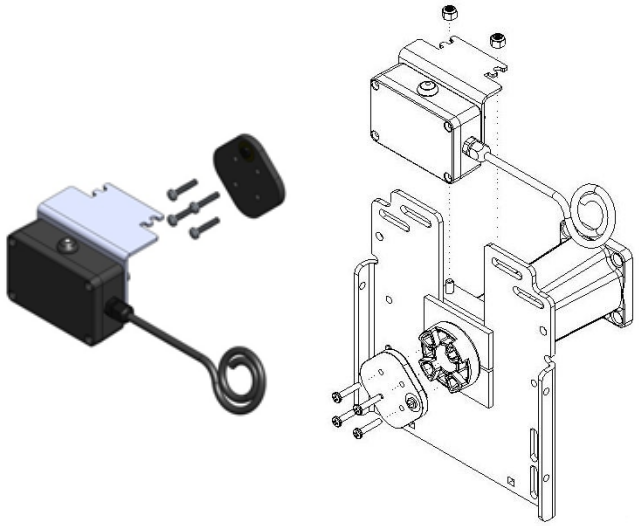
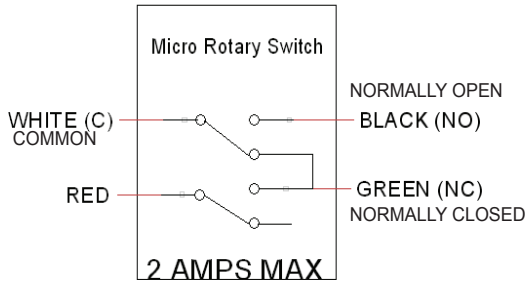
Usage & Installation Guide for Micro-Rotary Encoder Limit Switch





Micro-Rotary Encoder Limit Switch Description: Designed to provide a simple means to override water features such as water falls and fountains to prevent the flow of water onto the cover when the cover is deployed over the pool.

Feature Control Capabilities:
- 3-Way Valve
- Motor Relay
- Pool Controller

Maximum Switching Power: 60W, 125VA
Maximum Switching Voltage: 220VDC, 250VAC
Maximum Switching Current: 2 AMPS

30' 18/4 AWG 300V Water/Sunlight Resistant, Direct Burial, Indoor/Outdoor Wire Included

Unit is self powered by two (2) 10 year Lithium Primary AA Batteries

General Operation:

