

# Chapter 13 Warning Codes

## Digital Keypad KPMS-LE01



ID No.	Display on LCD Keypad	Warning Name	Description
1	CE1	Communication error 1 (CE1)	RS-485 Modbus illegal function code
<b>Action and Reset</b>			
Action level		When the function code is not 03, 06, 10 and 63	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		"Warning" occurs when Pr.09-02=0 and the motor drive keeps running. The drive resets automatically when receiving the correct function code.	
Reset condition		Immediately reset	
Record		N/A	
<b>Cause</b>		<b>Corrective Actions</b>	
Incorrect communication command from upper unit		Check if the communication command is correct.	
Malfunction caused by interference		Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.	
Different communication setting from the upper unit		Check if the setting for Pr.09-02 is the same as the setting for the upper unit.	
Disconnection or bad connection of the cable		Check the cable and replace it if necessary.	

ID No.	Display on LCD Keypad	Warning Name	Description
2	CE2	Communication error 2 (CE2)	RS-485 Modbus illegal data address
<b>Action and Reset</b>			
Action level	When the input data address is incorrect		
Action time	Immediately act		
Warning setting parameter	N/A		
Reset method	"Warning" occurs when Pr.09-02=0 and the motor drive keeps running. The drive resets automatically when receiving the correct data address.		
Reset condition	Immediately reset		
Record	N/A		
Cause	<b>Corrective Actions</b>		
Incorrect communication command from upper unit	Check if the communication command is correct.		
Malfunction caused by interference	Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.		
Different communication setting from the upper unit	Check if the setting for Pr.09-02 is the same as the setting for the upper unit.		
Disconnection or bad connection of the cable	Check the cable and replace it if necessary.		

ID No.	Display on LCD Keypad	Warning Name	Description
3	CE3	Communication error 3 (CE3)	RS-485 Modbus illegal data value
<b>Action and Reset</b>			
Action level	When the length of communication data is too long		
Action time	Immediately act		
Warning setting parameter	N/A		
Reset method	"Warning" occurs when Pr.09-02=0 and the motor drive keeps running. The drive resets automatically when receiving the correct communication data value.		
Reset condition	Immediately reset		
Record	N/A		
Cause	<b>Corrective Actions</b>		
Incorrect communication command from upper unit	Check if the communication command is correct.		
Malfunction caused by interference	Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.		
Different communication setting from the upper unit	Check if the setting for Pr.09-02 is the same as the setting for the upper unit.		
Disconnection or bad connection of the cable	Check the cable and replace it if necessary.		

ID No.	Display on LCD Keypad	Warning Name	Description
4	CE4	Communication error 4 (CE4)	RS-485 Modbus data is written to read-only address
Action and Reset			
Action level		When the data is written to read-only address	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		"Warning" occurs when Pr.09-02=0 and the motor drive keeps running. The drive resets automatically when receiving the correct written address of communication data.	
Reset condition		Immediately reset	
Record		N/A	
Cause		Corrective Actions	
Incorrect communication command from upper unit		Check if the communication command is correct.	
Malfunction caused by interference		Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.	
Different communication setting from the upper unit		Check if the setting for Pr.09-02 is the same as the setting for the upper unit.	
Disconnection or bad connection of the cable		Check the cable and replace it if necessary.	

ID No.	Display on LCD Keypad	Warning Name	Description
5	CE 10	Communication error 10 (CE10)	RS-485 Modbus transmission time-out
Action and Reset			
Action level		When the communication time exceeds the detection time of Pr.09-03 communication time-out	
Action time		Pr.09-03	
Warning setting parameter		N/A	
Reset method		"Warning" occurs when Pr.09-02=0 and the motor drive keeps running. The drive resets automatically when receiving the next communication packet.	
Reset condition		Immediately reset	
Record		N/A	
Cause		Corrective Actions	
The upper unit does not transmit the communication command within Pr.09-03 setting time		Check if the upper unit transmits the communication command within the setting time for Pr.09-03.	
Malfunction caused by interference		Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.	
Different communication setting from the upper unit		Check if the setting for Pr.09-02 is the same as the setting for the upper unit.	
Disconnection or bad connection of the cable		Check the cable and replace it if necessary.	

ID No.	Display on LCD Keypad	Warning Name	Description
7	SE1	Save error 1 (SE1)	Keypad COPY error 1: Keypad copy time-out
Action and Reset			
Action level	"SE1" warning occurs when the keypad does not transmit the COPY command to the drive, and does not transmit any data to the drive again in 10 ms at the time you copy the parameters to the drive.		
Action time	10 ms		
Warning setting parameter	N/A		
Reset method	Manual reset		
Reset condition	Immediately reset		
Record	N/A		
Cause	Corrective Actions		
Communication connection error	SE1: The causes of error are mostly communication problems between the keypad and control board. Potential causes include communication signal interference and the unacceptable communication command to the Slave. Check if the error occurs randomly, or only occurs when copying certain parameters (the error displays on the upper right corner of the copy page). If you cannot clear the error, please contact Delta.		
Keypad error			
Control board error			

ID No.	Display on LCD Keypad	Warning Name	Description
8	SE2	Save error 2 (SE2)	Keypad COPY error 2: parameter writing error
Action and Reset			
Action level	"SE2" warning occurs when writing the parameters incorrectly at the time you copy parameters to the drive. For example, you copy the new firmware version with added parameters to the drive with old firmware version.		
Action time	N/A		
Warning setting parameter	N/A		
Reset method	Manual reset		
Reset condition	Immediately reset		
Record	N/A		
Cause	Corrective Actions		
Add new parameters to the new firmware version.	SE2: In this stage, the copied data has been transmitted to the Slave. The Slave compares and processes the copied data, and then saves the data to the Data ROM. During the process, the data error (should be attribution error) may occur, or the data cannot be saved to EEPROM. At this time, the warning occurs. It is suggested to check the status of Data ROM and remove the error causes first. If you cannot clear the error, please contact Delta.		
Malfunction caused by interference	Verify the wiring and grounding of the main circuit, control circuit and the encoder for effective anti-interference performance.		

ID No.	Display on LCD Keypad	Warning Name	Description
9	oH1	IGBT over-heating warning (oH1)	The AC motor drive detects IGBT overheating and exceeds the protection level of oH1 warning. (When Pr.06-15 is higher than the IGBT overheating protection level, the drive shows oH1 error without displaying oH1 warning.)
<b>Action and Reset</b>			
Action level	Pr.06-15		
Action time	"oH1" warning occurs when IGBT temperature is higher than Pr.06-15 setting value.		
Warning setting parameter	N/A		
Reset method	Auto-reset		
Reset condition	The drive auto-resets when IGBT temperature is lower than oH1 warning level minus (-) 5°C		
Record	N/A		
<b>Cause</b>		<b>Corrective Actions</b>	
Check if the ambient temperature or temperature inside the cabinet is too high, or if there is obstruction in the ventilation hole of the control cabinet.		<ol style="list-style-type: none"> <li>1. Check the ambient temperature.</li> <li>2. Regularly inspect the ventilation hole of the control cabinet.</li> <li>3. Change the installed place if there are heating objects, such as brake resistors, in the surroundings.</li> <li>4. Install/ add cooling fan or air conditioner to lower the temperature inside the cabinet.</li> </ol>	
Check if there is any obstruction on the heat sink or if the fan is running		Remove the obstruction or replace the cooling fan.	
Insufficient ventilation space		Increase ventilation space of the drive.	
Check if the drive matches the corresponded loading		<ol style="list-style-type: none"> <li>1. Decrease loading.</li> <li>2. Decrease the carrier wave.</li> <li>3. Replace with a drive with larger capacity.</li> </ol>	
The drive has run 100% or more of the rated output for a long time		Replace with a drive with larger capacity.	

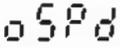
ID No.	Display on LCD Keypad	Warning Name	Description
11	PId	PID feedback error (PID)	PID feedback loss (warning for analog feedback signal; works only when PID enables)
<b>Action and Reset</b>			
Action level	When the analog input is lower than 4 mA (only detects analog input 4–20 mA)		
Action time	Pr.08-08		
Warning setting parameter	Pr.08-09 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: Warn and operate at last frequency		
Reset method	Auto	"Warning" occurs when Pr.08-09=0 or 3. The "Warning" automatically clears when the feedback signal is larger than 4 mA.	
	Manual	"Error" occurs when Pr.08-09=1 or 2. You must reset manually.	
Reset condition	Immediately reset		
Record	Records when Pr.08-09=1 or 2 ("Error"). Does not record when Pr.08-09=3 ("Warning").		

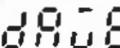
Cause	Corrective Actions
Loose or broken PID feedback wiring	Tighten the terminals again. Replace with a new cable.
Feedback device malfunction	Replace with a new feedback device.
Hardware error	If the PID error still occurs after checking all the wiring, return to the factory for repair.

ID No.	Display on LCD Keypad	Warning Name	Description
12	AnL	ACI analog signal loss (AnL)	Analog input current loss (including all analog 4–20 mA signals)
<b>Action and Reset</b>			
Action level		When the analog input is lower than 4 mA (only detects analog input 4–20 mA)	
Action time		Immediately act	
Warning setting parameter		Pr.03-19 0: Disable 1: Continue operation at the last frequency (warning, keypad displays ANL) 2: Decelerate to 0 Hz (warning, keypad displays ANL) 3: Stop immediately and display "ACE"	
Reset method		Auto	"Warning" occurs when Pr.03-19=1 or 2. The "Warning" automatically clears when the analog input signal is larger than 4 mA.
		Manual	"Error" occurs when Pr.03-19=3. You must reset manually.
Reset condition		Immediately reset	
Record		Does not record when Pr.03-19=1 or 2 ("Warning").	
Cause		Corrective Actions	
Loose or broken ACI wiring		Tighten the terminals again. Replace with a new cable.	
External device error		Replace with a new device.	
Hardware error		If the AnL error still occurs after checking all the wiring, return to the factory for repair.	

ID No.	Display on LCD Keypad	Warning Name	Description
13	uL	Under current (uL)	Low current
<b>Action and Reset</b>			
Action level		Pr.06-71	
Action time		Pr.06-72	
Warning setting parameter		Pr.06-73 0: No function 1: Fault and coast to stop 2: Fault and ramp to stop by the 2 <sup>nd</sup> deceleration time 3: Warn and continue operation	
Reset method		Auto	"Warning" occurs when Pr.06-73=3. The "Warning" automatically clears when the output current is larger than (Pr.06-71+0.1 A).
		Manual	"Error" occurs when Pr.06-73=1 and 2. You must reset manually.
Reset condition		Immediately reset	
Record		Does not record when Pr.06-73=3 and uL displays ("Warning").	

Cause	Corrective Actions
Broken motor cable	Exclude the connection issue of the motor and its load.
Improper setting for the low current protection	Set the proper settings for Pr.06-71, Pr.06-72 and Pr.06-73.
Low load	Check the loading status. Make sure the loading matches the motor capacity.

ID No.	Display on LCD Keypad	Warning Name	Description
17		Over speed warning (oSPd)	Over speed warning
Action and Reset			
Action level		The encoder feedback speed > Pr.10-10	
Action time		Pr.10-11	
Warning setting parameter		Pr.10-12=0 0: Warn and continue operation	
Reset method		"Warning" automatically clears when the drive stops	
Reset condition		"Warning" automatically clears when the drive stops	
Record		N/A	
Cause		Corrective Actions	
Improper setting for Pr.10-25 FOC bandwidth for speed observer		Decrease setting value for Pr.10-25.	
Improper bandwidth setting for ASR speed controller		Increase the bandwidth setting for ASR speed controller.	
Incorrect motor parameter setting		Reset motor parameter and run parameter tuning.	
Malfunction caused by interference		Verify the wiring of the control circuit, and the wiring/grounding of the main circuit to prevent interference.	

ID No.	Display on LCD Keypad	Warning Name	Description
18		Deviation Warning (dAVE)	Over speed deviation warning
Action and Reset			
Action level		Pr.10-13	
Action time		Pr.10-14	
Warning setting parameter		Pr.10-15 Encoder Stall and Slip Error Action =0 0: Warn and continue operation	
Reset method		"Warning" automatically clears when the drive stops	
Reset condition		After the drive stops	
Record		N/A	
Cause		Corrective Actions	
Improper parameter setting for the slip error		Reset proper value for Pr.10-13 and Pr.10-14.	
Improper setting for ASR parameter and acceleration/ deceleration		Reset ASR parameters. Set proper accel./ decel. time.	
Accel./ Decel. time is too short		Reset proper accel./ decel. time.	
Motor locked		Remove the causes of motor locked.	
Mechanical brake is not released		Check the action timing of the system.	

Incorrect parameter setting of torque limit (Pr.06-12, Pr.11-17-20)	Adjust to proper setting value.
Malfunction caused by interference	Verify the wiring of the control circuit, and the wiring/grounding of the main circuit to prevent interference.

ID No.	Display on LCD Keypad	Warning Name	Description
19	<b>PHL</b>	Phase loss (PHL)	Input phase loss warning
<b>Action and Reset</b>			
Action level	One of the phases outputs less than Pr.06-47		
Action time	Pr.06-46		
Warning setting parameter	Pr.06-45 Output Phase Loss Detection Action (OPHL) =0 0: Warn and continue operation		
Reset method	"Warning" automatically clears when the drive stops		
Reset condition	After the drive stops		
Record	N/A		
<b>Cause</b>	<b>Corrective Actions</b>		
Phase loss of the input power	Verify the wiring of the main circuit.		
Single phase power input on a three-phase model	Use the model with voltage that matches the power.		
The power voltage has changed	If the power of main circuit works well, check if the MC of the main circuit is broken. Cycle the power after verifying the power is normal. If PHL still occurs, return to the factory for repair.		
Loose wiring terminal of input power	Tighten the terminal screws with the torque listed in the user manual.		
Check if the input cable of three-phase power is broken	Make sure the wiring is correct. Replace the broken part of the cable.		
Unbalanced three-phase of the input power	Check the status of three-phase power.		

ID No.	Display on LCD Keypad	Warning Name	Description
20	<b>ot 1</b>	Over-torque 1 (ot1)	Over-torque 1 warning
<b>Action and Reset</b>			
Action level	Pr.06-07		
Action time	Pr.06-08		
Warning setting parameter	Pr.06-06 Over-torque Detection Selection (Motor 1) =1 or 3 0: No function 1: Continue operation after over-torque detection during constant speed operation 2: Stop after over-torque detection during constant speed operation 3: Continue operation after over-torque detection during RUN 4: Stop after over-torque detection during RUN		
Reset method	When the output current < Pr.06-07, the Ot1 warning automatically clears		
Reset condition	When the output current < Pr.06-07, the Ot1 warning automatically clears		
Record	N/A		

Cause	Corrective Actions
Incorrect parameter setting	Configure the settings for Pr.06-07 and Pr.06-08 again.
Mechanical error (e.g. mechanical lock due to over-torque)	Remove the causes of malfunction.
The load is too large	Decrease the loading. Replace with a motor with larger capacity.
Accel./ Decel. time and working cycle is too short	Increase the setting values for Pr.01-12-01-19 (accel./ decel. time)
V/F voltage is too high	Adjust the V/F curve (Motor 1, Pr.01-01-01-08), especially the setting value for the mid-point voltage (if the mid-point voltage is set too small, the load capacity decreases at low-speed).
The motor capacity is too small	Replace with a motor with larger capacity.
Overload during low-speed operation	Decrease the loading during low-speed operation. Increase the motor capacity.
The torque compensation is too large	Adjust the torque compensation value (Pr.07-26 torque compensation gain) until the output current decreases and the motor does not stall.
Improper parameter settings for the speed tracking function (including restart after momentary power loss and restart after fault)	Correct the parameter settings for speed tracking. Start the speed tracking function. Adjust the maximum current for Pr.07-09 speed tracking.

ID No.	Display on LCD Keypad	Warning Name	Description
21	ot2	Over-torque (ot2)	Over-torque 2 warning
Action and Reset			
Action level	Pr.06-10		
Action time	Pr.06-11		
Warning setting parameter	Pr.06-09 Over-torque Detection Selection (Motor 2) = 1 or 3 0: No function 1: Continue operation after over-torque detection during constant speed operation 2: Stop after over-torque detection during constant speed operation 3: Continue operation after over-torque detection during RUN 4: Stop after over-torque detection during RUN		
Reset method	When the output current < Pr.06-10, the Ot2 warning automatically clears		
Reset condition	When the output current < Pr.06-10, the Ot2 warning automatically clears		
Record	N/A		
Cause	Corrective Actions		
Incorrect parameter setting	Configure the settings for Pr.06-10 and Pr.06-11		
Mechanical error (e.g. mechanical lock due to over-torque)	Remove the causes of malfunction.		
The load is too large	Decrease the loading. Replace with a motor with larger capacity.		
Accel./ Decel. time and working cycle is too short	Increase the setting values for Pr.01-12-01-19 (accel./ decel. time)		
V/F voltage is too high	Adjust the V/F curve (Motor 2, Pr.01-35-01-42), especially the setting value for the mid-point voltage (if the mid-point voltage is set too small, the load capacity decreases at low-speed).		

The motor capacity is too small	Replace with a motor with larger capacity.
Overload during low-speed operation	Decrease the loading during low-speed operation. Increase the motor capacity.
The torque compensation is too large	Adjust the torque compensation value (Pr.07-71 torque compensation gain) until the output current decreases and the motor does not stall.
Improper parameter settings for the speed tracking function (including restart after momentary power loss and restart after fault)	Correct the parameter settings for speed tracking. Start speed tracking function. Adjust the maximum current for Pr.07-09 speed tracking.

