

8 Troubleshooting

8.1 Alarms and warnings

NOTE

If an alarm occurs, set the status to "Servo OFF" and switch off the power supply of the main circuit.

8.1.1 List of alarm and warning messages

When a fault occurs during operation, the corresponding alarm or warning is displayed. If any alarm or warning has occurred, refer to section 8.1.2 or section 8.1.3 and take the appropriate action. When an alarm occurs, the signal ALM turns OFF.

	Display		Error	Alarm code ^{①, ③}			Alarm deactivation				
				Pin CN1-			Power OFF → ON	Press SET on alarm screen	Error reset (Com- mand)	Alarm reset (RES- signal)	CPU reset
	22	23		24							
	A	B		Bit 2	Bit 1	Bit 0					
Alarms	AL.10	10	Undervoltage	0	1	0	✓	✓	✓	✓	✓
	AL.12	12	Memory error 1 (RAM)	0	0	0	✓	—	—	—	—
	AL.13	13	Clock error	0	0	0	✓	—	—	—	—
	AL.15	15	Memory error 2 (E ² PROM)	0	0	0	✓	—	—	—	—
	AL.16	16	Encoder error 1 (At power on)	1	1	0	✓	—	—	—	—
	AL.17	17	Board error	0	0	0	✓	—	—	—	—
	AL.19	19	Memory error 3 (Flash-ROM)	0	0	0	✓	—	—	—	—
	AL.1A	1A	Motor combination error	1	1	0	✓	—	—	—	—
	AL.20	20	Encoder error 2	1	1	0	✓	—	—	—	—
	AL.24	24	Main circuit error	1	0	0	✓	✓	✓	✓	✓
	AL.25	25	Absolute position erase	1	1	0	✓	—	—	—	—
	AL.30	30	Regenerative error	0	0	1	✓ ^②	✓ ^②	✓ ^②	✓ ^②	✓ ^②
	AL.31	31	Overspeed	1	0	1	✓	✓	✓	✓	✓
	AL.32	32	Overcurrent	1	0	0	✓	—	—	—	—
	AL.33	33	Overvoltage	0	0	1	✓	✓	✓	✓	✓
	—	34	Receive error 1 (SSCNET III)	—	—	—	✓	—	✓ ^④	—	✓
	AL.35	35	Command frequency error	1	0	1	✓	✓	✓	✓	✓
	—	36	Receive error 1 (SSCNET III)	—	—	—	✓	—	✓	—	✓
	AL.37	37	Parameter error	0	0	0	✓	—	—	—	—
	AL.45	45	Main circuit device overheat	0	1	1	✓ ^②	✓ ^②	✓ ^②	✓ ^②	✓ ^②
	AL.46	46	Servo Motor overheat	0	1	1	✓ ^②	✓ ^②	✓ ^②	✓ ^②	✓ ^②
	AL.47	47	Cooling fan error	0	1	1	✓	—	—	—	—
	AL.50	50	Overload 1	0	1	1	✓ ^②	✓ ^②	✓ ^②	✓ ^②	✓ ^②
	AL.51	51	Overload 2	0	1	1	✓ ^②	✓ ^②	✓ ^②	✓ ^②	✓ ^②
	AL.52	52	Error excessive	1	0	1	✓	✓	✓	✓	✓
AL.8A	—	communication time-out error	serial	0	0	0	✓	✓	—	✓	—
—	8A		USB	—	—	—		—	✓	—	—
AL.E8	—	Communication error	serial	0	0	0	✓	✓	—	✓	—
—	E8		USB	—	—	—		—	✓	—	—
88888	888	Watchdog	—	—	—	✓	—	—	—	—	—

Tab. 2-1: Overview of alarm and warning messages (1)