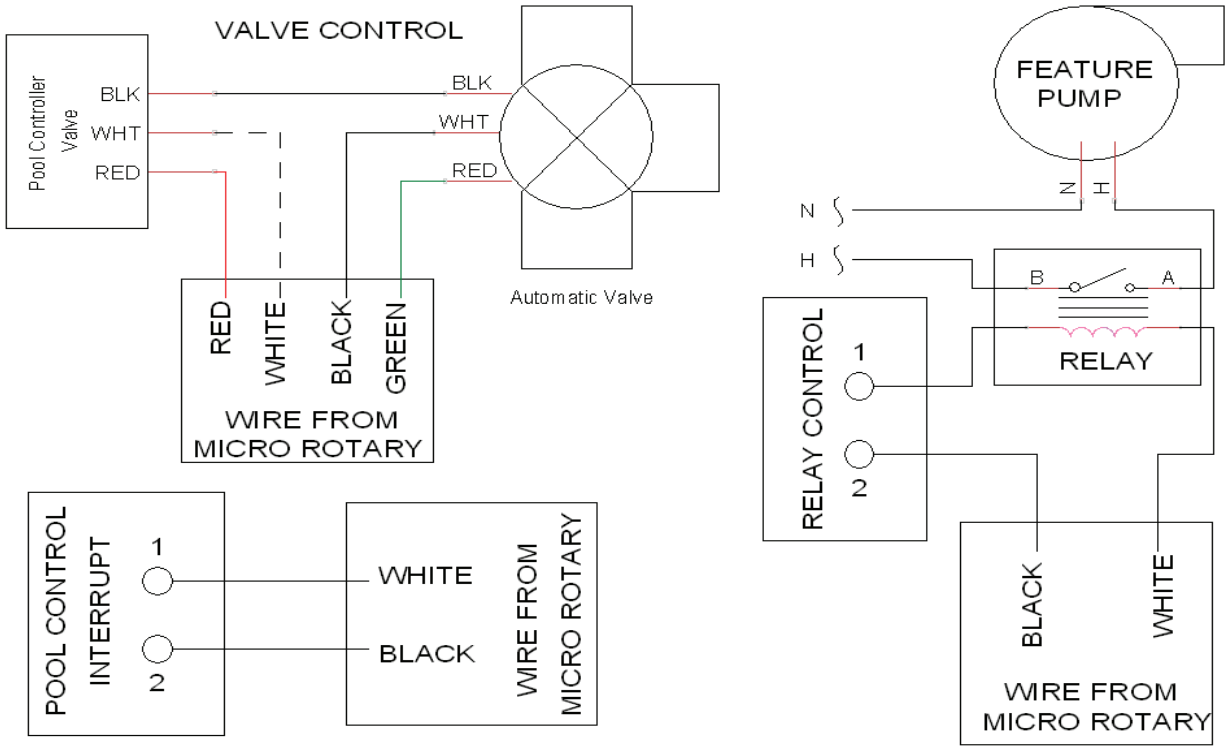
The Micro-Rotary Limit Switch operates based on a sensor that is positioned on the non-motor side of the cover roll-up tube. A trigger disc is inserted onto the roll-up tube non-motor end cone and the Micro-Rotary limit switch is attached to a bracket which attaches to the non-motor end cone brake. After the units home position is set, the Micro-Rotary Limit Switch detects the rotation of the cover to determine the covers position. When the cover moves to the open home position, the Micro-Rotary limit switch will activate a switch to turn on the water feature being interrupted or alert the pool controller that the cover has been opened. The rotary limit switch is an accurate device; however, due to different ways that a cover can roll up on the roll-up tube exact positioning of the cover can vary up to 1 foot. The unit is internally powered by a set of long life AA lithium batteries and should last for over 10 years. When setting the home position there is only a single flash from the LED or no flash from the LED or the switch does not operate, replacement of the internal batteries maybe required.

Installing the Micro-Rotary Encoder Limit Switch:

1. Insert the trigger disc into the non-motor end access hole
2. Attach bracket and limit switch to the non-motor end brake by removing the two bolts from the brake and inserting the rotary limit switch mounting bracket between the brake and the bolts. Reassemble the non-motor end brake assembly.

Wiring the Micro-Rotary Encoder Limit Switch:

The Micro-Rotary Limit Switch comes with 30 feet of outdoor rated 18AWG 4 conductor wire additional wire can be run as needed according to your local electric code. Do not run Low Voltage and High Voltage lines in the same conduit. The unit is configured to support one of the following: a 3 way valve, relay interrupt or feedback to a compatible pool controller. An example of each is shown on page 2.



Setting the Home Position:

