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# MEASUREMENT COMPUTING USB-SSR24 USB-based Solid-State 24 I-O Module Interface Device User Guide

**Contents**

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## Notice

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## About this User's Guide

### What you will learn from this user's guide

This user's guide describes the Measurement Computing USB-SSR24 data acquisition device and lists device specifications.

### Conventions in this user's guide

For more information Text presented in a box signifies additional information related to the subject matter.

### Caution

Shaded caution statements present information to help you avoid injuring yourself and others, damaging your hardware, or losing your data.  Bold text is used for the names of objects on a screen, such as buttons, text boxes, and checkboxes. Italic text is used for the names of manuals and help topic titles, and to emphasize a word or phrase.

## Where to find more information

Additional information about USB-SSR24 hardware is available on our website at www.mccdaq.com. You can also contact Measurement Computing Corporation with specific questions.

- Knowledgebase: kb.mccdaq.com
- Tech support form: **www.mccdaq.com/support/support_form.aspx**
- Email: **techsupport@mccdaq.com**
- Phone: 508-946-5100 and follow the instructions for reaching Tech Support

For international customers, contact your local distributor. Refer to the International Distributors section on our website at **www.mccdaq.com/International**.

## Introducing the USB-SSR24

The USB-SSR24 is a USB 2.0 full-speed device that provides the following features:

- Mounting rack for 24 solid state relay (SSR) modules (backplane is divided into two groups of eight modules and two groups of four modules).
- Onboard switch to configure the module type (input or output) for each module group (you cannot mix input and output modules within a group).
- Onboard switch to configure the control logic polarity (active high or low) for each module group.
- Onboard switch to configure the power-up state for output modules.
- Switch settings can be read back with software.
- Independent LEDs at each module position to indicate the on/off status of each module.
- Eight pairs of screw terminal banks for field wiring connections, with positive (+) and negative (-) relay contacts brought out to the terminals.
- USB out and power out connections support powering and controlling multiple MCC USB devices from one external power source and one USB port in a daisy-chain configuration.*
- Rugged enclosure that can mount on a DIN rail or on a bench The USB-SSR24 is powered by an external 9 V regulated power supply that is shipped with the device. The USB-SSR24 is fully compatible with both USB 1.1 and USB 2.0 ports. Revision F and later devices are also compatible with USB 3.0 ports.

### Compatible SSR modules
The USB-SSR24 has locations for 24 solid state relay modules. The SSR modules use a standard color scheme so you can quickly identify what module type is installed. Mounting screw threads are provided for you to easily install the SSR modules.MCC offers the following SSR modules that are compatible with the USB-SSR24:

- SSR-IAC-05
- SSR-IAC-05A
- SSR-IDC-05
- SSR-IDC-05NP
- SSR-OAC-05
- SSR-OAC-05A
- SSR-ODC-05
- SSR-ODC-05A
- SSR-ODC-05R

Details on these SSR modules are available at **www.mccdaq.com/products/signal** conditioning.aspx. Remove the USB-SSR24 from the enclosure to install SSR modules You must remove the USB-SSR24 from the enclosure to access the solid-state relay module mounting positions. Depending on your load requirements, daisy-chained devices may require a separate power supply.

## Functional block diagram

USB-SSR24 functions are illustrated in the block diagram shown here.
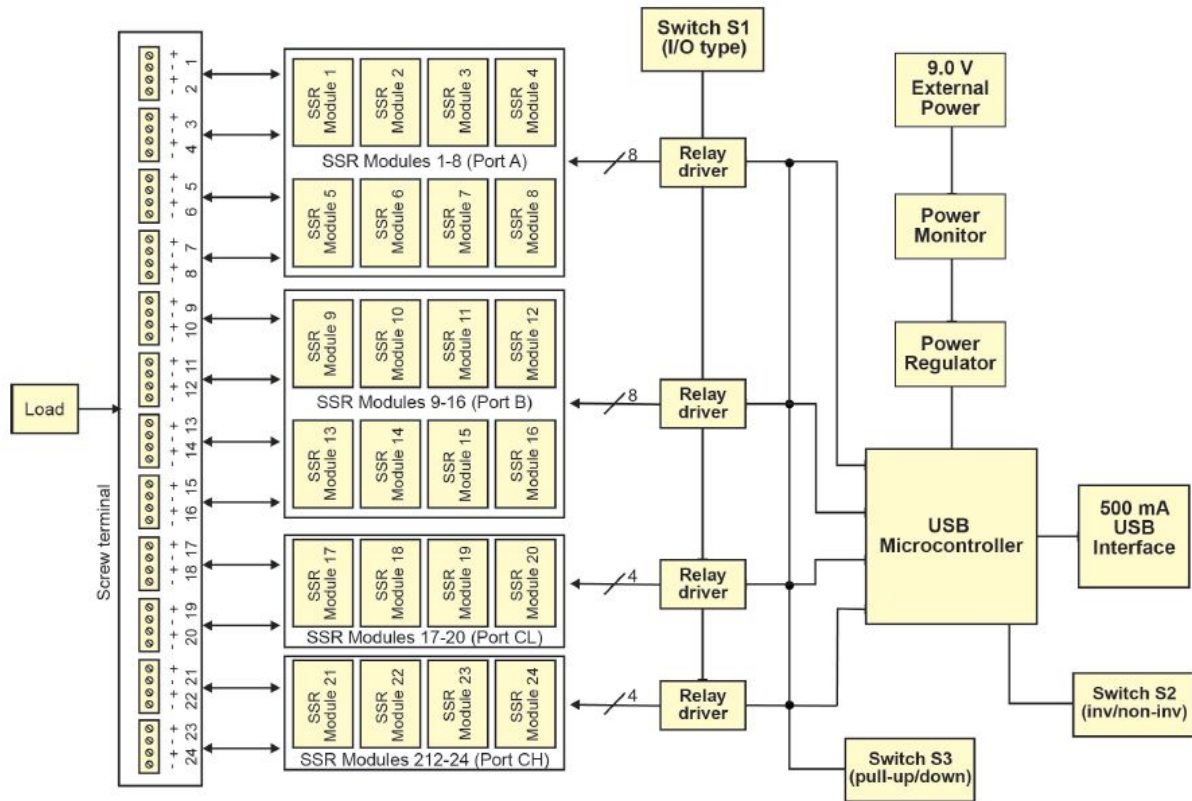


