INSTALLATION GUIDE

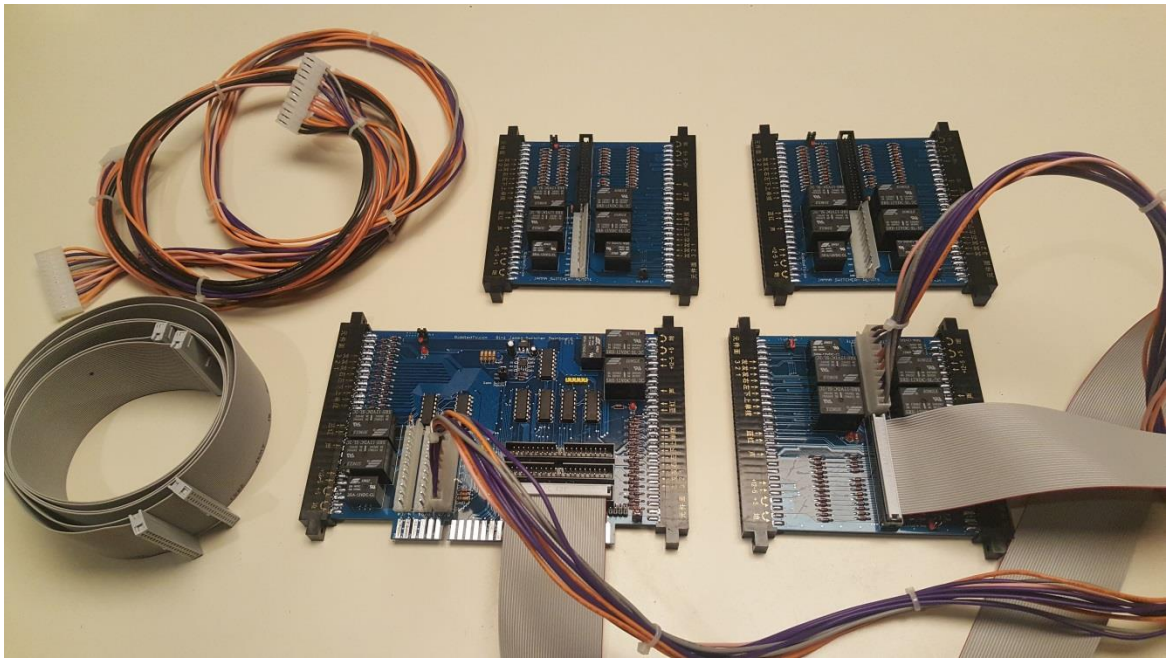

Figure 1. 8-Way JAMMA Switcher Kit

Each Kit Includes:

- Mainboard
- Up to 3 remote boards. Each remote board adds capacity for 2 additional JAMMA inputs.
- Up to 3 Ribbon cables
- Up to 3 Power cables

Features:

- Supports 2, 4, 6, or 8 JAMMA boards
- Only 1 JAMMA board is powered at a time.
- No external remotes required
- Games are switched by holding Player1-Start and Player2-Start for 1.5 seconds, or alternate buttons can be connected.
- Supports 6 button inputs per player
- Supports up to 20 Amps on 5V
- -5V power is switched for each board
- JAMMA extension harnesses are typically not needed.

Mainboard Components:

