Terahertz source redefined

> TeraCascade 1000 series

Compact. Easy. Powerful.

PRISM AWARDS WINNER

Lytid
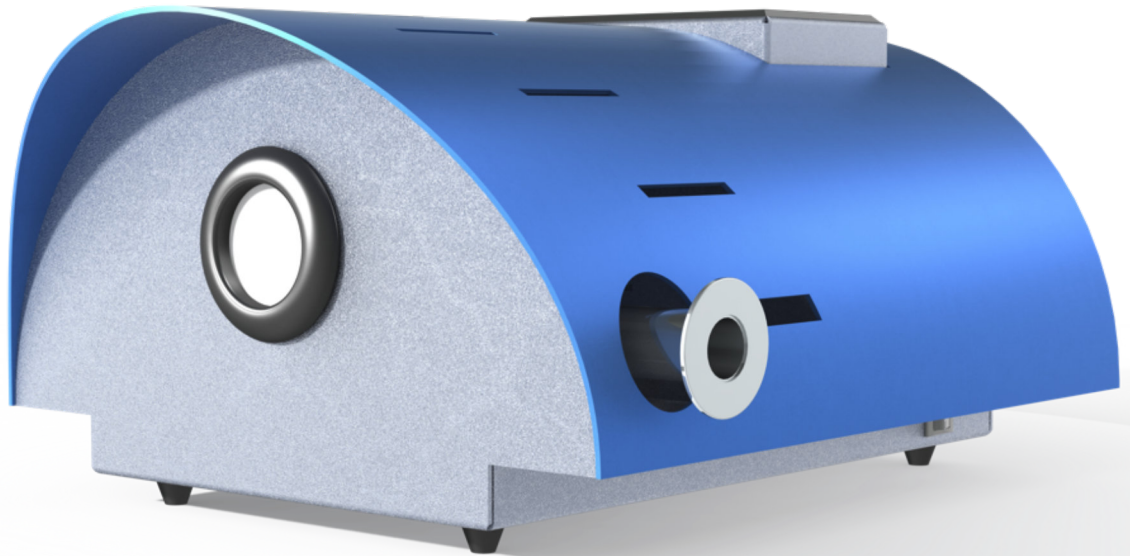
Convinced of the potential of terahertz technology, we have developed over the past few years a next-generation terahertz source. We consider that in order to harness this potential, terahertz waves have to be more accessible. TeraCascade has been developed in the spirit of making available this technology to demanding people who want to explore this field. The TC1000 series is a compact, powerful, reliable, user-friendly and fully integrated system. It releases you from the source management complexity and lets you focus on your application.

Lytid,
dedicated to terahertz technologies

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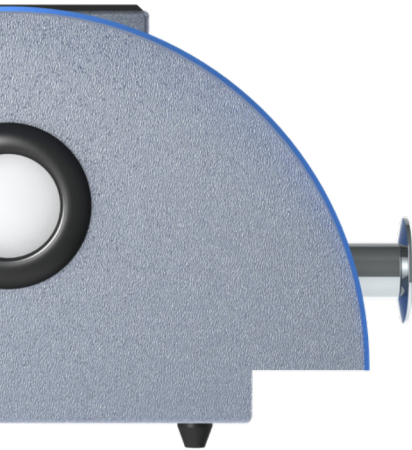
Several publications in the most recognized scientific journals

❯

The TC series uses state-of-art QCL technology

Our vision
Lytid is a company dedicated to the advancement and distribution of terahertz technologies across the world. We believe that terahertz is the next big thing in technology. Like the electronics and optical industry, it has the potential to change the world, as we know it, through technological progress.

15 years of applied research
Our scientific background builds on more than 15 years of applied research at the MPQ lab of the Paris Diderot University. Under the supervision of Prof. Carlo Sirtori, co-inventor of the QCL technology, we have published work in several of the most recognized scientific journals.

Dozens of lasers delivered
Many academic and industrial laboratories have called upon our know-how in terms of design, fabrication and characterization of THz sources based on QCL technology. For example we have already delivered over 50 laser chips to the CEA (French national research center for atomic energy).

A new generation of THz sources
Today, Lytid has developed a next-generation THz source that will redefine terahertz applications. We are proud to present TeraCascade, a fully integrated, user-friendly, compact and powerful THz source based on state-of-art QCL technology.

