



**NOTE:** This one-page document is intended **only as a quick reference for installation** – please read the SP Controls Application Note for a complete description of this projector driver prior to installation.

## I. Driver Features

### 1. Input Selection Mapping

|              |         |
|--------------|---------|
| Selection 1: | VIDEO   |
| Selection 2: | S-VIDEO |
| Selection 3: | RGB 1   |
| Selection 4: | RGB 2   |

### 2. Hidden Function Mapping (Default Configuration)

Using the ON button as a shift key, press the following buttons to access the specified projector features.

|              |              |
|--------------|--------------|
| Selection 1: | BLANK SCREEN |
| Selection 2: | ENTER        |
| Selection 3: | ADJ LEFT     |
| Selection 4: | ADJ RIGHT    |
| Off:         | MENU         |
| Volume Up:   | ADJ UP       |
| Volume Down: | ADJ DOWN     |

### 3. Other Driver Features

|                              |                       |
|------------------------------|-----------------------|
| Power Status Feedback Method | RS-232 Power Polling  |
| Control Wiring:              | RS-232 and IR-Emitter |

## II. Wiring Specifications

**NOTE:** For a wiring diagram, please see the SP Controls Application Note.

### 1. RS-232:

Wire the Panel RS-232 port to a female DB9 as follows:

|        |   |
|--------|---|
| TX to  | 2 |
| RX to  | 3 |
| GND to | 5 |

Connect this female DB9 to the included Sharp intermediate cable (labeled RS-232C) and connect the mini-DIN end of the adapter to the projector port labeled *RS-232C IOIOI*.

### 2. Infrared Emitter:

Wire the Panel IR/Serial port to a female 1/8" Mini as follows:

|           |      |
|-----------|------|
| IR/SER to | tip  |
| GND to    | ring |

Connect to the included IR Emitter and attach the emitter bud to any projector IR window.

## III. Additional Projector Information

The C45X can be configured with an *Economy Mode*, which determines whether or not the projector shuts itself off in the absence of an input signal.

When installing the C45X, **you should set the Economy Mode to OFF. This disables the Sharp's Automatic Power Shutoff feature.**

Economy Mode is set via on screen menus, *Options: Economy Mode*. Access the onscreen menus with either the SmartPanel's hidden functions, or the Sharp's remote control.



# Projector Driver Application Note

## Sharp PG-C45X

### Revision A

This document describes the **SmartPanel** Projector Driver for the **Sharp PG-C45X** projector. For information on configuring and using the Panel see the *SmartPanel Configuration and Installation Guide*.

Please read the **SPECIAL CONTROL NOTE** in the *Control Wiring* section of this document before attempting control of the projector. This note describes how the Sharp's *Economy Mode* impacts the projector's behavior.

## I. PROJECTOR CONTROL

### A. Volume and Power Control

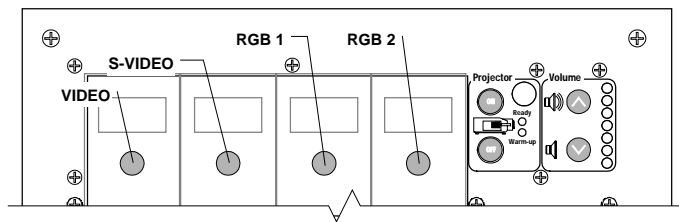
Volume control on the Sharp is **absolute**. Absolute volume control is also possible with SP Controls' option **Audio Follow Video Preamp** (SP3-AFVP+).

### B. Input Selection Mapping

The following table specifies the factory-preset input mapping for this Driver. The **Configuration Utility** can be used to customize these settings your installation.

|              |         |
|--------------|---------|
| Selection 1: | VIDEO   |
| Selection 2: | S-VIDEO |
| Selection 3: | RGB 1   |
| Selection 4: | RGB 2   |

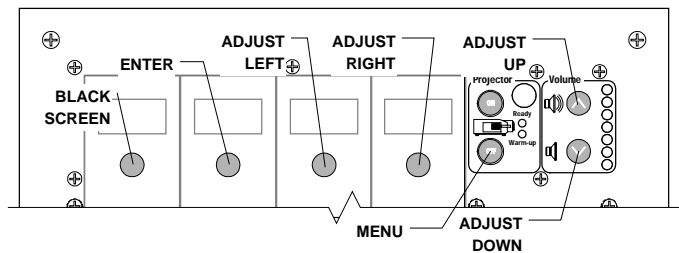
Input choices available for the Sharp with this Driver are VIDEO, S-VIDEO, RGB 1, and RGB 2.



### C. Hidden Function Mapping

The following table specifies the factory preset hidden function mapping for this Driver. The **Configuration Utility** can be used to customize these settings your installation.

|              |              |
|--------------|--------------|
| Selection 1: | BLACK SCREEN |
| Selection 2: | ENTER        |
| Selection 3: | ADJUST LEFT  |
| Selection 4: | ADJUST RIGHT |
| Off:         | MENU         |
| Volume Up:   | ADJUST UP    |
| Volume Down: | ADJUST DOWN  |



Hidden functions names are based on the Sharp remote and controls on top of the projector. Hidden functions are accessed by pressing the indicated key while the holding the **On** key down.

