RiddledTV.com
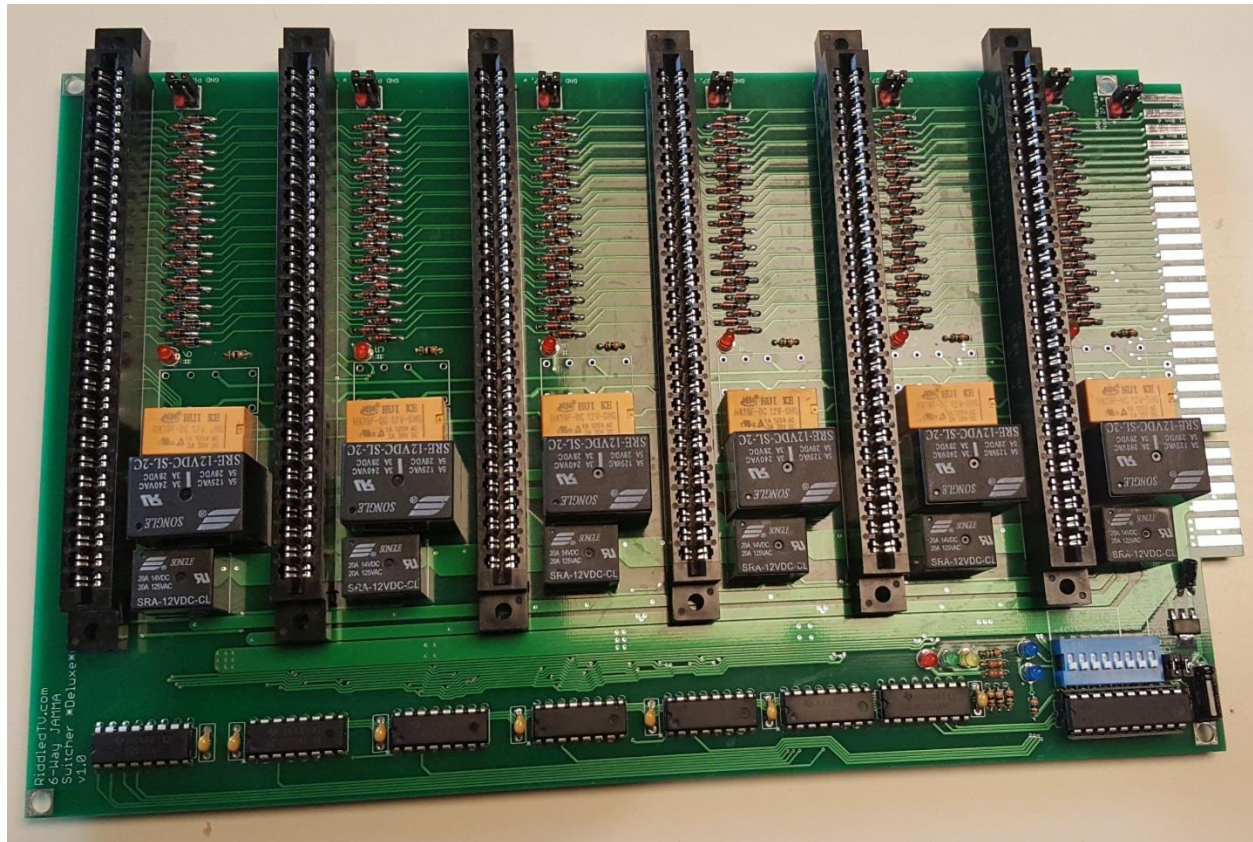# 6-Way, Single-Board JAMMA Switcher

INSTALLATION GUIDE

Figure 1. 6-Way JAMMA Switcher

Features:

