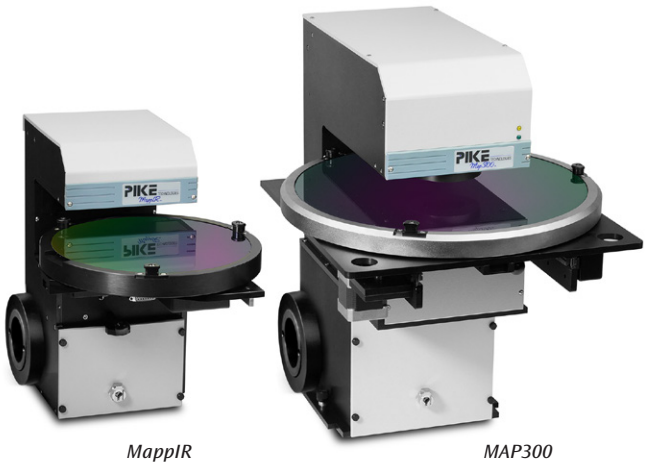
PIKE TECHNOLOGIES

AUTOMATED ACCESSORY

MappIR and MAP300 – *For Automated Analysis of Semiconductor Wafers*



MappIR *MAP300*

FEATURES

- **Complete hardware and software package for automated, multi-position measurements and mapping of semiconductor wafers**
- **8-inch (200-mm) and 12-inch (300-mm) semiconductor wafer handling.**
- **Optional inserts for wafer sizes from 2 to 12 inches**
- **EPI, BPSG, oxygen and carbon determination**
- **Specular reflectance and transmission sampling – standard**
- **Purgeable accessory for removal of atmospheric interferences**
- **USB controller interface**

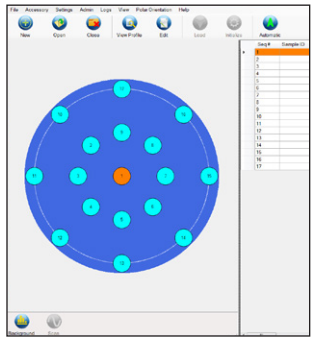
PIKE Technologies offers fully automated accessories for the analysis of semiconductor wafers. Our MappIR and MAP300 accessories provide for analysis of EPI, BPSG, oxygen and carbon in wafer sizes ranging from 2 to 12 inches (50 to 300 mm).

The MappIR and MAP300 have been developed to provide the semiconductor industry with affordable, automated tools for research and quality control of silicon wafers. The MappIR was developed for the analysis of 8-inch (200-mm) and smaller semiconductor wafers. The MAP300 is a larger version of this original design and it is capable of handling 12-inch (300-mm) wafer formats. The operation, electronics and software are identical for both systems.

The MappIR and MAP300 accessories mount in the sample compartment of the FTIR spectrometer. Semiconductor wafers are held in place by spring-loaded Delrin retaining clips and are never in contact with the aluminum stage of the accessory. A standard size slot for a vacuum or mechanical wand is provided for ease of wafer handling. Individual wafers are rotated and/or translated by stepper motors in a sequence pre-programmed by the system operator.

To minimize interferences of water vapor and carbon dioxide with infrared measurements, the optical path of the accessories is equipped with purging lines and can be purged with dry air or nitrogen. A wafer purge enclosure is offered as an option.

The accessories are controlled by AutoPRO software which provides a simple user interface for multiple point wafer analysis (mapping). Up to 320 points with 8-mm beam and 5-mm edge exclusion can be measured on a 12-inch wafer. The software provides ample flexibility in setting up various experiments.



Advantages of the AutoPRO Package

- Graphical and intelligent user interface for setting up mapping patterns
- Selection of wafer size, IR beam diameter and edge exclusion
- Operator-selectable or pre-defined multiple point maps
- Polar and/or Cartesian coordinates options
- Real-time display of the experiment status
- Ability to save and recall various experimental patterns
- COM-enabled interface for use with macros/scripting
- KLA and CSV file importer

Data collection and processing is provided by the spectrometer software. A number of FTIR manufacturers offer dedicated packages which fully integrate the accessory with the spectrometer. If such an option is not available, AutoPRO can be controlled by the spectrometer's program via macros. AutoPRO is Windows compliant and when run separately, it allows configuration, programming and control of the accessory.

