



by **RICMOTECH™**

## DRIFTpro Handbrake User Guide

For Pedal Add-on and Stand-Alone Models



Congratulations on your purchase of the most realistic load cell sim-racing handbrake available. This guide will help you get the handbrake installed and adjusted to your liking.

### **Step 1: Mounting Your Handbrake**

Ricmotech recommends hard mounting the handbrake directly to your sim-racing chassis. Mount the unit using ¼ inch or 6mm thick bolts or screws (not included). Use nuts and washers to be sure the screws will not pull out. Route the cables to avoid having them get pinched or chafed using the supplied cable straps. Place the ECU in a location that is both out of the way and within reach of the programming switch, such as next to your wheel or shifter.

### **Step 2: Making the Connections**

Plug the 4-pin connector for handbrake to the respective connector on the ECU. Stop here if using the GTpro pedal control box for the handbrake. Follow the programming instructions in the pedal manual.

**NOTE:** The rest of this manual applies only to handbrakes using the stand-alone control box.

If using the stand-alone ECU, plug the USB cable to an available USB port on your PC. Drivers will attempt to install automatically. Windows will install its internal drivers. The handbrake is powered from the USB port, no external power is required. You should see the LED pulse a red “heartbeat” signal. Restart the PC.

### **Step 3: Test Your Handbrake to be Sure Windows has Installed Drivers Correctly**

Windows XP, Vista, 7, and 10: click Start, type: **joy.cpl** and ENTER

On Windows 8: go to the Start screen, type: **joy.cpl** and ENTER

The Game Controllers panel will open and there should be a controller named RALLYpro H/B, double click on it. A window with several axis and buttons should appear. Pull the handle to verify the X axis responds. If it does then Windows has properly installed the drivers and the data is getting to the PC. There are other axis and buttons displayed in this window, those are not used at this time but are there for future use.

Only some games support an analog handbrake, while other games only support a digital handbrake similar to pressing a button on your controller. The DRIFTpro handbrake may be configured to either mode. In the case it is set to digital mode, the ECU will emulate a pushbutton controller and report as the button being released when the handbrake is less than 50% applied and report as pressed when more than 50% applied. The overall force required to achieve 100%

braking is set during calibration. The installation is now complete.

### **Step 4: Programming and Calibration**

The ECU for the RALLYpro handbrake retains all the settings and profiles in its internal memory. You can plug the ECU into any available USB port and even into a different PC and all the settings will be retained.

During final assembly of your handbrake, a test configuration was programmed into the ECU and will still be there as a starting point when it arrives to you. Before making changes to the programming of the ECU, please familiarize yourself with the programmable features listed below.

Profiles: You may create five profiles which can be saved and later retrieved for use with different drivers or simulation titles. To create a profile simply change the settings to your preferences and then save the profile to one of the memory locations. To retrieve a profile, simply load the profile from the memory location you desire and those settings will replace the settings currently in the pedal controller. These settings will remain even after shutting down your pedals or connecting to another PC.

Max (Sensitivity) Calibration: The handbrake can be calibrated to a maximum force. This allows the handbrake to output its full signal range even if you prefer to use less than its full range.

Dead Zone Calibration: The handbrake can be calibrated to have a dead zone. With this setting, the handbrake will remain ‘dead’ until it has been pulled a predetermined amount. This will avoid applying brakes if you simply bump into the handle.

Handbrake Analog/Digital: Sets the output for the handbrake. Set to analog for games that support it, otherwise set to digital. When set to digital, the handbrake will trigger when it is pulled over 50% of its calibration.

Invert Axis: Most games and racing simulations will function regardless of this setting. If you find that your software applied the handbrake when you *let go* of the handle, then set this option to ‘inverted’ to correct this.

Linearity: Linearity settings allow you to modify the behavior of a handbrake axis. See Linearity profiles at the end of this manual

Programming is done with the 2-way toggle switch and the red/green LED. The toggle switch can be moved to 2 positions, ‘Yes’ and ‘No’ and each position is marked Y and N

respectively. The LED will flash red and green to confirm the selection of options.

**THESE PROGRAMMING INSTRUCTIONS ARE FOR STAND-ALONE HANDBRAKE ONLY. ADD-ON HANDBRAKES FOLLOW THE PROGRAMMING SHOULD FOLLOW THE INSTRUCTIONS SHIPPED WITH YOUR PEDALS.**

**The mechanics of programming**

Programming settings on the controller involves 4 steps:

1. Enter program mode.
2. Select the programming option.
3. Follow the steps for that particular setting.
4. The controller returns to normal operating mode.

