

7.1 Alarm Listesi

Parametre Ünitesi		Açıklama	İlgili Sayfa
Hata mesajı	<i>E---</i>	E---	Arıza geçmişi görüntüleme alanı
	<i>HOLD</i>	HOLD	Parametre ünitesi kilidi
	<i>LOCd</i>	LOCd	Şifre kilitli
	<i>Er 1 to Er 4</i>	Er1 to Er4	Parametre yazma hatası
	<i>Err.</i>	Err.	Inverter reset
Uyarı	<i>OL</i>	OL	İstenmeyen duruş engeli (aşırı akım)
	<i>oL</i>	oL	İstenmeyen duruş engeli (aşırı gerilim)
	<i>rb</i>	RB	Rejeneratif fren ön alarmı
	<i>TH</i>	TH	Elektronik termik röle ön alarmı
	<i>PS</i>	PS	PU Stop
	<i>MT</i>	MT	Bakım sinyal çıkışı
	<i>UV</i>	UV	Düşük gerilim
	<i>SA</i>	SA	Güvenli duruş
Alarm	<i>Fn</i>	FN	Fan alarmı
Arıza	<i>E.OC 1</i>	E.OC1	Hızlanma sırasında aşırı akım duruşu
	<i>E.OC 2</i>	E.OC2	Sabit hız sırasında aşırı akım duruşu
	<i>E.OC 3</i>	E.OC3	Yavaşlama veya durma sırasında aşırı akım duruşu
	<i>E.OV 1</i>	E.OV1	Hızlanma sırasında rejeneratif aşırı gerilim duruşu
	<i>E.OV 2</i>	E.OV2	Sabit hızda çalışırken rejeneratif aşırı gerilim duruşu
	<i>E.OV 3</i>	E.OV3	Yavaşlama ya da durma sırasında rejeneratif aşırı gerilim duruşu
	<i>E.THT</i>	E.THT	İnverter aşırı yük (elektronik termik röle fonksiyonu)
	<i>E.THM</i>	E.THM	Motor aşırı yük kapaması (elektronik termik röle fonksiyonu)
	<i>E.FIn</i>	E.FIN	Soğutucu aşırı ısınma
	<i>E.ILF</i>	E.ILF ^{①,②}	Giriş faz kaybı
	<i>E.OLT</i>	E.OLT	Akım sınırlama duruşu
	<i>E. bE</i>	E.BE	Fren transistör alarmı
	<i>E. GF</i>	E.GF	Çıkış toplama hatası aşırı akım koruması

Tab. 7-1: List of alarm display (1)

Parametre Ünitesi		Açıklama	İlgili Sayfa	
Arıza	<i>E. LF</i>	E.LF	Çıkış faz hata koruması	7-13
	<i>E.OHT</i>	E.OHT	Harici termik röle fonksiyonu	7-13
	<i>E.OPT</i>	E.OPT	Öne takılan kart hatası	7-14
	<i>E.OP1</i>	E.OP1 (FR-E700 SC EC)	Öne takılan kart haberleşme hatası	7-14
		E.OP1 (FR-E700 SC ENE)	Ethernet kartı haberleşme hatası	7-15
	<i>E. 1</i>	E. 1 (FR-E700 SC EC)	Öne takılan kart haberleşme hatası (bağlantı veya kontak hatası)	7-15
		E. 1 (FR-E700 SC ENE)	Ethernet kartı hatası (bağlantı veya kontak hatası)	7-16
	<i>E. PE</i>	E.PE	Parametre ünitesi hafıza arızası	7-16
	<i>E.PE2</i>	E.PE2 ^①	Ana kart hatası	7-16
	<i>E.PUE</i>	E.PUE	Parametre ünitesi bağlı değil	7-16
	<i>E.RET</i>	E.RET	Alarm tekrar çalışma sayıcısı doldu	7-17
	<i>E. 5</i> <i>E. 6</i> <i>E. 7</i> <i>E.CPU</i>	E. 5 E. 6 E. 7 E.CPU	CPU arızası	7-17
	<i>E.IOH</i>	E.IOH ^①	Ani akım sınırlandırma devresi arızası	7-17
	<i>E.AIE</i>	E.AIE ^①	Analog giriş hatası	7-17
	<i>E.USB</i>	E.USB ^①	USB haberleşme hatası	7-18
	<i>E.MB4</i> ile <i>E.MB7</i>	E.MB4 E.MB5 E.MB6 E.MB7	Fren sekans hatası	7-18
	<i>E.SAF</i>	E.SAF ^①	Güvenlik devresi hatası	7-18
	<i>E. 13</i>	E.13	Dahili devre arızası	7-18

