

PACTO 4000T 4 Player Control Interface User Manual

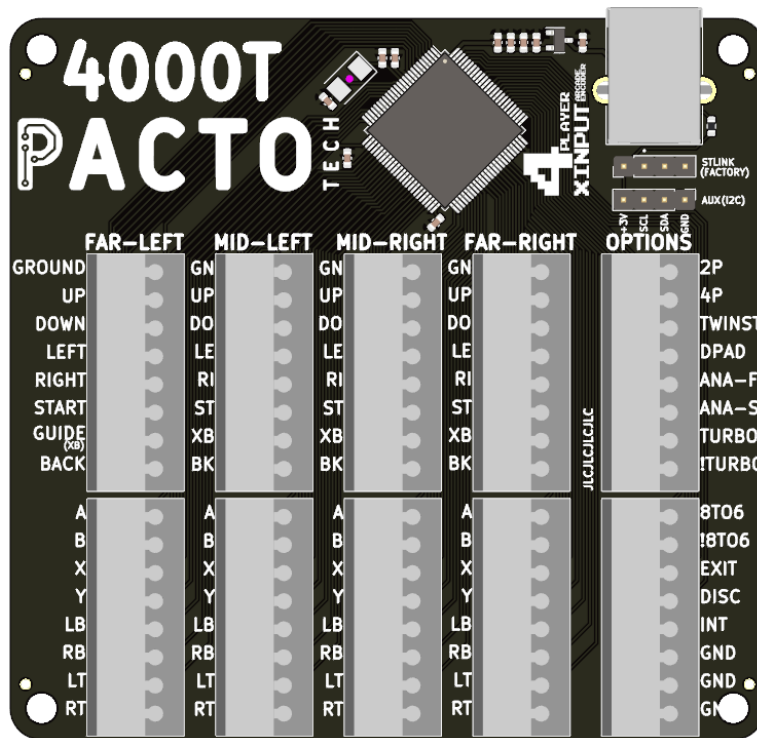
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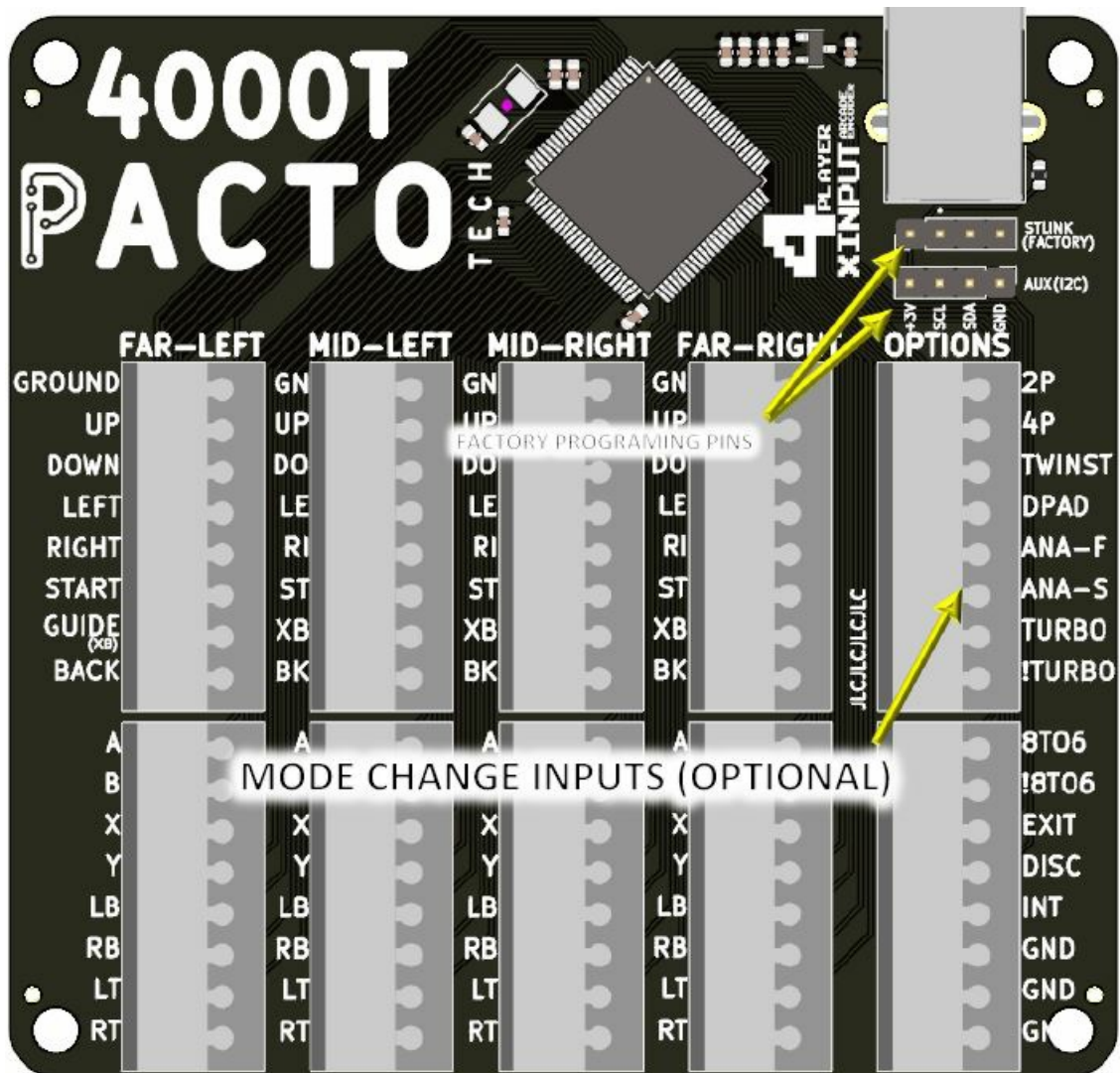
PACTO 4000T 4 Player Control Interface



