5 TROUBLESHOOTING

This chapter provides the "TROUBLESHOOTING" of this product.
Always read the instructions before using the equipment.

When a fault occurs in the inverter, the inverter trips and the PU display automatically changes to any of the following fault or alarm indications.
If the fault does not correspond to any of the following faults or if you have any other problem, please contact your sales representative.

- Retention of fault output signal .. When the magnetic contactor (MC) provided on the input side of the inverter is opened when a fault occurs, the inverter's control power will be lost and the fault output will not be held.
- Fault or alarm indication ..... When a fault or alarm occurs, the operation panel display automatically switches to the fault or alarm indication.
- Resetting method ..... When a fault occurs, the inverter output is kept stopped. Unless reset, therefore, the inverter cannot restart. *(Refer to page 290)*
- When any fault occurs, take the appropriate corrective action, then reset the inverter, and resume operation. Not doing so may lead to the inverter fault and damage.

Inverter fault or alarm indications are roughly categorized as below.

(1) Error message
A message regarding operational fault and setting fault by the operation panel and parameter unit (FR-PU04 /FR-PU07) is displayed. The inverter does not trip.

(2) Warning
The inverter does not trip even when a warning is displayed. However, failure to take appropriate measures will lead to a fault.

(3) Alarm
The inverter does not trip. You can also output an alarm signal by making parameter setting.

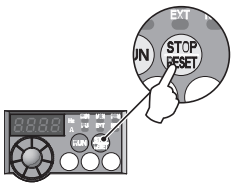
(4) Fault
When a fault occurs, the inverter trips and a fault signal is output.

5.1 Reset method of protective function

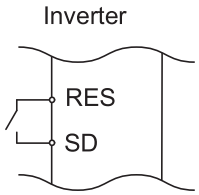
(1) Resetting the inverter

The inverter can be reset by performing any of the following operations. Note that the internal thermal integrated value of the electronic thermal relay function and the number of retries are cleared (erased) by resetting the inverter.
Inverter recovers about 1s after the reset is released.

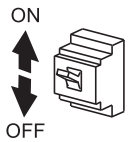
Operation 1: ..... Using the operation panel, press STOP RESET to reset the inverter.
(This may only be performed when a fault occurs (*Refer to page 296* for fault.))



Operation 2: ..... Turn ON the reset signal (RES) for more than 0.1s. (If the RES signal is kept ON, "Err." appears (flickers) to indicate that the inverter is in a reset status.)



Operation 3: ..... Switch power OFF once. After the indicator of the operation panel turns OFF, switch it ON again.



REMARKS

- Reset by the operation 1 or 2 when using the 24V external power supply. (When using the safety stop function model with FR-E7DS mounted. Ver.UP *Refer to page 338*)

5.2 List of fault or alarm indications

Operation Panel Indication			Name	Refer to Page
Error message	E - - -	E---	Faults history	286
	HOLd	HOLD	Operation panel lock	292
	LOCd	LOCd Ver.UP	Password locked	292
	Er 1 to Er4	Er1 to 4	Parameter write error	292
	Err.	Err.	Inverter reset	293
Warning	OL	OL	Stall prevention (overcurrent)	293
	oL	oL	Stall prevention (overvoltage)	294
	rb	RB	Regenerative brake prealarm	294
	TH	TH	Electronic thermal relay function prealarm	294
	PS	PS	PU stop	294
	MT	MT	Maintenance signal output	295
	Uu	UV	Undervoltage	295
	SA	SA*2	Safety stop	295
	Ev	EV*3 Ver.UP	24V external power supply operation	295
Alarm	Fn	FN	Fan alarm	295
Fault	E.OC1	E.OC1	Overcurrent trip during acceleration	296
	E.OC2	E.OC2	Overcurrent trip during constant speed	296
	E.OC3	E.OC3	Overcurrent trip during deceleration or stop	296
	E.Ou1	E.OV1	Regenerative overvoltage trip during acceleration	297
	E.Ou2	E.OV2	Regenerative overvoltage trip during constant speed	297
	E.Ou3	E.OV3	Regenerative overvoltage trip during deceleration or stop	297
	E.THr	E.THT	Inverter overload trip (electronic thermal relay function)	297
	E.THn	E.THM	Motor overload trip (electronic thermal relay function)	298
	E.FIn	E.FIN	Heatsink overheat	298

Operation Panel Indication			Name	Refer to Page
Fault	E.ILF	E.ILF *1	Input phase loss	298
	E.OLT	E.OLT	Stall prevention stop	298
	E. bE	E. BE	Brake transistor alarm detection	299
	E. GF	E.GF	Output side earth (ground) fault overcurrent at start	299
	E. LF	E.LF	Output phase loss	299
	E.OHT	E.OHT	External thermal relay operation	299
	E.OPT	E.OPT Ver.UP	Option fault	299
	E.OP1	E.OP1	Communication option fault	300
	E. 1	E. 1	Option fault	300
	E. PE	E.PE	Parameter storage device fault	300
	E.PE2	E.PE2 *1 Ver.UP	Internal board fault	300
	E.PUE	E.PUE	PU disconnection	300
	E.rET	E.RET	Retry count excess	301
	E. 5 E. 6 E. 7 E.CPU	E. 5/ E. 6/ E. 7/ E.CPU	CPU fault	301
	E.IOH	E.IOH *1	Inrush current limit circuit fault	301
	E.AIE	E.AIE *1	Analog input fault	301
	E.USb	E. USB *1	USB communication fault	301
	E.MB4 to E.MB7	E.MB4 to E.MB7	Brake sequence fault	301
	E.SAF	E.SAF *1*2	Safety circuit fault	302
	E. 13	E.13	Internal circuit fault	302

*1 If a fault occurs when using with the FR-PU04, "Fault 14" is displayed on the FR-PU04.

*2 This is displayed only for the safety stop function model.

*3 This is displayed only when using the safety stop function model with FR-E7DS mounted.

Ver.UP .....Specifications differ according to the date assembled.
Refer to page 338 to check the SERIAL number.

5.3 Causes and corrective actions

(1) Error message

A message regarding operational troubles is displayed. Output is not shutoff.

Operation panel indication	HOLD	HOLd
Name	Operation panel lock	
Description	Operation lock mode is set. Operation other than (STOP RESET) is invalid. *(Refer to page 274)*	
Check point	—	
Corrective action	Press (MODE) for 2s to release lock.	

Operation panel indication	LOCd Ver. UP	LOCd
Name	Password locked	
Description	Password function is active. Display and setting of parameter is restricted.	
Check point	—	
Corrective action	Enter the password in *Pr. 297 Password lock/unlock* to unlock the password function before operating. *(Refer to page 191).*	

Ver. UP ..... Specifications differ according to the date assembled. *Refer to page 338* to check the SERIAL number.

Operation panel indication	Er1	Er 1
Name	Write disable error	
Description	• You attempted to make parameter setting when *Pr. 77 Parameter write selection* has been set to disable parameter write. • Frequency jump setting range overlapped. • The PU and inverter cannot make normal communication.	
Check point	• Check the setting of *Pr. 77 Parameter write selection*. *(Refer to page 187).* • Check the settings of *Pr. 31 to Pr. 36 (frequency jump)*. *(Refer to page 97)* • Check the connection of the PU and inverter.	

