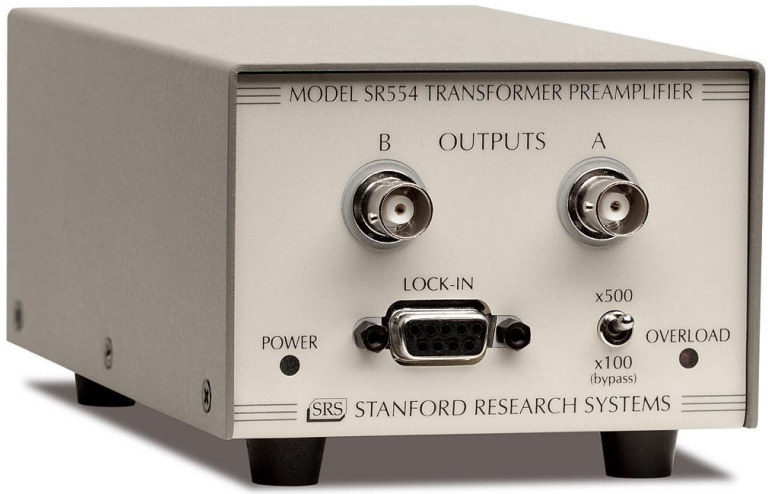
Lock-In Preamplifier

SR554 — Transformer preamplifier with differential input



SR554 Transformer Preamplifier

- Transformer-coupled input
- 0.1 nV/√Hz input noise
- 0.1 Hz to 40 kHz bandwidth
- Gain of 100 or 500
- Single-ended and differential inputs
- >40 dB isolation from DC to 500 MHz
- Powered by SRS lock-in amplifiers

The SR554 is a low-noise, transformer-coupled preamplifier optimized for source impedances between 0.05 Ω and 1 kΩ. With an input noise of only 0.1 nV/√Hz, the SR554 can be used in a wide range of low-noise applications. It is the ideal preamplifier for low-temperature, synchronous detection applications where isolation between the experimental sample and the lock-in amplifier is critical.

The SR554 can operate in one of two modes. In the “bypassed” mode, the instrument is simply a passive transformer with a turns ratio of 100, providing an overall voltage gain of 100. In the “non-bypassed” mode, an additional amplifier (gain of 5) is added, increasing the overall gain to 500 and providing a low-impedance (<1 Ω) output. In the bypassed mode, the SR554 requires no external power. When using the output amplifier, ±20 VDC must be supplied. The preamplifier connector on SRS lock-ins can be used to power the SR554.

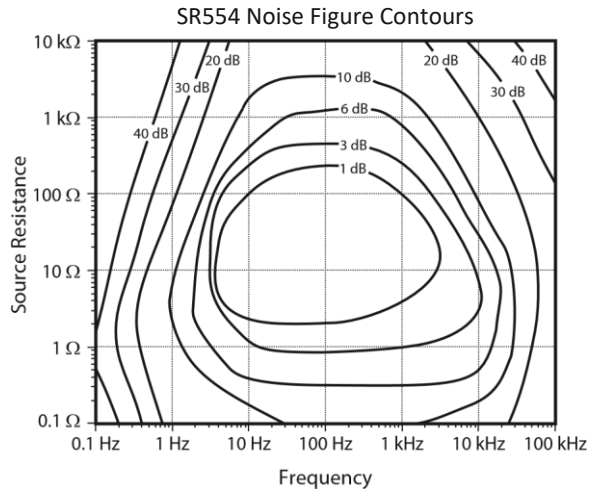
Specifications

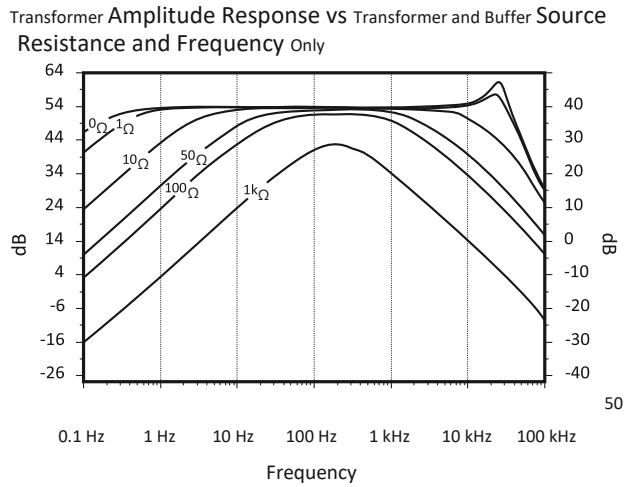
SR554 Transformer Preamplifier

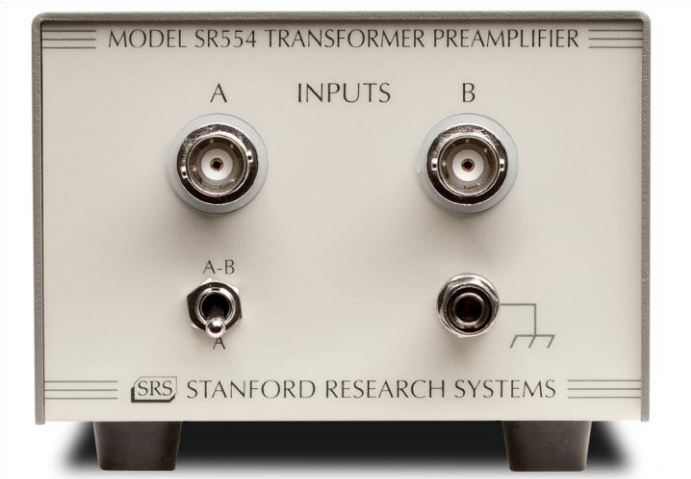
Mode	Single-ended or differential
Noise	0.1 nV/√Hz
Source impedance	0.05 Ω to 1 kΩ (recommended)
CMRR	>120 dB below 1 kHz
Common mode range	Primary can float to ±100 VDC
Gain	100× (transformer only) 500× (transformer and buffer)
Max. freq. response	0.1 Hz to 40 kHz
Isolation	>40 dB, DC to 500 MHz
Output	Single-ended or differential
Maximum output	100 Vpp (transformer only) 20 Vpp (transformer and buffer)
Output impedance	>5 kΩ (transformer only) <1 Ω (transformer and buffer)
Power	Supplied by SR510, SR530, SR810, SR830, SR850 or SR124 via control cable. External ±20 VDC supplies can also power the SR554.
Dimensions	3.75" × 3" × 7.5" (WHD)
Weight	4 lbs.
Warranty	One year parts and labor on defects in materials and workmanship

Ordering Information

SR554	Transformer preamplifier







SR554 Front Panel