## Installing the USB-SSR24

### Unpacking
As with any electronic device, you should take care while handling to avoid damage from static electricity. Before removing the device from its packaging, ground yourself using a wrist strap or by simply touching the computer chassis or other grounded object to eliminate any stored static charge. Contact us immediately if any components are missing or damaged.

### Installing the software
Refer to the MCC DAQ Quick Start for instructions on installing the software on the MCC DAQ CD. Refer to the device product page on the Measurement Computing website for information about the included and optional software supported by the USB-SSR24.

### Install the software before you install your device
The driver needed to run the USB-SSR24 is installed with the software. Therefore, you need to install the software package you plan to use before you install the device.

### Installing the hardware
Before you connect the USB-SSR24 to your computer, connect the external power supply that was shipped with the device. You can connect up to four compatible MCC USB Series devices in a daisy chain configuration to a single USB 2.0 port on your computer. If your system has a USB 1.1 port, you can connect up to two MCC USB Series devices.

## Configuring the hardware switches

The USB-SSR24 has three onboard switches that configure the I/O module type, relay logic polarity, and relay power-up state. Configure these switches before you connect the external power supply to the USB-SSR24. Factory-configured default settings are listed in the table below. Refer to Figure 6 on page 11 for the location of each switch.

| PCB label | Description | Default setting |
|---|---|---|
| **IN OUT (S1)** | Configures the I/O type per module group for input or output. | OUT (output) |
| **NON INVERT INVERT (S2)** | Configures the relay logic parity per module group for invert or non-invert logic. | NON INVERT (active low) |
| **P/UP P/DN (S3)** | Configures the power-up state of output relays for pull-up or pull-down. | P/UP (Pull-up) |

Each DIP switch configures one module group. The switch labeled A configures modules 1 through 8, the switch labeled B configures modules 9 through 16, the switch labeled CL configures modules 17 through 20, and the switch labeled CH configures modules 21 through 24.
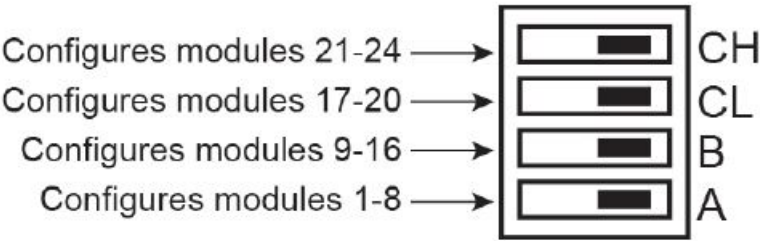


You can use Instagram to read the current configuration of each switch

### Remove from the enclosure to access the onboard switches

To change the configuration of a switch, you must first remove the USB-SSR24 from the enclosure. Turn external power off before changing the switch settings

### I/O module type

Use switch S1 to configure the type of each module group for input or output. By default, switch S1 is shipped with all banks configured for output modules, as shown in Figure 3.
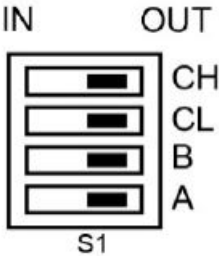


### Control logic polarity

Configure switch S2 to set the control logic polarity for each module group for inverted (active high) or non-inverted (active low, default) logic. By default, switch S2 is shipped with all banks configured for non-inverted logic, as shown in Figure 4.

NON-INVERT INVERT
S2
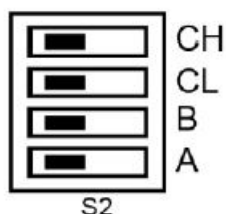
- For input modules, invert mode returns a "1" when the modules are active. Non-invert mode returns a "0" when the modules are active.
- For output modules, invert mode allows you to write a "1" to activate the module. Non-invert mode allows you to write a "0" to activate the module.

