



Filament Control

Function Test of the Filament Light Bulb

Q

Question

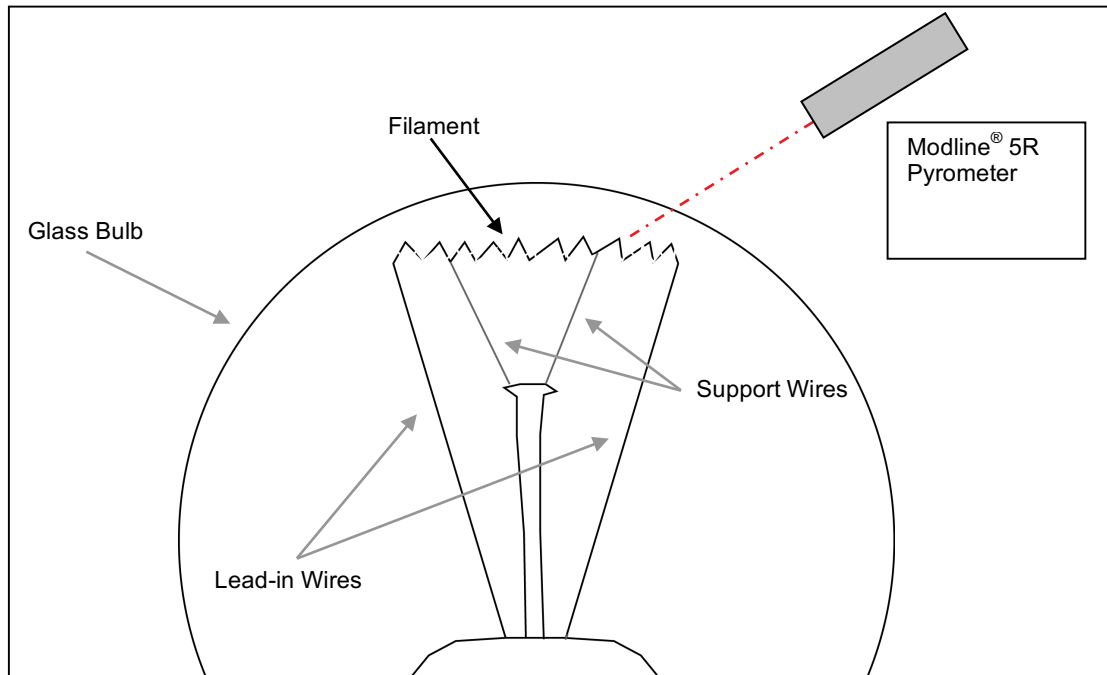
How is the functional test of the light bulb filament executed?

A

Answer

Situation Analysis

After a light bulb is sealed, a functional test of the filament is performed. To test the filament, the light bulb is energized and the temperature of the filament is measured. This test helps to identify defective light bulbs early in manufacturing, so changes can be made in the process to reduce scrap and achieve the desired quality. The filament is very small, so repeatable results are especially critical. In addition, the sensor must see through the glass bulb and measure the filament behind it, which presents another challenge.



Temperature Measurement of the Filament as Function Control of the Light Bulb

A

Answer

Solution and Improvements

The Ircon Modline® 5R and Mirage OR thermometers are well suited for measuring the temperature of the filament. All of them are capable of providing temperatures with as much of a signal attenuation of 95% (99% in some applications). This means that the filament does not have to fill the optical spot size of the instrument.



All of these instruments operate in the 1 micron region which is ideal for seeing thru the transparent glass envelope of the bulb without interference, but still measuring the filament temperature. The instruments have through-the-lens focusable optics with high resolution allowing them to resolve spot sizes as small as 0.1 inch at a 10 inch distance, but you need only fill as little as 30% of that spot for accurate temperatures.



The sensors can operate in ambients up to 55°C without cooling and provide outputs of 4-20 mA and RS 485. The response time is as fast as 10 mSec to 95% of scale.

Ircon Product

Modline 5 5R
Mirage OR

Accessories

- Swivel Base
- Interchangeable Lenses for Close Focus

Benefits

- Improved Quality
- Reduced Scrap
- Optimized Manufacturing

www.flukeprocessinstruments.com

