

## 16-Port USB-to-Serial Adapter Hub with Daisy Chain Support

ICUSB23216FD



\*actual product may vary from photos

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For the latest information, technical specifications, and support for this product, please visit [www.startech.com/ICUSB23216FD](http://www.startech.com/ICUSB23216FD).

## FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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# Introduction

The ICUSB23216FD adds 16 RS232 serial ports with data transfer rates up to 921.6 Kbps and can be controlled by a desktop or laptop computer system using a single USB port. The durable metal chassis fits into standard 19-inch server storage racks for an organized industrial USB to COM port solution, and supports an extended -40°C to 85°C (-40°F to 185°F) operating temperature range that allows for reliable use even in harsh environments.

The ICUSB23216FD also features daisy chain capability, allowing you to connect multiple devices through a single USB port.

## Package contents

- 1 x 16-port USB to RS232 hub
- 1 x USB cable
- 2 x rack mounting brackets
- 8 x rack mounting screws
- 2 x DIN rail mounting brackets
- 4 x DIN rail mounting screws
- 4 x washers
- 4 x nuts
- 1 x universal power adapter (NA/EU/UK/AU)
- 1 x driver CD
- 1 x terminal block plug
- 1 x quick-start guide

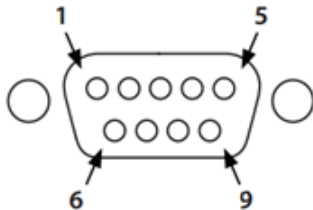
## System requirements

- USB-equipped host computer system
- Any of the following operating systems:
  - Windows® 10 (32-bit or 64-bit)
  - Windows 8.1 (32-bit or 64-bit)
  - Windows 8 (32-bit or 64-bit)
  - Windows 7 (32-bit or 64-bit)
  - Windows XP (32-bit or 64-bit)
  - Windows Vista®
  - Windows Server® 2012
  - Windows Server 2008 R2
  - Windows Server 2003
  - Mac OS 10.7 and later (tested up to 10.11)
  - Linux® 3.5

System requirements are subject to change. For the latest requirements, please visit [www.startech.com/ICUSB23216FD](http://www.startech.com/ICUSB23216FD).

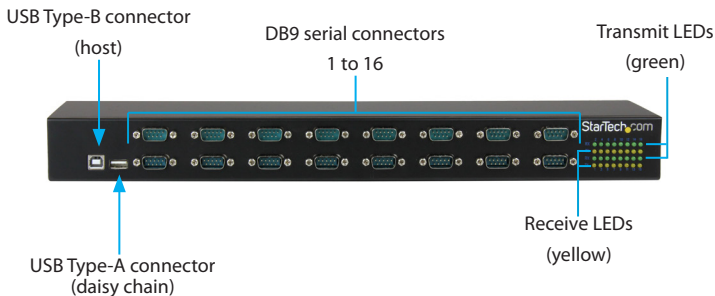
## RS-232 pinout

PIN	Signal
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

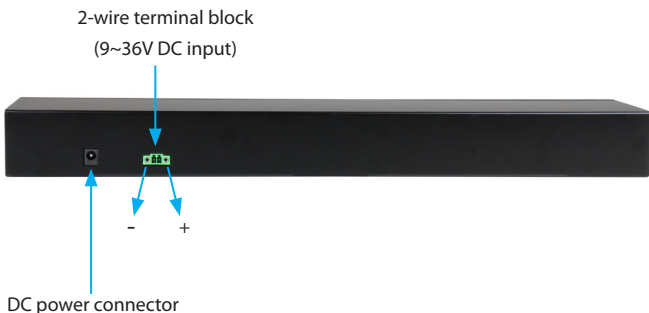


# Product diagram

## Front view



## Back view



# About the LED indicators

The ICUSB23216FD features a set of transmit and receive LEDs for all of the 16 ports. For more information about what the LEDs signify, see the table below.

LED	LED behavior	Significance
Transmit LED (yellow)	Blinking	Data is being transmitted through the port.
	Not illuminated	No data is being transmitted through the port.
Receive LED (green)	Blinking	Data is being received through the port.
	Not illuminated	No data is being received through the port.

## Installation

You can use the power adapter or the terminal block power input (9~36V DC) to power the USB serial hub. You can also use redundant power input by connecting both the power adapter and the terminal block power, and in the event that your power source fail, the USB serial hub will switch to use the secondary power source.

