

# CoolMax SRX LCD Option

User Manual

30/05/2018		MV	SRX	V2.3	Bulk	13:10
PV	165.31V	Battery	45.09V			
Amps In	12.56A	Amps Out	43.2A			
Charge:	(0289.1)	35.94 Ah				
PV Voc	178.6 V					
PV Power:	2075.1 W					
Temperature (I) :	+29.15 C					
<b>Menu</b>	<b>ON/OFF</b>	<b>Alarms</b>				

## Applicable Models

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SRX 600/55-48

SRX 600/70-48

SRX 600/35-120



## About Australian Energy Research Laboratories

Australian Energy Research Laboratories (AERL) was founded by Stuart Watkinson (BE Elec. Eng., Grad. M.I.E.A) in 1985 to commercialize the “Power Optimizer”, a revolutionary solution to a complex problem, developed while studying at the University of Queensland in Brisbane, Australia.

Unlike many inventors, Stuart possessed not only a great idea, but also the entrepreneurial skill to turn it in to a commercially viable product. The “Power Optimizer” would eventually come to be known as the AERL MAXIMIZER™, the world’s first truly Universal Maximum Power Point Tracker (MPPT).

Today, AERL manufactures a range of highly reliable and efficient specialised power electronic controllers for use in Solar, Micro Hydro, Micro Wind and Cathodic Protection applications.

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# Important Safety Information

This User Manual contains important safety information and instructions for utilizing the AERL COOLMAX SRX fitted with the optional LCD Screen.

The following symbols are used throughout this user manual to indicate potentially dangerous conditions and important operational information.



## **IMPORTANT**

Indicates information that must be followed to ensure proper operation of the COOLMAX SRX.



## **CAUTION**

Indicates a critical procedure for the safe installation of the COOLMAX SRX. Use extreme caution when performing this task.

## About this Manual

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## **IMPORTANT**

- This User Manual provides detailed installation and usage instructions for the COOLMAX SRX LCD Screen. It is recommended that all the Instructions and Cautions in this User Manual be read before beginning installation.
- Only qualified electricians and technicians should operate the COOLMAX SRX. This manual is intended for all installation technicians and the system owner.
- Do not disassemble or attempt to repair the COOLMAX SRX unless you are a qualified technician and have authority in writing from AERL to do so.
- AERL will not be held responsible in any way for the mishandling of this product or for installation of the product in a manner that does not follow the instructions in this manual or as advised by an AERL technician.

## Powering Up

When the COOLMAX SRX is first powered the on, the Real Time Screen (**Figure 1**) is the first screen to appear. This Real Time Screen displays live telemetry information relevant to the COOLMAX SRX and is the starting point from which the COOLMAX SRX configuration can be performed.

This screen displays Input and Output telemetry, Daily PV Generation, and Real Time PV Power.

If a Battery Sense device is connected, and temperature compensation is being utilized, a (B) will appear next to “Temperature” and the live battery temperature will be displayed.

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**Figure 1:** CoolMax Real Time Telemetry Screen

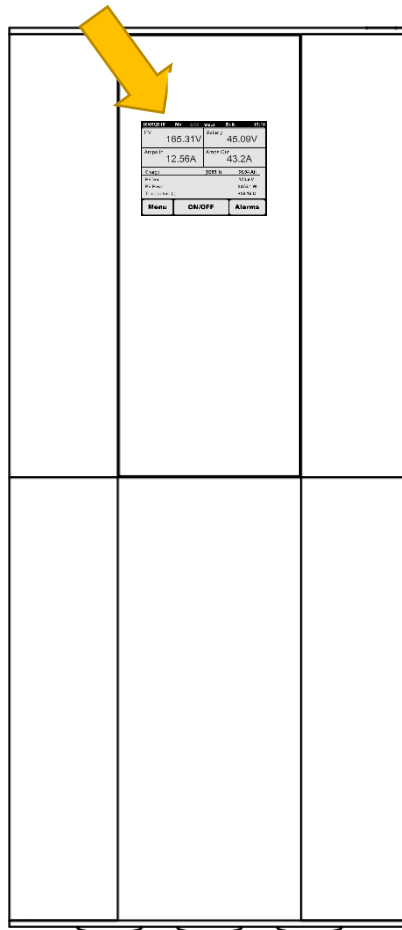
## Power Saving Mode

When the CoolMax SRX touch screen has been idle for 30 minutes, the screen will switch to power saving mode. When the unit is in power saving mode, the screen will be dimmed. To revert to full brightness, simply tap the screen.

