

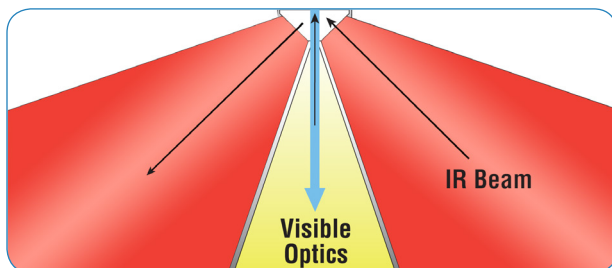
GladiATR Vision – Diamond ATR with Sample View



FEATURES

- View through diamond crystal – easily find sample point
- 110X magnification – find and position small sample areas
- USB image capture – document sample image
- Diamond crystal design – scratch and fracture resistant
- Highest energy throughput design – for excellent quality FTIR spectra and minimum scan time
- All reflective optics – full spectral range for mid-IR and far-IR analysis
- Optional heated, viewing crystal plate

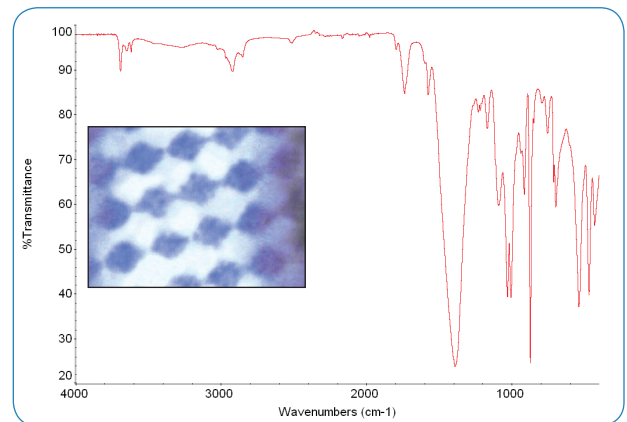
The GladiATR Vision™ is a novel sampling tool which couples small area infrared analysis with simultaneous viewing. Samples are placed face down and positioned on the diamond crystal while its image is projected in real-time on the LCD screen. Finding and optimizing the sample placement for specific analysis areas is easy and fast! Analysis of thick or non-transparent samples is no problem because viewing is through the diamond crystal.



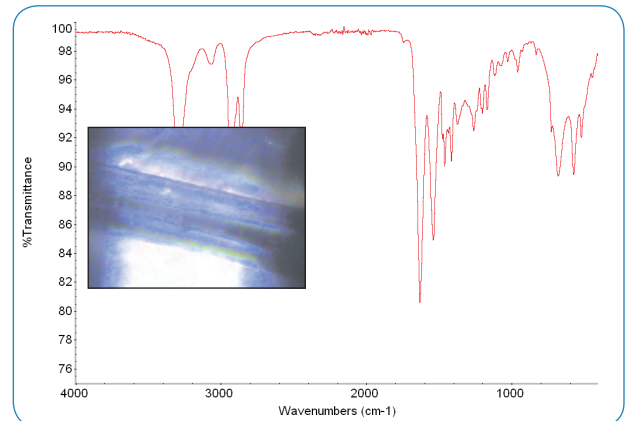
Diamond crystal plate of the GladiATR Vision accessory. IR beam and visible illumination meet at the sample position.

The GladiATR Vision accessory utilizes an innovative optical design with IR beam and visible optical image converging at the sample position – ensuring that “What you see is what you sample!” The 110X magnification of the sample image enables the positioning of even relatively small samples into the center of the diamond crystal for optimized analysis. Analysis of samples as small as 50 microns in size is doable with the GladiATR Vision accessory. Visible images from the GladiATR Vision are of highest quality color rendition because its refractive optics are fully transparent.

The GladiATR Vision optical design is all reflective, preserving the full spectral range inherent to diamond. For standard mid-IR FTIR spectrometers, the spectral range available with the GladiATR Vision will be 4000–400 cm^{-1} . For FTIR spectrometers equipped with far-IR optics, the spectral range is extended to less than 50 cm^{-1} .



ATR spectrum of print area on paper run on GladiATR Vision with diamond crystal. Image of the analysis area is shown in the inset. Spectral range is 4000–400 cm^{-1} with standard FTIR optics.






ATR spectrum of 200-micron fiber run on GladiATR Vision with diamond crystal. Compressed fiber image is shown with the spectrum.

Temperature controlled crystal plates are available for thermal study of materials. The resistively heated diamond Vision plate has a temperature range from ambient to 210 °C. PIKE Technologies offers temperature controllers with digital and PC programmable set points with TempPRO software (sold separately). This allows for easily programmed temperature profiles and unattended data collection with most FTIR software platforms. For applications requiring temperatures from sub-ambient to 210 °C, liquid jacketed plates are available.

