DXG

ENGINEERED
BY LIGHT

SPECTROSCOPY

Confocal Micro Raman Mapping System

Low Temp. Micro PL System

Macro PL(E)/ATR System

Monochromator & Light Source

WWW.DXG.KR

Ver. Jan. 2024

DXG
ENGINEERED
BY LIGHT

Annual R&D Expenditures

More than 20 % of
Annual Revenue

R&D Employees

R&D Department
25 % of Total Employees

Patents

19 Registrations
2 Applications
1 Program Registration

Year of Experience

Presented by
Fully Skilled Experts

Established in 1989,

DXG Ltd. is currently No.1 optical instruments manufacturer of PL / Raman Spectroscopy in Korea.

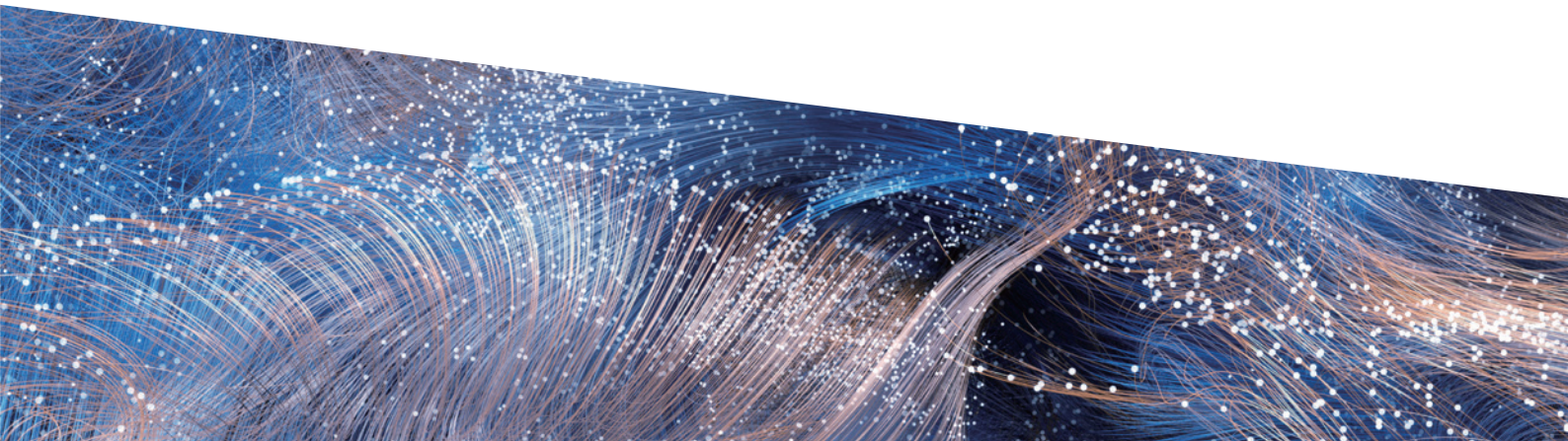
In 1989, high-quality ultra-precision spectroscopy was introduced to Korea,
and through continuous R&D activities, the first localized spectrometer was installed in 1998.

It has been produced in its own factory, and has developed high-quality PL / Raman analysis equipment so far,
and has been used by domestic and foreign universities and public universities.
We supply to research institutes and support research and development in various basic science fields.

In addition, based on many years of experience in the development / manufacturing of optical instruments,
we succeeded in developing the flue gas analyzer for the first time in Korea in 2007.
We are taking the lead in the localization of Flue Gas Analyzer and monitoring system other than
optical instrument fields now.

With 30 years of experiences in spectroscopy industry,
DXG Ltd. has been successful with satisfying our valuable customers by our experts committing to best solution ranging
from Raman / PL system to monochromator, grating, light sources, detectors and even relevant software.

Now, you see the product line being loved by our customers across the country
over the last 3 decades.



Products Summary

Raman / PL
Ramboss Star

Raman / PL
Ramboss Sports

Raman / PL
Maple II

ATR / PL
SC-100

Raman / PL
Maple Mini

Monochrome
Light Source

Monochromator
MonoRa Series

System Diagram per Line-up

Input Source

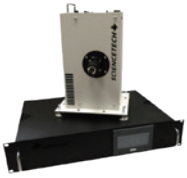
DPSS Laser

Ar ion Laser

He-Cd Laser

He-Ne Laser

785 nm Raman Laser



Xe Arc Lamp

System	Raman	PL	PLE	Confocal	Mapping
Ramboss Star	●	●		●	●
Maple II	●	●		●	●
Maple Mini	●	●			
SC-100		●	●		

Monochrome Light Source

MonoRa 200

Chamber

Ramboss Star

Maple II

Maple Mini

SC-100

Spectrograph

MonoRa 320i

MonoRa 500i

MonoRa 750i

Detector

Andor iDUS

Andor Newton

Andor iStar

iDus inGaAs

Si, InGaAs
Photodiode

Maple II | Micro Raman / PL

Key Features

- High Performance Raman PL / PLE / EL
- Compatible with Various Detectors
- High Resolved PL Mapping

