

13. Before contacting your Toshiba distributor

- Trip information and remedies

13.1 Trip /Alarm causes and remedies

When a problem arises, diagnose it in accordance with the following table.

If it is found that replacement of parts is required or the problem cannot be solved by any remedy described in the table, contact your Toshiba distributor.

Confirm the parameters are set as intended. Communication tool "PCM002Z" is useful to do it.

[Trip information]

Error code		Failure code	Name	Description	Remedies
LED display					
$\mathcal{E}$	E	0011	Emergency stop	During automatic operation or remote operation, an emergency stop command is entered from the operation panel or an external (terminal or communication).	- Reset the inverter. - If the emergency stop signal is input, reset after releasing this signal.
$\mathcal{E} - 13$	E-13	002D	Over speed fault	- The input voltage fluctuates abnormally. - Over speed fault due to the overvoltage limit operation. - When $P\mathcal{E} = \mathcal{E}$, the inverter started without connecting the PM motor.	- Check the input voltage. - Install an optional dynamic braking resistor. (optional) - Connect the PM motor or change $P\mathcal{E}$ setting.
* $\mathcal{E} - 18$	E-18	0032	Analog input break detection fault	The input signal from VIC is equal to or less than the $F\mathcal{E}33$ setting.	Check the VIC signal cable for breaks. Also, check the input signal value or setting of $F\mathcal{E}33$.
$\mathcal{E} - 19$	E-19	0033	CPU communications error	A communications error occurs between control CPUs.	Contact your Toshiba distributor.
$\mathcal{E} - 20$	E-20	0034	Over torque boost fault	- The automatic torque boost parameter $F402$ setting is too high. - The motor has too small impedance.	- Set a lower automatic torque boost parameter $F402$ setting. - Make an auto-tuning.
$\mathcal{E} - 21$	E-21	0035	CPU fault 2	The control CPU is defective.	Contact your Toshiba distributor.
$\mathcal{E} - 23$	E-23	0037	Optional unit fault 2	An optional device is defective.	Contact your Toshiba distributor.
$\mathcal{E} - 26$	E-26	003A	CPU fault 3	The control CPU detected a fault.	Reset the inverter. The cause can be surrounding noise. If the problem is not solved, contact your Toshiba distributor.
$\mathcal{E} - 31$	E-31	003F	Heavy cycle of main power ON/OFF	- Main power ON/OFF during running is repeated frequently. - Initial failure if it is caused by other reasons.	- Reduce the frequency of repetition of main power ON/OFF during running. - Contact your Toshiba distributor.
* $\mathcal{E} - 32$	E-32	0040	PTC fault	PTC thermal protection is occurred.	Check the PTC in motor.

* This marking trips can be selected valid or invalid by parameters.

[Trip information]

Error code	Failure code	Name	Description	Remedies
LED display				
$E-37$	E-37	0045	Servo lock fault	- The motor shaft is not locked in servo lock operation. - Reduce the load in servo lock operation.
$E-39$	E-39	0047	Auto-tuning error (PM motor)	- When auto-tuning (relating parameters are $P\tau=5$, $F400=2$), the current of the permanent magnet motor exceeded the threshold level. - The inductance of permanent magnet motor is too small. - The motor is not connected. - Auto tuning for permanent magnet motor is not allowed for this motor, please measure inductance with the LCR meter etc. - Set V/F control mode selection $P\tau=0$, for operation check without connecting motor.
$EEP1$	EEP1	0012	EEPROM fault 1	- The EEPROM writing error occurs. - Turn off the inverter, then, turn it again. If it does not recover from the error, contact your Toshiba distributor.
$EEP2$	EEP2	0013	EEPROM fault 2	τP operation is aborted by the power-off etc. - The EEPROM reading error occurs. - Turn off the inverter, then, turn it again, and then try τP operation again. - Turn off the inverter, then, turn it again. If it does not recover from the error, contact your Toshiba distributor.
$EEP3$	EEP3	0014	EEPROM fault 3	- The EEPROM is defective. - Contact your Toshiba distributor.
* $EF2$	EF2	0022	Ground fault	- A ground fault occurs in the output cable or the motor. - A ground fault occurs in dynamic braking resistor. - When inverters are fed by AC power supply and connected with common DC bus link, unnecessary trip occurs. - Check the cable and the motor for ground faults. - Set the parameter $F514$ to 0 "Disabled".
* $EPH1$	EPH1	0008	Input phase failure	- A phase failure occurred in the input line of the main circuit. - The capacitor in the main circuit lacks capacitance. - Check the main circuit input line for phase failure. - Check the capacitor in the main circuit for exhaustion.
* $EPH0$	EPH0	0009	Output phase failure	- A phase failure occurred in the output line of the main circuit. - The motor has too big impedance. - Check the main circuit output line, motor, etc. for phase - Select output phase failure detection parameter $F505$. When $P\tau=5$ and $F315=3$ to 4, output phase failure detection is valid regardless of $F505$ setting.

