GTpro SmartPanel
User Guide

Pedal Control Box (PCU) Layout

Launch
Button

Sounder

Service
Button

ADVANCED PEDAL CONTROL UNIT

E D C B A USB V

Input Ports

USB

Tactile Out

Input Ports	Input Ports can be assigned to different pedals and handbrake. There is a spare port that is present for warranty and testing purposes. Rather than having to send in the PCU for repair if an input becomes non-functional, the replacement port is already there and simply gets activated in software. Default Assignments: A – Throttle B – Brake C – Clutch D – Hand Brake
USB	Connection for Micro USB to the PC. For best performance this should be connected directly to the PC and not to a USB hub or extension cable.
Tactile Out	This is for connection of the optional tactile vibration module for the brake pedal.
Sounder	Emits confirmation and alert sounds
Launch Button	Arms Launch Sequence when enabled in software
Service Button	Restarts the PCU. Also used during firmware update procedure.

Installation

1. Open a web browser and visit https://www.ricmotech.com/gtpro.
2. Click the "Download GTpro SmartPanel" button.
3. Open the ZIP file.
4. Extract the "GTpro SmartPanel.exe" file to your desktop or other desired location.

Opening the SmartPanel

1. Be sure the pedal PCU is plugged in to your PC.
2. Double-Click the GTpro SmartPanel icon.
3. You may receive a warning about an unrecognized app
   a. Click "More info"
   b. Click "Run anyway"
4. The SmartPanel should open and connect with the PCU.
   > If the SmartPanel only shows the splash screen and the lower left corner has a fixed status message then go to the troubleshooting section at the end.
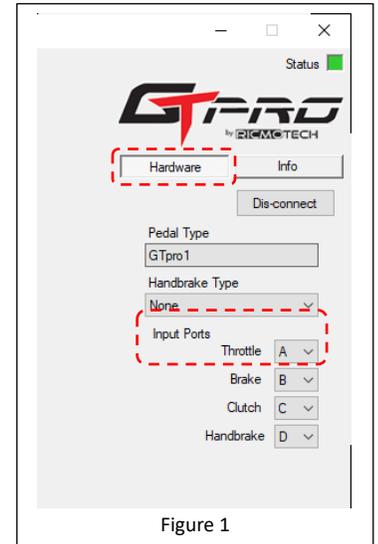

Figure 1

Adding Hand Brake (optional)

Select the Handbrake Type from the dropdown list under the "Hardware" section on the right side of the application. (Fig. 1)

Calibrating the Pedals/Handbrake

Calibration sets the Absolute Min and Absolute Max values. These values represent the physical limits of the pedals/handbrake. The Absolute Min should be set to the lowest number that results in the Final value remaining at 0 despite sensor fluctuations. Conversely, the Absolute Max should be set to the highest number that results in the Final value remaining at 1023 despite sensor fluctuations. If a deadzone or a reduced maximum force is desired it should be set with the dedicated Deadzone and Force Reduction sliders.

This step was performed during testing of your pedals prior to shipping but shifting of the mechanical stops and atmospheric pressure changes could require that it be performed again.

1. While the pedals are at rest click the "Auto Min" button for each axis.
2. One at a time, press each pedal to its maximum, hold for three seconds, then click the corresponding "Auto Max" button for the axis.
3. For the hand brake, pull the handbrake to the maximum, hold for three seconds, then click the corresponding "Auto Max" button for the handbrake.
4. The Absolute Min and Absolute Max settings are calculated by the software but can be adjusted manually if desired.
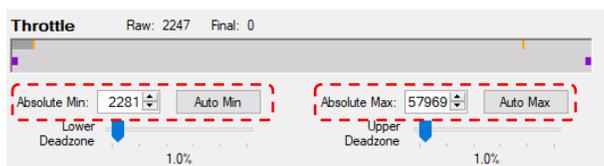
Setting Deadzone and Max Force Reduction for Each Axis

Deadzone for each axis should be set with the dedicated sliders. Do not incorporate deadzone into the Absolute Min and Max settings.

