RocketPort™ Serial Hub *Si*
2-Port
Hardware Documentation

Product Overview

The RocketPort Serial Hub *Si* is a serial communications device that easily connects to a 10/100Base-T Ethernet hub, switch, or network interface card (NIC).

The RocketPort Serial Hub *Si* uses a 33 MHz processor specifically designed to process asynchronous serial communications, thereby maximizing performance and eliminating throughput bottlenecks.

RocketPort Serial Hub *Si* features include:

- Two 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 *Software Installation* documentation for MAC or IP addressing information.
- 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.
- Auto polarity selection for network connection.

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 peripheral devices that you are connecting to the RocketPort Serial Hub *Si* (not included).
  - RS-232/422 loopback plug (one included).
- **Troubleshoot** installation or configuration problems.
- Review the RocketPort Serial Hub *Si* **specifications** and **agency notices**.
- **Contact** Comtrol™ 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.

Additional or updated drivers may be available:

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

Connecting to the Network

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

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 10 *xx xx*
	00 C0 4E 10 __ __ __ __

*   *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 (10/100Base-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.*

Server   **Ethernet Connection to Server or Ethernet Hub or Ethernet Switch**
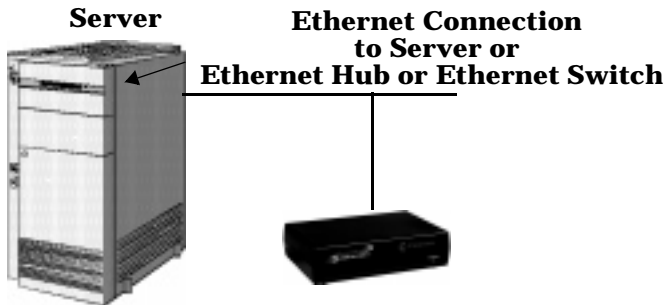
3. Connect the power adapter cable to the RocketPort Serial Hub *Si* port labeled POWER.

Caution

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 in the device driver.*

4. 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.*

Ethernet Port

a. If the lower green LED is lit, you have a working Ethernet connection.

Note: The upper yellow LED lights to display Ethernet activity.

b. The amber **Power** LED begins to flash on and off, indicating the unit is ready for you to install the the driver.

Power LED

Note: *After the driver is installed and configured and the devices are connected, the yellow Rx LED shows that the data receiver is connected to another RS-232 device and the green Tx LED shows that the RS-232 data transmitter is on. These LEDs are not used for RS-422 or RS-485 mode.*

Rx
Tx
1 2

5. You may want to download the most recent driver and software installation document from the Comtrol web/ftp sites:

•   http://www.comtrol.com/coperate.htm

•   ftp://ftp.comtrol.com/readme.htm

6. 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 the Power LED lights.

3. Configure the driver to support the new RocketPort Serial Hub *Si*, using the *Software Installation* documentation or driver **readme** file.

4. Configure serial ports to support the serial devices.

5. Connect the serial devices.

Caution

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 network 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 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* try the following.

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. Verify that you are using the correct types of cables in the correct places and that all cables are connected securely.

4. Verify that the Ethernet hub and any other network devices between the server and RocketPort Serial Hub *Si* are powered up and operating.

5. To isolate the unit from the network, use a "crossover" ethernet cable to connect the unit directly to the NIC card in the server.

6. Verify that the MAC address in the driver matches the address on the RocketPort Serial Hub *Si*.

7. 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.

8. Verify that the server can ping the RocketPort Serial Hub *Si*. If the ping fails, there is an addressing or network problem.

9. See the *Software Installation* documentation for information on operating system specific troubleshooting procedures.

10. 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 *you have removed from service may be defective or in need of repair.*

11. Reboot the server.

12. Remove and reinstall the driver.

13. If you are unable to resolve the problem, contact Technical Support.

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 or 2 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 10/100Base-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 a cable, if necessary.

Receptacle

Pin 1

Pin 1   Pin 6
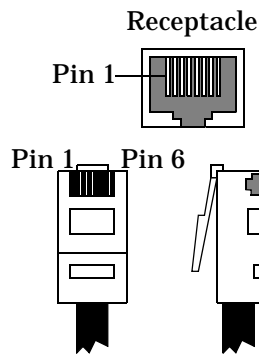
Pin	Connects to Pin
1	3
2	6
3	1
6	2

DB9 Connector Pinouts

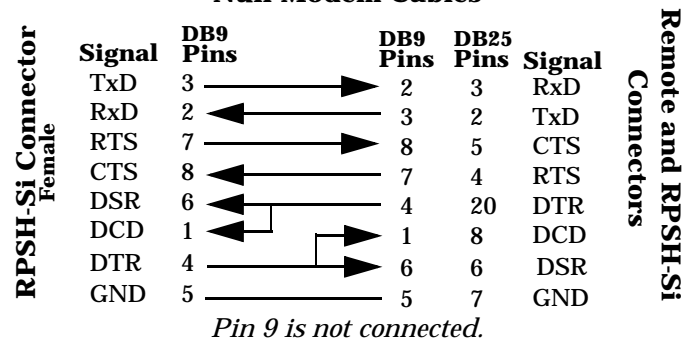Use the following pinout information for the DB9 serial port connectors on the RocketPort Serial Hub *Si*.