Introduction

The Pacto 4000T is a 4 Player Xinput arcade control interface for arcade cabinets. When plugged into a computer, your arcade cabinet joysticks and buttons will be seen as 4 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 4000T work without additional special software or configuration.

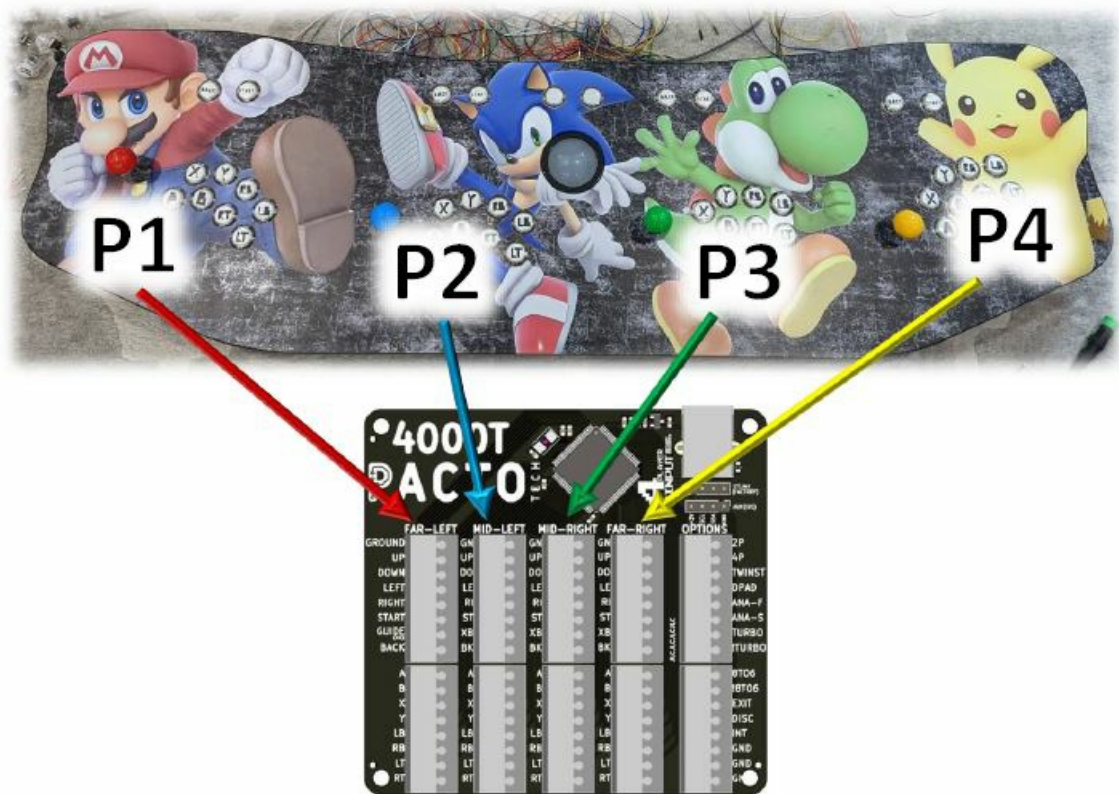
Unlike using multiple interfaces, The Pacto 4000T should always keep the players in the correct order, and also provide the option to modify the order instantly, to optimize for different games, without adjusting settings on the computer.



