MIC-1810

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

DAQNavi

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 Vp-p
- **Input Impedance** 1 GΩ
- **Sampling Modes** Software and external clock
- **Input Range** Software programmable

Gain	0.5	1	2	4	8
Unipolar	NA	0~10	0~5	0~2.5	0~1.25
Bipolar	±10, 0~20mA, 4~20mA	±5	±2.5	±1.25	±0.625
Gain Error (%FSR)	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	-10V ≦ x ≦ 10V	0 ~ x V
	Bipolar		-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 (IDI0 & 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_{DC}
- **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_{DC}
- **Weight** 2.4 kg (typical)
- **OS Support** Up to Windows 10 / Linux

System Hardware

- **CPU** Intel® Celeron® 3955U processer, 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 processer
- **MIC-1810-U3A1E*** DAQ platform with Intel® Core™ i3-6100U processer

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.