

# Lock-In Preamplifier

SR554 — Transformer preamplifier with differential input



## SR554 Transformer Preamplifier

- **Transformer-coupled input**
- **0.1 nV/ $\sqrt{\text{Hz}}$  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  $\Omega$  and 1 k $\Omega$ . With an input noise of only 0.1 nV/ $\sqrt{\text{Hz}}$ , 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.

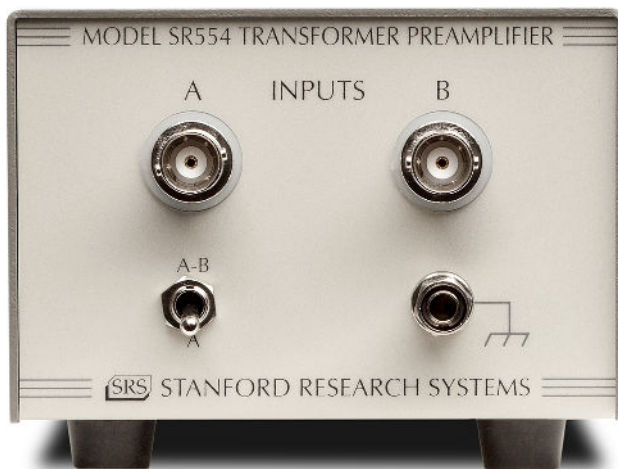
The SR554 can operate in one of two modes. In the “bypassed” mode, the instrument is simply a passive transformer with a turns ratio of 100, providing an overall voltage gain of 100. In the “non-bypassed” mode, an additional amplifier (gain of 5) is added, increasing the overall gain to 500 and providing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

## Specifications

Mode	Single-ended or differential
Noise	0.1 nV/ $\sqrt{\text{Hz}}$
Source impedance	0.05 $\Omega$ to 1 k $\Omega$ (recommended)
CMRR	>120 dB below 1 kHz
Common mode range	Primary can float to $\pm 100$ VDC
Gain	100 $\times$ (transformer only) 500 $\times$ (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 k $\Omega$ (transformer only) <1 $\Omega$ (transformer and buffer)
Power	Supplied by SR510, SR530, SR810, SR830, SR850 or SR124 via control cable. External $\pm 20$ VDC supplies can also power the SR554.
Dimensions	3.75" $\times$ 3" $\times$ 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

SR554 Noise Figure Contours

