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Data Sheet

August 3, 2026

STANFORD RESEARCH SYSTEMS

Stanford Research SR542 Precision Optical Chopper

Stanford Research SR542 Precision Optical Chopper The SR542 provides a low-jitter precision optical chopper with brushless chopper head, 0.4 Hz to 20 kHz chopping (blade-dependent), flexible synchronization to internal/external/VCO/line references, and 0.01° phase resolution for lock-in and dual-beam optical experiments. Laser intensity modulation for lock-in detection; single- and dual-beam photo-mixing; synchronization of multiple choppers; shutter mode for static beam pass/block; lab optical setups requiring low phase jitter and long-life BLDC motor drive. The SR542 provides a low-jitter precision optical chopper with brushless chopper head, 0.4 Hz to 20 kHz chopping (blade-dependent), flexible synchronization to internal/external/VCO/line references, and 0.01° phase resolution for lock-in and dual-beam optical experiments. Laser intensity modulation for lock-in detection; single- and dual-beam photo-mixing; synchronization of multiple choppers; shutter mode for static beam pass/block; lab optical setups requiring low phase jitter and long-life BLDC motor drive.



MODEL

**Stanford Research
Systems SR542**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

SR542

LISTING

<https://aumictechlabs.com/products/sr542-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The Stanford Research Systems SR542 Precision Optical Chopper modulates light beams with high frequency stability and low phase jitter for demanding spectroscopy, interferometry, and

optical sensing applications. Built around a slotless brushless DC motor and precision photo-etched chopper blades, the SR542 delivers repeatable performance across a wide operating range with user-programmable harmonic and sub-harmonic control. Its analog current amplifier eliminates high-frequency EMI while six rear-panel reference outputs enable synchronization of cascading choppers and external instruments via USB or multiple synchronization sources.

Technical Specifications

Frequency Range: 0.4 Hz to 20 kHz (blade-dependent)
Frequency Accuracy: 20 ppm (0.002%) Phase Resolution: 0.01° Phase Jitter: 0.4° to 1.1° rms depending on operating frequency
Chopper Blades: Precision photo-etched blackened stainless steel; 4-inch outer diameter, 0.010-inch thickness
Blade Options: Single frequency, dual frequency, and variable duty factor designs
Motor: Slotless brushless DC motor with low mechanical vibration
Synchronization Sources: External frequency reference (sine or TTL/CMOS), internal crystal oscillator, VCO input (0 to +10 VDC), AC line (50 Hz to 60 Hz)
Frequency Control: User-programmable multiplier/divider for harmonic, sub-harmonic, or fractional harmonic operation
Phase Control: 0.01° resolution with adjustable offset; zero-phase reference capability
Shutter Mode: Operates as optical shutter via phase setting at 0 Hz internal frequency

Key Features

Analog 3-phase sinusoidal motor drive eliminates PWM-related EMI
Brushless motor design minimizes wear and extends operating life
Removable shroud prevents accidental contact with rotating head
Flexible mounting to 1-inch optical breadboard (2-inch slot spacing) or 0.5-inch optical post
Six rear-panel BNC reference outputs for instrument cascading and external triggering
Interfaces
USB computer control with 115,200 baud serial port emulation
Two BNC inputs; six BNC outputs
Direct integration with multi-instrument optical systems

Features & description

From manufacturer datasheet

Features

- Chopping frequency 0.4 Hz to 20 kHz (blade-dependent)
- Frequency accuracy ± 20 ppm; resolution 20 μ Hz or 6 digits
- Phase resolution 0.01°; low optical phase jitter
- Sync sources: internal clock, Ext Sync (sine/TTL), VCO 0–10 V, AC line
- Programmable multiplier/divider (n, m = 1–200)
- Lock to shaft, inner slots, or outer slots
- Six reference outputs: Source, Shaft, Inner, Outer, Sum, Difference
- Brushless slotless DC motor; analog sinusoidal drive (low EMI)
- USB remote interface; shutter mode at 0 Hz internal

SR542 Characteristics / Specifications

PARAMETER	VALUE
Model	SR542
Manufacturer	Stanford Research Systems (SRS)
Instrument Type	Precision Optical Chopper
Chop Frequency	0.4 Hz to 20 kHz (blade-dependent)
Shaft Frequency	0.2 Hz to 200 Hz
Frequency Accuracy	±20 ppm
Phase Resolution	0.01°
Remote Interface	USB
Power	<40 W, 90–250 VAC
Alias	SR542 Standard Operating Conditions Select blade for required chop frequency and max beam diameter. Mount head on breadboard or post; use shroud for safety. Phase-lock carefully when cascading choppers. Operational Notes
Sync sources	internal clock, Ext Sync (sine/TTL), VCO 0–10 V, AC line
Six reference outputs	Source, Shaft, Inner, Outer, Sum, Difference

SR542 Specifications

PARAMETER	VALUE
Stanford Research SR542 Precision Optical Chopper	Overview
Key Features	- Chopping frequency 0.4 Hz to 20 kHz (blade-dependent)
Technical Specifications	Model: SR542
Operational Notes	Blade type sets max frequency (e.g., 10/100-slot to 20 kHz). Alias SR542.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications

Specifications

PARAMETER	VALUE
Model	SR542
Manufacturer	Stanford Research Systems (SRS)
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Select blade for required chop frequency and max beam diameter. Mount head on breadboard or post; use shroud for safety. Phase-lock carefully when cascading choppers.

Operational Notes

Blade type sets max frequency (e.g., 10/100-slot to 20 kHz). Alias SR542.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

788 S 500 E, Pleasant Grove, UT 84062
sales@aumictech.com · +1 (484) 841-9341
<https://aumictechlabs.com>

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.