## MAINTENANCE AND TROUBLESHOOTING



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## **MAINTENANCE AND INSPECTIONS**

Modern AC drives are based on solid state electronics technology, including ICs, resistors, capacitors, transistors, cooling fans, relays, etc. These components have a limited life under normal operation. Preventive maintenance is required to operate the GS10 drive in its optimal condition, and to ensure a long life. We recommend that a qualified technician perform a regular inspection of the GS10 drive. Some items should be checked once a month, and some items should be checked yearly.



CAUTION: All inspections should be accomplished with Safety in mind with due and required caution. Some of these Inspection items may require the Drive to be powered down, while others may require power to be applied. Proper safety precautions including the use of PPE are/may be required. Please review cautionary statements in each section

## **MONTHLY INSPECTION**

Check the following items at least once a month.

- 1) Make sure the motors are operating as expected.
- 2) Make sure the drive installation environment is normal.
- 3) Make sure the enclosure and drive cooling systems are operating as expected.
- 4) Check for irregular vibrations or sounds during operation.
- 5) Make sure the motors are not overheating during operation.
- 6) Check the input voltage to the GS10 drive and make sure the voltage is within the operating range. Check the voltage with a voltmeter.

#### **ANNUAL INSPECTION**

Check the following items once annually.

- 1) Check the torque of the GS10 power and control terminal screws and tighten if necessary. They may loosen due to vibration or changing temperatures.
- 2) Make sure the conductors and insulators are not corroded or damaged.
- 3) Check the resistance of cable insulation with a megohmmeter.
- 4) Clean off any dust and dirt with a vacuum cleaner. Pay special attention to cleaning the ventilation ports and PCBs. Always keep these areas clean. Accumulation of dust and dirt in these areas can cause unforeseen failures.
- 5) Recharge the capacitors of any drive that is in storage or is otherwise unused.

## **RECHARGE CAPACITORS (FOR DRIVES NOT IN SERVICE)**

Recharge the DC link before using any drive that has not been operated within a year:

- 1) Disconnect the motor from the drive.
- 2) Apply input power to the drive for 2 hours.



If the drive is stored or is otherwise unused for more than a year, the drive's internal DC link capacitors should be recharged before use. Otherwise, the capacitors may be damaged when the drive starts to operate. We recommend recharging the capacitors of any unused drive at least once per year.



**D**ISCONNECT **AC** POWER AND ENSURE THAT THE INTERNAL CAPACITORS HAVE FULLY DISCHARGED BEFORE INSPECTING THE **GS10** DRIVE! WAIT AT LEAST **FIVE** MINUTES AFTER ALL DISPLAY LAMPS HAVE TURNED OFF.

- ☑ Wait 5 seconds after a fault has been cleared before performing reset via keypad or input terminal.
- When the power is off after 5 minutes for ≤ 30hp models and 10 minutes for ≥ 40hp models, please confirm that the capacitors have fully discharged by measuring the voltage between + and -. The voltage between + and should be less than 25VDC.



- Only qualified personnel can install, wire and maintain drives.
   Please take off any metal objects, such as watches and rings, before operation. And only insulated tools are allowed.
- ☑ Never reassemble internal components or wiring.
- ☑ Make sure that installation environment complies with regulations without abnormal noise, vibration and smell.

## **Recommended Inspection Schedules**

Before the check-up, always turn off the AC input power and remove the cover. Wait at least 10 minutes after all display lamps have gone out, and then confirm that the capacitors have fully discharged by measuring the voltage between DC+ and DC-. The voltage between DC+ and DC-should be less than 25VDC.

#### Ambient environment

		<b>Maintenance Period</b>			
Check Items	Methods and Criteria	Daily	Half Year	One Year	
Check the ambient temperature, humidity, vibration and see if there is any dust, gas, oil or water drops	Visual inspection and measurement with equipment against standard specifications	$\bigcirc$			
If there are any dangerous objects	Visual inspection	$\bigcirc$			

#### Voltage

		Maintenance Period		
Check Items	Methods and Criteria	Daily	Half Year	One Year
Check if the voltage of main circuit and control circuit is correct	Measure with multimeter against standard specifications	$\bigcirc$		

#### **Digital Keypad Display**

Check Items	Methods and Criteria	<b>Maintenance Period</b>				
		Daily	Half Year	One Year		
Is the display clear for reading	Visual inspection	$\bigcirc$				
Any missing characters	Visual inspection	$\bigcirc$				

#### **Mechanical parts**

Check Items	Methods and Criteria	Maintenance Perio			
		Daily	Half Year	One Year	
If there is any abnormal sound or vibration	Visual and audible inspection		$\bigcirc$		
If there are any loose screws	Tighten the screws		$\bigcirc$		
If any part is deformed or damaged	Visual inspection		0		
If there is any color change due to overheating	Visual inspection		0		
If there is any dust or dirt	Visual inspection		0		

## Recommended Inspection Schedules (continued)

## Main circuit

Check Items		Maintenance Perio			
	Methods and Criteria	Daily	Half Year	One Year	
If there are any loose or missing screws	Tighten or replace the screw	$\bigcirc$			
If any drive or wiring insulation is deformed, cracked, damaged or has changed color due to overheating or aging	Visual inspection NOTE: Ignore any color change of copper plate		$\bigcirc$		
If there is any dust or dirt	Visual inspection		$\bigcirc$		

## Terminals and wiring of main circuit

Check Items	Methods and Criteria	<b>Maintenance Period</b>			
		Daily	Half Year	One Year	
If the terminal color or the placement has changed due to overheating	Visual inspection		0		
If the wiring insulation is damaged or there has been a color change	Visual inspection		0		
If there is any damage	Visual inspection	$\bigcirc$			

## DC capacity of main circuit

Check Items	Methods and Criteria	Maintenance Period			
		Daily	Half Year	One Year	
If there is any liquid leaking, color change, crack or deformation	Visual inspection	$\bigcirc$			
If the capacitor safety vent is bulging or inflated.	Visual inspection	$\bigcirc$			
Measure static capacity when required (if drive overloads/faults during normal operation)	Measure with multimeter against standard specifications	0			

## Recommended Inspection Schedules (continued)

## Resistor of main circuit

Check Items		<b>Maintenance</b> Period			
	Methods and Criteria	Daily	Half Year	One Year	
If there is any peculiar smell or insulation cracks due to overheating	Visual inspection, smell	0			
If there is any disconnection or discoloration	Visual inspection	0			
If the connection is damaged	Measure with a multimeter against standard specifications	0			

## Transformer and reactor of main circuit

		Maintenance Perio		
Check Items	Methods and Criteria	Daily	Half Year	One Year
If there is any abnormal vibration or peculiar smell	Visual, audible inspection and smell	0		

## Magnetic contactor and relay of main circuit

		Maintenance Period			
Check Items	Methods and Criteria	Daily	Half Year	One Year	
If there are any loose screws	Visual and audible inspection	$\bigcirc$			
If the contact works correctly	Visual inspection	$\bigcirc$			

#### Printed circuit board and connector of main circuit

		Mainte	Period	
Check Items	Methods and Criteria	Daily	Half Year	One Year
If there are any loose screws and connectors	Tighten the screws and press the connectors firmly in place		$\bigcirc$	
If there is any peculiar smell and/or color change	Visual and smell inspection		$\bigcirc$	
If there is any crack, damage, deformation or corrosion	Visual inspection		$\bigcirc$	
If there is any liquid leakage or deformation in capacity	Visual inspection		$\bigcirc$	

## Recommended Inspection Schedules (continued)

## Cooling fan of cooling system

		Maintenance Period			
Check Items	Methods and Criteria	Daily	Half Year	One Year	
If there is any abnormal sound or vibration	Visual, audible inspection and turn the fan with hand (turn off the power before operation) to see if it rotates smoothly		$\bigcirc$		
If there is any loose screw	Tighten the screw		$\bigcirc$		
If there is any color change due to overheating	Change the fan		$\bigcirc$		

## Ventilation channel of cooling system

		Maintenance Period			
Check Items	Methods and Criteria	Daily	Half Year	One Year	
If there is any obstruction in the heat sink, air intake or air outlet	Visual inspection		$\bigcirc$		

Please use a clean lint free cloth for cleaning and use a dust cleaner to remove dust when necessary.

## TROUBLESHOOTING

## WARNING CODES

The GS10 drive has a comprehensive diagnostic system that includes several different warning codes. The most common warning codes can be read on the digital keypad display.

For communication errors, "Upper unit" is referring to the Master controller of the serial network. Always ensure the communication settings of the drive (P09.01 and P09.04) match those of the master controller and network.



	Warning Codes						
Display on GS10 Keypad	ID No.	Warning Name and Description	Action and Res	et	Со	rrective Action	
n/a	0	No error	n/a	n/a	n/a		
			Action Level Action Time	When the length of communication data is too long Immediately act	Ĺ	Check if the communication command is correct. Verify the wiring and grounding of	
		Communication error	Warning setting parameter	N/A		the communication circuit. Separate the communication circuit from the	
CE3	3	3 (CE3) RS-485 Modbus illegal data value	Reset method Reset condition	"Warning" occurs when P09.02=0 and the motor drive keeps running. The drive resets automatically when receiving the correct communication data value. Immediately reset	3)	main circuit, or wire in 90 degree for effective anti-interference performance. Check if the setting for P09.04 is the same as the setting for the upper unit. Check the cable and replace it if	
			Record	N/A	1 ′	necessary.	
		Communication error 4 (CE4) 4 RS-485 Modbus data is written to read-only address	Action Level	When the data is written to read-only address	1)	Check if the communication command is correct	
			Action Time	Immediately act	2)	Verify the wiring and grounding of	
			Warning setting parameter	N/A	-	the communication circuit. Separate the communication circuit from the	
СЕЧ	4		Reset method	"Warning" occurs when P09.02=0 and the motor drive keeps running. The drive resets automatically when receiving the correct written address of communication data.	3)	main circuit, or wire in 90 degree for effective anti-interference performance. Check if the setting for P09.04 is the same as the setting for the upper unit.	
			Reset condition	Immediately reset	4)	Check the cable and replace it if	
			Record	N/A		necessary.	
			Action Level	When the communication time exceeds the detection time of P09.03 communication time- out	1)	Check if the upper unit transmits the communication command within the setting time for P09.03. Verify the wiring and grounding	
			Action Time	P09.03		of the communication circuit. It	
		Communication error 10 (CE10)	Warning setting parameter	N/A		is recommended to separate the communication circuit from the	
CE 10	5	RS-485 Modbus transmission time-out	Reset method	"Warning" occurs when P09.02=0 and the motor drive keeps running. The drive resets automatically when receiving the next communication packet.	3)	main circuit, or wire in 90 degree for effective anti-interference performance. Check if the setting for P09.04 is the same as the setting for the upper	
			Reset condition	Immediately reset	1	unit.	
			Record	N/A	4)	Check the cable and replace it if necessary.	
			(conti	nued next page)			

warning (oH1) Action Time IGBT temperature is higher than of the control cabinet.			Г	Warning	Codes (continued)			
5E I     7     Save error 1 (SE1)     Action Level     Action Level     Save error 1 (SE1)     Action Level     Action tarasmit the COPY communication problems between the keypad acontrol board. Potential communication signal interference and the unacceptable time you copy the parameters to the drive. and to the drive again in 10 ms     Save error 1 (SE1)     Action Time     N/A       Action Time     10 ms     parameters     N/A     parameters     Check the error displays on the upper right corner of the GSA-exercise on the acceptable communication signal interference and the unacceptable communication command to the Slave. The Reset method     Manual reset (or cycle power) Reset condition     N/A       8     Save error 2 (SE2)     Record     N/A     Support.       Save error 2 (SE2)     Keypad COPY error 2: parameter writing error 2: Action Time     N/	on GS10	ID No.		Action and Res	et	Corrective Action		
Seve error 2 (SE2)       8       Save error 2 (SE2)       Action Time       Action Level       Action Time       "SE2" warning occurs when writing the parameters (the error displays on the upper right corner of the copy page). If you cannot clear the error, please contact AutomationDirect Technical Support.         SEE 8       Save error 2 (SE2)       Action Time       "SE2" warning occurs when writing the parameters to the drive. For example, you copy the new firmware version with added parameters to the drive with old firmware version.       Support.         Action Time       Action Time       N/A       The Slave compares and processes the data to the Data ROM. During the process, the data error (should be attribution error) may occur, or the data error (should be attribution error) may occur, or the data error (should be attribution error) may occur, or the data error (should be attribution error) may occur, or the data error (should be attribution error) please contact AutomationDirect Technical Support.         IGBT over-heating warning (oH1)       Reset condition Immediately reset       Check the status of Data ROM and remove the error causes first. If you cannot clear the error, please contact AutomationDirect Technical Support.         9       IGBT over-heating warning (oH1)       Action Time       "OH1" warning occurs when IGBT temperature is higher than ploi.15 setting value.       1) Check the ambient temperature.         9       Ivel of OH1 warning. (When P06.15 is setting value.       N/A       Charge the istalled location if there are heating objects, such as barking resistors, in the surrounotings.         9		7	Keypad COPY error 1:		the GS4-KPD optional keypad does not transmit the COPY command to the drive, and does not transmit any data to the drive again in 10 ms at the time you copy the parameters to the drive.	communication problems between the keypad and control board. Potential causes include communication signal interference and the unacceptable communication command to the Slave. Check if the error occurs randomly,		
Save error 2 (SE2)         Save error 2 (SE2)         Action Level         Save error 2 (SE2)         Action Time         N/A         Search of the copy page). (Fyou cannot clear the error, please contact AutomationDirect Technical Support.           SEE         8         Save error 2 (SE2)         Action Level         Save error 2 (SE2)         Action Time         Save error 2 (SE2)         Action Time         Save error 2 (SE2)         Action Time         N/A         Save error 2 (SE2)           B         Save error 2 (SE2)         Action Time         N/A         Save error 2 (SE2)         Action Time         N/A           B         Keypad COPY error 2: parameter writing error parameter         Action Time         N/A         Save error 2 (SE2)         Action Time         N/A           B         Keypad COPY error 2: parameter writing error parameter         Action Time         N/A         Check the status of Data ROM and remove the error causes first.           B         IGBT over-heating warning (oH1)         Action Time         N/A         Support.         Check the status of Data ROM and remove the error causes first.           B         IGBT over-heating and exceeds the protection level, the drive shows oH1 error without displaying oH1         N/A         Support.         Check the ambient temperature inside the cabinet.           9         Issetting protection level, the drive shows oH1 eror writhout displaying oH1			Keypad copy time-out	Action Time	10 ms			
Seve error 2 (SE2)         Save error 2 (SE2)         Action Level parameter writing error parameter writing error         Action Time Parameter         N/A         SE2: In this stage, the copied data has been transmitted to the Slave. The Slave compares and processes the copied data, and then saves the data to the Data ROM. During the process, the data error (should be attribution error) may occur, or the data conto be saved to EEPROM. At this time, the warning occurs.           5E2         8         Save error 2 (SE2)         Action Time         N/A         The Slave compares and processes the copied data, and then saves the data to the Data ROM. During the process, the data error (should be attribution error) may occurs.           Action Time         N/A         Check the status of Data ROM and remove the error causes first. Reset method         Check the status of Data ROM and remove the error causes first.           Reset method         Manual reset (or cycle power) Reset condition         N/A         Support.           IGBT over-heating warning (OH1)         Action Level         P06.15         1)         Check the ambient temperature.           The AC motor drive detects IGBT overheating and exceeds the protection level of oH1 warning. When P06.15 is higher than the IGBT overheating protection level, the drive shows OH1 error without displaying OH1         Auto-reset         3)         Chack the ambient temperature inside the cained.           9         Icerease the cortection level, the drive shows OH1 error without displaying OH1         Reset condition Reset condition         Auto-reset				parameter		upper right corner of the copy page).		
Seve error 2 (SE2)         Save error 2 (SE2)         Action Level         Action Level         Seve error 2 (SE2)         Save error 2 (SE2)<								
5E2       8       Save error 2 (SE2)       Action Level       Save error 2 (SE2)       Save error 2					/			
5E2       8       Save error 2 (SE2)       Action Level       Action Level       N/A       The Slave compares and processes the data complex such data forms were version with added parameters to the drive. For example, you copy the new firmware version.       The Slave compares and processes the data composite data, and then saves the data composite				Record				
Phile       parameter writing error       Action Time       N/A       occurs.         Warning setting parameter       N/A       Check the status of Data ROM and remove the error causes first.         Reset method       Manual reset (or cycle power)       If you cannot clear the error, please contact AutomationDirect Technical Support.         Reset condition       Immediately reset       contact AutomationDirect Technical Support.         Reset condition       N/A       Support.         Action Time       P06.15       1)         Check the ambient temperature.       2)       Regularly inspect the ventilation hole of the control cabinet.         You cannot clear the error, please       Action Level       P06.15       1)         Check the ambient temperature.       2)       Regularly inspect the ventilation hole of the control cabinet.         You cannot clear the protection drive detects IGBT overheating and exceeds the protection level of oH1 warning. (When P06.15 is higher than the IGBT overheating protection level, the drive shows oH1 error without displaying oH1 warning.)       Auto-reset       4uto-reset when IGBT temperature is lower than oH1 warning level minus (-) 5r <sup>o</sup> Warning Setting       N/A       -       -         P06.15 is       Feest condition       The drive auto-resets when IGBT temperature is lower than oH1 warning level minus (-) 5r <sup>o</sup> -         P0Erease loading.       -	562	8	Action Level	writing the parameters incorrectly at the time you copy parameters to the drive. For example, you copy the new firmware version with added parameters to the drive with	been transmitted to the Slave. The Slave compares and processes the copied data, and then saves the data to the Data ROM. During the process, the data error (should be attribution error) may occur, or the data cannot be saved			
Image: Participant of the set of th			parameter writing error	Action Time	N/A			
Big Brower-heating warning (oH1)       Reset condition       Immediately reset       contact AutomationDirect Technical Support.         IGBT over-heating warning (oH1)       Action Level       P06.15       1)       Check the ambient temperature.         The AC motor drive detects IGBT over-heating and exceeds the protection level of oH1 warning.       Warning setting parameter       N/A       3)       Charge the installed location if there are heating objects, such as braking resistors, in the surroundings.         9       level of oH1 warning. (When P06.15 is higher than the IGBT overheating protection level, the drive shows oH1 error without displaying oH1 warning.)       Auto-reset       Auto-reset when IGBT temperature is lower than oH1 warning level minus (-) 5°C       5)       Check for and remove obstructions or replace the cooling fan.         Beset condition       Reset condition       The drive auto-resets when IGBT temperature is lower than oH1 warning level minus (-) 5°C       6)       Increase ventilation space of the drive.         9       Reset condition       Reset condition       Reset of N/A       40       Increase the carrier wave.         9       Record       N/A       Auto-reset       5)       Check for and remove obstructions or replace the cooling fan.         9       Reset condition       Reset condition       Reset condition       Reset condition       10         10       Herror without displaying oH1       Warning level min				Warning setting				
Record       N/A       Support.         IGBT over-heating warning (oH1)       Action Level       P06.15       1)       Check the ambient temperature.         The AC motor drive detects IGBT overheating and exceeds the protection level of OH1 warning. (When P06.15 is higher than the IGBT overheating protection level, the drive shows oH1 error without displaying oH1 warning.)       N/A       3)       Change the installed location if there are heating objects, such as braking resistors, in the surroundings.         9       Reset method       Auto-reset       N/A       4)       Install/add cooling fan or air conditioner to lower the temperature inside the cabinet.         9       Reset condition       Reset condition       Auto-reset       4)       10         9       Reset condition       Reset condition       The drive auto-resets when IGBT temperature is lower than oH1 warning level minus (-) 5°C       6)       Increase ventilation space of the drive.         9       Record       N/A       Auto-reset when IGBT temperature is lower than oH1 warning level minus (-) 5°C       6)       Increase ventilation space of the drive.						If you cannot clear the error, please		
Bigs       IGBT over-heating warning (oH1)       Action Level       P06.15       1)       Check the ambient temperature.         The AC motor drive detects IGBT overheating and exceeds the protection level of oH1 warning. (When P06.15 is higher than the IGBT overheating protection level, the drive shows oH1 error without displaying oH1 warning.)       N/A       N/A       3)       Check the ambient temperature.         P       Reset condition       Auto-reset       N/A       4)       Install/add cooling fan or air conditioner to lower the temperature inside the cabinet.         Sourcease the protection level, the drive shows oH1 error without displaying oH1 warning.)       Reset condition       The drive auto-resets when IGBT temperature is lower than oH1 warning level minus (-) 5°C       6)       Increase loading.         Reset condition       Record       N/A       4)       Decrease loading.         N/A       Reset condition       The drive auto-resets when IGBT temperature is lower than oH1 warning level minus (-) 5°C       6)       Increase ventilation space of the drive.         P       Record       N/A       P       P       P					,	contact AutomationDirect Technical		
IGBT over-heating warning (OH1)Action Time"OH1" warning occurs when IGBT temperature is higher than P06.15 setting value.2)Regularly inspect the ventilation hole of the control cabinet.9The AC motor drive detects IGBT overheating and exceeds the protection level of oH1 warning. (When P06.15 is higher than the IGBT overheating protection level, the drive shows oH1 error without displaying oH1 warning.)N/AN/A2)Regularly inspect the ventilation hole of the control cabinet.9IGBT over-heating drive detects IGBT overheating and exceeds the protection level, the drive shows oH1 error without displaying oH1 warning.)Action Time"oH1" warning occurs when IGBT temperature is lower than oH1 warning level minus (-) 5°C2)Regularly inspect the ventilation hole of the control cabinet.9IGBT over-heating protection level, the drive shows oH1 error without displaying oH1 warning.)Action Time"oH1" warning occurs when IGBT temperature is lower than oH1 warning level minus (-) 5°C2)Regularly inspect the ventilation hole of the control cabinet.9RecordN/AAuto-resets when IGBT temperature is lower than oH1 warning level minus (-) 5°C0)118RecordN/APoercase the carrier wave. 9)9)Replace the drive with higher capacity model.				Record				
The AC motor       The AC motor         drive detects IGBT       overheating and         overheating and       exceeds the protection         exceeds the protection       parameter         (When P06.15 is       higher than the IGBT         overheating protection       eveneating protection         level, the drive shows       oH1 error without         displaying oH1       warning.)         Reset condition       The drive auto-resets when         IGBT temperature is lower than       oH1 warning level minus (-) 5°C         Record       N/A			5		"oH1" warning occurs when IGBT temperature is higher than	2) Regularly inspect the ventilation hole		
<b>DHI</b> 9level of oH1 warning. (When P06.15 is higher than the IGBT overheating protection level, the drive shows oH1 error without displaying oH1 warning.)Reset methodAuto-resetinside the cabinet.The drive auto-resets when IGBT temperature is lower than oH1 warning level minus (-) 5°CThe drive auto-resets when IGBT temperature is lower than oH1 warning level minus (-) 5°CIncrease ventilation space of the drive.RecordN/ARecordN/A			drive detects IGBT			resistors, in the surroundings. 4) Install/add cooling fan or air		
overheating protection level, the drive shows oH1 error without displaying oH1 warning.)Reset conditionThe drive auto-resets when IGBT temperature is lower than oH1 warning level minus (-) 5°C6)Increase ventilation space of the drive.8)Reset conditionIGBT temperature is lower than oH1 warning level minus (-) 5°C7)Decrease loading.9)RecordN/APercease the carrier wave. capacity model.	oHl	9	level of oH1 warning. (When P06.15 is	Reset method	Auto-reset	<ul><li>inside the cabinet.</li><li>5) Check for and remove obstructions</li></ul>		
			overheating protection level, the drive shows oH1 error without displaying oH1		IGBT temperature is lower than oH1 warning level minus (–) 5°C	<ol> <li>6) Increase ventilation space of the drive.</li> <li>7) Decrease loading.</li> <li>8) Decrease the carrier wave.</li> <li>9) Replace the drive with higher</li> </ol>		
					, ,			

