



RocketPort™ Serial Hub *Si*

4 and 8-Port

Hardware Documentation

Product Overview

The RocketPort Serial Hub *Si* (RPSH-*Si*) is based on the same technology as the popular RocketPort series. The RocketPort Serial Hub *Si* is a serial communications device that easily connects to a 10Base-T Ethernet hub or network interface card (NIC).

The RocketPort Serial Hub *Si* uses a 20 MHz processor specifically designed to process asynchronous serial communications, thereby maximizing performance and eliminating throughput bottlenecks.

The RocketPort Serial Hub *Si* uses Application Specific Integrated Circuits (ASICs) technology. ASIC technology increases reliability because it replaces many hardware components, which in turn reduces the number of parts that can fail.

RocketPort Serial Hub *Si* features include:

- Four or eight DB9 selectable asynchronous RS-232, RS-422, or RS-485 serial ports.
- Configurable network protocol, allowing the RocketPort Serial Hub *Si* to use IP or MAC (media access control) addressing. See the [Using the IP Configurator Utility](#) discussion for the advantages and procedures of each addressing method. A power supply that supports input voltages between 100 and 240 and 50 or 60 Hz operation.
- “Hot-swapping,” which allows you to replace an existing and configured RocketPort Serial Hub *Si* with an identical unit, without downing the server or reconfiguring ports.
- Diagnostic LEDs and a utility that includes diagnostics and an IP Configurator.

Some drivers feature:

- Multi-server port assignment, permitting the sharing of this device with multiple servers. Each individual server can be configured for MAC or IP addressing.
- Port sharing among servers. The same port can be used for multiple servers.

What This Document Contains

Use this document to:

- [Connect](#) the RocketPort Serial Hub *Si* to the network.
- [Verify](#) that the RocketPort Serial Hub *Si* passes the hardware diagnostics during the power up phase.
- [Add](#) additional units to an existing RocketPort Serial Hub *Si* environment.
- [“Hot swap”](#) RocketPort Serial Hub *Si* units that have experienced a failure.
- [Build cables or loopback plugs](#), including:
 - An Ethernet crossover cable, if connecting the RocketPort Serial Hub *Si* directly to a NIC card (not included).
 - Null-modem cable for the diagnostic or the peripheral devices that you are connecting to the RocketPort Serial Hub *Si* (one included).
 - RS-232/422 loopback plug for use with the diagnostic (one included).
 - RS-485 loopback cable for use with the diagnostic (not included).
- Use the [diagnostic](#) to diagnose a specific port failure.
- Use the [IP configurator](#) utility, if necessary, to set up IP addressing in a non-DHCP or ARP environment.
- [Troubleshoot](#) installation or configuration problems.
- Review the RocketPort Serial Hub *Si* [specifications](#) and [agency notices](#).
- [Contact](#) Control™ or download updated software or documentation.

See the RocketPort Serial Hub *Si* [Software Installation](#) documentation or the device driver [readme](#) file for software installation information. The software installation documentation may also provide information about supporting applications available with the driver for your operating system.

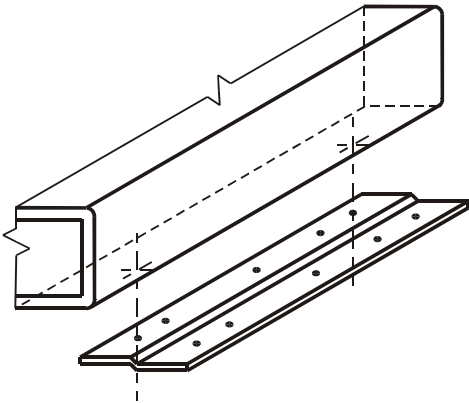
The latest driver releases are available at:

- <http://www.comtrol.com/coperate.htm>
- <ftp://ftp.comtrol.com/readme.htm>

Note: To use the red hyperlinks, you must be connected to the internet.

Installing the Mounting Brackets

1. On the bottom panel, remove two of the four screws that hold the box together.
2. Center the bracket over the holes and reinstall the screws.
3. Repeat steps 1 and 2 for the other bracket.