* This marking trips can be selected valid or invalid by parameters.

[Trip information]

Error code		Failure code	Name	Description	Remedies
LED display					
Err2	ERR2	0015	Main unit RAM fault	The control RAM is defective.	Contact your Toshiba distributor.
Err3	ERR3	0016	Main unit ROM fault	The control ROM is defective.	Contact your Toshiba distributor.
Err4	ERR4	0017	CPU fault 1	The control CPU is defective.	Contact your Toshiba distributor.
Err5	ERR5	0018	Communication error	The communication with external devices is broken off.	Check the remote control device, cables, etc.
Err7	ERR7	001A	Current detector fault	The current detector is defective.	Contact your Toshiba distributor.
Err8	ERR8	001B	Optional unit fault 1	An optional unit has failed. (such as a communication option)	Check the connection of optional unit.
* Err9	ERR9	001C	Remote keypad disconnection fault	After run signal is activated by RUN key of the remote keypad, disconnection is occurred in 10 seconds or more.	- In case the remote keypad is disconnected, press STOP key before. - This fault is disabled by $F13$ $I=$ setting.
Et n	ETN	0028	Auto-tuning error	The motor parameter uL, $uL u$, $F405$, $F415$, $F417$ are not set correctly.	- Set the left column parameters correctly as a motor name plate and make an auto-tuning again. - Set parameter $F415$ to smaller 70% of the present value, and execute the auto-tuning again.
Et n1	ETN1	0054		- The motor with the capacity of 2 classes or less than the inverter is used. - The output cable is too thin. - The inverter is used for loads other than those of three-phase induction motors.	- Set the left column parameters correctly as a motor name plate and make an auto-tuning again. - Then set $F400=1$, when trip occurs.
Et n2	ETN2	0055		The motor is not connected.	- Connect the motor. - Check whether the secondary magnetic contactor. - Turn on power supply of main circuit.
Et n3	ETN3	0056		- Power supply of main circuit does not turn on. - The motor is rotating.	Make an auto-tuning again after the rotation of the motor stops.
				Parameter $Pt=5$ is set and High speed motor is connected.	Choose the higher power range drive. (1 class up drive is recommended.)
EtYP	ETYP	0029	Inverter type error	It may be a breakdown failure.	Contact your Toshiba distributor.

* This marking trips can be selected valid or invalid by parameters.

[Trip information]

Error code		Failure code	Name	Description	Remedies
LED display					
$\overline{OC}1$	OC1	0001	Overcurrent during acceleration	- The acceleration time $\overline{RCL}$ is too short. - The V/F setting is improper. - A restart signal is input to the rotating motor after a momentary stop, etc. - A special motor (e.g. motor with a small impedance) is used. - Low inductance motor especially High speed motor is used. - The connecting cable length with a motor is long.	- Increase the acceleration time $\overline{RCL}$. - Check the V/F parameter setting. - Use $\overline{F301}$ (auto-restart) and $\overline{F302}$ (ride-through control). - In case of $\overline{P1}=\overline{0}$, $\overline{1}$, $\overline{7}$, decrease αb. - In case of $\overline{P1}=\overline{2}$ to $\overline{6}$, set $\overline{F415}$ (Motor rated current) and make an auto-tuning. - Choose the higher power range drive. (1 class up drive is recommended.) - AC reactors etc. are required for the output side. (Refer to section 1.4.3.)
$\overline{OC}2$	OC2	0002	Overcurrent during deceleration	- The deceleration time $\overline{dEL}$ is too short. - Low inductance motor especially High speed motor is used. - The connecting cable length with a motor is long.	- Increase the deceleration time $\overline{dEL}$. - Choose the higher power range drive. (1 class up drive is recommended.) - AC reactors etc. are required for the output side. (Refer to section 1.4.3.)
$\overline{OC}3$	OC3	0003	Overcurrent during constant speed operation	- The load fluctuates abruptly. - The load is in an abnormal condition. - Low inductance motor especially High speed motor is used. - The connecting cable length with a motor is long.	- Reduce the load fluctuation. - Check the load (operated machine). - Choose the higher power range drive. (1 class up drive is recommended.) - AC reactors etc. are required for the output side. (Refer to section 1.4.3.)
$\overline{OCA}$	OCA	0005	Overcurrent at start-up	A main circuit element is defective.	Contact your Toshiba distributor.
$\overline{OCL}$	OCL	0004	Overcurrent (An overcurrent on the load side at start-up)	- The insulation of the output main circuit or motor is defective. - The motor has too small impedance.	- Check the secondary wiring and insulation state. - Set $\overline{F513}=\overline{2}$, $\overline{3}$