Operation panel indication	Er2	Er2
Name	Write error during operation	
Description	When parameter write was performed during operation with a value other than "2" (writing is enabled independently of operation status in any operation mode) is set in *Pr. 77* and the STF (STR) is ON.	
Check point	• Check the *Pr. 77* setting. *(Refer to page 187).* • Check that the inverter is not operating.	
Corrective action	• Set "2" in *Pr. 77*. • After stopping operation, make parameter setting.	

Operation panel indication	Er3	Er3
Name	Calibration error	
Description	Analog input bias and gain calibration values are too close.	
Check point	Check the settings of *C3, C4, C6 and C7 (calibration functions)*. *(Refer to page 179).*	

Operation panel indication	Er4	Er4
Name	Mode designation error	
Description	• Appears if a parameter setting is attempted in the External or NET operation mode with *Pr. 77* ≠ "2". • Appears if a parameter setting is attempted when the command source is not at the operation panel.	
Check point	• Check that operation mode is PU operation mode. • Check the *Pr. 77* setting. *(Refer to page 187).* • Check if FR Configurator (USB connector) or a parameter unit (FR-PU04/FR-PU07) is connected when *Pr. 551* = "9999 (initial setting)." • Check the *Pr.551* setting.	
Corrective action	• After setting the operation mode to the "PU operation mode", make parameter setting. *(Refer to page 194)* • After setting *Pr. 77* = "2", make parameter setting. • Disconnect FR Configurator (USB connector) or the parameter unit (FR-PU04/FR-PU07), and make parameter setting. • After setting *Pr. 551* = "4", make parameter setting. (*Refer to page 205*)	

Operation panel indication	Err.	Err.
Name	Inverter reset	
Description	• Executing reset using RES signal, or reset command from communication or PU • Displays at powering OFF.	
Corrective action	• Turn OFF the reset command	

(2) Warnings

When a warning occurs, the output is not shut off.

Operation panel indication	OL	OL	FR-PU04 FR-PU07	OL
Name	Stall prevention (overcurrent)			
Description	During acceleration	When the output current (output torque when *Pr. 277 Stall prevention current switchover* = "1") of the inverter exceeds the stall prevention operation level (*Pr. 22 Stall prevention operation level*, etc.), this function stops the increase in frequency until the overload current decreases to prevent the inverter from resulting in overcurrent trip. When the overload current has reduced below stall prevention operation level, this function increases the frequency again.		
	During constant-speed operation	When the output current (output torque when *Pr. 277 Stall prevention current switchover* = "1") of the inverter exceeds the stall prevention operation level (*Pr. 22 Stall prevention operation level*, etc.), this function reduces frequency until the overload current decreases to prevent the inverter from resulting in overcurrent trip. When the overload current has reduced below stall prevention operation level, this function increases the frequency up to the set value.		
	During deceleration	When the output current (output torque when *Pr. 277 Stall prevention current switchover* = "1") of the inverter exceeds the stall prevention operation level (*Pr. 22 Stall prevention operation level*, etc.), this function stops the decrease in frequency until the overload current decreases to prevent the inverter from resulting in overcurrent trip. When the overload current has decreased below stall prevention operation level, this function decreases the frequency again.		
Check point	• Check that the *Pr. 0 Torque boost* setting is not too large. • Check that the *Pr. 7 Acceleration time* and *Pr. 8 Deceleration time* settings are not too small. • Check that the load is not too heavy. • Are there any failure in peripheral devices? • Check that the *Pr. 13 Starting frequency* is not too large. • Check that the *Pr. 22 Stall prevention operation level* is appropriate			
Corrective action	• Increase or decrease the *Pr. 0 Torque boost* setting 1% by 1% and check the motor status. *(Refer to page 85)* • Set a larger value in *Pr. 7 Acceleration time* and *Pr. 8 Deceleration time*. *(Refer to page 109)* • Reduce the load weight. • Try Advanced magnetic flux vector control and General-purpose magnetic flux vector control. • Change the *Pr. 14 Load pattern selection* setting. • Set stall prevention operation current in *Pr. 22 Stall prevention operation level*. (The initial value is 150%.) The acceleration/deceleration time may change. Increase the stall prevention operation level with *Pr. 22 Stall prevention operation level*, or disable stall prevention with *Pr. 156 Stall prevention operation selection*. (Operation at OL occurrence can be selected using *Pr. 156*.)			

Operation panel indication	oL	oL	FR-PU04 FR-PU07	oL
Name	Stall prevention (overvoltage)			
Description	During deceleration	• If the regenerative energy of the motor becomes excessive to exceed the regenerative energy consumption capability, this function stops the decrease in frequency to prevent overvoltage trip. As soon as the regenerative energy has reduced, deceleration resumes. • If the regenerative energy of the motor becomes excessive when regeneration avoidance function is selected (*Pr. 882* =1), this function increases the speed to prevent overvoltage trip. *(Refer to page 261).*		
Check point	• Check for sudden speed reduction. • Check that regeneration avoidance function *(Pr. 882, Pr. 883, Pr. 885, Pr. 886)* is used. *(Refer to page 261).*			
Corrective action	The deceleration time may change. Increase the deceleration time using *Pr. 8 Deceleration time*.			

Operation panel indication	PS	PS	FR-PU04 FR-PU07	PS
Name	PU stop			
Description	Stop with STOP RESET of the PU is set in *Pr. 75 Reset selection/disconnected PU detection/PU stop selection*. (For *Pr. 75 refer to page 184* .)			
Check point	Check for a stop made by pressing STOP RESET of the operation panel.			
Corrective action	Turn the start signal OFF and release with PU EXT.			

Operation panel indication	RB	rb	FR-PU04 FR-PU07	RB
Name	Regenerative brake prealarm			
Description	Appears if the regenerative brake duty reaches or exceeds 85% of the *Pr. 70 Special regenerative brake duty* value. When the setting of *Pr. 70 Special regenerative brake duty* is the initial value (*Pr. 70* = "0"), this warning does not occur. If the regenerative brake duty reaches 100%, a regenerative overvoltage (E. OV_) occurs. The RBP signal can be simultaneously output with the [RB] display. For the terminal used for the RBP signal output, assign the function by setting "7 (positive logic) or 107 (negative logic)" in any of *Pr. 190 to Pr. 192 (output terminal function selection)*. *(Refer to page 145).*			
Check point	• Check that the brake resistor duty is not high. • Check that the *Pr. 30 Regenerative function selection* and *Pr. 70 Special regenerative brake duty* settings are correct.			
Corrective action	• Increase the deceleration time. • Check that the *Pr. 30 Regenerative function selection* and *Pr. 70 Special regenerative brake duty* settings.			

Operation panel indication	TH	TH	FR-PU04 FR-PU07	TH
Name	Electronic thermal relay function prealarm			
Description	Appears if the cumulative value of the *Pr. 9 Electronic thermal O/L relay* reaches or exceeds 85% of the preset level. If it reaches 100% of the *Pr. 9 Electronic thermal O/L relay* setting, a motor overload trip (E. THM) occurs. The THP signal can be simultaneously output with the [TH] display. For the terminal used for THP signal output, assign the function by setting "8 (positive logic) or 108 (negative logic)" in any of *Pr. 190 to Pr. 192 (output terminal function selection)*. *(Refer to page 145).*			
Check point	• Check for large load or sudden acceleration. • Is the *Pr. 9 Electronic thermal O/L relay* setting is appropriate? *(Refer to page 116)*			
Corrective action	• Reduce the load and frequency of operation. • Set an appropriate value in *Pr. 9 Electronic thermal O/L relay*. *(Refer to page 116)*			

Operation panel indication	MT	nr	FR-PU04	——
			FR-PU07	MT
Name	Maintenance signal output			
Description	Indicates that the cumulative energization time of the inverter has reached a given time. When the setting of *Pr. 504 Maintenance timer alarm output set time* is the initial value (*Pr. 504* = "9999"), this warning does not occur.			
Check point	The *Pr. 503 Maintenance timer* setting is larger than the *Pr. 504 Maintenance timer alarm output set time* setting. *(Refer to page 268).*			
Corrective action	Setting "0" in *Pr. 503 Maintenance timer* erases the signal.			