Connecting to the Network

Use the following procedure to connect the RocketPort Serial Hub *Si* to your server NIC card or Ethernet hub.

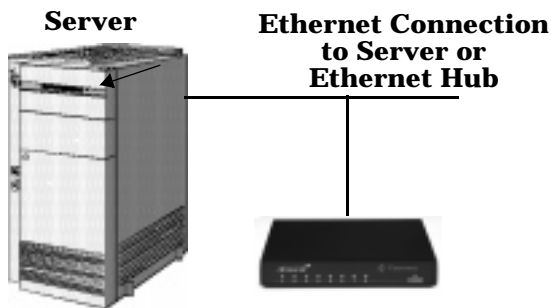
1. Record the media access control (MAC) address, model number, and serial number of the RocketPort Serial Hub *Si*.

| Serial Number* | MAC* |
|----------------|---------------------|
| | 00 C0 4E 06 xx xx |
| | 00 C0 4E 06 _ _ _ _ |

* ID tags are located on the bottom panel. You can write this information on the sticker shipped with the RocketPort Serial Hub *Si*.

2. Connect the cable from the Ethernet connection (10Base-T) on the RocketPort Serial Hub *Si* to your server NIC card or Ethernet hub.

Note: If connecting the RocketPort Serial Hub *Si* directly to a NIC, an **Ethernet crossover** cable is required. Control does not supply this. See the [Building an Ethernet Crossover Cable](#) discussion.



3. Connect the power adapter cable to the RocketPort Serial Hub *Si* port labeled POWER. Connect the power cord to the power adapter and plug the power cord into a power source.

Note: You may need to select the appropriate power cable for your location.

4. Go to the [Running the Power On Diagnostics](#) discussion.

After verifying that the RocketPort Serial Hub *Si* is working correctly, go to the appropriate discussion to continue the installation:

- If you plan on using MAC addressing or you plan on using IP addressing and you have DHCP running in your environment, you are ready to install the driver using the [Software Installation](#) documentation or the driver readme file.
- If you plan on using IP addressing and you do **not** have DHCP running in your environment, go to the [Using the IP Configurator Utility](#) discussion.

After you install and configure the driver, you can use the [Connecting Devices](#) discussion to connect your serial devices.



Caution

Note: The RocketPort Serial Hub *Si* defaults the ports to RS-232. Make sure that you do not connect devices that require a specific mode until the appropriate port has been configured in the device driver.

Running the Power On Diagnostics

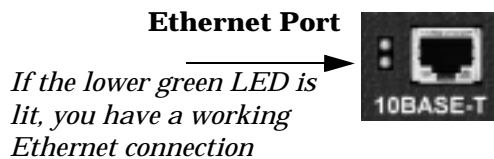
After you have connected the RocketPort Serial Hub *Si* to the NIC card or Ethernet hub, use the following information to determine if your RocketPort Serial Hub *Si* is working correctly.

1. Turn the power switch to the ON position.
2. Verify that the LEDs for Ports 1 through 4 or 8 (depending on the model) flash briefly after applying power, to confirm that the hardware is working properly.

| Indicator | Port LED Descriptions |
|---------------------|---|
| Flashes Briefly | All LEDs flash during the power-on test and then turn off. This indicates a successful self-check. Note: <i>The Port 1 LED blinks while the RocketPort Serial Hub Si is waiting and goes out when the server initiates normal program activity.</i> |
| 1 LED Lit* Solid | Hardware failure. A RAM self-test failure or other mainboard error. |
| 2 LEDs Lit* | Hardware failure. An Ethernet hardware initialization failure. |
| 3 LEDs Lit* | A hardware self-test failure. |
| 4 LEDs Lit* | A flash memory configuration error. |

* *The LEDs light up for a about a minute and then the hardware resets and the same cycle repeats.*

3. Verify that the lower green Ethernet LED remains on to determine that the 10Base-T connection and the polarity are correct.



