

PACTO TECH 2000H 2 Player Control Interface for Arcade Cabinets User Guide

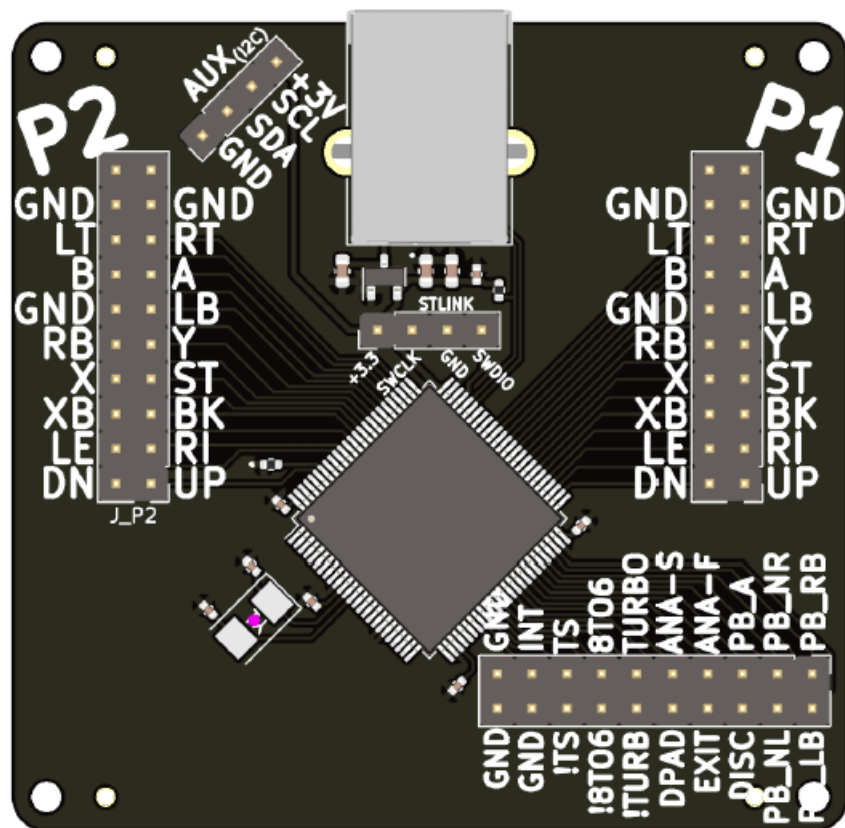
[Home](#) » [PACTO TECH](#) » PACTO TECH 2000H 2 Player Control Interface for Arcade Cabinets User Guide 

Contents

- [1 PACTO TECH 2000H 2 Player Control Interface for Arcade Cabinets](#)
- [2 INTRODUCTION](#)
- [3 Player Button Wiring](#)
- [4 Connectors](#)
- [5 Typical Button Layouts](#)
- [6 Advanced Modes \(OPTIONAL\)](#)
- [7 Documents / Resources](#)
- [8 Related Posts](#)

