

OPC-30GU

DIGITAL PARTS FEEDER CONTROLLER

USER MANUAL



ORAND CO. , LTD

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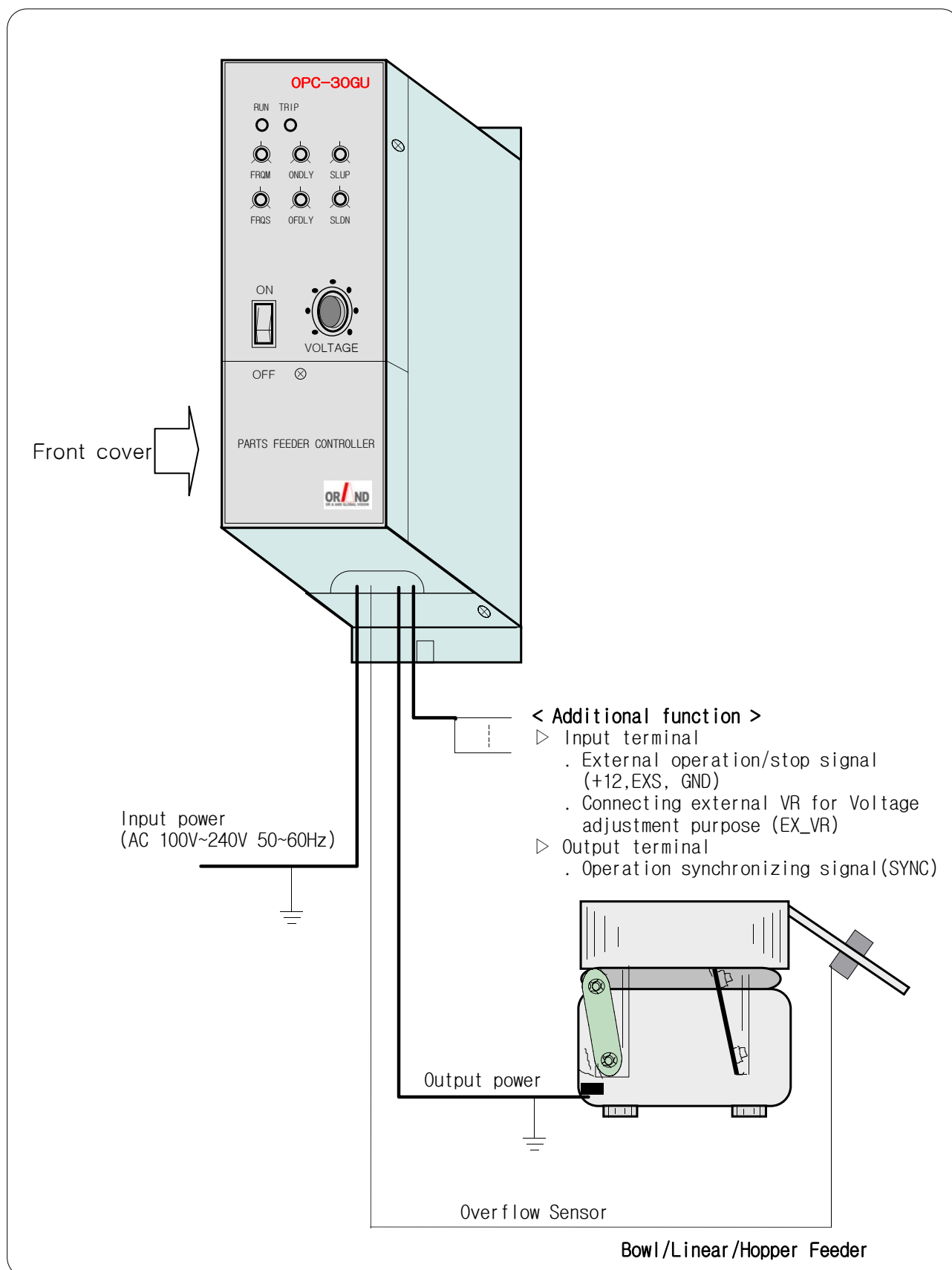
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Precautions

- Do not use this product to parts feeder of piezoelectric method
- Never use this product in a place where there are ignitable materials or inflammables
There is a risk of an explosion or a fire
- Do not use this product in a place where there are a lot of dust or moisture
This product is not dustproof or waterproof. Particularly, a separate measure for protection is required in a place where there are a lot of metal powders.
- Do not turn on/off input power frequently.
It may cause a failure by remarkably deteriorating internal electronic components. Particularly, avoid using the on/off control method on the parts feeder by intermitting the input power of this product with a magnetic switch (Relay)(It is necessary to use an external signal control method using an EXS terminal).
- Do not turn on/off this product in the output part.
It is because the controller is damaged when the driving part is operated/stopped by inserting the magnetic switch (RELAY) in the output part(It is necessary to use an external signal control method using an EXS terminal).
- Do not perform welding process on the FEEDER in the state that the driving part is connected to the controller.
The leak current on welding may damage the controller.
- Do not use the output of the PWM inverter as an input power of this product.
It may cause damage of this product.
- Use this product within rated voltage and rated current of input/output power.
- Do not disassemble, repair and convert this product carelessly.
It may cause damage or malfunction of this product.
- Perform wiring work when power is turned off.
There is a possibility of product damage or an electric shock.
- Connect the ground terminal of the input/output power to the ground necessarily.
It prevents the electric shock in the leakage of electricity and reduce power noise.

