

# CREDO™

Generation B

## INSTALLATION GUIDE

### Electric Drums & Hydraulic Disc or Drum



Read instructions before installation

▪ NZ: 3500KG GVM | AU: 4500KG GVM ▪

Please return to customer once install completed

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**Note: This instruction Book is  
for Credo units with a serial  
number over 4500**



## What is the Credo?

The Credo is a trailer brake controller. It is mounted directly on the trailer for maximum reliability and transmits to a wireless controller for universal vehicle compatibility. It receives all the standard trailer light signals, charges the battery from the tail circuit and switches on the brakes when the brake circuit is on. The brakes are modulated from the internal accelerometer to the current settings the user has set on the controller. It provides a breakaway switch circuit and provision for emergency braking via the in-cab, touch screen controller. The controller provides feedback of any fault conditions, settings adjustments, and emergency braking control.

## Credo Design Features:

- Wireless remote design with an encoded wireless link.
- Universal vehicle connection that only needs standard trailer plug wiring on the vehicle and no hard-wired controller permanently mounted in the vehicle.
- Internal load resistors to present a load to bulb sensing circuits in late model vehicles.
- Buck/Boost Battery Charger means trailer battery is always charged correctly regardless of vehicle voltage.
- Output protection to prevent damage from trailer wiring short circuits.
- Can operate both Electric and Electric/Hydraulic Braking systems.
- Real feedback of any trailer faults without specialist vehicle wiring.
- Trailer stop lamps are powered when breakaway switch is activated.
- Controls and eliminates flashing trailer lights caused by some vehicles when using LED lamps.

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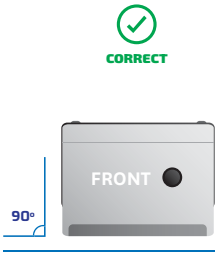
**CREDO**™

# Orientation Guide

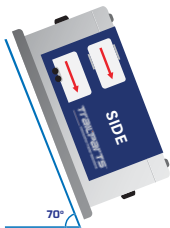


## Direction of travel

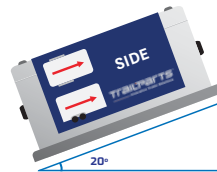
Must be mounted straight longitudinally, i.e. parallel to the direction of travel



## Unit must be level laterally



Back can be up to 70 degrees up



Back can be up to 20 degrees down

## Direction of travel

## Wiring Notes:

- Do not Earth to Chassis.
- Keep any Electric/Hydraulic actuators as close as possible to the controller.
- Keep Battery as close as possible to the controller.
- Only use LED trailer lights with Credo brake controller.
- Use a dedicated battery – using the brake controller battery for other systems can compromise that safety of the braking system if another fault occurs that is not related to the brakes,
- Keep wiring sizes to above minimums.

