

5.2 List of fault or alarm indications

Operation Panel Indication		Name	Refer to Page
E---	E---	Faults history	286
HOLD	HOLD	Operation panel lock	292
LOCd	LOCd <small>(Ver. JP)</small>	Password locked	292
Er1 to Er4	Er1 to 4	Parameter write error	292
Err.	Err.	Inverter reset	293
OL	OL	Stall prevention (overcurrent)	293
oL	oL	Stall prevention (overvoltage)	294
r-b	RB	Regenerative brake prealarm	294
TH	TH	Electronic thermal relay function prealarm	294
PS	PS	PU stop	294
MT	MT	Maintenance signal output	295
UV	UV	Undervoltage	295
SA	SA*2	Safety stop	295
EV	EV*3 <small>(Ver. JP)</small>	24V external power supply operation	295
Fa	FN	Fan alarm	295
EOC1	EOC1	Overcurrent trip during acceleration	296
EOC2	EOC2	Overcurrent trip during constant speed	296
EOC3	EOC3	Overcurrent trip during deceleration or stop	296
EOV1	EOV1	Regenerative overvoltage trip during acceleration	297
EOV2	EOV2	Regenerative overvoltage trip during constant speed	297
EOV3	EOV3	Regenerative overvoltage trip during deceleration or stop	297
EFHF	E.THT	Inverter overload trip (electronic thermal relay function)	297
EFHM	E.THM	Motor overload trip (electronic thermal relay function)	298
EFIn	E.FIN	Heatsink overheat	298

Operation Panel Indication		Name	Refer to Page
E1LF	E1LF *1	Input phase loss	298
EO1F	E.O1T	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
EOHF	E.OHT	External thermal relay operation	299
EOPF	E.OPT <small>(Ver. JP)</small>	Option fault	299
EOP1	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 <small>(Ver. JP)</small>	Internal board fault	300
EPUE	E.PUE	PU disconnection	300
ErEr	E.RET	Retry count excess	301
E.5/	E.5/	CPU fault	301
E.6/	E.6/		
E.7/	E.7/		
ECPU	E.CPU		
E1OH	E1OH *1	Inrush current limit circuit fault	301
EA1E	EA1E *1	Analog input fault	301
EU5b	E.USB *1	USB communication fault	301
ENb4 to ENb7	E.MB4 to E.MB7	Brake sequence fault	301
ESAF	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-ETDS mounted.

(Ver. JP) 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  is invalid. (Refer to page 274)	
Check point	—	
Corrective action	Press  for 2s to release lock.	

Operation panel indication	LOCd 	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).	

 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	Er 2
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	<ul style="list-style-type: none"> Check the Pr. 77 setting. (Refer to page 187). Check that the inverter is not operating. 	
Corrective action	<ul style="list-style-type: none"> Set "2" in Pr. 77. After stopping operation, make parameter setting. 	

Operation panel indication	Er3	Er 3
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	
Name	Mode designation error	
Description	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.	
Name	Inverter reset	
Description	<ul style="list-style-type: none"> • Executing reset using RES signal, or reset command from communication or PU • Displays at powering OFF. 	
Corrective action	<ul style="list-style-type: none"> • Turn OFF the reset command 	

(2) Warnings

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

Operation panel indication	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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.) 			

Causes and corrective actions

Operation panel indication	oL		FR-PU04 FR-PU07	oL
Name	Stall prevention (overvoltage)			
Description	During deceleration	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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		FR-PU04 FR-PU07	PS
Name	PU stop			
Description	Stop with  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  of the operation panel.			
Corrective action	Turn the start signal OFF and release with  .			

Operation panel indication	RB		FR-PU04 FR-PU07	RB
Name	Regenerative brake prealarm			
Description	<p>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.</p> <p>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).</p>			
Check point	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Increase the deceleration time. Check that the Pr: 30 Regenerative function selection and Pr: 70 Special regenerative brake duty settings. 			

Operation panel indication	TH		FR-PU04 FR-PU07	TH
Name	Electronic thermal relay function prealarm			
Description	<p>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.</p> <p>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).</p>			
Check point	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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		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		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  . 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		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	<ul style="list-style-type: none"> 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  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 <small>Ver. UP</small>		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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Turn ON the power supply for the inverter (main circuit). If  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. UPSpecifications 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		FR-PU04 FR-PU07	FN
Name	Fan alarm			
Description	For the inverter that contains a cooling fan,  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.			

