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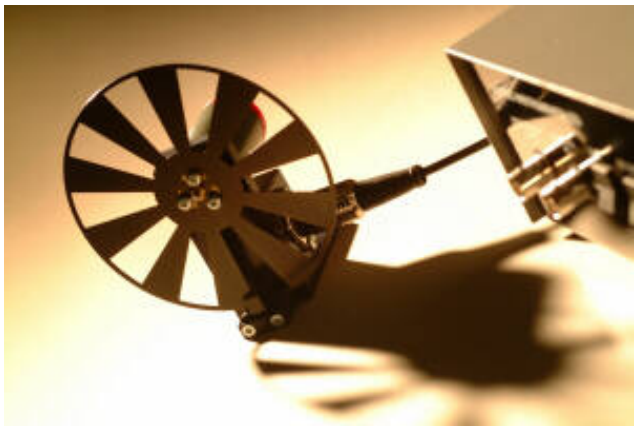
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300C and 300CD Rotating Optical Chopper

Chopper Home | Discs | Selection Guide | Accessories | Specials | FAQ | Notes

Features



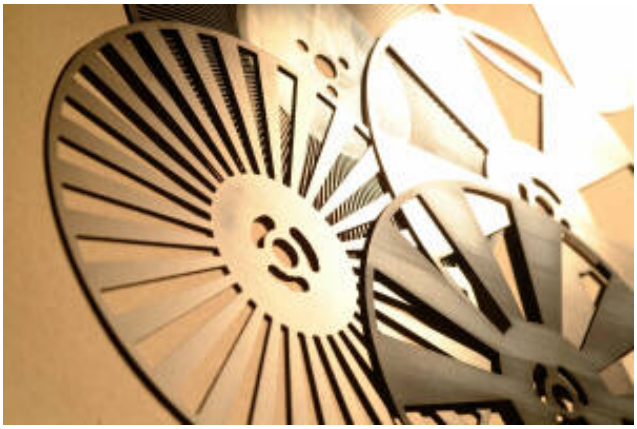
Scitec Instruments Model 300 is a high stability variable frequency optical chopper. The basic system consists of a control unit, a chopping head and a set of four chemically blacked photo etched discs. This system provides operation over the frequency range 5Hz to 3kHz. A wide selection of additional discs and accessories is available to extend the frequency range and to satisfy individual requirements.

- 5Hz - 3kHz standard optical chopping frequency range (0.015Hz to 40kHz options are available)
- 102mm diameter discs
- Choice of control units
- Compact optical chopper head
- Low noise and vibration
- Photochemically etched non-magnetic discs
- Variable aperture
- Range of accessories

Two versions of the optical chopper control unit are available. The basic control unit is the 300CU, which has a 10 turn dial for setting the operating frequency. Alternatively, the 300CDU control unit has an additional 5-digit display of the chopping frequency. Other features are common to both control units. Chopping frequency can be controlled externally by applying an analogue voltage to a "Control" BNC. A "Reference" BNC provides a TTL level output, generated directly from the opto-switch on the chopping head. This signal has constant phase relative to the chopping action and can be used as the reference for other instruments such as lock-in amplifiers.

The 300H optical chopper chopping head supplied with the standard system may be bench bolted or optical stalk (bench rod) mounted. Mountings are provided to enable parts, such as a high frequency accessory or blade protector, to be attached. For lower frequency operation, the chopper head can be fitted with a reduction gearbox motor.

The set of four chopping discs included with the system (part number 300D) provides a choice of 2, 5, 10 and 30 slots, each having a 1:1 mark to space ratio. Variable apertures can be achieved by mounting two identical discs simultaneously. Additional discs, with up to 445 slots, are available to extend the chopping frequency up to 40kHz. Although the standard discs are chemically blacked other finishes, such as gold plating, are available.



