USB Digital I/O
USB-DIO24, -1024, and -DIO96H Series

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)

Software
Supported Operating Systems
- Windows® 8/7/Vista®/XP, 32/64-bit
- Linux® open-source driver support

Ready-to-Run Applications
- InstaCal™ (install, configure, and test)
- TracerDAQ® (acquire, view, log, and generate)

Supported Programming Environments
- NI LabVIEW™ (Windows only)
- DASYLab®
- MATLAB® (Data Acquisition Toolbox™)

Overview
The USB-DIO24 Series and USB-1024 Series provide 24 channels of digital I/O and one 32-bit event counter. The USB-DIO96H Series provides 96 channels of digital I/O. The USB-DIO96H device also provides one 32-bit event counter.

The USB-DIO24H/37, USB-1024HLS, and USB-DIO96H also provide high-drive current output.

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<th>USB-DIO24 Series, -1024 Series, and -DIO96H Series Selection Chart</th>
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<td>USB-DIO24H/37</td>
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<td>USB-1024LS</td>
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<td>USB-DIO96H</td>
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<td>USB-DIO96H/50</td>
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</tbody>
</table>

Digital I/O
- The USB-DIO24 Series, USB-1024 Series, and USB-DIO96H Series all provide digital I/O functionality, although differences exist between each board and series; this section lists the differences.

**USB-DIO24 Series and USB-1024 Series**
USB-DIO24 and USB-1024 Series provide 24 DIO channels that are 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. Digital ports are configured for input mode during power up and reset.

The USB-DIO24/37 and DIO24LS are designed with an 82C55 interface chip. The USB-DIO24H/37 and -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 boards provide 24 DIO. The USB-DIO24H/37 (shown here) provides high-drive current output; board-only.

The USB-1024 Series provide the same function as the USB-DIO24 Series; shipped in a case.

USB-DIO96H Series provide 96 DIO, high-drive current output; shipped in a metal enclosure. The USB-DIO96H is shown here.
USB-DIO24 Series and USB-1024 Series Block Diagram

USB-DIO96H Series Block Diagram

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 on-board Molex connector is available to connect an alternate user-supplied power supply.
Software Support

USB-DIO24, -1024, and -DIO96H Series devices are supported by the software in the table below.

<table>
<thead>
<tr>
<th>Ready-to-Run Applications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>InstaCal</strong></td>
<td>An interactive utility that configures and tests MCC hardware. Windows® OS  InstaCal is included with the free MCC DAQ Software bundle (CD/download).</td>
</tr>
<tr>
<td><strong>TracerDAQ and TracerDAQ Pro</strong></td>
<td>A virtual strip chart, oscilloscope, function generator, and rate generator applications used to generate, acquire, analyze, display, and export data. The Pro version provides enhanced features. Windows OS  TracerDAQ is included with the free MCC DAQ Software bundle (CD/download). TracerDAQ Pro is available as a purchased software download.</td>
</tr>
</tbody>
</table>

**General-Purpose Programming Support**

<table>
<thead>
<tr>
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<th></th>
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<tbody>
<tr>
<td><strong>Linux Driver</strong></td>
<td>Open-source Linux drivers are available for most MCC devices. Example programs are also provided.</td>
</tr>
</tbody>
</table>

**Application-Specific Programming Support**

<table>
<thead>
<tr>
<th>ULx for NI LabVIEW</th>
<th>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 is included with the free MCC DAQ Software bundle (CD/download).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DASYLab Driver</strong></td>
<td>Icon-based data acquisition, graphics, control, and analysis software that allows users to create complex applications in minimal time without text-based programming.  DASYLab is available as a purchased software download. Windows OS</td>
</tr>
<tr>
<td><strong>MATLAB Driver</strong></td>
<td>High-level language and interactive environment for numerical computation, visualization, and programming. The Data Acquisition Toolbox, provided by The Mathworks, allows users to acquire data from most MCC PCI and USB devices.  Visit <a href="http://www.MathWorks.com">www.MathWorks.com</a> for more information on MATLAB Data Acquisition Toolbox support.</td>
</tr>
</tbody>
</table>

**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 a USB-DIO24 Series board 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 a USB-DIO24 Series board with a C37FF-x cable.
- Connect to a USB-DIO96H/50 board with C50FF-x cables.
USB Digital I/O

Specifications

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 a USB-DIO96H/50 board 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 a USB-DIO24 Series board with a C37FF-x cable.

