

iDAQ-801

4-ch, 24-bit, 256kS/s/ch, DSA iDAQ Module



Features

- 4-ch simultaneous sampling up to 256kS/s
- 24-bit resolution
- Direct IEPE supply
- Anti-aliasing filter equipped
- High gain up to $\pm 187.5\text{mV}$ input range

Specifications

Analog Input

- **Channels** 4, Differential or pseudo-differential (50 Ω between negative input terminal and chassis ground)
- **Resolution** 24 bits
- **Input range** $\pm 12\text{ V}$, $\pm 6\text{ V}$, $\pm 3\text{ V}$, $\pm 1.5\text{ V}$, $\pm 0.75\text{ V}$, $\pm 0.375\text{ V}$, or $\pm 0.1875\text{ V}$, software selectable per channel
- **Input common-mode voltage range** $\pm 12\text{ V}$
- **Over-voltage protection** $\pm 25\text{ V}$
- **Input coupling** AC or DC, software configurable per channel
- **Acquisition type** Instant or buffered, software configurable

Integrated electronic piezoelectric excitation (IEPE)⁽¹⁾

- **Current** 0 mA or 2 mA, software configurable per channel
- **Accuracy** $\pm 5\%$ max.
- **Compliance** 22 V min.
- **Fault detection threshold** $< 1.5\text{ V}$ (short) and $> 22.5\text{ V}$ (open), Status report

Analog low-pass filter

- **Filter type** 4-th order, linear phase
- **-3 dB bandwidth** 1 MHz
- **Digital low-pass filter** Filter type: Wideband
-3 dB bandwidth: 0.433 x sample rate

Absolute accuracy⁽²⁾

- **auto-calibration temperature** $\pm 0.01\%$ of full-scale range max.
- **Over full operating temperature range** $\pm 0.05\%$ of full-scale range max.
- **Common-mode rejection ratio (CMRR)** 99.5 dB

DC performance

- **Idle channel noise** 39.3 μVRMS
- **Effective resolution** 24 bits

AC performance

- **Signal-to-noise ratio (SNR)** 110.61 dB
- **Total harmonic distortion (THD)** -115.24 dB
- **Total harmonic distortion plus noise (THD+N)** -109.4 dB
- **Spurious-free dynamic range (SFDR)** 117.49 dB
- **Crosstalk** -104.06 dB

Buffered acquisition

- **Enabled channel combination** Each channel can be enabled/disabled independently by software
- **Sample rate** (256 / 2n) kHz, where n = 0 ~ 8, for all channels, simultaneous sampling, software configurable
- **Internal data buffer (FIFO) size** 512 samples

Power Requirement

- **Power Input** 5 V_{DC} through iDAQ chassis
- **Power Consumption** 2 W typ./ 2.6 W max

Mechanical

- **Module dimensions** 100 x 80 x 25 mm (3.94 x 3.15 x 0.98 in)
- **Weight** 200 g

Environment

- **Operating temperature** $-40\text{ }^{\circ}\text{C}$ to $70\text{ }^{\circ}\text{C}$ ($-40\text{ }^{\circ}\text{F}$ to $158\text{ }^{\circ}\text{F}$)
- **Storage temperature** $-40\text{ }^{\circ}\text{C}$ to $70\text{ }^{\circ}\text{C}$ ($-40\text{ }^{\circ}\text{F}$ to $158\text{ }^{\circ}\text{F}$)
- **Operating humidity** 10% to 90% RH, non-condensing
- **Storage humidity** 5% to 95% RH, non-condensing
- **Vibration** 5Grms
- **Shock** 30G
- **Indoor use only**

Certification

- **EMC** CE, FCC
- **Safety** CB, UL

Ordering Information

- **iDAQ-801-AE** 4-ch, 24-bit, 256kS/s/ch, DSA iDAQ Module

Optional Accessories

- **PCL-1010B-1E** BNC Coax Cable, 1m

(1) Input coupling must be AC and input configuration must be pseudo-differential when IEPE is enabled.

(2) Operating temperature within $\pm 5^{\circ}\text{C}$ of last