. Dangerous

- 1) Do not start any work such as linear arrangement etc. until LED sign on control panel is off.  
Please start the work after lapse of more than 2 minutes after Off condition.  
Otherwise, there is risk of electric shock.
- 2) Do not operate it under the condition the cover of terminal is taken off.  
(Emergency case is exceptional)  
And when cover of the terminal is taken off, be sure to turn off the power.  
There is danger of fire due to electric shock or short-circuiting.
- 3) Never do any wiring works without turning off the electric power.  
This controller is exclusive controller for Part's Feeder.  
It can not be used for piezo electric Part's Feeder or single phase motor etc.  
There is danger of fire due to electric shock or short-circuiting.

## **b. Warning**

- 1) Be sure to ground the earth line of the main body of controller. Unless 『Earth』 is done, there is danger of electric shock.
- 2) Never use it at places where explosive or inflammable gas is present. It may cause fire.
- 3) No one else except repair technician should disassemble , repair or modify it. There is danger of fire or injury due to abnormal function.
- 4) Avoid its use near water, outdoors or at places where the temperature is high or highly humid. There is danger of fire and electric shock.
- 5) Avoid damage to wiring or forcible bending by pressing it down. If heavy materials are placed or inserted, then wiring is damaged, which can cause damage to wiring, fire and electric shock.
- 6) Even during use of controller or while it is stopped, avoid contact with output terminal of controller. There is output of 200V in the output terminal. Therefore, there is danger of electric shock.
- 7) Do not put any foreign materials such as papers, wood or oil etc. There is danger of fire.
- 8) Do not control switch with wet hands. There is danger of electric shock.
- 9) Avoid use of any other voltage except specified voltage. It may cause fire and trouble.
- 10) At the time of replacing fuse, make sure to turn off primary side power source or main switch. There is danger of electric shock.

### c. Caution

- 1) Radiation panel may become high in temperature(50~70°C)

There is danger of burn.

Make sure to design space around it in consideration of heat radiation.

- 2) Do not turn on/off power hastily.

It may cause trouble to controller.

- 3) Do not turn on/off power within short time. Because of flow of big lead-in current, it cause trouble to controller.

- 4) Avoid its installation at the place with vibration or shock.

Controller may get in trouble.

- 5) There is distinction between earth and non-earth type.

Make sure to check the earth side of power source and connect the specified terminal of controller to the earth side.

When wiring is wrong, then there is danger of fire.

- 6) Be sure to connect earth grip to welding machine at the time of welding to bowl.

If earth for welding is uncertain, then earth line which is connecting the main body and controller may burn or there is danger of electric shock, leak or damage to controller.

- 7) Choose cabel suitable to voltage, electric current and environment concerned.

If cable is below capacity, then there is danger of fire.

- 8) Controller may produce noise through wire, equipment or equipment connected to it.

Make sure to prevent any erroneous operation of instruments, equipment or sensor around it. There is danger of accident.

### 3. Function and Characteristics

a. Precise digital control by means of micro-processor

Various setting and operation are done by digital control through installing micro-processor. In particular, output frequency is based on crystal transmitter, thus unprecedented high precision and stability are realized. Also, by virtue of display of set value, resetting can be done very simply.

b. Input

Scope of input voltage is AC95-110V (+/-10%)A, AC200~220C(+/- 10%) and both 50Hz and 60Hz is possible.

c. Protective function

At the time of overheating, excess load or excess current, this function stops operation and protect controller or circuit device around it.

At the time of overheating, excess voltage, error is indicated and operation stops.

When power source, voltage and temperature are restored, then restoring controller is also possible. When such restoration is not possible, contact the company.

※ Protection of this controller against earth line, short-circuiting and leakage is impossible. Be careful.