Application

- Semiconductor Characterization and Testing (III-V Materials)
- GaN / ZnO LED Wafer Surface Characterization (Surface Containment, Uniformity, Reflectivity, Thickness and Bowing Test)
- Solar Cell EL Measurement
- Sensor Development for NIR Range
- Gemstone PL, Diamond by HPTP
- Development of Material of LED with GaN / GaAs
- Diamond Anvil PL
- TDIPL & IQE

Specification

Excitation source

Wavelength	266 / 325 / 532 / 632.8 / 785 / 1064 nm (Up to 6 Different Laser)
Beam Quality	<1.2 M^2
Output Power	18 / 50 / 90 / 100 / 200 mW (CW mode)

Spectrograph

Focal Length	320 mm / 500 mm (Two Exit Port)
Spectral Resolution	0.09 nm
Stray Light Rejection	1.0 * 10^-5

Sample Chamber

Wavelength	High Performance Spectroscopic Micro Sample Chamber
PC Control	Sample Stage & Filter Wheel

Detector

Type	TE Cooled CCD (Open Electrode)
Pixel Format	1024 * 256
Quantum Efficiency	59 % @ 750 nm

Software

Solis & Monoworks	User-friendly Interface for Simultaneous Detector & Spectrograph Control

Maple II System | Micro Raman / PL

Key Features

- Turn-key System From Laser to Microscope
- Fully Compatible with Various Peripheral Devices
- DXG's Own Mapping Solution Adopted

System Configuration

Input Laser Source

325 nm He-Cd Laser set Output Power	50 mW @ 325 nm
	25 mW @ 325 nm
532 nm Solid State Laser set Output Power	200 mW @ 532 nm
785 nm Stabilized Laser set Output Power	90 mW @785 nm

Sample Chamber

Large Area X-Y Stepper Motorized Stage	75 * 50 mm
	Travel Range (Typical) up to 200 * 200 mm (Optional)
	0.05 um Minimum Resolution
Power Control	PC Controlled ND Filter Wheel (Optical Density : 0 ~ 3)
Motorized Filter Wheel System	Automatically Change Depend on Input Laser Source
Beam Spot Size	<1 um @ Fulfilled Entrance Aperture & Gaussian Beam Profile, 532 nm
Objective Lens	50 x / N.A.0.55, W.D.13 mm FL : 4 mm For 400 - 1100 nm
	40x LMU-NUV/N.A.0.5, W.D.1 mm For 325 - 750 nm

Spectrograph

Focal Length	320 mm, 500 mm (Two Exit Port)
Wavelength Range	200 ~ 1000 nm (UV-VIS)
	900 ~ 1700 nm (NIR)
Resolution	0.05 nm or 0.1 nm @ 435.8 nm 1200 gr/mm Grating
	10 um Slits <2 cm - 1 @ 785 nm 2400 gr/mm

CCD Detector

CCD Detector	1024 * 256 Pixel CCD
	26 * 26 um Pixel Size
	200 ~ 1000 nm Detecting Range (95 % @ 800 nm)

Software

Features	Easy Parameter Selection
Functions	Select Monochromator, Serial Port , Turret, Grating & Current Wavelength Information, Wavelength Range, Number of Point / Resolution, Integrating Time, Accumulation
Calibration	Semi-auto Calibration

Options

Detectors for UV – VIS – NIR
Low Temp Application for TDIPL
Mapping Function for Low & High Scan Speed

Ramboss Star

Micro Raman / PL

Key Features

- Easy to Combine with Customer Microscope
- Inverted Type of Microscope Available
- Single Molecule Detection Possible

Application

- Stress Evaluation of Silicon (Si) from the Compressive Tensile Depend on the Direction of Stress in Lattice Structure with Raman Shift
- Characterization of Amorphous Silicon & CIGS Solar Cell / Quantitate the Component Concentration
- Characterization of Graphene on SiC
- Raman Spectra of Variable Carbon Materials
- Flexible LCD with CNT Clear Electrode
- Development of Bio Sensor Thro Au Ball
- Thin Film Solar Cell Crystallization (a-Si, c-Si)
- Dark Field and Raman Scattering Imaging
- Single Molecule Spectroscopy

Specification

Excitation Source

Wavelength	266 / 325 / 532 / 632.8 / 785 / 1064 nm (Up to 6 Different Laser)
Polarization	>500 : 1 Linear
Output Power	18 / 50 / 90 / 100 / 200 mW

Spectrograph

Spectral Range	320 mm / 500 mm (Two Exit Port)
Raman Shift Range	0.09 nm
Spectral Resolution	<2 cm - 1 @ 633 nm
Stray Light Rejection	1.0 * 10^-5

