



**THE DATASHEET OF  
IDAQ-817-AE**



# iDAQ-817

# iDAQ-821

## 8-ch, 16-bit, 200kS/s, Analog Input iDAQ Module

## 4-ch, 16-bit, 10kS/s/ch, Analog Output iDAQ Module



iDAQ-817

### Specifications

#### Analog Input

- **Channels** 8 differential
- **Resolution** 16 bits
- **ADC type** Successive approximation (SAR)
- **Input range**  $\pm 10$  V or  $\pm 20$  mA, each channel can be configured independently by software
- **Input common-mode voltage range**  $\pm 275$  V max.
- **Input coupling** DC
- **Input impedance** Differential, voltage meas. 800 k $\Omega$   
Common-mode, voltage meas. 200 k $\Omega$   
Current measurement 500  $\Omega$
- **Isolation protection** 600 VRMS
- **Operation mode** Instant or buffered, software configurable
- **Sample rate** (200 / n) kHz max., where n is the number of enabled channels, software configurable
- **Internal data buffer (FIFO) size** 512 samples
- **Absolute accuracy**

Items	Within Calibration Temperature* $\pm 5^\circ\text{C}$	Over Calibration Temperature* $\pm 5^\circ\text{C}$
<b>Voltage</b>	$\pm 0.01\%$ of full-scale range max.	$\pm 0.05\%$ of full-scale range max.
<b>Current</b>	$\pm 0.1\%$ of full-scale range max.	$\pm 0.5\%$ of full-scale range max.

- **Bandwidth (-3dB)** 78 kHz
- **DC performance** Idle channel noise 0.34 mVRMS / 0.7 mARMS  
Effective resolution 15.8 bits
- **AC performance** Signal-to-noise ratio (SNR) 86 dB  
Total harmonic distortion (THD) -98 dB  
Total harmonic distortion plus noise (THD+N) -86 dB  
Effective number of bits (ENOB) 14.0 bits  
Spurious-free dynamic range (SFDR) 103 dB  
Crosstalk -85 dB

#### General

- **Power consumption from chassis** 1W typ./1.25W max.
- **Dimensions** 100 x 80 x 25 mm (3.94 x 3.15 x 0.98 in.)
- **Operating temperature** -20 °C to 60 °C (-4 °F to 140 °F)
- **Storage temperature** -40 °C to 70 °C (-40 °F to 158 °F)
- **Operating humidity** 10% to 90% RH, non-condensing
- **Storage humidity** 5% to 95% RH, non-condensing
- **Vibration** 5Grms
- **Shock** 30G
- **Certification** EMC: CE, FCC  
Safety: CB, UL

### Ordering Information

- **iDAQ-817-AE** 8-ch, 16-bit, 200 kS/s, AI iDAQ module
- \* Factory calibration temperature is 25°C



iDAQ-821

### Specifications

#### Analog Output

- **Channels** 4
- **Resolution** 16 bits
- **Output range** 0-5 V, 0-10 V,  $\pm 5$  V,  $\pm 10$  V, 0-20mA, 4-20mA, software selectable per channel
- **Output coupling** DC
- **Output slew rate** 1 V/ $\mu$ s
- **Output load** Voltage output 1 k $\Omega$  min.  
Current output 520  $\Omega$  max.  
Voltage output 0.06  $\Omega$  typ.  
Current output 100 M $\Omega$  typ.
- **Output impedance** 600 VRMS
- **Isolation protection** 0 V @ 0 ~ 5 V output range
- **Power-on output state** Static or buffered, software configurable
- **Operation mode** 10 kHz max. per channel, software configurable
- **Update rate** 512 samples
- **Internal data buffer (FIFO) size** 512 samples
- **Absolute accuracy**

Items	Within Calibration Temperature* $\pm 5^\circ\text{C}$	Over Calibration Temperature* $\pm 5^\circ\text{C}$
<b>Voltage</b>	$\pm 0.01\%$ of full-scale range max.	$\pm 0.05\%$ of full-scale range max.
<b>Current</b>	$\pm 0.1\%$ of full-scale range max.	$\pm 0.5\%$ of full-scale range max.

- **DC performance** Idle channel noise 0.2 mVRMS @ bandwidth of 100 kHz  
Effective resolution 16 bits

#### General

- **Power consumption from chassis** 0.675W typ./2.9W max.
- **Dimensions** 100 x 80 x 25 mm (3.94 x 3.15 x 0.98 in.)
- **Operating temperature** -20 °C to 60 °C (-4 °F to 140 °F)
- **Storage temperature** -40 °C to 70 °C (-40 °F to 158 °F)
- **Operating humidity** 10% to 90% RH, non-condensing
- **Storage humidity** 5% to 95% RH, non-condensing
- **Vibration** 5Grms
- **Shock** 30G
- **Certification** EMC: CE, FCC  
Safety: CB, UL

### Ordering Information

- **iDAQ-821-AE** 4-ch, 16-bit, 10 kS/s/ch AO iDAQ module

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