

PROPORTIONAL
With ACTIVE CALIBRATION

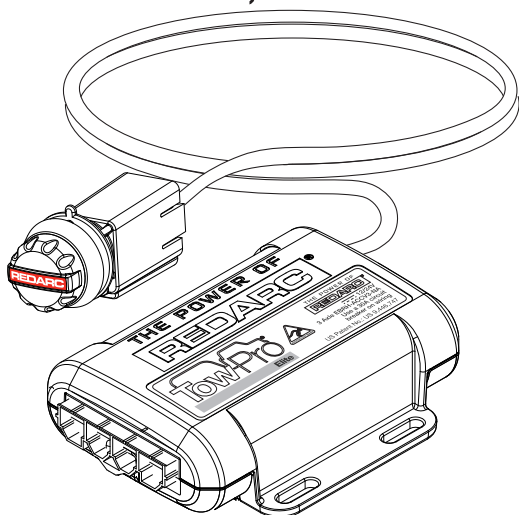
THE POWER OF

REDARC®

Tow-Pro®

Elite

Electric Trailer Brake Controller
12 or 24Volt, 1 to 3 Axles



TOW-PRO® ELITE (EBRH-ACCV3-NA) TRAILER BRAKE CONTROLLER

The Tow-Pro® Elite is an electric trailer brake controller designed to suit most common trailer braking applications whilst requiring minimal dash space and being simple to install and operate.

The Tow-Pro® Elite offers selectable Proportional or User Controlled trailer braking modes allowing the user to choose the braking style depending on the road or terrain conditions, vehicle type, or driver preference.

The Tow-Pro® Elite features Active Calibration which constantly monitors the direction of travel and will even calibrate with no trailer attached whilst maintaining the ability to mount in any orientation.

The unit is able to operate electric trailer brakes from either 12V or 24V vehicle systems without the need for manual selection or extra components/ wiring.

The unit is able to operate Electric / Hydraulic trailer brakes from 12V vehicle systems.

WARNINGS & SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS - THIS MANUAL CONTAINS IMPORTANT SAFETY INSTRUCTIONS FOR THE TOW-PRO® ELITE BRAKE CONTROLLER.

DO NOT OPERATE THE CONTROLLER UNLESS YOU HAVE READ AND UNDERSTOOD THIS MANUAL AND THE CONTROLLER IS INSTALLED AS PER THESE INSTALLATION INSTRUCTIONS.

⚠ WARNING

ENSURE THAT YOUR TRAILER BRAKES ARE INSTALLED AND ARE OPERATING CORRECTLY: IMPROPERLY INSTALLED AND/OR FAULTY TRAILER BRAKES CAN CAUSE ERRATIC VEHICLE OR TRAILER BEHAVIOUR WITH THE POTENTIAL TO CAUSE A ROAD ACCIDENT. FOR THIS REASON, IT IS OF UTMOST IMPORTANCE THAT YOUR TRAILER BRAKING SYSTEM BE INSTALLED/MAINTAINED BY A QUALIFIED INSTALLER.

ALWAYS CHECK BRAKES AT LOW SPEED EACH TIME A TRAILER IS ATTACHED TO YOUR VEHICLE.

⚠ CAUTION

1. Ensure that the Tow-Pro® Elite is mounted securely in a fixed location. Failure to mount securely will result in inaccurate braking force measurements and incorrect braking of the trailer.
2. Ensure that the Tow-Pro® Elite is installed inside the vehicle cabin and away from any environmental conditions that may cause damage, including engine heat, submersion in water, salt spray and humidity. Exposure to these conditions may cause damage to the unit's circuitry and may cause erratic trailer braking.
3. A Fuse or Circuit Breaker of appropriate rating must be installed to protect the vehicle system. Please refer to the installation instructions starting on Page 7 for specific instructions on where to install the Fuse or Circuit Breaker and for appropriate Fuse or Circuit Breaker rating. The Fuse or Circuit Breaker must be installed as close as possible to the battery.

WARNINGS & SAFETY INSTRUCTIONS

4. Ensure the remote head push-button activates correctly when installed into surfaces with a thickness greater than 9/64" (3.6mm). Failure to activate correctly would result in not being able to activate the override function or change modes.
5. Ensure that the wire(s) and all connections used to install the Tow-Pro® Elite are suitably rated to supply the required current to simultaneously operate the trailer electric brakes and stop lamps. Incorrect wiring can result in reduced (or total loss of) trailer braking and/or damage to property or persons.
6. The Tow-Pro® Elite is suitable for trailers with electric brakes up to three axles. Note that Federal and State laws apply to trailer weights and brake controller requirements. Please consult your local authority to ensure you comply with the legal requirements.
7. Do not drive with the Tow-Pro® Elite while a fault code is active. Fault codes of the Tow-Pro® Elite may indicate conditions that make it unsafe or illegal to drive, including unreliable trailer brakes or failure of brake lights.
8. During the calibration step of the Tow-Pro® Elite, braking of the trailer may be inconsistent. REDARC recommends calibrating the Tow-Pro® Elite without a trailer attached. A normal drive of a few miles will do for this purpose. If calibrating with a trailer attached, then the recommended dial setting for the Tow-Pro® Elite is 4 or less.

NOTICE

1. Ensure that a correct grounding point is used. Vehicles often have ungrounded metal reinforcements under the dash and these points are not suitable grounds. Bad grounding of the unit will result in poor or no operation.
2. The Tow-Pro® Elite does not act as a trailer lights voltage converter. If the trailer brake lights operate on a different voltage, damage to the vehicle; trailer and/or Tow-Pro® Elite and associated wiring may result. This may also result in reduced (or total loss of) trailer braking.
3. When installing the Tow-Pro® Elite Remote Control to a thin panel, washers are recommended to reinforce the structure of the panel.
4. Do NOT exceed Tow Vehicle and Trailer weights and specifications. Failure to abide by the towing regulations, including maximum loads, may result in a fine, or in case of an accident, refusal of the insurance claim, and the possibility of further legal action.

If the tow vehicle or trailer's maximum load is exceeded, police and transport authorities have the power to order the combination off the road until the issue is corrected. This may necessitate leaving the trailer on the side of the road while a vehicle with suitable towing capacity is sourced or the trailer load is reduced. Please contact your local authorities for further information.

5. If no trailer is connected, Active Calibration may occur as normal without any indication from the LED. The LED will already be Blue when the trailer is connected. Essentially, whether a trailer is connected or not, just drive normally and Active Calibration will ensure the Tow-Pro® Elite learns the correct direction of travel.

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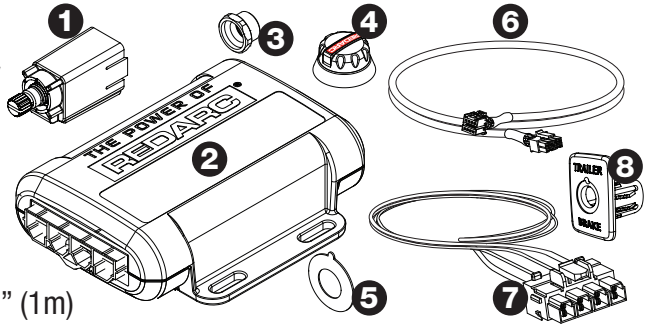
1 SPECIFICATIONS

Part Number	EBRH-ACCV3-NA	
Operating Voltage	9V - 32V	
Nominal Input System Voltage	12V	24V
Brake Input Signal Voltage	OFF: 0V ON: +12V nominal	OFF: 0V ON: +24V nominal
Brake Coil Voltage	12V	12V
Max. Trailer Axles	3 Axles	3 Axles
Nominal Current Draw	18A	18A
Max. Rated Current	25A	30A
Standby Current	<5mA	
Operating Temp	-4 °F to 140 °F (-20°C to +60°C)	
Weight	7.05 oz (200g)	
Warranty	2 years	