① FR-PU04 parametre ünitesi üzerinde (E.ILF), (E.PE2), (E.IOH), (E.AIE), (E.USB) veya (E.SAF) arızalarından biri oluştuğunda "Fault 14" görüntülenir.

② Trifaze girişli modeller için geçerlidir.

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7.2 Causes and corrective actions

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 made invalid. (Refer to section 4.3.4.)	
Check point	—	
Corrective action	Press the MODE key 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 section 6.17.5.)	

Operation panel indication	Er1	Er 1
Name	Write disable error	
Description	<ol style="list-style-type: none"> 1) You attempted to make parameter setting when Pr. 77 Parameter write selection has been set to disable parameter write. 2) Frequency jump setting range overlapped. 3) The PU and inverter cannot make normal communication. 	
Check point	<ol style="list-style-type: none"> 1) Check the setting of Pr. 77 "Parameter write selection". (Refer to section 6.17.2.) 2) Check the settings of Pr. 31 to 36 (frequency jump). (Refer to section. 6.4.2.) 3) 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	<ol style="list-style-type: none"> 1) Check the Pr. 77 setting. (Refer to section 6.17.2.) 2) Check that the inverter is not operating. 	
Corrective action	<ol style="list-style-type: none"> 1) Set "2" in Pr. 77. 2) 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.	
Corrective action	Check the settings of C3, C4, C6 and C7 (calibration functions). (Refer to section 6.16.3.)	

Operation panel indication	Er4	Er4
Name	Mode designation error	
Description	<ol style="list-style-type: none"> 1) You attempted to make parameter setting in the External or NET operation mode when Pr. 77 is not "2". 2) You attempted to make parameter setting when the command source is not at the operation panel. 	
Check point	<ol style="list-style-type: none"> 1) Check that operation mode is "PU operation mode". 2) Check the Pr. 77 setting. (Refer to section 6.17.2.) 3) Check if FR Configurator (USB connector) or a parameter unit (FR-PU04/FR-PU07) is connected when Pr. 551 = "9999 (initial setting)." 4) Check the Pr. 551 setting. 	
Corrective action	<ol style="list-style-type: none"> 1) After setting the operation mode to the "PU operation mode", make parameter setting. (Refer to section 6.17.2.) 2) After setting "2" in Pr. 72, make parameter setting. 3) Disconnect FR Configurator (USB connector) or the parameter unit (FR-PU04/FR-PU07), and make parameter setting. 4) After setting Pr. 551 = "4", make parameter setting. 	

Operation panel indication	Err.	Err.
Name	Inverter reset	
Description	<ol style="list-style-type: none"> 1) Executing reset using RES signal, or reset command from communication or PU. 2) Displays at powering off. 	
Corrective action	<ol style="list-style-type: none"> 1) Turn off the RES signal. 	

