

# UPG-150-ART

<https://www.gigahertz-optik.com/en-us/product/upg-150-art/>

**Product tags:**



# Description

## UPG-150-ART - multi-functional integrating sphere for reflection, transmission and radiant power in the infra-red spectral range

### Photometry to determine key material properties

Key material properties is a general term used to refer to the reflection, transmission and absorption properties of a material. Photometry hereby refers to a measurement process through which these properties are determined using a photometer.

### Integrating sphere photometer

The integrating sphere is very important in both broadband and narrow-band photometric applications for diffuse sample illumination and detection of the reflected and transmitted light proportions.

### Gold coating

Gold has a high, constant spectral reflectance within the spectral range between 800nm and 20µm. Integrating spheres with gold coatings are therefore ideally used for applications in the infrared spectral range. Gigahertz-Optik exclusively uses pure gold characterized by a 95% reflectance to coat its integrating spheres for IR applications. The roughness of the inner sphere surface is designed for optimum diffuse reflectance.

### UPG-150-ART precision integrating sphere

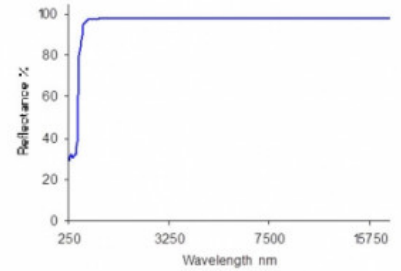
With the 150mm diameter, the UPG-150-ART provides a good compromise in terms of precision of the sphere function and level of the measurement signal. Its production from a solid aluminum block ensures a very precise alignment of the measurement ports to each other. Another characteristic property are the thin circumferential knife-edges of the measurement ports that enable a high acceptance angle for diffuse light.

### Multifunctional integrating sphere

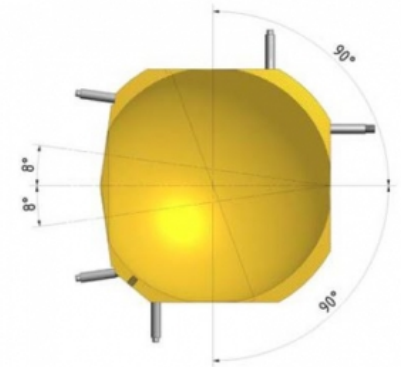
The UPG-150-ART is ideal for multiple functions through its five knife-edged measurement ports that can be used either while open or closed. Possible measurement setups include:

- 0°/d Reflection
- 8°/d Reflection with or without gloss
- 0°/d directed and diffuse transmission
- Measurement with sample absorption correction
- Two-ray measurement setups
- Radiant power measurements

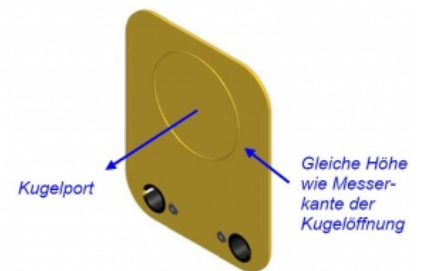
### Accessories for individual sphere assemblies



Typical spectral reflectance of the pure gold sphere coating



Alignment of the five measurement ports of the UPG-150-ART enables universal use of the sphere.



The front side of the port plugs and port reducers and sphere surface are at the same level and thus ensure an almost ideal reflection surface

Port plugs and port reducers that can easily be fixed and removed using the Slide & Fix holder are offered for either closure or reduction of ports. An important feature of the UPB-150-ART is that the front side of the plugs and reducers projects into the port and is on the same level as the sphere surface.

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#### **Universal sample holder**

The sample holder is slid and fixed onto the posts of the Slide & Fix holder and ensures secure mounting of thin and thick samples. An important feature of the Slide & Fix system is that it can be combined with port reducers and a light trap.

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#### **Light trap with Slide & Fix holder**

The light trap has a 30mm input port and ensures minimal back reflection over the entire usable spectral range of the integrating sphere through its internal design and black absorbing coating. The Slide & Fix holder can be used to combine the light trap with port reducers and the sample holder.