	Display		Error	Alarm code ①, ③			Warning deactivation				
	MR-J3-			Pin CN1-			Power OFF → ON	Press SET on alarm screen	Error reset (Com- mand)	Alarm reset (RES- signal)	CPU reset
	A	B		22	23	24					
				Bit 2	Bit 1	Bit 0					
Warnings	AL.92	92	Open battery cable warning	—	—	—	The warning is automatically canceled after removing the cause of occurrence.				
	AL.96	96	Home position setting warning	—	—	—					
	AL.99	—	Stoke limit warning	—	—	—					
	AL.9F	9F	Battery warning	—	—	—					
	AL.E0	E0	Excessive regeneration warning	—	—	—					
	AL.E1	E1	Overload warning 1	—	—	—					
	AL.E3	E3	Absolute position counter warning	—	—	—					
	—	E4	Parameter warning	—	—	—					
	AL.E5	-	ABS time-out warning	—	—	—					
	AL.E6	E6	Servo forced stop warning	—	—	—					
	—	E7	Controller forced stop warning	—	—	—					
	AL.E8	E8	Cooling fan speed reduction warning	—	—	—					
	AL.E9	E9	Main circuit off warning	—	—	—					
	AL.EA	—	ABS servo on warning	—	—	—					
	AL.EC	EC	Overload warning 2	—	—	—					
AL.ED	ED	Output watt excess warning	—	—	—						

Tab. 8-1: Overview of alarm and warning messages (2)

- ① 0: Pin is switched off
1: Pin is switched on
- ② Deactivate the alarm about 30 minutes of cooling time after removing the cause of occurrence. Afterwards resume operation.
- ③ **Only servo amplifier series MR-J3A**
Set "□□□1" in parameter PD24 to output the alarm code by ON/OFF of Bit 0 to Bit 2. Warnings (AL.92 to AL.EA) have no alarm code. Any alarm code is output at occurrence of the corresponding alarm. In the normal status, no alarm code is output at pins CN1-22, CN1-23 and CN1-24, but the standard status signals (like speed, etc.).
- ④ In some controller communication status, the alarm may not be removed.

8.1.2 Alarm messages



DANGER:

When any alarm has occurred, eliminate its cause, ensure safety, then reset the alarm, and restart operation.

If an absolute position erase occurred, always make home position setting again (AL.25 or 25). Otherwise, misoperation may occur.

As soon as an alarm occurs, set the status to "servo-off" and power off the main circuit and control circuit.

Details in tab. 8-2

Protective measures when an alarm message occurs:



WARNING:

When any of the following alarms has occurred, do not deactivate the alarm and resume operation repeatedly. To do so will cause the servo amplifier/ servo motor to fail. Remove the cause of occurrence, and leave a cooling time of more than 30 minutes before resuming operation.

- *Regenerative error (AL.30 or 30)*
- *Overload 1 (AL.50 or 50)*
- *Overload 2 (AL.51 or 51)*

If the alarm is reset by switching off and on the power supply and the operation is continued at once, this can cause damage of the servo amplifier, the servo motor and the regenerative option.



DANGER:

Short voltage drop

If a voltage drop occurs for longer than 60 ms, the voltage drop alarm (AL.10 or 10) is output. If the voltage drop continues for longer than additional 20 ms, the control circuit will be switched off. If in this case the voltage would rise again and the status is "servo-on", the servo motor would restart without control. To avoid such a behaviour, you must provide a circuit which immediately switches off the "servo-on" signal as soon as an alarm occurs.

NOTE

When an alarm occurs, the trouble (ALM) switches off and the display indicates the alarm code. The servo motor comes to a stop. The optional setup software MR Configurator may be used to find the cause.