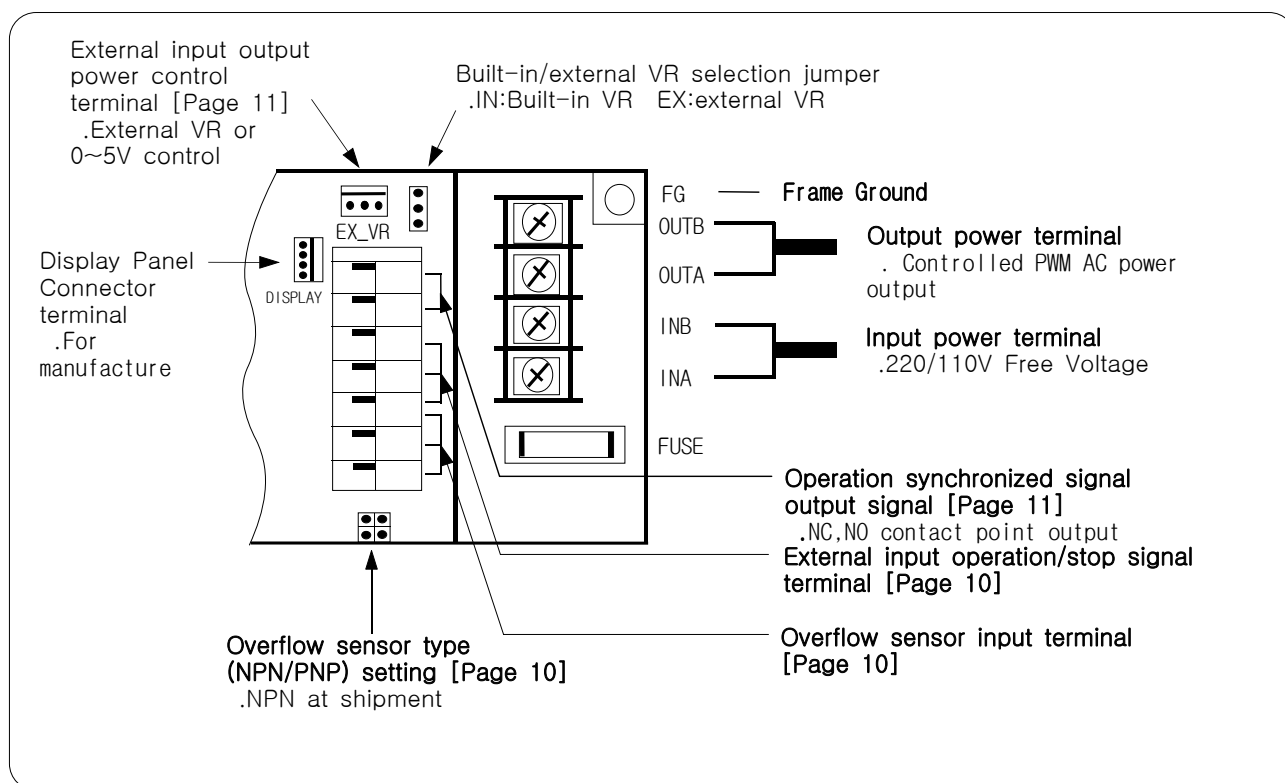
1.Wiring

Wiring between the controller and feeder is roughly shown as below.



Internal connector connection shall be carried out in the following order.

- ① Take off the front cover where outlet of controller's connection cable is located.
- ② Referring to following figure, connect input/output power and its necessary additional equipment.
- ③ Arrange them for the cable so as to come out from the cable outlet of front cover and attach the taken-off cover.