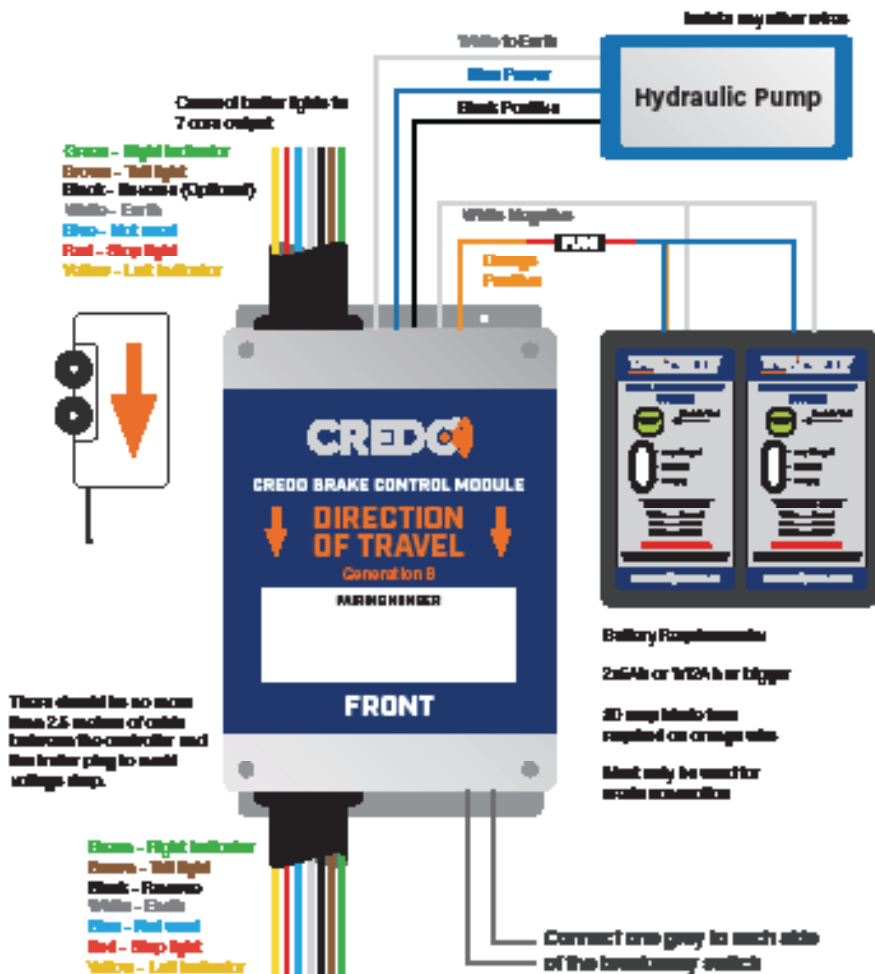
Circuit	Minimum size	Max Length
Vehicle Connection*	10A / 1.0mm <sup>2</sup>	3m
Tail/Marker Lights	5A / 0.5mm <sup>2</sup>	10m
Battery	20A / 2.0mm <sup>2</sup>	1m
Electric Drums	15A / 1.5mm <sup>2</sup>	8m
Hydraulic Actuator	25A / 4mm <sup>2</sup>	0.5m

\*Extension from supplied length

## Mounting / Installation Requirements:

- Mount to a metal frame member to allow conduction of heat from load resistors away from the Credo – failure to do so means that the Credo can overheat.
- Bolt to a solid frame member that will not flex during vehicle motion.
- Trailer tail and marker Lights must be LED with a maximum draw of 0.6A – any additional lights will need to be connected in before the controller.
- Mount the controller on the trailer draw bar with a clear line of sight to the vehicle – under the chassis or behind and or under any metallic objects that shields the controller will cause interference in the wireless signal. If using a plastic box make sure that there is a way to conduct heat away from the base of the Credo. This can be by 4 bolts connecting to a metal chassis member directly below the Credo of a significant size.