Warnings

When the protective function is activated, 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	<ol style="list-style-type: none"> 1) Check that the Pr. 0 "Torque boost" setting is not too large. 2) Check that the Pr. 7 "Acceleration time" and Pr. 8 "Deceleration time" settings are not too small. 3) Check that the load is not too heavy. 4) Are there any failure in peripheral devices? 5) Check that the Pr. 13 "Starting frequency" is not too large. 6) Check that the Pr. 22 "Stall prevention operation level" is appropriate. 			
Corrective action	<ol style="list-style-type: none"> 1) Increase or decrease the Pr. 0 "Torque boost setting" 1% by 1% and check the motor status. (Refer to section 6.3.1.) 2) Set a larger value in Pr. 7 "Acceleration time" and Pr. 8 "Deceleration time". (Refer to section 6.7.1.) 3) Reduce the load weight. 4) Try advanced magnetic flux vector control and general-purpose magnetic flux vector control. 5) Change the Pr. 14 "Load pattern selection" setting. 6) 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		FR-PU04 FR-PU07	oL
Name	Stall prevention (overcurrent)			
Description	During deceleration	<ul style="list-style-type: none"> • If the regenerative energy of the motor becomes excessive and exceeds the regenerative energy consumption capability, this function stops the decrease in frequency to prevent over voltage shut-off. As soon as the regenerative energy has decreased, 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 over voltage shut-off. (Refer to section 6.20.4.) 		
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 section 6.20.4.) 			
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 the STOP/RESET key of the PU is set in Pr. 75 "Reset selection/disconnected PU detection/PU stop selection". (For Pr. 75, refer to section 6.17.1.)			
Check point	Check for a stop made by pressing the STOP/RESET key of the operation panel.			
Corrective action	Turn the start signal off and release with PU/EXT key.			

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.</p> <p>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 section 6.10.5.)</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" values are correct. 			
Corrective action	<ul style="list-style-type: none"> • Increase the deceleration time (Pr. 8). • Check the Pr. 30 "Regenerative function selection" and Pr. 70 "Special regenerative brake duty" values. 			

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. The THP signal can be simultaneously output with the [TH] display.</p> <p>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 section 6.10.5.)</p>			
Check point	<ol style="list-style-type: none"> 1) Check for large load or sudden acceleration. 2) Is the Pr. 9 "Electronic thermal O/L relay" setting is appropriate? (Refer to section 6.8.1.) 			
Corrective action	<ol style="list-style-type: none"> 1) Reduce the load weight or the number of operation times. 2) Set an appropriate value in Pr. 9 "Electronic thermal O/L relay". (Refer to section 6.8.1.) 			

Operation panel indication	MT		FR-PU04 FR-PU07	—
Name	Maintenance signal output			
Description	<p>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.</p>			
Check point	<p>The Pr. 503 "Maintenance timer" setting is larger than the Pr. 504 "Maintenance timer alarm output set time" setting. (Refer to section 6.21.3.)</p>			
Corrective action	<p>Setting "0" in Pr. 503 "Maintenance timer" erases the signal.</p>			

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 230 V AC, 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 that the power supply voltage is normal.			

Operation panel indication	SA		FR-PU04 FR-PU07	—
Name	Safety stop			
Description	Appears when safety stop function is activated (during output shutoff).			
Check point	Check if the shorting wire between S1 and PC or between S2 and PC is disconnected when not using the safety stop function.			
Corrective action	<ul style="list-style-type: none"> • When not using the safety stop function, short across terminals S1 and P and across S2 and SC with shorting wire for the inverter to run. • If SA is indicated when across S1 and SC 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 SC and contact your sales representative if the wiring has no fault. 			

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 section 6.10.5).

Operation panel indication	FN		FR-PU04 FR-PU07	FN
Name	Fan fault			
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	Replace the cooling fan.			

