

Digikröm CM112

Compact 1/8 Meter Computer-Controlled Double Monochromator/Spectrograph

- *Compact size - Only 5 1/4" x 6 1/4" x 3 1/4"*
- *Connects to any computer via RS232.*
- *Scans in both directions. Programmable in angstroms, nanometers, microns, wavenumbers, or eV.*
- *Dual double-grating turrets with automatic grating change allows for broad spectral range coverage.*
- *Subtractive dispersion mode minimizes image distortion and pulse spread, with sub-picosecond residual broadening versus nanosecond pulse broadening of regular monochromators.*
- *Additive mode gives increased dispersion and low stray light for Raman and fluorescence studies.*
- *May be configured as a monochromator or a spectrograph.*
- *Monochromator may be factory configured for right angle or straight through beam path.*



The Digikröm CM112: Much More than a Monochromator

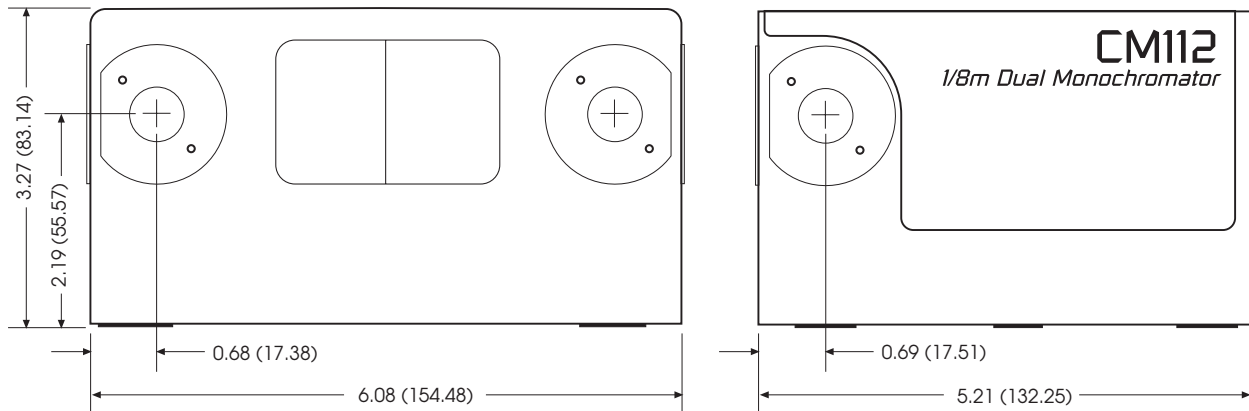
The CM112 is two single monochromators in series. The exit slit of the first monochromator is the entrance slit of the second. The two monochromators act as a double filter with the rejection of stray light being almost the square of the single monochromator value.

The CM112 may be factory configured as an additive or subtractive dispersion double monochromator. As an additive instrument, the first grating spreads the spectrum over an angular range; the second grating then doubles this dispersion. The result is twice the resolution of a single 1/8 meter monochromator. As a subtractive instrument, the first monochromator selects a bandpass, the second monochromator then removes the temporal and angular aberrations introduced by the angular spectral dispersion in the first monochromator.

The CM112 offers a solution to practical problems in monochromatic imaging. Selecting a monochromatic image with an ordinary monochromator fails because multiple wavelengths in the bandpass create multiple, overlapping images. In the CM112, the second subtractive monochromator recombines these multiple images, creating a clear image.

Finally, the CM112 is a unique solution to practical problems in the spectroscopy of pulsed sources. An ordinary monochromator has a spread in the internal optical path lengths that will introduce a 25 to 100 picosecond broadening in light pulses that are passed through the monochromator. In the subtractive dispersion CM112, the second monochromator equalizes the optical path lengths so that broadening is reduced to a minimum.

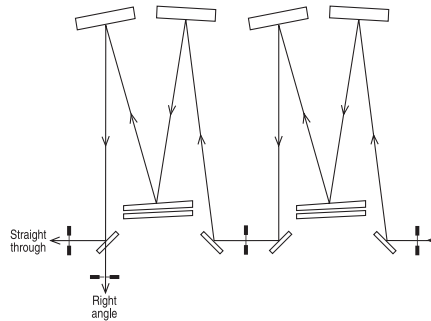
rev. 6/03



Dimensions - inches (millimeters)

Front View

Side View



Optical Path

Specifications:

Design: Double cascaded Czerny-Turner.
 Double-grating turrets standard in each section.
Focal Length: 110mm each section.
f/#: 3.9 overall
Beam Path: Right angle or straight through.
Wavelength Drive: Dual worm and wheel with electronic synchronization and computer control. Programmable in additive or subtractive dispersion with positive or negative grating orders.

