USB Digital I/O

USB-DIO24, -1024, and -DIO96H Series

USB-DIO24 Series boards (left) provide 24 DIO. The USB-1024 Series (middle) provide the same functionality as the USB-DIO24 Series and are shipped in a case. USB-DIO96H Series (right) provide 96 DIO, high-drive current output and are shipped in a metal enclosure.

Features

- **24 digital I/O (USB-DIO24 Series and USB-1024 Series) or 96 digital I/O (USB-DIO96H Series)**
- **High current output available**
- **Event counter available**
- **Available as board-only (USB-DIO24 Series), enclosed in a housing (USB-DIO96H Series), or cased (USB-1024 Series)**

Supported Operating Systems

- **Windows® 11/10/8/7/Vista®/ XP, 32/64-bit**
- **Linux®**

Overview

The USB-DIO24, -1024, and -DIO96H Series are digital I/O data acquisition devices.

The USB-1024 Series adds 24 lines of logic-level digital I/O to any USB port. The USB-1024HLS high output current can drive many logic level devices directly, eliminating the need for costly buffer circuitry.

The USB-DIO24 Series has all the functionality of the USB-1024 Series, but is enclosed in a case and designed with a D connector that matches the PCI-DIO24, making it easy to replace PCI boards in your applications.

The USB-DIO96H Series provides 96 lines of high-current, logic-level, bidirectional digital I/O. The units offer 4 independent 24-bit DIO groups, each divided into two 8-bit ports and two 4-bit ports. The outputs can drive a wide assortment of external devices directly, without additional buffering. USB-DIO96H Series are housed in a heavy-duty chassis with integrated mounting slots.

Digital I/O

USB-DIO24 Series and USB-1024 Series

USB-DIO24 and USB-1024 Series provide 24 DIO channels configured as either two banks of eight ports and two banks of four ports, or three banks of eight ports. Each port is independently configurable for input or output.

The USB-DIO24/37 and USB-1024LS are designed with an 82C55 interface chip.

The USB-DIO24H/37 and USB-1024HLS are designed to emulate 82C55 mode 0. Outputs are high-drive TTL that can source 15 mA and sink 64 mA.

Digital I/O lines are accessed through a 37-pin D-type connector on the USB-DIO24 Series, and through screw terminals on the USB-1024 Series. USB-DIO24 Series are board-only, while the USB-1024 Series are shipped in a case.

USB-DIO96H Series

The USB-DIO96H Series provides 96 DIO channels that are configured as eight banks of eight ports and eight banks of four ports. Each port is independently configurable for input or output. USB-DIO96H Series devices are designed to emulate 82C55 mode 0. Digital outputs are high-drive TTL that can source 24 mA/sink 64 mA.

Digital I/O lines are accessed through the screw terminals on the USB-DIO96H, and through the header connectors on the USB-DIO96H/50. USB-DIO96H Series boards are shipped in a rugged metal enclosure that you can mount on a DIN rail or bench.
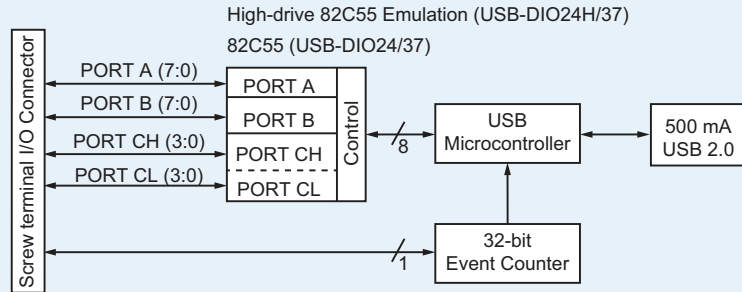
USB-DIO24 Series, USB-1024 Series, and USB-DIO96H Series Selection Chart