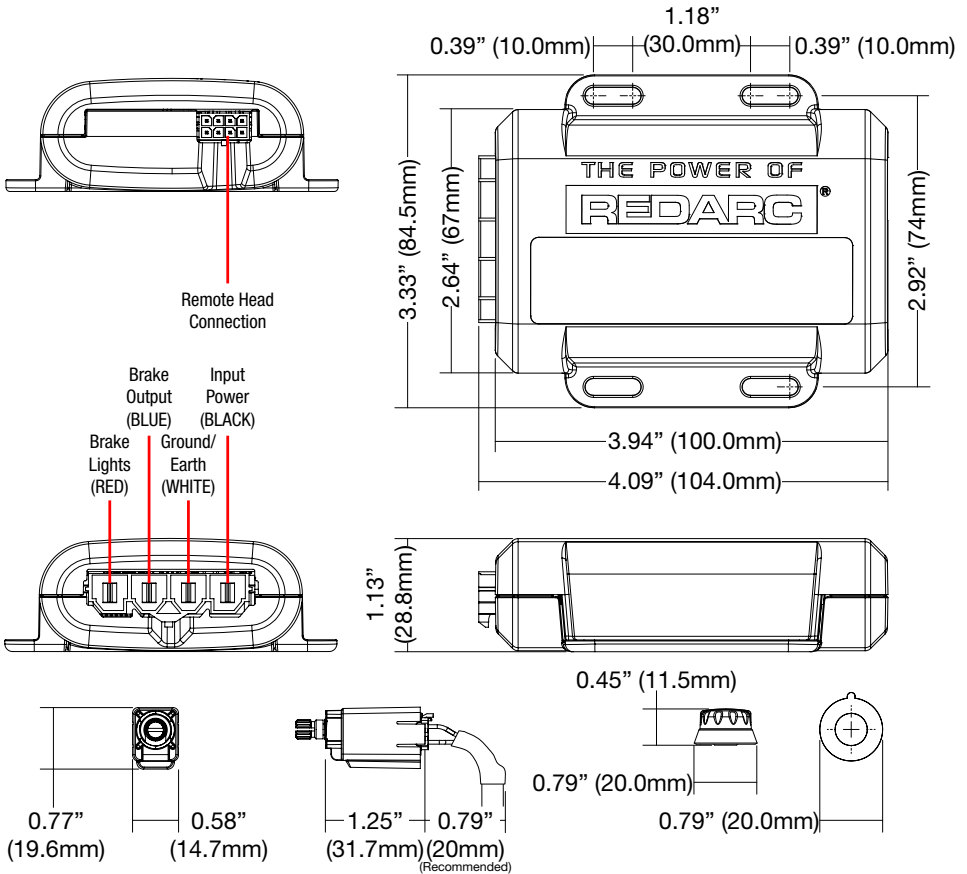
1 SPECIFICATIONS

Kit Contents

1. Remote Head Assembly
2. Main Unit
3. Remote Head Nut
4. Remote Head Knob
5. Remote Head Bezel
6. Remote Head Cable 3'3" (1m)
7. Main Unit Wires & Connector 1'7" (0.5m)
8. Tow-Pro universal switch insert panel



Dimensions & Connection



2.1 Mounting the main unit

The Tow-Pro® Elite should be mounted inside the vehicle cabin using either 5/32" (M4) diameter screws or other secure fitting methods at the mounting points provided. It is essential to mount the unit in a location which allows access to the intended remote head location.

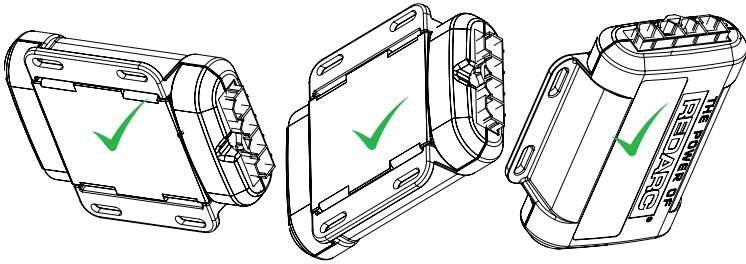
The Tow-Pro® Elite can be mounted in any orientation as long as the installation is secure and the main unit cannot move or change orientation once installed. A change of orientation will affect the system calibration.

⚠ CAUTION

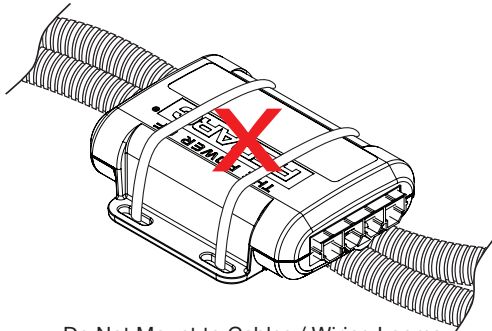
Ensure that the Tow-Pro® Elite is mounted securely in a fixed location. Failure to mount securely will result in inaccurate braking force measurements and incorrect braking of the trailer.

⚠ CAUTION

Ensure that the Tow-Pro® Elite is installed inside the vehicle cabin and away from any environmental conditions that may cause damage, including engine heat, submersion in water, salt spray and humidity. Exposure to these conditions may cause damage to the unit's circuitry and may cause erratic trailer braking.



Any Secure Orientation OK



Do Not Mount to Cables / Wiring Looms
(Must be mounted to a rigid or solid object or surface)

2.2 Wiring the brake controller

REDARC Electronics manufactures a number of vehicle-specific wiring harnesses for quick and easy installation (refer to REDARC's website for details). The universal wiring harness included with the EBRH-ACCV3-NA kit is the TPH-025 'Universal Harness' which is typically used for older vehicles not covered by our range of wiring harnesses. Please follow the subsequent instructions for all custom installations.

⚠ CAUTION

A Fuse or Circuit Breaker of appropriate rating must be installed to protect the vehicle system. Please refer to the installation instructions starting on Page 7 for specific instructions on where to install the Fuse or Circuit Breaker and for appropriate Fuse or Circuit Breaker rating. The Fuse or Circuit Breaker must be installed as close as possible to the battery.

⚠ CAUTION

Ensure that the wire(s) and all connections used to install the Tow-Pro® Elite are suitably rated to supply the required current to simultaneously operate the trailer electric brakes and stop lamps. Incorrect wiring can result in reduced (or total loss of) trailer braking and/or damage to property or persons.

NOTICE

The Tow-Pro® Elite does not act as a trailer lights voltage converter. If the trailer brake lights operate on a different voltage, damage to the vehicle; trailer and/or Tow-Pro® Elite and associated wiring may result. This may also result in reduced (or total loss of) trailer braking.

2.2.1 Red Wire (Vehicle Brake light) Connection

The requirements for a suitable connection of a brake controller trigger wire are quite specific. This connection point must:

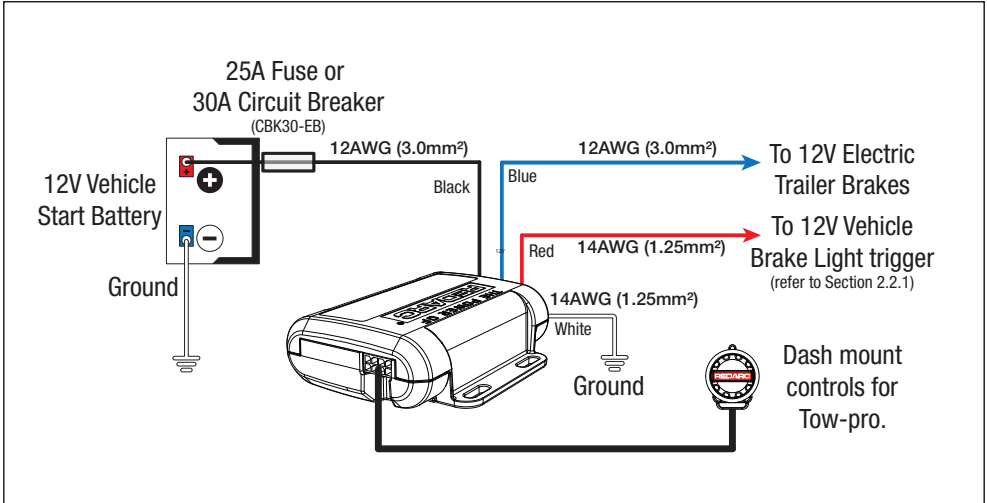
- Provide a voltage of the same voltage level as the “Start Battery*” while the vehicle brakes are applied.
- Have 0 volts output while the vehicle brakes are not applied
- Accept battery voltage input when the brake controller manual over-ride is operated and illuminate at least the trailer brake lights.
- Accept the battery voltage input as above without causing any damage, spurious vehicle operation or erroneous fault indication.