**Relay power-up state**
Configure switch S3 to set the state of the output relays at power-up. By default, switch S3 is shipped with all banks configured for pull-up (modules inact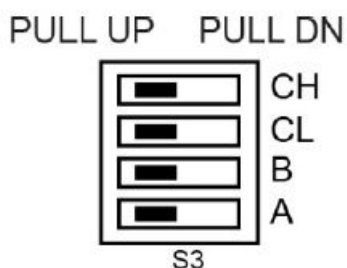ive on power-up), as shown in Figure 5. When switched to PULL DN (pull-down), modules are active on power-up. Switch settings can be read back via software.



PULL UP   PULL DN
S3

**Connecting the external power supply**
Power to the USB-SSR24 is provided with the 9 V external power supply (CB-PWR-9). Connect the external power supply before connecting the USB connector to the USB-SSR24. To connect the power supply to your USB-SSR24, complete the following steps:

1. Connect the external power cord to the power connector labeled POWER IN on the USB-SSR24 enclosure (PWR IN on the PCB).
2. Plug the AC adapter into a power outlet. The PWR LED turns on (green) when 9 V power is supplied to the USB-SSR24. If the voltage supply is less than 6.0 V or more than 12.5 V, the PWR LED does not turn on. Do not connect external power to the POWER OUT connector power connector labeled POWER OUT on the enclosure (PWR OUT on the PCB) is used to provide power to an additional MCC USB Series product. If youconnect the external power supply to the POWER OUT connector, the USB-SSR24 does not receive power, and the PWR LED does not turn on.

**Connecting the USB-SSR24 to your system**
To connect the USB-SSR24 to your system, do the following.

1. Turn your computer on.
2. Connect the USB cable to the USB connector labeled USB IN on the USB-SSR24.
3. Connect the other end of the USB cable to a USB port on your computer or to an external USB hub that is connected to your computer. Windows finds and installs the device driver automatically, and notifies you that the device is ready to use.When the installation is complete, the USB LED flashes and then remains lit to

indicate communication is established between the USB-SSR24 and the computer. Refer to Figure 6 on page 11 for the location of the USB LED. If the USB LED turns offIf communication is lost between the device and the computer, the USB LED turns off. To restore communication, disconnect the USB cable from the computer and then reconnect it. This should restore communication, and the USB LED should turn on. If the system does not detect the USB-SSR24 If a USB device not recognized message displays when you connect the USB-SSR24, complete the following steps:

- Unplug the USB cable from the USB-SSR24.
- Unplug the external power cord from the POWER IN connector on the enclosure.
- Plug the external power cord back into the POWER IN connector.
- Plug the USB cable back into the USB-SSR24.Your system should now properly detect the USB-SSR24. Contact technical support if your system still does not detect the USB-SSR24.

**Caution**
Do not disconnect any device from the USB bus while the computer is communicating with the USB-SSR24, or you may lose data and/or your ability to communicate with the USB-SSR24.

## Functional Details

### Components

The USB-SSR24 has the following components, as shown in Figure 6.

- Two (2) USB connectors
- Two (2) external power connectors
- PWR LED
- USB LED
- I/O module type switch (S1)
- Control logic polarity switch (S2)
- Power-up state configuration switch (S3)
- Screw terminals (24 pairs) and module status LEDs
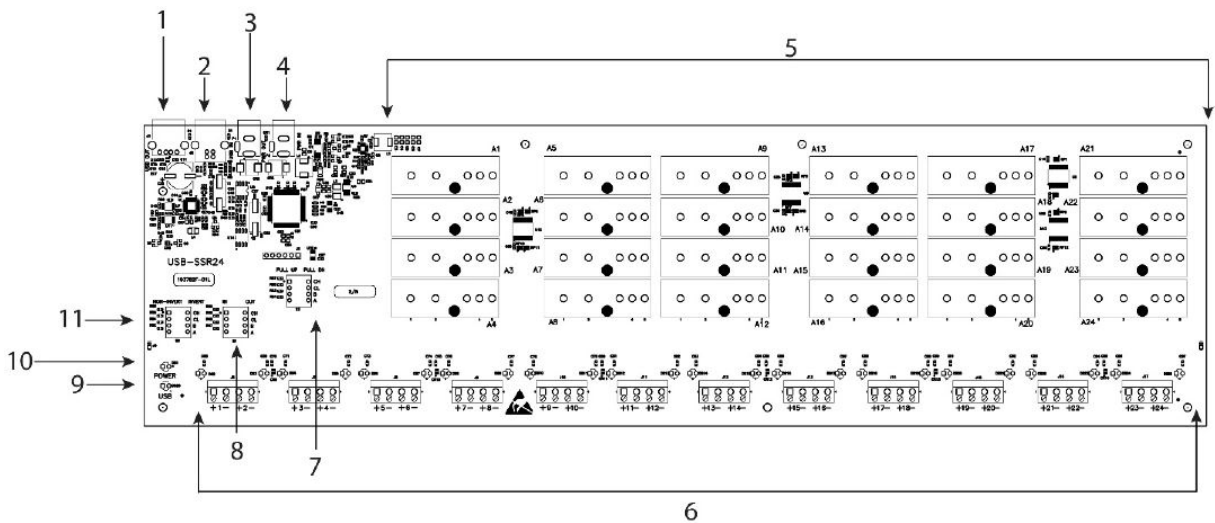


