



## Technical Documentation

For Products: IN211X, IN311X

Title: RS232 Setup Documentation

### Introduction:

RS-232 is a communication protocol that can be used to send commands to and retrieve status information from projectors and other RS-232 enabled devices. Most commonly the RS-232 capability of projectors is used in conjunction with a control system capable of managing several other systems, such as lighting, curtains and audio systems, often via a touch panel remote. Simpler RS-232 implementations require nothing more than a personal computer, an RS-232 capable projector and the appropriate cable.

### Configuration:

Please set the following settings for your projector before proceeding with the RS-232 code.

Baud rate, Bits per second (bps) : 115,200

Data Bits: 8

Parity: None

Stop Bits: 1

Flow Control: None

Please set the following settings for your projector before proceeding

- Press the menu button on the keypad or remote controller
- Go to setup menu and choose -Serial Port Baud Rate: default setting is "115200"

**Note: Commands are Model Dependent. Some variable ranges will only be compatible with certain models.**

### Required Cables:

Null modem cable - female to female DB9 connector (9-pin serial)

## Connector Pin-out:

### Connector 1 Connector 2 Function

1	9	Carrier Detect (not used)
2	3	Receive Data
3	2	Transmit Data
4	6	Data Terminal Ready
5	5	Signal Ground
6	4	Data Set Ready
7	8	Request to Send
8	7	Clear to Send
9	1	Ring Indicator (not used)

## Command Format:

All commands consist of 3 alpha characters followed by a request, all enclosed in parentheses. The request can be a read request (indicated by a "?") Or a write request (indicated by 1 to 4 ASCII digits). A read command returns the range and the current setting, for example:

Some commands have ranges, while others are absolute. If a number greater than the maximum range is received, it is automatically set to the maximum number for that function. If a command is received that is not understood, a "?" is returned.

A write command will change a value in the projector and can be used to mimic menu or remote control commands that are manually entered. Some commands may have 1, 2, or up to 101 values. A command that only has a value of 1 is a pulse command that activates once then goes back to rest. An example of this would be Auto Image. Most other commands will consist of a toggle state (0 or 1) or a selected range (0 to 100).

Example Read Command: (PWR?) (0-1, 1) Projector is turned on

Example Write Command: (PWR1) (0-1, 1) Projector is turned on

**NOTE:** To assure the projector can process a command, wait 500ms before entering the next command.

## Error Conditions

Not all commands are supported for all projectors. If an unsupported command is issued, the command will be ignored. If a command is received that is not understood, a '?' character will be returned indicating the command was not understood.