[Trip information]

Error code		Failure code	Name	Description	Remedies
LED display					
<i>OH</i>	OH	0010	Overheat	- The cooling fan reaches the end of life or has a fault. - The ambient temperature is too high or low against the specified ambient temperature. - The vent is blocked up. - A heat generating device is installed close to the inverter. - The load is large. - The temperature sensor has a fault. (When the trip arises, as soon as it is reset after a while.)	- The fan requires replacement if it does not rotate during operation. Contact your Toshiba distributor. - Operate at a specified ambient temperature - Secure sufficient space around the inverter. - Do not place any heat generating device near the inverter. - Reduce the load. - Reduce <i>F300</i> : PWM carrier frequency. - Set <i>F136</i> = 1 (Carrier frequency with automatic reduction) - Contact your Toshiba distributor.
<i>OH2</i>	OH2	002E	Thermal fault stop command from external device	A thermal trip command (input terminal function: <i>Y5</i> or <i>Y7</i>) is issued by an external control device.	The motor is overheated, so check whether the current flowing into the motor exceeds the rated current.
<i>OL1</i>	OL1	000D	Inverter overload	- The acceleration time <i>RL</i> is too short. - The DC braking amount is too large. - The V/F setting is improper. - A restart signal is input to the rotating motor after a momentary stop, etc. - The load is too large.	- Increase the acceleration time <i>RL</i>. - Reduce the DC braking amount <i>F251</i> and the DC braking time <i>F252</i>. - Check the V/F parameter setting. - Use <i>F301</i> (auto-restart) and <i>F302</i> (ride-through control). - Use an inverter with a larger rating. - Reduce <i>F300</i> (PWM carrier frequency) to 4kHz or less.
* <i>OL2</i>	OL2	000E	Motor overload	- The V/F setting is improper. - The motor is locked up. - Low-speed operation is performed continuously. - An excessive load is applied to the motor during operation.	- Check the V/F parameter setting. - Check the load (operated machine). - Adjust <i>OLN</i> to the overload that the motor can withstand during operation in a low speed range.

* This marking trips can be selected valid or invalid by parameters.

[Trip information]

Error code	Failure code	Name	Description	Remedies
LED display				
<i>OL3</i>	OL3	003E	Main module overload	• The carrier frequency is high and load current has increased at low speeds (mainly at 15Hz or less). • Raise the operation frequency. • Reduce the load. • Reduce <i>F300</i> (PWM carrier frequency) • When an operating motor is started up at 0Hz, use the auto-restart function. • Set carrier frequency control mode selection <i>F316</i> to <i>1, 3</i> or <i>5</i> (carrier frequency with automatic reduction).
* <i>OLr</i>	OLR	000F	Dynamic braking resistor overload trip	• The deceleration time is too short. • Dynamic braking is too large. • Increase the deceleration time <i>dEC</i>. • Increase the capacity of dynamic braking resistor (wattage) and adjust PBR capacity parameter <i>F309</i>.
<i>OP1</i>	OP1	000A	Overvoltage during acceleration	• The input voltage fluctuates abnormally. (1) The power supply has a capacity of 500kVA or more. (2) A power factor improvement capacitor is opened or closed. (3) A system using a thyristor is connected to the same power distribution line. • Insert a suitable input reactor.
			• A restart signal is input to the rotating motor after a momentary stop, etc.	• Use <i>F301</i> (auto-restart) and <i>F302</i> (ride-through control).
<i>OP2</i>	OP2	000B	Overvoltage during deceleration	• The deceleration time <i>dEC</i> is too short. (Regenerative energy is too large.) • Increase the deceleration time <i>dEC</i>. • Overvoltage limit operation <i>F305</i> is set to <i>1</i>. (Disabled). • Set overvoltage limit operation <i>F305</i> to <i>0, 2, 3</i>. • The input voltage fluctuates abnormally. • Insert a suitable input reactor. (1) The power supply has a capacity of 500kVA or more. (2) A power factor improvement capacitor is opened and closed. (3) A system using a thyristor is connected to the same power distribution line.
<i>OP3</i>	OP3	000C	Overvoltage during constant-speed operation	• The input voltage fluctuates abnormally. (1) The power supply has a capacity of 500kVA or more. (2) A power factor improvement capacitor is opened or closed. (3) A system using a thyristor is connected to the same power distribution line. • Insert a suitable input reactor. • The motor is in a regenerative state because the load causes the motor to run at a frequency higher than the inverter output frequency. • Install an optional dynamic braking resistor. (optional)