Throttle Raw: 30607 Final: 513 Absolute Min: 2281 Auto Min Absolute Max: 57969 Auto Max Lower Deadzone 2.5% Upper Deadzone 1.0%	Lower Deadzone is useful for ensuring the axis is at 0% even if the pedal/handbrake is not at the full at-rest position. Upper Deadzone is useful for ensuring the axis is at 100% even if the pedal is not at the full at-rest position.
Brake Raw: 1770 Final: 0 Fluid Pressure: 0 PSI 0.0 BAR Absolute Min: 1882 Auto Min Absolute Max: 62000 Auto Max Lower Deadzone 1.0% Max Force Reduction 80.0%	Max Force Reduction easily reduces the force required to achieve 100% braking/handbrake without the need to recalibrate in-game.

Reading the Signal Meter

Throttle Raw: 30607 Final: 513	This is the Raw sensor value before any processing is performed. This is a value between 0 and 65535.
Throttle Raw: 30607 Final: 513	This is the Final value output to the game after all the processing is performed. This is a value between 0 and 1023. The axis should be mapped in-game to respond to the full 0 to 1023 range.
Throttle Raw: 30607 Final: 513	The Grey bar is a visual representation of the raw value.
Throttle Raw: 30607 Final: 513	The orange markers indicate the positions of the Absolute Min and Absolute Max.
Brake Raw: 1824 Final: 0 Fluid Pressure: 0 PSI 0.0 BAR	The magenta marker indicates the Max Force Reduction point for the Brake and Handbrake axis.
Brake Raw: 1824 Final: 0 Fluid Pressure: 0 PSI 0.0 BAR	Pressure readings will display on fluid-based Brake and Handbrake devices.
Throttle Raw: 30607 Final: 513	The colored bar indicates the position of the pedal or handbrake within its range prior to any deadzone being applied.
Throttle Raw: 30607 Final: 513	Deadzone is indicated graphically by the violet bar at the far left and right of the signal meter.

Saving Baseline Settings

The baseline settings are saved to the PCU internal memory. These settings are the default settings on power up. Behavior of the pedals change in real time when changes are made to the controls in the software. However, these changes are only temporary. If the changes were made in error and you wish to return to the baseline then click the "Revert to Baseline" button. If you would like to make the changes permanent, then click the "Save as Baseline" button. A copy of the baseline settings written to a file and saved in Documents/Ricmotech GTpto/Config/Backups folder. A warning will pop up if you attempt to close the software without saving changes.

[Save As Baseline]   [Revert to Baseline]

Special Functions Section

The special functions section to the far right of the window will only show the Hardware and Info options in Basic Mode. To enable the additional options the software must be placed in advanced mode. The additional options are discussed later in this manual.

Hardware Options

Pedal Type: Pre-configured to display the pedal type it shipped with
Handbrake Type: User-selectable for optional hand brake

    Input Ports

    The ports on the controller can be re-assigned here. There is also a spare port on the PCU (E) which is for the purposes of warranty. If a port has failed due to static shock or a connector failure, then a tech may instruct you to utilize Port E and set the value accordingly.

Info Options

The Info Options brings up hardware and software version as well as a code set during manufacture of the PCU. There is also an activity log at the bottom corner displaying internal activity for troubleshooting purposes. Right-clicking this box will provide options for clearing and writing the log to a file.