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

Digital Input/Output

Digital type
USB-DIO24/37: 82C55
USB-DIO24H/37: 74ACT373
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 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-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 (IOL = 2.5 mA): 0.4 V max
USB-DIO24H/37 (IOL = 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

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 a USB-DIO24 Series board with a C37FF-x cable.

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 requirement; 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 (LxWxH): 119 × 84 × 14 mm (4.68 × 3.31 × 0.55 in.)
USB cable length: 3 m (9.8 ft)
USB Digital I/O

Specifications: USB-1024LS and USB-1024HLS

Digital Input/Output

Digital type
- USB-1024LS: 82C55
- USB-1024HLS

Input
- Input type: TTL, rising edge triggered
- Input source: CTR screw terminal

Output
- Output type: 74ACT373

Input
- Input high voltage: 2.0 V min, 5.5 V absolute max
- Input low voltage: 0.8 V max, –0.5 V absolute min
- Input high voltage: 4.0 V min, 15.0 V absolute max
- Input low voltage: 2.0 V min, 5.5 V absolute max
- Input leakage current: ±1 µA
- Schmidt trigger hysteresis: 20 mV to 100 mV
- 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)

Power requirements
- USB-1024HLS: 4.75 V min, 5.25 V max.
- USB-1024HLS: 4.4 V min, 5.25 V max
- USB-1024HLS: 4.5 V min, 5.25 V max

USB +5V power available
- Self-powered hub or externally powered root port hub
- Unloaded operating current (135 mA) in your power budget.

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
  - Over 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 (LxWxH): 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
- Input type: TTL, rising edge triggered
- Input source: CTR screw terminal

Configuration
- Eight banks of 8, eight banks of 4, programmable by bank as input or output

Pull-up/pull-down
- High impedance pull-up/pull-down selectable via DIP switch for each digital input port.

Number of I/O: 96

Output high voltage: 2.0 V min @ –24 mA
Output low: 0.5 V max @ 64 mA
Input high: 20.0 V min, 3.5 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 0s or all 1s). 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%

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 type: CTR screw terminal
Input type: TTL, rising edge triggered
Resolution: 32 bits
Schmidt trigger hysteresis: 20 mV to 100 mV
Input leakage current: ±1 µA

USB cable type: A-B cable, UL type AWM 2725 or equivalent.
Min 24 AWG VBUS/GND, min 28 AWG D+/D–
USB Digital I/O

Ordering Information

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

Ordering Information

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>USB-DIO24/37</td>
<td>USB digital I/O board with 24 digital I/O, counter input, and 37-pin D connector. Includes USB cable and MCC DAQ software CD.</td>
</tr>
<tr>
<td>USB-DIO24H/37</td>
<td>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 CD.</td>
</tr>
<tr>
<td>USB-1024LS</td>
<td>USB digital I/O device with 24 digital I/O, counter input, screw terminals, and cased housing. Includes USB cable and MCC DAQ software CD. Functionally equivalent to the USB-DIO24/37.</td>
</tr>
<tr>
<td>USB-1024HLS</td>
<td>USB digital I/O device with 24 high-current digital I/O (64 mA sink, 15 mA source), counter input, screw terminals, and metal enclosure. Includes USB cable, and MCC DAQ software CD. Functionally equivalent to the USB-DIO24/37.</td>
</tr>
<tr>
<td>USB-DIO96H</td>
<td>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 CD.</td>
</tr>
<tr>
<td>USB-DIO96H/50</td>
<td>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 CD.</td>
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Accessories and Cables

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>C37FF-x</td>
<td>37-conductor ribbon cable, female to female; x is the length in feet. Use with the USB-DIO24 Series.</td>
</tr>
<tr>
<td>C50FF-x</td>
<td>50-conductor ribbon cable, female to female; x is the length in feet. Use with the USB-DIO96H Series.</td>
</tr>
<tr>
<td>CIO-MINI37</td>
<td>37-pin universal screw-terminal board. Use with the USB-DIO24/37.</td>
</tr>
<tr>
<td>CIO-MINIS0</td>
<td>50-pin universal screw-terminal board. Use with the USB-DIO96H/50.</td>
</tr>
<tr>
<td>CIO-TERM100</td>
<td>Universal screw-terminal board, 100 terminals, positions for pull-up resistors. Use with the USB-DIO96H/50.</td>
</tr>
<tr>
<td>PS-5V3AEPS</td>
<td>Replacement power supply, 15 watt. Interchangeable plugs are available; refer to the website for details. Use with the USB-DIO96H Series.</td>
</tr>
<tr>
<td>SCB-37</td>
<td>37-pin signal connection box. Use with the USB-DIO24 Series.</td>
</tr>
<tr>
<td>SCB-50</td>
<td>50-pin signal connection box. Use with the USB-DIO96H/50.</td>
</tr>
</tbody>
</table>
# Signal Conditioning Options

