Chapter 10 Troubleshooting

If a fault is detected on the servo drive or motor a corresponding fault code will be shown on the drive's LED display. Fault codes can also be transmitted via communication, see P0-01 and P4-00 ~ P4-04 for display on controller or HMI.

10.1 Fault Messages Table

Servo Drive Fault Messages

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Fault Messages			
Display	Fault Name	Fault Description	
81601	Overcurrent	Main circuit current is higher than 1.5 multiple of motor's instantaneous maximum current value.	
86838	Overvoltage	Main circuit voltage has exceeded its maximum allowable value.	
868318	Undervoltage	Main circuit voltage is below its minimum specified value.	
RLEOY	Z Pulse shift	The corresponding angle of magnetic field of Z phase is error.	
RLEO5	Regeneration error	Regeneration control operation is in error.	
RL E 0 6	Overload	Servo motor and drive is overload.	
86803	Overspeed	Motor's control speed exceeds the limit of normal speed.	
86838	Abnormal pulse control command	Input frequency of pulse command exceeds the limit of its allowable setting value.	
86838	Excessive deviation	Position control deviation value exceeds the limit of its allowable setting value.	
818:10	Watch dog execution time out	Watch dog execution time out.	
RLE!!	Encoder error	Pulse signal is in error.	
818 18	Adjustment error	Adjusted value exceeds the limit of its allowable setting value when perform electrical adjustment.	
818 13	Emergency stop activated	Emergency stop switch is activated.	
818 14	Reverse limit switch error	Reverse limit switch is activated.	
RLE IS	Forward limit switch error	Forward limit switch is activated.	

Fault Messages			
Display	Fault Name	Fault Description	
81 3 18	IGBT temperature error	The temperature of IGBT is over high.	
818 13	Memory error	EE-PROM write-in and read-out is in error.	
81 E 18	DSP communication error	The communication between DSP and MCU is in error. DSP do not respond to MCU command. The problem is on DSP side.	
818 18	Serial communication error	RS232/485 communication is in error.	
8650	Serial communication time out	RS232/485 communication time out.	
81831	Command write-in error	Control command write-in error.	
85838	Input power phase loss	One phase of the input power is loss.	
81853	Pre-overload warning	To warn that the servo motor and drive is going to overload. This alarm will display before ALM06. When the servo motor reach the setting value of P1-56, the motor will send a warning to the drive. After the drive has detected the warning, the DO signal OLW will be activated and this fault message will display.	
8663	Internal command execution time out	An error occurs when internal command is executing.	
RLE98	DSP communication error	 DSP do not respond to MCU command. DSP has responded to MCU command but there is error in response message. Maybe the hardware is damaged. 	
RL E 9 9	DSP communication error	 DSP do not respond to MCU command. DSP has responded to MCU command but there is error in response message. Maybe the hardware is damaged. 	

NOTE

1) If there is any unknown fault code that is not listed on the above table, please inform the distributor or contact with Delta for assistance.

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10.2 Potential Cause and Corrective Actions

Servo Drive Fault Messages

RLEG : Overcurrent

Potential Cause	Checking Method	Corrective Actions
Short-circuit at drive output (U, V, W)	 Check the wiring connections between drive and motor. Check if the wire is short-circuited. 	Repair the short-circuited and avoid metal conductor being exposed.
Motor wiring error	Check if the wiring steps are all correct when connecting motor to drive.	Follow the wiring steps in the user manual to reconnect wiring.
IGBT error	Heat sink overheated	Please contact your distributor for assistance or contact with Delta.
Control parameter setting error	Check if the setting value exceeds the factory default setting.	Set the setting back to factory default setting and then reset and adjust the parameter setting again.
Control command setting error	Check if the control input command is unstable (too much fluctuation).	Ensure that input command frequency is stable (too much fluctuation). Activate filter function.

RLEG2 : Overvoltage

Potential Cause	Checking Method	Corrective Actions
has exceeded its maximum allowable		Use correct power supply or stabilizing power.
Input power error (Incorrect power input)	Use voltmeter to check whether the input voltage is within the specified limit.	Use correct power supply or stabilizing power.

RLEG3 : Undervoltage

Potential Cause	Checking Method	Corrective Actions
The main circuit voltage is below its minimum specified value.		Reconfirm voltage wiring.
No input voltage at main circuit.	Use voltmeter to check whether input voltage at main circuit is normal.	Reconfirm power switch.
Input power error (Incorrect power input)	Use voltmeter to check whether the input voltage is within the specified limit.	Use correct power supply or serial stabilizing power.

