

Optimize spectral bandwidth, resolution or sensitivity to meet your application requirements with the flexible design of the SPM-002-XH.

Overview:

The Photon Control SPM-002-XH family of spectrometers cover the ultraviolet, visible, and near-infrared regions from 190 nm to 1090 nm. The high speed optical bench operates a linear charge-couple device (CCD) detector with an electronic shutter for exposures down to 10 μ sec and a powerful digital signal processor. The spectrometer includes a fiber-optic patchcord, a power supply, a USB cable, and operating software.

*Applications:

*Some applications require additional software that is not included.

- Color monitoring
- Biophotonics
- Transmission
- Laser/ Light Source Monitoring
- Absorption
- Fluorescence
- Molar Concentration
- Optical Inspection
- Chemical Analysis
- Reflection
- Scattering

Contact us

Photon Control is a leader in precision measurement solutions, specializing in customization and OEM manufacturing. Visit www.photon-control.com for more information, or contact us at info@photon-control.com with your measurement requirements for engineering guidance and a quote.



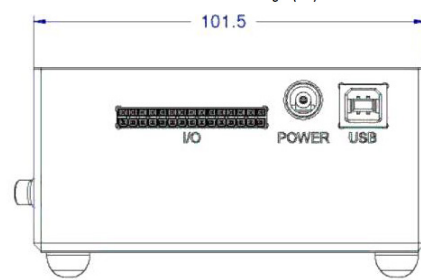
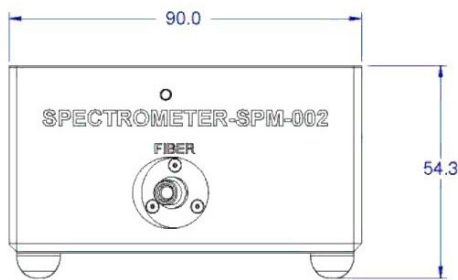
Features

- 3648-pixel TCD1304DG linear image detector with electronic shutter
- Configurable slit width, diffraction grating, and filter
- 16-bit A/D converter
- Continuous or hardware-triggered acquisition mode with user-settable delay
- USB 2.0 communication
- SPM-002-XH includes SpecSoft display and analysis software for data logging
- Compatible with the SPL family of light sources, accessories, software development kits, and SpecSoft Pro from Photon Control

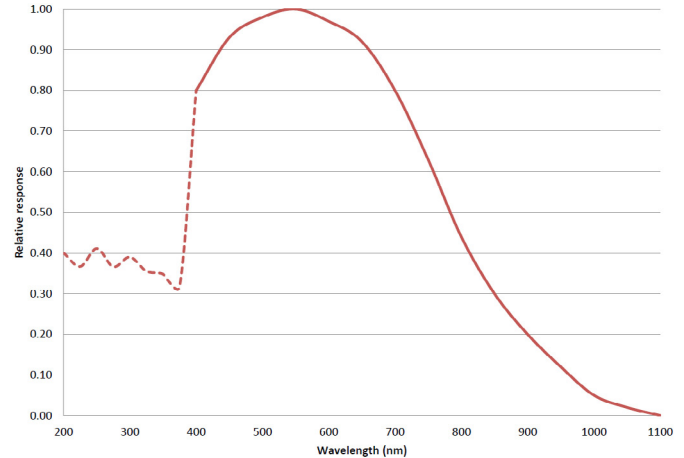
Technical Specifications

Common SPM-002-XH Specifications

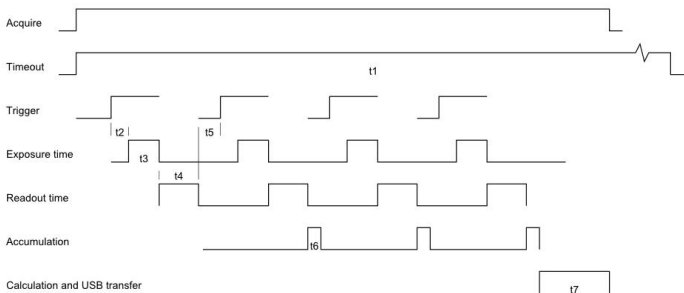
Detector	Toshiba TCD1304DG
Pixels	3648
A/D Converter (bits)	16
Exposure Time Range	10 μ s to 65 s
Temperature Range ($^{\circ}$ C)	-10 to 55
Focal Length (mm)	70
Triggering	Hardware Trigger
Maximum Refresh Rate (Hz)	50
Interface	USB 2.0
Power Requirements	10-30 VDC
Dimensions (mm)	101.5 x 90.0 x 54.3
Weight (g)	500
Grating Type	Ruled or holographic flat reflective



