ISSI

Innovative Scientific Solutions, Inc.

Manifold Molecular Iodine Cells

(Product ID: I2M-5, I2M-10)

To create a sealed starved cell with a flexible set point, a glass cell with an attached cold-finger and vacuum port is constructed. The vacuum port and cold-finger include stopcocks. The cell is evacuated and cold-finger filled with Iodine is brought to the desired vapor pressure (cold-finger operating temperature). The stem between the cold-finger and cell is then closed by closing the stopcock, isolating the Iodine in the cell body and fixing the number density. The cell is then operated 10-20 °C above the cold-finger set temperature and the Iodine in the cell is a super-heated vapor with a set number density. The result is a molecular cell with a very stable absorption spectra.

Iodine-vapor cells with a manifold are 3-in.-dia, 5-in.-long or 10-in.-long Pyrex cells. Standard cells are manufactured with 1/4 gm of iodine (actual pressure determined by temperature of water cooling jacket at the time of operation). In addition, transitions can be pressure broadened with buffer gas supplied by user through a fill-port. Both models are EAR99.

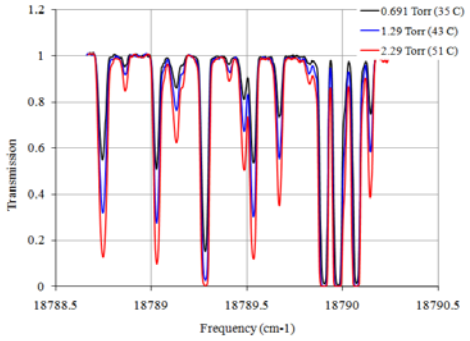
Packaged I2M-10 with thermocouples and heater.

SPECIFICATIONS FOR I2M-5

Length	125-mm
Diameter	76-mm
Housing	Anodized Aluminum
Mounting Options	1/4 -20 Threaded
Maximum Operating Temperature	130 °C
Thermocouple	Type T
Set Point	30°C – 50 °C

SPECIFICATIONS FOR I2M-10

Length	250-mm
Diameter	76-mm
Housing	Anodized Aluminum
Mounting Options	1/4 -20 Threaded
Maximum Operating Temperature	130 °C
Thermocouple	Type T
Set Point	30°C – 50 °C



Transmission versus frequency for 5-inch iodine cell at a range of cold-finger (vapor pressure) set points.

Side view of I2M-10 cell design.

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