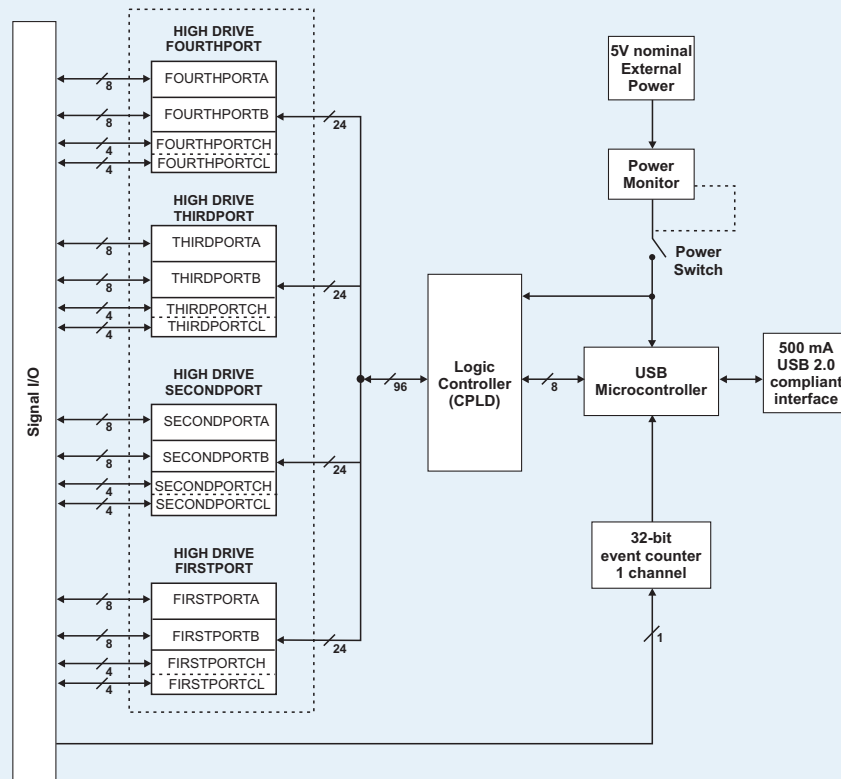| Model	Digital Type	Sink (per output)	Source (per output)	Max Input Voltage	Signal I/O
USB-DIO24/37	82C55	2.5 mA	2.5 mA	5.5 V	37-pin D-type
USB-DIO24H/37	Output: 74FCT244 Input: 74ACT373	64 mA	15 mA	5.5 V	37-pin D-type
USB-1024LS	82C55	2.5 mA	2.5 mA	5.5 V	40-pin screw terminals
USB-1024HLS	Output: 74FCT244 Input: 74ACT373	64 mA	15 mA	5.5 V	40-pin screw terminals
USB-DIO96H	Output: 74ABT244A Input: 74ACT373	64 mA	24 mA	5.5 V	96-pin screw terminals Four 50-pin IDC-type headers
USB-DIO96H/50	Output: 74ABT244A Input: 74ACT373	64 mA	24 mA	5.5 V	Two 50-pin IDC-type headers

USB Digital I/O

Features

USB-DIO24 Series and USB-1024 Series Block Diagram

High-drive 82C55 Emulation (USB-DIO24H/37)

82C55 (USB-DIO24/37)