* This marking trips can be selected valid or invalid by parameters.

[Trip information]

Error code		Failure code	Name	Description	Remedies
LED display					
* 0t	OT	0020	Over-torque trip 1	Over-torque reaches to a detection level during operation.	- Enable $F 5 \ 15$ (over-torque trip selection). - Check system error.
* 0t 2	OT2	0041	Over-torque trip 2	- Output current reached $F 5 \ 0 \ 1$ or more and maintain in $F 45 \ 2$ during power running. - Power running torque reached $F 44 \ 1$ or more and maintain in $F 45 \ 2$ during power running.	- Reduce the load. - Increase the stall prevention level or power running torque limit level.
* 0t 3	OTC3	0048	Over-torque / Overcurrent fault	Power running torque or output current reached $F 5 \ 9 \ 3$ or more and maintain in $F 5 \ 9 \ 5$ during power running.	- Enable $F 5 \ 9 \ 1$. - Reduce the load. - Check system error.
P r F	PRF	003B	Safe torque off error	Error of safe torque off circuit	Contact your Toshiba distributor.
* S O U t	SOUT	002F	Step-out (for PM motor drive only)	- The motor shaft is locked. - One output phase is open. - An impact load is applied. - Using the DC braking function.	- Unlock the motor shaft. - Check the interconnect cables between the inverter and the motor. - Prolong the acceleration / deceleration time. - Turn off the Step-out function when using the DC braking function or change the DC braking to Servo lock function.
* U C	UC	001D	Low-current operation fault	The output current decreased to a low-current detection level during operation.	- Enable $F 5 \ 1 \ 0$ (low-current detection). - Check the suitable detection level for the system ($F 5 \ 0 \ 3$, $F 5 \ 1 \ 1$, $F 5 \ 1 \ 2$). - Contact your Toshiba distributor if the setting is correct.
* U P 1	UP1	001E	Undervoltage fault (main circuit)	The input voltage (in the main circuit) is too low.	- Check the input voltage. - Enable $F 5 \ 2 \ 1$ (undervoltage trip selection). - To take measures to momentary power failure, set $F 5 \ 2 \ 7=0$, Regenerative power ride-through control $F 3 \ 0 \ 2$ and Auto-restart control selection $F 3 \ 0 \ 1$.
* U t 3	UTC3	0049	Small-torque / Small -current fault	Power running torque or output current decreased $F 5 \ 9 \ 3$ or less and maintain in $F 5 \ 9 \ 5$ during power running.	- Enable $F 5 \ 9 \ 1$. - Check system error.

* This marking trips can be selected valid or invalid by parameters.

[Alarm information] Each message in the table is displayed to give a warning but does not cause the inverter to trip.

