ENGLISH

Blue Smart IP65 Charger

6V/12V - 1.1A | 100-240V

Rev. 02 - 08/2025

This manual is also available in HTML5.

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1. Safety instructions

WARNING: CAREFULLY READ AND FOLLOW ALL SAFETY INSTRUCTIONS

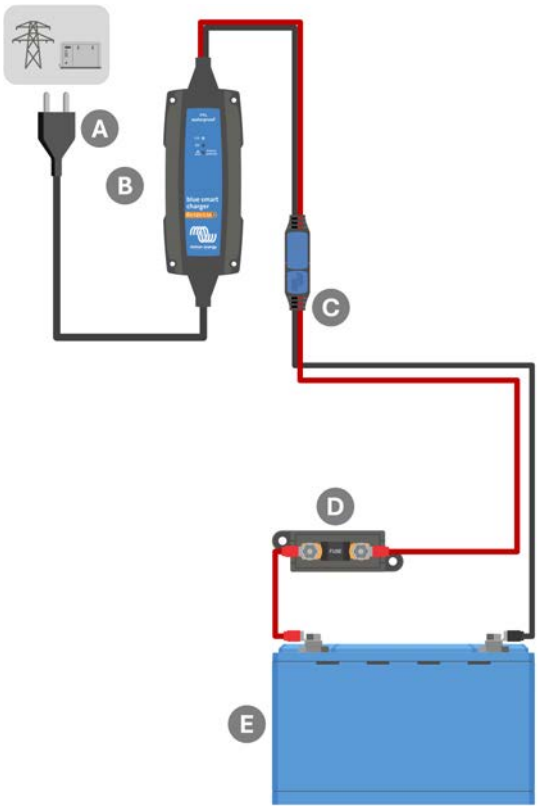
- Carefully read the manual **before** the charger is installed and operated; retain the manual in a safe place for future reference.
- The charger must **not** be installed or operated by anyone who lacks the appropriate knowledge or competence required for safe installation and/or usage.
- **Charger installation and operation**
  - A. Install the charger in a location with good natural airflow/ventilation and sufficient unobstructed space around it; refer to the the 'Installation > Mounting' section for more information.
  - B. Install the charger on a non-flammable substrate and ensure there are no heat-sensitive items in the immediate vicinity; it is normal for the charger to become hot during operation.
  - C. Install the charger in a location where it is protected from environmental conditions such as water, moisture, dust and direct sunlight.
  - D. Do not install or operate the charger directly above the battery, or in a sealed compartment with the battery; batteries can emit explosive gasses.
  - E. Do not cover or place any other items on top of the charger.
- **Battery installation and charging**
  - A. Install and charge the battery in a location with good natural airflow/ventilation.
  - B. Ensure that there are no ignition sources near the battery; batteries can emit explosive gasses.
  - C. Battery acid is corrosive; if battery acid comes into contact with skin immediately rinse with water.
  - D. Do not charge non-rechargeable batteries or Li-ion batteries if the battery temperature is below 0°C.
- **DC connection to battery**
  - A. For hardwired installations install a suitably rated inline fuse or circuit breaker located as close as practical to the battery; refer to the 'Installation > Wiring > Overcurrent protection' section for more information.
  - B. Ensure that the DC power cable polarity is correct at all connections.
  - C. Ensure that the DC system is fully shut down/isolated prior to disconnection of any existing cabling and/or new connections are made to the battery/DC system.
  - D. There are specific wiring connection instructions for charging a battery installed within a vehicle; refer to the 'Installation > Wiring' section for more information.
- **AC connection to mains supply**
  - A. AC connection to the mains supply must be in accordance with local electrical regulations.
  - B. Do not operate the charger if the AC power cable is damaged, contact a service agent.
- **Charger setup**
  - A. Refer to the battery manufacturers instructions and specifications to ensure the battery is suitable for use with this charger and confirm the recommended charge settings.
  - B. The default charge preset (Normal mode) combined with adaptive charge logic is well suited for most common battery types; such as flooded lead-acid, AGM and Gel.

    Selection of Li-ion charge mode and advanced configuration with user defined settings is possible using a Bluetooth enabled device (mobile phone or tablet) with the **VictronConnect** app.

This product features a pressure equalization vent to maintain the IP65 rating under various environmental conditions. The vent is **NOT** a reset button. Do not insert sharp or conductive objects, as this may cause damage and compromise the enclosure's protection.

2. Quick start guide

1. Connect the DC cables to the battery or batteries; ensure that there is a good electrical connection and keep the terminals away from any surrounding objects that could cause a short circuit.



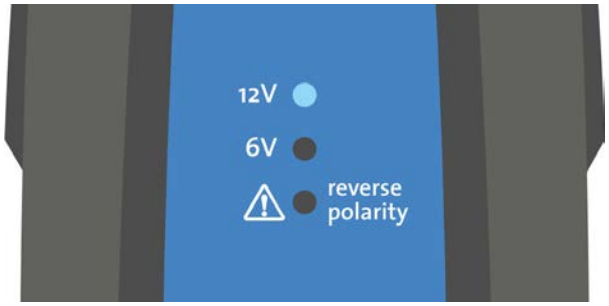
2. Connect the AC power cable to a mains power outlet; the '12V' (green) and '6V' (yellow) LEDs will briefly illuminate when the **blue smart charger** is powered up.

   The battery voltage is automatically detected and set prior to the test stage (based on the voltage of the battery connected); when the '12V' (green) or '6V' (yellow) LED is blinking fast, the battery voltage has been automatically set and the charger is in test or bulk stage.

   Note that for severely depleted batteries, automatic battery voltage detection may be incorrect; in this case the battery voltage must be manually set using the VictronConnect app and a Bluetooth enabled device (such as a mobile phone or tablet).

   If the '12V' (green) and '6V' (yellow) LEDs are blinking slow the charger is in standby mode and cannot detect presence of a battery; in this case the AC mains power source should be disconnected before checking the DC wiring/connections and rectifying the issue.

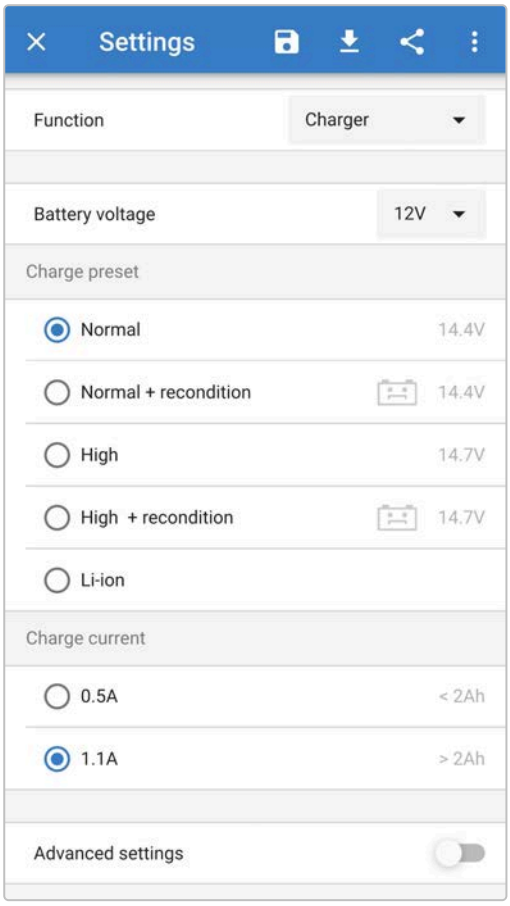
   If the 'reverse polarity' (red) LED is illuminated a reverse polarity DC connection has been detected; in this case the AC mains power source should be disconnected before checking the DC wiring/connections and rectifying the polarity.



3. Configure the charge settings as required for the battery type and capacity; using the VictronConnect app, review and select the appropriate 'Battery voltage', 'Charge preset' and 'Maximum charge current' (standard or low) directly from the settings page – see section 5.2 'Using VictronConnect' for more information.

   The charger will automatically store the selected settings and recall it for future charge cycles (even after being disconnected from power).

   Note: The default charge preset ('Normal' mode) and adaptive charge logic is well suited for most common battery types; such as flooded lead-acid, AGM and Gel. For these battery types, settings configuration with the VictronConnect app may not be necessary.



4. When the '12V' (green) or '6V' (yellow) LED is blinking slow the charger has moved into absorption stage (bulk stage is complete); the battery will be approximately 80% charged (or >95% for Li-ion batteries) and may be returned into service if required.

5. When the '12V' (green) or '6V' (yellow) LED is illuminated the charger has moved into float stage (absorption stage is complete); the battery will be fully (100%) charged and is ready to be returned into service.

6. Disconnect the AC power cable from the mains power outlet at any time to stop charging.

3. Features

A. **Bluetooth setup and monitoring (Using VictronConnect)**

Equipped with integrated Bluetooth; enabling quick and simple setup, advanced configuration, comprehensive monitoring and firmware updates via the **VictronConnect** app and a Bluetooth enabled device (mobile phone or tablet).

B. **Integrated charge presets**

Integrated charge presets (selected via the **VictronConnect** app) combined with adaptive charge logic are well suited for most common battery types; such as LiFePO4, AGM, Gel and flooded lead-acid. Advanced configuration with specific user defined settings is also possible using **VictronConnect**.

C. **Multi-stage charge algorithm**

The multi-stage charge algorithm is specifically engineered to optimise each recharge cycle and charge maintenance over extended periods.

D. **Adaptive absorption**

Adaptive absorption monitors the battery's response during initial charging and intelligently determines the appropriate absorption duration for each individual charge cycle. This ensures that the battery is fully recharged regardless of the discharge level or capacity and avoids excessive time at the elevated absorption voltage (that can accelerate battery aging).

E. **Temperature compensation**

Charge voltage is automatically compensated depending on the ambient temperature; this ensures that the battery is charged at the optimal charge voltage regardless of the climate and avoids the need for manual settings adjustments. Temperature compensation is not required and automatically disabled when in LI-ION charge mode.

F. **Durable and safe**

Engineered to provide years of trouble-free and dependable operation in all usage conditions:

i. Protection against overheating: Output current will be derated if the ambient temperature increases above 30°C (linear derate from 100% at 30°C to 25% at 50°C)

ii. Protection against output short circuit: If a short circuit condition is detected the charger will shut down

iii. Protection against reverse polarity connection: If the charger is incorrectly connected to a battery with reverse polarity the charger will shut down

iv. Protection against ingress of dust and water/liquid

G. **Silent operation**

Silent operation since there is no cooling fan, cooling is via natural convection; full rated output current is still provided up to an ambient temperature of 30°C.

H. **Lithium Ion compatible**

Compatible with Li-ion ($LiFePO_4$) batteries; when the integrated LI-ION charge mode is selected the charge cycle settings are altered to suit.

