SD700 servo fault code description (EtherCat)

Fault Code	Description	Solution
Er.020	Parameter and checksum exceptions	1、After initializing the parameter setting values, enter the parameters again; 2、Write the power level of the driver to 0 first, and then write the correct power level. Note: Perform current detection correction, analog input correction, and bus voltage correction after the power level is written. 3、Servo driver failure, replace servo driver.
Er.021	Parameter formatting exception (inconsistent version number)	1. Execute soft reset, and if the fault is still reported, write the power level of the drive to 0 first, and then write the correct power level. Note: After the power level is written, perform current detection correction, analog input correction, and bus voltage correction. 2、Servo driver failure, replace servo driver.
Er.022	System and calibration exceptions	
Er.023	XML file not burned	1、Re-burn the XML file 2、Replace the driver
Er.030	Main circuit detection section abnormal	Servo driver failure, replace servo driver.
Er.040	Parameter setting exception	1、Make the changed parameter a value within the setting range. 2、Make the set value of the electronic gear ratio within the set range. 3 、 Make the capacity of servo driver and servo motor match each other. 4、I/O terminal definition repeat
Er.041	Frequency division pulse output setting abnormal	Set the number of encoder divider pulses to the appropriate value.
Er.042	Parameter combination exception	1、Make the setting value of electronic gear ratio within the setting range. 2、Make the relevant setting of program JOG logical.
Er.044	Semi-closed loop / fully closed loop parameter setting abnormal	Correct setting of semi/fully closed-loop parameters
Er.050	Mismatch between drive and motor capacity	1 、 Check whether the drive power and motor power are correct; 2、Replace the drive or motor so that it is within a reasonable range
Er.051	Product does not support alarms	If a function module is connected that is not supported by the product, please choose the matching combination
Er.080	Abnormal setting of distance per unit pulse of encoder	Correct setting of the distance per unit pulse of the encoder
Er.08A	Position sensor resolution setting abnormal	Correct setting of the position sensor resolution
Er.0B0	Servo on command invalid alarm	1、Turn on the power to the servo driver again. 2、Software reset
Er.100	Overcurrent	1、check whether the motor phase sequence is connected wrong. 2、check whether the motor is damaged, use a multimeter to measure whether U/V/W to ground is short together. 3、check whether the motor's encoder angle is correct. 4、through the virtual oscilloscope to monitor the UV phase current sampling AD value in the unenabled condition, to determine whether the drive hardware current sampling fault, under normal circumstances in the vicinity of 0
Er.300	Brake resistor failure	1、The external regenerative resistor is wired correctly. Determine whether the value of PN012 and PN013 is correct 2、After troubleshooting the wiring, it may be a servo driver problem, replace the servo driver
Er.320	Braking resistor overload	1、do not enable the state to check whether the drive bus voltage is within a reasonable range, if the bus voltage detection error, there is a risk of false braking, false protection. 2、confirm whether the braking resistor wiring is correct, see the manual for details. 3、 according to the load situation, consider whether the current braking resistor selection is appropriate, see the braking resistor selection rules. 4 、 if the wiring is correct, and the brake resistor selection is reasonable, the operation is still reported regenerative overload, then you can monitor through the host computer or keyboard when the bus voltage reaches the braking point during operation, whether there is a small drop. If the bus voltage reaches the braking point, still smooth rise, it can be judged that the brake tube damage. 5、if the fault is reported in the last run, then power up and so on for a period in the run.
Er.330	The main circuit power supply is wired incorrectly	Correctly connect the main circuit power cable
Er.400	Overvoltage	1、Under the non-enabled condition, measure the power supply voltage and monitor whether the bus voltage (Un140) is 1.414 times the input power supply voltage (AC rms). If the deviation is large, it can be determined that the bus voltage detection hardware is faulty. 2 、 Measure the power supply voltage, if the power supply voltage is adjustable, the power supply voltage will be adjusted to within the product specifications, if it is not adjustable and the power supply voltage is in an unstable state, a voltage regulator can be added. 3、consider the operating conditions and load, to determine whether the selection of the brake resistor is reasonable (whether the resistance value is too large), if in frequent acceleration and deceleration resulting in overvoltage, then consider replacing the brake resistor. 4、 it is possible that the brake tube is damaged, check the brake tube. 5、be sure to ensure that the motor is operating in the state of the permissible rotational inertia ratio and mass ratio. 6、 servo drive failure, replace the servo drive.
