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

I. Driver Features

1. Input Selection Mapping

Selection 1:	RGB 1 (HD15)
Selection 2:	RGB 2 (BNC)
Selection 3:	VIDEO 1 (RCA)
Selection 4:	VIDEO 2 (S-VID)

2. Hidden Function Mapping

Selection 1:	AUTO SYNC
Selection 2:	ENTER
Selection 3:	ADJUST LEFT
Selection 4:	ADJUST RIGHT
Off:	MENU
Volume Up:	ADJUST UP
Volume Down:	ADJUST DOWN

3. Other Driver Features

Power Status Feedback Method	RS-232 Power Polling
Control Wiring Option	RS-232 and Wired Remote or IR Emitter

Note: when the Panel is wired to the projector *Wired Remote* port, the projector remote control will no longer function.

II. Wiring Specifications

NOTE: For a wiring diagram, please see the SP Controls Application Note for the Sharp XG-PH50X

1. RS-232:

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

RX to	2
TX to	3
GND to	5

Connect this female DB9 to the projector port labeled *RS-232C*.

2. Wired Remote:

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

IR/SER to	*Tip*
GND to	*ring*

Attach to the projector port labeled *Wired Remote* using a male 1/8” mini to male 1/8” mini.

III. Additional Projector Information

1. The XG-PH50X requires the correct menu settings for use with the SmartPanel:
   - Configure to BAUD 9600 (default) in the second OPTIONS menu
   - Configure to LAN/RS-232C *ENABLED* in the second OPTIONS menu

2. SmartPanel customers have reported intermittent control failures using the SmartPanel with the Sharp XG-PH50X, though as of the writing of this Application Note SP Controls believes this issue has been resolved. Please read Section V. Special Control Note in the Application Note for more information, or contact SP Controls Technical Support

SP Controls reserves the right to modify specifications without notice at any time.

This document describes the **SmartPanel** Projector Driver for the **Sharp XG-PH50X** projector. For information on configuring and using the Panel see the *SmartPanel Configuration and Installation Guide.*

ATTENTION: Please read **Section V. Special Control Note** before attempting to control this projector.

NOTE: The XG-PH50X requires the correct menu settings for use with the SmartPanel:

- Configure to BAUD 9600 (default) in the second OPTIONS menu
- Configure to LAN/RS-232C *ENABLED* (default) in the second OPTIONS menu

I. PROJECTOR CONTROL

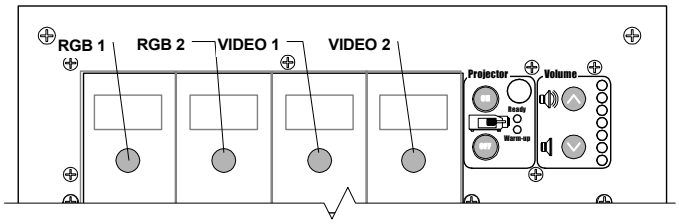
A. Volume and Power Control

Volume control on the Sharp is **absolute**. Absolute volume control is also possible with SP Controls' option **Audio Follow Video Preamplifer.**

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:	RGB 1 (HD15)
Selection 2:	RGB 2 (BNC)
Selection 3:	VIDEO 1 (RCA)
Selection 4:	VIDEO 2 (S-VID)

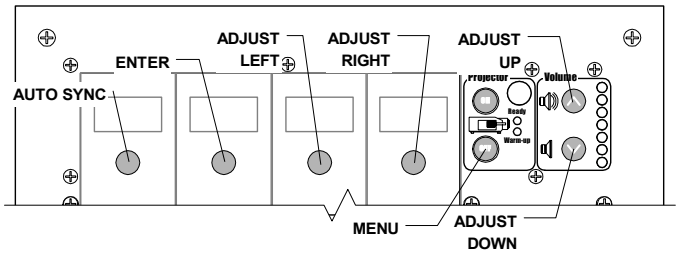


Input choices available for the Sharp with this Driver are RGB 1 (HD15), RGB 2 (BNC), RGB 3 (DVI), VIDEO 1 (RCA), and VIDEO 2 (S-VID).

