Assign functions in MSFS

Microsoft Flight Simulator 2020 & 2024 - Windows PC companion guide

Connect your panel to the cockpit.

Follow on from the PWS-I/O32 User & Installation Manual. Your board is wired and working; now choose what each control does in the simulator.

Worked examples
Pushbutton -> cockpit light
Maintained toggle -> separate ON/OFF actions
Encoder -> heading adjustment
Lever -> throttle
Load-cell force -> wheel-brake axis

Use the separate instructions for your simulator version. Start with a standard aircraft, then make a separate profile for an aircraft with special controls.

This guide covers Windows PC control assignments. It does not establish Xbox or cloud-streaming compatibility for the board.

Choose your starting point

Start with the input you already tested in Windows. This guide changes simulator assignments, not your wiring.

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A **button command** is a discrete action such as lights on or heading increase. An **axis command** follows continuous movement or force. A **profile** is a named collection of assignments.

Pictures are official Microsoft support examples showing other devices. Select your Propwash device on your PC; do not select the pictured keyboard or joystick just to match the illustration. Menu wording may vary with updates and language.

Before you add a function

A control that fails in Windows should be fixed before you edit simulator assignments.

Check the board before the simulator

1. Finish wiring and calibration using the PWS-I/O32 User & Installation Manual. Write the working settings to the board and save a configuration backup.

2. Open the Windows Run box with Windows + R, enter **joy.cpl** and open the Propwash controller Properties. Press each test button or move the test lever.

3. Record the button indicator or moving axis. Use movement detection in the simulator rather than assuming SW1 is Button 1 or AX02 has a particular axis letter.

4. Leave other controls still while capturing an input. If another lever jitters, correct it before scanning. Test one function at a time with the aircraft parked.

If a Windows test display does not show all your button numbers, also check the Configurator monitor and the simulator input capture. A missing indicator alone is not proof of a failed control.

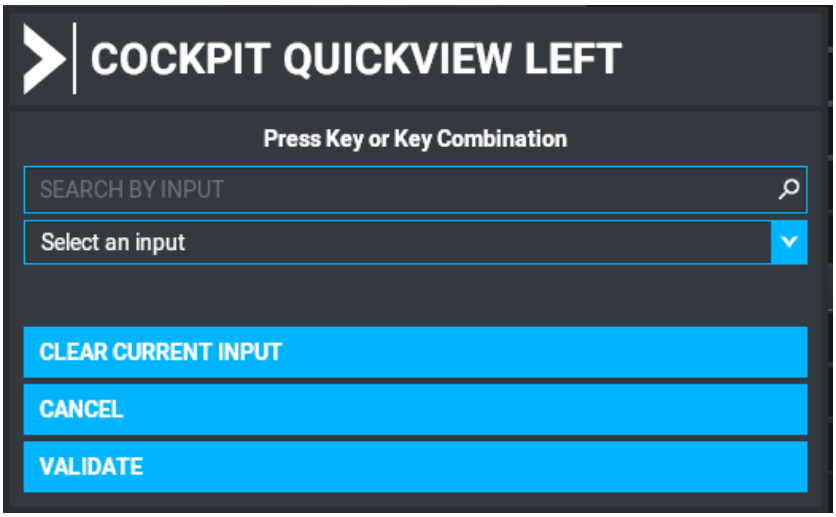
THE BOARD FILE AND SIMULATOR PROFILE ARE DIFFERENT

The board file stores input behavior and calibration. A simulator profile stores the aircraft commands assigned to those inputs. Keep both.

Your control	Choose this kind of function
Pushbutton	One press action, or a hold action if intended
Maintained toggle	Explicit ON and OFF commands
Encoder	Separate increase and decrease commands
Potentiometer or load cell	An axis assignment, not an increase/decrease button

MSFS 2020: your first function

Example: assign a pushbutton to the beacon-light toggle. Search the words beacon or lights; read the command description.



Microsoft support example of the assignment popup. The title changes to your selected command.

1. Open **Options** > **Controls Options**. Select the Propwash device in the device bar. Set the control filter to **All**.

2. Search for beacon. Choose a beacon toggle command if offered. Click an assignment box to open the popup.

3. Click the input-scanning field, press and release your pushbutton, then inspect the detected input and any conflict warning.