## Chapter 6: Maintenance and Troubleshooting

			Warning	Codes (continued)	1	
Display on GS10 Keypad	ID No.	Warning Name and Description	Action and Res	et	Cor	rective Action
			Action Level	When the analog input is lower than 4 mA (only detects analog input 4–20 mA)		
		PID feedback error (PID)	Action Time Warning setting parameter	P08.08 P08.09 setting is: 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: Warn and operate at last frequency		Check the PID feedback wiring and tighten the terminals.
Pl d	11	PID feedback loss (warning for analog feedback signal; works only when PID enables)	Reset method	<ol> <li>Auto: "Warning" occurs when P08.09=0 or 3. The "Warning" automatically clears when the feedback signal is larger than 4 mA.</li> <li>Manual: "Error" occurs when P08.09=1 or 2. You must reset manually.</li> </ol>	2) 3) 4)	Replace the cable. Replace the feedback device.
			Reset condition	Immediately reset	]	
			Record ("	Records when P08.09=1 or 2 ("Error"). Does not record when P08.09=3 ("Warning").		
			Action Level	When the analog input is lower than 4 mA (only detects analog input 4–20 mA)		
			Action Time	Immediately act		
AnL	AI-C analog signal loss (AnL) 12 Analog input current	Warning setting parameter	P03.19 setting is: 0: Disable 1: Continue operation at the last frequency (warning, keypad displays ANL) 2: Decelerate to 0 Hz (warning, keypad displays ANL) 3: Stop immediately and display "ACE"	2) 3)	Replace the external device.	
	loss (including all analog 4–20 mA signals)	Reset method	<ol> <li>Auto: "Warning" occurs when P03.19=1 or 2. The "Warning" automatically clears when the feedback signal is larger than 4 mA.</li> <li>Manual: "Error" occurs when P03.19=3. You must reset manually.</li> </ol>			
			Reset condition	····, ···,	]	
			Record	Does not record when P03.19=1 or 2 ("Warning").		
			(conti	nued next page)		

Display on GS10 Keypad	ID No.	Warning Name and Description	Action and Res	et	Со	prrective Action
			Action Level	P06.71		
			Action Time	P06.72	]	
				P06.73 setting is:		
				0: No function		
		Warning setting	1: Fault and coast to stop			
		parameter	2: Fault and ramp to stop by the			
			2nd deceleration time	1)	Check for a broken motor cable, the	
				3: Warn and continue operation 1) Auto: "Warning" occurs	Í	exclude the connection issue of the
				when P06.73=3. The		motor and its load.
		Under current (uC)			2)	Verify low current protection setting
IJΕ	13			"Warning" automatically		If needed, set the proper settings for
		Low current	Decest we at he al	clears when the output	2	P06.71, P06.72 and P06.73.
			Reset method	current is larger than	3)	Check the loading status and make
				(P06.71+0.1 A).		sure the loading matches the motor capacity.
				2) Manual: "Error" occurs		capacity.
				when P06.73=1 or 2. You		
			Decet condition	must reset manually.		
			Reset condition	Immediately reset Does not record when		
			Record	P06.73=3 and uC displays		
			Record	("Warning").		
		20 Over-torque 1 (ot1) Over-torque 1 warning	Action Level	P06.07	1)	Configure the settings for P06.07 ar
			Action Time	P06.08		P06.08 again.
ot 1	20		Warning setting parameter Reset method	P06.06 Over-torque Detection Selection (Motor 1) =1 or 3 0: No function 1: Continue operation after over-torque detection during constant speed operation 2: Stop after over-torque detection during constant speed operation 3: Continue operation after over-torque detection during RUN 4: Stop after over-torque detection during RUN 4: Stop after over-torque detection during RUN When the output current < P06.07, the ot1 warning automatically clears	4) 5) 6)	Check for mechanical error and remove the causes of malfunction. Verify load and decrease the loading or replace with a motor with larger capacity if load is too high. Verify accel/decel time and increase the setting values for P01.12–P01.19 (accel./ decel. time) if work cycle is too short. Verify V/F voltage and adjust the V/F curve (Motor 1, P01.01–P01.08), especially the setting value for the mid-point voltage (if the mid-point voltage is set too small, the load capacity decreases at low-speed). Replace motor with a larger capacit motor. Check for overload during low-speed operation and decrease the loading during low-speed operation or increase the motor capacity.
			Reset condition	When the output current < P06.07, the ot1 warning automatically clears N/A	9)	Verify torque compensation and adjust P07.26 torque compensation gain until the output current decreases and the motor does not stall. Correct the parameter settings for speed tracking. Start the speed tracking function. Adjust the maximum current for P07.09 speed tracking.

			Warning	Codes (continued)	
Display on GS10 Keypad	ID No.	Warning Name and Description	Action and Res		Corrective Action
Keypad		Description	Action Level Action Time Warning setting parameter	P06.10 P06.11 P06.09 Over-torque Detection Selection (Motor 2) = 1 or 3 0: No function 1: Continue operation after over-torque detection during constant speed operation 2: Stop after over-torque detection during constant speed operation 3: Continue operation after over-torque detection during	<ol> <li>Configure the settings for P06.10 and P06.11 again.</li> <li>Check for mechanical error and remove the causes of malfunction.</li> <li>Verify load and decrease the loading or replace with a motor with larger capacity if load is too high.</li> <li>Verify accel/decel time and increase the setting values for P01.12–P01.19 (accel./ decel. time) if work cycle is too short.</li> <li>Verify V/F voltage and adjust the V/F curve (Motor 2, P01.35–P01.42), especially the setting value for the mid-point voltage (if the mid-point</li> </ol>
ot 21	Over-torque (ot2) Over-torque 2 warning	Reset method	RUN 4: Stop after over-torque detection during RUN When the output current < P06.10, the ot2 warning automatically clears	<ul> <li>a hid-point voltage (if the hid-point voltage is set too small, the load capacity decreases at low-speed).</li> <li>b) Replace motor with a larger capacity motor.</li> <li>7) Check for overload during low-speed operation and decrease the loading during low-speed operation or increase the motor capacity.</li> <li>8) Verify torque compensation and</li> </ul>	
			Reset condition	When the output current < P06.10, the ot2 warning automatically clears	<ul> <li>adjust P07.71 torque compensation and adjust P07.71 torque compensation gain until the output current decreases and the motor does not stall.</li> <li>9) Correct the parameter settings for</li> </ul>
			Record	N/A	speed tracking. Start the speed tracking function. Adjust the maximum current for P07.09 speed tracking.
			(conti	nued next page)	

			Warning	Codes (continued)	
Display on GS10 Keypad	ID No.	Warning Name and Description	Action and Res	et	Corrective Action
			Action Level	P03.00=6 (PTC), PTC input level > P06.30 PTC level (default=50%)	<ol> <li>Check if motor is locked and clear the motor lock status.</li> <li>Verify load and decrease the loading or replace with a motor with larger</li> </ol>
			Action Time	Immediately act	<ul><li>capacity if load is too high.</li><li>3) Verify ambient temperature and change the installed location if</li></ul>
οНЭ	The AC motor drive detects the	Warning setting parameter	Error treatment: P06.29 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning When P06.29=0 and when the temperature is $\leq$ P06.30 level, the oH3 warning automatically clears. When P06.29=0 ("Warning"), it automatically resets.	<ul> <li>there are heating devices in the surroundings, or install/add cooling fan or air conditioner to lower the ambient temperature.</li> <li>4) Check the cooling system and ensure it's working normally.</li> <li>5) Verify the motor fan is working and replace the fan if needed.</li> <li>6) Verify duration of low speed operation. Decrease low-speed operation time. Change to dedicated motor for the drive. Increase the motor capacity.</li> <li>7) Verify accel/decel time and increase setting values for P01.12–P01.19 (accel./ decel. time) if working cycle is too short.</li> </ul>	
		temperature inside the	Reset method	When P06.29=0, oH3 displays as "Warning". When the temperature is $\leq$ P06.30 level, the oH3 warning automatically clears.	<ul> <li>8) Verify V/F voltage and adjust settings for P01.01–P01.08 (V/F curve), especially the setting value for the mid-point voltage (if the mid-point voltage is set too small, the load capacity decreases at low-speed).</li> <li>9) Verify the motor rated current matches the match matches and</li> </ul>
			Reset condition	When the temperature is ≤ P06.30 level, the oH3 warning automatically clears.	<ul> <li>matches the motor nameplate and configure the correct rated current value of the motor if needed.</li> <li>10) Check the connection between PTC thermistor and the heat protection.</li> <li>11) Verify stall prevention setting and set the stall prevention to the proper</li> </ul>
			Record	N/A	<ul> <li>value if needed.</li> <li>12) Check for unbalanced three-phase motor impedance. Replace the motor if needed.</li> <li>13) Verify harmonics and reduce harmonics if too high.</li> </ul>
			(conti	nued next page)	

## **Chapter 6: Maintenance and Troubleshooting**

Display on GS10 Keypad         ID No.         Warning Name and Description         Action and Reset         Corrective Action           Mathematical Keypad         ID No.         Warning Name and Description         Action and Reset         Corrective Action           Mathematical Keypad         ID No.         Warning Name and Description         Action and Reset         Corrective Action           Mathematical Keypad         ID No.         Warning Name and Description         Action and Reset         Corrective Action           Mathematical Keypad         ID No.         Warning Name and Description         Action Imulaity         P03.00=11 (PT100), PT100 RTD input level > P06.57 (default=7V)         1         Check if motor is locked and clear the motor lock status.           Verify ambient temperature and change the installed location if there are heating devices in the surroundings, or install/add cooling fan or air conditioner to lower the surroundings, or install/add cooling fan or air conditioner to lower the surroundings, or install/add cooling fan or air conditioner fan is working and replace the fan if needed.           Motor over-heating (0H3) PT100 RTD         Warning setting parameter         Warning setting parameter         Warning and the perature is between P06.56 and P06.57, the frequency outputs according to the operating frequency setting for P06.58.         Verify Uration of low speed operation. Decrease low-speed operation time. Change to dedicate motor capacity.           7         Werify Ur soltage and adjust setting for P06.58.         Ve
<ul> <li>►H3</li> <li>22_2</li> <li>Motor over-heating (oH3) PT100 RTD</li> <li>Warning setting parameter</li> <li>Warning setting parameter</li> <li>Warning setting parameter</li> <li>Warning setting parameter</li> <li>Warning setting parameter</li> <li>Motor over-heating (oH3) PT100 RTD</li> <li>22_2.2</li> <li>Motor over-heating (oH3) PT100 RTD</li> <li>Action Time</li> <li>Warning setting parameter</li> <li>Warning setting frequency setting for P06.58.</li> <li>When P06.29=0, oH3 displays as "Warning". When the</li> <li>Weify VF voltage and adjust setting for P01.01-P01.08 (V/F curve).</li> <li>Weify VF voltage and adjust setting for P01.01-P01.08 (V/F curve).</li> </ul>
<ul> <li>CH∃</li> <li>22_2</li> <li>Motor over-heating (oH3) PT100 RTD</li> <li>22_2</li> <li>Motor overheating warning. The AC motor drive detects the temperature inside the motor is too high</li> <li>Action Time</li> <li>Immediately act</li> <li>Error treatment: P06.29 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning When P06.29=0 and when the temperature is ≤ P06.56 level, the oH3 warning automatically clears.</li> <li>If the temperature is between P06.56 and P06.57, the frequency outputs according to the operating frequency setting for P06.58.</li> <li>Wen P06.29=0, oH3 displays as "Warning". When the</li> </ul>
<ul> <li>►H∃</li> <li>22_2</li> <li>Motor over-heating (oH3) PT100 RTD</li> <li>Motor overheating warning. The AC motor drive detects the temperature inside the motor is too high</li> <li>►HI and continue operation 1: Fault and coast to stop 2: No warning When P06.29=0 and when the temperature is ≤ P06.56 level, the oH3 warning automatically clears. If the temperature is between P06.56 and P06.57, the frequency outputs according to the operating frequency setting for P06.58.</li> <li>Verify duration of low speed operation Decrease low-speed operation time. Change to dedicate motor capacity.</li> <li>Verify accel/decel time and increase setting values for P01.12–P01.19 (accel./ decel. time) if working cycle is too short.</li> <li>Verify V/F voltage and adjust setting for P01.01–P01.08 (V/F curve), motor is too high</li> </ul>
drive detects the temperature inside the motor is too highWhen P06.29=0, oH3 displays as "Warning". When the8)Verify V/F voltage and adjust setting for P01.01–P01.08 (V/F curve), enverting the for the
Reset method temperature is ≤ P06.56 level, the oH3 warning automatically clears. the oH3 warning automatic
Reset conditionWhen the temperature is ≤ P06.56 level, the oH3 warning automatically clears.9)Verify the motor rated current matches the motor nameplate and configure the correct rated current value of the motor if needed.10)Check the connection between PT100 RTD and the heat protection. 11)P100 RTD and the heat protection.
Record       N/A       set the stall prevention to the proper value if needed.         12) Check for unbalanced three-phase motor impedance. Replace the mot if needed.       12) Verify harmonics and reduce harmonics if too high.
Over slip warning (oSL)     Action Level     When the drive outputs at constant speed, and F>H or F <h exceeds="" level<="" p07.29="" td="" the=""></h>
Over slip warning.       By using the maximum slip (P10.29) as the base, when the drive       Warning setting parameter       P07.31 = 0 Warning 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning       1)       Check the motor parameter.         Comparison       24       Description       Description       10       Check the motor parameter.         Portion       10       Check the motor parameter.       10       Check the motor parameter.         Portion       10       Check the motor parameter.       10       Check the motor parameter.         Portion       10       Check the motor parameter.       11       Check the motor parameter.         Portion       11       Check the motor parameter.       11       Check the motor parameter.         Portion       11       Check the motor parameter.       11       Check the motor parameter.         Portion       11       Check the motor parameter.       11       Check the motor parameter.         Portion       11       Check the motor parameter.       11       Check the motor parameter.         Portion       11       Check the motor parameter.       11       Check the motor parameter.         Portion       12       13       14       14       14         Portion       14       14
<ul> <li>b) L</li> <li>c) C</li> <li< td=""></li<></ul>
Reset condition N/A