    Frequency Test

    The Frequency Test can be performed to troubleshoot USB bandwidth issues. The PCU can send 1000 data updates per second to the PC. This is the maximum the Windows OS will accept. Clicking the Test button will start a 3 second test that measures the number of packets sent to the PC and then calculates the frequency. This should be above 990Hz.
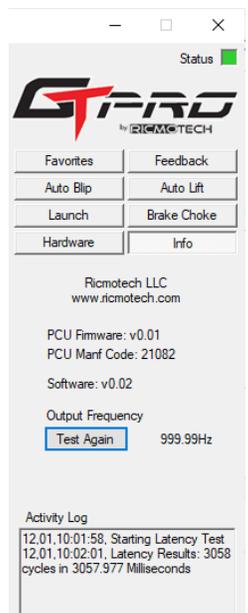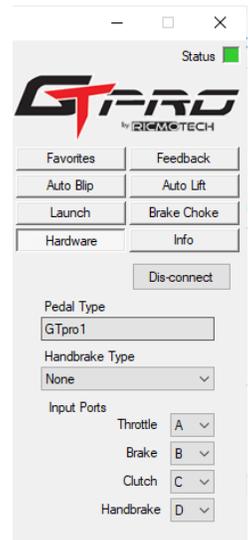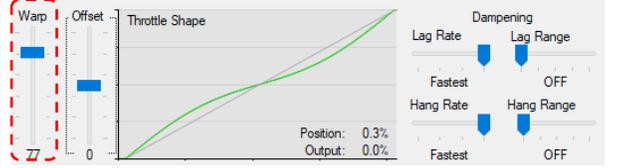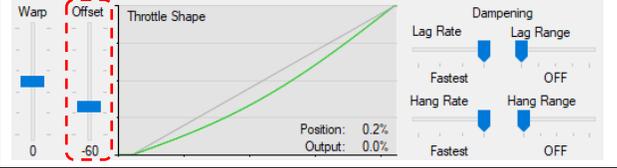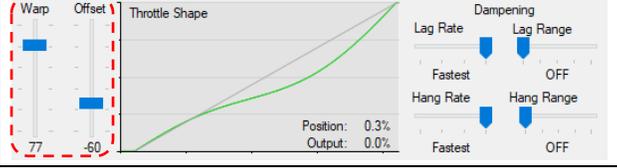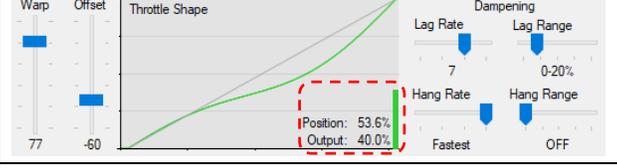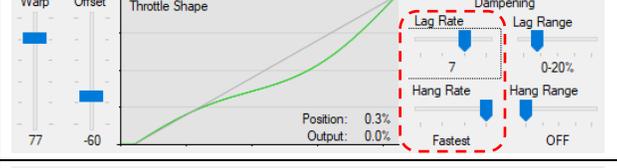
Changing to Advanced Mode

Up to this point, all the settings discussed are available in Basic Mode. Basic Mode allows the pedals to operate like all other sim pedals on the market and for many users this mode provides all the functionality needed. Advanced Mode is for users that are comfortable altering the performance of the pedals further. To place the software in Advanced Mode click on Settings in the top menu bar and select Advanced Mode. The software can always be reverted to Basic Mode and any advanced settings will be removed.

The following settings are only available in Advanced Mode

Axis Shape and Dampening

	The Shape Graph is a visual representation of how pedal position relates to axis output. It shows deadzone and modifications to its response based on setting of the Warp and Offset sliders. Right-clicking the graph lets the user select from preset settings.
	Warp can be used to distort the response of the axis. The center is the 0 position and moving it up will make the shape flatter in the center while moving it down will make the shape sharper in the center. The arrow keys can be used to move the slider by small increments when the control is selected. The number below the slider is for reference only.
	Offset will move the shape. The center is the 0 position and moving it up will make initial application sharper while moving it down will make initial application flatter. The arrow keys can be used to move the slider by small increments when the control is selected. The number below the slider is for reference only.
	Using both Warp and Offset in combination will generate various shapes while ensuring the response is always smooth.
	The Position text indicates the percent the pedal is applied withing its range of physical travel. The Output is the percent value sent to the game because of the Warp and Offset settings. The vertical bar is a representation of the Output value. In this example, when the pedal is pressed a little over halfway the signal sent to the game is only 40% making mid-corner throttle easier to control.
	Lag Rate affects how quickly the axis increases while Hang Rate affects how quickly the axis decreases. To the left is slower and to the right is faster. This is useful to prevent applying or releasing an axis too quickly and upsetting the car's balance.
	The Range determines how much of the axis is affected by the Lag and Hang Rate. To the left turns off this effect. The range always starts at 0% and can affect the axis for part of the range all the way up to 100% of the range.