If the charger is connected to a battery where under voltage protection (UVP) has tripped, it will automatically reset UVP and start charging; many other chargers will not recognise a battery in this state.

Warning: Do not charge Li-ion batteries if the battery temperature is below 0°C.

I. **Storage stage**

An additional stage to extend battery life whilst the battery is unused and on continuous charge.

J. **Recondition stage**

An optional stage that can partially recover/reverse lead acid battery degradation due to sulfation; typically caused by inadequate charging or if the battery is left in a deeply discharged state.

K. **Configurable output current**

An optional 'Low current' mode that limits the maximum charge current to a significantly reduced level; beneficial when charging lower capacity batteries with a high current output charger.

L. **Recovery function**

The charger will attempt to recharge a severely discharged battery (even down to 0V) with low current and then resume normal charging once the battery voltage has risen sufficiently; many other chargers will not recognise a battery in this state.

M. **Power supply mode**

A specific mode to use the charger as a DC power supply; to power equipment at a constant voltage with or without a battery connected.

4. Operation

4.1. Charge algorithm

The **Blue Smart IP65 Charger** range are intelligent multi-stage battery chargers, specifically engineered to optimise each recharge cycle and charge maintenance over extended periods.

The multi-stage charge algorithm includes the individual charge stages described below:

1. **Test**

   Before the charge cycle commences the battery is tested to determine if it will accept charge, even if the battery is fully discharged (close to 0V open circuit voltage) it may successfully accept charge.

   The test stage will continue until a charge pulse is able to increase the battery voltage above 12.5V (6.25V when configured as a 6V charger) or 2 minutes have elapsed.

   If reverse polarity, short circuit or excessively high battery voltage is detected the battery will be rejected, and an error will be indicated by the LEDs; in the event of an error, disconnect the AC mains power source before attempting to diagnose and rectify the issue.

   A false rejection may occur if attempting to charge a deeply discharged battery while it is simultaneously connected to a load; in this case all loads should be isolated before attempting to charge again.

2. **Bulk**

   The battery is charged at maximum charge current until the voltage increases to the configured absorption voltage.

   The bulk stage duration is dependent on the battery's level of discharge, the battery capacity and the charge current.

   Once the bulk stage is complete, the battery will be approximately 80% charged (or >95% for Li-ion batteries) and may be returned into service if required.

3. **Absorption**

   The battery is charged at the configured absorption voltage, with the charge current slowly decreasing as the battery approaches full charge.

   The default absorption stage duration is adaptive and intelligently varied depending on the battery's level of discharge (determined from the duration of the bulk charge stage).

   Adaptive absorption stage duration can vary between a minimum of 30 minutes, up to a maximum limit of 8 hours (or as configured) for a deeply discharged battery.

   Alternatively, fixed absorption duration can be selected; fixed absorption duration is the automatic default when Li-ion mode is selected.

   Absorption stage can also be ended early based on the tail current condition (if enabled), which is when the charge current drops below the tail current threshold.

4. **Recondition**

   The battery voltage is attempted to be increased to the configured recondition voltage, while the charger output current is regulated to 8% of the nominal charge current (for example: 1.2A maximum for a 15A charger).

   Recondition is an optional charge stage for lead acid batteries and not recommended for regular/cyclic use; use only if required, as unnecessary or overuse will reduce battery life due to excessive gassing.

   The higher charge voltage during recondition stage can partially recover/reverse battery degradation due to sulfation, typically caused by inadequate charging or if the battery is left in a deeply discharged state for an extended period (if performed in time).

   The recondition stage may also be applied to flooded batteries occasionally to equalise individual cell voltages and prevent acid stratification.

   Recondition stage is terminated as soon as the battery voltage increases to the configured recondition voltage or after a maximum duration of 1 hour (or as configured).

   Note that in certain conditions it is possible for the recondition state to end before the configured recondition voltage is achieved, such as when the charger is simultaneously powering loads, if the battery was not fully charged before recondition stage commenced, if the recondition duration is too short (set to less than one hour) or if the charger output current is insufficient in proportion to the capacity of the battery/battery bank.

5. **Float**

   The battery voltage is maintained at the configured float voltage to prevent discharge.

   Once float stage is commenced the battery is fully charged and ready for use.

   The float stage duration is also adaptive and varied between 4 to 8 hours depending on the duration of the absorption charge stage, at which point the charger determines the battery to be in storage stage.

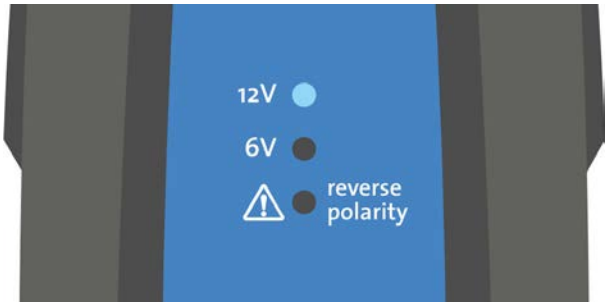
6. **Storage**

   The battery voltage is maintained at the configured storage voltage, which is slightly reduced compared to the float voltage to minimise gassing and extend battery life whilst the battery is unused and on continuous charge.

7. **Repeated absorption**

   To refresh the battery and prevent slow self-discharge while in storage stage over an extended period, a 1 hour absorption charge will automatically occur every 7 days (or as configured).

The indicator LEDs can be used to determine the active charge state; refer to the image and table below:



Charge state		12V (Green LED)	6V (Yellow LED)
12V	Test / Bulk	Fast blinking	Off
	Absorption / Recondition	Slow blinking	Off
	Float / Storage	Illuminated	Off
6V	Test / Bulk	Off	Fast blinking
	Absorption / Recondition	Off	Slow blinking
	Float / Storage	Off	Illuminated

Alternatively, a Bluetooth enabled device (mobile phone or tablet) with the **VictronConnect** app can be used to view the active charge state; refer to the 'Monitoring > VictronConnect' section for more information.

4.2. Temperature compensation

The **Blue Smart IP65 Charger** range feature temperature compensation, which will automatically optimise the nominal/ configured charge voltage based on ambient temperature (except for Li-ion mode or if manually disabled).

The optimal charge voltage of a lead-acid battery varies inversely with battery temperature; automatic temperature-based charge voltage compensation avoids the need for special charge voltage settings in hot or cold environments.

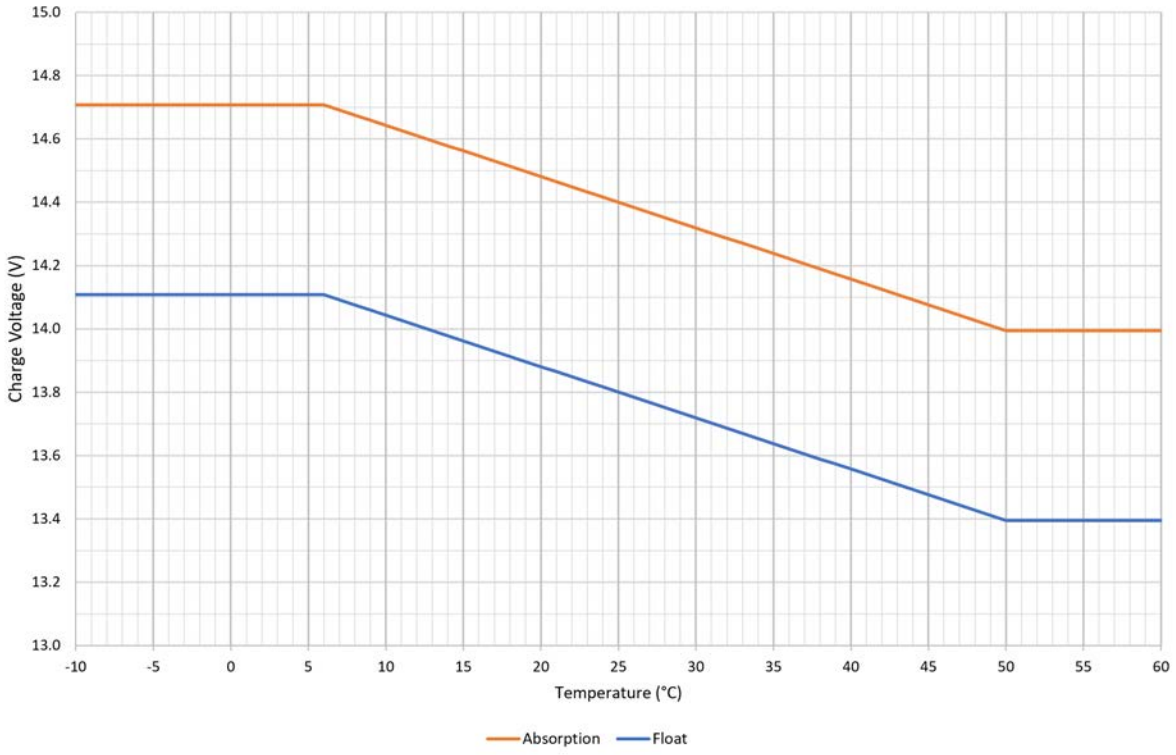
During power up the charger will measure its internal temperature and use that temperature as the reference for temperature compensation, however the initial temperature measurement is limited to 25°C as it's unknown if the charger is still warm from earlier operation.

Since the charger generates some heat during operation, the internal temperature measurement is only used dynamically if the internal temperature measurement is considered reliable; when the charge current has decreased to a low/negligible level and adequate time has elapsed for the charger's temperature to stabilise.

For more accurate temperature compensation, battery temperature data can be sourced from a compatible battery monitor (such as a BMV, SmartShunt, Smart Battery Sense or VE.Bus Smart Dongle) via VE.Smart Networking; refer to the 'Operation > VE.Smart Networking' section for more information.

The configured charge voltage is related to a nominal temperature of 25°C and linear temperature compensation occurs between the limits of 6°C and 50°C based on the default temperature compensation coefficient of -16.2mV/°C for 12V chargers (-8.1mV/°C when in 6V mode) or as configured.

Refer to the graph below for the default temperature vs charge voltage curve for 12V chargers:



The temperature compensation coefficient is specified in mV/°C and applies to the entire battery/battery bank (not per battery cell).

If the battery manufacturer specifies a temperature compensation coefficient per cell, it will need to be multiplied by the total number of cells in series (there are typically 6 cells in series within a 12V lead-acid based battery).

4.3. Commencing a new charge cycle

A new charge cycle will commence when:

1. The configured Re-bulk condition is satisfied (typically due to a large load):
   A. Re-bulk current is disabled (default configuration): The current output must be maintained at the maximum current output for four seconds.
   B. Re-bulk current is configured with a user defined value: The current output must exceed the configured Re-bulk current for four seconds while the charger is in float or storage stage.
2. **VictronConnect** is used to select a new charge mode or change the function from Power Supply to Charger mode.
3. The power supply to the AC power supply has been disconnected and reconnected.

