4 Troubleshooting

4.1 Faults and Solutions

Display	Fault Name	Possible Causes	Solutions
Err02	Overcurrent during acceleration	1. The output circuit is short circuited. 2. The acceleration time is too short. 3. Manual torque boost or V/F curve is not appropriate. 4. The power supply is too low. 5. The startup operation is performed on the rotating motor. 6. A sudden load is added during acceleration. 7. The AC drive model is of too small power class.	1: Eliminate short circuit. 2: Increase the acceleration time. 3: Adjust the manual torque boost or V/F curve. 4: Check that the power supply is normal. 5: Select speed tracking restart or start the motor after it stops. 6: Remove the added load. 7: Select a drive of higher power class.
Err03	Overcurrent during deceleration	1. The output circuit is short circuited. 2. The deceleration time is too short. 3. The power supply is too low. 4. A sudden load is added during deceleration. 5. The braking resistor is not installed.	1: Eliminate short circuit. 2: Increase the deceleration time. 3: Check the power supply, and ensure it is normal. 4: Remove the added load. 5: Install the braking resistor.
Err04	Overcurrent at constant speed	1. The output circuit is short circuited. 2. The power supply is too low. 3. A sudden load is added during operation. 4. The AC drive model is of too small power class.	1: Eliminate short circuit. 2: Adjust power supply to normal range. 3: Remove the added load. 4: Select a drive of higher power class.
Err05	Overvoltage during acceleration	1. The DC bus voltage is too high. 2. An external force drives the motor during acceleration. 3. The acceleration time is too short. 4. The braking resistor is not installed.	1: Replace with a proper braking resistor. 2: Cancel the external force or install braking resistor. 3: Increase the acceleration time. 4: Install a braking resistor.
Err06	Overvoltage during deceleration	1. The DC bus voltage is too high. 2. An external force drives the motor during deceleration. 3. The deceleration time is too short. 4. The braking resistor is not installed.	1: Replace with a proper braking resistor. 2: Cancel the external force or install braking resistor. 3: Increase the deceleration time. 4: Install the braking resistor
Err07	Overvoltage at constant speed	1. The DC bus voltage is too high. 2. An external force drives the motor during deceleration.	1: Replace with a proper braking resistor. 2: Cancel the external force.

<table>
<tr><th>Display</th><th>Fault Name</th><th>Possible Causes</th><th>Solutions</th></tr>
<tr><td colspan="4">Voltage thresholds
<table>
<tr><th>Voltage Class</th><th>DC Bus Overvoltage</th><th>DC Bus Undervoltage</th><th>Braking Unit Operation Level</th></tr>
<tr><td>Single-phase 220 V</td><td>400 V</td><td>200 V</td><td>381 V</td></tr>
<tr><td>Three-phase 220 V</td><td>400 V</td><td>200 V</td><td>381 V</td></tr>
<tr><td>Three-phase 380 V</td><td>810 V</td><td>350 V</td><td>700 V</td></tr>
</table></td></tr>
<tr><td>Err08</td><td>Control power fault</td><td>The input voltage exceeds the allowed range.</td><td>Adjust the input voltage to within the allowed range.</td></tr>
<tr><td>Err09</td><td>Undervoltage</td><td>1. Instantaneous power failure occurs.
2. The input voltage exceeds the allowed range
3. The DC bus voltage is too low.
4. The rectifier bridge and buffer resistor are faulty.
5. The drive board is faulty.
6. The control board is faulty.</td><td>1: Reset the fault.
2: Adjust the input voltage to within the allowed range.
3 to 6: Seek for maintenance.</td></tr>
<tr><td>Err10</td><td>Drive overload</td><td>1. The load is too heavy or the rotor is locked.
2. The drive is of too small power class.</td><td>1: Reduce the load, or check the motor, or check the machine whether it is locking the rotor.
2: Select a drive of higher power class.</td></tr>
<tr><td>Err11</td><td>Motor overload</td><td>1. F9-01 is too small.
2. The load is too heavy or the rotor is locked.
3. The drive is of too small power class.</td><td>1: Set F9-01 correctly.
2: Reduce the load, or check the motor, or check the machine whether it is locking the rotor.
3: Select a drive of larger power class.</td></tr>
<tr><td>Err12</td><td>Power input phase loss</td><td>1. The three-phase power supply is abnormal.
2. The drive board is faulty.
3. The lightening protection board is faulty.
4. The control board is faulty.</td><td>1: Check the power supply.
2 to 4: Seek for maintenance.</td></tr>
<tr><td>Err13</td><td>Power output phase loss</td><td>1. The cable between drive and motor is faulty.
2. The drive's three-phase output is unbalanced when the motor is running.
3. The drive board is faulty
4. The IGBT is faulty.</td><td>1: Check the cable.
2: Check the motor windings.
3 to 4: Seek for maintenance.</td></tr>
<tr><td>Err14</td><td>IGBT overheat</td><td>1. The ambient temperature is too high.
2. The air filter is blocked.
3. The cooling fan is damaged.
4. The thermal sensor of IGBT is damaged.
5.The IGBT is damaged.</td><td>1: Reduce the ambient temperature.
2: Clean the air filter.
3 to 5: Seek for maintenance.</td></tr>
</table>

