

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.



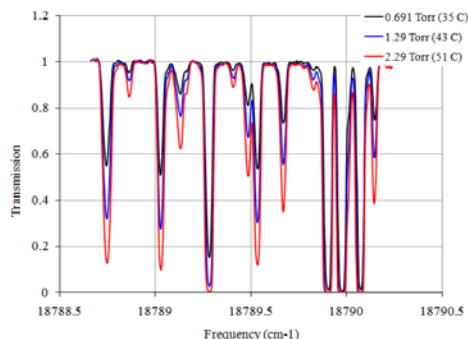
Packaged I2M-10 with thermocouples and heater.

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.

Innovative Scientific Solutions, Inc.
 7610 McEwen Road, Dayton, OH 45459
 Phone (937) 630-3012 Fax (937) 630-3015

email: spalluconi@innsi.com
 web: www.psp-tsp.com

Any and all underlying information and technology contained in this document may be subject to U.S. export controls, including the Export Administration Act (50 U.S.C. Appx. §§ 2401 et seq.) and the Export Administration Regulations ("EAR", 50 C.F.R. Parts 730-774), and may be subject to export or import regulations in other countries. You are responsible for complying with all trade regulations and laws both foreign and domestic. Except as authorized by law or distributor agreement with ISSI, you agree and warrant not to export or re-export the information to any country, or to any person, entity, or end-user subject to U.S. export controls, including without limitation persons or entities listed on the U.S. Department of Commerce Bureau of Export Administration's Denied Parties List and the U.S. Department of Treasury's Specially Designated Nationals. You further represent and warrant that no U.S. federal agency has suspended, revoked, or denied your export privileges.