Screw terminal I/O Connector

- PORT A (7:0) → PORT A
- PORT B (7:0) → PORT B
- PORT CH (3:0) → PORT CH
- PORT CL (3:0) → PORT CL

Control

8 → USB Microcontroller ↔ 500 mA USB 2.0

1 → 32-bit Event Counter

USB-DIO96H Series Block Diagram

Signal I/O

HIGH DRIVE FOURTHPORT
- 8 — FOURTHPORTA
- 8 — FOURTHPORTB
- 4 — FOURTHPORTCH
- 4 — FOURTHPORTCL
- 24

HIGH DRIVE THIRDPORT
- 8 — THIRDPORTA
- 8 — THIRDPORTB
- 4 — THIRDPORTCH
- 4 — THIRDPORTCL
- 24

HIGH DRIVE SECONDPORT
- 8 — SECONDPORTA
- 8 — SECONDPORTB
- 4 — SECONDPORTCH
- 4 — SECONDPORTCL
- 24

HIGH DRIVE FIRSTPORT
- 8 — FIRSTPORTA
- 8 — FIRSTPORTB
- 4 — FIRSTPORTCH
- 4 — FIRSTPORTCL
- 24

96 → Logic Controller (CPLD) → 8 → USB Microcontroller

5V nominal External Power → Power Monitor ⋯ Power Switch

USB Microcontroller → 500 mA USB 2.0 compliant interface

32-bit event counter 1 channel → 1

Counter Input

The USB-DIO24 Series, USB-1024 Series, and USB-DIO96H provide a 32-bit event counter to count TTL pulses. The counter accepts inputs up to 1 MHz.

Power

Power to the USB-DIO24 Series and USB-1024 Series is supplied by the +5 volt USB supply from your computer. No external power is required.
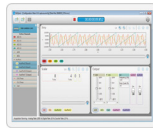
Power to the USB-DIO96H Series is provided by an external +5 volt regulated power supply. An onboard Molex connector is available to connect an alternate user-supplied power supply.

USB Digital I/O

Software

Software Support

USB-DIO24, -1024, and -DIO96H Series devices are supported by the software in the table below.
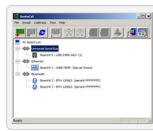
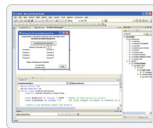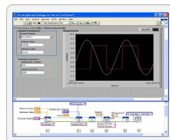| Ready-to-Run Applications	
DAQami™	Data acquisition companion software with drag-and-drop interface that is used to acquire, view, and log data, and generate signals. DAQami can be configured to log analog, digital, and counter channels, and to view that data in real-time or post-acquisition on user-configurable displays. Logged data can be exported for use in Excel® or MATLAB®. Windows OS DAQami is included with the free MCC DAQ Software bundle.
InstaCal	An interactive installation, configuration, and test utility for MCC hardware. Windows OS InstaCal is included with the free MCC DAQ Software bundle.
TracerDAQ™ and TracerDAQ Pro	Virtual strip chart, oscilloscope, function generator, and rate generator applications used to generate, acquire, analyze, display, and export data. Supported features may vary by hardware. The Pro version provides enhanced features. Windows OS TracerDAQ is included with the free MCC DAQ Software bundle. TracerDAQ Pro is available as a purchased software download.
General-Purpose Programming Support	
Universal Library™ (UL) for Windows	Library for developing applications in C, C++, VB, C# .Net, VB .Net, and Python on Windows. The UL for Windows is included with the free MCC DAQ Software bundle. The UL Python API for Windows is available on GitHub (github.com/mccdaq/mcculw).
UL for Linux®	Library for developing applications in C, C++, and Python on Linux. UL for Linux is available on GitHub (github.com/mccdaq/uldaq). Open-source, third-party Linux drivers are also available for supported MCC devices.
Application-Specific Programming Support	
ULx for NI LabVIEW™	A comprehensive library of VIs and example programs for NI LabVIEW that is used to develop custom applications that interact with most MCC devices. Windows OS ULx for NI LabVIEW is included with the free MCC DAQ Software bundle.
DASYLab®	Icon-based data acquisition, graphics, control, and analysis software that allows users to create complex applications in minimal time without text-based programming. Windows OS DASYLab is available as a purchased software download. An evaluation version is available for 28 days.
MATLAB® Driver	High-level language and interactive environment for numerical computation, visualization, and programming. The Mathworks Data Acquisition Toolbox™ allows users to acquire data from most MCC PCI and USB devices. Visit www.MathWorks.com for more information about the Data Acquisition Toolbox.

Signal Conditioning Accessories

For digital signal conditioning, connect to Measurement Computing relay mounting and interface boards:

CIO-ERB08 and CIO-SERB08

The CIO-ERB08 is a relay accessory board that includes 8 Form C relays. The CIO-SERB08 provides similar functionality with socketed relays. Both accessory boards have two 37-pin connectors for interfacing with USB-DIO24 Series hardware.

• Connect to the USB-DIO24 Series with a C37FF-x cable.