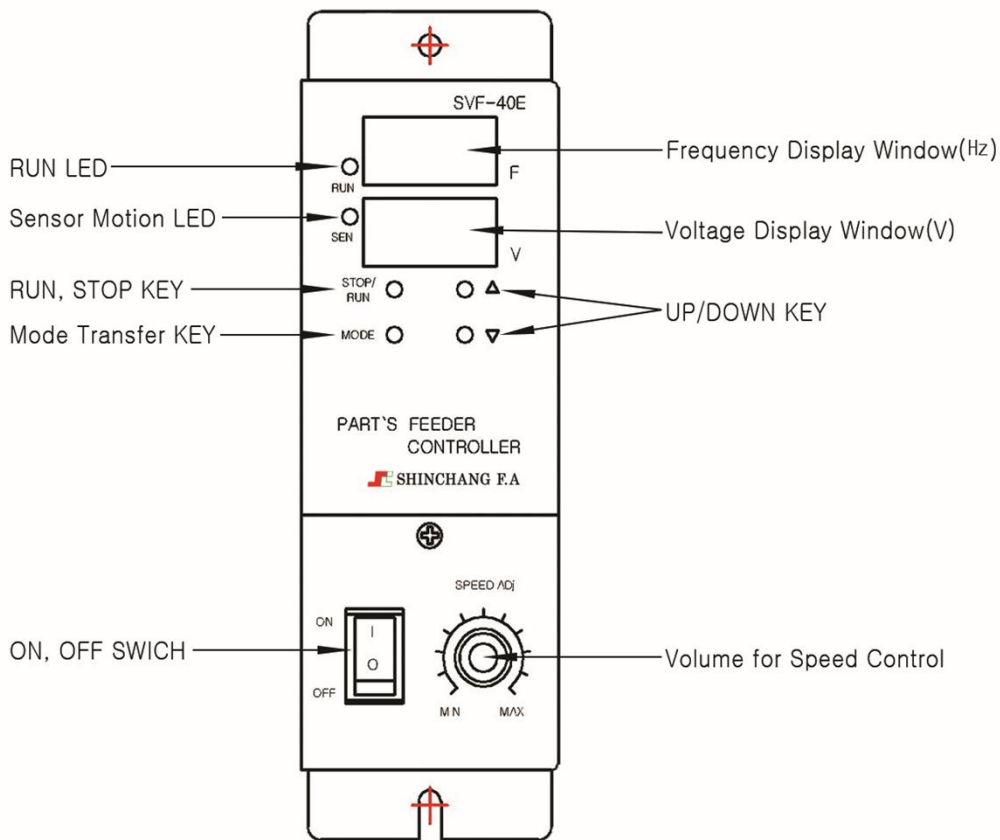
d. Lock

Controlling function by control panel can be stopped when necessary.

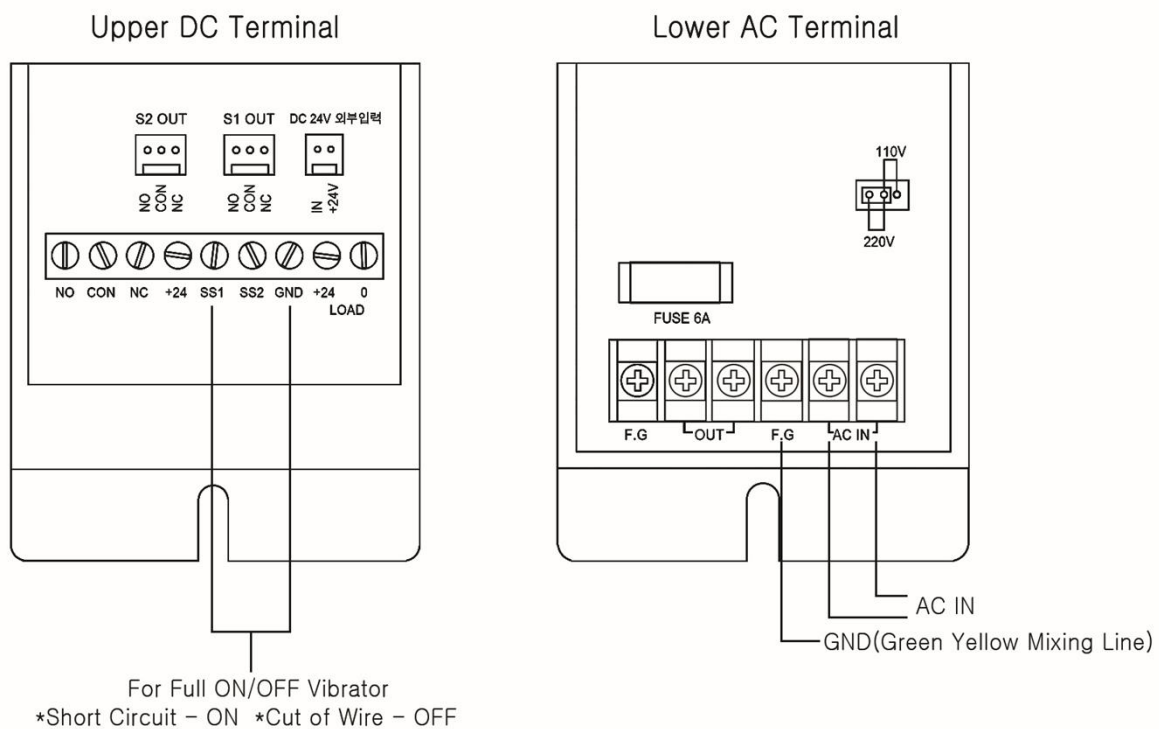
It eliminates unintended setting or change ect. by error of the operator or by mistake in controlling.