ID No.	Display on LCD Keypad	Warning Name	Description
22_1	oH3	Motor over-heating (oH3) PTC	Motor overheating warning. The AC motor drive detects the temperature inside the motor is too high
<b>Action and Reset</b>			
Action level		Pr.03-00=6 (PTC), PTC input level > Pr.06-30 PTC level (default=50%)	
Action time		Immediately act	
Warning setting parameter		Error treatment: Pr.06-29 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning When Pr.06-29=0 and when the temperature is $\leq$ Pr.06-30 level, the oH3 warning automatically clears. When Pr.06-29=0 ("Warning"), it automatically resets.	
Reset method		When Pr.06-29=0, oH3 displays as "Warning". When the temperature is $\leq$ Pr.06-30 level, the oH3 warning automatically clears.	
Reset condition		When the temperature is $\leq$ Pr.06-30 level, the oH3 warning automatically clears.	
Record		N/A	
Cause		<b>Corrective Actions</b>	
Motor locked		Clear the motor lock status.	
The load is too large		Decrease the loading. Replace with a motor with larger capacity.	
Ambien temperature is too high		Change the installed place if there are heating devices in the surroundings. Install/ add cooling fan or air conditioner to lower the ambient temperature.	
Motor cooling system error		Check the cooling system to make it work normally.	
Motor fan error		Replace the fan.	
Operates at low-speed too long		Decrease low-speed operation time. Change to dedicated motor for the drive. Increase the motor capacity.	
Accel./ Decel. time and working cycle is too short		Increase setting values for Pr.01-12-01-19 (accel./ decel. time).	
V/F voltage is too high		Adjust settings for Pr.01-01-01-08 (V/F curve), especially the setting value for the mid-point voltage (if the mid-point voltage is set too small, the load capacity decreases at low-speed).	
Check if the motor rated current matches the motor nameplate		Configure the correct rated current value of the motor again.	

Check if the PTC is properly set and wired	Check the connection between PTC thermistor and the heat protection.
Check if the setting for stall prevention is correct	Set the stall prevention to the proper value.
Unbalanced three-phase impedance of the motor	Replace the motor.
Harmonics is too high	Use remedies to reduce harmonics.

ID No.	Display on LCD Keypad	Warning Name	Description
22_2	<b>oH3</b>	Motor over-heating (oH3) PT100	Motor overheating warning. The AC motor drive detects the temperature inside the motor is too high.
<b>Action and Reset</b>			
Action level	Pr.03-00=11 (PT100), PT100 input level > Pr.06-57 (default=7 V)		
Action time	Immediately act		
Warning setting parameter	Error treatment: Pr.06-29 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning When Pr.06-29=0 and when the temperature is < Pr.06-56 level, the oH3 warning automatically clears. If the temperature is between Pr.06-56 and Pr.06-57, the frequency outputs according to the operating frequency setting for Pr.06-58.		
Reset method	When Pr.06-29=0, oH3 displays as "Warning". When the temperature is < Pr.06-56 level, the oH3 warning automatically clears.		
Reset condition	When the temperature is < Pr.06-56 level, the oH3 warning automatically clears.		
Record	N/A		
Cause	<b>Corrective Actions</b>		
Motor locked	Clear the motor lock status.		
The load is too large	Decrease loading. Replace with a motor with larger capacity.		
Ambien temperature is too high	Change the installed place if there are heating devices in the surroundings. Install/ add cooling fan or air conditioner to lower the ambient temperature.		
Motor cooling system error	Check the cooling system to make it work normally.		
Motor fan error	Replace the fan.		
Operates at low-speed too long	Decrease low-speed operation time. Change to dedicated motor for the drive. Increase the motor capacity.		
Accel./ Decel. time and working cycle is too short	Increase the setting values for Pr.01-12-01-19 (accel./ decel. time).		
V/F voltage is too high	Adjust the settings for Pr.01-01-01-08 (V/F curve), especially the setting value for the mid-point voltage (if the mid-point voltage is set too small, the load capacity decreases at low-speed).		
Check if the motor rated current matches the motor nameplate	Configure the correct rated current value of the motor again.		
Check if the PT100 is properly set and wired	Check the connection between PT100 thermistor and the heat protection.		

Check if the setting for stall prevention is correct	Set the stall prevention to the proper value.
Unbalanced three-phase impedance of the motor	Replace the motor.
Harmonics is too high	Use remedies to reduce harmonics.

ID No.	Display on LCD Keypad	Warning Name	Description
24	oSL	Over slip warning (oSL)	Over slip warning. By using the maximum slip (Pr.10-29) as the base, when the drive outputs at constant speed, and the F>H or F<H exceeds Pr.07-29 level and Pr.07-30 setting time, 100% Pr.07-29 = Pr.10-29.
<b>Action and Reset</b>			
Action level	When the drive outputs at constant speed, and F>H or F<H exceeds the Pr.07-29 level		
Action time	Pr.07-30		
Warning setting parameter	Pr.07-31=0 Warning 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning		
Reset method	When Pr.07-31=0 and when the drive outputs at constant speed, and F>H or F<H no longer exceeds the Pr.07-29 level, the oSL warning automatically clears.		
Reset condition	N/A		
Record	N/A		
<b>Cause</b>		<b>Corrective Actions</b>	
Check if the motor parameter is correct	Check the motor parameter.		
The load is too large	Decrease the loading.		
Check if the settings for Pr.07-29, Pr.07-30 and Pr.10-29 are properly set	Check the parameter settings for oSL protection.		

ID No.	Display on LCD Keypad	Warning Name	Description
25	tUn	Auto tuning (tUn)	Parameter auto-tuning is processing. When running auto-tuning, the keypad displays "tUn".
<b>Action and Reset</b>			
Action level	When running Pr.05-00 motor parameter auto-tuning, the keypad displays "tUn".		
Action time	N/A		
Warning setting parameter	N/A		
Reset method	When auto-tuning is finished and no error occurs, the warning automatically clears.		
Reset condition	When auto-tuning is finished and no error occurs.		
Record	N/A		
<b>Cause</b>		<b>Corrective Actions</b>	
The motor parameter is running auto-tuning	When the auto-tuning is finished, the warning automatically clears.		

ID No.	Display on LCD Keypad	Warning Name	Description
28	<b>oPHL</b>	Output phase loss (oPHL)	Output phase loss of the drive
Action and Reset			
Action level		Pr.06-47	
Action time		N/A	
Warning setting parameter		Pr.06-45 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning	
Reset method		If Pr.06-45 is set to 0, the oPHL warning automatically clears after the drive stops.	
Reset condition		N/A	
Record		N/A	
Cause		Corrective Actions	
Unbalanced three-phase impedance of the motor		Replace the motor.	
Check if the wiring is incorrect		Check the cable. Replace the cable.	
Check if the motor is a single-phase motor		Choose a three-phase motor.	
Check if the current sensor is broken		Check if the control board cable is loose. If yes, reconnect the cable and run the drive to test. If the error still occurs, return to the factory for repair. Check if the three-phase current is balanced with a current clamp meter. If the current is balanced and the oPHL error still shows on the display, return to the factory for repair.	
Check if capacity of the drive is larger than the motor		Choose a drive's capacity matches a motor's.	

ID No.	Display on LCD Keypad	Warning Name	Description
30	<b>SE3</b>	Copy model error 3 (SE3)	Keypad COPY error 3: copy model error
Action and Reset			
Action level		"SE3" warning occurs when different drive identity codes are found during copying parameters.	
Action time		Immediately act when the error is detected	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		N/A	
Record		N/A	
Cause		Corrective Actions	
Keypad copy between different power range drives		It is mainly to prevent parameter copies between different HP/models.	

ID No.	Display on LCD Keypad	Warning Name	Description
31	ot3	Over-torque (ot3)	Over-torque 3 warning
<b>Action and Reset</b>			
Action level	Pr.14-75		
Action time	Pr.14-76		
Warning setting parameter	Pr.14-74 Over-torque Detection Selection (Motor 3) =1 or 3 0: No function 1: Continue operation after over-torque detection during constant speed operation 2: Stop after over-torque detection during constant speed operation 3: Continue operation after over-torque detection during RUN 4: Stop after over-torque detection during RUN		
Reset method	When the output current < Pr.14-75, the Ot3 warning automatically clears		
Reset condition	When the output current < Pr.14-75, the Ot3 warning automatically clears		
Record	N/A		
<b>Cause</b>	<b>Corrective Actions</b>		
Incorrect parameter setting	Configure the settings for Pr.14-75 and Pr.14-76 again.		
Mechanical error (e.g. mechanical lock due to over-torque)	Remove the causes of malfunction.		
The load is too large	Decrease the loading. Replace with a motor with larger capacity.		
Accel./ Decel. time and working cycle is too short	Increase the setting values for Pr.01-12-01-19 (accel./ decel. time)		
V/F voltage is too high	Adjust the V/F curve (Motor 3, Pr.01-54-01-61), especially the setting value for the mid-point voltage (if the mid-point voltage is set too small, the load capacity decreases at low-speed).		
The motor capacity is too small	Replace with a motor with larger capacity.		
Overload during low-speed operation	Decrease the loading during low-speed operation. Increase the motor capacity.		
The torque compensation is too large	Adjust the torque compensation value (Pr.07-73 torque compensation gain) until the output current decreases and the motor does not stall.		
Improper parameter settings for the speed tracking function (including restart after momentary power loss and restart after fault)	Correct the parameter settings for speed tracking. Start the speed tracking function. Adjust the maximum current for Pr.07-09 speed tracking.		

ID No.	Display on LCD Keypad	Warning Name	Description
32	ot4	Over-torque (ot4)	Over-torque 4 warning
Action and Reset			
Action level		Pr.14-78	
Action time		Pr.14-79	
Warning setting parameter		Pr.14-77 Over-torque Detection Selection (Motor 4) =1 or 3 0: No function 1: Continue operation after over-torque detection during constant speed operation 2: Stop after over-torque detection during constant speed operation 3: Continue operation after over-torque detection during RUN 4: Stop after over-torque detection during RUN	
Reset method		When the output current < Pr.14-78, the Ot4 warning automatically clears	
Reset condition		When the output current < Pr.14-79, the Ot4 warning automatically clears	
Record		N/A	
Cause		Corrective Actions	
Incorrect parameter setting		Configure the settings for Pr.14-78 and Pr.14-79 again.	
Mechanical error (e.g. mechanical lock due to over-torque)		Remove the causes of malfunction.	
The load is too large		Decrease the loading. Replace with a motor with larger capacity.	
Accel./ Decel. time and working cycle is too short		Increase the setting values for Pr.01-12-01-19 (accel./ decel. time)	
V/F voltage is too high		Adjust the V/F curve (Motor 4, Pr.01-63-01-70), especially the setting value for the mid-point voltage (if the mid-point voltage is set too small, the load capacity decreases at low-speed).	
The motor capacity is too small		Replace with a motor with larger capacity.	
Overload during low-speed operation		Decrease the loading during low-speed operation. Increase the motor capacity.	
The torque compensation is too large		Adjust the torque compensation value (Pr.07-75 torque compensation gain) until the output current decreases and the motor does not stall.	
Improper parameter settings for the speed tracking function (including restart after momentary power loss and restart after fault)		Correct the parameter settings for speed tracking. Start the speed tracking function. Adjust the maximum current for Pr.07-09 speed tracking.	

ID No.	Display on LCD Keypad	Warning Name	Description
36	CGdn	CANopen guarding time-out (CGdn)	CANopen guarding time-out 1
Action and Reset			
Action level		When CANopen Node Guarding detects that one of the slaves does not respond, the CGdn error displays. The upper unit sets the factor and time during configuration.	
Action time		The time that upper unit sets during configuration	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		The upper unit sends a reset package to clear this warning.	

Record	N/A
Cause	Corrective Actions
The guarding time is too short, or less detection times	Increase the guarding time (Index 100C) and detection times.
Malfunction caused by interference	<ol style="list-style-type: none"> <li>1. Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.</li> <li>2. Make sure the communication circuit is wired in series.</li> <li>3. Use CANopen cable or add terminating resistance.</li> </ol>

ID No.	Display on LCD Keypad	Warning Name	Description
37	CHbn	CANopen heartbeat error (CHbn)	CANopen heartbeat error
Action and Reset			
Action level	When CANopen Heartbeat detects that one of the slaves does not response, the CHbn error shows. The upper unit sets the confirming time of producer and consumer during configuration.		
Action time	The upper unit sets the confirming time of producer and consumer during configuration.		
Warning setting parameter	N/A		
Reset method	Manual reset		
Reset condition	The upper unit sends a reset package to clear this warning.		
Record	When Pr.00-21#3, CHbn is a "Warning", and the warning is not recorded.		
Cause	Corrective Actions		
The heartbeat time is too short	Increase heartbeat time (Index 1016)		
Malfunction caused by interference	<ol style="list-style-type: none"> <li>1. Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.</li> <li>2. Make sure the communication circuit is wired in series.</li> <li>3. Use CANopen cable or add terminating resistance.</li> </ol>		
Communication cable is broken or bad connected	Check or replace the communication cable.		

ID No.	Display on LCD Keypad	Warning Name	Description
39	CbFn	CANopen bus off error (CbFn)	CANopen BUS off error
Action and Reset			
Action level	Hardware	When CANopen card is not installed, the CbFn warning occurs.	
	Software	When the master receives wrong communication package, the CbFn warning occurs. Too much interference on BUS The master receives wrong package when the CAN_H and CAN_L communication cables are short, CbFn warning occurs.	
Action time	Immediately act when the fault is detected		
Warning setting parameter	N/A		
Reset method	Manual Reset		
Reset condition	Cycle the power		

Record	When Pr.00-21#3, CbFn is a "Warning", and the warning is not recorded.
Cause	Corrective Actions
Check if the CANopen card is installed	Make sure the CANopen card is installed.
Check if the CANopen speed is correct	Reset CANopen speed (Pr.09-37)
Malfunction caused by interference	<ol style="list-style-type: none"> <li>1. Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.</li> <li>2. Make sure the communication circuit is wired in series.</li> <li>3. Use CANopen cable or add terminating resistance.</li> </ol>
Communication cable is broken or bad connected	Check or replace the communication cable.

ID No.	Display on LCD Keypad	Warning Name	Description
40		CANopen index error (CIdn)	CANopen index error
Action and Reset			
Action level	CANopen communication Index error		
Action time	Immediately act when the fault is detected		
Warning setting parameter	N/A		
Reset method	Manual Reset		
Reset condition	The upper unit sends a reset package to clear this warning		
Record	When Pr.00-21#3, CIdn is a "Warning", and the warning is not recorded.		
Cause	Corrective Actions		
Incorrect setting of CANopen index	Reset CANopen index (Pr.00-02=7)		

ID No.	Display on LCD Keypad	Warning Name	Description
41		CANopen station address error (CAdn)	CANopen station address error (only supports 1-127)
Action and Reset			
Action level	CANopen station address error		
Action time	Immediately act when the fault is detected		
Warning setting parameter	N/A		
Reset method	Manual Reset		
Reset condition	Pr.00-02=7		
Record	When Pr.00-21#3, CAdn is a "Warning", and the warning is not recorded.		
Cause	Corrective Actions		
Incorrect setting of CANopen station address	<ol style="list-style-type: none"> <li>1. Disable CANopen (Pr.09-36=0)</li> <li>2. Reset CANopen (Pr.00-02=7)</li> <li>3. Reset CANopen station address (Pr.09-36)</li> </ol>		

ID No.	Display on LCD Keypad	Warning Name	Description
42	CFrn	CANopen memory error (CFrn)	CANopen memory error
<b>Action and Reset</b>			
Action level	When you update the firmware version of the control board, the FRAM internal data does not change, then CFrn warning occurs.		
Action time	Immediately act when the fault is detected		
Warning setting parameter	N/A		
Reset method	Manual Reset		
Reset condition	Pr.00-02=7		
Record	When Pr.00-21≠3, CFrn is a "Warning", and the warning is not recorded.		
Cause	<b>Corrective Actions</b>		
CANopen internal memory error	<ol style="list-style-type: none"> <li>1. Disable CANopen (Pr.09-36=0)</li> <li>2. Reset CANopen (Pr.00-20=7)</li> <li>3. Reset CANopen station address (Pr.09-36)</li> </ol>		

ID No.	Display on LCD Keypad	Warning Name	Description
43	CSdn	CANopen SDO time-out (CSdn)	SDO transmission time-out (only shows on master station)
<b>Action and Reset</b>			
Action level	When the CANopen master transmits a SDO command, and the slave response "times-out", CSdn warning occurs.		
Action time	Immediately act when the fault is detected		
Warning setting parameter	N/A		
Reset method	When the master resends a SDO command and receives the response, the warning automatically clears.		
Reset condition	N/A		
Record	N/A		
Cause	<b>Corrective Actions</b>		
Slave is not connected	Connect the slave and CANopen BUS.		
The synchronous cycle is set too short	Increase the synchronous time (Index 1006)		
Malfunction caused by interference	<ol style="list-style-type: none"> <li>1. Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.</li> <li>2. Make sure the communication circuit is wired in series.</li> <li>3. Use CANopen cable or add terminating resistance.</li> </ol>		
Disconnection or bad connection of the communication cable	Check the status of the cable, or replace the cable.		

ID No.	Display on LCD Keypad	Warning Name	Description
44	CSbn	CANopen SDO receives register overflow (CSbn)	CANopen SDO receives register overflow
Action and Reset			
Action level		The upper unit sends too much SDO at one time and causes buffer overflow	
Action time		Immediately act when the fault is detected	
Warning setting parameter		N/A	
Reset method		The upper unit sends a reset package to clear the warning.	
Reset condition		N/A	
Record		N/A	
Cause		Corrective Actions	
Too much SDO from the upper unit at one time		Check if the master sends too much SDO command. Make sure the master sends the SDO command according to the command format.	

