



SavvyLevelTM CV

SavvyCV4 - Caravan User Guide

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CAUTION! DO NOT OPEN DEVICE UNLESS EXPLICITLY INSTRUCTED BY SAVVY TECHNICAL SOLUTIONS. NEVER TOUCH ANY PART OF THE PRINTED CIRCUIT BOARD, AS THIS WILL DAMAGE THE DEVICE AND VOID YOUR WARRANTY.

Preamble

Be sure to read this guide in its entirety as it contains important information on how to operate your SavvyLevel.

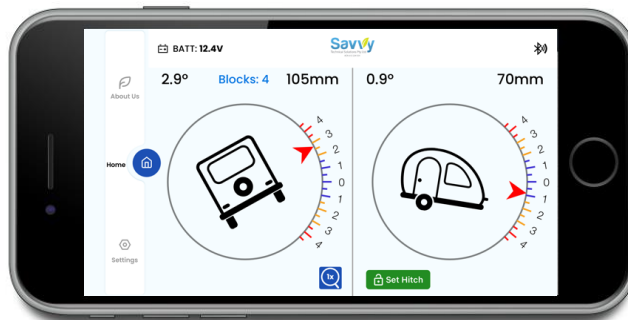
This user manual applies to all SavvyLevelPlus +S4 models. Throughout this guide we will make a reference to:

- Caravan, but this equally applies to Campers and other RVs (Recreational Vehicles).
- SavvyLevelPlus +S4 device will simply be referred to as **Savvy4** in this guide.
- SavvyLevel App installed on your smartphone will be referred to as **SavvyCV4** in this guide.

Introduction



Savvy4 device



Apple/Android mobile phone/tablet

SavvyCV4 solution is a fully integrated levelling system designed to be used with all type of Caravans, Campers and other RVs.

SavvyCV4 solution comprises of a Savvy4 precision level detection Bluetooth® device, mounted either inside or outside of your caravan, that communicates with SavvyCV4 Apple/Android App installed on your smart phone/tablet. It is extremely easy to use and boasts an amazing accuracy within 0.1 degree across its operating temperature range.

Once installed, the solution requires a simple one-time activity to physically level your caravan to your desired level and capturing that level by activating 'Zero Calibration' function located in Settings on your App. This activity captures your desired level in memory of SavvyCV4, ie. it shows on the App as a 'zero level'.

SavvyCV4 App displays your caravan's pitch and roll in both degrees and height in millimeters or inches (go to Settings to choose your preferred Unit Of Measure to be used). To ensure accurate levelling, a one-time entry of 'Wheel to Wheel' and 'Wheel to Jockey Wheel' dimensions specific to your caravan must be entered (also in Settings).

When Savvy4 is installed outside (for better Bluetooth reception, when installed on caravan with metal cladding) it will require an External Mounting Kit and an External Mount Box Kit that need to be purchased separately. External Mount Box Kit features a highly durable box made from Luran® S 778T (ASA) plastic and is rated to IP68 standard. When installing Savvy4 externally, you must ensure that the device is weather proofed that prevents water ingress. Strict adherence to provided installation documented procedure is a must to prevent water ingress that might result in a damage to your Savvy4 device.

10X Zoom magnification feature, that comes standard with SavvyCV4 App, when activated, is very useful at small angles by displaying an exaggerated movement on the display making it easy to level to a very high accuracy.

Another unique feature of SavvyCV4 enables users to record their preferred hitching and unhitching height. For SavvyCV4 model, this feature is now available on the main display.

Key Features

- For use with
 - Apple™ devices, Software Version 13 and above.
 - Android™ devices, Android Version 7.0 and above.
- Designed to be powered by your Caravan power supply (flexible 7 to 30 volts).
- Extremely simple to operate.
- No WIFI required. Connection is via Bluetooth of smartphone.
- After 1st connection is completed, auto connects when device is in range.
- Voltage reporting at the point of connection.
- Each device is 100% factory tested and calibrated.
- Includes thermal calibration and compensation resulting in superb accuracy of ± 0.1 degree over normal operating temperatures.
- Engineered to the highest standards using only the finest materials.
- Supports landscape and portrait orientation.
- 10x zoom feature to easily obtain a perfect level.
- Inclinator style gauges indicates ± 45 degrees and ± 4.5 degrees in 10x zoom mode.
- Quick display of number of Blocks when Roll needs to be corrected.
- Preferred hitching/unhitching height recording page.

