

Servo Motor Error Manual

Er.100: Motor and drive matching failure

Mechanism: The rated current of the motor is larger than the rated current of the drive

Reason	Check method	Treatment
1. The product number (motor or drive) does not exist	According to the nameplate of the drive and motor, confirm that the ESS200P series drive and servo motor are used. Check whether the F00.03 (motor number) matches the nameplate of the motor.	The motor number does not exist. When using our ESS200P drive and servo motor, ensure that the F00.03 number matches the motor nameplate.
2. Motor and drive rated current and rated voltage do not match	Check the "2.3 Servo System Specifications" and confirm that the drive parameters (F00.01 and F00.02) match the motor parameters (F00.05 and F00.06).	Refer to "2.4 Servo System Specifications" to replace the unmatched product. Make sure that the rated voltage and current of the selected motor is less than the rated parameter of the drive.

Er.101: Position mode and encoder matching failures

Mechanism: Absolute position mode motor does not match or motor number is set incorrectly.

Reason	Check method	Treatment
1. Detection of motor mismatch or incorrect motor number setting in absolute position mode	Check whether the motor nameplate is a multi-turn absolute encoder motor Check if F00.03 (motor number) and F00.21 (encoder code) are correct	Reset F00.03 (motor number) according to the motor nameplate or replace the matching motor or set the correct F00.21 (encoder code).

Er.102: Speed Fault

Mechanism: under the torque control mode, the direction of the torque command is opposite to the speed feedback direction;

In position or speed control mode, the speed feedback is in the opposite direction to the speed command.

Reason	Confirmation method	Treatment measure
1.U V W phase sequence wiring error	Check whether there is a one-to-one correspondence between the one end of the servo drive power cable and the U V W terminal of the motor cable, the another end of servo drive power cable and the U V W terminal of the servo drive.	Wire according to the correct U V W phase sequence.
2.When the power on, the interference signal causes the motor rotor initial phase detection error	The U V W phase sequence is correct, but the servo drive shows Er.102.	Re-power on.

3. Incorrect encoder type or error wiring	According to the servo drive and motor nameplate, confirm whether it is our ESS200P series servo drive and servo motor.	Replace with the matched servo drive and motor, when using our ESS200P servo drive and servo motor, ensure that F00.03 is correct. Reconfirm the motor model, encoder type, and encoder wiring.
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4. Encoder wiring is error, aging corrosion, encoder plug is loose	Check whether the encoder cable is our company's standard match cable, whether the cable has aging corrosion, loose joints. Turn off the servo enable signal and turn the motor shaft by hand to see if the F10.10 changes as the motor shaft rotates.	Reweld, insert or replace the encoder cable.
5. In the vertical axis condition, the gravity load is too large	Check whether the vertical axis load is too large. Adjust the brake parameters of F01.06~F01.09 to eliminate the fault.	Reduce vertical axis load, increase rigidity, or block the fault without affecting safety and use.

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Er.103: Inverter module protection

Mechanism: Hardware detects a short circuit signal

Reason	Confirmation method	Treatment measure
1.Braking resistor is too small or short circuit	<p>If using the built-in braking resistor (F01.16 = 0), check if the cable between RB, B is reliably connected. If yes, Measure the resistance value between (+) and B;</p> <p>If using external braking resistor (F01.16=1/2), measure the resistance of the external braking resistor between (+) and B.</p> <p>For brake resistor specifications, please refer to "6.1.7 Braking Settings".</p>	<p>If using the built-in braking resistor, the resistance is“65535”, then using an external braking resistor instead (F01.16=1/2) and remove the wires between RB and B. The resistance value and power can be selected in accordance with the specifications of the built-in braking resistor.;</p> <p>If an external braking resistor is used, the resistance is less than F01.11. Please refer to “2.2.5 Brake Resistor Specifications” .</p> <p>Replace new resistor and connect it between (+) and B.</p>
2. The motor cable is not connected well	Check if the cable connection between servo drive and the motor of the drive U V W side is loose.	Reconnect loose, disconnected wire.
3.Motor cable is grounded	After ensuring that the servo drive power cables and motor cables are fastened, measure whether the insulation resistance between the U V terminal of the driver and the ground (PE) is a $M\Omega$ level value.	Replace motor when poor insulation.
4. Motor U V W cable short circuit	Unplug the motor cable and check whether the motor cable U V W is short-circuited or if there is any burr on the wiring.	Connect the motor cable correctly.

5. Motor burn out	Unplug the motor cable and measure the resistance between the U V W of the motor cable.	If unbalanced, then need to replace motor.
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6. Encoder wiring is error, aging corrosion, encoder plug is loose	<p>Check whether the encoder cable is our company's standard match cable, whether the cable has aging corrosion, loose joints.</p> <p>Turn off the servo enable signal and turn the motor shaft by hand to see if the F10.10 changes as the motor shaft rotates.</p>	Reweld, insert or replace the encoder cable.
7. Drive failure	Unplug the motor cable and still reported fault after re-power on .	Replace the servo drive.

Er.104: Short circuit to ground during operation Mechanism:

Software detects a short circuit to ground

Reason	Confirmation method	Treatment measure
1. The motor cable is not connected well	Check if the cable connection between servo drive and the motor of the drive U V W side is loose.	Reconnect loose, disconnected wire.
2. Short circuit of driver power cable (U V W) to ground	Unplug the motor cable and measure whether the drive power cable U V W is shorted to ground (PE).	Reconnect or replace drive power cables.
3.Motor cable is grounded	After ensuring that the servo drive power cables and motor cables are fastened, measure whether the insulation resistance between the U V terminal of the driver and the ground (PE) is a $M\Omega$ level value.	Replace motor when poor insulation.
4. Motor U V W cable short circuit	Unplug the motor cable and check whether the motor cable U V W is short-circuited or if there is any burr on the wiring.	Connect the motor cable correctly.
5. Motor burn out	Unplug the motor cable and measure the resistance between the U V W of the motor cable.	If unbalanced, then need to replace motor.
6.Drive failure	Unplug the motor cable and still reported fault after re-power on .	Replace the servo drive.

Er.105: Encoder failure

Generation mechanism: Encoder Z signal is disturbed, resulting in a large change in the electrical angle corresponding to the Z signal.