Fault

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

Operation panel indication	E.OC1	E.OC 1	FR-PU04 FR-PU07	OC During Acc
Name	Overcurrent shut-off 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	<ol style="list-style-type: none"> 1) Check for sudden acceleration. 2) Check that the downward acceleration time is not long in vertical lift application. 3) Check for output short circuit/ground fault. 4) Check if the stall prevention operation level is set too high. Check if the fast-response current limit operation is disabled. 5) 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	<ol style="list-style-type: none"> 1) Increase the acceleration time. (Shorten the downward acceleration time in vertical lift application.) 2) 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. 3) Check the wiring to make sure that output short circuit/ground fault does not occur. 4) Lower the setting of stall prevention operation level (Refer to section 6.3.5). Activate the fast-response current limit operation. (Refer to section 6.3.5). 5) Set base voltage (rated voltage of the motor, etc.) in Pr. 19 "Base frequency voltage". (Refer to section 6.5.1.) 			

Operation panel indication	E.OC2	E.OC 2	FR-PU04 FR-PU07	OC During Dec
Name	Overcurrent shut-off 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	<ol style="list-style-type: none"> 1) Check for sudden load change. 2) Check for output short circuit/ground fault. 3) Check if the stall prevention operation level is set too high. Check if the fast-response current limit operation is disabled. 			
Corrective action	<ol style="list-style-type: none"> 1) Keep load stable. 2) Check the wiring to make sure that output short circuit/ground fault does not occur. 3) Lower the setting of stall prevention operation level (Refer to section 6.3.5). Activate the fast-response current limit operation. (Refer to section 6.3.5). 			

Operation panel indication	E.OC3	E.OC 3	FR-PU04 FR-PU07	OC During Dec
Name	Overcurrent shut-off 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	<ol style="list-style-type: none"> 1) Check for sudden speed reduction. 2) Check for output short circuit/ground fault. 3) Check for too fast operation of the motor's mechanical brake. 4) Check if the stall prevention operation level is set too high. Check if the fast-response current limit operation is disabled. 			
Corrective action	<ol style="list-style-type: none"> 1) Increase the deceleration time. 2) Check the wiring to make sure that output short circuit/ground fault does not occur. 3) Check the mechanical brake operation. 4) Lower the setting of stall prevention operation level (Refer to section 6.3.5). Activate the fast-response current limit operation. (Refer to section 6.3.5). 			

Operation panel indication	E.OV1	E.OV1	FR-PU04 FR-PU07	OV During Acc
Name	Regenerative over voltage shutoff 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	1) Check for too slow acceleration (e.g. during downward acceleration in vertical lift load). 2) Check that the Pr. 22 "Stall prevention operation level" is not too low.			
Corrective action	1) ● Decrease the acceleration time. ● Check that regeneration avoidance function (Pr. 882, Pr. 883, Pr. 885, Pr. 886) is used. (Refer to section 6.20.4) 2) Set a correct value in Pr. 22 "Stall prevention operation level".			

Operation panel indication	E.OV2	E.OV2	FR-PU04 FR-PU07	U>>N = konst
Name	Regenerative over voltage shut-off 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	1) Check for sudden load change. 2) Check that the Pr. 22 "Stall prevention operation level" is not too low.			
Corrective action	1) ● Keep load stable. ● Check that regeneration avoidance function (Pr. 882, Pr. 883, Pr. 885, Pr. 886) is used. (Refer to section 6.20.4) ● Use the brake resistor, brake unit or power regeneration common converter (FR-CV) as required. 2) Set a correct value in Pr. 22 "Stall prevention operation level".			

Operation panel indication	E.OV3	E.OV3	FR-PU04 FR-PU07	OV During Dec
Name	Regenerative over voltage shut-off 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 inertia moment of the load) ● Use regeneration avoidance function (Pr. 882, Pr. 883, Pr. 885, Pr. 886). (Refer to section 6.20.4.) ● Use the 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 shut-off (electronic thermal relay function) ①			
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% for 60 s, 200% for 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 ambient 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 ambient temperature to within the specifications. 			