CIO-ERB24 and CIO-SERB24/FD

The CIO-ERB24 is a relay accessory board that includes 24 Form C relays. The CIO-SERB24/FD provides similar functionality with socketed relays and fault detection. Both accessory boards have a 37-pin D-type connector and a 50-pin header connector for interfacing with USB-DIO24 Series and USB-DIO96H/50 devices.

• Connect to the USB-DIO24 Series with a C37FF-x cable.
• Connect to the USB-DIO96H/50 with C50FF-x cables.

CIO-ERB48 and CIO-SERB48

The CIO-ERB48 is a relay accessory board that includes 48 Form C relays. The CIO-SERB48 provides similar functionality with socketed relays Both accessory boards have a 50-pin header connector for interfacing with the USB-DIO96H/50.

• Connect to the USB-DIO96H/50 with C50FF-x cables.

SSR-RACK08

The SSR-RACK08 is a relay accessory board that provides mounting locations for eight Gordos or Opto 22 type solid-state I/O modules. The board has two 37-pin D connectors for interfacing with USB-DIO24 Series hardware.

• Connect to the USB-DIO24 Series with a C37FF-x cable.

SSR-RACK24

The SSR-RACK24 is a relay accessory board that provides mounting locations for 24 Gordos or Opto 22 type solid-state I/O modules. The board has one 37-pin D connector and two 50-pin header connectors for interfacing with USB-DIO24 Series and USB-DIO96H/50 hardware.

• Connect to the USB-DIO24 Series with a C37FF-x cable.
• Connect to the USB-DIO96H/50 with C50FF-x cables.

SSR-RACK48

The SSR-RACK48 is a high-density relay accessory board that provides mounting locations for 12 quad relays. The board has one 50-pin header connector for interfacing with the USB-DIO96H/50.

• Connect to the USB-DIO96H/50 with C50FF-x cables.

Specifications: USB-DIO24/37 and USB-DIO24H/37

Digital Input/Output

Digital type
USB-DIO24: 82C55
USB-DIO24H/37
 Input: 74ACT373
 Output: 74FCT244
Number of I/O: 24 (Port A Bit 0 through Port C Bit7)
Configuration: 2 banks of 8 and 2 banks of 4, or 3 banks of 8
Pull-up/down configuration: all pins pulled up to 5V via 47 kΩ resistors (default). Selection available for pull down to ground. Hardware selectable via 0 Ω resistor.
Input high voltage: 2.0 V min, 5.5 V absolute max
Input low voltage: 0.8 V max, –0.5 V absolute min
Output high voltage
USB-DIO24/37 (IOH = –2.5 mA): 3.0 V min
USB-DIO24H/37 (IOH = –15 mA): 2.4 V min
Output low voltage
USB-DIO24/37 (IOH = –2.5 mA): 0.4 V max
USB-DIO24H/37 (IOH = 64 mA): 0.55 V max
Source current (USB-DIO24H/37)
Self-powered hub or externally powered root port hub: 15 mA per output, max. Bus-powered or battery-powered root port hubs are not supported.
Sink current (USB-DIO24H/37):
365 mA/(number of outputs), max. 64 mA max sink current for any single output. A low-side resettable fuse protects the USB-DIO24H/37. This is designed to protect the host PC or hub from an over current condition. Assuming all return currents in sinking applications return via the USB cable ground signal, the maximum allowable return current is 500 mA. Include the USB-DIO24H/37 unloaded operating current (135 mA) in your power budget.
Power up / reset state: Input mode

Counter

Pin name: CTR; Schmitt trigger input.
Counter type: Event counter
Number of channels: 1
Input type: TTL, rising edge triggered
Input source: CTR screw terminal
Resolution: 32 bits
Schmidt trigger hysteresis: 20 mV to 100 mV
Input leakage current: ±1 µA
Maximum input frequency: 1 MHz
High pulse width: 500 ns min
Low pulse width: 500 ns min
Input low voltage: 0 V min, 1.0 V max
Input high voltage: 4.0 V min, 15.0 V max