Pin 1   Pin 5

Pin 6   Pin 9

DB9 Male
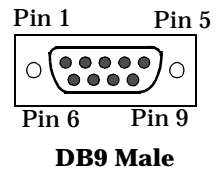
Pin	RS-232	RS-422	RS-485
1	CD	Not used	Not used
2	RxD	RxD-	Not used
3	TxD	TxD-	TRX-
4	DTR	Not used	Not used
5	GND	Not used	Not used
6	DSR	Not used	Not used
7	RTS	TxD+	TRX+
8	CTS	RxD+	Not used
9	Not used	Not used	Not used

Building Null-Modem Cables

Use the following figure if you need to build a null-modem cable. A null-modem cable is required for connecting DTE devices.
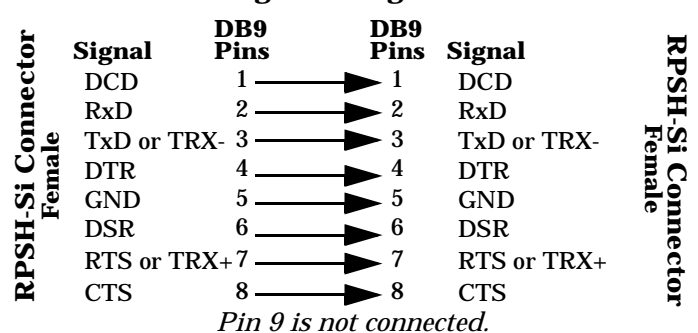
Null-Modem Cables

RPSH-Si Connector Female	Signal	DB9 Pins		DB9 Pins	DB25 Pins	Signal	Remote and RPSH-Si Connectors
	TxD	3	→	2	3	RxD	
	RxD	2	←	3	2	TxD	
	RTS	7	→	8	5	CTS	
	CTS	8	←	7	4	RTS	
	DSR	6	←	4	20	DTR	
	DCD	1	←	1	8	DCD	
	DTR	4	→	6	6	DSR	
	GND	5	—	5	7	GND	

Pin 9 is not connected.

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. Straight-through cables are used to connect DCE devices.

Straight-through Cable

| RPSH-Si Connector Female	Signal	DB9 Pins		DB9 Pins	Signal	RPSH-Si Connector Female
	DCD	1	→	1	DCD	
	RxD	2	→	2	RxD	
	TxD or TRX-	3	→	3	TxD or TRX-	
	DTR	4	→	4	DTR	
	GND	5	→	5	GND	
	DSR	6	→	6	DSR	
	RTS or TRX+	7	→	7	RTS or TRX+	
	CTS	8	→	8	CTS	

Pin 9 is not 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 a single loopback plug (RS-232/422).

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

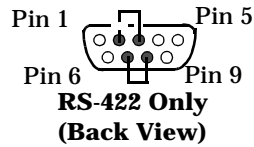Wire the following pins together for an RS-232 loopback plug:

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

Pin 1 ... Pin 5
Pin 6 ... Pin 9
**RS-232 Only
(Back View)**
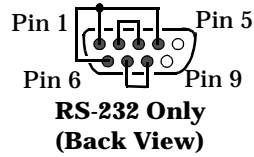
Note: The RS-232 loopback plug also works for RS-422.

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

- Pins 2 to 3
- Pins 7 to 8

Pin 1 ... Pin 5
Pin 6 ... Pin 9
**RS-422 Only
(Back View)**

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:	BTU/Hr

Humidity (non-condensing):
  System on
  System off
	8% to 80%
	20% to 80%

Mean Time between Failures	38.8 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)	115.2 Kbps
Current consumption:	20 mA (at 120 VAC)
Dimensions	6.1" x 4.28" x 1.18"

Driver Control:
  Data bits
  Parity
  Stop bits
	7 or 8
	Odd, Even, None
	1 or 2

Ethernet host interface	10/100Base-T (10/100 Mbps - RJ45)
Hubs per server	Dependent on OS, see the software documentation
Line frequency	50 - 60 Hz
Line voltage	100 - 240 VAC
Number of ports	2
Power consumption:	2.4 W
Weight	9.5 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 Comtrol 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 Comtrol using one of the following methods.

Corporate Headquarters:

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

Comtrol Europe:

- email: support@comtrol.co.uk
- Web Site: http://www.comtrol.co.uk
- FAX: +44 (0) 1 869-323-211
- Phone: +44 (0) 1 869-323-220

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

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