

**EG
Controls**

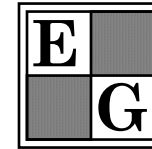
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JACKSONVILLE, FLORIDA

INSTALLATION AND SERVICE MANUAL

ELECTROGAGE PRODUCT LINE

WARNING!!!

Disconnect all power before servicing or
handling pumps and controls.
Do not smoke, use sparkable electrical devices
or ignite flames in the vicinity of a
septic (gaseous) or possible septic sump.

The control panel, as manufactured per
the EG standard is a UL listed device
when specifically requested.

In order to protect the UL listing,
it is imperative that no component,
layout, wiring or barrier changes
be made without prior
consent of the factory.

Doing so may void the UL listing.

INSTALLATION

The installation must conform to the latest requirements of the National Electric Code. All conduit and cables shall be in accordance with NEC Code NFPA 70.

Prior to an installation, start-up or service to the control panel, refer to the schematic specifically for that panel, which will provide guidance for connections to the terminal blocks.

ELECTRICAL CONNECTIONS: FIELD WIRING

1. Connect the pump over-temperature and/or moisture sensing wires (if supplied with the pump) to the appropriate terminal blocks in the control panel. If a pump over-temperature device is provided with the pump, appropriate terminal jumpers must be removed per the schematic.
2. Connect the bubbler tube piping to the bulkhead fitting provided.
3. Be sure to refer to the schematic before taking the next step. The schematic diagram will provide guidance for the proper connections to the terminal blocks located inside the control panel.
4. Before connecting electrical cable to the control panel – make sure that all control switches and circuit breakers are in the OFF position. Connect feeder cables to the main lugs or main circuit breaker as indicated on the schematic.
5. Control panel must be properly grounded as required by NEC or any local codes.

START-UP

WARNING – Opening the enclosure doors and operating the equipment is to be performed only by a qualified electrician.

Installation Check:

Upon completion of system installation, the following step by step initial set-up procedures should be performed. Manual and automatic modes of operation should be covered.

Nuisance tripping of motor starter overloads or circuit breakers.

1. Check all reset buttons and tripped breakers.
2. Check pump amperage with ammeter and compare to nameplate amps on pump.
3. The impeller may be locked up due to excessive debris or solids.
4. Possible motor failure (fault on windings).
5. Pump may be miswired to terminal blocks.
6. Check for loose wire connections.

Short cycling of pump.

1. Check proper sequence of wiring on Electrogage.
2. Check bubbler system.

Dead front door cannot be latched.

1. Check that enclosure is mounted on a level floor or flat surface. Adjustments may be made by placing metal shims between the mounting foot and surface for wall-mounted units or under the corners for floor-mounted units. If the top of the door strikes the enclosure opening, place metal shim under the mounting foot or corner closest to the hinge at the bottom of the enclosure. Be sure to tighten all mounting bolts. Floor mounted enclosures must be bolted in place before any adjustments are made. If enclosure has two doors, place shims on both sides so that doors meet evenly for a proper seal.

Run light stays ON.

1. Selector switch may be in the HAND position.

Test for blown fuse.

1. Check for continuity.

Pump runs but green light does not energize.

1. Change pilot light.

Troubleshooting Chart

Pump does not run in the HAND position.

1. Check pump circuit breaker, control circuit breaker and control fuses for tripped or blown condition.
2. Check overload relay to see if it is tripped. Push reset button if tripped.
3. Check heat sensor contact, if supplied, with ohmmeter to verify that thermal overload of motor has not tripped.
4. Check moisture sensing pump shutdown circuit, if supplied.

Pump does not run in the AUTO position.

1. Check items #1-4 above.
2. Air pump may have failed. Check bubbler system for proper operation. See item #8 under Periodic Maintenance.

Pump runs but does not pump the wet well down.

1. Pump rotation may be wrong. Wiring of pump to control panel may be reverse sequenced.
2. Impeller may be dragging in volute due to solids. High ampere draw would confirm this problem.
3. Refer to your pump manual for other possibilities such as closed discharge gate valve, etc.

Severe humming/chattering of contactors and control relays.

1. Check voltage at primary and secondary of control transformer using a voltmeter.
2. Contactor may have dust around magnet of coil structure. Clean as required.
3. Check voltage to the control panel. Contactors require a minimum of 85% of full voltage to pull in without chatter. If the problem is a chronic one, measure voltage with a recorder on a 24 hour basis.