Reason	Confirmation method	Treatment measure
1.Encoder wiring error	Check encoder wiring	Rewiring according to the correct wiring diagram
2.Encoder wiring is loose	Check whether the vibration in the site is too large, causing the encoder cable loosen or even vibrate the encoder.	Reconnect and ensure that the encoder terminals are tightly connected.
3. Encoder Z signal is disturbed	Check the site wiring situation: Whether there are large-scale equipment interference around, or whether there are multiple interference sources such as multiple power supply frequency conversion devices in the cabinet. Leave the servo in the shutdown monitoring state and manually rotate the motor shaft counter-clockwise to monitor if F10.10 (electrical angle) increases or decreases smoothly, and there are four 0-360° cycles. (4 pairs of pole motors) If there is an abrupt change in F10.10 during rotation, so the encoder itself has a large problem. If there is no alarm during rotation, but alarm occurs during servo operation, the possibility of interference is high.	The cable is preferred to use our standard cable; If non-standard cable, it is necessary to check whether the cable meets the specifications, whether to use twisted-pair shielded cable, etc. When wiring, separate strong and weak electricity. The motor cables and encoder cables must not be bundled together. Motor and drive is grounded well. Check whether the plugs at the two ends of the encoder are in good connection, whether the needle is retracted or not.

4. Encoder failure	<p>Replace the encoder cable that can be used normally. If no fault occurs after the replacement, that means the original encoder cable is damaged.</p> <p>Place the motor in the same position, power it on several times and check F10.10. The electrical angle deviation should be within $\pm 30^\circ$.</p>	<p>Replace the encoder cable that can be used normally.</p> <p>After replacement, if the fault still occurs, that means the encoder itself has a big problem and the servo motor needs to be replaced.</p>
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Er.106: Bus encoder data check error

Generating mechanism: The internal parameters of the encoder are abnormal.

Reason	Confirmation method	Treatment measure
1. Serial encoder cable is broken or loose	Check the wiring	Check if the encoder cable is connected incorrectly, or if there is a disconnection or poor connection. If the motor cable and encoder cable are bundled together, separate them.
2. Serial encoder parameter reading and writing exception	The encoder malfunctions when the fault is still reported after power on many times.	Replace servo motor.

Er.107: Z pulse lost fault

Mechanism: The 2500-line incremental encoder Z signal is lost.

Reason	Confirmation method	Treatment measure
1.Encoder failure causes Z signal loss	After using a good encoder cable and correctly wiring, manually twist the motor shaft to check if still occurfault.	Replace servo motor
2.Poor connection or wrong connection leads to loss of encoder Z signal	manually twist the motor shaft to check if still occurfault.	Check whether the encoder cable is in good connection or not, reconnect or replace the cable.
3.Serious encoder signal interference	Check if the encoder cable provided by our company and if it is separated from the power cable.	Use the encoder cable provided by our company and make it separate from power cable.

Er.108: Incremental encoder UVW read error

Mechanism: After power-on, the initial phase information of the 2500-line incremental encoder rotor is incorrectly read.

Reason	Confirmation method	Treatment measure
1.Drive and motor type do not match	According to the nameplate of the drive and motor, confirm that the ESS200P series drive and servo motor are used. Check whether the F00.03 (motor number) matches the nameplate of the motor.	Replace with matching motor and drive
2. Encoder cable is broken	Check whether there is a short circuit in the encoder cable and whether the two ends of the cable are tightly connected with the motor and drive.	Replace the encoder cable and tighten the connection.

Er.109: Incremental pulse encoder broken

Mechanism: The hardware detects the loss of the AB signal of the 2500-line incremental encoder.

Reason	Confirmation method	Treatment measure
1.Loss of AB signal due to encoder failure	After using a good encoder cable and correctly wiring, manually twist the motor shaft to see if it still reports a fault.	Replace servo motor
2.Serious encoder signal interference	Check if the encoder cable provided by our company and determine whether it is separate from the power cable.	Use our company encoder cable and separate from the power cable.

Er.110: Bus encoder broken

Generation mechanism: The hardware detects the loss of the bus encoder communication signal.

Reason	Confirmation method	Treatment measure
1.Loss of communication signal due to encoder failure	After using a good encoder cable and correctly wiring, manually twist the motor shaft to see if it still reports a fault.	Replace servo motor
2.Serious encoder signal interference	Check if the encoder cable provided by our company and determine whether it is separate from the power cable.	Use our company encoder cable and separate from the power cable.

Er.200: Drive overload

Mechanism: The cumulative heat of the drive is too high and the fault threshold is reached.

Reason	Confirmation method	Treatment measure
1.Parameter setting error	Check whether the F00.00 (driver power) display is accurate; Check if the gain (F07 group parameter) or rigid (F08.00, F08.01) setting is reasonable.	If the value of F00.00 and drive nameplate are inconsistent, please contact our company; Adjust the gain parameters properly according to the current feedback effect.
2. Drive load rate is too high (load inertia is too large)	After confirming that F10.48 (average torque) is too large (more than 80%), check whether the inertia is too large by inertia recognition.	Reselect the drive type, and choose bigger power drive.
3.Drive load rate is too high (mechanical chuck)	After confirming that F10.48 (average torque) is too large (more than 80%), observe whether there is a stall in the load operation.	Unclog the mechanics.
4. Motor stalled	Check whether the value of F09.17 (Stalled Protection Time) is 65535. If the locked protection is shielded, the drive will report Er200 when motor stalled	Refer to Er.305 Troubleshooting Methods.

Er.201: Overcurrent fault

Mechanism: Software detects overcurrent

Reason	Confirmation method	Treatment measure
1. The input command is synchronized with switch on the servo or the input command is too fast	Check whether the command has been input before the servo panel is normally displayed.	<p>Command Timing: After the servo panel is normally monitored and displayed, first turn on the servo enable signal (S-ON) and then input command.</p> <p>If allowed, add the instruction filter time constant or increase the acceleration/deceleration time.</p>
2.Braking resistor is too small or short circuit	<p>If using the built-in braking resistor (F01.16 = 0), check if the cable between RB, B is reliably connected. If yes, Measure the resistance value between (+) and B;</p> <p>If using external braking resistor (F01.16=1/2), measure the resistance of the external braking resistor between (+) and B.</p> <p>For brake resistor specifications, please refer to "6.1.7 Braking Settings".</p>	<p>If using the built-in braking resistor, the resistance is "65535", then using an external braking resistor instead (F01.16=1/2) and remove the wires between RB and B. The resistance value and power can be selected in accordance with the specifications of the built-in braking resistor.;</p> <p>If an external braking resistor is used, the resistance is less than F01.11. Please refer to "2.2.5 Brake Resistor Specifications" .</p> <p>Replace new resistor and connect it between (+) and B.</p>
3. The motor cable is not connected well	Check if the cable connection between servo drive and the motor of the drive U V W side is loose.	Reconnect loose, disconnected wire.