Display				Codes (continued)	
on GS10 Keypad	ID No.	Warning Name and Description	Action and Res	et	Corrective Action
		Auto tuning (tUn)	Action Level	When running P05.00 motor parameter auto-tuning, the keypad displays "tUn".	-
		Auto tuning (ton)	Action Time	N/A	_
ЕUn	<b>Hilm</b> 25	Parameter auto-tuning is processing.	Warning setting parameter	N/A	When the auto-tuning is finished, the
	25	When running auto- tuning, the keypad displays "tUn".	Reset method	When auto-tuning is finished and no error occurs, the warning automatically clears.	warning automatically clears.
		displays ton .	Reset condition	When auto-tuning is finished and no error occurs.	
			Record	N/A	
			Action Level	P06.47	1) Check for unbalanced three-phase motor impedance and replace the
		Output phase loss (oPHL) 8 Output phase loss of the drive	Action Time	N/A	motor if needed. 2) Check the cable and replace if
	28		Warning setting parameter	P06.45 setting is: 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning	<ul> <li>needed.</li> <li>3) Ensure a three-phase motor is being used.</li> <li>4) Check if the control board cable is loose. If yes, reconnect the cable an run the drive to test. If the error still provide the table and the error still content to the table and the error still content to the table and the error still content to the error still</li></ul>
			Reset method	If P06.45 is set to 0, the oPHL warning automatically clears after the drive stops.	occurs, contact AutomationDirect Technical Support. 5) Check if the three-phase current is balanced with a current clamp mete If the current is balanced and the
			Reset condition	N/A	oPHL error still shows on the display contact AutomationDirect Technical
			Record	N/A	<ul><li>6) Verify the drive's capacity matches of exceeds the motor's.</li></ul>
		Copy model error 3	Action Level	"SE3" warning occurs when different drive identity codes are found during copying parameters.	
563	30	(SE3)	Action Time	Immediately act when the error is detected	It is mainly to prevent parameter copies between different HP/models.
		Keypad COPY error 3: copy model error	Warning setting parameter	N/A	between aimerent HP/models.
			Reset method	Manual reset	]
			Reset condition	N/A	
			Record	N/A	

			Warning	Codes (continued)		
Display on GS10 Keypad	ID No.	Warning Name and Description	Action and Res	et	Co	prrective Action
			Action Level	When P07.13 is not 0 and the DC bus voltage is lower than the level of dEb.	_	
			Warning setting parameter	Immediately act N/A		
dЕb	102	Deceleration energy backup error (dEb) When P07.13 is not 0 and the power shuts off resulting in DC bus voltage lower than the dEb action level, the dEb function acts and the motor ramps to stop. dEb displays on the keypad.	Reset method Reset condition	Auto: when P07.13=2 (dEb with auto-acceleration/auto- deceleration, drive outputs frequency after power is restored), dEb is automatically cleared. Manual: When P07.13=1 (dEb with auto-acceleration/auto- deceleration, drive does not output frequency after power is restored), the drive stops when dEb acts. When the rotation speed is 0Hz the drive can be manually reset. Auto: the fault is automatically cleared. Manual: When the drive decelerates to 0Hz	1)	eck the power system. Replace power system with a larger capacity system. Use a different power system from the large load system.
			Record	Yes		
			Action Level	Verify if the value of the feedback deviation is lower than the setting at P08.13.		
			Action Time	P08.14	1)	Check for PID feedback pressure loss
dEu	103	PID feedback fault (dEv)	Warning setting parameter	P08.62	2)	<ul><li>or feedback error.</li><li>Check for pressure sensor fault or</li></ul>
UEU	105	PID feedback fault.	Reset method	Manual reset		feedback error.
			Reset condition	When the feedback value is back to the setting range of P08.13, this warning resets automatically.	3)	Check for insufficient pressure or feedback error.
			Record	Yes	1	

## FAULT CODES

The GS10 drive has a comprehensive fault diagnostic system that include a variety of fault messages. When a fault is detected, the GS10 drive will shut down in order to protect internal components. The following faults are displayed as shown on the GS10 digital keypad display. For communication errors, "Upper unit" is referring to the Master controller of the serial network. Always ensure the communication settings of the drive (P09.01 and P09.04) match those of the master controller and network.



Gaps in the fault ID numbers below are set aside as "reserved" faults for possible future use. Should your GS10 drive <u>repeatedly</u> display a reserved fault, please note the fault ID number and contact AutomationDirect technical support.

				Fault Codes
Display on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, o	and Corrective Action
oc A	1	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 Level Action Time Fault setting parameter Reset method Reset condition Record Corrective Actions	<ul> <li>300% of the rated current</li> <li>Immediately act</li> <li>N/A</li> <li>Manual reset</li> <li>Reset in five seconds after the fault is cleared</li> <li>Yes</li> <li>1) Check acceleration time. If too short: <ul> <li>a) Increase the acceleration time</li> <li>b) Increase the acceleration time</li> <li>c) Set auto-acceleration and auto-deceleration parameter (P01.44)</li> <li>d) Set over-current stall prevention function (P06.03)</li> <li>e) Replace the drive with a larger capacity model.</li> </ul> </li> <li>2) Check the motor cable and remove causes of any short circuits, or replace the cable before turning on the power.</li> <li>3) Check the motor insulation value with megger. Replace the motor if the insulation is poor.</li> <li>4) 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.</li> <li>5) Reduce the load or increase the capacity of AC motor drive.</li> <li>6) Check the motor capacity (the rated current on the motor's nameplate should ≤ the rated current of the drive).</li> <li>7) Check the action timing of the contactor and make sure it is not turned ON/OFF when the drive outputs the voltage.</li> <li>8) Adjust the V/F curve setting and frequency/voltage. When the fault occurs, and the frequency voltage is too high, reduce the voltage.</li> <li>9) Adjust the torque compensation (refer to P07.26 torque compensation gain) until the output current reduces and the motor does not stall.</li> <li>10) Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.</li> <li>11) Enable speed tracking during start-up of P07.12.</li> <li>12) Correct the parameter settings for speed tracking.</li> <li>a) Start the speed tracking function.</li> <li>b) Adjust the maximum current for P07.09 speed tracking.</li> <li>13) Check the settings for P00.11 control mode:</li> <li>a) For IM, P00.11=0, 1, 2</li> <li>b) For PM, P00.11=2</li> </ul> <li< td=""></li<>
			(contir	15) Install AC reactor(s) on the output side (U/V/W). nued next page)

acd       2.       Over-current during deceleration (ocd)       Action reset in figure seconds after the faulties to short circuit or ground fault at the output side of the drive.       a) Check for possible short circuits between terminals with the electric meter:         b)       action (continued)       Corrective Actions (continued)       (a) Check for possible short circuits between terminals with the electric meter:         b)       B)       corrective Actions (continued)       (a) Check for possible short circuits between terminals with the electric meter:         b)       B)       Corrective Action (continued)       (a) Check for possible short circuits corresponds to U, V and W.         c)       Check for possible short circuit occurs, contact AutomationDirect Technical Support.       (b) Fishort circuit occurs, contact AutomationDirect Technical Support.         c)       Check for possible short circuit occurs, contact AutomationDirect Technical Support.       (c) If short circuit occurs, contact AutomationDirect Technical Support.         c)       Check for mediately act       (c)       (c)       (c)         fault setting       N/A       (c)       (c)       (c)         Reset method       Manual reset       (c)       (c)       (c)         Reset ondition       Reset in five scends after the fault is cleared       (c)       (c)         (c)       Current during deceleration time is too short. If so:       (c)	Disular	1		Fault C	odes (continued)
ocd (continued)       Corrective Actions (continued)       10 (b) In the case of hardware failure, the ocd accurs due to the short circuit or ground fault at the output side of the drive.       a) Check for possible short circuits between terminals with the electric meter.         b) B1 corresponds to U, V and W. DC- corresponds to U, V and W. (c) if short circuit occurs, contact AutomationDirect Technical Support.         b) B1 corresponds to U, V and W. DC- corresponds to U, V and W.       (c) if short circuit occurs, contact AutomationDirect Technical Support.         b) B1 corresponds to U, V and W. DC- corresponds to U, V and W.       (c) if short circuit occurs, contact AutomationDirect Technical Support.         b) B1 corresponds to U, V and W.       (c) if short circuit occurs, contact AutomationDirect Technical Support.         b) B1 corresponds to U, V and W.       (c) if short circuit occurs, contact Automation Direct Technical Support.         c) M2       Action Level       200% of the rated current.         Action Level       Manual reset.       Action Time         Reset condition       Reset in five seconds after the fault is cleared.         Reset condition       Reset in five seconds after the fault is cleared.         Reset condition       Set auto-current stall prevention inten or P06.000         (c) Uptut current exceeds three times of the rated current during deceleration time is too short. If soc.         (c) Check if the output current during the whole working process exceed: the dorin cinstresponds to U/W and orid exas needed. </th <th></th> <th>ID No.</th> <th></th> <th>Action, Reset, a</th> <th>and Corrective Action</th>		ID No.		Action, Reset, a	and Corrective Action
ocd       2         Action Time       Immediately act Fault setting parameter         Reset method       Manual reset         Reset method       Manual reset         Reset method       Manual reset         Record       Yes         1)       Check if the deceleration time is too short. If so: a)         1)       Check if the deceleration time of 5-curve         1)       Check if the deceleration time of 5-curve         2)       Repare the drive with alreger capacity model         2)       Check if the methonical brake of the motor aduato-deceleration parameter (P01.44)         d)       Set over-current stall prevention function (P06.03)         e)       Replace the drive with alreger capacity model         2)       Check if the motor able and remove causes of any short circuits, or replace the cable before turning on the power.         4)       Check the motor drive stall current during the whole working process exceeds the AC motor drive's rated current on the motor's nameplate should s the rated current of the drive.         7)       Verify the motor capacity of AC motor drive as needed.         7)       Verify the motor capacity of AC motor drive as needed.         7)       Verify the motor capacity of AC motor drive as needed.         7)       Verify the motor capacity of AC motor drive as needed.         7)       Ver	oc A	1	ocA (continued)		<ul> <li>a) Check for possible short circuits between terminals with the electric meter:</li> <li>b) B1 corresponds to U, V and W; DC- corresponds to U, V and W; corresponds to U, V and W.</li> <li>c) If short circuit occurs, contact AutomationDirect Technical Support.</li> <li>17) Check the stall prevention setting and set the stall prevention to the</li> </ul>
ocd       2         Over-current during deceleration (ocd)       0         Over-current during deceleration (ocd)       0         Output current exceeds three times of the construction (ocd)       0         Output current exceeds three times of the construction (ocd)       0         Output current exceeds three times of the construction (ocd)       0         Output current exceeds three times of the construction (ocd)       0         Output current exceeds three times of the construction (ocd)       0         Output current exceeds three times of the construction (ocd)       0         Output current exceeds three times of the construction (ocd)       0         Output current exceeds three times of the construct current during the whole working process exceeds the AC motor drive's rated current of the obs any short circuits, or replace the cable before turring on the power.         1       0       Check the motor cable and remove causes of any short circuits, or replace the cable before turing on the power.         2       deceleration.       0         1       deceleration.       0         2       deceleration.       0         3       Check the motor cable and remove causes of any short circuits, or replace the cable before turing on the power.         4       Check the motor cable and remove cause of any short circuits, or increase the capacity of AC motor drive as needed.					300% of the rated current
acd       2         2       Over-current during deceleration. When ocd occurs, the dive deceleration issued to rated current during deceleration. When ocd occurs, the dive deceleration issued to rated current during deceleration. When ocd occurs, the dive with a larger capacity model.         3       Check the motor cable and reduce the load or increase the capacity of AC motor drive's needed.         4       Check the Work capacity the working of the output size of the output size of the dive with a larger capacity model.         5       Check the motor cable and remove causes of any short circuits, or replace the cable before turning on the power.         4       Check the motor cable and remove causes of any short circuits, or replace the cable before turning on the power.         6       Check the motor cable and remove causes of any short circuits, or replace the cable before turning on the power.         6       Check the motor cable and remove causes of any short circuits, or replace the cable before turning on the power.         7       Check the motor cable before turning on the power.         8       Check the motor use of the load and reduce the load or increase the capacity model.         9       Check the impulsive change of the load and reduce the load or increase the capacity of AC motor drive as needed.         10       Verify the motor capacity. the rated current on the motor's nameplate should s the rated current on the motor's nameplate the drive output immediate.         8       If using an ON/OFF contaler and make sure it is not turned ON/					Immediately act
ocd       2       Over-current during deceleration (PGC03)       Peset in five seconds after the fault is cleared         0. Ver-current during deceleration (PGC03)       0)       Increase the deceleration time of S-curve         0. Ver-current during deceleration (PGC03)       0)       Set outo-acceleration and auto-deceleration (PGC03)         0. Over-current during deceleration (PGC03)       0)       Replace the drive with a larger capacity model         0. Output current exceeds three times of the insulation value with megger. Replace the motor risulation is poor.         0. Uptut current exceeds three times of the insulation is poor.       Check the motor capacity model.         0. Check the motor capacity model.       Check the motor capacity. the rated current of the drive.         0. deceleration.       Corrective Actions         A divise closes the gate of the objory shows an ocd error.       Corrective Actions         A divise the gate of the display shows an ocd error.       Corrective Actions         A divise the gate of the entory capacity. the rated current of the drive.       If using an ON/OFF controller at the (U/V/W) drive output, check the action timing of the contra capacity of the contral capacity of the contral capacity of the output side (U/V/W) and the output current reduces and the motor does not stall.         11) Verify the winting of the control cruits and the wining/grounding of the main circruit t				-	N/A
Occd       Yes         Occd       1) Check if the deceleration time is too short. If so: <ul> <li>a) Increase the deceleration time of 5-curve</li> <li>b) Increase the deceleration time of 5-curve</li> <li>c) Set auto-acceleration parameter (P01.44)</li> <li>d) Set over-current stall prevention function (P06.03)</li> <li>e) Replace the drive with a larger capacity model</li> </ul> <li>Check the mechanical brake of the motor activates too early.</li> <li>Check the mechanical brake of the motor activates too early.</li> <li>Check the motor insulation value with megger. Replace the motor if the insulation is poor.</li> <li>Check the output current during on the power.</li> <li>Check the untout calue before tuming on the power.</li> <li>Check the untout calue state current. If yes, replace the AC motor drive with a larger capacity model.</li> <li>Check the motor capacity, the rated current on the motor's nameplate should s the rated current on the motor's nameplate should s the rated current on the motor's nameplate should s the rated current on the motor's nameplate should s the rated current on the motor's nameplate should s the rated current on the motor's nameplate should s the rated current on the motor's nameplate should s the rated current on the motor's nameplate should s the rated current on the motor's nameplate should s the rated current on the woltage.</li> <li>Haiding an ON/OFF controller at the (U/VM) drive output, check the action timing of the contactor and make sure it is not turned ON/OFF when the drive outputs the voltage.</li> <li>Adjust the VP curve settings and frequency/voltage. When the fault occurs, and the frequency voltage is too high, reduce the voltage.</li> <li>Adjust the P07.26 torque compensation gain until the output current reduces and the motor cable. If it is</li>					Manual reset
<ul> <li>Code and the display shows an ocd error.</li> <li>Check if the deceleration time is too short. If so:         <ul> <li>a) Increase the deceleration time of S-curve</li> <li>b) Increase the deceleration time of S-curve</li> <li>c) Set auto-acceleration and auto-deceleration (P06.03)</li> <li>e) Replace the drive with a larger capacity model</li> </ul> </li> <li>Check the mechanical brake of the motor activates too early.</li> <li>Check the motor cable and remove causes of any short circuits, or replace the cable before turning on the power.</li> <li>Check the motor activates too early.</li> <li>Check the notor activates too early.</li> <li>Check the motor activates too early.</li> <li>Check the motor activates too early.</li> <li>Check the inpulsive change of the load and reduce the load or increase the capacity of AC motor drive as needed.</li> <li>Verify the motor capacity, the rated current of the drive.</li> <li>Majust the VF2 corrup contrage and requency/voltage. When the fault occurs, and the fraguency/voltage. When the fault occurs, and the Por2.6 torque compen</li></ul>					
<ul> <li>a) Increase the deceleration time</li> <li>b) Increase the deceleration time</li> <li>c) Increase the deceleration time of S-curve</li> <li>c) Set auto-acceleration and auto-deceleration parameter (P01.44)</li> <li>d) Set over-current stall prevention function (P06.03)</li> <li>e) Replace the drive with a larger capacity model</li> <li>C) Check if the mechanical brake of the motor activates too early.</li> <li>C) Check if the mechanical brake of the motor activates too early.</li> <li>C) Check the motor insulation value with megger. Replace the motor if the insulation is poor.</li> <li>C) Check the motor insulation value with megger. Replace the motor if the output current during deceleration.</li> <li>When ocd occurs, the drive closes the gate of the output current during the output current during deceleration.</li> <li>When ocd occurs, the drive closes the gate of the output current during of the contactor and make sure it is not turned ON/OFF when the drive closes the gate of the drive loses the gate of the origon of the origon of the load and reduce the load or increase the capacity of AC motor drive as needed.</li> <li>Verify the motor capacity, the rated current on the motor's nameplate should s the rated current of the drive.</li> <li>If using an ON/OFF controller at the (U/V/W) drive output, check the action timing of the contactor and make sure it is not turned ON/OFF when the fault occurs, and the frequency voltage is too high, reduce the voltage.</li> <li>Adjust the V/F curve settings and frequency/voltage. When the fault occurs, and the frequency on stall.</li> <li>Verify the wring of the contor circuit and the wing/grounding of the main circuit to prevent interference.</li> <li>Check the length of the motor close. If it is too long, increase the AC motor drive's capacity or install AC reactor(s) on the output side (U/V/W).</li> <li>In the case of a hardware error, the od occurs due to the short circuit or ground fault</li></ul>				Record	
c) If short circuits occurs, contact AutomationDirect Technical	ocd	2	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		<ul> <li>a) Increase the deceleration time</li> <li>b) Increase the deceleration time of S-curve</li> <li>c) Set auto-acceleration and auto-deceleration parameter (P01.44)</li> <li>d) Set over-current stall prevention function (P06.03)</li> <li>e) Replace the drive with a larger capacity model</li> <li>2) Check if the mechanical brake of the motor activates too early.</li> <li>3) Check the motor cable and remove causes of any short circuits, or replace the cable before turning on the power.</li> <li>4) Check the motor insulation value with megger. Replace the motor if the insulation is poor.</li> <li>5) 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's rated current of the load and reduce the load or increase the capacity of AC motor drive as needed.</li> <li>7) Verify the motor capacity, the rated current on the motor's nameplate should ≤ the rated current of the drive.</li> <li>8) If using an ON/OFF controller at the (U/V/W) drive output, check the action timing of the contactor and make sure it is not turned ON/OFF when the drive outputs the voltage.</li> <li>9) Adjust the V/F curve settings and frequency/voltage. When the fault occurs, and the frequency voltage is too high, reduce the voltage.</li> <li>10) Adjust the P07.26 torque compensation gain until the output current reduces and the motor does not stall.</li> <li>11) Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.</li> <li>12) Check the length of the motor cable. If it is too long, increase the AC motor drive's capacity or install AC reactor(s) on the output side (U/V/W).</li> <li>13) In the case of a hardware error, the ocd occurs due to the short circuit or ground fault at the output side of the drive.</li> <li>a) Check the length of the motor circuits between terminals with the electric meter:</li> <li>b) B1 corresponds to U, V and W; DC- corresponds to U, V and W; corresponds to U, V and W.</li></ul>
					14) Verify the stall prevention setting and set the stall prevention to the
14) Verify the stall prevention setting and set the stall prevention to the		1		(contir	nued next page)