1. USB output connector (USB OUT)
2. USB input connector (USB IN)

3. Power output connector (POWER OUT 9 VDC)

4. Power input connector (POWER IN)

5. Relays

6. Relay screw terminals and module status LEDs

7. Power-up state configuration switch (S3)

8. I/O module-type switch (S1)

9. USB LED

10. PWR LED

11. Control logic polarity switch (S2)

### USB in connector
The USB in connector is labeled USB IN on the enclosure and on the PCB. This connector is a USB 2.0 full-speed input connector that you connect to the USB port on your computer (or USB hub connected to your computer). This connector supports USB 1.1, USB 2.0 devices.

### USB out connector
The USB out connector is labeled USB OUT on the enclosure and on the PCB. This connector is a downstream hub output port intended for use with other MCC USB devices only. The USB hub is self-powered, and can provide 100 mA maximum current at 5 V. For information on daisy-chaining to other MCC USB devices, refer to Daisy chaining multiple USB-SSR24 on page 14.

### External power connectors
The USB-SSR24 has two external power connectors labeled POWER IN and POWER OUT on the enclosure. The POWER IN connector is labeled PWR IN on the PCB, and the POWER OUT connector is labeled PWR OUT on the PCB.Connect the POWER IN connector to the supplied +9 V external power supply. External power is required to operate the USB-SSR24.Use the POWER OUT connector to power additional daisy-chained MCC USB devices from a single external power supply. Depending on your load requirements, daisy chained devices may require a separate power supply. A user-supplied custom cable is required to daisy chain multiple devices.Refer to Power limitations using multiple USB-SSR24 devices on page 14 for more information.

### USB LED
The USB LED indicates the communication status of the USB-SSR24. This LED uses up to 5 mA of current and cannot be disabled. The table below explains the function of the USB LED.

| USB LED | Indication |
| --- | --- |
| On steadily | The USB-SSR24 is connected to a computer or external USB hub. |
| Blinking | Initial communication is established between the USB-SSR24 and the computer, or data is being transferred. |

### PWR LED
The USB-SSR24 incorporates an onboard voltage supervisory circuit that monitors the external 9 V power. If the input voltage falls outside of the specified ranges the PWR LED shuts off. The table below explains the function of the PWR LED.

| PWR LED | Indication |
|---|---|
| On (steady green) | External power is supplied to the USB-SSR24. |
| Off | Power is not supplied by the external power supply, or a power fault has occurred. A power fault occurs when the input power falls outside of the specified voltage range of the external supply (6.0 V to 12.5 V). |

### I/O module type switch (S1)

Switch S1 is a four-position switch that sets the type of each module group for input or output (default). You cannot mix input and output modules within a group. You can use InstaCal to read the current I/O type configuration for each module group. Figure 7 shows switch S1 configured with its default settings.

IN        OUT

CH
CL
B
A

S1
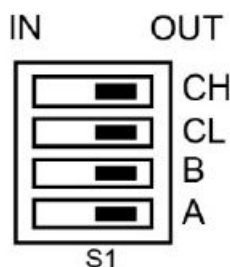
### Control logic polarity switch (S2)

Switch S2 is a four-position switch that sets the control logic polarity for each module group for either inverted (active high) or non-inverted (active low, default). You can use InstaCal to read the current logic configuration for each module group. Figure 8 shows switch S2 configured with its default settings.

NON-INVERT  INVERT

CH
CL
B
A

S2
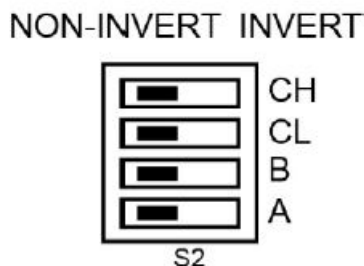
### Relay power-up state switch (S3)

Switch S3 is a four-position switch that sets the state of the output relays at power-up. You can use InstaCal to read the current resistor configuration for each module group. Figure 9 shows switch S3 configured with its default settings (modules inactive on power-up).

PULL UP    PULL DN

CH
CL
B
A

S3

## Main connector and pinout

The table below lists the device connector specifications.

| Connector type | Screw terminal |
|---|---|
| Wire gauge range | 12-22 AWG |

The USB-SSR24 has 24 screw terminal pairs to connect external devices to the SSR modules. Two terminals are dedicated to each module (one positive and one negative terminal). Each screw terminal is identified with a label on the PCB and on the underside of the enclosure lid.
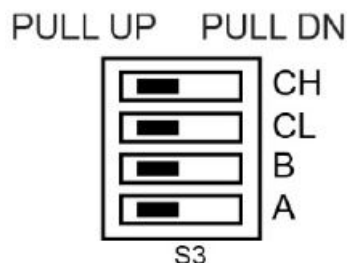


**Caution**

Before connecting wires to the screw terminals, turn off the power to the USB-SSR24 and make sure that the signal wires do not contain live voltages. Use 12-22 AWG wire for your signal connections. Properly insulate the wires to avoid any short circuit to the other channels, ground, or other points on the device.

