

Lock-In Preamp

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**

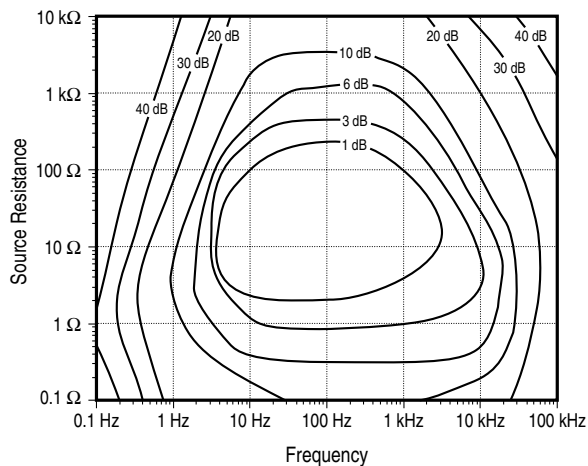
The SR554 is a low-noise, transformer-coupled preamplifier optimized for source impedances between 0.05Ω and $1 \text{ k}\Omega$. With an input noise of only $0.1 \text{ nV}/\sqrt{\text{Hz}}$, the SR554 can be used in a wide range of low-noise applications. It is the ideal preamplifier for low-temperature, 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, $\pm 20 \text{ VDC}$ 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 Ω to 1 k Ω (recommended) |
| CMRR | >120 dB below 1 kHz |
| Common mode range | Primary can float to ± 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 Ω (transformer only) <1 Ω (transformer and buffer) |
| Power | Supplied by SR510, SR530, SR810, SR830, or SR850 via control cable. Ext. ± 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 |

SR554 Noise Figure Contours



Ordering Information

SR554 Transformer preamplifier

