



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

<i>Selection 1:</i>	INPUT 1 (VGA)
<i>Selection 2:</i>	INPUT 2 (5 BNC)
<i>Selection 3:</i>	INPUT 4 (RCA)
<i>Selection 4:</i>	INPUT 5 (S-Video)

2. Hidden Function Mapping

<i>Selection 1:</i>	BLACK SCREEN
<i>Selection 2:</i>	ENTER
<i>Selection 3:</i>	ADJUST LEFT
<i>Selection 4:</i>	ADJUST RIGHT
<i>Off:</i>	MENU
<i>Volume Up:</i>	ADJUST UP
<i>Volume Down:</i>	ADJUST DOWN

3. Other Driver Features

<i>Power Status Feedback Method</i>	Current Sensor
<i>Control Wiring Option</i>	Wired Remote or IR Emitter

NOTE: Due to an interoperability issue, Power Polling for this projector is not available. If power feedback is required, we recommend using a third party power current sensor. If the projector's automatic shutoff timers are disabled, the SmartPanel will reliably remain in sync with the projector unless the projector is powered on or off manually.

II. Wiring Specifications

NOTE: For a wiring diagram, please see the SP Controls Application Note for the Sharp XG-P20XU

1. RS-232:

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

RX to	2
TX to	3
GND to	5
JUMPER	7 and 8

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

2. Infrared Emitter:

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

<i>IR/SER to</i>	<i>tip</i>
<i>GND to</i>	<i>ring</i>

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

III. Additional Projector Information

1. If the Panel is wired to the Projector's Wired Remote port, **the Wired Remote port must be manually switched to IR on the projector.**

2. **You must set the Economy Mode labeled "MNTR Out/RS232C" to OFF.** If you leave this setting on, the Sharp will not respond to RS-232 control when in standby mode. See *Application Note Section V. Special Control Note* for instructions.

3. **You should set Economy Mode labeled *Auto Power Off* feature to OFF.** If you leave this setting on, the Sharp will automatically shut itself off when no signal is detected for several minutes. If you desire automatic shutdown, use the Panel's *Automatic Shutdown Timer*. See *Application Note Section V. Special Control Note* for instructions.

4. **Baudrate:** The RS-232 port of the projector must be set to 9600 bps (which is the default projector factory setting). See *Application Note Section V. Special Control Note* for instructions.



This document describes the **SmartPanel** Projector Driver for the **Sharp XG-P20XU** projector. For information on configuring and using the Panel see the *SmartPanel Configuration and Installation Guide*.

Please read the **SPECIAL CONTROL NOTE** in Section V of this document before attempting control of the projector. This note describes how the Sharp's configurable settings impact the projector's behavior.

I. PROJECTOR CONTROL

A. Volume and Power Control

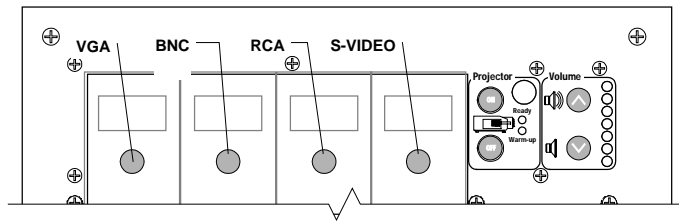
Volume control on the Sharp is **absolute**. Absolute volume control is also possible with SP Controls' option **Audio Follow Video Pre-amplifier**.

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.

<i>Selection 1:</i>	INPUT 1 (Computer - VGA)
<i>Selection 2:</i>	INPUT 2 (Computer/Video - 5 BNC)
<i>Selection 3:</i>	INPUT 4 (Video - RCA)
<i>Selection 4:</i>	INPUT 5 (Video - S-Video)

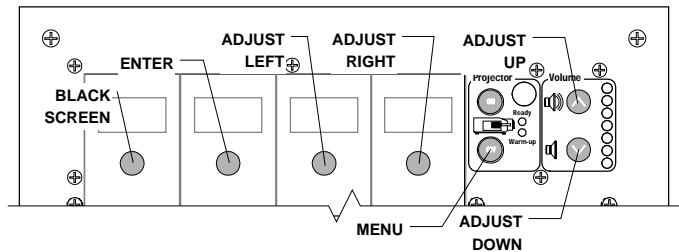
Input choices available for the Sharp with this Driver are Input 1 (VGA), Input 2 (5 BNC), Input 3 (DVI), Input 4 (RCA), and Input 5 (S-Video)



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.