In the event that the DC cables are disconnected/isolated from the battery and/or load while the charger is powered by the AC supply, it is recommended to allow 5 seconds for the charger to reinitialise before the DC cables are reconnected and a new charge cycle is commenced.

4.4. Estimating charge time

The time required to recharge a battery to 100% SOC (state of charge) is dependant on the battery capacity, the depth of discharge, the charge current and the battery type/chemistry, which has a significant effect on the charge characteristics.

4.4.1. Lead-acid based chemistry

A lead-acid battery is normally at approximately 80% state of charge (SOC) when the bulk charge stage is completed.

The bulk stage duration $\mathbf{T_{bulk}}$ can be calculated as $\mathbf{T_{bulk} = Ah / I}$, where **I** is the charge current (excluding any loads) and **Ah** is the depleted battery capacity below 80% SOC.

The absorption stage duration $\mathbf{T_{abs}}$ will vary depending on the depth of discharge; up to 8 hours of absorption may be required for a deeply discharged battery to reach 100% SOC.

For example, the time required to recharge a fully discharged Lead-acid based 100Ah battery with a 10A charger would be approximately:

- **Bulk stage** duration, $\mathbf{T_{bulk}}$ = 100Ah x 80% / 10A = 8 hours
- **Absorption stage** duration, $\mathbf{T_{abs}}$ = 8 hours
- **Total** charge duration, $\mathbf{T_{total} = T_{bulk} + T_{abs}}$ = 8 + 8 = 16 hours

4.4.2. Li-ion based chemistry

A Li-ion based battery is normally well above 95% state of charge (SOC) when the bulk charge stage is completed.

The bulk stage duration $\mathbf{T_{bulk}}$ can be calculated as $\mathbf{T_{bulk} = Ah / I}$, where **I** is the charge current (excluding any loads) and **Ah** is the depleted battery capacity below 95% SOC.

The absorption stage duration $\mathbf{T_{abs}}$ required to reach 100% SOC is typically less than 30 minutes.

For example, the charge time of a fully discharged 100Ah battery when charged with a 10A charger to approximately 95% SOC is $\mathbf{T_{bulk}}$ = 100 x 95% / 10 = 9.5 hours.

For example, the time required to recharge a fully discharged Li-ion based 100Ah battery with a 10A charger would be approximately:

- **Bulk stage** duration, $\mathbf{T_{bulk}}$ = 100Ah x 95% / 10A = 9.5 hours
- **Absorption stage** duration, $\mathbf{T_{abs}}$ = 0.5 hours
- **Total** charge duration, $\mathbf{T_{total} = T_{bulk} + T_{abs}}$ = 9.5 + 0.5 = 10 hours

5. Setup

5.1. Charge modes

There are 3 integrated charge modes (Normal, High and Li-Ion), as well as an optional Recondition stage that can be included (except for Li-ion mode).

The integrated charge modes combined with adaptive charge logic are well suited for most common battery types; such as flooded lead-acid, AGM, Gel and LiFePO4.

The required charge mode can be selected via a Bluetooth enabled device (mobile phone or tablet) with the **VictronConnect** app; refer to the 'Setup > Setup using Bluetooth' section for more information.

If necessary, advanced configuration with user defined settings is also possible using a Bluetooth enabled device (mobile phone or tablet) with the **VictronConnect** app; refer to the 'Advanced configuration > Advanced settings' and 'Advanced configuration > Expert mode settings' sections for more information.

All settings are stored and will not be lost when the charger is disconnected from mains power or the battery.

5.1.1. Charge voltage

The charge voltage settings for each of the integrated charge modes are specified in the table below:

Mode	Absorption		Float		Storage		Recondition	
	6V	12V	6V	12V	6V	12V	6V	12V
Normal	7.2V	14.4V	6.9V	13.8V	6.1V	13.2V	Disabled	
Normal + Recondition	7.2V	14.4V	6.9V	13.8V	6.1V	13.2V	8.1V	16.2V
High	7.35V	14.7V	6.9V	13.8V	6.1V	13.2V	Disabled	
High + Recondition	7.35V	14.7V	6.9V	13.8V	6.1V	13.2V	8.25V	16.5V
Li-ion	7.1V	14.2V	Disabled		6.75V	13.5V	Disabled	

To ensure proper charging, battery longevity and safe operation it is important to select a charge mode appropriate for the battery type and capacity being charged; refer to the battery manufacturer's recommendations.

The **Blue Smart IP65 Charger** range feature temperature compensation, which will automatically optimise the nominal/configured charge voltage based on ambient temperature (except for Li-ion mode or if manually disabled); refer to the 'Operation > Temperature compensation' section for more information.

5.1.2. Recondition mode

Recondition is an optional charge stage for lead acid batteries and not recommended for regular/cyclic use; use only if required, as unnecessary or overuse will reduce battery life due to excessive gassing.

When recondition mode is enabled the recondition stage is included within the charge cycle (after the absorption stage is complete) and the battery voltage will be increased to an elevated level; refer to the 'Operation > Charge algorithm' section for more information.

Recondition mode can be enabled and disabled via a Bluetooth enabled device (mobile phone or tablet) with the **VictronConnect** app; refer to the 'Setup > Setup using Bluetooth' section for more information.

5.1.3. Low current mode

When low current mode is enabled the maximum charge current is limited to 50% of the maximum rated charge current; refer to the 'Technical Specifications' section for more information.

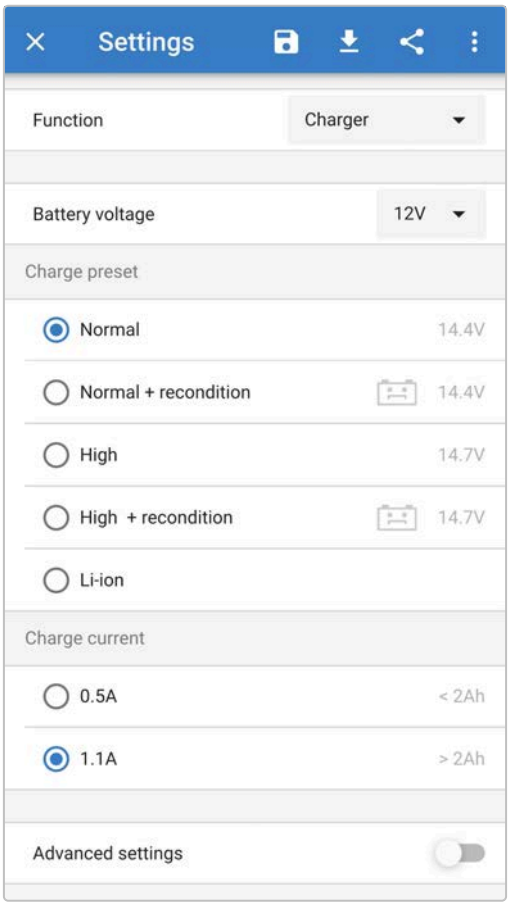
Low current mode is recommended when charging lower capacity batteries with a high current charger; charging at an excessive charge current can cause premature battery degradation and overheating.

Typically the maximum charge current for lead acid based batteries should not exceed ~0.3C (more than 30% of the battery capacity in Ah) and the maximum charge current for LiFePO4 batteries should not exceed ~0.5C (more than 50% of the battery capacity in Ah).

Low current mode can be enabled and disabled via the **VictronConnect** app; refer to the 'Setup > Setup using VictronConnect' section for more information.

5.2. Setup using VictronConnect

The charge mode and charge current limit most appropriate for the battery type and capacity can only be selected using a Bluetooth enabled device (mobile phone or tablet) with the **VictronConnect** app.



For further information about the **VictonConnect** app refer to the VictronConnect manual.

To setup using Bluetooth:

1. Download and install the **VictronConnect** app onto the Bluetooth enabled device (mobile phone or tablet).

   The **VictronConnect** app can be downloaded from the following locations:

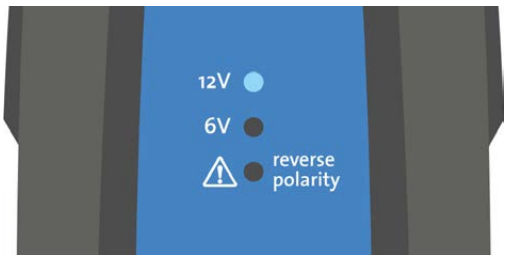
   A. Android - Google Play Store

   B. iOS/Mac - Apple App Store

   C. Windows and other - Victron Energy website > Downloads > Software

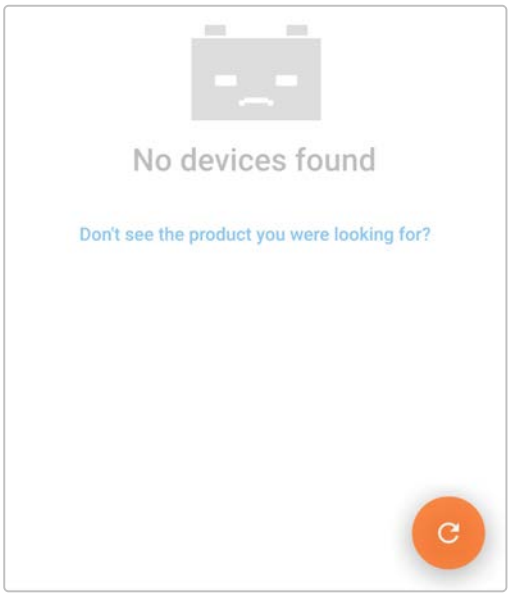
2. Enable Bluetooth on the Bluetooth enabled device (mobile phone or tablet) if not already enabled, but do not attempt to pair with the **Blue Smart IP65 Charger**.

3. Connect the **Blue Smart IP65 Charger** AC power cable to a mains power outlet; after a short delay the 12V (green) and the 6V (yellow) LEDs will begin blink slowly (standby mode), until the charger automatically determines the battery voltage or the battery voltage is manually set.

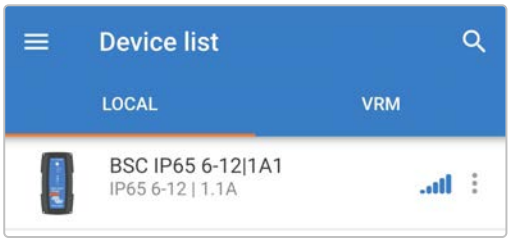


4. Open the **VictronConnect** app and locate the **Blue Smart IP65 Charger** in the Device list Local page, under Other devices.