ID No.	Display on LCD Keypad	Warning Name	Description
45	Cbtn	CANopen start-up error warning (Cbtn)	CANopen start-up error warning
Action and Reset			
Action level		When the amount of sent error messages reach 255	
Action time		N/A	
Warning setting parameter		Index 6007	
Reset method		Disable CANopen, and cycle the power after power-off	
Reset condition		N/A	
Record		N/A	
Cause		Corrective Actions	
Serious interference on hardware		Verify if the grounding, terminating resistance and bus line are properly installed.	
Incorrect setting for communication speed		Verify the setting for communication speed.	
The communication card is not connected, or the card is loose		Make sure the communication card is connected to the drive.	

ID No.	Display on LCD Keypad	Warning Name	Description
46	CPtn	CANopen format error (CPtn)	CANopen protocol format error
Action and Reset			
Action level		The slave detects that communication data from the upper unit cannot be recognized, and then CPtn warning occurs.	
Action time		Immediately act when the fault is detected	
Warning setting parameter		N/A	
Reset method		The upper unit sends a reset packet to clear the warning	
Reset condition		N/A	
Record		N/A	
Cause		Corrective Actions	
The upper unit sends incorrect communication packet		Make sure the master sends the packet based on CANopen DS301 standard command format.	

ID No.	Display on LCD Keypad	Warning Name	Description
50	<b>PLod</b>	PLC opposite defect (PLod)	PLC download error warning
<b>Action and Reset</b>			
Action level	During PLC downloading, the program source code detects incorrect address (e.g. the address exceeds the range), then the PLod warning occurs.		
Action time	Immediately act when the fault is detected		
Warning setting parameter	N/A		
Reset method	Check if the program is correct and download the program again. If the fault does not exist, the warning automatically clears.		
Reset condition	N/A		
Record	N/A		
Cause	<b>Corrective Actions</b>		
Incorrect data number is found when downloading the PLC program		Use the correct data number.	

ID No.	Display on LCD Keypad	Warning Name	Description
51	<b>PLSv</b>	PLC save memory error (PLSv)	Data error during PLC operation
<b>Action and Reset</b>			
Action level	The program detects incorrect written address (e.g. the address exceeds the range) during PLC operation, then the PLSv warning occurs.		
Action time	Immediately act when the fault is detected		
Warning setting parameter	N/A		
Reset method	Check if the program is correct and download the program again. If the fault does not exist, the warning automatically clears.		
Reset condition	N/A		
Record	N/A		
Cause	<b>Corrective Actions</b>		
An incorrect written address is detected during PLC operation		Make sure the written address is correct and download the program again.	

ID No.	Display on LCD Keypad	Warning Name	Description
52	<b>PLdA</b>	Data defect (PLdA)	Data error during PLC operation
<b>Action and Reset</b>			
Action level	The program detects incorrect written address when translating the program source code (e.g. the address exceeds the range) during PLC downloading, then PLdA warning occurs.		
Action time	Immediately act when the fault is detected		
Warning setting parameter	N/A		
Reset method	Check if the program is correct and download the program again. If the fault does not exist, the warning automatically clears.		
Reset condition	N/A		
Record	N/A		
Cause	<b>Corrective Actions</b>		
During PLC operation, the external Modbus has written/read incorrect data to internal PLC program		Check if the upper unit transmits the correct command	

ID No.	Display on LCD Keypad	Warning Name	Description
53	PLFn	Function defect (PLFn)	PLC download function code error
<b>Action and Reset</b>			
Action level	The program detects incorrect command (unsupported command) during PLC downloading, then PLFn warning occurs.		
Action time	Immediately act when the fault is detected		
Warning setting parameter	N/A		
Reset method	Check if the program is correct and download the program again. If the fault does not exist, the warning automatically clears.		
Reset condition	N/A		
Record	N/A		
Cause	<b>Corrective Actions</b>		
Unsupported command has used while downloading the program	Check if the firmware of the drive is the old version. If yes, please contact Delta.		

ID No.	Display on LCD Keypad	Warning Name	Description
54	PLor	PLC buffer overflow (PLor)	PLC register overflow
<b>Action and Reset</b>			
Action level	When PLC runs the last command and the command exceeds the maximum capacity of the program, then PLor warning occurs.		
Action time	Immediately act when the fault is detected		
Warning setting parameter	N/A		
Reset method	Check if the program is correct and download the program again. If the fault does not exist, the warning automatically clears.		
Reset condition	N/A		
Record	N/A		
Cause	<b>Corrective Actions</b>		
The program detects internal source code error during PLC operation	<ol style="list-style-type: none"> <li>1. Disable PLC</li> <li>2. Reset the PLC program (Pr.00-02=6)</li> <li>3. Enable PLC</li> <li>4. Re-download the PLC program</li> </ol>		

ID No.	Display on LCD Keypad	Warning Name	Description
55	PLFF	Function defect (PLFF)	Function code error during PLC operation
<b>Action and Reset</b>			
Action level	The program detects incorrect command (unsupported command) during PLC operation, then PLFF warning occurs.		
Action time	Immediately act when the fault is detected		
Warning setting parameter	NA		
Reset method	Check if the program is correct and download the program again. If the fault does not exist, the warning automatically clears.		
Reset condition	N/A		
Record	N/A		

Cause	Corrective Actions
The PLC runs an incorrect command during operation	When starting the PLC function and there is no program in the PLC, the PLFF warning occurs. This is a normal warning, please download the program.

ID No.	Display on LCD Keypad	Warning Name	Description
56	PLSn	Checksum error (PLSn)	PLC checksum error
<b>Action and Reset</b>			
Action level	PLC checksum error is detected after the drive is powered on, then PLSn warning occurs.		
Action time	Immediately act when the fault is detected		
Warning setting parameter	NA		
Reset method	Check if the program is correct and download the program again. If the fault does not exist, the warning automatically clears.		
Reset condition	N/A		
Record	N/A		
<b>Cause</b>		<b>Corrective Actions</b>	
The program detects checksum error during PLC operation		<ol style="list-style-type: none"> <li>1. Disable PLC</li> <li>2. Reset the PLC program (Pr.00-02=6)</li> <li>3. Enable PLC</li> <li>4. Re-download the PLC program</li> </ol>	

ID No.	Display on LCD Keypad	Warning Name	Description
57	PLEd	No end command (PLEd)	PLC end command is missing
<b>Action and Reset</b>			
Action level	The "End" command is missing until the last command is executed, the PLEd warning occurs.		
Action time	Immediately act when the fault is detected		
Warning setting parameter	NA		
Reset method	Check if the program is correct and download the program again. If the fault does not exist, the warning automatically clears.		
Reset condition	N/A		
Record	N/A		
<b>Cause</b>		<b>Corrective Actions</b>	
There is no "END" command during PLC operation		<ol style="list-style-type: none"> <li>1. Disable PLC</li> <li>2. Reset the PLC program (Pr.00-02=6)</li> <li>3. Enable PLC</li> <li>4. Re-download the PLC program</li> </ol>	

ID No.	Display on LCD Keypad	Warning Name	Description
58	PLCr	PLC MCR error (PLCr)	PLC MCR command error
Action and Reset			
Action level	The MC command is detected during PLC operation, but there is no corresponding MCR command, then the PLCr warning occurs.		
Action time	Immediately act when the fault is detected		
Warning setting parameter	NA		
Reset method	Check if the program is correct and download the program again. If the fault does not exist, the warning automatically clears.		
Reset condition	N/A		
Record	N/A		
Cause	Corrective Actions		
The MC command is continuously used for more than 9 times	The MC command cannot be used continuously for 9 times. Check and reset the program, then re-download the program.		

ID No.	Display on LCD Keypad	Warning Name	Description
59	PLdF	PLC download fail (PLdF)	PLC download failure
Action and Reset			
Action level	PLC download failure due to momentary power loss during the downloading. After the power is ON again, the PLdF warning occurs.		
Action time	Immediately act when the fault is detected		
Warning setting parameter	NA		
Reset method	Check if the program is correct and download the program again. If the fault does not exist, the warning automatically clears.		
Reset condition	N/A		
Record	N/A		
Cause	Corrective Actions		
PLC download is forced to stop, so the written program is incomplete	Check if there is any error in the program and re-download the PLC program.		

ID No.	Display on LCD Keypad	Warning Name	Description
60	PLSF	PLC scan time fail (PLSF)	PLC scan time exceeds the maximum allowable time
Action and Reset			
Action level	When the PLC scan time exceeds the maximum allowable time (400 ms), the PLSF warning occurs.		
Action time	Immediately act when the fault is detected		
Warning setting parameter	NA		
Reset method	Check if the program is correct and download the program again. If the fault does not exist, the warning automatically clears.		
Reset condition	N/A		
Record	N/A		
Cause	Corrective Actions		
The PLC scan time exceeds the maximum allowable time (400 ms)	Check if the source code is correct and re-download the program.		

ID No.	Display on LCD Keypad	Warning Name	Description
70	ECLd	ExCom ID fail (ECId)	Duplicate MAC ID error Node address setting error
Action and Reset			
Action level	Duplicate setting of MAC ID Node address setting error		
Action time	N/A		
Warning setting parameter	N/A		
Reset method	Correct the setting and cycle the power		
Reset condition	N/A		
Record	N/A		
Cause	Corrective Actions		
The setting address exceeds the range (0-63)	Check the address setting of the communication card (Pr.09-70)		
The speed setting exceeds the range	Standard: 0-2; non-standard: 0-7		
The address is duplicated with other nodes on the BUS	Reset the address		

ID No.	Display on LCD Keypad	Warning Name	Description
71	ECLV	ExCom power loss (ECLv)	Low voltage of the communication card
Action and Reset			
Action level	The 5V power that the drive provides to the communication card is too low		
Action time	Immediately act		
Warning setting parameter	N/A		
Reset method	Cycle the power		
Reset condition	N/A		
Record	N/A		
Cause	Corrective Actions		
The 5V power that the drive provides to the communication card is too low	<ol style="list-style-type: none"> <li>1. Use the same communication card for other MS300 drives to check if the ECLv warning still occurs. If yes, replace with a new communication card; if not, replace the drive.</li> <li>2. Use another communication card to test if the ECLv warning still occurs on the same drive. If not, replace the card; if yes, replace the drive.</li> </ol>		
The card is loose	Make sure the communication card is well inserted.		

ID No.	Display on LCD Keypad	Warning Name	Description
72	ECLt	ExCom test mode (ECTt)	The communication card is in the test mode
Action and Reset			
Action level	The communication card is in the test mode		
Action time	Immediately act		
Warning setting parameter	N/A		
Reset method	Cycle the power and enter the normal mode		
Reset condition	N/A		
Record	N/A		

Cause	Corrective Actions
Communication command error	Cycle the power

ID No.	Display on LCD Keypad	Warning Name	Description
73	ECbF	ExCom Bus off (ECbF)	The communication card detects too many errors in the BUS, then enters the BUS-OFF status and stop communicating.
Action and Reset			
Action level		When the drive detects BUS-off (for DeviceNet)	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Cycle the power	
Reset condition		N/A	
Record		N/A	
Cause		Corrective Actions	
Poor connection of the cable		Re-connect the cable	
Bad quality of the cable		Replace the cable	

ID No.	Display on LCD Keypad	Warning Name	Description
74	ECnP	ExCom no power (ECnP)	There is no power supply of the DeviceNet
Action and Reset			
Action level		When there is no power supply of the DeviceNet	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Cycle the power	
Reset condition		N/A	
Record		N/A	
Cause		Corrective Actions	
The drive detects that DeviceNet has no power		Check if the cable and power is normal. If yes, return to the factory for repair.	

ID No.	Display on LCD Keypad	Warning Name	Description
75	ECFF	ExCom factory defect (ECFF)	Factory default setting error
Action and Reset			
Action level		Factory default setting error	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Cycle the power	
Reset condition		N/A	
Record		N/A	
Cause		Corrective Actions	
Factory default setting error		Use DCISoft to reset to the default value.	

ID No.	Display on LCD Keypad	Warning Name	Description
76	ECIF	ExCom inner error (ECiF)	Serious internal error
<b>Action and Reset</b>			
Action level		Internal memory saving error	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Cycle the power	
Reset condition		N/A	
Record		N/A	
Cause		<b>Corrective Actions</b>	
Noise interference		Verify the wiring of the control circuit, and the wiring/grounding of the main circuit to prevent interference. Cycle the power.	
The memory is broken		Reset to the default value and check if the error still exists. If yes, replace the communication card.	

ID No.	Display on LCD Keypad	Warning Name	Description
78	ECPP	ExCom Parameter data error (ECPP)	Profibus parameter data error
<b>Action and Reset</b>			
Action level		N/A	
Action time		N/A	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		N/A	
Cause		<b>Corrective Actions</b>	
Incorrect GSD file		Get the correct GSD file from the software	

ID No.	Display on LCD Keypad	Warning Name	Description
79	ECPI	ExCom configuration data error (ECPI)	Profibus configuration data error
<b>Action and Reset</b>			
Action level		N/A	
Action time		N/A	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		N/A	
Cause		<b>Corrective Actions</b>	
Incorrect GSD file		Get the correct GSD file from the software	

ID No.	Display on LCD Keypad	Warning Name	Description
80	ECEF	Ethernet link fail (ECEF)	The Ethernet cable is not connected
Action and Reset			
Action level		Hardware detection	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		N/A	
Record		N/A	
Cause		Corrective Actions	
The Ethernet cable is loose		Re-connect the cable	
Bad quality of the Ethernet cable		Replace the cable	

ID No.	Display on LCD Keypad	Warning Name	Description
81	ECto	Communication time-out (ECto)	Communication time-out for the communication card and the upper unit
Action and Reset			
Action level		N/A	
Action time		N/A	
Warning setting parameter		N/A	
Reset method		N/A	
Reset condition		CMC-EC01: auto-resets when the communication with the upper unit is back to normal	
Record		N/A	
Cause		Corrective Actions	
Communication card is not connected with the upper unit		Check if the connection of the communication cable is correct	
Communication error of the upper unit		Check if the communication of the upper unit is normal	

ID No.	Display on LCD Keypad	Warning Name	Description
82	ECCS	Checksum error (ECCS)	Checksum error for the communication card and the drive
Action and Reset			
Action level		Software detection	
Action time		N/A	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		N/A	
Cause		Corrective Actions	
Noise interference		Verify the wiring of the control circuit, and the wiring/grounding of the main circuit to prevent interference.	

ID No.	Display on LCD Keypad	Warning Name	Description
83	ECrF	Return defect (ECrF)	Communication card returns to the default setting
Action and Reset			
Action level		Communication card returns to the default setting	
Action time		N/A	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		N/A	
Cause		Corrective Actions	
Communication card is returning to default setting		No actions required.	

ID No.	Display on LCD Keypad	Warning Name	Description
84	ECo0	Modbus TCP over (ECo0)	Modbus TCP exceeds the maximum communication value
Action and Reset			
Action level		Hardware detection	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		N/A	
Cause		Corrective Actions	
The Master communication value exceeds the allowable number of the communication cards		Decrease the Master communication value	
Connection occupied due to not disconnecting the Modbus TPC while the upper unit is connected without communicating.		Revise the program of the upper unit to disconnect the connection while the communication is not used for a long time.	
A new Modbus TCP connection is built whenever the upper unit is connected to the communication card, which causes connection occupied.		Revise the program of the upper unit to use the same Modbus TCP connection when connecting to the same communication card.	

ID No.	Display on LCD Keypad	Warning Name	Description
85	ECo1	EtherNet/IP over (ECo1)	Ethernet/IP exceeds the maximum communication value
Action and Reset			
Action level		Hardware detection	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		N/A	

Cause	Corrective Actions
The Master communication value exceeds the allowable number of the communication cards	Decrease the Master communication value
Connection occupied due to not disconnecting the Modbus TPC while the upper unit is connected without communicating.	Revise the program of the upper unit to disconnect the connection while the communication is not used for a long time.
A new Modbus TCP connection is built whenever the upper unit is connected to the communication card, which causes connection occupied.	Revise the program of the upper unit to use the same Modbus TCP connection when connecting to the same communication card.