Display	Error	Definition	Cause	Remedy
AL.10/ 10	Undervoltage	Power supply voltage dropped: MR-J3-□A/B: ≤160 V AC MR-J3-□A4/B4: ≤280 V AC	1. Power supply voltage is low.	Check power supply.
			2. Voltage cutoff of at least 60 ms.	
			3. The impedance of the power supply is too high.	
			4. The power supply voltage of the control circuit dropped to: MR-J3-□A/B: 200 V DC MR-J3-□A4/B: 380 V DC	
			5. Defective servo amplifier. Checking method: Alarm AL.10/10 occurs if power is switched on after disconnection of all cables but the control circuit power supply cables.	Replace servo amplifier.
AL.12/ 12	Memory error 1 (RAM)	RAM memory fault.	Faulty parts in the servo amplifier. Checking method: Alarm AL.12/12 and AL.13/13 occurs if power is switched on after disconnection of all cables but the control circuit power supply cables.	Replace servo amplifier.
AL.13/ 13	Clock error	Defective control PCB.	Defective controller. Checking method: Alarm 13 occurs if the servo control is used in a multiple CPU system.	Replace servo system controller.
		Clock error transmitted from the controller (only MR-J3-B).		
AL.15/ 15	Memory error 2 (E ² PROM)	E ² PROM error.	Defective parts in the servo amplifier. Checking method: Alarm AL.15/15 occurs if power is switched on after disconnection of all cables but the control circuit power supply cables.	Replace servo amplifier.
			The number of write times to E ² PROM exceeded 100000.	
AL.16/ 16	Encoder error 1 (at power on)	Communication error occurred between encoder and servo amplifier.	1. Encoder connector (CN2) disconnected.	Connect correctly.
			2. Encoder fault	Replace servo motor.
			3. Encoder cable faulty (Wire breakage or shorted).	Repair or replace cable.
			4. Encoder cable type (2-wire, 4-wire) selection was wrong in parameter setting.	Correct the setting in the fourth digit of parameter PC22 (PC04).
AL.17/ 17	Board error	CPU/parts fault.	Faulty parts in the servo amplifier. Checking method: Alarm (AL.17/17 or AL.19/19) occurs if power is switched on after disconnection of all cables but the control circuit power supply cable.	Replace servo amplifier.
AL.19/ 19	Memory error 3 (Flash ROM)	ROM memory fault.		
AL.1A 1A	Motor combination error	Wrong combination of servo amplifier and servo motor.	Wrong combination of servo amplifier and servo motor connected.	Use correct combination.
AL.20/ 20	Encoder error 2	Communication error occurred between encoder and servo amplifier.	1. Encoder connector (CN2) disconnected.	Connect correctly.
			2. Encoder cable faulty (Wire breakage or shorted).	Repair or replace cable.
			3. Encoder fault.	Replace servo motor.

Tab. 8-2: Remedies for alarms (1)

Display	Error	Definition	Cause	Remedy
AL.24/ 24	Main circuit error	Ground fault occurred at the servo motor power (U, V and W phases) of the servo amplifier.	1. Power input wires and servo motor power wires are in contact.	Connect correctly.
			2. Insulation resistance between cable or motor and ground potential is too small.	Replace cable.
			3. Main circuit of servo amplifier failed. Checking method: AL.24/24 occurs if the servo is switched on after disconnecting the U, V, W power cables from the servo amplifier.	Replace servo amplifier.
AL.25/ 25	Absolute position erase	Absolute position data faulty.	1. Voltage drop in encoder. (Battery disconnected)	After leaving the alarm occurring for a few minutes, switch power off, then on again. Always make home position setting again.
			2. Battery voltage low.	Replace battery.
			3. Battery cable or battery faulty.	Always make home position setting again.
		Power was switched on for the first time in the absolute position detection system.	4. Home position not set.	After leaving the alarm occurring for a few minutes, switch power off, then on again. Always make home position setting again.
AL.30 30	Regenerative alarm	Permissible regenerative power of the built-in regenerative resistor or regenerative option is exceeded.	1. Wrong setting of parameter PA02.	Set correctly.
			2. Built-in regenerative resistor or regenerative option is not connected.	Connect correctly.
			3. High-duty operation or continuous regenerative operation caused the permissible regenerative power of the regenerative option to be exceeded. Checking method: Call the status display and check the regenerative load ratio.	1. Reduce the frequency of positioning.
				2. Use the regenerative option of larger capacity.
				3. Reduce the load.
			4. Power supply voltage is abnormal: MR-J3-□A/B: ≥ 260 V AC MR-J3-□A4/B4: ≥ 535 V AC	Review the power supply.
		5. Built-in regenerative resistor or regenerative option faulty.	Replace servo amplifier or regenerative option.	
Regenerative transistor fault.	6. Regenerative transistor faulty. Checking method: 1. The regenerative option has overheated abnormally. 2. The alarm occurs even after removal of the built-in regenerative resistor or regenerative option.	Replace servo amplifier.		