The viewing specular reflection plate transforms the GladiATR Vision into a 45 degree specular reflection accessory, uniquely allowing the sampling spot, such as a defect, to be easily located. With the small spot size of 3 mm, you can be confident of your sampling point.

The GladiATR Vision diamond ATR is available in configurations to fit most FTIR spectrometers.

| SPECIFICATIONS | |
|---|--|
| ATR Crystal Choices | Diamond, Ge (non-viewing) |
| Crystal Plate Mounting | User changeable plates |
| Crystal Type | Monolithic |
| Diamond Mounting | Brazed |
| Crystal Plate Mounts | Stainless steel |
| Angle of Incidence | 45 degrees, nominal |
| Crystal Dimensions (surface) | 3.0 mm diameter |
| Optics | All reflective |
| Pressure Device | Rotating, continuously variable pressure; click stop at maximum |
| Digital Force Adapter (option) | Load cell sensor for precise and reproducible pressure control. Attaches directly to GladiATR clamp. Digital readout. For ambient temperature measurements only. |
| Maximum Pressure | 30,000 psi |
| Sample Access | 80 mm, ATR crystal to pressure mount |
| Spectral Range, Diamond | 4000 to 30 cm ⁻¹ (IR optics dependent) |
| Viewing | Integrated 4" LCD |
| Magnification | 110X magnification |
| View Area | 770 x 590 microns |
| Optional Image Save | USB image capture |
| Viewing Mode | Through diamond crystal |
| Input | 100–240 V, auto setting, external power supply |
| Output | 1.5A/12 VDC, 18 W maximum |
| Heating Options | Diamond, 210 °C maximum Ge, 130 °C maximum |
| Accuracy | +/- 0.5% of set point |
| Sensor Type | 3 wire Pt RTD (low drift, high stability) |
| Temperature Control | Touch-panel display with USB interface. PIKE TempPRO software (sold separately) for PC control with unlimited ramps and automated data collection. |
|    | |
| Input | 100–240 VAC, auto setting, external power supply |
| Output | 4A/24 VDC 100 W maximum |
| Specular Reflection Option | Viewing, 45 degree nominal angle of incidence |
| Purge Sealing | Purge tubes and purge line connector included |
| Accessory Dimensions (W x D x H) | 140 x 225 x 340 mm (excludes FTIR baseplate and mount) |
| FTIR Compatibility | Most, specify model and type |

ORDERING INFORMATION

GLADIATR VISION BASE OPTICS

(must select one)

PART NUMBER DESCRIPTION

026-19XX GladiATR Vision Base Optics

Notes: Replace XX with your spectrometer's Instrument Code listed on page 164. GladiATR Vision Base Optics versions include purge tubes, illumination power supply, purge kit and spectrometer base mount. USB interface software included enables image capture on your PC.

GLADIATR STAINLESS TOP

(must select one or more)

PART NUMBER DESCRIPTION

026-2004 GladiATR Vision Stainless Top

026-2005 GladiATR Vision Heated Stainless Top

026-2006 GladiATR Vision Liquid Jacketed Stainless Top

CRYSTAL PLATES FOR GLADIATR VISION

(must select one or more)

PART NUMBER DESCRIPTION

026-2102 GladiATR Vision Diamond Crystal Plate

026-2050 Ge Crystal Plate (non-viewing)

026-2202 Specular Reflection Plate (viewing)

026-2200 Specular Reflection Plate (non-viewing)

Notes: GladiATR Crystal Plates are pinned-in-place. Changing crystal plates is easy and fast to optimize sampling results. Only the GladiATR Vision Diamond Crystal Plate and viewing Specular Reflection Plate are compatible with sample viewing.

HIGH-PRESSURE CLAMP FOR GLADIATR VISION

(must select for solid or powdered samples)

PART NUMBER DESCRIPTION

026-3020 High-Pressure Clamp

076-6026 Digital Force Adapter for High-Pressure Clamp

Notes: The High-Pressure Clamp is required for analysis of solids, powders and for use of liquids retainer and/or Digital Force Adapter (Digital Force Adapter may be used with samples at ambient temperature only). Pressure clamp includes a flat tip, a swivel tip and a concave tip.

GLADIATR VISION TEMPERATURE CONTROLLED CRYSTAL PLATE

PART NUMBER DESCRIPTION

026-4101 Heated Diamond Crystal Plate, 210 °C (viewing)

026-4050 Heated Ge Crystal Plate, 130 °C (non-viewing)

026-4112 Liquid Jacketed Diamond Crystal Plate, 210 °C max (viewing)

076-1610 Digital Temperature Control Module

007-0207 PIKE TempPRO Software

Notes: For heated diamond crystal plates, maximum crystal temperature is 210 °C. Ge becomes optically opaque at 150 °C. Maximum recommended temperature for this crystal is 130 °C. Temperature controller is required for heated crystal plates. If PC control is desired, TempPRO software must be purchased (sold separately from Temperature Control Module). Liquid jacketed crystal plates require customer-provided circulator.