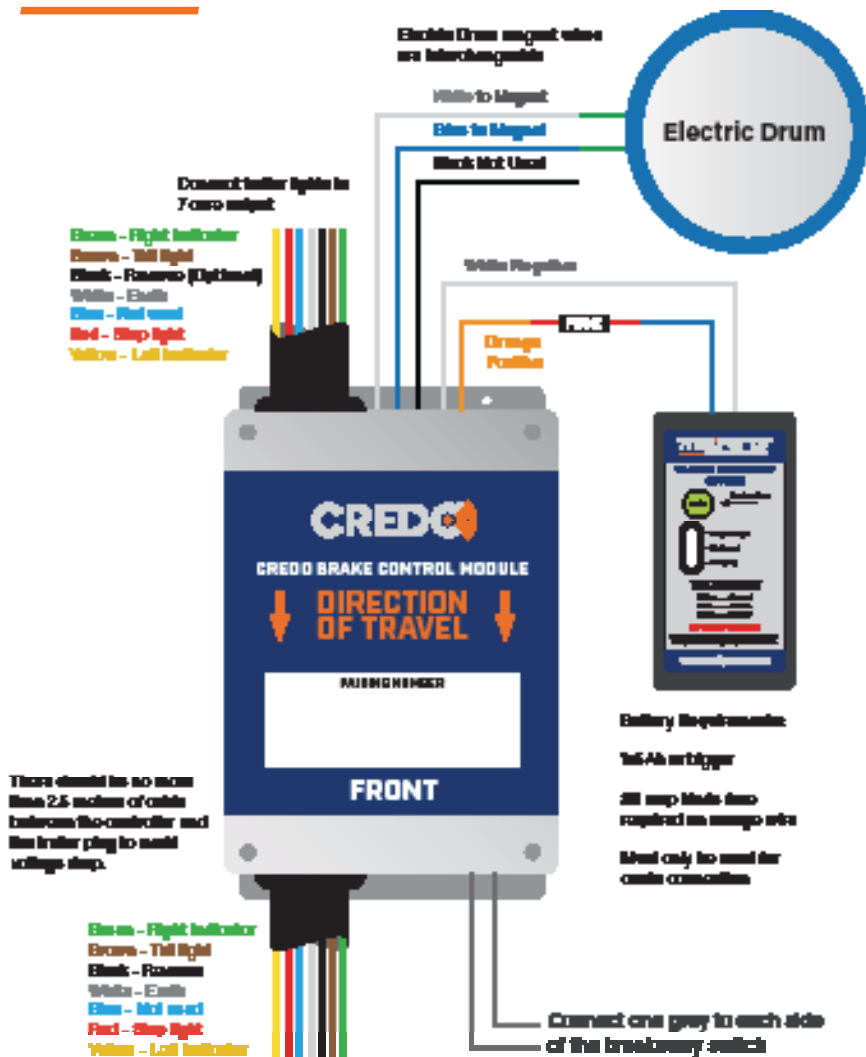
# Hydraulic Wiring Diagram



All unused wires on pump and Credo must be isolated.

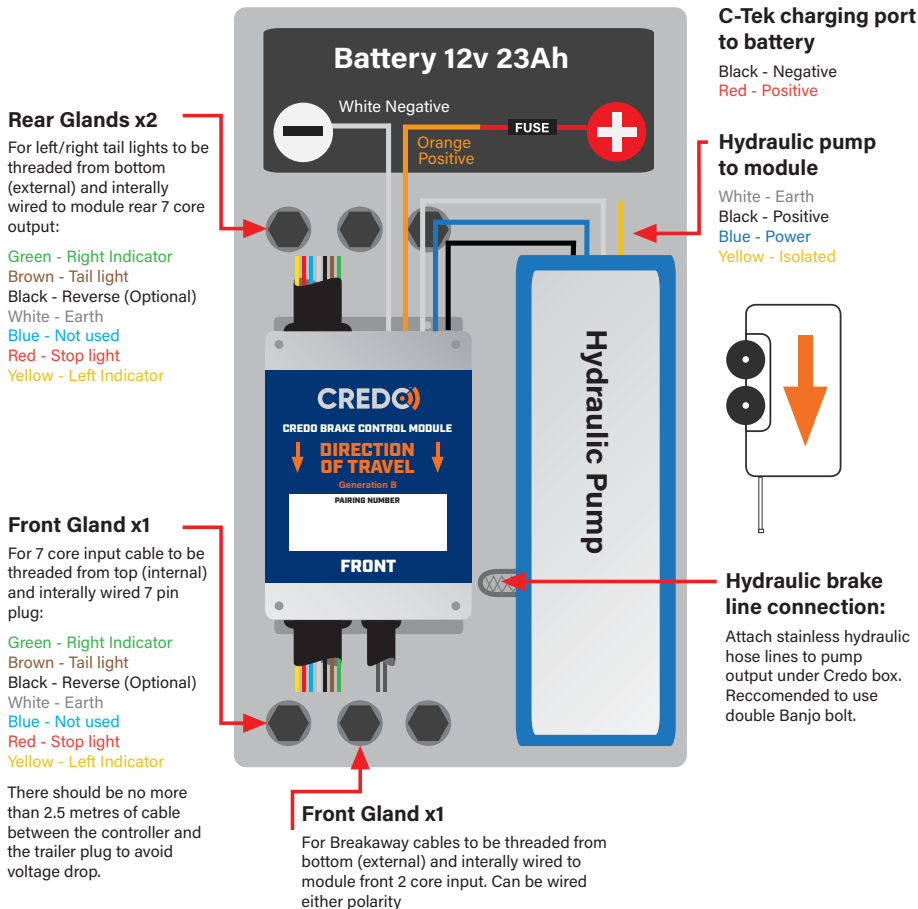
Actuator must not have isolator fitted as one is built into the controller on this version.

# Electric Wiring Diagram



All unused wires on the Credo must be isolated.

# Credo Hydraulic Pre-assembled Wiring Diagram



All unused Credo wires must be isolated.



## Commission / Testing:

**Note:** This brake controller is controlled by inertia / deceleration which means there is no response if the trailer is stationary.

## Stationery Testing:

### Breakaway switch

- gives 97% output which should lock the brakes to their maximum any attempt to tow the trailer should result in the wheels skidding when unladen.

