

# MK300 SERIES – QUICK START

# Panasonic

## INVERTER

### Primary Parameter Setting Guidelines

#### Page Number :

- 1 ) Index
- 2 ) List of Error Code and Diagnosis
- 3 ) Wiring to Terminal
- 4 ) Wiring to Control Circuit

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Version 2-1909

#### 5A ) Switching Method between Various Mode of Inverter (No Password Protected)

#### 5B ) Switching Method between Various Mode of Inverter (Password Protected)

#### 6A ) Default Setting : How to adjust running frequency

- 6B ) How to display current ampere of the running motor
- 7A ) How to change running frequency only when Knob is pressed
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(Motor rotation is stopped in shorter time compared to Coast to Stop function)
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Portable Keypad AEM300-REM1  
With Modbus (RS485) Communication.



### PANASONIC INVERTERS – MK 300 SERIES



Inverter Rating  
0.2kW~0.4kW  
1Phase



Inverter Rating  
0.75kW~1.5kW  
1Phase / 3Phase



Inverter Rating  
1Phase - 2.2kW  
3Phase - 2.2kW~3.7kW



Inverter Rating  
5.5kW~7.5kW  
3Phase



Inverter Rating  
11kW~15kW  
3Phase

# Abnormality Diagnostic Function And Reset Method

## Details and Remedies for various Fault Trips

The fault trip memory stores the causes of trip in monitor modes n20 to n23. Even if the power is cut off, the fourth to the latest causes of trip will still be held. (Details of factory inspection are stored in the memory before delivery.)

Display	Details and causes of abnormality	Remedies
SC1	· Instantaneous overcurrent during acceleration	<ul style="list-style-type: none"> <li>· Check for any shorted output or ground.</li> <li>· Eliminate sharp fluctuation at load side.</li> <li>· Extend acceleration/deceleration time (parameters P001, P002 and P317 to P322).</li> <li>· Stop ON/OFF operation of magnetic contactor at load side.</li> </ul>
SC2	· Instantaneous overcurrent at constant speed	
SC3	· Instantaneous overcurrent during deceleration	
SC4	· Instantaneous overcurrent during acceleration/ deceleration/constant speed	
SC5	· Shorted output or overcurrent during startup	· Check for any shorted output or ground.
SC6	· Failure detected during startup	· Check the internal switching module (Welcome to consult with us.)
OC1	· Overcurrent during acceleration	<ul style="list-style-type: none"> <li>· Check output for open phase and eliminate sharp fluctuations at load side.</li> <li>· Extend acceleration/deceleration time (parameters P001, P002 and P317 to P322).</li> <li>· Adjust torque boost level (parameter P011).</li> <li>· Check for restart operation during normal operation.</li> <li>· Stop ON/OFF operation of magnetic contactor at load side.</li> </ul>
OC2	· Overcurrent at constant speed	
OC3	· Overcurrent during deceleration	
OU1	· Internal DC overvoltage during acceleration	· Extend acceleration time (parameters P001, P317, P319 and P321).
OU2	· Internal DC overvoltage at constant speed	· Eliminate sharp fluctuations at load side.
OU3	· Internal DC overvoltage during deceleration	· Extend deceleration time (parameters P002, P318, P320 and P322)
LU	· Power supply voltage below 85% of its rating	<ul style="list-style-type: none"> <li>· Measure power supply voltage and check input for open phase.</li> <li>· Check ride-through restart function.</li> </ul>
OL	· The output current exceeds 125% of electronic thermal setting current or 140% of rated current of inverter for more than 1 minute.	<ul style="list-style-type: none"> <li>· Check electronic thermal setting current.</li> <li>· Check and adjust torque boost level (parameter P011).</li> <li>· Reduce the load.</li> </ul>
OH	· Heat sink overheated	· Check ambient temperature.
AU	· External fault stop input signal is input from control circuit terminals.	· Check if the external signal is proper and if timing circuit is correct.

OP	<ul style="list-style-type: none"> <li>· The power is turned ON with run signal ON.</li> <li>· Timeout detected</li> <li>· The communication cable comes off.</li> </ul>	<ul style="list-style-type: none"> <li>· Check start mode (parameter P031)</li> <li>· Check communication setting and wiring.</li> <li>· Reduce the interference around the inverter.</li> </ul>
FAN	· Cooling fan abnormality	· Check if the cooling fan is locked.
SEr	<ul style="list-style-type: none"> <li>· Speed search failed</li> <li>· Incorrect motor rotation direction</li> <li>· The rating of the motor is too small compared with that of inverter.</li> <li>· Motor rotates slowly during normal operation.</li> </ul>	<ul style="list-style-type: none"> <li>· Reduce the noise around the inverter.</li> <li>· Check the rotation direction of motor.</li> </ul>
CPU	· Too much interference is applied to the inverter	· Reduce the interference around the inverter.
ErrC	· Too much interference is applied to the inverter	· Reduce the interference around the inverter.