*ADJUST* controls, *ENTER* and *UNDO* navigate through onscreen menus. *UNDO* is a "return to previous menu" or "back" command. *MENU* can also be used as *UNDO*. The area zoomed with the *ENLARGE* function can be moved using the *ADJUST* keys.

*BLACK SCREEN* is a toggle.

AUTO SYNC only works when an RGB input is selected.

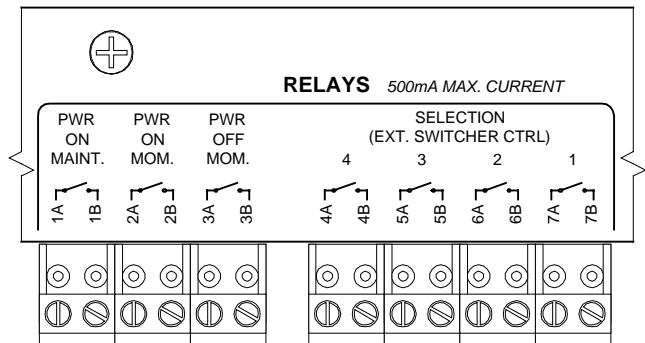
The hidden functions available for the Sharp with this Driver are as follows:

- |              |           |              |
|--------------|-----------|--------------|
| MENU         | AUTO SYNC | RESIZE       |
| ADJUST LEFT  | KEYSTONE  | ENTER        |
| ADJUST RIGHT | FREEZE    | UNDO         |
| ADJUST UP    | ENLARGE   | BLACK SCREEN |
| ADJUST DOWN  |           |              |

**D. Relays**

The following table specifies the factory preset settings for the low-current relays found on the rear of the **SmartPanel**. The **Configuration Utility** can be used to customize these settings your installation.

|           |                       |
|-----------|-----------------------|
| Relay 1   | ON Maintained         |
| Relay 2   | ON Momentary          |
| Relay 3   | OFF Momentary         |
| Selection | Momentary; not Binary |



**E. Other Presets**

The following table specifies other default factory settings for this Driver that affect is control of the Projector.

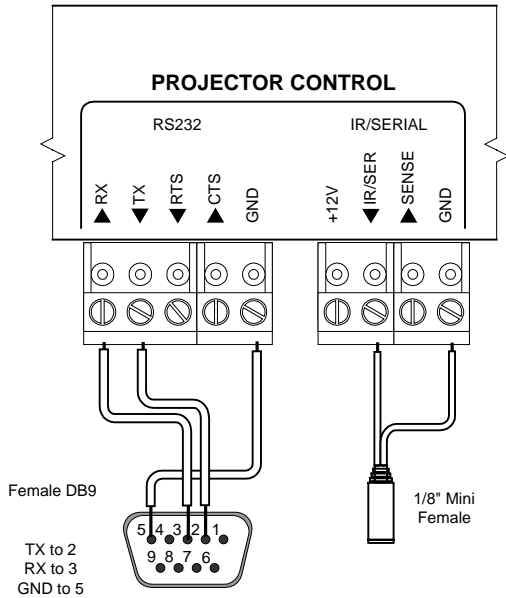
|                                     |  |
|-------------------------------------|--|
| <i>Power Status Feedback Method</i> | Power Polling (see note 1)               |
| <i>Control Wiring</i>               | RS-232 and Infrared Emitter (see note 2) |

Control for the Sharp with this Driver is via RS-232 and Infrared Emitter

The following table specifies settings for the Panel's configurable timers. For more information on the inactivity shutdown feature and the lockout timer see the *SmartPanel Configuration and Installation Guide*.

|                     |                         |
|---------------------|-------------------------|
| Lockout Timer       | 70 seconds (see note 3) |
| Inactivity Shutdown | Disabled                |

## II. CONTROL WIRING



This section specifies how RS-232 and the Infrared Emitter should be wired to the Sharp projector.

**A.** RS-232 should be connected to the Sharp control port labeled **RS-232C**. Connection should be as follows:

1. Wire the Panel to a female DB9 as follows:  
TX to 2  
RX to 3  
GND to 5
2. Connect this female DB9 to the Sharp's custom DB9 to mini-DIN adapter cable. This cable is included with the Sharp and is labeled *RS-232C*.
3. Connect the Sharp custom cable to the projector port labeled *RS-232C IO/IO*.

**B.** Infrared should be wired to any Sharp infrared port. Connection should be as follows:

1. Wire the Panel to a female 1/8" Mini as shown; wire *IR/SER* to *tip* and *GND* to *ring*. Direct wiring to the IR Emitter is not recommended as it makes removal of the Panel for service more difficult.
2. Attach to any projector IR port using the Panel's IR Emitter (included with the Panel).

