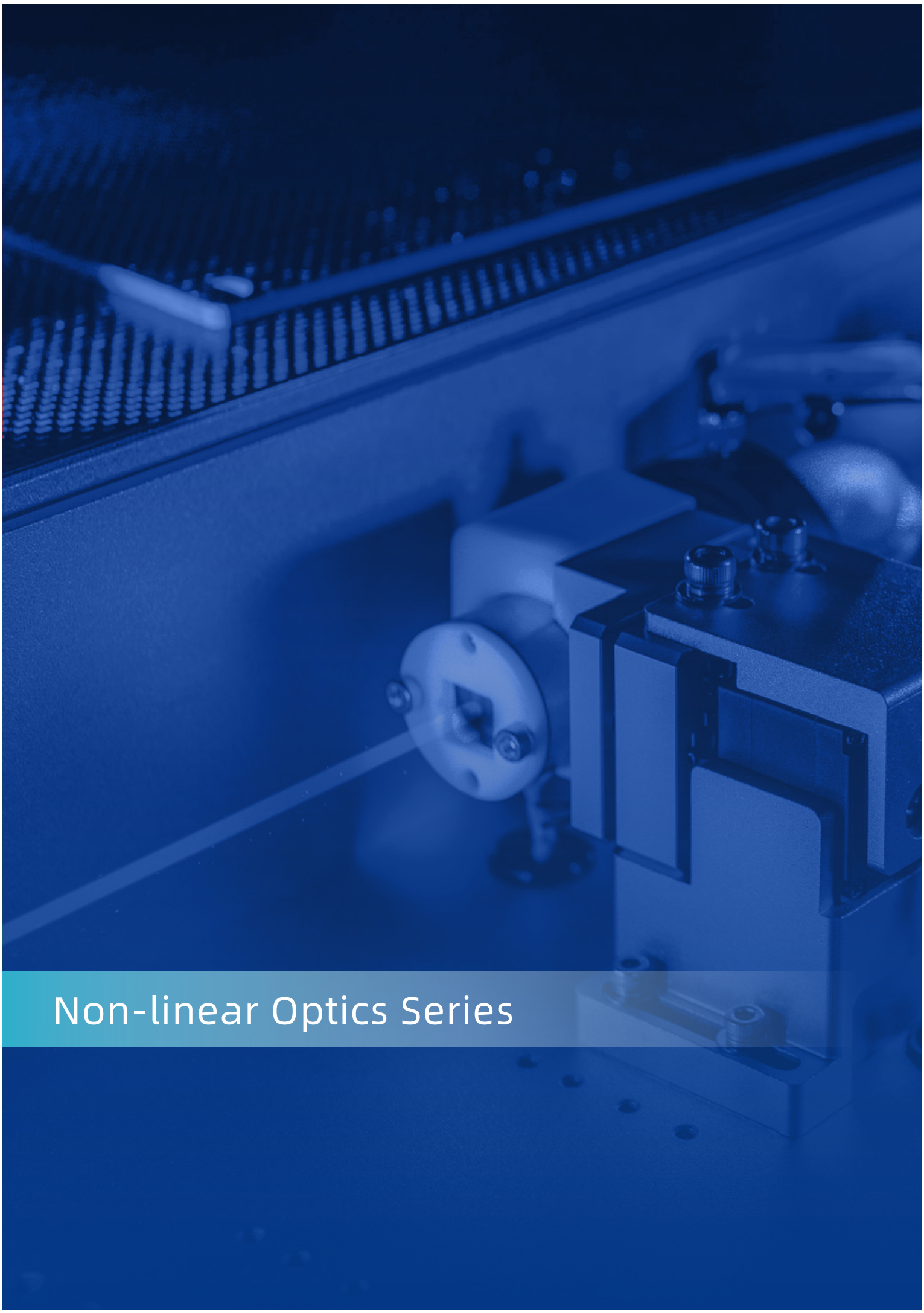


Non-linear Optics Series

Product Introduction

ZTS100

Z-Scan Testing System

ZTS100 is primarily designed for measuring the nonlinear optical absorption and nonlinear refraction properties of materials.By monitoring the changes in transmitted energy through an open-aperture and closed-aperture setup as the sample moves along the optical path, the system simultaneously measures both the nonlinear absorption coefficient and the nonlinear refraction coefficient.

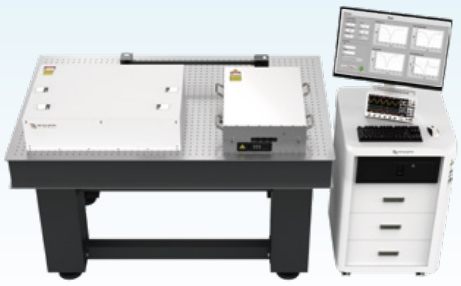
SHG100

SHG Testing System

SHG100 supports polarization-resolved SHG measurement and imaging. It rotates a waveplate to change laser polarization without moving the sample, minimizing vibration and improving SNR. Integrated with high-speed motorized stages and synchronous trigger scanning, it enables SHG imaging in seconds. The system is also compatible with fluorescence spectroscopy and lifetime detection modules.