	<i>Additive</i>	<i>Subtractive</i>
Wavelength Precision:	0.2nm	0.2nm
Wavelength Accuracy:	± 0.6nm	± 0.6nm
Max Resolution:	< 0.5nm	< 1nm
Bandpass: <i>with standard slits</i>	0.25nm	0.50nm
Slewing Speed:	> 100nm/second	
Stray Light:	< 10 ⁻⁹	
Slits:	Standard Set includes: 0.125mm, 0.15mm, 0.30mm, 0.6mm, 1.2mm and 2.4mm x 4.0mm. For other sizes, consult SP.	
Gratings:	Two or four gratings (30 x 30mm) must be purchased. See Appendix A for options	

Software: Demonstration control program and LabView driver included.
Power: UL listed 110/220V power pack
Interface: RS232 standard (DK12AT)
Warranty: One year
Options:

- Hand-held control module with function keys and display for local control
- IEEE-488 interface
- Gold optics

See options and accessories

Ordering Information: Please indicate product number plus description when ordering.

CM112	Dual Grating Turret, 1/8 meter Double Monochromator Specify additive or subtractive mode.
CMSP112	Dual Grating Turret, 1/8 meter Double Spectrograph Specify additive or subtractive mode.

Standard Ruled Gratings

for installation in Digikröm™ CM110/CM112 Monochromators/Spectrographs

Standard Ruled Gratings Size = 30 x 30 mm

SP Part #	Ruling (g/mm)	Peak (nm)	Range (nm) @ > 30% T	Peak %T
AG2400-00240-303	2400	240	180 - 680	70
AG1200-00200-303	1200	200	180 - 450	65
AG1200-00300-303	1200	300	200 - 750	72
AG1200-00500-303	1200	500	330-1500	82
AG1200-00600-303	1200	600	400 - 1500	80
AG1200-00750-303	1200	750	480 - 1500	85
AG0600-00500-303	600	500	350 - 1300	80
AG0600-01250-303	600	1250	800 - 3000	85
AG0300-00500-303	300	500	310 - 1100	80
AG0300-02500-303	300	2500	1500 - 6000	88
AG0150-00500-303	150	500	320 - 980	72
AG0150-04000-303	150	4000	2500 - 9000	93
AG0075-01700-303	75	1700	1200-2250	85
AG0075-08000-303	75	8000	5000 - 15000	82
AG0045-01750-303	45	1750	1200-2500	77

See Appendix A for grating efficiency curves

NOTE: Ruled gratings blazed at different wavelengths and Holographic gratings are available on request - call for prices and availability. Response curves also available upon request.

AG-303-KIT

Backplate mounting kit, required for user installation of CM gratings.

CM series Options and Accessories

DK1200

Hand-held control module, 2 line x 20 character LCD display. Allows local operation of CM110/112 monochromators and CMSP110/112 spectrographs.

CMGPIB

IEEE-488/GPIB option for parallel interface operation of CM110/112 monochromators and AB300 Series automatic filter wheels.

CMGPIB- 220V (220Vac input)

IEEE-488/GPIB option for parallel interface operation of CM110/112 monochromators and AB300 Series automatic filter wheels.

CMSP-TO-CM

Attachment to allow CMSP Spectrograph to operate as a monochromator.

AB200

Single filter carrier that mounts directly between CM unit and accessories.

IR110

For use with CM110. Infrared (gold) coatings on CM110 mirrors. Enhances transmission by up to 40% between 600 and 1100 nm. *Not suitable for work below 600nm.*

IR110SP

Same as above, for use with CMSP110.

IR112

For use with CM 112. Infrared (gold) coatings on CM112 mirrors. Enhances transmission by up to 80% between 600 and 1100 nm.

IR112SP

Same as above, for use with CMSP112.

DK12AT

RS232 Cable for AT style computer

DK12PS

RS232 Cable for PS2 style computer

DK12MA

RS232 Cable for MAC style computer

Special Slit Sizes

- DKFS010 Pair, 10µm slits
- DKFS020 Pair, 20µm slits
- DKFS025 Pair, 25µm slits
- DKFS050 Pair, 50µm slits



DK1200 controller