ID No.	Display on LCD Keypad	Warning Name	Description
86	ECIP	IP fail (ECiP)	IP setting error
<b>Action and Reset</b>			
Action level		Software detection	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		N/A	
Cause		Corrective Actions	
IP conflict		Reset IP	
DHCP IP configuration error		Contact MIS to check if DHCP Server works normally	

ID No.	Display on LCD Keypad	Warning Name	Description
87	EC3F	Mail fail (EC3F)	Mail warning: Alarm mail is sent when the condition that the alarm set for the communication card was met.
<b>Action and Reset</b>			
Action level		When the condition that the alarm set for the communication card was met	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		N/A	
Cause		Corrective Actions	
Communication card establishes alarm conditions		No actions required	

ID No.	Display on LCD Keypad	Warning Name	Description
88	ECbY	ExCom busy (ECbY)	Communication card busy: too many packets are received
Action and Reset			
Action level		Software detection	
Action time		N/A	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		N/A	
Record		N/A	
Cause		Corrective Actions	
Too many communication packets for the communication card to process		Decrease communication packets	

ID No.	Display on LCD Keypad	Warning Name	Description
89	ECCb	ExCom card break (ECCb)	Communication card break off warning
Action and Reset			
Action level		Communication card break off	
Action time		N/A	
Warning setting parameter		N/A	
Reset method		Auto-resets after the communication card is re-installed	
Reset condition		Immediately reset	
Record		N/A	
Cause		Corrective Actions	
Communication card is loose		Re-install the communication card	

ID No.	Display on LCD Keypad	Warning Name	Description
90	CPLP	Copy PLC: password error (CPLP)	Copy PLC password error. When KPMS-LE01 is processing PLC copy and the PLC password is incorrect, the CPLP warning occurs.
Action and Reset			
Action level		PLC password is incorrect	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Directly reset	
Record		N/A	
Cause		Corrective Actions	
PLC password is incorrect		Reset and enter the correct PLC password	

ID No.	Display on LCD Keypad	Warning Name	Description
91	<b>CPL0</b>	Copy PLC: Read mode error (CPL0)	Copy PLC read mode error
<b>Action and Reset</b>			
Action level		Incorrect process when copying the PLC read mode	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Directly reset	
Record		N/A	
Cause		<b>Corrective Actions</b>	
Using incorrect process to copy the PLC read mode		Cycle the power and copy the PLC read mode again	

ID No.	Display on LCD Keypad	Warning Name	Description
92	<b>CPL1</b>	Copy PLC: Write mode error (CPL1)	Copy PLC write mode error
<b>Action and Reset</b>			
Action level		Incorrect process when copying the PLC write mode	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Directly reset	
Record		N/A	
Cause		<b>Corrective Actions</b>	
Using incorrect process to copy the PLC write mode		Cycle the power and copy the PLC write mode again	

ID No.	Display on LCD Keypad	Warning Name	Description
93	<b>CPLv</b>	Copy PLC: version error (CPLv)	Copy PLC version error. When a non-MS300 built-in PLC is copied to the MS300 drive, the CPLv warning occurs.
<b>Action and Reset</b>			
Action level		Software detection	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Directly reset	
Record		N/A	
Cause		<b>Corrective Actions</b>	
A non-MS300 PLC program is copied to MS300		Check if the copied PLC program is for MS300. Use the correct MS300 PLC program.	

ID No.	Display on LCD Keypad	Warning Name	Description
94	CPLS	Copy PLC: size error (CPLS)	Copy PLC capacity error
<b>Action and Reset</b>			
Action level		Software detection	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Directly reset	
Record		N/A	
Cause		<b>Corrective Actions</b>	
The PLC program copied to MS300 exceeds the allowable capacity		Check if the copied PLC program is for MS300 Use the correct capacity for the MS300 PLC program	

ID No.	Display on LCD Keypad	Warning Name	Description
95	CPLF	Copy PLC: PLC function (CPLF)	KPMS-LE01 Copy PLC function must be executed when PLC is disabled.
<b>Action and Reset</b>			
Action level		Software detection	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Directly reset	
Record		N/A	
Cause		<b>Corrective Actions</b>	
PLC function is enabled when KPMS-LE01 is running PLC copy		Disable the PLC function first, and then run the PLC copy function again.	

ID No.	Display on LCD Keypad	Warning Name	Description
96	CPLT	Copy PLC: time-out (CPLT)	Copy PLC time-out
<b>Action and Reset</b>			
Action level		Software detection	
Action time		Immediately act	
Warning setting parameter		N/A	
Reset method		Manual reset	
Reset condition		Directly reset	
Record		N/A	
Cause		<b>Corrective Actions</b>	
KPMS-LE01 is removed while copying the PLC program		The KPMS-LE01 cannot be removed during the PLC copy process	

ID No.	Display on LCD Keypad	Warning Name	Description
101		InrCOM time-out (ictn)	Internal communication time-out
Action and Reset			
Action level	When Pr.09-31= (-1) – (-10) (no -9) and the internal communication between Master and Slave is abnormal, the ictn warning occurs.		
Action time	Immediately act		
Warning setting parameter	N/A		
Reset method	Auto-reset		
Reset condition	The warning automatically clears when the communication is back to normal condition		
Record	N/A		
Cause	Corrective Actions		
Malfunction caused by interference	Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.		
Different communication setting from the upper unit	Check if the setting for Pr.09-02 is the same as the setting for the upper unit		
Disconnection or bad connection of the cable	Check the cable and replace it if necessary.		

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# Chapter 14 Fault Codes

## Digital Keypad KPMS-LE01



\* : Refer to setting of Pr.06-17–Pr.06-22 and Pr.14-70–14-73.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
1	ocA	Over-current during acceleration (ocA)	Output current exceeds three times of the rated current during acceleration. When ocA occurs, the drive closes the gate of the output immediately, the motor runs freely, and the display shows an ocA error.
<b>Action and Reset</b>			
	Action level	300% of the rated current	
	Action time	Immediately act	
	Fault treatment parameter	N/A	
	Reset method	Manual reset	
	Reset condition	Reset in five seconds after the fault is cleared	
	Record	Yes	
	Cause	<b>Corrective Actions</b>	
	Acceleration time is too short	1. Increase the acceleration time 2. Increase the acceleration time of S-curve 3. Set auto-acceleration and auto-deceleration parameter (Pr.01-44) 4. Set over-current stall prevention function (Pr.06-03) 5. Replace the drive with a larger capacity model.	
	Short circuit at motor output due to poor insulation wiring	Check the motor cable and remove causes of the short circuits, or replace the cable before turning on the power.	
	Check for possible burnout or aging insulation of the motor	Check the motor insulation value with megger. Replace the motor if the insulation is poor.	
	The load is too large.	Check if the output current during the whole working process exceeds the AC motor drive's rated current. If yes, replace the AC motor drive with a larger capacity model.	
	Impulsive change of the load	Reduce the load or increase the capacity of AC motor drive.	
	Use special motor or motor with larger capacity than the drive	Check the motor capacity (the rated current on the motor's nameplate should ≤ the rated current of the drive)	
	Use ON/OFF controller of an electromagnetic contactor at the output (U/V/W) of the drive	Check the action timing of the contactor and make sure it is not turned ON/OFF when the drive outputs the voltage.	

Cause	Corrective Actions
V/F curve setting error	Adjust the V/F curve setting and frequency/voltage. When the fault occurs, and the frequency voltage is too high, reduce the voltage.
Torque compensation is too large	Adjust the torque compensation (refer to Pr.07-26 torque compensation gain) until the output current reduces and the motor does not stall.
Malfunction caused by interference	Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.
The motor starts when in free run	Enable the speed tracking during start-up of Pr.07-12.
Improper parameter settings for the speed tracking function (including restart after momentary power loss and restart after fault)	Correct the parameter settings for speed tracking. 1. Start the speed tracking function. 2. Adjust the maximum current for Pr.07-09 speed tracking.
Incorrect combination of control mode and used motor	Check the settings for Pr.00-11 control mode: 1. For IM, Pr.00-11=0, 1, 2, 3, 5 2. For PM, Pr.00-11=4, 6, or 7
The length of motor cable is too long	Increase the AC motor drive's capacity. Install AC reactor(s) on the output side (U/V/W).
Hardware failure	The ocA occurs due to the short circuit or ground fault at the output side of the drive. Check for possible short circuits between terminals with the electric meter: B1 corresponds to U, V and W; DC- corresponds to U, V and W; ☺ corresponds to U, V and W. If short circuit occurs, return to the factory for repair.
Check if the setting for stall prevention is correct	Set the stall prevention to the proper value.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
2	ocd	Over-current during deceleration (ocd)	Output current exceeds three times of the rated current during deceleration. When ocd occurs, the drive closes the gate of the output immediately, the motor runs freely, and the display shows an ocd error.
Action and Reset			
Action level		300% of the rated current	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Reset in five seconds after the fault is cleared	
Record		Yes	
Cause	Corrective Actions		
Deceleration time too short	<ol style="list-style-type: none"> <li>Increase the deceleration time</li> <li>Increase the deceleration time of S-curve</li> <li>Set auto-acceleration and auto-deceleration parameter (Pr.01-44)</li> <li>Set over-current stall prevention function (Pr.06-03)</li> <li>Replace the drive with a larger capacity model</li> </ol>		
Check if the mechanical brake of the motor activates too early	Check the action timing of the mechanical brake		
Short-circuit at motor output due to poor insulation wiring	Check the motor cable and remove causes of the short circuits, or replace the cable before turning on the power.		

Check for possible burnout or aging insulation of the motor	Check the motor insulation value with megger. Replace the motor if the insulation is poor.
The load is too large	Check if the output current during the whole working process exceeds the AC motor drive's rated current. If yes, replace the AC motor drive with a larger capacity model.
Impulsive change of the load	Reduce the load or increase the capacity of AC motor drive.
Use special motor or motor with larger capacity than the drive	Check the motor capacity (the rated current on the motor's nameplate should $\leq$ the rated current of the drive)
Use ON/OFF controller of an electromagnetic contactor at the output (U/V/W) of the drive	Check the action timing of the contactor and make sure it is not turned ON/OFF when the drive outputs the voltage.
V/F curve setting error	Adjust the V/F curve settings and frequency/voltage. When the fault occurs, and the frequency voltage is too high, reduce the voltage.
Torque compensation is too large	Adjust the torque compensation (refer to Pr.07-26 torque compensation gain) until the output current reduces and the motor does not stall.
Malfunction caused by interference	Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.
The length of motor cable is too long	Increase the AC motor drive's capacity Install AC reactor(s) on the output side (U/V/W)
Hardware error	The ocd occurs due to the short circuit or ground fault at the output side of the drive. Check for possible short circuits between terminals with the electric meter: B1 corresponds to U, V and W; DC- corresponds to U, V and W; $\oplus$ corresponds to U, V and W. If short circuits occurs, return to the factory for repair.
Check if the setting of stall prevention is correct	Set the stall prevention to the proper value.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
3	o c n	Over-current during steady operation (ocn)	Output current exceeds three times of the rated current during constant speed. When ocn occurs, the drive closes the gate of the output immediately, the motor runs freely, and the display shows an ocn error.
Action and Reset			
Action level		300% of the rated current	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Reset in five seconds after the fault is cleared	
Record		Yes	
Cause		Corrective Actions	
Short-circuit at motor output due to poor insulation wiring		Check the motor cable and remove causes of the short circuits, or replace the cable before turning on the power.	
Check for possible shaft lock, burnout or aging insulation of the motor		Troubleshoot the motor shaft lock. Check the motor insulation value with megger. Replace the motor if the insulation is poor.	
Impulsive change of the load		Reduce the load or increase the capacity of AC motor drive.	

Use special motor or motor with larger capacity than the drive	Check motor capacity (the rated current on the motor's nameplate should $\leq$ the rated current of the drive)
Use ON/OFF controller of an electromagnetic contactor at the output (U/V/W) of the drive	Check the action timing of the contactor and make sure it is not turned ON/OFF when the drive outputs the voltage.
V/F curve setting error	Adjust the V/F curve settings and frequency/voltage. When the fault occurs, and the frequency voltage is too high, reduce the voltage.
Torque compensation is too large.	Adjust the torque compensation (refer to Pr.07-26 torque compensation gain) until the output current reduces and the motor does not stall.
Malfunction caused by interference	Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.
The length of motor cable is too long	Increase the AC motor drive's capacity. Install AC reactor(s) on the output side (U/V/W).
Hardware failure	The ocn occurs due to the short circuit or ground fault at the output side of the drive. Check for possible short circuit between terminals with the electric meter: B1 corresponds to U, V and W; DC- corresponds to U, V, and W; $\oplus$ corresponds to U, V, and W. If short circuits occurs, return to the factory for repair.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
4	GFF	Ground fault (GFF)	When the drive detects grounding short circuit on the output terminals (U/V/W), the drive closes the gate of the output immediately, the motor runs freely, and the display shows a GFF error.
<b>Action and Reset</b>			
Action level		N/A	
Action time		N/A	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Reset in five seconds after the fault is cleared	
Record		Yes	
Cause		<b>Corrective Actions</b>	
Motor burnout or aging insulation occurred		Check the motor insulation value with megger. Replace the motor if the insulation is poor.	
Short circuit due to broken cable		Troubleshoot the short circuit. Replace the cable.	
Larger stray capacitance of the cable and terminal $\oplus$		If the motor cable length exceeds 100 m, decrease the setting value for the carrier frequency. Take remedies to reduce stray capacitance.	
Malfunction caused by interference		Verify the grounding and wiring of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.	
Hardware failure		Cycle the power after checking the status of motor, cable and cable length. If GFF still exists, return to the factory for repair.	
Over-current at constant speed		Refer to the corrective actions for ocn.	
Over-current during acceleration		Refer to the corrective actions for oca.	
Over-current during deceleration		Refer to the corrective actions for ocd.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
6	ocS	Over-current at stop (ocS)	Over-current or hardware failure in current detection at stop. Cycle the power after ocS occurs. If the hardware failure occurs, the display shows cd1, cd2 or cd3.
Action and Reset			
	Action level	300% of the rated current	
	Action time	Immediately act	
	Fault treatment parameter	N/A	
	Reset method	Manual reset	
	Reset condition	Reset in five seconds after the fault is cleared	
	Record	Yes	
	Cause	Corrective Actions	
	Malfunction caused by interference	Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.	
	Hardware failure	Check if other error codes such as cd1–cd3 occur after cycling the power. If yes, return to the factory for repair.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
7	ovA	Over-voltage during acceleration (ovA)	DC bus over-voltage during acceleration. When ovA occurs, the drive closes the gate of the output, the motor runs freely, and the display shows an ovA error.
Action and Reset			
	Action level	230V series: 410 V <sub>DC</sub> 460V series: 820 V <sub>DC</sub> 575V series: 1116 V <sub>DC</sub>	
	Action time	Immediately act when the DC bus voltage is higher than the level	
	Fault treatment parameter	N/A	
	Reset method	Manual reset	
	Reset condition	Reset only when the DC bus voltage is lower than 90% of the over-voltage level	
	Record	Yes	
	Cause	Corrective Actions	
	Acceleration is too slow (e.g. when lifting load decreases acceleration time)	Decrease the acceleration time Use a braking unit or DC bus Replace the drive with a larger capacity model.	
	The setting for stall prevention level is smaller than no-load current	The setting for the stall prevention level should be larger than no-load current	
	Power voltage is too high	Check if the input voltage is within the rated AC motor drive input voltage range, and check for possible voltage spikes.	
	ON/OFF switch action of phase-in capacitor in the same power system	If the phase-in capacitor or active power supply unit acts in the same power system, the input voltage may surge abnormally in a short time. In this case, install an AC reactor.	
	Regenerative voltage of motor inertia	Use over-voltage stall prevention function (Pr.06-01) Use auto-acceleration and auto-deceleration setting (Pr.01-44) Use a braking unit or DC bus	

Acceleration time is too short	Check if the over-voltage warning occurs after acceleration stops. When the warning occurs, do the following: 1. Increase the acceleration time 2. Set Pr.06-01 over-voltage stall prevention 3. Increase the setting value for Pr.01-25 S-curve acceleration arrival time 2
Motor ground fault	The ground short circuit current charges the capacitor in the main circuit through the power. Check if there is ground fault on the motor cable, wiring box and its internal terminals. Troubleshoot the ground fault.
Incorrect wiring of brake resistor or brake unit	Check the wiring of the brake resistor and braking unit.
Malfunction caused by interference	Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
8	o <sup>~</sup> vd	Over-voltage during deceleration (ovd)	DC bus over-voltage during deceleration. When ovd occurs, the drive closes the gate of the output immediately, the motor runs freely, and the display shows an ovd error.
<b>Action and Reset</b>			
Action level	230V series: 410 V <sub>DC</sub> 460V series: 820 V <sub>DC</sub> 575V series: 1116 V <sub>DC</sub>		
Action time	Immediately act when the DC bus voltage is higher than the level		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	Reset only when the DC bus voltage is lower than 90% of the over-voltage level		
Record	Yes		
Cause	<b>Corrective Actions</b>		
Deceleration time is too short, causing too large regenerative energy of the load	<ol style="list-style-type: none"> <li>Increase the setting value of Pr.01-13, Pr.01-15, Pr.01-17 and Pr.01-19 (deceleration time)</li> <li>Connect the brake resistor, braking unit or DC bus on the drive.</li> <li>Reduce the brake frequency.</li> <li>Replace the drive with a larger capacity model.</li> <li>Use S-curve acceleration/deceleration.</li> <li>Use over-voltage stall prevention (Pr.06-01).</li> <li>Use auto-acceleration and auto-deceleration (Pr.01-44).</li> <li>Adjust the braking level (Pr.07-01 or the bolt position of the brake unit).</li> </ol>		
The setting for stall prevention level is smaller than no-load current	The setting for the stall prevention level should be larger than no-load current		
Power voltage is too high	Check if the input voltage is within the rated AC motor drive input voltage range, and check for possible voltage spikes.		
ON/OFF switch action of phase-in capacitor in the same power system	If the phase-in capacitor or active power supply unit acts in the same power system, the input voltage may surge abnormally in a short time. In this case, install an AC reactor.		

