

The PB8300-050 multi-pass sample cell is shown with Bakman PB1319 photomixers installed.*

Applications

- Microwave and THz Spectroscopy
- Gas Mixture Analysis and Characterization

Features

- Full adjustable path-length up to 4 meters in an enclosure less than 30 cm long.
- Designed so that the entrance and exit beams do not pass through the atmosphere.
- Light weight construction weighing less than 2.5 kg with all of the internal and external components.
- Designed to be athermal for as little impact to fringe spacing as possible.
- On the fly adjustable head spacing to allow fine tuning of the fringe pattern.
- Vacuum sealed enclosure constructed from hard anodized aluminum and carbon fiber.

Multi-pass Sample Cell for Terahertz Spectroscopy

The Bakman Technologies' PB8300-050 multi-pass sample cell is specifically designed to work in the sub-mm and THz regime of the electromagnetic spectrum and integrate with the Bakman line of PB7200 and PB7300 frequency domain THz spectrometers. With a path-length of up to 5 meters, the cell dramatically increases the detection sensitivity when performing molecular spectroscopy and the athermal design incorporates reflective optics so the instrument remains aligned even with pressure and temperature changes. Further, the coupling optics are integrated into the sample cell so atmospheric gases do not contaminate your measurements.

Performance Highlights

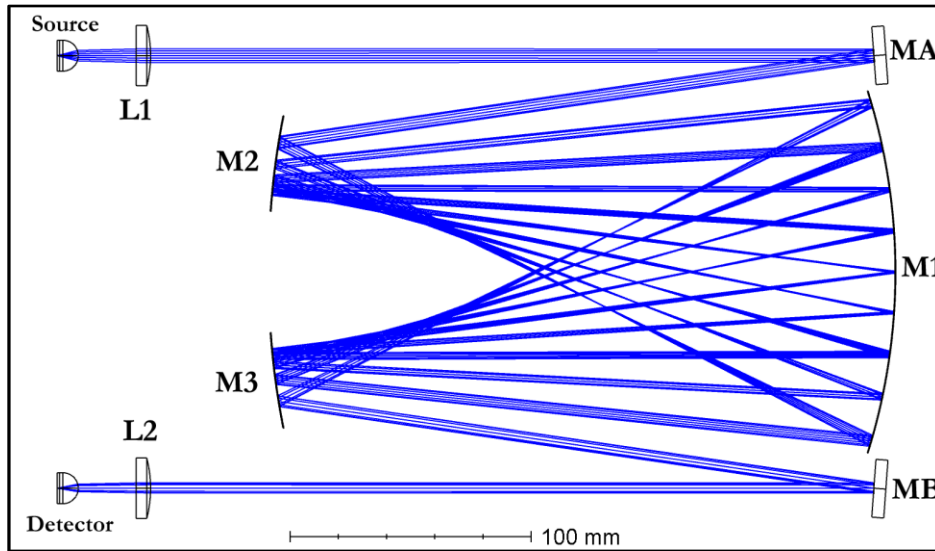
Parameter	Min	Typical	Max	Units
Operational Bandwidth	200		2500	GHz
Sample Path-length (approximate)	1		5	meters
Insertion Loss @ 200 GHz **		5	10	dB
Insertion Loss @ 1000 GHz **		5	10	dB
Insertion Loss @ 2200 GHz **		5	10	dB
Vacuum limit		10		mTorr
Mass ***			2.0	Kg
Operating Temperature	-55		85	C

* THz heads, gauges and valves not included.