Tab. 8-2: Remedies for alarms (2)

Display	Error	Definition	Cause	Remedy
AL.31/ 31	Overspeed	Speed has exceeded the instantaneous permissible speed.	1. Input command pulse frequency exceeded the permissible instantaneous speed frequency.	Set command pulses correctly.
			2. Small acceleration/deceleration time constant caused overshoot to be large.	Increase acceleration/deceleration time constant.
			3. Unstable servo system causes overshoot.	1. Re-set servo gain to proper value. 2. If servo gain cannot be set to proper value: 1) Reduce load inertia moment ratio; or 2) Reexamine acceleration/ deceleration time constant.
			4. Electronic gear ratio is large (parameters PA06, PA07). (only MR-J3-A)	Set correctly.
			5. Encoder faulty.	Replace servo motor.
AL.32/ 32	Overcurrent	Current that flew is higher than the permissible current of the servo amplifier. (When the alarm (AL.32/32) occurs, switch the power OFF and then ON to reset the alarm. Do not switch the power OFF/ON repeatedly. This can cause malfunction.	1. Short occurred in servo motor power (U, V, W).	Correct wiring.
			2. Output transistor of the servo amplifier faulty. Checking method: Alarm (AL.32/32) occurs if power is switched on after U, V and W are disconnected.	Replace servo amplifier.
			3. Ground fault occurred in servo motor power (U, V, W).	Correct wiring.
			4. External noise caused the overcurrent detection circuit to misoperate.	Take noise suppression measures.
AL.33/ 33	Overvoltage	Converter bus voltage input value has become the following: MR-J3-□A/B: 400 V DC MR-J3-□A4/B4: 800 V DC	1. Regenerative option is not used.	Use the regenerative option.
			2. Though the regenerative option is used, the parameter No.PA02 setting is "□□00 (not used)".	Set parameter correctly.
			3. Lead of built-in regenerative resistor or regenerative option is open or disconnected.	1. Change lead. 2. Connect correctly.
			4. Regenerative transistor faulty.	Change servo amplifier.
			5. Wire breakage of built-in regenerative resistor or regenerative option.	1. Change servo amplifier. 2. Change optional regenerative option.
			6. Capacity of built-in regenerative resistor or regenerative option is too low.	Add regenerative option or increase capacity.
			7. Power supply voltage high.	Review the power supply.
			8. Ground fault occurred in servo motor power (U, V, W).	Correct the wiring.

Tab. 8-2: Remedies for alarms (3)

