



MECHANICAL DATA

Mounting Position	Any
Envelope	Nonex Glass
Terminal Connections	Unpolarized
Bulb	See Outline Drawing

ELECTRICAL DATA

Resistance, Cold	6.6 ohms
Resistance, Hot (evacuated—100 ma current) ¹	15.5-17.0 ohms
Operating Voltage	1.5 volts

NOTE

1. Value of hot resistance (to the nearest hundredth of an ohm) shall be indicated directly opposite (180°) the identification marking.

DESCRIPTION:

The SYLVANIA Pirani Tube, type R1111, provides a convenient means of measuring low gas pressures directly. When used in conjunction with suitable auxiliary equipment, rapid, continuous readings may be obtained.

The SYLVANIA Pirani Tube consists essentially of a tungsten filament having a high temperature coefficient of resistance. Since the thermal conductivity of a gas varies with pressure, the temperature of the filament will also vary. This results in a change in resistance and provides the basis of measurement. The tube must be calibrated for each different gas.

With proper care, readings may be obtained with a precision of $\pm 5\%$. The useful pressure range is from one to one thousand microns. A common application is as a pressure gage and leak detector in evacuating apparatus. It is also extremely useful in automatic pressure control and recording equipment.

ADVANTAGES:

1. A Pirani Tube provides a better spread in the micron range than other devices, resulting in more accurate readings.
2. They are more sensitive as leak detectors.
3. There is no chance of tube failure due to exposure to atmosphere.
4. Pirani gauges are compact and simple to operate.

TYPICAL CIRCUIT:

For best performance, the R1111 should be used in matched pairs in a bridge circuit as shown below. The long narrow stem of one tube is cut at a convenient point and sealed directly into the system under test. The other tube provides compensation for variations in voltage and ambient temperature. Depending on the application and the accuracy of results desired, the compensator tube may be left intact, opened to the surrounding air, or filled with a particular gas to a standard pressure. The installation should be shielded from sources of radiant heat and from air currents. So that they will be equally affected by the ambient, the two tubes should be mounted as closely together as possible.

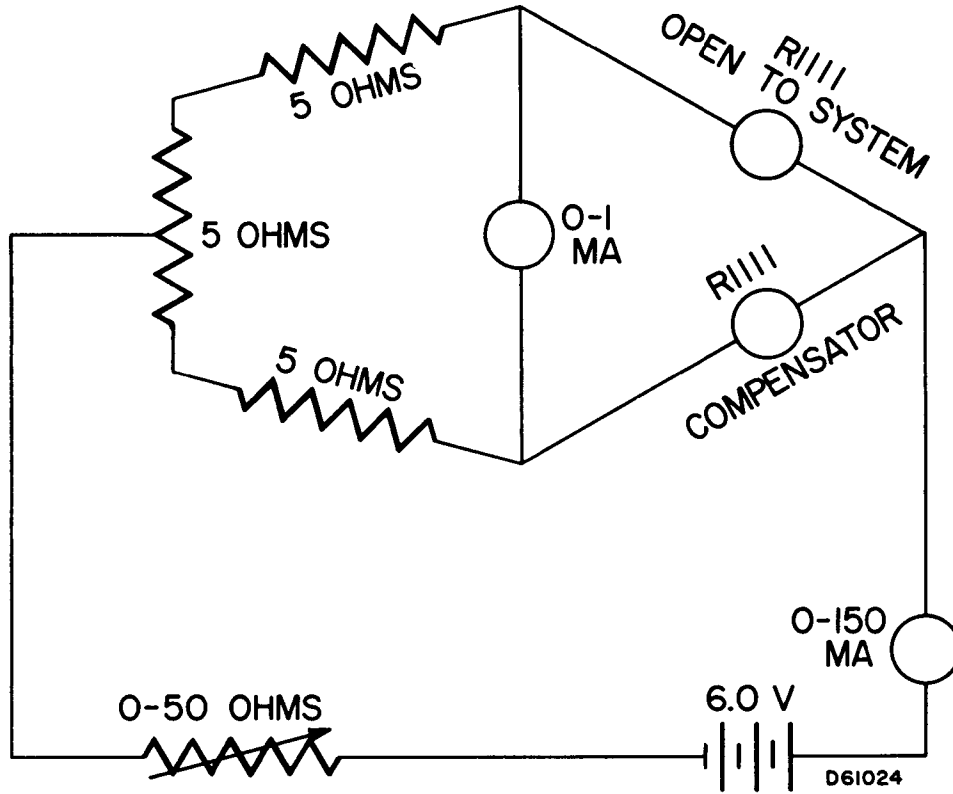
QUICK REFERENCE DATA

A hot filament Pirani tube used to measure vacuum pressures down to 1 micron.



**SYLVANIA
ELECTRONIC TUBES**
A Division of
Sylvania Electric Products Inc.
**RECEIVING TUBE
OPERATIONS
EMPORIUM, PA.**
*Prepared and Released By The
TECHNICAL PUBLICATIONS SECTION
EMPORIUM, PENNSYLVANIA*
DECEMBER, 1963
PAGE 1 OF 2
File Under
**SPECIAL PURPOSE
ELECTRONIC TUBES**

TYPICAL CIRCUIT



OUTLINE