Sample Chamber

Microscope	Olympus , Zeiss, Nikon Series

Detector

Type	TE Cooled CCD (Open Electrode)
Pixel Format	1024 * 256
Quantum Efficiency	59 % @ 750 nm
Dark Current	0.0005 e- / Pixel / sec

Software

Solis & Monoworks	User-friendly Interface for Simultaneous Detector & Spectrograph Control

Ramboss Sports

Micro Raman / PL

Key Features

- All in One System With Olympus Body Frame
- Monochromator & Microscope Involved
- Software Controlled ND Filter Set for Beam Power

Specification

Input Laser Source

532 nm Solid State Laser set Output Power	200 mW @ 532 nm
632.8 nm He-Ne Laser set Output Power	18 mW @ 632.8 nm
785 nm Stabilized Laser set Output Power	90 mW @ 785 nm

Sample Chamber

Microscope	Olympus Microscope Body Frame with Eye Pieces
	Dichroic Filter Including Control Box
	5 Position Revolving Nose Piece
Spectral Range	VIS - NIR
Multiple Objective Lenses	5 x ~ 100 x
Beam Spot Dia.	<1 um @ x 100 Objective Lens
Automation	Software Controlled ND Filter set to Adjust Input Beam Power on Surface
	Range (UV - NIR : 300 ~ 1100 nm)
	Transmission (0.1 % ~ 93 %)
	Optical Path & Alignment Adjustable Function through Filter Wheel
Vision Camera	Sample Image & Laser Spot Monitoring
Optics	Free Space Beam Delivery System (Optional Fiber Connection)
	Long Pass Edge Filter & High Performance Mirror Assembly
True Confocal Module	Motorized & Temperature Controlled Stage

Spectrograph

Focal Length	193 mm
Wavelength Range	200 ~ 1000 nm (UV - VIS)
	900 ~ 1700 nm (NIR)
Resolution	0.1 nm @ 435.8 nm 2400 gr/mm Grating 10 um Slits <2 cm - 1 @ 785 nm 2400 gr/mm

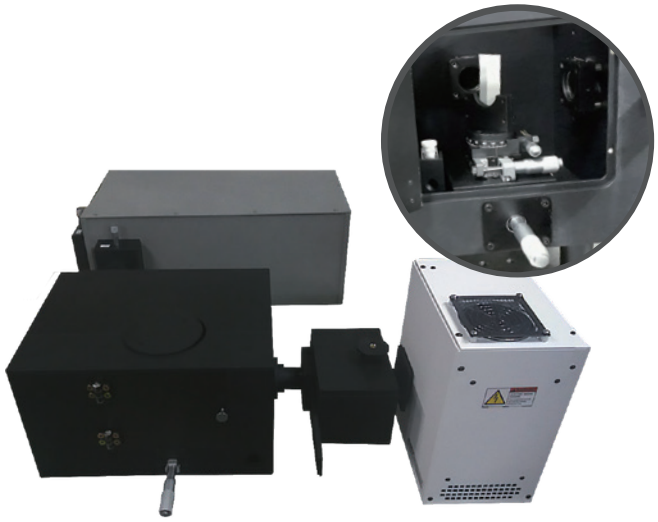
CCD Detector

CCD Detector	1024 * 256 Pixel CCD
	26 * 26 um Pixel Size
	200 ~ 1000 nm Detecting Range (95 % @ 800 nm)

Software

Features	Easy Parameter Selection
Functions	Select Monochromator, Serial Port , Turret, Grating & Current Wavelength Information, Wavelength Range, Number of Point / Resolution, Integrating Time, Accumulation
Calibration	Semi-auto Calibration

SC-100 | ATR / Macro PL



Key Features

- Ultra Low Abberation
- Compact & Economical Design
- Multiple Excitation Source

Detail Features

- Compact Modular Design
- Free or Fiber Coupled Input / Output
- Variable Laser Line Combined for Different Application up to 6 Lasers
- Time Gated System to Enhance the Signal About 100 - 10000 times
- Manual & Motorized Control : Laser Power, Input Beam Line, Orientation of Polarizer & Grating
- Compatible with Time Correlated Single Photon Counting

Specification

Excitation Source

Laser Type (Wavelength)	266 / 325 / 532 / 632.8 / 785 / 1064 nm (Up to 6 Different Laser)
Lamp Type	Xe Lamp, Halogen Lamp
Monochrome Type	MonoRa 200 & Xe Lamp

Spectrograph

Focal Length	200 / 320 / 500 mm
Spectral Resolution	0.1 nm
Stray Light Rejection	1.0 * 10^-5

Sample Chamber

Chamber Type	Compact & Simple Structure Xyθ Manual Stage for Sample Position Color & Spherical Corrected Al Mirror for Input Source & Signal

Detector

Type	PMT (R928) / Si / InGaAs
Spectral Range	185 ~ 900 nm / 900 ~ 1800 nm
Type (CCD)	TE Cooled CCD (Open Electrode)
Pixel Format	1024 * 256