Operation panel indication	UV	Uu	FR-PU04 FR-PU07	——
Name	Undervoltage			
Description	If the power supply voltage of the inverter decreases, the control circuit will not perform normal functions. In addition, the motor torque will be insufficient and/or heat generation will increase. To prevent this, if the power supply voltage decreases below about 115VAC (about 230VAC for 400V class, about 58VAC for 100V class), this function stops the inverter output and displays Uu . An alarm is reset when the voltage returns to normal.			
Check point	Check that the power supply voltage is normal.			
Corrective action	Check the power supply system equipment such as power supply.			

Operation panel indication	SA	SA	FR-PU04 FR-PU07	——
Name	Safety stop ∗			
Description	Appears when safety stop function is activated (during output shutoff). *(Refer to page 31)*			
Check point	If the indication appears when safety stop function is not used, check that shorting wires between S1 and PC, S2 and PC are connected.			
Corrective action	• When not using the safety stop function, short across terminals S1 and PC and across S2 and PC with shorting wire for the inverter to run. • If SA is indicated when across S1 and PC and across S2 and PC are both shorted while using the safety stop function (drive enabled), internal failure might be the cause. Check the wiring of terminals S1, S2 and PC and contact your sales representative if the wiring has no fault.			

∗ This function is only available for the safety stop function model.

Operation panel indication	EV Ver.UP	Eu	FR-PU04 FR-PU07	——
Name	24V external power supply operation			
Description	Flickers when the main circuit power supply is off and the 24V external power supply is being input.			
Check point	• Check if the 24V external power is supplied. • Check if the power supply for the inverter (main circuit) is ON. Check if the power supply voltage is low. • Check if the jumper between terminal P/+ and P1 is removed.			
Corrective action	• Turn ON the power supply for the inverter (main circuit). • If Eu appears by turning ON the power supply of the inverter (main circuit) while the external 24V power is supplied, check the power supply (for the main circuit). • Check if the jumper is installed securely between terminal P/+ and P1.			

Ver.UP .....Specifications differ according to the date assembled. *Refer to page 338* to check the SERIAL number.

(3) Alarm

When an alarm occurs, the output is not shut off. You can also output an alarm signal by making parameter setting. (Set "98" in any of *Pr. 190 to Pr. 192 (output terminal function selection)*. *Refer to page 145*).

Operation panel indication	FN	Fn	FR-PU04 FR-PU07	FN
Name	Fan alarm			
Description	For the inverter that contains a cooling fan, Fn appears on the operation panel when the cooling fan stops due to an alarm or different operation from the setting of *Pr. 244 Cooling fan operation selection*.			
Check point	Check the cooling fan for an alarm.			
Corrective action	Check for fan alarm. Please contact your sales representative.			

(4) Fault

When a fault occurs, the inverter trips and a fault signal is output.

Operation panel indication	E.OC1		FR-PU04 FR-PU07	OC During Acc
Name	Overcurrent trip during acceleration			
Description	When the inverter output current reaches or exceeds approximately 230% of the rated current during acceleration, the protective circuit is activated and the inverter trips.			
Check point	• Check for sudden acceleration. • Check that the downward acceleration time is not long for lifts. • Check for output short-circuit/ground fault. • Check that the *Pr. 3 Base frequency* setting is not 60Hz when the motor rated frequency is 50Hz. • Check if the stall prevention operation level is set too high. Check if the fast-response current limit operation is disabled. • Check that regeneration is not performed frequently. (Check that the output voltage becomes larger than the V/F reference value at regeneration and overcurrent occurs due to the high voltage.)			
Corrective action	• Increase the acceleration time. (Shorten the downward acceleration time for lifts. • When "E.OC1" is always lit at starting, disconnect the motor once and start the inverter. If "E.OC1" is still lit, contact your sales representative. • Check the wiring to make sure that output short circuit/ground fault does not occur. • Set 50Hz in *Pr. 3 Base frequency*. *(Refer to page 98)* • Lower the setting of stall prevention operation level. Activate the fast-response current limit operation. *(Refer to page 92)* • Set base voltage (rated voltage of the motor, etc.) in *Pr. 19 Base frequency voltage*. *(Refer to page 98)*			

Operation panel indication	E.OC2		FR-PU04 FR-PU07	Stedy Spd OC
Name	Overcurrent trip during constant speed			
Description	When the inverter output current reaches or exceeds approximately 230% of the rated current during constant speed operation, the protective circuit is activated and the inverter trips.			
Check point	• Check for sudden load change. • Check for output short-circuit/ground fault. • Check if the stall prevention operation level is set too high. Check if the fast-response current limit operation is disabled.			
Corrective action	• Keep load stable. • Check the wiring to make sure that output short circuit/ground fault does not occur. • Lower the setting of stall prevention operation level. Activate the fast-response current limit operation. *(Refer to page 92)*			

Operation panel indication	E.OC3		FR-PU04 FR-PU07	OC During Dec
Name	Overcurrent trip during deceleration or stop			
Description	When the inverter output current reaches or exceeds approximately 230% of the rated inverter current during deceleration (other than acceleration or constant speed), the protective circuit is activated and the inverter trips.			
Check point	• Check for sudden speed reduction. • Check for output short-circuit/ground fault. • Check for too fast operation of the motor's mechanical brake. • Check if the stall prevention operation level is set too high. Check if the fast-response current limit operation is disabled.			
Corrective action	• Increase the deceleration time. • Check the wiring to make sure that output short circuit/ground fault does not occur. • Check the mechanical brake operation. • Lower the setting of stall prevention operation level. Activate the fast-response current limit operation. *(Refer to page 92)*			

Operation panel indication	E.OV1	E.0u 1	FR-PU04 FR-PU07	OV During Acc
Name	Regenerative overvoltage trip during acceleration			
Description	If regenerative energy causes the inverter's internal main circuit DC voltage to reach or exceed the specified value, the protective circuit is activated and the inverter trips. The circuit may also be activated by a surge voltage produced in the power supply system.			
Check point	• Check for too slow acceleration. (e.g. during downward acceleration in vertical lift load) • Check that the setting of *Pr. 22 Stall prevention operation level* is not too small.			
Corrective action	• Decrease the acceleration time. • Check that regeneration avoidance function *(Pr. 882, Pr. 883, Pr. 885, Pr. 886)* is used. *(Refer to page 261).* • Set the *Pr.22 Stall prevention operation level* correctly.			

