DCS540 Optical Chopper System, 20 Hz–5 kHz, 0.01 Hz Resolution

Model DCS540 · waveqvanta.com/products/dcs540-optical-chopper-system

Optical chopper with interchangeable blades that modulates light for lock-in detection, with TTL/CMOS reference I/O.



The DCS540 optical chopper modulates a light beam at frequencies set with 0.01 Hz resolution, providing the reference signal for lock-in detection. A 2.4-inch LCD and a single encoder knob handle local operation, and all functions can also be controlled and read over USB. Interchangeable blades with 2 to 60 slots cover different frequency ranges, including a dual-frequency inner/outer blade.

Key features

- Chopping frequency 20 Hz–5 kHz; blade options from 1 Hz (2-slot blade)
- 0.01 Hz frequency resolution, 250 ppm/°C typical frequency stability
- 2.4-inch 320 × 240 LCD with 6-digit frequency display
- Single photoelectric encoder knob for operation
- BNC input and output, standard TTL/CMOS compatible
- RS-232-to-USB interface; all functions controllable via USB
- Six blade options, including a dual-frequency 5/7-slot blade

Specifications

Chopping Frequency	20 Hz–5 kHz (1–99 Hz with DCS540-01 blade)
Frequency Resolution	0.01 Hz
Frequency Stability	250 ppm/°C (typ.)
Frequency Drift	Below 1%
Operation	Single photoelectric encoder knob
Operating Temperature	10–40 °C
Display	2.4-inch, 320 × 240 LCD; 6-digit frequency display
Input and Output Connectors	BNC
I/O Compatibility	Standard TTL/CMOS level
Input Voltage	0–5 V
Input High Level	Above 3.6 V
Input Low Level	Below 0.4 V
Min. Load Resistance	500 Ω
Interface	RS-232 to USB; all functions controllable and readable via USB
Power Supply	220 VAC ±10%, 50 Hz ±0.2 Hz, below 30 W
Dimensions (W × D × H)	206 × 150 × 70 mm

Model overview

Blade	Slots	Frequency Range	Standard
DCS540-01	2	1–99 Hz	–
DCS540-02	10	20 Hz–1 kHz	Yes
DCS540-03	15	30 Hz–1.5 kHz	Yes
DCS540-04	30	60 Hz–3 kHz	Yes
DCS540-05	60	120 Hz–5 kHz	–

Blade	Slots	Frequency Range	Standard
DCS540-06	Inner 5 / outer 7	Inner 10–500 Hz / outer 14–700 Hz	–

Typical applications

- Lock-in detection of optical signals
- Modulating light for PbS, InSb and MCT infrared detectors
- Monochromator-based spectral measurements
- Phosphorescence measurements with photon counters