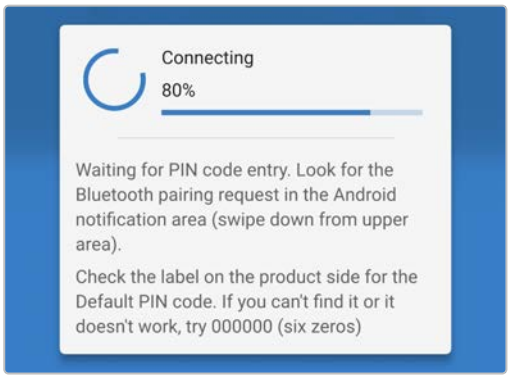
   In case the **Blue Smart IP65 Charger** does not automatically appear, ensure that the mobile phone or tablet has Bluetooth enabled and is within close range, then perform a manual scan for devices by selecting the **Scan** button (round orange button with circular arrow) in the bottom right corner.



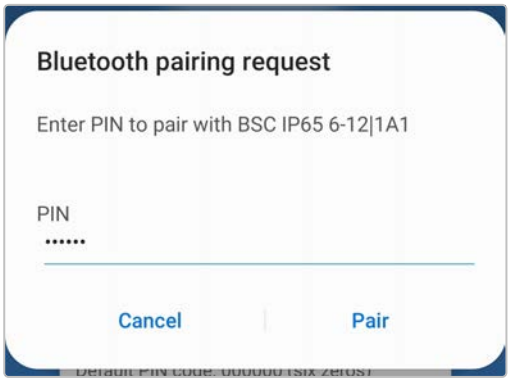
5. Select the **Blue Smart IP65 Charger** from the Device list Local page, under Other devices.



6. **VictronConnect** will attempt to establish a Bluetooth connection with the **Blue Smart IP65 Charger** and display the connection progress in the Connecting pop-up dialog box.



7. When attempting to establish a Bluetooth connection with a new/unpaired device, the Bluetooth pairing request pop-up dialog box will appear after a short delay; enter the default PIN code stated on a label located on the back of the charger (or try 000000 if there is no default PIN code label), then select **Pair**.



8. Select the **Settings** icon (gear in the top right corner) to access the Settings page.

9. Select the correct **Battery voltage** (6V or 12V), then select the most appropriate integrated charge mode (Normal, Normal + Recondition, High, High + Recondition or Li-ion) from the Charge preset menu.

   Ensure that recondition stage is only enabled when required, as unnecessary or overuse will reduce battery life.

10. If the maximum rated charge current is excessive, enable low current mode (charge current limited to 50% of the maximum rated charge current). To enable (or disable) low current mode select the required option from the Charge current menu.

11. Lock Mode Button - When enabled, the mode button is locked and cannot change the charger's configuration. However, the following functions still work:

    - Restart charge cycle to Bulk
    - Reset Bluetooth

    When locked, pressing or holding the button will cause all LEDs to flash to indicate the lock is active.

All settings are stored and will not be lost when the charger is disconnected from mains power or the battery.

To ensure proper charging, battery longevity and safe operation it is important to select a charge mode appropriate for the battery type and capacity being charged; refer to the 'Operation > Charge modes' section and the battery manufacturers recommendations for more information.

5.3. Bluetooth

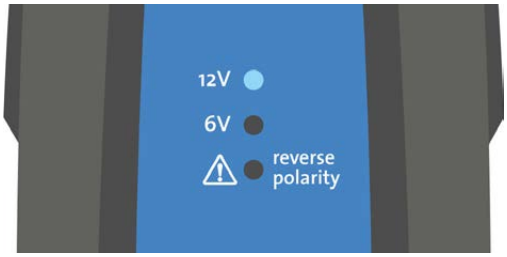
5.3.1. Changing the PIN code

To prevent unauthorised Bluetooth connections, it is highly recommended to change the default PIN code to a unique PIN code that that offers a greater level of security.

The Bluetooth PIN code can be changed using a Bluetooth enabled device (mobile phone or tablet) with the **VictronConnect** app.

To change the Bluetooth PIN code:

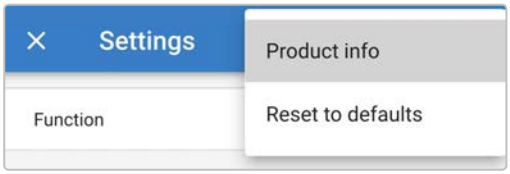
1. Connect the **Blue Smart IP65 Charger** AC power cable to a mains power outlet; after a short delay the 12V (green) and the 6V (yellow) LEDs will begin blink slowly (standby mode), until the charger automatically determines the battery voltage or the battery voltage is manually set.



2. Using a Bluetooth enabled device (mobile phone or tablet), open the **VictronConnect** app and locate the **Blue Smart IP65 Charger** in the Device list Local page, then connect to the device (the default PIN code is stated on a label located on the back of the charger, or try 000000 if there is no label).
3. Select the **Settings** icon (gear in the top right corner) to access the Settings page.

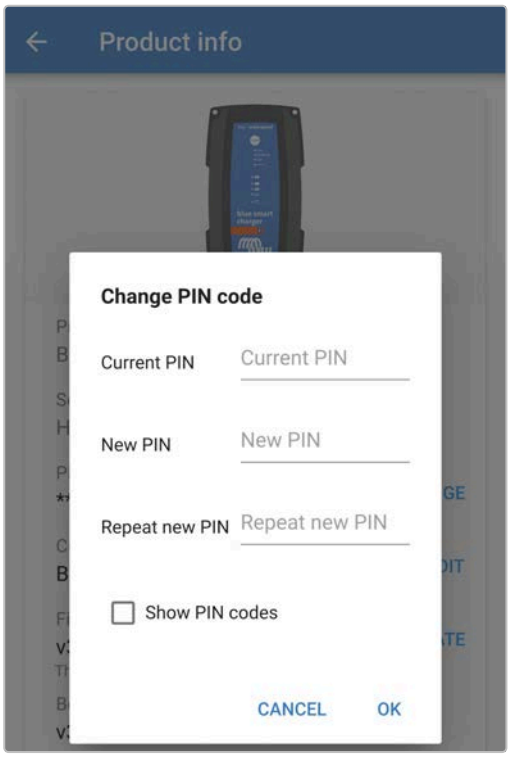
4. Select the **Device options** icon (three vertical dots in the top right corner) to access the Device options dropdown menu.

5. Select **Product info** from the dropdown menu to access the Product info page.



6. Select **CHANGE** in the Pin code field to open the Change PIN code pop-up dialog box.

7. Enter the current PIN code and the desired new PIN code (twice), then select **OK**; avoid using a simple PIN code that is easy for someone else to guess, such as 123456.



8. After a short delay a pop-up dialog box will appear confirming that the Bluetooth PIN code has been successfully changed.
9. The Bluetooth PIN code has now been changed to the new PIN code.

During this procedure:

A. The Bluetooth PIN code is changed to the new PIN code

B. Bluetooth pairing information is not cleared

Accordingly Bluetooth pairing with the device (mobile phone or tablet) used to change the PIN code is unaffected, however it is necessary to unpair any other devices (mobile phones or tablets) previously paired with the **Blue Smart IP65 Charger** and establish a new Bluetooth pairing.

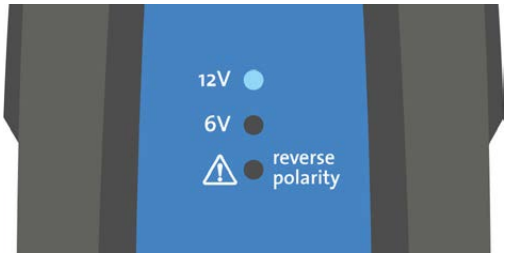
5.3.2. Resetting the PIN code

If the PIN code is forgotten/lost or does not work, it can be reset to 000000 (not the default PIN code stated on the label) using a Bluetooth enabled device (such as a mobile phone or tablet) with the **VictronConnect** app.

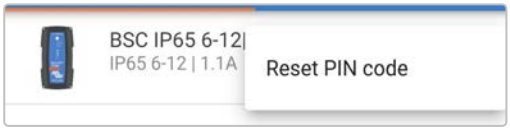
Reset PIN using VictronConnect

To reset the Bluetooth PIN code:

1. Locate the PUK code stated on a label located on the back of the charger and record it for use later.
2. Connect the **Blue Smart IP65 Charger** AC power cable to a mains power outlet; after a short delay the 12V (green) and the 6V (yellow) LEDs will begin blink slowly (standby mode), until the charger automatically determines the battery voltage or the battery voltage is manually set.



3. Using a Bluetooth enabled device (mobile phone or tablet), open the **VictronConnect** app and locate the **Blue Smart IP65 Charger** in the Device list Local page.
4. Select the **Device options** icon (three vertical dots on the right side of the description) to access the dropdown menu.
5. Select **Reset PIN code** from the dropdown menu to open the Reset PIN code pop-up dialog box.



6. Enter the PUK code (recorded earlier) and select **OK**.
7. A pop-up dialog box with the text "Busy" will be displayed while the Bluetooth PIN code is being reset.
8. After a short delay a pop-up dialog box will appear confirming that the Bluetooth PIN code has been successfully reset; select **OK** to exit into the **VictronConnect** Device list LOCAL page.
9. The Bluetooth PIN code has now been reset to 000000.

During this procedure:

A. The Bluetooth PIN code is reset to 000000 (not the default PIN code stated on the label)

B. Bluetooth pairing information is not cleared

Accordingly Bluetooth pairing with the device (mobile phone or tablet) used to reset the PIN code is unaffected, however it is necessary to unpair any other devices (mobile phones or tablets) previously paired with the **Blue Smart IP65 Charger** and establish a new Bluetooth pairing.

5.3.3. Disabling Bluetooth

If required, Bluetooth communication can be totally disabled using a Bluetooth enabled device (mobile phone or tablet) with the **VictronConnect** app.

Typically, there is no need to disable Bluetooth since unauthorised access is protected with a PIN code, but certain situations may warrant it for an even higher level of security or in highly specialised installations where the Bluetooth radio frequency is undesirable.

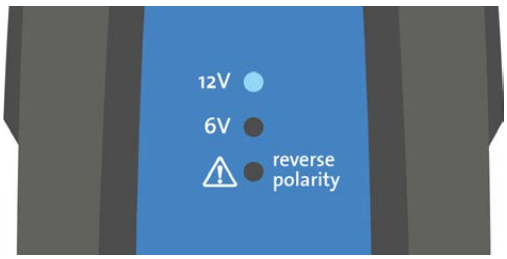
There are two options available:

Option #1: Enabled for 30 seconds

This option allows a Bluetooth connection to made within the first 30 seconds after a power-up; enabling a firmware update to be completed or Bluetooth to be re-enabled. If no Bluetooth connection is made within the first 30 seconds, then Bluetooth is disabled thereafter.