**Caution**

Keep the length of stripped wire at a minimum to avoid a short to the enclosure! When connecting your field wiring to the screw terminals, use the strip gage on the terminal strip, or strip to 5.5 to 7.0 mm (0.215 to 0.275 in.) long.

| Pin | Signal name | Pin | Signal name |
|-----|-------------|-----|-------------|
| 1+ | Module 1+ | 13+ | Module 13+ |
| 1- | Module 1- | 13- | Module 13- |
| 2+ | Module 2+ | 14+ | Module 14+ |
| 2- | Module 2- | 14- | Module 14- |
| 3+ | Module 3+ | 15+ | Module 15+ |
| 3- | Module 3- | 15- | Module 15- |
| 4+ | Module 4+ | 16+ | Module 16+ |
| 4- | Module 4- | 16- | Module 16- |
| 5+ | Module 5+ | 17+ | Module 17+ |
| 5- | Module 5- | 17- | Module 17- |
| 6+ | Module 6+ | 18+ | Module 18+ |
| 6- | Module 6- | 18- | Module 18- |
| 7+ | Module 7+ | 19+ | Module 19+ |
| 7- | Module 7- | 19- | Module 19- |
| 8+ | Module 8+ | 20+ | Module 20+ |
| 8- | Module 8- | 20- | Module 20- |
| 9+ | Module 9+ | 21+ | Module 21+ |
| 9- | Module 9- | 21- | Module 21- |
| 10+ | Module 10+ | 22+ | Module 22+ |
| 10- | Module 10- | 22- | Module 22- |
| 11+ | Module 11+ | 23+ | Module 23+ |
| 11- | Module 11- | 23- | Module 23- |
| 12+ | Module 12+ | 24+ | Module 24+ |
| 12- | Module 12- | 24- | Module 24- |

**Module status LEDs**
Independent red LEDs next to each module screw terminal pair indicate the on/off status of each module. The LED turns on when an output module is active or when an input module detects an input voltage (logic high).

## Daisy-chaining multiple USB-SSR24 devices

Daisy-chained USB-SSR24 devices connect to the USB bus through the high-speed hub on the USB-SSR24. You can daisy chain up to four MCC USB devices that support daisy-chain configurations to a single USB 2.0 port or USB 1.1 port on your computer. Perform the following procedure to daisy chain multiple devices together. A user-supplied custom cable is required to daisy chain multiple devices.

- The device connected to the computer is referred to as the host device.

- Each additional device that you want to daisy chain to the host USB-SSR24 is referred to as a slave device.This procedure assumes you already have a host device connected to a computer and to an external power source.

1. Connect the POWER OUT connector on the host device to the POWER IN connector on the slave device. This step is required only if you plan to daisy chain power to another device.
2. Connect the USB OUT connector on the host device to the USB IN connector on the slave device.
3. To add another device, repeat steps 1-2 by connecting the slave device to another slave device.Note that the last device in the chain is supplied with external power.

## Power limitations using multiple USB-SSR24 devices

When daisy-chaining additional MCC USB devices to the USB-SSR24, make that you provide adequate power to each device that you connect. The USB-SSR24 is powered with a 9 VDC nominal, 1.67 A external power supply.

**Supply current**
Running one USB-SSR24 with all modules on draws 800 mA from the 1.67 A supply. When using the USB-SSR24 under full load conditions, you cannot daisy chain additional MCC USB products unless you supply external power to each device in the chain.If you are not sure how much current your application requires, we recommend that you provide separate power to each MCC USB device that you connect.

Voltage drop
A drop in voltage occurs with each device connected in a daisy-chain configuration. The voltage drop between the power supply input and the daisy chain output is 0.5 V maximum. Factor in this voltage drop when you configure a daisy chain system to ensure that at least 6.0 VDC is provided to the last device in the chain.