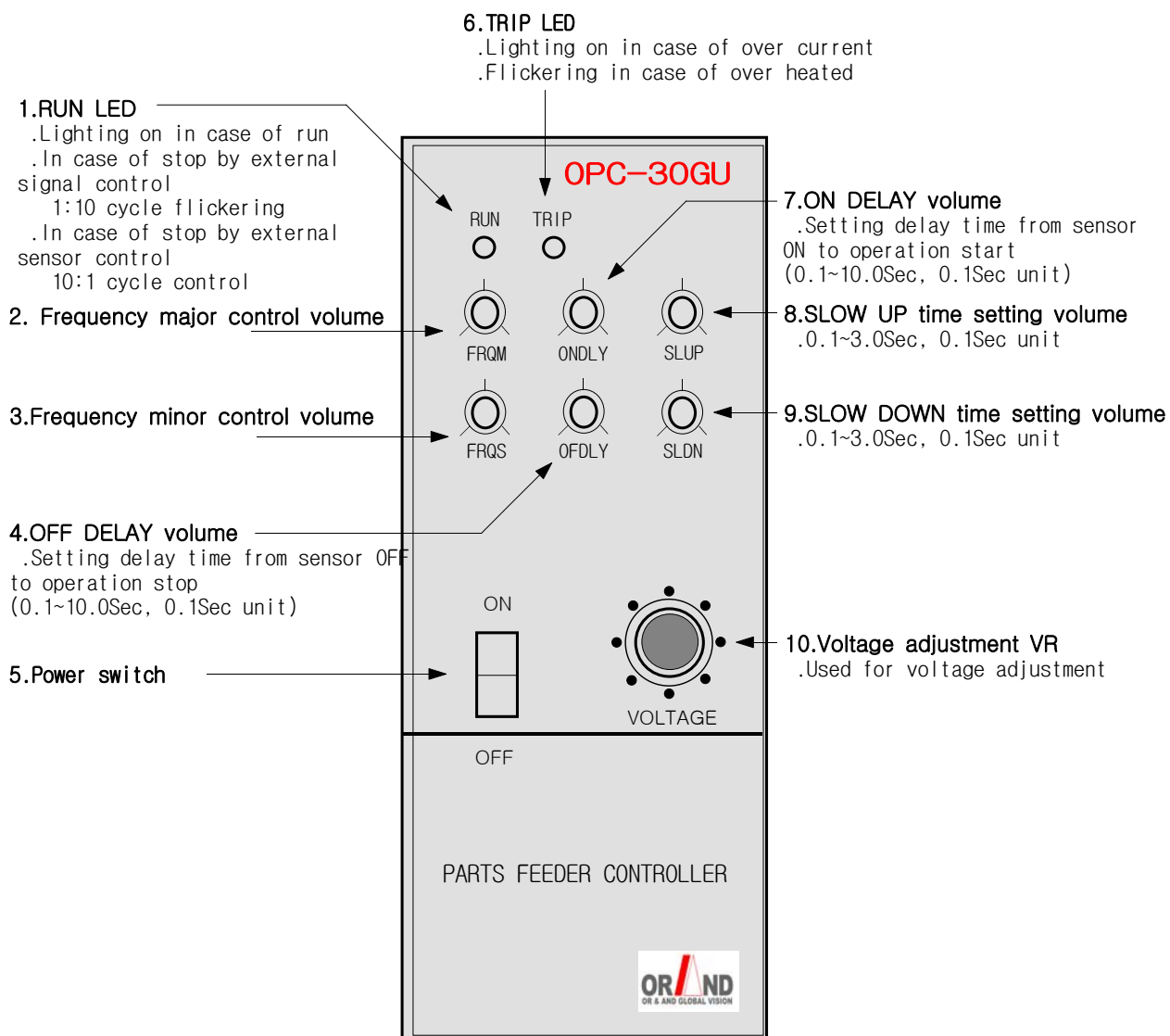
As this product is designed for AC100V~240V and FREE - VOLTAGE, it can be used for input power without mechanical or electrical setting change.

<Notice>

1. When the cover is taken off, isolate the input power necessarily.
2. (FG:Frame Ground) for input and output power terminals shall be connected necessarily for the prevention of electric short and stable operation.
3. Operation shall be carried out only when the cover is closed completely.

2. Basic adjustment of Panel

2.1 Names and functions of panel



2.2 Operation and Stop

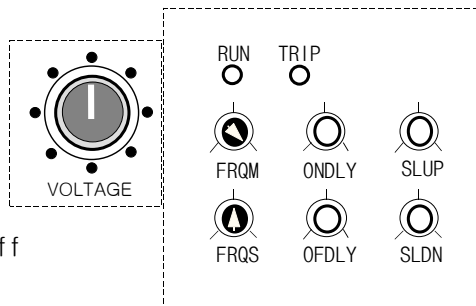
1. Locate FRQM VR at right side as a maximum location, and FRQS and VOLTAGE VR at the interim to turn on switch.

◆ Initial status after turning power switch on

.RUN status: In case that external input operation /stop signal(EXS) is ON(Active)

In case that power switch is turned off when running

.STOP status: In cases other than above running conditions

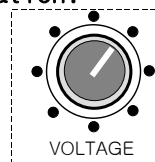


2. By adjusting FRQM and FRQS VR, fix to the resonant frequency where the vibration can be maximized.

※Please refer to frequency setting method (Page 7).

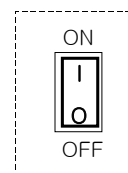
3. By adjusting voltage with VOLTAGE VR, fix the magnitude of vibration.

※Please refer to voltage setting method (Page 7).



4. Repeat procedures of 2~3 shown above to search an optimum point.

5. After completing operation, turn off power switch.



◎ If RUN LED lights on, but Parts Feeder is not vibrated, please check followings.

① Is voltage set to be "0" or too low?

→ Set voltage properly.
Adjust with VOLTAGE VR.

② Is frequency deviated from resonant frequency too much?

→ Change frequency to set frequency where strong vibration can be felt.
Adjust with FRQM and FRQS VR.

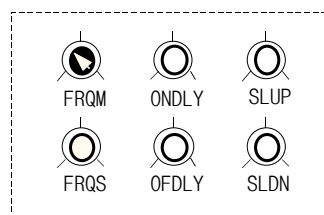
③ Is it in error status?

→ Take countermeasures against error as per the contents guided by TRIP LED.

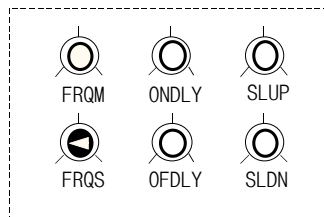
2.3 Frequency setting

1. Change frequency with FRQM VR.

◆ 'FRQM' : if turn left, frequency goes down.
if turn right, frequency goes up.



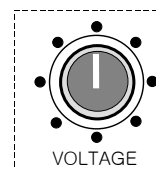
2. Adjust frequency minutely with FRQS VR.



