iDAQ-871
iDAQ-873

4-ch, 24-bit, 25.6kS/s, Full/Half/ Quarter Bridge Input iDAQ module

8-ch, 24-bit, 25.6kS/s, Quarter Bridge Input iDAQ module

Features

- High resolution (24-bit)
- All types of bridges supported (full, half and quarter)
- Software-configurable and multiple bridge completion flexibility (iDAQ-871)
- Synchronization along with other iDAQ modules
- Multiple trigger modes for flexible configured acquisition timing
- Built-in digital filter for higher SNR

Introduction

The iDAQ-871/873 series are designed for bridge-type high-precision data acquisition. There's built-in Wheatstone bridge ready in the measurement channels. The built-in digital filter could also filter down most of the unnecessary noises, which enhanced the measurement accuracy. It's suitable for measurement from sensors like strain gauges and load cells.

Specifications

Bridge Input

Item	iDAQ-871	iDAQ-873
ADC Resolution	24-bit	
Channels	4	8
Input Range	±1 V/V, ±500 mV/V, ±250 mV/V, ±125 mV/V, ±62.5 mV/V, ±31.25 mV/V, ±15.63 mV/V, or ±7.81 mV/V	
Bridge Mode	Full, half, quarter	Quarter
Bridge Resistance	120 Ω, 350 Ω, 1 kΩ	120 Ω
Shunt Calibration	100 kΩ	
Excitation Voltage	2.5V, 5V	2V

- **Digital low-pass filter** — Filter type: FIR or SINC1, selected by sampling rate. Refer to user manual for detail information
  -3 dB bandwidth: Configured along with sampling rate. Refer to user manual for detail information
- **Isolation protection** — 600 V_{DC}, Channel to FGND
- **Accuracy** [1] — Operating temperature within ±5°C of last, system-calibration temperature (25°C)

	Within System Calibration Temp.		Over System Calibration Temp.	
Items	Gain	Offset	Gain	Offset
Calibrated	±0.05%	±0.05%	±0.20%	±0.25%
Uncalibrated [2]	±0.20%	±0.20%	±0.70%	±0.35%

- **Shunt calibration** — Resistance: 100 kΩ
  Resistance accuracy: ±0.1% max.
  Resistance drift: ±100 ppm/°C max.
- **Over-voltage protection** — ±30 V
- **Acquisition type** — Instant or buffered, software configurable
- **Buffered acquisition** — Enabled channel combination: Each channel can be enabled/disabled independently by software
  Sample clock rate: 25.6 kHz max., for all channels, simultaneous sampling, software configurable

Trigger

- **Number of triggers** — 2 max., selectable via software
- **Trigger action** — Start, delay to start, stop, or delay to stop
- **Trigger delay range** — 0 ~ 16,777,215 samples
- **Sample number** — 0 ~ 16,777,215 samples

Analog Trigger

- **Source** — One of the analog input channels, software configurable
- **Input range** — Full scale of analog input range
- **Resolution** — 24-bit
- **Hysteresis** — 1/256 of analog input range, software configurable
- **Accuracy** — ±0.01% of full-scale range max.
- **Polarity** — Rising edge or falling edge, software configurable
- **Minimum width** — 1/(sample rate)

Digital Trigger

- **Source** — 2 external input sources, via iDAQ chassis/module

Physical

- **Form factor** — iDAQ Module
- **Dimension** — 100 x 80 x 25 mm (3.94 x 3.15 x 0.98 in.)
- **Weight** — 175 g
- **I/O connector** — 37-pin D-SUB

Environmental

- **Operating temperature** — -40 ~ 70 °C (-40 ~158 °F)
- **Storage temperature** — -40 °C to 85 °C (-40 °F to 185 °F)
- **Operating humidity** — Up to 90% RH, non-condensing
- **Vibration** — 5Grms, random vibration
- **Shock** — 30G
- **Certification** — EMC: CE, FCC

Ordering Information

- **iDAQ-871** — 4-ch, 24-bit, 25.6kS/s, Full/Half/Quarter Bridge Input iDAQ module
- **iDAQ-873** — 8-ch, 24-bit, 25.6kS/s, Quarter Bridge Input iDAQ module

Accessories

- **ADAM-3937-AE** — DB-37 Wiring Terminal, DIN-rail Mount
- **PCL-10137-1E** — DB-37 Shielded Cable, 1m
- **PCL-10137-2E** — DB-37 Shielded Cable, 2m
- **PCL-10137-3E** — DB-62 Shielded Cable, 3m

[1] For detail specification, please refer to the user manual.
[2] System calibration should be taken place before starting the measurement whenever new measurement system is built, otherwise the accuracy would stay uncalibrated.

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