

10 Trouble Shooting

10.1 Drive Alarm List

LED display	Description	Alarm type	Drive status after alarm occurs
r01ot	Drive over temperature	Fault	Servo off
r02ur	Internal voltage fault	Fault	Servo off
r03uH	Over voltage	Fault	Servo off
r04HC	Over current	Fault	Servo off
r05LC		Fault	Servo off
r06rC		Fault	Servo off
r08Hb	Bad hall sensor	Fault	Servo off
r09Eb	Encoder error	Fault	Servo off
r10PL	Position error	Fault	Servo off
r11Lu	Low voltage	Fault	Servo off
r12ou	Velocity limited	Warning	No change to drive's status
r13Lt	CW limit or CCW limit activated	Warning	No change to drive's status
r14LL	CW limit is activated	Warning	No change to drive's status
r15JL	CCW limit is activated	Warning	No change to drive's status
r16CL	Current limit	Warning	No change to drive's status
r17CE	Communication error	Warning	No change to drive's status
r18EF	Parameter save failed	Warning	No change to drive's status
r20to	STO is activated	Warning	Servo off
r21rF	Regeneration failed	Warning	No change to drive's status
r22uH	Low voltage	Warning	No change to drive's status
r239E	Q program is empty	Warning	No change to drive's status
r24dd	Move when the drive is disabled.	Warning	No change to drive's status

10.2 Drive alarm causes and solutions

LED display	Description	Alarm type	Processing method
	Drive over temperature	Temperature of the heat sink or power device has been risen over the specified temperature. 1. Ambient temperature has risen over the specified temperature. 2. Over-load	1. Improve the ambient temperature and cooling condition. 2. Increase the capacity of the driver and motor. Set up longer acceleration/deceleration time. Lower the load
	Internal voltage fault	Drive internal voltage failure.	1. Please check supply power voltage 2. Please replace the drive with a new one, and contact MOONS
	Over voltage	Drive DC bus voltage is too high M2DC series : Higher than 90VDC 1. Power supply voltage has exceeded the permissible input voltage. 2. Disconnection of the regeneration discharge resistor 3. External regeneration discharge resistor is not appropriate and could not absorb the regeneration energy. 4. Failure	1. Enter correct voltage. 2. Measure the resistance of the internal regeneration resistor. 3. please measure the external resistor, Replace the external resistor if the value is ∞. 4. Please contact MOONS or replace the driver with a new one.
  	Over current	1. Failure of servo driver (failure of the circuit, IGBT or other components) 2. Short of the motor wire (U, V and W) 3. Burnout of the motor 4. Poor contact of the motor wire. 5. Input pulse frequency is too high. 6. Motor is over load, command output torque is larger than maximum torque, for a long operating time. 7. Poor gain adjustment cause motor vibration, and abnormal noise. 8. Machine has collided or the load has gotten heavy. Machine has been distorted. 9. Welding of contact of dynamic braking relay due to frequent servo ON/OFF operations.	1. Turn to Servo-ON, while disconnecting the motor. If error occurs immediately, replace with a new driver. 2. Check that the motor wire (U, V and W) is not shorted, and check the branched out wire out of the connector. Make a correct wiring connection. 3. Measure the insulation resistance between motor wires, U, V and W and earth wire. In case of poor insulation, replace the motor. 4. Check the balance of resistor between each motor line, and if unbalance is found, replace the motor. 5. Check the loose connectors. If they are, or pulled out, fix them securely. 6. Adjust gain value settings. 7. Measuring brake voltage 8. Check drive and motor encoder and power wires. 9. please contact MOONS.
	Bad hall sensor	Hall sensor fault	1. please check encoder connection 2. please check your drive motor configurations.
	Encoder error	Encoder signal fault	please check encoder connection.
	Position error	Position error value exceeds the position error range set by parameter P-44 (PF).	1. Please check parameter P-44 (PF). 2. Please check drive gain value settings. 3. Please check the load factor of the regeneration resistor, increase the capacity of the driver and the motor, and loosen the deceleration time
	Low voltage	1. Power supply voltage is lower than 12VDC. Instantaneous power failure has occurred 2. Lack of power capacity...Power supply voltage has fallen down due to inrush current at the main power-on. 3. Failure of servo driver (failure of the circuit)	1. Increase the power capacity. Change the power supply. 2. please check power input connections . Please refer to 4.1.4 drive power connection 3. please contact MOONS

r120u	Position error	Motor rotary velocity exceeds parameter P-20(VM) setting value.	Please check motor velocity command if it is within the P-20(VM) range. 1. Avoid high velocity command 2. Check the command pulse input frequency and division/multiplication ratio. 3. Make a gain adjustment when an overshoot has occurred due to a poor gain adjustment. 4. Make a wiring connection of the encoder as per the wiring diagram.
r13Lt	CW limit or CCW limit activated	CW and CCW limit is ON	1. External limit switch is triggered. 2. Check x5 and x6 limit settings, please refer to chapter7.1.3 Cw/ccw limit.
r14Ll	CW limit is activated	CCW limit triggered	1. External limit switch is triggered.
r15JL	CCW limit is activated	CW limit triggered	2. Check x5 and x6 limit settings.
r16Cl	Current limit	Driver's output current exceeds setting value P-19 (CP) 1. Load was heavy and actual torque has exceeded the rated torque and kept running for a long time. 2. Oscillation and hunching action due to poor gain adjustment. Motor vibration, abnormal noise. 3. Machine has collided or the load has gotten heavy. Machine has been distorted.	1. Make a gain re-adjustment. 2. Increase the capacity of the driver and motor. Set up longer acceleration/deceleration time. Lower the load. 3. Check motor wirings for U/V/W as red/yellow/blue.
r17CE	Communication error	Drive and host communication error.	Please check wiring connection, and drive's communication address and baud rate setting.
r18EF	Parameter save failed	Saving parameter failure.	1. Please try to save again. 2. if problems is not solved, please contact MOONS
r20to	STO is activated	Safety torque off function is activated. Either or both safety input 1 or 2 is ON.	Please confirm safety input 1 and 2 wiring configuration. Please check Safety sensor setting.
r21rF	Regeneration failed	Regenerative energy has exceeded the capacity of regenerative resistor. 1. Due to the regenerative energy during deceleration caused by a large load inertia, converter voltage has risen, and the voltage is risen further due to the lack of capacity of absorbing this energy of the regeneration discharge resistor. 2. Regenerative energy has not been absorbed in the specified time due to a high motor rotational speed.	1. Internal resistor value is smaller than required, cannot absorb the regeneration energy. 2. Please check external regeneration resistor connections. 3. Reduce rotary velocity and decrease acceleration and deceleration value.
r22uH	Voltage Warning	Drive voltage lower than 16VDC 1) Power supply voltage is low. Instantaneous power failure has occurred 2) Lack of power capacity...Power supply voltage has fallen down due to inrush current at the main power-on. 3) Failure of servo driver (failure of the circuit)	1) Increase the power capacity. Change the power supply. 2) Please check power connections, please refer to 3.1.4 P1 drive power connection. 3) please contact moons.
r239E	Q program is empty	Drive in Q mode, but Q program is empty.	1. Please check Q program. 2. Please check operation mode correction. 3. Please check Q program coding, make sure no faults to stop the program running.
r24dd	Move when the drive is disabled.	Motion command is received while motor is disabled.	Please enable the motor, and send the command again.