

D2 Drive User Guide



Version 1.8
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9.2.4. Error at loading PRM file

To ensure the compatibility between the loaded PRM parameter file and the drive firmware, Lightening will check if the PRM file is suitable for the current firmware version. When the following error message appears, it means that the PRM file is unsuitable, and need to re-set parameters or replace an appropriate firmware version. The number in the parentheses denotes the PRM error scenario, referring to Table 9-1

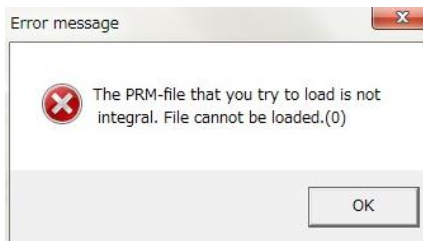


Fig. 9-8

Table 9-1

Number	PRM error scenario
0	The MDP version of loaded PRM file is greater than the drive's MDP version.
1	The AC motor model name in the loaded PRM file is not the standard product.
2	The 9-th bit of AC motor model name in the loaded PRM file is 1, but the enable method cannot correspond.
3	The 9-th bit of AC motor model name in the loaded PRM file is 3 or 4, but the enable method cannot correspond.
4	The 9-th bit of AC motor model name in the loaded PRM file is 5, but the enable method cannot correspond.
5	The 9-th bit of AC motor model name in the loaded PRM file is 6, but the enable method cannot correspond.
6	The "X_id_secondary" parameter in the loaded PRM file does not match that in the drive.

9.3. Error codes and troubleshooting

No.	Error	LCD error code	Description Troubleshooting
1	Motor short (over current) detected	E01 SHORT or ERR E01	<p>The short of three motor phases is detected.</p> <p>(1) After power-off, unplug the UVW-phase connector at the drive-side and measure the resistance between each phase of UVW and ground to check if there is a short circuit. The short circuit may burn the motor.</p> <p>(2) Measure the line-to-line resistance between motor UVW phases to check that they are close to the specification. If the line-to-line resistance is lower than the specification too much, the motor may be burned.</p> <p>(3) Separate the motor from the motor power cable, and use a multimeter to check if the motor power cable is short.</p>
2	Over voltage detected	E02 OVERV or ERR E02	<p>The DC bus voltage in the drive exceeds the limit.</p> <p>When the motor has a heavy load and is operated at high speed, the back EMF exceeding the voltage limit will cause this error. Check if the regenerative resistor needs to be installed, which is selected according to the load and the motion specification.</p>
3	Position error too big	E03 PEBIG or ERR E03	<p>The position error is greater than “maximum pos error” set in the “Motion Protection” area.</p> <p>(1) Check if the gain tuning is improper.</p> <p>(2) Confirm that the maximum position error is set properly (“Application center” -> “Protection” -> “maximum pos error”).</p> <p>(3) Check if the motor movement is obstructed.</p> <p>(4) Check if the load is too heavy.</p> <p>(5) Check if the guideway is without maintenance for a long time.</p> <p>(6) Check if the cable tray is installed too tight.</p> <p>(7) “W05 SVBIG” continues occurring before “E03”. If the used power is 110 V, change it to 220 V.</p>
4	Encoder error	E04 ENCOD or ERR E04	<p>The encoder signal is incorrect or the alarm pin reports an error.</p> <p>(1) Confirm that all encoder connectors are connected firmly.</p> <p>(2) Confirm that the encoder wiring is correct.</p> <p>(3) If the encoder is a digital type, it may be caused by the external interference. Confirm that the encoder cable has an anti-interference twisted wire and shield, or is equipped with an iron core.</p>
5	Soft-thermal threshold reached	E05 SWHOT or ERR E05	<p>Motor overload. (The software detects the motor over-temperature.)</p> <p>(1) Confirm that the continuous current and peak current during motor movement comply with the motor specification.</p> <p>(2) Check if the motor movement is obstructed.</p> <p>(3) It can be eliminated by resetting and re-enabling the drive. However, if the current exceeds the motor specification due to the load and motor parameters, it may occur again.</p> <p>(4) Reduce the speed, acceleration, and deceleration.</p> <p>(5) Check if the motor model name or motor current parameter is set incorrectly.</p>
6	Motor maybe disconnected	E06 UVWCN or	<p>The motor power cable is not physically connected to the drive.</p>

