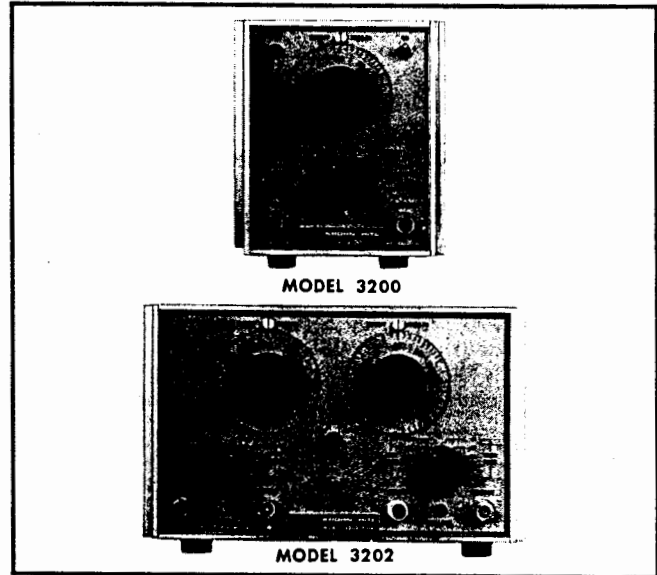


KH3200/3202

20Hz to 2MHz
HP/LP/BP/BR
MULTIFUNCTION FILTER

- Frequency Range: 20Hz to 2MHz
- Hum and Noise: 100 μ V rms
- Insertion Loss: 0dB
- Attenuation Slope: 24dB/octave (Each Channel)
- DC Coupled In Low-Pass
- Maximum Attenuation: 80dB
- Floating (Ungrounded) Operation



DESCRIPTION

The Krohn-Hite Model 3200 Series offers high-pass, low-pass, band-pass and band-reject filtering capabilities, plus continuous tuning over the range of 20Hz to 2MHz. The frequency response characteristic of this filter is a fourth order Butterworth with maximal flatness for cleanest filtering in the frequency domain. To meet the requirements of time domain, a switch changes the response to a modified RC for superior pulse or complex (transient) signal filtering.

PASSBAND GAIN

Passband gain is unity and the single channel attenuation slope is 24dB/octave. The individual channels of the Model 3202 (or 2 separate Model 3200 units) may be interconnected to obtain band-pass and band-reject modes or to achieve 48dB/octave high-pass or low-pass slopes.

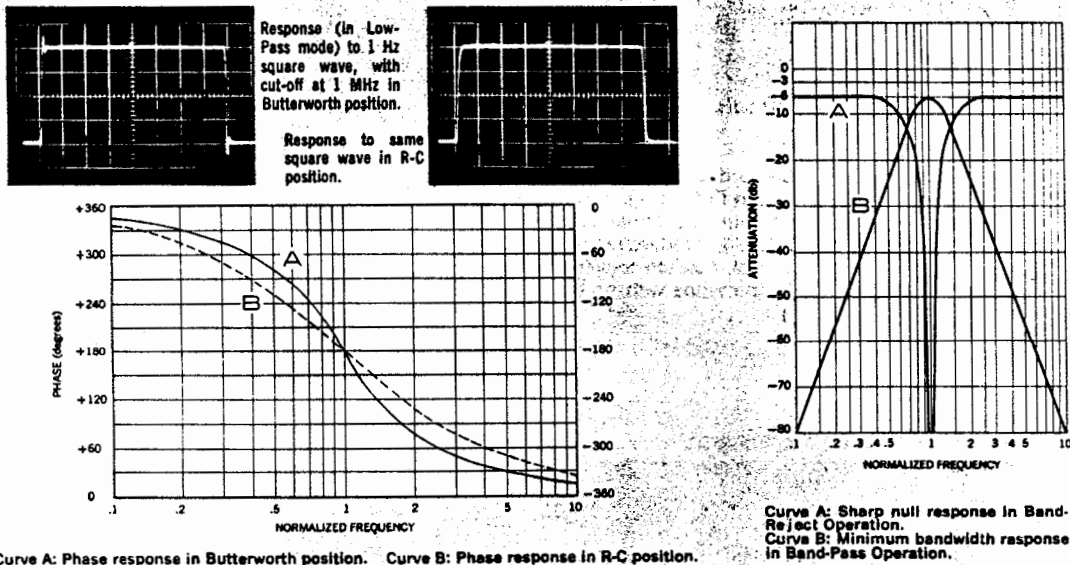
CONFIGURATIONS

Each channel consists of four cascaded RC elements coupled by isolating stages. A front panel switch selects high-pass or low-pass filtering functions. The Model 3200 is a single channel (high-pass or low-pass) unit; the Model 3202 has two identical channels.

Four package configurations are available; two bench units and corresponding rack mount units (Model 3200R and 3202R respectively). Corresponding bench and rack units are electrically identical; they differ only in package formats.

APPLICATIONS

The Model 3200 Series give the engineer versatility, performance, uniqueness and Krohn-Hite quality for applications such as controlling the bandwidth of random noise testing, sound measurements, sound recording, suppressing interference in audio communication circuits and many more.