Saving Settings for Future Use

Settings can be saved to files to be shared with other users or to be reloaded quickly. This lets the user tailor the performance of the pedals for certain cars and certain tracks. The pedals will work using the baseline setting as the default for typical use and then temporarily alter the settings when the file is opened.

It is important to note that the SmartPanel must remain open in the background for the altered settings to remain active since closing the SmartPanel will revert the PCU to the baseline settings. However, if the SmartPanel closes unexpectedly, the PCU will continue to run the modified settings.

To save the settings to a file:

1. Make the desired changes on the SmartPanel
2. From the menu bar select File > Save to File As
3. Name the file and save to the default folder for maximum compatibility
4. The name of the current file will display at the bottom of the window.
5. Further changes can be saved the same file by selecting File > Save to File

To open and use settings from a file:

1. Save any existing settings if desired.
2. From the menu bar select File > Open File
3. Wait for about 5 seconds for all the settings to be updated to the PCU

Assigning a file to a Favorites Button

Favorites Buttons can be accessed from the Advanced Options section at the right side of the window. This lets the user assign each button to a settings file from the PC and then quickly change all the settings similar to preset radio station buttons in their car.

Click the Favorites button to display all the selector buttons. Each button can be renamed and a file from the PC can be assigned to each button. Right-clicking each button allows the user to customize the buttons.
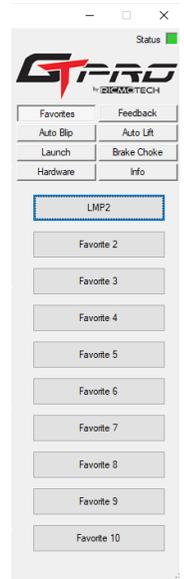
- Rename Button – Lets the user set a personalized name for the button
- Save and Set Current – Saves the current settings to a new file and assign it to the button
- Select File – Assigns an existing file from the PC to the button
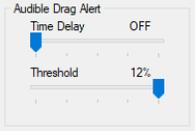
After a file has been assigned to the button the user only has to click the button to change all the settings in the SmartPanel. The process only takes a few seconds.

Feedback Options

The PCU has an onboard sounder that can give audible feedback under certain conditions. There is also a tactile feedback device that can be optionally added to some brake pedals. The tactile feedback can be configured independently from the audible feedback. Both feedback devices are strictly driven from brake pedal force and not from any in-game telemetry.

The Brake Alert can be used as a training tool to perfect braking technique at difficult corners. Setting the Trigger and End Points can help a driver apply the proper amount of braking into a corner and achieve proper muscle memory training.

Audible Brake Alert Trigger Point — OFF	The Trigger Point slider sets the brake percentage that makes the feedback start.
End Point — Max	The End Point slider sets the brake percentage the makes the feedback stop.
	If the End Point is set higher than the Trigger Point then the sounder will stop when the brake percentage exceeds the that setting.
Tactile Brake Alert Trigger Point — OFF	
End Point — Max	If the End Point is set lower than the Trigger Point then the sounder will start to sound when brake level exceeds the Trigger Point and continue until the brake level drops below the End Point.
Intensity	Intensity controls the vibration frequency of the tactile feedback device.

Audible Drag Alert Time Delay OFF Threshold 12%	The Drag Alert is used to provide an audible warning that the brake or clutch pedal is being applied while the throttle pedal is depressed. The Threshold sets the upper limit of what should be considered drag. The time delay determines how much time needs to pass with the pedal pressed to be considered drag and initiate the warning.

