CE Certified

Over 200 LP, HP, BP, BR Analog & DSP Filters Options

Description

Frequency Devices' ASC-50, is a laboratory bench-top programmable instrument that combines familiar analog signal input and output with the power and flexibility of DSP. The ASC-50 provides the user with finger-tip control of filter type, (low-pass, high-pass, band-pass, and band-reject), operating frequency, pole/bandwidth configuration, pre and post gain settings, and analog/DSP filter functions - including many not available through conventional analog techniques. All are accessible at the touch of a button. With a frequency range from 0.1Hz to 30kHz combined with amplitude response of Butterworth, Chebychev, elliptic and finite-impulse-response (FIR) filter functions, the ASC-50 offers wide tuning flexibility without the need for pre-defined programming.

An analog instrumentation interface provides input gain; DC offset control and variable output gain along with selectable single-ended and differential inputs to accommodate a variety of driving signals. Additionally, input DC-offset control is provided with expanded resolution. With the exception of filter and frequency changes all parameters of the ASC-50 can be altered on the fly without halting signal flow. Real-time bypass and gain-control facilitate test comparisons with and without the filter activated.

A four button touch-pad coupled with a liquid-crystal display (LCD) affords the user complete control of various signal conditioning functions. Through the LCD, the operator is prompted by a selection of several filter types, functions, frequency and gain settings. Less than optimum selections are indicated, providing guidance without regimentation. Saturation (over-range) conditions are indicated on both the input and output permitting ease of system setup and use.

Features

- Wide variety of filter types, functions and frequencies
- Precise, stable filter performance
- Adjustable gain and attenuation
- DC offset control
- Choice of single or differential inputs
- Special DSP bypass
- Analog and DSP clip indicators
- Filter performance display

AVAILABLE OPERATING MODES

Mode 1

Field 1	Filter type
Field 2	Filter function
Field 3	Number of poles or pole-pairs
Field 4	Q/Bandwidth
Field 5	Active/Bypass
Field 6	Corner frequency

Mode 2

Field 1	Pre-gain control
Field 2	Post/gain control

Mode 3

Field 1	Single/Differential control
Field 2	Input DC offset control

Mode 4

Field 1	Shape factor/Transition band
Field 2	Stop-band bandwidth

Analog/DSP
Filter/Amplifier Instrument

LP, HP, BP, BR

Filter Types
- Low-pass **(LP)**
- High-pass **(HP)**
- Band-pass **(BP)**
- Band-reject **(BR)**

Filter Functions
- Butterworth **(Buttr)**
- Chebyshev **(Cheby)**
- Elliptic-60dB **(Ell60)**
- Elliptic-80dB **(Ell80)**
- FIR-40dB **(FIR40)**
- FIR-60dB **(FIR60)**
- FIR-80dB **(FIR80)**

Gain Control
- **PRE** - Analog pre-gain range 0 to +36dB in 6dB steps
- **POST** - Digital post-gain range -48dB to +42dB in
- 6dB steps.

DC Offset Control
- Input DC offset range ±5 Volts

Over-Range Indication
- Analog saturation, clipping detection **(← CLIP)**
- Digital saturation, clipping detection **(CLIP →)**

Available Low-Pass, High-Pass Transfer Functions
ANALOG
- Butterworth 4,6,8,10 Pole
- Chebychev (0.1dB Ripple)   4,6,8,10 Pole
- Elliptic-60 dB (0.1dB Ripple)   4,6,8,10 Pole
- Elliptic-80 dB (0.1dB Ripple)   4,6,8,10 Pole

DIGITAL
- FIR-40 dB
- FIR-60 dB
- FIR-80 dB

Available Band-Pass, Band-Reject Transfer Functions
ANALOG

Butterworth	3,4 Pole-Pair	Q = 2,5,10,20
Chebychev (0.1dB Ripple)	3,4 Pole-Pair	Q = 2,5,10,20
Elliptic-60 dB (0.1dB Ripple)	3,4 Pole-Pair	Q = 2,5,10,20
Elliptic-80 dB (0.1dB Ripple)	3,4 Pole-Pair	Q = 2,5,10,20

DIGITAL
- FIR-40 dB   BW1,BW2,BW3,BW4
- FIR-60 dB   BW1,BW2,BW3,BW4
- FIR-80 dB   BW1,BW2,BW3,BW4

Specifications
(@ 25° °C and Rated Power Input)

Input Characteristics

Impedance	1MΩ ‖ 47pF to analog ground (each input)
Input Configuration	Single Ended or Differential
Analog Clipping Indicator Threshold	±10V
DC Offset	±5V DC
Analog Pre-Gain Range	0 to +36 dB (6 dB steps)
CMRR	>60 dB @ 1 kHz

Output Characteristics

Impedance	<1 Ω
Output Configuration	Single ended
Digital Clipping Indicator Threshold	±Full scale (Digital to analog converter)
Digital Post-Gain Range	-48 dB to +42 dB (6 dB steps)
Linear Signal Level	±10V Peak (7.07Vrms) max.
Safe Signal Level	±60V Peak max.
Total Harmonic Distortion	-70 dBV typ. @ 7.07Vrms 1 kHz (Bypass condition 30 kHz BW)
Noise	-90 dBV typ. input grounded (Bypass condition 30 kHz BW)

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