Reliability and versatility beyond expectation

MPQ lab ©
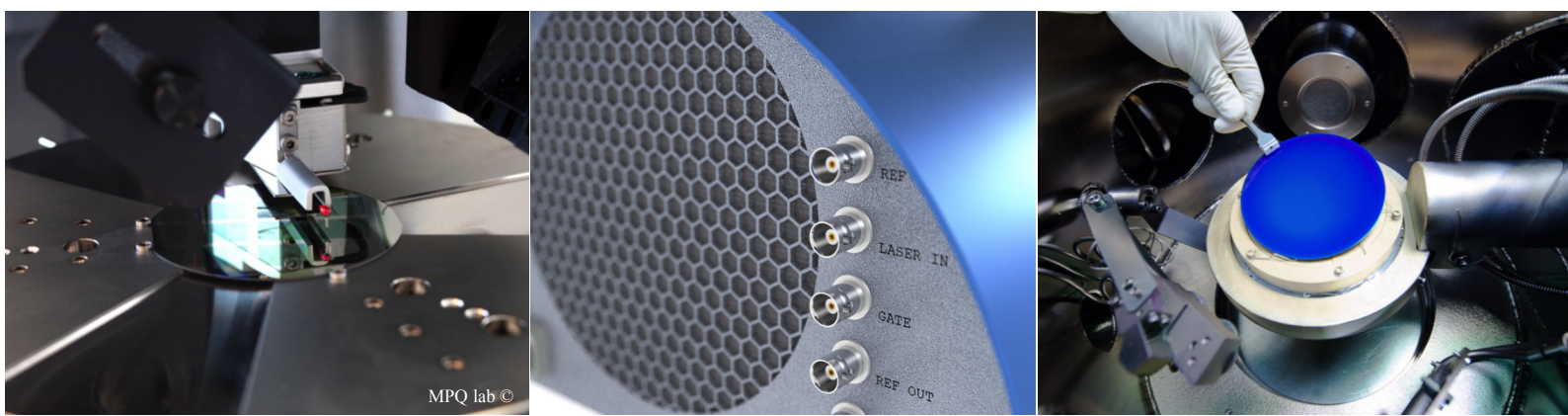
Maximum reliability

The TeraCascade laser uses the most reliable components available on the market. For example the cryo-cooler is rated for 200.000 hours of MTBF, which is equivalent to more than 23 years of 24/7 operation.

Focused on output quality

The beam quality of a laser source is a crucial point, in particular for imaging application. The TeraCascade laser offers a quasi-Gaussian beam profile and a low beam divergence for an optimal imaging capability.

Ready, whatever your application is

Versatility is one of the most important aspects. To achieve maximum flexibility in your application, we have designed a custom laser driver based on several years of user feedback. This allows you to develop any kind of applications.

State-of-art technology at everyone's reach

At Lytid, our ambition is to put terahertz technology in everybody's hands. We have therefore designed the TeraCascade laser with an automatic start-up and shutdown procedure and an easy access to all operating parameters on a touchscreen.

Fully connected

Connectivity is another key aspect of the TeraCascade model line. We have included all necessary connections to easily integrate TeraCascade into your setup.

☆ TeraCascade uses the most reliable components available

➦ The world's most user-friendly and compact high frequency THz source

TeraCascade provides all features you need in a single box

Integrated driver, provides both CW and pulsed operation.

Powerful, with >1mW of average power around 2.5 THz.

Automatic power on/off procedure, "turn-key" system.

4.3" touchscreen interface, to fully control the parameters:
– Output power
– Pulse frequency
– Duty cycle
– Driving current

Compact, volume comparable to two shoeboxes.

Light, weighs less than 10 Kg.