| LED | Indicator | 10Base-T LED Descriptions |
|--------------|-----------------|---|
| Yellow Upper | Flashes Briefly | During the power on cycle (first few seconds after the power is turned on), this turns on briefly to display correct link polarity. |
| Yellow Upper | Flashing | The light flashes briefly during transmissions as a general indicator of activity. |
| Green Lower | On | RocketPort Serial Hub <i>Si</i> is correctly attached to the LAN and the Ethernet link is established. |
| Green Lower | Off | The Ethernet link is not established. |

4. Verify that the Port 1 LED is blinking. This indicates that the RocketPort Serial Hub *Si* is waiting for the server PC to download the driver.
Note: *The Port 1 LED blinks while the RocketPort Serial Hub Si is waiting and goes out when the server initiates normal program activity.*
5. If the port LEDs do not display an error condition and you are planning on configuring the driver for an IP address, and you do **not** have a DHCP environment established, go to the [Using the IP Configurator Utility](#) discussion.
6. If you have a DHCP environment, you are ready to install and configure the driver. You can find software installation procedures in the *Software Installation* documentation or the driver *readme* file.
 - [Linux](#)
 - [Window 95/98](#)
 - [Windows NT](#)

You can download the most recent driver and software installation document from the Control web/ftp sites:

 - <http://www.control.com/coperate.htm>
 - <ftp://ftp.control.com/readme.htm>
7. After you install and configure the driver, you can connect your serial devices to the RocketPort Serial Hub *Si*.

Adding a Unit to an Existing Installation

Use this procedure to add another RocketPort Serial Hub *Si* to an existing configuration.

1. Install the RocketPort Serial Hub *Si* to an Ethernet hub or NIC card using the [Connecting to the Network](#) discussion.
2. Power-up the new RocketPort Serial Hub *Si* and verify that it passes the power-on diagnostics.
3. Configure the driver to support the new RocketPort Serial Hub *Si*, using the [Software Installation](#) documentation or driver *readme* file.
4. Configure the serial ports to support the serial devices.
5. Connect the serial devices.



Note: *The RocketPort Serial Hub Si defaults the ports to RS-232. Make sure that you do not connect devices until the appropriate port interface type has been configured.*

6. Shut down and restart the server.

“Hot-Swapping” Hardware

Follow this procedure, to “hot-swap” a RocketPort Serial Hub *Si* with another RocketPort Serial Hub *Si* in an existing configuration.

1. Power-down the RocketPort Serial Hub *Si* to be removed from service.
2. Install a new or spare RocketPort Serial Hub *Si*.
3. Connect the new RocketPort Serial Hub *Si* to the Ethernet hub or server NIC card.
4. Power-up the new RocketPort Serial Hub *Si* and verify that it passes the power-on self-test.
5. Change the driver to reflect the MAC or IP address of the new RocketPort Serial Hub *Si*.
6. Configure any RS-422 or RS-485 ports to match the previous unit.
7. Transfer *all* cabling from the old RocketPort Serial Hub *Si* to the new RocketPort Serial Hub *Si*.



Caution

Note: Make sure that you do not connect RS-422 or RS-485 devices to ports that are configured in the driver as RS-232 (default).

No port reconfiguration is needed, providing that you reconnect the serial devices as previously cabled.

8. Do not shut down and restart the server.

Troubleshooting

If you are having trouble with a RocketPort Serial Hub *Si*, you may want to try the following before running the diagnostics.

Note: Most customer problems reported to Comtrol Technical Support are eventually traced to cabling or network problems.

1. Verify that you are using the correct device driver. Device drivers for the *RocketPort Serial Hub* and the *RocketPort Serial Hub Si* are different.

Note: If you want to run both devices, you must install and configure both drivers.

2. Verify that the unit is powered on and that the Power LED is lit.
3. Turn the unit's power switch off and on, while watching the LED diagnostics. For LED information, see the [Running the Power On Diagnostics](#) discussion.

Note: If the Port 1 is flashing, this indicates that the driver has not downloaded to the unit.