### Emergency Stop Override Button

- The brakes are applied at 75% of the current gain setting (i.e. 99% gain will give a 74% brake output) different settings and brake outputs can be tried by adjusting the gain level.

## Road Testing:

- Empty Trailers start with 25% Gain and Sensitivity of 3. Adjust to suit as you drive.
- Loaded Trailer start with at least 50% Gain and Sensitivity of 3 and adjust to suit.

## General Notes:

- The trailer should not be holding the vehicle back or 'pulling' the vehicle when the brakes are used. If so the brakes will be experiencing excessive wear and load.
- Electric Drums may need bedding in when new or replaced. This can be done setting the Gain to about 30-35% and holding the emergency stop for approx. 0.5km while travelling at 40-50kmh. Do this in a quiet area where there is little other traffic.

## C-Tek charging port:

- To maintain your Pre-Assembled Credo battery ensure when trailer is in storage you connect your C-Tek charger to the system. Recommend C-Tek Battery Charger XS 0.8
- Check battery levels before using your trailer using the LED lights indicating Empty, Half or Fully charged battery. Trailparts recommend ensuring battery is Fully Charged before each journey.

# Troubleshooting

## Fault

In-cab controller shows **'Low Trailer Battery'** warning.  
(old style In-cab Controller shows **Eb Error**)

OR

No tail lights / tail lights go out when brakes are applied.

## Possible Causes

- Battery is excessively discharged.
- Bad connection between trailer mounted brake controller and battery.
- Blown battery fuse.
- Poor connection on battery terminals.

## Repairs/Checks

- Check battery is over 12.5V when disconnected. If lower replace the battery.
- Check if battery is charging by measuring the battery voltage on the trailer. Measure with the vehicle disconnected which should be at least 12V, then plug into the vehicle and turn on the lights. After 30 seconds there should be a rise in the battery voltage that shows the Credo pushing charge into the battery. The battery voltage should peak at 14.3V.
- Check leads, fuse holder and any connections between the battery and controller for poor / corroded connections. Any high resistance joins will cause excessive voltage drop to the controller under braking resulting in the 'Low Battery' error.

In-cab controller shows **'Please Drive with Your Headlights On'** message, even though the headlights are on  
(old style In-cab shows **Ec Error**).

- In-cab controller and Trailer mount controller serial numbers don't match.
- Faulty trailer plug.
- In-cab controller cannot communicate with the trailer mounted controller due to interference.
- Incorrect wiring by-passes controller.

- Recode the Serial number on the In-cab remote.  
*If they do not match then follow instructions on page 14/15.*
- Check trailer plug pins are not corroded or crushed in, and either spread the pins, remove corrosion or replace the plug.
- Check the controller to In-cab connection by taking the in-cab unit back to beside the trailer mounted controller, if still error is still present controller needs to be replaced or repaired.
- Check the vehicle connection goes to only the trailer mounted controller and all tail and marker lights from the controller lights output.

## Fault

Brakes randomly come on and lock up.

AND / OR

Brake Lights stay on when trailer is disconnected.

## Possible Causes

- Faulty Break-away switch.
- Faulty Break-away wiring.
- In-cab controller has 'emergency stop' button pressed.

## Repairs/Checks

- Check breakaway switch and wiring for a short circuit. Replace any faulty components or wiring.
- Check the breakaway switch is not full of water and dirt. Any leakage of voltage in the breakaway circuit due to water ingress can cause unexpected behaviour on Hydraulic / Electric systems.
- Make sure In-cab controller is securely mounted on vent holder and emergency stop button not inadvertently pressed.

Braking output on In-cab controller stays at '-' on the screen when brakes are applied.

- Faulty trailer plug / vehicle connection.
- Incorrect wiring bypasses controller.

- Check and repair trailer plug and vehicle socket and associated wiring – replace any faulty parts.
- Check vehicle connection goes directly to the controller and does not bypass the controller.

In-cab Controller shows '00' or higher numbers when brakes applied but no braking happens.

- On electric drums – Faulty wiring or magnets.
- On hydraulic actuator driven brakes – Faulty wiring or isolator if fitted.

- On electrics check wiring and drum magnets for faulty connections. Typical magnet resistance is approx 2.8 Ohms. 2 Magnets together is 1.4 Ohms and 4 is 0.7 Ohms.
- On Hydraulic the Blue signal wire should be checked for voltage when the emergency stop being is pressed. If there is some voltage and there is no brakes then call for assistance.

