

APPLICATION NOTE

SDC-500 DIGITAL OPTICAL CHOPPER 4 Hz - 500 Hz



- ▶ Wide Frequency Range 4 Hz to 500 Hz
- ▶ Large 25 mm \varnothing Aperture
- ▶ Large 5-Digit LED Display
- ▶ Frequency Resolution of 0.01 Hz
- ▶ Incredibly Stable
- ▶ External Clock Synchronization
- ▶ Serial Computer Interface
- ▶ Enclosed Chopper Blade
- ▶ External Sync Output

HOW IT WORKS

The SDC-500 is a high quality digital optical chopper designed for use with our Broadband Pyroelectric and THz Detectors and Instruments. Pyroelectric detectors are AC coupled, thermal sensors that are intended for use with modulated or chopped continuous sources, like lasers, black body emitters, and THz sources. They do not work with steady state sources.

The SDC-500 is equipped with a controller that features a large five-digit LED readout, frequency adjustment knob and sync output BNC connector. Additionally, the SDC-500 is equipped with a bidirectional RS-232 port that equips the user to set the desired chopping rate to a resolution of 0.001 Hz and to read the status of the instrument. As the unit is designed with a phase-locked-loop control system, the chopping rate may also be synchronized to a user-supplied external clock ranging from 4 Hz to 500 Hz. The controller is then used to read the frequency of the external clock.

The SDC-500 chopping head is attached to the controller by means of a 10 foot coiled cord. The precision etched blade is fully enclosed for protection from inadvertent damage. There is a large 25 mm diameter aperture and a 3 slot blackened blade.

The small 120 mm square outline and 63.5 mm maximum depth allows easy integration into compact optical setups. Dual 8-32 mounting holes allow the aperture to be placed at a height as low as 19 mm above an optical bench or, with the included ½ inch post and stand, as high as 33 cm above the mounting surface.

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SPECIFICATIONS

SDC-500 Digital Optical Chopper	
Frequency Range	4.0 to 500 Hz
Frequency Accuracy	0.01 % of setting
Frequency Stability (Internal Clock)	+25 ppm over temperature range
Frequency Setting Resolution	0.01 Hz - low speed range 0.001 Hz - via RS-232 port
Phase Jitter	0.1% peak-to-peak, 3 slot aperture
Settling Time to Lock	<5 sec, for full scale change <1 sec for 10% change
External Frequency Input	TTL/CMOS Compatible, 4 to 500 Hz
Display	5-Digit LED, Green (565 nm), 0.56 in high
RS-232 Port	9600 Baud, N-8-1, 3 wire
Aperture Size	25 mm Ø
Operating Temperature	0-40°C
Power Requirements	95 to 260 VAC, 50-60 Hz, <15 W
Size	Controller: 71.1H x 190.5W x 215.9D mm Head: 114.3H x 114.36W x 63.5D mm
Weight	2.25 kg
Full Product Name	SDC-500
Product Number	202171

RECOMMENDED FOR THE FOLLOWING PRODUCTS:

QS Series	Pyroelectric Discrete & Hybrid Detectors
UM-B	Pyroelectric Radiometer
THZ-B + T-Rad-USB	THz Radiometer
THZ-I-BNC	THz Radiometer with Integrated Analog Module
QUAD-P	Position Sensing Power Detectors