Download SavvyCV4 App

SavvyCV4 App is a free App that needs to be installed on your smartphone/tablet.

*Please ensure that you downloaded and installed SavvyCV4 App as other SavvyLevel Apps are available that work with previous SavvyLevel releases. **Only SavvyCV4 App will work with your Savvy4 levelling device.***

It communicates with the Savvy4 device installed in your Caravan.

Savvy4 uses a Bluetooth low energy connection.

SavvyCV4 App is available on App Store and Google Play™.

Search for '**SavvyCV4**'



then download and install the app.



Connecting Savvy4 device with SavvyCV4 App

IMPORTANT NOTE: Do not pair your SavvyLevelPlus S4 device with SavvyCV4 App via 'Settings -> Bluetooth' of your smartphone/tablet App.

On your Smartphone, once your 'Bluetooth' is enabled, all you need to do is launch your SavvyCV4 App and make a connection, done entirely within the app. After that the SavvyLevel app will remember your connection and will attempt to auto connect whenever you activate the app.

Please note that only one mobile device can be connected to your Savvy4 device at any one time. Your Savvy4 device remains connected while the app is active (even in background) and in range. If you need Savvy4 to be disconnected, please delete your background connection with the App.

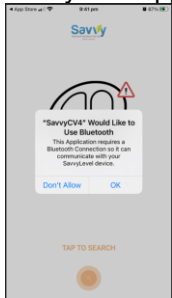
The very 1st time Savvy4 device connects to SavvyCV4 App, the following will display on the App:



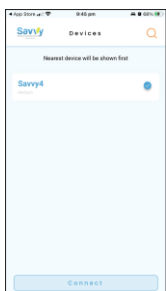
To make an initial connection, be sure your device is powered on.

Select 'Scan Device' button.

SavvyCV4 App will ask for a permission to use 'Bluetooth',



so please select 'OK' resulting in the App searching for available Savvy4 device.



List of available Savvy4 devices will display with the nearest one being selected. If there are multiple devices listed, stand close to your caravan and re-scan. The list of devices is sorted according to Bluetooth signal strength. The first listed device should be your Savvy4 device.

Click 'Connect' button and 'Successful' connection between Savvy4 device and SavvyCV4 App should automatically be established.

Once login is successful, your Smartphone will remember your Savvy4 device when re-launching the app.

Upon successful connection a 'Welcome to SAVVYLEVELCV' tutorial will start. This will only display once. To see tutorial again, go to 'Settings' of the SavvyCV4 App and click 'Show Tutorial Again' option.

Positioning of Savvy4 device

It is very important to locate the best place where Savvy4 device is to be mounted on your Caravan (Please refer to provided 'SavvyLevel Positioning Guide' document, also available on our website).

Preference should be given to have the device installed internally within caravan, where possible, away from any hazardous locations/materials (next to flames, chemical corrosive fluids, etc). This will, of course, be dependent on caravan configuration, its cladding, ability to permanently connect to caravan battery, etc.

To start the process of identifying where to locate Savvy4, use provided 9V battery cable (you will need to provide your own 9V battery) to power up Savvy4 and connect it to SavvyCV4 on your smartphone.

Place your Savvy4 internally within your caravan and test your Bluetooth signal strength when standing outside of the caravan approximately the same distance away as you would be if sitting in your driver's seat of your vehicle. If you get good signal and your connection to Savvy4 is *GOOD*, mount your device internally within your caravan. If installing your Savvy4 internally, you might consider purchasing our 'SavvyLevel Internal Wiring Kit' to facilitate such installation.

Some caravans have metal cladding that might reduce Bluetooth signal strength giving you unsatisfactory connection to internally located Savvy4. In those cases, please install your Savvy4 externally in a convenient location on the A-frame of your caravan. When installing Savvy4 externally, you might consider purchasing our 'SavvyLevel External Mounting Box' kit and 'SavvyLevel External Wiring Kit' to facilitate such installation.

When installing Savvy4 externally, you must strictly follow installation process as described in provided 'SavvyLevel External Mount Installation Guide'. There are also videos on our website that show the proper process for installation of Savvy4 device externally. This is to ensure that the device is waterproofed and there is no water ingress into the device. Also, if using your own silicon, please ensure that you use neutral cure silicon (Do Not use acetoxysilicone as it is corrosive and might damage electronic tracks and components). Note: if Savvy4 is damaged due to not following correct installation process (causing possibly: water ingress or corrosive effect of acetoxysilicone), it might void a warranty on the device.