<i>Selection 1:</i>	BLACK SCREEN
<i>Selection 2:</i>	ENTER
<i>Selection 3:</i>	ADJUST LEFT
<i>Selection 4:</i>	ADJUST RIGHT
<i>Off:</i>	MENU
<i>Volume Up:</i>	ADJUST UP
<i>Volume Down:</i>	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*.

BLACK SCREEN is a toggle. The area zoomed with the *ENLARGE* function can be moved using the *ADJUST* keys

LENS SELECT is a function that accesses a menu controlling *FOCUS*, *ZOOM*, *LENS SHIFT*, *KEYSTONE*, and *DIGITAL SHIFT*. Once this menu is called, use the hidden function *ADJUST* commands to change settings (while still holding down the ON key). Continue pressing *LENS SELECT* to toggle through the available *LENS SELECT* functions. Pressing *ENTER* while the *LENS SELECT* menu is active will display a test pattern, and pressing *UNDO* while the *LENS SELECT* menu is active will restore the default setting.

AUTO SYNC can only be used when RGB input is detected.

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

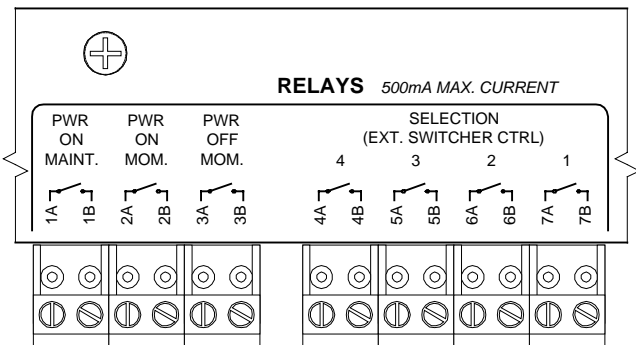
The hidden functions available for the Sharp with this Driver are as follows:

- | | | |
|--------------|----------------|----------------|
| MENU | ENTER | RESIZE |
| ADJUST LEFT | BLACK SCREEN | FREEZE |
| ADJUST RIGHT | LENS SELECT | GAMMA SETTINGS |
| ADJUST UP | AUTO SYNC | ENLARGE |
| ADJUST DOWN | LENS ZOOM UP | UNDO |
| | LENS ZOOM 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>	Current Sensor
<i>Control Wiring Option</i>	Wired Remote or IR Emitter (see note 2)

NOTE: Due to an interoperability issue, Power Polling for this projector is not available. If power feedback is required, we recommend using a third party power current sensor. If the projector's automatic shutoff timers are disabled, the SmartPanel will reliably remain in sync with the projector unless the projector is powered on or off manually.

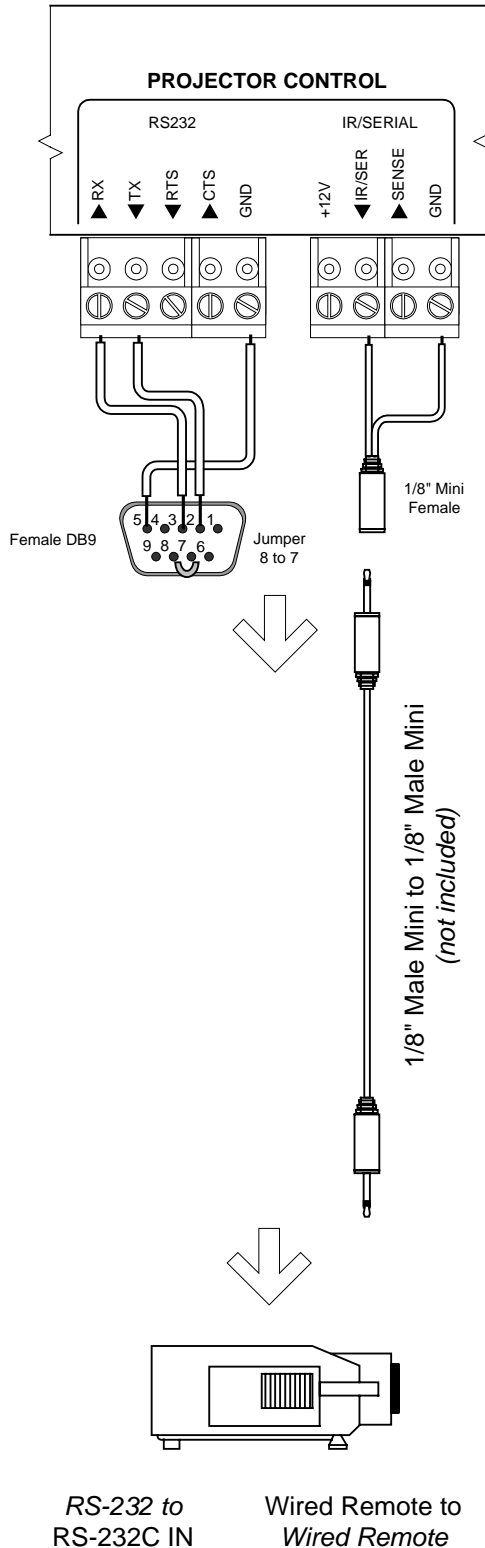
Control for the Sharp with this Driver is via RS-232 and Wired Remote. An IR Emitter can alternately be used.

