

# MIC-1810

## 12-Bit, 500 KS/s, 16-Ch DAQ Platform with Intel® Core™ i3\*/Celeron® Processor

NEW



### Features

- 16 x Analog inputs, up to 800 kS/s, 12-bit resolution
- 2 x Analog outputs, up to 500 kS/s, 12-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-1810 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**: 12 bits
- Sample Rate**: Single channel: 800 kS/s max.; Multiple channels: 500 kS/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  $500k/4 = 125$  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 V<sub>p-p</sub>
- Input Impedance**: 1 GΩ
- 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>	±10, 0-20mA, 4-20mA	±5	±2.5	±1.25	±0.625
<b>Gain Error (%FSR)</b>	Voltage: 0.1 Current: 0.1	0.1	0.2	0.2	0.4

#### Analog Output

- Channels**: 2
- Resolution**: 12 bits
- Sample Rate**: 500 kS/s max.
- Output Range**: Software programmable

Output Range	Internal Reference	0V-5V, 0V-10V, ±5V, ±10V	
	External Reference	Reference Input	Maximum Range
	Unipolar		0 ~ x V
Bipolar		-10V ≤ x ≤ 10V	-x V ~ x 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 μs
- Input Resistance**: 3.2 kΩ @ 1 W

#### Isolated Digital Output

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

#### 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. 11W @ 24V, Max. 31.7W @ 24V
- Power Requirements**: 10 ~ 36 V<sub>DC</sub>
- Weight**: 2.4 kg (typical)
- OS Support**: Up to Windows 10 / Linux

#### System Hardware

- CPU**: Intel® Celeron® 3955U processor, 2.0 GHz (MIC-1810-U0A1E); Intel® Core™ i3-6100U processor, 2.3 GHz (MIC-1810-U3A1E\*)
- Memory**: 4G SODIMM DDR3-1600 (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-1810-U0A1E**: DAQ platform with Intel® Celeron® 3955U processor
- MIC-1810-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.