Operation panel indication	E.OV2	E.0u2	FR-PU04 FR-PU07	Stedy Spd OV
Name	Regenerative overvoltage trip during constant speed			
Description	If regenerative energy causes the inverter's internal main circuit DC voltage to reach or exceed the specified value, the protective circuit is activated to stop the inverter output. The circuit may also be activated by a surge voltage produced in the power supply system.			
Check point	• Check for sudden load change. • Check that the setting of *Pr. 22 Stall prevention operation level* is not too small.			
Corrective action	• Keep load stable. • Check that regeneration avoidance function *(Pr. 882, Pr. 883, Pr. 885, Pr. 886)* is used. *(Refer to page 261).* • Use the brake resistor, brake unit or power regeneration common converter (FR-CV) as required. • Set the *Pr.22 Stall prevention operation level* correctly.			

Operation panel indication	E.OV3	E.0u3	FR-PU04 FR-PU07	OV During Dec
Name	Regenerative overvoltage trip during deceleration or stop			
Description	If regenerative energy causes the inverter's internal main circuit DC voltage to reach or exceed the specified value, the protective circuit is activated to stop the inverter output. The circuit may also be activated by a surge voltage produced in the power supply system.			
Check point	Check for sudden speed reduction.			
Corrective action	• Increase the deceleration time. (Set the deceleration time which matches the moment of inertia of the load) • Longer the brake cycle. • Use regeneration avoidance function *(Pr. 882, Pr. 883, Pr. 885, Pr. 886)*. *(Refer to page 261).* • Use the brake resistor, brake unit or power regeneration common converter (FR-CV) as required.			

Operation panel indication	E.THT	E.THr	FR-PU04 FR-PU07	Inv. Overload
Name	Inverter overload trip (electronic thermal relay function)			
Description	If the temperature of the output transistor element exceeds the protection level under the condition that a current not less than the rated inverter current flows and overcurrent trip does not occur (230% or less), the electronic thermal relay activates to stop the inverter output. (Overload capacity 150% 60s, 200% 3s)			
Check point	• Check that acceleration/deceleration time is not too short. • Check that torque boost setting is not too large (small). • Check that load pattern selection setting is appropriate for the load pattern of the using machine. • Check the motor for use under overload. • Check for too high surrounding air temperature.			
Corrective action	• Increase acceleration/deceleration time. • Adjust the torque boost setting. • Set the load pattern selection setting according to the load pattern of the using machine. • Reduce the load weight. • Set the surrounding air temperature to within the specifications.			

Operation panel indication	E.THM	E.THM	FR-PU04 / FR-PU07	Motor Ovrload
Name	Motor overload trip (electronic thermal relay function) *1			
Description	The electronic thermal relay function in the inverter detects motor overheat due to overload or reduced cooling capability during constant-speed operation and pre-alarm (TH display) is output when the integrated value reaches 85% of the *Pr. 9 Electronic thermal O/L relay* setting and the protection circuit is activated to stop the inverter output when the integrated value reaches the specified value. When running a special motor such as a multi-pole motor or multiple motors, provide a thermal relay on the inverter output side since such motor(s) cannot be protected by the electronic thermal relay function.			
Check point	• Check the motor for use under overload. • Check that the setting of *Pr. 71 Applied motor* for motor selection is correct. *(Refer to page 118).* • Check that stall prevention operation setting is correct.			
Corrective action	• Reduce the load weight. • For a constant-torque motor, set the constant-torque motor in *Pr. 71 Applied motor*. • Check that stall prevention operation setting is correct. *(Refer to page 92).*			

*1 Resetting the inverter initializes the internal thermal integrated data of the electronic thermal relay function.

Operation panel indication	E.FIN	E.FIN	FR-PU04 / FR-PU07	H/Sink O/Temp
Name	Heatsink overheat			
Description	If the heatsink overheats, the temperature sensor is actuated and the inverter trips. The FIN signal can be output when the temperature becomes approximately 85% of the heatsink overheat protection operation temperature. For the terminal used for the FIN signal output, assign the function by setting "26 (positive logic) or 126 (negative logic)" in any of *Pr. 190 to Pr. 192 (output terminal function selection)*. *(Refer to page 145).*			
Check point	• Check for too high surrounding air temperature. • Check for heatsink clogging. • Check that the cooling fan is not stopped (Check that Fn is not displayed on the operation panel).			
Corrective action	• Set the surrounding air temperature to within the specifications. • Clean the heatsink. • Replace the cooling fan.			

Operation panel indication	E.ILF	E.ILF	FR-PU04	Fault 14
			FR-PU07	Input phase loss
Name	Input phase loss *			
Description	Inverter trips when function valid setting (=1) is selected in *Pr. 872 Input phase loss protection selection* and one phase of the three phase power input is lost. *(Refer to page 172).* It may be available if phase-to-phase voltage of the three-phase power input becomes largely unbalanced.			
Check point	• Check for a break in the cable for the three-phase power supply input. • Check that phase-to-phase voltage of the three-phase power input is not largely unbalanced.			
Corrective action	• Wire the cables properly. • Repair a break portion in the cable. • Check the *Pr. 872 Input phase loss protection selection* setting. • Set *Pr. 872* = "0" (without input phase loss protection) when three-phase input voltage is largely unbalanced.			

* Available only for three-phase power input model.

Operation panel indication	E.OLT	E.OLT	FR-PU04 / FR-PU07	Stll Prev STP (OL shown during stall prevention operation)
Name	Stall prevention stop			
Description	If the output frequency has fallen to 1Hz by stall prevention operation and remains for 3s, a fault (E.OLT) appears and trips the inverter. OL appears while stall prevention is being activated. E.OLT may not occur if stall prevention (OL) is activated during output phase loss.			
Check point	• Check the motor for use under overload. *(Refer to page 93).*			
Corrective action	• Reduce the load weight. (Check the *Pr. 22 Stall prevention operation level* setting.)			

Operation panel indication	E.BE	E. bE	FR-PU04 FR-PU07	Br. Cct. Fault
Name	Brake transistor alarm detection			
Description	When a brake transistor alarm has occurred due to the large regenerative energy from the motor etc., the brake transistor alarm is detected and the inverter trips. In this case, the inverter must be powered OFF immediately.			
Check point	• Reduce the load inertia. • Check that the frequency of using the brake is proper.			
Corrective action	Replace the inverter.			

Operation panel indication	E.GF	E. GF	FR-PU04 FR-PU07	Ground Fault
Name	Output side earth (ground) fault overcurrent at start			
Description	The inverter trips if an earth (ground) fault overcurrent flows at start due to an earth (ground) fault that occurred on the inverter's output side (load side). Whether this protective function is used or not is set with *Pr. 249 Earth (ground) fault detection at start*. When the setting of *Pr. 249 Earth (ground) fault detection at start* is the initial value *(Pr. 249 ="0")*, this warning does not occur.			
Check point	Check for a ground fault in the motor and connection cable.			
Corrective action	Remedy the ground fault portion.			

Operation panel indication	E.LF	E. LF	FR-PU04 FR-PU07	E.LF
Name	Output phase loss			
Description	If one of the three phases (U, V, W) on the inverter's output side (load side) is lost during inverter operation (except during DC injection brake operation and when output frequency is under 1Hz), inverter stops the output. Whether the protective function is used or not is set with *Pr. 251 Output phase loss protection selection*.			
Check point	• Check the wiring. (Check that the motor is normal.) • Check that the capacity of the motor used is not smaller than that of the inverter.			
Corrective action	• Wire the cables properly. • Check the *Pr. 251 Output phase loss protection selection* setting.			