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:	AUTO SYNC
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 names are based on the Sharp remote, manual, and controls on top of the projector. *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.*

Hidden functions are accessed by pressing the indicated key while the holding the **On** key down.

SP Controls reserves the right to modify specifications without notice at any time.

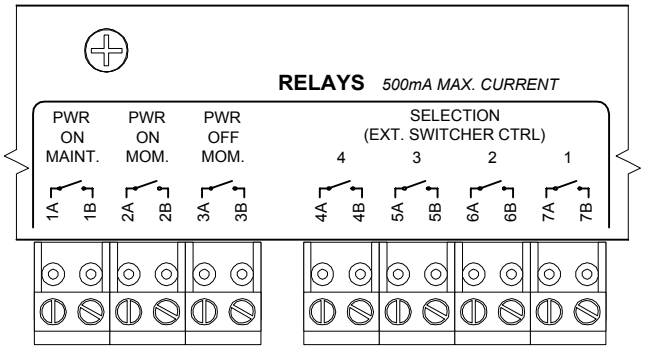
The hidden functions available for the Sharp with this Driver are as follows:

MENU	BLACK SCREEN	ENLARGE UP
ADJUST LEFT	LENS SELECT	ENLARGE DOWN
ADJUST RIGHT	AUTO SYNC	KEYSTONE
ADJUST UP	ZOOM UP	RESIZE
ADJUST DOWN	ZOOM DOWN	FREEZE
ENTER	FOCUS UP	MUTE
UNDO	FOCUS 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.

Power Status Feedback Method	RS-232 Power Polling (see note 1)
Control Wiring Option	Wired Remote or IR Emitter (see note 2)

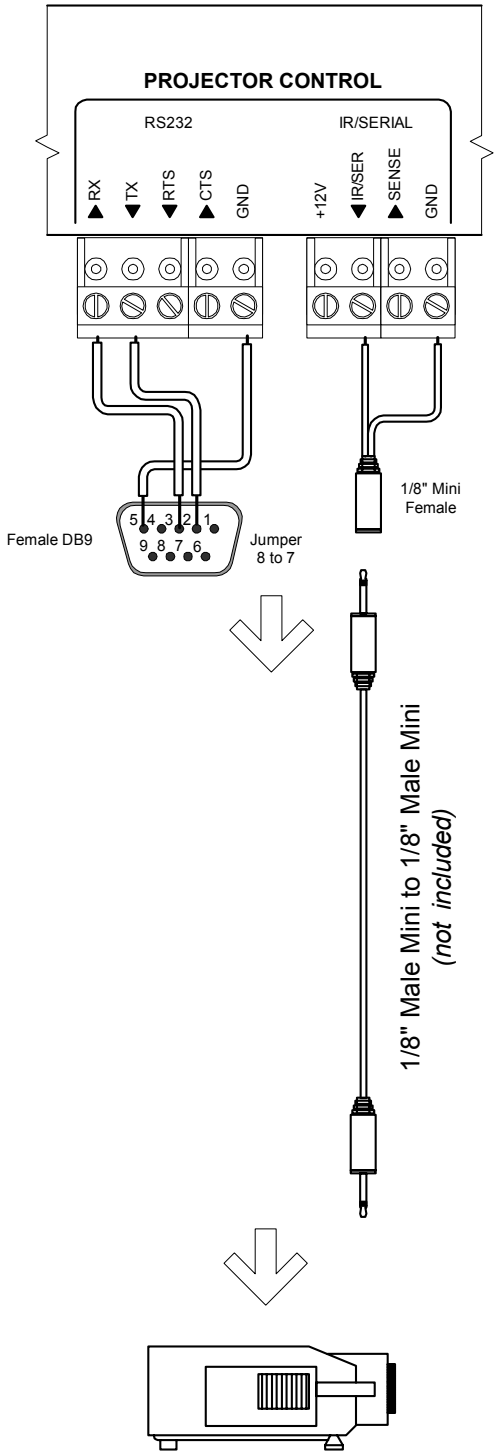
Control for the Sharp with this Driver is via RS-232 and Wired Remote. An IR Emitter can alternately be used.