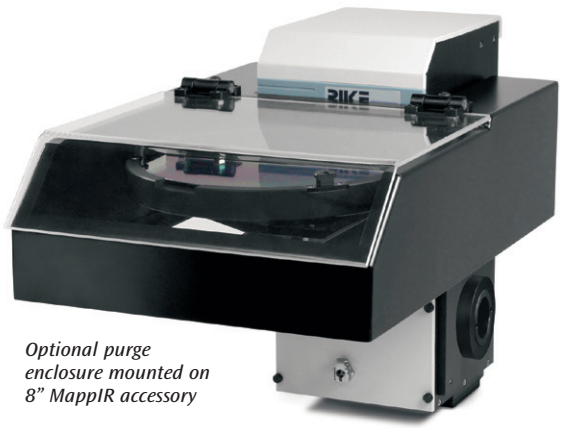
PIKE automated wafer accessories are compatible with most commercial FTIR spectrometers and software packages.

Ordering Information

MappIR and MAP300 Automated Semiconductor Wafer Accessories

Part Number	Description
016-28XX	MappIR Accessory for 8” Wafers *Includes wafer mount, motion control unit, AutoPRO software and mount for your FTIR*
016-29XX	Purge-Ready MappIR Wafer Accessory for 8” Wafers *Includes wafer mount, motion control unit, AutoPRO software and mount for your FTIR (order purge enclosure separately)*
017-28XX	MAP300 Accessory for 12” Wafers *Includes wafer mount, motion control unit, AutoPRO software, mount for your FTIR and insert to support 8” wafers*

Notes: Replace XX with your spectrometer’s Instrument Code. Click for List >
P/N 017-28XX is purge enclosure ready. Order optional purge enclosure separately.

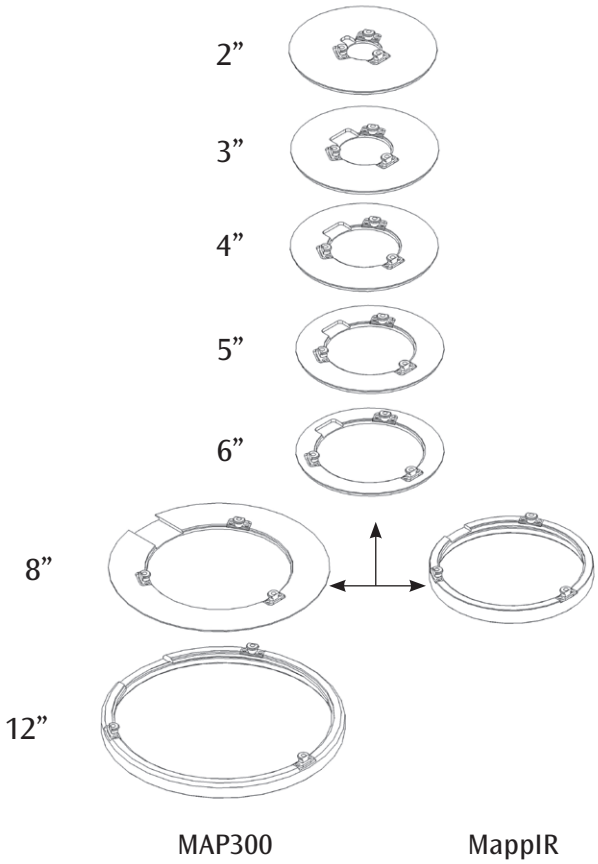


Optional purge enclosure mounted on 8” MappIR accessory

Options for the MappIR and MAP300 Accessories

Part Number	Description
073-3880	Additional 8” Wafer Mount (MappIR only)
073-3800	Blank Support – for custom wafers (MappIR only)
017-3912	Additional 12” Wafer Mount (MAP300 only)
017-3980	Insert to Support 8” Wafer (MAP300 only)
073-3860	Insert to Support 6” Wafer
073-3850	Insert to Support 5” Wafer
073-3840	Insert to Support 4” Wafer
073-3830	Insert to Support 3” Wafer
073-3820	Insert to Support 2” Wafer
016-3000	Purge Enclosure for MappIR
017-3000	Purge Enclosure for MAP300

Notes: ***Purge enclosure will not fit with all spectrometer types.*** For more options or additional information, contact PIKE Technologies.



6125 Cottonwood Drive, Madison WI 53719 • (608) 274-2721 • info@piketech.com • www.piketech.com
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