

EDC-E series AC Servo User's Manual

(Version: V2.22)



ESTUN AUTOMATION TECHNOLOGY CO., LTD

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Chapter 5

Troubleshooting

5.1 Alarm list

Servo drive will output an alarm when abnormal event is detected.

The LED for POWER&ALM on the front panel of the servo drive will turn red when alarm occur(The LED is green in normal status).meanwhile ,the drive outputs an alarm .If an external hand-held operator is installed ,current alarm code can be displayed on the operator.

Alarm Code	Alarm output	Alarm Name	Meaning
A. 01	×	Parameter breakdown	checksum results of parameters saved in external storage has errors
A. 02	×	Current detection error	internal detection circuit problem
A. 03 [*]	×	Over speed	rotation speed of the motor has exceed 1.2 times of max. speed
A. 04 [*]	×	Overloaded	the motor was running for several seconds under the torque largely exceeding ratings.
A. 05	×	Position error counter overflow	internal position error counter has exceeded the value
A. 06	×	Position error pulse overflow	internal position error pulse has exceeded the value set in the parameter Pn-031
A. 09	×	Pulse loss of encoder C	PC is disconnected or have interference
A. 10	×	Encoder disconnected	at least one of PA,PB, PC,PU,PV, or PW is disconnected
A. 11	×	Encoder U,V or W code violation	encoder U,V or W code violation
A. 12	×	Power module error	power module alarm (the current passed on power module is too large or control voltage of VCC4 is too low)
A. 13	×	overheat	power module overheat
A. 14 [*]	×	Voltage error	over voltage or under voltage of main circuit
A. 15 [*]	×	Frequency error of input pulse	reference pulse frequency is higher than 500kpps.
A. 16	×	Parameter error	parameter saved in external storage has errors
A. 17	×	Encoder type error	encoder type error,misusing wire-saving incremental encoder or incremental encoder
A. 21 [*]	×	Power loss error	a power interruption exceeding one cycle occurred in AC power supply.
A. 25	×	Watchdog reset	system reset by watchdog

A. 26 ~ A. 28	×	Program error	program execute error
A. 42	×	Motor and servo mismatch	Pn042(mode selection)not correct
A. 60 ~ A. 66*	×	CAN communicate error	CAN communication fault
A. 99	○	Not an error	normal status

○:Photo-coupler=ON (ON) ×:Photo-coupler=OFF(Alarm status)(OFF)

* : Alarm can be cleared

Clear alarms in following ways when alarm occurs:

- Set 1CN—6 signal active(alarm reset signal ALM_RST).
- Clear alarm with hand-held operator (please see 6.1.2 for reference)
- Through matched PC communication software.
- Turn power OFF and then ON again.

Notes:

- When alarm occurs, always find out the alarm reason and remove alarm failures before clearing alarm.
- Only the alarm codes listed below can be cleared:A.03、A.04、A.14、A.15、A.21。

5.2 Alarm outputs and Troubleshooting

Find out the alarm reason with help of the alarm codes displayed on the hand-held operator or view via the communication software in a PC.

Only the last 8 alarm records are saved in the servo drive which can be viewed via the operator or PC communication software.

The alarm without the sign of “*” are not able to be removed .To clear the alarms, user has to turn power OFF and ON again.

Item	Alarm name	Possible reason	Method
A.01	Parameter breakdown	checksum results of parameters saved in external storage has errors	1. Turn on the power supply again to see if it still happen 2.If it still happens, external storage of servo drive has been damaged. Please change a chip.
A.02	Current detection error	internal detection circuit problem	1. Check the reference power supply of servo A/D circuit if it is damaged. 2. Check the connection between the main board and control board is good. 3. Check if the channel of A/D sampling is damaged.

Item	Alarm name	Possible reason	Method
A.03 *	Over speed	rotation speed of the motor has exceed 1.1 times of max. speed 1.input reference pulse frequency is too high 2.time constant of acceleration and deceleration is too small which makes the speed overshoot is too large. 3.the electronic gear ratio is too large 4.Pn015 is too small.	Please take the following measures when the motor is over speed 1.reduce setting speed(reference value) 2.increase the value of Pn024 and Pn015 3.check the electronic gear ratio which should be set under the coverage of the following range: input pulse frequency*electronic gear ratio 500KHZ
A.04 *	Overloaded	the motor was running for several seconds under the torque exceeding ratings. 1.The time for acceleration or deceleration is too short 2.The capacity of servo drive and servo motor is too small 3.overload 4.start stop frequently	1.increase the time for acceleration or deceleration 2.change large capacity servo system 3.check the load capacity 4.cut down the frequency of start-stop.
A.05	Position error counter overflow	internal position error counter has exceeded the value 1.the motor is locked by the mechanics 2.input reference pulse is abnormal	1.check if the motor rotated according to the reference pulse 2.check the load mechanics 3.check the reference pulse 4.check the connection of motor encoder.
A.06	Position error pulse overflow	internal position error pulse has exceeded the value set in the parameter Pn-031 1.the motor is locked by the mechanics 2.input reference pulse is abnormal	1.check the load mechanics 2.check the connection of motor encoder. 3.increase the value of Pn015,Pn031 and Pn017 4.check the reference pulse 5.reduce the overload capacity and speed.
A07	The setting of electronic gear error	The value of electronic gear is too large.	Reduce the value of electronic gear.