Software

Functions	Select Monochromator, Serial Port , Turret, Grating & Current Wavelength Information, Wavelength Range, Number of Point / Resolution, Integrating Time, Accumulation

SC-100 System | ATR / Macro PL

Application

- Semiconductor Characterization (GaN / SiC or Si) (III-V Materials)
- Device Characterization
- Sensor Development for NIR CCD
- Gemstone PL, Diamond by HPTP, Pearl
- Development of Material of LED with GaN / GaAs
- Deep UV Diode Laser & PD Development (III-Nitrides (AlGaN) and SiC)
- Temperature Dependent PL & Internal Quantum Efficiency
- Reflectance & Transmittance measurement (SiC / Si / Sapphire Substrate)
- Photoluminescence Excitation (PLE) to Measure the Energy Levels (Properties of Absorption & Recombination)

Specification

Input Laser Source

532 nm Solid State Laser set Output Power	200 mW @ 325 nm

Sample Chamber

Chamber Type	Macro Sample Chamber for PL,Raman, RT (Optional Reflection and Transmission)
Refocusing Type	Refocusing Assembly with 45 Degree Al Mirror set
Wavelength Range	200 ~ 5000 nm
Optics & Mount	Included Suitable Optics (PLX Lens, Flat Al & Off Axis Parabolic Mirror etc.) & Mount
Iris Type	Iris Diaphragm set for Optical Path & Laser Beam Alignment
Stage Type	Rotation & Translation Manual Stage For Sample Align & Enhance the Power Density on Sample
Wavelength Range	2 degree 0.01 mm
Adjustable Range	+/- 25 mm
Extra Features	Cuvett Cell Holder and Sample Plate

Spectrograph

Focal Length	200 / 320 / 500 mm
Wavelength Range	200 ~ 1600 nm
Resolution	0.2 nm @ 435.8 nm
Accuracy	+/- 0.25 nm
Repeatability	+/- 0.04 nm

PMT Detector

PMT Detector	R955 / R928 Photomultiplier Tube
	185 ~ 900 nm Detecting Range (85 % @ 400 nm)
	16 Bit AD Converter

CCD Detector

CCD Detector	1024 * 256 Pixel CCD
	26 * 26 um Pixel Size
	200 ~ 1000 nm Detecting Range (95 % @ 800 nm)

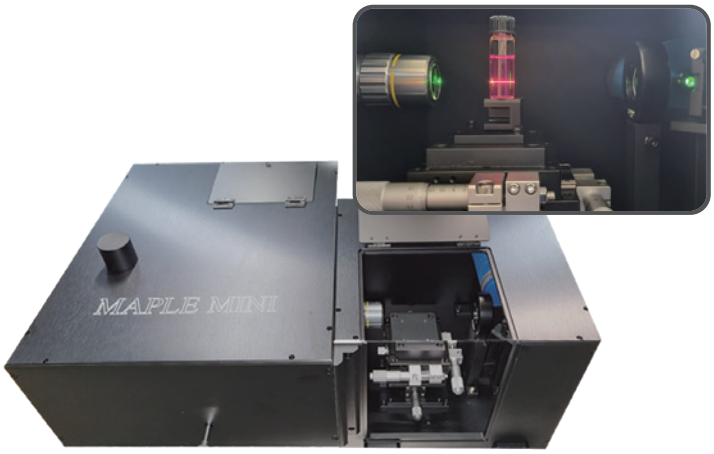
Software

Features	Easy Parameter Selection
Functions	Select Monochromator, Serial Port, Turret, Grating & Current Wavelength Information, Wavelength Range, Number of Point / Resolution, Integrating Time, Accumulation
Calibration	Semi-auto Calibration

Options

Detectors for UV – VIS – NIR
Low Temp Application for TDIPL
Mapping Function for Low & High Scan Speed

Maple Mini | Micro Raman / PL



Key Features

- Free or Fiber Coupled
- Compact & Modular Design
- Various Laser Line Combined

Application

- Semiconductor Characterization and Testing (III-V Materials)
- GaN / ZnO LED Wafer Surface Characterization (Surface Containment, Uniformity, Reflectivity, Thickness and Bowing Test)
- Solar Cell EL Measurement
- Sensor Development for NIR Range
- Gemstone PL, Diamond by HPTP
- Development of Material of LED with GaN / GaAs
- Reflectance & Transmittance Measurement (SiC / Si / Sapphire Substrate)
- Photoluminescence Excitation (PLE) to Measure the Energy Levels (Properties of Absorption & Recombination)

Specification

Excitation Source

Wavelength	532 / 635 / 785 nm (Select One Laser)
Beam Quality	<1.2 M^2
Output Power	100 mW (CW Mode)

Spectrograph

Focal Length	320 mm (Two exit port)
Spectral Resolution	0.1 nm
Spectrometer (Option)	Fiber Optics Spectromter