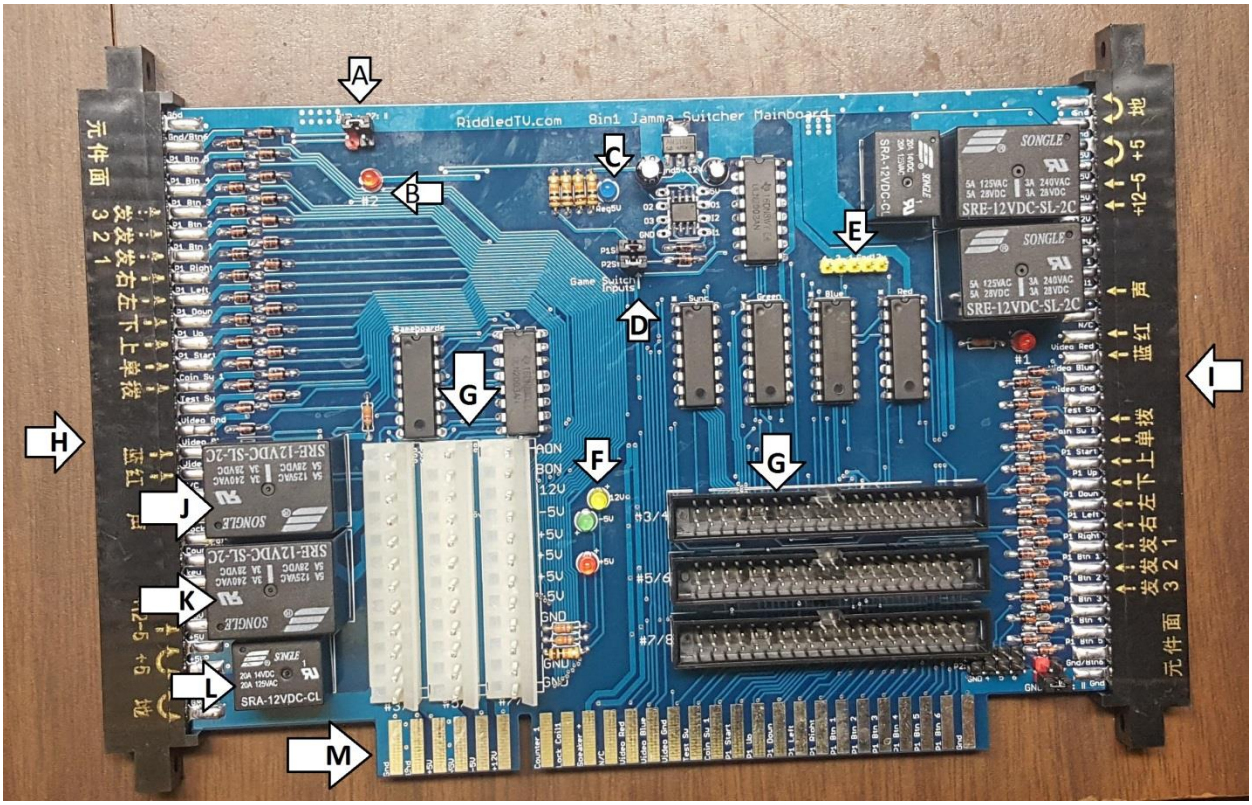

Figure 2 - Mainboard with indicators

A. Selector for JAMMA pins e and 27 on Gameboard #2
B. Indicator light that Gameboard #2 is active
C. Indicator light that the mainboard's operating 5V volts is active (This voltage is generated from the 12V source)
D. 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.
E. Daughterboard expansion port. (Stereo Auxiliary board available at time of print. Other expansion daughterboards planned.)
F. Power indicator LEDs. 12V, 5V, -5V (these only indicate presence of voltage, not accuracy of voltage levels)
G. (Shown twice) Power and Signal connectors for Remote Boards (for JAMMA boards #3-8)
H. JAMMA port for Gameboard #2
I. JAMMA port for Gameboard #1
J. Relay for mono JAMMA speaker to Gameboard #2
K. Relay for -12V, and -5V power to Gameboard #2
L. 20Amp relay for 5V to Gameboard #2
M. JAMMA harness input from control panel, monitor, speaker, and power supply

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. Plug the first and second JAMMA gameboards into the right and left side of the JAMMA Switcher Mainboards.
4. Plug the 3rd and 4th JAMMA gameboards into the right and left side of the Switcher remote board.
5. Plug the Ribbon cable and power cable into the remote board and mainboard in the connectors marked “3/4”
6. Repeat for remote boards 5/6 and 7/8
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 readjust your monitor’s color balance levels.