## Programming the Device

With the LCD Option fitted, the CoolMax SRX can be programmed and controlled via the touch screen display located on the front of the device. The location of the touch screen can be seen in **Figure 2** below.

The screen allows the user to view real time telemetry, edit the charge profile, view alerts, and relevant system information.



**Figure 2:** CoolMax Touch Screen Location

## Battery Charge Profile



### IMPORTANT

The CoolMax SRX default charge profile is intended for a generic LiFePo<sub>4</sub> battery solution.

AERL supports most other battery chemistries that **do not** require external BMS communications.

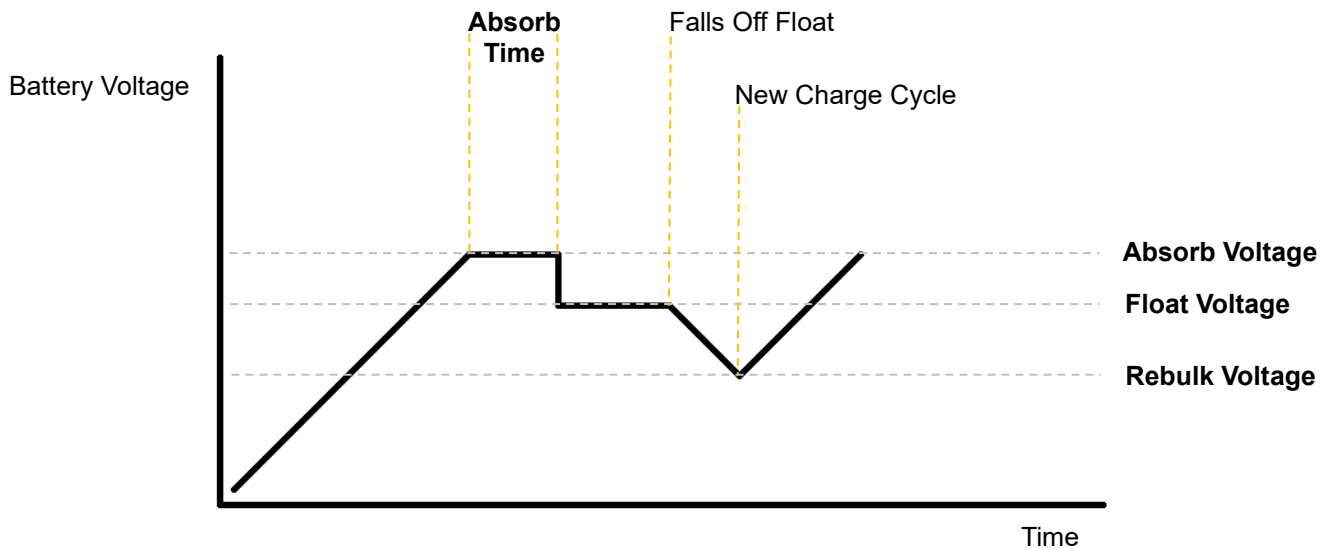
AERL is working with various battery manufacturers to expand out-of-the-box comms support for Lithium batteries that require communication with the Charge Controller.

Please contact AERL support to confirm compatibility prior to installation. Additional battery support will be rolled out via Over-The-Air firmware updates.

The CoolMax SRX charge output will not automatically activate for safety reasons. Prior to activating the charge output, the charge profile must be configured for the relevant battery solution being utilized.

