R006824N USB RS485/RS422 Converters with Mini DIN Connector Mini-DIN3/4/5/6/7/8

R006824N is a R0068 series device. It features a RS485/RS422 interface and a Mini-DIN connector. R006824N connects a RS485/RS422 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 RS485/RS422 interfaced device and receive data from the RS485/RS422 interfaced device in real time. The adapters' software package provides 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 RS485/RS422 signal conversion.
- Virtual COM port device drivers.
- Half-duplex data communication.
- 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, EFT, and surge protection.
- Mini-DIN connector, plug or receptacle
- Customer defined connector pin assignments.
- Short stub.
- USB bus powered, Rx 14mA, Tx 17mA (PTP)
- 2m cable length.

Specifications:

USB	USB specification 2.0 compliant
	USB full speed 12Mbps transmission
	USB type A plug connector
RS485/RS422	Half-duplex transceiver
	1/8-unit-load receiver input impedance or up to 256 transceivers on one bus
	True fail-safe receiver
	No integral 120Ohm termination resistor
	Mini-DIN connector, plug or receptacle
	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, receiving 14mA, transmitting 17mA (Point-to-Point)
Software	32-bit and 64-bit virtual COM port device driver for Microsoft Windows 8, Windows 7, Windows Vista, Windows XP.
Module Part Number	R006824NB Basic version
	R006824NN Integrated network connection tools
	R006824NP Integrated network connection tools and VPN connection tools

DEVICE FUNCTIONS

Assembling and RS485/RS422 Signals

The mini DIN connector can be assembled by us if pin assignments are provided. An integral 120 Ohm termination resistor can be installed if requested. RS485/RS422 signals are,

Conductor Color	RS485/RS422 Signal
Green	TxD+/RxD+ (A)
White	TxD-/RxD- (B)
Black	GND (C)

Ordering Information

The part number for R006824N series devices consist a module number and a connector assembly part number. The module number is explained in Specifications section. Here are the connector assembly part numbers,

Connector Assembly #	Mini-DIN Connector Type	Number of Pins
N3P	Plug, Male Pins	3
N3R	Receptacle, Female Sockets	3
N4P	Plug, Male Pins	4
N4R	Receptacle, Female Sockets	4
N5P	Plug, Male Pins	5
N5R	Receptacle, Female Sockets	5
N6P	Plug, Male Pins	6
N6R	Receptacle, Female Sockets	6
N7P	Plug, Male Pins	7
N7R	Receptacle, Female Sockets	7
N8P	Plug, Male Pins	8
N8R	Receptacle, Female Sockets	8

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 RS485/RS422 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

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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 RS485/RS422 interface to your RS485/RS422 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 RS485/RS422 Serial 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. 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.

Accessories

eeTerminal: Configure, read, and write USB-RS485/RS422 cables. Upload/download files.
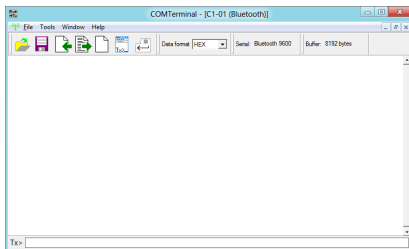
DEVICE
FUNCTIONS

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