Data Transfer Rates

Digital I/O transfer rates (software paced)
Digital input: 62 port reads or single bit reads per second (typ)
Digital output: 125 port writes or single bit writes per second (typ)
Counter/timer read/write rates (software paced)
Counter read: 62 port reads per second (typ)
Counter clear: 125 port writes per second (typ)

Power

Supply current:
USB-DIO24/37: 20 mA typ, 40 mA max. (Total current requirement; includes up to 5 mA for the status LED.)
USB-DIO24H/37: 100 mA typ, 135 mA max. (Total current; no load)
USB +5V power available
Connected to self-powered hub
 USB-DIO24/37: 4.5 V min, 5.25 V max
 USB-DIO24H/37: (350 mA) – (total output source current)
Connected to bus-powered hub
 USB-DIO24/37: 4.1 V min, 5.25 V max
 USB-DIO24H/37: 4.75 V min, 5.25 V max
Self-powered refers to USB hubs/hosts with a power supply. Bus-powered refers to USB hubs/hosts without a power supply. Bus-powered hubs provide downstream USB power as low as 4.4 V. Guaranteed performance requires a minimum supply voltage of 4.75 V. Self-powered and root port hubs meet this minimum.

Output current (USB-DIO24/37)
  Connected to self-powered hub: 460 mA max
  Connected to bus-powered hub: 60 mA max. This is the total amount of current that can be sourced from the USB +5V and digital outputs.
Over-current protection (USB-DIO24H/37); resettable fuse
  Hold current: 350 mA, typ
  Trip current: 700 mA typ
  Trip/recovery time: 100 ms, max
  On resistance: 1.3 Ω max

General
USB controller clock error:
  25 °C: ±30 ppm max
  0 °C to 70 °C: ±50 ppm max
Device type: USB 1.1 low-speed
Device compatibility: USB 1.1, USB 2.0

Environmental
Operating temperature range: 0 °C to 70 °C
Storage temperature range: –40 °C to 85 °C
Humidity: 0% to 90% non-condensing

Mechanical
Dimensions (L×W×H): 119 × 84 × 14 mm (4.68 × 3.31 × 0.55 in.)
USB cable length: 3 m (9.8 ft)
USB cable type: A-B cable, UL type AWM 2725 or equivalent.
  Min 24 AWG VBUS/GND, min 28 AWG D+/D–

Specifications: USB-1024LS and USB-1024HLS

Digital Input/Output
Digital type
  USB-1024LS: 82C55
  USB-1024HLS
    Input: 74ACT373
    Output: 74FCT244
Number of I/O: 24 (Port A Bit 0 through Port C Bit7)
Configuration: 2 banks of 8 and 2 banks of 4, or 3 banks of 8
Pull up/pull-down configuration:
  All pins pulled up to 5V via 47 kΩ resistors (default). Selection available for pull down to ground. Hardware selectable via zero Ω resistor.
Input high voltage: 2.0 V min, 5.5 V absolute max
Input low voltage: 0.8 V max, –0.5 V absolute min
Output high voltage
  USB-1024LS (I_{OH} = –2.5 mA): 3.0 V min
  USB-1024HLS (I_{OH} = –15 mA): 2.4 V min
Output low voltage
  USB-1024LS (I_{OH} = –2.5 mA): 0.4 V max
  USB-1024HLS (I_{OH} = 64 mA): 0.55 V max
Source current (USB-1024HLS)
  Self-powered hub or externally powered root port hub: 15 mA per output, max. Bus-powered or battery-powered root port hubs are not supported.
Sink current (USB-1024HLS):
  365 mA/(number of outputs), max. 64 mA max sink current for any single output. A low-side resettable fuse protects the USB-1024HLS. This is designed to protect the host PC or hub from an over current condition. Assuming all return currents in sinking applications return via the USB cable ground signal, the maximum allowable return current is 500 mA. Include the USB-1024HLS unloaded operating current (135 mA) in your power budget.
Power up / reset state: Input mode (high impedance)