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

Operation panel indication	E.THM		FR-PU04 FR-PU07	Motor Overload
Name	Motor overload shut-off (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 I ² t 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 I ² t 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	<ol style="list-style-type: none"> 1) Check the motor for use under overload. 2) Check that the setting of Pr. 71 "Applied motor" for motor selection is correct. (Refer to section 6.8.2.) 3) Check that the setting of Pr. 71 "Applied motor" for motor selection is correct. (Refer to section 6.3.5.) 			
Corrective action	<ol style="list-style-type: none"> 1) Reduce the load weight. 2) For a constant-torque motor, set the constant-torque motor in Pr. 71 "Applied motor". 3) Check that stall prevention operation setting is correct. (Refer to section 6.3.5.) 			

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	Fin overheat			
Description	If the heatsink overheats, the temperature sensor is actuated to stop the inverter output. 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" (source logic) or "126" (sink logic) in any of Pr. 190 to Pr. 192 "Output terminal function selection". (Refer to section 6.10.5).			
Check point	1) Check for too high ambient temperature. 2) Check for heatsink clogging. 3) Check that the cooling fan is stopped. (Check that "FN" is not displayed on the operation panel.)			
Corrective action	1) Set the ambient temperature to within the specifications. 2) Clean the heatsink. 3) Replace the cooling fan.			

Operation panel indication	E.ILF	E.ILF	FR-PU04 FR-PU07	Fault 14 Input phase loss
Name	Input phase failure ^①			
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 section 6.13.2). It may function 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 "Input phase failure protection selection" setting. • Set Pr. 872 = "0" (without input phase loss protection) when three-phase input voltage is largely unbalanced. 			

① Available only for three-phase power input specification model.

Operation panel indication	E.OLT	E.OLT	FR-PU04 FR-PU07	Stall Prev STP (OL shown during stall prevention operation)
Name	Stall prevention			
Description	If the output frequency has fallen to 1 Hz by stall prevention operation and remains for 3 s, 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 section 6.3.5).			
Corrective action	<ul style="list-style-type: none"> • 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/internal circuit error			
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 phase failure protection			
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".			
Check point	Check for an earth fault in the motor and connection cable.			
Corrective action	Remedy the earth 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 1 Hz), inverter stops the output. Whether the protective function is used or not is set with Pr. 251 "Output phase loss protection selection".			
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 Pr. 251 "Output phase failure protection selection" setting. 			

Operation panel indication	E.OHT	E.OHT	FR-PU04 FR-PU07	OH Fault
Name	External thermal relay operation ^①			
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. Functions when "7" (OH signal) is set to any of Pr. 178 to Pr. 184 "Input terminal function selection". This protective function does not function 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 Pr. 178 to Pr. 184 "Input terminal function selection". 			
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. 			

① Functions only when any of Pr. 178 to Pr. 184 "Input terminal function selection" is set to OH.

Operation panel indication	E.OPT	<i>E.OPT</i>	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	<ul style="list-style-type: none"> • To apply the password lock when installing a communication option, set Pr. 296 not equal to "0,100". • If the problem still persists after taking the above measure, please contact your sales representative. 			

Operation panel indication	E.OP1^①	<i>E.OP1</i>	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. 			

^① This fault is only available for the frequency inverter FR-E700 SC EC.