Operation panel indication	E.OHT	E.OHT	FR-PU04 FR-PU07	OH Fault
Name	External thermal relay operation			
Description	If the external thermal relay provided for motor overheat protection or the internally mounted temperature relay in the motor, etc. switches on (contacts open), the inverter output is stopped. This function is available when "7" (OH signal) is set to any of *Pr. 178 to Pr. 184 (input terminal function selection)*. This protective function is not available in the initial status (OH signal is not assigned).			
Check point	• Check for motor overheating. • Check that the value of 7 (OH signal) is set correctly in any of *Pr. 178 to Pr. 184 (input terminal function selection)*.			
Corrective action	• Reduce the load and frequency of operation. • Even if the relay contacts are reset automatically, the inverter will not restart unless it is reset.			

Operation Panel Indication	E.OPT Ver.UP	E.OPT	FR-PU04 FR-PU07	Option Fault
Name	Option fault			
Description	Appears when a communication option is connected while *Pr. 296* = "0 or 100."			
Check point	Check if password lock is activated by setting *Pr. 296* = "0, 100"			
Corrective action	• To apply the password lock when installing a communication option, set *Pr.296* ≠ "0,100".*(Refer to page 191).* • If the problem still persists after taking the above measure, please contact your sales representative.			

Ver.UP ..... Specifications differ according to the date assembled. *Refer to page 338* to check the SERIAL number.

Operation panel indication	E.OP1	E.OP 1	FR-PU04 FR-PU07	Option slot alarm 1
Name	Communication option fault			
Description	Stops the inverter output when a communication line fault occurs in the communication option.			
Check point	• Check for a wrong option function setting and operation. • Check that the plug-in option unit is plugged into the connector securely. • Check for a break in the communication cable. • Check that the terminating resistor is fitted properly.			
Corrective action	• Check the option function setting, etc. • Connect the plug-in option securely. • Check the connection of communication cable. • Connect the terminating resistor correctly.			

Operation panel indication	E. 1	E. 1	FR-PU04 FR-PU07	Fault 1
Name	Option fault			
Description	Stops the inverter output if a contact fault or the like of the connector between the inverter and communication option occurs. Appears when the switch for the manufacturer setting of the plug-in option is changed.			
Check point	• Check that the plug-in option unit is plugged into the connector securely. • Check for excess electrical noises around the inverter. • Check the switch position for the manufacturer setting of the plug-in option.			
Corrective action	• Connect the plug-in option securely. • Take measures against noises if there are devices producing excess electrical noises around the inverter. If the problem still persists after taking the above measure, please contact your sales representative. • Return the switch position for the manufacturer setting of the plug-in option to the initial status. (*Refer to the instruction manual of each option*)			

Operation panel indication	E.PE	E. PE	FR-PU04 FR-PU07	Corrupt Memry
Name	Parameter storage device fault (control circuit board)			
Description	Stops the inverter output if fault occurred in the parameter stored. (EEPROM fault)			
Check point	Check for too many number of parameter write times.			
Corrective action	Please contact your sales representative. When performing parameter write frequently for communication purposes, set "1" in *Pr. 342* to enable RAM write. Note that powering OFF returns the inverter to the status before RAM write.			

Operation Panel Indication	E.PE2 Ver. UP	E.PE2	FR-PU04 FR-PU07	Fault 14 PR storage alarm
Name	Internal board fault			
Description	When a combination of control board and main circuit board is wrong, the inverter is tripped.			
Check point	—			
Corrective action	Please contact your sales representative. (For parts replacement, consult the nearest Mitsubishi FA Center.)			

Ver. UP ..... Specifications differ according to the date assembled. *Refer to page 338* to check the SERIAL number.

Operation panel indication	E.PUE	E.PUE	FR-PU04 FR-PU07	PU Leave Out
Name	PU disconnection			
Description	• This function stops the inverter output if communication between the inverter and PU is suspended, e.g. the parameter unit is disconnected, when "2", "3", "16" or "17" was set in *Pr. 75 Reset selection/disconnected PU detection/ PU stop selection*. • This function stops the inverter output when communication errors occurred consecutively for more than permissible number of retries when a value other than "9999" is set in *Pr. 121 Number of PU communication retries* during the RS-485 communication with the PU connector (use *Pr. 502 Stop mode selection at communication error* to change). • This function also stops the inverter output if communication is broken within the period of time set in *Pr. 122 PU communication check time interval* during the RS-485 communication with the PU connector.			
Check point	• Check that the parameter unit (FR-PU04/FR-PU07) is connected properly. • Check the *Pr. 75* setting.			
Corrective action	Connect the parameter unit (FR-PU04/FR-PU07) securely.			

Operation panel indication	E.RET	E.rET	FR-PU04 FR-PU07	Retry No Over
Name	Retry count excess			
Description	If operation cannot be resumed properly within the number of retries set, this function trips the inverter. This function is available only when *Pr. 67 Number of retries at fault occurrence* is set. When the initial value (*Pr. 67* = "0") is set, this protective function is not available.			
Check point	Find the cause of fault occurrence.			
Corrective action	Eliminate the cause of the error preceding this error indication.			

Operation panel indication	E. 5	E. 5	FR-PU04 FR-PU07	Fault 5
	E. 6	E. 6		Fault 6
	E. 7	E. 7		Fault 7
	E.CPU	E.CPU		CPU Fault
Name	CPU fault			
Description	Stops the inverter output if the communication fault of the built-in CPU occurs.			
Check point	• Check for devices producing excess electrical noises around the inverter. • Check if the terminal PC is shorted with the terminal SD. (E. 6/E. 7)			
Corrective action	• Take measures against noises if there are devices producing excess electrical noises around the inverter. • Check the connection between the terminals PC and SD. (E. 6/E. 7) • Please contact your sales representative.			

Operation panel indication	E.MB4 to 7	E.MB4 to E.MB7	FR-PU04 FR-PU07	E.MB4 Fault to E.MB7 Fault
Name	Brake sequence fault			
Description	• The inverter output is stopped when a sequence error occurs during use of the brake sequence function *(Pr. 278 to Pr. 283)* . This protective function is not available in the initial status. *(Refer to page 135).*			
Check point	Find the cause of alarm occurrence.			
Corrective action	Check the set parameters and perform wiring properly.			

Operation panel indication	E.IOH	E.1 OH	FR-PU04	Fault 14
			FR-PU07	Inrush overheat
Name	Inrush current limit circuit fault			
Description	Stops the inverter output when the resistor of inrush current limit circuit overheated. The inrush current limit circuit fault			
Check point	Check that frequent power ON/OFF is not repeated.			
Corrective action	Configure a circuit where frequent power ON/OFF is not repeated. If the problem still persists after taking the above measure, please contact your sales representative.			

Operation panel indication	E.AIE	E.AI E	FR-PU04	Fault 14
			FR-PU07	Analog in error
Name	Analog input fault			
Description	Appears if voltage(current) is input to terminal 4 when the setting in *Pr.267 Terminal 4 input selection* and the setting of voltage/current input switch are different.			
Check point	Check the setting of *Pr. 267 Terminal 4 input selection* and voltage/current input switch. *(Refer to page 176).*			
Corrective action	Either give a frequency command by current input or set *Pr. 267 Terminal 4 input selection*, and voltage/current input switch to voltage input.			