4.Motor cable is grounded	After ensuring that the servo drive power cables and motor cables are fastened, measure whether the insulation resistance between the U V terminal of the driver and the ground (PE) is a $M\Omega$ level value.	Replace motor when poor insulation.
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5. Motor U V W cable short circuit	Unplug the motor cable and check whether the motor cable U V W is short-circuited or if there is any burr on the wiring.	Connect the motor cable correctly.
6. Motor burn out	Unplug the motor cable and measure the resistance between the U V W of the motor cable.	If unbalanced, then need to replace motor.
7. Unreasonable gain setting, motor oscillation	Check whether the motor is vibrating or has a sharp sound during start-up and operation. You can also view the “current feedback” using ENC test platform.	Refer to "Chapter 7 Adjustment" for gain adjustment.
8. Encoder wiring is error, aging corrosion, encoder plug is loose	Check whether the encoder cable is our company's standard match cable, whether the cable has aging corrosion, loose joints. Turn off the servo enable signal and turn the motor shaft by hand to see if the F10.10 changes as the motor shaft rotates.	Reweld, insert or replace the encoder cable.
9.Drive failure	Unplug the motor cable and still reported fault after re-power on .	Replace the servo drive.

Er.202: Main circuit overvoltage

Mechanism: The DC bus voltage between (+) and (-) exceeds the fault value: 220V driver: normal value: 310V, fault value: 425V; 380V driver: normal value: 540V, fault value: 800V.

Reason	Confirmation method	Treatment measure
1. Main circuit input voltage is too high	Check the input power specification of the drive and measure whether the input voltage of the main circuit cable driver side (R S T) meets the following specifications: 220V drive: Valid value: 220V-240V Allowable deviation: -10% to +10% (198V to 264V) 380V drive: Valid value: 380V-440V Allowable deviation: -10% to +10% (342V to 484V)	According to the left specification, replace or adjust the power supply.
2. The power supply is in an unstable state or is affected by a lightning strike	Monitor whether the input power to the drive is affected by a lightning strike and measure whether the input power is stable and meet the above specifications.	After the surge suppressor is connected, turn on the control power and main circuit power. If the fault still occurs, replace the servo drive.

3. Brake resistor failure	<p>If the built-in braking resistor (F01.16 = 0) is used, check whether RB and B are reliably connected with the wire. If yes, measure the resistance between (+) and B.</p> <p>If an external braking resistor (F01.16=1/2) is used, measure the resistance of the external braking resistor between B and (+). For brake resistor specifications, refer to "6.1.7 Braking Settings".</p>	<p>If the resistance value is “∞” (infinity), the internal breakage of the braking resistor: If the built-in braking resistor is used, adjust to use an external braking resistor (F01.16=1/2) and remove cable between the RB, B.</p> <p>Resistance value and power can be selected to be consistent with the built-in braking resistor; if an external braking resistor is used, replace new resistance and reconnect it between B and (+).</p> <p>Be sure to set F01.17 (external braking resistor power) and F01.18 (external braking resistor resistance) to the same parameters as actually used external braking resistor.</p>
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4. The external braking resistor has too much resistance and the maximum braking energy cannot be completely absorbed	<p>Measure the resistance of the external braking resistor between (+) and B and compare it with the recommended value.</p>	<p>Replace the resistance of the external brake resistor to the recommended value and reconnect to B and (+).</p> <p>Be sure to set F01.17 (external braking resistor power) and F01.18 (external braking resistor resistance) to the same parameters as actually used external braking resistor.</p>
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5. The motor runs in an emergency acceleration/deceleration state and the maximum braking energy exceeds the absorbable value	Check the acceleration/deceleration time during operation and measure the DC bus voltage between (+) and (-). When confirming whether the voltage exceeds the fault value during deceleration	First of all, make sure that the main circuit input voltage is within the specification range, and then increase the acceleration and deceleration time if allowed.
6. There is a large deviation in the bus voltage sample value	Observe that parameter F10.04 (bus voltage value) is in the following range: 220V drive: F10.04>420V 380V drive: F10.04>800V Measure whether the value of DC bus voltage between (+), (-) is normal and less than F10.04.	Consult our technical support.
7. Servo drive failure	After the power is turned off many times, the main circuit power is reconnected and the fault is still reported.	Replace the servo drive.

Er.203: Undervoltage in main circuit operation

Mechanism: DC bus voltage between (+) and (-) is lower than the fault value: 220V

drive: normal value: 310V, fault value: 150V;

380V drive: Normal value: 540V, Fault value: 350V.

Reason	Confirmation method	Treatment measure
1. The main circuit power is unstable or loses power	Check the input power specification of the drive and measure whether the non-drive side and drive side (R S T) input voltage of the main loop cable meets the following specifications: 220V drive: Valid value: 220V-240V Allowable deviation: -10% to +10% (198V to 264V) 380V drive: Valid value: 380V-440V Allowable deviation: -10% to +10% (342V to 484V) All three phases need to be measured.	Increase the power supply capacity. For details, see "2.4 Servo System Specifications."
2. Instant power outage		
3. Power supply voltage drop during operation	Monitor the input voltage of the drive and check whether the same main circuit power supply has too many other settings turned on, causing the power supply capacity insufficient voltage to drop.	
4. Phase loss, drive that should be entered for 3-phase power operation actually operates with single-phase power	Check whether the main circuit wiring is correct and reliable. Check whether the fault detection of parameter F09.00 is disabled.	Replace the cable and properly connect the main circuit power cable: Three-phase: R S T Single phase: L1 L2

5. Servo drive failure	<p>Observe that parameter F10.04 (bus voltage value) is in the following range:</p> <p>220V drive: F10.04 < 200V</p> <p>380V Drive: F10.04 < 380V</p> <p>After re-powering many times, re-connecting the main circuit (R S T) still reports a fault.</p>	Replace the servo drive.
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Er.204: Motor parameter self-learning fault

Generating mechanism: The drive is malfunctioning when learning servo motor parameters.