To disable Bluetooth:

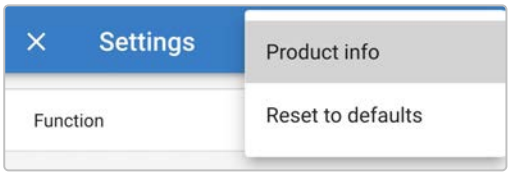
1. Connect the **Blue Smart IP65 Charger** AC power cable to a mains power outlet; after a short delay the 12V (green) and the 6V (yellow) LEDs will begin blink slowly (standby mode), until the charger automatically determines the battery voltage or the battery voltage is manually set.



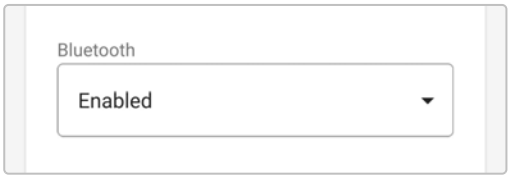
2. Using a Bluetooth enabled device (mobile phone or tablet), open the **VictronConnect** app and locate the **Blue Smart IP65 Charger** in the Device list Local page, then connect to the device (the default PIN code is stated on a label located on the side of the charger, or try 000000 if there is no label).
3. Select the **Settings** icon (gear in the top right corner) to access the Settings page.

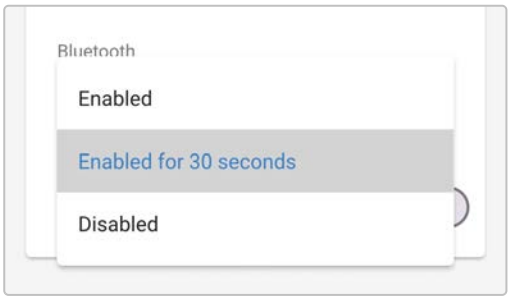
4. Select the **Device options** icon (three vertical dots in the top right corner) to access the Device options dropdown menu.

5. Select **Product info** from the dropdown menu to access the Product info page.

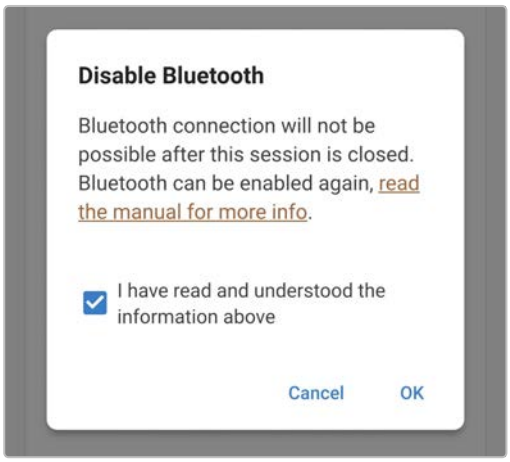


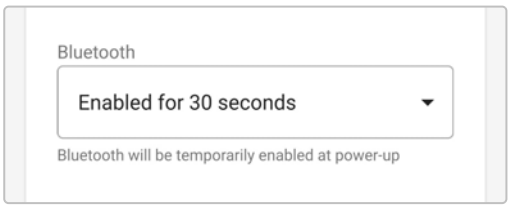
6. Select the **dropdown arrow** in the Bluetooth field, then select **Enabled for 30 seconds** from the dropdown menu.





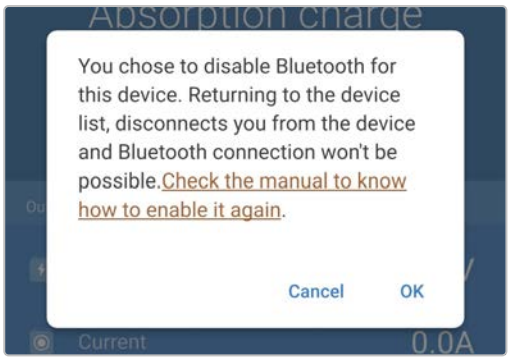
7. Read the warning message, then tick the checkbox and select **OK** to proceed.





8. End the current Bluetooth session by exiting into the **VictronConnect** Device list, a final pop-up dialog box will appear when attempting to exit.

   Read the warning message, then select **OK** to accept and progress.



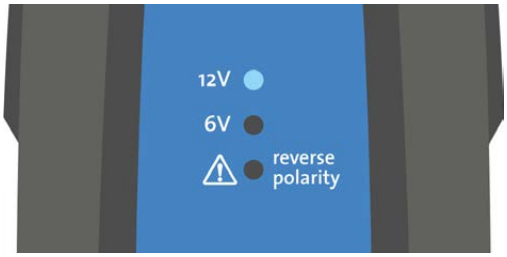
9. Bluetooth operation has now been disabled, except for 30 second after every power-up.

Option #2: Disabled (Permanent and Irreversible)

Note: This option will **permanently disable** Bluetooth; use with extreme caution, as this procedure is **irreversible**.

To disable Bluetooth permanently:

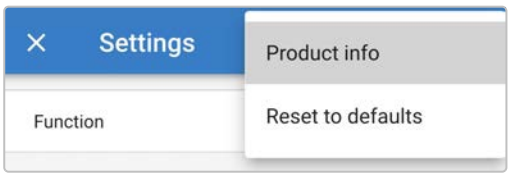
1. Connect the **Blue Smart IP65 Charger** AC power cable to a mains power outlet; after a short delay the 12V (green) and the 6V (yellow) LEDs will begin blink slowly (standby mode), until the charger automatically determines the battery voltage or the battery voltage is manually set.



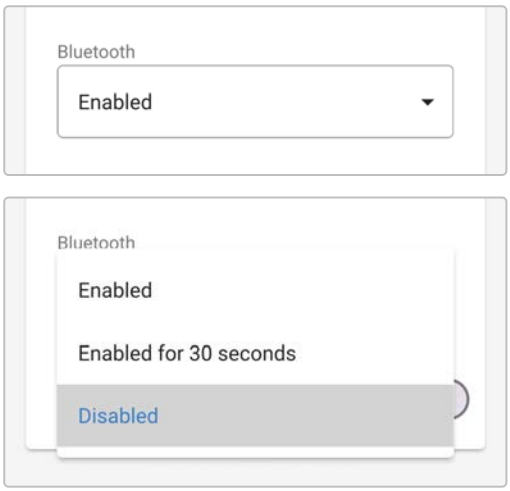
2. Using a Bluetooth enabled device (mobile phone or tablet), open the **VictronConnect** app and locate the **Blue Smart IP65 Charger** in the Device list Local page, then connect to the device (the default PIN code is stated on a label located on the side of the charger, or try 000000 if there is no label).
3. Select the **Settings** icon (gear in the top right corner) to access the Settings page.

4. Select the **Device options** icon (three vertical dots in the top right corner) to access the Device options dropdown menu.

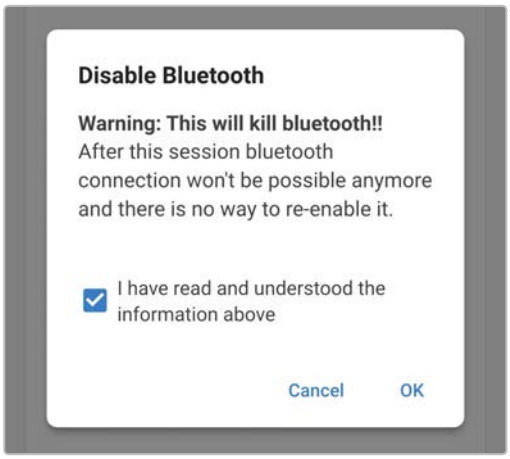
5. Select **Product info** from the dropdown menu to access the Product info page.



6. Select the **dropdown arrow** in the Bluetooth field, then select **Disabled** from the dropdown menu.

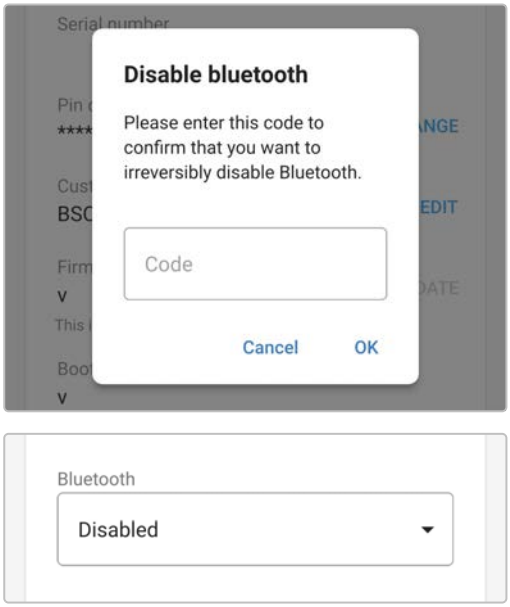


7. Read the warning message, then tick the checkbox and select **OK** to proceed.



8. A four digit code is provided to avoid Bluetooth being permanently disabled accidentally, if you are sure that you want to **permanently disable** Bluetooth enter the code, then select **OK**.

   This is the last chance to abort; after Bluetooth has been **permanently disabled** it is **irreversible** and cannot be re-enabled later.



9. End the current Bluetooth session by exiting into the **VictronConnect** Device list Local page, a final pop-up dialog box will appear when attempting to exit.

   Read the warning message, then select **OK** to proceed.

10. Bluetooth operation has now been permanently disabled.

5.3.4. Re-enabling Bluetooth

During this procedure:

A. Bluetooth operation is re-enabled

B. The Bluetooth PIN code is reset to 000000 (not the default PIN code stated on the label)

C. Bluetooth pairing information is cleared

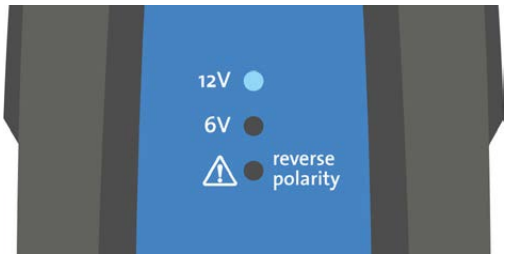
Accordingly it is necessary to unpair all devices (mobile phones or tablets) previously paired with the **Blue Smart IP65 Charger** and establish a new Bluetooth pairing.

If Bluetooth was disabled using option #2 'Disabled', this is irreversible and Bluetooth communication cannot be re-enabled.

If Bluetooth was disabled using option #1 'Enabled for 30 seconds', Bluetooth communication can be re-enabled using a Bluetooth enabled device (mobile phone or tablet) with the **VictronConnect** app.

To re-enable Bluetooth:

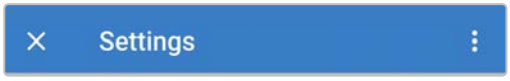
1. Connect the **Blue Smart IP65 Charger** AC power cable to a mains power outlet; after a short delay the 12V (green) and the 6V (yellow) LEDs will begin blink slowly (standby mode), until the charger automatically determines the battery voltage or the battery voltage is manually set.