Er.410	Undervoltage	1、Check if the power input terminal wire is connected. 2、If not enabled, measure the power supply voltage and monitor the bus voltage (Un140) to see if it is 1.414 times the input power supply voltage (AC rms). If the deviation is large, it can be determined that the bus voltage detection hardware is faulty. 3、Measure the input power supply voltage, if the power supply voltage is adjustable, adjust the power supply voltage to within the product specification range. 4、Measure the input power supply voltage, if the input power supply voltage fluctuates widely, then the customer can be recommended to install a voltage regulator. 5、If the power supply capacity is adjustable, then the customer can be recommended to speak of power supply capacity higher.
Er.510	Overspeed	1、Confirm whether there is a problem with the motor wiring and whether the UVW three phases are connected backwards. 2、Confirm whether there is an abnormal connection to the encoder. 3、Confirm whether the maximum speed setting in the motor parameters is correct. 4, confirm whether the input command exceeds the overspeed value. 5、Lower the servo gain, or set a certain smoothing time.
Er.511	Frequency division pulse output overspeed	1、Lower the number of output pulses per revolution of the frequency division (Pn070). 2、If the working condition allows, reduce the motor running speed.
Er.520	Vibration Alarm	1 、 If the working condition allows, reduce the motor speed. Or reduce the speed loop gain. 2 、 Set the rotational inertia ratio correctly. 3 、 Set the vibration detection value (Pn187) and vibration detection sensitivity (Pn186) appropriately.
Er.521	Auto-adjustment alarm	1、Reduce the load so that it is below the allowable rotational inertia ratio; 2、Lower the gain class related parameters

Er.550	Maximum speed setting abnormal	Set the maximum speed setting correctly
Er.710	Overload (instantaneous maximum load)	1、Check whether there is blocking when the motor is running. 2 、 to confirm whether there is a problem with the motor wiring (phase sequence, and connection), encoder wiring. 3 、 consider the operating conditions and load, to determine whether the drive or motor selection is reasonable. 4、Observe whether the motor has a large jitter during operation, whether there is a large noise, if so, adjust the gain parameters to eliminate noise or jitter, while the virtual oscilloscope can be used to monitor the motor output torque for abnormalities.
Er.720	Overload (continuous maximum load)	1、Confirm motor wiring (phase sequence, and connection), encoder wiring whether there are problems 2 、 consider the operating conditions and load, to determine whether the drive or motor selection is reasonable. 3、Observe whether the motor has a large jitter during operation, whether there is a large noise, if so, adjust the gain parameters to eliminate noise or jitter, while the virtual oscilloscope can be used to monitor the motor output torque is abnormal.
Er.730	DB Overload 1	1、The load is too heavy when stopping, resulting in DB resistance overload, try to reduce the running speed or reduce the load. 2、Check whether the motor is driven by external force. 3、According to the customer's demand, re-evaluate whether it is necessary to demand by DB mode when stopping, if not, choose another way to stop. 4、If the fault is reported in the last run, then power on and so on for a period in the run.
Er.731	DB Overload 2	1、Reduce the command speed of servo motor 2、reduce the ratio of rotational inertia. 3、servo drive problems, replace the servo
Er.740	Inrush current limiting resistor overload	Servo driver failure, replace servo driver.
Er.7A0	Heat sink overheat	1、With fan drive, check whether the air duct is blocked and whether the fan is damaged. 2、check the drive installation conditions, heat dissipation conditions are good, as far as possible to improve the drive cooling conditions;. 3、check the drive with load, if the load is too heavy, then the customer can be recommended to replace the high-power section of the drive. 4、if the conditions allow, you can reduce the drive carrier frequency.