2.4 Voltage setting

1. Change voltage with VOLTAGE VR.

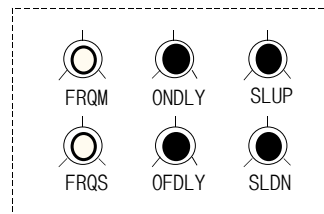
◆ 'VOLTAGE' : if turn left, voltage goes down.
if turn right, voltage goes up.



2.5 ON DELAY, OFF DELAY, SLOW UP, SLOW DOWN time setting

1. Change time with ONDLY, OFDLY, SLUP and SLDN VR.

◆ 'VR' : if turn left, time decreases.
if turn right, time increases.

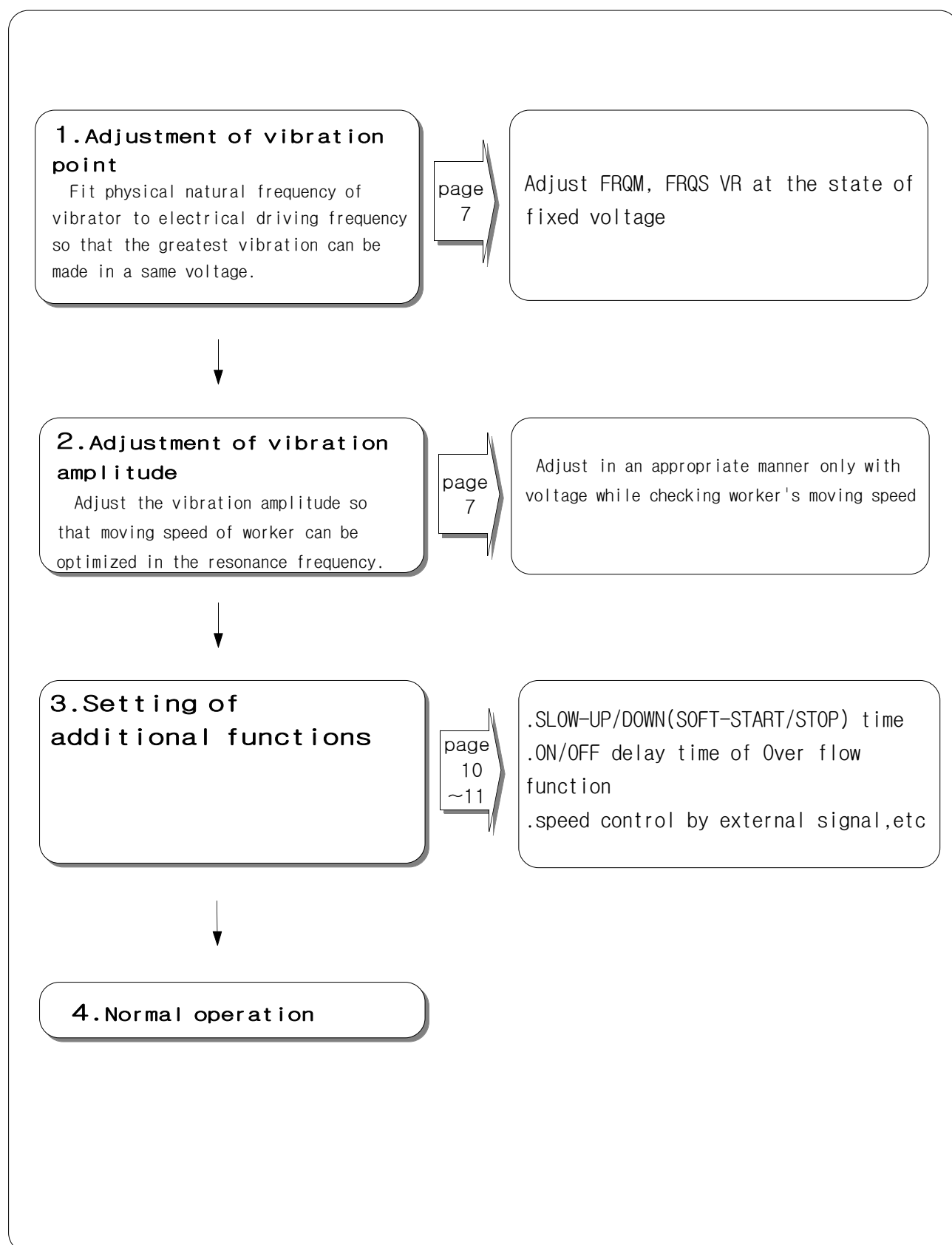


2.6 Function and setting range of each VR

Setting(VR)	Description of functions	setting range	Default at shipment
FRQM	<input type="checkbox"/> Frequency adjustment	40~160Hz	160Hz
RFQS	<input type="checkbox"/> Frequency minute adjustment		
ONDLY	<input type="checkbox"/> Sensor input On Timer(Sensor Control On Timer) .Setting time from input On to operation start	0.1~10.0 Sec (0.1Sec unit)	0.1
OFDLY	<input type="checkbox"/> Sensor input Off Time(Sensor Control Off Timer) .Setting time from input Off to operation stop	0.1~10.0 Sec (0.1Sec unit)	0.1
SLUP	<input type="checkbox"/> Slow up(Soft Start) time setting	0.1~3.0 Sec (0.1Sec unit)	0.1
SLDN	<input type="checkbox"/> Slow Down(Soft Stop) time setting	0.1~3.0 Sec (0.1Sec unit)	0.1

3.Operation sequence after the initial connection to vibrator

This explains the setting flow when operating at the first time after connecting to the vibrator. For details, please refer to related pages.