Player Button Wiring

All button and joystick inputs should be wired with one side to the 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 start or select buttons (refer to tables on later pages).

The buttons and joysticks should **ALWAYS** be wired to the interface from left to right as follows:



If you would prefer to keep the controls as 3,1,2,4, I would still recommend wiring as per above diagram. The default player order is 3124, which is often used for 4 player arcade cabinets.

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. A combination of switches and buttons as desired (Ex. – buttons for 2P/4P/TS, switches for ANA/DIG)

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

2P/4P Mode Switch (Enable 4 player mode (1234) switch)

- Ground the 2P Pin
- Connect 4P Pin to the switch, and connect the other side of the switch to ground

2P/TS Mode Switch (Enable Twinstick Mode)

- Ground the 2P Pin
- Connect TS Pin to switch, connect another side of the switch to ground

2P/DIS Mode Switch (Disconnect From PC)

- Ground the 2P Pin
- Connect DIS Pin to the switch, and connect the other side of the switch to ground

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

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

Notes:

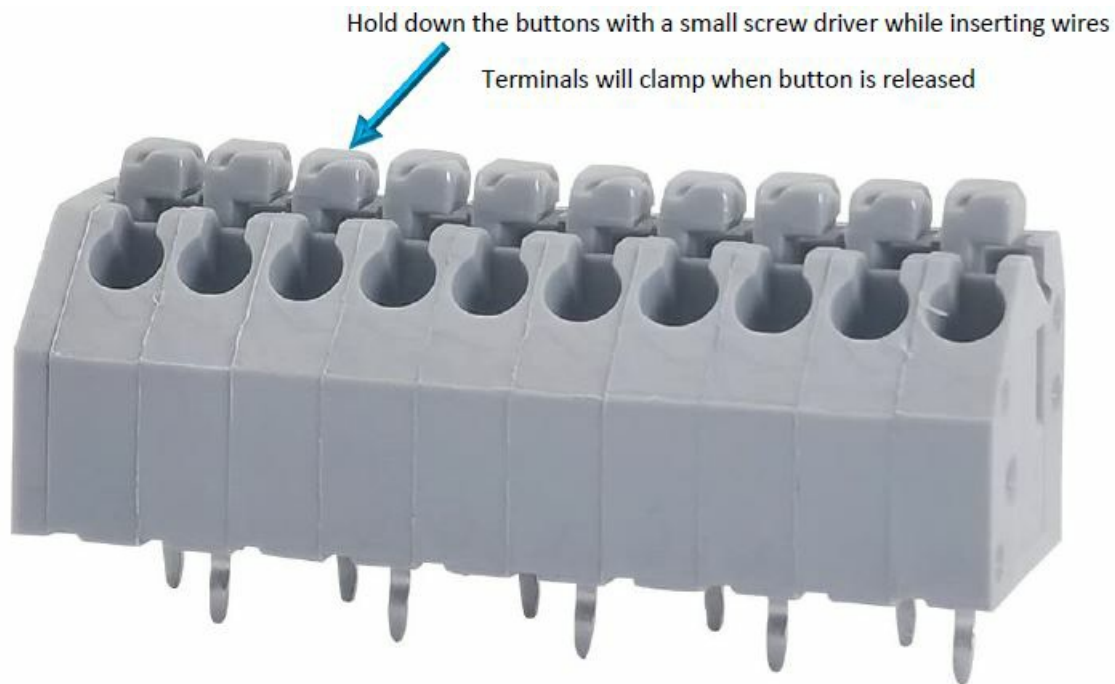
- The board starts in analog fast mode on startup
- A 3-position switch could be used to switch between ANA-S/ANA-F/DPAD (Ground ANA-F, wire others to switch)
- A 3-position switch could be used to switch between 4P/2P/TS (Ground 2P, wire others to switch)
- If 2P, 4P and TS are hit together, TS will be active
- If 2P, 4P, and DIS are hit together, DIS will be active
- If 2P, TS, and DIS are hit together, DIS will be active