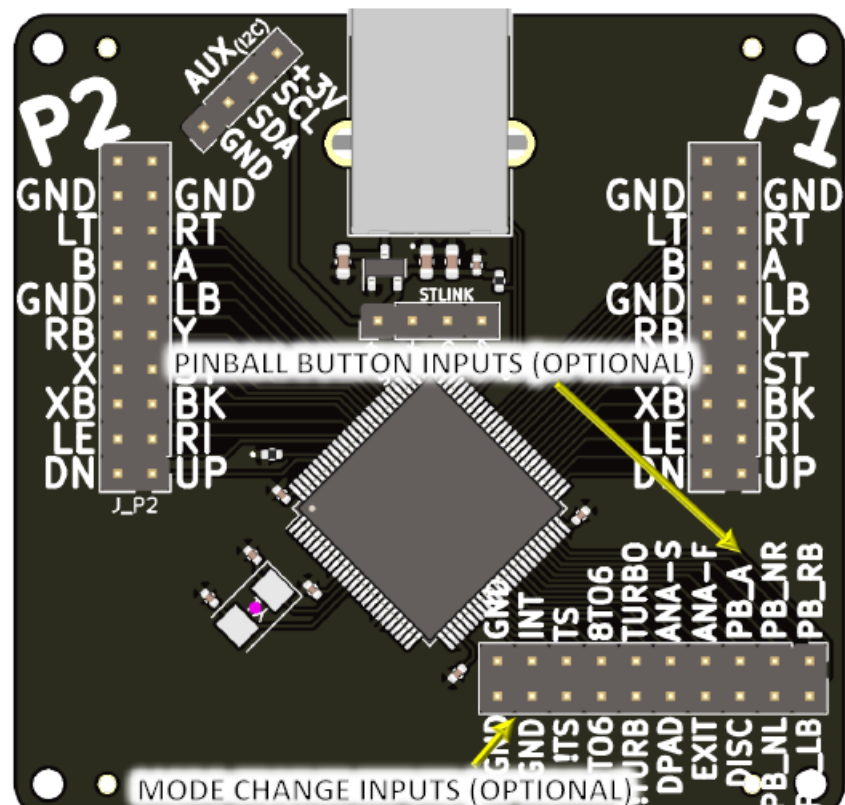


PACTO TECH 2000H 2 Player Control Interface for Arcade Cabinets



INTRODUCTION

The Pacto 2000H is a 2 Player Xinput arcade control interface for arcade cabinets. When plugged into a computer, your arcade cabinet joysticks and buttons will be seen as 2 separate Xbox 360 controllers. Xinput (Xbox controller format) offers better compatibility compared to the older "direct input" or keyboard type inputs for most applications. Some newer games exclusively supply Xinput, which makes the Pacto 2000H work without additional special software or configuration. Unlike using multiple interfaces, The Pacto 2000H should always keep the players in the correct order, and also provide the option to instantly reconfigure both joysticks to behave as one controller in "Twinstick mode". ALL THE ADVANCED MODES ARE OPTIONAL AND CAN BE AVOIDED IF DESIRED.



Player Button Wiring

All button and joystick inputs should be wired with one side to ground. The “mode” pins are optional to wire with buttons, or a permanent jumper. All modes except for interlock mode can be accessed through long-pressing various button combinations (refer to tables on later pages).

