

## R0068 USB-RS232 Adapters

The R0068 USB-RS232 adapter connects a RS232 interfaced device to personal computers using USB port and network connection. It can support one user or two users. The users can be at the same location or different locations. Both users can send data to the RS232 interfaced device and receive data from the RS232 interfaced device in real time. The R0068 adapters' software package provides virtual COM port device drivers and an adapter manager for Microsoft Windows. The adapter manager, called r-Manager, manages the R0068 devices and remote access connections. Multiple R0068 devices can be installed on the same computer, and they can be used side by side at the same time. The remote access connections can be established over network and Internet.

**NOTE:** The data over the network connection or Internet connection will experience much longer delay than the data over USB connection. The IP network latency is usually at millisecond level. The packet delay variation (PDV) is related to network performance.

### Features:

- USB-RS232 conversion.
- Virtual COM port device drivers.
- Remote access over network and Internet.
- Support multiple devices on the same computer.
- Support two users at the same time.
- Network connection tools (option).
- Virtual private network (VPN) connection tools (option).
- ESD surge protection:  $\pm 8\text{kv}$  contact discharge,  $\pm 15\text{kv}$  air gap discharge.
- Shielded for EMI protection (option).
- Metal backshell (option).
- RS232 DB9 male connector.
- USB bus powered, 16.9mA (14cm, 2m cable), 18.7mA(5m cable).



### Specifications:

USB	USB specification 2.0 compliant
	USB full speed 12Mbps transmission
	USB type A plug connector
RS232	Connector: DB9 male
	Baud rate: 300bps to 115200bps
	Parity: Even, Odd, None, Mark, Space
	Data length: 5-bit, 6-bit, 7-bit, 8-bit
	Stop bits: 1-bit, 2-bit
Power	USB bus powered, 16.9mA (14cm, 2m cable), 18.7mA(5m cable).
Software	COM port device drivers and the adapter manager for Microsoft Windows 8, Windows 7, Windows Vista, and Windows XP. They work on both x86-based computers and x64-based computers.
Part Number	R006847B 14cm cable, plastic backshell
	R006847N 14cm cable, plastic backshell, integrated network connection tools
	R006847P 14cm cable, plastic backshell, integrated network connection and VPN connection tools
	R006826N 2m cable, metal backshell, integrated network connection tools
	R006826P 2m cable, metal backshell, integrated network connection and VPN connection tools
	R006856N 5m cable, metal backshell, integrated network connection tools
	R006856P 5m cable, metal backshell, integrated network connection and VPN connection tools

### Software Installation

The software package is supplied in a disk or a compressed folder file named *r0068\_drivers*. Here are the installation steps.

1. If you have file *r0068\_drivers*, rename *r0068\_drivers* to *r0068\_drivers.zip*, extract all files to a file folder on your local disk or USB drive, double click *setup.exe* to start software installation.

2. If you have the software disk, insert the software disk into your computer's disc drive, the software installation will start automatically.
3. Follow the on-screen instructions until the setup wizard finishes.
4. Plug the adapter's USB cable to the computer's USB port.
5. Follow the on-screen instructions if any to complete the software installation.

## Single User Local Usage




First, install the software package on your computer. Plug the adapter's USB cable to the computer's USB port. A COM port device will become active. User software can use this COM port to access the USB adapter's RS232 interface.

## Two User Local and Remote Usage

First, install the software package on all computers that will access the adapter locally or remotely. When two users use the adapter at the same time, both users' computers must have a network connection. A R0068 adapter will physically connect to one computer. This is the adapter's local computer. The other computer will connect to the adapter using network connection. This is the adapter's remote computer. Both local computer and remote computer will provide users with a COM port interface. Microsoft Windows will create a COM port device on the local computer when the adapter's USB cable is plugged in. A COM port device can be installed on the remote computer using r-Manager.


Then, a network connection needs to be established between the local computer and the remote computer using r-Manager. One computer runs the network connection's server service. The other computer runs the network connection's client service. The server service accepts network connection. The client service makes network connection request to server service. Either the local computer or the remote computer can provide the server service. The server service needs to be started first before the client service can make a connection. The computer hosting the server service must allow other computers to make network connection to the server service. When the server service and the client service are connected, the adapter is ready for both users.

Here are the details to setup the adapter.

- **Install remote COM port device.** Plug the adapter's USB cable to the remote computer's USB port. This adapter must have the same part number as the adapter you will use with your local computer. Use the same adapter if possible. Double click the icon  to start r-Manager. Bring the page of *Remote COM Port Installation* to the front. Click the *Install* button. Follow the on-screen instruction if any to complete the COM port device installation. Unplug the adapter's USB cable from remote computer's USB port. The remote computer is ready.
- **Connect adapter to local computer.** Plug the adapter's USB cable to local computer's USB port. Connect the adapter's RS232 interface to your RS232 interfaced device.
- **Connect adapter to remote computer.** First, you need to select a computer to host the server service, the local computer or the remote computer. From the computer of server service, double click the icon  to start r-Manager. Bring the R0068 device's COM port page of your interesting to the front. Check the box of "*This is the remote access server device.*" The software will automatically fill in the server IP address. If you have multiple network connections available on this computer, refer to **Network Connections** section. The server service also needs a port number. If you have a specific port number for your application, fill in that port number. You can also leave the port number to zero and the system will assign a port number. If you use two or more R0068 COM port devices on the same computer, each device must have an unique port number on this computer. Click the *Start* button after the server IP address and the port number are ready. When the Remote Access Service's *Status* field shows *Started*, the server service is ready. When the server service successfully accepts a connection, the Remote Access Service's *Status* field shows *Connected*, and the Remote Access Service's *Client* field shows the client service's IP address. From the computer of client service, double click the icon  to start the r-Manager. Bring the R0068 device's COM port page of your interesting to the front. Check the box of "*This is the remote access client device.*" The software will automatically fill in the client IP address. If you have multiple network connections available on this computer, refer to **Network Connections** section. Fill in the same server IP address and port number that the server service is using. Click the *Connect* button. When the Remote Access Connection's *Status* field shows *Connected*, the client service is ready. Now, the adapter is attached to the remote computer's R0068 COM port.
- **Disconnect adapter from remote computer.** Both local computer and remote computer can disconnect the R0068 adapter from remote computer. If the computer runs a client service, within the r-Manager, bring the R0068 device's