Motor ground fault	The ground short circuit current charges the capacitor in the main circuit through the power. Check if there is ground fault on the motor cable, wiring box and its internal terminals. Troubleshoot the ground fault.
Incorrect wiring of brake resistor or brake unit	Check the wiring of the brake resistor or braking unit.
Malfunction caused by interference	Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
9		Over-voltage during constant speed (ovn)	DC bus over-voltage at constant speed. When ovn occurs, the drive closes the gate of the output immediately, the motor runs freely, and the display shows an ovn error.
<b>Action and Reset</b>			
Action level	230V series: 410 V <sub>DC</sub> 460V series: 820 V <sub>DC</sub> 575V series: 1116 V <sub>DC</sub>		
Action time	Immediately act when the DC bus voltage is higher than the level		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	Reset only when the DC bus voltage is lower than 90% of the over-voltage level		
Record	Yes		
Cause	<b>Corrective Actions</b>		
Impulsive change of the load	<ol style="list-style-type: none"> <li>1. Connect the brake resistor, braking unit or DC bus to the drive.</li> <li>2. Reduce the load.</li> <li>3. Replace the drive with a larger capacity model.</li> <li>4. Adjust the braking level (Pr.07-01 or bolt position of the brake unit).</li> </ol>		
The setting for stall prevention level is smaller than no-load current	The setting of the stall prevention level should be larger than no-load current		
Regenerative voltage of motor inertia	Use over-voltage stall prevention function (Pr.06-01) Use a braking unit or DC bus		
Power voltage is too high	Check if the input voltage is within the rated AC motor drive input voltage range, and check for possible voltage spikes.		
ON/OFF switch action of phase-in capacitor in the same power system	If the phase-in capacitor or active power supply unit acts in the same power system, the input voltage may surge abnormally in a short time. In this case, install an AC reactor.		
Motor ground fault	The ground short circuit current charges the capacitor in the main circuit through the power. Check if there is ground fault on the motor cable, wiring box and its internal terminals. Troubleshoot the ground fault.		
Incorrect wiring of brake resistor or brake unit	Check the wiring of the brake resistor or braking unit.		
Malfunction caused by interference	Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
10	OV5	Over-voltage at stop (ovS)	Over-voltage at stop
Action and Reset			
Action level	230V series: 410 V <sub>DC</sub> 460V series: 820 V <sub>DC</sub> 575V series: 1116 V <sub>DC</sub>		
Action time	Immediately act when the DC bus voltage is higher than the level		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	Reset only when the DC bus voltage is lower than 90% of the over-voltage level		
Record	Yes		
Cause	Corrective Actions		
Power voltage is too high	Check if the input voltage is within the rated AC motor drive input voltage range, and check for possible voltage spikes.		
ON/OFF switch action of phase-in capacitor in the same power system	If the phase-in capacitor or active power supply unit activates in the same power system, the input voltage may surge abnormally in a short time. In this case, install an AC reactor.		
Incorrect wiring of brake resistor or brake unit	Check the wiring of the brake resistor or braking unit.		
Malfunction caused by interference	Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.		
Hardware failure in voltage detection	Check if other error codes such as cd1–cd3 occur after cycling the power. If yes, return to the factory for repair.		
Motor ground fault	The ground short circuit current charges the capacitor in the main circuit through the power. Check if there is ground fault on the motor cable, wiring box and its internal terminals. Troubleshoot the ground fault.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
11	LVA	Low-voltage during acceleration (LvA)	DC bus voltage is lower than Pr.06-00 setting value during acceleration
Action and Reset			
Action level	Pr.06-00 (Default = depending on the model)		
Action time	Immediately act when the DC bus voltage is lower than Pr.06-00		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	Reset when the DC bus voltage is higher than Pr.06-00 + 30 V		
Record	Yes		
Cause	Corrective Actions		
Power-off	Improve power supply condition.		
Power voltage changes	Adjust voltage to the power range of the drive		
Start up the motor with large capacity	Check the power system. Increase the capacity of power equipment.		
The load is too large	Reduce the load. Increase the drive capacity. Increase the acceleration time.		

DC bus	Install DC reactor(s).
Check if there is short circuit plate or any DC reactor installed between terminal +1 and +2	Connect short circuit plate or DC reactor between terminal +1 and +2. If the error still exists, return to the factory for repair.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
12		Low-voltage during deceleration (Lvd)	DC bus voltage is lower than Pr.06-00 setting value during deceleration
Action and Reset			
Action level		Pr.06-00 (Default = depending on the model)	
Action time		Immediately act when the DC bus voltage is lower than Pr.06-00	
Fault treatment parameter		NA	
Reset method		Manual reset	
Reset condition		Reset when the DC bus voltage is higher than Pr.06-00 + 30 V	
Record		Yes	
Cause		Corrective Actions	
Power-off		Improve power supply condition.	
Power voltage changes		Adjust voltage to the power range of the drive.	
Start up the motor with large capacity		Check the power system. Increase the capacity of power equipment.	
Sudden load		Reduce the load. Increase the drive capacity.	
DC bus		Install DC reactor(s).	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
13		Low-voltage at constant speed (Lvn)	DC bus voltage is lower than Pr.06-00 setting value at constant speed
Action and Reset			
Action level		Pr.06-00 (Default = depending on the model)	
Action time		Immediately act when the DC bus voltage is lower than Pr.06-00	
Fault treatment parameter		NA	
Reset method		Manual reset	
Reset condition		Reset when the DC bus voltage is higher than Pr.06-00 + 30 V	
Record		Yes	
Cause		Corrective Actions	
Power-off		Improve power supply condition.	
Power voltage changes		Adjust voltage to the power range of the drive	
Start up the motor with large capacity		Check the power system. Increase the capacity of power equipment.	
Sudden load		Reduce the load. Increase the drive capacity.	
DC bus		Install DC reactor(s).	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
14	LvS	Low-voltage at stop (LvS)	<ol style="list-style-type: none"> <li>DC bus voltage is lower than Pr.06-00 setting value at stop</li> <li>Hardware failure in voltage detection</li> </ol>
Action and Reset			
Action level	Pr.06-00 (Default = depending on the model)		
Action time	Immediately act when the DC bus voltage is lower than Pr.06-00		
Fault treatment parameter	N/A		
Reset method	Manual / Auto: 230V series: Lv level + 30 V <sub>DC</sub> + 500 ms 460V series: Lv level + 60 V <sub>DC</sub> + 500 ms 575V series: Lv level + 75 V <sub>DC</sub> + 500 ms		
Reset condition	500 ms		
Record	Yes		
Cause	Corrective Actions		
Power-off	Improve power supply condition.		
Incorrect drive models	Check if the power specification matches the drive.		
Power voltage changes	Adjust voltage to the power range of the drive. Cycle the power after checking the power. If LvS error still exists, return to the factory for repair.		
Start up the motor with large capacity	Check the power system. Increase the capacity of power equipment.		
DC bus	Install DC reactor(s).		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
15	orP	Phase loss protection (orP)	Phase loss of power input
Action and Reset			
Action level	When DC bus ripple is higher than the protection level, and the output current exceeds 50% of the rated current, the drive starts counting. When the counting value reaches the upper limit, an orP error occurs.		
Action time	The action time varies with different output current.		
Fault treatment parameter	Pr.06-53		
Reset method	Manual reset		
Reset condition	Immediately reset when DC bus is higher than Pr.07-00		
Record	Yes		
Cause	Corrective Actions		
Phase loss of input power	Correctly install the wiring of the main circuit power.		
Single phase power input to three-phase model	Choose the model whose power matches the voltage.		
Power voltage changes	If the main circuit power works normally, verify the main circuit. Cycle the power after checking the power, if orP error still exists, return to the factory for repair.		
Loose wiring terminal of input power	Tighten the terminal screws according to the torque described in the user manual.		
The input cable of three-phase power is cut off	Wire correctly. Replace the cut off cable.		
Input power voltage changes too much	Verify the setting value for Pr.06-50 Time for Input Phase Loss Detection and Pr.06-52 Ripple of Input Phase Loss		

Unbalanced three-phase of input power	Check the power three-phase status.
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ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
16	<b>oH1</b>	IGBT overheating (oH1)	IGBT temperature exceeds the protection level.
<b>Action and Reset</b>			
Action level	Depending on the model power, refer to Table 1 below. When the setting for Pr.06-15 is higher than the oH1 level, oH1 error occurs instead of oH1 warning. An IGBT overheating error occurs, and the drive stops.		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	Reset only when IGBT temperature is lower than oH1 error level minus (-) 10°C		
Record	Yes		
Cause	<b>Corrective Actions</b>		
Check if the ambient temperature or temperature inside the control cabinet is too high, or if there is obstruction in the ventilation hole of the control cabinet.	<ol style="list-style-type: none"> <li>1. Check ambient temperature.</li> <li>2. Regularly inspect the ventilation hole of the control cabinet.</li> <li>3. Change the installed place if there are heating objects, such as brake resistors, in the surroundings.</li> <li>4. Install/ add cooling fan or air conditioner to lower the temperature inside the cabinet.</li> </ol>		
Check if there is any obstruction on the heat sink or if the fan is running.	Remove the obstruction or replace the cooling fan.		
Insufficient ventilation space	Increase ventilation space of the drive.		
Check if the drive matches the corresponding load	<ol style="list-style-type: none"> <li>1. Reduce the load</li> <li>2. Reduce the carrier wave</li> <li>3. Replace the drive with a larger capacity model.</li> </ol>		
The drive has run 100% or more than 100% of the rated output for a long time	Replace the drive with a larger capacity model.		

Table 1

Voltage	Model (Note: x = A or E)	OH1 (°C)	Default for Pr.06-15 (°C)
Single-phase_115V	VFD1A6MS11x100A□	95	90
	VFD2A5MS11x100A□	95	90
	VFD4A8MS11x00A□	100	95
Single-phase_230V	VFD1A6MS21x00A□	110	105
	VFD2A8MS21x00A□	100	95
	VFD4A8MS21x00A□	110	105
	VFD7A5MS21x00A□	105	100
	VFD11AMS21x00A□	115	110
Three-phase_230V	VFD1A6MS23x100A□	100	95
	VFD2A8MS23x100A□	100	95
	VFD4A8MS23x00A□	105	100

Voltage	Model (Note: x = A or E)	OH1 (°C)	Default for Pr.06-15 (°C)
Three-phase_230V	VFD7A5MS23x111A□	105	100
	VFD11AMS23x111A□	95	90
	VFD17AMS23x111A□	105	100
	VFD25AMS23x111A□	115	110
	VFD33AMS23x□□A□	115	110
	VFD49AMS23x□□A□	115	110
	VFD65AMS23x111A□	115	110
Three-phase_460V	VFD1A5MS43x□□A□	105	100
	VFD2A7MS43x□□A□	115	110
	VFD4A2MS43x□□A□	105	100
	VFD5A5MS43x111A□	95	90
	VFD7A3MS43x111A□	100	95
	VFD9A0MS43x□□A□	115	110
	VFD13AMS43x□□A□	105	100
	VFD17AMS43x□□A□	115	110
	VFD25AMS43x□□A□	115	110
	VFD32AMS43x□□A□	115	110
	VFD38AMS43x□□A□	110	105
	VFD45AMS43x□□A□	115	110