Switching Games:

If both jumpers are installed as shown, the mainboard will switch games when 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 right side, above the arrow as shown 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.

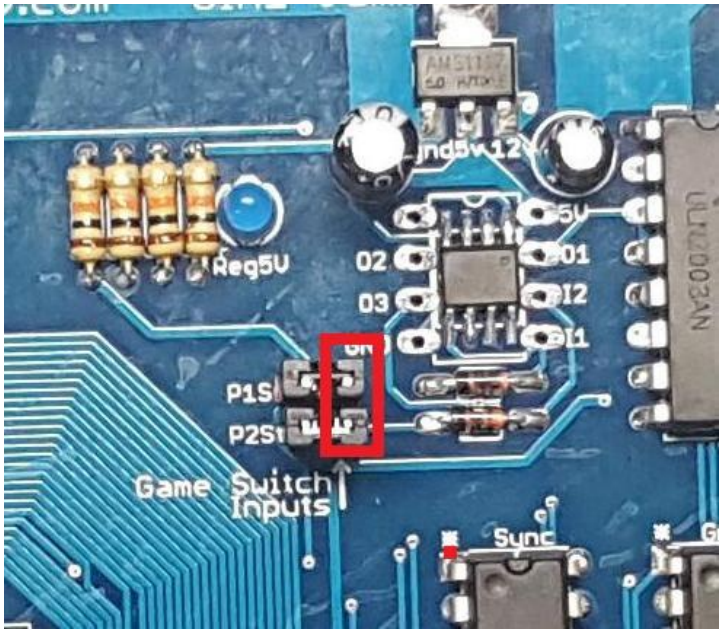

Figure 4. Button Inputs for Game Selection

Microprocessor:

The Switcher is controlled by a single Attiny13A microprocessor. At the time of purchase, RiddledTV is able to program this chip to support 2 to 8 gameboard inputs, and 0-10 seconds of button hold time for game switching. Unless requested otherwise, your processor will be programmed to match the number of remote boards purchased, and will switch between games after a delay of 1.5 seconds.

If requested at time of purchase, RiddledTV can program your mainboard to:

- Disable a specific gameboard input (Ex: only use 1 port per remote board)
- Your desired delay for gameboard switching (0 to 10 seconds)
- Have zero delay for gameboard switching (Ex: if a dedicated game selector button is used)
- Enable all 8 gameboards when purchasing a smaller kit, to allow for future expansion.

RiddledTV can reprogram your mainboard for a different configuration at any time for a fee of $10. This includes the price for us to ship it back to you. Shipping charges TO our location are not included. Please email us at Switcher@RiddledTV.com to make arrangements.

Indicator lights

The mainboard has 6 indicator LED lights, and each remote board has 2 more LEDs:

- Each board has 2 Red LEDs to indicate which gameboard is active
- Mainboard: Red, Green, and Yellow LEDs indicate that “some” voltage is present on the 5V, -5V, and 12V power supplies. They do not indicate the accuracy of those voltages.
- Mainboard: The Blue LED indicates that the microprocessor has 5 volts. This voltage supply is derived from the 12V source, using an onboard 5V regulator.

Remote Board Numbering

All remote boards are identical, with “A” and “B” sides. The same board can be used for ports 3&4 or 5&6 or 7&8. Side “A” will be the odd number port (gameboards 3,5 and 7) and side “B” will be even numbers. Make certain the remote’s power cable and ribbon cable are both plugged into the same numbered ports on the gameboard.

Remote Board Connections:

If equipped, the mainboard has up to three 12-pin connectors to supply power to remote boards. These ports provide power to the remote boards, as well as the "turn on" signal that selects the active gameboard. The wires marked "AON" and "BON" are required to operate. If desired, the power cables can be removed and connected to an alternate power supply to use higher (or lower) supply voltages than those connected to the mainboard. If another power supply is used, ensure that the ground wires from all power supplies are connected together.

