

## Knightronix KnightLighter™ Ion and Photo Flame Sensors

### Why does the KnightLighter include a Photo Flame Sensor and Ion Flame Sensor?

Unlike most electronic ignition systems for gas lighting, the KnightLighter has a complementary Photo Flame Sensor installed in addition to the Ion flame sensing technology. The dual flame sensors provide more reliable flame detection and better performance than systems with only the Ion Flame Sensor.

The Photo Flame Sensor also works with mantle burners, making the KnightLighter more flexible than other gaslight igniter systems.

### How do the Ion and Photo flame sensors differ?

The Ion Flame Sensor detects a small amount of voltage present only when the ignition wire, or probe, is touching a burning flame. The Ion Sensor does not sense temperature; with Ion flame sensing technology, in order to detect the flame, it is necessary for the burner tip and ignition probe to be clean and to be in constant contact with the flame.

In breezy conditions, the flame may blow away from the ignition probe, and the Ion Flame Sensor may no longer detect the flame. The Photo Flame Sensor has a fairly wide field of view, and it should detect the flame even if the ignition wire is not in the flame.

### What else can affect Ion Flame Sensor performance?

Excessive torque on the nut securing the ignition probe to the spark transformer can damage the spark transformer and Ion Flame Sensor; 6 inch pounds of torque is adequate. When making adjustments to the ignition probe, it should be supported with one hand just above the spark transformer to prevent excess force on the transformer.

After burning for a period of time, carbon and soot buildup on the ignition wire and burner tip may inhibit ignition and limit the Ion Flame Sensor performance. Soot buildup can be an indication of improper ventilation in the lamp. Propane burners generally have more soot buildup than natural gas burners. Proper ventilation in the propane burner stem should limit the buildup of soot. However, for proper ignition and Ion Flame Sensor operation, the burner tip and ignition wire may need to be cleaned occasionally with both propane and natural gas lamps.

Oxidation on the ignition probe and burner tip may also reduce the sensitivity of the Ion flame sensor. Oxidation may be indicated by a discolored burner tip and dark-colored ignition wire. The brass tip and ignition probe should be cleaned occasionally using a scrubber, such as a 3M Scotch-Brite™ blue scouring pad. Using a heavy-duty green scouring pad or sandpaper will scratch the brass and ignition wire and may cause oxidation and soot buildup to occur more quickly.

Corrosion on the ignition wire may cause pitting and eventually cause the tip of the ignition wire to break off; inhibiting proper ignition and Ion flame sensing. If the probe becomes corroded, it may need to be replaced.

Knightronix recommends using the Photo Flame Sensor in addition to the Ion Flame Sensor for optimal performance in less than optimal conditions.

