

HL120 AND HL200 LEGACY MIXERS - TROUBLESHOOTING

GENERAL - ALL MODELS	
SYMPTOM	POSSIBLE CAUSE
Timer board problems: Can not adjust time. Can not select Hold Mode (continuous mixing with count up timing). Timer display does not count up. Timer display does not count down. Timer display blank. Segment missing from timer display. Mixer will not shut off at end of timed cycle.	<ol style="list-style-type: none"> 1. Timer board malfunction (time adjustment potentiometer; or other problems with the board). 2. Wiring harness connections from motor drive RS485 to timer board are disconnected or malfunctioning. 3. Motor drive malfunction (timer ready contacts 30 B/C are not opening for 1 second at the end of timed cycle).
Grease leaking from planetary.	1. Spacer o-ring on planetary shaft.
Grease leaking from attachment hub.	1. Quad ring in attachment hub.

NOTE: The motor drive constantly monitors its operation while the mixer is running. If an alarm occurs during mixer operation, the motor drive recognizes a fault condition and immediately tries to reset the fault twice within 0.5 second intervals. If mixer operation continues, the automatic reset was successful. If the alarm was not reset, the motor drive enters Alarm Mode and displays a 3-digit alarm code that corresponds to the fault. The mixer will not operate until the alarm is cleared. To manually reset, cycle power to mixer. Wait till display goes out then reconnect power.

ALARM CODES			
Alarm Code	Fault Description	Possible Causes	Suggested Actions
OC1	Over current (Protects motor drive)	1. Low supply voltage.	1. Check supply voltage to mixer. 2. Cycle power to mixer. Wait till display goes out then reconnect power.
OC2		2. Momentary power interruption.	
OC3		3. Batch size too large.	3. Reduce batch size. See REFERENCE MATERIAL under GENERAL.
		4. Motor drive terminals U, V or W short-circuited or grounded.	4. Check motor lead wire connections. 5. Check motor resistance. 6. Check resistance between motor drive terminals U, V & W.
OU1	Over voltage (DC Bus voltage ≥ 373V)	1. High supply voltage.	1. Check supply voltage to mixer.
OU2			
OU3			
LU	Under voltage (DC Bus voltage ≤ 255V)	<ol style="list-style-type: none"> 1. Low supply voltage. 2. Momentary power interruption. 3. Motor drive malfunction. 	<ol style="list-style-type: none"> 1. Check supply voltage to mixer. Leave DMM connected and check for sudden drops in supply voltage when mixer is turned ON (under load) along with other equipment on the same line. 2. Cycle power to mixer. Wait till display goes out then reconnect power. 3. Check DC bus circuit voltage at terminals P(+) & N (-). If voltage reading is consistently low and supply voltage is within tolerance, replace motor drive.

ALARM CODES			
Alarm Code	Fault Description	Possible Causes	Suggested Actions
OPL	Output phase loss to motor.	<ol style="list-style-type: none"> 1. Lead wire or connection malfunction to motor. 2. Open circuit in motor windings. 3. Single phase motor installed; or motor not wired for 3 phase. 	<ol style="list-style-type: none"> 1. Check motor lead wire connections for tightness and continuity. If connections are loose then tighten. If a problem is found with the lead wires from motor drive to motor, replace the malfunctioning component (wiring harness; or motor). 2. Check motor resistance. 3. Motor drive requires a 3 phase AC motor. Verify this type of motor is installed and is wired for 3 phase.
		<ol style="list-style-type: none"> 4. 1CR control relay malfunction. 	<ol style="list-style-type: none"> 4. Check for 24VDC at 1CR relay coil. If voltage is present but 1CR contacts 6/8 or 2/4 are not closing, replace 1CR control relay. If 24VDC is not present, check voltage at motor drive terminals 30C to PLC and verify 1LS bowl switch and 2LS bowl guard switch are closed. If a problem is found with 1LS, 2LS or motor drive, replace the malfunctioning component.
		<ol style="list-style-type: none"> 5. Motor drive malfunction (no output voltage; or output voltage phase lost). 	<ol style="list-style-type: none"> 5. Replace motor drive.
OH1	Over heating at heat sink. (Protects motor drive)	<ol style="list-style-type: none"> 1. Motor drive heat sink temperature above 194°F. 	<ol style="list-style-type: none"> 1. Disconnect power to mixer and allow motor drive to cool. 2. Check bottom cover vent for clogging. Check motor drive heat sink fins for clogging. Remove debris. 3. Reduce room ambient temperature; or move mixer to a cooler location (away from heat sources).
		<ol style="list-style-type: none"> 2. Motor drive malfunction. 	<ol style="list-style-type: none"> 4. If over heating occurs repeatedly, replace motor drive.
OL1	Electronic thermal overload relay tripped. (Protects motor)	<ol style="list-style-type: none"> 1. Mixing in Stir speed. 2. Batch size too large. 3. Low supply voltage causing low motor torque. 	<ol style="list-style-type: none"> 1. Select Speed 1 or Speed 2 for mixing. 2. Reduce batch size. See REFERENCE MATERIAL under GENERAL. 3. Check supply voltage to mixer.
		<ol style="list-style-type: none"> 4. Motor malfunction. 	<ol style="list-style-type: none"> 4. Check motor resistance.
		<ol style="list-style-type: none"> 5. Motor drive malfunction. 	<ol style="list-style-type: none"> 5. Replace motor drive.
OLU	Motor drive over loaded. (Protects motor drive)	<ol style="list-style-type: none"> 1. Batch size too large. 2. Motor drive ambient temperature above 122°F. 	<ol style="list-style-type: none"> 1. Reduce batch size. See REFERENCE MATERIAL under GENERAL. 2. Check bottom vent cover for clogging. Check motor drive heat sink fins for clogging. Remove debris. 3. Reduce room ambient temperature; or move mixer to a cooler location (away from heat sources).

ALARM CODES			
Alarm Code	Fault Description	Possible Causes	Suggested Actions
Er1	Memory error.	1. Momentary power interruption or power loss while motor drive was storing data.	1. Cycle power to mixer. Wait till display goes out then reconnect power. If this does not clear the alarm code, replace motor drive.
Er2	Timer board communication error.	1. RS485 wiring connections loose, disconnected or malfunctioning.	1. Check plugs for proper insertion into sockets (RJ45 and 16 pin). 2. Check RS485 lead wire connections J1-1 thru J1-4 for tightness and proper insertion into 16 pin sockets and plugs from motor drive to timer board. If no continuity, replace the malfunctioning harness.
		3. Timer board malfunction. 4. Motor drive malfunction.	3. Replace timer board (if harness ok). 4. Replace motor drive (if timer board and harness ok).
Er3	CPU error.	1. Motor drive malfunction.	1. Cycle power to mixer. Wait till display goes out then reconnect power. If this does not clear the alarm code, replace motor drive.
ErF	Data save error during undervoltage.	1. Momentary power interruption or power loss while motor drive was storing data.	1. Cycle power to mixer. Wait till display goes out then reconnect power. If this does not clear the alarm code, replace motor drive.