Error code		Name	Description	Remedies
LED display				
<i>P - 0 1</i>	A-01	Points setting alarm 1	In case of $P \leq 7$, there are same setting value at least two on parameter ωL, $F 190$, $F 192$, $F 194$, $F 196$, or $F 198$ except 0.0Hz.	Set the points to different values.
<i>P - 0 2</i>	A-02	Points setting alarm 2	In case of $P \leq 7$, the inclination of V/f is too high.	Set the inclination of V/f to be flat.
<i>P - 0 5</i>	A-05	Output frequency upper limit	An attempt was made to operate at a frequency higher than 10 times the base frequency (ωL or $F 170$).	Operate at a frequency within 10 times the base frequency.
<i>P - 1 7</i>	A-17	Operation panel key alarm	- The RUN or STOP key is held down for more than 20 seconds. - The RUN or STOP key is faulty.	Check the operation panel.
<i>P - 1 8</i>	A-18	Break in analog signal cable	The signal input via VIC is below the analog signal detection level set with $F 633$ and setting value of $F 644$ is one or more.	- Check the cables for breaks. And check the setting of input signal or setting value of $F 633$ and $F 644$. - This alarm is cancelled, when operation command is OFF after VIC input signal is recovered.
<i>P - 2 8</i>	A-28	S3 terminal alarm	Slide switch SW2 and parameter $F 147$ settings are different.	Match the settings of SW2 and $F 147$. Power supply OFF and ON after these settings.
<i>P t n</i>	ATN	Auto-tuning	Auto-tuning in process	Normal if the message disappears after a few seconds.
<i>CL r</i>	CLR	Clear command acceptable	This message is displayed when pressing the STOP key while an error code is displayed.	Press the STOP key again to clear the trip.
<i>db</i>	DB	DC braking	DC braking in process	The message goes off in several tens of seconds if no problem occurs. Note 1)
<i>E 1</i> <i>E 2</i> <i>E 3</i>	E1 E2 E3	Flowing out of excess number of digits	The number of digits such as frequencies is more than 4. (The upper digits have a priority.)	Lower the frequency free unit magnification $F 702$.
<i>E R S Y</i> / <i>S t d</i>	EASY / STD	Switching display of Easy setting mode / Standard setting mode	The EASY key was pushed in the standard monitor mode.	When <i>E R S Y</i> is displayed, setting mode becomes easy setting mode. When <i>S t d</i> is displayed, it becomes standard setting mode.
<i>E G F F</i>	EOFF	Emergency stop command acceptable	The operation panel is used to stop the operation in automatic control or remote control mode.	Press the STOP key for an emergency stop. To cancel the emergency stop, press any other key.
<i>E r r 1</i>	ERR1	Frequency point setting error alarm	The frequency setting signals at points 1 and 2 are set too close to each other.	Set the frequency setting signals at points 1 and 2 apart from each other.
<i>F i r E</i>	FIRE	In forced operation	<i>"F i r E"</i> and operation frequency is displayed alternately in operation of forced fire-speed control.	It is normal the alarm is gone out after the forced fire-speed control operation.

Note 1) When the DC braking (DB) function is assigned by using the input terminal function 22 or 23, it is normal if "*db*" disappears when opening the circuit between the terminal and CC (or P24).

[Alarm information] Each message in the table is displayed to give a warning but does not cause the inverter to trip.

Error code		Name	Description	Remedies
LED display				
<i>H I / L O</i>	HI / LO	Setting error alarm / An error code and data are displayed alternately twice each.	An error is found in a setting when data is reading or writing.	Check whether the setting is made correctly.
<i>HEAD / END</i>	HEAD/END	Display of first/last data items	The first and last data item in the <i>R U H</i> data group is displayed.	Press MODE key to exit the data group.
<i>INIT</i>	INIT	Parameters in the process of initialization	Parameters are being initialized to default values.	Normal if the message disappears after a while (several seconds to several tens of seconds).
<i>L S T P</i>	LSTP	Auto-stop because of continuous operation at the lower-limit frequency	The automatic stop function selected with <i>F 2 5 5</i> was activated.	This function is cancelled, when frequency reference reaches LL+0.2Hz or operation command is OFF.
<i>MOFF</i>	MOFF	Undervoltage in main circuit	- The power supply voltage between R, S, and T is not being supplied or is under voltage. - Internal communication fault.	Measure the main circuit supply voltage. If the voltage is at a normal level, the inverter requires repairing for fault.
<i>n - -</i>	N---	No detailed information of past trip	The detailed information of past trip is read by pushing the center of setting dial during blinking <i>n E r r</i> ⇔ number.	Normal operation. To be returned by pressing MODE key.
<i>n E r r</i>	NERR	No trip of past trip	No new record of past trip, after past trips were clear.	Normal operation.
<i>OFF</i>	OFF	ST (assigned standby function) terminal OFF	The ST-CC (or P24) circuit is opened.	Close the ST-CC (or P24) circuit.
<i>P A S S / F A I L</i>	PASS / FAIL	Password verification result	After the password setting (<i>F 7 3 8</i>), the password was input to <i>F 7 3 9</i> (password verification).	If the password is correct, <i>P A S S</i> is displayed and if it is incorrect, <i>F A I L</i> is displayed.
<i>P r A</i>	PRA	STO signal OFF	- STO terminal is in open-circuit. - Input voltage of STO terminal is low. - The voltage of P24 terminal decreases. - The load of P24 terminal (24Vdc power supply) is over 100mA. - Control terminal block comes off. - Incorrect polarity of the surge absorption diode connected to the OUT terminals.	- Close STO and + SU circuit. - Check the load of P24 terminal, if STO and +SU is shorted. - Check the load of P24 terminal. - Use P24 terminal up to 100mA including transient current. - Install the control terminal block to the inverter. - Check the polarity of the surge absorption diode.
<i>r t r y</i>	RTRY	Retry in process	- The inverter is in process of retry. - A momentary stop occurred. The motor speed is being detected.	The inverter restarts automatically. Be careful of the machine because it may suddenly restart.