Note that the emitter glows red when IR is emitted so wiring can be verified.

### SPECIAL CONTROL NOTE

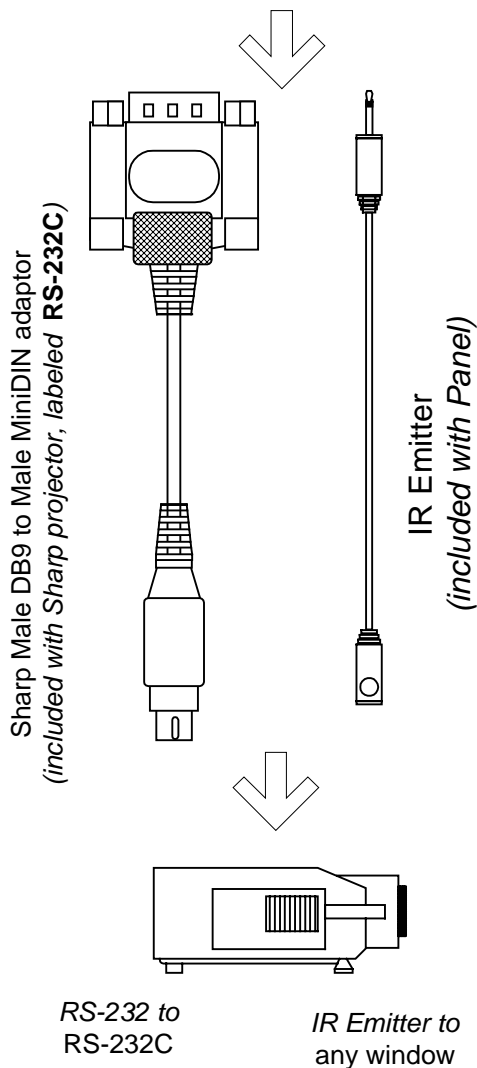
*Read before attempting to control the projector*

The C45X can be configured with an *Economy Mode*, which determines whether or not the projector shuts itself off in the absence of an input signal.

When installing the C45X, **you should set the Economy Mode to OFF. This disables the Sharp's Automatic Power Shutoff feature.**

Economy Mode is set via on screen menus, *Options: Economy Mode*. Access the onscreen menus with either the SmartPanel's hidden functions, or the Sharp's remote control.

Questions should be directed to SP Controls technical support at [help@spcontrols.com](mailto:help@spcontrols.com).



RS-232 to RS-232C

IR Emitter to any window

### III. TROUBLESHOOTING

Additional tips can be found in the *SmartPanel Configuration and Installation Guide*.

*The Projector keeps turning itself off!*

Verify that the C45X's *Economy Mode* is set to *OFF* as explained in the Special Note in the *Control Wiring* section of this document. If the *Economy Mode* is on, the projector will shut itself off after fifteen minutes. If power polling or a third party power current sensor is being used (e.g., AMX-PCS), the Panel will automatically shut itself off also. If not, the Panel will remain on and you will have to power the Panel off with the *Off* button and wait until the lockout timer expires before you can re-power the projector.

*The Panel does not do anything at all.*

When power is applied to the Panel it should run through a brief power on self-test, during which all of the Panel lights will turn on and off in sequence. If you do not see this self test, make sure power is connected correctly and that polarity is correct.

*The Panel keeps turning itself off even though the projector is on.*

The Panel turns itself off when power status feedback indicates that the projector is off. If a third party power current sensor is being used, check to make sure that it is correctly wired, and that it is correctly calibrated according to the manufacturer's instructions. If not, make sure that the Panel is configured with *None* or *Power Polling* under power status feedback in the Configuration Utility's *Wiring Options* tab.

### IV. TECHNICAL NOTES

1. By default, projector power is verified by polling every few seconds via the RS-232 port. Power polling can be suspended by depressing and holding the **On** key; polling will be restored when the key is released. Should the Sharp power off, the Panel will usually detect this condition and power off within twenty seconds. Should the Sharp power on, the Panel will usually detecting this condition and power on within ten seconds.
2. The Sharp is controlled via RS-232 and Infrared/Wired Remote with this Driver. A discussion of the advantages of Wired Remote versus IR can be found in the *SmartPanel Configuration and Installation Guide*.
3. The lockout timer specifies the amount of time allowed between sending *POWER OFF* and *POWER ON* to the projector (the delay allows the projector bulb to cool before re-powering). This delay can be configured using the **Configuration Utility**; however, adjusting the lockout timer delay is **strongly discouraged** as rapid re-powering causes undue wear on the projector's bulb. Also, the Sharp will **not** allow power to be restored before a minimum delay has expired. Therefore, **disabling the lockout delay will cause potentially confusing Panel behavior**.

### V. REVISION HISTORY

1. Revision A (March, 2004) *Original release*.