

Hydrapro™ and Elecbrakes™ Installation Manual

Oct 24

About this guide

The purpose of this guide is to aid in the installation and configuration of an electric over hydraulic (EOH) braking system utilizing Deutsche Hydro Pro Alpha G1600 and Elecbrakes EB2 brake controller.

DEUTSCHE HYDRAPRO ALPHA G1600 & ELECBRAKES INSTALLATION GUIDE

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Deutsche Hydropro G1600 Alpha



The Deutsche Hydropro EOH brake actuator's quality and simplicity give you the necessary reliability required for a trailer braking system. In addition, it has a superior response time that delivers shorter stopping distances, which provides the driver with confidence whilst towing.

The Hydropro excels when included in the Treadway modular plug and play electric over hydraulic braking system.

Hydrapro features

Some of the key features of the Deutsche Hydropro unit are:

- Compact design measuring 257mm long, 152mm high, 90mm wide base / 44mm top.
- High-powered DC Motor and quality pump with minimal moving parts for reliability.
- Large independently sealed fluid tank providing extra fluid reserves.
- Weatherproof, anodised alloy case to protect components from external elements and corrosion.
- Robust electronics board that has a protective coating for corrosion resistance.
- Two-year warranty, giving you peace of mind.
- Compatible with vehicles that have factory fitted trailer brake controllers.
- Compatible with third party inertia brake controllers like ElecBrakes.
- IP67 rated.

Attention!

This is a safety warning. It is used to alert you to potential injury hazards and important features and configurations. Pay close attention to all messages that follow the **Attention!**

Please note this summary of important information before installation of a Deutsche Hydrapro brake actuator:

Correct installation

A qualified individual must install the Deutsche Hydrapro brake actuator. Please note that failure to install and maintain this unit correctly will cause it to malfunction, which could result in severe or fatal injuries and property damage.

Brake actuator models

It is the installer's responsibility to determine output pressure of the Deutsche Hydrapro brake actuator is correct and that the model selected is suitable for the trailer it is being installed on. If the trailer braking system is over pressurised, it can be damaged or malfunction.

Parking brake

Deutsche Hydrapro brake actuator does not provide a parking brake function. This brake actuator is designed as a secondary source of braking only, which supports the primary brake system of the tow vehicle. The Deutsche Hydrapro brake actuator is not intended as a primary braking system for the towing vehicle.

In-cab brake controller

The Deutsche Hydrapro actuator is compatible with vehicle factory fitted brake controllers as well as proportional, inertia type controllers. We recommend the use of Elecbrakes, giving the user the option of a handheld controller, mobile device app control, and Android Auto and Apply Carplay control.

Emergency breakaway system

We recommend the Treadway Emergency Breakaway System (Part No. 98148), for use with the Deutsche Hydrapro braking actuator. The breakaway system must be functional, and the battery backup must be fully charged before the trailer can be towed.

Weatherproof

The Deutsche Hydrapro system is weatherproof. However, it should not be power washed or submerged in water. If the actuator is submerged or subjected to direct water spray when washing the trailer, it can cause the actuator to malfunction.

Installing Hydropro

The following materials are required to install the Deutsche Hydropro unit properly. If your trailer is not already equipped with brake lines, you will need enough 3/16" diameter automotive brake line to connect the trailer brakes to the unit.

- One litre of DOT 3 or DOT 4 brake fluid (from a new sealed container).
- If using, one emergency breakaway system - must include a 12-volt, five amp-hour (minimum) battery.
- Wire (see Electrical Installation Requirements for correct wire size).

The location of the Deutsche Hydropro actuator is at the discretion of the vehicle owner. When selecting the location, the following items should be considered:

- It is crucial to mount the Deutsche Hydropro unit in a position where it will not be immersed in water. Failure to do so will void the manufacturer's warranty in the event of water damage.
- Use the provided Treadway Plug and Play wiring harness (Part No. 98148)
- If an emergency breakaway system is being used it must be located on the trailer so that the trailer breakaway cable can be easily attached to the towing vehicle.