Reason	Confirmation method	Treatment measure
1. Poor three-phase output wiring	Check whether the cable between the motor and the main circuit input terminal (U, V, W) is good and fastened.	Replace the cable and connect it properly.
2. Abnormal current during the tuning process	Check whether the rated parameters of F00 motor are correct.	Select a motor that matches the motor.
3. If F10.46=2041, there is an error in the stator identification phase	Determine whether the motor output line is connected.	After confirming that the output line is normal, restart the identification.
4. If F10.46=2042 or F10.46=2043, it is an error in the inductance identification phase	Determine whether the motor output line is connected or the motor and drive do not match.	After confirming that the output line is normal, restart the identification and select the servo motor that matches the drive.
5. Carrier identification error in identification	Check if F10.46 is 2044.	If F10.46=2044, please contact the manufacturer.

Er.205: Encoder self-tuning fault

Mechanism: The drive failed when it learns the installation information of the 2500-line optical encoder and learns the phase sequence of the motor UVW wiring.

Reason	Confirmation method	Treatment measure
1. Motor power terminal UVW wiring phase sequence error	Check F10.46=2051	if 1. If the motor runs clockwise during the self-learning process, replace any two phases of the UVW power line. After the exchange, I will learn again. 2. If the motor runs counterclockwise during the self-learning process and the motor encoder is a 2500-line photoelectric encoder, the encoder A and B signal wiring can be exchanged. After the exchange, I will learn again. 3. If the motor runs counterclockwise during the self-learning process and the motor encoder is a bus encoder, the encoder does not match. Contact the factory to replace the motor.
2. Can not find Z signal	Check F10.46=2052	if Check if the signal line connection of the 2500
3. 2500 line optical encoder UVW signal line is wrong	Check F10.46=2053	if lineConfirmencoderwhetheris reliablethe signal wire connection of the 2500 line encoder is reliable and correct, and re-identify after detection.

Er.206: Temperature detection disconnection

Mechanism: The software detects that the temperature detection circuit has failed.

Reason	Confirmation method	Treatment measure
1.Module temperature detection circuit failure	Check the temperature wiring loop, after many times power off, reconnect the main circuit power, still report the fault.	Replace the servo drive.

Er.207: In-plant fault 1

Mechanism: Internal watchdog failure.

Reason	Confirmation method	Treatment measure
1.Internal watchdog trigger	After many times power off, the main circuit power is reconnected and the fault is still reported.	Contact our technical support

Er.208: In-plant Fault 2

Internal watchdog failure.

Reason	Confirmation method	Treatment measure
1.Internal watchdog trigger	After many times power off, the main circuit power is reconnected and the fault is still reported.	Contact our technical support

Er.209: In-plant Fault 3

Reason	Confirmation method	Treatment measure
1.Internal timing error	After many times power off, the main circuit power is reconnected and the fault is still reported.	Contact our technical support

Er.211: E2PROM read and write errors

Generating mechanism: 1 Cannot write parameter values to EEPROM;

2 unable to read the parameter value from EEPROM;

Reason	Confirmation method	Treatment measure
1.Parameters write exception	After changing a parameter, power on again to see if the parameter value is saved.	Not saved, and the fault still occurs after power-on many times, and the drive needs to be replaced.
2.Parameters read exception		

Er.212: External device failure

Reason	Confirmation method	Treatment measure
External device failure	External Fault Terminal (FunIN.11: Out-Fault) Active.	Disconnect external fault terminals after handling external faults.

Er.213: Command conflict failure

Mechanism: When the drive executes a command, it gives a redundant servo command signal

Reason	Confirmation method	Treatment measure
1.The internal servo enable signal (S-ON) is valid	Check whether auxiliary functions are used: F12.03, F12.04, F12.05, F12.06, F12.12, F12.16 and DI function 1 (FunIN.1: S-ON, servo enable signal) is valid at the same time.	The servo drive can only execute one of the auxiliary function commands and servo ON instructions at any time.

Er.214: Undervoltage in control loop operation

Generating mechanism: 220V drive: normal value: 310V, failure value: about 180V; 380V drive: normal value: 540V, fault value: about 380V.

Reason	Confirmation method	Treatment measure
1. Control power supply instability or power loss	Check if the control power is cut off (L1C L2C) or a momentary power failure occurs.	Re-power on, if abnormal power failure, need to ensure that the power supply is stable.
	Measure whether the input voltage of the control cable meets the following specifications: 220V drive: Valid value: 220V-240V Allowable deviation: -10% to +10% (198V to 264V) 380V drive: Valid value: 380V-440V Allowable deviation: -10% to +10% (342V to 484V)	Increase power supply capacity.
2. Poor control cable connection	Check whether the cables are connected and measure whether the voltage on the control cable drive side (L1C, L2C) meets the above requirements.	Reconnect or replace the cable.

Er.215: Output phase failure

Generating mechanism: The drive detects the lack of motor output

Reason	Confirmation method	Treatment measure
1. The motor cable is not connected well	Check if the cable connection between servo drive and the motor of the drive U V W side is loose.	Reconnect loose, disconnected wire.
2. Motor cable is grounded	After ensuring that the servo drive power cables and motor cables are fastened, measure whether the insulation resistance between the U V terminal of the driver and the ground (PE) is a $M\Omega$ level value.	Replace motor when poor insulation.
3. Motor U V W cable short circuit	Unplug the motor cable and check whether the motor cable U V W is short-circuited or if there is any burr on the wiring.	Connect the motor cable correctly.
4. Motor burn out	Unplug the motor cable and measure the resistance between the U V W of the motor cable.	If unbalanced, then need to replace motor.
5. If none of the above problems occur, you can turn off output phase loss detection (F09.02=0).		