4. Choose **Validate**. Use **Apply & Save** when leaving Controls Options, and name the custom preset if requested.

For this first test, use a momentary pushbutton. A maintained toggle needs the two-state method on pages 9-10. If the command is missing, clear search filters before assuming the board is unsupported.

EXPECTED RESULT

Press once: beacon changes state. Press again: it changes back. Check with the aircraft electrical supply on; the command cannot make an unpowered light visible.

MSFS 2020: keep a useful preset

Create a named working preset before adding the rest of the panel. Keep a separate copy for experiments.

Presets and missing assignments

Open Preset Manager for the selected device. Duplicate a working preset or create an empty one; give it a useful name such as PWS - C172. Default presets are protected, so edit a custom copy. A generic device can have no picture and no preset assignments yet still be usable.

A lever uses an axis command

For a throttle, search throttle and choose the appropriate **Throttle Axis** command, or the engine-specific axis your aircraft requires. Open its assignment box and move only the intended lever to capture it. Use the aircraft instructions for any 0-100%, detent or reverse-range variant; they are not interchangeable for every aircraft.

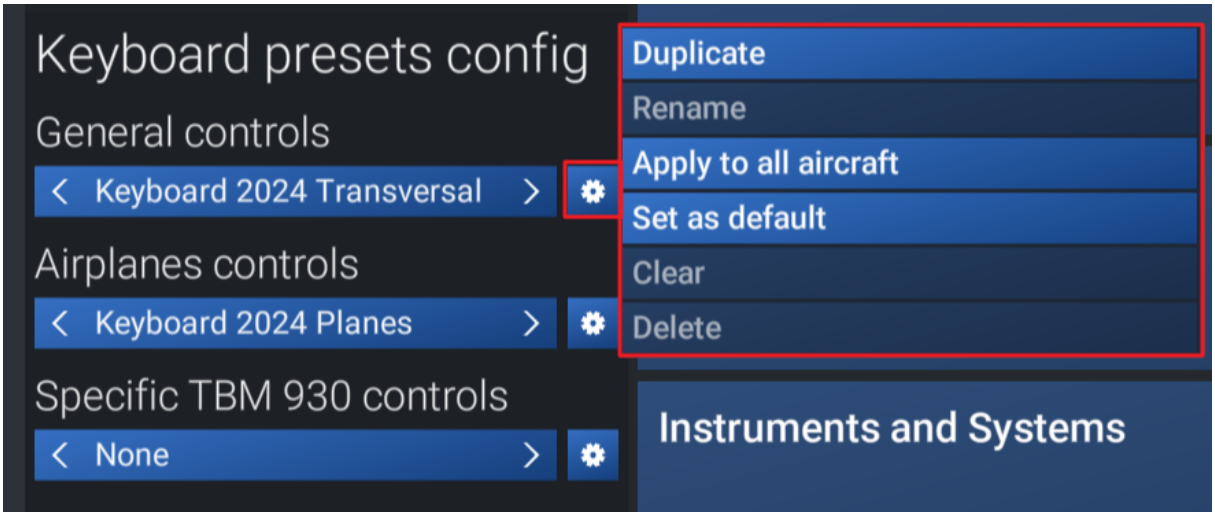
After saving, make your own parked-aircraft test: idle, quarter, half, three-quarter and full travel. The cockpit lever should follow smoothly and stop at both ends. Undo an incorrect assignment rather than compensating by changing several curves.

Your own test record

Check	What you want
At idle	Cockpit throttle at idle
At mid travel	No jump or sudden reversal
At full travel	Intended maximum position
Other controllers at rest	No second throttle taking control

MSFS 2024: choose your profile

Open Settings > Controls. Select your aircraft, then select the Propwash controller in Devices List.



Microsoft support close-up: profile rows and their cogwheel menu. This example has the keyboard selected.