The tow vehicle's electrical system powers the Deutsche Hydropro actuator. For the unit to function correctly, it must have adequate electrical power (see Electrical installation requirements).

Attention!

The Deutsche Hydropro actuator contains electronics that need to be protected. Drilling holes in the housing welding on or near the unit may damage the actuator and render it unserviceable. This will void the manufacturer's warranty. Always remove the actuator unit from the trailer or caravan before welding, repairs, or modifications.

Connect the trailer brake lines to the actuator unit as follows:

- Connect the brake line to the (3/16" inverted flare) adjustable hydraulic fitting, which screws into the actuator outlet port.
- The brake line must be compatible with DOT 3 and DOT 4 brake fluid.
- Fill the Deutsche Hydropro unit with DOT 3 or DOT 4 brake fluid to the level with the bottom alloy filler neck.
- For best performance use Treadway stainless steel Banjo hose (part No. 123345).

Attention!

Always use new DOT 3 or DOT 4 brake fluid from a sealed container. Do not attempt to reuse old or dirty fluid. Do not overfill the unit; this can damage the surface finish. If spillage of the brake fluid occurs, wash off the spilled brake fluid immediately to prevent damage to surfaces. Avoid any physical contact with the brake fluid. **Please Note the breather cap must be removed when bleeding the brakes.** You can then securely fit the breather cap back on the unit when you have completed the bleeding process.

Electrical installation requirements

If using, mount the emergency breakaway switch and emergency breakaway battery backup on the trailer.

Attention!

The use of undersized electrical cable will increase electrical resistance and prevent this unit's correct operation. Always use the Treadway plug and play wiring harness (Part no. 98148).

Bleeding the brakes and adjustment

Please note before starting:

- It is more efficient to bleed the brakes with two people working together, one to control the brake pressure and the other to release the brake bleeder valve.
- If your trailer is fitted with drum brakes, the brake shoes must have the correct clearances specified by the manufacturer. Failure to properly adjust drum brakes on trailers will result in a slower braking response time.
- Ensure that the Deutsche Hydrapro unit does not run out of brake fluid. You should frequently check the level and top up the brake fluid throughout the bleeding procedure.
- The breather cap **MUST BE REMOVED** when bleeding the brakes and only replaced when the bleeding process is completed.
Follow Steps 1 to 8:

1. Install plastic tubing onto the bleeding nipple of the brake cylinder or calliper at each wheel hub.
2. Immerse the free end of the plastic tube into a clean container partially filled with brake fluid.
3. Open the bleeding nipple on the wheel cylinder or calliper furthest from the Deutsche Hydrapro unit. If the tow vehicle has more than one axle, always start bleeding the wheel furthest from the Deutsche Hydrapro unit first.

4. To activate the Deutsche Hydrapro unit, turn the ignition switch on and use the emergency braking switch on the in-cab controller or the breakaway switch fitting to the trailer to make it run. (Using the brake pedal in the tow vehicle will not work with most in-car controllers when stationary).
5. Watch the free end of the bleeder hose for air bubbles escaping into the clear container. As soon as the bubbles stop, lock the bleeding nipple.
6. Turn off the Deutsche Hydrapro unit and remove plastic tubing from the bleeding nipple. The bleeding of the brake calliper or cylinder is now complete.
7. Refill the Deutsche Hydrapro unit with brake fluid.
8. Repeat this process with all the brakes at each wheel, always starting on the next furthest one from the Deutsche Hydrapro unit.

Attention!

It is recommended that the brake bleeding procedure be performed twice for new trailers fitted with disc brakes.

Please note that air trapped in the trailer brake line system will cause delayed braking performance.

Testing and adjustment

To test the electronic controller:

- Adjust the gain setting on the In-cab controller to a mid-range setting.
- Drive the tow vehicle with the trailer at 15 to 20 kph.
- Apply the brakes. If braking is too hard, adjust the gain setting on the In-cab controller down to decrease the braking pressure, then retest. If braking is too soft, increase the gain setting on the In-cab controller; and then retest.