Operation panel indication	E.USB	E.USb	FR-PU04	Fault 14
			FR-PU07	USB comm error
Name	USB communication fault			
Description	When communication has broken during the time set in *Pr. 548 USB communication check time interval*, this function stops the inverter output.			
Check point	• Check the USB communication cable.			
Corrective action	• Check the *Pr. 548 USB communication check time interval* setting. • Check the USB communication cable. • Increase the *Pr. 548 USB communication check time interval* setting. Or, change the setting to 9999. *(Refer to page 245).*			

Operation panel indication	E.SAF	E.SAF	FR-PU04	Fault 14
			FR-PU07	Fault E.SAF
Name	Safety circuit fault ∗			
Description	Appears when safety circuit is malfunctioning. Appears when one of the lines between S1 and PC, or between S2 and PC is opened.			
Check point	• If the indication appears when safety stop function is not used, check if shorting wires between S1 and PC, S2 and PC are connected. • If the indication appears when safety stop function is used, check that the safety relay module or the connection has no fault.			
Corrective action	• When not using the safety stop function, short across terminals S1 and PC and across S2 and PC with shorting wire. *(Refer to page 31).* • When using the safety stop function, check that wiring of terminal S1, S2 and PC is correct and the safety stop input signal source such as safety relay module is operating properly. Refer to the Safety stop function instruction manual (BCN-211508-004) for causes and countermeasures. (Please contact your sales representative for the manual.)			

∗ This function is only available for the safety stop function model.

Operation panel indication	E.13	E. 13	FR-PU04 FR-PU07	Fault 13
Name	Internal circuit fault			
Description	Stop the inverter output when an internal circuit fault occurred.			
Corrective action	Please contact your sales representative.			

NOTE

- **If protective functions of E.ILF, E.AIE, E.USB, E.IOH, E.PE2 and, E.SAF are activated when using the FR-PU04, "Fault 14" is displayed.**
  Also when the faults history is checked on the FR-PU04, the display is "E.14".
- **If faults other than the above appear, contact your sales representative.**

5.4 Correspondences between digital and actual characters

There are the following correspondences between the actual alphanumeric characters and the digital characters displayed on the operation panel:

Actual	Digital
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

Actual	Digital
A	A
B	b
C	C
D	d
E	E
F	F
G	G
H	H
I	I
J	J
L	L

Actual	Digital
M	M
N	n
O	O
o	o
P	P
S	S
T	T
U	U
V	v
r	r
-	-

5.5 Check first when you have a trouble

POINT

- If the cause is still unknown after every check, it is recommended to initialize the parameters (initial value) then set the required parameter values and check again.

5.5.1 Motor does not start

Check points	Possible Cause	Countermeasures	Refer to page
Main Circuit	Appropriate power supply voltage is not applied. (Operation panel display is not provided.)	Power ON a moulded case circuit breaker (MCCB), an earth leakage circuit breaker (ELB), or a magnetic contactor (MC).	—
		Check for the decreased input voltage, input phase loss, and wiring.	
	Motor is not connected properly.	Check the wiring between the inverter and the motor.	*16*
	The jumper across P/+ and P1 is disconnected.	Securely fit a jumper across P/+ and P1. When using a DC reactor (FR-HEL), remove the jumper across P/+ and P1, and then connect the DC reactor.	*39*
Input Signal	Start signal is not input.	Check the start command source, and input a start signal. PU operation mode: RUN External operation mode: STF/STR signal	*197*
	Both the forward and reverse rotation start signals (STF, STR) are input simultaneously.	Turn ON only one of the forward and reverse rotation start signals (STF or STR). If STF and STR signals are turned ON simultaneously in the initial setting, a stop command is given.	*22*
	Frequency command is zero. (RUN LED on the operation panel is flickering.)	Check the frequency command source and enter a frequency command.	*197*
	AU signal is not ON when terminal 4 is used for frequency setting. (RUN LED on the operation panel is flickering.)	Turn ON the AU signal. Turning ON the AU signal activates terminal 4 input.	*176*
	Output stop signal (MRS) or reset signal (RES) is ON. (RUN LED on the operation panel flickers while MRS signal is ON.)	Turn MRS or RES signal OFF. Inverter starts the operation with a given start command and a frequency command after turning OFF MRS or RES signal. Before turning OFF, ensure the safety.	*141*, *290*
	Jumper connector of sink - source is wrongly selected. (RUN LED on the operation panel is flickering.)	Check that the control logic switchover jumper connector is correctly installed. If it is not installed correctly, input signal is not recognized.	*25*
	Shorting wires between S1 and PC, S2 and PC are disconnected.	Short between S1 and PC, S2 and PC with shorting wires.	*31*
	Voltage/current input switch is not correctly set for analog input signal (0 to 5V/0 to 10V, 4 to 20mA). (RUN LED on the operation panel is flickering.)	Set *Pr. 73, Pr. 267*, and a voltage/current input switch correctly, then input an analog signal in accordance with the setting.	*22*
	STOP RESET was pressed. (Operation panel indication is PS (PS).)	During the External operation mode, check the method of restarting from a STOP RESET input stop from PU.	*294*
	Two-wire or three-wire type connection is wrong.	Check the connection. Connect STOP signal when three-wire type is used.	*143*

Check points	Possible Cause	Countermeasures	Refer to page
Parameter Setting	*Pr. 0 Torque boost* setting is improper when V/F control is used.	Increase *Pr. 0* setting by 0.5% increments while observing the rotation of a motor. If that makes no difference, decrease the setting.	*85*
	Pr. 78 Reverse rotation prevention selection is set.	Check the *Pr. 78* setting. Set *Pr. 78* when you want to limit the motor rotation to only one direction.	*188*
	Pr. 79 Operation mode selection setting is wrong.	Select the operation mode which corresponds with input methods of start command and frequency command.	*197*
	Pr. 146 Built-in potentiometer switching setting is improper.	Set *Pr. 146* ="1" (initial value) when not using FR-E500 operation panel (PA02).	*277*
	Bias and gain *(calibration parameter C2 to C7)* settings are improper.	Check the bias and gain *(calibration parameter C2 to C7)* settings.	*179*
	Pr. 13 Starting frequency setting is greater than the running frequency.	Set running frequency higher than *Pr. 13*. The inverter does not start if the frequency setting signal is less than the value set in *Pr. 13*.	*112*
	Frequency settings of various running frequency (such as multi-speed operation) are zero. Especially, *Pr. 1 Maximum frequency* is zero.	Set the frequency command according to the application. Set *Pr. 1* higher than the actual frequency used.	*96*
	Pr. 15 Jog frequency setting is lower than *Pr. 13 Starting frequency*.	Set *Pr. 15 Jog frequency* higher than *Pr. 13 Starting frequency.*	*104*
	Operation mode and a writing device do not match.	Check *Pr. 79, Pr. 338, Pr. 339, Pr. 550, Pr. 551,* and select an operation mode suitable for the purpose.	*194*, *205*
	Start signal operation selection is set by the *Pr. 250 Stop selection*	Check *Pr. 250* setting and connection of STF and STR signals.	*143*
	Inverter decelerated to a stop when power failure deceleration stop function is selected.	When power is restored, ensure the safety, and turn OFF the start signal once, then turn ON again to restart. Inverter restarts when *Pr. 261*="2".	*168*
	Performing auto tuning.	When offline auto tuning ends, press STOP RESET of the operation panel for the PU operation. For the External operation, turn OFF the start signal (STF or STR). This operation resets the offline auto tuning, and the PU's monitor display returns to the normal indication. (Without this operation, next operation cannot be started.)	*120*
	Automatic restart after instantaneous power failure function or power failure stop function is activated. (Performing overload operation with single-phase power input model may cause voltage insufficiency, and results in a detection of power failure.)	• Disable the automatic restart after instantaneous power failure function and power failure stop function. • Reduce the load. • Increase the acceleration time if the automatic restart after instantaneous power failure function or power failure stop function occurred during acceleration.	*162*, *168*
Load	Load is too heavy.	Reduce the load.	—
	Shaft is locked.	Inspect the machine (motor).	—
Others	Operation panel display shows an error (e.g. E.OC1).	When any fault occurs, take an appropriate corrective action, then reset the inverter, and resume the operation.	*291*