Operation panel indication	E.OP1 ①	<i>E.OP1</i>	FR-PU04 FR-PU07	Option slot alarm 1
Name	Ethernet communication fault			
Description	<ul style="list-style-type: none"> • Appears when Ethernet communication is interrupted by physical factors while Pr. 851 "Ethernet signal loss detection function selection" = "3" (initial value). • The inverter output is shut off when Ethernet communication is cut off for the time set in Pr. 852 "Ethernet communication check time interval" or longer between the inverter and all devices with the IP addresses in the range specified for the Ethernet command source selection (Pr. 844 to Pr. 849). • Stops the inverter output when excessive noise occurs around the inverter. • When the CC-Link IE Field Network Basic is used, the inverter output is shut off when the data addressed to the own station is not received for the predetermined timeout period or longer, or when the status bit of the cyclic transmission addressed to the own station turns OFF (when the master controller gives a command to stop the cyclic transmission). (For the details of the timeout period, status bit of the cyclic transmission, and command to stop the cyclic transmission, refer to the Instruction Manual of the master controller which supports the CC-Link IE Field Network Basic.) 			
Check point	<ul style="list-style-type: none"> • Check for a break in the Ethernet cable. • Check that the Pr. 852 setting is not too short. • Check for excessive noise around the inverter. • When the CC-Link IE Field Network Basic is used, check that the timeout period set in the master is not shorter than the period during which the inverter does not receive the data addressed to the own station. • When the CC-Link IE Field Network Basic is used, check that the status bit of the cyclic transmission addressed to the own station is not OFF. 			
Corrective action	<ul style="list-style-type: none"> • Check that the Ethernet cable is correctly connected to the Ethernet connector. Check that the Ethernet cable is not broken. • Set a larger value in Pr. 852. • When excessive noise occurs around the inverter, change the communication setting of the master. (The noise may be reduced by setting a shorter timeout period or increasing the number of retries in the communication setting of the master.) • When the CC-Link IE Field Network Basic is used, set a timeout period longer than the period during which the inverter does not receive the data addressed to the own station. • When the CC-Link IE Field Network Basic is used, turn ON the status bit of the cyclic transmission addressed to the own station. 			

① This fault is only available for the frequency inverter FR-E700 SC ENE.

Operation panel indication	E.1 ②	<i>E. 1</i>	FR-PU04 FR-PU07	Fault 1
Name	Option fault			
Description	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Check that the plug-in option 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 or distributor. • 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) 			

② This fault is only available for the frequency inverter FR-E700 SC EC.

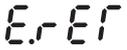
Operation panel indication	E.1 ^①		FR-PU04 FR-PU07	Fault 1
Name	Ethernet board fault			
Description	The inverter output is shut off when a contact fault occurs between the inverter and the Ethernet board. The indication also appears when the initial position of the manufacturer setting switch on the Ethernet board is changed.			
Check point	<ul style="list-style-type: none"> • Check that the Ethernet board is installed onto the connector securely. • Check for excessive noise around the inverter. • Check that the initial position of the manufacturer setting switch on the Ethernet board was not changed. 			
Corrective action	<ul style="list-style-type: none"> • Connect the Ethernet board securely. • Take measures against noises if there are devices producing excessive electrical noises around the inverter. If the problem still persists after taking the above measure, contact your sales representative. • Set the manufacturer setting switch on the Ethernet board back to the initial position. 			

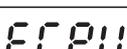
① This fault is only available for the frequency inverter FR-E700 SC ENE.

Operation panel indication	E.PE		FR-PU04 FR-PU07	Corrupt Memry
Name	Parameter storage device alarm (control circuit board)			
Description	Stops the inverter output if fault occurred in the parameter stored. (E ² PROM 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		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.			

Operation panel indication	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	<ul style="list-style-type: none"> • Check that the parameter unit (FR-PU04/FR-PU07) is fitted tightly. • 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. Functions only when Pr. 67 "Number of retries at fault occurrence" is set. When the initial value (Pr. 67 = 0) is set, this protective function does not function.			
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.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.			
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. (Refer to section 6.16.1.)			

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	<ul style="list-style-type: none"> • Check the USB communication cable. • Check the Pr. 548 "USB communication check time interval" setting. 			
Corrective action	<ul style="list-style-type: none"> • Check the USB communication cable. • Increase the Pr. 548 "USB communication check time interval" setting. Or, change the setting to 9999. (Refer to section 6.19.8.) 			

