HARPIA | TG

NEW

Transient Grating Spectrometer

FEATURES

- Carrier diffusion coefficient in a matter of minutes!
- Non-invasive measurement technique
- Fully automated and computer controlled
- Continuous setting of grating period
- Sensitivity down to μJ/cm² excitation level
- Advanced measurement and analysis software

HARPIA-TG is a transient grating spectrometer for carrier diffusion coefficient and lifetime measurements. It operates as a non-invasive and non-destructive pump-probe spectrometer exciting the sample with laser interference and, subsequently, recording the transient grating – spatial refractive index modulation. A delayed beam probes the modulation decay, which corresponds to the carrier diffusion. By automated change of the grating period, the technique provides a detailed information on the dynamics of carrier propagation.

Coupled with CARBIDE or PHAROS laser with integrated optical parametric amplifier (I-OPA), the compact system is fully automated and computer-controlled via advanced measurement and analysis software. Thus, the user only needs to put the sample in the holder and start the measurement to obtain the diffusion coefficient in a matter of minutes.

SPECIFICATIONS

Model	HARPIA-TG
Grating recording wavelength [1]	300 – 450 nm
Grating period [2]	2 – 10 μm
Probe wavelength [3]	1030 nm
Temporal resolution	< 290 fs
Delay range	Up to 8 ns

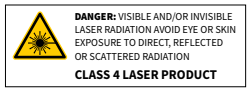
DIMENSIONS

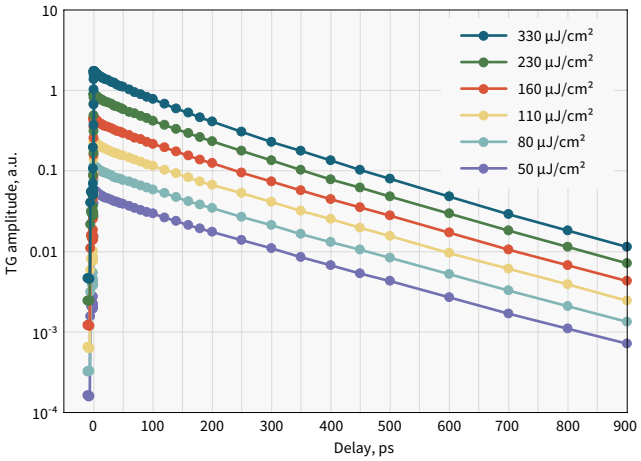
Physical dimensions (L × W × H)	730 × 420 × 188 mm

[1] Extendable to VIS–NIR by applying different physical gratings. Contact sales@lightcon.com for details.

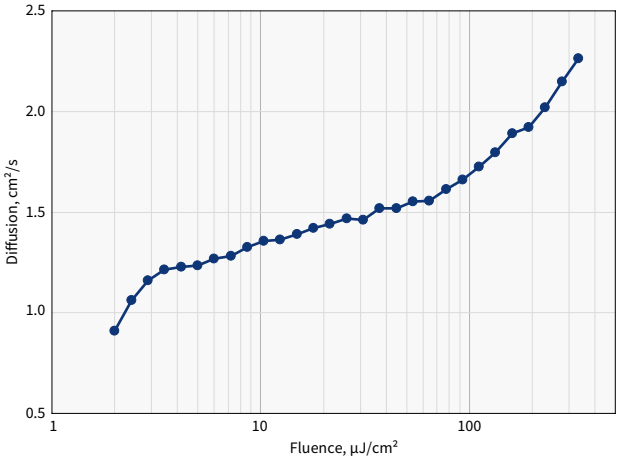
[2] Depends on the recording wavelength used. Typically, as low as 1 μm.

[3] SH (515 nm) or OPA-based probe is available upon request. Contact sales@lightcon.com for details.





