

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 110/220V)

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1. Caution before Use

In order to use the maximum of the function of this controller and to use it safely 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 for exclusive use of Shinchang F/A.

If it is used to other object, it may cause a failure.

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 2minutes 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) Please do not damage the wiring by bending or stretching it too hard. If heavy materials are placed or inserted, then wiring is damaged, which can cause damage to wiring, fire and electric shock.
- 6) Do not contact the controller output terminal while using or stopping the controller. There is a risk of electric shock because the output terminal outputs AC 220V.
- 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 operate by repeating the power on/off quickly.

Because of flow of big lead-in current, it cause trouble to controller.

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

Controller may get in trouble.

- 4) 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.

- 5) When welding the bowl, turn off the controller.

Be sure to connect earth grip to welding machine.

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.

- 6) Choose cable suitable to voltage, electric current and environment concerned.

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

- 7) 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.

(ERR1: Temperature overheating ERR2: Overcurrent)

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.

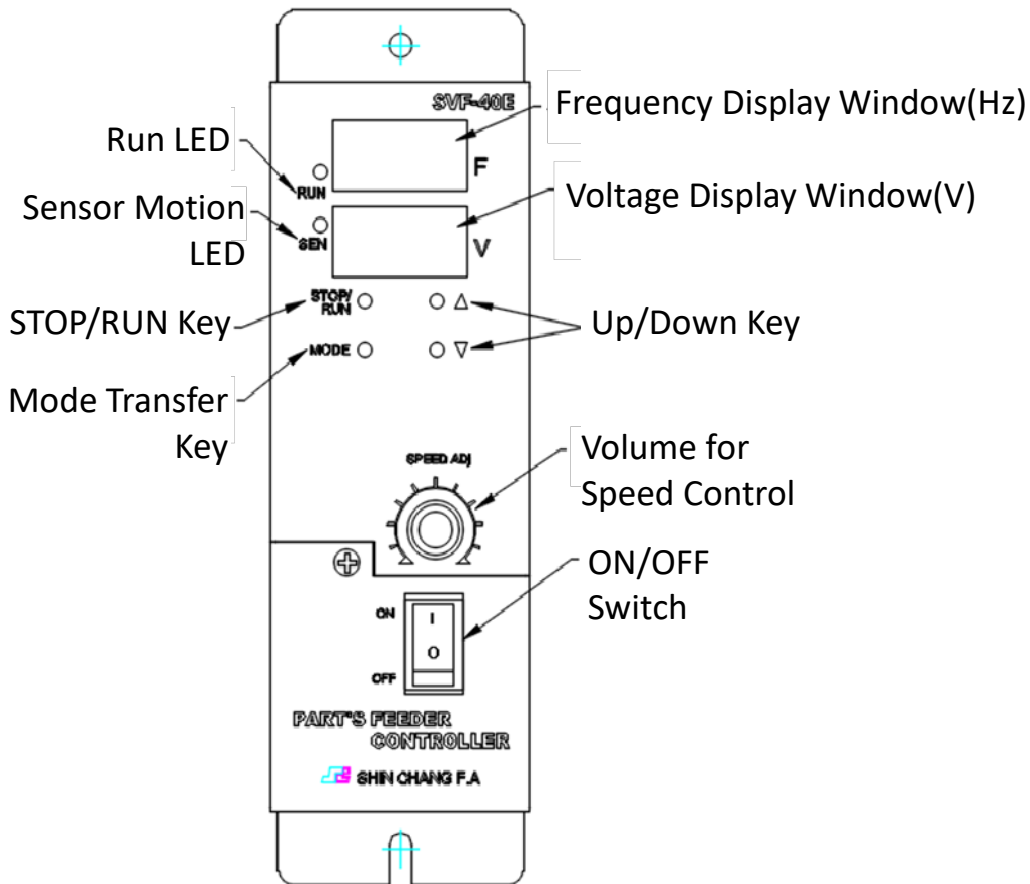
d. Lock

Controlling function by control panel can be stopped when necessary.

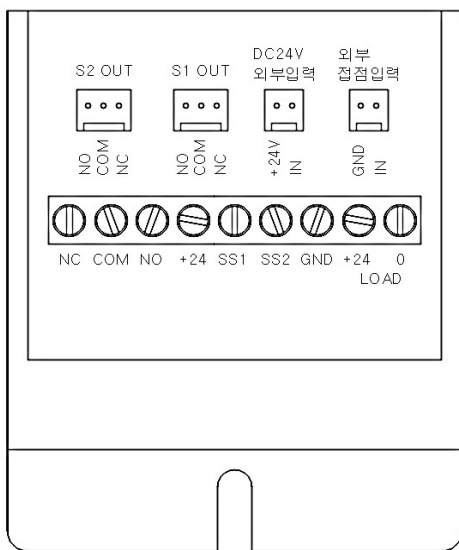
It eliminates unintended setting or change ect. by error of the operator or by mistake in controlling.