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>CIO-ERB8</td>
<td>Electromechanical relay accessory, Form C, 6 A (SPDT), two 37-pin connectors, 8 channels. Use with the USB-DIO24 Series.</td>
</tr>
<tr>
<td>CIO-ERB24</td>
<td>Electromechanical relay accessory, Form C, 6 A (SPDT), 37/50-pin connectors, 24 channels. Use with the USB-DIO24 Series and USB-DIO96H/50</td>
</tr>
<tr>
<td>CIO-ERB48</td>
<td>Electromechanical relay accessory, Form C, 6 A (SPDT) for digital I/O boards, 50-pin connector, 48 channels. Use with the USB-DIO96H/50.</td>
</tr>
<tr>
<td>CIO-SERB8</td>
<td>Electromechanical socketed relay accessory, Form C, 10 A (SPDT), two 37-pin connectors, 8-channels. Use with the USB-DIO24 Series.</td>
</tr>
<tr>
<td>CIO-SERB24/FD</td>
<td>Electromechanical socketed relay accessory, Form C, 10 A (SPDT), fault detecting, 37/50-pin connectors, 24 channels. Use with the USB-DIO96H/50.</td>
</tr>
<tr>
<td>CIO-SERB48</td>
<td>Electromechanical socketed relay accessory, Form C, 10 A (SPDT), 50-pin connectors, 48 channels. Use with the USB-DIO96H/50.</td>
</tr>
<tr>
<td>SSR-4-IAC-05</td>
<td>Solid-state relay, quad, VAC input, 90 to 140 Vrms/VDC</td>
</tr>
<tr>
<td>SSR-I-IAC-05</td>
<td>Solid-state relay module, single, AC sense, 90 to 140 VAC</td>
</tr>
<tr>
<td>SR-IDC-05</td>
<td>Solid-state relay module, single, DC sense, 3 to 32 VDC</td>
</tr>
<tr>
<td>SSR-IAC-05A</td>
<td>Solid-state relay module, single, AC sense, 180 to 280 VAC/VDC</td>
</tr>
<tr>
<td>SSR-IDC-05NP</td>
<td>Solid-state relay module, single, DC sense, 10 to 32 VDC non-polarized digital inputs</td>
</tr>
<tr>
<td>SSR-OAC-05</td>
<td>Solid-state relay module, single, AC switch, 24 to 140 VAC, 3.5 A @ 120 VAC</td>
</tr>
<tr>
<td>SSR-OAC-05A</td>
<td>Solid-state relay module, single, AC switch, 24 to 280 VAC, 3.5 A @ 240 VAC</td>
</tr>
<tr>
<td>SSR-ODC-05</td>
<td>Solid-state relay module, single, DC switch, 1 to 60 VDC @ 3.5 A</td>
</tr>
<tr>
<td>SSR-ODC-05A</td>
<td>Solid-state relay module, single, DC switch, 4 to 200 VDC, 1 A</td>
</tr>
<tr>
<td>SSR-RACK08</td>
<td>Solid-state relay backplane for Gordos/OPTO-22 type relays, with two 37-pin connectors; 8-channel. Use with the USB-DIO24 Series.</td>
</tr>
<tr>
<td>SSR-RACK24</td>
<td>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.</td>
</tr>
<tr>
<td>SSR-RACK48</td>
<td>Solid-state relay backplane for quad relays, with one 50-pin connector; 48-channel (12 quads). Use with the USB-DIO96H/50.</td>
</tr>
</tbody>
</table>

# Software also Available from MCC

<table>
<thead>
<tr>
<th>Part No.</th>
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<tbody>
<tr>
<td>TracerDAQ Pro</td>
<td>Virtual strip chart, oscilloscope, function generator, and rate generator applications used to generate, acquire, analyze, display, and export data – professional version with enhanced features.</td>
</tr>
<tr>
<td>DASYLab</td>
<td>Icon-based data acquisition, graphics, control, and analysis software that allows users to create complex applications in minimal time without text-based programming.</td>
</tr>
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</table>