5.5.2 Motor or machine is making abnormal acoustic noise

Check points	Possible Cause	Countermeasures	Refer to page
Input signal	Disturbance due to EMI when frequency command is given from analog input (terminal 2, 4).	Take countermeasures against EMI.	44
Parameter Setting		Increase the *Pr. 74 Input filter time constant* if steady operation cannot be performed due to EMI.	178
Parameter Setting	No carrier frequency noises (metallic noises) are generated.	In the initial setting, *Pr. 240 Soft-PWM operation selection* is enabled to change motor noise to an unoffending complex tone. Therefore, no carrier frequency noises (metallic noises) are generated. Set *Pr. 240* = "0" to disable this function.	174
	Resonance occurs. (output frequency)	Set *Pr. 31 to Pr. 36 (Frequency jump)*. When it is desired to avoid resonance attributable to the natural frequency of a mechanical system, these parameters allow resonant frequencies to be jumped.	97
	Resonance occurs. (carrier frequency)	Change *Pr. 72 PWM frequency selection* setting. Changing the PWM carrier frequency produces an effect on avoiding the resonance frequency of a mechanical system or a motor.	174
	Auto tuning is not performed under Advanced magnetic flux vector control or General-purpose magnetic flux vector control.	Perform offline auto tuning.	120
	Gain adjustment during PID control is insufficient.	To stabilize the measured value, change the proportional band (*Pr. 129*) to a larger value, the integral time (*Pr. 130*) to a slightly longer time, and the differential time (*Pr. 134*) to a slightly shorter time. Check the calibration of set point and measured value.	246
Others	Mechanical looseness	Adjust machine/equipment so that there is no mechanical looseness.	—
Motor	Operating with output phase loss	Check the motor wiring.	—
	Contact the motor manufacturer.		

5.5.3 Inverter generates abnormal noise

Check points	Possible Cause	Countermeasures	Refer to page
Fan	Fan cover was not correctly installed when a cooling fan was replaced.	Install a fan cover correctly.	318

5.5.4 Motor generates heat abnormally

Check points	Possible Cause	Countermeasures	Refer to page
Motor	Motor fan is not working (Dust is accumulated.)	Clean the motor fan. Improve the environment.	—
	Phase to phase insulation of the motor is insufficient.	Check the insulation of the motor.	—
Main Circuit	The inverter output voltage (U, V, W) are unbalanced.	Check the output voltage of the inverter. Check the insulation of the motor.	313
Parameter Setting	The *Pr. 71 Applied motor* setting is wrong.	Check the *Pr. 71 Applied motor* setting.	118
—	Motor current is large.	Refer to "5.5.11 Motor current is too large"	308

5.5.5 Motor rotates in the opposite direction

Check points	Possible Cause	Countermeasures	Refer to page
Main Circuit	Phase sequence of output terminals U, V and W is incorrect.	Connect phase sequence of the output cables (terminal U, V, W) to the motor correctly	*16*
Input signal	The start signals (forward rotation, reverse rotation) are connected improperly.	Check the wiring. (STF: forward rotation, STR: reverse rotation)	*22*
	Adjustment by the output frequency is improper during the reversible operation with *Pr. 73 Analog input selection* setting.	Check the setting of *Pr. 125, Pr. 126, C2 to C7.*	*179*
Parameter Setting	*Pr. 40 RUN key rotation direction selection* setting is incorrect.	Check the *Pr. 40* setting.	*272*

5.5.6 Speed greatly differs from the setting

Check points	Possible Cause	Countermeasures	Refer to page
Input signal	Frequency setting signal is incorrectly input.	Measure the input signal level.	—
	The input signal lines are affected by external EMI.	Take countermeasures against EMI such as using shielded wires for input signal lines.	*44*
Parameter Setting	*Pr. 1, Pr. 2, Pr. 18, calibration parameter C2 to C7* settings are improper.	Check the settings of *Pr. 1 Maximum frequency, Pr. 2 Minimum frequency, Pr. 18 High speed maximum frequency.*	*96*
		Check the *calibration parameter C2 to C7* settings.	*179*
	Pr. 31 to Pr. 36 (frequency jump) settings are improper.	Narrow down the range of frequency jump.	*97*
Load	Stall prevention function is activated due to a heavy load.	Reduce the load weight.	—
Parameter Setting		Set *Pr. 22 Stall prevention operation level* higher according to the load. (Setting *Pr. 22* too large may result in frequent overcurrent trip (E.OC☐).)	*92*
Motor		Check the capacities of the inverter and the motor.	—

5.5.7 Acceleration/deceleration is not smooth

Check points	Possible Cause	Countermeasures	Refer to page
Parameter Setting	The base frequency does not match the motor characteristics.	For V/F control, set *Pr. 3 Base frequency and Pr. 47 Second V/F (base frequency)*.	*98*
		For Advanced magnetic flux vector control or General-purpose magnetic flux vector control, set *Pr. 84 Rated motor frequency*.	*120*
	Stall prevention function is activated due to a heavy load.	Reduce the load weight.	—
		Set *Pr. 22 Stall prevention operation level* higher according to the load. (Setting *Pr. 22* too large may result in frequent overcurrent trip (E.OC☐).)	*92*
		Check the capacities of the inverter and the motor.	—
	Acceleration/deceleration time is too short.	Increase acceleration/deceleration time.	*109*
	Torque boost (*Pr. 0, Pr. 46*) setting is improper under V/F control, so the stall prevention function is activated.	Increase/decrease *Pr. 0 Torque boost* setting value by 0.5% increments to the setting.	*85*
	Regeneration avoidance operation is performed	If the frequency becomes unstable during regeneration avoidance operation, decrease the setting of *Pr. 886 Regeneration avoidance voltage gain*.	*261*

5.5.8 Speed varies during operation

When Advanced magnetic flux vector control or the slip compensation is selected, the output frequency varies between 0 and 2Hz as load fluctuates. This is a normal operation and not a fault.