# WIRING

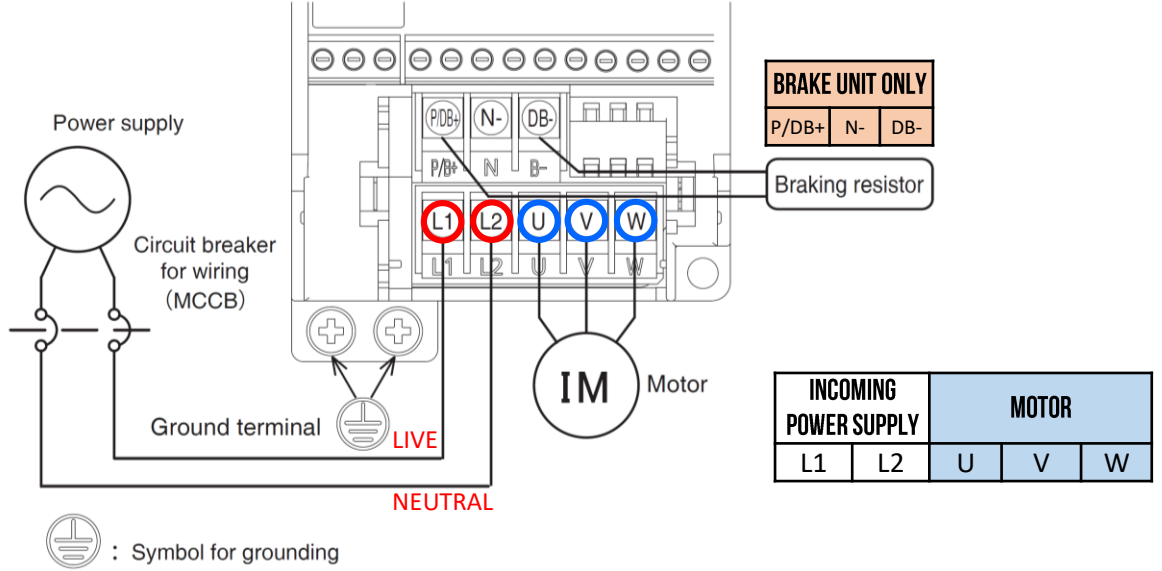
## Terminal for Main circuit

Incoming Power Supply : 1phase 240V

For Inverter 0.2kW / 0.4kW

AMK3000P22

AMK3000P42



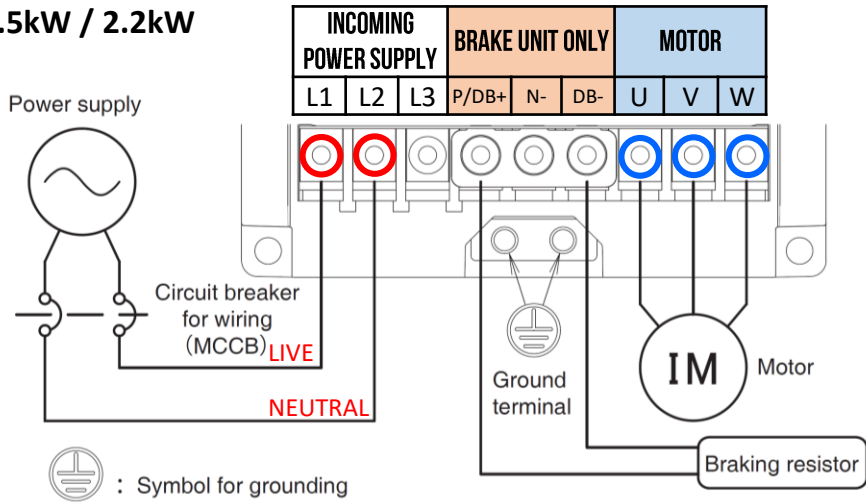
Incoming Power Supply : 1phase 240V

For Inverter 0.75kW / 1.5kW / 2.2kW

AMK3000P72

AMK3001P52

AMK3002P22



Incoming Power Supply : 3phase 415V

For Inverter 0.75kW ~ 15kW

AMK3000P74

AMK3001P54

AMK3002P24

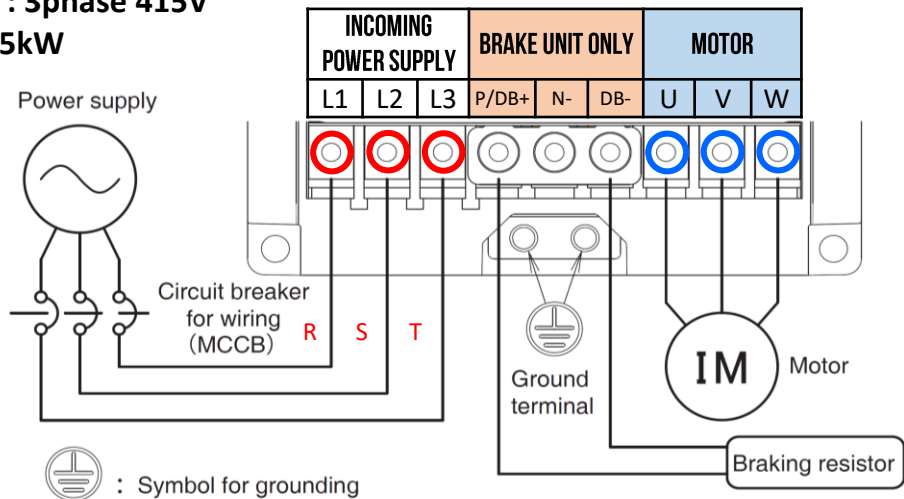
AMK3003P74

AMK3005P54

AMK3007P54

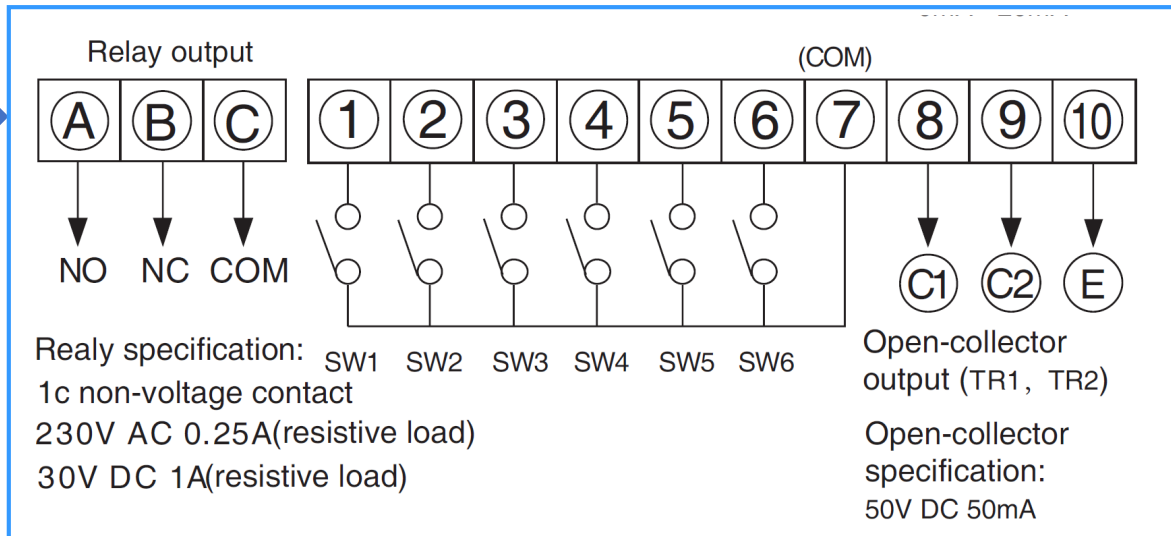
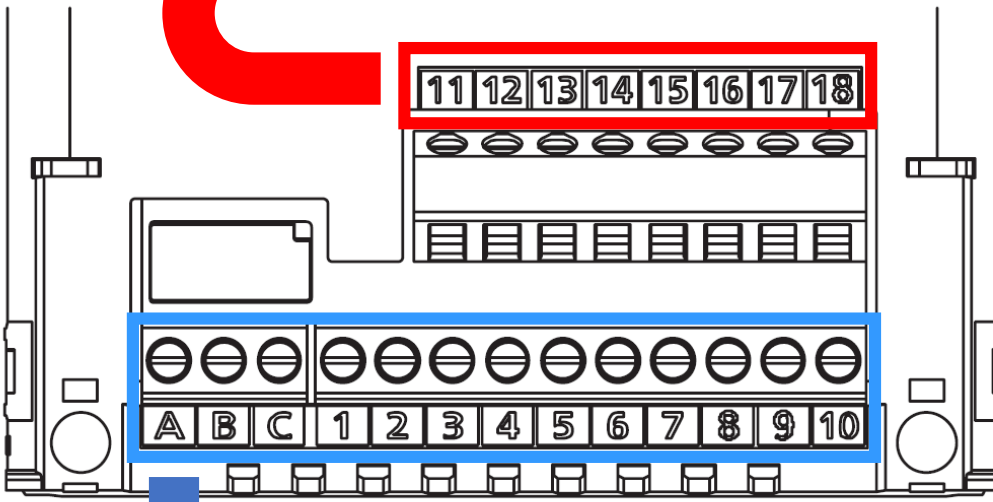
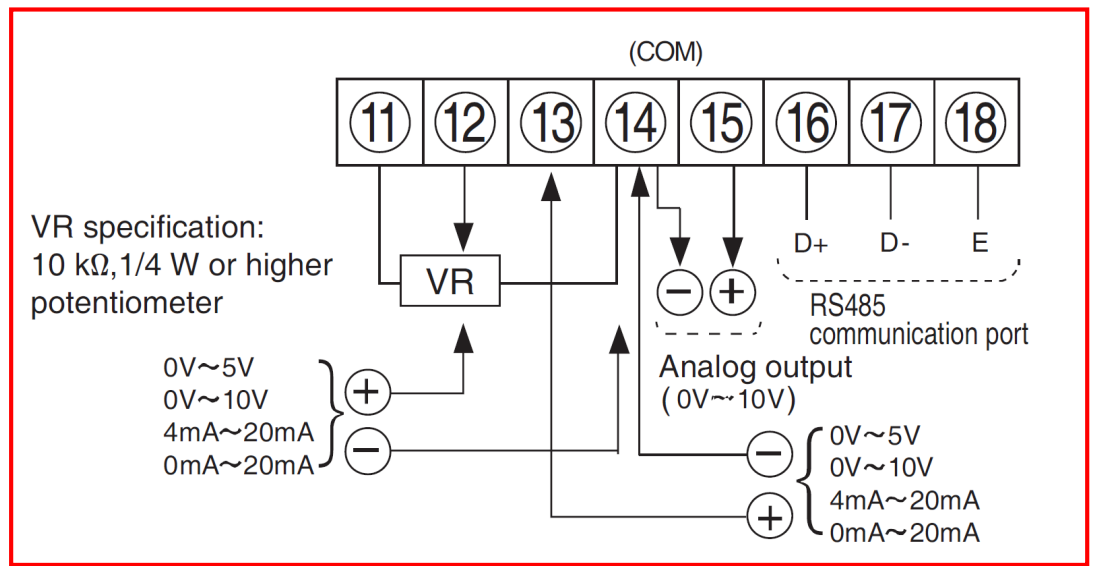
AMK3000114

AMK3000154



# WIRING

## Terminal for Main circuit



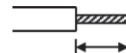
### ■ Wire size and tightening torque for control circuit terminal

Terminal symbol	Screw size	Tightening torque N · m	Wire size	Stripped length of cable sheath
A, B, C ① to ⑱	M3	0.3 to 0.4	0.25mm <sup>2</sup> to 0.75mm <sup>2</sup> (AWG24 to AWG18)	6mm

· Screwdriver : Small-size ⊖ screwdriver

· Stripped length of wire sheath

(Thickness of the edge: 0.4mm/ Width of the edge: 2.5mm)








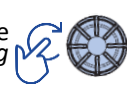


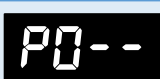










· Terminal block for main circuit :

Terminal block for control circuit (Relay output/Signal input/output) : The maximum number of the conductors : 2 \* 1












\*1 The maximum number of the conductors should be made in the reach of the suitable electric wire size.



**5A) Switching Method between Various Mode of Inverter (Inverter is NOT password protected)**

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i> 		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i> 		Rotate Knob to parameter : [dr] Rotation Direction Setting Mode
3	Rotate <i>pusing</i> 		Rotate Knob to parameter : [n - - ] Control Status Monitoring Mode
4	Rotate <i>pusing</i> 		Rotate Knob to enter Parameter P001 ~ P064
5	Rotate <i>pusing</i> 		Rotate Knob to enter Parameter P101 ~ P155
6	Rotate <i>pusing</i> 		Rotate Knob to enter Parameter P201 ~ P228
7	Rotate <i>pusing</i> 		Rotate Knob to enter Parameter P301 ~ P364
8	Rotate <i>pusing</i> 		Rotate Knob to new parameter Fr (Repeat Step 2)
END	Press <i>tekan</i> 		Press [Mode] to return to Main Screen (Operation Status)

**5B) Switching Method between Various Mode of Inverter (Inverter is PASSWORD protected)**

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i> 		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i> 		Rotate Knob to parameter : [dr] Rotation Direction Setting Mode
3	Rotate <i>pusing</i> 		Rotate Knob to parameter : [n - - ] Control Status Monitoring Mode
4	Rotate <i>pusing</i> 		Rotate Knob to enter password
END	Press <i>tekan</i> 		Press [Mode] to return to Main Screen (Operation Status)

6A)  
**How to adjust running frequency**  
**Fr set to [0.02Hz ~ 400.0Hz]**

(Default Setting : Frequency Changed only when Knob is Pressed)

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press tekan		Display of Operation Status [Fr] Frequency Setting Mode
2	Press tekan		Press Knob to enter existing running frequency [Fr] Frequency
3	Rotate pusing		Rotate Knob to adjust to the new frequency range btw [0.02Hz ~ 400Hz]
4	Press tekan		Press Knob to complete the new parameter change.
5	Press tekan		Press [Mode] to return to Main Screen (Operation Status)
6	Press tekan		Press [Run] to run at the new frequency

6B)  
**How to display current ampere of the running motor**

\* Rated Ampere may varies based on motor capacity. Please check nameplate of motor.

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press tekan		Press Knob to display current running ampere of the motor [0.0A] Zero ampere when motor is not running
END	Press tekan		Press [Mode] to return to Main Screen (Operation Status)

7A)

**How to adjust running frequency when Knob is pressed (without pressing MODE button 1<sup>st</sup>)**

**P060 set to [1]**

(User need to adjust to the new frequency required, press Knob again in order to change)

Note :

**This setting is more user-friendly as it create safer operation to the user.**

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i>		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i>		Rotate Knob to parameter : [P0 - - ] (for Parameter P001 ~ P064)
3	Press <i>tekan</i>		Press Knob to enter Parameter P001 ~ P064
4	Rotate <i>pusing</i>		Rotate Knob to parameter : [P060] ~ MOP Operation Selection
5	Press <i>tekan</i>		Press Knob to enter current rotation direction Default Setting is [2]
6	Rotate <i>pusing</i>		Rotate Knob to new command: [1] Frequency changed after Knob is pressed at new frequency. * (Refer to page 43)
7	Press <i>tekan</i>		Press Knob to complete the new parameter change. <sup>7</sup>
END	Press <i>tekan</i>		Press [Mode] to return to Main Screen (Operation Status)

7B)

**How to rotate Knob and adjust running frequency concurrently during operation**

**P060 set to [0]**

(User can adjust speed without press Knob again to change frequency).

