

Hardware Installation

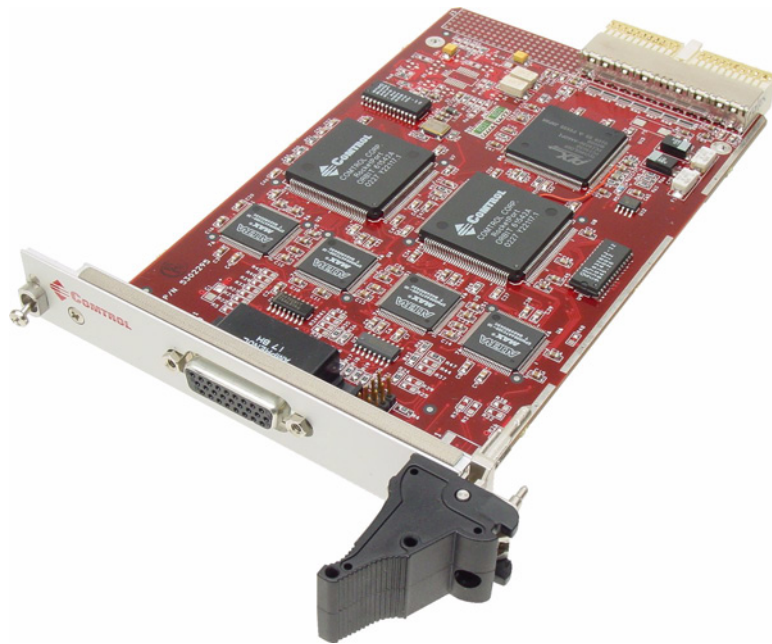
This document discusses installing the *RocketPort CompactPCI* 16-port serial controller and the DB25 connector interface box or the RM16-RJ45 Rack Mount interface box.

Note: For interface information, see [RocketPort Interfaces](#) on Page 3.

The document also provides product specifications and agency notices.

Product Overview

The RocketPort CompactPCI 16 adapter meets the PCI Industrial Computers Manufacturers Group (PICMG) 2.0, Revision 3.0, CompactPCI Specification. The RocketPort CompactPCI 16 supports operation in PCI buses with either 5 volt or 3.3 volt bus interface signaling. The RocketPort CompactPCI uses a 36 MHz processor that is specifically designed to process asynchronous serial communications.



The RocketPort CompactPCI uses Application Specific Integrated Circuits (ASICs) technology to replace most hardware components, including the processor and the serial controller. You can install up to four RocketPort CompactPCI boards in one PC, for a total of 64 additional serial ports.

Locating Drivers and Software Documentation

You can download the latest drivers and software installation documents from the web site at <http://support.comtrol.com/download.asp>.

Installing the RocketPort Hardware

Hardware installation consists of installing the board in the host system and connecting the interface box.

Note: After installing the hardware, you must install the device driver for your operating system.

Card Installation

Use the following procedure to install the board.

1. Turn off your computer and remove the CompactPCI expansion slot front panel cover.

Note: You may want to write down the model number and serial number of the board before installation.

2. Insert the board into the slot, seating it securely.
3. Lift the front panel handle to lock the board into place.
4. Fasten the expansion slot retaining screws.
5. Attach the interface that came with your board using the appropriate procedure.
 - *Installing a Standard Interface Box* (below)
 - [Installing a Rack Mount Interface Box](#) on Page 3

Installing a Standard Interface Box

1. Attach the male end of the RocketPort cable to the board and the female end to the connector labeled **Host** on the interface box.

Note: The male DB25 port labeled **Host** is reserved for connection to the RocketPort controller and no user accessible signals are present at this port.

2. Tighten the connector retaining screws.
3. If applicable, use the slide switches on the interface box to set each port to either RS-232 or RS-422.
4. Use the software installation and configuration document for your operating system, with the driver to complete your installation.

For the latest software and documentation, go to <http://support.comtrol.com/download.asp>.

Note: After installing the hardware, you must install the device driver for your operating system.

5. Verify that the ports are functioning properly and connect your peripheral devices.

Installing a Rack Mount Interface Box

The RM16-RJ45 design allows you to stack several units on a shelf, or you can mount it directly into a rack.

1. Place the unit on a stable surface, or attach the L brackets to the interface using the screws supplied with the unit, and attach the L bracket into your rack.



Note: You can mount the unit facing in either direction.

2. Attach the 3-foot cable or the 3-foot and the 10-foot cables together between the interface and the board.



Note: The cables are interchangeable. You may connect either or both cables depending upon the distance between the board and the rack. The maximum distance permitted between the interface box and board is 15 feet.

3. Use the software installation and configuration document for your operating system, with the driver to complete your installation.

For the latest software and documentation, go to <http://support.comtrol.com/download.asp>.

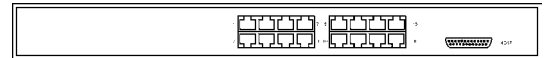
Note: After installing the hardware, you must install the device driver for your operating system.