## Mechanical drawings
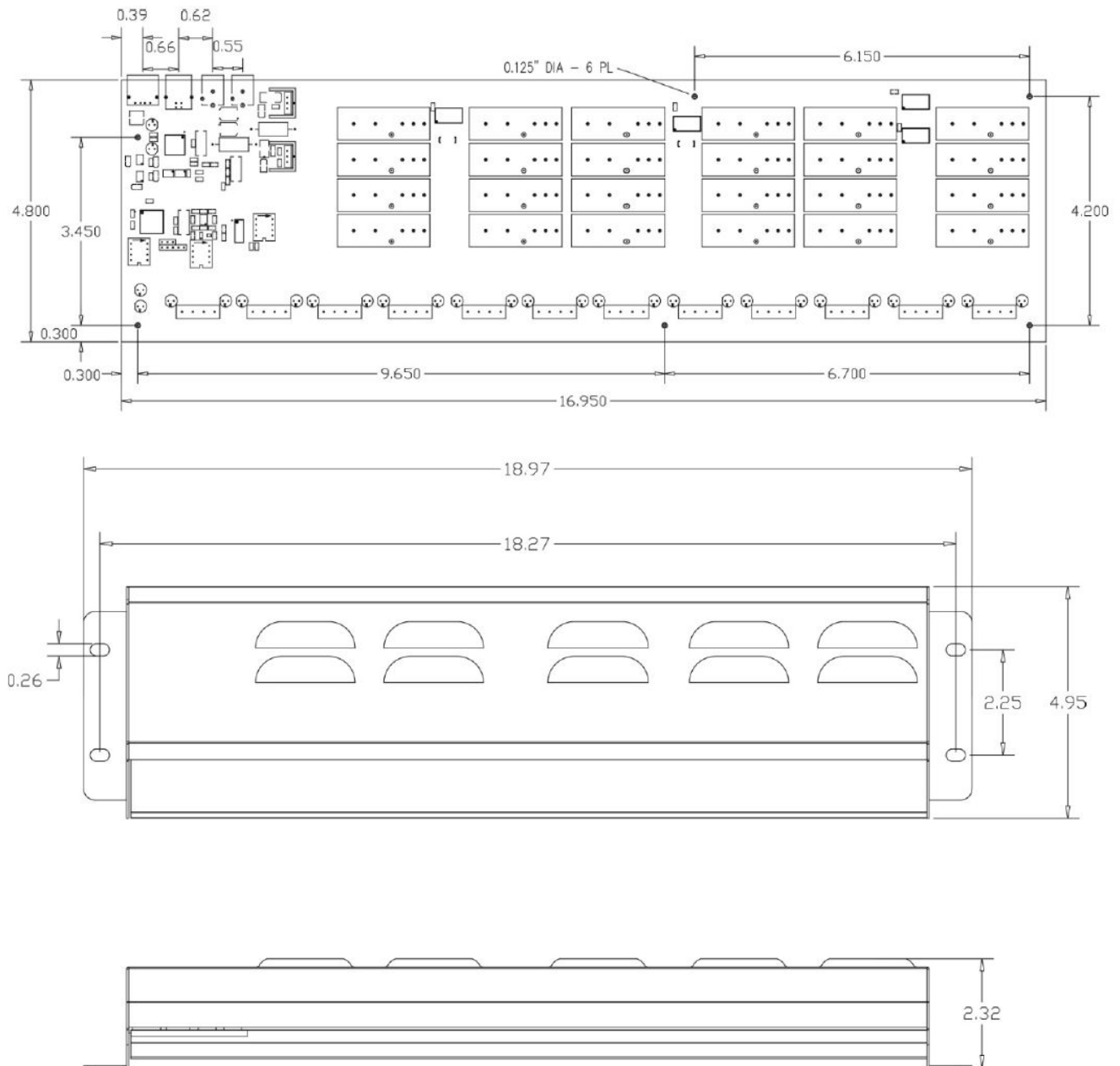


## Specifications

Typical for 25 °C unless otherwise specified. Specifications in italic text are guaranteed by design.
**I/O module configuration**

| | |
|---|---|
| Modules 1-8 | Selectable with switch S1 in the *A* position as either input modules or output modules (default). Switch settings for direction can be read back with software. Do not mix input and output modules within this bank of eight. |
| Modules 9-16 | Selectable with switch S1 in the *B* position as either input modules or output (default) modules. Switch settings for direction can be read back with software. Do not mix input and output modules within this bank of eight. |
| Modules 17-20 | Selectable with switch S1 in the *CL* position as either input modules or output (default) modules. Switch settings for direction can be read back with software.<br><br>Do not mix input and output modules within this bank of four. |
| Modules 21-24 | Selectable with switch S1 in the *CH* position as either input modules or output (default) modules. Switch settings for direction can be read back with software. Do not mix input and output modules within this bank of four. |
| Pull-up/pull-down on digital I/O lines | Configurable with switch S3 and a 2.2 KΩ resistor network. Switch settings for pull-up/down selection can be read back with software. Default is pull-up. Switch settings are applicable during power up conditions of output modules only.<br><br>Modules are active low. When switched to pull-up, modules are inactive on power up. When switched to pull-down, modules are active on power up. |
| I/O module logic polarity | Selectable with switch S2. Switch settings for polarity can be read back with software. Default to non-inverted. For input modules, invert mode returns *1* when module is active; non-invert mode returns *0* when module is active. For output modules, invert mode allows users to write *1* to activate the module; non-invert mode allows users to write *0* to activate the module. |

**Power**

| Parameter | Conditions | Specification |
|---|---|---|
| USB +5 V input voltage range | | 4.75 V min to 5.25 V max |
| USB +5 V supply current | All modes of operation | 10 mA max |
| External power supply (required) | MCC p/n CB-PWR-9 | 9 V @ 1.67 A |
| Voltage supervisor limits – PWR LED | Vext < 6.0 V, Vext > 12.5 V | PWR LED = Off<br><br>(power fault) |
| | 6.0 V < Vext < 12.5 V | PWR LED = On |
| External power consumption | All modules on, 100 mA downstream hub power | 800 mA typ, 950 mA max |
| | All modules off, 0 mA downstream hub power | 200 mA typ, 220 mA max |