Auto Blip Option

Auto Blip will bump the throttle output when the clutch pedal is engaged, so it is most beneficial on cars that require the use of the clutch pedal for shifting. This functionality does not use data from the game to blip the throttle as it only activates when the clutch pedal is used. When activated, the throttle output will blip when the brake pedal is applied more than 10% and the clutch is then applied to more than 90%. The characteristics of the blip can be adjusted with the dropdowns and sliders.

Trigger Mode sets when the throttle will blip

| Disabled	Throttle output will not blip
On Clutch In Only	Throttle output blips when the clutch is pressed in
On Clutch In and Out	Throttle output blips when the clutch is pressed in and if the clutch remains in when the blip has ended it is blipped again when the clutch is released
On Clutch Out Only	Throttle output blips when the clutch is released

Brake Compensation reduces the amount of throttle blip based on brake intensity since slowing the car down faster requires less blip to match the revs.

Max Throttle is the highest level the throttle output will be blipped. Adding Brake Compensation will reduce throttle output of the blip.

Blip Duration is the amount of time the throttle output will be held at the maximum before being allowed to be released.

Rise Time is the amount of time taken to get to Max Throttle.

**Hang Time** is the amount of time the throttle output takes to get back to 0%
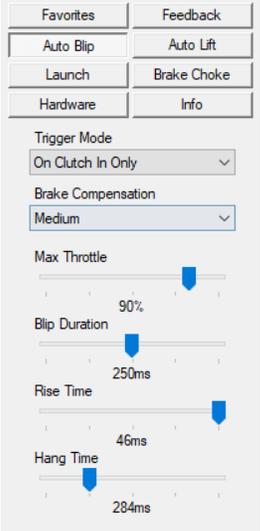
Auto Lift Option

Auto Lift is often referred to as "Flat Foot Shifting". This function will lower the throttle pedal output when the clutch pedal is engaged, so it is most beneficial on cars that require the use of the clutch pedal for shifting. This functionality does not use data from the game to lower the throttle output as it only activates when the clutch pedal is used. To use this, the driver must leave the throttle pedal fully pressed when pressing in the clutch pedal. When the clutch pedal is fully pressed the throttle output will drop to the designated percent. Then the clutch pedal is released, the throttle output will rise to 100% at the designated rate.

Throttle Minimum is the lowest level the throttle output will reach. Sliding this control to the right will prevent it from functioning.

Lift Rate is the speed at which the throttle output will drop.

**Application Rate** is the speed at which the throttle output rises.
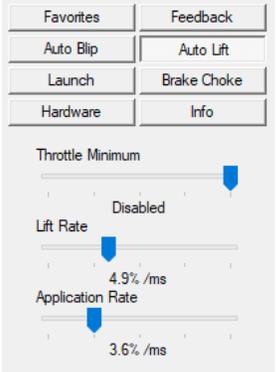
Launch Sequence

The launch section lets the user set parameters to launch the car smoothly from a standing start. The sequence will execute as set by the controls in this section and is not intended to be an automatic launch control. Instead, the driver "Arms" the launch sequence and holds the clutch and throttle pedal all the way down. When the race goes green, the driver fully releases the clutch and the sequence then takes over to smoothly release the clutch and apply the throttle outputs as set in this section.

The perfect launch will not let the engine bog down yet induce a small amount of wheel spin to put a little heat into them without getting squirrely.

The sequence to arm and execute the launch are as follows.