Detector Response



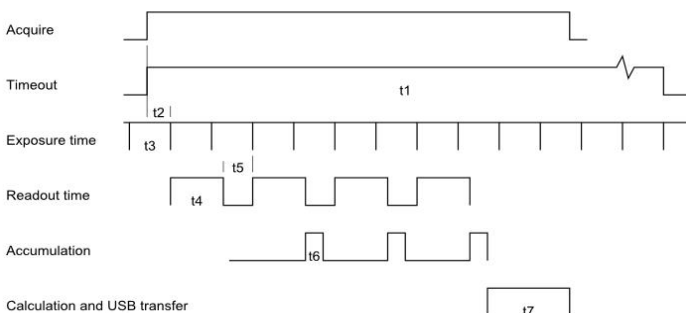
Hardware-Triggering Mode



Hardware-Triggering Mode Timing

Delay after trigger ¹ t2	
Minimum delay	10 μ s
Selectable delay resolution	1 μ s
Readout time t4	5.2 ms
Minimum delay before trigger t5	1.8 ms
Accumulation time t6	2.9 ms
Calculation and transfer time t7	9.9 ms

Continuous Mode



Continuous Mode Timing

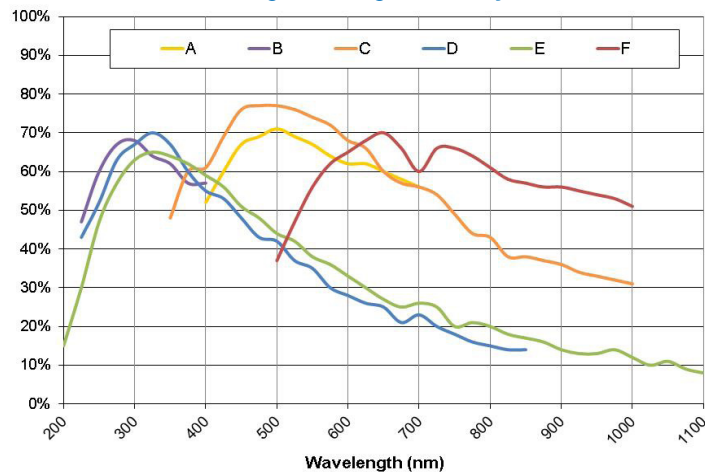
Readout time t4	5.2 ms
Accumulation time t6	2.9 ms
Calculation and transfer time t7	9.9 ms

Timing

Data Acquisition

Interface	USB 2.0 Hi-speed
Continuous frame rate	58 Hz at 1 ms integration without averaging
	50 Hz at 10 ms integration without averaging
	110 Hz at 1 ms integration with 10 averages
Hardware-triggered frame rate	91 Hz at 10 ms integration with 10 averages
	55 Hz at 1 ms integration without averaging
	37 Hz at 10 ms integration without averaging
	100 Hz at 1 ms integration with 10 averages
	53 Hz at 10 ms integration with 10 averages

Average Grating Efficiency



Model Specific Configurations: Spectral Range, Resolution, Diffraction Grating, and Filter Type

SPM-002:	Spectral Range (nm)	Resolution (center/outer) (nm)	Grating Blaze Wavelength (nm)	Grating Grooves (mm)	Filter Type
-AH	400-700	10 µm slit: 0.4/0.8 25 µm slit (standard): 0.6/1.0 50 µm slit: 0.7/1.0 100 µm slit: 1.4/1.6 200 µm slit: 2.8/2.9	500	1200	None
-BH	190-400	10 µm slit: 0.4/0.6 25 µm slit (standard): 0.6/0.8 50 µm slit: 0.7/0.9 100 µm slit: 1.4/1.5 200 µm slit: 2.8/2.9	250	1200	None
-CH	350-1000	10 µm slit: 0.7/1.9 25 µm slit (standard): 1.2/2.1 50 µm slit: 1.4/2.2 100 µm slit: 2.8/3.3 200 µm slit: 5.6/5.9	500	600	Order-sorting
-DH	200-850	10 µm slit: 0.7/1.9 25 µm slit (standard): 1.2/2.1 50 µm slit: 1.4/2.2 100 µm slit: 2.8/3.3 200 µm slit: 5.6/5.9	300	600	Order-sorting
-EH	200-1090	10 µm slit: 1.1/2.5 25 µm slit (standard): 1.9/3.0 50 µm slit: 2.1/3.1 100 µm slit: 4.2/4.8 200 µm slit: 8.4/8.7	300	400	Order-sorting
-FH	500-1000	10 µm slit: 0.7/1.4 25 µm slit (standard): 1.2/1.8 50 µm slit: 1.4/1.9 100 µm slit: 2.8/3.1 200 µm slit: 5.6/5.8	750	600	Long-pass

Product Options and Accessories

CWA-SMA-100-V-2	Fiber Optic Patch Cord - SMA 905 connector - 100 micrometer core - VIS/NIR - 2m
CWA-SMA-200-V-2	Fiber Optic Patch Cord - SMA 905 connector - 200 micrometer core - VIS/NIR - 2m
CWA-SMA-100-U-2	Fiber Optic Patch Cord - SMA 905 connector - 100 micrometer core - UV/VIS - 2m
CWA-SMA-200-U-2	Fiber Optic Patch Cord - SMA 905 connector - 200 micrometer core - UV/VIS - 2m

Note: All spectrometers are shipped with a fiber optic patch cord, USB cable, user manual, external power adapter and SpecSoft display and analysis software. Software Development Kits and SpecSoft Pro are available at additional costs.