Er.7AA	Abnormal control board temperature	1、Improve the installation conditions of the servo drive and reduce the ambient temperature. 2、reconfirm the load conditions, operating conditions. 3、servo drive failure, replace the servo drive.
Er.7AB	Servo drive built-in fan stop	1, whether there are foreign objects blocking the fan. 2, servo drive failure, replace the servo drive.
Er.810	Encoder backup alarm	1、Check the power supply of multi-turn encoder battery 2、Perform multi-turn encoder zeroing action
Er.820	Encoder sum calibration alarm	Damaged encoder or damaged servo control board
Er.830	Encoder battery alarm	Multi-turn encoder battery replacement
Er.840	Encoder data abnormalities	Damaged encoder or damaged servo control board
Er.850	Encoder overspeed	Restore factory settings, damaged encoder or damaged servo control board
Er.860	Encoder overheat	Motor temperature is too high caused by
Er.870	Encoder write error	Write motor parameters correctly
Er.8A0	External encoder exception	Correctly write the motor encoder parameters and make sure that the encoder wire is properly connected.
Er.B10	Speed command A/D exception	
Er.B11	Speed command A/D conversion data exception	
Er.B20	Torque command exception	
Er.B31	Current detection fault 1 (U phase)	Determine if the motor is short-circuited and replace the servo driver with a new one
Er.B32	Current detection fault 2 (V-phase)	Determine if the motor is short-circuited and replace the servo driver with a new one
Er.B33	Safety terminal input	Correct access to safety terminals
Er.BF0	System Alarm 0	Power off and on also reported this fault, replace the servo
Er.BF1	System Alarm 1	Power off and on also reported this fault, replace the servo
Er.BF2	System Alarm 2	Power off and on also reported this fault, replace the servo
Er.BF3	System Alarm 3	Power off and on also reported this fault, replace the servo
Er.BF4	Hardware Overcurrent	1 、 The cable may be short-circuited. Replace the cable. 2、there may be a servo motor failure. Replace the servo motor. 3、servo driver failure, replace the servo unit.
Er.C10	Failure to control alarm	1. Confirm whether the motor wiring is normal 2.Check whether the motor and encoder are normal 3.Re-connect the power to the servo driver, if the alarm still occurs, it may be a servo driver failure
Er.C20	Phase error detection	After determining that the motor is not a problem, restore the factory settings to determine whether there is a problem, or replace the driver
Er.C21	Hall sensor detection abnormality	After determining that the motor is not a problem, restore the factory settings to determine whether there is a problem, or replace the driver
Er.C22	Inconsistent phase information	After determining that the motor is not a problem, restore the factory settings to determine whether there is a problem, or replace the driver
Er.C50	Magnetic pole detection failure	After determining that the motor is not a problem, restore the factory settings to determine whether there is a problem, or replace the driver
Er.C51	Magnetic pole detection stop	After determining that the motor is not a problem, restore the factory settings to determine whether there is a problem, or replace the driver
Er.C52	Magnetic pole detection not completed	After determining that the motor is not a problem, restore the factory settings to determine whether there is a problem, or replace the driver
Er.C53	Magnetic pole detection overtravel	After determining that the motor is not a problem, restore the factory settings to determine whether there is a problem, or replace the driver
Er.C54	Magnetic pole detection failure2	After determining that the motor is not a problem, restore the factory settings to determine whether there is a problem, or replace the driver
Er.C80	Encoder clearing exception (multi-turn upper limit setting exception)	multi-turn upper limit setting exception、Please restore the factory settings
Er.C90	Encoder communication failure: broken line	1、Multimeter test each signal line of the encoder line, whether there is a signal line break 2、Check the encoder line model, confirm whether the model is correct 3、Check the length of the encoder line, the encoder line can not be too long 4、It may be caused by interference, try to ground the driver or encoder line around the magnetic ring 5、Check the motor unit parameters, to confirm whether the motor is correct 6、Exclude various reasons, may servo drive failure, replace the servo unit.