4. Verify that the port polarity is correct. See the [Connecting to the Network](#) discussion.
5. Verify that you are using the correct types of cables in the correct places and that all cables are connected securely.

6. Verify that the Ethernet hub and any other network devices between the server and RocketPort Serial Hub *Si* are powered up and operating.
7. To diagnose port failures, use the diagnostic discussed in the [Using the Diagnostics](#) discussion.
8. To isolate the unit from the network, use a “crossover” Ethernet cable to connect the unit directly to the NIC card in the server.
9. Verify that the MAC address in the driver matches the address on the RocketPort Serial Hub *Si*.
10. If using an IP address, verify that the IP address in the driver matches the unique reserved IP configured address assigned by the system administrator.
Note: When configuring an IP address for the first time, you may need to use the `e` option to erase the configuration.
11. Verify that the server can ping the RocketPort Serial Hub *Si*. If the ping fails, there is an addressing or network problem.
12. See the [Software Installation](#) documentation for information on operating system specific troubleshooting procedures.
13. If you have a spare RocketPort Serial Hub *Si*, try “hot-swapping” RocketPort Serial Hub *Si* units. See the [“Hot-Swapping” Hardware](#) discussion.
Note: If this corrects the problem, the RocketPort Serial Hub *Si* that you have removed from service may be defective or in need of repair.
14. Reboot the server.
15. Remove and reinstall the driver.
16. If you are unable to resolve the problem, [contact Technical Support](#).

Using the Diagnostics

The RocketPort Serial Hub *Si* diagnostic performs the following tests:

- Verifies the MAC address of the RocketPort Serial Hub *Si*.
- Initializes each channel on the board.
- Verifies that each port's communications mode is functional, by selecting the mode in the diagnostic set up screens.
- Tests the AIOPIC memory.
- Tests the functionality of each port's data and modem signals.
- Tests the Ethernet loopback in the RocketPort Serial Hub *Si*.
- Verifies that all of the LEDs are working.
- Reports on the screen that the diagnostic did not find any errors or provides you with information about what failures occurred at which ports.

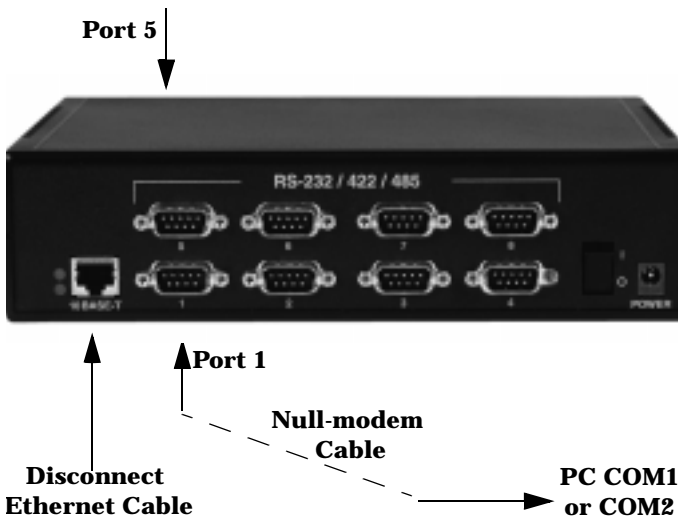
The diagnostic uses Port 1 to communicate to a COM port on a PC (COM 1 or 2). Use the following procedure to test the RocketPort Serial Hub *Si*.

Note: The diagnostic is available in several places, including Control media (diskette or CD) and the ftp/web sites.

1. Turn the Power switch to the OFF position.
2. Disconnect the Ethernet cable from the RocketPort Serial Hub *Si*.
3. If necessary, extract the diagnostic if you downloaded it from the ftp/web or if you are using the Control CD.

Note: If the RocketPort Serial Hub *Si* is not located near your server, you can use another computer or laptop to run the Diagnostics and IP Configurator utility.