Sample Chamber

Maple Mini	Compact Type Micro Sample Chamber
	Manal Type Stage & Filter Wheel

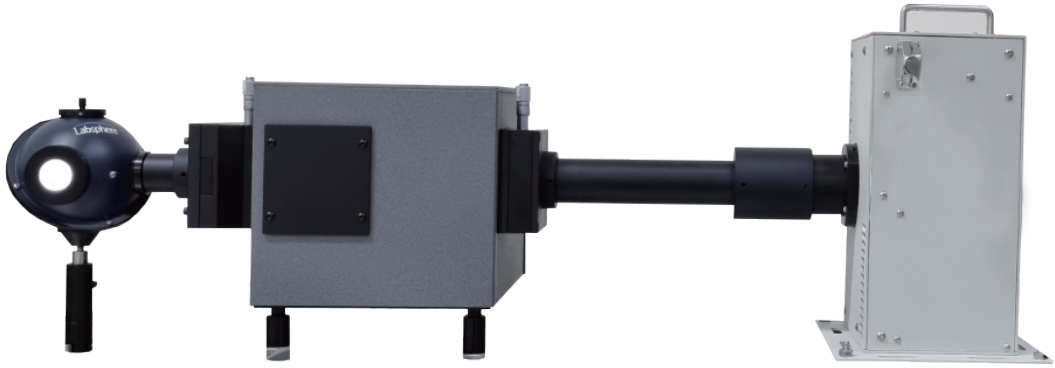
Detector

Type	PMT (R928) / Si / InGaAs
Spectral Range	185 ~ 900 nm / 900 ~ 1800 nm
Type (CCD)	TE Cooled CCD (Open Electrode)
Pixel Format	1024 * 256

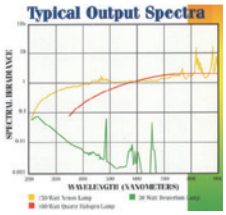
Software

Solis & Monoworks	User-friendly Interface for Simultaneous Detector & Spectrograph Control

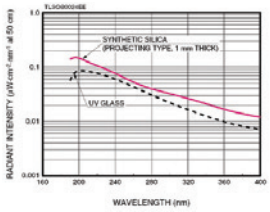
Light Source set | Monochrome



Typical Output Spectra (Xenon, Mercury, Tungsten-Halogen Lamp)



Spectral Distribution (30W Deuterium Bulb for UV)



Key Features

- Monochromator with DXG Lamp set
- Economical System
- 200 nm Focal Length with 0.18 nm Resolution @ 1200 gr/nm
- f / 4.0 Aperture Ratio
- +/- 0.2 nm Accuracy and +/ 0.04 nm Repeatability
- 150 W ~ 300 W Xe Lamp Bulb
- High Performance Monochromator
- 250 ~ 2000 nm Wavelength
- Touch Screen Interface

Specification

Xe Arc Lamp

300W Xe Arc Light Source	Included 300W Ozone Free Lamp (XBO 300W OFR)
	Arc Lamp Power Supply for 300W Xe Bulb
	Lamp Housing with Fan Cooling
150W Xe Arc Light Source	Includes 150 W Ozone Free Lmap
	Arc Lamp Power Supply for 150 W Xe or Xe-Hg Bulb
	Lamp Housing with Fan Cooling

QTH Lamp

QTH Lamp	250 W Tungsten-halogen Light Source With Housing, AC Power Supply, Mounting Flange, Light Collection Optics, Output Power from 350 nm to >2.0 um Sciencetech QTH Lamp

MonoRa series | Monochromator

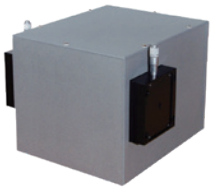
Applications

- Spectroscopy
- Photoluminescence
- Fluorescence
- Raman Scattering
- Phosphorescence
- Colorimetry
- Spectroradiometry
- Photometry
- Laser Characterization
- Laser Scattering Monochromatic
- Light Source / High Rejection Filter

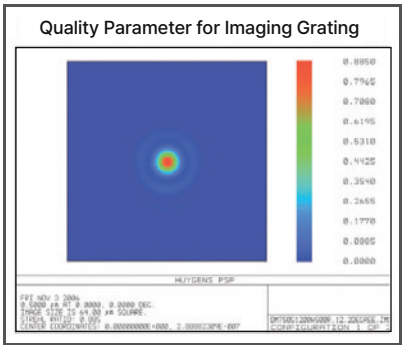
Model Name per Optical Path

Model	Configuration	Model	Configuration
MonoRa 150i	Side Ent. / Front Exit Slits	MonoRa 200	Side Ent. / Side Exit Slits
MonoRa 321i	Side Ent. / Side Exit Slits	MonoRa 322i	Side Ent. / Front Exit CCD Port
MonoRa 323i	Side Ent. / Two Exit Slits	MonoRa 324i	Side Ent. / Exit Slits & Front CCD Port
MonoRa 501i	Side Ent. / Side Exit Slits	MonoRa 511i	Side Ent. / Two Exit Slits
MonoRa 512i	Side Ent. / Exit Slits & Front CCD Port	MonoRa 513i	Side Ent. / Two Exit CCD Port
MonoRa 522i	Two Ent. / Two Exit Slits	MonoRa 524i	Two Ent. / Exit Slits & Front CCD Port
MonoRa 751i	Side Ent. / Front Exit Slits	MonoRa 752i	Side Ent. / Exit Slits & Front CCD Port
MonoRa 753i	Side Ent. / Two Slits	MonoRa 754i	Two Ent. / Exit Slits & Front CCD Port