Wheel locking up on one side of the trailer.

- Wiring connected to one side of the trailer first and then to the other.
- Shorted or open circuit magnets.

- Connect magnets into a star connection.
- Check magnet resistance.

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# Troubleshooting

## Fault

No braking and trailer can still be rolled when the break away pulled – no low battery fault.

## Possible Causes

- Drums are new and need bedding in.
- Broken connection to the drum magnets.
- Shorted Drum Magnet.

## Repairs/Checks

- Set controller to lower setting of around 25-40 and then drive at a low speed of 40-50kmh while holding the emergency stop button. Drive 0.5 -1km. This will heat the brakes up and bed in the shoes.
- Check all connections to the drums.
- Check resistance of each magnet individually typically resistance is 2.8Ohms.

In cab Remote shows “No SD Card” Error.

- SD card has been dislodged or is faulty.

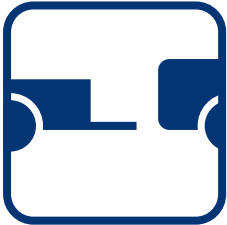
- Remove the back cover of the in cab remote and take out batteries and unplug from any power. Check the SD card is properly inserted and try removing and reinserting. Make sure it is clicked in properly. Replaced batteries, back cover and power up to check operation.
- If reinserting the SD card does not help the SD card may be faulty and the in cab remote needs to be replaced.

\*Serial 4500 onwards\*  
Any tail-light outputs or brake or Hydraulic pump power not giving any power.

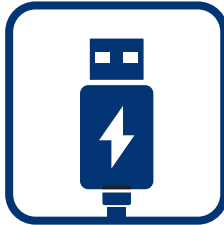
- Output has been shorted and output has locked out.

- Repair the fault and disconnect from the vehicle and the trailer battery. While the unit is depowered the output will be reset. Reconnect battery and plug into vehicle to test.

# Basic Credo Setup



Connect trailer to tow vehicle.



Connect controller to in cab power.



Turn on tow vehicle headlights.

When used according to these instructions, the Trailparts™ Credo™ Braking system meets the requirement of:

For NZ: Brake Rule 32014; trailers up to 3500kg GVM

For AU: ADR 38/05, VSB1, and VIB6; trailers up to 4500kg GVM

## To operate:

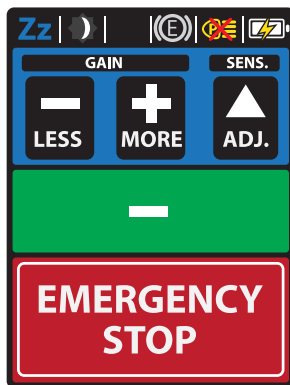
- The in-cab controller must be connected at all times and located within easy reach of the driver.
- The vehicle park or head-lights must be switched on when towing the trailer. This energizes the trailer side of the system and also will allow the trailer batteries to charge.
- Check the plug and socket of the trailer and tow vehicle are securely connected and that the trailer lighting functions all work correctly. A faulty or intermittent lighting connection could mean the brakes do not operate correctly.
- If using a breakaway switch, ensure the breakaway cable is securely fastened to the vehicle.
- Test the emergency brake is working. First adjust the gain setting to read 75%. Depress emergency stop button fully, and begin to pull forwards while still holding the button down. The trailer brakes should lock the wheels.
- Do not use the 'emergency stop' feature or breakaway function as a parking brake.

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## Credo cab controls

**Note:** It is not safe to operate touch screen devices while driving. Ensure conditions are safe around you before carrying out these procedures.

### 1 Emergency stop / Override:

Use for overriding brakes when additional control is required over the braking of the trailer. On activation the brakes are applied at 75% of the current gain setting.

### 2 Braking Level:

- A. **Gain level** – whenever a gain adjust is made the current gain setting is displayed for 3 seconds.
- B. **Sensitivity level** – whenever sensitivity is changed the current level is displayed for 3 seconds
- C. **Braking level** – is always displayed whenever the above is not displayed
  - i. ‘-’ means there is currently no braking occurring.
  - ii. ‘0’ means braking is active, but output is at zero because there is currently no deceleration detected and the vehicle is stationary and flat.
  - iii. ‘1 - 99’ is the current braking output of the brakes.