Er.C91	Abnormal acceleration of encoder communication position data	
Er.C92	Encoder communication timer exception	
Er.CA0	Abnormal encoder parameters	
Er.CB0	Encoder return checksum exception	
Er.CC0	Inconsistent upper and lower rotation limit values	Restore factory setting

Er.D00	Excessive position deviation	1、Set a suitable alarm value for excessive position deviation. 2、check whether the encoder line, motor line is connected properly, use your hand to rotate the motor and monitor whether Un003 (rotor position relative to Z pulse) changes between 0~16777216 (24-bit encoder). 3、calculate whether the pulse frequency input, acceleration planning or electronic gear ratio setting is reasonable. 4 、 To determine whether the relevant parameter settings are reasonable, such as: torque limit, speed limit, inertia ratio, position gain, whether the speed gain is too small, whether the position filter is too large, etc. 5、Calculate whether the motor selection is too small and the acceleration and deceleration is too slow resulting in too large position deviation.
Er.D01	Excessive position deviation at servo ON	Set the correct value of Pn267 (excessive position deviation threshold when the servo is ON)
Er.D02	Alarm for excessive position deviation caused by speed limit at servo ON	1、Correctly set the speed limit value when the servo is ON 2、Reasonable setting of the alarm of excessive position deviation when the servo is ON
Er.D10	Excessive deviation between motor-load positions	1、Confirm the direction of motor rotation and external encoder installation direction. 2、Row through the mechanical installation. 3、Set the parameter Pn250 to the correct value.
Er.D30	Position data overflow	Detect whether the parameters are set incorrectly, please restore the factory settings
Er.EB9	EtherCAT Initialization exception	1. burn the configuration file 2. burn the FPGA code 3. replace the servo driver
Er.EC6	Ethercat PDO mapped too many objects	Reduced PDO mapping
Er.EC7	Output out of phase	Check if the motor wire is connected
Er.F10	Power supply is out of phase	Check drive power

SD700Servo warning note (EtherCat)

Warning Code	Descriptions	Solution
AL.900	Excessive position deviation warning	1、Correctly set the gear ratio, gain, position filtering, torque limit and other related parameters 2、Confirm the wiring of the encoder line motor line 3、Exclude various reasons, may servo driver failure, replace the servo unit.
AL.901	Excessive position deviation warning at servo ON	Correctly set the excessive position deviation threshold at servo ON
AL.910	Overload warning	1、Check the motor wiring and encoder wiring for problems. 2、Inappropriate motor or driver selection
AL.911	Vibration Warning	1、Lower the motor speed. Or reduce the speed loop gain. 2、Set the rotational inertia ratio correctly
AL.920	Brake resistor overload warning	1、Set the power supply voltage within the specification range. 2、The resistor value and capacity will be set correctly. 3、Servo driver problem, replace the servo driver
AL.921	DB overload warning	1、Reduce the command speed of servo motor. 2、reduce the rotation inertia ratio. 3、Servo driver problem, replace the servo driver
AL.930	Battery warning for absolute encoders	Battery Replacement
AL.931	Soft limit 607Dh setting abnormal	Changing the maximum limit value or minimum limit value of 607Dh
AL.940	Home position offset outside the soft limit	Change the value of 607Dh or 607Ch
AL.941	Warning of parameter changes that require re-powering	Re-power on or perform a soft reset of the servo
AL.942	EtherCAT Control mode setting exception	Modify the setting value of 6060h
AL.950	Soft limit overtravel warning	Change the value of 607Dh or 607Ah
AL.971	Undervoltage warning	1、Adjust the AC/DC power supply voltage to within the product specification. 2、Increase the power supply capacity.
Al.9B0	SYNC0 Synchronous frame loss (abnormal slave reception or abnormal master transmission during synchronous communication)	1. Use shielded twisted pair cable 2. Check the wiring status through the keypad digital display
Al.9F0	Distributed clock period setting exception (125us integer multiple)	Modify the sync period setting to an integer multiple of 125us