Specification

Model	 MonoRa 150i	 MonoRa 200	 MonoRa 320i	 MonoRa 500i	 MonoRa 750i
Focal Length	150 nm	200 nm	320 nm	500 nm	750 nm
Aperture Ratio	f/ 4.3	f/ 4.0	f/ 4.2	f/ 6.5	f/ 9.8
Optical Design	Computer Optimized Imaging Czerny-turner Type				
Optical Path	90 ° 1 Entrance, 1 Exit	180 ° 1 Entrance, 1 Exit	90 ° or 180 ° / 1 Entrance, 2 Exit	90 ° or 180 ° / 2 Entrance, 2 Exit	90 ° or 180 ° / 2 Entrance, 2 Exit
Scan Range	Mechanical Range 0 ~ 160 nm with a 1200 gr/nm				
Operating Range	185 nm to FIR with Available Grating and Detector				
Resolution	0.25 nm	0.2 nm	0.1 nm	0.05 nm	0.035 nm
Dispersion	4.6 nm	3.5 nm	2.4 nm	1.6 nm	1.0 nm
Accuracy	±0.25 nm	±0.2 nm	±0.2 nm	±0.2 nm	±0.1 nm
Repeatability	±0.04 nm				
Drive Step Size	0.005 nm with Stepper Motor		0.0025 nm with Stepper Motor		
Focal Plane size	26 mm Wide X 10 mm Height				
Detector Coverage	125 nm	95 nm	64 nm	41 nm	27 nm
Standard Slit	Width : 0~5 nm, 10 um via Micrometer Control				
	Height : 4~15 mm (Selectable)				
Grating Mount	Dual Grating Turret		Triple Grating Turret		
Grating Size	32 * 32 mm	50 * 50 nm	68 * 68 mm		
Detector	UV, Vis : PDS-01 PMT, OPA 1024 PDA, Si / IR Detector : InGaAs, PBS, PBSE, MCT				
Software	Monoscan, Monoworks, Maple				
Sample Chamber	Maple (PL Mapping Sample Chamber)				
	Ramboss (Raman System Sample Chamber)				