A relay should not be installed to drive the red wire as this would prevent the override feature from working and may introduce dangerous voltage spikes.

* Start Battery voltage output means, directly from the Start Battery and within 0.4V of Supply (Black wire) voltage.

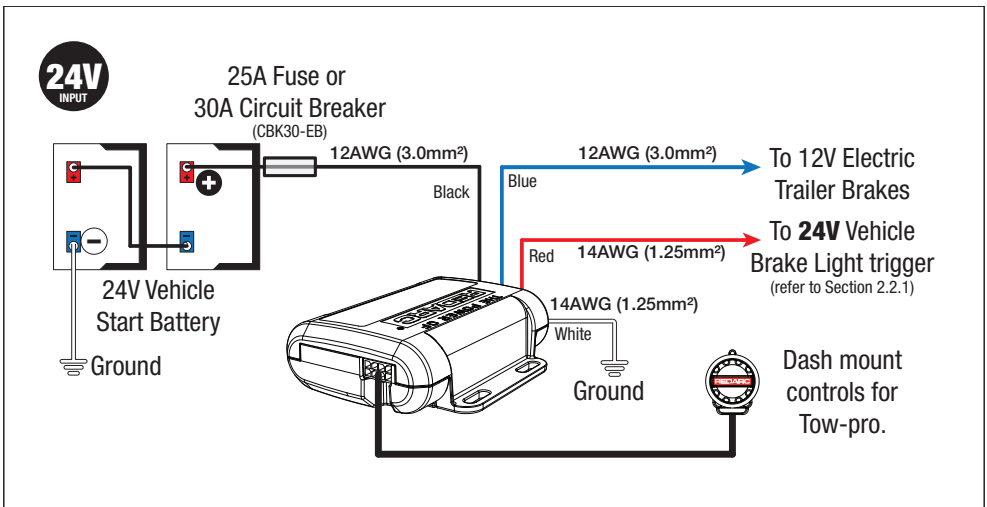
2.2.2 Wiring Diagrams - Electric Brakes

For 12V and 24V vehicle electrical systems, the Tow-Pro® Elite is designed to operate electric brakes without the need for any additional converters. For wire selection refer to the wiring gauge guide in Section 6.



NOTICE

The Input Power (Black) wire must be connected directly to the positive terminal of the start battery via a Fuse (25A) or Circuit Breaker (30A) and not through an Ignition source.



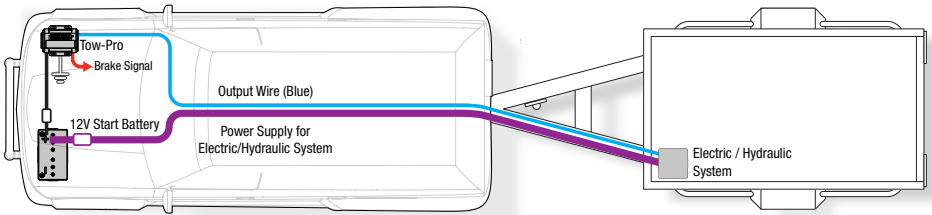
2.2.3 Wiring Diagrams - Electric / Hydraulic Brakes

NOTICE

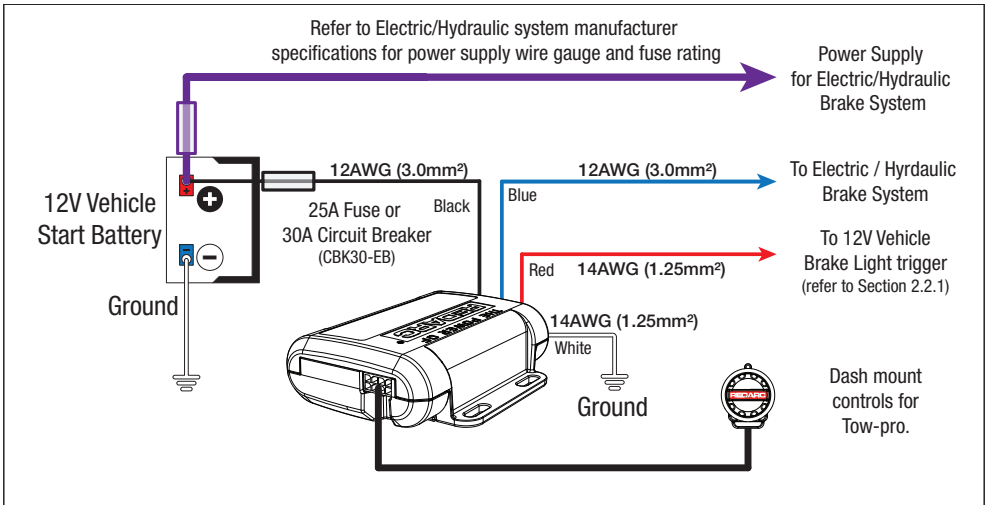
Always refer to the manufacturer’s specifications for your Electric/Hydraulic Braking system prior to installation and usage of the Tow-Pro® Elite.

12V Vehicle Systems

The Tow-Pro® Elite is designed to operate both Electric trailer brake systems and 12V Electric / Hydraulic trailer brake systems. However, most Electric / Hydraulic systems require a separate 12V power feed for the hydraulic pump. For example:



For wire selection refer to the wiring gauge guide in Section 6.

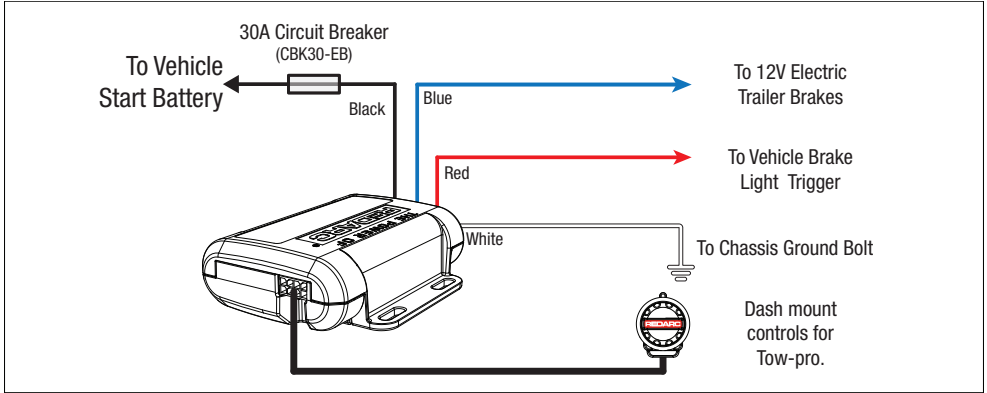


24V Vehicle Systems

Since Electric/Hydraulic braking systems can be sensitive to 24V inputs depending on the electronics within the hydraulic pump system the The EBRH-ACCV3-NA should only be used with electric/hydraulic braking systems in 12V vehicles.