Note:

**We DO NOT recommend user to use this setting. This is because the running speed can be easily adjusted without your notice, as the result, it cause risk/injury to the operator.**

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i>		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i>		Rotate Knob to parameter : [P0 - - ] (for Parameter P001 ~ P064)
3	Press <i>tekan</i>		Press Knob to enter Parameter P001 ~ P064
4	Rotate <i>pusing</i>		Rotate Knob to parameter : [P060] ~ MOP Operation Selection
5	Press <i>tekan</i>		Press Knob to enter current rotation direction Default Setting is [2]
6	Rotate <i>pusing</i>		Rotate Knob to new command: [0] Frequency is up/down when Knob is rotated concurrently * (Refer to page 43)
7	Press <i>tekan</i>		Press Knob to complete the new parameter change.
END	Press <i>tekan</i>		Press [Mode] to return to Main Screen (Operation Status)

8)  
**How to set Maximum and Minimum Output Frequency Range**

**P009 set to [FF]**  
**P012 set to [50~400] Hz - Max**  
**P013 set to [45~400] Hz - Min**

E.g.  
 Maximum Output Frequency  
 To 80Hz

Minimum Output Frequency  
 To 20Hz

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press tekan		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate pusing		Rotate Knob to parameter : [P0 - - ] (for Parameter P001 ~ P064)
3	Press tekan		Press Knob to enter Parameter P001 ~ P064
4	Rotate pusing		Rotate Knob to parameter : [P009] ~ V/F Mode
5	Press tekan		Press Knob to enter parameter [P009] ~ V/F Mode Default Setting is [50] Hz
6	Rotate pusing		Rotate Knob to new command [FF] Free Mode * (Refer to page 40)
7	Press tekan		Press Knob to complete the new parameter change.
8	Rotate pusing		Rotate Knob to new parameter [P012] Maximum Output Frequency
9	Press tekan		Press Knob to enter parameter : [P012] Maximum Output Frequency. Default [50] Hz
10	Rotate pusing		Rotate Knob to new command [80.0] is 80Hz * Max Frequency (Refer to page 40)
11	Press tekan		Press Knob to complete the new parameter change.
12	Rotate pusing		Rotate Knob to new parameter [P013] Base Frequency
13	Press tekan		Press Knob to enter parameter : [P013] Base Frequency. Default [50] Hz
14	Rotate pusing		Rotate Knob to new command [20.0] is 20Hz * Min Frequency (Refer to page 40)
15	Press tekan		Press Knob to complete the new parameter change.
END	Press tekan		Press [Mode] to return to Main Screen (Operation Status)



9)  
**How to adjust Acceleration Time and Deceleration Time**

**P001 set to [0.04 ~ 3600] seconds Acceleration Time**

**P002 set to [0.04 ~ 3600] seconds Deceleration Time**









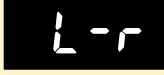




Eg.  
 Acceleration Time to 2second

Deceleration Time to 3second

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i>		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i>		Rotate Knob to parameter : [P0 -- ] (for Parameter P001 ~ P064)
3	Press <i>tekan</i>		Press Knob to enter Parameter [P001] 1 <sup>st</sup> Acceleration Time
4	Press <i>tekan</i>		Press Knob to enter parameter [P001] 1 <sup>st</sup> Acceleration Time Default Setting is [5.0] Seconds
5	Rotate <i>pusing</i>		Rotate Knob to new command [2.0] is 2.0 Seconds * (Refer to page 39)
6	Press <i>tekan</i>		Press Knob to complete the new parameter change.
7	Rotate <i>pusing</i>		Rotate Knob to new parameter [P002] 1 <sup>st</sup> Deceleration Time
8	Press <i>tekan</i>		Press Knob to enter parameter : [P002] 1 <sup>st</sup> Deceleration Time Default Setting is [5.0] Seconds
9	Rotate <i>pusing</i>		Rotate Knob to new command [3.0] is 3.0 Seconds * (Refer to page 39)
10	Press <i>tekan</i>		Press Knob to complete the new parameter change.
END	Press <i>tekan</i>		Press [Mode] to return to Main Screen (Operation Status)

10)  
**How to change rotation direction**  
 - Forward / Reverse  
**dr set to [L-F or L-r]**

(Cara mengubahkan arah putaran )

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i> 		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i> 		Rotate Knob to parameter : [dr] Rotation Direction
3	Press <i>tekan</i> 		Press Knob to enter current rotation direction
4	Rotate <i>pusing</i> 		Rotate Knob to new command: [L-F] is Forward direction [L-r] is Reverse direction
5	Press <i>tekan</i> 		Press Knob to complete the new parameter change.
<b>END</b>	Press <i>tekan</i> 		Press [Mode] to return to Main Screen (Operation Status)

11) How to display Motor RPM instead of Frequency on screen

**For 4Pole Motor (1500rpm)**  
**P005 set to [1]**  
**P054 set to [30.0]**

**For 2Pole Motor (3000rpm)**  
**P005 set to [1]**  
**P054 set to [60.0]**

**For 6Pole Motor (1000rpm)**  
**P005 set to [1]**  
**P054 set to [20.0]**

\*\*\*\*\*

For 4Pole Motor (1500rpm) with gearhead reduction ratio 1/10  
 P005 set to [1]  
 P054 set to [3.0]

For 4Pole Motor (1500rpm) with gearhead reduction ratio 1/20  
 P005 set to [1]  
 P054 set to [1.5]

For 4Pole Motor (1500rpm) with gearhead reduction ratio 1/50  
 P005 set to [1]  
 P054 set to [0.6]

For 4Pole Motor (1500rpm) with gearhead reduction ratio 1/100  
 P005 set to [1]  
 P054 set to [0.15]

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i>		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i>		Rotate Knob to parameter : [P0 -- ] (for Parameter P001 ~ P064)
3	Press <i>tekan</i>		Press Knob to enter Parameter P001 ~ P064
4	Rotate <i>pusing</i>		Rotate Knob to parameter : [P005] ~ Run Command Selection.
5	Press <i>tekan</i>		Press Knob to enter Operation Status Monitor Default Setting is [0]
6	Rotate <i>pusing</i>		Rotate Knob to new command [1] Linear Speed * (Refer to page 40)
7	Press <i>tekan</i>		Press Knob to complete the new parameter change.
8	Rotate <i>pusing</i>		Rotate Knob to new command [P054] ~ Linear Speed Multiplier Selection.
9	Press <i>tekan</i>		Press Knob to enter parameter : [P054] ~ Linear Speed Multiplier Default Setting is [3.0]
10	Rotate <i>pusing</i>		Rotate Knob to new command [30.0] Linear speed x 30 Linear Speed (0.1 ~ 100)
11	Press <i>tekan</i>		Press Knob to complete the new parameter change.
END	Press <i>tekan</i>		Press [Mode] to return to Main Screen (Operation Status)

12)  
**How to adjust Thermal Current Protection (TCP - overload protection for your drive/motor)**  
**P024 set to [0.1 ~ 100] Ampere**

*\* Default Ampere may varies based on inverter capacity.*








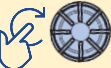









For setting of rated ampere protection, please refer to the rated ampere on the name plate of the motor.

E.g. for 3ph230V voltage, 0.75kW motor's rated ampere is 3.6A (ampere).

In this case, you may set this TCP value to 3.6A ~ 3.8A.

You may set the overload ampere with 3~5% higher than rated ampere, as above.

Thermal Current Protection will be activated when your motor is running over pre-set TCP value for 1 minute.

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i> 		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i> 		Rotate Knob to parameter : [P0 - - ] (for Parameter P001 ~ P064)
3	Press <i>tekan</i> 		Press Knob to enter Parameter P001 ~ P064
4	Rotate <i>pusing</i> 		Rotate Knob to parameter : [P024] ~ Thermal Current Setting
5	Press <i>tekan</i> 		Press Knob to enter parameter [P024] ~ Thermal Current Setting Default setting is varies with inverter capacity
6	Rotate <i>pusing</i> 		Rotate Knob to new command: <b>[3.6] 3.6A for 0.75kW Motor *</b> <i>* Ampere may varies based on inverter capacity (Refer to page 41)</i>
7	Press <i>tekan</i> 		Press Knob to complete the new parameter change.
<b>END</b>	Press <i>tekan</i> 		Press [Mode] to return to Main Screen (Operation Status)

13)  
**How to change the Switching Frequency of the inverter (PWM Carrier Frequency)**  
**P007 set to (0.8kHz ~ 15.0kHz)**

(User can adjust to higher value of Carrier Frequency to reduce acoustic noise of inverter)

P007 allows the tone of the magnetic noise from the motor to be changed by switching the PWM carrier frequency. This parameter is also effective in preventing the motor from resonating with its load machine or its fan cover.

\* Reduce the carrier frequency to reduce electromagnetic noise, but the acoustic noise of the motor is increased. Vice versa.

