

# RS-422/485 8-Port (DB9) Interface Reference Card

Hostess<sup>®</sup> 4/8, Hostess 550 4/8, Hostess 186 4/8, Smart Hostess 4/8

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## Scope

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This reference card provides technical information for the interface box that you purchased with your Control<sup>™</sup> controller. The following communication modes are available:

- RS-422 two-state
- RS-485
- RS-422 three-state
- RS-485 echo mode

The default setting for the interface box is RS-422 two-state, which can be configured for RS-485 by changing the jumper settings inside the interface box.

Circuit changes are necessary in order to use RS-422 three-state and RS-485 echo mode. A request must be made when the order is placed, so that Control makes the changes before the order ships. The jumpers are also set, so configuring the interface box is unnecessary.

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## Prerequisites

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The following items are needed to install the interface box:

- An applicable Control controller.
- Phillips screwdriver to remove the backplate from the interface box when configuring for RS-485.
- Optionally, tweezers to move the jumpers during configuration.

This reference card assumes that you are somewhat familiar with installing equipment for your computer. It also assumes that you have already configured and installed the controller, and that the device driver has also been installed.

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## Specifications

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Table 1 lists specifications for the interface box.

**Table 1. Interface Box Specifications**

Function	Specification
I/O ports	8 ports
Interface	RS-422, two or three-state RS-485 RS-485 echo mode
FCC certification	Complies with FCC Class A for section 15 subpart J conducted and radiated types of interface.

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**Table 1. Interface Box Specifications**

Function	Specification
Default mode	RS-422 two-state
Dimensions	3.5" x 3.7" x 1.75"

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Refer to the *Hardware Installation Guide* or *Hardware Reference Card* for specific information about the controller.

Software specific information and a comprehensive support section can be found in the *Installation Guide* or *Reference Card* for the device driver you ordered.

If you did not order a Control device driver, you may receive a *Programming Guide* that contains programming information for your controller.

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## Configuring the Interface Box

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If you plan to use RS-422 two-state, RS-422 three-state, or RS-485 echo mode on all ports, the jumper settings do not need to be changed.

If you wish to use RS-485, remove the back cover from the interface box.

The interface box, when set to the default, contains four blocks of 3-pin jumpers (numbered from 3 to 11). When Control sets the interface box for RS-422 three-state or RS-485 echo mode, pins 1 and 2 and pins 12 and 13 are added to each block of jumpers (see Table 2).

Each block of jumpers sets two ports:

- J5 (Ports 1 and 2)
- J6 (Ports 3 and 4)
- J7 (Ports 5 and 6)
- J8 (Ports 7 and 8)

**Note:** If you have a 4-port controller, only J5 and J6 are used.

Table 2 shows the jumper settings for the available communication modes. (The shaded areas represent jumpered pins.)

**Table 2. Jumper Settings**

Options	Jumper Settings	Options	Jumper Settings																						
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<b>RS-485</b>	<table border="1"> <tr><td>3</td><td>4</td><td>5</td></tr> <tr><td>6</td><td>7</td><td>8</td></tr> <tr><td>9</td><td>10</td><td>11</td></tr> </table>	3	4	5	6	7	8	9	10	11	<b>RS-485 Echo Mode*</b>	<table border="1"> <tr><td>1</td><td>2</td></tr> <tr><td>3</td><td>4</td><td>5</td></tr> <tr><td>6</td><td>7</td><td>8</td></tr> <tr><td>9</td><td>10</td><td>11</td></tr> <tr><td>12</td><td>13</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13
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\* It is assumed that the required circuit changes were made.

The following is a technical description for RS-422 and RS-485 communication modes:

- **RS-422 Two-state**
  - Full duplex communication over separate Tx and Rx twisted-pair lines
  - Transmitter always enabled
  - If the receive data inputs are left open, the data receiver assumes the logic 1 (marking) state
- **RS-485**
  - Half duplex communication over a single twisted-pair line
  - RTS controls the transceiver direction
  - To transmit, set RTS to 0; To receive, set RTS to 1
- **RS-422 Three-state**
  - Full duplex communication over separate Tx and Rx twisted-pair lines
  - Three-state transmitter
  - Receiver is always enabled
  - RTS controls the transmitter output enable
  - To enable the output, set RTS to 0; For three-state output, set RTS to 1
  - If the receive data inputs are left open, the data receiver assumes the logic 1 (marking) state
- **RS-485 Echo Mode**
  - Half duplex communication over a single twisted-pair line
  - The receiver echos any transmitted characters
  - RTS controls the transmitter output enable
  - To enable the output, set RTS to 0; For three-state output, set RTS to 1

**Note:** For the above options, the DTR outputs (pins 6 and 7), and the DSR inputs (pins 1 and 2) are enabled. If the DSR inputs are left open, the DSR receiver assumes a logic 0 (ON) state.

## Installing the Interface Box

Use the following procedure to install the interface box:

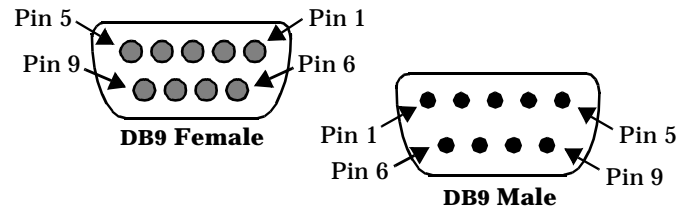
1. Plug the interface box cable into the controller's connector.
2. **Manually** twist the plug's thumbscrews into the connector, being careful not to overtighten.

If you need pinout information for the cable connector that attaches to the controller, see the documentation that came with the controller.

## Attaching the Peripherals

Use the following steps to attach your peripherals:

1. Connect your peripherals to the interface box. The ports on the interface box are numbered from 1 to 8.
2. Use the following figures and table if you need information about the DB9 connector pinouts.



**Table 3. RS-422/485 DB9 Signals**

Pin	RS-422	RS-485
1	DSR+	DSR+
2	DSR-	DSR-
3	GND	GND
4	RxD+	Not supported
5	RxD-	Not supported
6	DTR+	DTR+
7	DTR-	DTR-
8	TxD+	TxD+/RxD+
9	TxD-	TxD-/RxD-

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## Shielding Cables

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The interface falls within the limits for a Class A computing device established by the FCC. To comply with these limits, the serial cables used to connect the controller to external devices should be shielded.

The shield should be connected to a metal or metallized connector shroud on each end of the cable. It is not necessary to connect the chassis ground pin of the DB9 connector.

### Corporate Headquarters:

WEB site: [www.comtrol.com](http://www.comtrol.com)

email: [support@comtrol.com](mailto:support@comtrol.com)

FAX: (612) 631-8117

Phone: (612) 631-7654

BBS (for driver updates): (612) 631-8310

*Note: The BBS supports modem speeds up to 28.8 Kbps with 8 bits, and no parity.*

FTP site (for driver updates): <ftp://ftp.comtrol.com>

### Control Europe:

email: [support@comtrol.co.uk](mailto:support@comtrol.co.uk) or [info@comtrol.co.uk](mailto:info@comtrol.co.uk)

BBS: +44 (0) 1869 243687

*Note: The BBS supports modem speeds up to 14.4 Kbps with 8 bits and no parity.*

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Control has a staff of hardware and software engineers, and technicians available to help you.

Second Edition, August 22, 1996

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**Document Number: 6224**