

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.
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	
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 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 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	<i>ocd</i>	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		1. Increase the deceleration time 2. Increase the deceleration 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	
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	OCN	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.
Action and Reset			
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		Corrective Actions	
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 _{DC} 460V series: 820 V _{DC} 575V series: 1116 V _{DC}	
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	<p>Check if the over-voltage warning occurs after acceleration stops.</p> <p>When the warning occurs, do the following:</p> <ol style="list-style-type: none"> 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	<p>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.</p> <p>Troubleshoot the ground fault.</p>
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		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.
Action and Reset			
Action level	230V series: 410 V _{DC} 460V series: 820 V _{DC} 575V series: 1116 V _{DC}		
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		
Deceleration time is too short, causing too large regenerative energy of the load	<ol style="list-style-type: none"> 1. Increase the setting value of Pr.01-13, Pr.01-15, Pr.01-17 and Pr.01-19 (deceleration time) 2. Connect the brake resistor, braking unit or DC bus on the drive. 3. Reduce the brake frequency. 4. Replace the drive with a larger capacity model. 5. Use S-curve acceleration/deceleration. 6. Use over-voltage stall prevention (Pr.06-01). 7. Use auto-acceleration and auto-deceleration (Pr.01-44). 8. Adjust the braking level (Pr.07-01 or the bolt position of the brake unit). 		
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.
Action and Reset			
Action level		230V series: 410 V _{DC} 460V series: 820 V _{DC} 575V series: 1116 V _{DC}	
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	
Impulsive change of the load		<ol style="list-style-type: none"> 1. Connect the brake resistor, braking unit or DC bus to the drive. 2. Reduce the load. 3. Replace the drive with a larger capacity model. 4. Adjust the braking level (Pr.07-01 or bolt position of the brake unit). 	
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	ovS	Over-voltage at stop (ovS)	Over-voltage at stop
Action and Reset			
Action level	230V series: 410 V _{DC} 460V series: 820 V _{DC} 575V series: 1116 V _{DC}		
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	LV	Low-voltage at stop (LvS)	1. DC bus voltage is lower than Pr.06-00 setting value at stop 2. Hardware failure in voltage detection
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 _{DC} + 500 ms 460V series: Lv level + 60 V _{DC} + 500 ms 575V series: Lv level + 75 V _{DC} + 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	oH1	IGBT overheating (oH1)	IGBT temperature exceeds the protection level.
Action and Reset			
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		Corrective Actions	
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"> 1. Check ambient temperature. 2. Regularly inspect the ventilation hole of the control cabinet. 3. Change the installed place if there are heating objects, such as brake resistors, in the surroundings. 4. Install/ add cooling fan or air conditioner to lower the temperature inside the cabinet. 	
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"> 1. Reduce the load 2. Reduce the carrier wave 3. Replace the drive with a larger capacity model. 	
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	VFD1A6MS11x□□A□	95	90
	VFD2A5MS11x□□A□	95	90
	VFD4A8MS11x□□A□	100	95
Single-phase_230V	VFD1A6MS21x□□A□	110	105
	VFD2A8MS21x□□A□	100	95
	VFD4A8MS21x□□A□	110	105
	VFD7A5MS21x□□A□	105	100
	VFD11AMS21x□□A□	115	110
Three-phase_230V	VFD1A6MS23x□□A□	100	95
	VFD2A8MS23x□□A□	100	95
	VFD4A8MS23x□□A□	105	100