- Supports 6 JAMMA boards
- Only 1 JAMMA board is powered at a time.
- No external remotes required
- By default, games are switched by holding Player1-Start and Player2-Start for 1.5 seconds. Alternative buttons can be connected to switch games.
- Configurable to support 6 button inputs per player
- Supports up to 20 Amps on 5V
- -5V power is always switched for each board
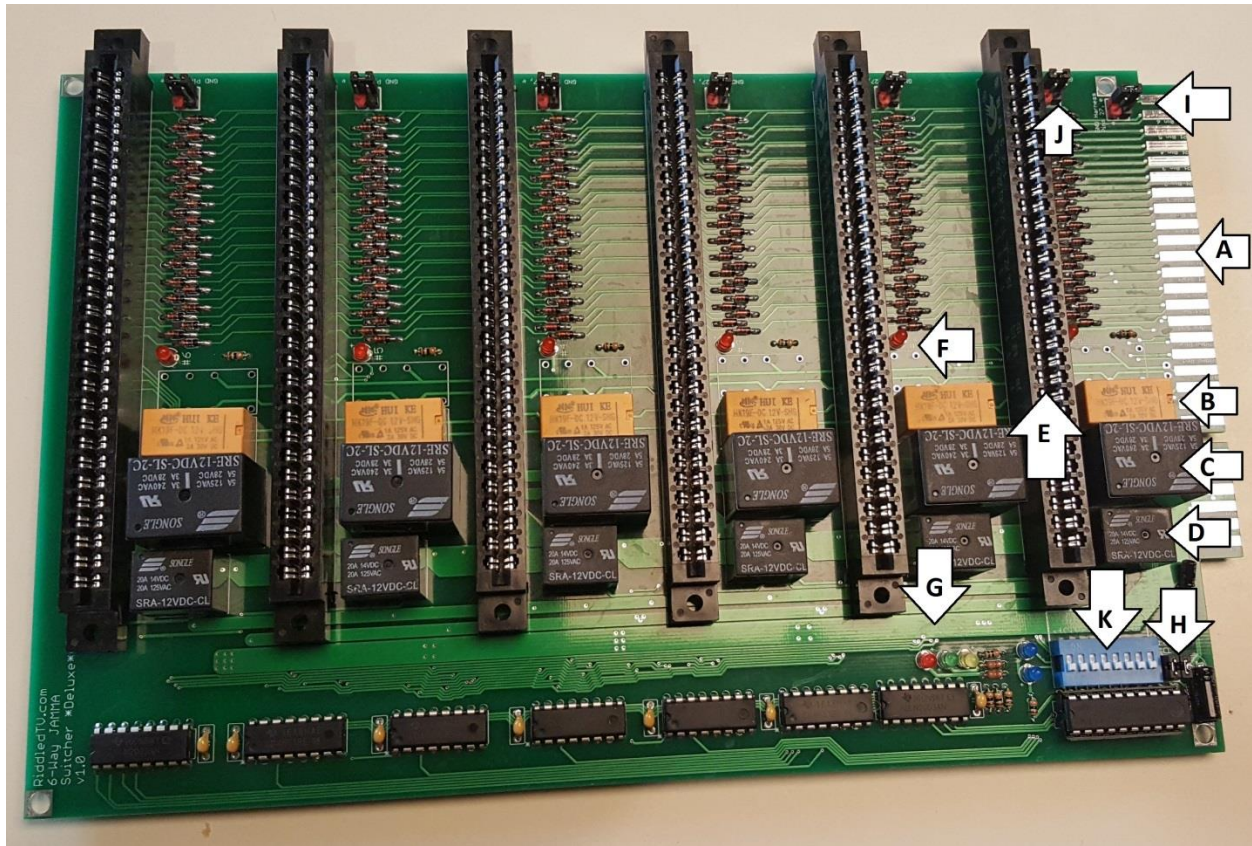
Mainboard Components:

Figure 2 – Single Board, 6-Way Switcher with indicators

A. JAMMA harness input from control panel, monitor, speaker, and power supply
B. Relay for Speaker to Gameboard #1
C. Relay for -12V, and -5V power to Gameboard #1
D. Relay for 5V power to Gameboard #1
E. JAMMA port for Gameboard #1
F. Indicator light that Gameboard #1 is active
G. Power indicator LEDs. 12V, 5V, -5V (these only indicate presence of voltage, not accuracy of voltage levels)
H. Game Selection Button Inputs. If jumpers are installed as shown, players 1 and 2 start buttons (held for 1.5 sec) will switch to the next game. Remove jumpers and connect to your desired input(s) if you desire to use some other inputs to switch games.
I. Grounding jumpers for JAMMA harness pins 27,e. If jumpers are installed, these pins are connected to Ground. Remove jumpers to use pins 27,e as a 6th button input.
J. Grounding jumpers for Gameboard #1 pins 27, e. If jumpers are installed, these pins are grounded. Remove jumpers to use these pins as a 6th button input.
K. Dip switches to disable any unused Jamma Ports.