## 4. Outer case and name of each part

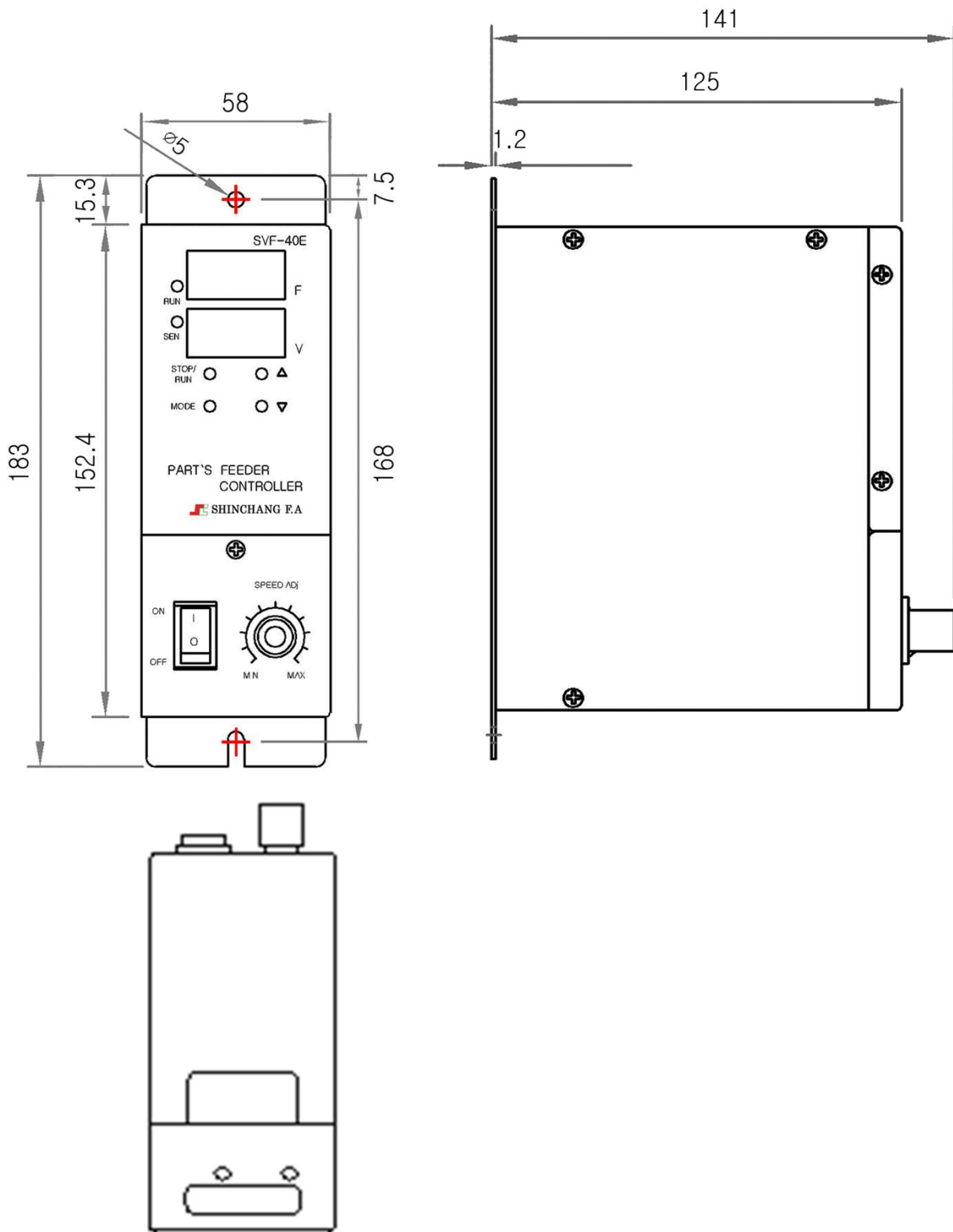
### a. Name of outer case



### b. Terminal stand structure

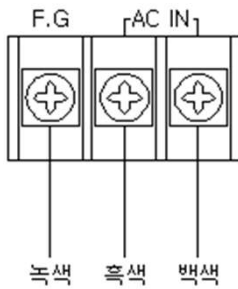


## 5. Method for attachment (external diagram)



## 6. How to connect input and output

### a. Input of power source



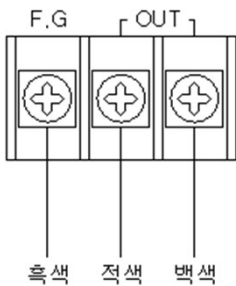
220 Volt input is set initially.

Make sure to ground green earth line.

There is danger of electric shock.

When using 110V, please contact the company.

### b. Connection to feeder



Feeder output is possible to bowl, linear and hopper etc.

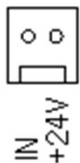
Make sure to ground the green earth line.

There is danger of electric shock.

### c. Input of external control

#### 1) DC input

DC24V 외부입력

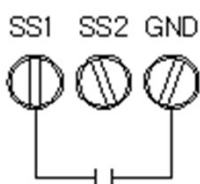


When DC24V is input, then feeder operates.

Using sensor concurrently is impossible.

Controller mode can be used when it is set to USE at SEN1.

#### 2) Input of contact point



When SS1 and GND are connected, then feeder is operated.

Controller mode can be used when it is set to NOT at SEN1.



#### d. How to input to sensor



No	Contents	Wiring color
1	+24	Red or brown
2	SS1	White or blue
3	GND	Black

When the products are fully loaded on chute, it controls bowl feeder. Controller mode can be used when is set to USE at SEN1.

#### e. How to enter speed transfer



At regular speed of SS1 and at the time of contact connection and speed shift of GND, connect SS2 additionally.

At the time of stop, everything is short-circuited.

At the mode of USE, S-VT when mode key is pressed once more, then S-OP appears at window and strength for voltage is set by left arrow key. After completion, either run key is pressed or if there is no key control for about 5 seconds, then automatically setting mode is ended.