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
18	tH1o	IGBT temperature detection failure (tH1o)	IGBT hardware failure in temperature detection
Action and Reset			
Action level		NTC broken or wiring failure	
Action time		When the IGBT temperature is higher than the protection level, and detection time exceeds 100 ms, the tH1o protection activates.	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		Yes	
Cause		Corrective Actions	
Hardware failure		Wait for 10 minutes, and then cycle the power. Check if tH1o protection still exists. If yes, return to the factory for repair.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
21	oL	Over load (oL)	The AC motor drive detects excessive drive output current. Overload capacity: <ul style="list-style-type: none"> <li>Normal duty: Sustains for one minute when the drive outputs 120% of the drive's rated output current. Sustains for three seconds when the drive outputs 150% of the drive's rated output current.</li> <li>Heavy duty: Sustains for one minute when the drive outputs 150% of the drive's rated output current. Sustains for three seconds when the drive outputs 200% of the drive's rated output current.</li> </ul>
<b>Action and Reset</b>			
Action level	Based on overload curve and derating curve (refer to Section 9-7).		
Action time	When the load is higher than the protection level and exceeds allowable time, the oL protection activates.		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	Reset in five seconds after the fault is cleared		
Record	Yes		
<b>Cause</b>	<b>Corrective Actions</b>		
The load is too large	Reduce the load		
Accel./Decel. time or the working cycle are too short	Increase the setting value for Pr.01-12-01-19 (accel./decel. time)		
V/F voltage is too high	Adjust the settings for Pr.01-01-01-08 (V/F curve), especially the setting value for the mid-point voltage (if the mid-point voltage is set too low, the load capacity decreases at low speed). Refer to the V/F curve selection of Pr.01-43.		
The capacity of the drive is too small	Replace the drive with a larger capacity model.		
Overload during low-speed operation	Reduce the load during low-speed operation. Increase the drive capacity. Decrease the carrier frequency of Pr.00-17.		
Torque compensation is too large	Adjust the torque compensation (refer to Pr.07-26 Torque Compensation Gain) until the output current reduces and the motor does not stall.		
Check if the setting for stall prevention is correct.	Set the stall prevention to the proper value.		
Output phase loss	Check the status of three-phase motor. Check if the cable is broken or the screws are loose.		
Improper parameter settings for the speed tracking function (including restart after momentary power loss and restart after fault)	Correct the parameter settings for speed tracking. <ol style="list-style-type: none"> <li>Start the speed tracking function.</li> <li>Adjust the maximum current for Pr.07-09 speed tracking.</li> </ol>		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
22	EoL1	Electronics thermal relay 1 protection (EoL1)	Electronics thermal relay 1 protection. The drive coasts to stop once it activates.
<b>Action and Reset</b>			
Action level	Start counting when the output current > 150% of the motor 1 rated current		
Action time	Pr.06-14 (If the output current is larger than 105% of the motor 1 rated current again within 60 sec., the counting time reduces and is less than Pr.06-14)		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	Reset in five seconds after the fault is cleared		
Record	Yes		
<b>Cause</b>	<b>Corrective Actions</b>		
The load is too large	Reduce the load.		
Accel./Decel. time or the working cycle is too short	Increase the setting values for Pr.01-12-01-19 (accel./decel. time)		
V/F voltage is too high	Adjust the settings for Pr.01-01-01-08 (V/F curve), especially the setting value for the mid-point voltage (if the mid-point voltage is set too low, the load capacity decreases at low speed). Refer to the V/F curve selection of Pr.01-43.		
Overload during low-speed operation. When using a general motor, even it operates below rated current, an overload may still occur during low-speed operation.	Decrease low-speed operation time. Replace the drive with a dedicated to VFD model. Increase the motor capacity.		
When using VFD dedicated motors, Pr.06-13=0 (electronic thermal relay selection motor 1 = inverter motor)	Pr.06-13=1 electronic thermal relay selection motor 1 = standard motor (motor with fan on the shaft).		
Incorrect value of electronic thermal relay	Reset to the correct motor rated current.		
The maximum motor frequency is set too low	Reset to the correct motor rated frequency.		
One drive to multiple motors	Set Pr.06-13=2 electronic thermal relay selection motor 1= disable, and install thermal relay on each motor.		
Check if the setting for stall prevention is correct.	Set the stall prevention to the proper value.		
Torque compensation is too large	Adjust the torque compensation (refer to Pr.07-26 torque compensation gain) until the current reduces and the motor does no stall.		
Motor fan error	Check the status of the fan, or replace the fan.		
Unbalanced three-phase impedance of the motor	Replace the motor.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
23	EoL2	Electronic thermal relay 2 protection (EoL2)	Electronic thermal relay 2 protection. The drive coasts to stop once it activates.
Action and Reset			
Action level	Start counting when the output current > 150% of the motor 2 rated current		
Action time	Pr.06-28 (If the output current is larger than 105% of the motor 2 rated current again within 60 sec., the counting time reduces and is less than Pr.06-28)		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	Reset in five seconds after the fault is cleared		
Record	Yes		
Cause	Corrective Actions		
The load is too large	Reduce the load		
Accel./Decel. time or the working cycle are too short	Increase the setting values for Pr.01-12-01-19 (accel./decel. time)		
V/F voltage is too high	Adjust the settings for Pr.01-35-01-42 (V/F curve), especially the setting value for the mid-point voltage (if the mid-point voltage is set too low, the load capacity decreases at low speed). Refer to the V/F curve selection setting of Pr.01-43.		
Overload during low-speed operation. When using general motor, even it operates below rated current, an overload may still occur during low-speed operation.	Decrease low-speed operation time. Replace the drive with a dedicated to VFD model. Increase the motor capacity.		
When using VFD dedicated motors, Pr.06-27=0 (electronic thermal relay selection motor 2 = 0 inverter motor)	Pr.06-27=1 Electronic thermal relay selection motor 2 = standard motor (motor with fan on the shaft).		
Incorrect value of electronic thermal relay	Reset to the correct motor rated current.		
The maximum motor frequency is set too low	Reset to the correct motor rated frequency.		
One drive to multiple motors	Set Pr.06-27=2 Electronic thermal relay selection motor 2 = disable, and install thermal relay on each motor.		
Check if the setting for stall prevention is correct.	Set the stall prevention to the proper value.		
Torque compensation is too large	Adjust the torque compensation (refer to Pr.07-71 torque compensation gain) until the current reduces and the motor does no stall.		
Motor fan error	Check the status of the fan, or replace the fan.		
Unbalanced three-phase impedance of the motor	Replace the motor.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
24_1	oH3	Motor overheating (oH3) PTC	Motor overheating (PTC) (Pr.03-00–Pr.03-01=6 PTC), when PTC input > Pr.06-30, the fault treatment acts according to Pr.06-29.
<b>Action and Reset</b>			
Action level	PTC input value > Pr.06-30 setting (Default = 50%)		
Action time	Immediately act		
Fault treatment parameter	Pr.06-29 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning		
Reset method	When Pr.06-29=0, oH3 is a "Warning". The "Warning" is automatically cleared. When Pr.06-29=1 or 2, oH3 is a "Fault". You must reset manually.		
Reset condition	Immediately reset		
Record	When Pr.06-29=1 or 2, oH3 is a "Fault", and the fault is recorded.		
Cause	<b>Corrective Actions</b>		
Motor shaft lock	Remove the shaft lock.		
The load is too large	Reduce the load. Increase the motor capacity.		
Ambient temperature is too high	Change the installed place if there are heating devices in the surroundings. Install/ add cooling fan or air conditioner to lower the ambient temperature.		
Motor cooling system error	Check the cooling system to make it work normally.		
Motor fan error	Replace the fan.		
Operate at low-speed too long.	Decrease low-speed operation time. Replace the motor with a dedicated to VFD model. Increase the motor capacity.		
Accel./Deccl. time and working cycle are too short	Increase the setting values for Pr.01-12–01-19 (accel./decel. time)		
V/F voltage is too high	Adjust settings for Pr.01-01–01-08 (V/F curve), especially the setting value for the mid-point voltage (if the mid-point voltage is set too low, the load capacity decreases at low speed).		
Check if the motor rated current matches that on the motor nameplate.	Reset to the correct motor rated current.		
Check if the PTC is properly set and wired.	Check the connection between PTC thermistor and the heat protection.		
Check if the setting for stall prevention is correct.	Set the stall prevention to the proper value.		
Unbalanced three-phase impedance of the motor	Replace the motor.		
Harmonics are too high.	Use remedies to reduce harmonics.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
24_2	oH3	Motor overheating (oH3) PT100	Motor overheating (PT100) (Pr.03-00–Pr.03-01=11 PT100). When PT100 input > Pr.06-57 (default = 7 V), the fault treatment acts according to Pr.06-29.
Action and Reset			
Action level		PT100 input value > Pr.06-57 setting (default = 7 V)	
Action time		Immediately act	
Fault treatment parameter		Pr.06-29 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning	
Reset method		When Pr.06-29=0 and the temperature < Pr.06-56, oH3 is automatically cleared. When Pr.06-29=1 or 2, oH3 is a "Fault". You must reset manually.	
Reset condition		Immediately reset	
Record		When Pr.06-29=1 or 2, oH3 is a "Fault", and the fault is recorded.	
Cause		Corrective Actions	
Motor shaft lock		Remove the shaft lock.	
The load is too large		Reduce the load. Increase the motor capacity.	
Ambient temperature is too high		Change the installed place if there are heating devices in the surroundings. Install/ add cooling fan or air conditioner to lower the ambient temperature.	
Motor cooling system error		Check the cooling system to make it work normally.	
Motor fan error		Replace the fan.	
Operate at low-speed too long		Decrease low-speed operation time. Replace the motor with a dedicated to VFD model. Increase the motor capacity.	
Accel./Decel. time and working cycle are too short		Increase the setting values for Pr.01-12–Pr.01-19 (accel./decel. time)	
V/F voltage is too high		Adjust settings for Pr.01-01–01-08 (V/F curve), especially the setting value for the mid-point voltage (if the mid-point voltage is set too low, the load capacity decreases at low speed).	
Check if the motor rated current matches that on the motor nameplate.		Reset to the correct motor rated current.	
Check if the PT100 is properly set and wired.		Check connection of PT100 thermistor.	
Check if the setting for stall prevention is correct.		Set the stall prevention to the proper value.	
Unbalanced three-phase impedance of the motor		Replace the motor.	
Harmonics are too high		Use remedies to reduce harmonics.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
26	ot 1	Over torque 1 (ot1)	When the output current exceeds the over-torque detection level (Pr.06-07) and exceeds over-torque detection time (Pr.06-08), and when Pr.06-06 or Pr.06-09 is set to 2 or 4, the ot1 error displays.
<b>Action and Reset</b>			
Action level	Pr.06-07		
Action time	Pr.06-08		
Fault treatment parameter	Pr.06-06 0: No function 1: Continue operation after over-torque detection during constant speed operation 2: Stop after over-torque detection during constant speed operation 3: Continue operation after over-torque detection during RUN 4: Stop after over-torque detection during RUN		
Reset method Reset condition	Auto	When Pr.06-06=1 or 3, ot1 is a "Warning". The warning is automatically cleared when the output current < (Pr.06-07 – 5%)	
	Manual	When Pr.06-06=2 or 4, ot1 is a "Fault". You must reset manually.	
Record	Immediately reset		
Active level	When Pr.06-06=2 or 4, ot1 is a "Fault", and the fault is recorded.		
Cause	<b>Corrective Actions</b>		
Incorrect parameter setting	Configure the settings for Pr.06-07 and Pr.06-08 again.		
Mechanical failure (e.g. over-torque, mechanical lock)	Remove the causes of malfunction.		
The load is too large	Reduce the load. Replace the motor with a larger capacity model.		
Accel./Decel. time and working cycle are too short	Increase the setting values for Pr.01-12–Pr.01-19 (accel./decel. time)		
V/F voltage is too high	Adjust the V/F curve (Motor 1, Pr.01-01–01-08), especially the setting value for the mid-point voltage (if the mid-point voltage is set too low, the load capacity decreases at low speed).		
The motor capacity is too small	Replace the motor with a larger capacity model.		
Overload during low-speed operation	Decrease low-speed operation time. Increase the motor capacity.		
Torque compensation is too large	Adjust the torque compensation (refer to Pr.07-26 torque compensation gain) until the current reduces and the motor does no stall.		
Improper parameter settings for speed tracking function (including restart after momentary power loss and restart after fault)	Correct the parameter settings for speed tracking. 1. Start the speed tracking function. 2. Adjust the maximum current for Pr.07-09 speed tracking.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
27	ot2	Over torque 2 (ot2)	When the output current exceeds the over-torque detection level (Pr.06-10) and exceeds over-torque detection time (Pr.06-11), and when Pr.06-09 is set to 2 or 4, the ot2 error displays.
Action and Reset			
Action level		Pr.06-10	
Action time		Pr.06-11	
Fault treatment parameter		Pr.06-09 0: No function 1: Continue operation after over-torque detection during constant speed operation 2: Stop after over-torque detection during constant speed operation 3: Continue operation after over-torque detection during RUN 4: Stop after over-torque detection during RUN	
Reset method Reset condition		Auto	When Pr.06-09=1 or 3, ot2 is a "Warning". The warning is automatically cleared when the output current < (Pr.06-10 – 5%).
		Manual	When Pr.06-09=2 or 4, ot2 is a "Fault". You must reset manually.
Record		Immediately reset	
Active level		When Pr.06-09=2 or 4, ot2 is a "Fault", and the fault is recorded.	
Cause		Corrective Actions	
Incorrect parameter setting		Configure the settings for Pr.06-10 and Pr.06-11 again.	
Mechanical failure (e.g. over-torque, mechanical lock)		Remove the causes of malfunction.	
The load is too large.		Reduce the load. Replace the motor with a larger capacity model.	
Accel./Decel. time and working cycle are too short		Increase the setting values for Pr.01-12–01-19 (accel./decel. time).	
V/F voltage is too high		Adjust the V/F curve (Motor 2, Pr.01-35–01-42), especially the setting value for the mid-point voltage (if the mid-point voltage is set too low, the load capacity decreases at low speed).	
The motor capacity is too small		Replace the motor with a larger capacity model.	
Overload during low-speed operation		Decrease low-speed operation time. Increase the motor capacity.	
Torque compensation is too large		Adjust the torque compensation (refer to Pr.07-71 torque compensation gain) until the current reduces and the motor does not stall.	
Improper parameter settings for speed tracking function (including restart at momentary power loss and restart after fault)		Correct the parameter settings for speed tracking. 1. Start the speed tracking function. 2. Adjust the maximum current for Pr.07-09 speed tracking.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
28	uC	Under current (uC)	Low current detection
Action and Reset			
Action level	Pr.06-71		
Action time	Pr.06-72		
Fault treatment parameter	Pr.06-73 0: No function 1: Fault and coast to stop 2: Fault and ramp to stop by the 2 <sup>nd</sup> deceleration time 3: Warn and continue operation		
Reset method Reset condition	Auto	When Pr.06-73=3, uC is a "Warning". The warning is automatically cleared when the output current > (Pr.06-71+0.1A).	
	Manual	When Pr.06-73=1 or 2, uC is a "Fault". You must reset manually.	
Record	Immediately reset		
Active level	When Pr.06-71=1 or 2, uC is a "Fault", and the fault is recorded.		
Cause	Corrective Actions		
Motor cable disconnection	Troubleshoot the connection between the motor and the load.		
Improper setting of low-current protection	Reset Pr.06-71, Pr.06-72 and Pr.06-73 to proper settings.		
The load is too low	Check the load status. Check if the motor capacity matches the load.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
31	cF2	EEPROM read error (cF2)	Internal EEPROM cannot be read
Action and Reset			
Action level	Firmware internal detection		
Action time	cF2 acts immediately when the drive detects the fault		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	Immediately reset		
Record	Yes		
Cause	Corrective Actions		
Internal EEPROM cannot be read	Press "RESET" key or reset the parameter to the default setting, if cF2 still exists, return to the factory for repair. Cycle the power, if cF2 error still exists, return to the factory for repair.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
33	<b>cd1</b>	U-phase error (cd1)	U-phase current detection error when power is ON
Action and Reset			
Action level		Hardware detection	
Action time		cd1 acts immediately when the drive detects the fault	
Fault treatment parameter		N/A	
Reset method		Power-off	
Reset condition		N/A	
Record		Yes	
Cause		Corrective Actions	
Hardware failure		Cycle the power. If cd1 still exists, return to the factory for repair.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
34	<b>cd2</b>	V-phase error (cd2)	V-phase current detection error when power ON
Action and Reset			
Action level		Hardware detection	
Action time		cd2 acts immediately when the drive detects the fault	
Fault treatment parameter		N/A	
Reset method		Power-off	
Reset condition		N/A	
Record		Yes	
Cause		Corrective Actions	
Hardware failure		Cycle the power. If cd2 still exists, return to the factory for repair.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
35	<b>cd3</b>	W-phase error (cd3)	W-phase current detection error when power ON
Action and Reset			
Action level		Hardware detection	
Action time		cd3 acts immediately when the drive detects the fault	
Fault treatment parameter		N/A	
Reset method		Power-off	
Reset condition		N/A	
Record		Yes	
Cause		Corrective Actions	
Hardware failure		Cycle the power. If cd3 still exists, return to the factory for repair.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
36	Hd0	cc hardware error (Hd0)	cc (current clamp) hardware protection error when power is ON
Action and Reset			
Action level		Hardware detection	
Action time		Hd0 acts immediately when the drive detects the fault	
Fault treatment parameter		N/A	
Reset method		Power-off	
Reset condition		N/A	
Record		Yes	
Cause		Corrective Actions	
Hardware failure		Cycle the power. If Hd0 still exists, return to the factory for repair.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
37	Hd1	oc hardware error (Hd1)	oc hardware protection error when power is ON
Action and Reset			
Action level		Hardware detection	
Action time		Hd1 acts immediately when the drive detects the fault	
Fault treatment parameter		N/A	
Reset method		Power-off	
Reset condition		N/A	
Record		Yes	
Cause		Corrective Actions	
Hardware failure		Cycle the power. If Hd1 still exists, return to the factory for repair.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
40	AUE	Auto-tuning error (AUE)	Motor auto-tuning error
Action and Reset			
Action level		Hardware detection	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		Yes	
Cause		Corrective Actions	
Press "STOP" key during auto-tuning		Re-execute auto-tuning.	
Incorrect motor capacity (too large or too small) and parameter setting		Check motor capacity and related parameters. Set the correct parameters, that is Pr.01-01–Pr.01-02. Set Pr.01-00 larger than the motor rated frequency.	
Incorrect motor wiring		Check the wiring.	
Motor shaft lock		Remove the cause of motor shaft lock.	

The electromagnetic contactor is ON at output side (U/V/W) of the drive	Make sure the electromagnetic valve is OFF.
The load is too large.	Reduce the load. Replace the motor with a larger capacity model.
Accel./Decel. time is too short	Increase the setting values for Pr.01-12–Pr.01-19 (accel./decel. time).

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
41	<b>AFE</b>	PID loss ACI (AFE)	PID feedback loss (analog feedback signal is only valid when the PID function is enabled)
<b>Action and Reset</b>			
Action level	When the analog input < 4 mA (only detects 4–20 mA analog input)		
Action time	Pr.08-08		
Fault treatment parameter	Pr.08-09 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: Warn and operate at last frequency		
Reset method	Auto	When Pr.08-09=3 or 4, AFE is a "Warning". When the feedback signal is > 4 mA, the "Warning" is automatically cleared.	
	Manual	When Pr.08-09=1 or 2, AFE is a "Fault". You must reset manually.	
Reset condition	Immediately reset		
Record	When Pr.08-09=1 or 2, AFE is a "Fault", and the fault is recorded; when Pr.08-09=3 or 4, AFE is a "Warning", and the warning is not recorded.		
Cause	<b>Corrective Actions</b>		
PID feedback cable is loose or cut off	Tighten the terminal. Replace the cable with a new one.		
Feedback device failure	Replace the device with a new one.		
Hardware failure	Check all the wiring. If AFE fault still exists, return to the factory for repair.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
43	<b>PGF2</b>	PG feedback loss (PGF2)	Pr.10-00 and Pr.10-02 is not set in the PG control mode. When press "RUN" key, PGF2 fault occurs.
<b>Action and Reset</b>			
Action level	Software detection		
Action time	Immediately act		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	Immediately reset		
Record	Yes		
Cause	<b>Corrective Actions</b>		
Incorrect setting of encoder parameter	Reset encoder parameters (Pr.10-00 and Pr.10-02)		
Incorrect selection of the control mode	Choose the correct control mode.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
44	PGF3	PG feedback stall (PGF3)	Under PG mode, when the motor frequency exceeds the encoder observer stall level (Pr.10-10) and starts to count, the fault time is longer than the detection time of encoder observer stall (Pr.10-11), then PGF3 fault occurs.
<b>Action and Reset</b>			
Action level	Pr.10-10		
Action time	Pr.10-11		
Fault treatment parameter	Pr.10-12 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop		
Reset method	Manual reset		
Reset condition	Immediately reset		
Record	Yes		
Cause	<b>Corrective Actions</b>		
Incorrect setting of encoder parameter	Reset encoder parameter (Pr.10-01)		
Pr. 01-00 is set too small	Set proper value for Pr.01-00.		
Incorrect setting for ASR parameters and accel./decel. time	Reset ASR parameters. Set correct accel./decel. time.		
Incorrect setting for PG feedback stall	Reset proper values for Pr.10-10 and Pr. 10-11		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
45	PGF4	PG slip error (PGF4)	Under PG mode, when the motor frequency exceeds encoder observer slip range (Pr.10-13) and starts to count, the fault time is longer than the detection time of encoder observer slip (Pr.10-14), PGF4 fault occurs.
<b>Action and Reset</b>			
Action level	Pr.10-13		
Action time	Pr.10-14		
Fault treatment parameter	Pr.10-15 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop		
Reset method	Auto	When Pr.10-15=0, PGF4 is a "Warning". When the deviation between the output frequency and motor frequency is smaller than the encoder observer slip range, the warning is automatically cleared.	
	Manual	When Pr.10-15=1 or 2, PGF4 is a "Fault". You must reset manually.	
Reset condition	Immediately reset		
Record	When Pr.10-15=1 or 2, PGF4 is a "Fault", and the fault is recorded.		
Cause	<b>Corrective Actions</b>		
Incorrect settings for PG feedback parameters	Reset correct values for Pr.10-13 and Pr.10-14.		
Incorrect settings for ASR parameters and accel./decel. time	Reset ASR parameters. Set correct accel./decel. time.		