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		Fault C	odes (continued)
ID No.	Fault Name and Description	Action, Reset, d	and Corrective Action
3	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	Action Level Action Time Fault setting parameter Reset method Reset condition Record	<ul> <li>300% of the rated current</li> <li>Immediately act</li> <li>N/A</li> <li>Manual reset</li> <li>Reset in five seconds after the fault is cleared</li> <li>Yes</li> <li>1) Check the motor cable and remove causes of any short circuits, or replace the cable before turning on the power.</li> <li>2) Check for possible shaft lock, burnout or aging insulation of the motor. <ul> <li>a) Check the motor insulation value with megger. Replace the motor if the insulation is poor.</li> </ul> </li> <li>3) Check for impulsive change of the load, and reduce the load or increase the capacity of AC motor drive.</li> <li>4) Check motor capacity (the rated current on the motor's nameplate should ≤ the rated current of the drive)</li> <li>5) If using an ON/OFF controller at the drive output, check the action timing of the contactor and make sure it is not turned ON/OFF when the drive outputs the voltage.</li> <li>6) Adjust the V/F curve settings and frequency/voltage. When the fault occurs, and the frequency voltage is too high, reduce the voltage.</li> <li>7) Adjust P07.26 torque compensation gain until the output current reduces and the motor does not stall.</li> <li>8) Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.</li> <li>9) Check the length of the motor cable. If too long: <ul> <li>a) Increase the AC motor drive's capacity.</li> <li>b) Install AC reactor(s) on the output side of the drive.</li> <li>a) Check for possible short circuit between terminals with the electric meter:</li> <li>b) B1 corresponds to U, V and W; DC- corresponds to U, V, and W; corresponds to U, V, and W.</li> </ul> </li> </ul>
		Action Level	<ul> <li>c) If short circuits occurs, contact AutomationDirect Technical Support.</li> </ul>
4	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 Time Fault setting parameter Reset method Reset condition Record	<ul> <li>N/A</li> <li>N/A</li> <li>N/A</li> <li>Manual reset</li> <li>Reset in five seconds after the fault is cleared</li> <li>Yes</li> <li>1) Check for motor burnout or aging insulation. <ul> <li>a) Check the motor insulation value with megger.</li> <li>b) Replace the motor if the insulation is poor.</li> </ul> </li> <li>2) Check the cable for short circuits and replace the cable if needed.</li> <li>3) If the motor cable length exceeds 100 m, decrease the setting value for the carrier frequency and take remedies to reduce stray capacitance.</li> <li>4) Verify the grounding and wiring of the communication circuit. Separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.</li> <li>5) Cycle the power after checking the status of motor, cable, and cable length. If GFF still exists, contact AutomationDirect Technical Support.</li> <li>6) Refer to the corrective actions for och.</li> <li>8) Refer to the corrective actions for ocd.</li> </ul>
	3	ID No.DescriptionDescriptionDescriptionOver-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.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 an ocn error.	ID No.Fault Name and DescriptionAction, Reset, of Action Level Action Time Fault setting parameter Reset method Reset condition Record3Over-current during steady operation (ocn)Action Time Fault setting parameter Reset condition Record3Over-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.Corrective Actions4Action Level Action Time Fault setting parameter Reset method Reset condition Record4When the drive detects grounding short circui on the output terminals (U/V/W), the drive closes the gate of the conset of the condition Record4When the drive detects grounding short circui on the output terminals (U/V/W), the drive closes the gate of the output immediately, the motor runs freely, 

on GS10 Keypad     ID No.     Point Nume and Description     Action, Reset, and Corrective Action       Action Level     300% of the rated current     Action Level     300% of the rated current       Over-current at stop (oCS)     Action Level     300% of the rated current       Over-current or hardware failure in current detection at stop.     Action Time     Immediately act       Cycle the power after ocS occurs. If the hardware failure occurrent, the display shows cd1, cd2 or cd3.     Manual reset       Action Level     Corrective Actions     1) Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.       2) Check if other error codes such as cd1-cd3 occur after cycling the power. If yes, return to the factory for repair.       120V/230V series: 410VDC       Action Level     Action Time       Reset only when the DC bus voltage is higher than the level Fault setting parameter       N/A       Reset only when the DC bus voltage is lower than 90% of the over- voltage level       Record     Yes       Quer-voltage during acceleration (ovA)     0       Dever-voltage during acceleration (ovA)     0       DC bus over-voltage     0       Dever-voltage during acceleration (ovA)     0       DC bus over-voltage     0       Dever-voltage during acceleration (ovA)     0       DC bus over-voltage     0 <th></th> <th>1</th> <th></th> <th>Fault C</th> <th>Codes (continued)</th>		1		Fault C	Codes (continued)
ourR       7       Action Time       Immediately act         ourR       6       Over-current or hardware failure in current detection at stop.       N/A         Cycle the power after ocs occurs. If the seconds after the fault is cleared       Reset on flow.       Reset on flow.         Cycle the power after ocs occurs. If the display shows cd1, the display shows cd1.       Corrective       1)       Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.         Action Time       Corrective       2)       Check if other error codes such as cd1-cd3 occur after cycling the power. (1yes, return to the factory for repair.         Action Level       Action Time       Immediately act when the DC bus voltage is higher than the level         Fault setting parameter       N/A         Pault setting parameter       N/A         Reset condition       Reset only when the DC bus voltage is higher than the level         Pault setting acceleration. (wa)       D         De bus over-voltage during acceleration (ovA)       Reset condition. (Foo slow:         Decord       10         Corrective during acceleration (wa)       10         Check if the input voltage is within the rated AC motor drive input voltage is setting or stall prevention level. If the value is lower than no-load current. adjust it to be higher than no-load current.         Debus over-voltage during acceleration (wa) <th>Display on GS10 Keypad</th> <th>ID No.</th> <th></th> <th>Action, Reset, d</th> <th>and Corrective Action</th>	Display on GS10 Keypad	ID No.		Action, Reset, d	and Corrective Action
Over-ourrent or hardware failure in current detection at stop.       NAA         Dec 5       6         ourrent detection or hardware failure in current detection at stop.       NAA         Dec 5       6         current detection at stop.       Cycle the power after ocs occurs. If the hardware failure occurs, the display shows coll, cd2 or cd3.         current detection at stop.       Corrective         Action I uneel       1) Verify the wring of the control circuit and the wring/grounding of the main circuit to prevent interference.         2) Check if other error codes such as cd1-cd3 occur after cycling the power. If yes, return to the factory for repair.         120V/230 vseries: 410VDC         4ction I meel         Reset condition         Parameter         N/A         Parameter         Action Level         Action I meel         Immediately act         Cover-voltage during acceleration.         acceleration (ovA)         DC bus over-voltage during acceleration.         acceleration (ovA)         DC bus o				Action Level	300% of the rated current
0LR       7       Wer-Current detection at stop. Cycle the power after ocsoccurs. If the hardware failure occurs, the display shows cd1, cd2 or cd3.       Peset method       Manual reset         0LR       7       Action Level       Over-voltage during acceleration (ovA)       1) Verify the wining of the control circuit and the wining/grounding of the main circuit to prevent interference. 2) Check if other error codes such as cd1-cd3 occur after cycling the power. If yes, return to the factory for repair.         0LR       7       Action Level       Action Time       Immediately act when the DC bus voltage is higher than the level         Reset condition       Reset condition       Reset condition       Reset condition         0.Ver-voltage during acceleration (ovA)       Reset condition       Reset condition       Reset condition         0.Ver-voltage during acceleration (ovA)       Corrective       Action Level       10.Ver when the DC bus voltage is lower than no-load current.         0. De bus over-voltage during acceleration (ovA)       De C bus over-voltage during acceleration (ovA)       Check if the input voltage is within the rated AC motor drive input voltage range, and check for possible voltage splikes.         10       De bus over-voltage during acceleration in this case, install an AC reactor.       Check if the input voltage range and more load current.         20       Check if the input voltage is bing generated:       0. Use over-voltage fault prevention functin P(06.01)         10			(ocS)	Action Time	Immediately act
0.0.5       6       hardware failure in current detection a stop.       Reset method       Manual reset         0.0.6       Stop.       Cycle the power after oc5 occurs. If the hardware failure occurs, the display shows current, the display shows current, and the wind of the control circuit and the wind of the con				-	
OCD       6       stop. Cycle the power after ocS occurs. If the hardware failure occurs, the display shows cd1, cd2 or cd3.       Record       Yes         OutP       Action Level       1. Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.       2. Check if other error codes such as cd1-cd3 occur after cycling the power. If yes, return to the factory for repair.         120/V230V series: #20/VDC       Action Level       120/V230V series: #20/VDC         Action Level       Manual reset       Reset condition         Reset condition       Reset condition       Reset condition         Participation       MA       Reset condition       N/A         Action Level       Manual reset       Reset condition       Reset condition         Reset condition       Reset condition       Reset condition       Reset condition         N/A       Reset condition       N/A       Reset condition       N/A         Record       Yes       N/A       Record       Yes         DC bus over-voltage during acceleration (ovA)       Record       Yes       10. Check acceleration if too slow: a) Decrease the acceleration in level. If the value is lower than no-load current, adjust it to be higher than no-load current, b) Use a braking unit or DC bus       2. Check if the input voltage is within the rated AC motor drive input voltage range, and check for possible voltage spikes.					Manual reset
OUL         Record         Yes           Cycle the power after ocS occurs. If the hardware failure occurs, the display shows cd1, cd2 or cd3.         N ceristive Actions         Verify the wining of the control circuit and the wining/grounding of the main circuit to prevent interference.           2) Check if other error codes such as cd1-cd3 occur after cycling the power. If yes, return to the factory for repair.         Action Level         120V/230V series: 410VDC 4d0V series: 320VDC           Action Level         Action Time Fault setting parameter         Immediately act when the DC bus voltage is higher than the level           N/A         Reset condition         Reset condition         Reset condition           Reset condition         Reset condition         Reset condition         Reset condition           DC bus over-voltage during acceleration (ovA)         DC bus over-voltage during acceleration (ovA)         DC check acceleration. If too slow: a) Decrease the acceleration time b) Use a braking unit or DC bus         Check if the input voltage is within the rated AC motor drive input voltage range, and check for possible voltage spikes.           DC bus over-voltage during acceleration. runs freely, and the drive closes the gate of the output, the motor runs freely, and the drive closes the gate of the output, the motor runs freely, and the drive closes the gate of the output, the motor runs freely, and the drive closes the gate of the output, the motor runs freely, and the drive closes the gate of the output, the motor runs freely, and the drive closes the gate of the output, the motor runs freely, and the drive closes the gate of the output, the m	nr5	6		Reset condition	Reset in five seconds after the fault is cleared
OCS occurs. If the hardware failure occurs, the display shows cd1, cd2 or cd3.       Corrective Actions       Corrective Actions       2. Check if other error codes such as cd1-cd3 occur after cycling the power. If yes, return to the factory for repair.         2. Check if other error codes such as cd1-cd3 occur after cycling the power. If yes, return to the factory for repair.       2. Check if other error codes such as cd1-cd3 occur after cycling the power. If yes, return to the factory for repair.         Action Level       Action Level       120/V2/30V series: 320/DC         Action Level       Action Level       Manual reset         Reset condition       Reset condition       N/A         Reset condition       Reset condition       N/A         Record       Yes       1       Over-voltage during acceleration.         acceleration (vA)       DC bus over-voltage during acceleration.       N/A         DC bus over-voltage during acceleration.       Corrective       1       Over-voltage componentiate the power supply unit acts in the same power supply unit acts in the same power system, the input voltage rapacity model.         DC bus over-voltage during acceleration.       Corrective Actions       3       Check if the input voltage is within the rated AC moot drive input voltage is any surge acapacity model.         DC bus over-voltage during acceleration.       Corrective Actions       4. If the phase-in capacitor or active power supply unit acts in the same power system, the input voltage is within the rat				Record	Yes
Action Level       460V series: 820VDC         Action Time       Immediately act when the DC bus voltage is higher than the level         Fault setting parameter       N/A         Reset method       Manual reset         Reset only when the DC bus voltage is lower than 90% of the over- voltage level       Reset congition         Reset congition       Yes         1)       Check acceleration. If too slow: acceleration (ovA)         DC bus over-voltage during acceleration.       1)         Check the setting for stall prevention level. If the value is lower than no-load current, adjust it to be higher than no-load current.         3)       Check the setting for stall prevention level. If the value is lower than no-load current, adjust it to be higher than no-load current.         3)       Check the setting for stall prevention level. If the value is lower than no-load current, adjust it to be higher than no-load current.         3)       Check the setting for stall prevention level. If the value is lower than no-load current, adjust it to be higher than no-load current.         4)       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.         5)       Check the over-voltage stall prevention function (P06.01)         b)       Use aver-ovoltage stall prevention function (P06.01)         c)       Use aver-ovoltage stall prevention indicates accele			ocS occurs. If the hardware failure occurs, the display shows cd1,		<ul><li>the main circuit to prevent interference.</li><li>2) Check if other error codes such as cd1–cd3 occur after cycling the</li></ul>
7       Action Time       Immediately act when the DC bus voltage is higher than the level         Pault setting       N/A         Reset only when the DC bus voltage is lower than 90% of the over-voltage level         Reset condition       Reset only when the DC bus voltage is lower than 90% of the over-voltage level         Record       Yes         1)       Check acceleration. If too slow: <ul> <li>a)</li> <li>Decrease the acceleration time</li> <li>b)</li> <li>Use a braking unit or DC bus</li> <li>Check the setting for stall prevention level. If the value is lower than no-load current, adjust it to be higher than no-load current.</li> <li>Check if the input voltage is within the rated AC motor drive input voltage range, and check for possible voltage spikes.</li> </ul> 4)       If the phase-in capacitry ondel.         2)       Check the setting for stall prevention level. If the value is lower than no-load current, adjust it to be higher than no-load current.         3)       Check if the input voltage may surge abnormally in a short time. In this case, install an AC reactor.         4)       If the phase-in capacitor or active power supply unit acts in the same power system, the input voltage stall prevention function (P06.01)         b)       Use aver-voltage stall prevention function (P06.01)         b)       Use aver-voltage stall prevention         c)       Check if the over-voltage stall prevention         4)       Use				Action Level	
Image: Parameter Paramete				Action Time	
7       Reset method       Manual reset         Reset only when the DC bus voltage is lower than 90% of the over-voltage level       Reset condition         Record       Yes       1) Check acceleration. If too slow: <ul> <li>a) Decrease the acceleration time</li> <li>b) Use a braking unit or DC bus</li> <li>c) Replace the drive with a larger capacity model.</li> <li>2) Check the setting for stall prevention level. If the value is lower than no-load current, adjust it to be higher than no-load current.</li> <li>3) Check if the input voltage is within the rated AC motor drive input voltage range, and check for possible voltage spikes.</li> <li>4) 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.</li> <li>5) Check for regenerative voltage of motor inertia. If regenerative voltage is being generated:</li></ul>					
7       Wes-voltage during acceleration (ovA)       Reset condition       Reset condition       Reset only when the DC bus voltage is lower than 90% of the overvoltage level         0       Ver-voltage during acceleration (ovA)       1)       Check acceleration if too slow: <ul> <li>a)</li> <li>Decrease the acceleration time</li> <li>b)</li> <li>Use a braking unit or DC bus</li> <li>c)</li> <li>Replace the drive with a larger capacity model.</li> </ul> DC bus over-voltage during acceleration.         Check the setting for stall prevention level. If the value is lower than no-load current, adjust it to be higher than no-load current.           DC bus over-voltage during acceleration.         Check the setting for stall prevention level. If the value is lower than no-load current.           DC her ovA occurs, the drive oxits freely, and the display shows an ovA error.         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.           SO Check for regenerative voltage of motor inertia. If regenerative voltage is being generated:         a) Use over-voltage stall prevention function (P06.01)           b) Use auto-acceleration and auto-deceleration setting (P01.44)         c) Use auto-acceleration time is too short. Do the following:           a) Increase the acceleration time is too short. Do the following:         a) Increase the acceleration time is too short. Do the following:           b) Set P06.01 over-voltage stall preventi				-	Manual reset
Record       Yes         Over-voltage during acceleration (ovA)       1)       Check acceleration. If too slow: <ul> <li>a)</li> <li>Decrease the acceleration time</li> <li>b)</li> <li>Use a braking unit or DC bus</li> <li>c)</li> <li>Replace the drive with a larger capacity model.</li> </ul> 2)         Check the setting for stall prevention level. If the value is lower than no-load current.           3)         Check if the input voltage is within the rated AC motor drive input voltage range, and check for possible voltage spikes.           4)         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.           5)         Check tor regenerative voltage of motor inertia. If regenerative voltage is being generated:					Reset only when the DC bus voltage is lower than 90% of the over-
<b>a</b> ) Decrease the acceleration time <b>b</b> ) Use a braking unit or DC bus <b>c</b> Over-voltage during acceleration (ovA) <b>b</b> ) Cbus over-voltage during acceleration. <b>b</b> ) DC bus over-voltage trive closes the gate of the output, the motor runs freely, and the display shows an ovA error. <b>c</b> ) Crrective Actions <b>c</b> ) Crrective Actions <b>c</b> ) De over-voltage stall prevention function (P06.01) b) Use auto-acceleration and auto-deceleration stetting (P01.44) c) Use a braking unit or DC bus <b>c</b> ) Check if the over-voltage fault occurs after acceleration stops, which indicates acceleration time b) Set P06.01 over-voltage stall prevention c) Increase the acceleration time b) Set P06.01 over-voltage stall prevention c) Increase the setting value for P01.25 S-curve acceleration arrival time 2 <b>c</b> ) He ground short circuit current charges the capacitor in the main circuit through the power. Check if there is a ground fault on the motor cable,				Record	
9) Verify the wiring of the control circuit and the wiring/grounding of	ouR	7	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		<ul> <li>a) Decrease the acceleration time</li> <li>b) Use a braking unit or DC bus</li> <li>c) Replace the drive with a larger capacity model.</li> <li>2) Check the setting for stall prevention level. If the value is lower than no-load current, adjust it to be higher than no-load current.</li> <li>3) Check if the input voltage is within the rated AC motor drive input voltage range, and check for possible voltage spikes.</li> <li>4) 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.</li> <li>5) Check for regenerative voltage of motor inertia. If regenerative voltage is being generated: <ul> <li>a) Use over-voltage stall prevention function (P06.01)</li> <li>b) Use auto-acceleration and auto-deceleration setting (P01.44)</li> <li>c) Use a braking unit or DC bus</li> </ul> </li> <li>6) Check if the over-voltage Fault occurs after acceleration stops, which indicates acceleration time is too short. Do the following: <ul> <li>a) Increase the acceleration time</li> <li>b) Set P06.01 over-voltage stall prevention</li> <li>c) Increase the setting value for P01.25 S-curve acceleration arrival time 2</li> </ul> </li> <li>7) The ground short circuit current charges the capacitor in the main circuit through the power. Check if there is a ground fault on the motor cable, wiring box, or its internal terminals.</li> </ul>
					9) Verify the wiring of the control circuit and the wiring/grounding of