4. Execute the `sidiag.exe` program in a native MS-DOS® environment.
Note: The Diagnostic and IP Configurator Utility takes a few moments to load.
5. At the first screen, press the **B** key to start the diagnostic.
6. Connect a null-modem cable from a COM port on a PC (COM1 or COM2) to Port 1 on the RocketPort Serial Hub *Si*.



7. Press the 1 or 2 and Enter keys to represent which COM port on the PC to which you are connected.
8. Press the 4 or 8 and Enter keys to represent the number of ports that the RocketPort Serial Hub *Si* contains.
9. Optionally, test the ports that use RS-422 or RS-485 mode.
 - a. Select a port number (2 through 4 or 8) that you want to test for RS-422 or RS-485 and press the Enter key.
 - b. Select the appropriate mode (it is not necessary to press the Enter key).

Note: You must test RS-485 in pairs because it requires a loopback cable.

10. Press the **A** and Enter keys after selecting the appropriate mode for each port or to test all of the ports in RS-232.

Note: You can not test Port 1 in the same way that you can test the other ports, but if the diagnostic is running, then RS-232 mode is functioning properly on Port 1.

11. Plug the loopback plug (RS-232 or RS-422) or the loopback cable (RS-485) into Port 2.
Note: If you are testing RS-485, plug the other end of the loopback cable into the port that you selected in Step 9
12. Turn the RocketPort Serial Hub *Si* Power switch to the ON position and wait for the Port 1 LED to start blinking.
13. Press any key after the Port 1 LED starts to blink.
14. Follow the directions on the screen when the diagnostic directs you to move the loopback plug or cable to a particular port.

Note: If you want to turn off the AIOPIE Memory test, you can run the diagnostic from a DOS window with a `-s` option.

If the Diagnostic reports errors, see the table in [Diagnostic and IP Configurator Error Messages](#).

Using the IP Configurator Utility

The IP addressing scheme has the following advantages:

- Uses an industry standard protocol.
- Allows you to configure servers to use ports on the RocketPort Serial Hub *Si* that are outside of the server's Ethernet segment.

The MAC addressing method has the following advantages:

- Simplifies implementation and ongoing support by eliminating the address administration issues inherent in network protocols. MAC addresses are predefined by Control and there is no potential for an "address conflict" at setup.
- It is isolated from foreign LAN segments, which minimizes potential security issues.

There are two ways to configure IP addresses for the RocketPort Serial Hub *Si*:

- If running an ARP or DHCP environment, you must reserve an IP address for the MAC address of the RocketPort Serial Hub *Si*. If you are using this method, it is not necessary to configure an IP address using the RocketPort Serial Hub *Si* IP Configurator utility.
- If not running an ARP or DHCP environment, you can use the IP Configurator utility mentioned in the following discussion to set an IP address in the RocketPort Serial Hub *Si* BIOS.

The IP Configurator utility uses Port 1 on the RocketPort Serial Hub *Si* to communicate to a COM port on a PC (COM 1 or 2).

Use the following procedure if you need to configure a RocketPort Serial Hub *Si* to use an IP address. You will need the following information to configure IP addressing:

- A unique reserved IP address.
- The IP mask number.
- The IP gateway number.
- Optionally, SNMP information, such as:
 - SNMP system contact name.
 - SNMP system name.
 - SNMP location.

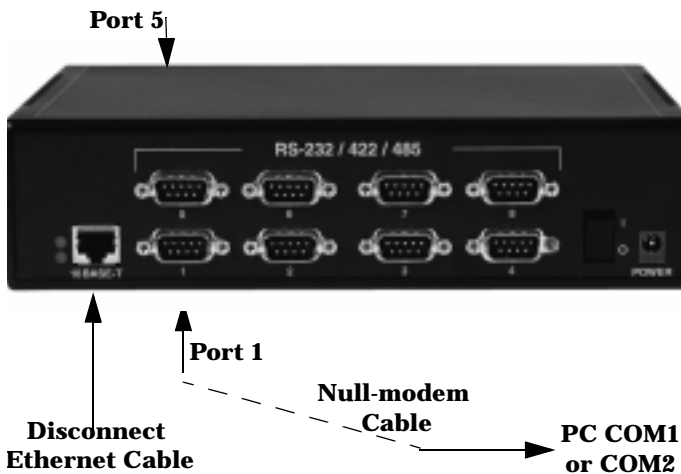
1. Turn the Power switch to the OFF position.
2. Disconnect the Ethernet cable from the RocketPort Serial Hub *Si*.
3. If necessary, extract the diagnostic if you downloaded it from the ftp/web or if you are using the Control CD.