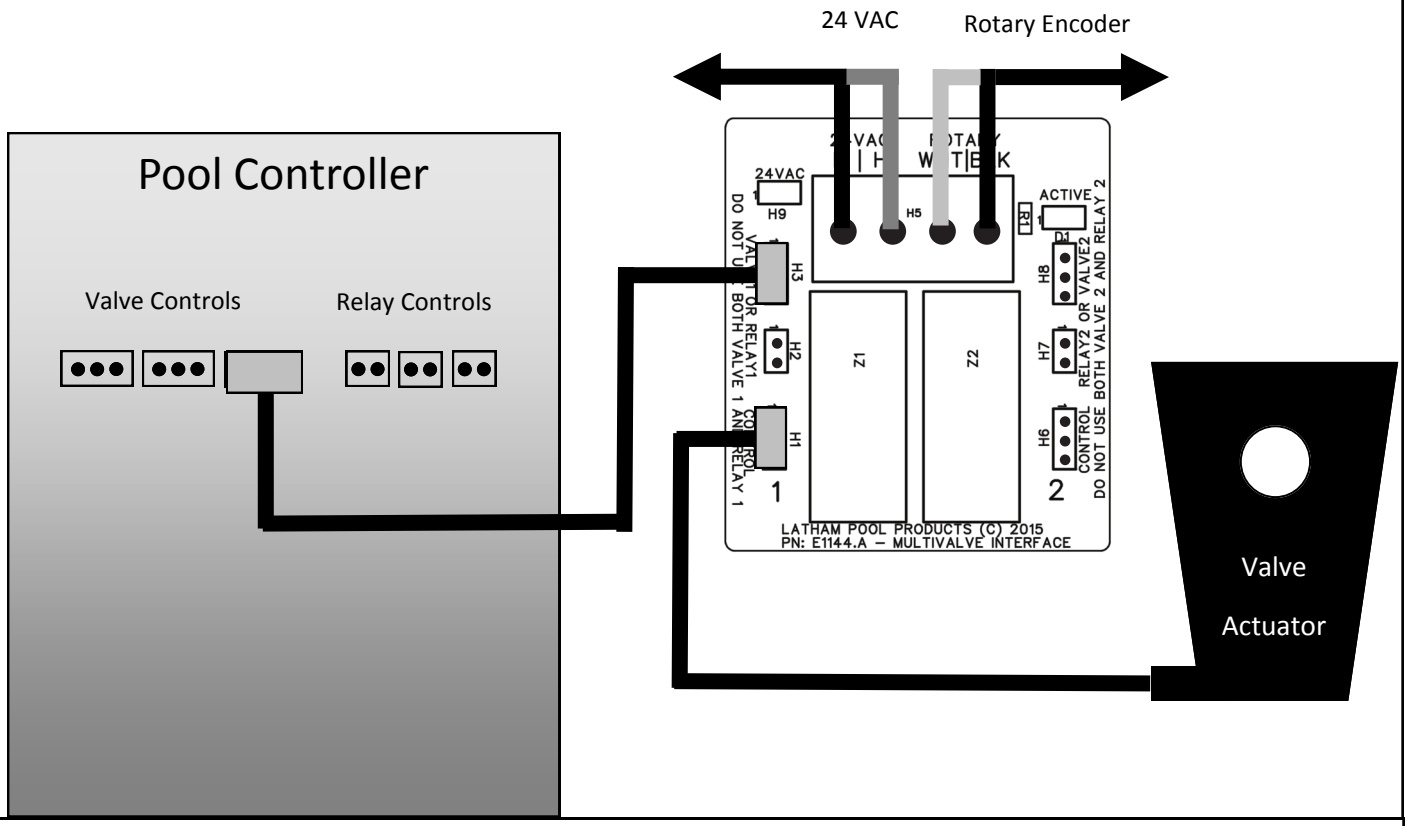
After installing the switch do the following.

1. **Position the cover where you want the feature to turn on.**
   (Typically about a foot in front of the cover open position)
2. **Press the button located on the top of the Micro-Rotary Limit Switch.** This sets the “Home” position and a LED inside of the button will blink 3 times.
3. **Operate the cover in the closing direction for at least 5 feet.** This sets the rotational direction for closing the cover.
4. Test to make sure the feature is turning off and on by moving the cover to the desired open position and seeing if feature has been actuated.
5. If steps 1 through 4 did not provide expected results repeat the configuration steps. Pressing the “Home” button again will reset the home position to the present location.

