

9.2. Alarm cause and remedy

AL01 Over voltage

Cause	Inspection	Remedy
Power supply voltage excess	Review the power voltage.	Use the proper power source.
Input power error (incorrect power).	Review the power supply.	Use proper power source.
Drive hardware damaged.	Use voltmeter to check if the power voltage is within rated voltage while error still occurred.	Contact agent for proper service.
Lead of built-in regenerative brake resistor or regenerative brake option is disconnected.	Check the P,D terminals connected well or not. Check built-in regenerative brake resistor or regenerative brake option is disconnected well.	Connect correctly.
Built-in regenerative brake resistor or regenerative brake option is damaged.	Check if it is burn out or damaged.	Change the built-in resistor or option.
Capacity of built-in regenerative brake resistor or regenerative brake option is insufficient.	Check if the capacity insufficient.	Add regenerative brake option or increase capacity.

AL02 Low voltage

Cause	Inspection	Remedy
Input voltage of main circuit is lower than permissible value.	Review the power supply.	Use proper power source.
Capacity of power supply is insufficient.	Check if it occurred as motor torque regenerated huge.	Increase power supply capacity.
Input power error (incorrect power).	Review the power supply.	Use proper power source.

AL03 Over current

Cause	Inspection	Remedy
Improper motor wirings.	Check the wirings.	Correct the wirings.
Short occurred in drive output phases U, V and W.	Check if the connection between drive and motor is short.	Correct the wirings to prevent from short-circuit or cable naked.
IGBT of servo drive faulty.	AL03 occurs if power is switched on after U,V and W are disconnected.	Contact agent for proper service.
Improper parameters setting.	Check relevant parameters which have modified.	Recover factory-set then re-define user's demand.

AL04 Regenerative alarm

Cause	Inspection	Remedy
Brake transistor fault.	Set PC36 to be 0 and re-power on, if AL04 is occurred soon, it means the brake transistor broken.	Contact agent for proper service.
Built-in brake resistor or brake option is disconnected.	Check the wirings.	Correct the wirings.

AL05 Overload 1

Cause	Inspection	Remedy
Operate the servo drive in heavy duty continually.	Check if mechanism load is huge.	Upgrade the capability of servo or reduce the duty.
Improper gain values setting.	Check if vibration of mechanism is occurred.	Re-operate the auto-gain tuning job to obtain the proper gain value.
Servo system is instable.	Check if acceleration/deceleration time constant is proper.	Extend these setting values.
Encoder faulty.	As motor shaft is rotated slowly with Servo OFF, the pulses feedback should vary in proportion to rotary angle. If the indication skips or returns midway, it is faulty.	Contact agent for proper service.

AL06 Over speed

Cause	Inspection	Remedy
Command pulses frequency exceeded the permissible instantaneous speed frequency.	Check the frequency of command pulses whether exceeds the permissible range.	Set the command pulses frequency correctly.
Improper acceleration/deceleration time constant settings.	Check if these values are too small.	Increase acceleration/deceleration time constant.
Servo system is instable to cause overshoot.	Observe if the mechanism is with vibration.	1. Re-set proper servo gain value. 2. If gain could not be set to proper: 1) Reduce load inertia ratio; or 2) Set acceleration/deceleration time constant to proper value.

AL07 Pulse command abnormal

Cause	Inspection	Remedy
Pulse frequency of the command pulse is too high.	Check the frequency of command pulses whether exceeds the permissible range.	1. Set the command pulses frequency correctly. 2. After RD output signal activated, the host starts to send command.
Command device failure.	Check if the command device is normal or not.	Change the command device.

AL08 Position error excessive

Cause	Inspection	Remedy
Improper acceleration/deceleration time constant settings.	Check if these values are too small.	Increase acceleration/deceleration time constant.
Improper torque limit setting.	Check if PA05 setting is too small.	Increase the torque limit value.
Position loop gain value is small.	Check if PB07 setting is too small.	Increase the gain value and adjust to ensure proper operation.
Mechanism load is huge.	Check if mechanism load is huge.	Reduce load, or to use servo drive and motor provide larger output.