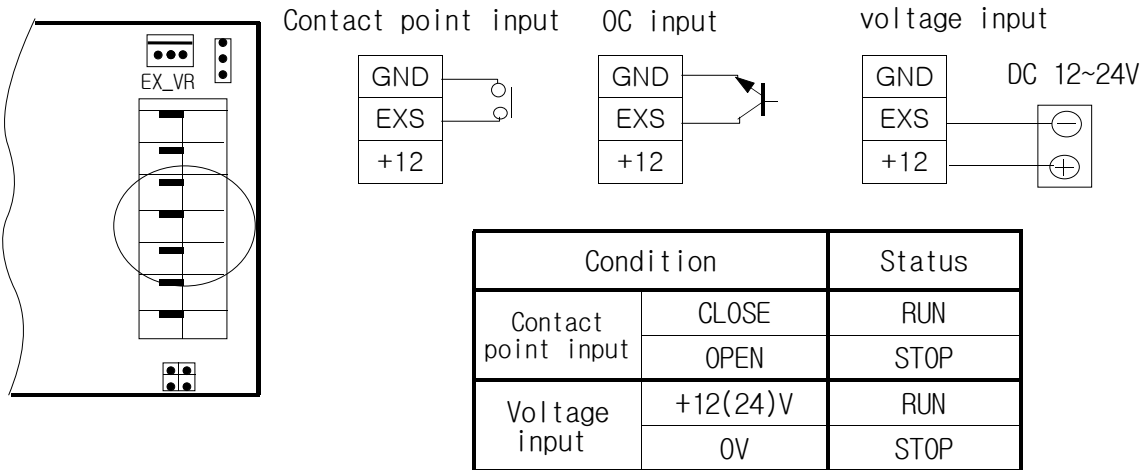


4. Additional functions

4.1 External input operation/stop control(EXS)

It is possible to carry out operation/stop control by contact point input or voltage input.

※ When operation is stopped by this function, RUN LED is flickering at 1:10 cycle.

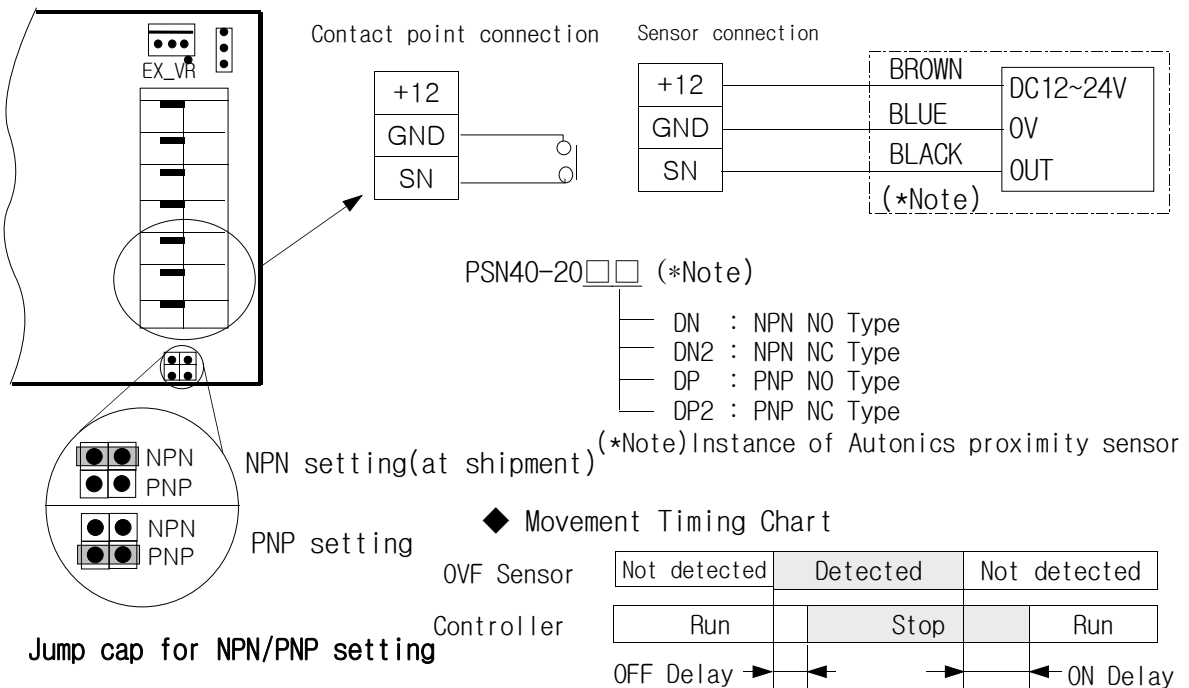


4.2 Over-flow sensor control(SN)

Run/temporary stop control due to overflow during operation

◆ Jumper setting : NPN/PNP Jumper Cap position ('NPN' at shipment)

※ When operation is stopped by this function, RUN LED is flickering at 10:1 cycle.
This functions only when EXS control is placed at operation status.