Item	Alarm name	Possible reason	Method
A.09	Pulse loss of encoder C	PC is disconnected or have interference 1.cable's problem, disconnected or misconnected 2.power cable shield is not good 3.encoder damaged 4.screen wire ground disconnect 5.interface circuit of encoder fault.	1.Pls check the power cable connection. power cable and encoder signal wire shouldn't be tied together. 2.Pls check the interface circuit of encoder.
A.10	Encoder disconnected	At least one of PA,PB, PC,PU,PV, or PW is disconnected	1.Pls check the connection between encoder and the motor 2.Pls check the encoder signal 3.if the above mentioned is correct, may be the fault of servo drive internal components.
A.11	Encoder U,V or W code violation	Encoder U,V or W code violation(Please note that the U,V,W signal of encoder is different from the strong current signal U,V,W which the servo drive connected with the motor) 1.the connection of encoder is wrong 2.encoder is damaged	please make sure the power supply voltage of encoder is $5V \pm 5\%$ especially the wire is long. power cable and encoder signal wire shouldn't be tied together. 1.pls check the wiring of encoder. 2.change the servo motor
A.12	Power module error	the current passed on power module is too large or control voltage of VCC4 is too low	1.Disconnect the U,V,W and power, if this status still happens under s-off, it means power module is damaged. 2.Check if the wiring of U,V,W is correct. Check the resistor between U,V,W and ground. If it is small, it means the insulating property of the motor is lower. Change the motor. 3.Check if the capacity of motor is matched with the servo drive's. 4.Check if the control power of power module VCC4 is normal(It will alarm when it is lower)

Item	Alarm name	Possible reason	Method
			5. Increase the time of acceleration and deceleration 6. Check if the relay of DB is damaged
A.13	Overheating	power module overheat 1. bad air flow of radiator or temperature around the servo drive is too high 2. start and stop frequently 3. servo drive operate under over load capacity for a long time	1. Change the servo drive match with the load capacity 2. Improve environment condition to enhance the ability of convection and ventilation
A.14 [*]	Voltage error	Over voltage or under voltage of main circuit 1. power off for a moment, the voltage of main power supply is too low. 2. the energy of the load is too large which leads to main voltage is too large when decelerating 3. frequency of start-stop is too high.	1. Check the input voltage if it is in the cover of rated range. 2. Increase the time of deceleration 3. Low down the frequency of start-stop.
A.15 [*]	Frequency error of input pulse	Reference pulse frequency is higher than 500kpps. 1. pulse input frequency is too high 2. noise mixed in the reference pulse 3. the value of Pn022, Pn023 is not correct	1. Please set reasonable reference pulse frequency 2. Take measures to deal with the noise 3. Adjust the value of Pn022, Pn023. reference pulse frequency = pulse input frequency * (Pn022/Pn023)
A.16	Parameter error	parameter saved in external storage has errors	1. Check carefully if the parameter setting is correct 2. Set default value and check if the data is

Item	Alarm name	Possible reason	Method
			correct. replace chip U3.
A.17	Encoder type error	Selecting wrong type of encoder	Please make sure which type encoder (wire-saving incremental encoder or 17 bits serial encoder) equipped with.
A.21 *	Power loss error	a power interruption exceeding one cycle occurred in AC power supply.	Check if the voltage of servo drive inlet wire is normal
A.25	Watchdog reset	system reset by watchdog	1.Current detect abnormal 2.Serial peripheral abnormal
A. 26 ~ A. 28	Program running error	Program running error.	Please check the interference of drive motor.
A. 42	The type of motor is not match the type of the servo drive.	The type of motor set in Pn042 is not match the type of the servo drive.	Set Pn042 is 0.
A. 60~ A. 66*	CAN communication error	CAN communication is error because of Interference or communication connection abnormal.	1.Check communication cables. 2.Check the trace of communication cables.

5.3 Clearing alarms

■ Clearing current alarm

When an alarm occurs, press ENTER for a few seconds in hand-held panel operator's status display mode, then current alarm is deleted. Besides, the alarm can also be reset by using 1CN-6(ALM_RST) input signal.

Notes:

- Only current alarms with “*” sign in 5.2 can be deleted.
- Eliminate alarm cause first, then input 1CN-6 (ALM_RST) signal, current alarm is removed immediately.
- During effective period of 1CN-6 (ALM_RST) signal, motor is in free status, that equals to SERVO OFF status.

■ Clearing alarm history

In the auxiliary function mode of panel operator, with Fn000, the latest eight (8) alarms can be deleted. Refer to instructions in 6.2.1.