

# CRYOGENIC TERMINATION

## WR42 18.0 TO 26.5 GHZ

### Description

Maury model MT7021A cryogenic termination is a liquid nitrogen cooled noise source which provides an accurately known input noise temperature at its calibration frequencies and low VSWR over its full frequency range. This precision instrument is ideal for performing accurate noise temperature measurements in WR42 waveguide in a variety of applications such as radiometric type measurements, antenna systems calibration and parametric amplifier performance evaluation.

This instrument 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 which includes input noise temperature calibration and VSWR performance data.

### Options and Accessories

Maury pressurizing system, model MT152A, provides the necessary valves, gauges, and hardware required

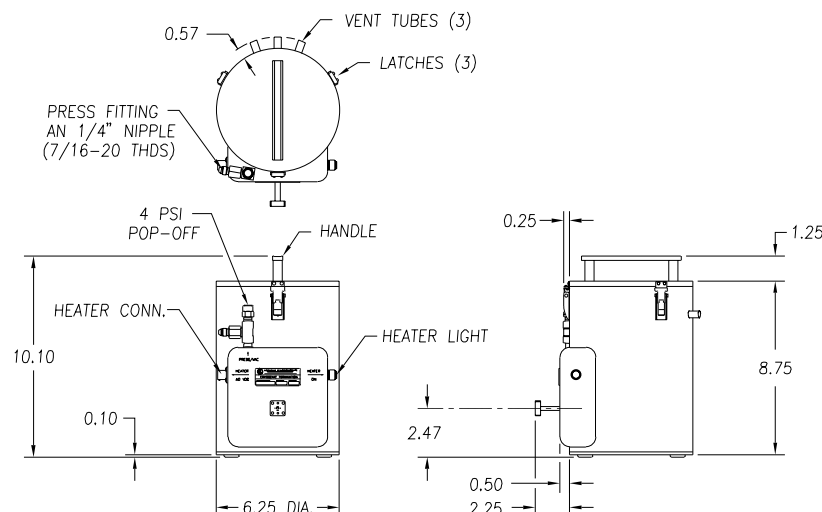


Model MT7021A

to connect an external helium gas supply to this instrument. Please note, a helium gas supply is not provided.

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. Consult us for application assistance and an accurate solution to your requirements.

### Dimensions





## Specifications

Frequency Range .....	18.0 — 26.5 GHz	Operating Life .....	1.5 hours minimum (one fill)
Input VSWR.....	1.08 maximum, (<1.05 typical)	Dewar Capacity .....	1 liter
Operating Temperature (Load).....	77.36°K (liquid nitrogen cooled)	Weight .....	7 lbs. approximately (empty)
Input Equivalent Noise Temperature (T').....	80°K nominal, (approximate) <sup>1</sup>	Pressurization .....	2 PSI helium gas (external supply)
Accuracy of Calibration (T').....	±0.8°K <sup>2</sup>	AC Power .....	115 volts, 60 cycle, 95 watts, approximately
Calibration Provided (T' and VSWR) .....	18.0, 22.3, 26.5 GHz <sup>3</sup>	Accessories Provided .....	One five foot power cord and a wooden instrument case
Waveguide Size .....	WR42 (0.420 x 0.170 I.D.)	This instrument can be provided optimized for VSWR and input noise temperature over other bandwidths, additional calibration points or with calibrated bends for other operating orientations. Contact us for application assistance.	
Input Flange .....	Precision flange MPF42 (has indexing holes, equivalent to UG-595/U)		
Operating Orientation .....	Horizontal		

<sup>1</sup> The noise temperature in itself is not important (other than it should be close to the temperature of the cryogen), it is the accuracy to which it is known that is important.

<sup>2</sup> 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.

<sup>3</sup> Units can be provided calibrated at other frequencies on request. Also, they can be optimized for narrow band or single frequency use, generally exhibiting +0.5K accuracy and 1.05 maximum VSWR (1.03 or better typical).