Incorrect settings of encoder parameters	Reset encoder parameters (Pr.10-01).
Accel./Decel. time is too short	Reset proper accel./decel. time.
Incorrect settings of torque limit parameters (Pr.06-12,Pr.11-17–20)	Reset proper setting values for Pr.06-12 and Pr.11-17–Pr.11-20.
Motor shaft lock	Remove causes of motor shaft lock.
Mechanical brake is not released	Check the action timing of the system.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
48	ACE	ACI loss (ACE)	Analog input loss (including all the 4–20 mA analog signal)
Action and Reset			
Action level	When the analog input is < 4 mA (only detects 4–20 mA analog input)		
Action time	Immediately act		
Fault treatment parameter	Pr.03-19 0: Disable 1: Continue operation at the last frequency (warning, ANL is displayed on the keypad) 2: Decelerate to stop (warning, ANL is displayed on the keypad) 3: Stop immediately and display ACE		
Reset method	Auto	When Pr.03-19=1 or 2, ACE is a "Warning". When analog input signal is > 4 mA, the warning is automatically cleared.	
	Manual	When Pr.03-19=3, ACE is a "Fault". You must reset manually.	
Reset condition	Immediately reset		
Record	When Pr.03-19=3, ACE is a "Fault", and the fault is recorded.		
Cause	Corrective Actions		
ACI cable is loose or cut off	Tighten the terminal. Replace the cable with a new one.		
External device failure	Replace the device with a new one.		
Hardware failure	Check all the wiring. If ACE still exists, return to the factory for repair.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
49	EF	External fault (EF)	External fault. When the drive decelerates based on the setting of Pr.07-20, the EF fault displays on the keypad.
Action and Reset			
Action level	MIx=EF and the MI terminal is ON		
Action time	Immediately act		
Fault treatment parameter	Pr.07-20 0: Coast to stop 1: Stop by the 1 <sup>st</sup> deceleration time 2: Stop by the 2 <sup>nd</sup> deceleration time 3: Stop by the 3 <sup>rd</sup> deceleration time 4: Stop by the 4 <sup>th</sup> deceleration time 5: System deceleration 6: Automatic deceleration (Pr.01-46)		
Reset method	Manual reset		
Reset condition	Manual reset only after the external fault is cleared (terminal status is recovered)		
Record	Yes		

Cause	Corrective Actions
External fault	Press RESET key after the fault is cleared.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
50	EF1	Emergency stop (EF1)	When the contact of Mlx=EF1 is ON, the output stops immediately and displays EF1 on the keypad. The motor is in free running.
Action and Reset			
Action level		Mlx=EF1 and the MI terminal is ON	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Manual reset only after the external fault is cleared (terminal status is recovered)	
Record		Yes	
Cause		Corrective Actions	
When Mlx=EF1 activates		Verify if the system is back to normal condition, and then press "RESET" key to go back to the default.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
51	bb	External base block (bb)	When the contact of Mlx=bb is ON, the output stops immediately and displays bb on the keypad. The motor is in free running.
Action and Reset			
Action level		Mlx=bb and the MI terminal is ON	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		The display "bb" is automatically cleared after the fault is cleared.	
Reset condition		N/A	
Record		No	
Cause		Corrective Actions	
When Mlx=bb activates		Verify if the system is back to normal condition, and then press "RESET" key to go back to the default.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
52	Pcod	Password is locked (Pcod)	Entering the wrong password three consecutive times
Action and Reset			
Action level		Entering the wrong password three consecutive times	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Power-off	
Record		Yes	

Cause	Corrective Actions
Incorrect password input through Pr.00-07	<ol style="list-style-type: none"> <li>Input the correct password after rebooting the motor drive.</li> <li>If you forget the password, do the following steps: Step 1: Input 9999 and press ENTER. Step 2: Repeat step 1. Input 9999 and press ENTER. (You need to finish step 1 and step 2 within 10 seconds. If you don't finish the two steps in 10 seconds, try again.)</li> <li>The parameter settings return to the default when the "Input 9999" process is finished.</li> </ol>

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
54	CE1	Illegal command (CE1)	Communication command is illegal
<b>Action and Reset</b>			
Action level		When the function code is not 03, 06, 10, or 63.	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		No	
Cause		Corrective Actions	
Incorrect communication command from the upper unit		Check if the communication command is correct.	
Malfunction caused by interference		Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.	
Different communication setting from the upper unit		Check if the setting for Pr.09-02 is the same as the setting for the upper unit.	
Disconnection or bad connection of the cable		Check the cable and replace it if necessary.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
55	CE2	Illegal data address (CE2)	Data address is illegal
<b>Action and Reset</b>			
Action level		When the data address is correct.	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		No	
Cause		Corrective Actions	
Incorrect communication command from the upper unit		Check if the communication command is correct.	
Malfunction caused by interference		Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.	

Different communication setting from the upper unit	Check if the setting for Pr.09-02 is the same as the setting for the upper unit.
Disconnection or bad connection of the cable	Check the cable and replace it if necessary.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
56	CE3	Illegal data value (CE3)	Data value is illegal
<b>Action and Reset</b>			
Action level		When the data length is too long	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		No	
Cause		Corrective Actions	
Incorrect communication command from the upper unit		Check if the communication command is correct.	
Malfunction caused by interference		Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.	
Different communication setting from the upper unit		Check if the setting for Pr.09-02 is the same as the setting for the upper unit.	
Disconnection or bad connection of the cable		Check the cable and replace it if necessary.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
57	CE4	Data is written to read-only address (CE4)	Data is written to read-only address
<b>Action and Reset</b>			
Action level		When the data is written to read-only address.	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		No	
Cause		Corrective Actions	
Incorrect communication command from the upper unit		Check if the communication command is correct.	
Malfunction caused by interference		Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.	
Different communication setting from the upper unit		Check if the setting for Pr.09-02 is the same as the setting for the upper unit.	
Disconnection or bad connection of the cable		Check the cable and replace it if necessary.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
58	CE 10	Modbus transmission time-out (CE10)	Modbus transmission time-out occurs
Action and Reset			
Action level		When the communication time exceeds the detection time for Pr.09-03 communication time-out.	
Action time		Pr.09-03	
Fault treatment parameter		Pr.09-02 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning, no fault, and continue operation	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		Yes	
Cause		Corrective Actions	
The upper unit does not transmit the communication command within Pr.09-03 setting time.		Check if the upper unit transmits the communication command within the setting time for Pr.09-03.	
Malfunction caused by interference		Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.	
Different communication setting from the upper unit		Check if the setting for Pr.09-02 is the same as the setting for the upper unit.	
Disconnection or bad connection of the cable		Check the cable and replace it if necessary.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
61	ydc	Y-connection / $\Delta$ -connection switch error (ydc)	An error occurs when Y- $\Delta$ switches
Action and Reset			
Action level		1. ydc occurs when the confirmation signals of Y-connection and $\Delta$ -connection are conducted at the same time. 2. If any of confirmation signals is not conducted within Pr.05-25, ydc occurs.	
Action time		Pr.05-25	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Can be reset only when the confirmation signal of Y-connection is conducted if it is Y-connection, or when the confirmation signal of $\Delta$ -connection is conducted if it is $\Delta$ -connection.	
Record		Yes	
Cause		Corrective Actions	
The electromagnetic valve operates incorrectly during Y- $\Delta$ switch.		Check if the electromagnetic valve works normally. If not, replace it.	
Incorrect parameter setting		Check if related parameters are all set up and set correctly.	

The wiring of Y-Δ switch function is incorrect	Check the wiring.
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ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
62	dEb	Deceleration energy backup error (dEb)	When Pr.07-13 is not 0, and the power is suddenly off, causing the DC bus voltage lower than the dEb action level, the dEb function acts and the motor ramps to stop. Then dFb displays on the keypad.
<b>Action and Reset</b>			
Action level	When Pr.07-13 is not 0, and the DC bus voltage is lower than the level of dEb.		
Action time	Immediately act		
Fault treatment parameter	N/A		
Reset method	Auto	When Pr.07-13=2 (dEb with auto-acceleration / auto-deceleration, the drive outputs the frequency after the power is restored): dEb is automatically cleared.	
	Hand	When Pr.07-13=1 (dEb with auto-acceleration / auto-deceleration, the drive does not output the frequency after the power is restored): The drive stops when dEb acts and the rotation speed becomes 0 Hz, then the drive can be reset manually.	
Reset condition	Auto: The fault is automatically cleared. Hand: When the drive decelerates to 0 Hz.		
Record	Yes		
Cause	<b>Corrective Actions</b>		
Unstable power source or the power is off	Check the power system.		
There is any other large load operates in the power system	<ol style="list-style-type: none"> <li>1. Replace power system with a larger capacity.</li> <li>2. Use a different power system from the large load system.</li> </ol>		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
63	oSL	Over slip error (oSL)	On the basis of the maximum slip limit set via Pr.10-29, the speed deviation is abnormal. When the motor drive outputs at constant speed, F>H or F<H exceeds the level set via Pr.07-29, and it exceeds the time set via Pr.07-30, oSL shows. oSL occurs in induction motors only.
<b>Action and Reset</b>			
Action level	Pr.07-29 100% of Pr.07-29 = the maximum limit of the slip frequency (Pr.10-29)		
Action time	Pr.07-30		
Fault treatment parameter	Pr.07-31 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning		
Reset method	Auto	Pr.07-31=0 is a warning. When the motor drive outputs at constant speed, and F>H or F<H does not exceed the level set via Pr.07-29 anymore, oSL warning will be cleared automatically.	
	Hand	When Pr.07-31=1 or 2, oSL is an error, and it needs to reset manually.	

Reset condition	Immediately reset
Record	Pr.07-31=1 or 2, oSL is "Fault", and the fault is recorded.
Cause	Corrective Actions
Any of the motor parameters in parameter group 5 may be incorrect	Check the motor parameters
Overload	Decrease the load
Any of the setting value of Pr.07-29, 07-30, and 10-29 is improper	Check the setting of oSL protection function related parameters

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
72	STL1	STO Loss 1 (STL1)	STO1-SCM1 internal loop detection error
Action and Reset			
Action level	Hardware detection		
Action time	Immediately act		
Fault treatment parameter	N/A		
Reset method	Hardware failure, and cannot reset. Cycle the power.		
Reset condition	N/A		
Record	Yes		
Cause	Corrective Actions		
STO1 and SCM1 short circuit lines are not connected	Re-connect the short circuit line		
Hardware failure	After you make sure all the wiring is correct, if STL1 fault still exists after cycling the power, return to the factory for repair.		
Poor connection of the IO card	Check if the PIN of the IO card is broken. Check if the IO card connects to the control board correctly, and if the screws are tightened well.		
The IO card does not match the version of the control board	Contact local agent or Delta		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
76	STo	STO (STo)	Safety Torque Off function active
Action and Reset			
Action level	Hardware detection		
Action time	Immediately act		
Fault treatment parameter	N/A		
Reset method	Auto	When Pr.06-44=1 and after STo error is cleared, it automatically resets.	
	Manual	When Pr.06-44=0 and after STo error is cleared, reset it manually.	
Reset condition	Reset only after STo error is cleared.		
Record	Yes		
Cause	Corrective Actions		
The switch action of STO1/SCM1 and STO2/SCM2 (OPEN)	Reset the switch (ON) and cycle the power		

Poor connection of the IO card	Check if the PIN of the IO card is broken. Check if the IO card connects to the control board correctly, and if the screws are tightened well.
The IO card does not match the version of the control board	Contact local agent or Delta

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
77	STL2	STO Loss 2 (STL2)	STO2-SCM2 internal loop detection error
Action and Reset			
Action level		Hardware detection	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Hardware failure, and cannot reset. Cycle the power.	
Reset condition		N/A	
Record		Yes	
Cause		Corrective Actions	
STO2 and SCM2 short circuit lines are not connected		Re-connect the short circuit lines	
Hardware failure		After you make sure all the wiring is correct, if STL2 fault still exists after cycling the power, return to the factory for repair.	
Poor connection of the IO card		Check if the PIN of the IO card is broken. Check if the IO card connects to the control board correctly, and if the screws are tightened well.	
The IO card does not match the version of the control board		Contact local agent or Delta	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
78	STL3	STO Loss 3 (STL3)	STO1-SCM1 and STO2-SCM2 internal loop detection error
Action and Reset			
Action level		Hardware detection	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Hardware failure, and cannot reset. Cycle the power.	
Reset condition		N/A	
Record		Yes	
Cause		Corrective Actions	
STO1 and SCM1, or STO2 and SCM2 short circuit lines are not connected		Re-connect the short circuit lines	
Hardware failure		After you make sure all the wiring is correct, if STL3 fault still exists after cycling the power, return to the factory for repair.	
Poor connection of the IO card		Check if the PIN of the IO card is broken. Check if the IO card connects to the control board correctly, and if the screws are tightened well.	

The IO card does not match the version of the control board	Contact local agent or Delta
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ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
79	<b>Aoc</b>	U-phase over-current before run (Aoc)	U-phase short circuit detected when the output wiring detection is performed before the drive runs.
<b>Action and Reset</b>			
Action level		300% of the rated current	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Reset in five seconds after the fault clears	
Record		Yes	
Cause		<b>Corrective Actions</b>	
Incorrect wiring for the motor		Check if the motor's internal wiring and the UVW wiring of the drive output terminal are correct.	
Short-circuit at motor output due to poor insulation wiring		Check the motor cable and remove causes of the short circuits, or replace the cable before turning on the power.	
Check for possible burnout or aging insulation of the motor		Check the motor insulation value with megger. Replace the motor if the insulation is poor.	
Malfunction caused by interference		Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.	
The length of motor cable is too long		Increase the AC motor drive's capacity. Install AC reactor(s) on the output side (UVW).	
Hardware failure		The Aoc occurs due to the short circuit or ground fault at the output side of the drive. Check for possible short circuits between terminals with the electric meter: B1 corresponds to U, V and W; DC- corresponds to U, V and W; ⊕ corresponds to U, V and W. If short circuit occurs, return to the factory for repair.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
80	<b>boc</b>	V-phase over-current before run (boc)	V-phase short circuit detected when the output wiring detection is performed before the drive runs.
<b>Action and Reset</b>			
Action level		300% of the rated current	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Reset in five seconds after the fault clears	
Record		Yes	
Cause		<b>Corrective Actions</b>	
Incorrect wiring for the motor		Check if the motor's internal wiring and the UVW wiring of the drive output terminal are correct.	
Short-circuit at motor output due to poor insulation wiring		Check the motor cable and remove causes of the short circuits, or replace the cable before turning on the power.	

Check for possible burnout or aging insulation of the motor	Check the motor insulation value with megger. Replace the motor if the insulation is poor.
Malfunction caused by interference	Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.
The length of motor cable is too long	Increase the AC motor drive's capacity. Install AC reactor(s) on the output side (U/V/W).
Hardware failure	The coc occurs due to the short circuit or ground fault at the output side of the drive. Check for possible short circuits between terminals with the electric meter: B1 corresponds to U, V and W; DC- corresponds to U, V and W; ⊕ corresponds to U, V and W. If short circuit occurs, return to the factory for repair.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
81	<b>COC</b>	W-phase over-current before run (coc)	W-phase short circuit detected when the output wiring detection is performed before the drive runs.
<b>Action and Reset</b>			
	Action level	300% of the rated current	
	Action time	Immediately act	
	Fault treatment parameter	N/A	
	Reset method	Manual reset	
	Reset condition	Reset in five seconds after the fault clears	
	Record	Yes	
	<b>Cause</b>	<b>Corrective Actions</b>	
	Incorrect wiring for the motor	Check if the motor's internal wiring and the UVW wiring of the drive output terminal are correct.	
	Short-circuit at motor output due to poor insulation wiring	Check the motor cable and remove causes of the short circuits, or replace the cable before turning on the power.	
	Check for possible burnout or aging insulation of the motor	Check the motor insulation value with megger. Replace the motor if the insulation is poor.	
	Malfunction caused by interference	Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.	
	The length of motor cable is too long	Increase the AC motor drive's capacity. Install AC reactor(s) on the output side (U/V/W).	
	Hardware failure	The coc occurs due to the short circuit or ground fault at the output side of the drive. Check for possible short circuits between terminals with the electric meter: B1 corresponds to U, V and W; DC- corresponds to U, V and W; ⊕ corresponds to U, V and W. If short circuit occurs, return to the factory for repair.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
82	oPL1	Output phase loss U phase (oPL1)	U phase output phase loss
Action and Reset			
Action level		Pr.06-47	
Action time		Pr.06-46 Pr.06-48: Use the setting value of Pr.06-48 first. If DC braking function activates, use that of Pr.06-46.	
Fault treatment parameter		Pr.06-45 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		Pr.06-45=1 or 2 is "Fault", and the fault is recorded.	
Cause		Corrective Actions	
Unbalanced three-phase impedance of the motor		Replace the motor.	
The motor is wired incorrectly		Check the cable condition. Replace the cable.	
Using a single-phase motor		Choose a three-phase motor	
The current sensor is damaged		Check the flat cable of the control board. Re-do the wiring and test again if the flat cable is loose. If the fault still exists, return to the factory for repair. Verify that the three-phase current is balanced with a current clamp meter. If it is balanced and the oPL1 fault still exists, return to the factory for repair.	
The drive capacity is much larger than the motor capacity		Make sure the capacity of the drive and motor match to each other.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
83	oPL2	Output phase loss V phase (oPL2)	V phase output phase loss
Action and Reset			
Action level		Pr.06-47	
Action time		Pr.06-46 Pr.06-48: Use the setting value of Pr.06-48 first. If DC braking function activates, use that of Pr.06-46.	
Fault treatment parameter		Pr.06-45 0: Warn and keep operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		When Pr.06-45=1 or 2, oPL2 is a "Fault", and the fault is recorded.	