## 7. How to operate and control

When power source is put to controller and controller switch is set to On position, then press Run switch and press lower key among left upper and lower key at the position of 100~120V, then frequency descends downward from 400.

When speed is within the range to make operation of vibration possible, set volume to about 140V again and then make minor setting with upper and lower key.

About 140V is most stable as for volume setting.

When volume of 180V or above is used for a long time, then stability of voltage becomes worst. Adjustment of Hz is required at the time of moving feeder from the place where 60Hz area is used to the place where 50Hz is used.

If using under the condition without adjustment, it becomes cause of trouble.

## 8. Change of set value

- a. Switch on power
- b. After Motion(vibration output) Off enters setting mode by Mode key, setting item is indicated above and set value of pertinent item is indicated at below and then moves item with Mode key. Change value of pertinent item with ↑ (inc) ↓ (dec)key.
- c. When Mode key is pressed down again at final setting item(S-TY) then setting mode is finished(store changed value) and then it returns to use mode.
- d. If there is no key control for about 5 seconds during control of each setting, then automatically setting mode is ended.(Store value which is changed upto now.)
- e. When Run key is pressed down anywhere at setting item, then immediately setting mode is finished and returned to standby condition. And changed value is stored.
- f. As for contents of setting items, see the explanation in next page.
- g. Setting/releasing locking device(setting: prohibition of change, releasing: change possible)
  - If Mode key is pressed about 3seconds at motion standby condition, then 3times of Beep are sounded, then Lock condition is indicated.For release, carry out repetitive move.

When the key is pressed down more than 10seconds, then all the keys such as volume etc. are fixed. Release is done by repetitive move.

