Panel Installation

Before Installing Panel

1. *Read all instructions before proceeding with the installation. Improper installation may void warranties.*

2. Inspect your order for completeness and inspect each component for shipment damage. If something is missing or damaged, you will need to contact your supplier to obtain replacements.

3. Check to be sure the instructions and items supplied comply with state and local regulations.

4. A qualified electrician must be employed to install and service the panel and ancillary wiring. The equipment must be installed in compliance with the National Electric Code, as well as state and local codes.

Placement of the Control Panel

5. Install the electrical control or alarm panel within view of the tank. The panel should be attached to a post or an exterior wall. Panels that contain motor contactors should not be mounted to an exterior wall unless the mounting method includes sound deadening. If possible, position the panel in the shade to protect it from weather. Extreme temperatures can cause inconsistent performance of the electrical components. Locate the panel at a convenient height (usually about five feet above the ground) and where it will be accessible for maintenance.

Install Floats and Pumps

6. Install the electrical splice box(es) for the floats and pump(s) before installing the actual floats and pumping equipment. The splice box(es) are installed in the grommet(s) provided near the top of the riser.

7. Install the floats. Thread the float and pump cords through the cord grips into the PVC splice box, leaving adequate lengths of electrical cord coiled inside the riser to allow easy removal of the pump and float assembly. Do not remove the colored markers or the paper tags from the float cords, and do not try to thread the markers and tag through the cord grip. These should be left on the float cord, outside the splice box. Tighten the cord grips by hand, not by tool, then check the tightness of the cord grips by tugging on each cord. A cord is secure and the connection watertight when the cord grip is tight enough to prevent slippage. Adequate lengths of cord should be left within the splice box to allow for easy removal for future disconnecting and re-splicing.

8. Run the wires from the control panel to the splice box. The wires can be brought through a conduit, or can be buried using suitable direct-burial wire. Conduit that enters the splice box must be sealed with a conduit seal. A conduit seal should be used, even if the wires are direct-buried, to prevent the infiltration of water into the splice box. The number of wires required depends on the control panel and the number of floats and pumps used. This can be determined by consulting the Splice Box Wiring diagram appropriate for the control panel and float arrangement being used.

Wire should be sized at 14 AWG for the float. Refer to Figure 1 to determine the proper size for the pump wires. When calculating wire size, you need to take the length and size of your branch circuit wires from the service entrance panel to the pump control

panel into account. Wire that's too small can cause an excessive voltage drop and poor pump performance.

Wires should be color coded or otherwise marked to aid in wiring the control panel. Colors may refer to either the color of the wire's insulation, the color of a tag, or the color of an electrical tape marker.

9. All splices made in the splice box should use waterproof wire nuts or butt connectors and heat shrink tubing. The splices must be waterproof! Splices that are not waterproof may cause a malfunction of the pump controls if water should leak into the splice box.

Connect Control Panel

10. Connect the wires coming from floats to the terminals in the control panel.

11. Connect the wires coming from the pump(s) to the pump terminals.

12. Connect the incoming power to the panel. Power to the panel must be appropriate to the control panel and pump motor (i.e. 120VAC, single phase for a 120 VAC motor, 240 VAC single phase for a 240 VAC motor, etc.) Insure that the panel is properly grounded and that the fuse or breaker and wire size, from the main power panel and to the pump, are sized correctly. Separate circuits for the pump controls and each of the pump motors is recommended. Note: Voltage for the controls in the panel is always 120VAC, although the pump voltage may be 120VAC or 240 VAC.