** Bakman Technologies photomixers must be used to achieve reported losses.

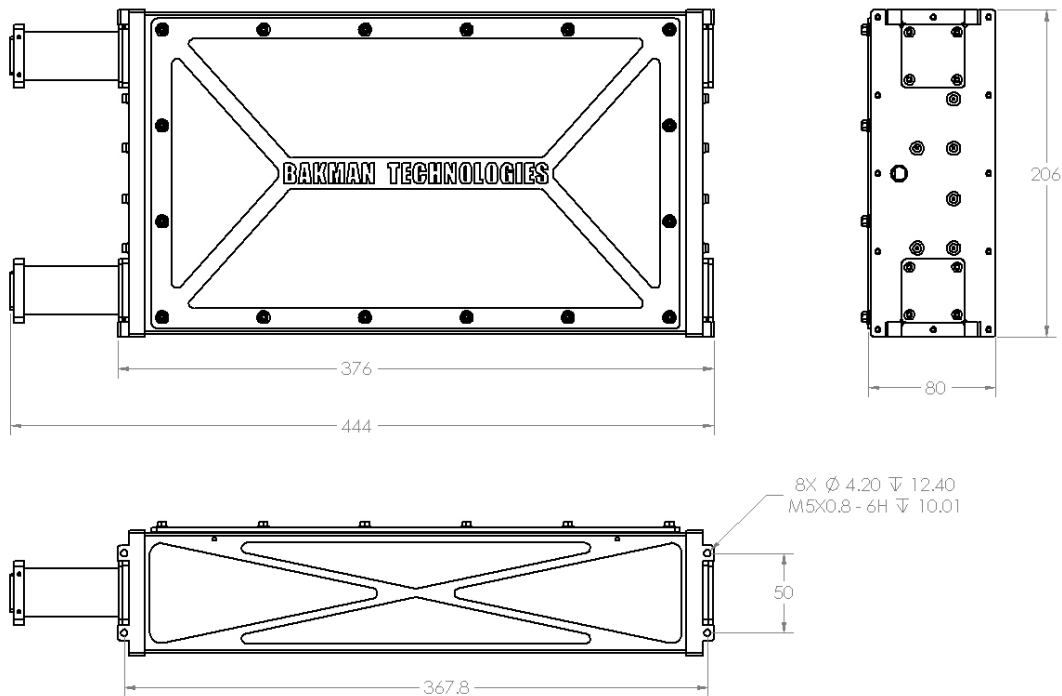
*** Mass does include THz optics but does not include photomixing heads, gauges nor valves.

Optical Path

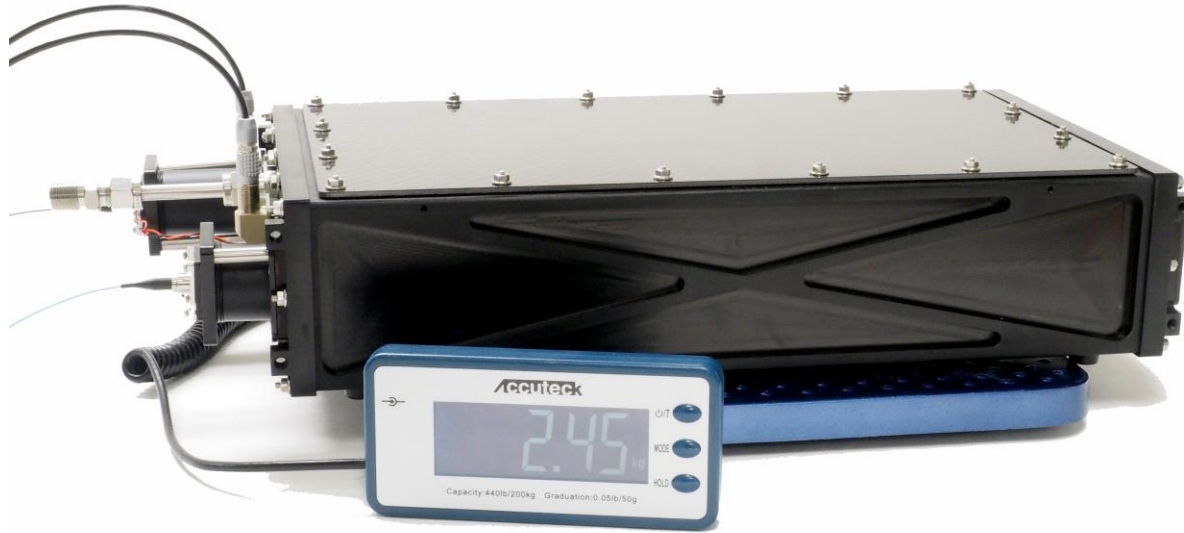


The figure above illustrates the theoretical optical schematic for the PB8300-050. Mirrors 2 and 3 can be positioned to change the overall pathlength of the cell while mirror 1 may be moved to change the position of the focus point.¹ Please note that this illustrates the theoretical number of bounces. Actual results will vary.

White Cell Dimensions



¹ White; Tittel (2002). "Tunable infrared laser spectroscopy". *Annual Reports on the Progress of Chemistry, Section C*. RSC Publishing. **98**: 219–272.



Contact Information

USA (HEADQUARTERS)	EUROPE
<p>Dr. Joseph R. Demers Bakman Technologies E: sales@bakmantechologies.com</p> <p>www.bakmantechologies.com</p>	<p>Dr. Frank Kubacki EQ Photonics E: fkubacki@eqphotonics.de</p> <p>www.eqphotonics.de</p>