Counter
Pin name: CTR; Schmitt trigger input.
Counter type: Event counter
Number of channels: 1
Input type: TTL, rising edge triggered
Input source: CTR screw terminal
Resolution: 32 bits
Schmidt trigger hysteresis: 20 mV to 100 mV
Input leakage current: ±1 µA
Maximum input frequency: 1 MHz

High pulse width: 500 ns min
Low pulse width: 500 ns min
Input low voltage: 0 V min, 1.0 V max
Input high voltage: 4.0 V min, 15.0 V max

Power
Supply current
  USB-1024LS: 20 mA typ, 40 mA max. (Total current requirement; includes up to 5 mA for the status LED.)
  USB-1024HLS: 80 mA typ, 135 mA max. (Total current requirement; no load)
Input power requirements
  USB-1024HLS: 4.75 V min, 5.25 V max.
  Bus-powered hubs provide downstream USB power as low as 4.4 V. Guaranteed performance requires a minimum supply voltage of 4.75 V. Self-powered and root port hubs meet this minimum.
USB +5V power available
  Connected to self-powered hub
    USB-1024LS: 4.5 V min, 5.25 V max
    USB-1024HLS: 4.4 V min, 5.25 V max
  Self-powered refers to USB hubs and hosts with a power supply.
  Connected to bus-powered hub
    USB-1024LS: 4.1 V min, 5.25 V max
  Bus-powered refers to USB hubs and hosts without their own power supply.
Output current
  Connected to self-powered hub
    USB-1024LS: 460 mA max
    USB-1024HLS: (350 mA) – (total output source current)
  Connected to bus-powered hub
    USB-1024LS: 60 mA max. This is the total amount of current that can be sourced from the USB +5V and digital outputs.
Over-current protection (USB-1024HLS); resettable fuse
  Hold current: 350 mA, typ
  Trip current: 700 mA typ
  Trip/recovery time: 100 ms, max
  On resistance: 1.3 Ω max

General
USB controller clock error:
  25 °C: ±30 ppm max
  0 °C to 70 °C: ±50 ppm max
Device type: USB 1.1 low-speed
Device compatibility: USB 1.1, USB 2.0

Environmental
Operating temperature range: 0 °C to 70 °C
Storage temperature range: –40 °C to 70 °C
Humidity: 0% to 90% non-condensing

Mechanical
Dimensions (L×W×H): 79 × 82 × 25 mm (3.11 × 3.23 × 0.98 in.)
USB cable length: 3 m (9.8 ft)
USB cable type: A-B cable, UL type AWM 2725 or equivalent.
  Min 24 AWG VBUS/GND, min 28 AWG D+/D–

Specifications: USB-DIO96H and USB-DIO96H/50

Digital Input/Output
Output: 74ABT244A
Input: 74ACT373;
  USB-DIO96H hardware revision G and later: 74LCX24
Configuration: Eight banks of 8, eight banks of 4, programmable by bank as input or output
Pull-up/down: High impedance pull-up/down selectable with DIP switch for each digital input port.
Number of I/O: 96
Output high: 2.0 V min @ –24 mA
Output low: 0.5 V max @ 64 mA
Input high: 2.0 V min, 5.5 V max
Input low: 0.8 V max, –0.5 V absolute min
Input impedance: 47 kΩ (series resistance)
Source current: 24 mA per output max

Sink current: 64 mA per output max
Power-up state: Input mode
Debounce mode (available through firmware): samples all inputs eight times over a specified interval, and latches out the input state when eight consecutive samples are identical (all 0 or all 1). Debouncing intervals: 1 ms, 2 ms, 5 ms, 10 ms, 20 ms, 50 ms, 100 ms, 200 ms, and 400 ms.
Debounce interval accuracy: +0% / –12.5%
Note: The board revision may be determined from the part number label on the housing that states "193770X-01L", where X is the board revision.