2.2.4 Wiring Diagrams - Vehicles with CAN Bus System

Many modern vehicles use a CAN Bus system for signalling when to apply the vehicles brakes as required by safety systems including adaptive cruise control, stability control, Autonomous Emergency Braking (AEB) and hill descent control. For these vehicles, REDARC recommend the following wiring configuration.

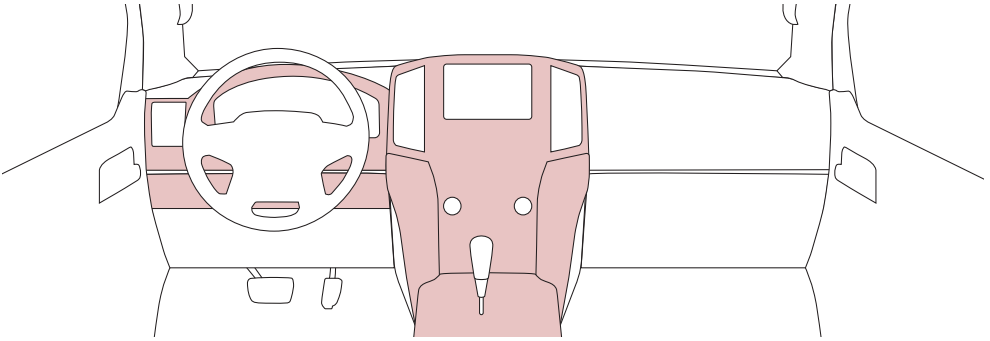


2 INSTALLATION

2.3 Mounting the Remote Head

The Tow-Pro® Elite remote head is designed to be mounted at a distance from the main unit, allowing for a neat, convenient installation and not impeding on lower leg airbags or driver leg room. The Tow-Pro® Elite remote head is designed to be mounted on or around the vehicle dashboard and when installed correctly, complies with Australian Design Rule (ADR) 21, which sets requirements for devices mounted on the dashboard.

The Tow-Pro® Elite remote head can be mounted directly to the dashboard, to the centre console or through a spare knock-out switch panel and requires only one hole to be drilled as per the Mounting Guide in Section 2.5. For easy access in an emergency situation, REDARC recommend installing the remote head within reach of the driver such as the regions shaded in the diagram below.



2.4 Installation Accessories

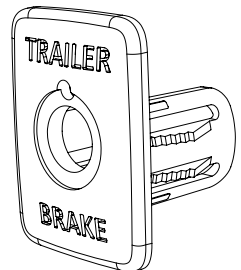
REDARC offer a range of vehicle specific switch inserts and vehicle specific wiring kits designed to make the installation of the Tow-Pro Elite easier.

The range includes most popular SUV & LCV's and is frequently being updated and added to. A full listing of Switch Inserts and Wiring Kits is available on and can be purchased from the REDARC website. Please visit redarcelectronics.com or follow the above QR code for a direct link to the appropriate page.



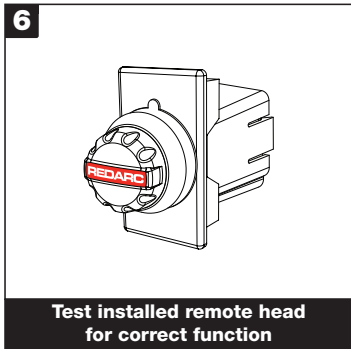
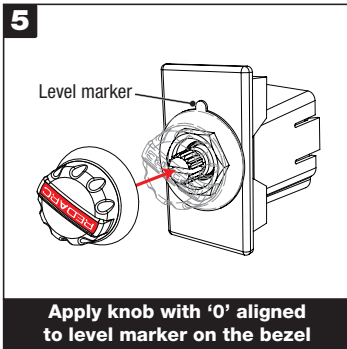
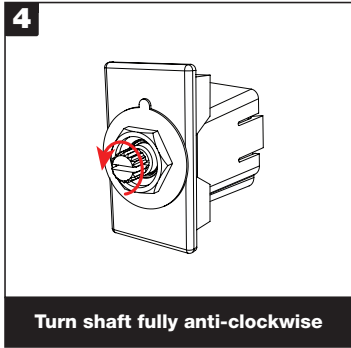
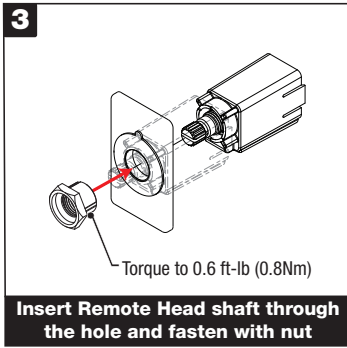
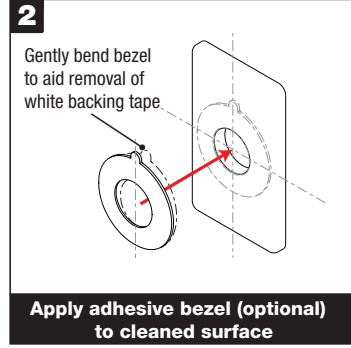
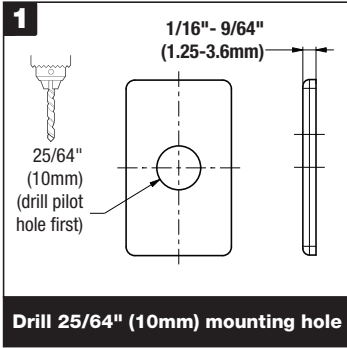
2.5 Universal Switch Panel Insert

Refer to "TPSI-001 installation instructions" included with this kit.



2.6 Mounting the remote head on a dash or console panel

Ensure that there is enough space behind the mounting location to fit the Tow-Pro control head and remote head cable before drilling any holes.



⚠ CAUTION

Ensure the remote head push-button activates correctly when installed into surfaces with a thickness greater than 1/8" (3.2mm). Failure to activate correctly would result in not being able to activate the override function or change modes.

2.7 Active Calibration

When the unit is first powered, Active Calibration must first become confident in the vehicle direction of travel. Until this time the LED will flash Blue/Green.



Active Calibration constantly monitors the vehicle's direction of travel and allows the Tow-Pro® Elite to 'learn' and continuously confirm its mounting orientation. This process occurs whilst the vehicle is moving and the brake is applied and will occur with or without a trailer connected.

When the Tow-Pro® Elite is first installed it will begin learning its mounting orientation through Active Calibration as soon as you start driving, at this point Proportional Mode is selected but not yet fully operational.

Until the Tow-Pro® Elite has determined its mounting orientation the unit will function as if in User-Controlled mode, this is indicated by the LED glowing green with blue flashes. As the Tow-Pro® Elite becomes more confident of its direction of travel the length of the Blue flash will increase, to the point that the LED is solid Blue which indicates it is now operating completely in Proportional mode.

Under normal driving conditions the Tow-Pro® Elite will learn its mounting orientation within 20 brake applications. Note that the braking must be perceptible (applying the brake while stopped will not assist calibration).

If power is disconnected (for example, if the vehicle battery is changed) calibration memory will be lost and the unit will recalibrate itself using active calibration. This is similar to a radio losing its clock or preset station memory.

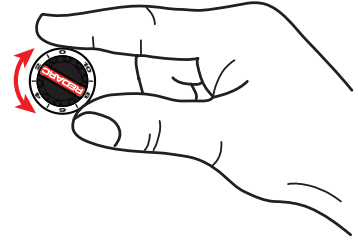
NOTICE

If no trailer is connected, Active Calibration may occur as normal without any indication from the LED. The LED will already be Blue when the trailer is connected. Essentially, whether a trailer is connected or not, just drive normally and Active Calibration will ensure the Tow-Pro® Elite learns the correct direction of travel.

3 OPERATION

3.1 Adjusting the Braking Force

In both modes the braking level can be adjusted to suit varying trailer loads, braking requirements or user comfort by adjusting the control knob on the remote head.