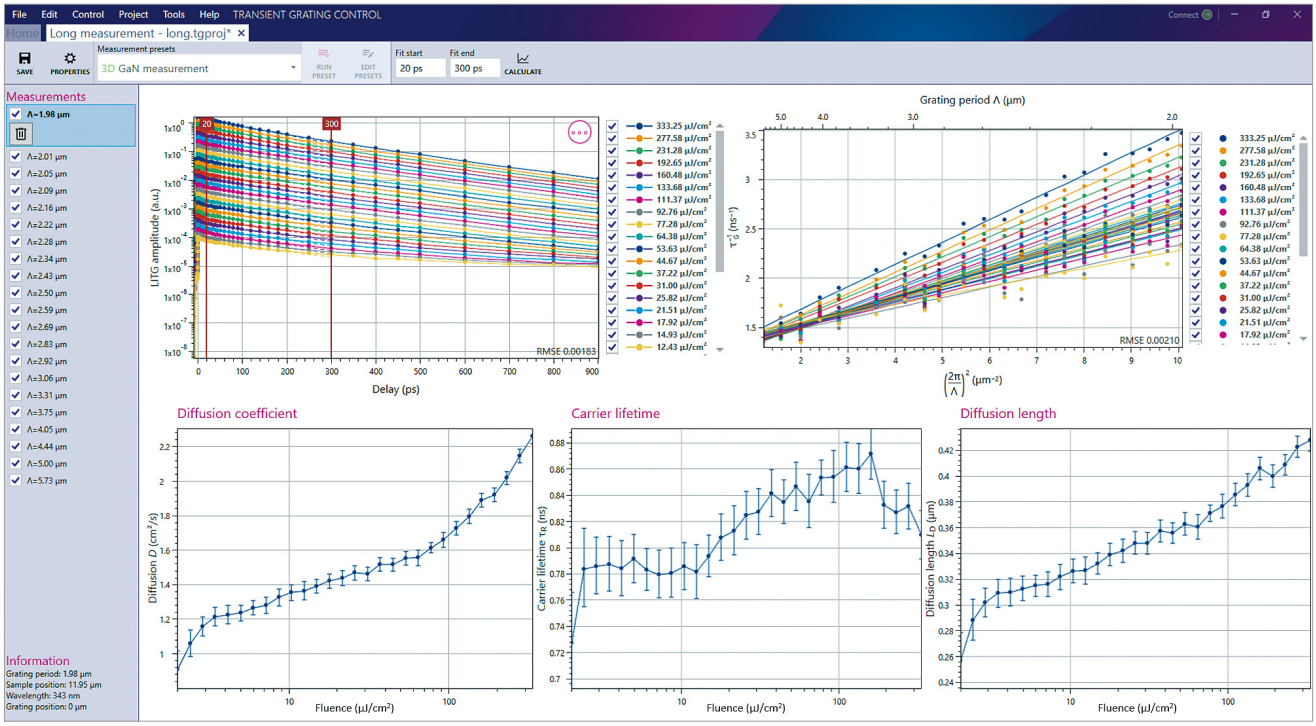
Transient grating decay of GaN at different fluence



Diffusion coefficient of GaN as a function of fluence

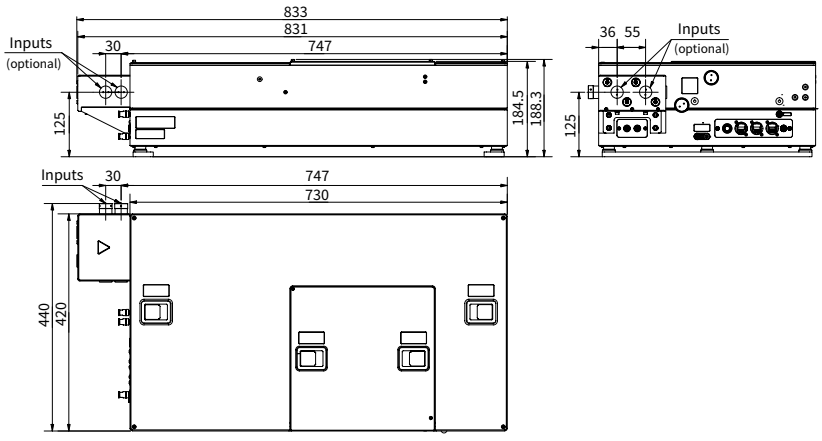
SOFTWARE

HARPIA-TG offers a dedicated software that enables fully automated selection of pump and probe parameters and grating period, thus, making the measurements of diffusion coefficient and carrier lifetime as simple as possible.



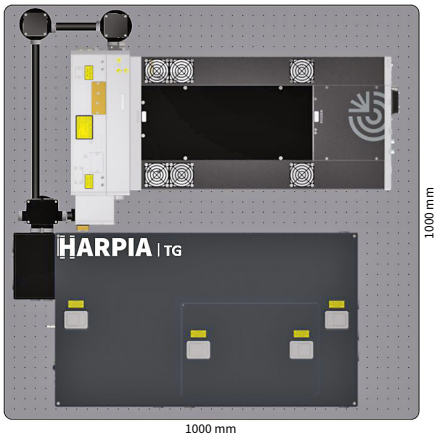
HARPIA-TG software, transient grating control window

DRAWINGS



Drawing of HARPIA-TG

RECOMMENDED LAYOUT



Recommended layout with CARBIDE-CB5 and I-OPA