*P/S : Recommended Carrier Frequency : 2.5kHz ~ 5.0kHz*

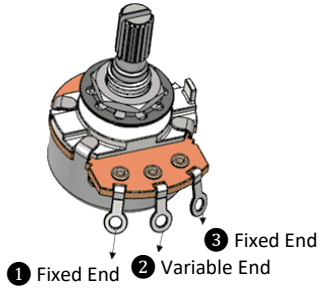
Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i>		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i>		Rotate Knob to parameter : [P0 - - ] (for Parameter P001 ~ P064)
3	Press <i>tekan</i>		Press Knob to enter Parameter P001 ~ P064
4	Rotate <i>pusing</i>		Rotate Knob to parameter : [P007] ~ Carrier Frequency
5	Press <i>tekan</i>		Press Knob to enter current Carrier Frequency Default Setting is [2.5]kHz
6	Rotate <i>pusing</i>		Rotate Knob to new command: V/F control range btw [0.8 to 15.0kHz (9 steps)]
7	Press <i>tekan</i>		Press Knob to complete the new parameter change.
<b>END</b>	Press <i>tekan</i>		Press [Mode] to return to Main Screen (Operation Status)



14)  
**How to use external speed potentiometer (VR) to adjust running frequency**  
**P004 set to [1]**

(VR – Variable Resistor a.k.a. Adjustable Knob)

Potentiometer Resistance :  
 20K Ohm (20kΩ), 1/4W.



- ① connect wire to Terminal 11 of inverter
- ② connect wire to Terminal 12 of inverter
- ③ connect wire to Terminal 14 of inverter

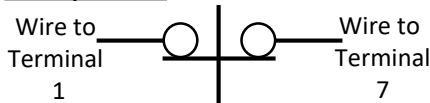
Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i>		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i>		Rotate Knob to parameter : [P0 -- ] (for Parameter P001 ~ P064)
3	Press <i>tekan</i>		Press Knob to enter Parameter P001 ~ P064
4	Rotate <i>pusing</i>		Rotate Knob to parameter : [P004] ~ Frequency Setting Signal
5	Press <i>tekan</i>		Press Knob to enter current rotation direction Default Setting is [0]
6	Rotate <i>pusing</i>		Rotate Knob to new command: [1] External Control – VR * (Refer to page 39)
7	Press <i>tekan</i>		Press Knob to complete the new parameter change.
END	Press <i>tekan</i>		Press [Mode] to return to Main Screen (Operation Status)

15)  
**How to use 2-way External  
 Selector Switch for :**  
**Run / Stop operation**  
**P003 set to [3]**  
**P101 set to [16]**



**RUN OPERATION**

**Run Operation**

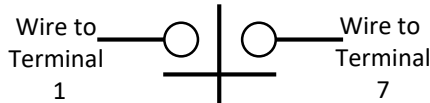


**Stop Operation**

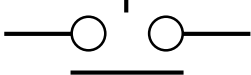


**STOP OPERATION**

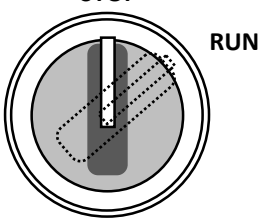
**Run Operation**



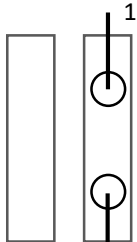
**Stop Operation**



**STOP**



Wire to  
Terminal  
1



Wire to  
Terminal  
7

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press tekan		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate pusing		Rotate Knob to parameter : [P0 -- ] (for Parameter P001 ~ P064)
3	Press tekan		Press Knob to enter Parameter P001 ~ P064
4	Rotate pusing		Rotate Knob to parameter : [P003] ~ Run Command Selection.
5	Press tekan		Press Knob to enter Run Command Selection. Default Setting is [0]
6	Rotate pusing		Rotate Knob to new command [3] External Control * (Refer to page 39)
7	Press tekan		Press Knob to complete the new parameter change.
8	Press tekan		Press [Esc] to return to previous screen [P0 -- ]
9	Rotate pusing		Rotate Knob to parameter : [P1 -- ] (for Parameter P101 ~ P155)
10	Press tekan		Press Knob again to enter Parameter P101 ~ P155
11	Press tekan		Press Knob to enter parameter : [P101] ~ SW1 Function Selection. Default Setting is [16]
12	Rotate pusing		Rotate Knob to new command [16] Run/Stop (Refer to page 45)
13	Press tekan		Press Knob to complete the new parameter change.
<b>END</b>	Press tekan		Press [Mode] to return to Main Screen (Operation Status)

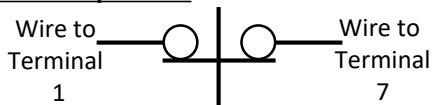
16) How to use 3-way External Selector Switch for :  
Reverse / Stop / Forward operation

**P003 set to [5]**  
**P101 set to [16]**  
**P102 set to [17]**

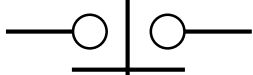


**FORWARD OPERATION**

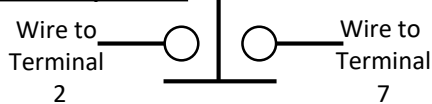
**Forward Operation**



**Stop Operation**

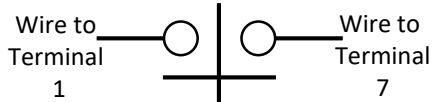


**Reverse Operation**

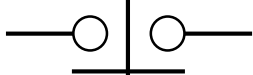


**REVERSE OPERATION**

**Forward Operation**



**Stop Operation**



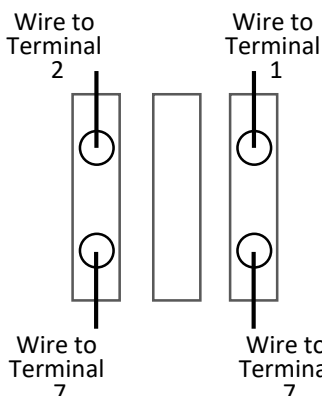
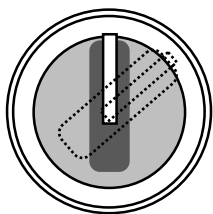
**Reverse Operation**



STOP

REVERSE

FORWARD



Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press tekan		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate pusing		Rotate Knob to parameter : [P0 --] (for Parameter P001 ~ P064)
3	Press tekan		Press Knob to enter Parameter P001 ~ P064
4	Rotate pusing		Rotate Knob to parameter : [P003] ~ Run Command Selection.
5	Press tekan		Press Knob to enter Run Command Selection. Default Setting is [0]
6	Rotate pusing		Rotate Knob to new command [5] External Control * (Refer to page 39)
7	Press tekan		Press Knob to complete the new parameter change.
8	Press tekan		Press [Esc] to return to previous screen [P0 --]
9	Rotate pusing		Rotate Knob to parameter : [P1 --] (for Parameter P101 ~ P155)
10	Press tekan		Press Knob again to enter Parameter P101 ~ P155
11	Press tekan		Press Knob to enter parameter : [P101] ~ SW1 Function Selection. Default Setting is [16]
12	Rotate pusing		Rotate Knob to new command [16] Run/Stop * (Refer to page 45)
13	Press tekan		Press Knob to complete the new parameter change.
14	Rotate pusing		Rotate Knob to parameter : [P102]
15	Press tekan		Press Knob to enter parameter : [P102] ~ SW2 Function Selection. Default Setting is [17]
16	Rotate pusing		Rotate Knob to new command [17] Forward/Reverse Run * (Refer to page 45)
17	Press tekan		Press Knob to complete the new parameter change.
END	Press tekan		Press [Mode] to return to Main Screen (Operation Status)

17) How to start inverter run automatically when power is switch on (with 2-way Selector Switch)

\* For 1phase Inverter only

**P003 set to [3]**

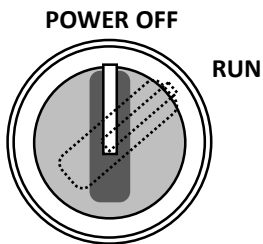
**P031 set to [0]**

**P101 set to [16]**

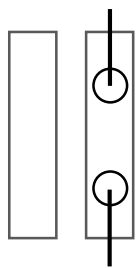
In this setting, if user want to adjust running frequency, user has to Press [Mode], then press [Knob] to enter Frequency setting [Fr], Rotate [Knob] to adjust frequency level, press [Knob] to complete the new frequency level.

**NOTE :**  
**We DO NOT recommend this setting as strongly recommend user to power on the inverter, then wait for 3-4 seconds interval before start running the operation.**

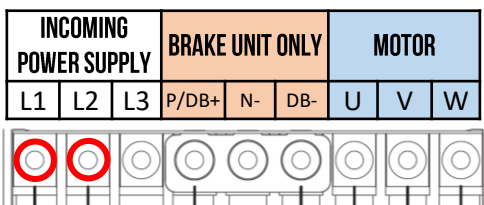
Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press tekan		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate pusing		Rotate Knob to parameter : [P0 - - ] (for Parameter P001 ~ P064)
3	Press tekan		Press Knob to enter Parameter P001 ~ P064
4	Rotate pusing		Rotate Knob to parameter : [P005] ~ Run Command Selection.
5	Press tekan		Press Knob to enter Operation Status Monitor Default Setting is [0]
6	Rotate pusing		Rotate Knob to new command [3] External Control* (Refer to page 39)
7	Press tekan		Press Knob to complete the new parameter change.
8	Rotate pusing		Rotate Knob to new parameter [P031] Start Mode
9	Press tekan		Press Knob to enter parameter : [P031] Start Mode Default Setting is [1]
10	Rotate pusing		Rotate Knob to new command [0] Run * (Refer to page 41)
11	Press tekan		Press Knob to complete the new parameter change.
END	Press tekan		Press [Mode] to return to Main Screen (Operation Status)



Wire to Terminal Live (Power Source)



Wire to Terminal L1



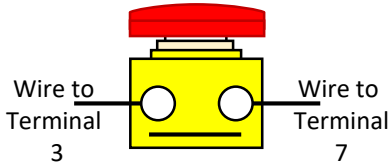
L1 to the Contact Block (Selector Switch)  
 L2 to Neutral (Power Source)

18)  
**How to setup Emergency Stop Button**

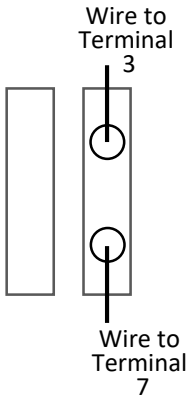
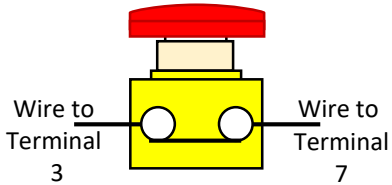
**P103 set to [7]**