Modified Instructions for the E1144 Multivalve Interface

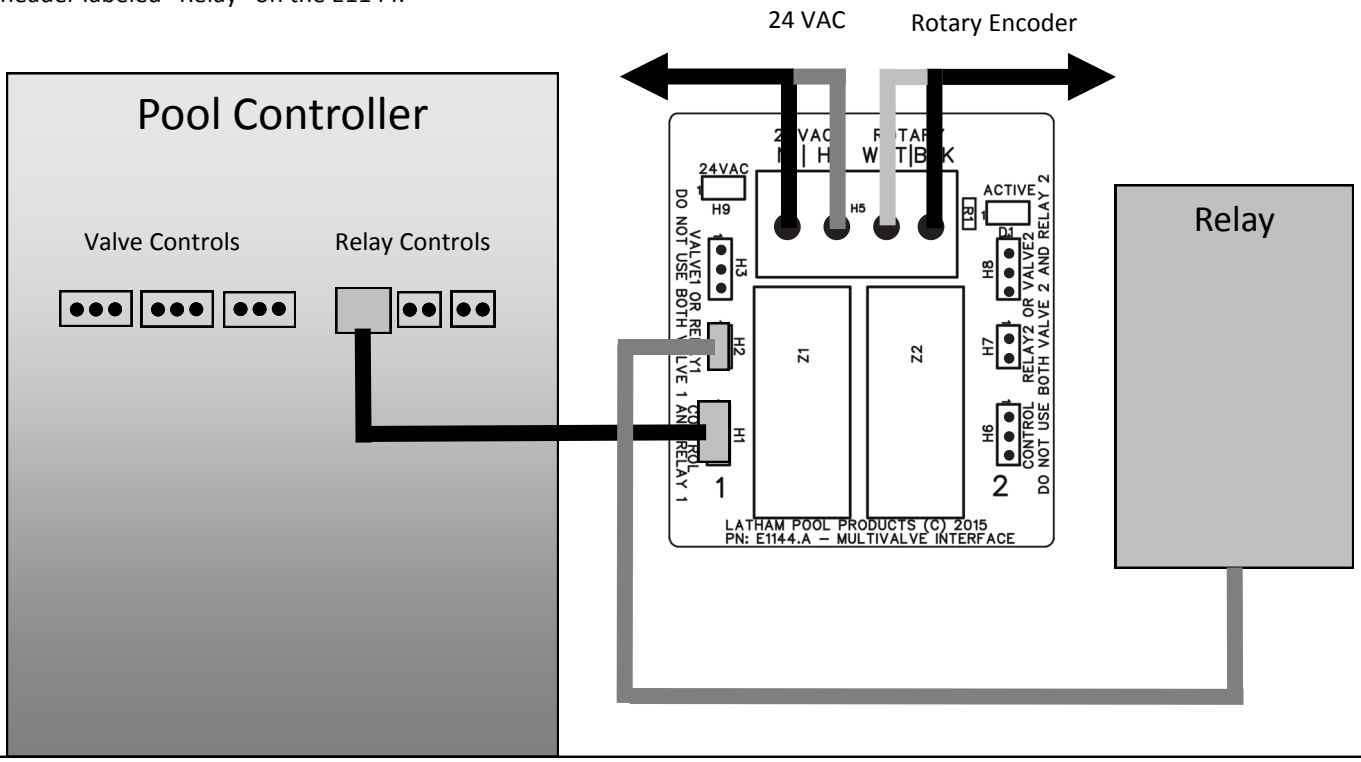
For Valve Actuator:

Connect the valve actuator to the header labeled “Control” on the E1144. Connect the desired valve port on the pool controller to the header labeled “Valve” on the E1144.

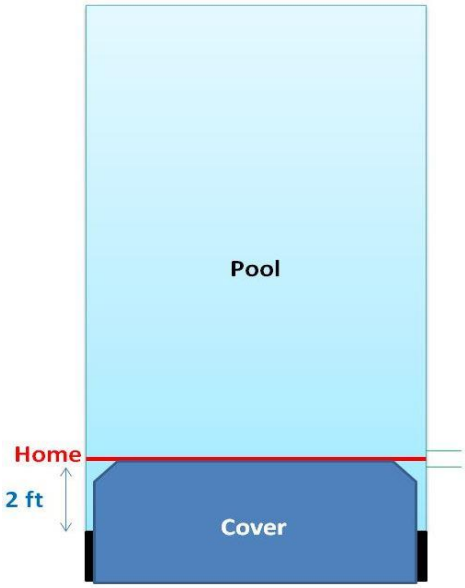


For Relay:

Connect the relay to the header labeled “Relay” on the E1144. Connect the desired relay port on the pool controller to the header labeled “Relay” on the E1144.