**Portable**, with two handles integrated in the box.

Fully connected, with BNC TTL connectors, allowing a full user control of the laser driver:
– Laser in
– Gate in
– Ref in
– Ref out
– Gate out

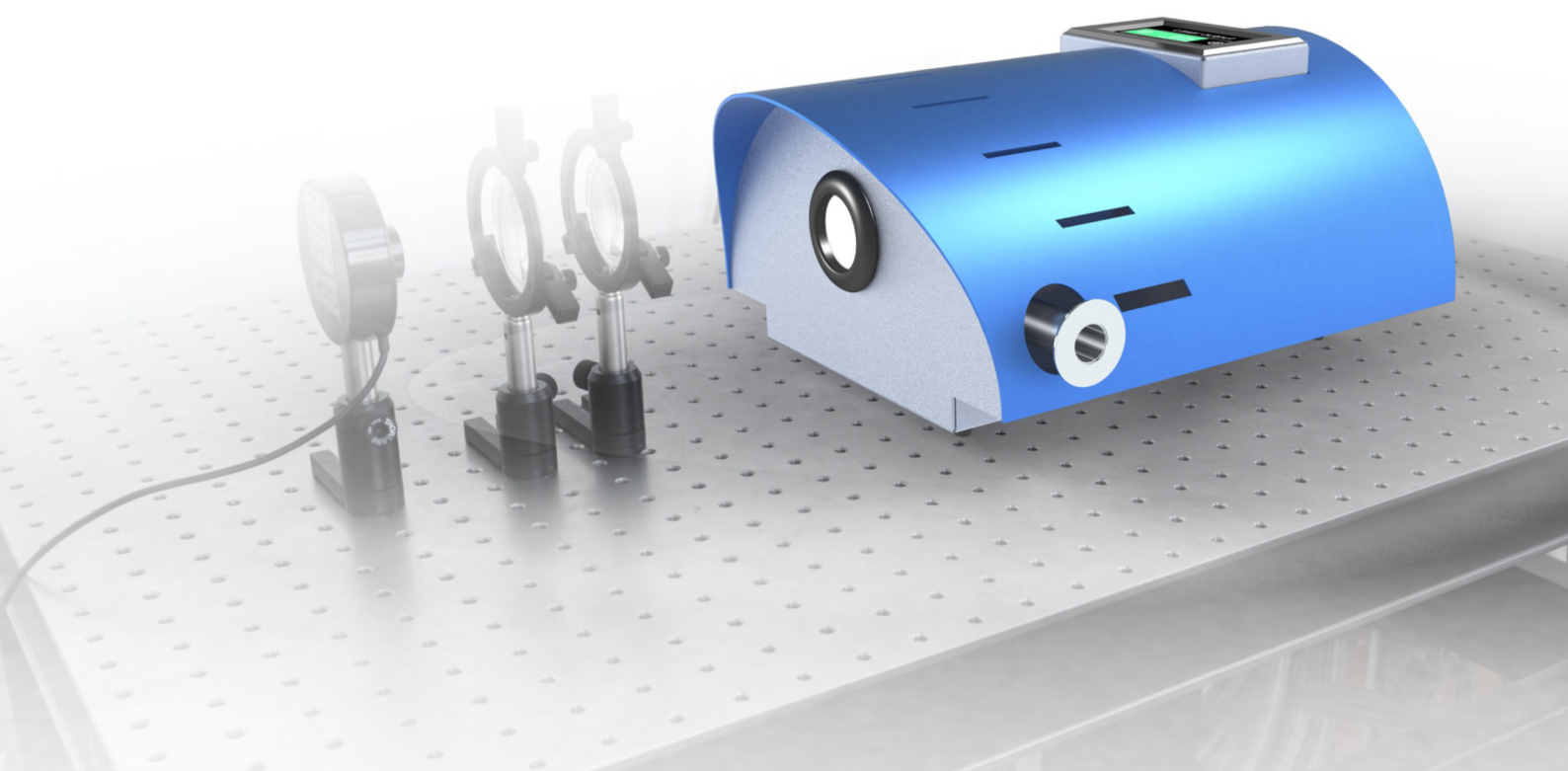**Easy setup integration**, with a USB port to control it via a PC (Labview VIs).

Quiet, featuring an automatic fan control via PID.