		Γ	Fault C	Codes (continued)
Display on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, o	and Corrective Action
oud	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 Level Action Time Fault setting parameter Reset method Reset condition Record	<ul> <li>120V/230V series: 410VDC</li> <li>460V series: 820VDC</li> <li>Immediately act when the DC bus voltage is higher than the level</li> <li>N/A</li> <li>Manual reset</li> <li>Reset only when the DC bus voltage is lower than 90% of the over-voltage level</li> <li>Yes</li> <li>1) Deceleration time may be too short, resulting in too much regenerative energy.</li> <li>a) Increase the setting value of P01.13, P01.15, P01.17 and P01.19 (deceleration time)</li> <li>b) Connect a braking reguency.</li> <li>d) Replace the drive with a larger capacity model.</li> <li>e) Use S-curve acceleration/deceleration.</li> <li>f) Use over-voltage stall prevention (P06.01).</li> <li>g) Use auto-acceleration and auto-deceleration (P01.44).</li> <li>h) Adjust the braking level (P07.01 or the bolt position of the braking unit).</li> <li>2) Verify that the setting for stall prevention level is larger than no-load current</li> <li>3) Check if the input voltage is within the rated AC motor drive input voltage range, and check for possible voltage spikes.</li> <li>4) 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.</li> <li>5) 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, or its internal terminals.</li> <li>6) If using a braking resistor or braking unit, check the wiring.</li> <li>7) Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.</li> </ul>
٥٣٧	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 Level Action Time Fault setting parameter Reset method Reset condition Record Corrective Actions	<ul> <li>120V/230V series: 410VDC</li> <li>460V series: 820VDC</li> <li>Immediately act when the DC bus voltage is higher than the level</li> <li>N/A</li> <li>Manual reset</li> <li>Reset only when the DC bus voltage is lower than 90% of the over-voltage level</li> <li>Yes</li> <li>1) Check for impulsive change of the load, then do the following: <ul> <li>a) Connect a brake resistor, braking unit or DC bus to the drive.</li> <li>b) Reduce the load.</li> <li>c) Replace the drive with a larger capacity model.</li> <li>d) Adjust the braking level (P07.01 or bolt position of the brake unit).</li> </ul> </li> <li>2) Verify the stall prevention level setting is higher than no-load current.</li> <li>3) Check for regenerative voltage, then enable over-voltage stall prevention function (P06.01) or use a braking unit or DC bus</li> <li>4) Check if the input voltage is within the rated AC motor drive input voltage range, and check for possible voltage spikes.</li> <li>5) 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.</li> <li>6) 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, or its internal terminals.</li> <li>7) If using a braking resistor or braking unit, check the wiring.</li> <li>8) Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.</li> </ul>

Diss			Fault C	Codes (continued)
Display on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, o	and Corrective Action
			Action Level	120V/230V series: 410VDC 460V series: 820VDC
			Action Time	Immediately act when the DC bus voltage is higher than the level
			Fault setting	N/A
			parameter Reset method	Manual reset
			Reset condition	Reset only when the DC bus voltage is lower than 90% of the over-
				voltage level Yes
ou5	10	Over-voltage at stop (ovS) Over-voltage at stop	Record Corrective Actions	<ol> <li>Yes</li> <li>Check if the input voltage is within the rated AC motor drive input voltage range, and check for possible voltage spikes.</li> <li>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.</li> <li>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, or its internal terminals.</li> <li>If using a braking resistor or braking unit, check the wiring.</li> <li>Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.</li> <li>Check if other error codes such as cd1–cd3 occur after cycling the power. If yes, contact AutomationDirect Technical Support.</li> </ol>
			Action Level	P06.00 (120V/230V series = 180VDC 460V series = 360VDC
		Low-voltage during	Action Time	Immediately act when the DC bus voltage is lower than P06.00
			Fault setting parameter	N/A
			Reset method	Manual reset
			Reset condition	Reset when the DC bus voltage is higher than P06.00 + 30 V
LuA		acceleration (LvA) DC bus voltage is lower than P06.00 setting value during acceleration	Record Corrective Actions	<ul> <li>Yes</li> <li>1) Improve power supply condition.</li> <li>2) Adjust voltage to the power range of the drive</li> <li>3) Check the power system and increase the capacity of power equipment if needed.</li> <li>4) The load may be too heavy. If so: <ul> <li>a) Reduce the load.</li> <li>b) Increase the drive capacity.</li> <li>c) Increase the acceleration time.</li> </ul> </li> <li>5) Check the DC bus and install DC reactor(s).</li> <li>6) Check for a short circuit plate or DC reactor installed between terminal +1 and +2. Connect short circuit plate or DC reactor between terminal +1 and +2.</li> <li>7) If the error still exists, contact AutomationDirect Technical Support.</li> </ul>
			Action Level	P06.00 (120V/230V series = 180VDC 460V series = 360VDC
		Low-voltage during deceleration (Lvd) DC bus voltage is lower than P06.00 setting value during deceleration	Action Time Fault setting	Immediately act when the DC bus voltage is lower than P06.00
			parameter	N/A
			Reset method Reset condition	Manual reset Reset when the DC bus voltage is higher than P06.00 + 30 V
Lud	12		Record	Yes
			Corrective Actions	<ol> <li>Improve power supply condition.</li> <li>Adjust voltage to the power range of the drive</li> <li>Check the power system and increase the capacity of power equipment if needed.</li> <li>The fault may be triggered by sudden load. If so:         <ul> <li>a) Reduce the load.</li> <li>b) Increase the drive capacity.</li> </ul> </li> <li>Check the DC bus and install DC reactor(s).</li> </ol>
	1	1	(contin	nued next page)

			Fault C	Codes (continued)
Display on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, o	and Corrective Action
			Action Level	P06.00 (120V/230V series = 180VDC 460V series = 360VDC
			Action Time	Immediately act when the DC bus voltage is lower than P06.00
			Fault setting	N/A
		Low-voltage at	parameter	,
		constant speed (Lvn)	Reset method	Manual reset
1 _	13		Reset condition Record	Reset when the DC bus voltage is higher than P06.00 + 30 V Yes
Lun	15	DC bus voltage is lower than P06.00 setting	Record	<ol> <li>Improve power supply condition.</li> <li>Adjust voltage to the power range of the drive</li> </ol>
		value at constant speed	Corrective Actions	<ol> <li>3) Check the power system and increase the capacity of power equipment if needed.</li> <li>4) The fault may be triggered by sudden load. If so:         <ul> <li>a) Reduce the load.</li> <li>b) Increase the drive capacity.</li> <li>5) Check the DC bus and install DC reactor(s).</li> </ul> </li> </ol>
			Action Level	P06.00 (120V/230V series = 180VDC
			Action Time	460V series = 360VDC Immediately act when the DC bus voltage is lower than P06.00
			Fault setting	
		Low-voltage at stop	parameter	N/A
		(LvS) DC bus voltage is lower than P06.00	Reset method	Manual / Auto: 120V/230V series: Lv level + 30VDC + 500ms 460V series: Lv level + 60VDC + 500ms
LuS	14		Reset condition	500 ms
205		setting value at stop or	Record	Yes
		a hardware failure in voltage detection had occurred.	Corrective Actions	<ol> <li>Improve power supply condition.</li> <li>Check if the power specification matches the drive.</li> <li>Adjust voltage to the power range of the drive.</li> <li>Cycle the power after checking the power. If LvS error still exists, return to the factory for repair.</li> <li>Check the power system.</li> <li>Increase the capacity of power equipment.</li> <li>Install DC reactor(s).</li> </ol>
			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.
		Phase loss protection	Fault setting	P06.53
			parameter	
			Reset method Reset condition	Manual reset Immediately reset when DC bus is higher than P07.00
			Record	Yes
or P	(orP) 15 Phase loss of power input	(orP) Phase loss of power	Corrective Actions	<ol> <li>Yeris</li> <li>Verify the wiring of the main circuit power is installed correctly.</li> <li>Check that a single-phase power supply is not being used with a three-phase model. Choose the model whose power matches the voltage.</li> <li>Power voltage changes can trigger this fault. If the main circuit power works normally, verify the main circuit. Cycle the power after checking the power, if orP error still exists, contact AutomationDirect Technical Support.</li> <li>Check for loose terminal wiring, tighten the terminal screws according to the torque described in the user manual.</li> <li>Verify the input cable is undamaged and replace if needed.</li> <li>Check for unbalanced three-phase input power.</li> </ol>

Display			Fault C	Codes (continued)
on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, o	and Corrective Action
			Action Level	Depending on the model power, model default of P06.15 +5°C. When the setting for P06.15 is higher than the oH1 level, oH1 error occurs instead of oH1 warning. An IGBT overheating error occurs, and the drive stops.
			Action Time	Immediately when limit is reached.
			Fault setting	N/A
		IGBT overheating (oH1)	parameter Reset method	Manual reset
				Reset only when IGBT temperature is lower than oH1 error level minus (-)
		IGBT temperature exceeds the protection	Reset condition	10°C
oH I	16	level.	Record	Yes
		Protection level is model default of P06.15 + 5°C	Corrective Actions	<ol> <li>Check the ambient temperature.</li> <li>Regularly inspect the ventilation hole of the control cabinet.</li> <li>Change the installed location if there are heating objects, such as braking resistors, in the surroundings.</li> <li>Install/add cooling fan or air conditioner to lower the temperature inside the cabinet.</li> <li>Check for and remove obstructions or replace the cooling fan.</li> <li>Increase ventilation space of the drive.</li> <li>Decrease loading.</li> <li>Becrease the carrier wave.</li> <li>Replace the drive with higher capacity model.</li> </ol>
			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 tH10 protection activates.
		IGBT temperature detection failure (tH1o) IGBT hardware failure in temperature detection	Fault setting	N/A
EH lo	18		parameter Reset method	Manual reset
			Reset condition	Immediately reset
			Record	Yes
			Corrective Actions	Wait for 10 minutes, and then cycle the power. Check if tH1o protection still exists. If yes, contact AutomationDirect Technical Support.
		Over load (oL)	Action Level	Based on overload curve and derating curve.
		The AC motor drive detects excessive drive output current.	Action Time	When the load is higher than the protection level and exceeds allowable time, the oL protection activates.
			Fault setting parameter	N/A
	Overload capacity:	Reset method	Manual reset	
		Variable Torque (VT):	Reset condition	Reset in five seconds after the fault is cleared
		Sustains for one minute when the	Record	Yes
ol 21	21	<ul> <li>of the drive's rated output current.</li> <li>Sustains for three seconds when the drive outputs 150% of the drive's rated output current.</li> <li>Constant Torque (CT): Sustains for one minute when the drive outputs 150% of the drive's rated output current.</li> <li>Sustains for three seconds when the</li> </ul>	Corrective Actions	<ol> <li>Increase the setting value for P01.12–P01.19 (accel./decel. time)</li> <li>Adjust the settings for P01.01–P01.08 (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 P01.43.</li> <li>Replace the drive with a larger capacity model.</li> <li>If the oL only occurs during low-speed operations:         <ul> <li>a) Reduce the load during low-speed operation.</li> <li>b) Increase the drive capacity.</li> <li>c) Decrease the carrier frequency of P00.17.</li> </ul> </li> <li>Adjust P07.26 Torque Compensation Gain until the output current reduces and the motor does not stall.</li> <li>Verify stall prevention is set to the proper value.</li> <li>Check the status of three-phase motor and verify the cable is not broken or screws are loose.</li> </ol>
		drive outputs 200%		<ul><li>9) Verify the parameter settings for speed tracking.</li><li>a) Start the speed tracking function.</li></ul>
		of the drive's rated output current.		b) Adjust the maximum current for P07.09 speed tracking.
	1		(contiu	nued next page)

	1		Fault C	Codes (continued)
Display on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, o	and Corrective Action
EoL I	22	Electronics thermal relay 1 protection (EoL1) Electronics thermal relay 1 protection. The drive coasts to stop once it activates.	Action Level Action Time Fault setting parameter Reset method Reset condition Record	<ul> <li>Start counting when the output current &gt; 150% of the motor 1 rated current</li> <li>P06.14 (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 P06.14)</li> <li>N/A</li> <li>Manual reset</li> <li>Reset in five seconds after the fault is cleared</li> <li>Yes</li> <li>1) Reduce the load.</li> <li>2) Increase the setting value for P01.12–P01.19 (accel./decel. time)</li> <li>3) Adjust the settings for P01.01–P01.08 (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 P01.43.</li> <li>4) If the E0.1 only occurs during low-speed operations: <ul> <li>a) Replaced the drive with a dedicated VFD model.</li> <li>b) Increase the motor capacity.</li> </ul> </li> <li>5) If using a VFD dedicated motor, verify P06.13=1: Standard motor (motor with fan on the shaft).</li> <li>6) Verify motor rated current and reset if needed.</li> <li>7) Verify motor rated frequency and reset if needed.</li> <li>8) If using one drive to run multiple motors, set P06.13=2: Disable, and install thermal relay on each motor.</li> <li>9) Set stall prevention to the proper value.</li> <li>10) Adjust P07.26 torque compensation gain until the current reduces and the motor does not stall.</li> <li>11) Check the status of the fan, or replace the fan.</li> <li>12) Replace the motor.</li> </ul>
EoL 2	23	Electronic thermal relay 2 protection (EoL2) Electronic thermal relay 2 protection. The drive coasts to stop once it activates.	Action Level Action Time Fault setting parameter Reset method Reset condition Record	<ul> <li>Start counting when the output current &gt; 150% of the motor 2 rated current</li> <li>P06.28 (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 P06.28)</li> <li>N/A</li> <li>Manual reset</li> <li>Reset in five seconds after the fault is cleared</li> <li>Yes</li> <li>1) Reduce the load.</li> <li>2) Increase the setting value for P01.12–P01.19 (accel./decel. time)</li> <li>3) Adjust the settings for P01.35–P01.42 (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 of P01.43.</li> <li>4) If the EoL2 only occurs during low-speed operations: <ul> <li>a) Replaced the drive with a dedicated VFD model.</li> <li>b) Increase the motor capacity.</li> </ul> </li> <li>5) If using a VFD dedicated motor, verify P06.27=1: Standard motor (motor with fan on the shaft).</li> <li>6) Verify motor rated current and reset if needed.</li> <li>7) Verify motor rated frequency and reset if needed.</li> <li>8) If using one drive to run multiple motors, set P06.27=2: Disable, and install thermal relay on each motor.</li> <li>9) Set stall prevention to the proper value.</li> <li>10) Adjust P07.71 torque compensation gain until the current reduces and the motor does not stall.</li> <li>11) Check the status of the fan, or replace the fan.</li> <li>12) Replace the motor.</li> </ul>