Display	Error	Definition	Cause	Remedy
—/ 34 (only MR-J3-B)	Receive error 1 (SSCNET III)	SSCNET III communication error. (Continuously communication error with about 3.5 ms interval.)	1. SSCNET III cable is disconnected.	Connect it after turning off the control circuit power supply for servo amplifier.
			2. The surface at the end of SSCNET III cable got dirty.	Wipe dirt at the surface away. (see MR-J3-B instruction manual)
			3. The SSCNET III cable is broken or severed.	Replace cable.
			4. Noise entered the servo amplifier.	Take noise suppression measures.
AL.35/ — (only MR-J3-A)	Command pulse frequency error	Input pulse frequency of the command pulse is too high.	1. Pulse frequency of the command pulse is too high.	Change the command pulse frequency to a proper value.
			2. Noise entered command pulses.	Take action against noise.
			3. Manual pulse generator fault.	Replace manual pulse generator.
—/ 35 (only MR-J3-B)	Command frequency error	Input pulse frequency of the command pulse is too high.	1. Command given is greater than the maximum speed of the servo motor.	Review operation program.
			2. Servo system controller failure.	Replace the servo system controller.
			3. Noise entered the servo amplifier.	Take noise suppression measures for I/O signals.
—/ 36 (only MR-J3-B)	Receive error 2 (SSCNET III)	SSCNET III communication error. (Intermittently communication error with about 70 ms interval.)	1. The SSCNET III cable is disconnected.	Connect it after turning off the control circuit power supply for servo amplifier.
			2. The surface at the end of SSCNET III cable got dirty.	Wipe dirt at the surface away. (see MR-J3-B instruction manual)
			3. The SSCNET III cable is broken or severed.	Replace cable.
			4. Noise entered the servo amplifier.	Take noise suppression measures.
AL.37/ 37	Parameter error	Parameter setting is wrong.	1. Servo amplifier fault caused the parameter setting to be rewritten.	Replace servo amplifier.
			2. Regenerative option not used with servo amplifier was selected in parameter PA02.	Set parameter PA02 correctly.
			3. There is a parameter whose value was set to outside the setting range by the controller.	Set parameter within the setting range.
			4. The number of write times to E ² PROM exceeded 100000 due to parameter write, etc.	Replace servo amplifier.

Tab. 8-2: Remedies for alarms (4)

Display	Error	Definition	Cause	Remedy
AL.45/ 45	Main circuit device overheat	Main circuit device overheat.	1. Servo amplifier faulty.	Replace servo amplifier.
			2. The power supply was turned on and off continuously by overloaded status.	Review the drive mode.
			3. Ambient temperature of the servo amplifier is over 55° C.	Review environ- ment so that ambi- ent temperature is 0 to 55° C.
			4. Servo amplifiers are mounted too close to each other.	Use within the range of specifica- tions.
AL.46/ 46	Servo Motor overheat	Servo motor temper- ature rise actuated the thermal sensor.	1. Ambient temperature of the servo motor is over 40° C.	Review environ- ment so that ambi- ent temperature is 0 to 40° C.
			2. Servo Motor is overloaded.	1. Reduce load. 2. Review operation pattern. 3. Use servo motor that provides larger output.
			3. Thermal sensor in encoder is faulty.	Replace servo motor.
AL.47/ 47	Cooling fan alarm	The cooling fan of the servo amplifier stopped, or its speed decreased to or below the alarm level.	Cooling fan life expired.	Replace the fan of the servo amplifier.
			Foreign object blocks the fan.	Remove foreign object.
			The power supply of the cooling fan failed.	Replace servo amplifier.

Tab. 8-2: Remedies for alarms (5)

Display	Error	Definition	Cause	Remedy
AL.50/ 50	Overload 1	Load exceeded over- load protection char- acteristic of servo amplifier. Load ratio 300% : > 2.5 s Load ratio 200% : > 100 s	1. Servo amplifier is used in excess of its continuous output current.	1. Reduce load. 2. Review operation pattern. 3. Use servo motor that provides larger output.
			2. Servo system is instable and hunt- ing.	1. Repeat accelera- tion/ deceleration to execute auto tun- ing. 2. Change auto tun- ing response set- ting. 3. Set auto tuning to OFF and make gain adjustment manually.
			3. Mechanical overload.	1. Review operation pattern. 2. Install limit switches.
			4. Wrong connection of servo motor. Servo amplifier's output terminals U, V, W do not match servo motor's input terminals U, V, W.	Connect correctly.
			5. Encoder faulty.	Replace servo motor.
AL.51 51	Overload 2	The max. output cur- rent flows for sev- eral seconds. Servo Motor is mechanically locked: 1 s or longer.	1. Mechanical overload.	1. Review operation pattern. 2. Install limit switches.
			2. Wrong connection of servo motor. Servo amplifier's output terminals U, V, W do not match servo motor's input terminals U, V, W.	Connect correctly.
			3. Servo system is instable and hunt- ing.	1. Repeat accelera- tion/ deceleration to execute auto tun- ing. 2. Change auto tun- ing response set- ting. 3. Set auto tuning to OFF and make gain adjustment manually.
			4. Encoder faulty.	Replace servo motor.