Connectors

The Pacto 4000T uses spring terminals that will accept 2 or 3 wires typically used for arcade control wiring (20 gauge or smaller). Most wiring sold for the purpose of arcade controls will work well with the 4000H. Stranded 20 gauge wire is a good choice for arcade controls. 22 gauge works well but is easier to break when pulled. Solid wire is more likely to break from handling or vibration. Here are more detailed specifications:

TABLE 1 – TERMINAL WIRING SPECIFICATIONS

Max Size Solid conductor	0.2 to 1.5 mm ² / 24 to 16 AWG
Max Size Fine-stranded conductor	0.2 to 1.5 mm ² / 24 to 16 AWG
Recommended Wire Strip length	8.5 to 9.5 mm / 0.33 to 0.37 inches



Typical Button Layouts

6 Button Layout (or variation 6 buttons + 2 trigger buttons)

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 for the middle positions for 2-player games, and 4 buttons for the outside positions for 4-player games. 4 buttons are adequate for the wide majority of 4 player arcade games, but will be inadequate for most 4-player Windows games or 4-player console emulation. Polycade uses an interesting button layout which uses the typical 6-button layout but with the trigger button added underneath to be hit with your thumb. This Polycade layout seems efficient and could be less confusing than the modern fight layout, while still retaining 8 buttons for maximum compatibility (Particularly useful for console emulation). The “8to6” mode is unnecessary for either of these layouts.



Figure 1 -Popular 6/4 Button Layout
(Dreamcade® Vision 42)



Figure 2 - Polycade 6 + 2 = 8 button layout

8 Button Layout

This layout is fairly standard for modern fight sticks with 8 buttons and is a common option for 8 buttons on pre-made arcade cabinets.

X	Y	RB	LB
A	B	RT	LT



Figure 3 - 8 Button Vewlix Arcade

Advanced Modes OPTIONAL

The Pacto 4000H has the ability to change the orders of the players using dedicated “mode” buttons, 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 Setting: 2P (2 Player Mode – 3124 player positions) AND Fast Left Stick/Analog output

2P (2 Player Mode – 3124 Player positions – DEFAULT)

This is the mode that allows players 1 and 2 to be in the middle while playing 2-player games. This is a common layout when people use a conventional encoder that cannot be reordered on the fly, where 4 player orders might be fixed on the software side instead.

Player 3	Player 1	Player 2	Player 4
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4P (4 Player Mode – 1234 Player positions)

4 player mode makes the left-most player 1, left-of-center 2, right-of-center 3, and right-most player 4. This layout works well with default layouts for 4-player games.

Player 1	Player 2	Player 3	Player 4
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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 is a completely unique feature for this encoder which combines all 4 joysticks and buttons to behave as 2 Xbox controllers. The player 1 and 2 joysticks on the cabinet will behave as player 1 left and right stick. The player 3 and 4 joysticks on the cabinet will behave as player 2 left and right joystick. Player 1 can use buttons from player 1 or 2, and Player 2 can use buttons from players 3 or 4.

Joystick = Player 1 Left Stick	Joystick = Player 1 Right Stick	Joystick = Player 2 Left Stick	Joystick = Player 2 Right Stick
Buttons = Player 1 Buttons	Buttons = Player 1 Buttons	Buttons = Player 2 Buttons	Buttons = Player 2 Buttons



Twinstick mode provide 0-100% direction control instantly when in “DIG” mode, and provides slow/smoothed input ramping in “ANA” mode. “DIG” mode will almost always be more appropriate for 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.