Specifications

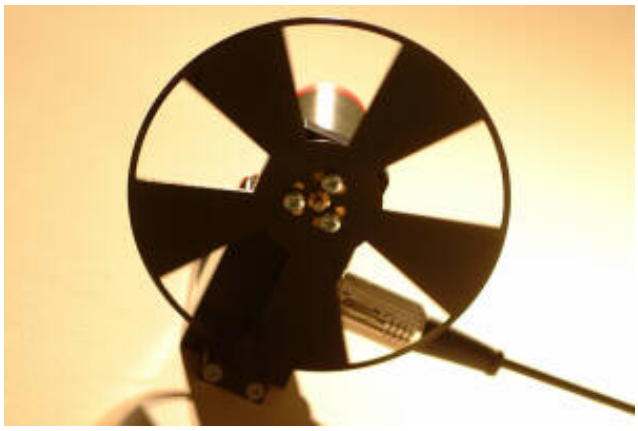
300CU Control Unit

- Output Voltage: 15V DC Maximum.
- Stability: ±0.01%/°C
- Frequency Control: Internal - Manual Control via 10 turn potentiometer fitted with a turns counting dial. External - BNC connector for 0 to 15V.
- Frequency Stability: Short term - see phase jitter. Long term - ±0.1% of maximum frequency.
- Reference output: 5V HCT TTL signal via BNC socket.
- Power Requirement: 100-130V or 200-260V AC, 50 or 60Hz, 12 VA.
- Dimensions: 254(W) x 76(H) x 178(D)mm
- Weight: 2.6kg

300CDU Control Unit

- Output Voltage: 15V DC Maximum.
- Stability: ±0.01%/°C
- Frequency Control: Internal - Manual Control via 10 turn potentiometer. External - BNC connector for 0 to 15V.
- Frequency Read Out: 5 digit 14mm LED display with 0.01Hz resolution, 0.1Hz or 1Hz resolution depending on frequency.
- Frequency Stability: Short term - see phase jitter. Long term - ±0.1% of maximum frequency.
- Reference output: 5V HCT TTL signal via BNC socket.
- Power Requirement: 100-130V or 200-260V AC, 50 or 60Hz, 12 VA.
- Dimensions: 254(W) x 76(H) x 178(D)mm
- Weight: 2.6kg

300H Chopping Head



- Moter: 11 pole DC motor, sleeve bearings with more than 6000 hours lifetime, 0-6000rpm reversible.
- Reference pick-up: IR led and phototransistor pair with Schmitt trigger.
- Dimensions: 73(H) x 75(L) x 32(W)mm, without disc.
- Mounting: Optical stalk - adjustable between 6.5 and 14.0mm diameter. Mounting holes - 2 x 3mm

300D Set of Chopping Discs

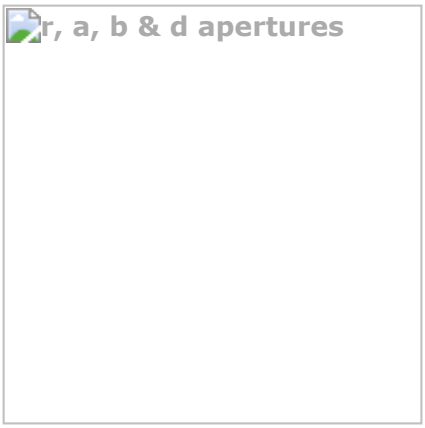
- Disc types: 2, 5, 10 and 30 slot

- Material: Half hard brass, 0.5mm thick
- Diameter: 102mm
- Surface Finish: Chemically blacked
- Mark to Space Ratio: 1 to 1 with one blade





Frequency Range:



Disc	Frequency (Hz)	Aperture				Phase Jitter, Max
		r	a	b	d	
300D2 (2 slots)	5 - 200	32.0	77.0	26.7	32.0	±0.2°
300D5 (5 slots)	12.5 - 500	32.0	30.8	10.7	23.1	±0.5°
300D10 (10 slots)	25 - 1000	32.0	15.4	5.4	13.2	±1°
300D30 (30 slots)	75 - 3000	32.0	5.1	1.8	4.8	±3°

Ordering Information

Model 300C A complete optical chopper system includes: 300CU Control Unit, 300H Chopping Head, 300I Interconnecting Cable, 300D Set of Chopping Discs and IEC mains lead. Buy Now

Model 300CD A complete optical chopper system with frequency display includes: 300CDU Control Unit, 300H Chopping Head, 300I Interconnecting Cable, 300D Set of Chopping Discs and IEC mains lead. Buy Now

Accessories



200 slot disk which increases range to 20kHz.



445 slot disk which increases range to 40kHz.



Blade protector for the chopping head.



High frequency accessory enabling a 26mm beam to be modulated at 20kHz.



High frequency accessory (445) enabling a 10mm beam to be modulated at 40kHz.

Full **accessory** list.

Useful Documents

300H Dimensions and Wiring - pdf (25K)

300I Interconnecting Lead Wiring - pdf (15K)

300C - 300CD Manual - pdf (82K)

Chopper Home | **Discs** | **Selection Guide** | **Accessories** | **Specials** | **FAQ** | **Notes**

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