No.	Error	LCD error code	Description Troubleshooting
		ERR E06	(1) Check if the connector of UVW cable is loose. (2) Check if the motor model name is set incorrectly.
7	Amplifier over temperature	E07 D.HOT or ERR E07	The drive is over temperature. (1) Check that the drive is placed in a well-ventilated location. (2) Check if the ambient temperature is too high. (3) Wait for the internal temperature of drive to decrease. (4) To drive a large load or operate at a high duty cycle, install the heat sink if needed.
9	Under voltage detected	E09 UND.V or ERR E09	The DC bus in the drive is too small. Confirm that L1 and L2 of drive are connected to 100 or 220 Vac power source. Use a multimeter to check whether the input is 100 or 220 Vac.
10	5V for encoder card fail	E10 V5ERR or ERR E10	The 5V power supply of encoder interface is abnormal. (1) Unplug CN6, CN7, and motor power cable of D2 drive. Check whether there is still the error of "E10 V5ERR". If yes, contact the manufacturer for repair; otherwise, check if there is a short circuit and then modify the wiring. (2) Do not hot-plug CN6 and CN7 of D2 drive.
11	Phase initialization error	E11 PHINI or ERR E11	Motor phase initialization is failed. (1) Check that the encoder signal is normal and motor parameters are set correctly. (2) Check if the payload is too high, the friction is too high, and whether obstacles are on the way.
12	Serial Encoder Communication Error	E12 SER.E or ERR E12	The serial encoder communication has an error. (1) Check that the encoder cable is connected to the drive. (2) Check that the encoder cable complies with the motor specification.
13	Hall sensor error	E13 HAL.E or ERR E13	The less-wire encoder detects a hall signal error. Check that the encoder cable is properly connected to the drive.
13	Current control error	E15CURER or ERR E15	The current control has an error. (1) Check that the motor model name is set correctly. (2) Check that the current-loop gain ("Kp") and servo gain are set appropriately. (3) Check that the encoder cable is connected correctly.
17	Hybrid deviation too big	E17HYBDV or ERR E17	In the architecture of dual-loop control, the hybrid control deviation exceeds the allowable maximum of hybrid control deviation. (1) Check that the parameter of linear encoder is set correctly. (2) Check that the direction of linear encoder is consistent with the rotary encoder, or if the linear encoder has the signal interference. (3) Check if the coupling is loose, the gear is not tightly engaged, or the pitch tolerance or backlash of screw is too large.
18	STO active	E18STO or ERR E18	The STO safety function is triggered. Reconnect STO to 24 V after the risk has been removed, and then contact "DSF+" with "DSF-" for 1 second to release the error condition.
19	HFLT	E19HFLT	Drive hardware signals are conflicted abnormally.

No.	Error	LCD error code	Description Troubleshooting
	inconsistent error	or ERR E19	Check that each cable is grounded.
21	Incompatible motor model and drive	E21WRGMT or ERR E21	The motor model name is not compatible with the drive. Check that the motor model name is correct.
22	DC bus voltage abnormal	E22BUS.E or ERR E22	The DC bus voltage is abnormal. Check that the input voltage is well.
23	EtherCAT interface is not detected	E23NOET or ERR E23	The drive does not detect the EtherCAT interface or the drive has no EtherCAT interface. (1) Re-power the drive to re-detect it. (2) The drive does not support EtherCAT. Check that the drive has this function.
24	CiA-402 homing error	E24HOM.E or ERR E24	An error occurs while performing the CiA-402 homing. This causes the homing fail. (1) Check that the left and right limits, near home sensor, and index signals are normal. (2) Check that the used homing method is appropriate.
25	Fan fault error	E25FAN.E or ERR E25	The fan system is abnormal. Check if the fan is stuck in a foreign object.
26	Drive overload error	ERR E26	The motor was operated over the rated current for longer than the sustainable duration. Check that the motion profile is appropriate, or if the load is too heavy.

Supplement for E03 error correction

- (1) Modify the maximum position error by steps described in Fig. 9-9.
- (2) It is not recommended to set the position error higher than the default value. If “E03 PEBIG” or “ERR E03” appears at the default value, adjust the servo rigidity.