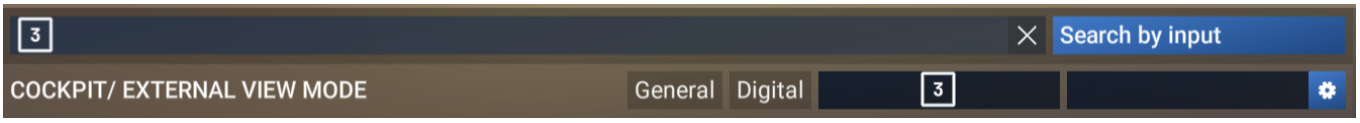
Profile group	Where it applies
General controls	Across aircraft: for example common view controls
Aircraft category	For a type such as airplanes or helicopters
Specific aircraft	Only the selected aircraft model

Use the cogwheel beside the relevant profile to duplicate or rename it. Keep aircraft-specific behavior in a clearly named aircraft profile. Avoid applying an experimental profile to every aircraft.

Practical example: use common camera buttons across your fleet, but keep a particular airliner overhead switch in that aircraft profile. After changing aircraft, check the selected profile before changing wiring or remapping everything.

MSFS 2024: your first function

Use a momentary pushbutton for the first assignment. Choose the function by name, then capture the input from your panel.



Microsoft support close-up: command search on the left; Search by input on the right.

1. With Propwash selected, set Filters to **None** to see available commands. Search beacon, and select the beacon toggle action if it is offered for your aircraft.

2. Open an assignment slot for that action. Use its input-capture/listen control and press then release your pushbutton. Check the detected input before confirming.

3. If the app asks for a custom profile name, use a recognizable panel/aircraft name. Confirm the mapping and use the displayed **Save and Back** action when leaving.

Search by input finds commands already using an input; it is not the same as assigning a new command. If it returns nothing, the button may simply be unassigned.

Check any conflict count beside an action and open its gear to see the other assignments. For single-action pushbuttons, check that Input repetition is off where the action settings expose it. Release/repetition behavior can vary by command and update.

TEST BEFORE ADDING ANOTHER FUNCTION

In the parked aircraft with electrical power on, press once and observe the beacon. Press again. Check that no other cockpit function changes.

Prove the first command works

Use this test after either version-specific assignment workflow. Stay with one aircraft until the result is consistent.

1. Start a parked flight in a standard aircraft. Use a visible function and make sure the aircraft is powered as required.

2. Press your pushbutton once briefly and observe only the target function. Release and wait; it should not continue cycling.

3. Press again. If using a toggle command, the state should return. If using an explicit ON command, it should remain ON rather than toggle.

4. Hold the button for a few seconds. For a one-action command, look for unintended repeated changes. Inspect repetition or command choice if it keeps cycling.

5. Return to controls and verify the assignment is still in the intended profile. Restart the flight and test again before labeling the physical panel.

Choose names that describe behavior

Command wording	Expected behavior
Toggle	Change to the opposite state each activation
On / Off	Request a particular state
Increase / Decrease	Move by a step or repeat while held, depending on action
Axis	Follow position or force continuously

If the mouse-operated cockpit control also fails, investigate aircraft power, operating conditions or aircraft instructions. A different button assignment will not fix an aircraft that is not ready to operate that system.

Make a toggle send ON and OFF

Optional board setup for a maintained two-position switch. It avoids needing a simulator release binding.

1. Read the board in the Configurator and save a backup. Open Button Config. Move the maintained switch and identify its changing Physical input.

2. Use its existing Normal row as the ON output if that row is active in your desired ON position. Choose a second unused row with the **same Physical input** and Function **Normal**.

3. Set **Invert input** differently on the two rows: one unticked, the other ticked. Keep shift, timer and logic choices unset. Do not use an encoder input for this example.

4. Write the configuration. Verify in the Configurator and, where visible, joy.cpl that one output is active in each position. Use simulator capture to record the host buttons as ON and OFF; exchange names if their states are opposite.

Physical switch position	Expected Windows result
ON	ON button pressed; OFF button released
OFF	OFF button pressed; ON button released

This intentionally uses two joystick buttons for one physical switch. Changing earlier assignments can affect host numbering, so identify and record the result after writing. Keep the original backup until both directions are proven.

Assign the toggle to the aircraft

Use the two Windows buttons you named ON and OFF. Do not assign both to a Toggle command.