Tab. 8-2: Remedies for alarms (6)

Display	Error	Definition	Cause	Remedy
AL.52/ 52	Error excessive	The deviation between the model position and the actual servo motor position exceeds the parameter PC01 setting value (initial value: 3 revolutions).	1. Acceleration/deceleration time constant is too small.	Increase the acceleration/deceleration time constant.
			2. Torque limit value set with controller is too small. (At MR-J3-A set with parameters PA11 and PA12.)	Increase the torque limit value.
			3. Motor cannot be started due to torque shortage caused by power supply voltage drop.	1. Review the power supply capacity. 2. Use servo motor which provides larger output.
			4. Position loop gain 1 (parameter PB08) value is small.	Increase set value and adjust to ensure proper operation.
			5. Servo motor shaft was rotated by external force.	1. When torque is limited, increase the limit value. 2. Reduce load. 3. Use servo motor that provides larger output.
			6. Mechanical overload.	1. Review operation pattern. 2. Install limit switches.
			7. Encoder faulty.	Replace servo motor.
			8. Wrong connection of servo motor. Servo amplifier's output terminals U, V, W do not match servo motor's input terminals U, V, W.	Connect correctly.
AL.8A/ — (MR-J3-A)	Serial communication time-out error	Communication stopped for longer than the specified time.	1. Communication cable breakage.	Repair or replace cable.
			2. Communication cycle longer than time setting.	Shorten the communication cycle.
			3. Wrong protocol.	Correct protocol.
—/ 8A (MR-J3-B)	USB communication time-out error	Communication in test operation mode stopped for longer than the specified time.	USB cable breakage.	Replace USB cable.
AL.E8/ — (MR-J3-A)	Serial communication error	Serial communication error occurred between servo amplifier and communication device.	1. Communication cable fault. (Open cable or short circuit)	Repair or replace cable.
			2. Communication device (e.g. personal computer) faulty.	Replace the communication device.
—/ E8 (MR-J3-B)	USB communication error	Serial communication error occurred between servo amplifier and communication device.	1. USB cable fault. (Open cable or short circuit)	Replace USB cable.
			2. Communication device (e.g. personal computer) faulty	Replace the communication device.
88888/ 888 ^①	Watchdog	CPU, parts faulty.	Fault of parts in servo amplifier. Checking method: Alarm (88888/888) occurs if power is switched on after disconnection of all cables but the control circuit power supply cable.	Replace servo amplifier.

Tab. 8-2: Remedies for alarms (7)

① At power-on "88888" or "888" appears instantaneously, but it is not an error.

8.1.3 Warning messages

Remedies

**WARNING:**

If an absolute position counter warning (AL.E3 or E3) occurred, always make home position setting again. Otherwise, misoperation may occur.

NOTE

When any of the following alarms has occurred, do not resume operation by switching power of the servo amplifier OFF/ON repeatedly. The servo amplifier and servo motor may become faulty. If the power of the servo amplifier is switched OFF/ON during the alarms, allow more than 30 minutes for cooling before resuming operation.

- Excessive regenerative warning (AL.E0 or E0)
- Overload warning 1 (AL.E1 or E1)

If AL.E6/E6 or AL.EA/EA occurs, the servo off status is established. If any other warning occurs, operation can be continued but an alarm may take place or proper operation may not be performed. Use the optional servo configuration software (MR Configurator) to refer to the cause of warning.

Remove the cause of warning according to the following table.

