

# PCI-9820

## 2-CH 14-Bit 65 MS/s PCI Digitizers with SDRAM



### Introduction

ADLINK's PCI-9820 is a 65 MS/s, high-resolution PXI digitizer with deep SODIMM SDRAM memory. The device features flexible input configurations, including programmable input ranges and user-configurable input impedance. With the deep onboard acquisition memory, the PCI-9820 is not limited by the 132 MB/s bandwidth of PCI bus and can record the waveform for a long period of time. The PCI-9820 is ideal for high-speed waveform capturing, such as radar and ultrasound applications, as well as software radio applications, or those signal digitizing applications which need deep memory for data storage.

### Specifications

#### Features

- Supports a 32-bit 3.3 V or 5 V PCI bus
- PXI specifications Rev.2.2 compliant (PXI-9820)
- 14-bit A/D resolution
- Up to 60 MS/s (with internal timebase) & 65 MS/s (with external timebase) sampling rate per channel
- Up to 130 MS/s sampling rate in "ping pong" mode
- 2-CH single-ended bipolar inputs
- >30 MHz -3 dB bandwidth
- Up to 512 MB onboard SODIMM SDRAM
- Programmable ranges of  $\pm 1$  V and  $\pm 5$  V
- User-configurable input impedance of 50  $\Omega$  or high input impedance
- Scatter-gather DMA
- Analog and digital triggering
- Fully auto calibration
- Multiple modules synchronization capability
- Supported Operating System
  - Windows 7/8 x64/x86, Linux
- Driver and SDK
  - LabVIEW, MATLAB, C/C++, Visual Basic, Visual Studio.NET
- Software Utility
  - AD-Logger



#### Analog Input

- Number of channels: 2 simultaneous-sampled single-ended
- Resolution: 14 bits
- Maximum sampling rate
  - 65 MS/s for 2 inputs
  - 130 MS/s for Ping-Pong mode using external timebase
- Onboard sample memory
  - 512 MB
- Bandwidth (-3 dB): 30 MHz minimum
- Input signal ranges: (software programmable)  $\pm 5$  V,  $\pm 1$  V
- Input Coupling: DC
- Overvoltage protection

Range	Overvoltage Protection
$\pm 5$ V	$\pm 14$ V
$\pm 1$ V	$\pm 5$ V

- Input Impedance (soldering selectable): 50  $\Omega$ , 1.5 M $\Omega$
- Crosstalk: < -80 dB, DC to 1 MHz
- Total harmonic distortion (THD): -75 dB
- Signal-to-Noise ratio (SNR)

Range	SNR
$\pm 5$ V	66 dB
$\pm 1$ V	62 dB

- Spurious-free dynamic range (SFDR): 75 dB
- Data transfer: bus-mastering DMA with scatter-gather

#### Auto Calibration

- Onboard reference: +5 V
- Onboard reference temperature drift: 2 ppm/ $^{\circ}$ C
- Stability: 6 ppm/1000 Hrs

#### External Timebase Input

- direct external timebase input
- Connector: SMB
- Impedance: 50  $\Omega$
- Coupling: AC
- Input amplitude: 1 V<sub>pp</sub> to 2 V<sub>pp</sub>
- Overvoltage protection: 2.5 V<sub>pp</sub>
- Frequency range: 500 kHz - 65 MHz

#### Triggering

##### Analog Triggering

- Modes: pre-trigger, post-trigger, middle-trigger, delay-trigger
- Sources: CH0 and CH1
- Coupling: DC

##### Digital triggering

- Modes: pre-trigger, post-trigger, middle-trigger, delay-trigger
- Source: external digital trigger from SMB
- Compatibility: 5 V/TTL

#### General Specifications

- I/O connector
  - BNC x 2 for analog inputs
  - SMB x 4 for external digital trigger, external time base, and synchronous digital inputs
- Operating temperature: 0 $^{\circ}$ C to 50 $^{\circ}$ C (32 $^{\circ}$ F to 122 $^{\circ}$ F)
- Storage temperature: -20 $^{\circ}$ C to 80 $^{\circ}$ C (-4 $^{\circ}$ F to 176 $^{\circ}$ F)
- Relative humidity: 10% to 90%, non-condensing
- Power requirements

Power Rail	Current
	PCI-9820
5 V	895 mA
12 V	295 mA
3.3 V	430 mA (with 512 MB SDRAM)

- Dimensions (not including connectors)  
175 mm x 107 mm (6.82" x 4.17")

#### Certifications

- EMC/EMI: CE, FCC Class A

### Cable Accessories

Cable	Description	PCI-9820
SMB-SMB-1M	1-meter SMB to SMB cable	✓
SMB-BNC-1M	1-meter SMB to BNC cable	✓
ACL-SSI-2	SSI Bus cable for 2 devices	✓
ACL-SSI-3	SSI Bus cable for 3 devices	✓
ACL-SSI-4	SSI Bus cable for 4 devices	✓

### Ordering Information

- PCI-9820D**  
2-CH 14-Bit 65 MS/s Digitizer