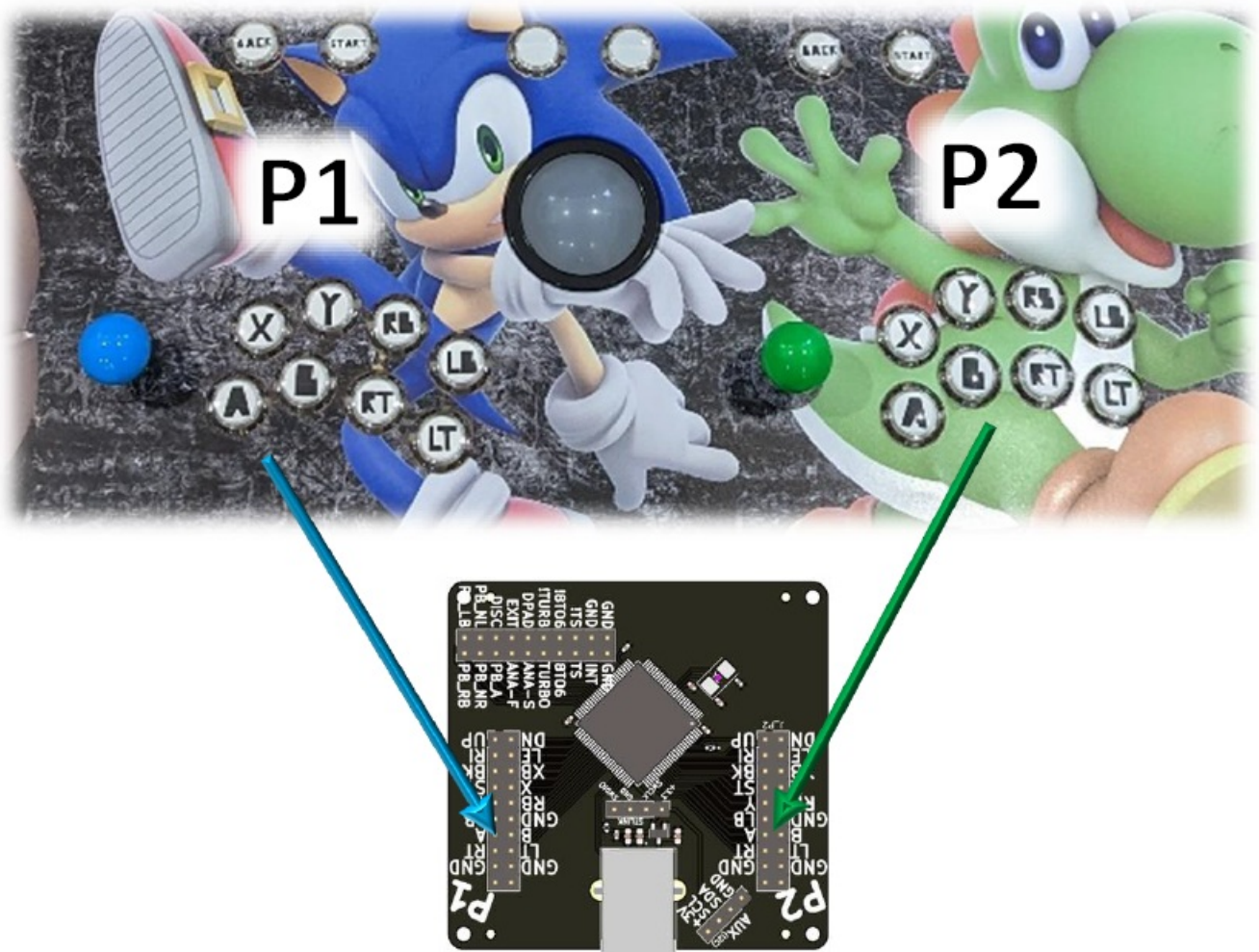


TABLE 1 – WIRING PINOUT (P1 AND P2 MATCHES BROOK FIGHT WIRING HARNESS)

Description	Pin	Pin	Description
Unused	-	-	Unused
Ground	GND	GND	Ground
Left Trigger	LT	RT	Right Trigger
B Button	B	A	A Button
Ground	GND	LB	Left Shoulder
Right Shoulder	RB	Y	Y Button
X	X	ST	Start Button
Guide/Xbox Button	XB	BK	Back Button
Joystick Left	LE	RI	Joystick Right
Joystick Down	DN	UP	Joystick Up

Mode Input Wiring

There are several ways to switch between the different modes:

1. No dedicated mode controls – use shortcuts instead (holding various start and select buttons)

2. Buttons – buttons to enter each mode
3. Switches – a single pole switch is attached, while the opposite mode is grounded (refer to switch wiring guide for which ones to ground)
4. It is possible to use a combination of switches and buttons as desired (Ex. – buttons for ANA-S/ANA-F/DPAD, switches for Turbo, Twinstick, 8to6)

Mode Button Wiring Option

Each mode button is connected to its respective input pin on one side, and ground on the other side

Mode Switch Wiring Option

Switches should be wired as followed

DPAD/ANA-S Mode Switch (Enable Slow Analog)

- Ground the DPAD Pin
- Connect ANA-S Pin to switch, connect other side of switch to ground

DPAD/ANA-F Mode Switch (Enable Fast Analog)

- Ground the DPAD Pin
- Connect ANA-F Pin to switch, connect other side of switch to ground

TS/TS Mode Switch (Enable Twinstick Mode)

- Ground the !TS Pin (!TS = NOT Twinstick)
- Connect TS Pin to switch, connect other side of switch to ground

TS/DIS Mode Switch (Disconnect From PC)