Note: *If the RocketPort Serial Hub Si is not located near your server, you can use another computer or laptop to run the Diagnostics and IP Configurator.*

4. Execute the `sidiag.exe` program in a native MS-DOS® environment.

Note: *The Diagnostic and IP Configurator Utility takes a few moments to load.*

5. At the first screen, press the A key and Enter to start the IP Configurator utility.
6. Connect a null-modem cable from a COM port on a PC (COM1 or COM2) to Port 1 on the RocketPort Serial Hub *Si*.



7. Press the 1 or 2 and Enter keys to represent which COM port on the PC to which you are connected.
8. Turn the RocketPort Serial Hub *Si* Power switch to the ON position and wait for the Port 1 LED to start blinking.
9. Press any key after the Port 1 LED starts to blink.

Note: *When configuring an IP address for the first time, you may need to use the e option to erase the configuration.*

10. Press the 1 key, enter the unique reserved IP number, and press the Enter key.
11. Press the 2 key, enter the IP mask number, and press the Enter key.
12. Press the 3 key, enter the IP gateway number, and press the Enter key.
13. Optionally, configure the SNMP entries.
14. After configuring all required fields, press the s key to save and exit or the x key to exit *without* saving the IP configuration.

Note: *Run the diagnostics again to verify the addresses. If they are not set, erase the memory and enter the values again.*

15. If you saved the configuration, verify that the IP Configurator utility responds with an OK for each item.
16. Use the [Software Installation](#) documentation or the device driver `readme` file to install and configure the driver for your operating system.

Note: *To download the most recent driver or software installation document, you can check the Control web/ftp sites:*

<http://www.comtrol.com/coperate.htm>
<ftp://ftp.comtrol.com/readme.htm>

17. After you install and configure the driver, you can connect your serial devices to the RocketPort Serial Hub *Si*.

See the following discussion if you need help diagnosing error messages.

Diagnostic and IP Configurator Error Messages

This table lists some error messages and possible solutions.

| Error Message | Possible Causes |
|--|--|
| ERROR DEV_NO_REPLY | <ol style="list-style-type: none"> The COM port selected in the utility did not match the physical COM port on the PC. The cable between Port 1 on the RocketPort Serial Hub <i>Si</i> and the PC COM port is incorrect. The cable is not plugged into Port 1. The RocketPort Serial Hub <i>Si</i> power was not turned off and then on before running the utility. Port 1 is failing and the utility can not communicate. The Port 1 LED is also lit to indicate a hardware failure. |
| RS-485 ERROR (Diagnostic) | <ol style="list-style-type: none"> The loopback cable between the two ports is incorrect. The cable was not connected to the correct ports. Hardware in one of the ports is failing. |
| <i>There were errors during testing.</i> | A key other than Y was entered during the LED testing sequence in the Diagnostic. |

Connecting Devices

Use the following discussion to connect asynchronous devices to the RocketPort Serial Hub *Si* ports.



Caution

Note: Make sure that you have configured the ports using the driver for the correct communications mode before connecting any devices. The default mode is RS-232. There is a remote possibility that connecting a peripheral configured for the wrong mode could damage the peripheral.

1. Connect your devices to Ports 1 through 4 or 8 (depending on the model), for each RocketPort Serial Hub *Si* using the appropriate cable or you can build your own cables using the [Building Null-Modem Cables](#) or [Building Straight-Through Cables](#) discussions.

