

### 3951 2-CH. FILTER / SYNC FUNCTION CARD

# TBD



- 2 Channel with 8-pole Low-pass Filter
- 23 Filter Settings plus MUTE per Channel
- $\pm 10V$  Signal Input Range
- $\pm 20V$ ,  $\pm 10V$ ,  $\pm 0.1V$  and  $\pm 0.01V$  Output Range
- PLL/DDS Synchronization Unit

### POWER

The ProDAQ 3951 Filter/Synchronization Function Card is one of the ProDAQ high density cards which can be fitted into ProDAQ Motherboards. ProDAQ modules are the most versatile VXIbus modules on the market. They provide the user with the highest channel density and functionality available today.

The ProDAQ 3951 function card is a 2-channel analog filter card. It provides a set of 8-order analog filters for applications that need higher filter capabilities than those already implemented on the ProDAQ ADC and DAC function cards.

Each of the two analog channels contains a number of 8-order low pass filter stages, providing 23 different filter settings in the range of 100Hz to 150 kHz. Fifteen of these settings are fixed, covering a range of 10-150 kHz in 10 kHz steps, while the other eight are version dependent and customizable to cover the range between 100 Hz and 10 kHz. The sixteenth setting leaves the filter fully powered, but sets the gain to zero, providing an attenuation of typ. 100 dB (MUTE).

The built-in gain stage allows for gains of 2, 1, 0.1 and 0.01 and is for example suited to improve the resolution of a DAC signal filtered through this card.

The synchronization circuitry allows to generate sample clocks with a high resolution and precision for older ProDAQ function cards. The clock is synchronized to the common clock used to synchronize function cards as for example the ProDAQ 3424 24-bit ADC and ProDAQ 3808 Counter/Frequency Meter.

The ProDAQ 3951 Filter/Synchronization Function Card is supplied with VXI *plug&play* drivers, that can be used with all popular software packages. The driver automatically detects and initializes all the function cards installed in one of the ProDAQ motherboard modules, removing any possibility of configuration errors.

ProDAQ modules allow the user to safely and simply expand their existing hardware and software systems.



<b>Number of Channels</b>	2
<b>Type</b>	single-ended
<b>Input Range</b>	$\pm 10$ V
<b>Gain Settings</b>	2, 1, 0.1, 0.01
<b>Output Ranges</b>	$\pm 20$ V, $\pm 10$ V, $\pm 1$ V and $\pm 0.1$ V
<b>0.1 - 9 kHz Filter Range</b>	
Filter Type:	8-pole low-pass Butterworth
Cut-off Frequencies:	8 different settings in the range 0.1 - 9 kHz. Versions available:  <b>-AA:</b> 500Hz, 750Hz, 1kHz, 2kHz, 3kHz, 5kHz, 7kHz and 9kHz  Other filter settings available on request.
Offset Error:	$< \pm 500 \mu\text{V}$
DC Gain Error:	0.3 % @ Gain 2 0.3 % @ Gain 1 0.11 % @ Gain 0.1 0.013 % @ Gain 0.01
Effective Resolution:	18.1 bits (10 Hz to 24.5 kHz Bandwidth)
Stopband Attenuation:	$> 48$ dB (Gain 1, $2f_c$ ) $> 85$ dB (Gain 1, $5f_c$ )
SINAD:	$> 74$ dB (@ $0.8 f_c$ , Gain 1, $18.4 V_{pp}$ )
THD:	$< 0.02\%$ (@ $0.8 f_c$ , Gain 1, $18.4 V_{pp}$ )
SNR:	$> 87$ dB (@ $0.8 f_c$ , Gain 1, $18.4 V_{pp}$ )
<b>10 - 150 kHz Filter Range</b>	
Filter Type:	8-pole low-pass Elliptic
Cut-off Frequencies:	16 settings in steps of 10 kHz
Offset Error:	$< \pm 500 \mu\text{V}$
DC Gain Error:	1.4 % @ Gain 2 0.85 % @ Gain 1 0.11 % @ Gain 0.1 0.013 % @ Gain 0.01
Effective Resolution:	17.3 bits (10 Hz to 24.5 kHz Bandwidth)
Stopband Attenuation:	$> 62$ dB (Gain 1, $2f_c$ ) $> 80$ dB (Gain 1, $5f_c$ )
SINAD:	$> 60$ dB (@ $0.8 f_c$ , Gain 1, $18.4 V_{pp}$ )
THD:	$< 0.1\%$ (@ $0.8 f_c$ , Gain 1, $18.4 V_{pp}$ )
SNR:	$> 74$ dB (@ $0.8 f_c$ , Gain 1, $18.4 V_{pp}$ )
<b>Output Resistance</b>	$< 150 \text{ m}\Omega$
<b>Output Current</b>	$\pm 10$ mA max.
<b>Synchronization</b>	Sync Input from motherboard, Output to front-panel connector
<b>Power Consumption</b>	6.6 W (without output load)
<b>Connectors</b>	
Analog I/O	Lemo EPL.00.250.DTN (Gold plated)
Clock Output	Lemo EPL.00.250.NTN (Nickel plated)
<b>Dimensions</b>	235 x 106mm (4.2 x 9.1 inch)
<b>Weight</b>	160 grams
<b>Operating Temperature</b>	0° C to 50° C
<b>Storage Temperature</b>	-40° C to 70° C
<b>Warm-up Time</b>	$> 1$ Hour.
<b>Software Support</b>	VXIplug&play driver for the WIN95 and WINNT frameworks, Linux
<b>Configuration</b>	Cards can be factory installed or field installed by user
<b>Warranty Period</b>	12 month standard, extended periods available at additional cost

#### Ordering Information:

3951-AA 2-Ch. Filter/Sync  
Function Card

#### Related Products:

3120-AA Standard Motherboard  
3150-AA High-Performance Motherboard  
3550-XX Fast AWG/DAC Func. Card

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