



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

DVI	DVI
COMPUTER 1	COMPUTER 2
VIDEO	VIDEO
S-VIDEO	S-VIDEO

2. Hidden Function Mapping

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

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

3. Other Driver Features

<i>Power Status Feedback Method</i>	RS-232 Power Polling
<i>Control Wiring:</i>	RS-232 Only

II. Wiring Specifications

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

RS-232:

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

RX to	2
TX to	3
GND to	5

Connect the Kindermann custom cable (standard DB9/DB9; female/female) to the male DB9 projector port labeled *CONTROL/RS232C*.



Projector Driver Application Note

Kindermann KX4000 Series

Revision A

This document describes the **SmartPanel** Projector Driver for the **Kindermann KX4000** projector. For more information on configuring and using the Panel see the *SmartPanel Configuration and Installation Guide*.

I. PROJECTOR CONTROL

A. Volume and Power Control

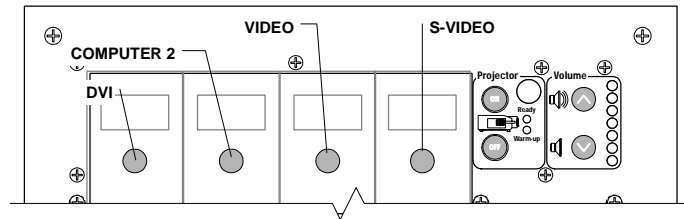
Volume control on the Kindermann is **relative**. Absolute volume control is only possible with the optional SP Controls **Audio Follow Video Pre-Amplifier**.

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.

Selection 1:	DVI
Selection 2:	COMPUTER 2
Selection 3:	VIDEO
Selection 4:	S-VIDEO

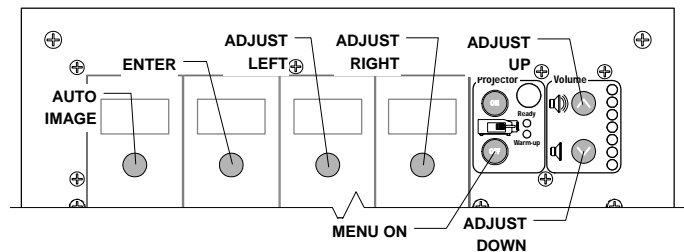
Input choices available for the Kindermann with this Driver are *VIDEO*, *S-VIDEO*, *COMPONENT*, *DVI*, and *COMPUTER*.



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 IMAGE
Selection 2:	ENTER
Selection 3:	ADJUST LEFT
Selection 4:	ADJUST RIGHT
Off:	MENU ON
Volume Up:	ADJUST UP
Volume Down:	ADJUST DOWN



Hidden functions names are based on the Kindermann 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 navigate through onscreen menus. *Auto Image* and *Freeze* work only for the *Computer* input.

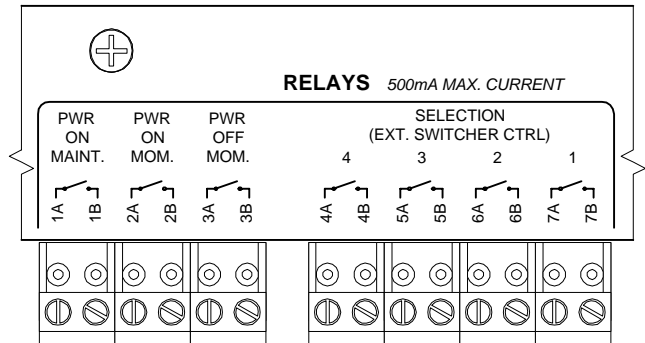
The hidden functions available for the Kindermann with this Driver are as follows:

MENU	AUTO IMAGE	CONTRAST +
ADJUST LEFT	BLANK	CONTRAST -
ADJUST RIGHT	FREEZE	BRIGHTNESS +
ADJUST UP	KEYSTONE +	BRIGHTNESS -
ADJUST DOWN	KEYSTONE -	
ENTER		

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.

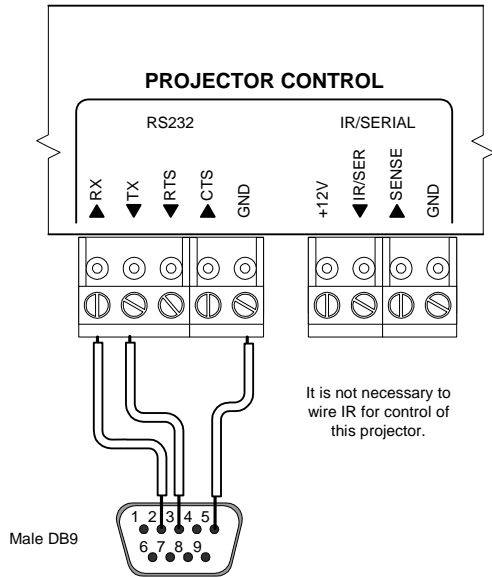
<i>Power Status Feedback Method</i>	RS-232 Power Polling (see note 1)
<i>Control Wiring Option</i>	RS-232 Only (see note 2)

Control for the Kindermann with this Driver is via RS-232 only. However, we always recommend wiring for IR Emitter in the event that the projector specifications change or in the installation changes projectors in the room at a later date.

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	125 seconds (see note 3)
Inactivity Shutdown	Disabled

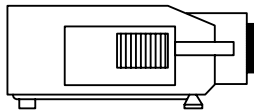
II. CONTROL WIRING



This section specifies how RS-232 should be wired to the projector.

RS-232 should be connected to the Kindermann control port labeled **CONTROL**. Connection should be as follows:

1. Wire the Panel to a male DB9 as follows:
 - RX to 2
 - TX to 3
 - GND to 5
2. Connect the Kindermann custom cable (standard DB9/DB9; female/female) to the male DB9 projector port labeled *CONTROL/RS232C*.



RS-232 to
CONTROL PORT

III. TROUBLESHOOTING

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

The Panel is not controlling the projector.

Verify that the RX and TX wires are landed properly – crossing TX and RX is a frequent cause of trouble. This can be easily checked by reversing the TX and RX wires where they land on the blue captive screw connectors on the back of the Panel.

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 polling indicates that the projector is off. Check to make sure the RS-232 connection is correctly wired, focusing on the RX line from the projector to the Panel.

When I try to turn the projector on, the warming indicator (red LED) blink.

The projector is in the default configured *lockout state*, and the Panel is waiting for its internal lockout timer to expire. This feature protects the projector's bulb. Be sure to let your client know about this behavior.

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 Kindermann power off, the Panel will detect this and power off within twenty seconds. Should it power on, the Panel will detect this and power on within thirty seconds.
2. This Kindermann is controlled by RS-232. For a discussion of the relative merits of RS-232 versus IR Emitter, please see 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 Kindermann will **not** allow power to be restored before a minimum delay of 95 seconds has expired. Therefore, **disabling the lockout delay will cause potentially confusing Panel behavior**.

V. REVISION HISTORY

1. Revision A (November, 2004) *Initial release*. BT