Setting your caravan parameters

Settings in your SavvyCV4 App provides you with one place where you will have an opportunity to perform the tasks below.

Enter your specific caravan dimensions

Your SavvyCV4 App needs to know a few parameters so that it will correctly display the amount of caravan tilt height.

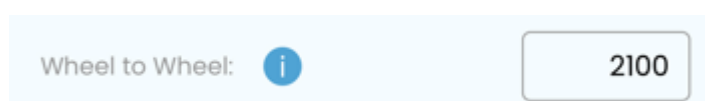
Select measurement Units

Please select units you will use to measure your caravan span. Select (*inches*) or (*mm*) next to **Span Units**, as shown below.



Wheel to Wheel Span

Select span length in your chosen units from **Wheel to Wheel**, as shown below



Wheel to Jockey Wheel Span

Select span length in you chosen units from wheel to jockey wheel as shown below



Wheel to Jockey Wheel: 4500

For dual axle caravans choose the wheel measuring point midway between both wheels.

Zero Calibration

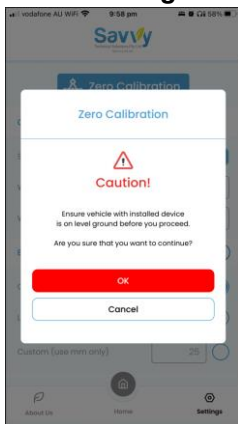
Zero Calibration is used to record your preferred level. You can change this anytime.

Zero level calibration only needs to be performed once after Savvy4 device is first installed. It uses sophisticated thermally compensated algorithms to achieve unprecedented precision over a wide range of operating temperatures.

For best results calibration should be performed at median temperatures around 25°C (77°F), with the Savvy4 device temperature stabilized.

To calibrate:

- Place your caravan on level ground or at its preferred level for comfortable use.
- Make sure your Savvy4 device is powered up.
- Select **Settings** and then select **Zero Calibration** button. Message below will display,



Press **OK** (red button) to complete the action.

Enable Block Type

Once you enable Block Type, you will need to choose the type of blocks that you have in order for SavvyCV4 to accurately calculate number of blocks for you to use, as shown below

Block Type ☒

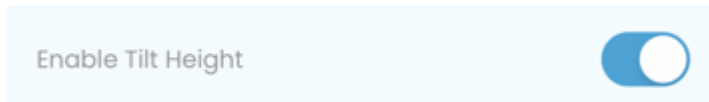
OziBlock n Chock ☒

Lynx Block and Chock ☐

Custom (use mm only) ☐

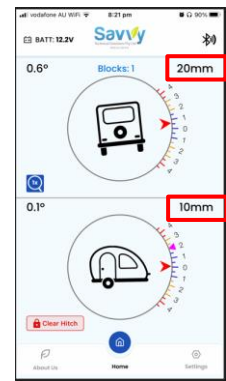
Enable Tilt Height

Tilt Height provides height values required to achieve perfect level in your chosen units



Enable 'Battery Indicator'

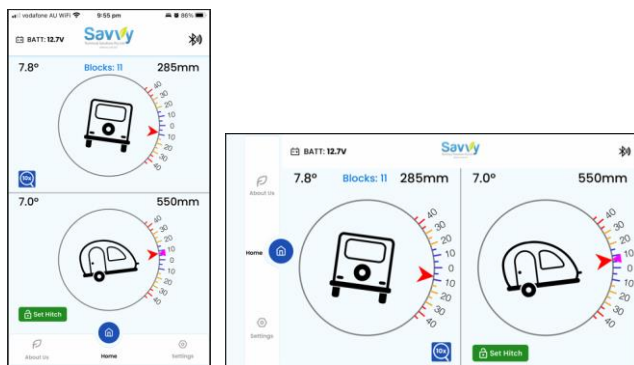
Battery Indicator enables a display of your voltage powering your Savvy4 device



BATT: 12.2V

Choose Screen Orientation

Select your preferred screen orientation, as shown below



Show Tutorial Again

Press Show Tutorial Again to view again what some of the functions mean, as show below