**External power input**

| Parameter | Conditions | Specification |
|---|---|---|
| External power input | | +6.0 VDC to 12.5 VDC<br><br>(9 VDC power supply included) |
| Voltage supervisor limits – PWR LED (Note 1) | 6.0 V > Vext or Vext > 12.5 V | PWR LED = Off (power fault) |
| | 6.0 V < Vext < 12.5 V | PWR LED = On |
| External power adapter (included) | MCC p/n CB-PWR-9 | 9 V @ 1.67 A |

**External power output**

| Parameter | Conditions | Specification |
|---|---|---|
| External power output – current range | | 4.0 A max. |
| External power output (Note 2) | Voltage drop between power input and daisy chain power output | 0.5 V max |

**Note**

The daisy chain power output option allows multiple Measurement Computing USB boards to be powered from a single external power source in a daisy chain fashion. The voltage drop between the module power supply input and the daisy chain output is 0.5 V max. Users must plan for this drop to assure the last module in the chain receives at least 6.0 VDC. A user-supplied custom cable is required to daisy chain multiple devices.

**USB specifications**

| | |
|---|---|
| USB Type-B connector | Input |
| USB device type | USB 2.0 (full-speed) |
| Device compatibility | USB 1.1, USB 2.0 (hardware revision F and later are also compatible with USB 3.0; see Note 3 for information on how to determine the hardware revision) |
| *Type-A connector* | *Downstream hub output port* |
| *USB hub type* | *Supports USB 2.0 high-speed, full-speed and low-speed operating points* |
| | *Self-powered, 100 mA max downstream VBUS capability* |
| *Compatible products* | *MCC USB Series devices* |
| *USB cable type (upstream and downstream)* | *A-B cable, UL type AWM 2527 or equivalent. (min 24 AWG VBUS/GND, min 28 AWG D+/D-)* |
| USB cable length | 3 meters max |

**Digital I/O transfer rates**

| Digital I/O transfer rate (software paced) | System dependent, 33 to 1000 port reads/writes or single bit reads/writes per second typical. |
|---|---|

## Mechanical

| Board dimensions without modules (L × W × H) | 431.8 × 121.9 × 22.5 mm (17.0 × 4.8 × 0.885 in.) |
|---|---|
| Enclosure dimensions (L × W × H) | 482.6 × 125.7 × 58.9 mm (19.00 × 4.95 × 2.32 in.) |

## Environmental

| *Operating temperature range* | *0 ℃ to 70 ℃* |
|---|---|
| *Storage temperature range* | *-40 ℃ to 85 ℃* |
| *Humidity* | *0 ℃ to 90% non-condensing* |

## Main connector

| Connector type | Screw terminal |
|---|---|
| Wire gauge range | 12-22 AWG |

## Screw terminal pinout

| Pin | Signal name |
|---|---|
| 1+ | Module 1+ |
| 1- | Module 1- |
| 2+ | Module 2+ |
| 2- | Module 2- |
| 3+ | Module 3+ |
| 3- | Module 3- |
| 4+ | Module 4+ |
| 4- | Module 4- |
| 5+ | Module 5+ |
| 5- | Module 5- |
| 6+ | Module 6+ |
| 6- | Module 6- |
| 7+ | Module 7+ |
| 7- | Module 7- |

| | |
|---|---|
| 8+ | Module 8+ |
| 8- | Module 8- |
| 9+ | Module 9+ |
| 9- | Module 9- |
| 10+ | Module 10+ |
| 10- | Module 10- |
| 11+ | Module 11+ |
| 11- | Module 11- |
| 12+ | Module 12+ |
| 12- | Module 12- |
| 13+ | Module 13+ |
| 13- | Module 13- |
| 14+ | Module 14+ |
| 14- | Module 14- |
| 15+ | Module 15+ |
| 15- | Module 15- |
| 16+ | Module 16+ |
| 16- | Module 16- |
| 17+ | Module 17+ |
| 17- | Module 17- |
| 18+ | Module 18+ |
| 18- | Module 18- |
| 19+ | Module 19+ |
| 19- | Module 19- |
| 20+ | Module 20+ |
| 20- | Module 20- |
| 21+ | Module 21+ |
| 21- | Module 21- |
| 22+ | Module 22+ |
| 22- | Module 22- |
| 23+ | Module 23+ |
| 23- | Module 23- |
| 24+ | Module 24+ |

