

# Q2-USB, Q8-USB, & QPIDE

## Data acquisition boards optimized for real-time measurement and control

Quanser's ground-breaking data acquisition technology delivers reliable real-time Hardware-in-the-Loop (HIL) performance. With an integrated terminal board and USB connectivity, our Q2-USB and Q8-USB DAQs offer easy and quick access to signals. Closed-loop rates of up to 2 kHz, low I/O latency times, and easy connectivity make the Q2-USB and Q8-USB ideal for teaching controls concepts. Alternatively, the PCI-based QPIDE offers researchers a precise way to acquire large amounts of data. The QPIDE is suitable for complex controls applications such as aerospace and haptics where sampling rates of 10 kHz can be achieved due to ultra-low I/O latency and simultaneous sampling of each I/O type.

With a wide range of inputs and outputs, you can easily connect and control a variety of devices instrumented with analog and digital sensors, including encoders. Quanser data acquisition devices are fully supported in Simulink® by a QUARC® Simulink blockset - the most efficient way to develop, deploy and validate real-time applications on hardware. Furthermore, the Quanser HIL SDK provides APIs for C, C++, .NET, and MATLAB®.

### Features



Q2-USB

Q8-USB



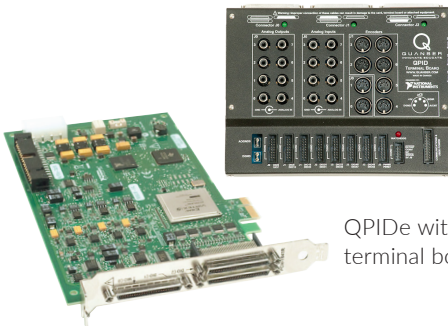
#### Cost effective

Processing via CPU rather than expensive and inflexible DSP



#### Precise

Optimized for real-time control performances



QPIDE with terminal board



#### Simple

Quick-connect terminal board supporting a wide range of analog and digital IO



#### Open

Design in MATLAB®/Simulink® via QUARC®, C, C++, or .NET on Windows

## Device Specifications

	Q2-USB	Q8-USB	QPIDe
Connectivity	USB 2.0	USB 2.0	PCIe
Analog Inputs			
Number of channels	2	8	8
Resolution	12-bit	16-bit	16-bit
Input range	+/- 10 V	+/-5 V, +/-10 V	+/- 10 V
Analog Outputs			
Number of channels	2	8	8
Resolution	12-bit	16-bit	16-bit
Output range	+/- 10 V	+/-5 V, +/-10 V	+/- 10 V
Encoder Inputs			
Number of channels	2	8	8
Max count frequency in X4 quadrature decoding	10 MHz	99 MHz	40 MHz
Digital IO			
Number of channels	8 (DI) 8 (DO)	8 (DI) 8 (DO)	56 (DIO)
PWM Outputs			
Number of channels	2	8	8
Resolution	16-bit	16-bit	16-bit
Output low (max)	0.40 V	0.55 V	0.40 V
Output high (min)	2.40 V	4.50 V	2.40 V
Min frequency	2.4 Hz	24 Hz	9.6 Hz
Max frequency	40 MHz	49 MHz	20 MHz
SPI			
Max data rate	-	-	10 MHz
Bit width range	-	-	1-32 bit
General Purpose Counter/Timers			
Number of channels (16-bit)	-	-	2
Resolution (16-bit)	-	-	800 ns
Number of channels (32-bit)	-	-	2
Resolution (32-bit)	-	-	25 ns

### About Quanser:

For 30 years, Quanser has been the world leader in innovative technology for engineering education and research. With roots in control, mechatronics, and robotics, Quanser has advanced to the forefront of the global movement in engineering education transformation in the face of unprecedented opportunities and challenges triggered by autonomous robotics, IoT, Industry 4.0, and cyber-physical systems. Quanser is unique in its approach. Deploying an extensive portfolio of advanced technology and IP, Quanser has distinguished itself as the only commercial organization that offers a comprehensive, academically sound platform for delivering programs in these emerging fields in a timely and rational way. Increasingly Quanser is playing a leadership role within the global community of engineering Deans, and the progressive education leadership as our academic achievements have positioned the company as true colleagues as opposed to conventional vendors.

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