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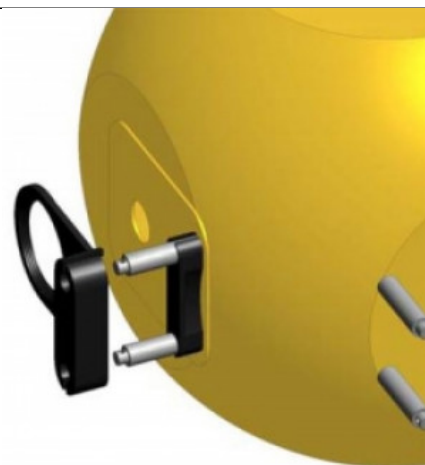
#### **Quick-change holder for detectors and light guides**

Removable adapters are offered for mounting of detectors and light guides. Each has a baffle that can be aligned to the five measurement ports accordingly depending on the measurement application. The UMPA port adapters of our modular integrating spheres can hereby be used.

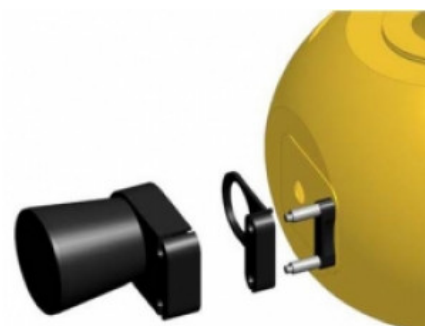
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#### **Gold coating also available as a service**

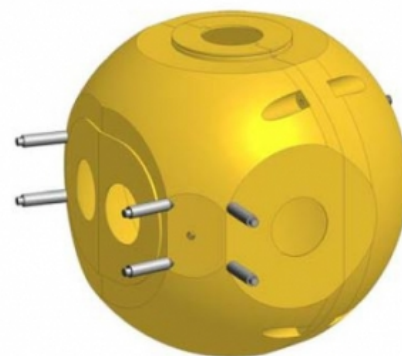
We offer gold coatings for integrating spheres or other parts also as a service. Please contact us with your specific request.



*UPG-150-ART multi-port integrating sphere with Slide & Fix system for mounting of accessories.*



*Light trap for absorption of the transmitted light proportion of transparent samples in 8°/d reflectance measurement setup. Additional port reducer.*



*UPG-150-ART, integrating sphere*



*UPG-150-ART-Z01, port plug*



*UPG-150-ART-Z02-3, 3mm port reducer*



*UPG-150-ART-Z02-15, 15mm port reducer*



*UPG-150-ART-Z02-25, 25mm port reducer*



*UPG-150-ART-Z03, sample holder*



*UPG-150-ART-Z04, light trap*



*UPG-150-ART-Z05, 0.5" detector adapter with baffle*



*UPG-150-ART-Z06, 1.0" detector adapter with baffle*



*UPG-150-ART-Z07, 2.0" detector adapter with baffle*

## Specifications

### General

Short description Five port integrating sphere for universal use in transmission and reflection measurement application in the infrared spectrum.

Main features Coating with pure Gold for highest possible reflection within the IR spectrum. Machined out of solid material. Therefore very precise spherical shape, position of the application ports and finish of the knife edges of the application ports. Accessory for the application ports with Slide&Fix mounting System. Detector port with baffle.

Measurement range Diameter: 150 mm (6 inch)  
Coating: pure gold, 95 % reflectance (850 nm to 20  $\mu$ m)  
Application ports: five, 30 mm diameter with knife edge, post for Slide&Fix accessory  
Detectorport: exchange able Adapters with baffle

Typical applications IR spectrophotometer. Other IR transmission and reflection measurement set-ups.

Calibration -

### Product

Sphere diameter 150 mm

Coating ODG95 pure gold

Measurement Port Diameter 30 mm

Knife edge thickness 0.5 mm (knife edge design)

Number of measurement ports Five

Angle tolerance of port setup  $\pm 0.1^\circ$

Accessories Every two removable posts of the Slide & Fix System

Aperture 30 mm with a circumferential frame ( $\varnothing = 58$  mm) with a lateral V-notch

Mounting Flat base with four M5 threaded holes within a 50 mm pitch circle

### Miscellaneous

Weight	Approx. 1.6 kg
Dimensions	see download section
<b>Options</b>	
UPG-150-ART-Z01	Port plug. Sphere surface coated with ODG95.
UPG-150-ART-Z02	Port reducer. Aperture diameter specified by customer set in 0.1 mm steps. Sphere surface coated with ODG95.
UPG-150-ART-Z02-3	Port reducer. 3 mm aperture. Sphere surface coated with ODG95.
UPG-150-ART-Z02-15	Port reducer. 15 mm aperture. Sphere surface coated with ODG95.
UPG-150-ART-Z02-25	Port reducer. 25 mm aperture. Sphere surface coated with ODG95.
UPG-150-ART-Z03	Sample holder
UPG-150-ART-Z04	Light trap
UPG-150-ART-Z05	UMPF-0.5 Detector adapter with Baffle. Sphere surface and baffle coated with ODG95.
UPG-150-ART-Z06	UMPF-1.0 Detector adapter with Baffle. Sphere surface and baffle coated with ODG95.
UPG-150-ART-Z07	UMPF-2.0 Detector adapter with Baffle. Sphere surface and baffle coated with ODG95.