JAMMA Switcher Pinouts

Solder Side			Parts Side
GROUND	A	1	GROUND
GROUND	B	2	GROUND
+5VDC	C	3	+5VDC
+5VDC	D	4	+5VDC
-5VDC	E	5	-5VDC
+12VDC	F	6	+12VDC
KEY SLOT	H	7	KEY SLOT
COUNTER #2 (N/C)	J	8	*COUNTER #1 (N/C)*
COIL #2 (N/C)	K	9	*COIL #1 (N/C)*
SPEAKER (-)	L	10	SPEAKER (+)
UNDEFINED	M	11	UNDEFINED
VIDEO GREEN	N	12	VIDEO RED
VIDEO SYNC	P	13	VIDEO BLUE
SERVICE SWITCH	R	14	VIDEO GROUND
TILT (SLAM) SWITCH	S	15	TEST SWITCH
COIN SWITCH #2	T	16	COIN SWITCH #1
PLAYER 2 - START	U	17	PLAYER 1 - START
PLAYER 2 - UP	V	18	PLAYER 1 - UP
PLAYER 2 - DOWN	W	19	PLAYER 1 - DOWN
PLAYER 2 - LEFT	X	20	PLAYER 1 - LEFT
PLAYER 2 - RIGHT	Y	21	PLAYER 1 - RIGHT
PLAYER 2 - BUTTON 1	Z	22	PLAYER 1 - BUTTON 1
PLAYER 2 - BUTTON 2	a	23	PLAYER 1 - BUTTON 2
PLAYER 2 - BUTTON 3	b	24	PLAYER 1 - BUTTON 3
PLAYER 2 - BUTTON 4	c	25	PLAYER 1 - BUTTON 4
PLAYER 2 - BUTTON 5	d	26	PLAYER 1 - BUTTON 5
PLAYER 2 - BUTTON 6/GND	e	27	PLAYER 1 - BUTTON 6/GND
GROUND	f	28	GROUND

Figure 3. JAMMA Switcher Pinouts

Installation Instructions:

1. Disconnect AC power.
2. Plug the Switcher into your existing JAMMA harness and mount in a suitable location.
3. Before plugging in gameboards, reconnect AC power, and apply power to the switcher.
4. Verify that the switcher is receiving inputs from your control panel by doing the following:
   a. Press Player1-Start. Verify that the 1st Blue LED on the switcher circuit board illuminates as the Player1-Start button is pressed. Note, If an alternate input button is being used, verify that input in place of Player1-Start.
   b. Press Player2-Start. Verify that the 2nd Blue LED on the switcher circuit board illuminates as the Player2-Start button is pressed. Note, If an alternate input button is being used, verify that input in place of Player2-Start.
5. Turn power switches off, and disconnect AC power
6. Plug JAMMA gameboards into JAMMA Slots. Ensure gameboards are not touching each other or any other metal. Jamma Extension cables may be used to mount gameboards remotely. Note: if Jamma extension cables are used, double-check that the cables are correctly plugged in at both ends.
7. Double-check all your work.
8. Reconnect AC power, and turn the power on.
9. To advance to the next game hold down Player1-Start and Player2-Start buttons.
10. You may need to adjust your monitor's color balance levels.

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Switching Games:

