

ProDAQ Data Acquisition Function Cards

ProDAQ 3808 8-Channel, 100 MHz Counter/Timer/Frequency Meter Function Card



OVERVIEW

The ProDAQ 3808 function card, an enhanced version of the ProDAQ 3806 counter/timer function card, is designed to operate in one of three modes: pulse counter, frequency meter, or time interval counter. In the pulse counter and frequency measurement modes, users can process incoming signals of up to 25 MHz on each of the six channels. A time interval counter range is divided into six sub-ranges, covering times from 40 ns to 20000 s with a maximum resolution of 10 ns. For pulse-width measurements, the same ranges apply.

Every channel of the ProDAQ 3808 function card has two different counters; a 32-bit pulse counter and a 24-bit time interval counter, providing simultaneous operation as a pulse and a time-interval counter. The time-interval counter can count consecutive time intervals and store the results in an onboard FIFO memory. This allows for time-interval averaging, resulting in increased time and measurement accuracy. Users can store up to 128 time values per channel in the onboard FIFO, and perform on-the-fly readouts during the measurement cycle.

The time interval can be defined by selecting either rising, falling or consecutive edges of the input signal.

The pulse and time-interval counters are globally enabled by the gate signal, which can be generated either internally, externally or by software. In addition, the trigger signal (common or separate for every channel) can be used to gate the time interval measurements.

This provides two modes of operation: a window mode, in which the trigger enables measurements for the time duration of the trigger pulse and a launch mode, in which the trigger starts the measurements. Each mode can be programmed independently on a channel-to-channel basis.

Input signals can either be DC or AC-coupled with 1 M Ω or 50 Ω termination. Every channel has a 10-bit digital-to-analog converter, to set a threshold within the full-scale input signal range of ± 5 V.

Features & Benefits

- ▶ **8 channels**
- ▶ **100 MHz resolution**
- ▶ Simultaneous operation as a **pulse and a time-interval counter**
- ▶ **25 MHz frequency counter, 25 MHz event counter**
- ▶ **Pulse and time-interval measurement**
- ▶ **Programmable threshold** per channel
- ▶ **128 words/ch** onboard **FIFO**
- ▶ Up to **64 counter/timer channels** in 1U (**LXI**) or 1 slot (**VXI**)
- ▶ Fully **synchronizable** with **ProDAQ 3424** and **ProDAQ 3550**
- ▶ **On-the-fly readouts**

For more information, visit www.bustec.com.

Learn more about the **ProDAQ 3808** on our website by scanning the code below.





SPECIFICATIONS

SAMPLING

FIFO	128 words per channel	
Threshold Level	Range	±5 V
	Resolution	10 bits

INPUT CHARACTERISTICS

Number of Channels	8
Input Range	±5 V
Input Type	Single-ended
Coupling	DC or AC
Input Impedance	50 Ω or 1 MΩ for both DC and AC coupling
AC Coupling	1 μF in series with input signal
Max. Input Voltage	±10 V DC @ 50 Ω termination
	±20 V DC @ 1 MΩ termination

SENSITIVITY

DC to 10 MHz	25 mV RMS
10 MHz to 20 MHz	40 mV RMS
20 MHz to 25 MHz	80 mV RMS

GATE AND TIME

Frequency Measurement and Pulse Counting	Max. Frequency	25 MHz
	Min. Pulse Width	20 ns
	Counter Width	32 bits
Internal Gate	Range	400 ns to 1717 s
	Resolution	400 ns
External Gate	Level	TTL
	Min. Pulse Width	25 ns
	Active Edge	software selectable
Time Interval Measurement	Range	40 ns to 20000 s
	Resolution	10 ns to 1 ms in decade steps
	Min. Pulse Width	40 ns
	Counter Width	24 bits
Time Base	Frequency	100 MHz
	Overall Stability	±15 ppm for 0°C to 50°C

FRONT PANEL I/O

Trigger Input	Level	TTL
	Min. Pulse Width	25 ns
	Active Edge	software selectable
	Connector	50-pin SCSI female

PHYSICAL CHARACTERISTICS

Dimensions	230 mm x 53 mm
Weight	85 g

POWER REQUIREMENTS

Current Consumption	Voltage (V)	Current (mA)	
		Static	Dynamic
	+12	80	10
	-12	80	10
	+5	300	200
	-5.2	120	90
	-2	20	40
Power Consumption	< 5.5 W		

ENVIRONMENTAL

Temperature	0°C to +50°C (operational)
	-40°C to +70°C (storage only)
Humidity	10% - 90% (non-condensing)

SOFTWARE SUPPORT

Driver support for Microsoft Windows, VxWorks, and Linux (Contact Bustec Ltd. for more information)

WARRANTY PERIOD

12 months (extended periods available at additional cost)

Ordering Information

- ▶ **3808-AA** 8-ch, 100 MHz counter/timer/frequency meter function card

Related Products

- ▶ **6100-xx** LXI function card carrier
- ▶ **3180-AA** Ultra-performance motherboard module
- ▶ **5010-AA** Signal conditioning unit
- ▶ **5421-AA** 24-ch terminal card, direct input
- ▶ **5423-AA** 24-ch attenuator card, 10:1
- ▶ **8010-AA** 0.5m SCSI cable

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