The lower end of the scale (below level 5) should be used as a starting point and adjusted accordingly once braking requirements are established.

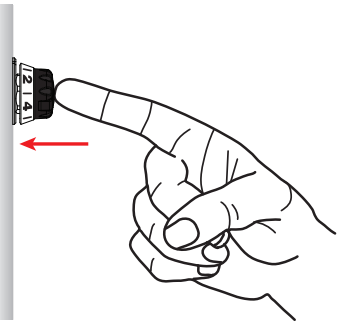
If a lighter braking level is required, turn the control knob to a lower number (anti-clockwise) to reduce the trailer braking force. Similarly, turn the gain control knob to a higher number (clockwise) to increase the trailer braking force.

The braking level will be indicated by the LED changing to a shade of RED when the brakes are applied. The higher the braking level, the more RED the LED will glow.

A setting of '0' will result in no trailer braking output.

3.2 Manual Override

Pressing the gain control knob whilst driving will apply the manual override brake. The manual override brake will apply the trailer brakes only; if wired correctly will also apply the trailer brake lights and will turn the LED indicator a shade of RED. Depending on the vehicle wiring it may possibly also apply the vehicle brake lights. The manual override is designed to be used when the trailer brakes need to be applied without the vehicle brakes, such as correcting trailer 'sway' whilst travelling.



In **Proportional** mode the manual override will apply the trailer brake to a level equivalent to 'light' vehicle braking.

In **User Controlled** mode the manual override will apply the trailer brakes to the level set on the gain control knob.

In both modes the braking force can be adjusted by turning the gain control knob, either higher or lower, even whilst applying the manual override brakes.

Manual override should not be used in place of the regular vehicle brakes.

3.3 Operating Modes

The Tow-Pro® Elite offers two modes of operation - **Proportional** and **User Controlled**. On the first application of power to the black wire, the Tow-Pro® Elite will start-up in Proportional mode. Every time a trailer is connected, the Tow-Pro® Elite will start up in the mode that was last selected (provided the black wire has remained connected to power/battery positive).

3.3.1 Proportional Mode (Blue LED)

If the status indication LED on the control knob is glowing BLUE, the Tow-Pro® Elite is in **Proportional Mode**.

In Proportional Mode, the Tow-Pro® Elite will apply the trailer brakes at a level proportional to the vehicle deceleration. The control knob setting, 0 to 10, will set the brakes from a lighter to a heavier trailer brake application. Simply put, **the harder the vehicle brakes are applied, the harder the trailer will brake**. This mode is designed for highway travelling or everyday use and requires minimal input from the user whilst travelling.



3.3.2 User Controlled Mode (Green LED)

If the status indication LED on the control knob is glowing GREEN, the Tow-Pro® Elite is in **User Controlled Mode**.

In User Controlled Mode, the Tow-Pro® Elite will apply the trailer brakes to the level set by the user on the gain control knob. The control knob setting, 0 to 10, will set the brakes from Zero to Full trailer brake application. Simply put, **the trailer will brake to the level set by the control knob (regardless of how hard the vehicle brakes)**. This mode is often preferred for off road or precision use and may require frequent attention from the user.



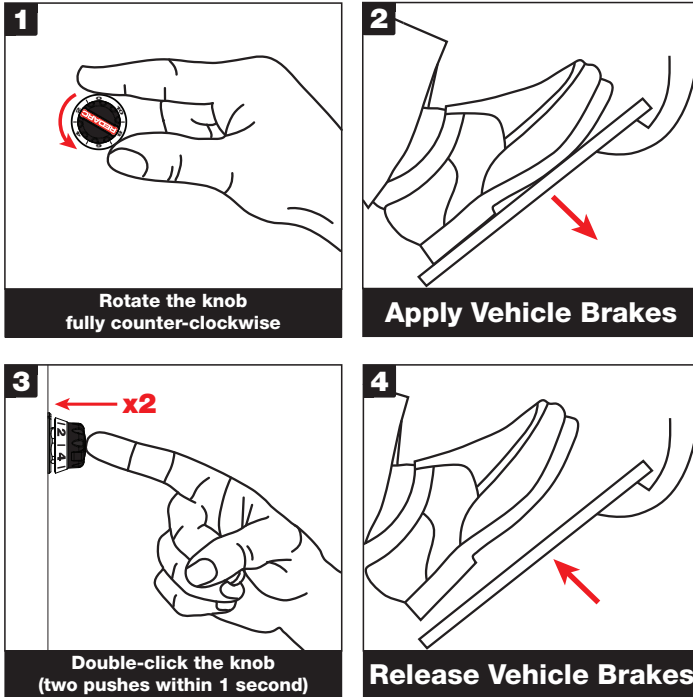
NOTICE

It is important to consider the road surface and conditions when selecting a mode and level setting. When changing conditions we advise to review your controller settings and adjust according to your preference.

3.3.3 Changing Modes

Changing modes can only be completed with a trailer connected. Ensure the vehicle has come to a complete stop before beginning the mode change process.

Changing between modes requires the user to complete the following process:



NOTICE

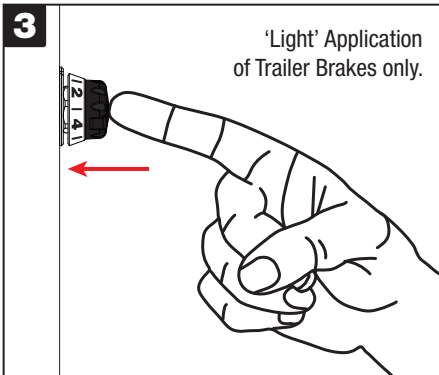
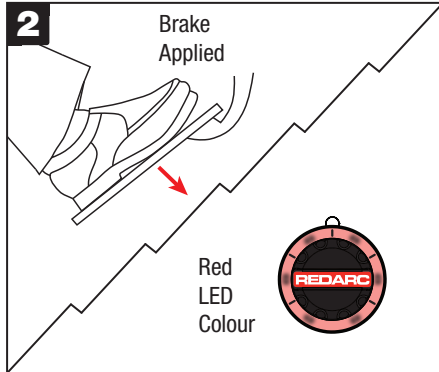
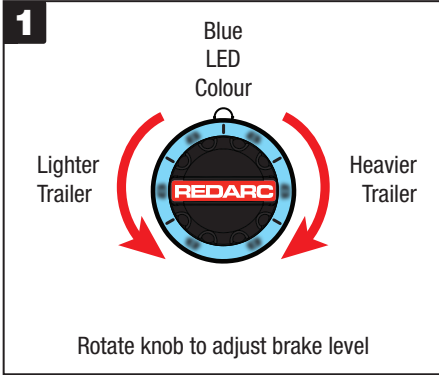
If you're unable to change modes, check that the remote head is not installed into a surface which is too thick and that the button is able to be depressed fully. Refer to Section 2.5 for details. Ensure you reset the dial to a suitable braking level after changing modes.

