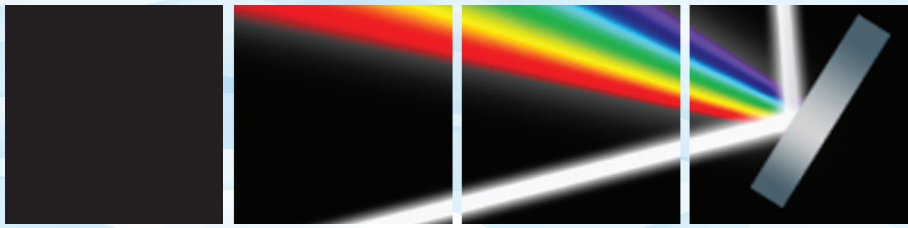
HORIBA Scientific

Optical Chopper

ACH-C, ACH-C-OPEN

ELEMENTAL ANALYSIS
FLUORESCENCE
GRATINGS & OEM SPECTROMETERS
OPTICAL COMPONENTS
FORENSICS
PARTICLE CHARACTERIZATION
RAMAN
SPECTROSCOPIC ELLIPSOMETRY
SPR IMAGING

Direct-digital-synthesis optical chopper



The optical chopper from HORIBA Scientific is a microprocessor-based control system that utilizes direct-digital-synthesis to deliver precise optical chopping rates from 4 Hz to 5000 Hz. An external controller with large five-digit LED readout is included to enable setting of the chopping rate from the front panel. Utilizing a phase-locked-loop system, the chopping rate may also be synchronized to a user-supplied external clock.

The precision etched blade may be mounted directly to the spectrometer entrance and protected from inadvertent damage in the enclosed housing (ACH-C). A 3-slot blade and 30-slot blade are available for low and high repetition rates. An open variety (ACH-C-OPEN) is also available for mounting to an optical table in a free space configuration. This variety uses a single blade with 30 slots on the outer ring and 3 slots on the inner ring, eliminating the need to swap blades.

Features and Benefits

- External controller- large five-digit readout enables digital entry of the desired chopping rate directly from the front panel
- Superior speed and accuracy- 4 Hz to 5000 Hz speed with accuracy of 0.001 Hz
- Simplicity of operation- set the repetition rate with the internal clock via the front panel on the controller or synchronize to an external clock

Control

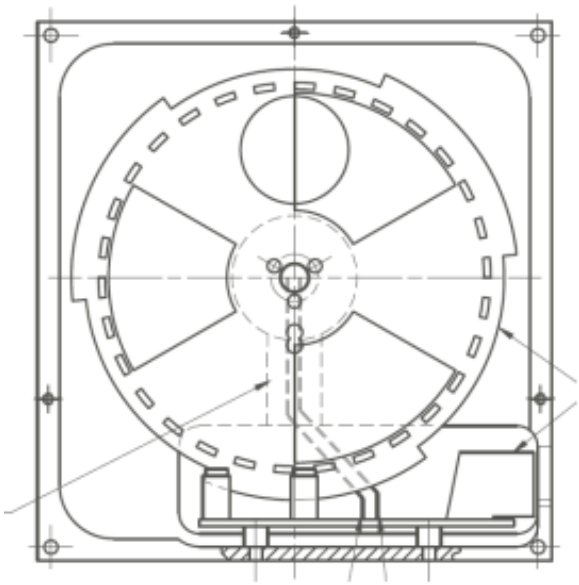
The optical chopper can be controlled locally via the settings on the front panel of the controller or remotely via a bidirectional RS-232 port.

The front panel includes controls for switching between high frequency (40 Hz to 5000 Hz) and low frequency (5 Hz to 500 Hz) with a manual dial to adjust the frequency in variable size increments. Once the frequency is set, a front panel BNC connector (Sync Output) can be connected to a lock-in amplifier, oscilloscope, or other instrument for synchronization.

Specifications

Part number	ACH-C	ACH-C-OPEN
Frequency range	**3-slot blade, low speed:** 4 – 500 Hz, **30-slot blade, high speed:** 40 – 5000 Hz	
Frequency accuracy	±0.0025% of setting	
Frequency stability (internal clock)	< 10 ppm/°C	
Frequency-setting resolution	**High-speed range:** 0.1 Hz, **Low-speed range:** 1 Hz	
Phase jitter	**3-slot blade, low speed** 0.1% peak-to-peak, **30-slot blade, high speed** 1% peak-to-peak	
Settling time to lock	**Full-scale change:** < 3 s, **10% change:** < 1 s	
External frequency input	TTL/CMOS compatible, 4 – 5000 Hz	
Display	5-digit LED, green (565 nm), 14 mm (0.56”)	
RS-232 port	9600 baud, N-8-1, three-wire	
Aperture size	**30-blade:** 15 mm high x 4.5 mm wide at center, **3-blade:** 15 mm high x 15 mm wide at center	
Operating temperature	0 – 40°C	
Power requirement	95 – 260 V AC, 50 – 60 Hz, 15 VA max.	
Controller dimensions (H x W x D)	69 mm (2.7”) x 178 mm (7”) x 231 mm (9.1”)	
Head dimensions (H x W x D)	114.3 mm (4.5”) x 114.3 mm (4.5”) x 51 mm (2”)	
Weight	1.36 kg (3 lbs)	

Mechanical Diagram



OPTICAL BUILDING BLOCKS

info.sci@horiba.com www.horiba.com/opticalbuildingblocks

HORIBA Scientific

USA: +1 732 494 8660
UK: +44 (0)20 8204 8142
China: +86 (0)21 6289 6060
France: +33 (0)1 69 74 72 00
Italy: +39 2 5760 3050
Brazil: +55 (0)11 5545 1500
Germany: +49 (0)89 4623 17-0
Japan: +81 (0)3 6206 4721
Other: +1 732 494 8660