Rotary Encoder Installation & Troubleshooting Guide

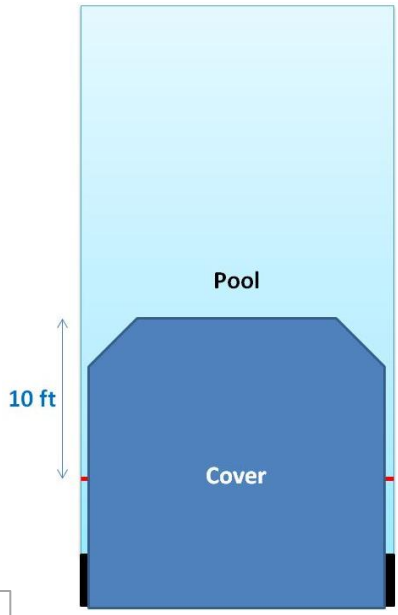


Set **home** position 2 ft. from the fully open position and place an object or pencil mark at this position.

Place **additional markers** or pencil marks 6 inches on either side of the home position.

Zero the encoder at the home position by pressing the **button** on top of the encoder. The button should blink 3 times to verify it has been set.

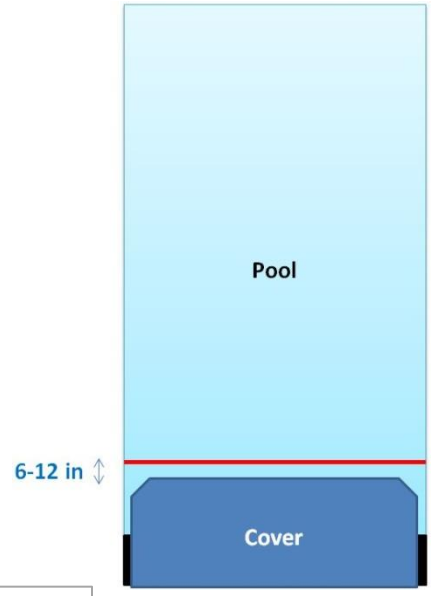
Step 1



Operate cover in the **close** direction 10 ft.

This will tell the encoder to shut off water features when covering the pool.

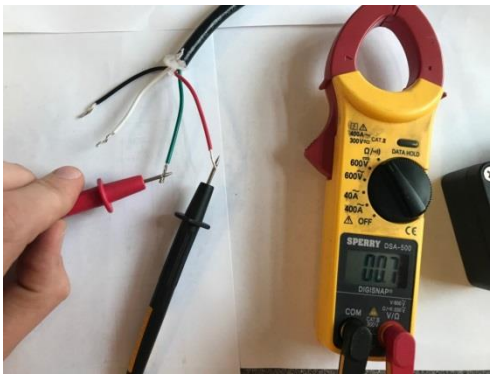
Step 2



Operate cover in the **open** direction until the cover has gone 6 in. to 1 ft. past the home position.

This will verify the encoder has switched states.

Step 3

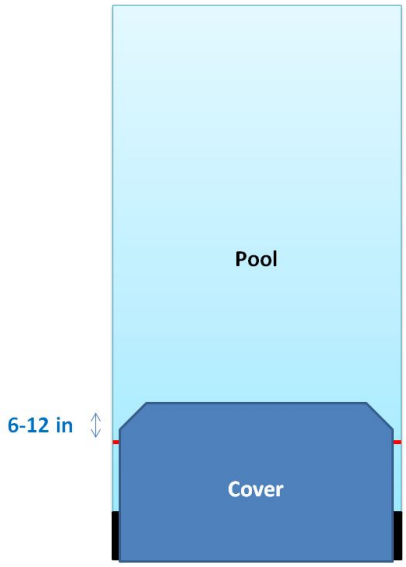


Using a multi-meter set to **Ohms (Ω)**, place one probe on the **white** wire from the Rotary Encoder and place the other probe on the **black** wire from the Rotary Encoder.