RLEGY : Z Pulse shift

Potential Cause	Checking Method	Corrective Actions
Encoder is damage.	Check Encoder for the damage.	Repair or replace the motor.
Encoder is loose.	Examine the Encoder connector.	Install the motor again.

RLEG5 : Regeneration error

Potential Cause	Checking Method	Corrective Actions
_	Check the wiring connection of regenerative resistor.	Reconnect regenerative resistor.
Regenerative switch transistor fault		Please contact your distributor for assistance or contact with Delta.
Parameter setting is in error	Confirm the parameter setting and specifications of regenerative resistor.	Correctly reset parameter again.

RLEB5 : Overload

Potential Cause	Checking Method	Corrective Actions
The drive has exceeded its rated load during continuous operation.	Check if the drive is overloaded.	Increase motor capacity or reduce load.
Control system	Check if there is mechanical vibration	Adjust gain value of control circuit.
parameter setting is incorrect.	Accel/Decel time setting is too fast.	Decrease Accel/Decel time setting.
The wiring of drive and encoder is in error.	Check the wiring of U, V, W and encoder.	Ensure all wiring is correct.

RLEGT: Overspeed

Potential Cause	Checking Method	Corrective Actions
Speed input command is not stable (too much fluctuation).	abnormal.	Ensure that input command frequency is stable (not fluctuate too much) and activate filter function (P1-06, P1-07 and P1-08).
Over-speed parameter setting is defective.	Check if over-speed parameter setting value is too low.	Correctly set over-speed parameter setting (P2-34).

8188 : Abnormal pulse control command

Potential Cause	Checking Method	Corrective Actions
Pulse command frequency is higher than rated input frequency.	Use pulse frequency detector to measure input frequency.	Correctly set the input pulse frequency.

RLEGS: Excessive deviation

Potential Cause	Checking Method	Corrective Actions
Maximum deviation parameter setting is too small.	Check the maximum deviation parameter setting and observe the position error value when the motor is running.	Increases the parameter setting value of P2-35.
Gain value is too small.	Check for proper gain value.	Correctly adjust gain value.
Torque limit is too low.	Check torque limit value.	Correctly adjust torque limit value.
There is an overload.	Check for overload condition.	Reduce external applied load or re- estimate the motor capacity.

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: Watch dog execution time out

Potential Cause	Checking Method	Corrective Actions
Watch dog execution error.	Check and reset the power supply.	If there are any abnormal conditions after resetting the power supply, please contact your distributor for assistance or contact with Delta.

: Encoder error (Position detector fault)

Potential Cause	Checking Method	Corrective Actions
The wiring of encoder is in error.	 Check if all wiring is correct. Check if the users conduct the wiring by the wiring information in the user manual. 	Ensure all wiring is correct.
Encoder is loose	Examine the encoder connector.	Install the motor again.
The wiring of encoder is defective.	Check if all connections are tight.	Conduct the wiring again.
Encoder is damage	Check the encoder for the damage.	Repair or replace the motor.

RLE 12 : Adjustment error

Potential Cause	Checking Method	Corrective Actions
The setting value of drift adjustment has exceeded its maximum allowable value.	 Remove CN1 wiring. Execute the drift adjustment again. (Set 	If the error does not clear after executing the drift adjustment again, please contact your distributor for assistance or contact with Delta.

RLE 13 : Emergency stop activated

Potential Cause	Checking Method	Corrective Actions
Emergency stop switch is activated.	Check if emergency stop switch is On or Off.	Activate emergency stop switch.

RLE : Reverse (CWL) limit switch error

Potential Cause	Checking Method	Corrective Actions
Reverse limit switch is activated.	Check if reverse limit switch is On or Off.	Activate reverse limit switch.
Servo system is not stable.		Modify parameter setting and re- estimate motor capacity.

RLE 15 : Forward (CCWL) limit switch error

Potential Cause	Checking Method	Corrective Actions
Forward limit switch is activated.	Check if forward limit switch is On or Off.	Activate forward limit switch.
Servo system is not stable.	Check the value of control parameter setting and load inertia.	Modify parameter setting and re- estimate motor capacity.

RLE 18 : IGBT temperature error

Potential Cause	Checking Method	Corrective Actions
The drive has exceeded its rated load during continuous operation.	Check if there is overload or the motor current is too high.	Increase motor capacity or reduce load.
Short-circuit at drive output.	Check the drive input wiring.	Ensure all wiring is correct.