**EMERGENCY STOP OPERATION (Press)**

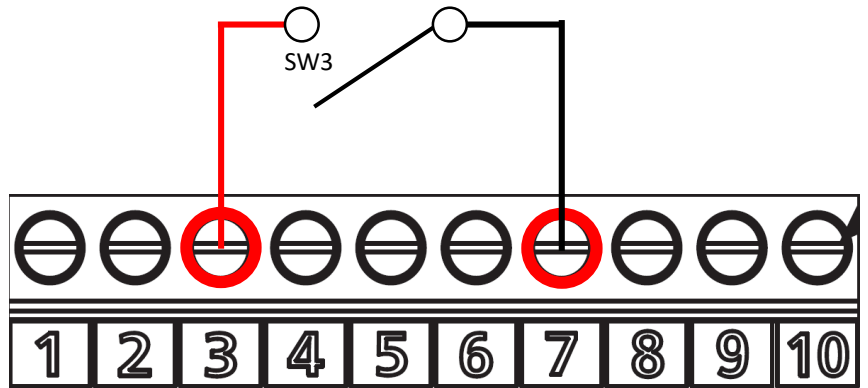


**RESUME OPERATION (Release)**

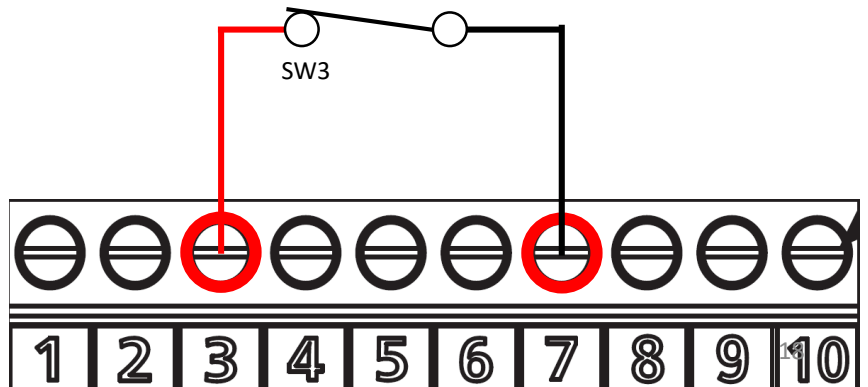


Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press tekan		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate pusing		Rotate Knob to parameter : [P1 --] (for Parameter P101 ~ P155)
3	Press tekan		Press Knob to enter parameter : [P1 --] (for Parameter P101 ~ P155)
4	Rotate pusing		Rotate Knob to parameter : [P103] SW3 Function Selection
5	Press tekan		Press Knob to enter parameter : [P103] SW3 Function Selection Default setting [0]
6	Rotate pusing		Rotate Knob to new command: [r7] Coast to Stop
7	Press tekan		Press Knob to complete the new parameter change.
<b>END</b>	Press tekan		Press [Mode] to return to Main Screen (Operation Status)

**EMERGENCY ACTIVATED (STOP OPERATION - OPEN)**



**RESUME RUNNING OPERATION (EMERGENCY DEACTIVATED - CLOSED)**











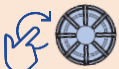




19)  
**How to stop operation by using  
 DC Braking**

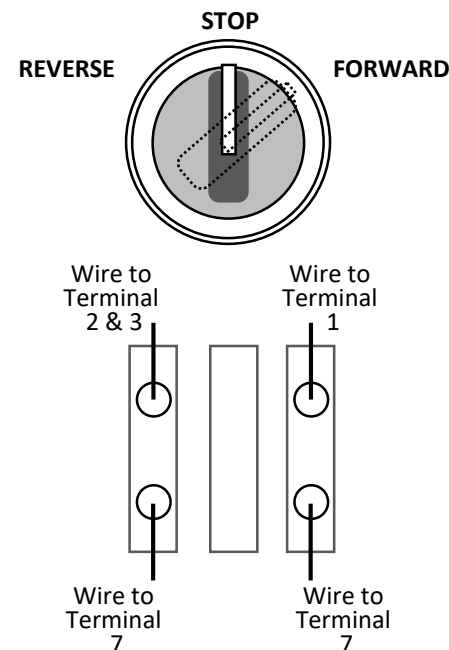
**P003 set to [5]  
 P037 set to [60]  
 P038 set to [0.1]  
 P039 set to [100]  
 P101 set to [16]**

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i>		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i>		Rotate Knob to parameter : [P0 -- ] (for Parameter P001 ~ P064)
3	Press <i>tekan</i>		Press Knob to enter Parameter P001 ~ P064
4	Rotate <i>pusing</i>		Rotate Knob to parameter : [P005] ~ Run Command Selection.
5	Press <i>tekan</i>		Press Knob to enter Operation Status Monitor Default Setting is [0]
6	Rotate <i>pusing</i>		Rotate Knob to new command [5] External Control* (Refer to page 39)
7	Press <i>tekan</i>		Press Knob to complete the new parameter change.
8	Rotate <i>pusing</i>		Rotate Knob to new parameter [P037] Stop Frequency
9	Press <i>tekan</i>		Press Knob to enter parameter : [P037] Stop Frequency Default Setting is [0.2]
10	Rotate <i>pusing</i>		Rotate Knob to new command [60.0] 60Hz * (Refer to page 42)
11	Press <i>tekan</i>		Press Knob to complete the new parameter change.
12	Rotate <i>pusing</i>		Rotate Knob to new parameter [P038] DC Braking Time
13	Press <i>tekan</i>		Press Knob to enter parameter : [P038] DC Braking Time Default Setting is [0.2]
14	Rotate <i>pusing</i>		Rotate Knob to new command [0.1] 0.1Second * (Refer to page 42)
15	Press <i>tekan</i>		Press [Mode] to return to Main Screen (Operation Status)
<b>CONTINUE NEXT PAGE</b>			

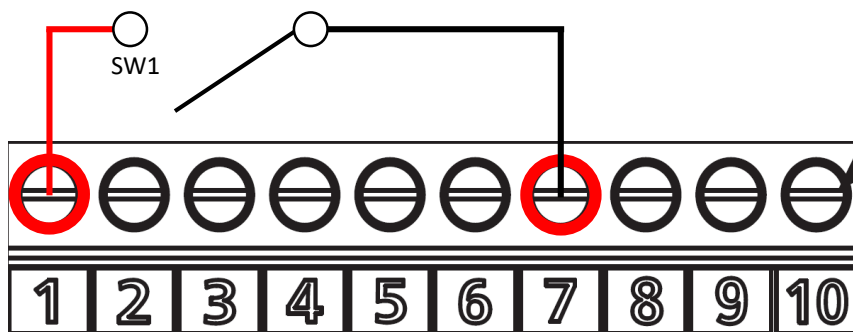
19 - Continued  
**How to stop operation by using DC Braking**

- P003 set to [5]**
- P037 set to [60]**
- P038 set to [0.1]**
- P039 set to [100]**
- P101 set to [16]**

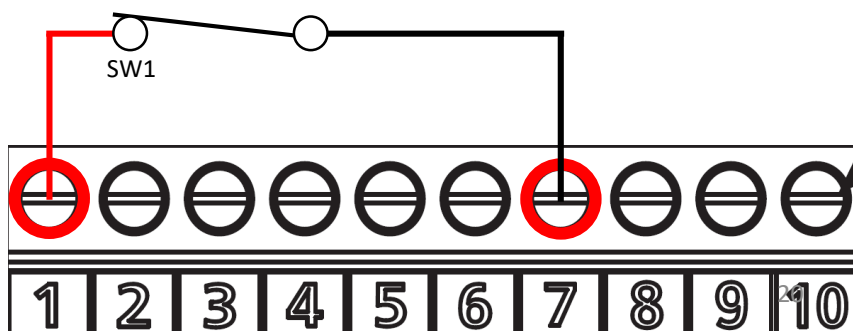
Step	Action	Screen Display (after action)	Remark
18	Rotate <i>pusing</i> 	<b>P039</b>	Rotate Knob to parameter : [P039]
19	Press <i>tekan</i> 	<b>0</b>	Press Knob to enter parameter : [P039] ~ DC Braking Level. Default Setting is [0] %
20	Rotate <i>pusing</i> 	<b>100</b>	Rotate Knob to new command [100] 100% * (Refer to page 42)
21	Press <i>tekan</i> 	<b>P040</b>	Press Knob to complete the new parameter change.
22	Press <i>tekan</i> 	<b>P0--</b>	Press [Esc] to return to previous screen [P0 --]
23	Rotate <i>pusing</i> 	<b>P1--</b>	Rotate Knob to parameter : [P1 --] (for Parameter P101 ~ P155)
24	Rotate <i>pusing</i> 	<b>P 101</b>	Press Knob again to enter Parameter P101 ~ P155
25	Press <i>tekan</i> 	<b>16</b>	Press Knob to enter parameter : [P101] ~ SW1 Function Selection. Default Setting is [16]
26	Rotate <i>pusing</i> 	<b>16</b>	Rotate Knob to new command [16] Run/Stop * (Refer to page 45)
27	Press <i>tekan</i> 	<b>P 102</b>	Press Knob to complete the new parameter change.
<b>END</b>	Press <i>tekan</i> 	<b>0000</b>	Press [Mode] to return to Main Screen (Operation Status)



**DC BRAKING ACTIVATED (STOP OPERATION - OPEN)**



**RESUME RUNNING OPERATION (DC BRAKE DEACTIVATED - CLOSED)**



21)  
**How to use Sensor to stop operation by using Multispeed Setting (Motor rotation is stopped in shorter time compared to Coast to Stop function)**