AL09 Communication abnormal

Cause	Inspection	Remedy
Improper protocol setting.	Check if the protocol is matched.	Set the protocol correctly.
Improper address setting.	Check the communication address.	Set the address correctly.
Improper data content transmitted.	Check the value accessed.	Correct the data content accessed.

AL0A Communication time-out

Cause	Inspection	Remedy
Cable broken or loosen.	Check if cable broken or loosen.	Replace or re-connect the cable.
Communication cycle is longer than parameter PC23 setting.	Check if PC23 setting is proper.	Set the PC23 correctly.

AL0B Encoder error 1

Cause	Inspection	Remedy
Wirings are in wrong sequence.	Check if wirings sequence is correct or not.	Correct the wirings.
CN2 connector is loosened or disconnected.	Check if CN2 connector is loosen or disconnected.	Re-connect CN2 connector.
Encoder faulty	Check the encoder feedback pulses continuity of motor while Servo OFF	Contact agent for proper service.

AL0D Fan error

Cause	Inspection	Remedy
Cooling fan stops working.	Change the fan by user or contact agent for proper service.	

AL0E IGBT overheat

Cause	Inspection	Remedy
Operate the drive in over-rate duty continuously.	Check if mechanism is overload or motor current is huge.	Reduce load, or to use servo drive and motor provide larger output.

AL0F Memory error

Cause	Inspection	Remedy
Data read-out/write-in abnormally.	To execute the parameter recovery or power on reset and check if it still null.	Contact agent for proper service.

AL10 Overload 2

Cause	Inspection	Remedy
Mechanical impact	Check if the moving route is proper.	1. Correct the moving route. 2. Install limit switches.
Wrong connection of servo motor.	Check the wirings.	Correct the wirings.
Mechanism vibration.	Check if mechanism is instable and humming.	1. Change response level setting. 2. Make gain adjustment manually.
Encoder faulty.	To rotate motor shaft and check the continuity of encoder feedback pulses while Servo OFF.	Contact agent for proper service.

AL11 Motor mismatch

Cause	Inspection	Remedy
The capacity of drive and motor are not compatible.	Check if they match for each other in capacity.	Use the proper combination.

AL12 Emergency stop

Cause	Inspection	Remedy
EMG signal is activated.	Check if EMG signal is applied and triggered.	Release the trigger after removal of some emergency conditions.

AL13 LSP/LSN activated

Cause	Inspection	Remedy
LSP activated.	Check if the limit switch is activated.	Release the activated cause of limit switch.
LSN activated.		

AL14 Software positive limit

Cause	Inspection	Remedy
Command pulses exceeds PF86	Check whether the PF86 is proper.	Set the proper PF86 value.

AL15 Software negative limit

Cause	Inspection	Remedy
Command pulses exceeds PF86	Check whether the PF86 is proper.	Set the proper PF86 value.

AL16 Overload early warning

Cause	Inspection	Remedy
The actual load exceeds the software protection of servo drive.	<ol style="list-style-type: none"> 1. Check whether overload has occurred. 2. Check whether the PA17 setting is low. 	<ol style="list-style-type: none"> 1. Refer the AL05 remedy. 2. Set the PA17 value higher or set a value which excess 100 to disable this early warning.

AL17 ABS time out warning

Cause	Inspection	Remedy
Absolute position communication waiting time out.	<ol style="list-style-type: none"> 1. Check whether overload has occurred. 2. Check whether the PA17 setting is low. 	<ol style="list-style-type: none"> 1. Refer the AL05 remedy. 2. Set the PA17 value higher or set a value which excess 100 to disable this early warning.

AL19 ABS time out warning

Cause	Inspection	Remedy
Position command counter overflow	<p>Incremental system When the motor keeps rotating in the same direction, the feedback pulse register would overflow.</p> <p>Absolute system <ol style="list-style-type: none"> 1. Feedback pulse register overflow. 2. Change electronic gear ratio without executing origin return. 3. Execute the absolute position command when the HOME is off. </p>	Execute the origin return.