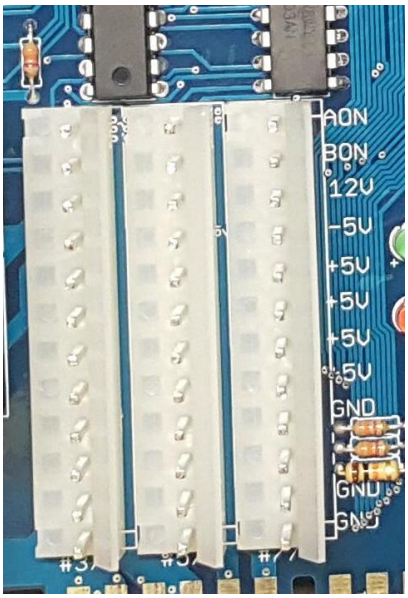

Figure 5. Remote Board Power Connectors

If equipped, the mainboard has up to three 40-pin box connectors. These connections use ribbon cables to connect the mainboard to the remote boards. They contain the audio, video and control panel inputs.

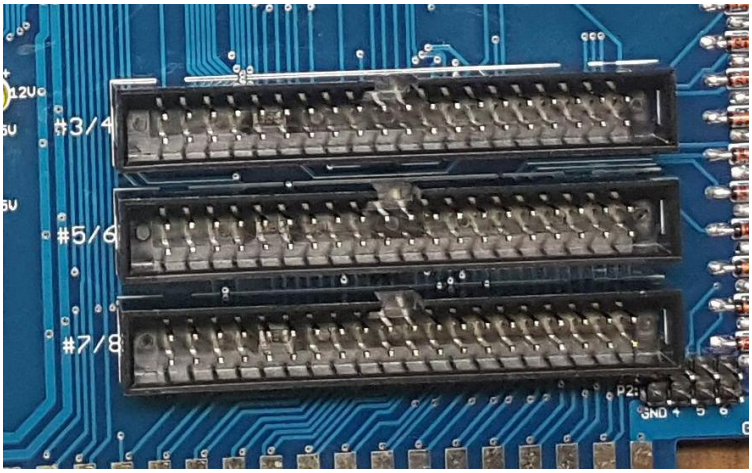

Figure 6. Remote Board Signal Connectors

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 7 below. To modify these pins to be grounded, apply jumpers (also commonly referred to as shunts). 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.

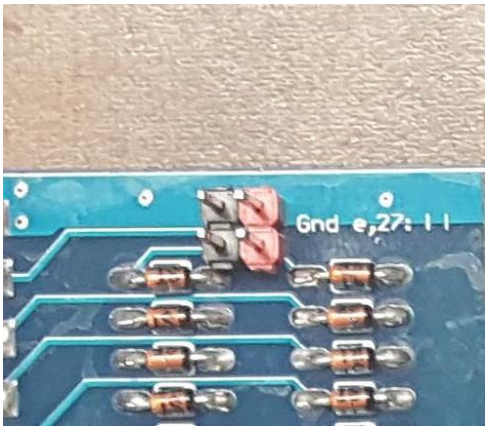

Figure 7. JAMMA Pins “27” and “e” Selection

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.

Daughterboard expansion:

The Switcher allows expansion modules to be added to support additional non-JAMMA game features. At the time of this printing, a Stereo Auxiliary board is available from RiddledTV.com. With the power turned off, connect the expansion module as indicated in its associated connection diagram. Take extra care to apply the plug's orientation the same on both ends. It is possible to plug this cable in upside down and damage either the switcher or the auxiliary board. Both boards indicate where "12V" is located, so please make sure the same wire is plugged into "12V" at both ends.

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 harness does this, the Switcher will not respond to any inputs from the control panel. The workaround for this: connect a wire from your GND on your power supply to the GND on your control panel. In most instances only a single wire will be needed. In some rare instances an additional 2nd GND wire for Player2 is also needed.