Display	Fault Name	Possible Causes	Solutions
Err15	External equipment fault	1. External fault signal is input via DI. 2. External fault signal is input via VDI.	Reset the fault.
Err16	Communication fault	1. The host computer is abnormal. 2. The communication cable is faulty. 3. The extension card type set in F0-28 is incorrect. 4. The communication parameters in group FD are set improperly.	1: Check cabling of the host computer. 2: Check the communication cabling. 3: Set F0-28 correctly. 3: Set the communication parameters properly.
Err18	Current detection fault	The drive board is faulty.	Replace the drive board.
Err19	Motor tuning fault	1. Motor parameters are wrong. 2. Motor tuning overtime.	1. Check motor parameters F1-00 to F1-05. 2. Check the wiring between drive and motor.
Err21	EEPROM read-write fault	The EEPROM chip is damaged.	Replace the main control board.
Err23	Short circuit to ground	The motor is short-circuited to ground.	Replace the cables or motor.
Err26	Accumulative running time reached	The accumulative running time reaches the setting of F8-17.	Clear the record by performing parameter initialization (set FP-01 to 2).
Err27	User-defined fault 1	1. The user-defined fault 1 signal is input via DI. 2. User-defined fault 1 signal is input via VDI.	Reset the fault.
Err28	User-defined fault 2	1. The user-defined fault 2 signal is input via DI 2. The user-defined fault 2 signal is input via VDI.	Reset the fault.
Err29	Accumulative power-on time reached	The accumulative power-on time reaches the setting of F8-16.	Clear the record by performing parameter initialization (set FP-01 to 2).
Err30	Off load fault	Offload when it's running.	Check the connection between motor and load.
Err31	PID feedback lost during running	The PID feedback is lower than FA-26.	Check the PID feedback signal or set FA-26 to a proper value.
Err33	Communication receiving timeout inside drive board	1. Wirings become loose inside the AC drive 2. The drive board is abnormal. 3. The control board is abnormal.	1. Connect all wirings securely. 2 and 3. Seek for maintenance.

