

LS-100 portable and LS-100R rack mount

Lab Standard Filter System

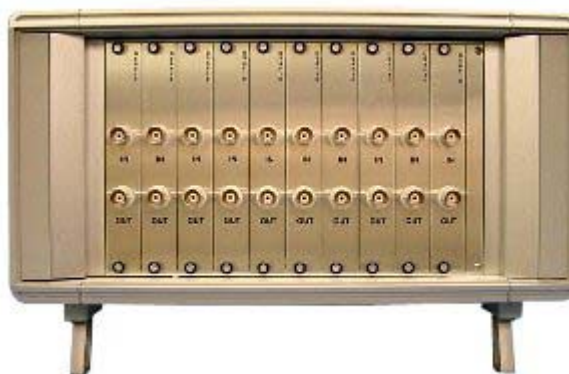
18-Bit, Precision Analog Filter System From 1 to 10 Channels Portable or 1 to 18 Channel Rackmount

The LS-100 and LS-100R use the GSAF-10 9-pole Butterworth or Bessel filter

Outstanding Specifications: 1/2 LSB Error, 18 Bit, 0.001% Gain Error, 27nV/ Noise, 0.002% THD

Features

- Ready to run 18-bit anti-aliasing
- Portable or Rack mount 19"W x 5.25"H x 13"D
- Internal linear power supply
- Filter bypass switch
- Front panel power switch
- 96 dB common-mode rejection ratio
- Gain trim to (100 (V
- DC offset trim to (1.0 (V
- Output impedance <10m(
- Input impedance 15K(
- 9-pole Butterworth and Bessel transfer functions
- Chebyshev optional
- Standard fixed frequencies of 100Hz, 200Hz, 500Hz, 1K, 2K, 5K, 10K, 20K, 50K
- Custom frequencies available upon request



Applications

- Standards laboratories
- Student laboratories.
- Precision Filtering
- Low level signals



Description

The LS-100 Lab Standard uses the GSAF-10 Gold Series of precision analog anti-aliasing filters to provide a complete system solution for precise measurement applications. The LS-100 is the first ready-to-run filter system designed specifically for 18-bit applications in a laboratory environment. With excellent specifications on common-mode rejection, filter shape accuracy, gain accuracy, and DC offset, the LS-100 reaches previously unobtained performance levels.

The combined total of all standard performance-degradation sources -- offset initial, offset drift, gain initial, gain drift, temperature and aging -- equate to less than 2 LSB of a 16-bit system. Total harmonic distortion with a 1 kHz 20Vpp input signal is an outstanding 0.002%.

[More on the GSAF-10 Modules](#)

A feedback topology at the output stage provides for a 10 mohm output impedance, making the GSAF-10 capable of driving any A/D converter input stage without further buffering.

Pre-installed offset trimming and output-gain scaling potentiometers permit nulling of offset and gain for expansion of dynamic range for maximum resolution.

GSAF-10 Module Specifications

Filter Characteristics	
Response type	9-pole low-pass, Butterworth or Bessel (Chebyshev optional)
Cutoff frequency tolerance	±2%
Corner frequencies*	100 Hz, 200 Hz, 500Hz, 1.0 kHz, 2.0 kHz, 5.0 kHz, 10.0 kHz, 20.0 kHz, and 50 kHz
Total harmonic distortion	20vpp; 1 kHz \leq .002%, 10 kHz \leq .008%
Analog Input	
Voltage range	±10V
Differential gain	1 ± .001dB
Common-mode rejection (@ 1kHz)	92 dB min, 96 dB typ
Common-mode voltage range	±40V
Impedance	15 kOhms ±2%
Maximum safe voltage	±40V
Analog Output	
Impedance	5 mOhms typ, 10 mOhms max
Linear operating range	±10V @ ±2mA
Offset voltage	±300 μV
Noise (5 Hz to 50 kHz)	25 μVrms typ, 30 μVrms max
Load Capacitance	100pF max
Environmental	
Operating temperature	0°C to 50°C
Storage temperature	-20°C to +70°C
Relative humidity (non-condensing)	0% to 95% @ 60°C

Application Versatility

The LS-100 is available with any mix GSAF-10 Gold Series modules. Simply specify the filter type and cutoff frequency for each module location.

Custom filters, amplifiers or other special functions can be provided. Contact the factory for custom requirements.