Repeat this process until the braking pressure is set to the correct level.

Attention!

The correct pressure setting will vary depending on the weight of the load, weather and road conditions. Therefore, retest the braking performance each time the trailer is used. Failure to properly adjust the Deutsche Hydrapro actuator may result in poor braking performance and could result in severe or fatal injuries or property damage.

Troubleshooting guide

If the brake unit will not run, or the brakes are slow to respond, determine if the brake unit is functioning correctly. Perform the following checks to confirm this.

- Ensure that all plugs are seated correctly within the wiring harness.
- Re-bleed the trailer brakes. If there is air in the trailer brake lines, it can cause braking delay.
- If the trailer is equipped with drum brakes, re-adjust the drum brakes to the trailer manufacturer's recommended tolerances.
- Undersized brake lines can cause delayed braking response. The trailer brake lines must be at least 3/16" in diameter.

Using a breakaway system to check a brake unit that is not operating correctly

With a fully charged breakaway battery and trailer plug disconnected, pull the breakaway switch on the trailer.

- a. If the unit runs and builds pressure, the breakaway system is functioning correctly.
- b. If the unit runs and builds pressure when the breakaway switch is pulled but will not function under normal operating conditions, the problem most likely is a faulty in-cab controller or defective wiring between the tow vehicle and Deutsche Hydrapro unit.
- c. If the unit runs but will not build pressure when the breakaway switch is pulled, the Deutsche Hydrapro unit may be faulty.

After completing the above steps, reset the breakaway switch and reconnect the trailer plug.

If the trailer brakes are too aggressive:

- Reduce the gain setting on the in-cab brake controller.
- Check brake adjustment.

Deutsche Hydrapro limited warranty

Deutsche Hydrapro warrants to the original purchaser that the Deutsche Hydrapro brake actuators (the unit) shall be free from defects in material and workmanship for two (2) years from the date of first sale or to the first retail purchaser of a trailer or other towed device to which the unit is fitted.

Any receipts, proof of purchase, or other documents obtained at the time of purchase from a dealer/distributor, should be retained. This warranty is not transferable.

The duration of any implied warranties, including the implied warranties of merchantability and fitness for a particular purpose, are limited to the duration of the express warranties herein.