COM port page of your interesting to the front. The Remote Access Connection's *Status* field should show *Connected*. Click *Disconnect* button. The remote computer is disconnected when the Remote Access Connection's *Status* field shows *Disconnected*. If the computer runs a server service, within the r-Manager, bring the R0068 device's COM port page of your interesting to the front. The Remote Access Service's *Status* field should show *Connected*. Click *Stop* button. The remote computer is disconnected when the Remote Access Service's *Status* field shows *No connection*, and the server service is stopped.



- **Uninstall the remote COM port device.** Double click the icon  to start the r-Manager. Bring the *Remote COM Port Installation* page to the front. Select the COM port device(s) from the *Installed Remote COM Ports* window. Click *Uninstall* button. It will take the system some time to uninstall the remote COM port device(s). Wait until a message box pops up. Restart the computer when you are ready.

## Network Connections

Personal computer can have multiple network connections installed, such as wired Ethernet, wireless WiFi, satellite networks, cellular networks or mobile networks. The r-Manager can identify the network connections to which the computer is attached. Without the Network Connections option, the r-Manager always selects the first network connection it finds as the default network. It retrieves the computer's IP address from this network, and uses this IP address for the adapter's server service or client service. Without network connection option, you need to manually change the IP address for server service or client service to a specific network connection. With the Network Connections option, the r-Manager lists all active network connections in the *Network Connections* window. You can select a network connection from the list. The r-Manger will use the IP address of the selected network connection for the adapter's server service or client service. When the network connection used by server service or client service is disconnected, the r-Manager will automatically update the list of network connections.

## Virtual Private Network (VPN) Connection

Virtual private network technology allows you to access your private network across a public network. You can access your office network from your home using your home Internet. You can access your office network while in the field using a mobile network. The r-Manager provides two methods to make a VPN connection, a basic interface and an advanced interface. The basic interface requires password encryption and data encryption. The advanced interface provides more options to customize VPN connection's properties.

**The basic interface.** From r-Manager's *Virtual Private Network (VPN) Connection* section,

- Input VPN server name, user name, and password.
- Click *Create VPN* button. When the Virtual Private Network (VPN) Connection's *Status* field shows *Connected* the VPN connection is created. At the same time, this VPN connection is listed in the *Network Connections* window. You can select this VPN connection as the adapter's remote access network connection.
- Click *Close VPN* button to close the VPN connection created by r-Manager. After the VPN connection is closed, the Virtual Private Network (VPN) Connection's *Status* field shows *Disconnected*, and the VPN connection is removed from the *Network Connections* window.

**The advanced interface.** From r-Manager's *Virtual Private Network (VPN) Connection* section,

- Input VPN server name.
- Click *Advanced* button.
- Input user name and password in the advanced interface.
- Click *Connect* button to create the VPN connection. If the VPN connection is successfully created, the Virtual Private Network (VPN) Connection's *Status* field shows *Connected*, and the VPN connection is listed in the *Network Connections* window. You can select this VPN connection as the adapter's remote access network connection.
- Click *Cancel* button to exit advanced interface.
- Click *Properties* button to modify the VPN connection setting, including the security protocols.
- Click *Help* button to find information on how to set the properties of the VPN connection.
- Click *Close VPN* button to close the VPN connection created by r-Manager. After the VPN connection is closed, the Virtual Private Network (VPN) Connection's *Status* field shows *Disconnected*, and the VPN connection is removed from the *Network Connections* window.

## Configure RS232 Settings

The adapter's serial settings can be modified locally using r-Manager or eeTerminal. Here is the guide for r-Manger

configuration. Plug the adapter's USB cable to the computer's USB port. Double click the icon  to start r-Manager.

# DEVICE FUNCTIONS

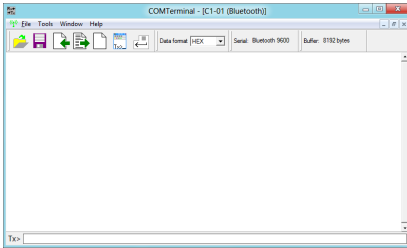
Bring the R0068 device's COM port page of your interest to the front. Within the *COM Port Settings* section, set the baud rate, data bits, parity, and stop bits. Click *Ok* button to apply the changes.

## DB9 Connector Pin Descriptions

Pin #	Signal/Pin Connection
1	1 - 4 - 6
2	Rx
3	Tx
4	1 - 4 - 6
5	GND
6	1 - 4 - 6
7	7 - 8
8	7 - 8
9	NC

## Accessories

**eeTerminal:** Configure, read, and write R0068 USB-RS232 cables. Upload/download files.



## Environmental Conditions

Operating temperature range	-10°C TO +55°C
Storage temperature range	-20°C TO +70°C
Relative humidity	0% to 90%, non-condensing

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