NOTE: When Wired Remote is connected to the Sharp projector, the Sharp will not respond to its remote control.

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	66 seconds (see note 3)
Inactivity Shutdown	Disabled

II. CONTROL WIRING



This section specifies how RS-232 and Wired Remote 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:
   RX to 2
   TX to 3
   GND to 5

2. Connect this female DB9 to the projector port labeled *RS-232C.*

B. The Wired Remote should be connected to the Sharp port labeled **Wired Remote**.

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 male 1/8" is not recommended as it makes removal of the Panel for service more difficult.

2. Attach to the projector port labeled *Wired Remote* using a male 1/8" mini to male 1/8" mini (not included).

3. Alternately, replace the male to male cable with the included the IR Emitter and attach it to one of the IR windows on the projector. The emitter glows red when IR is emitted so wiring can be verified.

NOTE: when the Panel is wired to the projector *Wired Remote* port, the projector remote control will no longer function.

ATTENTION: SP Controls **strongly recommends** wiring IR in addition to wiring RS-232 in case the Panel must be configured for IR-only control in the future. See **Section V. Special Control Note** below for more information.

III. TROUBLESHOOTING

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

The Panel is not controlling the projector at all, and it turns off after about one minute of use.

Check to make sure the RS-232 connection is correctly wired – this is the single most common cause of control failure in SmartPanel installations. If the SmartPanel does not receive projector feedback that the projector is on, it will shut itself off using the RS-232 power polling feature (see note 1).

Verify that the XG-PH50X is configured with the following settings in its onscreen menus:

- Configure to BAUD 9600 (default) in the second OPTIONS menu
- Configure to LAN/RS-232C *ENABLED* in the second OPTIONS menu

In addition, this projector may be vulnerable to periodic control failures for unknown reasons – please see **Section V. Special Control Note** below for more information.

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 has only partial control over the Sharp.

Verify that both RS-232 and the wired remote are correctly wired. The most common error is reversal of RX and TX for RS232, and polarity reversal of the wired remote. Note that the Sharp is controlled using both Wired Remote and RS-232. If a *subset* of functionality appears to be working, verify that *both* types of control wiring are correctly wired.

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 wired remote. The Sharp can alternately be controlled with RS-232 and IR emitter. 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. SPECIAL CONTROL NOTE – IR-Only Driver Available

SP Controls has received reports of an **intermittent control failure** from customers using the Sharp XG-PH50X projector with the SmartPanel. As of the writing of this Application Note, all reported failures occurred using the Sharp XG-P25XU SmartPanel driver to control the XG-PH50X. Control failures have never been reported using this driver.

SP Controls attempted to reproduce control failures through intensive testing, but we were able to create an abnormal projector condition only once. We observed, seemingly at random, the projector fan activate normally in response to a Panel *ON* command, but the lamp did not illuminate. The projector did not respond to any control commands until it was unplugged and replugged-in. We were unable to replicate this power on failure after carefully reproducing the same conditions many times.

There are significant differences between the XG-P25XU driver and the XG-PH50X driver which may well prevent such a failure from occurring, but at this time the problem state is not well understood. If you should experience a control failure, **please contact SP Controls Technical Support** right away at toll free (877) 367-8444 ext. 302.

If this issue is of concern to you, SP Controls has written a **Revision A of this driver which controls the projector entirely through Wired Remote control**. Such an installation should be completely immune to control failure. This driver is available upon request from SP Controls. You may call the number above or contact us at help@spcontrols.com to request the IR-only driver.

Note: When the SmartPanel is wired to the projector's *WIRED REMOTE* port, **it will no longer respond** to its remote control.

VI. REVISION HISTORY

1. Revision A (August, 2005) *Original release – IR-only version. BT*
2. Revision B (August, 2005) *Original release – RS-232/IR version. BT*