KROHN-HITE CORPORATION

"Quality" in Test and Measurement Since 1949

DC Source/Calibrators, Tunable Electronic Filters,
Wideband Power Amplifiers
Precision Phasemeters, Distortion Analyzers
Function Generators, RC Oscillators

Model 3955

170Hz to 25.6MHz, Dual Low-Pass Butterworth/Bessel Programmable Filter

- **2 Independent Channels**
- **Frequency Range:** 170Hz to 25.6MHz
- **Response:** Butterworth or Bessel (optional)
- **Attenuation Slope:** 24dB/Octave
- **Input Gain:** Selectable up to 20dB
- **Output Gain:** Selectable up to 26dB
- **Noise:** Typically <250µV referred to input
- **Stopband Attenuation:** >100dB
- **Remote Control:** GPIB

DESCRIPTION

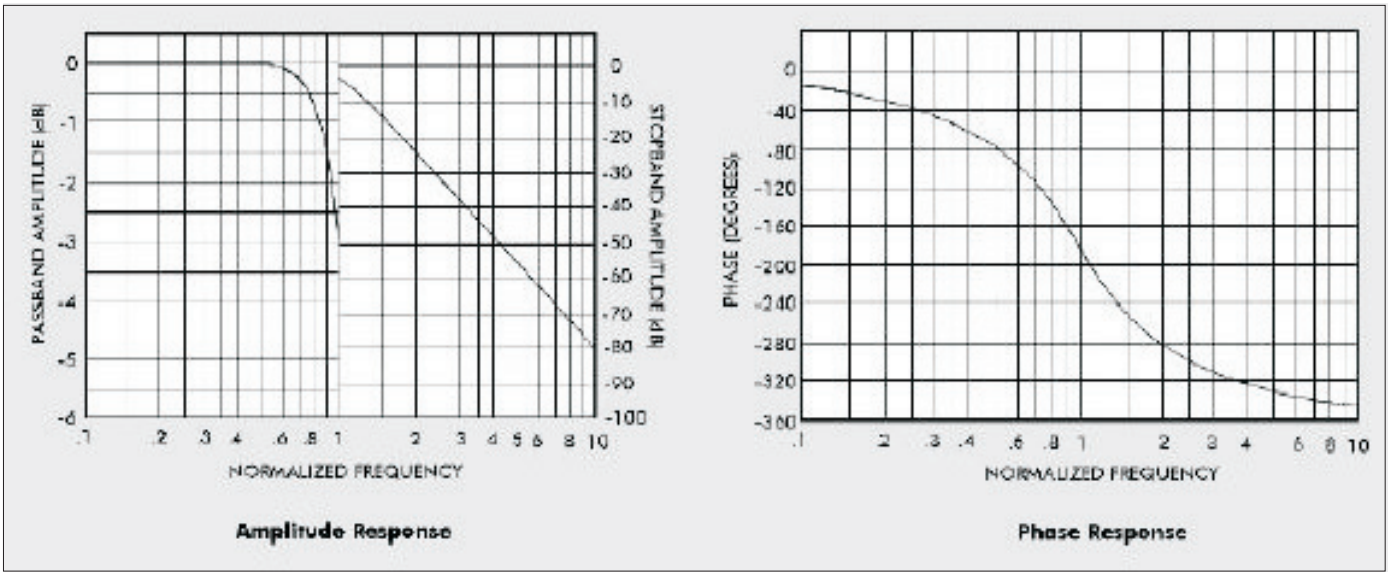
The Krohn-Hite Model 3955 programmable, dual channel, low-pass filter is the first dual low-pass programmable filter of its kind, covering the wide cutoff frequency range from 170Hz to 25.6MHz with 2 digits of resolution. The 3955 is a 4-pole, maximally flat (Butterworth) filter, with an attenuation slope of 24dB/octave and a stopband attenuation of >100dB referred to 1Vrms input. The filter has selectable ac or dc coupling and selectable 1M or 50 ohm input impedance. Programmable input gains to 20dB and output gains to 26dB are standard.

AMPLIFIER MODE

The Model 3955 also has the capability to be configured in an "amplifier bypass" mode to operate as an amplifier, bypassing the filter. This gives the user the ability to amplify without filtering when so desired.

APPLICATIONS

The Model 3955 fills many applications such as high frequency anti-aliasing for digital signal processing, EMI testing, video recording and many more. It has been carefully designed with the user in mind, providing ease of operation, reliability and price competitiveness. All backed with the quality and workmanship which Krohn-Hite has provided in filters since 1949.