Counter (USB-DIO96H only)
Pin name: CTR; Schmitt trigger input protected with a 1.5 kΩ series resistor.
Counter type: Event counter
Number of channels: 1
Input source: CTR screw terminal
Input type: TTL, rising edge triggered
Resolution: 32 bits
Input high voltage limit: 5.0 V recommended max, 5.5 V absolute max
Input low voltage limit: 0 V recommended min, –0.5 V absolute min
Maximum input frequency: 1 MHz
High pulse width: 500 ns min
Low pulse width: 500 ns min

Hardware revision F and earlier:
    Input type: Schmitt trigger, rising edge triggered, 1.5 kΩ input series resistor
    Schmitt trigger hysteresis: 20 mV min, 100 mV max
    Input high voltage threshold: 4.0 V max
    Input low voltage threshold: 1.0 V min
Hardware revisions G and later:
    Input type: Schmitt trigger, rising edge triggered, fixed 47.5 kΩ pull-down resistor, 1.5 kΩ input series resistor
    Schmitt trigger hysteresis: 0.6 V min, 1.7 V max
    Input high voltage threshold: 3.6 V max
    Input low voltage threshold: 1.0 V min
Note: The board revision may be determined from the part number label on the housing that states "193770X-01L", where X is the board revision.

Data Transfer Rates
Digital I/O transfer rates (software paced)**:**
    System dependent, 33 to 250 port reads/writes or single bit reads/writes per second typ
Counter/timer read/write rates (software paced); USB-DIO96H only:
    Counter read: system dependent, 33 to 250 reads per second
    Counter clear: system-dependent, 33 to 250 writes per second

Environmental
Operating temperature range: 0 °C to 60 °C
Storage temperature range: –40 °C to 85 °C
Humidity: 0% to 90% non-condensing

Mechanical
Board dimensions (L×W×H): 304.8 × 121.9 × 20.0 mm (12.0 × 4.8 × 0.8 in.)
Enclosure dimensions (L×W×H):
    342.9 × 125.7 × 58.9 mm (13.50 × 4.95 × 2.32 in.)

Power
USB +5 V input voltage range: 4.75 V min to 5.25 V max
USB +5 V supply current (all modes of operation): <100 mA
External power input: 5 VDC ± 5% (5 VDC power supply provided). Voltage specification applies at barrel plug power input. If a different power supply is used, small line resistances could cause significant voltage drop between the power supply and the barrel plug input.
External power supply (MCC p/n PS-5V3AEPS included):
    5 VDC, 15 W, 5% regulation
Alternate external power supply (from PC aux power; cable not included):
    Jumper selectable Molex® connector internal to case
Voltage supervisor limits:
    4.13 V > Vext or Vext > 5.59 V: PWR LED = Off; (power fault)
    4.13 V < Vext < 5.59 V: PWR LED = On
Power supply current: 2.7 A max
User 5 V output voltage range (available at 5 V screw terminals):
    4.0 V min, 5.25 V max
User 5 V output current available (total from all 5 V screw terminals):
    50 mA max

Order Information

Part No.	Description
USB-DIO24/37	USB digital I/O board with 24 digital I/O, counter input, and 37-pin D connector. 82C55-based. Includes USB cable and MCC DAQ software.
USB-DIO24H/37	USB digital I/O board with 24 high-current digital I/O (64 mA sink, 15 mA source), counter input, and 37-pin D connector. Includes USB cable and MCC DAQ software.
USB-1024LS	USB digital I/O device with 24 digital I/O, counter input, screw terminals, and cased housing. 82C55-based. Includes USB cable and MCC DAQ software. *Functionally equivalent to the USB-DIO24/37.*
USB-1024HLS	USB digital I/O device with 24 high-current digital I/O (64 mA sink, 15 mA source) , counter input, screw terminals, and cased housing. Includes USB cable, and MCC DAQ software. *Functionally equivalent to the USB-DIO24H/37.*
USB-DIO96H	USB digital I/O device with 96 high-current digital I/O (64 mA sink, 15 mA source), counter input, screw terminals, and metal enclosure. Includes power supply, USB cable, and MCC DAQ software.
USB-DIO96H/50	USB digital I/O device with 96 high-current digital I/O (64 mA sink, 15 mA source), header connectors, and metal enclosure. Includes power supply, USB cable, and MCC DAQ software.