Cause	Corrective Actions
Unbalanced three-phase impedance of the motor	Replace the motor.
Check if the wiring is incorrect	Check the cable and replace it if necessary.
Check if the motor is a single-phase motor	Choose a three-phase motor.
Check if the current sensor is broken	Check if the control board cable is loose. If yes, reconnect the cable and run the drive to test. If the fault still exists, return to the factory for repair. Check if the three-phase current is balanced with a current clamp meter. If the current is balanced and the oPL2 fault still exists, return to the factory for repair.
Check if the drive capacity is larger than the motor capacity	Choose the drive that matches the motor capacity

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
84	oPL3	Output phase loss W phase (oPL3)	W phase output phase loss
<b>Action and Reset</b>			
Action level		Pr.06-47	
Action time		Pr.06-46 Pr.06-48: Use the setting value of Pr.06-48 first. If DC braking function activates, use that of Pr.06-46.	
Fault treatment parameter		Pr.06-45 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		When Pr.06-45=1 or 2, oPL3 is a "Fault", and the fault is recorded.	
Cause		Corrective Actions	
Unbalanced three-phase impedance of the motor		Replace the motor.	
Check if the wiring is incorrect		Check the cable and replace it if necessary.	
Check if the motor is a single-phase motor		Choose a three-phase motor.	
Check if the current sensor is broken		Check if the control board cable is loose. If yes, reconnect the cable and run the drive to test. If the fault still exists, return to the factory for repair. Check if the three-phase current is balanced with a current clamp meter. If the current is balanced and the oPL3 fault still exists, return to the factory for repair.	
Check if the drive capacity is larger than the motor capacity		Choose the drive that matches the motor capacity	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
87	oL3	Low frequency overload protection (oL3)	Low frequency and high current protection
Action and Reset			
Action level		Software detection	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		Yes	
Cause		Corrective Actions	
The drive operates at a frequency below 15 Hz, and output current is too large.		<ol style="list-style-type: none"> <li>1. Enhance the heat dissipation capacity for the cabinet.</li> <li>2. Lower the carrier frequency (Pr.00-17).</li> <li>3. Decrease the voltage settings that correspond to frequency below 15 Hz in the V/F curve.</li> <li>4. Change Pr.00-11 to general control mode.</li> <li>5. Replace the drive with a larger power model.</li> </ol>	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
89	roPd	Rotor position detection error (roPd)	Rotor position detection error protection
Action and Reset			
Action level		Reset the software	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		Yes	
Cause		Corrective Actions	
Check if the motor cable is abnormal or broken		Check or replace the cable.	
Motor coil error		Replace the motor.	
Hardware failure		IGBT broken. Return to the factory for repair.	
Drive's current feedback line error		Cycle the power. If roPd still occurs during operation, return to the factory for repair.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
101	<b>CGdE</b>	CANopen guarding error (CGdE)	CANopen guarding error
<b>Action and Reset</b>			
Action level	When CANopen Node Guarding detects that one of the slaves does not respond, the CgdE fault occurs. The upper unit sets the factor and time during configuration.		
Action time	The time that the upper unit sets during configuration		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	The upper unit sends a reset package to clear this fault.		
Record	Yes		
Cause	<b>Corrective Actions</b>		
The guarding time is too short, or less detection times	Increase the guarding time (Index 100C) and detection times		
Malfunction caused by interference	<ol style="list-style-type: none"> <li>1. Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.</li> <li>2. Make sure the communication circuit is wired in series.</li> <li>3. Use CANopen cable or add terminating resistance.</li> </ol>		
Communication cable is broken or bad connected	Check or replace the communication cable.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
102	<b>CHbE</b>	CANopen heartbeat error (CHbE)	CANopen heartbeat error
<b>Action and Reset</b>			
Action level	When CANopen Heartbeat detects that one of the slaves does not respond, the ChbE fault occurs. The upper unit sets the confirming time of producer and consumer during configuration.		
Action time	The confirming time that the upper unit sets for producer and consumer during configuration.		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	The upper unit sends a reset package to clear this fault		
Record	Yes		
Cause	<b>Corrective Actions</b>		
The heartbeat time is too short	Increase heartbeat time (Index 100C)		
Malfunction caused by interference	<ol style="list-style-type: none"> <li>1. Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.</li> <li>2. Make sure the communication circuit is wired in series.</li> <li>3. Use CANopen cable or add terminating resistance.</li> </ol>		
Communication cable is broken or bad connected	Check or replace the communication cable.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
104	<b>CbFE</b>	CANopen bus off error (CbFE)	CANopen bus off error
<b>Action and Reset</b>			
Action level	Hardware	When CANopen card is not installed, the CbFE fault occurs.	
	Software	When the master receives wrong communication package, the CbFE fault occurs. Too much interference on BUS The master receives wrong package when the CAN_H and CAN_L communication cables are short, CbFE fault occurs.	
Action level	Immediately act		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	Cycle the power		
Record	Yes		
Cause	<b>Corrective Actions</b>		
Check if the CANopen card is installed	Make sure the CANopen card is installed.		
Check if the CANopen speed is correct	Reset CANopen speed (Pr.09-37)		
Malfunction caused by interference	<ol style="list-style-type: none"> <li>1. Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.</li> <li>2. Make sure the communication circuit is wired in series.</li> <li>3. Use CANopen cable or add terminating resistance.</li> </ol>		
Communication cable is broken or bad connected	Check or replace the communication cable.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
105	<b>CidE</b>	CANopen index error (CidE)	CANopen index error
<b>Action and Reset</b>			
Action level	Software detection		
Action time	Immediately act		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	The upper unit sends a reset package to clear this fault		
Record	Yes		
Cause	<b>Corrective Actions</b>		
Incorrect setting of CANopen index	Reset CANopen Index (Pr.00-02=7)		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
106	CAdE	CANopen station address error (CAde)	CANopen station address error (only supports 1-127)
Action and Reset			
Action level		Software detection	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset (Pr.00-02=7)	
Reset condition		N/A	
Record		Yes	
Cause		Corrective Actions	
Incorrect setting of CANopen station address		<ol style="list-style-type: none"> <li>1. Disable CANopen (Pr.09-36=0)</li> <li>2. Reset CANopen (Pr.00-02=7)</li> <li>3. Reset CANopen station address (Pr.09-36)</li> </ol>	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
107	CFrE	CANopen index setting exceed limit (CFrE)	CANopen memory error
Action and Reset			
Action level		When you update the firmware version of the control board, the FRAM internal data does not change, then CFrE fault occurs.	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Pr.00-02=7	
Record		Pr.00-21=3, the fault is recorded	
Cause		Corrective Actions	
CANopen internal memory error		<ol style="list-style-type: none"> <li>1. Disable CANopen (Pr.09-36=0)</li> <li>2. Reset CANopen (Pr.00-02=7)</li> <li>3. Reset CANopen station address (Pr.09-36)</li> </ol>	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
111	ictE	InrCOM time-out error (ictE)	Internal communication overtime error
Action and Reset			
Action level		Pr.09-31=-1 - -10 (there is no -9), when the internal communication between Slave and Master is abnormal, ictE fault occurs.	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Automatically reset after the internal communication is normal	
Reset condition		N/A	
Record		Yes	
Cause		Corrective Actions	
Malfunction caused by interference		Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.	

Different communication setting from the upper unit	Check if the setting for Pr.09-02 is the same as the setting for the upper unit.
Disconnection or bad connection of the cable	Check the cable and replace it if necessary.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
121	CP20	Internal communication error (CP20)	Internal communication time-out
Action and Reset			
Action level		Software detection	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		N/A	
Reset condition		N/A	
Record		Yes	
Cause		Corrective Actions	
Internal communication error		Contact your local distributor or Delta.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
123	CP22	Internal communication error (CP22)	Abnormal internal communication
Action and Reset			
Action level		Software detection	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		N/A	
Reset condition		N/A	
Record		Yes	
Cause		Corrective Actions	
Internal communication error		Contact your local distributor or Delta.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
124	CP30	Internal communication error (CP30)	Abnormal internal communication
Action and Reset			
Action level		Software detection	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		N/A	
Reset condition		N/A	
Record		Yes	
Cause		Corrective Actions	
Internal communication error		Contact your local distributor or Delta.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
126	CP32	Internal communication error (CP32)	Abnormal internal communication
<b>Action and Reset</b>			
Action level		Software detection	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		N/A	
Reset condition		N/A	
Record		Yes	
Cause		<b>Corrective Actions</b>	
Internal communication error		Contact your local distributor or Delta.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
127	CP33	Internal communication error (CP33)	Abnormal internal communication
<b>Action and Reset</b>			
Action level		Software detection	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		N/A	
Reset condition		N/A	
Record		Yes	
Cause		<b>Corrective Actions</b>	
Internal communication error		Contact your local distributor or Delta.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
128	ot3	Over-torque 3 (ot3)	When the output current exceeds the over-torque detection level (Pr.14-75) and exceeds over-torque detection time (Pr.14-76), and when Pr.14-74 is set to 2 or 4, the ot3 error displays.
<b>Action and Reset</b>			
Action level		Pr.14-75	
Action time		Pr.14-76	
Fault treatment parameter		Pr.14-74 0: No function 1: Continue operation after over-torque detection during constant speed operation 2: Stop after over-torque detection during constant speed operation 3: Continue operation after over-torque detection during RUN 4: Stop after over-torque detection during RUN	
Reset method		Auto	When Pr.14-74=1 or 3, ot3 is a "Warning". The warning is automatically cleared when the output current < Pr.14-75.
		Manual	When Pr.14-74=2 or 4, ot3 is a "Fault". You must reset manually.
Reset condition		Immediately reset	
Record		Pr.14-74=2 or 4, ot3 is a "Fault", and the fault is recorded.	

Cause	Corrective Actions
Incorrect parameter setting	Reset Pr.14-75 and Pr.14-76
Mechanical failure (e.g. over-torque, mechanical lock)	Remove the causes of malfunction.
The load is too large	Reduce the load. Replace the motor with a larger capacity model.
Accel./ Decel. time and working cycle are too short	Increase the setting for Pr.01-12–Pr.01-19 (accel./ decel. time)
V/F voltage is too high	Adjust the V/F curve (Motor 3, Pr.01-54–01-61), especially the setting value for the mid-point voltage (if the mid-point voltage is set too low, the load capacity decreases at low speed).
The motor capacity is too small	Replace the motor with a larger capacity model.
Overload during low-speed operation	Decrease low-speed operation time. Increase the motor capacity.
Torque compensation is too large	Adjust the torque compensation (refer to Pr.07-73 torque compensation gain) until the current reduces and the motor does not stall.
Improper parameter settings for speed tracking function (including restart after momentary power loss and restart after fault)	1. Correct the parameter settings for speed tracking. 2. Start the speed tracking function. 3. Adjust the maximum current for Pr.07-09 speed tracking.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
129	ot4	Over-torque 4 (ot4)	When the output current exceeds the over-torque detection level (Pr.14-78) and exceeds over-torque detection time (Pr.14-79), and when Pr.14-77 is set to 2 or 4, the ot4 error displays.
<b>Action and Reset</b>			
Action level		Pr.14-78	
Action time		Pr.14-79	
Fault treatment parameter		Pr.14-77 0: No function 1: Continue operation after over-torque detection during constant speed operation 2: Stop after over-torque detection during constant speed operation 3: Continue operation after over-torque detection during RUN 4: Stop after over-torque detection during RUN	
Reset method		Auto	When Pr.14-77=1 or 3, ot4 is a "Warning". The warning is automatically cleared when the output current < Pr.14-78.
		Manual	When Pr.14-77=2 or 4, ot4 is a "Fault". You must reset manually.
Reset condition		Immediately reset	
Record		Pr.14-77=2 or 4, ot4 is a "Fault", and the fault is recorded.	
Cause		Corrective Actions	
Incorrect parameter setting		Configure the settings for Pr.14-78 and Pr.14-79 again.	
Mechanical failure (e.g. over-torque, mechanical lock)		Remove the causes of malfunction.	
The load is too large		Reduce the load. Replace the motor with a larger capacity model.	
Accel./ Decel. time and working cycle are too short		Increase the setting values for Pr.01-12–Pr.01-19 (accel./ decel. time)	

V/F voltage is too high	Adjust the V/F curve (Motor 4, Pr.01-63-01-70), especially the setting value for the mid-point voltage (if the mid-point voltage is set too low, the load capacity decreases at low speed).
The motor capacity is too small	Replace the motor with a larger capacity model.
Overload during low-speed operation	Decrease low-speed operation time. Increase the motor capacity.
Torque compensation is too large	Adjust the torque compensation (refer to Pr.07-75 torque compensation gain) until the current reduces and the motor does not stall.
Improper parameter settings for speed tracking function (including restart after momentary power loss and restart after fault)	<ol style="list-style-type: none"> <li>1. Correct the parameter settings for speed tracking.</li> <li>2. Start the speed tracking function.</li> <li>3. Adjust the maximum current for Pr.07-09 speed tracking.</li> </ol>

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
134	EoL3	Internal communication error (EoL3)	Electronic thermal relay 3 protection. The drive coasts to stop once it activates.
<b>Action and Reset</b>			
Action level		Start counting when output current > 105% of the motor 3 rated current.	
Action time		Pr.14-81 (If the output current is larger than 105% of the motor 3 rated current again within 60 sec., the counting time reduces and is less than Pr.14-81)	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Reset in five seconds after the fault is cleared	
Record		Yes	
<b>Cause</b>		<b>Corrective Actions</b>	
The load is too large		Reduce the load.	
Accel. /Decel. time or the working cycle are too short		Increase the setting value for Pr.01-12-01-19 (accel./ decel. time)	
V/F voltage is too high		Adjust the settings for Pr.01-54-01-61 (V/F curve), especially the setting value for the mid-point voltage (if the mid-point voltage is set too low, the load capacity decreases at low speed).	
Overload during low-speed operation. When using a general motor, even it operates below rated current, an overload may still occur during low-speed operation.		Decrease low-speed operation time. Replace the drive with a dedicated to VFD model. Increase the motor capacity.	
When using VFD dedicated motor, Pr.06-13=0 (electronic thermal relay selection motor 1 = inverter motor)		Pr.14-80 = 1 electronic thermal relay selection motor 1 = standard motor (motor with fan on the shaft).	
Incorrect value of electronic thermal relay		Reset to the correct motor rated current.	
The maximum motor frequency is set too low		Reset to the correct motor rated frequency.	
One drive to multiple motors		Set Pr.14-80 electronic thermal relay 3 selection = 2 disable, and install thermal relay on each motor.	

Check if the setting for stall prevention is correct.	Set the stall prevention to the proper value.
Torque compensation is too large	Adjust the torque compensation (refer to Pr.07-73 torque compensation gain) until the current reduces and the motor does not stall.
Motor fan error	Check the status of the fan, or replace the fan.
Unbalanced three-phase impedance of the motor	Replace the motor.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
135	EoL4	Internal communication error (EoL4)	Electronic thermal relay 4 protection. The drive coasts to stop once it activates.
<b>Action and Reset</b>			
Action level		Start counting when the output current > 105% of the motor 4 rated current.	
Action time		Pr.14-83 (If the output current is larger than 105% of motor 4 rated current again within 60 sec., the counting time reduces and is less than Pr.14-83)	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Reset in five seconds after the fault is cleared	
Record		Yes	
<b>Cause</b>		<b>Corrective Actions</b>	
The load is too large		Reduce the load.	
Accel. /Decel. time or the working cycle are too short		Increase the setting value for Pr.01-12-01-19 (accel./ decel. time)	
V/F voltage is too high		Adjust the settings for Pr.01-62-01-70 (V/F curve), especially the setting value for the mid-point voltage (if the mid-point voltage is set too low, the load capacity decreases at low speed).	
Overload during low-speed operation. When using a general motor, even it operates below rated current, an overload may still occur during low-speed operation.		Decrease low-speed operation time. Replace the drive with a dedicated to VFD model. Increase the motor capacity.	
When using VFD dedicated motor, Pr.06-13=0 (electronic thermal relay selection motor 1 = inverter motor)		Pr.14-82 = 1 electronic thermal relay selection motor 1 = standard motor (motor with fan on the shaft).	
Incorrect value of electronic thermal relay		Reset to the correct motor rated current.	
The maximum motor frequency is set too low		Reset to the correct motor rated frequency.	
One drive to multiple motors		Set Pr.14-82 electronic thermal relay 4 selection = 2 disable, and install thermal relay on each motor.	
Check if the setting for stall prevention is correct.		Set the stall prevention to the proper value.	
Torque compensation is too large		Adjust the torque compensation (refer to Pr.07-75 torque compensation gain) until the current reduces and the motor does not stall.	
Motor fan error		Check the status of the fan, or replace the fan.	
Unbalanced three-phase impedance of the motor		Replace the motor.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
140	Hd6	oc hardware error (Hd6)	GFF hardware protection error when power is ON.
Action and Reset			
Action level	Hardware detection		
Action time	Immediately act when the fault is detected		
Fault treatment parameter	N/A		
Reset method	Power-off		
Reset condition	N/A		
Record	Yes		
Cause	Corrective Actions		
Hardware failure	Cycle the power. If Hd6 still exists, return to the factory for repair.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
141	b4GFF	GFF occurs before run (b4GFF)	The ground short circuit detected when the output wiring detection is performed before the drive runs.
Action and Reset			
Action level	250% of the rated current		
Action time	Immediately act		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	Reset in five seconds after the fault is cleared		
Record	Yes		
Cause	Corrective Actions		
Incorrect wiring for the motor	Check if the motor's internal wiring and the UVW wiring of the drive output terminal are correct.		
Short-circuit at motor output due to poor insulation wiring	Check the motor cable and remove causes of the short circuits, or replace the cable before turning on the power.		
Check for possible burnout or aging insulation of the motor	Check the motor insulation value with megger. Replace the motor if the insulation is poor.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
142	AuE1	Auto-tune error 1 (AuE1)	No feedback current error when the motor parameter automatically detects
Action and Reset			
Action level	Software detection		
Action time	Immediately act		
Fault treatment parameter	N/A		
Reset method	Manual reset		
Reset condition	Immediately reset		
Record	Yes		
Cause	Corrective Actions		
Motor is not wired	Wire the motor correctly		
The electromagnetic contactor is used as an open state on the output side of the drive (U/V/W).	Check if the electromagnetic valve is closed.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
143	AuE2	Auto-tune error 2 (AuE2)	Motor phase loss error when the motor parameter automatically detects
Action and Reset			
Action level		Software detection	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		Yes	
Cause		Corrective Actions	
Incorrect motor wiring		Wire the motor correctly.	
Motor error		Check if the motor works normally.	
The electromagnetic contactor is used as an open state on the output side of the drive (U/V/W).		Verify that the three-phases of the electromagnetic valve are all closed.	
Motor U/V/W wire error		Check if the wires are broken.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
144	AuE3	Auto-tune error 3 (AuE3)	No load current $I_0$ measurement error when the motor parameter automatically detects.
Action and Reset			
Action level		Software detection	
Action time		Immediately act	
Fault treatment parameter		N/A	
Reset method		Manual reset	
Reset condition		Immediately reset	
Record		Yes	
Cause		Corrective Actions	
Incorrect settings for the motor parameter (rated current)		Check the settings for Pr.05-01 / Pr.05-13 / Pr.05-34.	
Motor error		Check if the motor works normally.	