Selection Guide for Grating



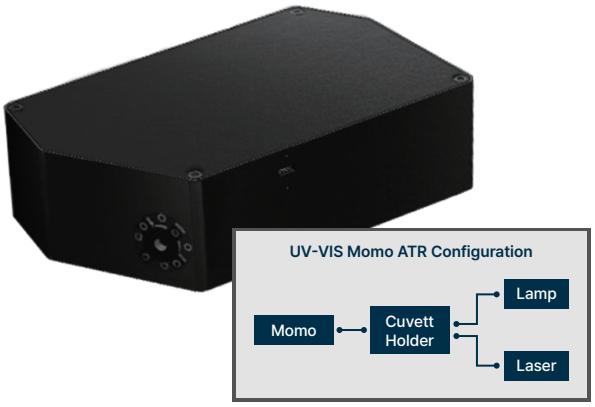
Dual Grating Turret

Triple Grating Turret

Groove /mm	Blaze Wavelength (nm)	Optimum Wavelength	Optimum Wavelength		
			MonoRa 150i	MonoRa 200	MonoRa 320i, 500i, 750i
150	300	200 ~ 570		2 - 150 - 300	3 - 150 - 300
	500	380 ~ 950	1 - 150 - 500	2 - 150 - 500	3 - 150 - 500
	800	500 ~ 1300	1 - 150 - 800	2 - 150 - 800	3 - 150 - 800
	1090	700 ~ 1700	1 - 150 - 1090	2 - 150 - 1090	3 - 150 - 1090
	1250	900 ~ 2000	1 - 150 - 1250	2 - 150 - 1250	3 - 150 - 1250
	2000	1300 ~ 2200	1 - 150 - 2000	2 - 150 - 2000	3 - 150 - 2000
	3000	2500 ~ 5000	1 - 150 - 3000	2 - 150 - 3000	3 - 150 - 3000
	4000	2500 ~ 6000	1 - 150 - 4000	2 - 150 - 4000	3 - 150 - 4000
	6000	4000 ~ 9000	1 - 150 - 6000	2 - 150 - 6000	3 - 150 - 6000
300	300	200 ~ 500	1 - 300 - 300	2 - 300 - 300	3 - 300 - 300
	500	330 ~ 700	1 - 300 - 500	2 - 300 - 500	3 - 300 - 500
	760	500 ~ 1200	1 - 300 - 760	2 - 300 - 760	3 - 300 - 760
	1000	700 ~ 1600	1 - 300 - 1000	2 - 300 - 1000	3 - 300 - 1000
	2000	1400 ~ 2500	1 - 300 - 2000	2 - 300 - 2000	3 - 300 - 2000
	3000	2500 ~ 5500	1 - 300 - 3000	2 - 300 - 3000	3 - 300 - 3000
600	300	200 ~ 500	1 - 600 - 300	2 - 600 - 300	3 - 600 - 300
	500	330 ~ 900	1 - 600 - 500	2 - 600 - 500	3 - 600 - 500
	750	500 ~ 1300	1 - 600 - 750	2 - 600 - 750	3 - 600 - 750
	1000	700 ~ 1800	1 - 600 - 1000	2 - 600 - 1000	3 - 600 - 1000
	1200	900 ~ 2000	1 - 600 - 1200	2 - 600 - 1200	3 - 600 - 1200
	1600	1300 ~ 2400	1 - 600 - 1600	2 - 600 - 1600	3 - 600 - 1600
1200	250	200 ~ 450	1 - 1200 - 250	2 - 1200 - 250	3 - 1200 - 250
	250H	190 ~ 900	1 - 1200 - 250H	2 - 1200 - 250H	3 - 1200 - 250H
	300	200 ~ 500	1 - 1200 - 300	2 - 1200 - 300	3 - 1200 - 300
	450H	300 ~ 1000	1 - 1200 - 450H	2 - 1200 - 450H	3 - 1200 - 450H
	500	330 ~ 900	1 - 1200 - 500	2 - 1200 - 500	3 - 1200 - 500
	600	400 ~ 1000	1 - 1200 - 600	2 - 1200 - 600	3 - 1200 - 600
1800	250	200 ~ 500	1 - 1800 - 250	2 - 1800 - 250	3 - 1800 - 250
	250H	200 ~ 500	1 - 1800 - 250H	2 - 1800 - 250H	3 - 1800 - 250H
	500	330 ~ 900	1 - 1800 - 500	2 - 1800 - 500	3 - 1800 - 500
	500H	300 ~ 1000	1 - 1800 - 500H	2 - 1800 - 500H	3 - 1800 - 500H
2400	250H	190 ~ 450	1 - 2400 - 250H	2 - 2400 - 250H	3 - 2400 - 250H
	300	200 ~ 500	1 - 2400 - 300	2 - 2400 - 300	3 - 2400 - 300
3600	250	190 ~ 450	1 - 3600 - 250	2 - 3600 - 250	3 - 3600 - 250
	300H	240 ~ 500	1 - 3600 - 300H	2 - 3600 - 300H	3 - 3600 - 300H

*We offer diffraction gratings from Richardson gratings (Newport)

Momo | Spectrometer



*Compact Spectrometers with Versatile Performance Covering UV, Visible and NIR Wavelengths Are Available for Multiple Applications in Research, OEM and Process Solutions.

Key Features

- Optimized Performance with High Speed Acquisition and Great SNR
- Automated Manufacturing Techniques for Repeatability
- Versatility for Complex Applications
- Available in 10, 25, 50, 100 or 200 um Wide Slits

Application

- Application Services
- Lab Services
- Semiconductor
- Senvironmental
- Industrial
- Spectroscopy
- Phtoluminescence
- Fluorescence

Specification

Spectrometer

Spectrometer Design	Asymmetric Crossed Czerny-turner
Focal Length	F/5, 125 mm
Wavelength Range	200 ~ 1100 nm
Entrance Slit	Slit 100 um Slits (Standard)
Readout Noise (Single Dark Spectrum)	0.4 mV / rms
Resolution	0.43 nm @ 1800 Groove @ 100 um Slit Width

Detector

Sensor	HAMAMATSU S11639-01 CMOS
Pixel Number	2048 * 1
Pixel Size	14 um * 200 um

Grating

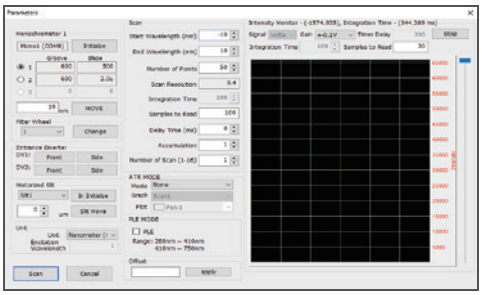
Resolution Table (FWHM in nm)