Protected, against vibrations and bumps with an integrated triple layers of rubber and a full structure in aluminium.
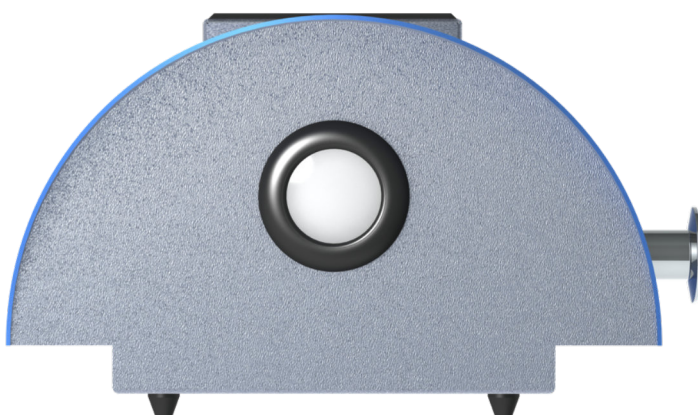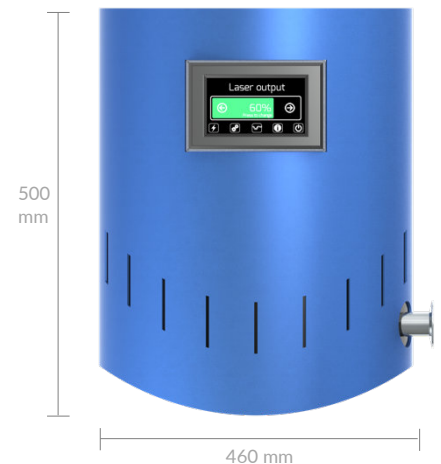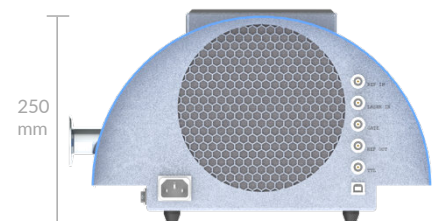
The TeraCascade 1000 series is fully integrated, ready to face any applications.

General specifications

Description	Specification
Operating temperature range	5 – 30° C
Display operating range	5 – 30° C
Storage temperature range	–20 – 55° C
Relative humidity range	5 – 80%
Safety / construction	2006/42/CE 2004/108/CE 2006/95/CE 94/9/CE 97/23/CE

Specifications and options

Specifications	TC1100	TC1010	TC1001
Optical data			
Frequency range		2.5 THz	
Wavelength		112µm	
Average output power	>1mW	0.5mW	0.1mW
Spectrum		Multimode	
Output beam		Free	
Beam shape		35° FWHM	
Electrical data			
Operation	CW / Pulsed	Pulsed	Pulsed
Pulse duration		Min 1µs	
Pulse frequency		10kHz	
Duty cycle		1–100%	
Control		USB / Labview VIs	
Power supply and operating parameters			
Voltage		100 – 240 V	
Frequency		50 – 60 Hz	
Power consumption	< 400W	< 350W	< 300W
Vacuum needed (KF25 connector)		10^{-3} mbar	
Cooldown time		< 20 min	
Dimension and weight			
Height		250mm	
Width		460mm	
Length		500mm	
Weight		< 10 Kg	
Options			
Touchscreen	✓	✓	✓
Control electronics (with touchscreen)	✓	✓	✓
Vacuum pump	✓	✓	✓

Typical caracteristics:
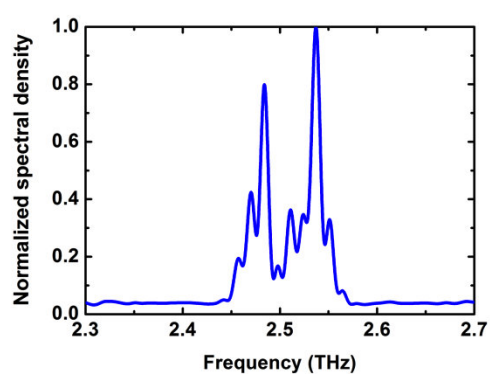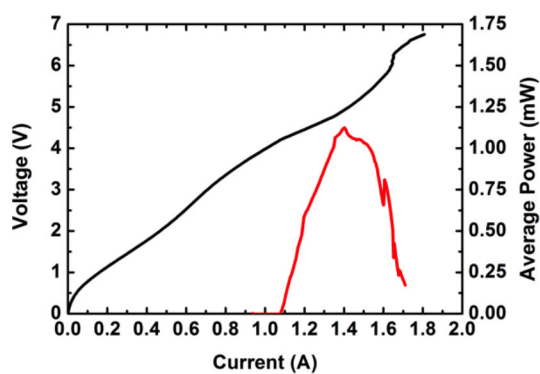
Empower your application.

Lytid SAS

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