### Install the USB serial hub with the power adapter

**Warning!** Make sure that the driver installation is complete before you plug in and connect the USB serial hub.

1. Insert the provided driver CD into your host computer.

**Note:** The CD should automatically open and display all of the folders contained on the CD. If that doesn't happen, navigate to the CD/DVD drive on your computer.

2. In the driver folder, double-click the appropriate **setup** file for the OS that you're currently running. The driver installation wizard will begin installing the driver and automatically closes when the installation is complete.
3. Connect the provided USB cable to the **USB Type-B host** port on the USB serial hub and the USB port on your computer.
4. Connect the universal power adapter to the **DC power connector** on the USB serial hub and a wall outlet.

# Install the hub using the terminal block power input

**Warning!** Make sure that the driver installation is complete before you plug in and connect the USB serial hub.

1. Insert the provided driver CD into your host computer.

**Note:** The CD should automatically open and display all of the folders contained on the CD. If that doesn't happen, navigate to the CD/DVD drive on your computer.

2. In the driver folder, double-click the appropriate **setup** file for the OS that you're currently running. The driver installation wizard will begin installing the driver and automatically closes when the installation is complete.
3. Connect the provided USB cable to the **USB Type-B host** port on the USB serial hub and the USB port on your computer.
4. If the terminal block connector is already inserted in the USB serial hub, use a small flat-head screwdriver to loosen the screws to the left and right of the terminal block connector until you can remove it from the USB serial hub.
5. Use a small flat-head screwdriver to loosen the two screws located on the top of the terminal block connector.
6. Connect the positive and negative wires from your DC power source to the proper terminal block connectors.

**Note:** Make sure that the polarity of the input power, positive (+) and negative (-), is matched correctly with the terminal block pins.

7. Tighten the two screws located on the top of the terminal block connector.
8. Reinsert the terminal block connector into the USB serial hub and tighten the screws to the left and right of the terminal block connector.

## Confirm installation

### Windows OS

1. On your computer, navigate to **Device Manager**.
2. Expand the **Ports (COM & LPT)** option.
3. Verify that the additional COM ports are listed.
4. Double-click a port and review the device properties.

### Mac OS

1. On your computer, press and hold the **Option** key and click the **Apple** menu.
2. Click **System Information** or **System Profiler**.
3. Under **Hardware**, click **USB**.

The USB device tree lists all of the devices connected to each port.



# Use the daisy chain feature

The ICUSB23216FD includes a daisy chain feature, allowing you to connect one ICUSB23216F serial hub or up to two ICUSB23216FD serial hubs. You can daisy chain up to three USB serial hubs, for a total of 48 ports.

1. Connect the ICUSB23216FD to your host computer. For more information about how to do this, see “Installation.”
2. Connect a USB cable to the **USB Type-A connector** on the ICUSB23216FD connected to your host computer and to the **USB Type-B connector** on the serial hub that you want to daisy chain.
3. If you're connecting a third serial hub, connect a USB cable to the **USB Type-A connector** on the second serial hub and to the **USB Type-B connector** on the third serial hub that you want to daisy chain.
4. On each of the USB serial hubs, connect the universal power adapter to the **DC power connector** or the terminal block power input and a wall outlet.

## Perform a serial loopback test

To verify that a port is operational and to map the ports, you should perform a serial loopback test. A loopback test sends and receives data from the same serial port. To complete the loopback test, you need to temporarily connect pins two and three to allow the signals to be sent and received on the same port.

To perform a serial loopback test, you need a loopback adapter and a third-party software program (for example, PuTTY or HyperTerminal).

1. Download a third-party software program.
2. Open a connection on the COM port that you want to test.
3. Insert the loopback adapter into a serial port.
4. Type something in the third-party software.

If what you typed is displayed in the window, you have located the correct port. If the text isn't displayed in the window, move the adapter to another port and try again until you find the correct port.

# Install the serial hub in a server rack

The ICUSB23216FD comes with the necessary hardware to install the serial hub in a regular server rack or a DIN rail.

1. To mount the serial hub, do one of the following:
  - Use the rack mounting screws to attach the two rack mounting brackets to both sides of the serial hub.
  - Use the DIN rail mounting screws to attach the two DIN rail mounting brackets to both sides of the serial hub.
2. To install the serial hub, follow the instructions that came with your server rack or DIN rail.

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For the latest drivers/software, please visit [www.startech.com/downloads](http://www.startech.com/downloads)

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