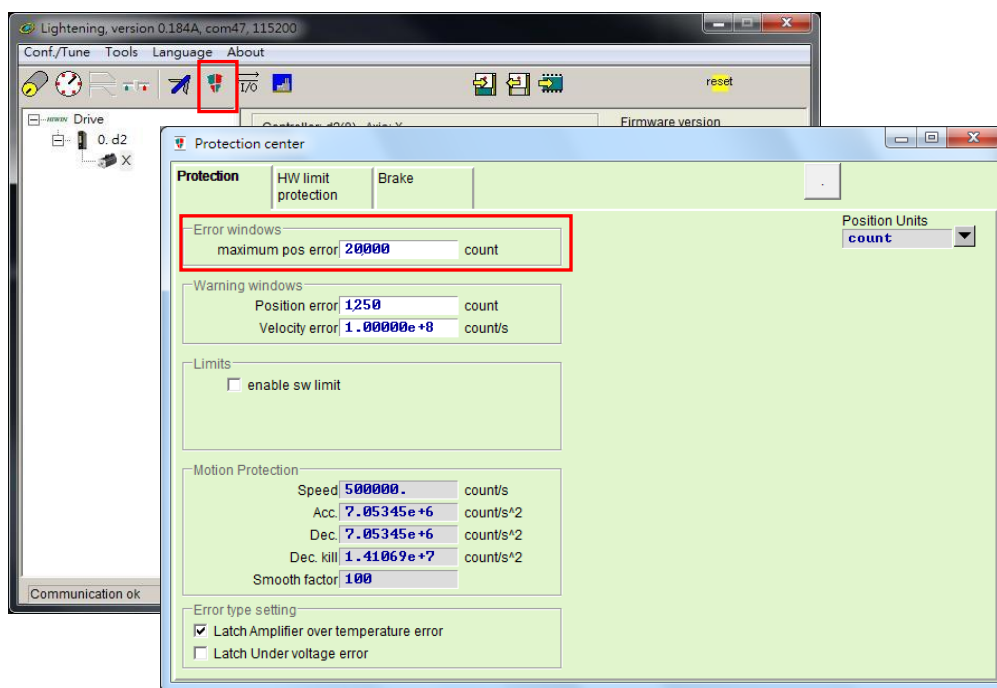


Fig. 9-9

9.4. Warning codes and troubleshooting

No.	Error	LCD error code	Description Troubleshooting
1	Left SW limit	W01 SWLL or WRN W01	The set left software limit is reached, and the motor can no longer move to the left.
2	Right SW limit	W02 SWRL or WRN W02	The set right software limit is reached, and the motor can no longer move to the right.
3	Left HW limit	W03 HWLL or WRN W03	The hardware limit switch on the left side has been detected and the motor can no longer move to the left.
			(1) If the hardware limit is not connected to the drive and the false trigger occurs, cancel the enable of hardware limit. (2) If it is confirmed that the limit switch is not actually triggered, check that the wiring or actuation logic is correct.
4	Right HW limit	W04 HWRL or WRN W04	The hardware limit switch on the right side has been detected and the motor can no longer move to the right.
			(1) If the hardware limit is not connected to the drive and the false trigger occurs, cancel the enable of hardware limit. (2) If it is confirmed that the limit switch is not actually triggered, check that the wiring or actuation logic is correct.
5	Servo voltage big	W05 SVBIG or WRN W05	The drive's PWM output switch is greater than the limit value and the current output cannot be increased. If this warning continues occurring in the position control, the error of "E03 PEBIG" will happen.
			(1) Change the power source to 220 V if 110 V is used currently. (2) Reduce the speed, acceleration, or deceleration.
6	Position error warning	W06 PE or WRN W06	The position error exceeds the set warning window for position error.
			(1) Check that the servo gain is properly tuned. (2) Check if the warning threshold is set too small. (3) Sometimes, this phenomenon may occur since the maintenance period is over or the lubrication is not implemented.
7	Velocity error warning	W07 VE or WRN W07	The velocity error exceeds the set warning window for velocity error.
			(1) Check that the servo gain is properly tuned. (2) Check if the warning threshold is set too small. (3) Sometimes, this phenomenon may occur since the maintenance period is over or the lubrication is not implemented.
8	Current Limited	W08 CUR.L or WRN W08	The current has saturated in the specification of motor peak current. If this warning continues occurring, the error of "E05 SWHOT" will happen and the motor will be disabled.
			(1) Reduce the speed, acceleration, or deceleration. (2) Decrease the load.
9	Acceleration Limited	W09 ACC.L or	In the position mode or velocity mode, the acceleration protection setting is reached when the motor is moving.

No.	Error	LCD error code	Description Troubleshooting
		WRN W09	To increase the acceleration, increase the acceleration setting in the motion protection.
10	Velocity Limited	W10 VEL.L or WRN W10	In the velocity mode or torque mode, the velocity protection setting is reached when the motor is moving. To increase the velocity, increase the velocity setting in the motion protection.
11	Both HW limits active	W11 BOTH or WRN W11	Both the left and right hardware limits have been triggered. (1) If the hardware limit is not connected to the drive and the false trigger occurs, cancel the enable of hardware limit. (2) If it is confirmed that the limit switch is not actually triggered, check that the wiring or actuation logic is correct.
13	Homing fail	W13 HOM.E or WRN W13	Failed to perform the homing procedure. (1) Check that the left and right limits, near home sensor, and index signal are normal. (2) Check that "Time out" and "Search end stop current" are set properly.
14	Pulse command and homing conflict	W14HOM.C or WRN W14	In the position mode, the conflict situation of receiving the pulse command and homing command simultaneously occurs. Do not send the pulse command and perform the built-in homing function at the same time.
15	Absolute encoder battery warning	W15BAT.E or WRN W15	The encoder battery has no power. Replace the battery.
16	Wrong absolute position	W16ABS.W or WRN W16	The absolute encoder feedbacks the error absolute position. Reset the home position.