Operation panel indication	E.MB4 to E.MB7	E.MB4 to E.MB7	FR-PU04	E.MB4 Fault to E.MB7 Fault
			FR-PU07	
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 does not function in the initial status. (Refer to section 6.9.5.)			
Check point	Find the cause of alarm occurrence.			
Corrective action	Check the set parameters and perform wiring properly.			

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	<ul style="list-style-type: none"> • Check if the shorting wire between S1 and PC or between S2 and PC is disconnected when not using the safety stop function. • Check that the safety relay module or the connection has no fault when using the safety stop function. 			
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 section 3.4.3). • 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-A211508-004) for causes and countermeasures. 			

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.			

NOTES

If protective functions of E.ILF, E.PE2, E.IOH, E.AIE, E.USB or 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.

7.3 Reset method of protective function

Eliminate the cause of the error before you reset the inverter. Note that the internal thermal integrated value of the electronic thermal relay function and the number of retries are cleared (erased) by re-setting the inverter. It takes about 1s for reset.

The inverter can be reset by performing any of the following operations:

- Using the operation panel, press the STOP/RESET key to reset the inverter. (Enabled only when the inverter protective function is activated (major fault). (Refer to page 7-9 for major fault.))

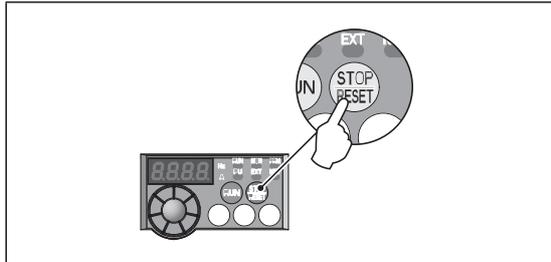


Fig. 7-1:
Resetting the inverter by using the operation panel

1001859E

- Turn on the reset signal RES for more than 0.1s. (Connect the terminals RES and PC as shown in fig. 7-2 when using source logic or terminals RES and SD when using sink logic). (If the RES signal is kept on, "Err." appears (flickers) to indicate that the inverter is in the reset status.)

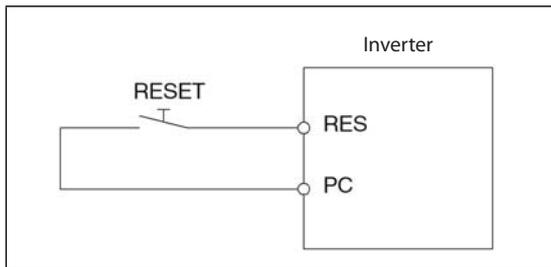


Fig. 7-2:
Resetting the inverter by turning on the RES signal

1000249C

- Switch OFF the power once, then switch it ON again after the indicator of the operation panel turns OFF.

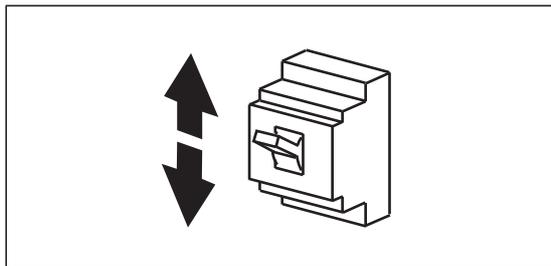


Fig. 7-3:
Resetting the inverter by switching the power supply off an on

1001297E

7.4 LED display

In contrast to the LC display on the (optional) parameter unit FR-PU04/FR-PU07, alphanumeric characters are displayed on the LED display of the control panel in a somewhat simplified form. There are the following correspondences between the actual alphanumeric characters and the digital characters displayed on the operation panel.

0	0	A	A	M	n
1	1	B	b	N	n
2	2	C	C	O	0
3	3	D	d	o	o
4	4	E	E	P	P
5	5	F	F	S	5
6	6	G	G	T	r
7	7	H	H	U	U
8	8	I	I	V	v
9	9	J	J	r	r
		L	L	-	-

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Fig. 7-4: Correspondences between digital and actual characters (operation panel)