Er.216: Radiator overheated

Mechanism: The temperature of the driver power module is higher than the over-temperature protection point

Reason	Confirmation method	Treatment measure
1.Excessive ambient temperature	Measure ambient temperature	◦ Improve the cooling conditions of the servo driver and reduce the ambient temperature.
2. After overload, turn off the power supply to reset overload fault and repeat several times	(Er.200)。 Check the fault record (Check F17.00 to F17.05 if there is an overload fault or warning Er200)	Change the fault reset method, wait 30 seconds after overload and then reset. Increase drive, motor capacity, increase acceleration and deceleration time, reduce load
3. Fan broken	Is the fan running during operation?	Replace servo drive
4. The installation direction of the servo driver and the unreasonable interval with other servo drives	Check whether the installation of the servo driver is reasonable	Install according to the installation standard of the servo driver.
5. Servo driver failure	It still reports a failure after the power is turned off for 5 minutes.	Change servo drive

Er.217: Current detection circuit failure

Mechanism: The driver detects a fault in the current detection circuit

Reason	Confirmation method	Treatment measure
Control board lines or plug-ins loose	check and reconnect	After reconnecting, power up again
Auxiliary power source is damaged	Seek factory or dealer service	
Current detection device is damaged	Seek factory or dealer service	
Abnormal amplifying circuit	Seek factory or dealer service	

Er.218: The brake is open abnormally

Mechanism: After the brake protection is opened, the brake output signal is invalid, but the motor has rotated more than two turns.

Reason	Confirmation method	Treatment measure
The brake is open abnormally	Check if the motor brake terminal signal is valid or the motor brake switch is damaged	Replace the wire according to the correct wiring, or replace the motor

Er.300: Motor overload protection

Mechanism: Accumulated motor heat is too high and the fault threshold is reached

Reason	Confirmation method	Treatment measure
1. Motor wiring, encoder connection error	Compare to the correct "wiring diagram" to see the line between the motor, driver, and encoder	Connect the cables according to the correct wiring diagram; Use our standard cables preferentially; When using a homemade cable, follow the hardware wiring instructions to make and connect
2. The load is too heavy, the motor output effective torque exceeds the rated torque, continuous operation for a long time	Check the motor or driver overload characteristics; Check if the average driver torque (F10.48) is longer than 100.0%	Replace large-capacity drives and matched motors; Or reduce the load, increase the acceleration and deceleration time
3. Acceleration or deceleration is too frequent or load inertia is large	Calculate the mechanical inertia ratio or identify the inertia, check the inertia ratio F07.14; Check the single operation cycle when the servo motor is cycled	Increase the acceleration/deceleration time in a single operation
4. Gain adjustment is inappropriate or too rigid	Observe whether the motor vibrates during operation or the sound is abnormal.	Refer to "Chapter 7 Adjustments" and readjust the gain.

5. Drive or motor model is set incorrectly	For the ESS200P series: Check the motor model F00.03 and the driver model F00.00.	Check the drive and motor nameplate, and set the correct drive model and motor type against “2.5 Servo System Specifications”.
6.The motor is stalled due to mechanical factors, causing excessive load during operation	It is displayed by ENC drive debugging platform or panel, and confirms the running command and motor speed (F10.00): Operation command in position mode: F10.12 (Input position instruction counter) Running command in speed mode: F10.01 (speed command) Torque mode operation command: F10.02 (Internal torque command) Check whether the operation command is not 0 in the corresponding mode and the motor speed is 0.	Exclude mechanical factors
7. Servo drive default	Power off, then power on, the fault is still reported.	Replace servo drive

Er.301: Power cable phase loss

Mechanism: Phase loss occurs on three-phase servo drive.

Reason	Confirmation method	Treatment measure
1. Poor three-phase input wiring	Check whether the cable between the non-driver side and the main circuit input terminal (L1, L2, L3) is good and fastened.	Replace the cable and properly connect the main circuit power cable:
2. Three-phase driver operates under single-phase power	Check the driver input power specifications, check the actual input voltage specifications, and measure whether the main circuit input voltage meets the following specifications: 220V driver: Valid value: 220V-240V Allowable deviation: -10% to +10% (198V to 264V) 380V driver: Valid value: 380V-440V Allowable deviation: -10% to +10% (342V to 484V) Three-phase measurement is required.	If the input voltage meets the left specification, set F09.00=0 (does not detect input phase loss); In other cases, if the input voltage does not conform to the left specification, follow the left specifications to replace or adjust the power supply.

Er.302: Over speed protection

Mechanism: Actual speed of servo motor exceeds over speed fault threshold

Reason	Confirmation method	Treatment measure
1. Motor cables U V W wrong phase sequence	Check whether the connection between the two ends of the drive power cable and the U V W end of the motor cable and the U V W end of the driver corresponds one to one.	Connect to the correct U V W phase sequence
2. Parameter setting error	Check if the over speed fault threshold is less than the maximum motor speed required for actual operation:	Reset over speed fault threshold according to mechanical requirements
3. Input command exceeds over speed fault threshold	Check if the motor speed corresponding to the input command exceeds the over speed fault threshold. In the position control mode, when the command source is a pulse command, the pulse frequency is too high.	Position control mode: The position instruction source is the pulse instruction: under the premise of ensuring the final positioning accuracy, reduce the pulse instruction frequency or reduce the electronic gear ratio under the condition that the running speed is allowed; the speed control mode: view the input speed instruction value or the speed limit value (F05.08 ~ F05.10), and confirm that they are all within the over speed fault threshold; Torque control mode: Set the speed limit threshold within the over speed fault threshold. For the speed limit in torque mode, refer to "6.4.4 Speed limit in torque mode".