The SRX operates using an advanced three-stage charging process and has pre-set charge voltage profiles for each supported nominal battery voltage. That said, AERL always recommends referring to the battery manufacturers specifications regarding charge voltages for optimal battery life and performance.

These voltages can be adjusted in the charge profile settings. Refer to **Page 9** for instructions.



**Figure 3:** Battery Charge Profile Illustrated

## Charge Profile Configuration

The CoolMax SRX allows for extensive flexibility when it comes to charge profile parameters to suit numerous different modern battery chemistries and manufacturers requirements.

Our programmable charge profile allows for the configuration of the Battery Charge Rate, and the Absorb, Float, Re-Bulk, and Equalization voltage points.



### IMPORTANT

An Equalization is only normally required for Flooded Lead-Acid cells that experience sulfation as a result of poor charging practices over the lifetime of said cell.

Equalization is **not required, nor recommended** for LiFePo4 or other lithium-based battery solutions and will likely cause damage unless otherwise advised by the battery manufacturer.

The default charge profile is suitable for most applications but to determine the optimal charge profile for your application, please refer to your battery manufacturer’s user manual or datasheet.

The **CoolMax SRX** Default Charge Profiles are as follows:

	<b>SRX 600/55-48</b>	<b>SRX 600/70-48</b>
<b>Nominal Battery voltage</b>	48 V	48 V
<b>Max Charge current</b>	55 A	70 A
<b>Absorption voltage</b>	57.6 V	57.6 V
<b>Absorption time</b>	2 Hours	2 Hours
<b>Float Voltage</b>	55.2 V	55.2 V
<b>Re-Bulk Voltage</b>	52 V	52 V

	<b>SRX 600/35-120</b>
<b>Nominal Battery voltage</b>	120 V
<b>Max Charge current</b>	35 A
<b>Absorption voltage</b>	144 V
<b>Absorption time</b>	2 Hours
<b>Float Voltage</b>	138 V
<b>Re-Bulk Voltage</b>	126 V



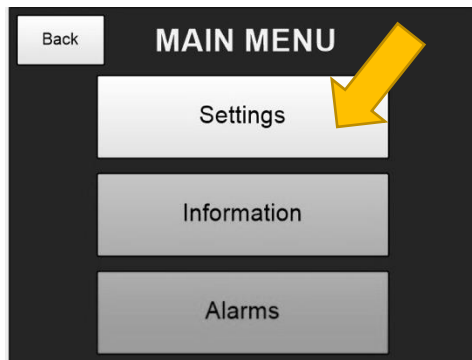
## Setting the Battery Charge Profile

Setting the battery charge profile can be done by following the steps below.

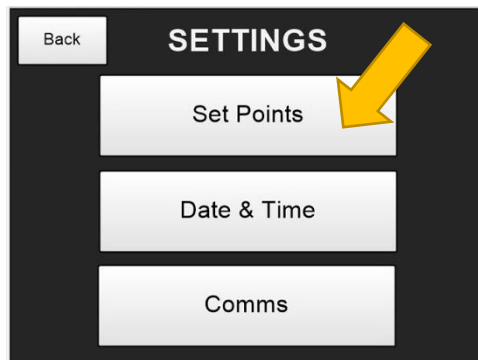
**Step 1** – Tap the **MENU** button located in the left-hand corner of the live telemetry screen.

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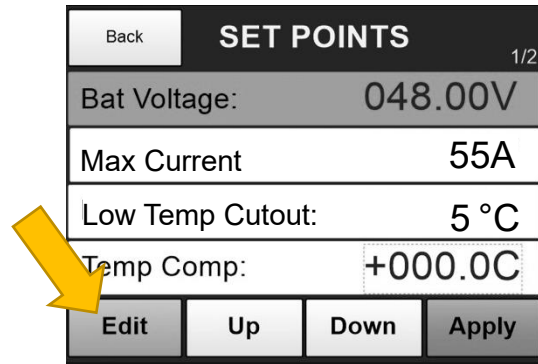
**Step 2** – Tap the **SETTINGS** button located at the top of the MAIN MENU.