AL20 Motor crash error

Cause	Inspection	Remedy
Motor current exceeds the PA15 setting and the duration is over PA16.	<ol style="list-style-type: none"> 1. Check the PA15 is valid or not. 2. Check the PA15 whether is too low or PA16 is too soon. 	<ol style="list-style-type: none"> 1. Disable the PA15. 2. To set the proper level of these 2 parameters according to the actual load condition.

AL21 Motor U, V, W lines disconnected

Cause	Inspection	Remedy
Drive detects the disconnection of motor power lines.	Check the power lines of motor whether are loosen or not.	Re-connect the power lines well.

AL22 Encoder communication error

Cause	Inspection	Remedy
The encoder send 3 times CRC message to the servo drive.	<ol style="list-style-type: none"> 1. Check the grounding of motor. 2. Check the encoder cable whether are wired together with the motor power lines. 	<ol style="list-style-type: none"> 1. Ground the motor to obtain a good immunity of noise. 2. Separate the encoder cable from motor power lines.

AL24 Encoder type error

Cause	Inspection	Remedy
Try to enable the absolute encoder function with an incremental type of encoder.	<ol style="list-style-type: none"> 1. Check the encoder whether it is absolute type or not. 2. Check the PA28 setting. 	<ol style="list-style-type: none"> 1. Choose the proper type of encoder. 2. If the absolute position function is not performed, set "0" value into PA28.

AL26 Encoder error 3

Cause	Inspection	Remedy
The LED attenuation of encoder or encoder feedback pulses abnormal.	Power off the drive and power on again to check this phenomenon.	If there is still a recurrence, please contact your agent for repair service.

AL27 Encoder error 4

Cause	Inspection	Remedy
Encoder memory abnormal	<ol style="list-style-type: none"> 1. Check the grounding of motor. 2. Check the encoder cable whether are wired together with the motor power lines. 3. Check the shield of encoder. 	<ol style="list-style-type: none"> 1. Link the drive ground and motor ground together. 2. Separate the encoder cable from the motor power lines. 3. Use the encoder cable with shield cover to obtain a better noise immunity.

AL28 Encoder overheat

Cause	Inspection	Remedy
The surrounding air temperature of encoder operation environment is higher than 95°C .	Check surrounding air temperature of encoder operation environment.	<ol style="list-style-type: none"> 1. To prevent the heat source nearby. 2. To reduce the output torque. 3. If the remedies do not work, contact your agent for service.

AL29 Encoder error 5

Cause	Inspection	Remedy
The stroke revolutions are excess than the encoder specification.	1. Check the stroke revolutions. The revolutions limit is within -32768 ~+32767 turns.	Execute the origin return.

AL2A ABS encoder abnormal 1

Cause	Inspection	Remedy
The voltage of encoder battery is low.	1. Check the voltage of encoder battery whether is less than 2.45 volt.	After replacing battery, execute the origin return.
The bad contact between encoder and battery, or the battery power lines disconnected.	1. Check the encoder wirings. 2. Check the contacts between the encoder power lines and battery box.	After the wirings repairing, execute the origin return.

AL2B ABS encoder abnormal 2

Cause	Inspection	Remedy
The counter of encoder revolutions is abnormal.	Power off the servo drive, and then run the servo motor, check whether it is a recurrence.	If there is still a recurrence, please contact your agent for service.

AL2C ABS encoder abnormal 3

Cause	Inspection	Remedy
Replace the encoder batter when the power of servo drive has turned off.	Not to replace the encoder battery unless the power of servo drive is on.	Execute the origin return.
The absolute coordinate initialization has not executed when the absolute coordinate system operated.	---	Execute the origin return.

AL2D Encoder battery voltage low

Cause	Inspection	Remedy
The voltage of encoder battery is low.	1. Check the LED display whether AL2D message is shown. 2. Measure the battery voltage.	Please keep the power of servo drive and then replace the battery of encoder.