<ul> <li>Actions</li> <li>(accel./ decel. time) if working cycle is too short.</li> <li>8) Verify V/F voltage and adjust settings for P01.01–P01.08 (V/F curve), especially the setting value for the mid-point voltage (if the mid-poin voltage is set too small, the load capacity decreases at low-speed).</li> <li>9) Verify the motor rated current matches the motor nameplate and configure the correct rated current value of the motor if needed.</li> <li>10) Check the connection between PTC thermistor and the heat protection.</li> <li>11) Verify stall prevention is set correctly and adjust the value if needed.</li> <li>12) Check for unbalanced three-phase motor impedance. Replace the motor if needed.</li> </ul>				Fault C	Codes (continued)
<ul> <li>Action Time Immediately act PO6.29 setting is: Po6.29 setting is: Pault setting parameter 2: Fault and ramp to stop 2: Fault and coast to stop 3: No warning When PO6.29=0, OH3 is a "Warning". The "Warning" is automatically When PO6.29=1 or 2, OH3 is a "Fault", You must reset manually. Reset method Reset condition Immediately reset Record When PO6.29=1 or 2, OH3 is a "Fault", and the fault is recorded. 1) Check if motor is locked and remove the motor shaft lock. 2) Verify load and decrease the loading or replace motor with a higher capacity model if load is too high. 3) Verify ambient temperature and change the installation location if there are heating devices in the surroundings, or install/add cooling fan or air conditioner to lower the ambient temperature. 4) Check the cooling system and ensure it's working normally. 5) Verify duration of low speed operation. a) Decrease the motor fan is working normally. 5) Change to dedicated motor for the drive. c) Increase the motor capacity. 7) Verify actel the setting values for P01.12–P01.15 (accel./ decel. time) if working cycle is too short. 8) Verify the setting value for the mid-point voltage (if the mid-point voltage is set too small, the load capacity decreases at low-speed). 9) Verify the setting value for the mid-point voltage (if the mid-point voltage is set too mall, the load capacity decreases at low-speed). 9) Verify the setting value of the motor if needed. 10) Check the connection between PTC thermistor and the heat protection. 11) Verify stall prevention is set correctly and adjust the value if needed. 12) Check for unbalanced three-phase motor impedance. Replace the motor if needed.</li> </ul>	on GS10	ID No.		Action, Reset, a	and Corrective Action
OH3       24_1       P06.29       P06.29 setting is: 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning         When P06.29=0, OH3 is a "Warning". The "Warning" is automatically cleared.         When P06.29=1 or 2, OH3 is a "Fault". You must reset manually.         Reset method       Immediately reset         Record       When P06.29=1 or 2, OH3 is a "Fault", and the fault is recorded.         10       Check if motor is locked and remove the motor shaft lock.         20       Verify load and decrease the loading or replace motor with a higher capacity model if load is too high.         30       Verify undel if load is too high.         31       Verify the motor fan is working and replace the fanit fneeded.         6/H3       PTC, when PTC input > P06.30, the fault treatment acts according to P06.29.         Corrective Actions       Corrective Actions         Corrective Actions       Occrrective Corrective Actions         10       Corrective Actions         11       Verify the motor ratio current matches the ontor nameplate and configure the correct rated current matches the motor nameplate and configure the correct rated current matches the motor nameplate and configure the correct rated current matches the motor indeeded.         12       Verify stall prevention is set correctly and adjust the value if needed.         13       Verify unaid in the oad capacity decreases at low-speed).					
<ul> <li>□H∃</li> <li>24_1</li> <li>Pault setting parameter</li> <li>Carrective Actions</li> <li>Fault setting parameter</li> <li>Carrective Actions</li> <li>Fault setting parameter</li> <li>Carrent of the motor fant is working and replace the fail faced.</li> <li>Verify vify duration of low speed operation.</li> <li>a) Decrease the motor capacity.</li> <li>Verify vify roltage and adjust settings for P01.12–P01.15 (accel/ decel. time) if working cycle is to short.</li> <li>Verify vify roltage and adjust setting and capacity decreases at low-speed) voltage is set to small, the load capacity decreases at low-speed.</li> <li>Check the connection between PTC thermistor and the heat protection.</li> <li>Verify stall prevention is set correctly and adjust the value if needed.</li> <li>Check the connection between PTC thermistor and the heat protection.</li> <li>Verify stall prevention is set correctly and adjust the value if needed.</li></ul>				Action Time	
eH3       24.1       Provide the setting parameter       1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning         when P06.29=0, oH3 is a "Warning". The "Warning" is automatically cleared. When P06.29=1 or 2, oH3 is a "Fault". You must reset manually. Reset condition         Reset method       Immediately reset         Record       When P06.29=1 or 2, oH3 is a "Fault", and the fault is recorded.         (H3) PTC       When P06.29=1 or 2, oH3 is a "Fault", and the fault is recorded.         (H3) PTC       Motor overheating (PTC) (P03.00-P03.01=6         Motor overheating information of low speed operation.       1: Check the cooling system and ensure it's working normally.         Start setting information of low speed operation.       a) Decrease low-speed operation time.         b) Change to dedicated motor for the drive.       b) Change to dedicated motor for the drive.         c) Verify duration of low speed operation.       a) Decrease low-speed operation time.         b) Change to dedicated motor for the drive.       c) Increase the motor capacity.         c) Verify the motor capacity.       Verify duration of low speed operation.         a) Werify vife words or capacity.       Verify the motor for the drive.         c) Increase the motor or capacity.       b) Change to dedicated motor for the drive.         d) Verify the motor to capacity.       Verify the motor to capacity.         fifty the motor to maing the load capacity decrease					
<ul> <li>arameter</li> <li>arameter</li></ul>				Fault setting	
<ul> <li>○H∃</li> <li>24_1</li> <li>24_1</li> <li>PC, when PTC input &gt; P06.39. the fault treatment acts according to P06.29.</li> <li>Corrective Actions</li> <li>Corrective Actions</li> <li>Corrective Actions</li> <li>Corrective Actions</li> <li>Corrective Actions</li> <li>No warning When P06.29=1 or 2, oH3 is a "Fault". You must reset manually.</li> <li>Went P06.29=1 or 2, oH3 is a "Fault". You must reset manually.</li> <li>Reset condition Immediately reset</li> <li>Check if motor is locked and remove the motor shaft lock.</li> <li>Verify load and decrease the loading or replace motor with a higher capacity model if load is too high.</li> <li>Verify ambient temperature and change the installation location if there are heating devices in the surroundings, or install/add cooling fan or air conditioner to lower the ambient temperature.</li> <li>Verify the motor fan is working and replace the fan if needed.</li> <li>Verify duration of low speed operation.</li> <li>Corrective Actions</li> <li>Corrective Actions</li> <li>Corrective Actions</li> <li>Verify V/F voltage and adjust setting values for P01.12–P01.19 (accel/decel time if working cycle is too short.</li> <li>Verify V/F voltage and adjust setting value for the mid-point voltage (if the mid-poin voltage is set too small, the load capacity decreases at low-speed).</li> <li>Verify the motor rated current matches the motor if needed.</li> <li>Check the connection between PTC thermistor and the heat protection.</li> <li>Verify vf and prevention is set correctly and adjust the value if needed.</li> <li>Check for unbalanced three-phase motor impedance. Replace the motor if needed.</li> </ul>					
CH3       24_1       When P06.29=0, oH3 is a "Warning". The "Warning" is automatically cleared. When P06.29=1 or 2, oH3 is a "Fault". You must reset manually.         Reset method       Reset condition       Immediately reset         Record       When P06.29=1 or 2, oH3 is a "Fault". You must reset manually.         Notor overheating (oH3) PTC       In Check if motor is locked and remove the motor shaft lock.         Motor overheating (PTC) (P03.00-P03.01=6 fault treatment acts according to P06.29.       Verify load and decrease the loading or replace motor with a higher capacity model if load is too high.         Struct treatment acts according to P06.29.       Orrective Actions       Actions         Corrective Actions       Corrective Actions       Corrective Actions         Noter very struct acts according to P06.29.       Overify the motor fan is working and replace the fan if needed.         Verify unable the cooling system and ensure it's working normally.       Verify duration of low speed operation.         B Decrease low-speed operation.       Decrease low-speed operation.         B Verify VF voltage and adjust setting sfor P01.12–P01.19 (accel./decel. time and increase setting values for P01.01–P01.08 (V/F curve), especially the setting value for the mid-point voltage (if the mid-poin voltage is set too small, the load capacity decreases at low-speed).         Verify VF vo					
CH3       24_1       Reset method       cleared. When P06.29=1 or 2, oH3 is a "Fault". You must reset manually.         Record       When P06.29=1 or 2, oH3 is a "Fault", and the fault is recorded.         1)       Check if motor is locked and remove the motor shaft lock.         2)       Verify load and decrease the loading or replace motor with a higher capacity model if load is too high.         3)       Verify ambient temperature and change the installation location if there are heating devices in the surroundings, or install/add cooling fan or air conditioner to lower the ambient temperature.         4)       Check the cooling system and ensure it's working normally.         5)       Verify duration of low speed operation.         a)       Decrease low-speed operation time.         b)       Change to dedicated motor for the drive.         c)       Increase the motor capacity.         7)       Verify valcel/decel time and increase setting values for P01.12–P01.15 (accel/decel time) if working cycle is too short.         8)       Verify Vity to value for the mid-point voltage (if the mid-poin voltage is set too small, the load capacity decreases at low-speed).         9)       Verify the motor rated current matches the motor rameplate and configure the correct rated current matches the motor and the heat protection.         11)       Verify the revetion is set correctly and adjust the value if needed.         10)       Verify the motor rated current matches the motor ind					
PH3       24_1       Motor overheating (oH3) PTC       Motor overheating (oH3) PTC       Motor overheating (oH3) PTC       I)       Check if motor is locked and remove the motor shaft lock.         24_11       Motor overheating (oH3) PTC       I)       Check if motor is locked and remove the motor shaft lock.         24_11       Motor overheating (oH3) PTC       I)       Check if motor is locked and remove the motor shaft lock.         24_11       Motor overheating (PTC) (P03,00-P03,01=6 PTC), when PTC       I)       Check the cooling system and ensure it's working normally.         III check the rare heating devices in the surroundings, or install/add cooling fan or air conditioner to lower the ambient temperature.       III check the cooling system and ensure it's working normally.         III check the coling system and ensure it's working normally.       IIII check the coling system and ensure it's working normally.         IIII check the coling system and ensure it's working normally.       IIII check the coling system and ensure it's working normally.         IIII check the coling system and ensure it's working ormally.       IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII				Reset method	
<ul> <li>CH3</li> <li>24_1</li> <li>Motor overheating (OH3) PTC</li> <li>Motor overheating (OH3) PTC</li> <li>Motor overheating (PTC) (P03.00–P03.01=6 PTC), when PTC input &gt; P06.30, the fault treatment acts according to P06.29.</li> <li>Corrective Actions</li> <li>Corrective Actions</li></ul>				Reset method	
<ul> <li>A Pick A Pick A</li></ul>				Reset condition	
<ul> <li>CHE</li> <li>24_1</li> <li>Motor overheating (oH3) PTC</li> <li>Motor overheating (oH3) PTC</li> <li>Motor overheating (PTC), when PTC input &gt; P06.30, the fault treatment acts according to P06.29.</li> <li>Corrective Actions</li> <li>Corective Actions</li> <li>Corrective Actio</li></ul>					When P06.29=1 or 2, oH3 is a "Fault", and the fault is recorded.
(12) Varify bornanies and vadues bornanies if too birt	οΗЭ	24_1	(oH3) PTC Motor overheating (PTC) (P03.00–P03.01=6 PTC), when PTC input > P06.30, the fault treatment acts	Corrective	<ol> <li>Check if motor is locked and remove the motor shaft lock.</li> <li>Verify load and decrease the loading or replace motor with a higher capacity model if load is too high.</li> <li>Verify ambient temperature and change the installation location if there are heating devices in the surroundings, or install/add cooling fan or air conditioner to lower the ambient temperature.</li> <li>Check the cooling system and ensure it's working normally.</li> <li>Verify the motor fan is working and replace the fan if needed.</li> <li>Verify duration of low speed operation.         <ul> <li>a) Decrease low-speed operation time.</li> <li>b) Change to dedicated motor for the drive.</li> <li>c) Increase the motor capacity.</li> </ul> </li> <li>Verify V/F voltage and adjust settings for P01.12–P01.19 (accel./ decel. time) if working cycle is too short.</li> <li>Verify V/F voltage and adjust settings for P01.01–P01.08 (V/F curve), especially the setting value for the mid-point voltage (if the mid-point voltage is set too small, the load capacity decreases at low-speed).</li> <li>Verify the motor rated current matches the motor if needed.</li> <li>Check the connection between PTC thermistor and the heat protection.</li> <li>Verify stall prevention is set correctly and adjust the value if needed.</li> </ol>
				(contir	nued next page)

Diantar			Fault C	Codes (continued)
Display on GS10 Keypad	ID No.	Fault Name and Description		and Corrective Action
			Action Level	PT100 RTD input value > P06.57 setting (default = 7V)
			Action Time	Immediately act P06.29 setting is:
				0: Warn and continue operation
			Fault setting	1: Fault and ramp to stop
			parameter	2: Fault and coast to stop
				3: No warning
				When P06.29=0 and the temperature < P06.56, oH3 is automatically
			Reset method	cleared.
			Deset condition	When P06.29=1 or 2, oH3 is a "Fault". You must reset manually.
			Reset condition Record	Immediately reset When P06.29=1 or 2, oH3 is a "Fault", and the fault is recorded.
			Record	1) Check if motor is locked and remove the motor shaft lock.
		Motor overheating		2) Verify load and decrease the loading or replace motor with a higher
		(oH3) PT100 RTD		capacity model if load is too high.
				3) Verify ambient temperature and change the installation location if
		Motor overheating		there are heating devices in the surroundings, or install/add cooling
oНЭ	24_2	(PT100) (P03.00-		fan or air conditioner to lower the ambient temperature.
		P03.01=11 PT100).		<ul> <li>4) Check the cooling system and ensure it's working normally.</li> <li>5) Marite the matter for it working and marked the for it made does</li> </ul>
		When PT100 input >		5) Verify the motor fan is working and replace the fan if needed.
		P06.57 (default = $7V$ ),		<ul><li>6) Verify duration of low speed operation.</li><li>a) Decrease low-speed operation time.</li></ul>
		the fault treatment acts according to P06.29.		b) Change to dedicated motor for the drive.
			Corrective	c) Increase the motor capacity.
			Actions	<ul><li>7) Verify accel/decel time and increase setting values for P01.12–P01.19</li></ul>
			/ celons	(accel./ decel. time) if working cycle is too short.
				<ul> <li>8) Verify V/F voltage and adjust settings for P01.01–P01.08 (V/F curve),</li> </ul>
				especially the setting value for the mid-point voltage (if the mid-point
				voltage is set too small, the load capacity decreases at low-speed).
				9) Verify the motor rated current matches the motor nameplate and
				configure the correct rated current value of the motor if needed.
				10) Check the connection of PT100 RTD.
				11) Verify stall prevention is set correctly and adjust the value if needed.
				12) Check for unbalanced three-phase motor impedance. Replace the
				motor if needed.
				13) Verify harmonics and reduce harmonics if too high.
			Action Level	P06.07
			Action Time	P06.08 P06.06 setting is:
				0: No function
				1: Continue operation after over-torque detection during constant speed
			Fault setting	operation
			parameter	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
		0		When P06.06=1 or 3, ot1 is a "Warning". The warning is automatically
		Over torque 1 (ot1)	Reset method	cleared when the output current $<$ (Pr.06-07 $-$ 5%)
		When the output		When P06.06=2 or 4, ot1 is a "Fault". You must reset manually.
	1		Reset condition	Immediately reset
		current exceeds the		
		current exceeds the	Record	When P06.06=2 or 4, ot1 is a "Fault", and the fault is recorded.
	26	over-torque detection	Record	1) Verify the settings for P06.07 and P06.08.
ot I	26	over-torque detection level (P06.07) and	Record	<ol> <li>Verify the settings for P06.07 and P06.08.</li> <li>Check for mechanical failure and remove any causes of malfunction.</li> </ol>
ot 1	26	over-torque detection level (P06.07) and exceeds over-torque	Record	<ol> <li>Verify the settings for P06.07 and P06.08.</li> <li>Check for mechanical failure and remove any causes of malfunction.</li> <li>Reduce the load or replace the motor with a higher capacity model.</li> </ol>
ot I	26	over-torque detection level (P06.07) and	Record	<ol> <li>Verify the settings for P06.07 and P06.08.</li> <li>Check for mechanical failure and remove any causes of malfunction.</li> <li>Reduce the load or replace the motor with a higher capacity model.</li> <li>Increase the setting values for P01.12–P01.19 (accel./decel. time)</li> </ol>
ot 1	26	over-torque detection level (P06.07) and exceeds over-torque detection time (P06.08),	Record	<ol> <li>Verify the settings for P06.07 and P06.08.</li> <li>Check for mechanical failure and remove any causes of malfunction.</li> <li>Reduce the load or replace the motor with a higher capacity model.</li> <li>Increase the setting values for P01.12–P01.19 (accel./decel. time)</li> <li>Adjust the V/F curve (Motor 1, P01.01–P01.08), especially the setting</li> </ol>
ot 1	26	over-torque detection level (P06.07) and exceeds over-torque detection time (P06.08), and when P06.06 or P06.09 is set to 2 or 4,	Record	<ol> <li>Verify the settings for P06.07 and P06.08.</li> <li>Check for mechanical failure and remove any causes of malfunction.</li> <li>Reduce the load or replace the motor with a higher capacity model.</li> <li>Increase the setting values for P01.12–P01.19 (accel./decel. time)</li> <li>Adjust the V/F curve (Motor 1, P01.01–P01.08), especially the setting value for the mid-point voltage (if the mid-point voltage is set too</li> </ol>
ot I	26	over-torque detection level (P06.07) and exceeds over-torque detection time (P06.08), and when P06.06 or		<ol> <li>Verify the settings for P06.07 and P06.08.</li> <li>Check for mechanical failure and remove any causes of malfunction.</li> <li>Reduce the load or replace the motor with a higher capacity model.</li> <li>Increase the setting values for P01.12–P01.19 (accel./decel. time)</li> <li>Adjust the V/F curve (Motor 1, P01.01–P01.08), 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).</li> </ol>
ot 1	26	over-torque detection level (P06.07) and exceeds over-torque detection time (P06.08), and when P06.06 or P06.09 is set to 2 or 4,	Corrective	<ol> <li>Verify the settings for P06.07 and P06.08.</li> <li>Check for mechanical failure and remove any causes of malfunction.</li> <li>Reduce the load or replace the motor with a higher capacity model.</li> <li>Increase the setting values for P01.12–P01.19 (accel./decel. time)</li> <li>Adjust the V/F curve (Motor 1, P01.01–P01.08), 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).</li> <li>If error occurs during low-speed operation:</li> </ol>
ot I	26	over-torque detection level (P06.07) and exceeds over-torque detection time (P06.08), and when P06.06 or P06.09 is set to 2 or 4,		<ol> <li>Verify the settings for P06.07 and P06.08.</li> <li>Check for mechanical failure and remove any causes of malfunction.</li> <li>Reduce the load or replace the motor with a higher capacity model.</li> <li>Increase the setting values for P01.12–P01.19 (accel./decel. time)</li> <li>Adjust the V/F curve (Motor 1, P01.01–P01.08), 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).</li> <li>If error occurs during low-speed operation:         <ul> <li>Decrease low-speed operation time.</li> </ul> </li> </ol>
ot 1	26	over-torque detection level (P06.07) and exceeds over-torque detection time (P06.08), and when P06.06 or P06.09 is set to 2 or 4,	Corrective	<ol> <li>Verify the settings for P06.07 and P06.08.</li> <li>Check for mechanical failure and remove any causes of malfunction.</li> <li>Reduce the load or replace the motor with a higher capacity model.</li> <li>Increase the setting values for P01.12–P01.19 (accel./decel. time)</li> <li>Adjust the V/F curve (Motor 1, P01.01–P01.08), 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).</li> <li>If error occurs during low-speed operation:         <ul> <li>Decrease low-speed operation time.</li> <li>Increase the motor capacity.</li> </ul> </li> </ol>
ot 1	26	over-torque detection level (P06.07) and exceeds over-torque detection time (P06.08), and when P06.06 or P06.09 is set to 2 or 4,	Corrective	<ol> <li>Verify the settings for P06.07 and P06.08.</li> <li>Check for mechanical failure and remove any causes of malfunction.</li> <li>Reduce the load or replace the motor with a higher capacity model.</li> <li>Increase the setting values for P01.12–P01.19 (accel./decel. time)</li> <li>Adjust the V/F curve (Motor 1, P01.01–P01.08), 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).</li> <li>If error occurs during low-speed operation:         <ul> <li>Decrease low-speed operation time.</li> <li>Increase the motor capacity.</li> </ul> </li> </ol>
ot 1	26	over-torque detection level (P06.07) and exceeds over-torque detection time (P06.08), and when P06.06 or P06.09 is set to 2 or 4,	Corrective	<ol> <li>Verify the settings for P06.07 and P06.08.</li> <li>Check for mechanical failure and remove any causes of malfunction.</li> <li>Reduce the load or replace the motor with a higher capacity model.</li> <li>Increase the setting values for P01.12–P01.19 (accel./decel. time)</li> <li>Adjust the V/F curve (Motor 1, P01.01–P01.08), 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).</li> <li>If error occurs during low-speed operation:         <ul> <li>Decrease low-speed operation time.</li> <li>Increase the motor capacity.</li> </ul> </li> <li>Adjust P07.26 torque compensation gain until the current reduces and the motor does not stall.</li> </ol>
ot 1	26	over-torque detection level (P06.07) and exceeds over-torque detection time (P06.08), and when P06.06 or P06.09 is set to 2 or 4,	Corrective	<ol> <li>Verify the settings for P06.07 and P06.08.</li> <li>Check for mechanical failure and remove any causes of malfunction.</li> <li>Reduce the load or replace the motor with a higher capacity model.</li> <li>Increase the setting values for P01.12–P01.19 (accel./decel. time)</li> <li>Adjust the V/F curve (Motor 1, P01.01–P01.08), 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).</li> <li>If error occurs during low-speed operation:         <ul> <li>Decrease low-speed operation time.</li> <li>Increase the motor capacity.</li> </ul> </li> <li>Adjust P07.26 torque compensation gain until the current reduces and the motor does not stall.</li> <li>Very speed tracking settings and correct the parameter settings as</li> </ol>
ot 1	26	over-torque detection level (P06.07) and exceeds over-torque detection time (P06.08), and when P06.06 or P06.09 is set to 2 or 4,	Corrective	<ol> <li>Verify the settings for P06.07 and P06.08.</li> <li>Check for mechanical failure and remove any causes of malfunction.</li> <li>Reduce the load or replace the motor with a higher capacity model.</li> <li>Increase the setting values for P01.12–P01.19 (accel./decel. time)</li> <li>Adjust the V/F curve (Motor 1, P01.01–P01.08), 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).</li> <li>If error occurs during low-speed operation:         <ul> <li>a) Decrease low-speed operation time.</li> <li>b) Increase the motor capacity.</li> </ul> </li> <li>Adjust P07.26 torque compensation gain until the current reduces and the motor does not stall.</li> <li>Very speed tracking settings and correct the parameter settings as needed.</li> </ol>
ot 1	26	over-torque detection level (P06.07) and exceeds over-torque detection time (P06.08), and when P06.06 or P06.09 is set to 2 or 4,	Corrective	<ol> <li>Verify the settings for P06.07 and P06.08.</li> <li>Check for mechanical failure and remove any causes of malfunction.</li> <li>Reduce the load or replace the motor with a higher capacity model.</li> <li>Increase the setting values for P01.12–P01.19 (accel./decel. time)</li> <li>Adjust the V/F curve (Motor 1, P01.01–P01.08), 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).</li> <li>If error occurs during low-speed operation:         <ul> <li>Decrease low-speed operation time.</li> <li>Increase the motor capacity.</li> </ul> </li> <li>Adjust P07.26 torque compensation gain until the current reduces and the motor does not stall.</li> <li>Very speed tracking settings and correct the parameter settings as</li> </ol>