### 3 Gain Control:

- A. **Less** – reduces the Gain setting in steps of 5. Each time it is pressed the value is displayed in the braking level bar.
- B. **More** – increase the Gain setting in steps of 5. Each time it is pressed the value is displayed in the braking level bar.

### 4 Sensitivity Control:

First press, displays the current setting and subsequent presses increment up by 1 till it reaches 5 and then the next press cycles it back to 1.

### 5 Status Bar:

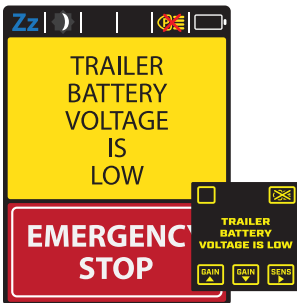
- A. **Zz Sleep symbol** - Press and hold for 5 seconds. Unit will beep 6 times and display sleep button. When put to sleep while plugged into power, tap screen to wake. If put to sleep while unplugged, unit will need to be plugged into power again to wake up.
- B. **Day / night mode** – (Sun / Moon) Press and hold to switch display to either mode.
- C. **Brake system type** – displays the brake type the controller is set to.
  - i. Not displayed – controller firmware is not programmable with brake type.
  - ii. (e) Electric brakes.
  - iii. (b) Brakerite Hydraulic Actuator.
  - iv. (h) Hydrastar Hydraulic Actuator
  - v. (d) Deutsch Hydraprop Actuator
- D. **Headlight Symbol**
  - i. Crossed out - no connection. Switch headlights on and check trailer taillights..
  - ii. Headlight symbol - Controller connected.
  - iii. OLED - wireless connection status displayed in Credo logo.
- E. **Battery symbol** - shows battery status, Power connected (Charging), Full battery, and Low battery.

# Credo screen controls and warnings



## Headlights warning or EC on older controllers

Will flash on screen with 4 beeps if headlights are not on the trailer or there is a loss of communication between the trailer module and in-cab controller. In the event of communication loss, providing the headlamps are on and the lighting connection between the tow vehicle and the trailer is not faulty, the brakes will continue to operate at the last setting. This should however be investigated as soon as it is safe to stop.



## Low trailer battery warning or EB on older controllers

Will flash and beep 4 times each time the brakes or emergency brake are applied if the trailer battery voltage has dropped to an unsafe level, which would result in the brakes not operating correctly. This screen will also display if the trailer battery is disconnected.



## Sleep menu

Press and hold 'Zz' in the top left corner of the screen for 5 seconds. Credo unit will beep 6 times and display sleep menu shown to the left. Press the indicated area of the screen to put the unit into sleep mode or press cancel to return to the home screen.

When put to sleep while plugged into power, tap screen to wake. If put to sleep while unplugged, unit will need to be plugged into power again to wake up.

OLED Controller will beep for 8 seconds when disconnected from USB power. Press any button to silence.

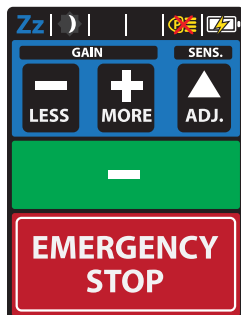
# Recoding of Touch-Screen In-cab Controller

- 1 Power up in-cab controller on the USB cable and leave plugged in for the duration of coding the controller.
- 2 Wait till the screen displays the gain and sensitivity control buttons. The braking output is displayed in the green box below.
- 3 Press and hold the battery symbol for 5 seconds ignoring the screen flashing any messages. The in-cab controller will then display a 4 button menu.

- 4 Select 'Pair' to connect the in-cab controller to the trailer module. Match the controller number with the 'pairing number' found on your trailer module.
- 5 Change the number by tapping the arrows below to increment the digit by one.

To reach 0 increment the digit till it reaches 9 and then the next tap brings it back to 0.

**Note:** The signal strength is displayed in the centre, top of screen during pairing setup process. To check signal strength in future, you need to open up these settings.



Refer to step 2



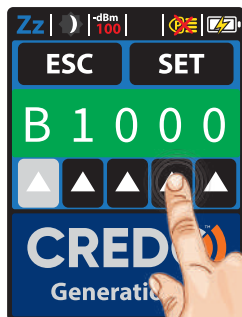
Refer to step 3



Refer to step 4

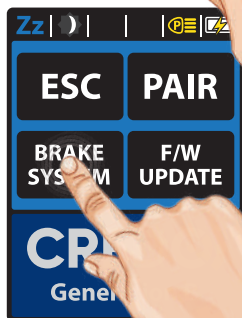


- 6 Once you have the match to pairing number of your trailer module, press 'SET' to lock the In-cab controller.
- 7 The in-cab controller will after a pause emit 4 beeps and return to the 4 button menu.



