

# MIC-1816

## 16-Bit, 1MS/s, 16-Ch DAQ Platform with Intel® Core™ i3\*/Celeron® Processor

NEW



### Features

- 16 x Analog inputs, up to 1 MS/s, 16-bit resolution
- 2 x Analog outputs, up to 3 MS/s, 16-bit resolution
- Supports digital and analog triggers
- 16 x Isolated digital input, 8 isolated digital output
- 2 x 32-bit programmable counter/timers
- Onboard FIFO memory (4,096 samples)
- 2 x RS-232 ports
- 2 x 10/100/1000 Base-T RJ-45 LAN ports
- 2 x USB 2.0 and 2 x USB 3.0 ports
- iDoor expansion supported

### Introduction

MIC-1816 is a stand-alone automation controller featuring an integrated DAQ module and signal conditioning to provide digital I/O, analog I/O, and counter functions. This application-ready controller also supports serial communication ports and several other networking interfaces to enable seamless integration and rapid system development.

### Specifications

#### Analog Input

- Channels** 16-ch single ended, 8-ch differential
- Resolution** 16 bits
- Sample Rate** Single channel: 5 MS/s max.; Multiple channels: 1 MS/s max.

Note: The sampling rate of each channel is influenced by the number of used channels. For example, if 4 channels are used, the sampling rate will be  $1\text{MS}/4 = 250\text{ kS/s}$  per channel.

- Trigger Reference** Digital and analog triggers
- Trigger Mode** Start, Delayed Start; Stop, Delayed Stop
- FIFO Size** 4,096 samples
- Overvoltage Protection** 30 Vp-p
- Input Impedance** 1 G $\Omega$
- Sampling Modes** Software and external clock
- Input Range** Software programmable

Gain	0.5	1	2	4	8
<b>Unipolar</b>	NA	0-10	0-5	0-2.5	0-1.25
<b>Bipolar</b>	$\pm 10$ , 0-20mA, 4-20mA	$\pm 5$	$\pm 2.5$	$\pm 1.25$	$\pm 0.625$
<b>Gain Error (%FSR)</b>	Voltage: 0.0075 Current: 0.03	0.0075	0.01	0.02	0.03

#### Analog Output

- Channels** 2
- Resolution** 16 bits
- Sample Rate** 3 MS/s max.
- Output Range** Software programmable

Output Range	Internal Reference	0V-5V, 0V-10V, $\pm 5$ V, $\pm 10$ V	
	External Reference	Reference Input	Maximum Range
	Unipolar	$-10\text{V} \leq x \leq 10\text{V}$	
	Bipolar	$-x\text{ V} \sim x\text{ V}$	

#### Isolated Digital Input

- Channels** 16
- Input Voltage** Logic 0: 3 V max.  
Logic 1: 10 V min. (30 V max.)
- Interrupt Capable Ch.** 2 (IDIO & IDI8)
- Isolation Protection** 2,500 V DC
- Opto-Isolator Response** 100  $\mu$ s
- Input Resistance** 3.2 k $\Omega$  @ 1 W

#### Isolated Digital Output

- Channels** 8
- Output Type** Sink (NPN)
- Output Voltage** 5 ~ 40V<sub>oc</sub>
- Sink Current** 350mA max./channel @ 25°C,  
250mA max./channel @ 60°C
- Isolation Protection** 2,500 V DC
- Opto-Isolator Response** 100  $\mu$ s

#### Counter

- Channels** 2
- Resolution** 32 bits
- Compatibility** 5 V/TTL
- Max. Input Frequency** 10 MHz
- Pulse Generation** Yes
- Timebase Stability** 50 ppm

#### General

- Dimensions (W x H x D)** 200 x 58 x 156 mm (7.87" x 2.28" x 6.14")
- Power Consumption** Typ.: 12.24W @ 24V, Max.: 50W @ 24V
- Power Requirements** 10 ~ 36 V<sub>oc</sub>
- Weight** 2.4 kg (typical)
- OS Support** Up to Windows 10 / Linux

#### System Hardware

- CPU** Intel® Celeron® 3955U processor, 2.0 GHz (MIC-1816-U0A1E)  
Intel® Core™ i3-6100U processor, 2.3 GHz (MIC-1816-U3A1E\*)
- Memory** 4G DDR3 (Max. 16GB expansion available)
- Indicators** LEDs for Power, IDE and LAN (Active, Status)
- USB** USB 2.0 \*2, USB 3.0 \*2
- Storage** 1 x 2.5" HDD/SSD, installation subject to ordered configuration
- Expansion** Mini PCIe full size \*1 (iDoor)

#### Environment

- Storage Humidity** 5 ~ 95% RH, non-condensing
- Operating Temperature** -20 ~ 60 °C (-4 ~ 140 °F) @ 5 ~ 85% RH with 0.7m/s air flow
- Storage Temperature** -20 ~ 80 °C (-4 ~ 176 °F)

### Ordering Information

- MIC-1816-U0A1E** DAQ platform with Intel® Celeron® 3955U processor
- MIC-1816-U3A1E\*** DAQ platform with Intel® Core™ i3-6100U processor

### Optional Accessories

- 1960099348N001** Table mount (220 x 156 mm)
- PSD-A60W24** DIN Rail AC to DC 100-240V 60W 24V

\* Supported by request; please contact Advantech if this is needed.