Display	1			Codes (continued)
on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, o	and Corrective Action
Tiejpuu			Action Level	P06.10
			Action Time	P06.11 P06.09 setting is: 0: No function
			Fault setting parameter	<ol> <li>Continue operation after over-torque detection during constant speed operation</li> <li>Stop after over-torque detection during constant speed operation</li> <li>Continue operation after over-torque detection during RUN</li> <li>Continue torque torque detection during RUN</li> </ol>
		Over torque 2 (ot2)	Reset method	4: Stop after over-torque detection during RUN When P06.09=1 or 3, ot2 is a "Warning". The warning is automatically cleared when the output current < (P06.10 – 5%). When P06.09=2 or 4, ot2 is a "Fault". You must reset manually.
		When the output	Reset condition	Immediately reset
ot2	27	current exceeds the over-torque detection level (P06.10) and	Record	When P06.09=2 or 4, ot2 is a "Fault", and the fault is recorded.1) Verify the settings for P06.10 and P06.11.
OCC	21	excerds over-torque detection time (P06.11), and when P06.09 is set to 2 or 4, the ot2 error displays.	Corrective Actions	<ol> <li>Check for mechanical failure and remove any causes of malfunction.</li> <li>Reduce the load or replace the motor with a higher capacity model.</li> <li>Increase the setting values for P01.12–P01.19 (accel./decel. time)</li> <li>Adjust the V/F curve (Motor 1, P01.35–P01.42), 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).</li> <li>If error occurs during low-speed operation:         <ul> <li>a) Decrease low-speed operation time.</li> <li>b) Increase the motor capacity.</li> </ul> </li> <li>Adjust P07.71 torque compensation gain until the current reduces and the motor does not stall.</li> <li>Very speed tracking settings and correct the parameter settings as needed.         <ul> <li>a) Start the speed tracking function.</li> <li>b) Adjust the maximum current for P07.09 speed tracking.</li> </ul> </li> </ol>
			Action Level	P06.71
IJС	28	Under current (uC) Low current detection	Action Time Fault setting parameter Reset method Reset condition Record Corrective Actions	<ul> <li>P06.72</li> <li>P06.73 setting is:</li> <li>O: No function</li> <li>1: Fault and coast to stop</li> <li>2: Fault and ramp to stop by the 2nd deceleration time</li> <li>3: Warn and continue operation</li> <li>When P06.73=3, uC is a "Warning". The warning is automatically cleared when the output current &gt; (P06.71+0.1A).</li> <li>When P06.73=1 or 2, uC is a "Fault". You must reset manually.</li> <li>Immediately reset</li> <li>When P06.71=1 or 2, uC is a "Fault", and the fault is recorded.</li> <li>1) Confirm the motor cable is connected properly.</li> <li>2) Verify settings of P06.71, P06.72, and P06.73 and set to correct values if needed.</li> <li>3) Check if the load is too low and whether the motor capacity matches the load.</li> </ul>
			Action Level Action Time Fault setting	Firmware internal detection cF2 acts immediately when the drive detects the fault
cF2	31	EEPROM read error (cF2) Internal EEPROM cannot be read	parameter Reset method Reset condition Record Corrective	N/A Manual reset Immediately reset Yes 1) Press "RESET" key or reset the parameter to the default setting. If cF2 still occurs, contact AutomationDirect Technical Support.
			Actions	<ol> <li>Cycle the power, if cF2 error still occurs, contact AutomationDirect Technical Support.</li> </ol>

D: (			Fault C	Codes (continued)
Display on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, o	and Corrective Action
			Action Level	Hardware detection
			Action Time	cd1 acts immediately when the drive detects the fault
		U-phase error (cd1)	Fault setting parameter	N/A
cd l	33	U-phase current	Reset method	Power-off
	55	detection error when	Reset condition	
		power is ON	Record	Yes
			Corrective	Cycle the power, if cd1 error still occurs, contact AutomationDirect
			Actions	Technical Support.
			Action Level Action Time	Hardware detection cd2 acts immediately when the drive detects the fault
		V-phase error (cd2)	Fault setting	
		F	parameter	N/A
c d2	34	V-phase current	Reset method	Power-off
		detection error when	Reset condition	N/A
		power ON	Record Corrective	Yes Guele the neuron if add error still ecoure contact Automation Direct
			Actions	Cycle the power, if cd2 error still occurs, contact AutomationDirect Technical Support.
			Action Level	Hardware detection
			Action Time	cd3 acts immediately when the drive detects the fault
		W-phase error (cd3)	Fault setting	N/A
cd3	35	W-phase current	parameter	
	- 55	detection error when	Reset method Reset condition	Power-off N/A
		power ON	Record	Yes
			Corrective	Cycle the power, if cd3 error still occurs, contact AutomationDirect
			Actions	Technical Support.
			Action Level	Hardware detection
		cc hardware error	Action Time	Hd0 acts immediately when the drive detects the fault
		(Hd0) cc (current clamp) hardware protection error when power is ON	Fault setting parameter	N/A
HdO	36		Reset method	Power-off
			Reset condition	N/A
			Record	Yes
			Corrective	Cycle the power, if Hd0 error still occurs, contact AutomationDirect
			Actions Action Level	Technical Support. Hardware detection
			Action Time	Hd1 acts immediately when the drive detects the fault
		oc hardware error (Hd1)	Fault setting	N/A
			parameter	
Hd I	37	oc hardware protection	Reset method	Power-off
		error when power is ON	Reset condition Record	N/A Yes
			Corrective	Cycle the power, if Hd1 error still occurs, contact AutomationDirect
			Actions	Technical Support.
			Action Level	Hardware detection
			Action Time	Immediately act
			Fault setting	N/A
			parameter Reset method	Manual reset
			Reset condition	Immediately reset
			Record	Yes
				1) This error can occur if you press the STOP key during auto-tuning.
		Auto-tuning error (AUE)		Re-execute auto-tuning.
AUE	40	.0		<ul><li>2) Check motor capacity and related parameters.</li><li>a) Set the correct parameters P01.01–P01.02.</li></ul>
ΠΔΕ	40	Motor auto-tuning		b) Set P01.00 larger than the motor rated frequency.
		error		3) Check the motor wiring.
			Corrective	4) Check for motor shaft lock and remove cause of lock if needed.
			Actions	5) Check for electromagnetic contactor at output (U/V/W) and make
				sure the electromagnetic valve is OFF.
				<ul><li>6) Verify load. If too heavy:</li><li>a) Reduce the load.</li></ul>
				<ul><li>a) Reduce the load.</li><li>b) Replace the motor with a larger capacity model.</li></ul>
				a neplace the motor with a larger capacity mouth.
				7) Check if accel/decel time is too short, then increase the setting values for P01.12–P01.19 (accel./decel. time) if needed.

	Fault Codes (continued)					
Display on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, o	and Corrective Action		
			Action Level	When the analog input < 4 mA (only detects 4–20 mA analog input)		
			Action Time	P08.08		
				P08.09 setting is: 0: Warn and continue operation		
			Fault setting	1: Fault and ramp to stop		
			parameter	2: Fault and coast to stop		
		PID loss AI-C (AFE)		3: Warn and operate at last frequency		
			Reset method	When P08.09=3 or 4, AFE is a "Warning". When the feedback signal is > 4		
RFE	41	PID feedback loss	Reset method	mA, the "Warning" is automatically cleared. When P08.09=1 or 2, AFE is a "Fault". You must reset manually.		
, <u>C</u>		(analog feedback signal is only valid when the	Reset condition	Immediately reset		
		PID function is enabled)	Record	When P08.09=1 or 2, AFE is a "Fault", and the fault is recorded; when		
		,		<ul><li>P08.09=3 or 4, AFE is a "Warning", and the warning is not recorded.</li><li>1) Check the PID feedback cable and tighten the terminal. Replace the</li></ul>		
				cable with a new one if needed.		
			Corrective	2) Check for feedback device failure and replace the device with a new		
			Actions	One.		
				<ol> <li>Check all the wiring. If AFE fault still exists, contact AutomationDirect Technical Support.</li> </ol>		
			Action Level	When the analog input is < 4 mA (only detects 4–20 mA analog input)		
			Action Time	Immediately act		
				P03.19 setting is: 0: Disable		
			Fault setting	1: Continue operation at the last frequency		
			parameter	(warning, ANL is displayed on the keypad)		
		AI-C loss (ACE) Analog input loss (including all the 4–20 mA analog signal)		2: Decelerate to stop (warning, ANL is displayed on the keypad)		
				3: Stop immediately and display ACE When P03.19=1 or 2, ACE is a "Warning". When analog input signal is > 4		
ACE	48		Reset method	mA, the warning is automatically cleared.		
				When P03.19=3, ACE is a "Fault". You must reset manually.		
			Reset condition Record	Immediately reset When P03.19=3, ACE is a "Fault", and the fault is recorded.		
			Record	<ol> <li>Check the Al2 feedback cable and tighten the terminal. Replace the</li> </ol>		
			Corrective	cable with a new one if needed.		
				2) Check for external device failure and replace the device with a new		
			Actions	one. 3) Check all the wiring. If ACE fault still exists, contact AutomationDirect		
				Technical Support.		
			Action Level	DIx=10: External fault (EF) and the DI terminal is ON		
			Action Time	Immediately act P07.20 setting is:		
				0: Coast to stop		
	49	External fault (EF) External fault. When the drive decelerates based on the setting of P07.20, the EF fault displays on the keypad.		1: Stop by the 1st deceleration time		
			Fault setting	2: Stop by the 2nd deceleration time		
			parameter	3: Stop by the 3rd deceleration time 4: Stop by the 4th deceleration time		
EF				5: System deceleration		
			D t ti t	6: Automatic deceleration (P01.46)		
			Reset method	Manual reset Manual reset only after the external fault is cleared (terminal status is		
			Reset condition	recovered)		
			Record	Yes		
			Corrective	Press RESET key after the fault is cleared.		
			Actions Action Level	DIx=28: Emergency Stop (EF1) and the DI terminal is ON		
		Emergency stop (EF1)	Action Time	Immediately act		
		When the contact	Fault setting	N/A		
		of DIx=EF1 is ON,	parameter Reset method	Manual reset		
EF I	50	the output stops		Manual reset only after the external fault is cleared (terminal status is		
		immediately and displays EE1 on the	Reset condition	recovered)		
		displays EF1 on the keypad. The motor is in free running.	Record	Yes		
			Corrective Actions	Verify if the system is back to normal condition, and then press "RESET" key to go back to the default.		
	1	1		nued next page)		

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			Fault C	odes (continued)		
Display on GS10 Keypad	ID No.	Fault Name and Description		and Corrective Action		
		External base block (bb)		Dlx=11: Base Block (BB) and the DI terminal is ON		
			Action Time	Immediately act		
		When the contact of Dlx=bb is ON, the output stops	Fault setting parameter	N/A		
ЬЬ	51		Reset method	The display "bb" is automatically cleared after the fault is cleared.		
00		immediately and	Reset condition	N/A		
		displays bb on the	Record	No		
		keypad. The motor is in	Corrective	Verify if the system is back to normal condition, and then press "RESET"		
		free running.	Actions	key to go back to the default.		
			Action Level	Entering the wrong password three consecutive times		
			Action Time	Immediately act		
			Fault setting parameter	N/A		
		Password is locked	Reset method	Manual reset		
		(Pcod)	Reset condition	Power-off		
- ·			Record	Yes		
Pcod	52	Entering the wrong password three consecutive times through P00.07	Corrective Actions	<ol> <li>Input the correct password after rebooting the motor drive.</li> <li>If you forget the password, do the following steps:         <ul> <li>a) Step 1: Input 9999 and press ENTER.</li> <li>b) Step 2: Repeat step 1. Input 9999 and press ENTER.</li> <li>(You need to finish step 1 and step 2 within 10 seconds. If you don't finish the two steps in 10 seconds, try again.)</li> </ul> </li> <li>The parameter settings return to the default when the "Input 9999" process is finished.</li> </ol>		
			Action Level	When the function code is not 03, 06, 10, or 63.		
			Action Time	Immediately act		
			Fault setting	N/A		
			parameter	· ·		
			Reset method	Manual reset		
		Illegal command (CE1)		Immediately reset		
<b><i><i></i></i><b></b></b>	<b>F</b> 4		Record	No 1) Charleif the communication communication		
EE I	54	Communication command is illegal	Corrective Actions	<ol> <li>Check if the communication command is correct.</li> <li>Verify the wiring and grounding of the communication circuit. It is recommended to separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.</li> <li>Check if the setting for P09.04 is the same as the setting for the upper unit.</li> <li>Check the cable and replace it if necessary.</li> </ol>		
			Action Level	When the data address is correct.		
			Action Time	Immediately act		
			Fault setting	N/A		
		Illegal data address	parameter Reset method			
			Reset condition	Manual reset Immediately reset		
CE2		(CE2)	Record	No		
	55	(CE2) Data address is illegal	Corrective Actions	<ol> <li>Check if the communication command from the upper limit is correct.</li> <li>Verify the wiring and grounding of the communication circuit. Separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.</li> <li>Check if the setting for P09.04 is the same as the setting for the upper unit.</li> </ol>		
				4) Check the cable and replace it if necessary.		
	(continued next page)					