[Alarm information] Each message in the table is displayed to give a warning but does not cause the inverter to trip.

Error code		Name	Description	Remedies
LED display				
$\overline{SE}\overline{E}$ (Note 2)	SET	Input requirement of region setting	- A region setting is not input yet. - Power supplied to the inverter at first time - As checking the region setting parameter $\overline{SE}\overline{E}$ is set to $\overline{0}$, inverter return to default setting. - As $\overline{EYP}$ is set to $\overline{13}$, inverter return to default setting.	Set a region setting by using setting dial. Refer to section 3.1.
$\overline{STOP}$	STOP	Deceleration stop function during power failure activated.	The slowdown stop prohibition function set with $\overline{F302}$ (momentary power failure ride-through operation) is activated.	To restart operation, reset power supply or input an operation signal again.
$\overline{Lrn}$	TUN	During learning	Learning for brake sequence operation or light-load high-speed operation is currently in progress.	To cancel learning, suspend it and set learning parameters $\overline{F329}$ to $\overline{0}$.
$\overline{Lrn} \overline{!}$	TUN1	Brake sequence learning error	- Braking operation is not performed normally. - The load is too heavy. - There are some operation errors.	- Brake signal output ($\overline{GB}$, $\overline{G9}$) is not assigned to the control output terminal. - The brake function mode selection parameter ($\overline{F341}$) is not set. - Learning is performed while the load is lifted
$\overline{Lrn2}$	TUN2	Light-load high-speed learning operation error	There are some errors in the operation for learning for light-load high-speed operation.	Check whether the learning operation for light-load high-speed operation is performed correctly. Refer to 6.21.
$\overline{Lrn3}$	TUN3	Light-load high-speed learning overload error	- Learning operation for light-load high-speed operation is performed while the load is lifted. - Motor constants ($\overline{UL}$, $\overline{ULU}$, $\overline{F405}$ to $\overline{F413}$) are not entered correctly.	- Check the load. - Check the motor constant setting.

Note 2) $\overline{SE}\overline{E}$ is blinking after power supply is on. In this time, the keys are not operated.

But parameter $\overline{SE}\overline{E}$ is lighting as same as other parameters and is not blinking.

[Pre-alarm information] Each message in the table is displayed to give a warning but does not cause the inverter to trip
The following error code and the frequency will blink alternately.

Error code		Name	Description	Remedies
LED display				
ζ	C	Overcurrent pre-alarm	When a current flows at or higher than the overcurrent stall prevention level.	Same as $\zeta\zeta$ (overcurrent)
H	H	Overheat pre-alarm	When the overheat protection pre-alarm level is reached.	Same as ζH (overheat)
L	L	Overload pre-alarm	- When the cumulative amount of overload reaches 50% or more of the overload trip value. - When the main circuit element temperature reaches the overload pre-alarm level	Same as $\zeta L 1$ and $\zeta L 2$ (overload)
P	P	Overvoltage pre-alarm	- When a voltage is generated at or higher than the over voltage stall prevention level. - Even if it was lower than the over voltage stall prevention level, when a voltage is generated at sharp increase.	Same as ζP (overvoltage)
t	T	Communication pre-alarm	When the communication was broken off at or longer than the parameter $F803$ setting.	Same as $E r r 5$ (communication fault)

If two or more problems arise simultaneously, one of the following pre-alarms appears and blinks.