4. Motor speed overshoot	Use the ENC drive debugging platform to check if "speed feedback" exceeds the over speed fault threshold.	Refer to "Chapter 7 Adjustment" for gain adjustment or adjustment of mechanical operating conditions.
5. Servo drive fault	Report fault even the power turn on again	Change the servo drive

Er.303: Pulse output over speed

Mechanism: When the pulse output function (F04.25=0 or 1) is used, the output pulse frequency exceeds the frequency at which the hardware is operating (392KHz)

Reason	Confirmation method	Treatment measure
Output pulse frequency exceeds hardware allowed upper frequency limit (240KHz)	When F04.25=0 (encoder divider output), calculate the output pulse frequency corresponding to the motor speed at the time of fault, and check if the overrun is exceeded. Output pulse frequency.	Decrease F04.26 (number of encoder crossover pulses) so that the output pulse frequency is less than the upper frequency limit allowed by the hardware over the entire speed range of the mechanical requirements.
	When F04.25=1 (pulse command synchronous output), the input pulse frequency (the frequency after the input pulse is quadrature pulse input is 4 times the frequency) exceeds 240KHz/F04.26 or the pulse input pin has interference.	Reduce the input pulse frequency within upper frequency limit that the hardware allowed Please note: At this point, if do not modify the electronic gear ratio, the motor speed will decrease. If the input pulse frequency is already higher, but does not exceed the upper frequency limit allowed by the hardware, anti-jamming measures should be taken (pulse input wiring uses twisted-pair shielded cable and sets the pin filtering parameter F09.13 or F09.16) to prevent interference. The pulse is superimposed on the actual pulse command, causing false alarms.

Er.304: Pulse input over speed

Mechanism: input pulse frequency is greater than the maximum position pulse frequency (F09.12)

Reason	Confirmation method	Treatment measure
1. (F09.12)Input pulse frequency is greater than the set maximum position pulse frequency (F09.12)	Check F09.12 (Maximum position pulse frequency) whether less than the maximum input pulse frequency required for normal machine operation.	Set F09.12 according to the maximum position pulse frequency required for normal operation of the machine. If the upper computer output pulse frequency is greater than 4MHz, the output pulse frequency of the upper computer must be reduced.
2. Input pulse interference	Firstly, through the oscilloscope function of the ENC debugging platform software, check whether the position command has suddenly increased, or check whether the servo driver input position instruction counter (F10.12) is greater than the number of output pulses of the host computer. Then, check the grounding of the line.	First, the pulse input cable must be twisted shielded and routed separately from the driver power line. Secondly, when using the low-speed pulse input port (F04.03 = 0), the "ground" of the host computer must be reliably connected with the "GND" of the drive when the differential input is selected; when the open collector input is selected, the "ground" of the host computer must be Reliable connection with the drive's "COM"; Using the high-speed pulse input port (F04.03 = 1), only the differential input can be used, and the "ground" of the host computer must be reliably connected to the "GND" of the drive. Finally, according to the selected hardware input terminal, increase the pin filter time constant F09.13 of the pulse input terminal.

Er.305: Motor stalled

Mechanism: The actual speed of the motor is less than 10rpm, but the torque command reaches the limit value and the duration reaches the set value of F09.17.

Reason	Confirmation method	Treatment measure
1. Driver U V W Output Phase Missing or Phase Sequence Error	Run the motor under no load and check the wiring.	Reconnect the wiring according to the correct wiring, or replace the cable
2. Drive U V W Output broken or encoder broken	Check the wiring	。 Reconnect the wiring according to the correct wiring, or replace the cable
3. Motor stalling due to mechanical factors	It is displayed by ENC drive debugging platform or panel, and confirms the running command and motor speed (F10.00): Operation command in position mode: F10.12 (Input position instruction counter) Running command in speed mode: F10.01 (speed command) Torque mode operation command: F10.02 (Internal torque command) Check whether the operation command is not 0 in the corresponding mode and the motor speed is 0.	Troubleshoot mechanical factors

Er.306: Encoder battery failure

Mechanism: Absolute encoder battery voltage is less than 3.0V

Reason	Confirmation method	Treatment measure
1.Out of battery during power off	Confirm connection during power off	Set F12.02=1 to clear the fault
2. Encoder battery voltage is too low	Measuring battery voltage	Replace the new voltage-matched battery

Er.307: Encoder multi-turn count error

Mechanism: Encoder multi-turn count error

Reason	Confirmation method	Treatment measure
1. Encoder fault	Set F12.02=1 to clear the fault. Er.307 still occurs after the power is turned on again.	Change motor

multi-turn count overflow

Mechanism: Encoder multi-turn count overflow

Reason	Confirmation method	Treatment measure
1.when F09.18 is 0,Encoder multi-turn count overflow	Set F12.02=1 to clear the fault. Er.308 still occurs after the power is turned on again.	Change the motor

Er.309: AD sampling overvoltage

Mechanism: AI sampling value is greater than the value of F09.07。

Reason	Confirmation method	Treatment measure
1.AI channel input voltage is too high	Measure the AI channel input voltage to see if the actual sampled voltage (F10.20 or F10.21) meets the requirements	Adjust the input voltage while viewing the sampled voltage until the sampled voltage does not exceed the voltage set by F09.07.

2.AI channel wiring error or interference	Refer to the correct wiring diagram to check the AI channel wiring	Use twisted shielded cable to re-wiring and shorten the length of the line. Increase the AI channel filter time constant: AI1 filter time constant: F03-51 AI2 filter time constant: F03-56
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Er.310: Excessive position deviation

Mechanism: In position control mode, the position deviation is greater than the setting of F09.10

Reason	Confirmation method	Treatment measure
1. Driver U V W Output Phase Missing or Phase Sequence Error	Run the motor under no load and check the wiring	Reconnect the wiring according to the correct wiring, or replace the cable.
2. Drive U V W Output wiring broken or encoder broken	Check wiring	After re-wiring, the servo motor power cable and driver power cable UVW must be in one-to-one correspondence. If necessary, replace the new cable and make sure it is connected reliably.

3. Motor stalling due to mechanical factors	<p>It is displayed by ENC drive debugging platform or panel, and confirms the running command and motor speed (F10.00):</p> <p>Operation command in position mode: F10.12 (Input position instruction counter)</p> <p>Running command in speed mode: F10.01 (speed command)</p> <p>Torque mode operation command: F10.02 (Internal torque command)</p> <p>Check whether the operation command is not 0 in the corresponding mode and the motor speed is 0.</p>	Troubleshoot mechanical factors.
4. Low servo driver gain	<p>Check servo drive position loop gain and speed loop gain:</p> <p>The first gain: F07.00 ~ F07.02</p> <p>Second gain: F07.03 to F07.05</p>	Perform manual gain adjustment or automatic gain adjustment according to Chapter 7.
Higher input pulse frequency	When the position command source is a pulse command,	Reduce the position command frequency or reduce the electronic
	whether the input pulse frequency is too high. Acceleration/deceleration time is 0 or too small	<p>gear ratio.</p> <p>When using the upper computer output position pulse, a certain acceleration time can be set in the upper computer;</p> <p>If the host computer cannot set the acceleration/deceleration time, the position command smoothing parameters F04.05 and F04.06 can be increased.</p>

6. The fault value (F09.10) is too small relative to the operating conditions	Check if the position deviation fault value (F09.10) is too small.	Increase the F09.10 setting value.
7. Servo drive / motor failure	Monitor the running waveform through the oscilloscope function of the ENC drive debugging platform: Position command, position feedback, speed command, torque command	If the position command is not zero and the position feedback is always zero, replace the servo drive/motor.