ZTS100

·Precision Stage: 0.1 μm resolution, <2 μm repeatability.
·Broad Detection: 700-1700 nm (50 nW-40 mW).
·Anti-jitter: Dual-channel reference compensation.
·Auto-alignment: Eliminates manual Z-stage optical adjustment
·Auto-switch: Software controlled auto-switch between open and close aperture.



Specifications

Precision Optical Displacement Stage

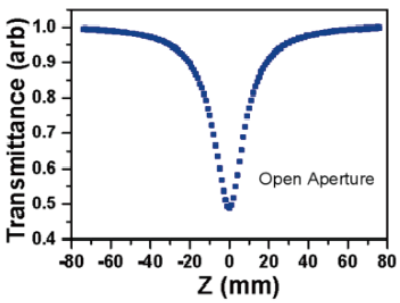
Speed	30 mm/s
Minimum resolution	0.1 μm
Repositioning accuracy	< 2 μm

Detector

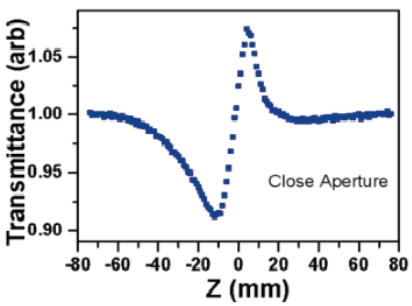
Probe wavelength	700-1700 nm
Power range	50 nW - 40 mW
Anti-jitter	Simultaneous acquisition of dual-channel reference signals
Auto-alignment module section	Range:≥ +5°
	Sensitivity: 0.7 urad
	Wavelength: 400 - 1100 nm
Software (LabVIEW-based)	Automated curve fitting (Transmittance vs. Z-position)
	Two-photon absorption (TPA) calculations
	Data processing and storage

Sample Data

Sample	Monocrystalline silicon
Excitation wavelength	1030 nm
Probe wavelength	1030 nm



Open aperture mode



Close aperture mode

SHG100

·Polarization-dependent SHG intensity mapping (polar plots)

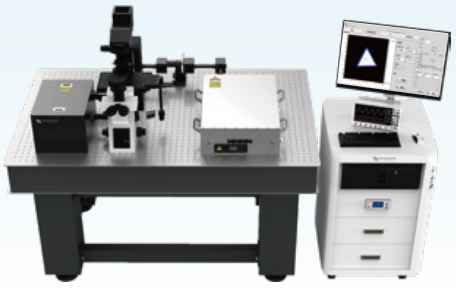
The software rotates the half-wave plate to change polarizationautomatically and measures SHG intensity as a function of input laser polarization.

·High-speed, high-resolution SHG intensity imaging (SHG mapping)

Using a synchronized high-speed stage, high-sensitivity detector, and high-speed acquisition card, the system achieves scanning speed sexceeding 700 pixels/s.

·Measurement of SHG intensity versus excitation power

Software-controlled laser power adjustment enables fast acquisition of SHG spectra under different excitation powers.

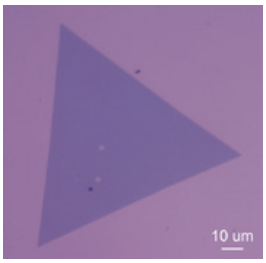


Specifications

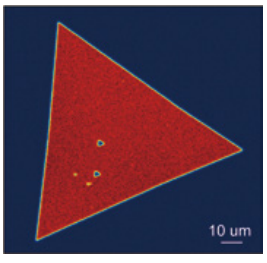
Excitation light source	1030 nm femtosecond laser (can also work with picosecond laser)
Objective magnification	50x (other magnifications available upon request)
Spatial resolution	<2 μm (50x objective)
High-speed motorized stage	Minimum step size: 50 nm
	Position repeatability: 250 nm
	Synchronized output
	Maximum scanning speed: 300 mm/s
Polarization control	Motorized
Software function	Data acquisition and processing
	ROI selection
	Field-of-view movement
	Polarization control
	Scan speed control
Extension module	Supports low-temperature stage
	Confocal fluorescence and lifetime (including electroluminescence), Raman modules

Sample Data

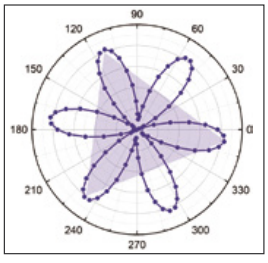
Sample of monolayer WS_2



Optical bright-field image



SHG mapping



Polarization dependent SHG intensity diagram