**Step 3** – Tap the **SET POINTS** button located at the top of the SETTINGS MENU.



**Step 4** – You are now on the SET POINTS screen. The setting currently selected will be highlighted in orange. Tap **EDIT** to edit the selected option or **UP/DOWN** to move between settings.



**IMPORTANT**

There are **two pages** (1/2, 2/2) of charge profile settings.

Selecting the Nominal Battery voltage and tapping “**Next**” will automatically fill the second page with a default configuration for that selected voltage.

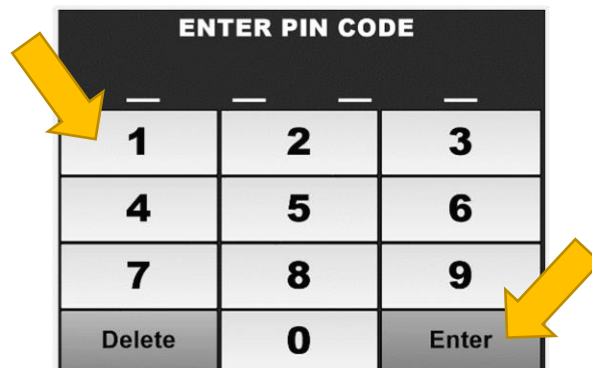


**CAUTION – Equipment Damage**

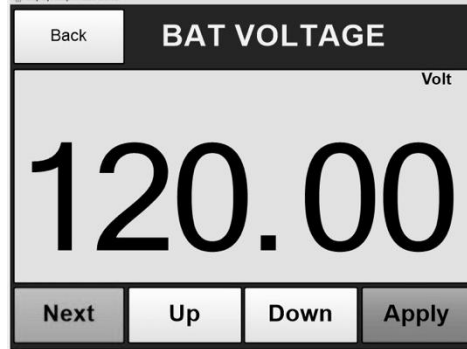
AERL recommends referring to the battery manufactures recommendations as to the appropriate charge profile. **The default profile may not be suitable for the battery system being utilized.**

**Failure to do so may cause damage to or reduce the life of the battery system.**

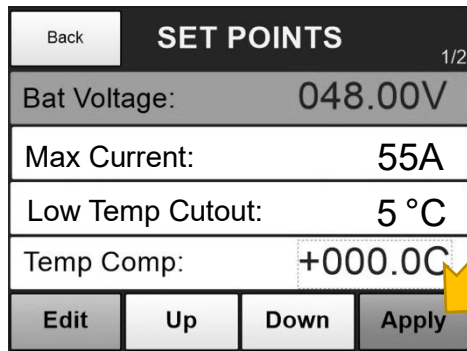
**Step 5** – **Input** the security pin code to edit the chosen setting. (**Default: 1111**)



**Step 6 – Adjust** the setting using the **UP** and **DOWN** buttons until the desired voltage is specified and then tap **Apply**.



**Step 7 – Finally,** save your charge profile by tapping **Apply**. The CoolMax will save your settings and proceed to reset/reboot.



**IMPORTANT**

If any of the set point inputs are above the allowable system parameters, a warning message will be displayed and the CoolMax will not allow the charge profile to be saved.

Please refer to **Page 19** for information on setting the correct charge profile settings.



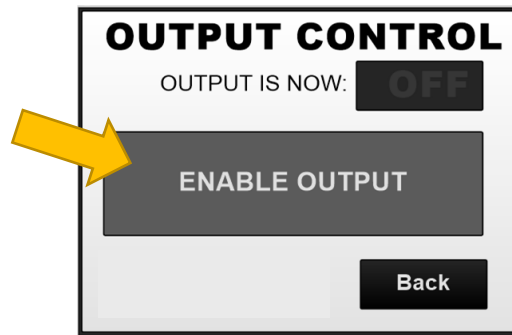
**IMPORTANT**

If you do not tap “**Apply**” after you have finished entering the settings, the CoolMax SRX will not the load the new charge profile into memory and you will have to repeat the process.