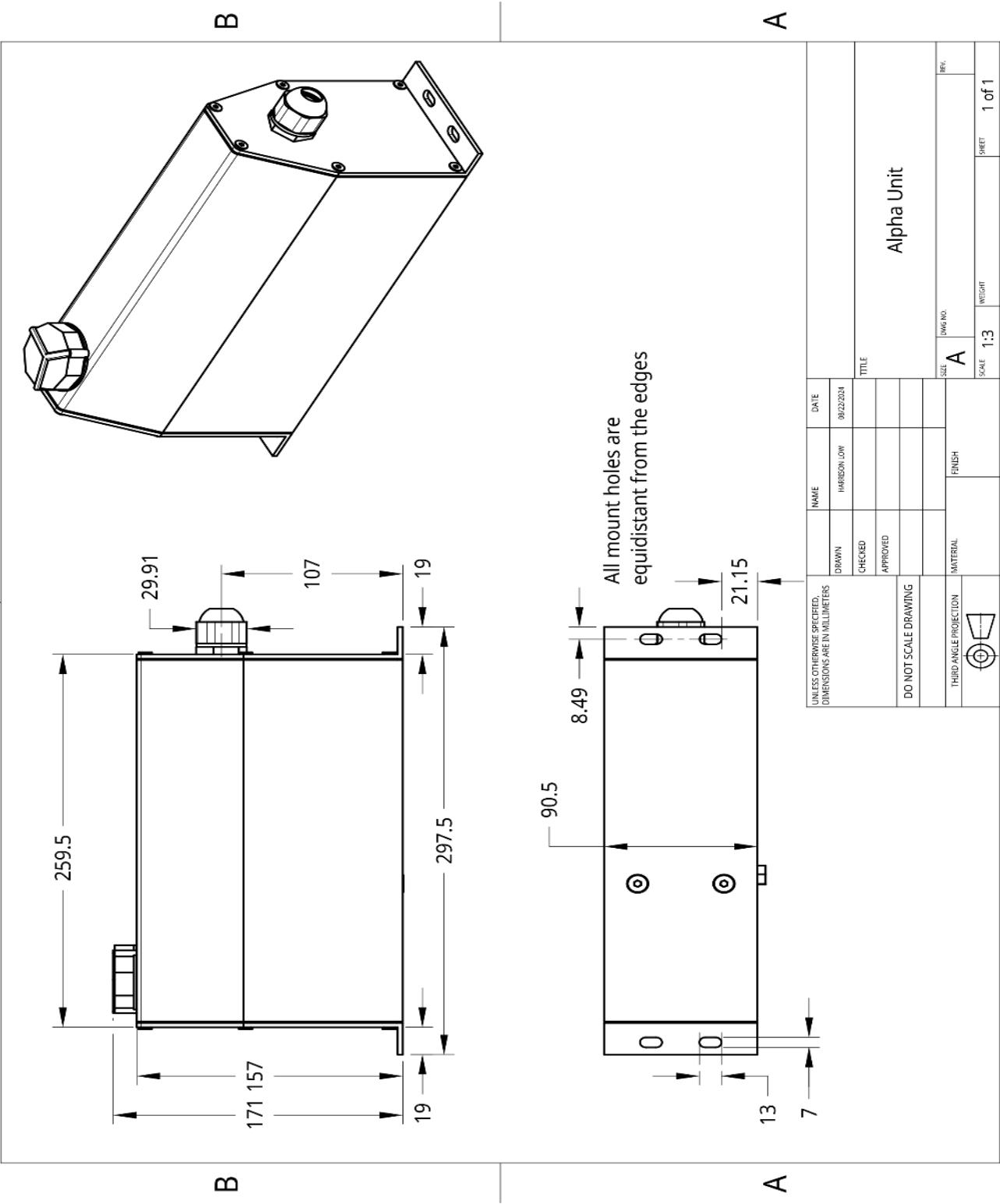
Deutsche Hydrapro hereby excludes incidental and consequential damages, including loss of time, inconvenience, loss of use, towing fees, telephone calls or cost of meals, for any breach of any express or implied warranties including the implied warranties of merchantability and fitness for a particular purpose.

This warranty shall not extend to any unit or any parts thereof that have been improperly installed contrary to the provided instructions, altered, tampered with, or the engineering and design of which have been changed in any way, nor will this warranty extend to any defects arising from abuse, misuse, accident, improper wiring, or negligence of an installer or the consumer. Please refer to the instruction manual included with the Deutsche Hydrapro unit.

If it is determined that the claim is valid, the unit will be repaired or replaced, or a credit issued. If a claim is deemed invalid and the unit is found to work correctly, the unit will be returned to the submitter, freight collect, unless otherwise instructed.