7 Causes and corrective actions

(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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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) 			

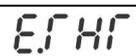
Operation panel indication	E.OC2		FR-PU04 FR-PU07	Stedy Spd OC
Name	Overcurrent trip during constant speed			
Description	When the inverter output current reaches or exceeds approximately 230% of the rated current during constant speed operation, the protective circuit is activated and the inverter trips.			
Check point	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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		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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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		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	<ul style="list-style-type: none"> • Check for sudden load change. • Check that the setting of Pr. 22 Stall prevention operation level is not too small. 			
Corrective action	<ul style="list-style-type: none"> • 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		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	<ul style="list-style-type: none"> • 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		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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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. 			

Causes and corrective actions

Operation panel indication	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 <i>Electronic thermal O/L relay</i> 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	<ul style="list-style-type: none"> • Check the motor for use under overload. • Check that the setting of Pr. 71 <i>Applied motor</i> for motor selection is correct. (Refer to page 118). • Check that stall prevention operation setting is correct. 			
Corrective action	<ul style="list-style-type: none"> • Reduce the load weight. • For a constant-torque motor, set the constant-torque motor in Pr. 71 <i>Applied motor</i>. • 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		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 (<i>output terminal function selection</i>). (Refer to page 145).			
Check point	<ul style="list-style-type: none"> • Check for too high surrounding air temperature. • Check for heatsink clogging. • Check that the cooling fan is not stopped (Check that F_n is not displayed on the operation panel). 			
Corrective action	<ul style="list-style-type: none"> • Set the surrounding air temperature to within the specifications. • Clean the heatsink. • Replace the cooling fan. 			

Operation panel indication	E.ILF		FR-PU04 FR-PU07	Fault 14 Input phase loss
Name	Input phase loss *			
Description	Inverter trips when function valid setting (=1) is selected in Pr. 872 <i>Input phase loss protection selection</i> 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Wire the cables properly. • Repair a break portion in the cable. • Check the Pr. 872 <i>Input phase loss protection selection</i> 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		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	<ul style="list-style-type: none"> • Check the motor for use under overload. (Refer to page 93). 			
Corrective action	<ul style="list-style-type: none"> • Reduce the load weight. (Check the Pr. 22 <i>Stall prevention operation level</i> 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	<ul style="list-style-type: none"> • 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 <i>Pr. 249 Earth (ground) fault detection at start</i> . When the setting of <i>Pr. 249 Earth (ground) fault detection at start</i> is the initial value (<i>Pr. 249 = "0"</i>), 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 <i>Pr. 251 Output phase loss protection selection</i> .			
Check point	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Wire the cables properly. • Check the <i>Pr. 251 Output phase loss protection selection setting</i>. 			

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 <i>Pr. 178 to Pr. 184 (input terminal function selection)</i> . This protective function is not available in the initial status (OH signal is not assigned).			
Check point	<ul style="list-style-type: none"> • Check for motor overheating. • Check that the value of 7 (OH signal) is set correctly in any of <i>Pr. 178 to Pr. 184 (input terminal function selection)</i>. 			
Corrective action	<ul style="list-style-type: none"> • 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 <i>Pr. 296 = "0 or 100."</i>			
Check point	Check if password lock is activated by setting <i>Pr. 296 = "0, 100"</i>			
Corrective action	<ul style="list-style-type: none"> • To apply the password lock when installing a communication option, set <i>Pr.296 ≠ "0,100"</i>.(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.

7 Causes and corrective actions

Operation panel indication	E.OP1	E.OP1	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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<p>Stops the inverter output if a contact fault or the like of the connector between the inverter and communication option occurs.</p> <p>Appears when the switch for the manufacturer setting of the plug-in option is changed.</p>			
Check point	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<p>Please contact your sales representative.</p> <p>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.</p>			

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	<p>Please contact your sales representative.</p> <p>(For parts replacement, consult the nearest Mitsubishi FA Center.)</p>			

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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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		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		FR-PU04 FR-PU07	Fault 5
	E. 6			Fault 6
	E. 7			Fault 7
	E.CPU			CPU Fault
Name	CPU fault			
Description	Stops the inverter output if the communication fault of the built-in CPU occurs.			
Check point	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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		FR-PU04 FR-PU07	E.MB4 Fault to E.MB7 Fault
Name	Brake sequence fault			
Description	<ul style="list-style-type: none"> 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		FR-PU04 FR-PU07	Fault 14 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		FR-PU04 FR-PU07	Fault 14 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		FR-PU04 FR-PU07	Fault 14 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	<ul style="list-style-type: none"> Check the USB communication cable. 			
Corrective action	<ul style="list-style-type: none"> 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). 			

Correspondences between digital and actual characters

Operation panel indication	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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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		FR-PU04	Fault 13
			FR-PU07	
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	Actual	Digital	Actual	Digital
0		A		M	
1		B		N	
2		C		O	
3		D		o	
4		E		P	
5		F		S	
6		G		T	
7		H		U	
8		I		V	
9		J		r	
		L		-	