3.4 Park Brake Feature

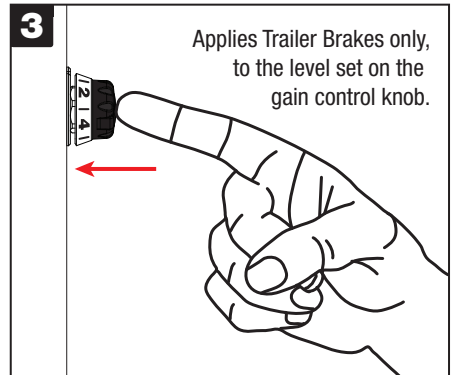
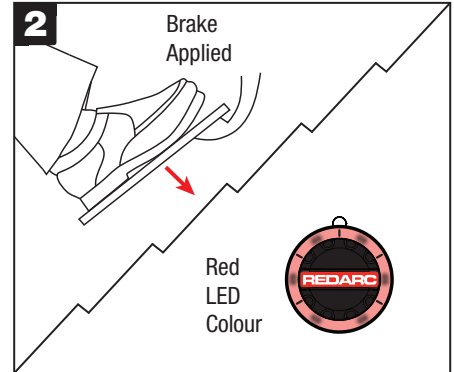
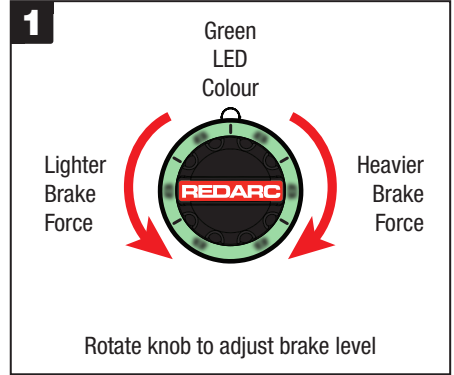
If the Tow-Pro® Elite detects that the vehicle brakes are applied for longer than 3 seconds whilst the vehicle is stationary, it will apply the trailer brakes in an intelligent manner to reduce the required braking effort whilst decreasing the risk of rolling forward or backward whilst stopped. If the controller determines the trailer brakes are not required to keep the vehicle stationary, the output will be decreased to Zero.

3.5 Visual User Guide

Proportional Mode



User Controlled Mode



3.6 LED Indication

The Tow-Pro® Elite will indicate both Mode and Fault Condition through colour and flash sequences of the LED indicator. The table below shows how the Tow-Pro® Elite will indicate Normal Operation of the unit.

NOTE: LEDs will glow full brightness when gain control is adjusted or manual override is pressed. After release of the gain control knob the LED brightness will reduce. This is designed to be less intrusive on driver's vision at night.

Status		Indication	
Mode	<i>Proportional</i>	<i>User Controlled</i>	
Calibration	Blue/Green flashing	Not Applicable	
Sleep Mode ¹	Blue Breathing on button push ²		
Trailer Connected	Solid Blue	Solid Green	
Braking	Blue to Red ³	Green to Red ³	
Fault Code (trailer braking performance potentially compromised)	Flashing in any sequence (other than Blue/Green) Please refer to troubleshooting section (Section 3.9) or contact an experienced auto-electrician.		

1. Sleep Mode occurs when there is no trailer connected to the vehicle.
2. Breathing, as opposed to flashing, is the LED gradually getting brighter until its brightest point and then gradually dimming until off. In the event of trailer disconnection, breathing will occur after 1 minute.
3. The LED will vary between the Mode Colour (Blue or Green) and Red depending on the braking force.

3.7 Troubleshooting


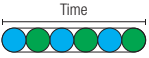
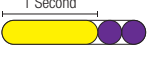
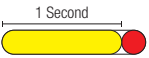
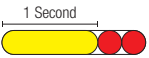
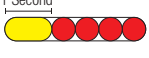
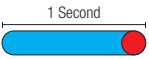
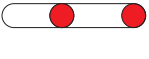
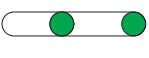
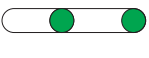
The Tow-Pro® Elite features sophisticated diagnostics to warn the operator of faults in the vehicle and trailer brake wiring. Wiring faults are indicated by a series of colour coded flash patterns on the Tow-Pro® Elite LED.

Most faults turn out to be something simple such as a poor connection from a dirty trailer socket, however a fault indication should not be ignored! It is a warning; if left unattended such wiring faults can become worse and may lead to deterioration or loss of trailer braking.










Please refer to the table on Pages 19 & 20 for the list of flash patterns, showing the cause & recommended course of action for each of the conditions which may be detected.

NOTICE

Even intermittent faults are detected and may be indicated until cleared. Fault codes can be cleared by unplugging the trailer for 1 minute then reconnecting.

LED Sequence	Symptom/Description	Possible Cause	Suggested Action
	BLUE Breathing when the Override button is pushed	The trailer brakes have not been detected OR the trailer is not plugged in	Check the trailer plug and all connections between the controller & brakes
	Flashing a Blue/Green sequence	The unit is in the process of calibrating, this is NOT a fault	Keep driving normally and the unit will calibrate
	The LED is YELLOW and flashes PURPLE twice	There is a fault with the unit and/or the installation	Check and clean trailer plug connection. Please contact REDARC or visit your local auto-electrician for further assistance
	The LED is YELLOW and flashes RED once per second	There is a short circuit somewhere on the brake output line (BLUE wire)	Check all wiring from the unit to the trailer brakes for any wiring faults, including at trailer plug or within brake hubs
	The LED is YELLOW and flashes RED twice per second	There is a short circuit somewhere on the brake light circuit (RED wire)	Check all wiring from the unit to the brake light trigger for any wiring faults
	The LED is YELLOW and flashes RED four times per second	There is a break/open circuit somewhere along the Tow-Pro® Elite's Ground circuit (WHITE wire)	Check all ground connections and associated wiring for any wiring faults
	The LED is BLUE and flashes RED once per second when vehicles brake not applied	The unit has detected that the Remote Cable is faulty, or it is in calibration mode with a permanent input on the brake light trigger	Check the Remote cable is fully plugged in, otherwise replace; check red wire has 0V when vehicle brake is not applied
	The LED is flashing RED	The unit has detected an internal fault of your AI-Ko iQ7 hydraulic/pneumatic system	Check for faults according to the manual for the AI-Ko iQ7 actuator
		There is a voltage drop between the trailer ground and the vehicle ground	If you don't have an AI-Ko iQ7, check for suitable wiring on the trailer ground circuit
	The LED is flashing GREEN only whilst braking	Loss of supply power or Circuit Breaker cycling	Check supply (BLACK) wire for good connection & check circuit breaker/fuse not blown and correct value
	The LED is flashing GREEN at any time	Hesitation during connection of BLACK wire possibly causing incomplete startup sequence	Disconnect BLACK wire, wait 1 minute and reconnect BLACK wire to the battery

3 OPERATION

LED Sequence	Symptom/Description	Possible Cause	Suggested Action
	The LED is flashing GREEN at any time or only when not braking	Low continuous voltage on brake light (RED) wire	Check that RED wire is connected to a point that is 0V when the brakes are off and 12V with the brakes applied
	Flashing green any time with knob fully CW	The unit is not yet calibrated	Keep driving normally and the unit will calibrate
	The LED is flashing BLUE	The Remote Head cable may be damaged	Replace the cable between the Remote Head and the Main Unit
	The LED is flashing BLUE	The power supply to the unit is not stable	Check the BLACK and WHITE wires for loose connections
	The LED is flashing BLUE	The RED wire is (constantly) at a low voltage	Check the voltage at the RED wire and reassess the connection point if necessary
	The LED flashes an unusual colour sequence randomly whilst braking	There is a short circuit on the output (BLUE) wire or the Fuse or Circuit Breaker is overloaded	Check for short circuit on trailer brake (BLUE) circuit, including moving brake swing arms Check that no other devices are running from the same Fuse or Circuit Breaker as the Tow-Pro® Elite
	LED only lights up when braking	The power wire is most likely not connected brake light fuse may have blown	Check supply (BLACK) wire for connection problems and check circuit breaker/ fuse is not blown
	The LED is not working at all	There is a bad connection to the trailer	Check the trailer wiring as the unit is not recognising that a trailer is connected
	The LED is not working at all	There is a bad connection between the Main Unit and Remote Head	Check that the RH cable is correctly plugged in to both the Main Unit and Remote Head

⚠ WARNING

Ensure that your trailer brakes are installed and are operating correctly: Improperly installed and/or faulty trailer brakes can cause erratic vehicle or trailer behaviour with the potential to cause a road accident. For this reason, it is of utmost importance that your trailer braking system be installed/maintained by a qualified installer.

Always check brakes at low speed each time a trailer is attached to your vehicle.