Many multi-meters have a sound function that will create a high pitched tone when resistance is low (this means the two wires are connected).

At this position two sets of wires are connected.
- The **white** and **black**.
- The **red** and **green**.

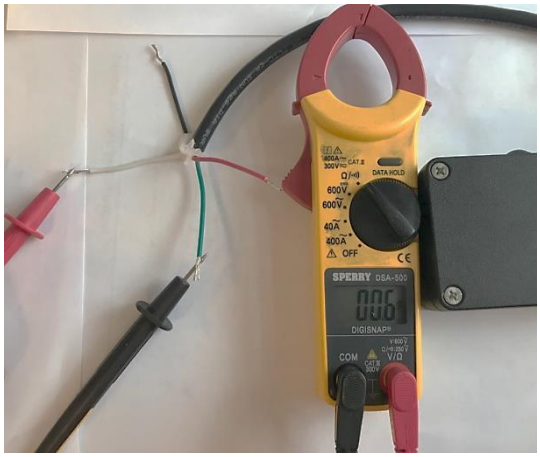
Step 4



Operate cover in the **close** direction until the cover has gone 6 in. to 1 ft. past the home position.

This will verify the encoder has switched states.

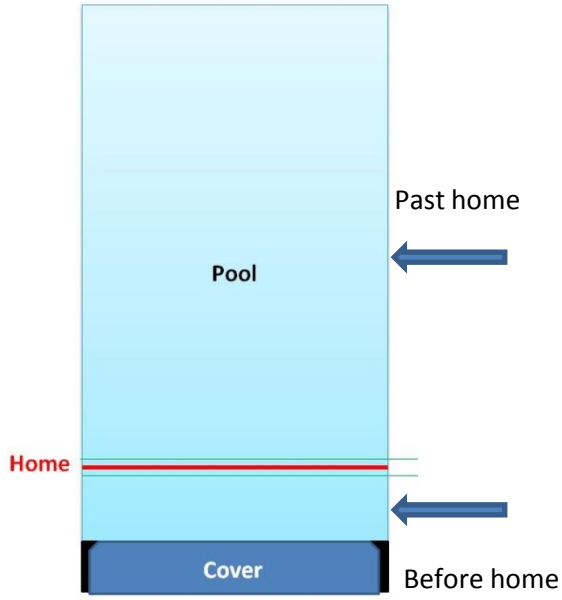
Step 5



At this position the **green** and **white** encoder wires should be connected.

No other wires should be connected.

Step 6



Repeat this test about 8-10 times **without** resetting the home position to verify that the encoder is switching within the markers placed.

Past home position one set of wires are connected.

- The white to green

Before home two sets of wires are connected.

- The white to **black**.
- The **red** to green.

Step 7

Troubleshooting

The feature does not turn on when I return to the home position.

- ❑ Is the feature turned on at the pool controller?
- ❑ Is the sensor disk installed correctly?
  - ❑ (a) Is the sensor disk secured to the NME cone?
  - ❑ (b) Is the magnet still in place inside the sensor disk?
  - ❑ (c) Is the sensor disk bumping or rubbing anything as it rotates with the NME cone?
- ❑ Is the Rotary Encoder bracket installed correctly?
  - ❑ Is the mounting bracket directly on top of the brake block?
  - ❑ Is the Rotary Encoder parallel with the sensor disk?
- ❑ Is the wiring correct for the application?
  - ❑ See wiring instructions for wiring specifics.
  - ❑ Are wire connections clean, secure and dry?
  - ❑ Are low voltage wires in separate conduit from high voltage wires?
- ❑ Is the Rotary Encoder being used within the specified power limits?
  - ❑ Maximum Switching Power: 60W, 125VA
  - ❑ Maximum Switching Voltage: 220VDC, 250VAC
  - ❑ Maximum Switching Current: **2 AMPS**