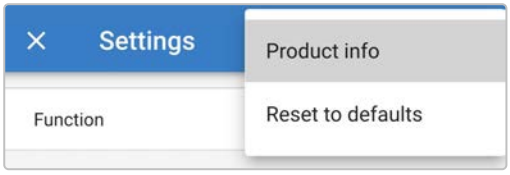
2. Using a Bluetooth enabled device (mobile phone or tablet), open the **VictronConnect** app and locate the **Blue Smart IP65 Charger** in the Device list Local page, then connect to the device within the first 30 seconds after power-up while Bluetooth is temporarily enabled (the default PIN code is stated on a label located on the side of the charger, or try 000000 if there is no label).

3. Select the **Settings** icon (gear in the top right corner) to access the Settings page.

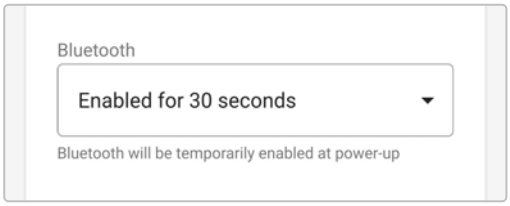
4. Select the **Device options** icon (three vertical dots in the top right corner) to access the Device options dropdown menu.

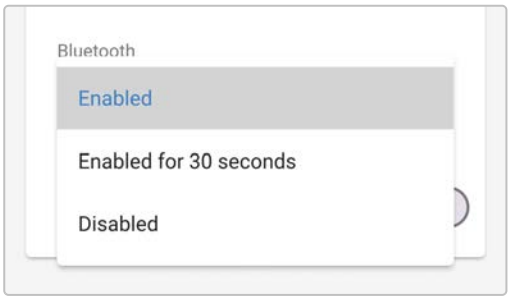


5. Select **Product info** from the dropdown menu to access the Product info page.

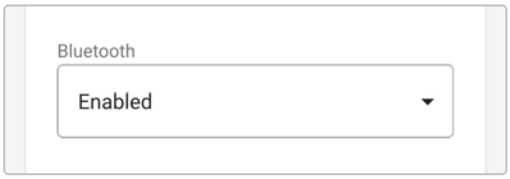


6. Select the **dropdown arrow** in the Bluetooth field, then select **Enabled** from the dropdown menu.





7. Bluetooth operation has now been re-enabled.



During this procedure:

A. Bluetooth operation is re-enabled

B. The Bluetooth PIN code is not reset

C. Bluetooth pairing information is not cleared

Accordingly Bluetooth pairing with any devices (mobile phones or tablets) previously paired with the **Blue Smart IP65 Charger** is unaffected.

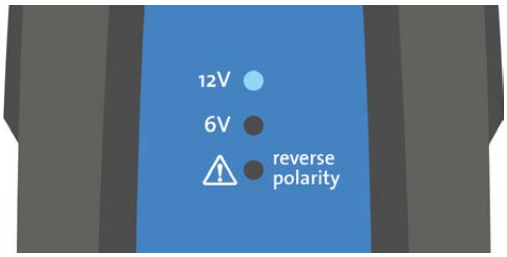
5.4. Reset to defaults

If required, all **Blue Smart IP65 Charger** settings can be reset/restored to factory defaults using a Bluetooth enabled device (mobile phone or tablet) with the **VictronConnect** app.

Note this operation does **not** reset any Bluetooth related settings, such as the Bluetooth PIN code or pairing information.

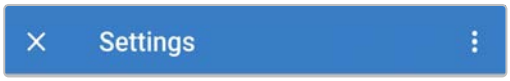
To reset all settings to factory defaults:

1. Connect the **Blue Smart IP65 Charger** AC power cable to a mains power outlet; after a short delay the 12V (green) and the 6V (yellow) LEDs will begin blink slowly (standby mode), until the charger automatically determines the battery voltage or the battery voltage is manually set.

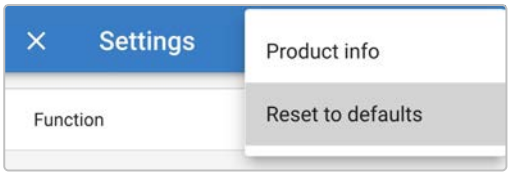


2. Using a Bluetooth enabled device (mobile phone or tablet), open the **VictronConnect** app and locate the **Blue Smart IP65 Charger** in the Device list Local page, then connect to the device (the default PIN code is stated on a label located on the back of the charger, or try 000000 if there is no label).
3. Select the **Settings** icon (gear in the top right corner) to access the Settings page.

4. Select the **Device options** icon (three vertical dots in the top right corner) to access the Device options dropdown menu.



5. Select **Reset to defaults** from the dropdown menu to open the Restore device pop-up dialog box.



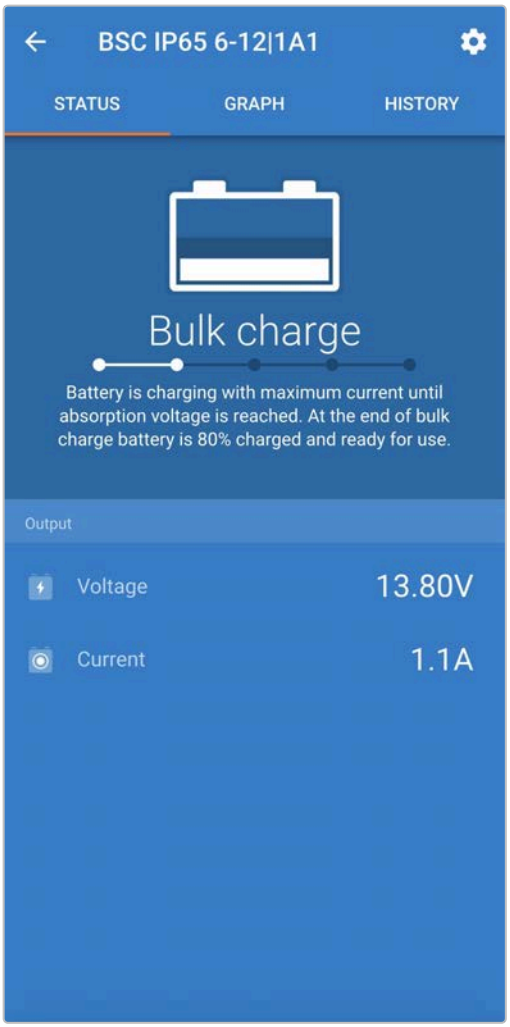
6. Read the warning message, then select **Yes** to proceed.
7. All settings have now been reset/restored to factory defaults.

6. Monitoring

6.1. Status screen

The Status screen is the main overview screen; it displays the function mode (charger or power supply), the active charge state (in charger mode), the battery voltage and the charge/output current.

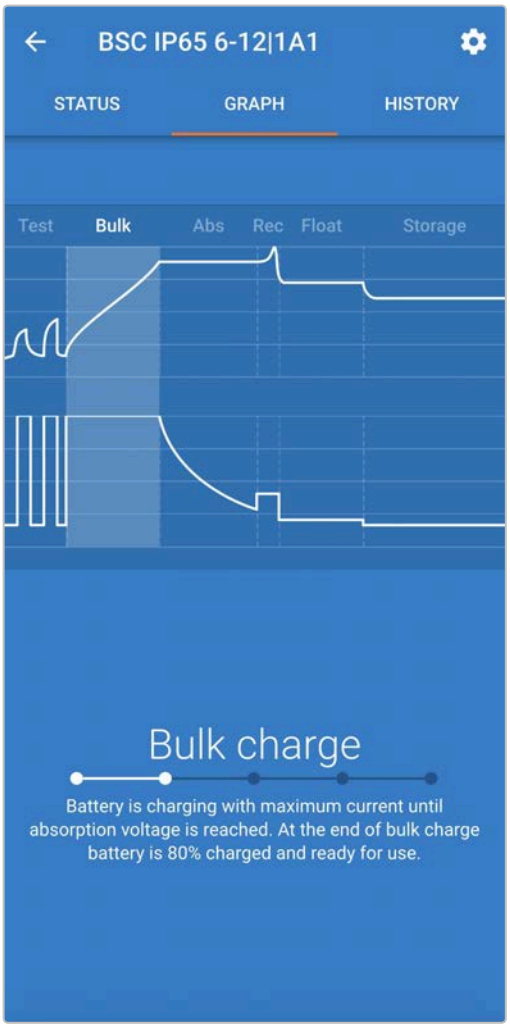
This data will update continuously in real time as the charge cycle progresses.



6.2. Graph screen

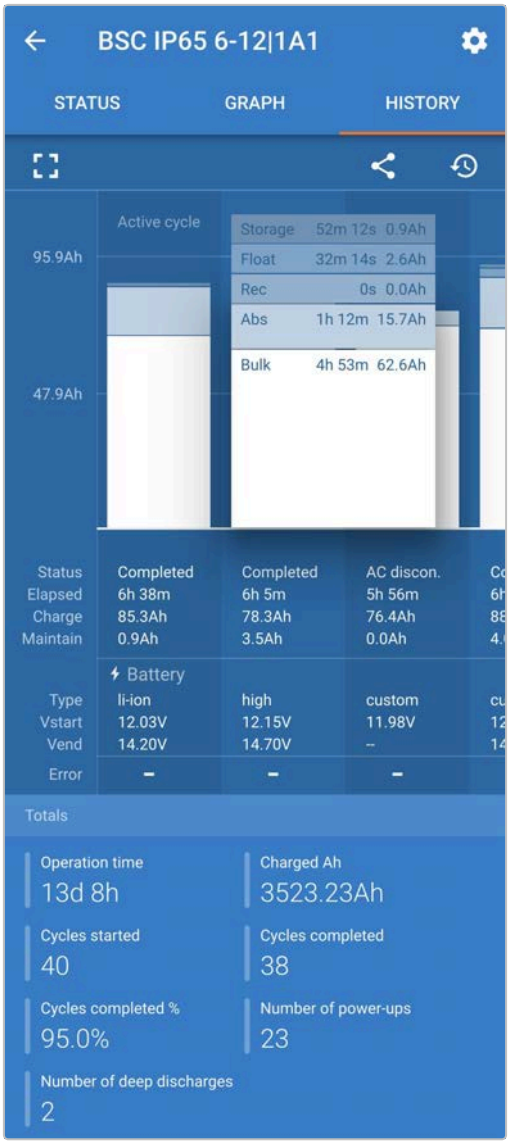
The Graph screen provides an easy to understand graphical representation of each charge state with respect to typical battery voltage and charge current.

The active charge stage is also highlighted and stated, along with a brief explanation.