1. Check junction box, if supplied, for moisture. Moisture may cause chattering of relays and contactors.
2. Check wiring of capacitors for single phase applications.
3. Determine if system has a phase monitor relay.
4. For systems with a phase monitor relay:
Locate the adjustment knob and turn to the proper voltage. Check for proper phase sequence. Once complete, turn ON or energize panel. If LED is not illuminated on the phase monitor, disconnect all power from the panel and change any two (2) black power wires at the socket. If LED is still not illuminated, repeat the previous steps.
For systems without a phase monitor relay:
No further steps are needed. Panel may be turned ON or energized.
5. Check overload relay to verify it has not tripped. If so, push RESET button.
6. Measure supply voltage to the panel with a voltmeter. Measure voltages, as follows:
Line 1 to Line 2
Line 1 to Line 3
Line 2 to Line 3
All voltages should be the same as the voltage on the blue label on the inside of the outer door of the control panel. Measure voltage from the control transformer secondary fuse or from control circuit breaker to white neutral wire. Voltage should be from 115-120 volts.
7. Turn control and pump circuit breakers ON. Check rotation of each pump by placing the HOA switch in the HAND position and verify rotation. If the pump runs in the wrong direction, place the HOA switch in the OFF position, shut off power to the panel and reverse any two of the three phase power leads from the motor to the starter. Turn the power to the panel ON and recheck rotation by placing the HOA switch in the HAND position and then, in OFF.
8. Check automatic operation by placing the HOA switches in the AUTO position and moving the Electrogage control ball valve to test/blowdown position. On larger horsepower pumps, we suggest that the pump circuit breakers be turned OFF during testing. Place one finger over the test port to simulate rising and falling of the wet well levels. Make sure the

Electrogage control toggle valve is in the NORMAL position after testing.

9. Check full load current of pumps with an ammeter on each phase of the pump and compare this to the nameplate.
10. Verify flow with pumps running.
11. Place HOA switch in the AUTO position after start-up is complete.

PERIODIC MAINTENANCE

Maintenance schedules will vary with operating and environmental conditions, as well as with the specific type of control supplied. The following list should be used as a guide only:

1. Check contactors and relays by turning pumps ON and OFF with the HOA switches.
2. Check all pilot lights.
3. Check fuses, if supplied, for continuity.
4. Check voltage at the primary and secondary of the control transformer, if supplied.
5. Check full load amps of the pumps.
6. For single phase motor, check motor start kit by using a convention Clamp-On ammeter around the wire connected to the motor start winding. Start the motor. Observe motor movement. A good capacitor will indicate brisk needle deflection from zero to locked rotor ampere and back to full load (motor running) ampere. A very slow needle deflection at start indicates a defective electrolytic capacitor.
7. Measure ohmic value between motor casing and foundation for proper grounding. Satisfactory reading should be less than 1 ohm.
8. Measure resistance between motor winding and stator. Satisfactory reading should be above 1 megohm.

BUBBLER MAINTENANCE

1. Make a visual check to be sure that the bubbler tube is properly secured and mounted inside the wet well.
2. To keep your Electrogage system in optimal condition, we recommend replacing the filters, as follows:
 - a. The two inline air filters attached to the compressors (part #FIL-10A) should be replaced every 6-8 months. These filters may begin to

turn brown to indicate that replacement is needed.

- b. The charcoal-type filter attached to the Electrogage (part #FIL-2P) should be replaced every 18-24 months.
 - c. Both filters may be ordered directly from EG Controls or your local representative.
3. If the level gauge appears to give unusually high or erratic readings, the bubbler tube may be fouled. The first step to fix this problem is to implement a "Blowdown" or to blow out the bubbler tube by using the purge function in the panel.

To complete the Blowdown Process:

1. Locate the Normal/Blowdown knob on the control plate. Turn knob to the Blowdown position.
2. Watch the Electrogage level indication fall.
3. Apply compressed air (100 psi maximum) to the Blowdown Port located to the right of the Test port.
4. The bubbler tube is now purging.
5. Allow approximately 10 – 20 seconds for the tube to clear.
6. Once clear, disconnect the compressed air supply from the Blowdown port.
7. Return the Normal/Test blowdown knob to the Normal position.
8. Watch the Electrogage again to be sure that the level starts to rise.
9. Repeat this sequence as many times as needed to clear the bubbler.
10. If the bubbler tube does not clear, contact your local service representative or EG Controls. The Electrogage may need to be returned to the factory for maintenance.

IMPORTANT:

Please note that if the Blowdown sequence noted above is not properly followed, the Electrogage may suffer severe damage.