Check points	Possible Cause	Countermeasures	Refer to page
Input signal	Multi-speed command signal is chattering.	Take countermeasures to suppress chattering.	—
Load	Load varies during an operation.	Select Advanced magnetic flux vector control or General-purpose magnetic flux vector control.	*86*
Input signal	Frequency setting signal is varying.	Check the frequency setting signal.	—
	The frequency setting signal is affected by EMI.	Set filter to the analog input terminal using *Pr. 74 Input filter time constant*.	*178*
		Take countermeasures against EMI, such as using shielded wires for input signal lines.	*44*
	Malfunction is occurring due to the undesirable current generated when the transistor output unit is connected.	Use terminal PC (terminal SD when source logic) as a common terminal to prevent a malfunction caused by undesirable current.	*25*
Parameter Setting	*Pr. 80 Motor capacity* and *Pr. 81 Number of motor poles* setting is improper for the capacities of the inverter and the motor for Advanced magnetic flux vector control or General-purpose magnetic flux vector control.	Check the *Pr. 80 Motor capacity* and *Pr. 81 Number of motor poles* setting.	*86*
	Fluctuation of power supply voltage is too large.	Change the *Pr. 19 Base frequency voltage* setting (about 3%) under V/F control.	*98*
	Hunting occurs by the generated vibration, for example, when structural rigidity at load side is insufficient.	Disable automatic control functions, such as energy saving operation, fast-response current limit function, regeneration avoidance function, Advanced magnetic flux vector control, General-purpose magnetic flux vector control, and stall prevention. During the PID control, set smaller values to *Pr.129 PID proportional band* and *Pr.130 PID integral time*. Lower the control gain, and adjust to increase the stability.	—
		Change *Pr. 72 PWM frequency selection* setting.	*174*
Others	Wiring length exceeds 30m when Advanced magnetic flux vector control or General-purpose magnetic flux vector control is performed.	Perform offline auto tuning.	*120*
	Wiring length is too long for V/F control, and a voltage drop occurs.	Adjust *Pr. 0 Torque boost* by increasing with 0.5% increments for low-speed operation.	*85*
		Change to Advanced magnetic flux vector control or General-purpose magnetic flux vector control.	*86*

5.5.9 Operation mode is not changed properly

Check points	Possible Cause	Countermeasures	Refer to page
Input signal	Start signal (STF or STR) is ON.	Check that the STF and STR signals are OFF. When either is ON, the operation mode cannot be changed.	*194*
Parameter Setting	*Pr. 79* setting is improper.	When *Pr. 79 Operation mode selection* setting is "0" (initial value), the inverter is placed in the External operation mode at input power ON. To switch to the PU operation mode, press PU/EXT on the operation panel (press PU when the parameter unit (FR-PU04/FR-PU07) is used). At other settings (1 to 4, 6, 7), the operation mode is limited accordingly.	*194*
	Operation mode and a writing device do not correspond.	Check *Pr. 79, Pr. 338, Pr. 339, Pr. 550, Pr. 551,* and select an operation mode suitable for the purpose.	*194*, *205*

5.5.10 Operation panel display is not operating

Check points	Possible Cause	Countermeasures	Refer to page
Main Circuit	Wiring or installation is improper.	Check for the wiring and the installation.	14
		Make sure that the connector is fitted securely across terminal P/+ and P1.	
Main Circuit Control Circuit	Power is not input.	Input the power.	14
Parameter Setting	Command sources at the PU operation mode is not at the operation panel. (None of the operation mode displays (PU EXT NET) is lit.)	Check the setting of *Pr. 551 PU mode operation command source selection.* (If parameter unit (FR-PU04/FR-PU07) is connected while *Pr. 551* = "9999" (initial setting), all the operation mode displays (PU EXT NET) turn OFF.)	205

5.5.11 Motor current is too large

Check points	Possible Cause	Countermeasures	Refer to page
Parameter Setting	Torque boost (*Pr. 0, Pr. 46*) setting is improper under V/F control, so the stall prevention function is activated.	Increase/decrease *Pr. 0 Torque boost* setting value by 0.5% increments to the setting.	85
	V/F pattern is improper when V/F control is performed. (*Pr. 3, Pr. 14, Pr. 19*)	Set rated frequency of the motor to *Pr. 3 Base frequency*. Use *Pr. 19 Base frequency voltage* to set the base voltage (e.g. rated motor voltage).	98
		Change *Pr. 14 Load pattern selection* according to the load characteristic.	100
	Stall prevention function is activated due to a heavy load.	Reduce the load weight.	—
		Set *Pr. 22 Stall prevention operation level* higher according to the load. (Setting *Pr. 22* too large may result in frequent overcurrent trip (E.OC☐).)	92
		Check the capacities of the inverter and the motor.	—
	Auto tuning is not performed under Advanced magnetic flux vector control or General-purpose magnetic flux vector control.	Perform offline auto tuning.	120

5.5.12 Speed does not accelerate

Check points	Possible Cause	Countermeasures	Refer to page
Input signal	Start command and frequency command are chattering.	Check if the start command and the frequency command are correct.	—
	The wiring length used for analog frequency command is too long, and it is causing a voltage (current) drop.	Perform analog input bias/gain calibration.	*179*
	Input signal lines are affected by external EMI.	Take countermeasures against EMI, such as using shielded wires for input signal lines.	*44*
Parameter Setting	*Pr. 1, Pr. 2, Pr. 18, calibration parameter C2 to C7* settings are improper.	Check the settings of *Pr. 1 Maximum frequency and Pr. 2 Minimum frequency*. If you want to run the motor at 120Hz or higher, set *Pr. 18 High speed maximum frequency.*	*96*
		Check the *calibration parameter C2 to C7* settings.	*179*
	Torque boost (*Pr. 0, Pr. 46*) setting is improper under V/F control, so the stall prevention function is activated.	Increase/decrease *Pr. 0 Torque boost* setting value by 0.5% increments so that stall prevention does not occur.	*85*
	V/F pattern is improper when V/F control is performed. *(Pr. 3, Pr. 14, Pr. 19)*	Set rated frequency of the motor to *Pr. 3 Base frequency*. Use *Pr. 19 Base frequency voltage* to set the base voltage (e.g. rated motor voltage).	*98*
		Change *Pr. 14 Load pattern selection* according to the load characteristic.	*100*
	Stall prevention function is activated due to a heavy load.	Reduce the load weight.	—
		Set *Pr. 22 Stall prevention operation level* higher according to the load. (Setting *Pr. 22* too large may result in frequent overcurrent trip (E.OC□).)	*92*
		Check the capacities of the inverter and the motor.	—
	Auto tuning is not performed under Advanced magnetic flux vector control or General-purpose magnetic flux vector control.	Perform offline auto tuning.	*120*
	During PID control, output frequency is automatically controlled to make measured value = set point.		*246*
Main Circuit	Brake resistor is connected between terminal P/+ and P1 or between terminal P1 and PR by mistake.	Connect an optional brake transistor (MRS type, MYS type, FR-ABR) between terminal P/+ and PR.	*35*

5.5.13 Unable to write parameter setting

Check points	Possible Cause	Countermeasures	Refer to page
Input signal	Operation is being performed (signal STF or STR is ON).	Stop the operation. When *Pr. 77* = "0" (initial value), write is enabled only during a stop.	*187*
Parameter Setting	You are attempting to set the parameter in the External operation mode.	Choose the PU operation mode. Or, set *Pr. 77* = "2" to enable parameter write regardless of the operation mode.	*187*
	Parameter is disabled by the *Pr. 77 Parameter write selection* setting.	Check *Pr. 77 Parameter write selection* setting.	*187*
	Key lock is activated by the *Pr. 161 Frequency setting/key lock operation selection* setting.	Check *Pr. 161 Frequency setting/key lock operation selection* setting.	*273*
	Operation mode and a writing device do not correspond.	Check *Pr. 79, Pr. 338, Pr. 339, Pr. 550, Pr. 551,* and select an operation mode suitable for the purpose.	*194, 205*