RLE: Memory error

Potential Cause	Checking Method	Corrective Actions
Data error in Memory read-out / write-in.	Reset parameter or power supply.	If the error does not clear after resetting the power supply, please contact your distributor for assistance or contact with Delta.

818: DSP communication error

Potential Cause	Checking Method	Corrective Actions
Control power is in error.	·	If the error does not clear after resetting the power supply, please contact your distributor for assistance or contact with Delta.

RLE 19: Serial communication error

Potential Cause	Checking Method	Corrective Actions
Communication parameter setting is defective.	Check the communication parameter setting.	Correctly set parameter setting.
Communication address is incorrect.	Check the communication address.	Correctly set communication address.
Communication value is incorrect.	Check the communication value.	Correctly set communication value.

RLE20 : Serial communication time out

Potential Cause	Checking Method	Corrective Actions
Setting value in time out parameter is not correct.	Check communication time out parameter setting.	Correctly set P3-07.
Not receiving communication command for a long time.	Check whether communication cable is loose or broken.	Tighten the communication cable, make sure the communication cable is not damaged and ensure all wiring is correct.

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RLE2: : Command write-in error

Potential Cause	Checking Method	Corrective Actions
Control power is in error.	Check and reset control power	If the error does not clear after resetting the power supply, please contact your distributor for assistance or contact with Delta.

81822: Input power phase loss

Potential Cause	Checking Method	Corrective Actions
Control power supply is in error.	Check the power cable and connections of R, S, T. Check whether the power cable is loose or the possible loss of phase on input power.	If the fault does not clear even when the three-phase power is connected correctly, please contact your distributor for assistance or contact with Delta.

RLE23 : Pre-overload warning

Potential Cause	Checking Method	Corrective Actions	
The drive is going to overload.	 Check the load condition of the servo motor and drive. 	Please refer to the correction actions of ALE06.	
	Check the setting value of P1-56. Check whether the setting value of P1-56 is to small.	Increase the setting value of P1-56 or set P1-56 to 100 and above.	

: Internal command execution time out

Potential Cause	Checking Method	Corrective Actions
An error occurs when internal command is executing.	Check and reset control power	If the error does not clear after resetting the power supply, please contact your distributor for assistance or contact with Delta.

: DSP communication error

Potential Cause	Checking Method	Corrective Actions
Maybe the hardware is damaged.	Check and reset control power	If the error does not clear after resetting the power supply, please contact your distributor for assistance or contact with Delta.

: DSP communication error

Potential Cause	Checking Method	Corrective Actions
Maybe the hardware is damaged.	Check and reset control power	If the error does not clear after resetting the power supply, please contact your distributor for assistance or contact with Delta.

10.3 Clearing Faults

Display	Fault Name	Clearing Method
8688	Overcurrent	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.
86838	Overvoltage	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.
RLE03	Undervoltage	This fault message can be removed automatically after the voltage has returned within its specification.
RLEO4	Z Pulse shift	Restart the servo drive.
ALE05	Regeneration error	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.
86838	Overload	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.
ALEO7	Overspeed	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.
86338	Abnormal pulse control command	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.
86838	Excessive deviation	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.
86810	Watch dog execution time out	This fault message cannot be cleared.
818 ::	Encoder error	This fault message can be removed by restarting the servo drive.
818 15	Adjustment error	This fault message can be removed after the wiring of CN1 connector (I/O signal connector) is removed and auto adjustment function is executed.
RLE 13	Emergency stop activated	This fault message can be removed automatically by turning off EMGS (DI signal).
818 14	Reverse limit switch error	Turn ARST (DI signal) ON to clear the fault. This fault message can be removed when the servo drive is Off (Servo Off)
RLE 15	Forward limit switch error	Turn ARST (DI signal) ON to clear the fault. This fault message can be removed when the servo drive is Off (Servo Off)
RLE 16	IGBT temperature error	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.
RLE 17	Memory error	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.
81 3 J R	DSP communication error	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.
818 18	Serial communication error	Turn ARST (DI signal) ON to clear the fault. This fault message can also be removed automatically after the communication is normal.
86830	Serial communication time out	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.

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Display	Fault Name	Clearing Method
81831	Command write-in error	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.
86838	Input power phase loss	Turn ARST (DI signal) ON to clear the fault. This fault message can be removed automatically after input power phase lost problem is solved.
RLE23	Pre-overload warning	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.
RL 897	Internal command execution time out	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.
86378	DSP communication error	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.
86838	DSP communication error	Turn ARST (DI signal) ON to clear the fault or restart the servo drive.