If another setting option is to be changed, the 4 steps above should be repeated. This was designed this way to avoid being lost in a several layers of menus.

**Step 1.** Enter programming mode by clicking and holding the switch to N until one long green pulse of the LED confirms you have entered programming mode.

**Step 2.** Click the switch to Y the number of times corresponding to the option you wish to select, the green LED will flash each time the switch is clicked. For example, to select option 1 click the switch once, to select option 2 click the switch twice, to select option 3 click three times, etc.

**NOTE:** Failing to click or clicking more than 14 times results in a long red flash and the controller returns to normal operating mode.

**Step 3.** After 3 seconds, the LED will flash green confirming the selection you made. Skip to the respective section on this sheet and follow those instructions.

**Option 1 – Load Profile**

1. Click Y according to the profile you wish to load.
 

Click 1 Time	Load Profile 1
Click 2 Times	Load Profile 2
Click 3 Times	Load Profile 3
Click 4 Times	Load Profile 4
Click 5 Times	Load Profile 5
2. After 3 seconds, the LED will flash indicating the selection you made.
3. The controller will exit program mode with your new settings and return to normal operating mode.

Note: Failing to click or clicking more than 3 times results in a long red flash and the controller returns to normal operating mode. Selecting a profile which has not been previously programmed may set up the pedals with non-functional settings.

**Option 2 – Save Profile**

1. Click Y according to the profile you wish to load.
 

Click 1 Time	Save Profile 1
Click 2 Times	Save Profile 2
Click 3 Times	Save Profile 3
Click 4 Times	Save Profile 4
Click 5 Times	Save Profile 5
2. After 3 seconds, the LED will flash indicating the selection you made.
3. The controller will exit program mode with your new settings and return to normal operating mode.

Note: Failing to click or clicking more than 3 times results in a long red flash

and the controller returns to normal operating mode.

**Option 3 – Handbrake Mode**

1. Click Y according to the setting you desire.
 

Click 1 Time	Set Handbrake to Analog
Click 2 Times	Set Handbrake to Digital
2. After 3 seconds, the LED will flash indicating the selection you made.
3. The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

Note: Failing to click or clicking more than 3 times results in a long red flash and the controller returns to normal operating mode.

**Option 4 – Calibrate Handbrake** (must be done for analog and digital handbrake mode)

The LED will pulse red 1 time indicating you are at Max Limit setting. You may click N if you want to skip this part.

1. Pull the handbrake to the maximum travel you desire. It does not have to be all the way up.
2. Release the handle.
3. Click Y to accept and the LED will pulse green 1 time to confirm, or click N to skip/cancel.

The LED will pulse red 2 times indicating you are at Dead Zone setting. You may click N if want to skip this part.

1. Pull the handle for the desired dead zone endpoint. Do not pull the handle if you would rather have no dead zone.
2. Release the handle.
3. Click Y to accept and the LED will pulse green 2 times to confirm, or click N to skip/cancel.

The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

**Option 5 – Invert Axis**

1. Click Y according to the setting you desire.
 

Click 1 Time	Normal Axis (axis is 0 at rest)
Click 2 Times	Inverted Axis (axis is 1023 at rest)
2. After 3 seconds, the LED will flash indicating the selection you made.
3. The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

Note: Failing to click or clicking more than 2 times results in a long red flash and the controller returns to normal operating mode.

**Option 6 – Handbrake Linearity**

1. Click Y according to the setting you desire (see table below).
 

Click 1 Time	Flat
Click 2 Times	A Weighted
Click 3 Times	B Weighted (recommended)
Click 4 Times	AB Weighted
2. After 3 seconds, the LED will flash indicating the selection you made.
3. The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

Note: Failing to click or clicking more than 4 times results in a long red flash and the controller returns to normal operating mode.

**Option 7– Heartbeat Mode**

4. Click Y according to the setting you desire.
 

Click 1 Time	Enable
Click 2 Times	Disabled
5. After 3 seconds, the LED will flash indicating the selection you made.
6. The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