4. Verify that the ports are functioning properly and connect your peripheral devices.

RocketPort Interfaces

The RocketPort CompactPCI 16-port provides several interface options:

- Rack Mount models are available with RJ45 connectors (back panels shown).
 - 16-Port RS-232 (with red LEDs)
 - 16-Port RS-422 (with red LEDs)
 - 16-Port RS-232 with integrated status LEDs. The yellow LEDs show receiving activity. The green LEDs show transmitting activity.
- Standard interface boxes are available in several configurations:
 - RS-232 mode-only or switch-selectable RS-232/422; both models have female DB25 connectors.
 - Surge interface box with enhanced surge protection that is switch-selectable RS-232/422 with male DB25 connectors.



Note: RS-422 supports up to 10 multidrop devices.

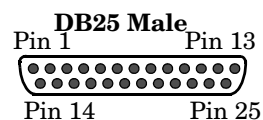
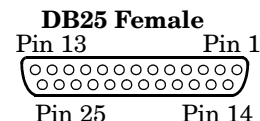
DB25 Interfaces

Use the following information for DB25 connectors. Standard interface boxes use female connectors, while the Surge interface boxes use male connectors.

This table shows connector information for connectors.

Pin	RS-232 Signal	RS-422 Signal
1	Not used	Not used
2	TxD	Not used*
3	RxD	Not used*
4	RTS	Not used*
5	CTS	Not used*
6	DSR	Not used*
7	Signal ground	Signal ground*
8	DCD	Not used*
9 to 14	Not used	Not used
15	Not used	RxD+
16	Not used	Not used
17	Not used	RxD-
18	Not used	Not used
19	Not used	TxD+
20	DTR	Not used*
21-24	Not used	Not used
25	Not used	TxD-

* All RS-232 signals are present in RS-422 mode.

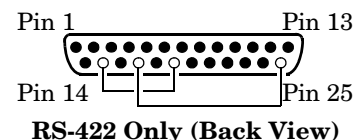


Building DB25 Female Loopback Plugs

Loopback plugs are used with the diagnostics to test serial ports.

Wire the following pins together for an RS-422 loopback plug (Surge interface box).

- Pins 15 to 19
- Pins 17 to 25



Building DB25 Male Loopback Plugs

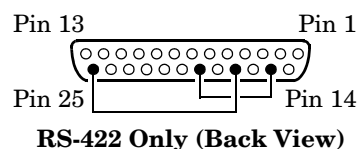
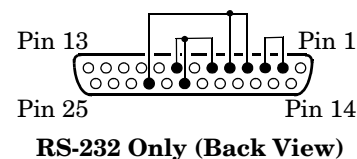
Loopback plugs are used with the diagnostics to test serial ports.

This loopback plug is used with the standard 8- and 16-port DB25 interface boxes.

- Pins 2 to 3
- Pins 4 to 5 to 22
- Pins 6 to 8 to 20

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

- Pins 15 to 19
- Pins 17 to 25



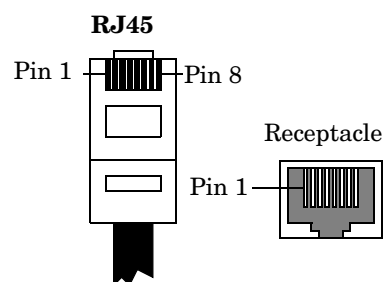
RJ45 Interfaces

The Rack Mount interface boxes are available with RJ45 connectors.

RJ45 Pinouts

Use the following table and figures for pinout information on the RJ connectors used on the Rack Mount interface boxes.

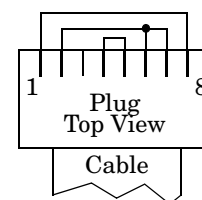
Pin	RS-232	RS-422
1	RTS	TxD+
2	DTR	Not used
3	GND	Tied to ground on the card, but it is not used in the cable.
4	TxD	TxD-
5	RxD	RxD-
6	DCD	Not used
7	DSR	Not used
8	CTS	RxD+



Building RJ45 Loopback Plugs

Loopback plugs are used with the diagnostics to test serial ports. This RJ45 loopback is used with the Rack Mount interfaces.

- Pins 4 to 5
- Pins 1 to 8
- Pins 2 to 6 to 7



Specifications

The following tables illustrate RocketPort CompactPCI conditions and specifications.