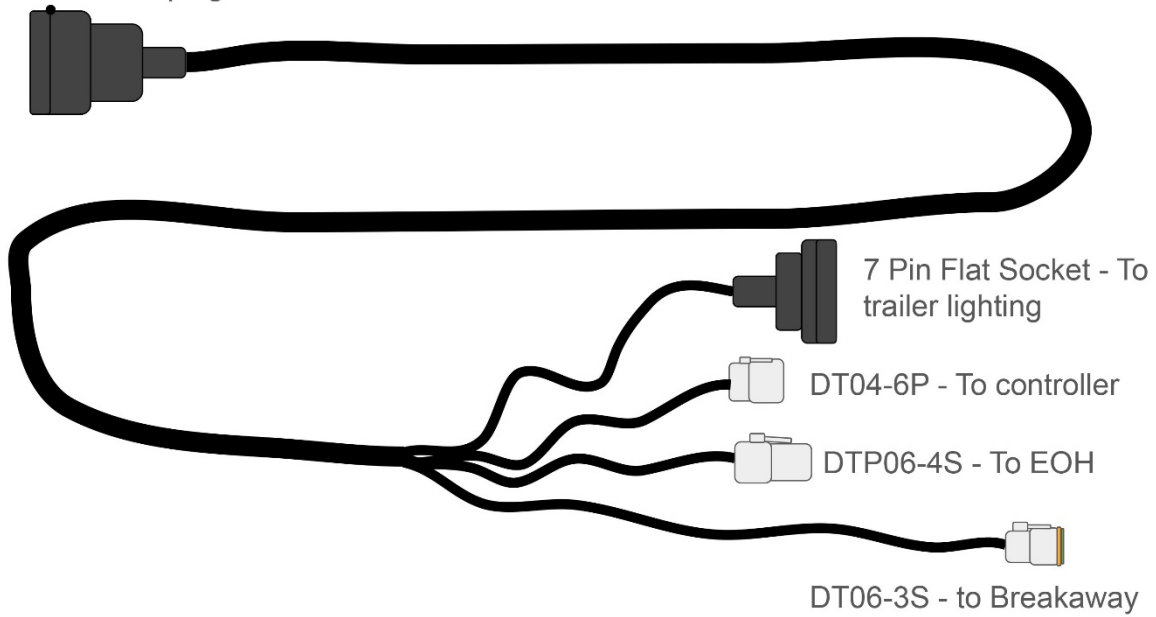
This warranty is not transferable from the original owner.

All enquiries regarding these warranties should be addressed to the original place of purchase. For further information, please email: support@treadway.co.nz

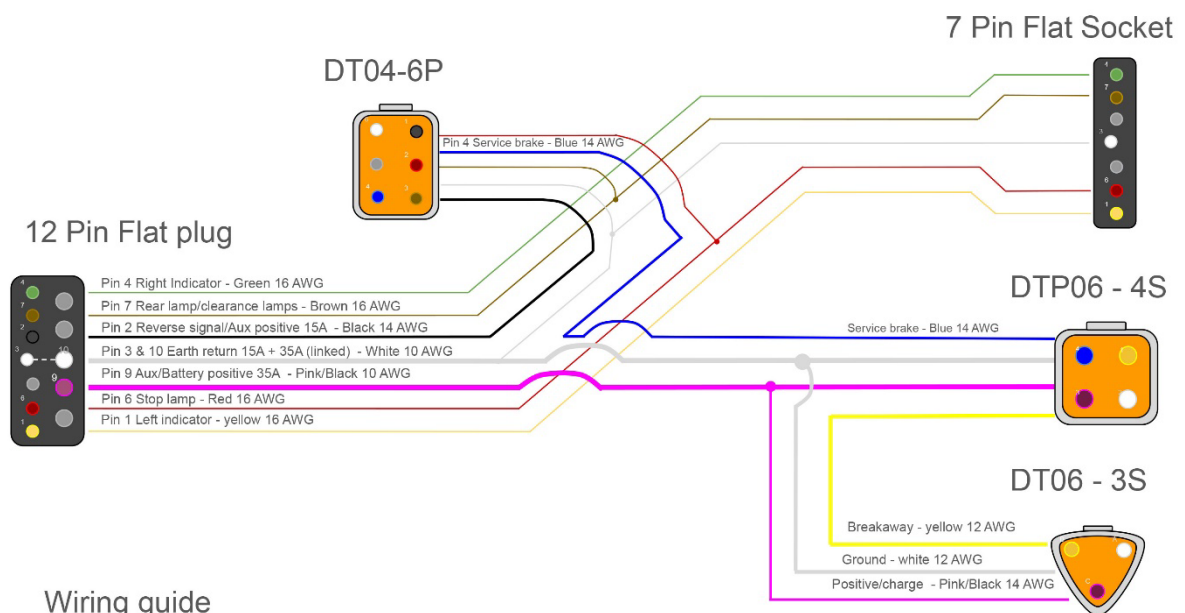


Treadway wiring harness connections

12 Pin Flat plug - To Tow Vehicle



Treadway wiring harness diagram



Elecbrakes



The Elecbrakes EB2 is a trailer-mounted brake controller that connects directly to your trailer's existing electrical circuits. It can be installed by someone with no electrical knowledge using the Treadway Plug & Play wiring harness. This allows for easy connection without any wiring expertise. The EB2 is powered through the vehicle's headlights or auxiliary circuit, ensuring smooth operation.