Fault Codes (continued)					
Display on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, a	and Corrective Action	
			Action Level	When the data length is too long	
			Action Time	Immediately act	
			Fault setting	N/A	
			parameter Reset method	Manual reset	
				Immediately reset	
<i></i>	50	Illegal data value (CE3)	Record	No	
[E] 56	56		Corrective Actions	<ol> <li>Check if the communication command from the upper limit is correct.</li> <li>Verify the wiring and grounding of the communication circuit. Separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.</li> <li>Check if the setting for P09.04 is the same as the setting for the upper unit.</li> <li>Check the cable and replace it if necessary.</li> </ol>	
			Action Level	When the data is written to read-only address.	
			Action Time	Immediately act	
			Fault setting	N/A	
			parameter Reset method		
		Data is written to read-	Reset method Reset condition	Manual reset Immediately reset	
= =		only address (CE4)	Record	No	
CE4 57	57	57 Data is written to read- only address	Corrective Actions	<ol> <li>Check if the communication command from the upper limit is correct.</li> <li>Verify the wiring and grounding of the communication circuit. Separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.</li> <li>Check if the setting for P09.04 is the same as the setting for the upper unit.</li> <li>Check the cable and replace it if necessary.</li> </ol>	
		Modbus transmission	Action Level	When the communication time exceeds the detection time for P09.03	
			Action Time	communication time-out. P09.03	
			Fault setting parameter	P09.02 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	
		time-out (CE10)	Reset method	Manual reset	
CE 10	58		Reset condition	Immediately reset	
		Modbus transmission time-out occurs	Record Corrective Actions	<ul> <li>Yes</li> <li>1) Check if the upper unit transmits the communication command within the setting time for P09.03.</li> <li>2) Verify the wiring and grounding of the communication circuit. Separate the communication circuit from the main circuit, or wire in 90 degree for effective anti-interference performance.</li> <li>3) Check if the setting for P09.04 is the same as the setting for the upper unit.</li> <li>4) Check the cable and replace it if necessary.</li> </ul>	
			Action Level	P07.29	
		Over slip error (oSL) On the basis of the maximum slip limit set via P10.29, the speed deviation is abnormal. When the motor drive outputs at constant speed, F>H or F <h exceeds the level set via P07.29, and it exceeds the time set via P07.30, oSL shows. oSL occurs in induction motors only.</h 	Action Time	100% of P07.29 = the maximum limit of the slip frequency (P10.29) P07.30	
o5L	63		Fault setting parameter	P07.31 setting is: 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning	
			Reset method Reset condition Record Corrective Actions	<ul> <li>P07.31=0 is a warning. When the motor drive outputs at constant speed, and F&gt;H or F<h anymore,="" automatically.<="" be="" cleared="" does="" exceed="" level="" li="" not="" osl="" p07.29="" set="" the="" via="" warning="" will=""> <li>When P07.31=1 or 2, oSL is an error, and it needs to reset manually.</li> <li>Immediately reset</li> <li>P07.31=1 or 2, oSL is "Fault", and the fault is recorded.</li> <li>1) Verify the group 5 motor parameters.</li> <li>2) Decrease the load</li> <li>3) Check the setting of oSL protection function related parameters</li> </h></li></ul>	
			(any time	P07.29, P07.30, and P10.29	
(continued next page)					

Fault Codes (continued)					
Display on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, a	and Corrective Action	
Sto	76	STO GS10 does not have STO function. Fault occurs due to missing jumper on the bypass pins or internal drive problem	Action Level Action Time Fault setting parameter Reset method Reset condition Record Corrective Actions	Hardware detection Immediately act N/A Auto: When P06.44=1 and after STO error is cleared, it automatically resets. Manual: When P06.44=0 and after STO error is cleared, reset it manually. Reset only after STO error is cleared Yes 1) Check if bypass pin jumper is correctly installed. 2) If STO fault still exists after cycling the power, please contact ADC"	
Aoc	79	U-phase over-current before run (Aoc) U-phase short circuit detected when the output wiring detection is performed before the drive runs.		<ul> <li>300% of the rated current</li> <li>Immediately act</li> <li>N/A</li> <li>Manual reset</li> <li>Reset in five seconds after the fault clears</li> <li>Yes</li> <li>1) Check if the motor's internal wiring and the UVW wiring of the drive output terminal are correct.</li> <li>2) Check the motor cable and remove causes of any short circuits, or replace the cable before turning on the power.</li> <li>3) Check the motor insulation value with megger. Replace the motor if the insulation is poor.</li> <li>4) Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.</li> <li>5) Check the length of the motor cable. If it's too long: <ul> <li>a) Increase the AC motor drive's capacity.</li> <li>b) Install AC reactor(s) on the output side (U/V/W).</li> </ul> </li> <li>6) The Aoc may occur due to a short circuit or ground fault at the output side of the drive. Check for possible short circuits between terminals with an electric meter: <ul> <li>a) B1 corresponds to U, V and W; DC- corresponds to U, V and W; corresponds to U, V and W.</li> <li>b) If short circuit occurs, contact AutomationDirect Technical Support.</li> </ul> </li> </ul>	
boc	80	V-phase over-current before run (boc) V-phase short circuit detected when the output wiring detection is performed before the drive runs.	Record	<ul> <li>300% of the rated current</li> <li>Immediately act</li> <li>N/A</li> <li>Manual reset</li> <li>Reset in five seconds after the fault clears</li> <li>Yes</li> <li>1) Check if the motor's internal wiring and the UVW wiring of the drive output terminal are correct.</li> <li>2) Check the motor cable and remove causes of any short circuits, or replace the cable before turning on the power.</li> <li>3) Check the motor insulation value with megger. Replace the motor if the insulation is poor.</li> <li>4) Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.</li> <li>5) Check the length of the motor cable. If it's too long: <ul> <li>a) Increase the AC motor drive's capacity.</li> <li>b) Install AC reactor(s) on the output side (U/V/W).</li> </ul> </li> <li>6) The Aoc may occur due to a short circuit or ground fault at the output side of the drive. Check for possible short circuits between terminals with an electric meter: <ul> <li>a) B1 corresponds to U, V and W; DC- corresponds to U, V and W; corresponds to U, V and W.</li> <li>b) If short circuit occurs, contact AutomationDirect Technical Support.</li> </ul> </li> </ul>	

Disular			Fault C	Codes (continued)
Display on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, o	and Corrective Action
	81	W-phase over-current before run (coc) W-phase short circuit detected when the output wiring detection is performed before the drive runs.	Action Level Action Time Fault setting parameter Reset method Reset condition Record	300% of the rated current Immediately act N/A Manual reset Reset in five seconds after the fault clears Yes 1) Check if the motor's internal wiring and the UVW wiring of the drive
COC			Corrective Actions	<ul> <li>output terminal are correct.</li> <li>2) Check the motor cable and remove causes of any short circuits, or replace the cable before turning on the power.</li> <li>3) Check the motor insulation value with megger. Replace the motor if the insulation is poor.</li> <li>4) Verify the wiring of the control circuit and the wiring/grounding of the main circuit to prevent interference.</li> <li>5) Check the length of the motor cable. If it's too long: <ul> <li>a) Increase the AC motor drive's capacity.</li> <li>b) Install AC reactor(s) on the output side (U/V/W).</li> </ul> </li> <li>6) The Aoc may occur due to a short circuit or ground fault at the output side of the drive. Check for possible short circuits between terminals with an electric meter: <ul> <li>a) B1 corresponds to U, V and W; DC- corresponds to U, V and W; corresponds to U, V and W.</li> <li>b) If short circuit occurs, contact AutomationDirect Technical Support.</li> </ul> </li> </ul>
		Output phase loss U phase (oPL1) U phase output phase loss	Action Level Action Time	P06.47 P06.46 P06.48: Use the setting value of P06.48 first. If DC braking function activates, use that of P06.46.
			Fault setting parameter Reset method	P06.45 setting is: 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning Manual reset
				Immediately reset
				P06.45=1 or 2 is "Fault", and the fault is recorded.
oPL I	82		Record Corrective Actions	<ol> <li>PU6.45=1 or 2 is 'Fault', and the fault is recorded.</li> <li>Check for unbalanced three-phase motor impedance. If unbalanced, replace the motor.</li> <li>Verify motor is wired correctly. Check the cable condition and replace the cable if necessary.</li> <li>Ensure a single-phase motor is not being used with a three-phase drive</li> <li>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, contact AutomationDirect Technical Support.</li> <li>Verify that the three-phase current is balanced with a current clamp meter. If it is balanced and the oPL1 fault still exists, contact AutomationDirect Technical Support.</li> <li>Make sure the capacity of the drive and motor match each other.</li> </ol>

Fault Codes (continued)						
Display on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, o	and Corrective Action		
			Action Level Action Time	P06.47 P06.46 P06.48: Use the setting value of P06.48 first. If DC braking function activates, use that of P06.46.		
			Fault setting parameter	P06.45 setting is: 0: Warn and keep operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning		
			Reset method	Manual reset		
		Output phase loss	Reset condition	Immediately reset		
		V phase (oPL2)	Record	When P06.45=1 or 2, oPL2 is a "Fault", and the fault is recorded.		
oPL2	83	V phase output phase loss		<ol> <li>Check for unbalanced three-phase motor impedance. If unbalanced, replace the motor.</li> <li>Verify motor is wired correctly. Check the cable condition and replace</li> </ol>		
			Corrective	<ul> <li>the cable if necessary.</li> <li>Ensure a single-phase motor is not being used with a three-phase drive</li> <li>Check the flat cable of the control board. Re-do the wiring and</li> </ul>		
			Actions	<ul> <li>test again if the flat cable is loose. If the fault still exists, contact AutomationDirect Technical Support.</li> <li>5) Verify that the three-phase current is balanced with a current clamp meter. If it is balanced and the oPL2 fault still exists, contact AutomationDirect Technical Support.</li> </ul>		
				6) Make sure the capacity of the drive and motor match each other.		
			Action Level	P06.47		
			Action Time	P06.46 P06.48: Use the setting value of P06.48 first. If DC braking function activates, use that of P06.46.		
			Fault setting parameter	P06.45 setting is: 0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning		
			Reset method	Manual reset		
		Output phase loss	Reset condition	Immediately reset		
		W phase (oPL3)	Record	When P06.45=1 or 2, oPL3 is a "Fault", and the fault is recorded.		
oPL3	84			<ol> <li>Check for unbalanced three-phase motor impedance. If unbalanced, replace the motor.</li> <li>Verify motor is wired correctly. Check the cable condition and replace the cable if necessary.</li> <li>Ensure a single-phase motor is not being used with a three-phase drive</li> </ol>		
			Corrective Actions	<ul> <li>4) 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, contact AutomationDirect Technical Support.</li> <li>5) Verify that the three-phase current is balanced with a current</li> </ul>		
				<ul><li>clamp meter. If it is balanced and the oPL3 fault still exists, contact AutomationDirect Technical Support.</li><li>6) Make sure the capacity of the drive and motor match each other.</li></ul>		
			Action Level	Software detection		
			Action Time Fault setting	Immediately act		
			parameter	N/A		
		Low frequency overload		Manual reset		
		protection (oL3)	Reset condition	Immediately reset		
oL 3	87		Record	Yes		
			Corrective Actions	<ol> <li>Enhance the heat dissipation capacity for the cabinet.</li> <li>Lower the carrier frequency (P00.17).</li> <li>Decrease the voltage settings that correspond to frequency below 15 Hz in the V/F curve.</li> </ol>		
				<ol> <li>4) Set P00.11=0 (V/F, general control mode).</li> <li>5) Replace the drive with a higher power model.</li> </ol>		
(continued next page)						

Fault Codes (continued)					
Display on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, o	and Corrective Action	
			Action Level	Software detection	
		Auto-tune error 1	Action Time	Immediately act	
		(AuE1)	Fault setting	N/A	
		(	parameter		
AUE I	142	No feedback current	Reset method Reset condition	Manual reset Immediately reset	
		error when the	Record	Yes	
		motor parameter		1) Verify the motor is wired correctly.	
		automatically detects	Corrective Actions	<ol> <li>If a contactor is used as an open state on the output side of the drive (U/V/W), check if the contactor coil is closed.</li> </ol>	
			Action Level	Software detection	
			Action Time	Immediately act	
		Auto-tune error 2	Fault setting	N/A	
		(AuE2)	parameter		
			Reset method	Manual reset	
ANES	143	Motor phase loss	Reset condition		
		error when the	Record	Yes 1) Verify that the motor is wired correctly and no wires are broken.	
		motor parameter automatically detects	Corrective Actions	<ol> <li>2) Confirm that the motor works normally outside of auto-tuning.</li> <li>3) If an 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.</li> </ol>	
			Action Level	Software detection	
		Total resistance	Action Time	Immediately act	
		measurement fault	Fault setting	N/A	
		(AuE5)	parameter		
AUES	149		Reset method	Manual reset	
		Fault on measuring total resistance.	Reset condition		
			Record Corrective	Yes	
			Actions	Check if the motor works normally.	
			Action Level	Software detection	
		Ne lead summark IO	Action Time	Immediately act	
		No-load current IO measurement fault	Fault setting	N/A	
		(AUE6)	parameter		
AUE6	150		Reset method	Manual reset	
		Fault on measuring no- load current IO.	Reset condition	Immediately reset	
			Record Corrective	Yes	
			Actions	Check if the motor works normally.	
			Action Level	Software detection	
		dq axis inductance measurement fault (AUE7)	Action Time	Immediately act	
			Fault setting	N/A	
			parameter		
AUEJ	151		Reset method	Manual reset	
		Fault on measuring dq	Reset condition	Immediately reset	
		axis inductance	Record	Yes	
			Corrective Actions	Check if the motor works normally.	
			Action Level	Software detection	
		High frequency	Action Time	Immediately act	
		injection measurement	Fault setting		
		fault (AUE8)	parameter	N/A	
AUEB	152		Reset method	Manual reset	
		Fault on measuring	Reset condition		
		high frequency	Record	Yes	
		injection	Corrective Actions	Check if the motor works normally.	

	Fault Codes (continued)					
Display on GS10 Keypad	ID No.	Fault Name and Description	Action, Reset, and Corrective Action			
			Action Level	Feedback value < target value × (1 - P08.13)		
		Pump PID feedback error (dEv) 57 Pump PID feedback error	Action Time	P08.14		
	157		Fault setting	P08.62		
			parameter			
_			Reset method	Self-recovery or manual reset.		
dEu				Set as Warning: Feedback value ≥ target value (1 - P08.13) automatic		
			Reset condition	recovery.		
				Set as Fault: Immediately reset		
			Record	Yes		
			Corrective	1) Check P08.14 time extension for unreasonable parameter settings.		
			Actions	2) Check if the motor works normally.		

## **TYPICAL AC DRIVE PROBLEMS AND SOLUTIONS**

NOTE: Drive photos in this section are not GS10 drives, just typical representative AC drives.

#### **GREASE AND DIRT PROBLEMS**

In those industries where grease and dirt are common. Please be aware of the possible damage that grease, oil, and dirt, may cause to your GS10 drive:

- 1) Electronic components that silt up with greasy oil may cause the drive to burn out or even explode.
- 2) Most greasy dirt contains corrosive substances that may damage the drive.

#### Solution:

Install the GS10 drive in a suitable enclosure to protect it from grease and dirt. Clean and remove grease and dirt regularly to prevent damage of the drive.





## FIBER DUST PROBLEM

Problems related to fiber dust are typical in the textile industry. Please be aware of the possible damage that fiber dust may cause to your GS10 drive:

- 1) Fiber dust that accumulates or adheres to the fans will result in poor ventilation and cause overheating problems.
- 2) Textile plant environments with high humidity levels may experience GS10 drive failure or damage as a result of wet fiber dust adhering to components within the drive.

## Solution:

Install the GS10 drive in a suitable enclosure to protect it from fiber dust. Clean and remove fiber dust regularly to prevent damage to the drive.







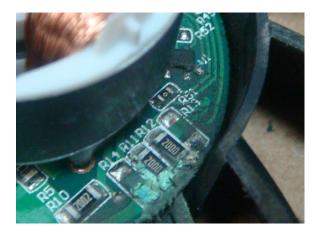
## **CORROSION PROBLEM**

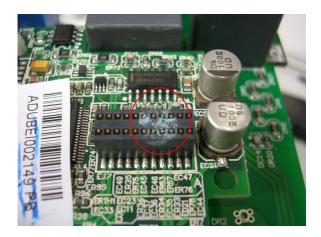
Corrosion problems may occur if any fluids or liquid in vapor form flows into the GS10 drive. Please be aware of the damage that corrosion may cause to your drive.

• Corrosion of internal components may cause the GS10 drive to malfunction and possibly explode.

## Solution:

Install the GS10 drive in a suitable enclosure to protect it from fluids. Clean the drive regularly to prevent corrosion.







## INDUSTRIAL DUST PROBLEM

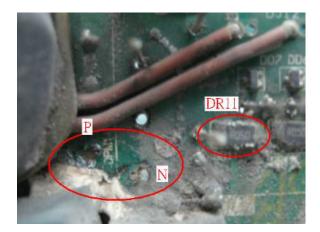
Serious industrial dust pollution frequently occurs in stone processing plants, flour mills, cement plants, and so on. Please be particularly aware of any metal dust, filings or if metalized vapor is present as these may cause damage to your drives:

- 1) Dust accumulating on electronic components may cause overheating problems and shorten the service life of the drive.
- 2) Conductive dust may damage the circuit board and may cause the drive to explode.

## Solution:

Install the GS10 drive in a suitable enclosure and protect it from dust. Clean the cabinet and ventilation filter regularly for good ventilation.





## WIRING AND INSTALLATION PROBLEM

When wiring the GS10 drive, the most common problems are connection to the wrong terminal or poor wiring practice. Please be aware of the possible damage that poor wiring practice may cause to your GS10 drive:

- 1) Screw terminals where the wire is not fully inserted or the terminal screw is not adequately tightened may result in sparking or high temperature due to a high resistance connection.
- 2) If circuit boards in the GS10 drive have been modified, components on the affected boards may have been damaged.

#### Solution:

Inspect all power and control terminal connections in the GS10 drive to ensure adequate wire insertion. Do not attempt to disassemble or repair control boards in the GS10 drive.







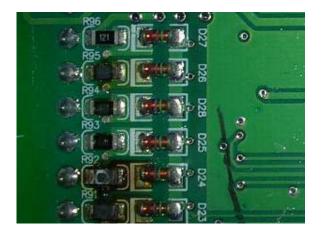
## **DIGITAL INPUT/OUTPUT TERMINAL PROBLEMS**

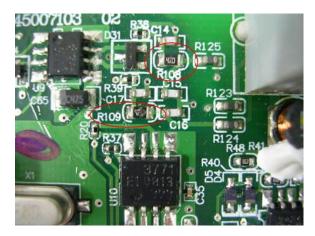
Problems with digital I/O are usually the result of improper termination, or failure to segregate control wiring from power wiring. This may result in errant signals due to induced voltage, capacitive coupling or electrical noise. Incorrect voltage levels applied to the digital I/O terminals can damage the I/O circuitry of the drive.

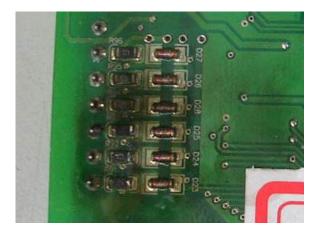
• Input/Output circuit may burn out when the terminal usage exceeds its limit.

## Solution:

Refer to the user manual for multi-function input output terminals usage and follow the specified voltage and current. DO NOT exceed the specification limits.







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