Voltage	Model (Note: x = A or E)	OH1 (°C)	Default for Pr.06-15 (°C)
Three-phase_230V	VFD7A5MS23x□□A□	105	100
	VFD11AMS23x□□A□	95	90
	VFD17AMS23x□□A□	105	100
	VFD25AMS23x□□A□	115	110
	VFD33AMS23x□□A□	115	110
	VFD49AMS23x□□A□	115	110
	VFD65AMS23x□□A□	115	110
Three-phase_460V	VFD1A5MS43x□□A□	105	100
	VFD2A7MS43x□□A□	115	110
	VFD4A2MS43x□□A□	105	100
	VFD5A5MS43x□□A□	95	90
	VFD7A3MS43x□□A□	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		Over load (oL)	<p>The AC motor drive detects excessive drive output current.</p> <p>Overload capacity:</p> <ul style="list-style-type: none"> 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. 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.
Action and Reset			
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	
Cause		Corrective Actions	
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. 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
22	EoL1	Electronics thermal relay 1 protection (EoL1)	Electronics thermal relay 1 protection. The drive coasts to stop once it activates.
Action and Reset			
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	
Cause		Corrective Actions	
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 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 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.
Action and Reset			
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		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—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.
Action and Reset			
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		Corrective Actions	
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 no 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		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 nd deceleration time 3: Warn and continue operation	
Reset method		Auto	When Pr.06-73=3, uC is a "Warning". The warning is automatically cleared when the output current > (Pr.06-71+0.1A).
Reset condition		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		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	<i>cd1</i>	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	<i>cd2</i>	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	<i>cd3</i>	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	AFF	PID loss ACI (AFE)	PID feedback loss (analog feedback signal is only valid when the PID function is enabled)
Action and Reset			
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		Corrective Actions	
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	PGF2	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.
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 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.
Action and Reset			
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		Corrective Actions	
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.
Action and Reset			
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		Corrective Actions	
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		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 st deceleration time 2: Stop by the 2 nd deceleration time 3: Stop by the 3 rd deceleration time 4: Stop by the 4 th 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	EF 1	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"> 1. Input the correct password after rebooting the motor drive. 2. 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.) 3. The parameter settings return to the default when the "Input 9999" process is finished.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
54	CE1	Illegal command (CE1)	Communication command is illegal
Action and Reset			
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
Action and Reset			
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
Action and Reset			
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
Action and Reset			
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 / Δ -connection switch error (ydc)	An error occurs when Y- Δ switches
Action and Reset			
Action level	1. ydc occurs when the confirmation signals of Y-connection and Δ -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 Δ -connection is conducted if it is Δ -connection.		
Record	Yes		
Cause	Corrective Actions		
The electromagnetic valve operates incorrectly during Y- Δ 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 dEb displays on the keypad.
Action and Reset			
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		Corrective Actions	
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"> 1. Replace power system with a larger capacity. 2. Use a different power system from the large load system. 	

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.
Action and Reset			
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	STL 1	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		U-phase over-current before run (Aoc)	U-phase short circuit detected when the output wiring detection is performed before the drive runs.
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 clears	
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.	
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 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		V-phase over-current before run (boc)	V-phase short circuit detected when the output wiring detection is performed before the drive runs.
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 clears	
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.
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 boc 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 circuit occurs, return to the factory for repair.


ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
81	c o c	W-phase over-current before run (coc)	W-phase short circuit detected when the output wiring detection is performed before the drive runs.
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 clears	
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.	
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; \oplus 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		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		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		Output phase loss W phase (oPL3)	W 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		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		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"> 1. Enhance the heat dissipation capacity for the cabinet. 2. Lower the carrier frequency (Pr.00-17). 3. Decrease the voltage settings that correspond to frequency below 15 Hz in the V/F curve. 4. Change Pr.00-11 to general control mode. 5. Replace the drive with a larger power model. 	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
89		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	CGdE	CANopen guarding error (CGdE)	CANopen guarding error
Action and Reset			
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	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"> 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. 2. Make sure the communication circuit is wired in series. 3. Use CANopen cable or add terminating resistance. 		
Communication cable is broken or bad connected	Check or replace the communication cable.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
102	CHbE	CANopen heartbeat error (CHbE)	CANopen heartbeat error
Action and Reset			
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	Corrective Actions		
The heartbeat time is too short	Increase heartbeat time (Index 100C)		
Malfunction caused by interference	<ol style="list-style-type: none"> 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. 2. Make sure the communication circuit is wired in series. 3. Use CANopen cable or add terminating resistance. 		
Communication cable is broken or bad connected	Check or replace the communication cable.		

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
104	CbFE	CANopen bus off error (CbFE)	CANopen bus off error
Action and Reset			
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		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"> 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. 2. Make sure the communication circuit is wired in series. 3. Use CANopen cable or add terminating resistance. 	
Communication cable is broken or bad connected		Check or replace the communication cable.	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
105	CidE	CANopen index error (CidE)	CANopen index error
Action and Reset			
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		Corrective Actions	
Incorrect setting of CANopen index		Reset CANopen Index (Pr.00-02=7)	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
106		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		1. Disable CANopen (Pr.09-36=0) 2. Reset CANopen (Pr.00-02=7) 3. Reset CANopen station address (Pr.09-36)	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
107		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		1. Disable CANopen (Pr.09-36=0) 2. Reset CANopen (Pr.00-02=7) 3. Reset CANopen station address (Pr.09-36)	

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
111		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
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
127	CP33	Internal communication error (CP33)	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
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.
Action and Reset			
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.
Action and Reset				
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)	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.

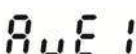
ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
134		Internal communication error (EoL3)	Electronic thermal relay 3 protection. The drive coasts to stop once it activates.
Action and Reset			
Action level		Start counting when output current > 105% of the motor 3 rated current.	
Action time		Pr.14-81 (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	
Cause		Corrective Actions	
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.
Action and Reset			
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	
Cause		Corrective Actions	
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		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		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		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.	