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SPECIFICATIONS

Specifications apply at 25°C ±10°C.

FUNCTION: Two independent, low-pass filter channels or amplified bypass.

FILTER MODE

Filter Type: 4-Pole, Butterworth, low-pass.

Attenuation Slope: 24dB/Octave.

Tunable Frequency Range: 170Hz to 25.6MHz.

Frequency Control: Keypad entry or increment, decrement keys.

Cutoff Frequency Accuracy: ±2% to 2.56MHz, ±5% to 25.6MHz.

Passband Response: ±0.2dB up to 2.56MHz, ±0.5dB to 25.6MHz.

Stopband Attenuation: –100dB to 1MHz; –75dB at 10MHz; –55dB at 30MHz; –50dB at 50MHz; –40dB to 100MHz.

Pre-Filter Gain: 0dB, +10dB, +20dB ±0.1dB.

Post-Filter Gain: 0dB, +6dB, +20dB, +26dB ±0.1dB.

Input/Output Coupling: AC or DC. AC coupling cutoff is approximately 16Hz at the input and 10Hz at the output with a 50 ohms termination. Note that the internal 50 ohms input termination is before the AC coupling.

Noise Spectral Density (10kHz to 100MHz referred to input): Below –128dBm/Hz into 50 ohms. This translates into a wideband noise power or voltage for a 30MHz BW of below –53dBm or 500µVrms referred to input.

Harmonic Distortion (1Vrms sinewave): >–60dB below signal up to 100kHz (0.1%). All harmonics below 50dB to 1MHz; below 40dB above 1MHz.

Spurious Signals: Below –80dBm to 65MHz; below –75dBm to 100MHz. Referred to input represented in voltage form: 22mV and 40mV respectively.

DC Stability: ±0.5mV/°C referred to input.

AMPLIFIER MODE

Bandwidth: >50MHz.

Rise and Fall Time: <7ns with 0dB input gain 6dB output gain; <10ns with +20dB input or output gain. <5% ringing or overshoot.

Input:

Impedance: Selectable 1M ohm or 50 ohms, ±2%, shunted by 65pF.

Maximum Signal: ±1.5V peak with 0dB input gain, reduced in proportion to input gain selected.

Maximum Input Without Damage: 12Vrms with input terminator OFF, 7Vrms with input terminator ON.

DC Blocking Voltage: 200V. Note that the internal input termination is before the AC coupling and can only tolerate 7Vrms when ON.

Output:

Maximum Signal: ±3V peak open circuit; ±1.5V peak into 50 ohms.

Impedance: 50 ohms, ±2%.

DC Level: Adjustable to Zero.

GENERAL

Memory: 99 selectable groups; memory is non-volatile battery-backed CMOS.

Overload Modes: Three selectable modes; non-latching, that monitors all channels and displays the first channel to have an overload; latching, that maintains the overload display until it is cleared; and no indications.

Overload Indicators: LEDs for input and output. Gain display flashes when overload occurs on displayed channel.

Self-Test Diagnostics: MPU checks unit upon power-up. Display indicates failure mode.

Displays: 7 segment, green, LED; 0.3" high.

Remote Programming: IEEE-488.1 interface. Subsets: SH1, AH1, T6, L4, SR1, RL1, PP1, DC1, DT0, C0, E1.

Operating Temperature: 0°C to 50°C.

Isolation to Chassis: ±200Vdc.

Storage Temperature: –20°C to 70°C.

Input/Output Connectors: BNC, front and rear.

Power Requirements: 90-132/180-264 volts ac, 50Hz-400Hz, 25 watts.

Dimensions: 3.5" (9cm) high, 8.5" (21.8cm) wide, 18" (46.2cm) deep.

Weights: 12 lbs (5.4kg) net; 14 lbs (6.3kg) shipping.

Accessories: 6 foot, 3 terminal line cord, operating manual.

OPTIONS

Rack Mount Kit: Part No. RK-37, permits installation of the Model 3955 into a standard 19" rack spacing.

005: Replace Butterworth response to Bessel response.

Extended 1 Year Warranty: Part No. EW3955.

OPTIONAL ACCESSORIES

CAB-010: GPIB Cable with Connectors, 2-Meters

CAB-011: GPIB Cable with Connectors, 1-Meters

CAB-025: Cable, BNC, 3ft, Low Noise

Specifications subject to change without notice.

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