Immediately After Installation (To be done by a qualified Auto-Electrician)

Test the installation/vehicle wiring. Testing your vehicle wiring is best done by connecting a test light (Max 21W filament globe) to the brake output, pushing the manual override and having someone check that the test lamp lights up.

Before each trip

It is important to ensure that your system is operating correctly before you set out. The following should be checked, along with standard mechanical maintenance, each time you attach your trailer:

- Correct brake light operation on both your vehicle and trailer
- Correct operation and setting of the electric brake controller
- Correct operation of your trailer brakes
- Check that your breakaway system is operating correctly and that the breakaway battery is healthy (if applicable)
- Ensure that the tow hitch, and safety chains and weight distribution systems are setup correctly

Periodically

It is important to have a qualified technician check the function of your trailer system on a periodic basis to ensure that everything is operating correctly. REDARC recommend that you visit a qualified technician before the beginning of each holiday season to ensure that any towing aids or systems are working correctly.

Other considerations

Please consider the below items whilst towing a trailer:

- Ensure that your vehicle is capable of towing the trailer
- Ensure that you adjust your driving style to allow more time to change lanes and brake
- Always remember that your electric brake controller is designed to supplement your vehicle brakes; ***do NOT use the Tow-Pro® Elite manual override in place of your vehicle foot brake***
- REDARC recommend professional towing training before attempting to tow a trailer.

The LED is flashing Blue/Green, what does this mean?

A Blue/Green flash sequence indicates that the unit is in the process of calibration, as the unit becomes more confident in its calibration the Blue will appear for longer. Keep driving and eventually this will turn to a solid Blue.

How do I change from Proportional to User Controlled mode?

Please see Section 3.3.3 of this manual.

Will it work with electric over hydraulic trailer brakes?

Yes, please see Section 2.2.3 of this manual.

Can it be mounted in any orientation? How do I set the levelling of the main unit?

Yes, the unit can be installed inside the vehicle at any angle, provided it is firmly secured and in a location which allows access to the intended remote head location. Please see Sections 2.1, 2.3 and 2.5 of this manual for more information.

My trailer is 3.5 tonnes fully loaded; Is the Tow-Pro® Elite strong enough to stop that much weight safely?

The controller is capable of supplying 3-axle setups at 12V or 24V inputs up to the maximum rated braking ability of the brakes. You must also ensure that your trailer brakes are adequate for the trailer load.

Can the remote head cable be extended?

No, the remote head cable is not a standard cable and REDARC recommend not to cut and extend the supplied cable. REDARC have a range of non-standard cable lengths available on our website.

Can the braking level of the manual over-ride be adjusted?

Yes, the manual override can be adjusted whilst it is being applied by turning the gain control knob. For more information on manual override please see Section 3.2 of this manual.

Will my trailer brakes work while I am reversing?

The Tow-Pro® Elite is designed to apply the trailer brakes whether the vehicle is travelling forward or in reverse. The effectiveness of the brake application in reverse will depend on the mechanical design of your particular electric brake system.

I have a 2 axle trailer, is the Tow-Pro® Elite suitable for my trailer?

Yes, the Tow-Pro® Elite is designed to operate up to 3-axle trailers.

I lost the knob/nut/bezel, where can I get one?

The knob, nut or bezel can be purchased as spare parts from REDARC authorised resellers.

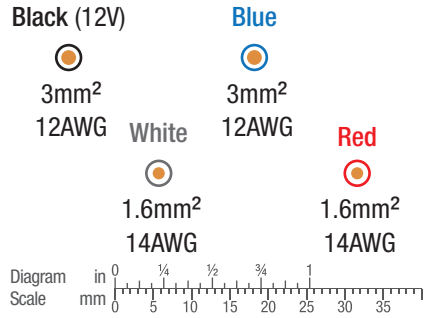
Can I connect the Tow-Pro through my cigarette lighter socket?

No, as most 'power sockets' are rated around 10A which is insufficient to power trailer brakes and stop lamps circuits. In addition, these outlets may not be powered continuously.

6 WIRING GAUGE GUIDE

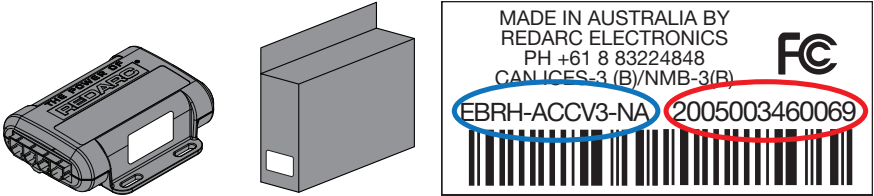
Below is a diagram outlining the required wire cross sectional areas for the Tow-Pro® Elite installations detailed in Section 2.2.

All wire ratings refer to the **minimum** required cross sectional area of copper only (not including insulation). Always use a wire gauge equal to or greater than what is specified in this guide.



7 CHECKING THE PRODUCT SERIAL NUMBER

The image below indicates where the Product Serial Number on the Main Unit and on the Product Packaging.



The Serial Number Label contains the Part Number (circled in BLUE) and the Serial Number (circled in RED).

The first 4 digits of the serial number indicate the YEAR and MONTH of manufacture, in the form YYMM.

8 FCC DECLARATION

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

10 TWO YEAR PRODUCT WARRANTY - NORTH AMERICA

Over the last four decades our company has established a reputation as the power conversion specialist.

A 100% Australian-owned company, we have met the needs of customers in transport and other industries through exciting, innovative thinking. We believe in total customer satisfaction and practice this by offering our customers:

- Technical advice free of jargon and free of charge
- Prompt turnaround of orders
- Friendly, personalized, professional service and product support

In the unlikely event that a technical issue arises with a REDARC product, customers are encouraged to initially contact the REDARC Technical Support Team at the phone number and e-mail listed in clause 24 for prompt and efficient diagnosis and product support.

REDARC Corporation Pty Ltd ("REDARC") offers a warranty in respect of its Products purchased from an authorized distributor or reseller of REDARC by a person who is the original retail purchaser ("Purchaser"), on the terms and conditions, and for the duration, outlined below in this document ("Warranty").

1. In this Warranty, the term "Products" means:

- 1.1 all new products manufactured or supplied by REDARC (excluding its solar products which are covered by REDARC's Solar Product Warranty); and
- 1.2 any component or accessory for any product in clause 1.1 manufactured or supplied by REDARC.

Offer and duration of product warranties

2. REDARC warrants that its Products will be free, under normal application, installation, use and service conditions, from defects in materials and workmanship affecting normal use, for **2 years** from the date of purchase ("Warranty Period").
3. The replacement of any component or part of your unit under warranty will not extend the period of warranty.
4. Where a Product malfunctions or becomes inoperative during the Warranty Period, due to a defect in materials or workmanship, as determined by REDARC, REDARC will, in exercise of its sole discretion, either repair or replace the defective Product.

If REDARC determines that the defective Product cannot be repaired or replaced, then REDARC will provide a refund to the Purchaser for the purchase price paid for the defective Product. REDARC will cover any shipping cost for replacement.

5. For purposes of clarity, "repair or replace the defective Product" does not include any removal or reinstallation costs or expenses, including, without limitation, any labor costs or expenses, shipping costs to return non-conforming Products or any damages that may occur during the return of Product to REDARC.

6. The remedies set forth herein constitute the exclusive and maximum liability of REDARC, to the extent permitted by applicable law, with respect to the manufacture, sale, delivery, installation, operation or use of the Products, whether arising out of contract, negligence, tort or under any warranty or other legal theory.