When Lock is set, then LOCK ON is indicated at display window  
LOCK OFF is displayed when released.

## 9. Indication of setting items

Indication of items	Scope of choice	Basic value	Contents
1 ON	0.0~20.0	0.0	Delay time(sec) when Sensor 1 is On
1 OFF	0.0~20.0	0.0	Delay time(sec) when Sensor 1 is Off
2 ON	0.0~20.0	0.0	Delay time(sec) when Sensor2 is On
2 OFF	0.0~20.0	0.0	Delay time(sec) when Sensor 2 is Off
SEN 1	NOT, USE	NOT	Whether or not Sensor 1 is used
SEN 2	NOT, USE	NOT	Whether or not Sensor 2 is used
SOUT	NO(Sensor 1 is On, Output is On)	NC	Characteristics of Sensor 1 interlocking output motion
	NC(Sensor 1 is Off, Output is On)		Output DC 24V
POER	100.0~200.0	200.0	Limitation of max. output voltage
STRT	5~40	15	Soft Start
VOLT	110/220	220	Display of voltage at window
S-TY	NPN/PNP	NPN	Change of sensor input
S-OP	50~200	50	At the time of change to arbitrary value from the current VR value
			Possible when Sensor 1,2 not used.

## 10. Trouble-shooting

When trouble occurs, check on the followin items. Also, check output voltage of (1) and (2).

When cause of touble is unclear, then contack SHIN CHANG F/A and inform condition of trouble and in order to have quick action, read the following items and inform us in details

Trouble	Estated cause	Actions required
1) No vibration	Poor connection of power source	Check connection.
	Wiring	Verification method of input and output
	Fuse	Check condition of fuse.
	Sensor recognizes the work.	Verify after removing work on chute.
2) Vibration is not increasing	Controlling frequency	Verify method of operation control.
	Damage of panel spring	Replacement
	Fixing to fining device for transportation	Dismantling fixing device
	Panel spring is loosened	Tightening volt.
	Excessive weight of Bowl/Chute	Consultation with the company
3) Vibration is changing	Power source voltage exceeds tolerance value of controller.	Check voltage of excessive output of power source. Remove cause for
	Due to too much work volume in bowl, there are much changes.	Change of voltage. Adjuse volume of work.
4) Control from outside is not possible.	Wiring	See operation manual.
	Erroneous polarity of wiring	
	Sensor checking work	Remove work from chute.
	Setting function	Read operation manual.
5) Sensor can not controlled.	Setting function	Verify transfer of sensor for mode of operation.
	Due to elongation of ON/OFF	Check setting value of timer and shorten the time and verify.
	Delay Timer time.	
6)Setting of voltage frequency is not possible	Check and see if lock is on at panel.	Release of panel lock.

## 11. Specification of the product

Power source, Voltage	Choice of AC 110/220V	50/60Hz
Frequency	Scope of setting	40.0 ~ 400.0Hz
	Setting resolving power	0.1Hz
	Setting method	Use of Up/Down key
Output voltage	Scope of setting	0.0 ~ 220.0 V
	Setting resolving power	0.1V
	Setting method	Control variable by volume
Max.output electric current	5A	
Operation mode	Modulation of intelligence type frequency which used Carrier frequency.	
Operation, stop control	On.Off Switch and external input contact and voltage(DC 24V)	
Sensor input	Sensor 1, Sensor 2 move On/Off(NPN Type)	
Operation synchronizing sign	3 terminal Relay output (COM, NO, NC)	
Start Up	Possible to set 15~40steps.	
Protection function	Mark error code is displayed in case of excess current and over-heating and stop.	
Cooling mode	Natural cooling type by use of radiation plate.	

## 12. Check Bowl Feeder

If the Bowl Feeder's vibration becomes weak, refer to number 7 for resetting.

In case the absence of the Bowl Feeder's vibrations,

1. Check connections between controller and vibrator, controller and power input line
2. Confirming the controller frequency setting
3. Check vibration coils inside the vibrator - Replace when damaged by overheating
4. Checking plate springs inside the vibrator - Reassembly after removal when cracks occur - Reset frequency
5. Check various bolts inside the vibrator - Replace if damaged
6. Checking various bolts inside the vibrator
7. Check if the controller is out of order - Replace if faulty



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