Er.311: Full closed loop mixing position deviation is too large

Mechanism: The absolute value of the full-closed-loop position deviation exceeds F13.04 (full-closed-loop hybrid position deviation excessive threshold).

Reason	Confirmation method	Treatment measure
1. Driver U V W Output Phase Missing or Phase Sequence Error	Run the motor under no load and check the wiring.	Reconnect the wiring according to the correct wiring, or replace the cable.
2. Drive U V W output wiring broken or internal/external encoder broken	Check the wiring.	After re-wiring, the servo motor power cable and driver power cable UVW must be in one-to-one correspondence. If necessary, replace the new cable and make sure it is connected reliably.

3. Motor stalling due to mechanical factors	<p>It is displayed by ENC drive debugging platform or panel, and confirms the running command and motor speed (F10.00):</p> <p>Operation command in position mode: F10.12 (Input position instruction counter)</p> <p>Running command in speed mode: F10.01 (speed command)</p> <p>Torque mode operation command: F10.02 (Internal torque command)</p> <p>Check whether the operation command is not 0 in the corresponding mode and the motor speed is 0.</p>	Troubleshoot mechanical factors
4. Low servo driver gain	<p>Check servo drive position loop gain and speed loop gain:</p> <p>The first gain: F07.00 ~ F07.02</p> <p>Second gain: F07.03 to F07.05</p>	Perform manual gain adjustment or automatic gain adjustment according to Chapter 7.
5. Higher input pulse frequency	<p>When the position command source is a pulse command, whether the input pulse frequency is too high. Acceleration/deceleration time is 0 or too small</p>	<p>Reduce the position command frequency or reduce the electronic gear ratio.</p> <p>When using the upper computer output position pulse, a certain acceleration time can be set in the upper computer;</p> <p>If the host computer cannot set the acceleration/deceleration time, the position command smoothing parameters F04.05 and F04.06 can be increased.</p>

6. The fault value (F13.04) is too small relative to the operating conditions	Check if the full-closed-loop mixed position deviation excessive error threshold (F13.04) is set too low.	Increase the F13.04 setting
7. Servo drive / motor failure	Monitor the running waveform through the oscilloscope function of the ENC drive debugging platform: Position command, position feedback, speed command, torque command	If the position command is not zero and the position feedback is always zero, replace the servo drive/motor

Er.312: Mechanism: Any set of electronic gear ratios exceeds the limit: $(0.001 \times \text{encoder resolution} / 10000, 4000 \times \text{encoder resolution} / 10000)$.

Reason	Confirmation method	Treatment measure
Electronic gear ratio setting exceeds the above range	If F04.07=0, determine the ratio of parameters F04.09/F04.11 and F04.13/F04.15. If F04.07>0, determine: Encoder resolution /F04.07, F04.09/F04.11, F04.13/F04.15 ratio	Set the encoder resolution /F04.07, F04.09/F04.11, F04.13/F04.15 ratio to the above range.

Parameter change order problem	Change electronic gear ratio associated parameters: When F04.07, F04.09/F04.11, and F04.13/F04.15, due to the unreasonable change order, the electronic gear ratio is exceeded during the transition process of the calculated electronic gear ratio.	Use fault reset or re-power it
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Er.313: Communication failure

Mechanism: Problems with communication

Reason	Confirmation method	Treatment measure
1.Baud rate are set incorrectly	Whether the parameter is consistent with the port of the upper computer	Set Baud rate properly
2.Fault alarm parameters are set incorrectly	Communication timeout detection time F11.07, and communication error detection time F11.08 set too short	Set the appropriate value according to the communication condition of the host computer.
3.Excessive interference	Detect whether communication line and power line have enough distance	Rewiring

Er.314: Braking resistor overload protection

Mechanism: Accumulated braking resistor heat is greater than the set value

Reason	Confirmationmethod	Treatment measure
1、 Bad external brake resistor connection, disconnection, or disconnection	Remove the external braking resistor and measure directly whether the resistance is “∞” (infinity); Measure whether the resistance between (+) and B is “∞” (infinity).	Replace the new external braking resistor. Measure the resistance of the resistor in accordance with the nominal value and connect it between (+) and B.
		Select a good cable and connect the external braking resistor to (+) and B respectively.
2. When the built-in braking resistor is used, the cable between the power terminals (+) and B is short-circuited or comes off.	Measure whether the resistance between (+) and B is “∞” (infinity).	Connect (+) and B directly with a good cable.
3. F01.16 (brake resistance setting) selection error when using external braking resistor	Check the F01.16 parameter value; Measure the actual resistance value of the external resistor between (+) and B, and compare it with the 2.2.5 braking resistor specification table. Is it too large?	F01.16=1 Set F01.16 correctly: F01.16=1
4. When using an external braking resistor, the actual value of the external braking resistor used is too large	Check whether the parameter value of F01.18 is greater than the value of the external resistor between (+) and B.	According to the braking resistor specification table in section 2.2.5, use the resistor with the right value.
5. F01.18 (external braking resistor resistance) is greater than the actual external braking resistor		Set F01.18 with the actual choice of external resistor resistance.