4.3 External output voltage control(EX_VR: external VR/DC 0~5V)

Control output voltage by using external VR connection or control voltage of 0~5V

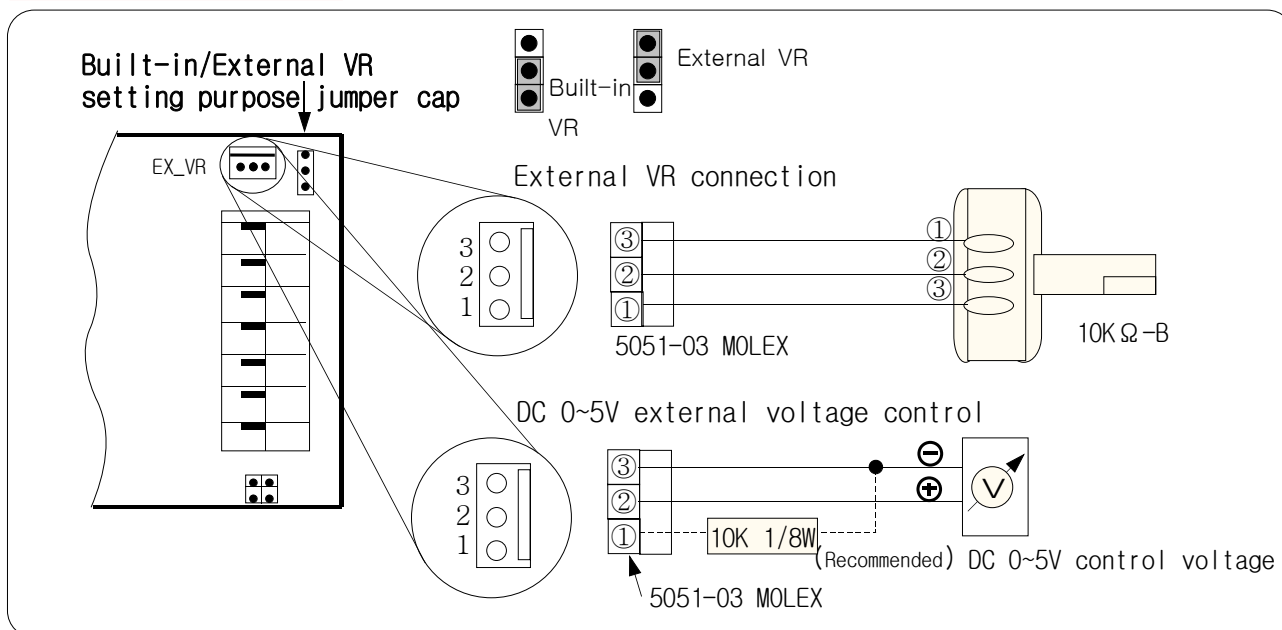
◆ External VR connection control

. In case of external VR connection, voltage control from OP is forbidden automatically.

◆ 0~5V external voltage control

. In case that the impedance of control power is very high when 0V is supplied, it is recommended to connect the fixed resistance higher than 10K Ω 1/8W as illustrated below.

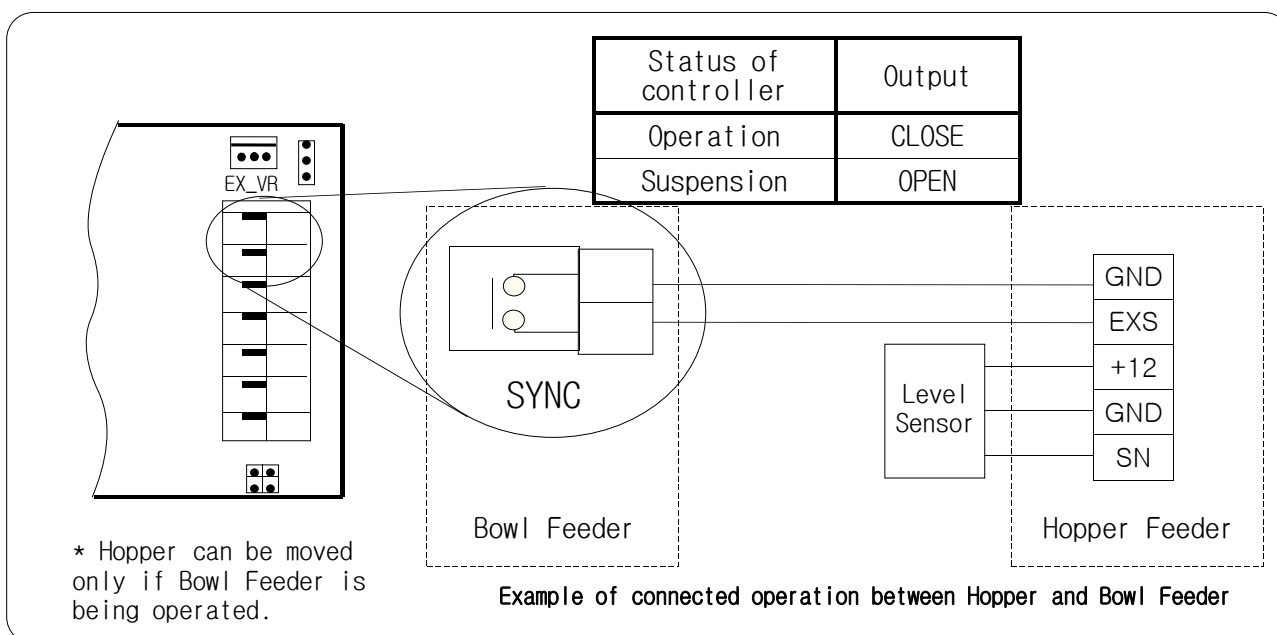
※As the controller may be damaged when external control voltage exceeds 5V, voltage not higher than 5V shall be applied.