6.3. History screen

The History screen is a very powerful reference as it contains historical usage data over the charger lifetime and detailed statistics for the last 40 charge cycles (even if the charge cycle is only partially completed).



By selecting the full screen view the data is displayed in landscape view with significantly more days visible at the same time.

Charge cycle statistics

A. **Cycle overview**

Expandable bar chart showing the time spent in each charge stage and the charge capacity provided (in Ah) during each charge stage

B. **Status**

Confirms if the charge cycle was successfully completed or if it was ended early/interrupted, including the reason/cause

C. **Elapsed**

The elapsed time of the recharge stages (Bulk and Absorption)

D. **Charge**

Total capacity provided during the recharge stages (Bulk and Absorption)

E. **Maintain**

Total capacity provided during the charge maintenance stages (Float, Storage and Recondition)

F. **Type**

The charge cycle mode used; either a Built-in preset mode or a custom User defined configuration

G. **Vstart**

Battery voltage when charging commences

H. **Vend**

Battery voltage when charging is complete (end of absorption stage)

I. **Error**

Displays if any errors occurred during the charge cycle, including the error number and description

Charger lifetime statistics

A. **Operation time**

The total operation time over the lifetime of the charger

B. **Charged Ah**

The total charge capacity (in Ah) provided over the lifetime of the charger

C. **Cycles started**

The total charge cycles started over the lifetime of the charger

D. **Cycles completed**

The total charge cycles completed over the lifetime of the charger

E. **Cycles completed %**

The percentage of charge cycles completed over the lifetime of the charger

F. **Number of power-ups**

The number of times the charger has been powered up over the lifetime of the charger

G. **Number of deep discharges**

The number of times the charger has recharged a deeply discharged battery over the lifetime of the charger

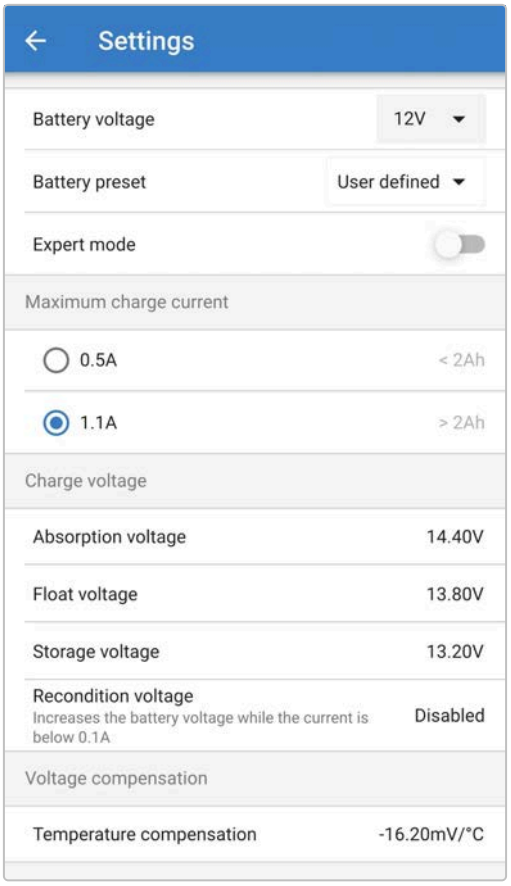
7. Advanced Configuration

7.1. Advanced settings

In specific use cases where the integrated charge modes are not suitable/ideal for the battery type being charged, or the battery manufacturer recommends specific charge parameters and fine tuning is desired, advanced configuration is possible using a Bluetooth enabled device (mobile phone or tablet) with the **VictronConnect** app.

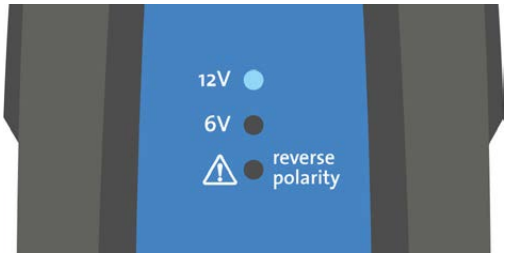
For most common battery types, advanced configuration is not required or recommended; the integrated charge modes and adaptive charge logic are typically suitable and perform very well.

The advanced settings page enables specific configuration of charge parameters and user defined settings to be saved and easily selected.



To access the advanced settings:

1. Connect the **Blue Smart IP65 Charger** AC power cable to a mains power outlet; after a short delay the 12V (green) and the 6V (yellow) LEDs will begin blink slowly (standby mode), until the charger automatically determines the battery voltage or the battery voltage is manually set.

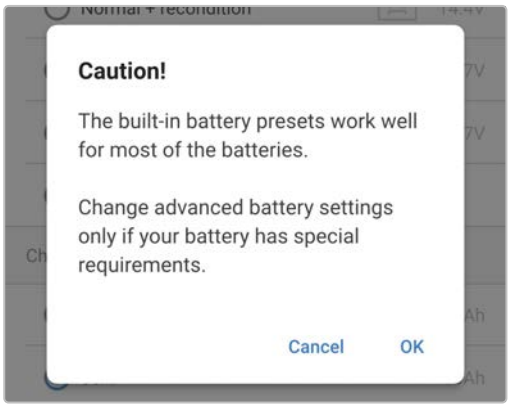


2. Using a Bluetooth enabled device (mobile phone or tablet), open the **VictronConnect** app and locate the **Blue Smart IP65 Charger** in the Device list Local page, then connect to the device (the default PIN code is stated on a label located on the back of the charger, or try 000000 if there is no label).

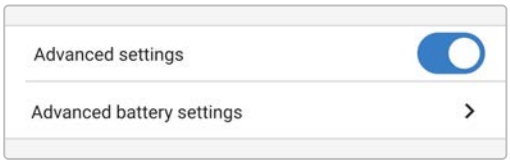
3. Select the **Settings** icon (gear in the top right corner) to access the Settings page.

4. Toggle the **Advanced settings** switch on to enable the Advanced settings page.

5. Read the warning message and then select **OK** to proceed.



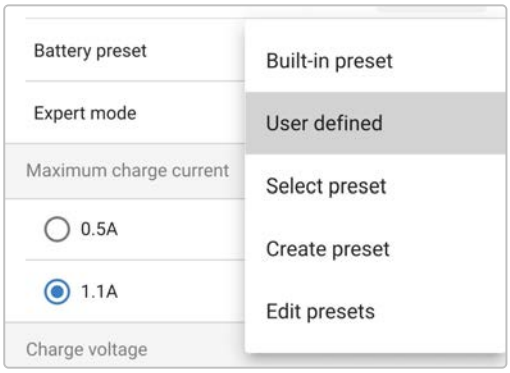
6. Select **Advanced battery settings** to access the Advanced settings page.



To configure user defined advanced settings:

1. Select the **Battery preset** dropdown arrow to expand the dropdown menu.

2. Select **User defined** from the Battery preset dropdown menu.



3. User defined configuration will now be enabled.

4. Configure the advanced settings as required per battery manufacturers recommendations.

The advanced settings (with expert mode disabled) include:

A. **Battery voltage**

The Battery voltage dropdown allows selection from the following options:

i. **Auto**

The battery voltage is automatically detected and set prior to the test stage (based on the voltage of the battery connected). Note that for severely depleted batteries, automatic battery voltage detection may be incorrect; in this case the battery voltage must be manually set.

ii. **6V**

Manual selection for charging 6V batteries/systems

iii. **12V**

Manual selection for charging 12V batteries/systems

B. **Battery preset**

The Battery preset dropdown allows selection from the following options:

i. **Built-in preset**

Selection of a standard integrated pre-set (same as the general settings menu)

ii. **User defined**

Configuration of user defined charge settings and selection of the last user defined configuration

iii. **Select preset**

Selection from an extended range of integrated battery charging pre-sets, including new user defined charging pre-sets

iv. **Create preset**

A new charging preset to be created and saved from user defined settings

v. **Edit presets**

An existing preset to be edited and saved

C. **Maximum charge current**

The maximum charge current setting allows selection between the default and a significantly reduced charge current limit preset; Maximum or Low (50% of maximum) current.

D. **Charge voltage**

The charge voltage settings enable the voltage setpoint for each charge stage to be independently configured and some charge stages (recondition and float) to be disabled or enabled.

The charge voltage setpoint can be configured for the following charge stages:

i. **Absorption**

ii. **Float**

iii. **Storage**

iv. **Recondition**

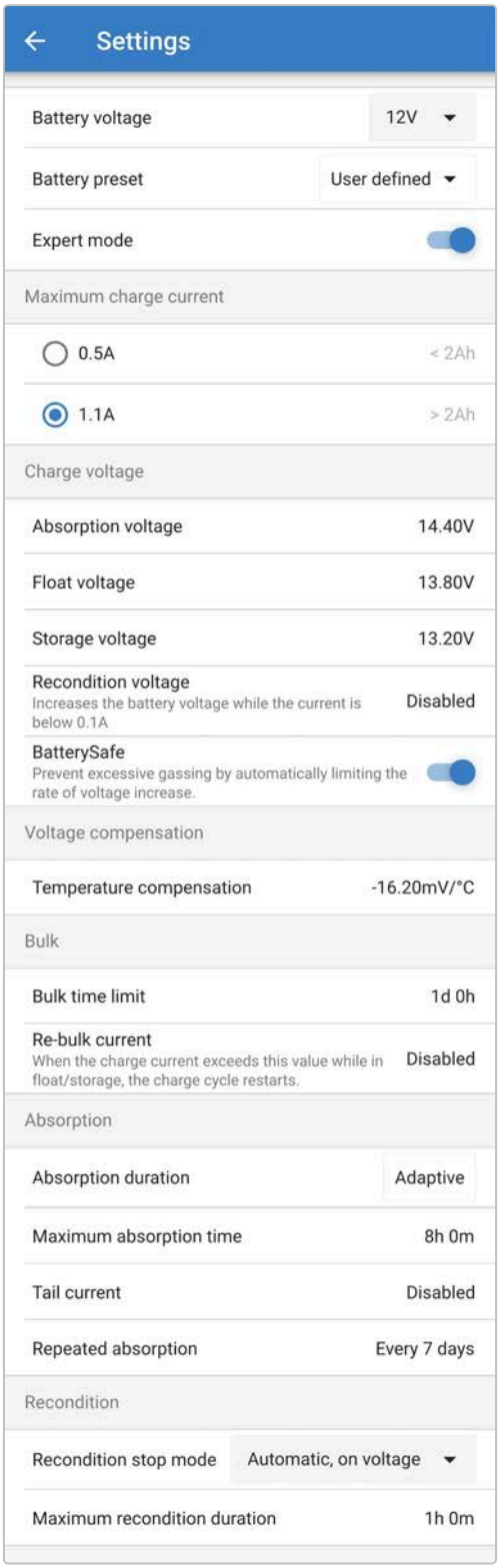
E. **Voltage compensation**

i. **Temperature compensation**

The temperature compensation setting enables the charge voltage temperature compensation coefficient to be configured, or temperature compensation to be totally disabled (such as for Li-ion batteries). The temperature compensation coefficient is specified in mV/°C and applies to the entire battery/battery bank (not per battery cell).