When the tow vehicle's brake pedal is applied, the EB2 activates the trailer's brakes proportionally, applying the appropriate amount of force based on how hard the vehicle is braking.

Elecbrakes can be used with a handheld in-cab controller, mobile device via an app or through your vehicle's dashboard using Android Auto or Apple CarPlay.

Installing Elecbrakes

What you will need

The following materials are required to install the Elecbrakes unit properly.

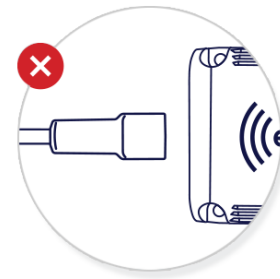
- Elecbrakes unit and x4 mounting screws.
- Drill, PH2 bit, 4mm drill bit. The use of a 4 – 4.5mm drill bit may be required if fastening to a high tensile drawbar.
- Treadway plug and play wiring harness.
- A smart phone device: IOS15 or later, or Android 10 or later. If you prefer not to use a mobile device to control your Elecbrakes you can use an optional remote, sold separately.

Mounting Orientation

When mounting your unit to the trailer, ensure one of the sides or faces of the unit is mounted parallel to the ground.

Attention!


- Avoid mounting the unit on an incline
- For best connectivity avoid installing behind large metal objects that block the line of sight to the tow vehicle, for example a toolbox
- When selecting a mounting point ensure your cable can reach the unit location prior to drilling mounting holes.




Connecting Elecbrakes

Please ensure that the Elecbrakes unit has been mounted to the trailer correctly.


1.

A black Elecbrakes unit is mounted to a silver metal bar. A screwdriver is shown tightening a screw on the side of the unit.

Fasten the unit to the draw bar using the mounting screws provided.
2.

A hand is shown plugging a black connector into the side of the Elecbrakes unit.




Connect your unit via the Treadway plug and play wiring harness.
3.

A hand is shown plugging a black wiring harness into a socket on a tow vehicle.

Plug in the Treadway wiring harness into the tow vehicles socket.

Tap and tow

Elecbreaks Tap + Tow technology leverages the power of NFC (near field communication) that is embedded in most modern smartphones allowing for seamless device pairing, access to unit diagnostics and providing advanced troubleshooting capabilities all in the palm of your hand.

1.  Start your vehicle and turn your headlights on.
2.  Tap your phone to the Elecbreaks logo on your brake controller and download the app from the App Store or Play Store.
3.  Tap again on the Elecbreaks logo to pair your unit.

Attention!

When using a mobile phone ensure that it is mounted securely in a cradle.

Elecbreaks remote

To connect the Elecbreaks remote, you must first download the Elecbreaks app. Under 'settings' tap "Allow EB Remote".

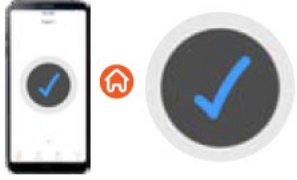


For more information on how to use the remote, refer to the Remote User Manual.

Tap and Tow not working

If NFC is not enabled on your smart phone, then the Tap and Tow pairing will not work. Try looking in your phones settings to turn on NFC or alternatively search for the device on the app manually.

Checking the connection

Elecbreaks requires a constant power source to operate. Turning your vehicles headlights on will activate the taillight circuit providing power to the EB2. Please note the auto (*italic*) setting in some vehicles will not activate the taillight circuit.