DIG (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 reenale 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, LB, RB, 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 FOR BOARDS DELIVERED AFTER TO JANUARY 23, 2023

Shortcut Button (hold 8 sec.)	Modes Enabled
Player 1 Back	Fast Analog (DEFAULT)
Player 1 Start	Slow Analog
Player 2 Back	D-Pad
Player 2 Start	2 Player Mode (players 3124 order)
Player 3 Back	4 Player Mode (players 1234 order)
Player 3 Start	Twinstick Mode
Player 4 Back	Turbo Disable (DEFAULT)
Player 4 Start	Turbo Enable
Player 1 Back AND Player 2 Back	Disconnect Mode (Return to any other mode to reconnect)
P2 Start + P2 Right	8 to 6 button Conversion Enable
P2 Start + P2 Left	8 to 6 button Conversion Disable (DEFAULT)

TABLE 3 – MODE SELECTION SHORTCUTS FOR BOARDS DELIVERED BEFORE JANUARY 23, 2023

Shortcut Button (hold 8 sec.)	Modes Enabled
Player 1 Back	2 Player Mode (3124) + Fast Analog (DEFAULT)
Player 1 Start	4 Player Mode (1234) + Fast Analog
Player 2 Back	2 Player Mode (3124) + Slow Analog
Player 2 Start	2 Player Mode (3124) + D-pad
Player 3 Back	Twin Stick Mode + Slow Analog
Player 3 Start	Twin Stick Mode + Fast Analog
Player 4 Back	4 Player Mode (1234) + Slow Analog
Player 4 Start	4 Player Mode (1234) + D-pad
Player 1 Back AND Player 2 Back	Disconnect Mode (Return to any other mode to reconnect)
P2 Start + P2 Up	Turbo Enable
P2 Start + P2 Down	Turbo Disable (DEFAULT)
P2 Start + P2 Right	8 to 6 button Conversion Enable
P2 Start + P2 Left	8 to 6 button Conversion Disable (DEFAULT)

Notes:

- P1 always refers to left-most, and P2 Mid-left, etc. position for the shortcuts, regardless of mode.
- For most people, DPAD or Fast Analog will work well for most games. Most games requiring analog input (driving or flying games usually) benefit from the slower analog option, while most games requiring fast input will work with DPAD. Fast analog is the default setting on startup for maximum compatibility (works for those driving and flying games, while also not being slowed down which would be negative in fight or platformer games).

TABLE 4 – DEDICATED MODE SELECTION INPUT PINS

Dedicated Input Pin	Modes Enabled
2P	2 Player Mode (3124) (DEFAULT)
4P	4 Player Mode (1234)
TWINST	Twinstick Mode (1LS 1RS 2LS 2RS) (DPAD with TS = FAST ANALOG OUT)
DPAD	Digital/D-pad output
ANA-F	Fast Analog – Left Stick/Analog output (DEFAULT)
ANA-S	Slow Analog – Left Stick/Analog output (with slow ramp-up)
TURBO	Turbo/Rapid-fire (hits held buttons approx. 15 times per second)
!TURB	Not Turbo (Normal) (DEFAULT)
8TO6	Convert 8-button to 6-button layouts
!8TO6	Not 8 to 6 conversions (Normal) (DEFAULT)
EXIT	Immediately momentarily outputs START and BACK together (common exit shortcut for MAME and other emulators)
DISC (hold 3 seconds)	Disconnect Mode (Return to !TS or TS to reconnect)
INT (need permanent jumper)	Start/Back Interlock (delay 3 sec. before sending both)

Notes:

For most people, DPAD or Fast Analog will work well for most games. Most games requiring analog input (driving or flying games usually) benefit from the slower analog option, while most games requiring fast input will work with

DPAD. Fast analog is the default setting on startup for maximum compatibility (works for those driving and flying games, while also not being slowed down which would be negative in fight or platformer games).

Documents / Resources

	<p>PACTO 4000T 4 Player Control Interface [pdf] User Manual</p> <p>4000T 4 Player Control Interface, 4000T, 4 Player Control Interface, Control Interface, Interface</p>
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