AL2E Control circuit abnormal

Cause	Inspection	Remedy
The SON signal is malfunction.	Check the SON signal whether is disturbed.	Prevent the noise interference.
Current feedback circuit is abnormal.	Power reset the servo drive, if it is a recurrence; please contact your agent for service.	

AL2F Regenerative energy abnormal

Cause	Inspection	Remedy
The regenerative load ratio is more than 100%.	<ol style="list-style-type: none"> 1. Check whether the deceleration time setting is too short. 2. To prevent the occasion where forward rotation and reverse rotation are performed frequently. 	<ol style="list-style-type: none"> 1. Set the proper deceleration time to reduce voltage regenerated. 2. Consult your agent to check whether the drive capacity is sufficient or not.

AL30 Pulse output frequency excess

Cause	Inspection	Remedy
The encoder is breakdown.	Check the alarm histories whether these AL0B, AL0C, AL22, AL26, AL27 had occurred.	Follow the remedy AL0B, AL0C, AL22, AL26, and AL27.
Pulse output frequency exceeds the hardware ability.	Confirm whether the conditions occurred: <ol style="list-style-type: none"> 1. Motor speed is excess than PA41. 2. $(\text{Motor speed}/60) * \text{PA14} > 20 \times 10^6$ 	Set the PA41 and PA14 properly.

AL31 Over current 2

Cause	Inspection	Remedy
The current feedback circuit of servo drive is abnormal.	Power reset the servo drive, if it is a recurrence; please contact your agent for service.	

AL32 Control circuit abnormal 2

Cause	Inspection	Remedy
FPGA hardware abnormal	Power reset the servo drive, if it is a recurrence; please contact your agent for service.	

AL33 Memory error 2

Cause	Inspection	Remedy
The flash memory abnormal	Power reset the servo drive, if it is a recurrence; please contact your agent for service.	

AL34 Overload 4

Cause	Inspection	Remedy
The external load exceeds the rate of drive capacity in continuous used	Check if the reciprocating stroke is too fast	Upgrade the motor capacity or reduce the reciprocating stroke frequency
The mechanical system is unstable	Check whether the acc./dec. time setting is too fast	Increase the acc./dec. time setting

AL1A Index coordinate undefined

Cause	Inspection	Remedy
The origin initialization has not executed when the index coordinate operated.	1. To execute the origin return before the index coordinate is operated. 2. To activate RES to release the alarm status. 3. SON: off→on	

AL1B Position shifting error

Cause	Inspection	Remedy
MC_OK signal ON/OFF state changes.	After positioning completion, check whether any external force causes the final position to be shifted.	1. Activate the RES signal. 2. Press "SET" key at the alarm message screen. 3.SON: off→on

AL1C Overload 4 early warning

Cause	Inspection	Remedy
Overload duration exceeds the pre-warning of protection curve.	Check if the external load exceeds the rated capacity of motor.	Refer to the remedy of AL.34.

AL61 Parameter group range excess

Cause	Inspection	Remedy
Parameter group request exceeds A~F range.	Check the communication command whether is correct or not.	Execute any one instruction below 1. Power off the drive. 2. Press "SET" key at the alarm message screen. 3. Activate the RES signal.

AL62 Parameter number range excess

Cause	Inspection	Remedy
Parameter group number request exceeds the specific range.	Check the communication command whether is correct or not.	Execute any one instruction below 1. Power off the drive. 2. Press "SET" key at the alarm message screen. 3. Activate the RES signal.

AL63 Pr mode parameter range excess

Cause	Inspection	Remedy
Parameter command request exceeds the specific range.	Check the communication command whether is correct or not.	Execute any one instruction below 1. Power off the drive. 2. Press "SET" key at the alarm message screen. 3. Activate the RES signal.

AL64 Pr mode parameters write error

Cause	Inspection	Remedy
To write parameter modification when SON is activated.	Check the SON status when Pr command is going to be changed.	