FILTER CHARACTERISTICS

Functions: Model 3200 (Single Channel), high-pass, 24dB/octave, low-pass, 24dB/octave; Model 3202 (Dual Channel), channels cascaded, high-pass, 48dB/octave, low-pass, 48dB/octave, band-pass, 24dB/octave. Channels connected in parallel, band-reject, 24dB/octave.

Cutoff Frequency Range: 20Hz to 2MHz.

Band	Multiplier	Frequency
1	1	20Hz-200Hz
2	10	200Hz-2kHz
3	100	2kHz-20kHz
4	1k	20kHz-200kHz
5	10k	200kHz-2MHz

Frequency Tuning: Each channel has a one decade frequency dial (calibrated from 19 to 210) and an associated high-pass/low-pass band switch providing 5 multiplier ranges for each function.

Cutoff Frequency Calibration Accuracy: $\pm 5\%$ (10% on highest range) with "Response" switch in "MAX FLAT" (Butterworth) position; less accurate in "RC" position. Relative to mid-band level, the filter output is down 3dB at cutoff in "MAX FLAT" position, and approximately 13dB in RC position.

BANDWIDTH

Low-Pass Mode: From DC to cutoff frequency within the range from 20Hz to 2MHz.

High-Pass Mode: Continuously adjustable between 20Hz and 2MHz with upper 3dB point at approximately 10MHz.

Band-Pass Operation: Continuously variable within the cutoff frequency limits of 20Hz to 2MHz. For minimum bandwidth the high-pass and low-pass cutoff frequencies are set equal. This produces an insertion loss of 6dB, with the -3dB points at 0.8 and 1.2 times the mid-band frequency.

Band-Reject Operation: Continuously variable within the cutoff frequency limits of 20Hz to 2MHz or sharp null at any frequency between 40Hz and 800kHz. The low-pass band extends to dc. The high-pass band has its upper 3dB point at approximately 10MHz. The null is sharper than that of a balanced "parallel T" filter, and is obtained by setting the high-pass cutoff at approximately twice the desired null frequency, and the low-pass cutoff at approximately one-half the desired null frequency.

Attenuation Slope: Nominal 24dB/octave per channel in high-pass or low-pass modes.

Maximum Attenuation: > 80dB.

Insertion Loss: 0dB, ± 0.5 dB to 2MHz; 3dB at approximately 10MHz, 6dB in band-reject operation.

RESPONSE CHARACTERISTICS
(Selected by rear panel switch)

Butterworth: Each channel exhibits maximally flat 4th order Butterworth response for optimum performance in the frequency domain.

Modified RC: Fourth order modified RC response for transient free time domain performance.

INPUT CHARACTERISTICS

Maximum Input Amplitude: 3V rms up to 2MHz.

Maximum DC Component: Low-Pass Mode, combined ac plus dc should not exceed 4.2V peak; High-Pass Mode, 200V.

Impedance: 100k ohms in parallel with 50pF.

OUTPUT CHARACTERISTICS

Maximum Voltage: 3V rms to 2MHz (1.5Vrms in band-reject operation).

Maximum Current: 10mA (less in band-reject operation).

Internal Impedance: Approximately 50 ohms (higher in band-reject operation).

Hum and Noise: < 100 μ V rms, for a detector bandwidth of 2MHz, rising to 150 μ V rms for a detector bandwidth of 10MHz.

Output DC Level Stability: ± 2 mV/ $^{\circ}$ C.

GENERAL

Floating (ungrounded) Operation: A switch is provided on rear of chassis to disconnect signal ground from chassis ground.

Front Panel Controls: CUTOFF FREQUENCY Hz dial and Multiplier/Function switch, Power-on switch.

Terminals (per channel): Front panel and rear panel of chassis, one BNC connector for Input, one for Output.

Power Requirements: 105-125 or 210-250 volts, single phase, 50-400Hz, 15 watts.

Operating Temperature Range: 0 $^{\circ}$ C to 50 $^{\circ}$ C.

Dimensions and Weights:

Model 3200 (benchtop): 5 $\frac{1}{4}$ " (13.3cm) high, 4 $\frac{3}{4}$ " (12.1cm) wide, 15 $\frac{1}{4}$ " (38.7cm) deep; 9 lbs (4.1kg) net, 21 lbs (9.6kg) shipping.

Model 3202 (benchtop): 5 $\frac{1}{4}$ " (13.3cm) high, 8 $\frac{5}{8}$ " (21.9cm) wide, 15 $\frac{1}{4}$ " (38.7cm) deep; 14 lbs (6.4kg) net, 22 lbs (10kg) shipping.

Model 3200R (rack): 3 $\frac{1}{2}$ " (8.89cm) high, 19" (48.3cm) wide, 15 $\frac{1}{4}$ " (38.7cm) deep; 11 lbs (4.9kg) net, 21 lbs (9.5kg) shipping.

Model 3202R (rack): 3 $\frac{1}{2}$ " (8.89cm) high, 19" (48.3cm) wide, 15 $\frac{1}{4}$ " (38.7cm) deep; 18 lbs (8.2kg) net, 22 lbs (10kg) shipping.

OPTIONS

Band-Reject Kit: Part No. BR-30; connectors and cable to adapt two channels for series or parallel operation.

Specifications are subject to change without notice.