1. In your MSFS version, select Propwash and the intended profile. Search for the system, for example beacon.

2. If separate ON and OFF actions are offered, assign the ON button to ON and the OFF button to OFF. Move into each target switch position while capturing.

3. Review the captured input carefully: one of the pair is normally held. If scanning chooses the wrong one, use the input picker to choose the recorded button, or change switch position and repeat.

4. Save and return to the powered parked aircraft. Move OFF -> ON -> OFF. Each physical position should command the matching cockpit state.

5. Use the mouse to change the cockpit switch, then move the panel switch away and back. Test loading a new flight in both panel positions. Do not assume the simulator reads every held switch at startup.

IF THE AIRCRAFT ONLY OFFERS TOGGLE

A single held switch plus a Toggle command does not automatically give reliable ON/OFF positions. Keep the pushbutton-toggle method, or use that aircraft maker supported command/bridge instructions. Do not invent a release command that your menu does not offer.

An add-on may expose its own light or battery controls instead of the standard ones. Test the standard aircraft first, then follow the add-on instructions for its specific command names.

Assign an encoder knob

Example: turn a knob to move the heading bug. Your encoder should already produce two separate Windows button pulses.

1. In the Configurator and Windows, record which button pulses clockwise and which pulses counterclockwise. Leave the proven encoder pin and decoding settings intact.

2. Use the assignment workflow for your MSFS version. Search heading and read the descriptions to find the heading-bug increase and decrease actions your aircraft supports.

3. Assign clockwise to increase and counterclockwise to decrease. Do not assign the encoder to a heading axis or to heading-hold ON/OFF.

4. Save. In the parked cockpit, note the selected heading. Turn one detent each way and observe the change. Turn several detents slowly, then quickly.

5. If direction is wrong, swap the two simulator assignments. If rapid turns lose or add steps, compare Windows pulses before adjusting simulator repetition.

Your check	Expected result
Clockwise then stop	Heading increases, then stops
Counterclockwise then stop	Heading decreases, then stops
Rapid turn	No opposite-direction change
Separate knob pushbutton	Its own independent command, if assigned

Queueing in the board can finish delivering pulses after a fast turn. Extra simulator repetition can add further movement. Change one layer at a time; start with a one-pulse, one-action expectation rather than an arbitrary speed setting.

Assign throttle and brake axes

Calibrate and enable the used PWS axes before assigning them here. The simulator input name may not say AX02 or Load Cell 1.

Example: one throttle lever

Move only the intended lever during input capture for an axis command. For one engine, choose the appropriate throttle axis. For two independent levers, choose engine 1 and engine 2 axes separately. Do not also leave an all-engine throttle assignment on a second controller.

1. After saving, test idle, half and full travel while parked. Watch the cockpit lever rather than just engine power, which may lag.

2. If direction is reversed, correct direction in one place only, then repeat the test. Do not invert both board and simulator to cancel each other.

3. If the aircraft uses reverse, idle or other detents, use its own calibration instructions. A generic curve is not a substitute for an aircraft detent setup.

Example: force-sensitive toe brakes

After taring and setting maximum in the Configurator, assign the left sensor to the available **Left Brake Axis** and the right to **Right Brake Axis**. Do not choose an on/off brake button command for proportional force.

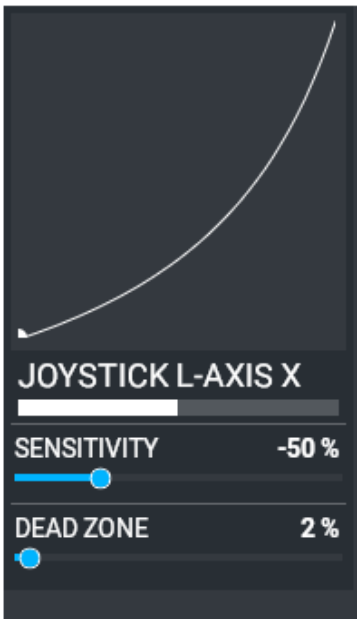
Test unloaded: both wheel brakes released. Apply a little force, then full operating force to each side separately. If unloaded means full braking, correct simulator axis direction; preserve the board force direction that made Force rise positively. Check that the parking brake is released when testing wheel brakes.