Display	Error	Definition	Cause	Remedy
AL.92/ 92	Open battery cable warning	Absolute position detection system battery voltage is low.	1. Battery cable is open.	Repair cable or replace battery.
			2. Battery voltage supplied from the servo amplifier to the encoder fell to about 3 V or less. (Detected with the encoder)	Replace battery.
AL.96/ 96	Home position setting warning	Home position setting could not be made.	1. Droop pulses remaining are greater than the in-position range setting.	Remove the cause of droop pulse occurrence.
			2. Command pulse entered after clearing of droop pulses.	Do not enter command pulse after clearing of droop pulses.
			3. Creep speed high.	Reduce creep speed.
AL.99/ — (only MR-J3-A)	Stroke limit warning	The stroke end (LSP or LSN) of the commanded direction was turned off.	The limit switch became valid.	Reexamine the operation pattern to avoid reaching the stroke limit.
AL.9F/ 9F	Battery warning	Voltage of battery for absolute position detection system reduced.	Battery voltage drops to 3.2 V or lower.	Replace battery.
AL.E0/ E0	Excessive regenerative warning	There is a possibility that regenerative alarm (AL.30/30) may occur.	Regenerative power increased to 85% or more of permissible regenerative load. Checking method: Call the status display and check regenerative load ratio.	1. Reduce frequency of positioning. 2. Replace regenerative option by one with larger capacity. 3. Reduce load.
AL.E1 E1	Overload warning 1	There is a possibility that overload alarms 1 or 2 (AL.50/50 or AL.51/51) may occur.	Load increased to 85% or more of overload alarm 1 or 2 occurrence level.	Refer to AL.50/50 or AL.51/51.
AL.E3 E3	Absolute position counter warning	Absolute position encoder pulses faulty.	1. Noise entered the encoder.	Take noise suppression measures.
			2. Encoder faulty.	Replace servo motor.
—/ E4 (only MR-J3-B)	Parameter warning	Parameter outside setting range.	Parameter value set from servo system controller is outside setting range.	Correct setting.
AL.E5 — (only MR-J3-A)	ABS time out warning	—	1. PC ladder program wrong.	Correct program.
			2. Signals ST2 and TLC wired incorrectly.	Connect correctly.
AL.E6/ E6	Servo forced stop warning	EMG or EM1 signal is OFF.	External forced stop was made valid.	Ensure safety and deactivate forced stop.
—/ E7 (only MR-J3-B)	Controller forced stop warning	—	Forced stop signal was entered into the servo system controller.	Ensure safety and deactivate forced stop.
AL.E8/ E8	Cooling fan speed reduction warning	The cooling fan speed of the servo amplifier decreased to or below the warning level. This warning is only displayed by servo amplifiers equipped with a cooling fan.	Cooling fan life expiration (see instruction manual).	Replace cooling fan of the servo amplifier.
			The power supply of the cooling fan is broken.	Replace servo amplifier.
AL.E9/ E9	Main circuit off warning	Servo-on (SON) was switched on with main circuit power off.	—	Switch on main circuit power.

Tab. 8-3: Remedies for warnings (1)

Display	Error	Definition	Cause	Remedy
AL.EA/ — (only MR-J3- A)	ABS servo-on warning	Servo-on (SON) turned on more than 1s after servo amplifier had entered absolute position data transfer mode.	1. PC ladder program wrong. 2. Servo-on (SON) improper wiring.	Correct the program. Connect correctly.
AL.EC/ EC	Overload warning 2	Operation, in which a current exceeding the rating flew intensively in any of the U, V and W phases of the servo motor, was repeated.	The current flowing intensively in any of the U, V and W phases of the servo motor is exceeding the warning level.	1. Reduce the positioning frequency at the specific positioning address. 2. Reduce the load. 3. Replace the servo amplifier/servo motor by one of larger capacity.
AL.ED/ ED	The status, in which the output power (speed x torque) of the servo motor exceeded the rated output, continued steadily.	The rated output power (speed x torque) of the servo motor was regularly exceeded.	Continuous operation was performed with the output power (speed x torque) of the servo motor exceeding 150 % of the rated output.	1. Reduce the servo motor speed. 2. Reduce load.

Tab. 8-3: Remedies for warnings (2)