

Model 35

170Hz to 25.6MHz

Low-Pass Butterworth/Bessel

Plug-In Filter Card

- **Cutoff Frequency Range:** 170Hz to 25.6MHz
- **Attenuation Slope:** 24dB/Octave
- **Selectable Input Gain:** up to 20dB
- **Selectable Output Gain:** Selectable up to 26dB
- **Noise:** Typically <250 μ V referred to input
- **Stopband Attenuation:** >100dB
- **Bessel Response Available (Option 005)**



DESCRIPTION

The Krohn-Hite Model 35 Tunable Active, Low-Pass Filter Card is the first programmable filter of its kind to cover the wide frequency range of 170Hz to 25.6MHz with 2 digits of resolution. The Model 35 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.

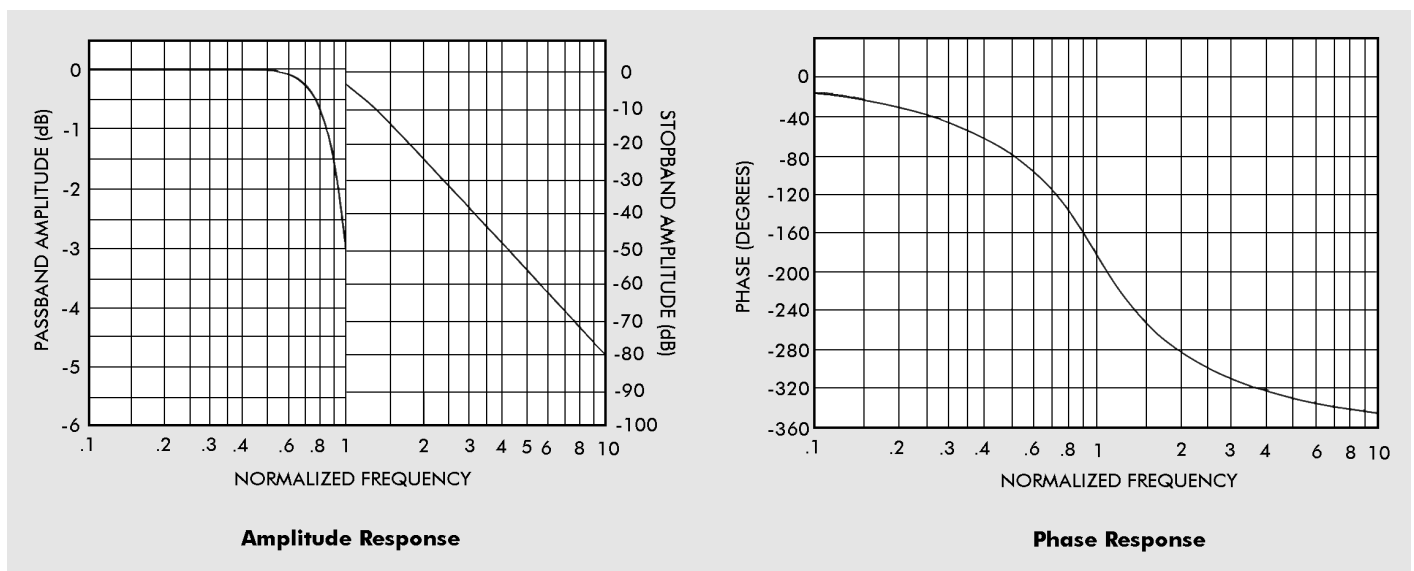
FEATURES

The filter card has selectable AC or DC coupling and selectable 1M or 50 ohm input impedance. Programmable input gains of up to 20dB and output gains up to 26dB are standard.

The Model 35 also has the capability to be configured in an Amplifier By-Pass mode to operate as an amplifier, by-passing the filter. This gives the user the ability to amplify without filtering when so desired.

SYSTEM CAPABILITY

The Model 35 filter card is part of an ever expanding line of filter cards used to create a filtering system when plugged into mainframes Model 3905B/3905C (3 1/2" high which will accept up to 5 filter cards) and the Model 3916B (which will accept up to 16 filter cards).



SPECIFICATIONS

Specifications apply at 25°C ±10°C.

FILTER CHARACTERISTICS

Filter Type: 4-Pole, Butterworth, Low-Pass.

Tunable Cutoff Frequency Range: 170Hz to 25.6MHz.

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

Frequency Range and Resolution:

Cutoff Frequency Range	Resolution
170Hz to 2.56kHz	10Hz
2.6kHz to 25.6kHz	100Hz
26kHz to 256kHz	1kHz
260kHz to 2.56MHz	10kHz
2.6MHz to 25.6MHz	100kHz

Attenuation Slope: 24dB/Octave.

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

Stopband Attenuation: 100dB to 1MHz, 80dB at 10MHz, 70dB at 30MHz, 60dB at 50MHz, 50dB to 100MHz.

Amplified Bypass Mode Bandwidth: >50MHz.

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

INPUT

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

Note: *The internal 50 ohm input termination is before the AC coupling.*

Impedance: Selectable 1M ohm or 50 ohms, ±2%, shunted by 45pF.

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

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.

Input 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.

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

Impedance: 50 ohms ±2%.

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

Output DC Offset: Adjustable to Zero.

Output DC Offset Drift: ±0.5mV/°C referred to input.

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 0.50mVrms referred to input.

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

GENERAL

Input/Output Connectors: BNC.

Power: 8 watts.

Weight: 1.75 lbs. (.8kg) net.

Operating Temperature: 0°C to 50°C.

Accessories: Operating manual.

OPTIONS

005 Bessel: Replace Butterworth response with Bessel response.

Extended 1 Year Warranty: Part No. EW35.

Specifications subject to change without notice.

NOTE: Model 35 filter card must be used with the Model 3905B/3905C or 3916B/3916C Mainframe Chassis.