- Ground the !TS Pin (!TS = NOT Twinstick)
- Connect DIS Pin to switch, connect other side of switch to ground

TURB/TURBO Mode Switch (Enable Turbo/rapid-fire)

- Ground the !TURB Pin (!TURB = NOT Turbo)
- Connect TURBO Pin to switch, connect other side of switch to ground

8TO6/8TO6 Mode Switch (Enable 8 to 6 Mode – Convert 8 button fight layout to 6 button arcade)

- Ground the !TURB Pin (!TURB = NOT Turbo)
- Connect TURBO Pin to switch, connect other side of switch to ground

Notes

- The board starts in analog fast mode on startup

- DPAD or analog stick work well with most games, so if dedicated buttons are available for switching, analog stick is not usually required

Connectors

- The Pacto 2000H uses 2.54mm header pins which are compatible with “Female Dupont 2.54mm” connectors.
- Custom cables can be built using a crimper with female DuPont connectors, or prefabbed cables can be found.

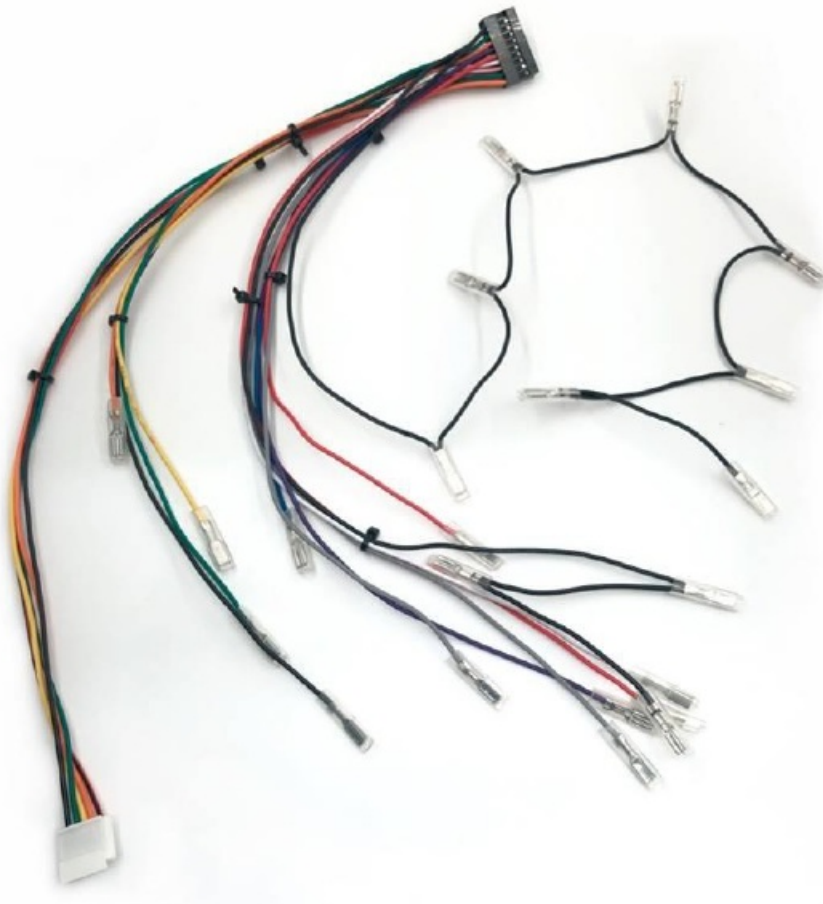


Dupont Crimping Tool, Flytuo SN58B Dupont Crimper Tool Works for Dupont Wire EPS, SATA, PINS MOLEX, JST Terminals(AWG24-16/0.25-1.5mm²)
Brand: Flytuo
★★★★★ 291 ratings
\$27⁹⁹
prime



Glarks 1191Pcs 2.54mm Pitch 1 2 3 4 5 6 7 8 9 10 Pin Housing Connector and Male Female Crimp Pins with Pin Header and 10 Wire Rainbow Color Flat Ribbon IDC Cable Compatible with Dupont Connector Kit
Brand: GLARKS
★★★★★ 267 ratings
\$27⁹⁹
prime
With Amazon Business, you would have saved \$28.69 in the last year

- The board follows the same pinout as the Brook fight stick boards, and is therefore compatible with the pre-made wiring harness available.