1. Arming the Launch Sequence
   a. Push the clutch pedal all the way down.
   b. Execute the launch trigger
      i. Button: Push the Launch button on the PCU
      ii. Pedal: Press and release the brake pedal to 50% 3 times
   c. The PCU will sound a confirmation if set to do so.
   d. Do not release the clutch pedal until the race goes green. Releasing the clutch will cancel the Launch Sequence.
2. Executing the Launch
   a. When the race is about to go green, press the throttle all the way down. The PCU will only output about 15% throttle to not over-rev the engine.
   b. When the race goes green, dump out the clutch
   c. The PCU will control the output of the clutch and throttle to apply throttle and release clutch as set in the settings in this section.
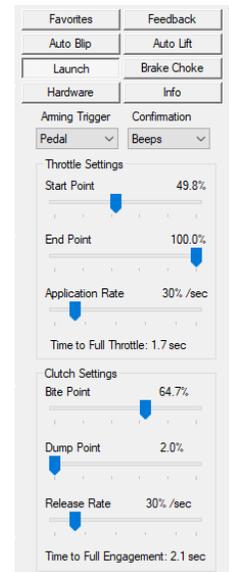
The Launch sequence will cancel if the clutch is released prior to executing the launch. Once the sequence is executing, the sequence will abort if the throttle is released or the brake is applied. This lets the driver easily abort the launch if the cars ahead stall for any reason.
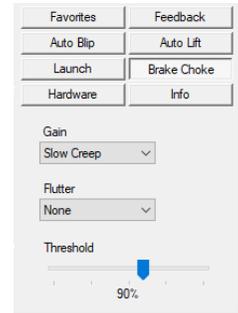
The Launch section has the following settings.

Arming Trigger	This sets how the Launch sequence is armed. Off will prevent it from working. Button will require the use of the Launch button on the PCU while holding the clutch down. Use this if the PCU is within reach of the driver's seat. Pedal will require pulsing the brake pedal 3 times while holding the clutch down.
Confirmation	Sets the audible tone that confirms the launch sequence was armed.
Start Point	Sets the start point of each pedal output when the sequence begins. When the sequence is started each pedal output will immediately go to this level without delay.
End Point	Sets the end point of each pedal output. The pedal output will increase or decrease at the rate specified by the rate control. When each pedal output reaches its respective end point it will jump to 0% or 100% appropriately.
Application/Release Rate	This determines the rate at which each pedal output will advance. It is expressed in percent per second.
Time to Full	This indicates the amount of time each pedal output will require to complete the sequence.

Brake Choke

Brake Choke can be used to prevent brake lockup on many sims. Some games will lock the car's wheels when braking is at or near 100% braking even when conditions should not allow this to happen in real life. These settings will prevent the brake from outputting its maximum when the pedal is pressed with maximum force. These settings will effectively prevent the brake from outputting maximum brake levels.

The Threshold slider sets the point at which choking of the brake output happens. The Gain and Flutter settings use the Threshold setting to determine when to activate.

Gain determines how the brake output advances when the threshold is reached.

Full Range	This allows the brake to operate to its full range without any choking effect.
Stall	Makes the brake output max out at the threshold. This setting is not recommended since it makes it difficult to calibrate the brake pedal in game. If this setting is used, it must be set to Full Range to calibrate the pedals in game and then set to Stall to use while driving. If this is not performed, the brake will not function properly in the game.
Creep	This setting makes the brake output pause at the Threshold point and then slowly advances until it reaches the actual pedal pressure. This setting provides a stall effect yet allows brake output to slowly increase to reach maximum brake output. There are three speeds that can be selected for the creep. When calibrating the brake in game with this setting on the driver should hold maximum pressure on the brake until it reaches an output value of 1023.

Flutter will make the brake output oscillate to mimic pressing and releasing the pedal with your foot. The oscillations are not like ABS, but rather is like what can be done manually by the driver. This setting is useful as a training aid until the driver can master this technique. This is not dependent on wheel speed, instead it triggers at the Threshold setting and will occur every time the brake pressure exceeds this threshold.

Flutter can be set to None, Slow, or Fast.

Troubleshooting

The SmartPanel software does not connect to the pedals.	Windows Defender may be blocking access. To fix this go to Start > Settings > Update & Security > Windows Security > Virus & threat protection. Under Virus & threat protection settings, select Manage settings, and then under Exclusions, select Add or remove exclusions. Select File then browse to the location where the file is located and select it.
The bars on screen do not move with the right pedal.	The pedals are plugged into the incorrect port. Go to the info section on the right-side panel and verify the pedals are plugged into the ports selected.
The raw (grey) indicator bar moves in the wrong direction.	The Min and Max values are reversed. Be sure the Min is set to the low point of the pedal and the Max is set to the high point of the pedal.