4.4 Operation synchronized output signal (SYNC)

Output contact signal according to operation and suspension of controller

.Use it on connected operation between Hopper and Bowl Feeder



5. Product Specifications

Items			OPC-30GU	Remarks
Rated input			.AC100V~240V 50~60Hz .Free Voltage	
Out put	Voltage	setting method	Built-in VR or external VR	
		setting range	0V~240V	
		setting angular resolution	1V	
	Frequenc y	setting method	Built-in VR	
		setting range	40~160Hz	
		setting angular resolution	0.1Hz	
	Max. allowable current		5A	
	Driving method		PWM type	
Control	Control type		Full digital control by RISC CPU	
	Run stop control	External input	.on/off control(PLC, etc) by external input .Dry/Wet contact (12V,24V)	
		Sensor input	.Temporary stop/operation at the status of over flow .Dry/Wet contact(12V, 24V) .On Delay Timer setting : 0~10.0sec,0.1sec unit .Off Delay Timer setting: 0~10.0sec,0.1sec unit .Sensor power : DC12V 100mA	
	Operation synchronizing signal		2 terminals output(SYNC)	
	Soft Start		0.1~3.0 Sec setting(0.1s unit, volume adjustment)	
	Soft Stop		0.1~3.0 Sec setting(0.1s unit, volume adjustment)	
	Indication of operation status			.Operation, external signal control stop, sensor control stop Indicated by lighting on and flickering cycle of RUN LED
Protection function			Operation stop and alarm in case of over current, over	
Alarm method			TRIP LED lighting on, flic	
Cooling method			Natural air cooling	
Condition for use		Surrounding temperature	0 ~ 40℃	
		Surrounding humidity	10 ~ 90%	
Spec	Weight		1.2 Kg	
	Dimension		61(W)×15(D)×150(H)	

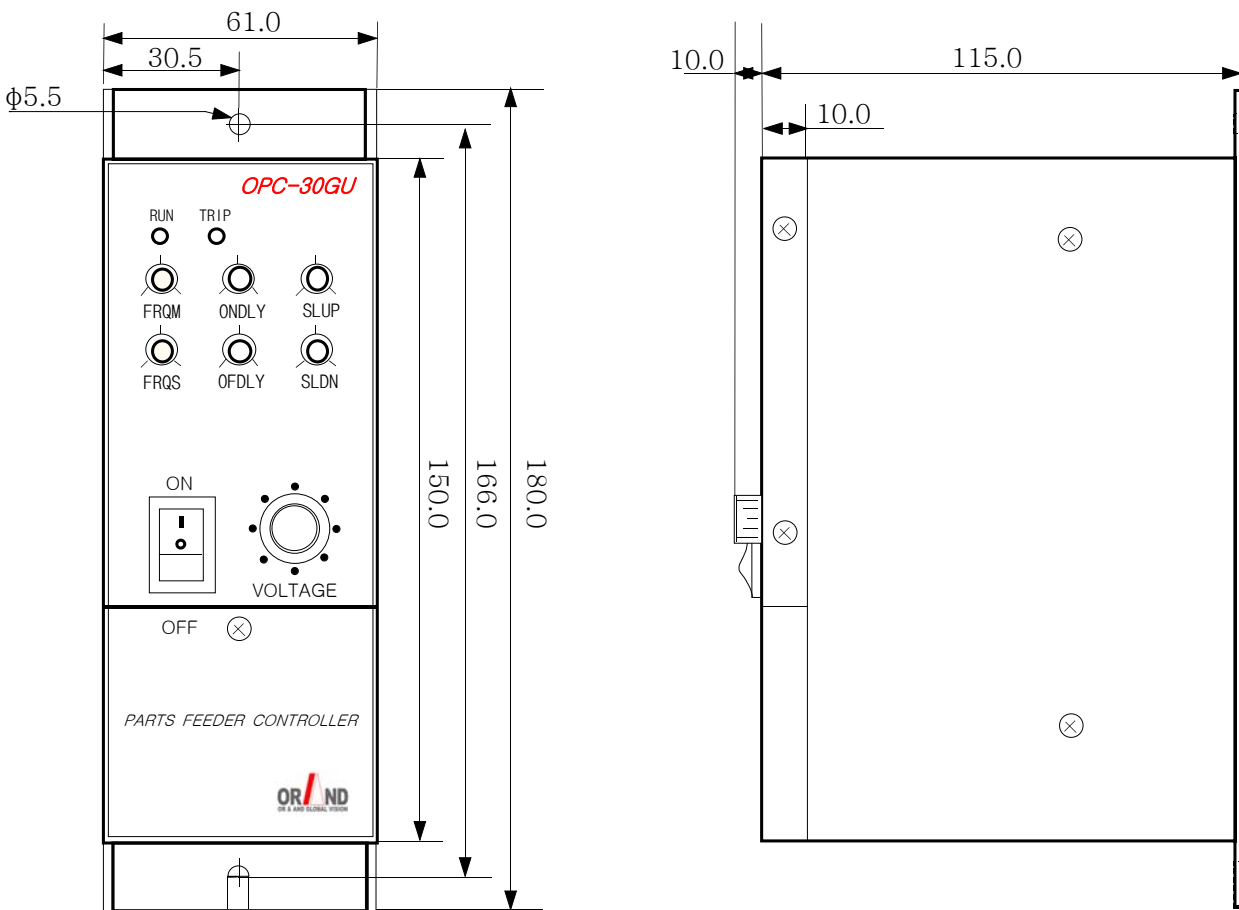
6. Protection and alarm function

This product is designed specifically so that when Error is being occurred due to carelessness of user or an environmental factor, a protecting function will be operated, Error Code will be displayed on display window and alarm will sound for protection of product.