Typical Button Layouts

6 Button Layout

For arcade cabinets with only 6 buttons per player, the following layout is most common:

X	Y	LB
A	B	RB

- This 6 button layout is strongly recommended by the CoinOps project team, and is a great choice for retro gaming. Retro arcade games are generally covered by 6 buttons.

8 Button Layout

Some new fighting games require 8 buttons, and this is the most common layout for “fight sticks”:

X	Y	RB	LB
A	B	RT	LT

- Many people feel overwhelmed by 8 buttons, but it does offer some convenience for console emulation (many games use RT for throttle as an example), and allows for a row of 4 buttons like the Neo-Geo arcade machines. The 8TO6 MODE on the Pacto 2000H reconfigures the 8 button fight stick layout to the 6 button above. If you are using 8 buttons in a rectangular layout like this, it is strongly recommended to follow this layout to take advantage of the 8TO6 feature.



FIGURE 2 - NEO-GEO 4 BUTTON LAYOUT

Advanced Modes (OPTIONAL)

The Pacto 2000H has the ability to switch between modes using dedicated “mode” buttons or switches, or by holding down various start or select buttons for 8 seconds. The “modes” can be completely ignored if not wanted or needed. Most games will function in the default mode. If you would like to permanently enable a mode other than the default, install a jumper from the desired mode pins to ground, otherwise they will return to default when the power is cycled.

Default Settings:

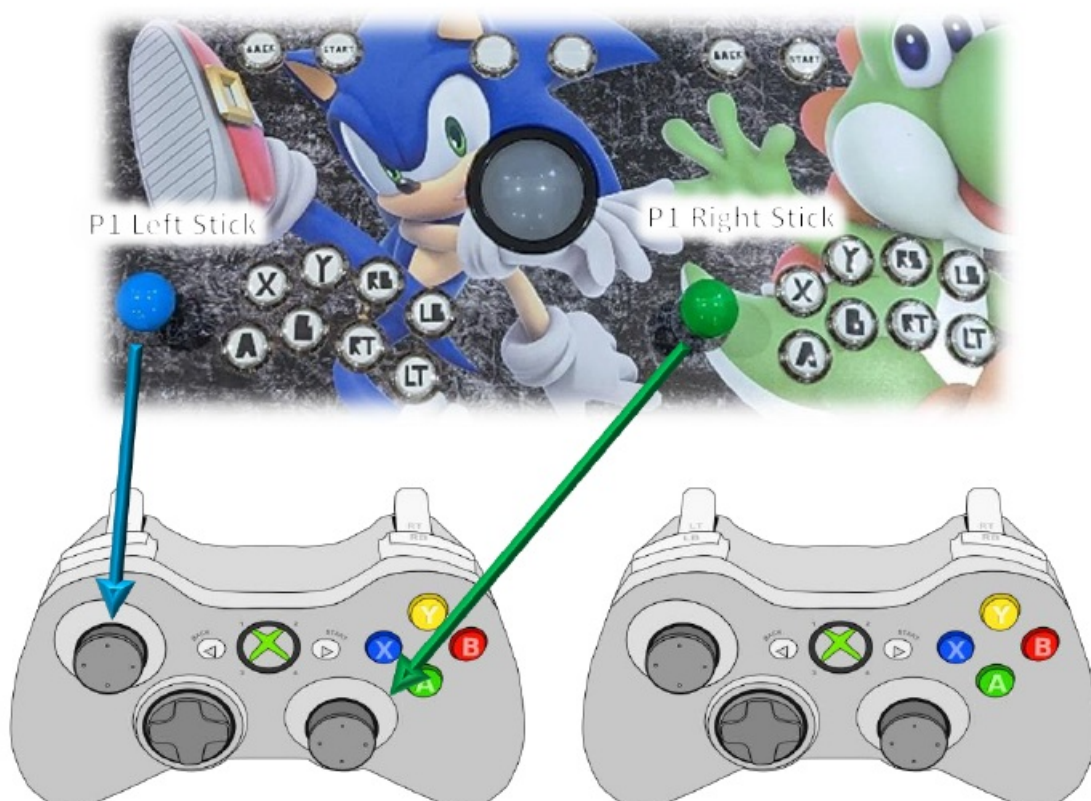
- Analog Fast (Left Stick)