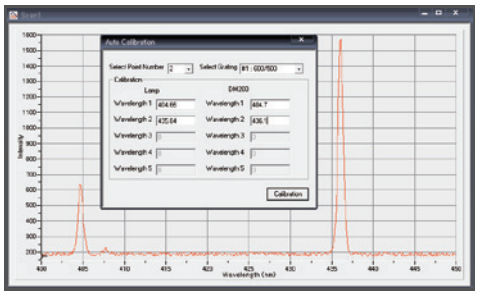
	Grating Groove (line / mm)	Spectral Range (nm)	Resolution (nm) @ 50 um Silt Width	Resolution (nm) @ 100 um Silt Width
1	150	1440	2.76	5.1
2	300	720	1.38	2.58
3	450	480	0.92	1.72
4	600	360	0.69	1.29
5	1000	216	0.414	0.774
6	1200	180	0.345	0.645
7	1800	120	0.23	0.43
8	2400	90	0.17	0.34

Grating Selection Table

	Order Code MOMO-xxx	Usable Range (nm)	Grating Groove (line / mm)	Blaze (nm)
1	UV	200 ~ 290	2400	UV
2	UV / VIS	200 ~ 560	600	300
3	UV / VIS / NIR	200 ~ 1100	150	300
4	VIS / NIR	380 ~ 1100	300	500
5	VIS-1	400 ~ 760	600	500
6	VIS-2	400 ~ 580	1200	500
7	NIR	740 ~ 1100	600	750

Monoworks | Software





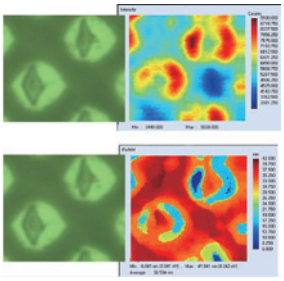
Post Processing

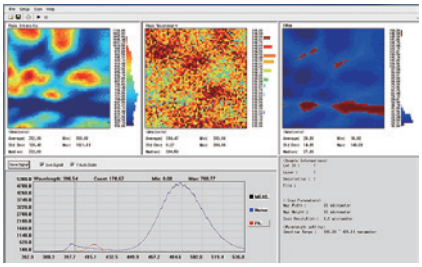
- Peak Finder
- Graph Color, Data Average, Graph Control and 2D - 3D Conversion (Optional)
- Single / Double Monochromator Control (Optional) by User Selection
- Easy Parameter Selection
- Easy Aoom In / Out
- OS : Window 7, 10, 11

Mode

- Input Range (Voltage : 0 ~ 0.01 V, 0 ~ 0.1 V, 0 ~ 1 V, 0 ~ 10 V)
- Scan Type : Auto, Excitation, Emission
- Sync / Unit : Wavelength, cm-1, eV
- Current Intensity Monitoring / Semi-auto Calibration
- Optional Transmittance, Reflectance & Luminescence
- Includes MonoRa series System Control and General Spectroscopy Applications

Maple Mapping | Software





Automoation

- High Speed / High Precision XYZ Stage Control (Below 0.1 um)
- Laser Focus Calibration : Intelligent Auto Z-axis Stage Calibrates the Laser Beam Focus
- XYZ Mapping
- Real Time Measurement and Spectrum Display
- User Defined Threshold, Max and Min Values / Set Step Resolution and Scanning Area

Mode

- Set the Wavelength Range, Resolution
- Integration Time, Accumulation

Selection Guide

*Example of the System Code

Ramboss - 320 - 420 - 785 - M - R
1 2 3 4 5 6

Step 1	Choose the **Chamber Type**	Ramboss Star Maple II Maple Mini	Ramboss Maple Mini
Step 2	Choose the **Spectrograph Type**	MonoRa 320i MonoRa 500i MonoRa 750i	320 500 750
Step 3	Choose the **CCD Detector Type**	IDUS 401 (1027*127) IDUS 420 (1024*256) Newton EMCCD 970 Newton CCD 920	401 420 970 920
Step 4	Choose the **Laser Type**	325 nm 405 nm 532 nm 632.8 nm 785 nm	325 405 532 633 785
Step 5	Choose the **XYZ Stage Type**	XYZ-axis Manual XYZ-axis Motorized Mapping	S M
Step 6	Choose the **Micro Method**	Micro PL Micro Raman Confocal Module with Motorized XY axis slit	P R C

Customer Sheet

Basic Information	
Title	
1st Name	
Surname	
Organization	
Address	
Telephone	

Category	☐ Raman ☐ P/L ☐ EL ☐ PLE ☐ Refelectance ☐ Transmittance ☐ Absorption ☐ General Spectroscopy ☐ Others :			
Input Source	Type {nm(Wavelength)}		Laser	
			Lamp	
	Others			
Input Power	mW / cm^2 @Sample Surface			
Emission Range	nm (Wavelength)			
	/cm-1 (Raman Shift)			
System Resolution	nm (Wavelength)			
	/cm-1 (Raman Shift)			
Beam Spot Size	um @ Sample Surface			
Sample Size	mm			
Sample Type	Solid Wafer	Liquid	Powder	
	Others			
Sample Material				
Thickness of Target Material				
Application				
Optional Requirement	*Low tem cryostat, mapping or Thinkness measurement etc.			
Special Request				

DXG is a new name of Dongwoo Optron's

DXG

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