$\zeta P, P L, \zeta P L$

The blinking alarms ζ, P, L, H, t are displayed in this order from left to right.

13.2 Restoring the inverter from a trip

Do not reset the inverter when tripped because of a failure or error before eliminating the cause. Resetting the tripped inverter before eliminating the problem causes it to trip again.

The inverter can be restored from a trip by any of the following operations:

- (1) By turning off the power (Keep the inverter off until the LED turns off.)
Note) See inverter trip hold selection $F 5 \text{ } \overline{0} \text{ } \overline{2}$ for details.
- (2) By means of an external signal (Short circuit across RES and CC (or P24) on control terminal block → Open): The reset function must be assigned to the input terminal block. (function number 8, 9)
- (3) By panel keypad operation
- (4) By inputting a trip clear signal from communication
(Refer to communication manual (E6581913) for details.)

To reset the inverter by panel keypad operation, follow these steps.

1. Press the STOP key and make sure that $\overline{L} \text{ } \overline{L} \text{ } r$ is displayed.
 2. Pressing the STOP key again will reset the inverter if the cause of the trip has already been eliminated.
- When any overload function [$\overline{0} \text{ } \overline{L} \text{ } 1$: inverter overload, $\overline{0} \text{ } \overline{L} \text{ } \overline{2}$: motor overload, $\overline{0} \text{ } \overline{L} \text{ } r$: braking resistor overload] is active, the inverter cannot be reset by inputting a reset signal from an external device or by operation panel operation before the virtual cooling time has passed.

Virtual cooling time ... $\overline{0} \text{ } \overline{L} \text{ } 1$: about 30 seconds after the occurrence of a trip

$\overline{0} \text{ } \overline{L} \text{ } \overline{2}$: about 120 seconds after a occurrence of a trip

$\overline{0} \text{ } \overline{L} \text{ } r$: about 20 seconds after a occurrence of a trip

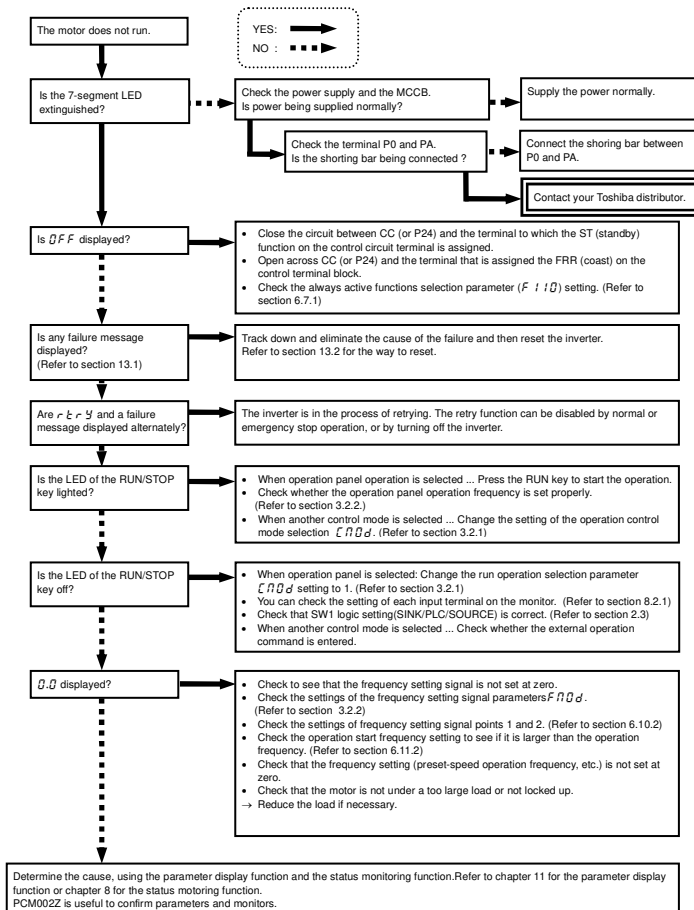
- As to $\overline{0} \text{ } \overline{L} \text{ } \overline{3}$ (Main module overload), there is no virtual cooling time.
- In case of a trip due to overheat ($\overline{0} \text{ } \overline{H}$), the inverter checks the temperature within. Wait until the temperature in the inverter falls sufficiently before resetting the inverter.
- The inverter cannot be reset while the emergency stop signal is being input from the terminal.
- The inverter cannot be reset while the pre-alarm is occurred.