Refer to step 5

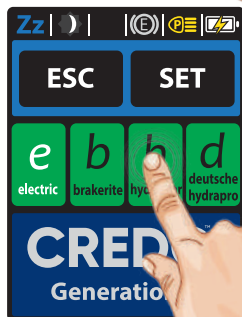
- 8 Select the brake system and check it is set to the correct brake type, press 'ESC' to return to home or 'SET' if the Brake System is to be updated.  
*Note: The Brake System should be correctly matched during manufacturing.*



Refer to step 8

- 9 Connect the trailer to vehicle and turn on the headlights – check the head light symbol loses the red cross to prove it is connected to the trailer and functioning as normal.

- 10 If red cross doesn't go away, unplug in-cab controller and select immediate sleep if this screen appears. Leave unplugged for approx 5 seconds. Plug in the in-cab controller and if the serial number on the third start up screen does not match the number on the trailer, start recoding process again.



Refer to step 8

# Recoding of OLED In-cab Controller

- 1 Power up in-cab controller on the USB cable and leave plugged in for the duration of coding the controller.
- 2 Wait till the screen displays the gain and sensitivity control buttons.
- 3 Press and hold the '▲' and '▼' buttons for 5 seconds until the Pairing screen is showing.
- 4 Use the '▲' and '▼' buttons to change the number. To move to the next number use the '▶' button.
- 5 Once the Pairing number matches your Trailer module use the '▶' button again to move the cursor below 'SET' then click '▲' to save and return home.
- 6 Connect the trailer to vehicle and turn on the headlights – check the head light symbol loses the cross to prove it is connected to the trailer and functioning as normal.
- 7 If cross doesn't go away, unplug in-cab controller and select immediate sleep if this screen appears. Leave unplugged for approx 5 seconds. Plug in the in-cab controller and if the serial number on the third start up screen does not match the number on the trailer, start recoding process again.



**Note:** The signal strength is displayed in the centre, top of screen during pairing setup process. To check signal strength in future, you need to open up these settings.

## Maintenance and checks

- Check battery is keeping well charged. A well charged battery should be at or above 13 volts. This is particularly important if the trailer is left parked for extended periods of time. If the trailer is not used for extended periods the battery should be removed every 2 months and charged to ensure it does not become damaged. This can happen if the battery charge drops below 10.5 volts.
- Check the trailer plug and vehicle socket to ensure they are not damaged and they give a sound electrical connection. An intermittent or faulty connection could mean the brakes do not function correctly.
- If fitted with a hydraulic actuator make sure the fluid level remains sufficient. The fluid should be changed in line with general trailer service intervals.
- If fitted with electric drums make sure they are kept properly adjusted and that the magnets and linings are not excessively worn and are replaced in line with general trailer service intervals.

## Warranty Terms and Conditions

### LIMITED 18 MONTH WARRANTY CONDITIONS

Trailequip Ltd warrants that the mechanical and electrical components of the TRAILPARTS/CREDO products as listed below will be free of defects in material and workmanship for a period of eighteen months from the original date of purchase.

Whilst we take every effort to ensure compatibility with all known vehicles we cannot guarantee 100% compatibility for all vehicles.

To obtain any warranty service, you must provide Trailequip Ltd with proof of purchase, such as a copy of your tax invoice or purchase receipt, which will include a purchase date and the serial number of your product. This warranty does not cover the removal or re-fitting of the product.

TRAILPARTS/CREDO will, at its discretion, repair, replace or refund the purchase price of a defective product or component, provided you return the defective product or component during the warranty period, freight charges prepaid, to Trailequip Ltd or to an authorized TRAILPARTS/CREDO dealer or stockist. Attach your name, address, email address, telephone number, a description of the problem, and a copy of the tax invoice or purchase receipt listing the date of purchase and the TRAILPARTS/CREDO serial number of the defective product.

This warranty does not apply if the product has been damaged by misuse, overloading, impact, modification, improper installation. This warranty is void if any TRAILPARTS/CREDO serial number has been removed, altered, or defaced.

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