## Downloads

Type	Description	File-Type	Download
Datasheet	Dimensions UPG-150-ART	pdf	<a href="https://www.gigahertz-optik.com/assets/Uploads/102265-upg-150-art.pdf">https://www.gigahertz-optik.com/assets/Uploads/102265-upg-150-art.pdf</a>
Datasheet	Dimensions UPG-150-ART-Z01	pdf	<a href="https://www.gigahertz-optik.com/assets/Uploads/102266-upg-150-art-z01.pdf">https://www.gigahertz-optik.com/assets/Uploads/102266-upg-150-art-z01.pdf</a>
Datasheet	Dimensions UPG-150-ART-Z02	pdf	<a href="https://www.gigahertz-optik.com/assets/Uploads/102267-upg-150-art-z02.pdf">https://www.gigahertz-optik.com/assets/Uploads/102267-upg-150-art-z02.pdf</a>
Datasheet	Dimensions UPG-150-ART-Z02-3	pdf	<a href="https://www.gigahertz-optik.com/assets/Uploads/102309-upg-150-art-z02-3.pdf">https://www.gigahertz-optik.com/assets/Uploads/102309-upg-150-art-z02-3.pdf</a>
Datasheet	Dimensions UPG-150-ART-Z02-15	pdf	<a href="https://www.gigahertz-optik.com/assets/Uploads/102310-upg-150-art-z02-15.pdf">https://www.gigahertz-optik.com/assets/Uploads/102310-upg-150-art-z02-15.pdf</a>
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Datasheet	Dimensions UPG-150-ART-Z03	pdf	<a href="https://www.gigahertz-optik.com/assets/Uploads/102268-upg-150-art-z03.pdf">https://www.gigahertz-optik.com/assets/Uploads/102268-upg-150-art-z03.pdf</a>
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Datasheet	Dimensions UPG-150-ART-Z05	pdf	<a href="https://www.gigahertz-optik.com/assets/Uploads/102270-upg-150-art-z05.pdf">https://www.gigahertz-optik.com/assets/Uploads/102270-upg-150-art-z05.pdf</a>



Type	Description	File-Type	Download
Datasheet	Dimensions UPG-150-ART-Z06	pdf	<a href="https://www.gigahertz-optik.com/assets/Uploads/102271-upg-150-art-z06.pdf">https://www.gigahertz-optik.com/assets/Uploads/102271-upg-150-art-z06.pdf</a>
Datasheet	Dimensions UPG-150-ART-Z07	pdf	<a href="https://www.gigahertz-optik.com/assets/Uploads/102272-upg-150-art-z07.pdf">https://www.gigahertz-optik.com/assets/Uploads/102272-upg-150-art-z07.pdf</a>

## Purchasing information

Article-Nr	Modell	Description
<b>Product</b>		
15297574	UPG-150-ART	Integrating sphere
<b>Accessories</b>		
15297575	UPG-150-ART-Z01	Port plug
15297576	UPG-150-ART-Z02	Port reducer. xx aperture diameter set in 0.1mm steps. xx =
15297628	UPG-150-ART-Z02-3	Port reducer 3mm
15297629	UPG-150-ART-Z02-15	Port reducer 15mm
15297630	UPG-150-ART-Z02-25	Port reducer 25mm
15297577	UPG-150-ART-Z03	Sample holder
15297578	UPG-150-ART-Z04	Light trap
15297579	UPG-150-ART-Z05	UMPF-0.5 Detector adapter
15297580	UPG-150-ART-Z06	UMPF-1.0 Detector adapter
15297581	UPG-150-ART-Z07	UMPF-2.0 Detector adapter

## Contact, Calibration, Service & Support

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- Technical Consulting & Sales
- After-Sales Support
- Calibrations & Re-Calibrations ([ISO/IEC 17025 Calibration Services](#), [factory calibration](#), [Calibration of Third-Party Products](#))
- Repairs & Updates
- OEM & Feasibility Consulting of Customized Solutions

[Send us your inquiry](#) or contact us by phone or e-mail. We would welcome your feedback too or review us on [Google](#).

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