| 24- | Module 24- |
| --- | --- |

| Pin | Signal name |
| --- | --- |
| 1+ | Module 1+ |
| 1- | Module 1- |
| 2+ | Module 2+ |
| 2- | Module 2- |
| 3+ | Module 3+ |
| 3- | Module 3- |
| 4+ | Module 4+ |
| 4- | Module 4- |
| 5+ | Module 5+ |
| 5- | Module 5- |
| 6+ | Module 6+ |
| 6- | Module 6- |
| 7+ | Module 7+ |
| 7- | Module 7- |
| 8+ | Module 8+ |
| 8- | Module 8- |
| 9+ | Module 9+ |
| 9- | Module 9- |
| 10+ | Module 10+ |
| 10- | Module 10- |
| 11+ | Module 11+ |
| 11- | Module 11- |
| 12+ | Module 12+ |
| 12- | Module 12- |
| 13+ | Module 13+ |
| 13- | Module 13- |
| 14+ | Module 14+ |
| 14- | Module 14- |
| 15+ | Module 15+ |
| 15- | Module 15- |
| 16+ | Module 16+ |

| | |
|---|---|
| 16- | Module 16- |
| 17+ | Module 17+ |
| 17- | Module 17- |
| 18+ | Module 18+ |
| 18- | Module 18- |
| 19+ | Module 19+ |
| 19- | Module 19- |
| 20+ | Module 20+ |
| 20- | Module 20- |
| 21+ | Module 21+ |
| 21- | Module 21- |
| 22+ | Module 22+ |
| 22- | Module 22- |
| 23+ | Module 23+ |
| 23- | Module 23- |
| 24+ | Module 24+ |
| 24- | Module 24- |

**EU Declaration of Conformity**
According to ISO/IEC 17050-1:2010

- Measurement Computing Corporation
- 10 Commerce Way
- Norton, MA 02766
- USA
- Electrical equipment for measurement, control and laboratory use. October 19, 2016, Norton, Massachusetts USA
- EMI4221.05 and Addendum Measurement Computing Corporation declares under sole responsibility that the product

## USB-SSR24, Board Revision F* or later

is in conformity with the relevant Union Harmonization Legislation and complies with the essential requirements of the following applicable European Directives: Electromagnetic Compatibility (EMC) Directive 2014/30/EU Low Voltage Directive 2014/35/EURoHS Directive 2011/65/EU  Conformity is assessed in accordance to the following standards: EMC:

Emissions:

- EN 61326-1:2013 (IEC 61326-1:2012), Class A
- EN 55011: 2009 + A1:2010 (IEC CISPR 11:2009 + A1:2010), Group 1, Class A

Immunity:

- EN 61326-1:2013 (IEC 61326-1:2012), Controlled EM Environments
- EN 61000-4-2:2008 (IEC 61000-4-2:2008)
- EN 61000-4-3 :2010 (IEC61000-4-3:2010)
- EN 61000-4-4 :2012 (IEC61000-4-4:2012)
- EN 61000-4-5 :2005 (IEC61000-4-5:2005)
- EN 61000-4-6 :2013 (IEC61000-4-6:2013)
- EN 61000-4-11:2004 (IEC61000-4-11:2004)

**Safety:**
Articles manufactured on or after the Date of Issue of this Declaration of Conformity do not contain any of the restricted substances in concentrations/applications not permitted by the RoHS Directive.Carl Haapaoja, Director of Quality Assurance The board revision may be determined from the part number label on the board that states "193782X-01L", where X is the board revision.
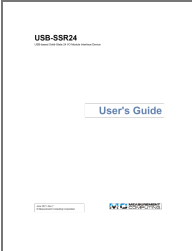
## EU Declaration of Conformity, Legacy Hardware

Category: Electrical equipment for measurement, control and laboratory use. Measurement Computing Corporation declares under sole responsibility that the product to which this declaration relates is in conformity with the relevant provisions of the following standards or other documents: EU EMC Directive 89/336/EEC: Electromagnetic Compatibility, EN 61326 (1997) Amendment 1 (1998) Emissions: Group 1, Class A

Immunity: EN61326, Annex A

- IEC 1000-4-2 (1995): Electrostatic Discharge immunity, Criteria C.
- IEC 1000-4-3 (1995): Radiated Electromagnetic Field immunity Criteria C.
- IEC 1000-4-4 (1995): Electric Fast Transient Burst immunity Criteria A.
- IEC 1000-4-5 (1995): Surge immunity Criteria C.
- IEC 1000-4-6 (1996): Radio Frequency Common Mode immunity Criteria A.
- IEC 1000-4-8 (1994): Magnetic Field immunity Criteria A.
- IEC 1000-4-11 (1994): Voltage Dip and Interrupt immunity Criteria A.Declaration of Conformity based on tests conducted by Chomerics Test Services, Woburn, MA 01801, USA in June, 2005. Test records are outlined in Chomerics Test Report #EMI4221.05. We hereby declare that the equipment specified conforms to the above Directives and Standards. Carl Haapaoja, Director of Quality Assurance The board revision may be determined from the part number label on the board that states "193782X-01L", where X is the board revision.

## Documents / Resources

**MEASUREMENT COMPUTING USB-SSR24 USB-based Solid-State 24 I-O Module Interface Device** [pdf] User Guide
USB-SSR24 USB-based Solid-State 24 I-O Module Interface Device, USB-SSR24, USB-based Solid-State 24 I-O Module Interface Device

**Manuals+**,