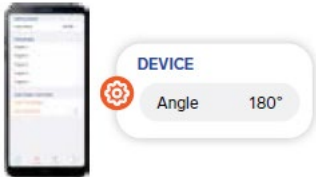
- 1. Navigate to the home page on the Elecbreaks App.
- 2. Put your foot on the brake pedal.
- 3. Check that the red circle is now displayed on the app indicating your unit is working correctly.

Attention!

Setting the forward direction

If this is the first time the Elecbreaks EB2 unit is being used, you will need to follow the steps below to calibrate the forward direction.

During this calibration the Elecbreaks EB2 unit will brake at default settings.

- 1. Drive forward until you reach 40km/h and apply the brakes firmly coming to a full stop.
- 2. Now go to 'Settings' and tap 'Device'. You should see a change from auto to an angle between 0° to 360°.

Attention!

If the angle does not appear in the app, repeat step 1 & 2 again prior to troubleshooting

Adjusting the brakes

After the installation angle is set, you can adjust the brake response settings. The unit will be set at a default response that will need to be tailored to your towing setup. Different programs can be configured to suit various scenarios.

Attention!

The Elecbrakes unit comes with default brake settings. It is recommend adjusting the brake response to the users specific requirements. To adjust the **minimum**, **forward** and **reverse** response, tap 'settings' on the app.

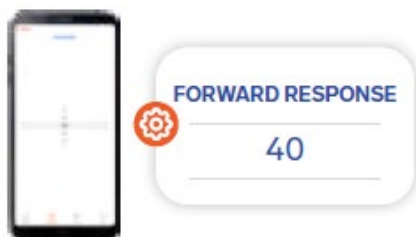
Setting the minimum response



Drive slowly, approximately 20km/h, and apply the brakes as lightly as you can. The optimal minimum setting is usually when you can just barely feel that the trailer is braking.

Experiment with small changes until you are happy with the feel.

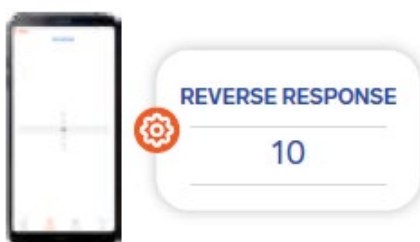
Setting the forward response



Drive at 40-50km/h and brake firmly. The optimal forward setting is when the tow vehicle and trailer brake as one.

Experiment with small changes until you are happy with the feel of the forward brake response.

Setting the reverse response

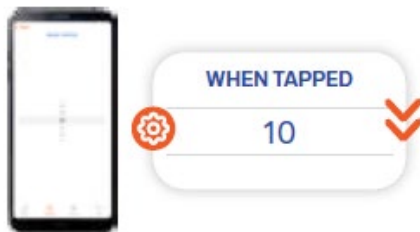


Reverse slowly and apply the brakes. The optimal reverse setting is when the tow vehicle and trailer brake as one.

Experiment with small changes until you are happy with the feel of the reverse brake response.

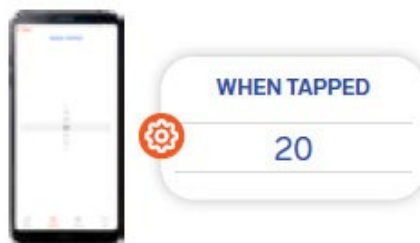
Using manual override

The manual override function allows the user to manually engage the brakes on the trailer, without activating the vehicles brakes. The application of manual override can be used to mitigate trailer sway.



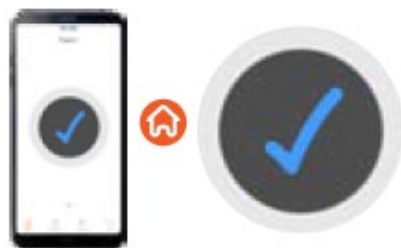
The '*When Tapped*' value controls the manual override brake response.

To set the value, select '*When Tapped*' under Override in program screen.



Start with the '*When Tapped*' value the same as your forward response. From there the override can be adjusted according to the user preferences.