Show Tutorial Again

Basic Operation

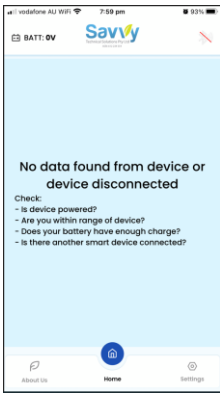


Fig. 1



Fig. 2

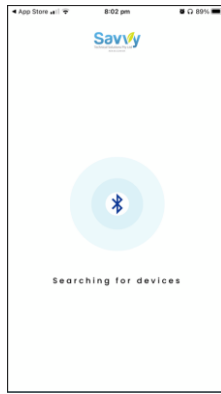


Fig. 3

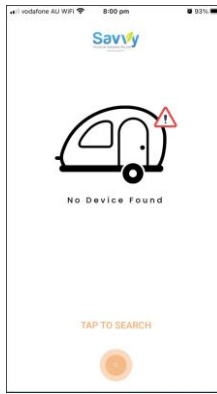


Fig. 4

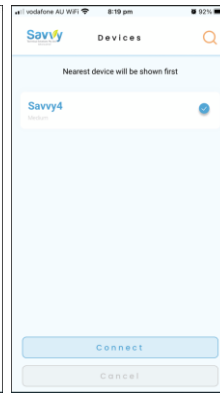


Fig. 5

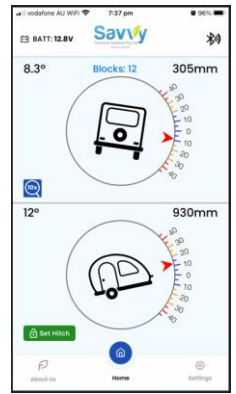


Fig. 6

Above screenshots display various stages when 1st time connecting Savvy4 device with SavvyCV4 App or attempting to connect to another Savvy 4 device.

After the connection is established, when Savvy4 device is powered up and SavvyCV4App is opened, connection will automatically take place

Fig. 1 → Savvy4 device is not connected to SavvyCV4 App.

Fig. 2 → If connecting to last used Savvy4 device, click 'OK' else click 'Change Device' to select new Savvy4.

Fig. 3 → SavvyCV4 searches for available Savvy4 devices (note that if few Savvy4 available in your vicinity, the closest one will be selected).


Fig. 4 → No Savvy4 device found, ie. SavvyCV4 App cannot find any Savvy4 device to connect to

Fig. 5 → Display of available Savvy4 devices, Note: could be more than one, closest one selected.


Fig. 6 → Savvy4 device successfully connected with SavvyCV4 App.

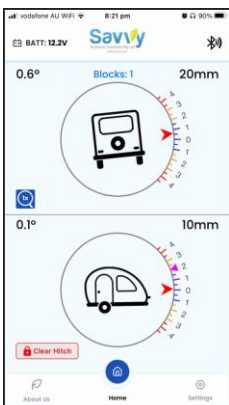
10X Zoom feature



Press  on the screen to change gauge scale from normal scale ($\pm 45^\circ$ tilt) to zoomed scale ($\pm 4.5^\circ$ tilt). Because zooming feature exaggerates the tilt it is very easy to visually obtain a perfect level.



Press  and display will return back to normal operation.



Hitch/Unhitch your caravan

Indicates where hitch height was last recorded. Used to record the position where the tow ball of your vehicle clears the socket of the jack wheel of your caravan.

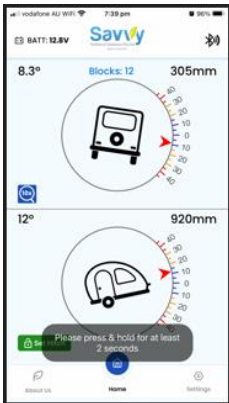


Fig. 1

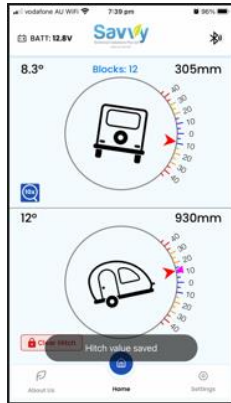


Fig. 2

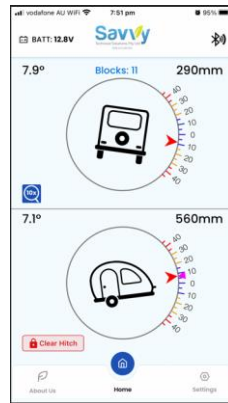


Fig. 3

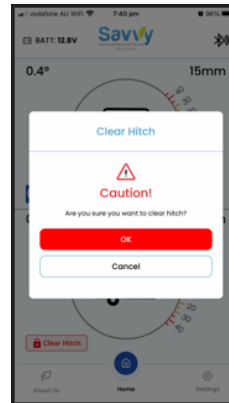


Fig. 4

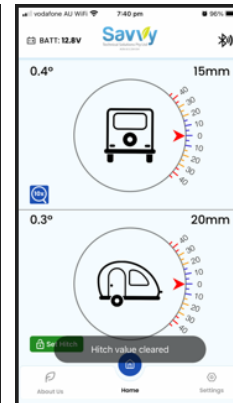



Fig. 5

General guidelines only:

Unhitching

Once you have leveled your caravan in the east-west (roll axis), raise your caravan to a safe height clearance and unhitch from your tow vehicle.

Press  for at least 2 sec to record Hitch, Fig.1 above. When saved, message as per Fig. 2 will display for ~3sec. This action saves your preferred hitch height. This will also activate the hitching bug, see Fig. 2 & 3.

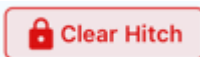
When your tow vehicle is clear you can now proceed as normal to level your caravan. As you level, you can see your level height change, Fig. 5 above.

Hitch bug arrow, only visible when hitch height is set, shows direction to raise or lower your caravan height.

Hitching

When it is time to hitch your caravan, go to your SavvyCV4 App and raise or lower your caravan in the direction of the hitching bug arrow. You will see the caravan height approach your recorded Hitch.

When your caravan is at your recorded hitching height, Fig. 3 above, pitch arrow and hitching bug arrow will point at each other. You may now hitch with your tow vehicle. Follow all precautions and always visually inspect that your caravan is in fact clear enough for your tow vehicle.

When ready to clear Hitch, press  for at least 2 sec, Fig. 3. Message, Fig. 4, will display (in case the press of the button was accidental). Press 'OK' to clear Hitch or 'Cancel' to leave recorded Hitch as is. When saved, message as per Fig. 5 will display for ~3sec. This also removes the hitching bug.

Caution: This hitch height feature is to be used as an aid only. Always visually inspect any hitching / unhitching operations. There are many factors that will alter your hitch height. Primarily, differences to your tow vehicles loading at time of unhitching to time of hitching again. Tyre inflation, fuel load and vehicle position change are other primary factors.

Specifications

- Wireless Bluetooth LE v4.1
- Device range up to 65m in the open environment.
- Accuracy better than ± 0.1 of a degree with a precision of ± 0.05 of a degree at zero calibration temperature.
- Ultra-wide supply voltage from 7v - 30v @ 95% efficiency (voltage under Load conditions, ie. SavvyLevel being connected). Please note that Savvy draws different amounts of load at different times and simply placing a Voltmeter will read the average voltage, not the actual voltage.
- Reverse polarity damage protection.
- Low operating current < 12 mA @ 12v
- Operating temperature extremes -40 to +85°C
- $\pm 45^\circ$ Pitch and Roll in normal operation.
- $\pm 4.5^\circ$ in (10x) zoom mode.
- Physical dimensions measure 62 x 62 x 22 mm

Troubleshooting

Q – I am unable to connect with my SavvyCV4 device.

A –

- Ensure that you have installed SavvyCV4 App on your smartphone.
- In 'Settings' of your smartphone (not SavvyCV4 App), 'Bluetooth' option must be 'ON'. Then try connecting within SavvyCV4 App. *Do Not PAIR from 'Settings → Bluetooth' of your smartphone.*
- If still unable to connect, check the power to Savvy4 device. It must be between 7-30V when device is connected
- If still unable to connect and the device is mounted outside, has the device been installed so that no water ingress occurred? Is suspecting water ingress, cover the device so that water evaporates and try again after few days.

Q – I get very poor Bluetooth signal range.

A –

- The most likely cause is that there are too many signal obstructions (metallic objects) in a direct path, between your SavvyCV4 App and your Savvy4 device.
- Try opening hatches or window coverings in your caravan where your Savvy4 is installed.
- Try to place your Savvy4 device in a different location. Refer to the 'SavvyLevel Positioning Guide' sheet.
- Optionally, Savvy4 can be mounted outside by purchasing an External Mounting Box kit.

NOTES



Visit us at:

WEB www.savvytechnicalsolutions.net
Email support@savvytechnicalsolutions.net

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Compliance:
AS/NZS 61000.6.3