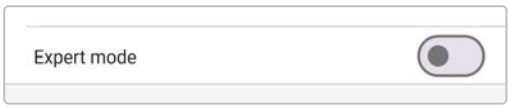
7.2. Expert mode settings

Expert mode expands the advanced settings menu even further, to include more specialised expert level configuration settings.

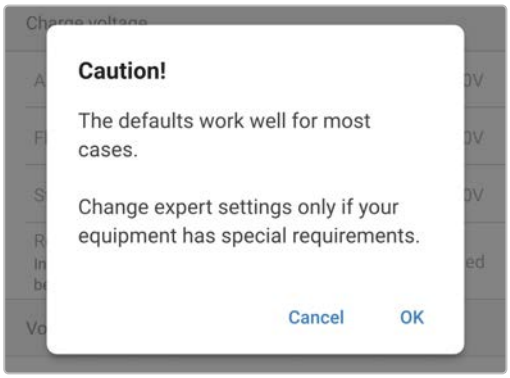


To access the expert mode settings:

1. Open the **Advanced setting** page and enable **User defined** configuration - see the 'Advanced configuration > Advanced settings' section for instructions.
2. Toggle the **Expert mode** switch on to enable additional Expert mode settings (extension of the Advanced settings menu).



3. Read the warning message and then select **OK** to proceed.



4. The Expert mode settings (extension of the Advanced settings menu) will now be accessible.

The ADDITIONAL expert mode settings include:

A. **Charge voltage**

i. **BatterySafe**

The BatterySafe setting allows the BatterySafe voltage control to be enabled or disabled. When BatterySafe is enabled, the rate of battery voltage increase during bulk stage is automatically restricted to a safe level. In cases where the battery voltage would otherwise increase at a faster rate, the charge current is reduced to prevent excessive gassing.

B. **Bulk**

i. **Bulk time limit**

The bulk time limit setting restricts the maximum time the charger can spend in bulk stage as a protection measure, since the absorption voltage should have been achieved by this time. If the bulk time limit is satisfied the charger will move directly to float stage.

ii. **Re-bulk current**

The re-bulk current setting is the charge current limit that will trigger a new charge cycle. If the charge current exceeds the re-bulk current threshold for four seconds while the charger is in float or storage stage, the charger to move back into bulk charge stage.

Note that even when the re-bulk setting is disabled, re-bulk will still occur if the charge current is maintained at the maximum charge current for four seconds while the charger is in float or storage stage.

C. **Absorption**

i. **Absorption duration**

The absorption duration setting allows selection between adaptive absorption time (calculated based on the bulk time / level of discharge) or a fixed absorption time.

ii. **Maximum absorption time / Absorption time**

The maximum absorption time / absorption time setting enables the maximum adaptive absorption time or the fixed absorption time to be configured (depending if adaptive or fixed absorption time is selected). Note that regardless if adaptive or fixed absorption time is selected, the absorption phase can end early based on the tail current setting (if enabled).

iii. **Tail current**

The tail current setting enables the absorption stage to be ended early based on charge current. If the charge current drops below the tail current threshold for one minute, the absorption stage will immediately end and the charger will move to float or storage stage.

iv. **Repeated absorption**

The repeated absorption setting enables the elapsed time between each automatic refresh charge cycle (1h in absorption stage) to be configured. Repeated absorption is enabled by default and can be disabled which results in the battery staying in storage mode indefinitely.

D. **Recondition**

i. **Recondition stop mode**

The recondition stop mode setting allows selection between the recondition stage being ended upon the battery voltage reaching the recondition stage voltage setpoint or a fixed time period.

ii. **Maximum recondition duration**

The recondition time setting enables the maximum recondition time or the fixed recondition time to be configured (depending on the recondition stop mode selected).

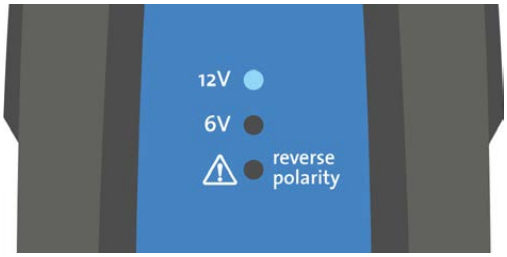
7.3. Power supply mode

The **Blue Smart IP65 Charger** range is also suitable for use as a DC power supply, to directly power loads with or without a battery connected.

When the charger is used specifically as a DC power supply it is recommended to activate Power supply mode, which will disable the internal charge logic and provide a constant (configurable) DC voltage to the loads.

To enable power supply mode:

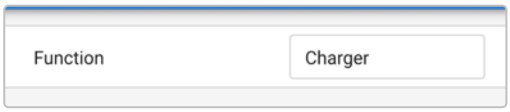
1. Connect the **Blue Smart IP65 Charger** AC power cable to a mains power outlet; after a short delay the 12V (green) and the 6V (yellow) LEDs will begin blink slowly (standby mode), until the charger automatically determines the battery voltage or the battery voltage is manually set.



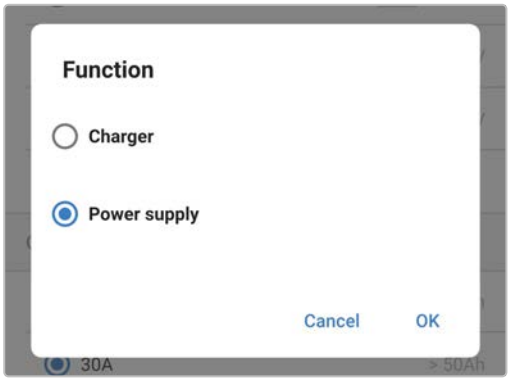
2. Using a Bluetooth enabled device (mobile phone or tablet), open the **VictronConnect** app and locate the **Blue Smart IP65 Charger** in the Device list Local page, then connect to the device (the default PIN code is stated on a label located on the back of the charger, or try 000000 if there is no label).

3. Select the **Settings** icon (gear in the top right corner) to access the Settings page.

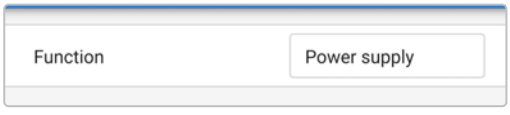
4. Select the **Charger** in the Function filed to open the Function pop-up dialog box.



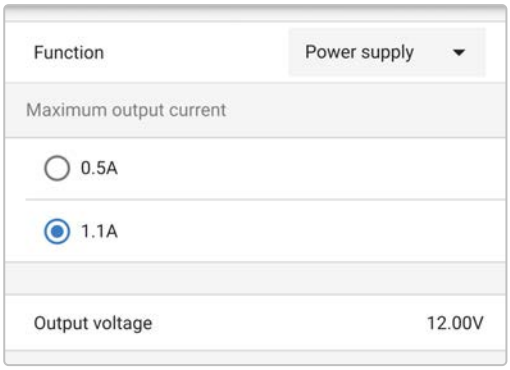
5. Select **Power supply** from the Function pop-up dialog box, then select **OK**.



6. After a short delay the 12V (green) and 6V (orange) LEDs will be illuminated to indicate the charger function has changed to Power supply mode.



7. If required, adjust the desired output voltage and/or enable/disable low current mode.



8. Power supply mode has now been enabled and configured.

To revert the charger function back to use as a normal battery charger, follow steps 1 to 4 above and then select **Charger** from the Function pop-up dialog box.

Note: In the event that the DC cables are disconnected/isolated from the battery and/or load while the charger is powered by the AC supply, it is necessary to allow 5 seconds for the charger to reinitialise before the DC cables are reconnected.

The charger should not be used to directly power fast switching loads in power supply mode (without a battery); similarly a minimum delay of 5 seconds is also required between load switching (on/off) events.

8. Technical specifications

Blue Smart IP65 Charger	6V/12V - 1.1A
Input voltage and frequency range	100 - 250VAC | 45 - 65Hz
Efficiency	82%
Standby power consumption	<0.5W
Charge voltage - Absorption	Normal: 7.2V | 14.4V High: 7.35V | 14.7V Li-ion: 7.1V | 14.2V
Charge voltage - Float	Normal: 6.9V | 13.8V High: 6.9V | 13.8V Li-ion: Disabled
Charge voltage - Storage	Normal: 6.6V | 13.2V High: 6.6V | 13.2V Li-ion: 6.75V | 13.5V
Max output current - Normal mode	1.1A
Max output current - Low current mode	0.5A
Max battery capacity (recommended)	32Ah
Max battery capacity - Maintenance only	300Ah
Min battery capacity - Normal mode	Lead-acid: 4Ah Lithium: 2Ah
Min battery capacity - Low current mode	Lead-acid: 1.2Ah Lithium: 1Ah
Temperature compensation (lead-acid only)	8mV/°C | 16mV/°C
Charge algorithm	7-stage adaptive
Power supply mode	Yes
Back current drain	0.1Ah/month (140uA)
Protection	Reverse polarity, output short circuit, over temperature
Operating temperature	-30 to +50°C (full rated output up to 30°C)
Humidity (non condensing)	Max 95%
Bluetooth Power	-4dBm
Bluetooth Frequency	2402 - 2480MHz
Enclosure	
Battery connection	1.5m red and black cable
AC connection	1.5m cable with CEE 7/16 or AS/NZS 3112 plug
Protection category	IP65 (splash and dust proof)
Weight	0.4kg
Dimensions (h x w x d)	38 x 64 x 153mm
Standards	
Safety	EN 60335-1, EN 60335-2-29
Emission	EN 55014-1, EN 61000-6-3, EN 61000-3-2
Immunity	EN 55014-2, EN 61000-6-1, EN 61000-6-2, EN 61000-3-3
Automotive	E4-10R

9. Warranty

This limited warranty covers defects in materials and workmanship in this product, and lasts for five years from the date of original purchase of this product.

The customer must return the product together with the receipt of purchase to the point of purchase.

This limited warranty does not cover damage, deterioration or malfunction resulting from alteration, modification, improper or unreasonable use or misuse, neglect, exposure to excess moisture, fire, improper packing, lightning, power surges, or other acts of nature.

This limited warranty does not cover damage, deterioration or malfunction resulting from repairs attempted by anyone unauthorized by Victron Energy to make such repairs.

Victron Energy is not liable for any consequential damages arising from the use of this product.

The maximum liability of Victron Energy under this limited warranty shall not exceed the actual purchase price of the product.

10. Appendix

10.1. Enclosure Dimensions