※ Contents of error and its measure according to ERROR CODE shall be as follows.

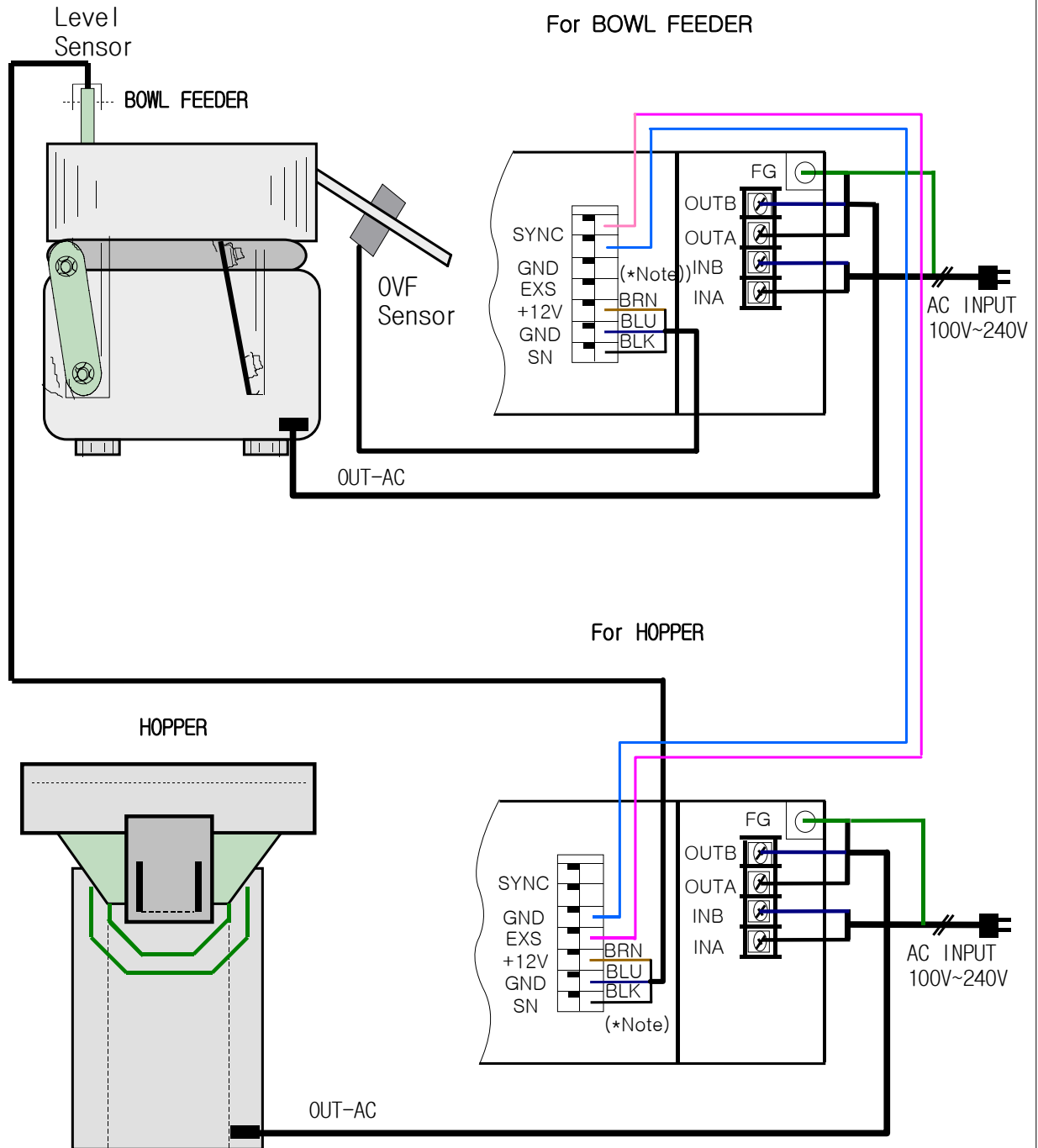
TRIP LED	Contents of error	Measures
Flickering	<input type="checkbox"/> Over Heat Error .Internal Heat-Sink is overheated	.Turn off POWER, remove an overheating factor, wait certain time for natural cooling
Lighting on	<input type="checkbox"/> Over Current Error .Over Current exceeding its capacity flows	.Turn off POWER, remove an Over Current factor

[Out Line Drawing]



[Wiring diagram of Interlock operation of BOWL Feeder and Hopper]

Hopper will work only when operating Bowl Feeder.



(*Note)Autonics
Example of proximity switch