- Start/Back Interlock Off
- Twinstick Mode OFF
- 8TO6 Mode OFF

TS (Twinstick Mode)

Play MAME Twinstick games with default controller mappings for Xbox controllers, or have some fun with flying games or first-person shooters! This feature combines 2 joysticks and buttons to behave as the player 1 Xbox controller. The player 1 and 2 joysticks on the cabinet will behave as player 1 left and right stick. Player 1 can use buttons from player 1 or 2.

Joystick = Player 1 Left Stick	Joystick = Player 1 Right Stick
Buttons = Player 1 Buttons	Buttons = Player 1 Buttons



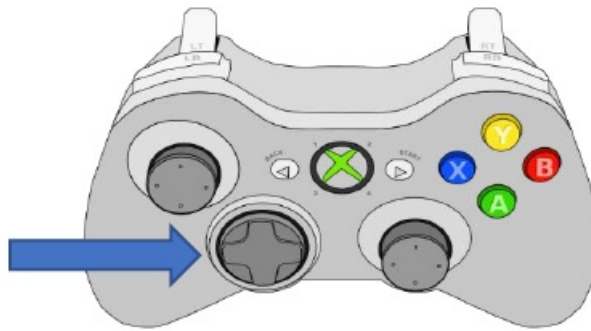
Twinstick mode provide 0-100% direction control instantly when in “DPAD OR ANA-F” mode, and provides slow/smoothed input ramping in “ANA-S” mode. “DPAD OR ANA-F” mode will almost always be more appropriate for Twinstick arcade games, but the analog smoothing could make for unique first-person shooter or flying game play.

INT (Interlock Start/Back)

Interlock mode helps avoid accidentally exiting games by pressing start and select at the same time (a common shortcut used for MAME/CoinOps/Hyperspin). Start and select must be held together for 2 seconds before being sent at the same time. Jumper “INT” pin to ground to activate. Unlike every other mode, it is simply enabled or disabled by a jumper, and does not stay activated when momentarily pressed. This mode is recommended for CoinOps, Hyperspin or RetroFE users.

DPAD (Digital/D-PAD Mode)

Joystick inputs are sent to the computer as d-pad controls from an Xbox controller. This is the default setting, and will work with most games and emulators.

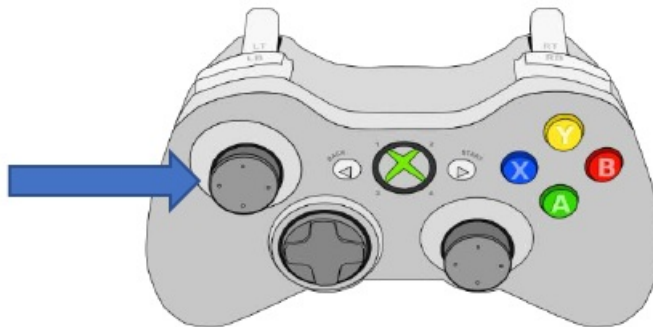


ANG (Analog Slow/Left-Stick Mode)

This mode outputs joystick direction to the PC as analog left stick. The outputs in analog mode are also slowly increased from 0 to 100% over time, and slowly reduced back to 0% when released. This is intended to make driving games or other which require sensitive inputs easier. This mode can be accessed by pressing a button wired to the “ANG” input, or by using button shortcuts (refer to table).