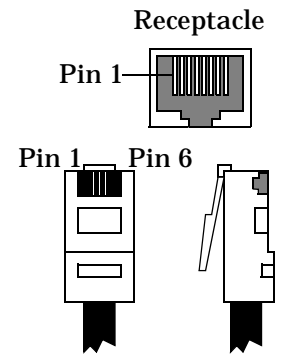
Note: Use the hardware manufacturer's installation documentation if you need help with connector pinouts or cabling for the peripheral device.

2. Install or reconfigure the driver using the [Software Installation](#) documentation or the driver readme file.

Building an Ethernet Crossover Cable

If you are connecting from the 10Base-T connector on the RocketPort Serial Hub *Si* directly to the NIC card in the server, you need a crossover cable. Use the following information to build or purchase a cable.

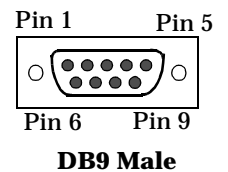
| Pin | Connects to Pin |
|-----|-----------------|
| 1 | 3 |
| 2 | 6 |
| 3 | 1 |
| 6 | 2 |



DB9 Connector Pinouts

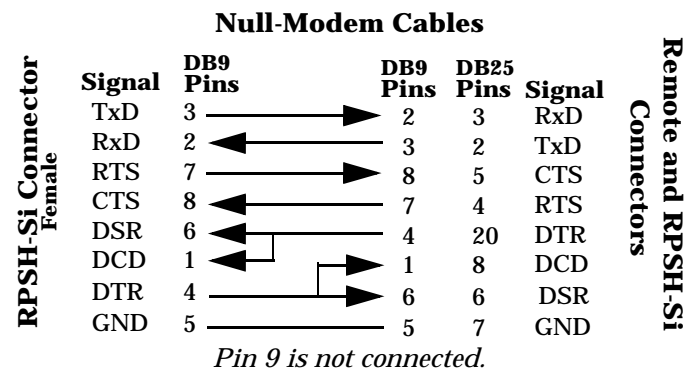
Use the following pinout information for the DB9 serial port connectors on the RocketPort Serial Hub *Si*.

| Pin | RS-232 | RS-422 | RS-485 |
|-----|----------|----------|----------|
| 1 | CD | Not used | Not used |
| 2 | RxD | RxD- | Not used |
| 3 | TxD | TxD- | TRX- |
| 4 | DTR | Not used | Not used |
| 5 | GND | Not used | Not used |
| 6 | DSR | Not used | Not used |
| 7 | RTS | TxD+ | TRX+ |
| 8 | CTS | RxD+ | Not used |
| 9 | Not used | Not used | Not used |



Building Null-Modem Cables

Use the following figure if you need to build a null-modem cable. A null-modem cable is required to use the bootable diagnostic, the IP Configurator utility, and for connecting DTE devices.

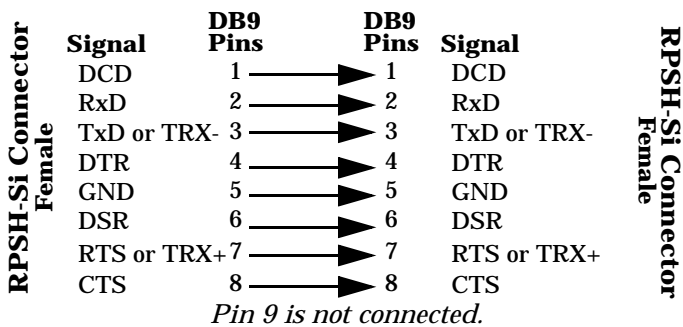


Note: You may want to purchase or build a straight-through cable and purchase a null-modem adapter.

Building Straight-Through Cables

Use the following figure if you need to build a straight-through cable. You can use a straight-through cable to run the bootable diagnostics for RS-485 mode, or you can build your own and connect only Pins 3 and 7. Straight-through cables are also used for DCE devices.

RS-485 Loopback Cable



Note: The RS-485 loopback cable only requires that Pins 3 and 7 to be connected.