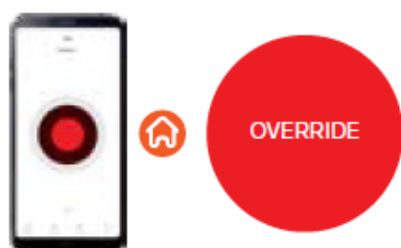
Activating manual override



Tap the blue tick on the home page to activate the override.



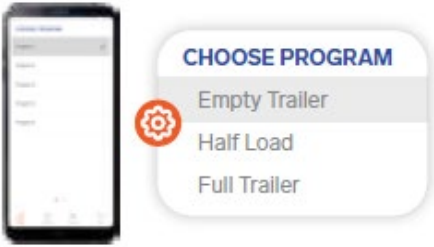
Hold the red circle to increase braking force if required.

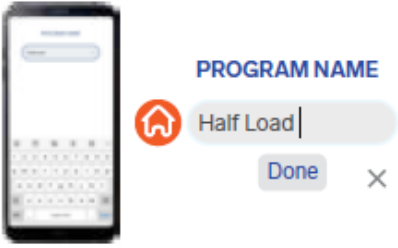


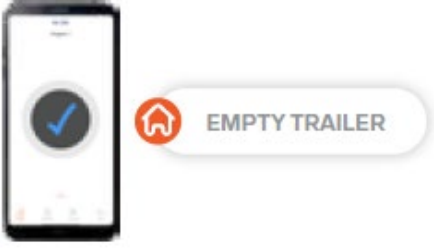
Tap the red circle again to deactivate override.

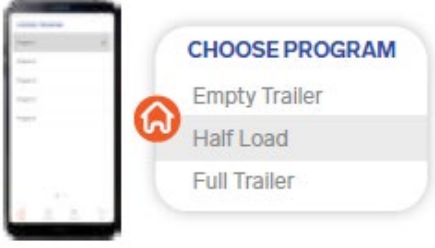
Managing programs

Elecbrakes supports up to 5 pre-defined user programs, giving the user a range of presets for use with different tow vehicles, towing loads, and environmental changes.

- 

1. You must be connected to the brake controller to set and activate programs. Navigate to the 'Settings' page and select a program.
- 

2. Rename the program and adjust your brake responses as discussed in section 'Adjusting Your Brakes' of the user guide.
- 

3. Tap 'Home'. The edited program is now your active program. The program selected appears at the top of the page.
- 

4. To change the program selected, swipe to the right and select your customised program.

Elecbrakes FAQs

What happens if the bluetooth connection drops out?

Elecbrakes searches at 2/100th of a second. The unit will reconnect; however, the loss of Bluetooth connectivity does not impact the ability of the trailer to brake.

Elecbrakes always brake the trailer and will continue to work at the last settings set. The only functionality that would be hampered in this case would be the program change and manual override button from the remote. If the connection was to drop out the driver could pull over and reconnect. But it is very rare that this would happen.

Do I need to drive with my lights turned on?

Yes. If your tow vehicle does not have auxiliary power wired in, you will need to always keep your headlights on to power the EB2 brake controller.

Brake controllers need a constant power source to ensure the trailer's braking systems function properly. With the Elecbrakes EB2 being trailer-mounted, the taillight circuit is commonly used, activated when the vehicle's headlights are on full beam.

If you prefer to drive without your headlights on, a constant power source must be provided from the tow vehicle. This should be 12/24V with a minimum of 10 amps. Typically, this power is supplied through Pin 2 on a 7-pin plug or Pin 9 on a 12-pin plug. This power feed should come directly from the tow vehicle's battery via a protected circuit. House batteries on trailers are not recommended.

If I drive past someone else with Elecbrakes can they control my brakes?

No. Elecbrakes is safe and locks the connection to only one device.

Can I control my brakes with the app and the handheld remote at the same time?

No. Elecbrakes is safe and locks the connection to only one device at a time. To use the handheld remote the app must be disconnected from Elecbrakes unit.



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