## Enabling the Output

To activate output battery charge, press the ON/OFF button located at the bottom of the CoolMax Real Time Telemetry screen (**Figure 4A**).

This will take you to the **OUTPUT CONTROL** screen which will allow you to enable the output (**Figure 6**).



### **IMPORTANT**

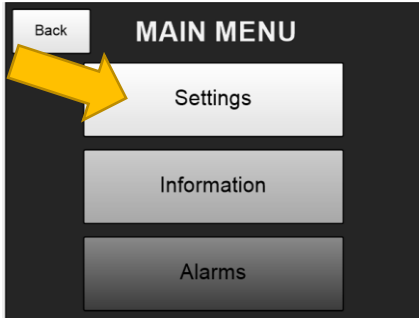
Once the output is initially enabled (after setup), the CoolMax will remember its output state even if power is lost.

Once enabled, the **OUTPUT CONTROL** screen will show that the **OUTPUT IS NOW ON** (Figure 6A) after a few seconds.

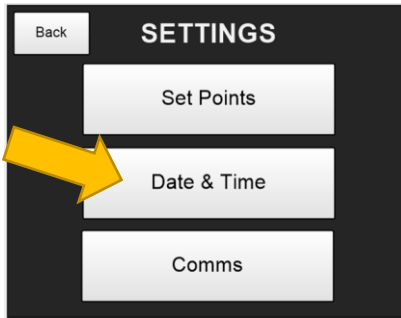


## Setting the Time/Date

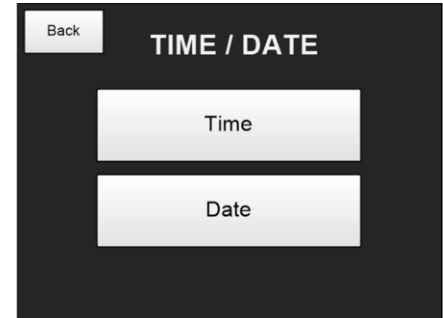
From the Real Time Telemetry Screen (**Figure 1**), select the Menu button at the bottom left of the page to take you to the MAIN MENU screen page (**Figure 4**).



**Figure 4:** Main Menu Screen



**Figure 5:** Settings Screen

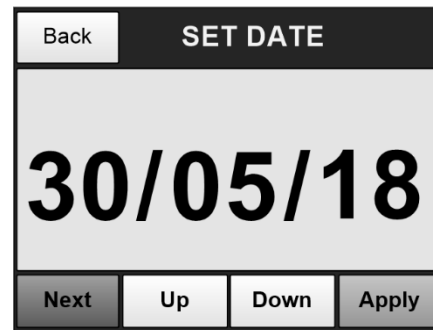


**Figure 6:** Time / Date Screen

Then press the SETTINGS button on the MAIN MENU screen page and this will take you to the SETTINGS Screen (**Figure 5**). On the SETTINGS Screen page (**Figure 5**) press the TIME / DATE button and this will take you to the TIME / DATE Screen page (**Figure 6**).



**Figure 7:** Time Edit Screen



**Figure 8:** Date Edit Screen

To set the Time, press the **TIME** button on the TIME/ DATE screen and this will take you to the SET TIME Screen (**Figure 7**). When you reach the SET TIME screen (**Figure 7**), use the “Next” button at the bottom left of the page to move between the various digits and the “Up” and “Down” buttons to edit the digits.

Once you have the correct Time setting, press the “Apply” button to lock in the new setting. This will also take you back to the TIME / DATE screen (**Figure 6**) from which you can now set the Date.

To set the Date, press the **DATE** button on the TIME/ DATE screen and this will take you to the SET DATE Screen (**Figure 8**). When you reach the DATE EDIT screen (**Figure 8**), use the “Next” button at the bottom left of the page to move between the various digits and the “Up” and “Down” buttons to edit the digits.

Once you have the correct Date setting, press the “Accept” button to lock in the new setting and take you back to the TIME / DATE screen.



**Note:** The CoolMax documentation is being improved regularly. If the relevant situation is not documented, please contact AERL.



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