If both jumpers are installed as shown, the mainboard will switch games when BOTH buttons Player 1-Start and Player 2-Start are pressed for 1.5 seconds. To use alternate button inputs, disconnect the 2 jumpers, and connect two button inputs of your choice to the two terminals on the <u>bottom side, opposite the arrow</u> as oriented in Figure 4. If only one input button is desired, connect it to BOTH pins. The Switcher will change games when both inputs are grounded for 1.5 seconds. If both buttons are held down, it will continue to cycle through games in 1.5 second increments.
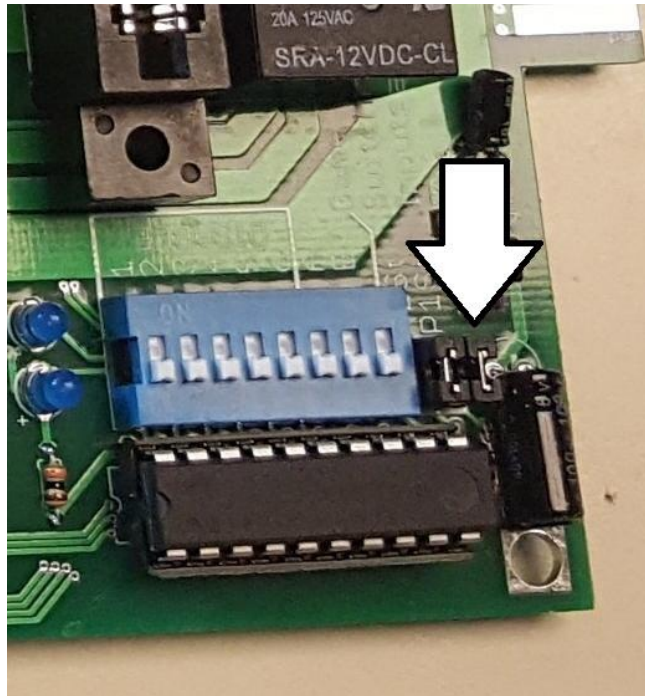

Figure 4. Button Inputs for Game Selection

Indicator lights

The mainboard has 11 indicator LED lights:

- There are 6 Red indicator lights to show which gameboard is currently active.
- Red, Green, and Yellow LEDs indicate that "some" voltage is present on the 5V, -5V, and 12V power supplies. They do <u>not</u> indicate the accuracy of those voltages.
- 2 Blue LED lights that show the game select buttons are currently active. If both LEDs are illuminated for 1.5 seconds, the switcher will switch to the next active Jamma gameboard.

Grounding of JAMMA pins 27, e:

Refer to the Figure 3 for JAMMA pinouts. The initial JAMMA standard indicated that these pins were signal grounds. However, many gameboards have repurposed these pins for button inputs. To use pins "27" and "e" as button inputs, leave the pins vacant, as shown in Figure 5 below. To modify these pins to be grounded, apply jumpers. To jumper, the two red pins should be connected together, and the two black pins as well. Each gameboard's inputs may be configured uniquely.
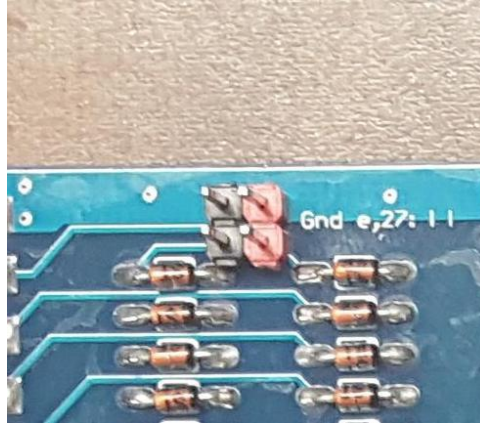

Figure 5. JAMMA Pins "27" and "e" Selection

Monitor Synchronization:

The Switcher will work best with an "auto-sync" (multi-sync) type game monitor. These were common in monitors made after 1994, but there were also auto-sync monitors made before that time. It is possible to use the Switcher on an older manual-sync monitor, but depending on your game boards the display on some games could "roll" or not sync without manually tweaking the monitor controls when you switch games.

You may be able to set an older manual-sync monitor to a setting that will sync for all the games through trial and error. The success will depend upon the monitor and specific games used.

Troubleshooting:

My controls are not responding – JAMMA harness Ground wires fed from pins 27 & 'e' of the gameboard: Several instances have been found where the JAMMA harness wiring uses pins 27, 'e' as a grounding takeoff point for the control panel wiring. If your JAMMA harness does this, place jumpers on the two jumper pins closest to the JAMMA harness. Similarly, if only one particular gameboard is not responding to inputs, it may also require pins 27 & 'e' to be grounded. Place jumpers on the pins located closest to that gameboard.