6. Main circuit input voltage exceeds specification range	<p>Measure whether the input voltage of the main circuit cable driver side meets the following specifications:</p> <p>220V driver: Valid value: 220V~240V Allowable deviation: -10%~+10% (198V~264V)</p> <p>380V driver: Valid value: 380V~440V Allowable deviation: -10%~+10% (342V~484V)</p>	According to the left specifications, adjust or replace the power supply.
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7. The moment of inertia of the load is too large	Refer to 7.2 Inertia Identification, Identifying the Moment of Inertia; or Calculate the Total Mechanical Inertia Manually Based on the Mechanical Parameters; Whether the actual load inertia ratio exceeds 30.	<p>Use large-capacity external braking resistor and set F01.17 to be consistent with actual value; Select large-capacity servo driver; Allowed to reduce the load; Allowed to increase the acceleration and deceleration time; If allowed, increase the motor operating cycle.</p>
8. The motor speed is too high, the deceleration process is not completed within the set deceleration time, and it is continuously decelerated during periodic motion.		
9. Insufficient capacity or braking resistor capacity of servo driver	Check the motor's single-cycle speed curve and calculate if the maximum braking energy can be fully absorbed.	
10. Servo driver failure	-	

Er.315: Home origin timeout failure

Mechanism: When using the OPR function (F04.35=1 to 5), the origin is not found within the time set by F04.40.

Reason	Confirmationmethod	Treatment measure
1.Origin return time exceeded	Observe whether the duration exceeds the time set by F04.40 when the observation is started from the zero point to the alarm point.	Set the time of F04.40
2. Check whether the origin signal is valid	The origin signal is not found within the range of the positive and negative limit switches at each touch: Observed whether the zero return process touches the positive and negative limit switches once, but the search time is less than the setting value of F04.40, check whether the origin signal is valid	Change the origin setting point or change the origin search direction
3.Selects the touch-to-zero mode, but the set offset is in the same direction	Confirm whether the direction of zero return is consistent with the set offset	Change the offset setting to ensure that the set direction is opposite to the zero return direction

Er.316: Origin zeroing exception

Mechanism: In the process of zeroing the origin, the signal of the limit switch, the deceleration point, and the origin signal are lost or abnormal, and abnormal protection is set in the parameters of the touchdown zero mode.

Reason	Confirmationmethod	Treatment measure
1. Limit switch signal, loss or abnormality of deceleration point, origin signal	Check whether the terminal function setting is correct and whether the status corresponding to F10.05 is valid.	Correctly set parameters and correct wiring
2.Selects the touch-to-zero mode, but the set offset is in the same direction	Check if the direction of zero return is different from the set offset	Change the offset setting to ensure that the set direction is opposite to the zero return direction

AL.401: Encoder battery warning

Mechanism: Absolute encoder battery voltage is less than 3.0V

Reason	Confirmationmethod	Treatment measure
1.Absolute encoder battery voltage is less than 3.0V	Test battery voltage	Replace the new voltage-matched battery

AL.402: Emergency brake alarm

Mechanism: DI function 33 (FunIN.33: Brakes, Emergency) The corresponding DI terminal logic is valid

Reason	Confirmationmethod	Treatment measure
DI function 34, brake, triggered	Check DI function 34: Emergency Stop brake and its corresponding DI terminal logic is asserted.	Check the operation mode, confirm the safety, and release the DI brake valid signal.

AL.403: Mechanism: F01.18 (external braking resistor resistance) is less than F01.11 (the minimum value of the external braking resistor for the drive operation).

Reason	Confirmationmethod	Treatment measure
When using an external braking resistor (F01.16=1), External brake resistor resistance is less than the minimum allowable for the driver	Measure the resistance of the external braking resistor between (+) and B to check if it is less than F01.11.	If yes, replace it with an external braking resistor matching the driver. After setting F01.18 as the selected resistance value, connect the two ends of the resistance to (+) and B respectively. If not, set F01.18 to the actual external braking resistor value.

AL.404: Mechanism: When the function code property of the servo driver is "Active mode" is "Power on again", after the parameter value of the function code is changed, the driver reminds the user that it needs to be powered on again.

Reason	Confirmation method	Treatment measure
Changed the function code that changed after power-on again	Confirm whether the function code of "Energy on" is set to "Power on again" is changed	Power on again

AL.405: Positive over travel warning

Mechanism: Positive over travel signal is generated

Reason	Confirmationmethod	Treatment measure
DI Function 14: Forward Drive Disabled, Terminal Logic Active	Check if DI function is set in DI group of F02 group 14 Check if the DI terminal logic of the corresponding bit monitor (F10.05) is valid.	Check the operation mode, determine the safety, give a negative command or rotate the motor, and disable the logic of the "forward over travel switch" terminal.
Soft limit maximum over travel	Check whether F10.07 exceeds the limit of F09.20	

AL.406: Negative over travel warning

Mechanism: Negative over travel signal is generated

Reason	Confirmationmethod	Treatment measure
DI Function 15: Reverse drive Disabled, Terminal Logic Active	Check if DI function is set in DI group of F02 group 15 Check if the DI terminal logic of the corresponding bit monitor (F10.05) is valid.	Check the operation mode, determine the safety, give a positive command or rotate the motor, and disable the logic of the "reverse over travel switch" terminal.
Soft limit minimum over travel	Check whether F10.07 exceeds the limit of F09.22	Change F09.22

AL.407: Temperature of power module of servo drive overheat

Mechanism: Temperature of power module of servo drive is higher than the overtemperature protection level

Reason	Confirmationmethod	Treatment measure
1. Ambient temperature is too high.	Measure ambient temperature.	Improve cooling conditions to reduce ambient temperature.
2. Servo drive is powered off to reset overload fault.	View the fault records (set F17.00 and view F17.05) and check whether overload fault (Er200) occurs.	Change fault reset method. After overload occurs, wait 30s and then perform reset operation. Increase capacity of servo drive and servo motor, increase acceleration/ deceleration time, and reduce load.
3. The fan is damaged.	Observe whether the fan rotates during running.	Replace the servo drive.
4. Installation direction and clearance of the servo drive are improper.	Check whether installation of servo drive is proper.	Replace the servo drive.
5. The servo drive is faulty.	The fault persists after restart 5 minutes after power-off.	Replace the servo drive.

Er.408: Running time limit warning

Mechanism: the limit running time

Reason	Confirmationmethod	Treatment measure
servo drive's running time	The total running time F10.19 is greater than F01.29	Replace the servo drive.

Er.999: Keyboard communication error

Mechanism: the communication error of keyboard CPU and main CPU;

Reason	Confirmationmethod	Treatment measure
he communication error of keyboard CPU and main CPU	communication error	Repalce