NO FIXED AXIS LETTERS

Detect the actual movement. Do not copy a JOYSTICK X/Y/Z label from a screenshot or another customer panel.

Tune an axis after it works

First make direction and endpoints correct. Then adjust feel one setting at a time.



Microsoft support axis-curve close-up. The pictured values are examples, not recommended PWS settings.

2020: use Sensitivity for the selected device. **2024:** use Hardware settings for the selected device, choose the intended curve, then edit it. Check the axis by moving that control before changing values.

Problem	A useful first check
Twitch at rest	Check wiring and board signal; then use only a small deadzone if needed.
Slow response	Reduce excess filtering or overly strong curves.
Ends not reached	Recheck calibration, axis range and aircraft detent setup.
Very sensitive near center	Try a small response-curve change; retest full travel.

Board curves and simulator curves combine. Start with one layer linear while tuning the other. Keep a working preset so you can compare or undo the change. There is no single correct sensitivity percentage for every lever or aircraft.

Save and back up your profiles

Preserve the working version before experimenting. Name files and profiles so you can identify the board and aircraft later.

MSFS 2020

Use a named custom preset and the simulator Apply & Save action. Keep a separate working copy in Preset Manager. Record its name and button assignments. Do not assume a preset name alone is an external backup, or copy a file-path recipe intended for a different store edition.

MSFS 2024: export a backup

1. Go to **Settings > Controls** and select the intended controller. Open the cogwheel beside the relevant profile name.

2. Choose **Export** and save outside the simulator installation folder. Export each used profile category that you want to preserve.

3. To restore, select the same controller and matching profile category, choose **Import** and select its file. Verify the selected profile and test its controls.

A profile for General controls cannot be imported as an airplane or helicopter-category profile. Import is tied to the controller it was created for; do not assume an exported file will transfer between different boards or simulator versions.

Keep these together

Backup item	What it restores
PWS configuration file	Board input behavior and calibration
MSFS preset/profile	Simulator command assignments
Aircraft-specific calibration notes	Detents or special add-on behavior
Panel assignment record	Your physical labels and observed input names

Fix an assignment problem

If the control works in Windows, begin with simulator selection, profile and command choice.

Symptom	Check in order
Propwash missing	Connect before launching; verify joy.cpl and USB data cable. Restart the sim if it did not discover the device.
Command list looks empty	2020 filter All; 2024 filter None. Clear text/input searches. No device picture is not itself a failure.
Wrong input captured	Keep other controls still; inspect the detected button or axis before accepting.
One control does several things	Search by that input. Review conflicts, repeated actions and assignments on other controllers.
Works in one aircraft only	Check the aircraft profile and whether the other aircraft exposes a different command.
Toggle gets out of step	Use explicit ON/OFF actions with the paired outputs, not two copies of Toggle. Test startup state.
Encoder runs too far	Compare Windows pulses, board queue and simulator repetition.
Lever or brake moves backwards	Correct one direction setting, then test both ends and rest.
Axis jumps or is overridden	Check a second axis assignment, assistance or aircraft automation.
Settings gone after switching aircraft	Check the selected preset and, in 2024, all three applicable profile groups.

For support, record simulator version, aircraft, Propwash device name, active profile, command label and detected input. Include whether Windows and a standard aircraft pass the same test.

Keep a panel assignment record

Use this page with your board configuration backup. Simulator button numbers and physical SW labels do not have to match.

Physical control	Input shown by MSFS	Assigned function
Pushbutton / SW ____	_____	_____
Toggle ON	_____	_____
Toggle OFF	_____	_____
Encoder clockwise	_____	_____
Encoder counterclockwise	_____	_____
Throttle / AX ____	_____	_____
Load Cell 1 / 2	_____	_____

Before closing setup: save; test every position; change aircraft/profile and recheck; restart once; keep the known-good board and simulator backups.

Official help and picture credits

MSFS 2020: peripheral control settings and preset manager

MSFS 2024: controller settings, profiles and searching

MSFS 2024: exporting and importing profiles

Simulator screenshots: Microsoft Flight Simulator Support, cropped for readability. Microsoft Flight Simulator is a Microsoft product; this Propwash companion guide is independent. Use the installed aircraft instructions when its command names or behavior differ.