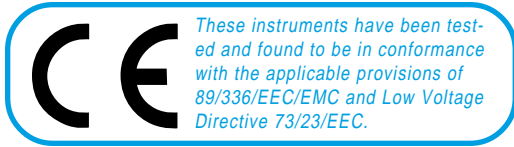


CRYOGENIC TERMINATION

WR51 15.0 TO 22.0 GHz



Description

The MT7044B cryogenic termination is a liquid nitrogen cooled noise source that provides accurately known noise temperatures at specified calibration frequencies and low VSWR over the full frequency range. This precision instrument is used for performing accurate noise temperature measurements in WR51 waveguide in a variety of applications such as radiometric type measurements, antenna systems calibration and parametric amplifier performance evaluation.

Options & Accessories

The MT152A pressurizing system provides necessary valves, gages, and hardware required to connect an external helium gas supply to Maury cryogenic terminations (helium gas supply is not provided).

The MT7044B is extremely compact, rugged and features ease of operation; it is equally suitable for laboratory or field applications. The instrument requires external helium gas pressurization of 2 PSI and AC power for the heater circuit. It is provided with operating instructions and a calibration report including noise temperature calibration and VSWR performance data.

Maury produces an extensive line of precision noise calibration devices such as cryogenic (cold), thermal (hot) and ambient terminations in both coaxial and waveguide structures from DC to 40 GHz and above. Please contact the factory for application assistance and an accurate solution to your requirements.



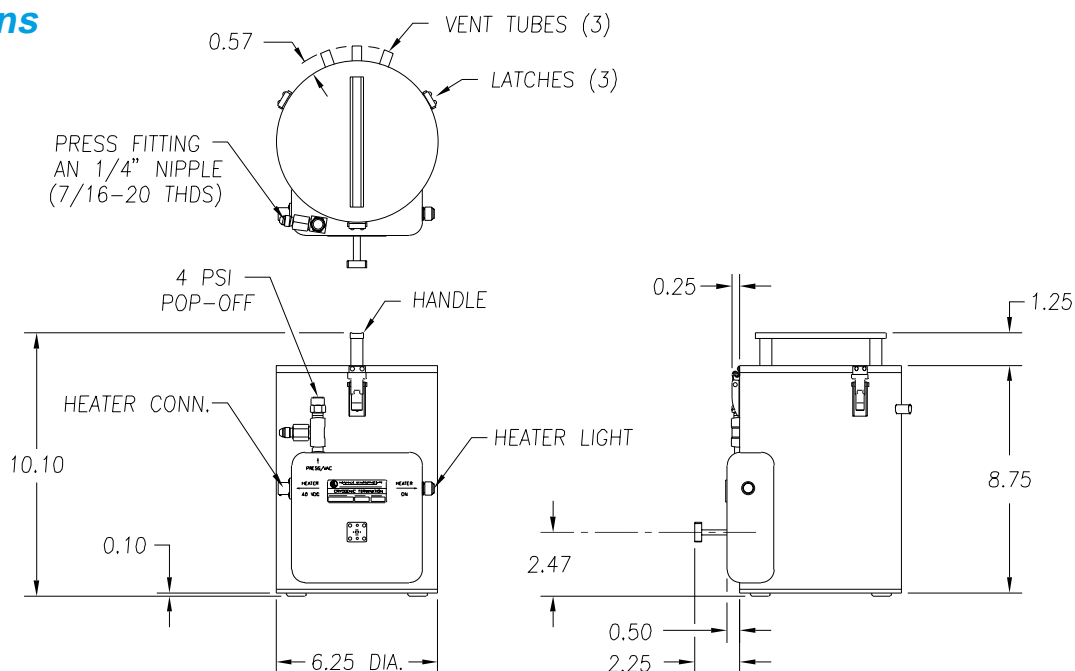
Specifications

Frequency Range	15.0 to 22.0 GHz
Input VSWR	1.10 maximum (1.05 typical)
Operating Temperature (Load)	77.36°K (liquid nitrogen cooled)
Noise Temperature (T')	80°K nominal (approximate) 1
Accuracy of Calibration (T')	$\pm 1.0^{\circ}\text{K}$ 2
Calibration Provided (T' & VSWR)	15.0, 18.5, 22.0 GHz 3
Waveguide Size	WR51 (.510 x .255 I.D.)
Flange	Precision flange MPF51
Operating Orientation	Horizontal

Operating Life	1.5 hours minimum (one fill)
Dewar Capacity	1 liter
Weight	7 lbs. approximate (empty)
Pressurization	2 PSI helium gas (external supply)
AC Power	100 to 240 VAC, 47 to 63Hz 6.0 amps maximum
Accessories (provided)	One (1) two meter power cord and a wooden instrument case

The MT7044B can be optimized for VSWR and input noise temperature over other bandwidths, additional calibration points or with calibrated bends for other operating orientations. Please contact the factory for application assistance.

Dimensions



- 1** The noise temperature in itself is not critical (other than it should be close to the temperature of the cryogen); it is the accuracy of the noise temperature that is most important.
- 2** Each unit is supplied individually calibrated at frequencies noted; equations are provided so that the noise temperature can be adjusted for actual atmospheric pressure and ambient temperature which will be experienced during operation. The accuracy specified is conservative based on the theory and calibration formulas utilized.

- 3** Units can be provided calibrated at other frequencies on request. Also, they can be optimized for narrow band or single frequency use, generally exhibiting $\pm 0.5\text{K}$ accuracy and 1.05 maximum VSWR.