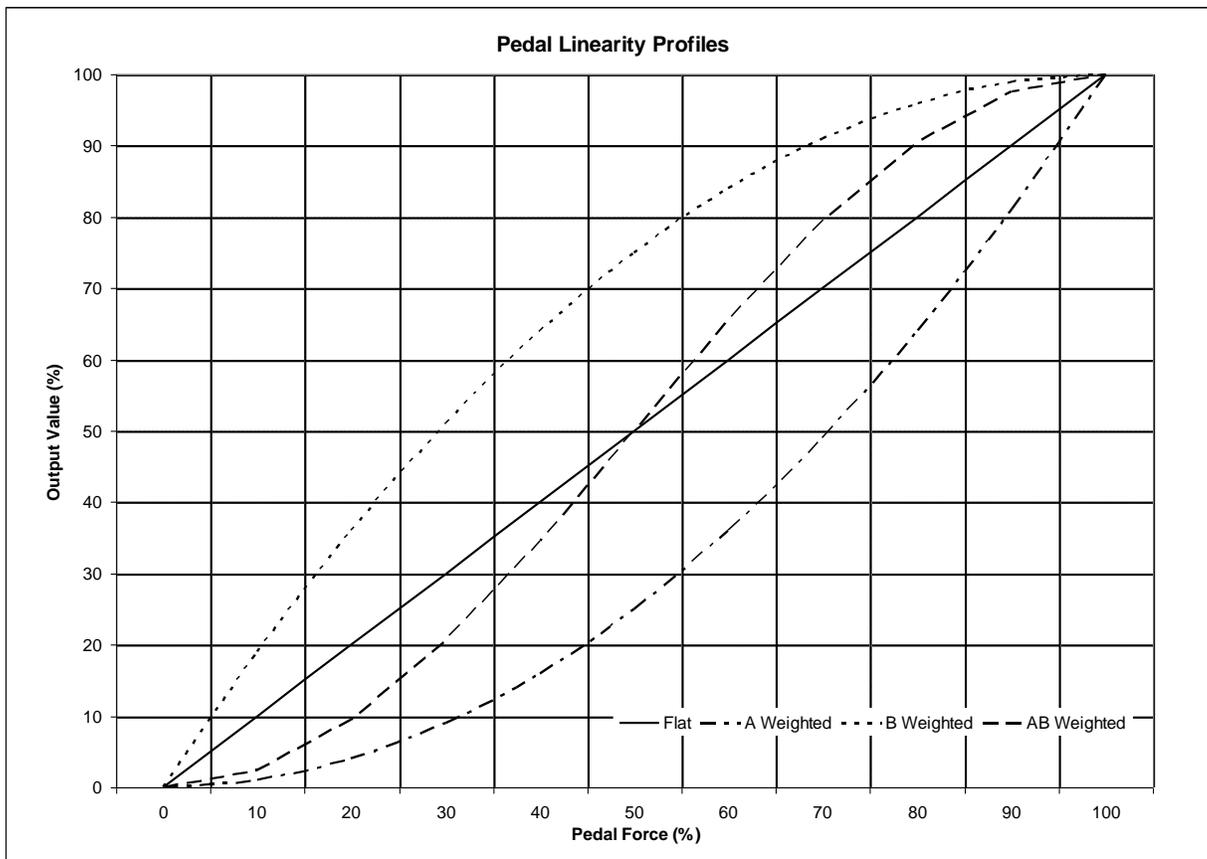
Note: Failing to click or clicking more than 2 times results in a long red flash and the controller returns to normal operating mode.

## The Concept of Linearity Curves

Linearity curves allow the handbrake axis to be tailored to allow better modulation at various ranges throughout its travel or force application. For instance, on a certain track, you may prefer to have better modulation at the low-end of the braking range to help with slippery turns or perhaps you prefer to have better modulation at the high-end of the range to better control over-steer. At first, these linearity profiles may appear to act like “cheats” in order to compensate for car or track conditions. In reality, these linearity profiles replicate various adjustments which can be done in a real race car and tailored to the driver’s preferences. Brake linearity can easily be modified in a real race car by changing brake pad compounds and rotor machining and the brake pedal on your Real-Gear handbrake can be adjusted to replicate a similar level of customization.

The curves below are a representation of the four available linearity profiles available. Effectively, the closer to horizontal the curve is, the greater the level of modulation while the more vertical the curve is, the lesser the level of modulation. Of course, there is always a trade-off; when modulation is increased at one area of range, it must be reduced in another area. The flat curve, as it implies, has equal modulation throughout its range. The A-weighted curve has increased modulation near the end of its range, while sacrificing modulation toward the beginning of its range.

It is best to try all the curves with different cars and tracks until you find the one that helps you achieve faster lap times. It is not uncommon to find that different linearity profiles work best on different car and track combinations. Adjusting the linearity curves is much like tailoring a car setup to a different track, there is no one correct curve.



## Need Help?

If you run into any problems during the installation of the DRIFTpro handbrake, please contact us directly at tech support at (305) 417-9241 or via email at [mail@ricmotech.com](mailto:mail@ricmotech.com).

Due to constant improvements to our products, the product you receive may vary slightly from the product shown in the illustrations.

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