4. Outer case and name of each part

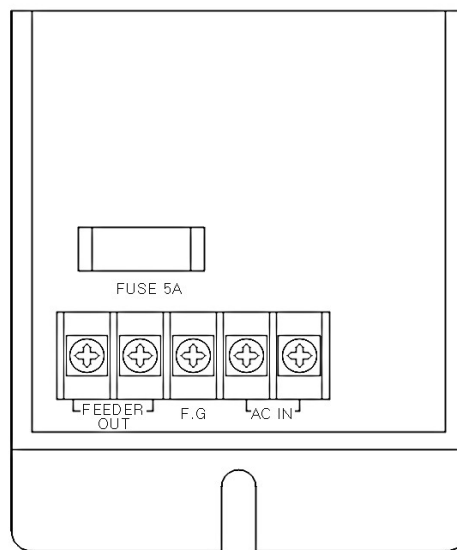
a. Name of outer case



b. Terminal stand structure

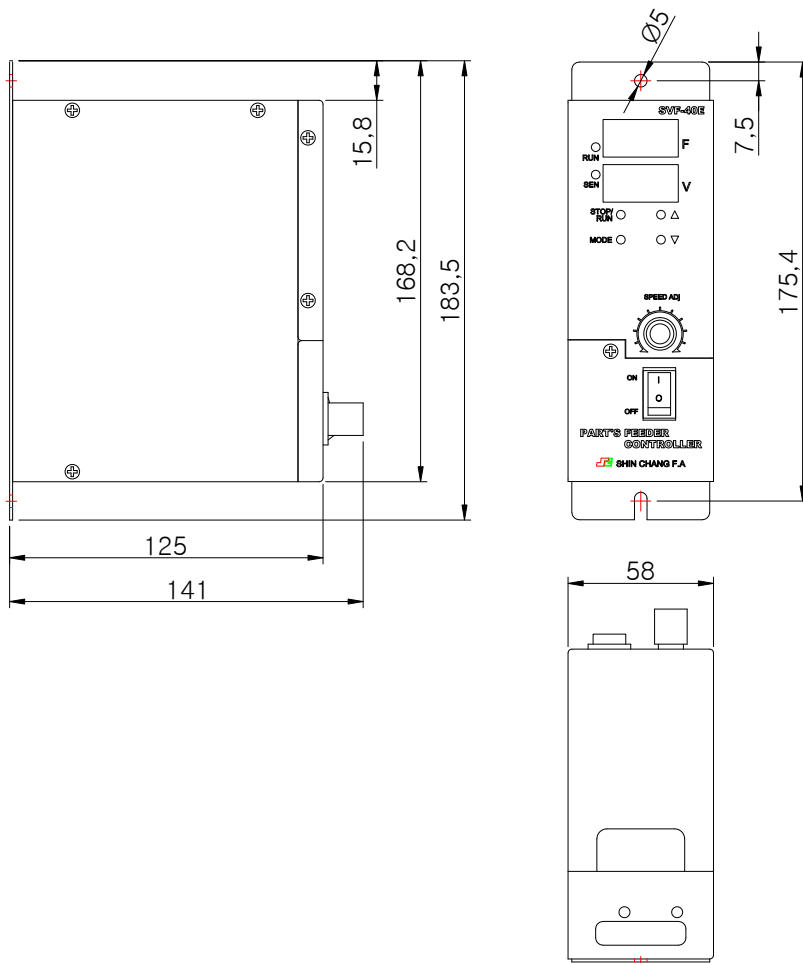


Upper DC Terminal



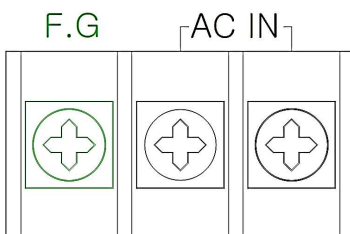
Lower AC Terminal

5. Method for attachment (external diagram)



6. How to connect input and output

a. Input of power source

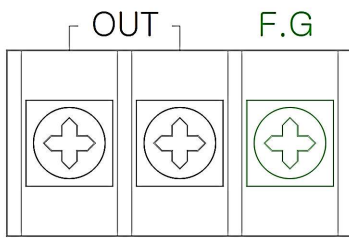


AC input is 110 to 220V.

Make sure to ground the earth line.

There is danger of electric shock.

b. Connection to feeder



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

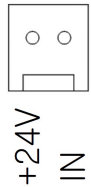
Make sure to ground the earth line.

There is danger of electric shock.

c. Input of external control

1) DC input

DC24V 외부입력

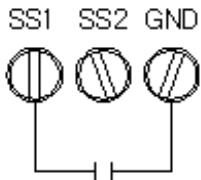


When DC24V is input, then feeder operates.