Exclusions and limitations

7. This Warranty will not apply to, or include any defect, damage, fault, failure or malfunction of a Product, which REDARC determines, in exercise of its sole discretion, to be due to:

- 7.1 normal wear and tear or exposure to weather conditions over time;
- 7.2 accident, misuse, abuse, negligence, vandalism, alteration or modification;
- 7.3 used or second-hand products;
- 7.4 non-observance of any of the instructions supplied by REDARC, including instructions concerning installation, configuring, connecting, commissioning, use or application of the Product, including without limitation choice of location;
- 7.5 failure to ensure proper maintenance of the Product strictly in accordance with REDARC's instructions or failure to ensure proper maintenance of any associated equipment or machinery;
- 7.6 repairs to the Product that are not strictly in accordance with REDARC's instructions;
- 7.7 installation, repairs or maintenance of the Product by, or under the supervision of, a person who is not a qualified auto electrician or technician, or if non-genuine or non-approved parts have been fitted;
- 7.8 faulty power supply, power failure, electrical spikes or surges, lightning, flood, storm, hail, extreme heat, fire or other occurrence outside the control of REDARC; or
- 7.9 use other than for any reasonable purpose for which the Product was manufactured.
- 7.10 use or installation in violation of the instructions or restrictions prescribed by any applicable standard or code, including those contained in the latest National Electrical Code, Standards for Safety of Underwriters Laboratory, Inc. (UL), the American National Standards Institute (ANSI), or the Canada Standards Association (CSA).

8. REDARC shall not be liable for:

- 8.1 any loss of profit, direct, indirect, special, penalty, incidental, secondary, contingent or consequential damages or expenses of any kind resulting from a breach of this warranty; including without limitation damages resulting from loss of use, profits, business or goodwill, even if REDARC was advised of or was otherwise aware of the possibility of such damages.
- 8.2 service, labor, installation or delivery charges incurred in removing or replacing a Product.

9. Warranty claims in respect of a Product must be made in writing to REDARC and received at the postal address or email address specified in clause 24 within the Warranty Period.

Such claims must include the following:

- 9.1 details of the alleged defect or fault and the circumstances surrounding the defect or fault;
 - 9.2 evidence of the claim, including photographs of the Product (where the subject of the claim is capable of being photographed);
 - 9.3 the serial number of the Product, specified on the label affixed to the Product; and
 - 9.4 proof of purchase documentation for the Product from an authorized distributor.
10. The return of any Products without the prior written instructions of REDARC will not be accepted by REDARC.
11. Without limiting any other clause in this Warranty, REDARC has the right to reject any Warranty claim made by a Purchaser pursuant to this Warranty where:
 - 11.1 the Purchaser does not notify REDARC in writing of a Warranty claim within the Warranty Period;
 - 11.2 the Purchaser does not notify REDARC in writing of a Warranty claim within 1 month of becoming aware of the relevant circumstances giving rise to the claim, so that any further problems with the Product are minimized;
 - 11.3 the serial number of the Product has been altered, removed or made illegible without the written authority of REDARC;
 - 11.4 the Purchaser is unable to provide proof of purchase documentation in accordance with clause 7.4 or evidence that the Product was properly installed and removed (if relevant), and that proper maintenance has been performed on the Product, by, or under the supervision of, a qualified auto electrician or technician, in accordance with the instructions of REDARC.

12. If the Product is found to be working satisfactorily on return to REDARC or upon investigation by REDARC, the Purchaser must pay REDARC's reasonable costs of testing and investigating the Product in addition to shipping and transportation charges. Where REDARC is in possession of the Product, the Product will be returned to the Purchaser on receipt of the amount charged.

13. Any replaced Products or components of Products shall become the property of REDARC may, in exercise of its sole discretion, deliver another type of Product or component of a Product (different in size, color, shape, weight, brand and/or other specifications) in fulfilling its obligations under this Warranty, in the event that REDARC has discontinued manufacturing or supplying the relevant Product or component, so long as the replacement Product or component performs at substantially the same level and carries out substantially the same function as the Product or component being replaced.

Other conditions of Warranty

15. If the Purchaser acquired a Product for the purpose of resupply, then this Warranty shall not apply to that Product. In particular, the sale of a Product via an online auction, online store or other internet website by a party that is not an authorized distributor or reseller of the Product will be deemed to be a resupply and will render this Warranty void.

16. A Purchaser shall only be entitled to the benefit of this Warranty after all amounts owing in respect of the Product have been paid.

17. To the maximum extent permitted by law, REDARC does not warrant that the operation of the Products will be uninterrupted or error-free.

18. To the maximum extent permitted by law, REDARC's determination of the existence of any defect and the cause of any defect will be conclusive.

19. The agents, officers and employees of any distributor or reseller of the Products and of REDARC are not authorized to vary or extend the terms of this Warranty.

20. REDARC shall not be responsible or liable to the Customer or any third party in connection with any non-performance or delay in performance of any terms and conditions of this Warranty, due to acts of God, war, riots, strikes, warlike conditions, plague or other epidemic, fire, flood, blizzard, hurricane, changes of public policies, terrorism and other events which are beyond the control of REDARC. In such circumstances, REDARC may suspend performance of this Warranty without liability for the period of the delay reasonably attributable to such causes.

21. **Except for the foregoing Warranty, there are no other representations, conditions or warranties express or implied with respect to the Products, including representations, conditions or warranties of merchantability, fitness for a particular purpose or non-infringement which conditions, representations and warranties are expressly disclaimed, to the extent permitted by applicable law.**

22. REDARC reserves the right to use new, reconditioned, refurbished, repaired or remanufactured products or parts in the repair or replacement of any Product covered by this Warranty.

23. If a clause or part of a clause in this Warranty can be read in a way that makes it illegal, unenforceable or invalid, but can also be read in a way that makes it legal, enforceable and valid, it must be read in the latter way. If any clause or part of a clause in this Warranty is illegal, unenforceable or invalid, that clause or part is to be treated as removed from this Warranty, but the rest of this Warranty is not affected.

REDARC's contact details

24. REDARC's contact details for the sending of Warranty claims under this Warranty are:

REDARC Corporation Pty Ltd
c/o SHALLCO, INC.
308 Component Dr.
Smithfield, NC 27577

Email: power@redarcelectronics.com

Telephone: +1 (704) 247-5150 if you are calling from the USA

+52 (658) 526-2898 if you are calling from Mexico

+1 (604) 260-5512 if you are calling from Canada

(calls are answered between 8am and 5.30pm Australian Central Standard Time (ACST))

25. REDARC reserves the right to modify this Warranty from time to time and any modifications shall be effective for all orders placed on or after the effective date of such revised warranty.

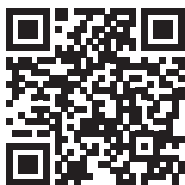
Some states, provinces or territories do not allow exclusion or limitation of certain types of damages, or permit limitations on the length of implied warranties, so certain of these warranty limitations may not apply to the Purchaser. This Warranty gives the Purchaser specific legal rights. The Purchaser may also have other rights which vary from state to state, province to province or territory to territory. If any term of this Warranty is held to be illegal or unenforceable, the legality and enforceability of the remaining terms shall not be affected or impaired. This Warranty allocates risk of Product failure between the Purchaser and REDARC, and REDARC's Product pricing reflects this allocation of risk and the limitations of liability contained in this Warranty.

UNDER NO CIRCUMSTANCES SHALL REDARC'S AGGREGATE LIABILITY ARISING OUT OF OR IN CONNECTION WITH A DEFECTIVE PRODUCT, IN CONTRACT, TORT OR OTHERWISE, EXCEED THE PURCHASE PRICE OF THE PRODUCT TO WHICH SUCH LIABILITY RELATES.

Free technical assistance!

For product and technical support contact your regional distributor, call our head office between 8:00am to 5:30pm Australian Central Standard Time, Monday to Friday or send an email to power@redarcelectronics.com

THE POWER OF **REDARC**®



Pour accéder
au manuel
d'utilisation
en Français



Para ver el
manual en
Español

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US Patent Number US 9,446,747

US Trademark 5,353,114

Canadian Trademark TMA991,361

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