Environmental Condition	Value
Air temperature: System on System off	0 to 50°C -20 to 85°C
Humidity (non-condensing): System on System off	8% to 80% 20% to 80%
Altitude	0 to 10,000 feet

Electromagnetic Compliance	Status
Emission: Canadian EMC requirements ICES-003 CISPR-22/EN55022 Class A FCC Part 15: Class A	Yes
Immunity: EMC Directive 89/336/EEC EN55024: IEC 1000-4-2 Electro Static Discharge IEC 1000-4-3 Radiant Electromagnetic Fields IEC 1000-4-4 Fast Transient Burst IEC 1000-4-5 Surge Transients IEC 1000-4-6 Conducted Disturbance IEC 1000-4-8 Power Frequency Magnetic Field IEC 1000-4-11 Voltage Dips, Interruptions and Variations	Yes
EN60950; UL & CUL recognized.	Yes

RocketPort CompactPCI	Specification
Baud rate	50 to 230.4K baud
Bus interface	CompactPCI
Control by device driver: Data bits Parity Stop bits	7 or 8 Odd, Even, None 1 or 2
Current consumption	<u>+5V</u> 330 mA <u>+12V</u> 220 mA <u>-12V</u> 320 mA <u>+3.3V</u> 340 mA
Dimensions	100 mm x 160 mm
Heat output	32 BTU/HR
Serial ports/expansion slot	16
Interfaces (depending upon model)	RS-232 and/or RS-422
Mean time between failures (MTBF)	40.6 years
RocketPort boards/system	4
Surge protection: Standard and rack mount interface boxes Surge interface box	Provides ESD surge protection for a minimum of 10KV @ 200A for a duration of 1ns. Provides ESD surge protection for a minimum of 25KV @ 200A for a duration of 1ns.
Weight (board, only)	5.5 oz.

Standard Interface Box Type	Mounting Dimensions	Overall Dimensions
RS-232 only: 16-Port	3.0" x 6.17"	5.8" x 8.5" x 0.65"
RS-422: 16-Port (Rack Mount with red LEDs)	19" x 8.0" x 1.74" (with brackets)	17.25" x 8.0" x 1.74" (without brackets)
RS-232: 16-Port (Rack Mount with integrated yellow and green LEDs)	19" x 8.0" x 1.74" (with brackets)	17.25" x 8.0" x 1.74" (without brackets)
RS-232/422: 16-Port (All models)	3.0" x 6.48"	5.8" x 8.5" x 0.65"

Surge Interface Box Operating Specifications **Limit**

Maximum surge current (8x20 μ S)	100 amps (total)
Capacitance	<350pf
Clamping voltage	30 volts
Clamping response time	<5 nanoseconds
Transient energy (10/1000 MS)	300 mJ
Inductance	<1.5 nh
ESD withstand (surge-protection)	25KV

FCC 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 distance between the equipment and receiver.
- Connect the equipment to 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 shielded cables.

Troubleshooting and Running Diagnostics

The first step to troubleshooting a problem is to determine that your RocketPort is functioning properly. To do so, you can create a bootable diskette.

Creating a Bootable Diskette

You need two files to create a bootable floppy diagnostic diskette:

- The **Rawrite** utility that creates a bootable diagnostics diskette
- The diskette image file (*.i).

You can find both files on the *Control Software and Documentation CD* (/RPort/Diag/BOOT) or from <ftp://ftp.comtrol.com/RPort/Diag/BOOT/>.

This discussion outlines how to create a bootable diagnostics diskette. You can use our Web site <http://support.comtrol.com/bootdiag.asp> to:

- Download the necessary files (**Rawrite** and diskette image file).
- Easily find specific procedures for your operating system to create the bootable diskette.

Diagnostics Overview

After you create a bootable diskette, you can use the diagnostic program to:

- Confirm that the hardware is functioning.
- Determine resolutions to conflicts during installation.
- Provide you with the ability to stress test the boards.

For example, you may want to run the diagnostics overnight to evaluate a possible problem. You will need loopback plugs for each port that you want to stress test. If you need additional loopback plugs, you can use the appropriate *Building Loopback Plugs* discussion in this document to build additional loopback plugs.

Running the Diagnostics

Use the following procedure to run the diagnostics:

1. Turn off your machine.
2. Insert the diskette that you created inserted.
3. Start the machine (the diagnostic starts automatically).
4. Verify that the system locates the RocketPort CompactPCI board.
5. Follow the remainder of the on-line instructions.

If the diagnostics did not pass you may want to use the following discussion to diagnose your problem.

Resolving Failures

If the diagnostics could not find the board:

- Turn off the power and reseal the board into the slot.
- Check for proper cable connections.
- Check for proper installation of the loopback plug.

Try running the diagnostics again. If they fail again, you may have a bad port, contact Technical Support.

Contact Center (Technical Support)

Comtrol Contact Center has a staff of support technicians available to help you. Before you call, please have the following information available:

Item	Your System Information
Model number	
Serial number	
Interface type	
Operating system type and release	
Device driver version	
PC make, model, and speed	
List other devices in the PC and their addresses	

Comtrol	Headquarters	Europe
Phone	(763) 494-4100	+44 (0)1869 323220
FAX	(763) 494-4199	+44 (0)1869 323211
E-mail	support@comtrol.com	support@comtrol.co.uk
Online support	http://support.comtrol.com/support.asp/	
Downloads	http://www.support.comtrol.com/download.asp	
Web site	www.comtrol.com	www.comtrol.co.uk
FTP site	ftp.comtrol.com	

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Second Edition, November 6, 2003

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Document Number: 2000301 Rev. B