**P002 set to [0.10]  
P103 set to [1]  
P301 set to [0]  
P302 set to [0]**

**Note: Panasonic inverter does not have DC10V, so user have to use AC240V sensor.**



Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press tekan		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate pusing		Rotate Knob to parameter : [P0 -- ] (for Parameter P001 ~ P064)
3	Press tekan		Press Knob to enter Parameter P001 ~ P064
4	Rotate pusing		Rotate Knob to parameter : [P002] ~ 1 <sup>st</sup> Deceleration Time
5	Press tekan		Press Knob to enter 1 <sup>st</sup> Deceleration Time Default Setting is [4] seconds
6	Rotate pusing		Rotate Knob to new command [0.1] 0.1 second * (Refer to page 39)
7	Press tekan		Press Knob to complete the new parameter change.
8	Press tekan		Press [Esc] to return to previous screen [P0 -- ]
9	Rotate pusing		Rotate Knob to parameter : [P1 -- ] (for Parameter P101 ~ P155)
10	Press tekan		Press Knob again to enter Parameter P101 ~ P155
11	Rotate pusing		Rotate Knob to new parameter [P103] SW3 Function Selection
12	Press tekan		Press Knob to enter parameter : [P103] ~ SW3 Function Selection. Default Setting is [0]
13	Rotate pusing		Rotate Knob to new command [1] Multispeed * (Refer to page 46)
14	Press tekan		Press Knob to complete the new parameter change.
15	Press tekan		Press [Esc] to return to previous screen [P1 -- ]
16	Rotate pusing		Rotate Knob to parameter : [P3 -- ] (for Parameter P301 ~ P364)

CONTINUE NEXT PAGE

21 - Continued

**How to use Sensor to stop operation by using Multispeed Setting (Motor rotation is stopped in shorter time compared to Coast to Stop function)**

**P002 set to [0.10]**

**P103 set to [1]**

**P301 set to [0]**

**P302 set to [0]**

**Note: Panasonic inverter does not have DC10V, so user have to use AC240V sensor.**



Step	Action	Screen Display (after action)	Remark
18	Press <i>tekan</i>	<b>P301</b>	Press Knob again to enter Parameter P301 ~ P364
19	Press <i>tekan</i>	<b>0</b>	Press Knob again to enter parameter : [P301] ~ Multi-step Speed Function. Selection (Default 0)
20	Press <i>tekan</i>	<b>P302</b>	Press Knob to complete the new parameter change.
21	Rotate <i>pusing</i>	<b>P302</b>	Rotate Knob to parameter : [P302]
22	Press <i>tekan</i>	<b>5.0</b>	Press Knob to enter parameter : [P302] ~ 2 <sup>nd</sup> Step Speed Frequency (Default 5.0)
23	Rotate <i>pusing</i>	<b>0.0</b>	Rotate Knob to new command [0.0] (Refer to page 53)
24	Press <i>tekan</i>	<b>P303</b>	Press Knob to complete the new parameter change.
<b>END</b>	Press <i>tekan</i>	<b>0000</b>	Press [Mode] to return to Main Screen (Operation Status)

**TERMINAL AND WIRING**

Model : Omron Photoelectric Sensor (Output Relay Type)

Type : E3JK-TR11 (Through-Beam Type)

\*Emitter + Receiver

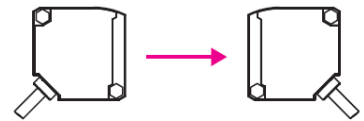
Type : E3JK-DR11 (Diffuse Reflective Type)

Sensor Voltage 24 ~ 240VDC / 24 ~ 240VAC

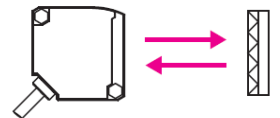
Inverter Incoming Power Supply 240VAC

**Sensing Method**

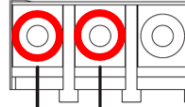
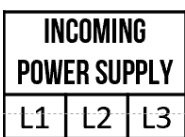
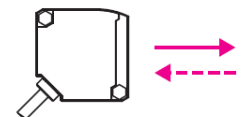
**Through-Beam Type**  
\*Emitter + Receiver



**Retro-Reflective Type**

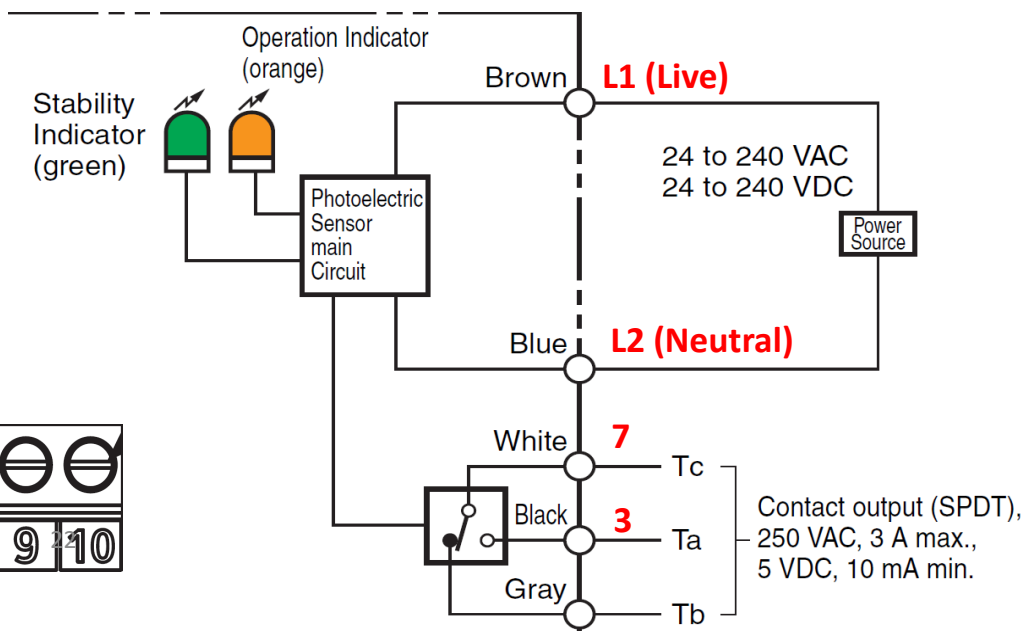
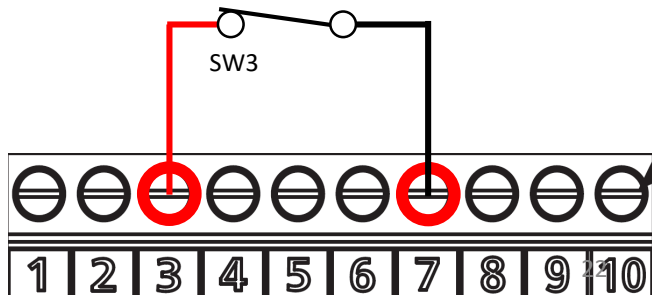


**Diffuse-Reflective Type**



**(Brown) (Blue)**

**RESUME RUNNING OPERATION (SENSOR DEACTIVATED - CLOSED)**



23)  
**How to use run Forward and Reverse direction with different speed (output frequency).**

**E.G**  
**Forward at 50Hz**  
**Reverse at 30Hz**

**P003 set to [5]**  
**P019 set to [30]**  
**P101 set to [16]**  
**P102 set to [17]**  
**P103 set to [4]**

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i>		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i>		Rotate Knob to parameter : [P0 - -] (for Parameter P001 ~ P064)
3	Press <i>tekan</i>		Press Knob to enter Parameter P001 ~ P064
4	Rotate <i>pusing</i>		Rotate Knob to parameter : [P003] ~ Run Command Selection
5	Press <i>tekan</i>		Press Knob to enter Run Command Selection Default Setting is [0]
6	Rotate <i>pusing</i>		Rotate Knob to new command [5] External Control * (Refer to page 39)
7	Press <i>tekan</i>		Press Knob to complete the new parameter change.
8	Rotate <i>pusing</i>		Rotate Knob to parameter : [P019]
9	Press <i>tekan</i>		Press Knob to enter parameter [P019] Jog Frequency Default Setting is (10.0) Hz
10	Rotate <i>pusing</i>		Rotate Knob to new command [30.0] 30Hz * (Refer to page 40)
11	Press <i>tekan</i>		Press Knob to complete the new parameter change.
12	Press <i>tekan</i>		Press [Esc] to return to previous screen [P0 - -]
13	Rotate <i>pusing</i>		Rotate Knob to parameter : [P1 - -] (for Parameter P101 ~ P155)
14	Press <i>tekan</i>		Press Knob again to enter Parameter P101 ~ P155
16	Press <i>tekan</i>		Press Knob to enter parameter : [P101] ~ SW1 Function Selection. Default Setting is [16]
17	Rotate <i>pusing</i>		Rotate Knob to new command [16] Run/Stop * (Refer to page 45)
18	Press <i>tekan</i>		Press Knob to complete the new parameter change.