NOTE: If the Panel is wired to the Projector's Wired Remote port, *the Wired Remote port must be manually switched to IR on the projector.*

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	65 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 IN**. Connection should be as follows:

1. Wire the Panel to a female DB9 as follows:
 - RX to 2
 - TX to 3
 - GND to 5
 - JUMPER across 7 and 8
2. Connect this female DB9 to the projector port labeled *RS-232C IN*

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

NOTE: If the Panel is wired to the Projector's Wired Remote port, the **Wired Remote port must be manually switched to IR on the projector**.

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.

III. TROUBLESHOOTING

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

The Projector keeps turning itself off!

The Panel turns itself off when power verification indicates that the projector is off (see Note 1). Also, if the *Automatic Power Shut-Off Feature* is on, the projector will shut itself off if it does not receive a signal after fifteen minutes.

- Check to make sure the RS-232 connection is correctly wired. If a third party power current sensor is being used, make sure correctly wired and calibrated. The most common cause for power polling failure when other control works, is that the RX line is incorrectly wired or soldered.
- Verify that the P20XU's *Economy Mode Automatic Power Shut-Off Feature* is set to *OFF* as explained in the *Special Control Note* in Section V of this document.
- Also verify that the *MNTR Out/RS232C* is set to *OFF* as explained in the *Special Control Note* in Section V of this document. If this setting is incorrect, the Sharp will not respond to SmartPanel power polling and the Panel will shut itself off (see next note and Note 1 below).

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.

Also, be sure that the Wired Remote port is manually set to "IR" and not to "Gyro" on the projector and that pins 7 and 8 are jumpered on the female DB9.

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

Read before attempting to control the projector

The XG-P20XU can be configured with two power saving settings as an *Economy Mode*. These settings determine whether (a) the projector shuts itself off in the absence of an input signal; and (b) whether the projector responds to RS-232 command when in standby ("off") mode.

When installing the P10XU:

- **You must set the Economy Mode labeled "MNTR Out/RS232C" to OFF.** If you leave this setting on, the Sharp will not respond to RS-232 control when in standby mode.
- **You should set Economy Mode labeled *Auto Power Off* feature to OFF.** If you leave this setting on, the Sharp will automatically shut itself off when no signal is detected for several minutes. If you desire automatic shutdown, use the Panel's *Automatic Shutdown Timer*.

Economy Mode settings are changed via onscreen menus, *Options: Economy Mode*. *Make sure both arrows point to the RIGHT, away from the "green leaves."* Access the onscreen menus with either the SmartPanel's hidden functions, or the Sharp's remote control.

Baudrate: The RS-232 port of the XG-P20XU projector can be configured to different baud rates. The codes used in the projector driver assume the projector is set to 9600 bps (which is the default projector factory setting). This should be verified using the on-screen menus. In the pulldown menu labeled "Options" scroll down the RS-232C and select 9600. **Press ENTER to save the setting.**

Source Selection Switching: Please be aware that because of the way that the XG-P20XU responds to RS-232 commands to switch sources, there is an **unusually long delay** in switching between input sources (approximately 2 seconds). IR control of source selection is not possible for the SmartPanel at this time.

Questions should be directed to SP Controls technical support at help@spcontrols.com.

VI. REVISION HISTORY

1. Revision A (July, 2001) *Original release.*
2. Revision B (September, 2002) *Updated Driver Power Status Feedback feature*