Display	Fault Name	Possible Causes	Solutions
Err40	Quick current limit	1. The load is too heavy or the rotor is locked. 2. The drive is of too small power class.	1: Reduce the load, or check the motor, or check the machine whether it is locking the rotor. 2: Select a drive of higher power class.
Err41	Motor switchover fault during running	The current motor is switched over via a terminal during running of the AC drive.	Switch over the motor only after the AC drive stops.
Err42	Overspeed error	1. Locked-rotor occurs on the motor. 2. F9-69 and F9-70 are set improperly. 3. Wirings between the AC drive and motor are abnormal.	1. Check whether the machine is abnormal, whether motor auto-tuning is not performed, and whether the setting of F2-10 is small. 2. Set F9-69 and F9-70 properly. 3. Check whether wirings between the AC drive and motor break. If yes, reconnect the wirings securely.
Err96	Communication receiving timeout inside control board	1. Wirings become loose inside the AC drive 2. The drive board is abnormal. 3. The control board is abnormal.	1. Connect all wirings securely. 2 and 3. Seek for maintenance.

4.2 Common Symptoms And Diagnostics

Fault Name	Possible Causes	Solutions
There is no display at power-on.	1. There is no power supply or the power supply is too low. 2. The switching power supply on the drive board is faulty. 3. The rectifier bridge is damaged. 4. The buffer resistor of the drive is damaged. 5. The control board or the keypad is faulty. 6. The cable between the control board and the drive board or keypad breaks.	1: Check the power supply. 2 to 5: Seek for maintenance. 6: Re-connect the 4-core and 28-core flat cables, or seek for maintenance.
"HC" is displayed at power-on.	1. The cable between the drive board and the control board is in poor contact. 2. The control board is damaged. 3. The motor winding or the motor cable is short-circuited to the ground. 4. The power supply is too low.	1: Re-connect the 4-core and 28-core flat cables, or seek for maintenance. 2: Seek for maintenance. 3: Check the motor or replace it, and check the motor cable. 4. Check the power supply according to charpter1.3.

Fault Name	Possible Causes	Solutions
"Err23" is displayed at power-on.	1. The motor or output cables are short circuited to ground. 2. The AC drive is damaged.	1. Measure insulation of the motor and output cables. 2. Seek for maintenance.
The display is normal upon power-on, but "HC" is displayed after startup and the motor stops immediately.	1. The cooling fan is damaged or the rotor is locked. 2. A certain terminal is short-circuited.	1: Replace cooling fan, or check the machine whether it is locking the rotor. 2: Eliminate short circuit.
Err14 is reported frequently.	1. The carrier frequency is set too high. 2. The cooling fan is damaged, or the air filter is blocked. 3. Components (thermal coupler or others) inside the drive are damaged.	1: Reduce F0-15. 2: Replace the fan and clean the air filter. 3: Seek for maintenance.
The motor does not rotate after the AC drive outputs a non-zero reference.	1. The motor or motor cable is damaged. 2. The motor parameters are set improperly. 3. The cable between the drive board and the control board is in poor contact. 4. The drive board is faulty. 5. The rotor is locked.	1: Check the motor, or check the cable between the drive and the motor. 2: Check and re-set motor parameters. 3: Re-connect the 4-core and 28-core flat cables, or seek for maintenance. 4: Seek for maintenance. 5: Check the machine whether it is locking the rotor.
The DI terminals are disabled.	1. The DI parameters are set incorrectly. 2. The input signal is incorrect. 3. The wire jumper between OP and +24V is in poor contact. 4. The control board is faulty.	1: Check and reset DI parameters in group F4. 2: Check the input signals, or check the input cable. 3: Check the jumper between OP and +24 V. 4: Seek for maintenance.
The drive reports overcurrent and overvoltage frequently.	1. The motor parameters are set improperly. 2. The acceleration/deceleration time is too small. 3. The load fluctuates.	1: Reset motor parameters. 2: Set proper acceleration/ deceleration time. 3: Check the machine, or seek for maintenance.
Err17 is reported at power-on or during running.	The soft start contactor is not closed.	1. Check whether the contactor wiring becomes loose 2. Check whether the contactor is faulty. 3. Check whether 24 V power supply of the contactor is faulty. 4. Seek for maintenance
Display at power-on	Related device on the control board is damaged.	Seek for maintenance.