ANG (Analog Fast/Left-Stick Mode – DEFAULT)

This mode is the same as the above Analog Slow mode, but with no slow ramp up. It immediately provides 100% output on the stick. (Please note, boards sold prior to early December 2022 only have slow analog mode)



DIS (Disconnect Mode)

Completely removes the Xbox control interfaces from the computer to allow other controllers like wireless Xbox controllers to be used to play games, without needing to physically unplug anything. Plug your wireless Xbox dongle plugged into the PC, and power up your controllers AFTER entering disconnect mode. Switching back to any other mode will reenables the USB interface. After reenabling, it can take up to 30 seconds for the Xbox interfaces to reappear. To use the arcade controls again, turn off the wireless gamepads, or unplug the dongle to release the low player positions.

TURBO (Turbo Mode)

Turbo mode pulses button inputs 15 times per second (A,B,X,Y,LT,RT). This is helpful when playing some of the older shoot em up games like 1941 which did not have rapid fire, but did require constantly quickly hitting buttons to fire.

8to6 (8 to 6 button layout modifier)

If your cabinet is wired with the modern 8 button fight stick style, you can use the 8 to 6 mode to quickly make your buttons behave like the typical 6 button configuration (for the left-most 6 buttons). This is a popular configuration for pre-built game collections like coinOps Legends, or Hyperspin.

X	Y	RB	LB
A	B	RT	LT

Will be transformed into:

X	Y	LB	LT
A	B	RB	RT

TABLE 2 – MODE SELECTION SHORTCUTS

Shortcut Button (hold 8 sec.)	Modes Enabled
P1 Back	2 Player + Analog Fast (DEFAULT)
P1 Start	2 Player + DPAD
P2 Back	2 Player + Analog Slow
P2 Start	Twinstick + Analog Fast
P1 Start + P2 Start	Twinstick + Analog Slow
P1 Back + P2 Back	Disconnect Mode (Return to any other mode to reconnect)
P1 Start + P1 Up	Turbo Enable
P1 Start + P1 Down	Turbo Disable (DEFAULT)
P1 Start + Right	8 to 6 button Conversion Enable
P1 Start + Left	8 to 6 button Conversion Disable (DEFAULT)

TABLE 3 – DEDICATED MODE SELECTION INPUT PINS

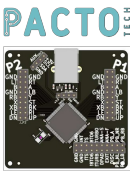
Dedicated Input Pin	Modes Enabled
INT (need permanent jumper)	Start/Back Interlock (delay 3 sec. before sending both)
DPAD	Digital/D-pad output
ANA-S	Slow Analog - Left Stick/Analog output
ANA-S	Fast Analog - Left Stick/Analog output (with slow ramp up)
!TS	NOT Twinstick (Normal 2 Player Mode) (DEFAULT)
TS	Twinstick Mode
!8TO6	Not 8 to 6 conversions (Normal) (DEFAULT)
8TO6	Convert 8 button to 6 button layouts
!TURB	Not Turbo (Normal) (DEFAULT)
TURBO	Turbo/Rapid-fire (hits held buttons approx. 15 times per second)
DISC (hold 3 seconds)	Disconnect Mode (Return to !TS or TS to reconnect)

TABLE 5 – EXTRA FUNCTION INPUT PINS

Dedicated Input Pin	Modes Enabled
EXIT	Immediately outputs START and BACK together (common exit shortcut for MAME and other emulators)
PB_A	Pinball -Extra Player 1 A button for launching ball
PB_LB	Pinball - Extra Player 1 LB for left flipper
PB_RB	Pinball - Extra Player 1 RB for right flipper
PB_NL	Pinball - Goes full right on left Analog stick for nudging on left side (Install on left side of cab)
PB_NR	Pinball - Goes full left on left Analog stick for nudging on left side (install on right side of cab)

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Documents / Resources

	<p>PACTO TECH 2000H 2 Player Control Interface for Arcade Cabinets [pdf] User Guide 2000H 2 Player Control Interface for Arcade Cabinets, 2000H, 2 Player Control Interface for Arcade Cabinets, 2 Player Control Interface, Control Interface, Interface</p>
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