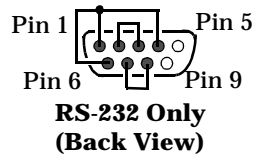
Building Additional Loopback Plugs

Loopback connectors are DB9 female serial port plugs, with pins wired together as shown, that are used in conjunction with the diagnostic software to test serial ports. The RocketPort Serial Hub *Si* is shipped with a single loopback plug (RS-232/422).

This information can help you build additional plugs or replace a missing loopback.

Wire the following pins together for an RS-232 loopback plug:

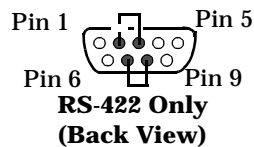
- Pins 1 to 4 to 6
- Pins 2 to 3
- Pins 7 to 8



Note: The RS-232 loopback plug also works for RS-422.

Wire the following pins together for an RS-422 loopback plug:

- Pins 2 to 3
- Pins 7 to 8



Hardware Specifications

This table illustrates environmental conditions.

| Environmental Conditions | Value |
|---|----------------------------|
| Air temperature: System on System off | 0 to 40°C -20 to 85°C |
| Altitude | 0 to 10,000 feet |
| Heat output: 4-Port 8-Port | 22.0 BTU/Hr 26.9 BTU/Hr |
| Humidity (non-condensing): System on System off | 8% to 80% 20% to 80% |

| Environmental Conditions | Value |
|---|--------------------------|
| Mean Time between Failures: 4-Port 8-Port | 24.2 years 20.8 years |

The following table lists electromagnetic compliance certifications.

| Electromagnetic Compliances | Status |
|---|--------|
| Emission: Canadian EMC requirements CISPR-22/EN55022 Class A FCC Part 15 Class A | Yes |
| Immunity: EN50082 (801-2 ESD, 801-3 RF, and 801-4 FT) | Yes |
| Safety: EN60950 UL Listed | Yes |

The following table illustrates hardware specifications.

| Topic | Hardware Specifications |
|---|--|
| Baud rate (maximum) | 230.4 Kbps |
| Current consumption: 4-Port 8-Port | 54 mA (at 120 VAC) 66 mA (at 120 VAC) |
| Dimensions 4-port 8-port | 6" x 9" x 1.5" 6" x 9" x 2.4" |
| Driver Control: Data bits Parity Stop bits | 7 or 8 Odd, Even, None 1 or 2 |
| Ethernet host interface | 10Base-T (10 Mbps) |
| Hubs per server | Dependent on OS. See the software documentation. |
| Line frequency | 50 - 60 Hz |
| Line voltage | 100 - 240 VAC |
| Number of ports | 4 or 8 |
| Power consumption: 4-Port 8-Port | 6.4 W 8.0 W |
| Weight 4-Port 8-Port | 1 lb 2 oz 1 lb 4 oz |

Notices

Radio Frequency Interference (RFI) (FCC 15.105)

This equipment has been tested and found to comply with the limits for Class A digital devices pursuant to Part 15 of the FCC Rules.

This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, 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 and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the 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.

Labeling Requirements (FCC 15.19)

This equipment complies with part 15 of FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Modifications (FCC 15.21)

Changes or modifications to this equipment not expressly approved by Control Corporation may void the user's authority to operate this equipment.

Serial Cables (FCC 15.27)

This equipment is certified for Class A operation when used with unshielded cables.

Underwriters Laboratory

This equipment is Underwriters Laboratory "UL" listed.

Important Safety Information



Warning

To avoid contact with electrical current:

- Never install electrical wiring during an electrical storm.
- Never install the power plug in wet locations.
- Use a screwdriver and other tools with insulated handles.

Technical Support

If you need technical support, contact Control using one of the following methods.

Corporate Headquarters:

- E-mail: support@comtrol.com
- FTP Site: <ftp://ftp.comtrol.com>
- Web Site: <http://www.comtrol.com>
- FAX: (763) 494-4199
- Phone: (763) 494-4100

Control Europe:

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Control has a staff of technical support representatives to help you.

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