13. Use 60° CU conductors only. Torque the terminal blocks to 7.1 LB-IN. Torque the circuit breaker and ground lugs to 45 LB-IN.
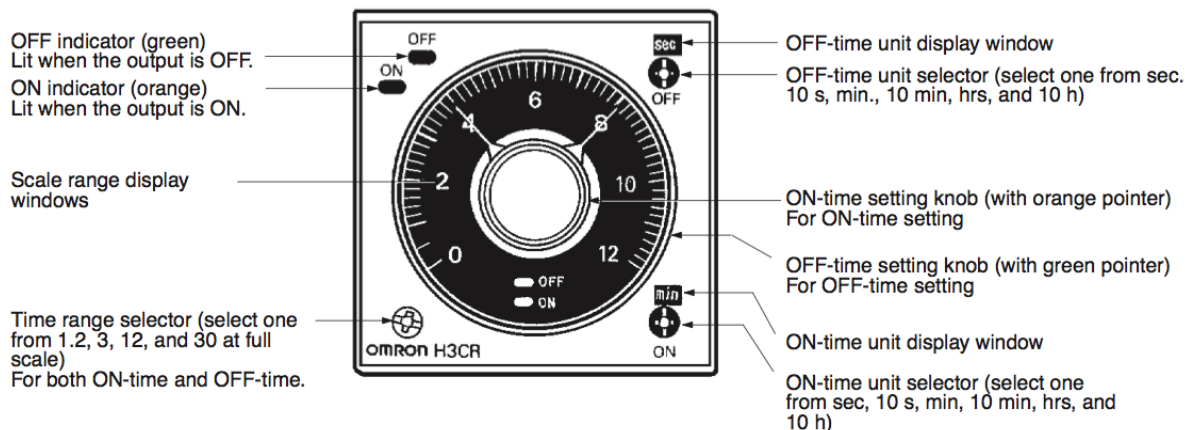
14. When power is applied to the control panel, the wires to the pump may be energized. Do not service the pump or any electrical wiring in the pump vault without disconnecting the power at the circuit breaker and the fuse. The pump vault area is a hazardous area, and may contain explosive gases. Take appropriate precautions before working in the pump vault.

Figure 1. Recommended Breaker & Wire Size

Pump Motor Size	Breaker size	Wire Size	Max Distance*
115 VAC 1/3 hp	20 amp	12 AWG	210 ft
1/2 hp	20 amp	12 AWG	160 ft
230 VAC 1/2 hp	15 amp	14 AWG	400 ft
1 hp	20 amp	12 AWG	400 ft
1 1/2 hp	20 amp	12 AWG	310 ft

* This is the maximum distance from the main power panel to the pump motor for the recommended wire size. If actual distance is greater than the listed maximum, or more than one pump is on the circuit, then a larger gauge of wire must be used. If the actual distance is close to the maximum distance, then it is recommended that the next larger gauge wire be used.

H3CR-F8 Setting Instructions

OFF indicator (green)
Lit when the output is OFF.

ON indicator (orange)
Lit when the output is ON.

Scale range display windows

Time range selector (select one from 1.2, 3, 12, and 30 at full scale)
For both ON-time and OFF-time.

OFF-time unit display window

OFF-time unit selector (select one from sec. 10 s, min., 10 min, hrs, and 10 h)

ON-time setting knob (with orange pointer)
For ON-time setting

OFF-time setting knob (with green pointer)
For OFF-time setting

ON-time unit display window

ON-time unit selector (select one from sec, 10 s, min, 10 min, hrs, and 10 h)

Instructions:

1. Use a small screwdriver to set the range selection switch to the appropriate time range. Select from 0-1.2, 0-3, 0-12, or 0-30. The selected range must accommodate both the "on" and "off" time settings. If your desired time setting can be acquired in more than one time range, maximize accuracy by using the lowest time range possible. For example, a one-hour setting can be more accurately adjusted in the 0-1.2 time range than in the 0-3 time range.

2. Use a small screwdriver to set the off time selection switch to the required time unit for the "Off" time. Select from seconds (sec), seconds x 10 (10s), minutes (min), minutes x 10 (10m), hours (hrs) or hours x 10 (10h).

3. Set the off dial (large dial with the green pointer) to the off time required.

4. Use a small screwdriver to set the on time selection switch to the required time unit for the "On" time. Select from seconds (sec), seconds x 10 (10s), minutes (min), minutes x 10 (10m), hours (hrs) or hours x 10 (10h).

5. Set the on dial (small dial with the red pointer) to the on time required.

6. Record your timer settings in the space provided.

Timer Off:
Timer On:

Default Setting:
The timer is factory set to 1 hour OFF, 40 seconds ON.

Setting Example:
Set the timer to the above default setting.

1. Set the range selection switch to 0-1.2 range.

2. Set the off time selection switch to hours (hrs) range.

3. Set the off dial to 1.0 for 1 hour Off setting

4. Set the on time selection switch to minutes (min) range.

5. Set the on dial to approx. 0.67 for 40 seconds On setting.