GLADIATR VISION SAMPLING OPTIONS

PART NUMBER DESCRIPTION

026-5012 Flow-Through Attachment, 100 µL

026-5013 Liquids Retainer and Volatiles Cover Set

026-3051 Volatiles Cover

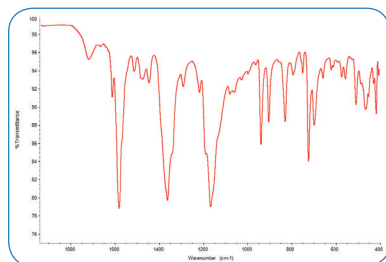
026-5010 Liquids Retainer

Note: Flow-Through Attachment and Liquids Retainer are compatible with all crystal offerings (High-Pressure Clamp required).

Dedicated GladiATR and GladiATR Vision Sampling Tools – More Options to Address Your Specific Application Requirements

Extended Range Ge Crystal Plate

Due to the compact crystal size and the all reflective optics of the GladiATR platform, the Ge Crystal Plate offers an extended spectral range from 4000–450 cm^{-1} . A Ge ATR crystal is used to measure samples with a high refractive index. Types of high refractive materials that would benefit from sampling on the extended range Ge ATR crystal are carbon black filled samples and inorganic materials such as oxides, aluminas, titania, and minerals. The Ge crystal plate (non-viewing) may be fitted to the GladiATR or GladiATR Vision. Crystal plates are easily interchangeable. A heated version is available.



Spectrum of malachite green oxalate collected using the GladiATR with Ge crystal plate.

Specular Reflection Plate

The GladiATR may be converted from an ATR accessory to a specular reflection accessory by using the Specular Reflection Plate. A viewing Specular Reflection Plate is available for the GladiATR Vision. The angle of incidence is 45 degrees, and plate is easily interchangeable with ATR plates.



GladiATR Specular Reflection Plate

Temperature Control

The GladiATR and GladiATR Vision can be fitted for temperature control by configuring the accessory with a liquid jacketed or resistively heated diamond or Ge plate. When coupled with the digital temperature controller, unlimited temperature ramps are easily programmed using PIKE TempPRO software (sold separately), which also interfaces with many FTIR software packages for data collection as a function of time or temperature.



Heated GladiATR with Temperature Control Module

Flow-Through Attachment

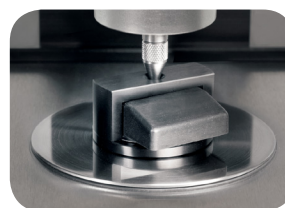
The Flow-Through Attachment is used for continuous monitoring or handling samples that pose a hazard from ambient exposure. Samples are introduced using the Luer-Lok fitting by connecting a syringe or a flow line. 1/16 inch compression fittings are optional. The High-Pressure Clamp is required.



Flow-Through Attachment

Liquids Retainer and Volatiles Cover

The Liquids Retainer offers a trough configuration for GladiATR and GladiATR Vision. The volatiles cover reduces the amount of evaporation of a highly volatile liquid sample placed on the surface of the crystal. The High-Pressure Clamp is required.



Liquids Retainer and Volatiles Cover Set

ORDERING INFORMATION

GLADIATR AND GLADIATR VISION OPTIONS

| PART NUMBER | DESCRIPTION |
|-------------|---|
| 026-2050 | Ge Crystal Plate (non-viewing) |
| 026-4050 | Heated Ge Crystal Plate, 130 °C (non-viewing) |
| 026-4100 | Heated Diamond Crystal Plate, 210 °C (non-viewing) |
| 026-4101 | Heated Diamond Crystal Plate, 210 °C (viewing) |
| 026-4102 | Heated Diamond Crystal Plate, 300 °C (non-viewing) |
| 076-1610 | Digital Temperature Control Module |
| 007-0207 | PIKE TempPRO Software |
| 026-4110 | Liquid Jacketed Diamond Crystal Plate (non-viewing) |
| 026-4112 | Liquid Jacketed Diamond Crystal Plate, 210 °C max (viewing) |
| 026-2200 | Specular Reflection Plate (non-viewing) |
| 026-2202 | Specular Reflection Plate (viewing) |
| 026-5012 | Flow-Through Attachment, 210 °C, 100 μL |
| 026-5014 | Flow-Through Attachment, 300 °C, 100 μL |
| 026-5013 | Liquids Retainer and Volatiles Cover Set |
| 026-5010 | Liquids Retainer |
| 026-3051 | Volatiles Cover |
| 026-5015 | Liquids Retainer and Volatiles Cover Set, 300 °C |

Notes: The heated crystal plates require a temperature control module and appropriate stainless steel top. For more heated options, please review the GladiATR and GladiATR Vision accessory product data sheets. If PC control is desired, PIKE TempPRO software (sold separately) can be used for graphical setup and automated data collection with most FTIR spectrometers for thermal experiments.