Accessories and Cables

Part No.	Description
C37FF-x	37-conductor ribbon cable, female to female; x is the length in feet. Use with the USB-DIO24 Series.
C50FF-x	50-conductor ribbon cable, female to female; x is the length in feet. Use with the USB-DIO96H Series.
CIO-MINI37	37-pin universal screw-terminal board. Use with the USB-DIO24/37.
CIO-MINI50	50-pin universal screw-terminal board. Use with the USB-DIO96H/50.
CIO-TERM100	Universal screw-terminal board, 100 terminals, positions for pull-up resistors. Use with the USB-DIO96H/50.
PS-5V3AEPS	Replacement power supply, 15 watt. Interchangeable plugs are available; refer to the website for details. Use with the USB-DIO96H Series.
SCB-37	37-pin signal connection box. Use with the USB-DIO24 Series.
SCB-50	50-pin signal connection box. Use with the USB-DIO96H/50.

USB Digital I/O

Ordering Information

Signal Conditioning Options

Part No.	Description
CIO-ERB08	Electromechanical relay accessory, Form C, 5.6 A (SPDT), two 37-pin connectors, 8 channels. Use with the USB-DIO24 Series.
CIO-ERB24	Electromechanical relay accessory, Form C, 4.3 A (SPDT), 37/50-pin connectors, 24 channels. Use with the USB-DIO24 Series and USB-DIO96H/50
CIO-ERB48	Electromechanical relay accessory, Form C, 4.3 A (SPDT) for digital I/O boards, 50-pin connector, 48 channels. Use with the USB-DIO96H/50.
CIO-SERB08	Electromechanical socketed relay accessory, Form C, 5 A (SPDT), two 37-pin connectors, 8-channels. Use with the USB-DIO24 Series.
CIO-SERB24/FD	Electromechanical socketed relay accessory, Form C, 4.3 A (SPDT), fault detecting, 37/50-pin connectors, 24 channels. Use with the USB-DIO96H/50.
CIO-SERB48	Electromechanical socketed relay accessory, Form C, 7.5 A (SPDT), 50-pin connectors, 48 channels. Use with the USB-DIO96H/50.
SSR-4-IAC-05	Solid-state relay, quad, VAC input, 90 to 140 Vrms/VDC
SSR-I-IAC-05	Solid-state relay module, single, AC sense, 90 to 140 VAC
SR-IDC-05	Solid-state relay module, single, DC sense, 3 to 32 VDC
SSR-IAC-05A	Solid-state relay module, single, AC sense, 180 to 280 VAC/VDC
SSR-IDC-05NP	Solid-state relay module, single, DC sense, 10 to 32 VDC non-polarized digital inputs
SSR-OAC-05	Solid-state relay module, single, AC switch, 24 to 140 VAC, 3.5 A @ 120 VAC
SSR-OAC-05A	Solid-state relay module, single, AC switch, 24 to 280 VAC, 3.5 A @ 240 VAC
SSR-ODC-05	Solid-state relay module, single, DC switch, 1 to 60 VDC @ 3.5 A
SSR-ODC-05A	Solid-state relay module, single, DC switch, 4 to 200 VDC, 1 A
SSR-RACK08	Solid-state relay backplane for Gordos/OPTO-22 type relays, with two 37-pin connectors; 8-channel. Use with the USB-DIO24 Series.
SSR-RACK24	Solid-state relay backplane for Gordos/OPTO-22 type relays, with 37/50-pin connectors; 24-channel. Use with the USB-DIO24 Series and USB-DIO96H Series.
SSR-RACK48	Solid-state relay backplane for quad relays, with one 50-pin connector; 48-channel (12 quads). Use with the USB-DIO96H/50.

Software also Available from MCC

Part No.	Description
TracerDAQ Pro	Out-of-the-box virtual instrument suite with strip chart, oscilloscope, function generator, and rate generator – professional version
DASYLab	Icon-based data acquisition, graphics, control, and analysis software