



# Light Bulb Manufacturing

## Light Bulb Sealing

# Q

Question

How to reduce the scrap rate due to poor bonding between the base of the glass bulb and the metal mount?

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# A

Answer

### Situation Analysis

During the manufacture of incandescent light bulbs, an adhesive is added to the interior of the metal mount, which is then preheated in a carousel with an open flame. The base of the glass bulb is also baked in an open flame on a second carousel and then the two components are pressed together. Since both parts are constantly rotating during the heating process, using noncontact infrared temperature sensors is the only way to accurately measure the temperature. In addition, the sensor must have high optical resolution to measure the small bulb components. Details of this application include:

- Measurement temperature range: 840 to 920°C (1544 to 1688°F)
- Ambient temperature: up to 65°C (150°F)
- Spot size: 1.25 mm and 5 mm (0.05" and 1")
- Distance: 125 mm to 500 mm (5 to 19.5")



# A

## Answer

### Solution and Improvements

The Ircon Modline<sup>®</sup> 7, 77 Series is the ideal choice to accurately measure temperature for this application. The instrument can be used for both the glass and the base and at 5 micron wavelength, the instrument can see through the flame and measure the actual target temperature. This sensor has through-the-lens focusable optics, making it very easy to aim. With an optical resolution of D/70, it can see very small targets or the sensor can be located in a area where the ambient is cool, making water cooling unnecessary. Because there is the possibility of cool fixtures entering into the line of sight and the fact that the parts index, there is a potential of the instrument indicating incorrect cool temperatures. To compensate for this, the 77 series has a feature called a Peak Hold that picks only the hot target and eliminates any cool temperatures that may occur. The 77 series has a response time of 60 mSec and can provide both a 4-20 mA and RS 485 digital outputs for remote temperature monitoring and controlling.

### Ircon Product

Modline 7, 77 Series ModView<sup>™</sup> software and an integral water cooling jacket included

### Accessories

- Swivel Base
- Air Purge

### Benefits

- Faster Start-up
- Higher Quality and Less Scrap
- Fuel Savings
- Interchangeable Lens for Close Focus