Specac

Product Datasheet

Gateway 6-Reflection Horizontal ATR

A multibounce ATR with a large area crystal

The larger crystal area and multiple reflection ATR gives the Gateway increased sensitivity to low absorbing components in more complex matrices, such as food and biological samples. Advanced options for heated and flowing samples are available.

26 µm effective pathlength @ 1000 cm^{-1}

Key Features of the Gateway

- **Large area ATR crystal with 6 reflections**
  Increases the effective pathlength and allows for sampling of heterogeneous or slightly absorbing samples such as oils, foodstuffs, and solutions containing suspended solids or microorganisms.
- **Interchangeable top-plates**
  Control of temperature and sample flow rate can be achieved with various designs of crystal plate. The crystal itself can be ZnSe, Ge, or Si.
- **Pressure clamp for solid samples**
  Applies a load to ensure good contact with the ATR crystal.
- **Purgeable optics to reduce atmospheric interference**

Advanced sampling options

Electrically heated trough plate

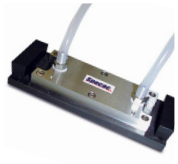
A trough plate for measuring static samples under open conditions at temperatures up to 200 °C.

Fluid heated trough plate

Heated by circulating fluid for greater thermal stability. Can be heated to 90 °C.

Liquid flow-through plate (heated)

Plate is fitted with a 550 µL chamber for flowing samples over the ATR crystal. Can be heated to 90 °C via a thermocirculating fluid.

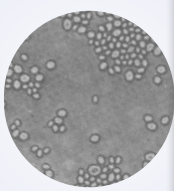


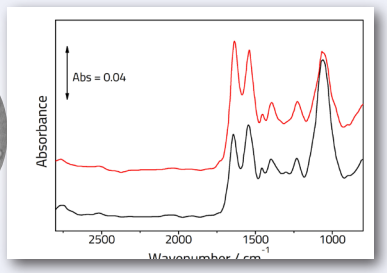
Liquid flow-through plate (unheated)

Unheated sample chamber of 550 µL volume for flowing samples over the ATR crystal.

Application: analysis of Yeasts

- Multibounce ATR is useful for sampling of whole organisms such as yeasts and other bacteria in aqueous suspensions.
- The low spatial coverage of organisms in the solution is mitigated by the larger crystal area of the Gateway ATR, which gives more reproducible results for inhomogenous samples.
- The ability to control the temperature via a thermostabilised top-plate allows for careful subtraction of water signals from the aqueous solutions.





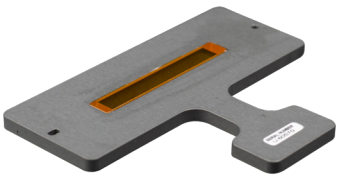
Specifications

Feature	Specification
ATR angle of incidence	45 degrees
Number of bounces	6
Sampling area	70 x 10 mm
ATR crystal materials	ZnSe, Si, or Ge
Sealing materials	Isolast (trough plates) epoxy resin (flat plates)

Materials	Transmission range, cm^{-1}	Refractive index	Depth of Penetration @ 1000 cm^{-1}	Effective Pathlength for 6 bounces
Zinc Selenide (ZnSe)	7,800-550	2.43	2.0 µm	26.1 µm
Silicon (Si)	8,000-1350 & 500-33	3.42	0.9 µm	5.9 µm
Germanium (Ge)	5,500-600	4.0	0.7 µm	3.7 µm

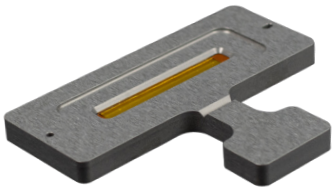
Note: values for depth of penetration and effective pathlength assume a sample refractive index of 1.5. See our **tech note TN21-02** for more information.

Flat versus Trough plates



Flat plate

These plates are good for powder and solid samples that require close, firm contact with the crystal. The pressure clamp provided as standard with the accessory presses the samples against the whole top-surface of the plate.



Trough plate

In these plates the ATR crystal is recessed back from the top surface of the plate to capture liquid samples and prevent them from spilling over. All of our heated and flow-through top-plates feature a trough design.

Ordering Information

Complete Gateway combination system

Includes optical base unit two ZnSe top-plates (one flat, one trough), Benchmark™ baseplate, plus pressure clamp and accessories.

GS11165	Gateway ZnSe 6-Reflection Horizontal ATR

Additional crystal top-plates

GS11133	Flat sample plate with ZnSe prism
GS11134	Flat sample plate with Si prism
GS11135	Flat sample plate with Ge prism
GS11166	Trough sample plate with ZnSe prism

Heated and flow-through top-plates

GS11116	Flow-through top-plate with ZnSe prism
GS11118	Heated flow-through top-plate with ZnSe prism
GS11139	Fluid heated trough plate with ZnSe prism
GS11155	Electrically heated top-plate with ZnSe prism
GS11145	Replacement ZnSe prism for heated & flow-through plates
GS11146	Replacement Si prism for heated & flow-through plates
GS11147	Replacement Ge prism for heated &flow-through plates
GS11132	Volatiles Cover for Gateway top-plates

Note: please specify spectrometer make and model when ordering to receive the correct Benchmark™ baseplate.

For temperature controllers specify country of use.

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