CONTINUE NEXT PAGE

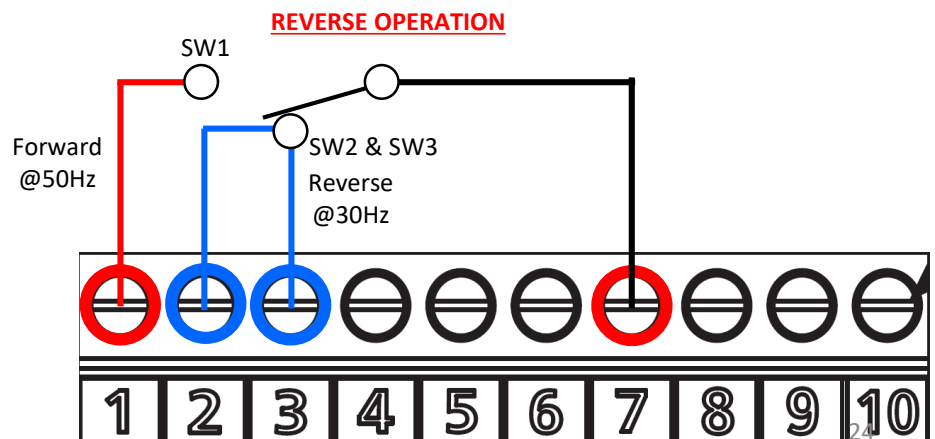
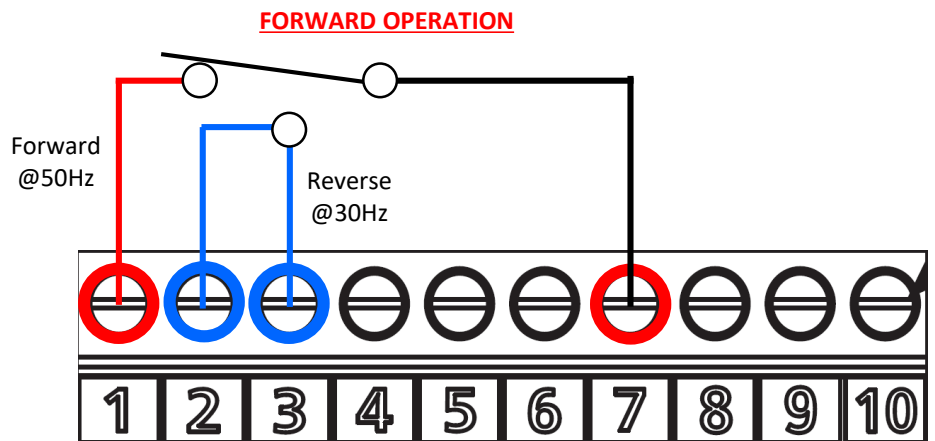
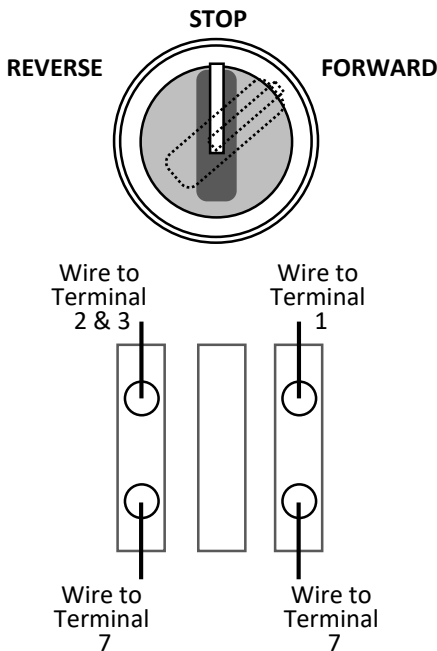


23 - Continued  
**How to use run Forward and Reverse direction with different speed (output frequency).**

**E.G**  
**Forward at 50Hz**  
**Reverse at 30Hz**

- P003 set to [5]**
- P019 set to [30]**
- P101 set to [16]**
- P102 set to [17]**
- P103 set to [4]**

Step	Action	Screen Display (after action)	Remark
20	Rotate <i>pusing</i> 	<b>P 102</b>	Rotate Knob to parameter : [P102]
21	Press <i>tekan</i> 	<b>17</b>	Press Knob to enter parameter : [P102] ~ SW2 Function Selection. Default Setting is [17]
22	Rotate <i>pusing</i> 	<b>17</b>	Rotate Knob to new command [17] Forward/Reverse Run * (Refer to page 45)
23	Press <i>tekan</i> 	<b>P 103</b>	Press Knob to complete the new parameter change.
24	Rotate <i>pusing</i> 	<b>P 103</b>	Rotate Knob to parameter : [P103]
25	Press <i>tekan</i> 	<b>0</b>	Press Knob to enter parameter : [P103] ~ SW3 Function Selection. Default Setting is [0]
26	Rotate <i>pusing</i> 	<b>4</b>	Rotate Knob to new command [4] Jogging Selection * (Refer to page 46)
27	Press <i>tekan</i> 	<b>P 104</b>	Press Knob to complete the new parameter change.
<b>END</b>	Press <i>tekan</i> 	<b>0000</b>	Press [Mode] to return to Main Screen (Operation Status)



25A)  
**How to set up Password**  
**P059 set to new password [\*\*\*\*]**

(Cara kembali ke factory setting)

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i>		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i>		Rotate Knob to parameter : [P0 -- ] (for Parameter P001 ~ P064)
3	Press <i>tekan</i>		Press Knob to enter Parameter P001 ~ P064
4	Rotate <i>pusing</i>		Rotate Knob to parameter : [P059] ~ Password
5	Press <i>tekan</i>		Press Knob to enter [P059] ~ Password Default Setting is [0000]
6	Rotate <i>pusing</i>		Rotate Knob to new command: [****] New password between 0100~9999. (Assumed 1234 in this case)
7	Press <i>tekan</i>		Press Knob to complete the new parameter change.
END	Press <i>tekan</i>		Press [Mode] to return to Main Screen (Operation Status)

25B)  
**How to unlock your inverter**  
**PS set to [\*\*\*\*] (new password)**

Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i>		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i>		Rotate Knob to parameter : [PS] Password
3	Press <i>tekan</i>		Press Knob to enter Parameter [****] Password (password set by user)
4	Rotate <i>pusing</i>		Rotate Knob to the new password
5	Press <i>tekan</i>		Press Knob to complete the new parameter change. Continue to make change to your parameter from [P0 -- ]
END	Press <i>tekan</i>		Press [Mode] to return to Main Screen (Operation Status)

# Panasonic

## INVERTER



### TERMINAL AND WIRING

Model : Omron Photoelectric Sensor (Output Relay Type)

Type : E3JK-TR11 (Through-Beam Type)

\*Emitter + Receiver

Type : E3JK-DR11 (Diffuse Reflective Type)

Sensor Voltage 24 ~ 240VDC / 24 ~ 240VAC

Inverter Incoming Power Supply 240VAC

## 26) Panasonic Inverter

### How to use 2 Sensors to run Forward and Reverse (via momentary contact)

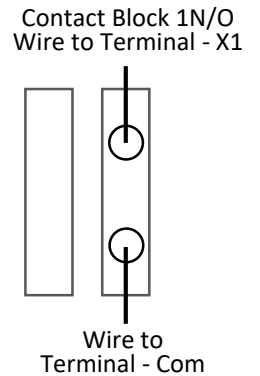
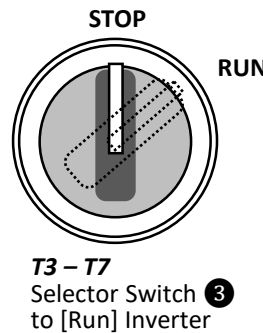
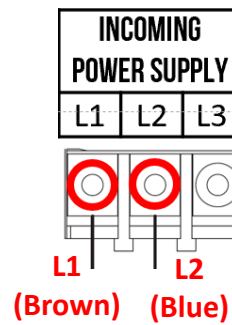
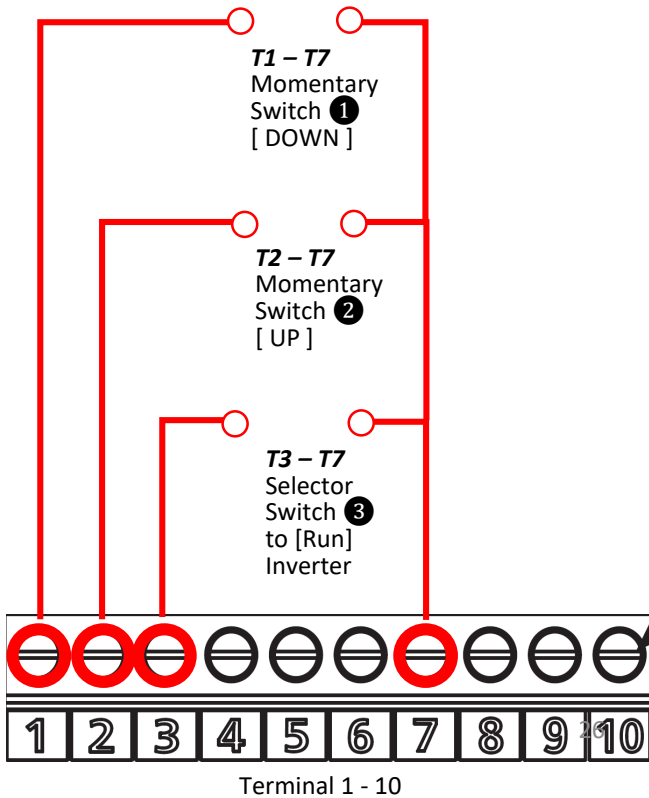
P003 set to [5]

P101 set to [16]

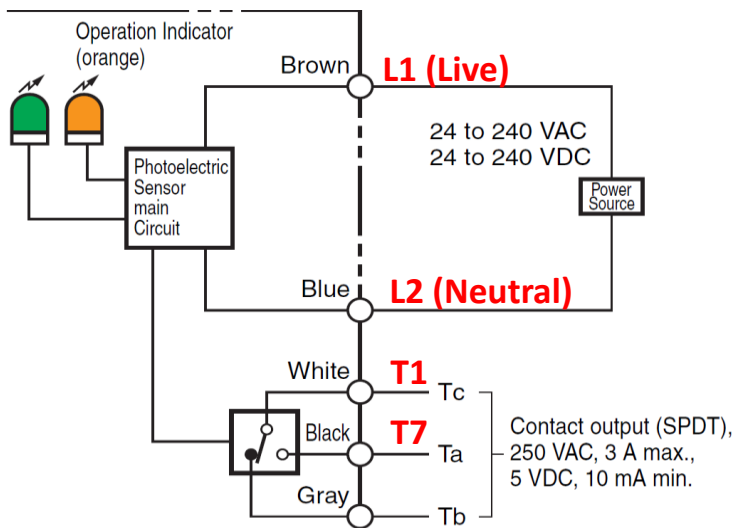
P102 set to [17]

P103 set to [11]

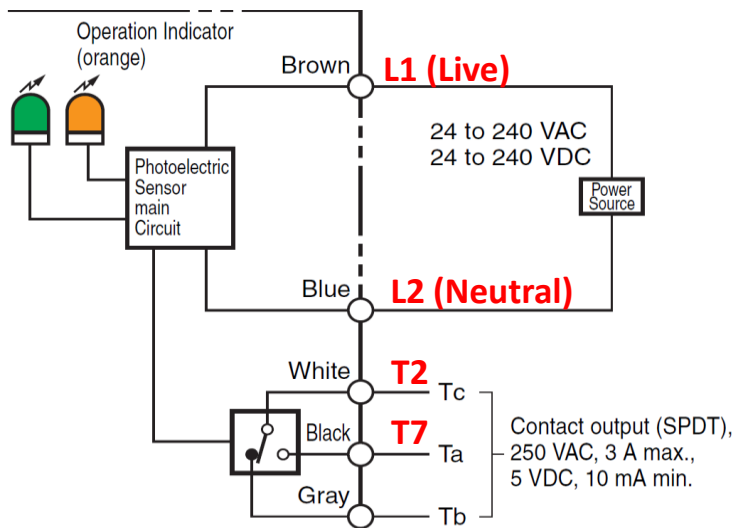
Note: Panasonic inverter does not have DC10V, so user have to use AC240V sensor.