[Caution]

Turning the inverter off then turning it on again resets the inverter immediately. You can use this mode of resetting if there is a need to reset the inverter immediately. Note, however, that this operation may damage the system or the motor if it is repeated frequently.

13.3 If the motor does not run while no trip message is displayed...

If the motor does not run while no trip message is displayed, follow these steps to track down the cause.



13.4 How to determine the causes of other problems

The following table provides a listing of other problems, their possible causes and remedies.

Problems	Causes and remedies
The motor runs in the wrong direction.	• Invert the phases of the output terminals U/T1, V/T2 and W/T3. • Invert the forward/reverse run-signal terminals of the external input device. (Refer to section 7.2.1) • Change the setting of the parameter F_r in the case of panel operation.
The motor runs but its speed does not change normally.	• The load is too heavy. Reduce the load. • The soft stall function is activated. Disable the soft stall function. (Refer to section 5.6) • The maximum frequency F_H and the upper limit frequency U_L are set too low. Increase the maximum frequency F_H and the upper limit frequency U_L. • The frequency setting signal is too low. Check the signal set value, circuit, cables, etc. • Check the setting characteristics (point 1 and point 2 settings) of the frequency setting signal parameters. (Refer to section 6.10.2) • If the motor runs at a low speed, check to see that the stall prevention function is activated because the torque boost value is too large. Adjust the torque boost value (ω_b) and the acceleration time (R_{EL}). (Refer to section 6.4 and 5.2)
The motor does not accelerate or decelerate smoothly.	• The acceleration time (R_{EL}) or the deceleration time (d_{EL}) is set too short. Increase the acceleration time (R_{EL}) or the deceleration time (d_{EL}).
A too large current flows into the motor.	• The load is too heavy. Reduce the load. • If the motor runs at a low speed, check whether the torque boost value is too large. (Refer to section 6.4)
The motor runs at a higher or lower speed than the specified one.	• The motor has an improper voltage rating. Use a motor with a proper voltage rating. • The motor terminal voltage is too low. Check the setting of the base frequency voltage parameter ($\omega_L \omega$). (Refer to section 5.5) Replace the cable with a cable larger in diameter. • The reduction gear ratio, etc., are not set properly. Adjust the reduction gear ratio, etc. • The output frequency is not set correctly. Check the output frequency range. • Adjust the base frequency. (Refer to section 5.5)
The motor speed fluctuates during operation.	• The load is too heavy or too light. Reduce the load fluctuation. • The inverter or motor used does not have a rating large enough to drive the load. Use an inverter or motor with a rating large enough. • Check whether the frequency setting signal changes. • If the V/F control selection parameter P_{EL} is set at 3, check the vector control setting, operation conditions, etc. (Refer to section 6.3)
Parameter settings cannot be changed.	• Change the setting of the parameter setting selection prohibited parameter F_{700} to 0 (enabled) if it is set to 1 to 4 (prohibited). • Set the verification code to F_{739}, if password has entered by the password setting F_{738}. (Refer to section 6.34.1) • Switch off the logic input terminal, if this terminal is assigned to input terminal menu 200 to 203 (Parameter editing / reading prohibition). • For reasons of safety, some parameters cannot be reprogrammed while the inverter is running. (Refer to section 11.9)
Inverter cannot communicate.	• Refer to "Appendix 4 Troubleshooting" in "RS485 Communication Function Instruction Manual" (E6581913).
The 7-segment LED display " $dRtR$ " or " 0000 ".	• The setting of the parameter F_{710} (Initial panel display selection) is set at 18 (Arbitrary code from communication). • Change the setting of the parameter F_{710}. $\Rightarrow$ See section 6.34.5. • For more information of the F_{710} set "18", refer to "RS485 Communication Function Instruction Manual (E6581913)."

How to cope with parameter setting-related problems

Inverter does not operate as you expected.	• Confirm the parameters are set as intended.
If you forget parameters which have been reset	• You can search for all reset parameters and change their settings. * Refer to section 4.3.1 for details.
If you want to return all reset parameters to their respective default settings	• You can return all parameters which have been reset to their default settings. * Refer to section 4.3.2 for details.

Note: PCM002Z is useful to check and manage your parameters.