Using sensor concurrently is impossible.

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

2) Input of contact point1



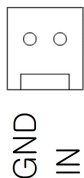
When SS1 and GND are connected, then feeder is operated.

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

If you enter DC voltage, this is the cause of the Controller failure.

3) Input of contact point2

외부 접점입력



Setting Item 14 ERUN is available in the USE state.

When GND and IN are connected by a contact point,
the controller is activated.

d. How to input to sensor



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

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.

Both SS1 and SS2 stop when shorted

(full sensor is controlled by PLC)

The mode is from S-OP to USE, pressing the mode key once more will cause the S-VT to appear on the LED and set the current intensity(V) numerically to the right arrow key.

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

Power on the controller, place the switch in the ON position, and press the Run switch.

The fullwave format puts the volume at the 110-120V position (halfwave 60) and presses the down key among the up&down keys on the right to lower the frequency.

When the vibration is operable, the fullwave set the volume back to around 140V (halfwave 80V) and set it fine with the up and down key.

Fullwave-type vibrator has the most stable volumes of 140 to 160V.

Halfwave-type vibrator uses a volume of 70 to 80 V, and if it exceeds 100V, it can cause coil and controller failures.

Even fullwave-type vibrator can have poor voltage safety when used for a long time over 180V.

When the feeder is moved from 60 Hz area to 50 Hz area, Hz adjustment is required.

In addition, Hz adjustment is required when the feeder is used in the 50Hz area and then moved to the 60Hz area.

Use without adjustment is a cause of failure.

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 ▲ ▼key.
- c. When Mode key is pressed down again at final setting item(S-OP) then setting mode is finished(store changed value).
- 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 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. Turn on/off lock(ON: prohibition of change, OFF: 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 more than 10 seconds, 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

No	Indication of items	Scope of choice	Basic value	Contents
1	1 ON	0.0~20.0	0.0	Delay time(sec) when Sensor 1 is On
2	1 OFF	0.0~20.0	0.0	Delay time(sec) when Sensor 1 is Off
3	2 ON	0.0~20.0	0.0	Delay time(sec) when Sensor2 is On
4	2 OFF	0.0~20.0	0.0	Delay time(sec) when Sensor 2 is Off
5	SEN 1	NOT, USE	NOT	Whether or not Sensor 1 is used
6	SEN 2	NOT, USE	NOT	Whether or not Sensor 2 is used
7	SOUT	NO(Sensor 1 is On, Output is On)	NOT	Sensor 1 interlocking output operation
		NC(Sensor 1 is Off, Output is On)		Output DC 24V (LOAD)
8	POER	100-200	200.0	Limitation of max. output voltage
9	STRT	5~250	15	Soft Start
10	VOLT	110/220	220	Display of voltage at window
11	S-TY	NPN/PNP	NPN	Change of sensor input
12	SOL OUT	0~20sec	2.0sec	(LOAD) Sol output hold time
13	LENC	ENC/VOL	ENC	Select ENC/VOL
14	ERUN	NOT/USE	NOT	Use external contacts
15	S-OP	50~200	50	Setting if USE

* 7. SOL OUT, LOAD (DC 24V output): If it is NO, it is output,
and if it is NC, it works in reverse.

* 8. Power

* 9. SLOW START

* 10. Voltage LED: Conversion to 220 V (0-200) / Conversion to 110 V (0-110)

* 11. SENSOR TYPE

* 12. Solenoid Valve OUT(LOAD OUT)

* 13. Using LINER/ENCODER external volumes,

When using DC voltage (0-5V), VOL is selected and used.

* 14. When an external contact is used, the controller operates in case of an external contact short circuit.

* 15. SYSTEM OPERATION is used when VR values are changed during controller operation.

Change the setting value after selecting USE.

Goes to the setting value when G-S2 is shorted during operation.

Only available when changing from the current VR value to any value or when sensor 2 is not in use.

10. Trouble-shooting

When trouble occurs, check on the followin items. Also, check output voltage.

When cause of touble is unclear, then contact SHIN CHANG F.A.

For a quick response, please refer to the information below and let me know in detail.

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 product.	Verify after removing product 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 the overpower voltage and eliminate the cause of voltage fluctuations
	Due to too much work volume in bowl, there are much changes.	Adjuse volume of work.
4) Control from outside is not possible.	Wiring	Read operation manual.
	Erroneous polarity of wiring	
	Sensor recognizes the product.	Remove product from chute.
	Setting function	Read operation manual.
5) Sensor can not controlled.	Setting function	Check the operation of the sensor.
	ON/OFF Deley Timer time set long	Check the delay timer setting value and set it short.
6) The voltage frequency is not set	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	ENCODER/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 5~250steps.	
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.

Incase 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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