### SENSOR 1 FORWARD

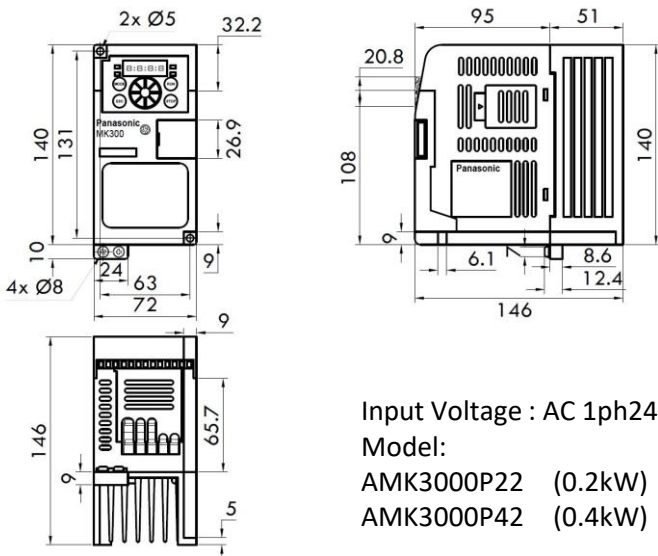


### SENSOR 2 REVERSE

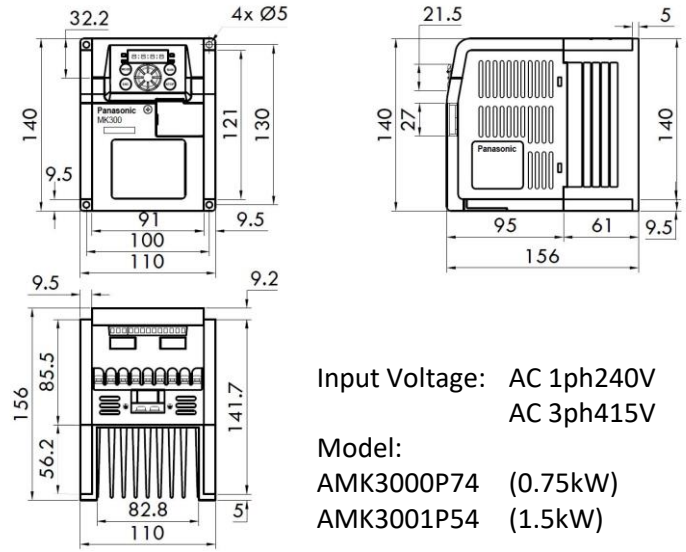


27)  
**How to restore parameter to original Factory Setting**  
**P055 set to [2]**

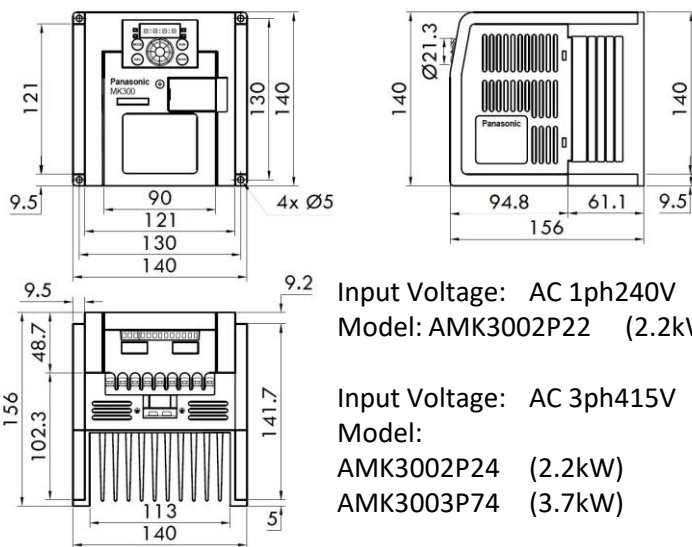
Step	Action	Screen Display (after action)	Remark
			When Inverter is powered on. (Initial Screen Display)
1	Press <i>tekan</i>		Display of Operation Status [Fr] Frequency Setting Mode
2	Rotate <i>pusing</i>		Rotate Knob to parameter : [P0 - - ] (for Parameter P001 ~ P064)
3	Press <i>tekan</i>		Press Knob to enter Parameter P001 ~ P064
4	Rotate <i>pusing</i>		Rotate Knob to parameter : [P004] ~ Setting Data Clear
5	Press <i>tekan</i>		Press Knob to enter Setting Data Clear Default Setting is [0]
6	Rotate <i>pusing</i>		Rotate Knob to new command: <b>[2] Restore all the data to factory setting *</b> (Refer to page 43)
7	Press <i>tekan</i>		Press Knob to complete the new parameter change.
<b>END</b>	Press <i>tekan</i>		Press [Mode] to return to Main Screen (Operation Status)



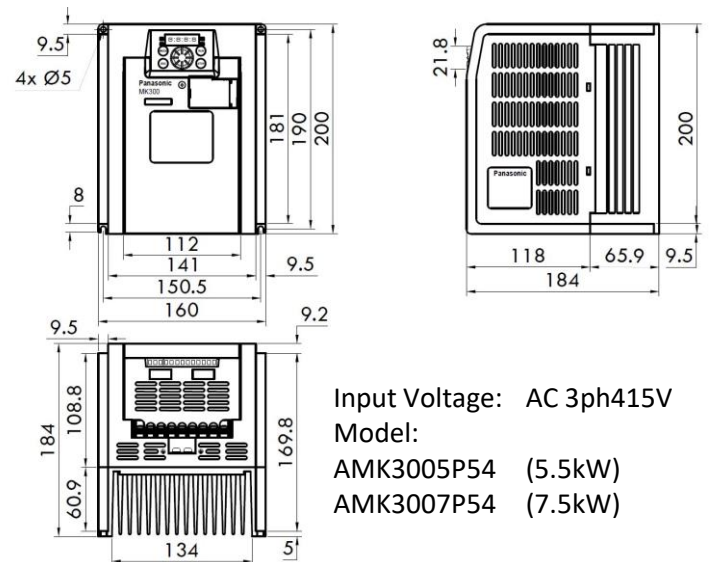
Input Voltage : AC 1ph240V  
Model:  
AMK300P22 (0.2kW)  
AMK300P42 (0.4kW)



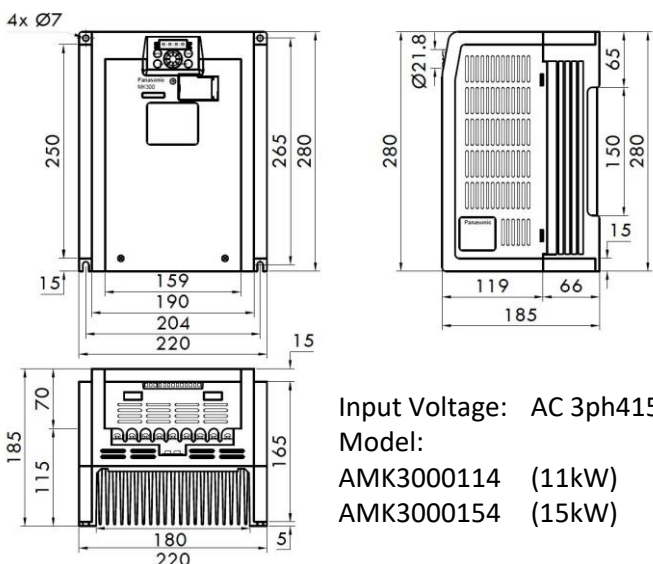
Input Voltage: AC 1ph240V  
AC 3ph415V  
Model:  
AMK300P74 (0.75kW)  
AMK3001P54 (1.5kW)



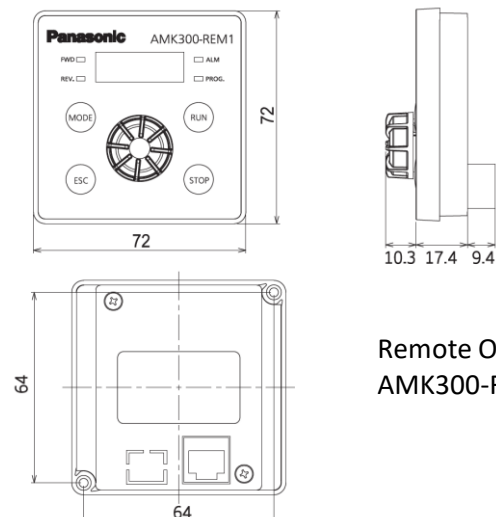
Input Voltage: AC 1ph240V  
Model: AMK3002P22 (2.2kW)  
Input Voltage: AC 3ph415V  
Model:  
AMK3002P24 (2.2kW)  
AMK3003P74 (3.7kW)



Input Voltage: AC 3ph415V  
Model:  
AMK3005P54 (5.5kW)  
AMK3007P54 (7.5kW)



Input Voltage: AC 3ph415V  
Model:  
AMK3000114 (11kW)  
AMK3000154 (15kW)



Remote Operation Unit  
AMK300-REM1