OPERATION MANUAL

CAPTESTER (12V BATTERY TEST/24V CHARGER TEST)

Version: 4.0

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The story so far.

Regal Electro was first founded in 1981 in Cape Town, South Africa, supplying mostly security components and batteries to security installers. In 1998, the business was sold and the Managing Director, Philip Daries, immigrated to Australia. The year 1999 saw the opening of the newly renamed Regal Electro, a battery and security component supplier based in Lake Cargelligo, NSW.

> Over the next few years, it became apparent that there was a growing need in the industry for a battery supplier who knew not only the characteristics of various technologies, but also understood the technical manufacturing procedures to ensure a quality product.

The growing team at Regal Electro worked to position the company as a premium supplier of fine energy solutions, offering a complete packaged solution to a wide range of clients.

In 2009, Regal Electro opened its very own custom built premises in Hallam, VIC to ensure fast service and delivery to its clients. 2010 saw the establishment of a presence in New Zealand.

To keep up with every-increasing growth, the Lake Cargelligo Head Office moved into a brand new purpose built facility in 2012.

In 2015, Regal Electro successfully completed its first ENLiFEN Energy Storage Optimiser (ESO) prototype which was put proudly on display at the Comms Connect Exhibition in Melbourne.

In 2017, Regal Electro went through another major change with the rebranding and reinvigorating of its core product range, Power Charge. The Power Charge range was renamed Valen, which in Latin means 'Power'. Brisbane operations also began at this time.

A Sydney head office and logistics centre was opened in Lawson in April 2018 with the view to further improve the level of service offered to clients.

In July 2018, Regal Electro made the key strategic decision to go through another rebranding and changed the company name to Valen. This decision was made to strengthen the brand and recognition within the industrial battery market.

As of today, Valen has grown exponentially since its humble beginnings to become a trusted advisor to clients throughout Australia and New Zealand. Valen is an industry leader in energy storage for mission critical applications and continues to innovate and evolve, keeping abreast of new technologies as they emerge.

A company built on its Core Values.

Wow Customers through Service

- Our customers want service and we want our employees to go above and beyond for our customers.
- We expect our employees to deliver a WOW experience with customers.

Move Fast & Remain Focused to Get Results

- We are serious about results and we must never lose focus on our goals and our sense of urgency to achieve.
- Do something once and do it right.
- We believe in working hard and putting in extra effort to get things done.

Upbeat Positive Attitude

- If our employees have a positive attitude and constantly strive to give your best effort, eventually we will overcome our immediate problems and find you are ready for greater challenges.
- Positive and negative are directions that lead to different outcomes. We expect our employees to move in the right direction each day.

Challenge the Status Quo

- We are committed to great results and good is the enemy of great. We want our employees to embrace & drive change

Play as a Team

- Working effectively as a team creates momentum, improves morale.
- The difference between success and failure is a great team and we expect our employees to work together as a team.

THANK YOU FOR INVESTING IN A CAPTESTER BATTERY TESTER

CONTENTS

INTRODUCTION

With this processor controller capacity test, you can measure the C20 capacity of a 12V battery. The discharge current will be set automatically. For batteries below 25Ah C20 capacity, the tester will select the C1 rate (e.g. for 18Ah battery it will be 18A). For batteries above 25Ah C20 capacity, the discharge current will always by 25A. The cut-off voltage (the voltage limit where you want to stop the discharge) is set to 1.6VPC. The tester calculated the C20 capacity referring to the Peukert values of the battery.

As a further option, you can also make a single cycle test of the battery. You can set the charging time in hours. In the menu of the tester, you decide if you start the test with a charge or discharge cycle. Starting with a charge cycle, the battery will be charged for the programmed period of time. The battery will then be discharged at the related C20 discharge current down to 1.6VPC. Finally, the battery will be recharged to the programmed time, which completed the cycle.

If you program the charging time to '0 hours', the battery will only be discharged.

The test results can either be displayed online on a PC screen or can be seen as a total result in the menu of the tester.

CONNECTING THE TESTER TO THE BATTERY

Use the red crocodile lead to connect to the positive terminal of the battery and the black to connect to the negative terminal. After connecting the tester to the battery, the display will light up. The display will show the software version and serial number for a few seconds. After that, you will see the voltage of the battery connected to the tester.
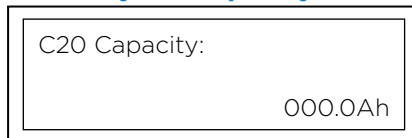
Menu System

The main menu consists of 8 screens. You can change between the screens using the DISPLAY CHANGE button.

1 Voltage Screen

```
Voltage

                12.8V
```
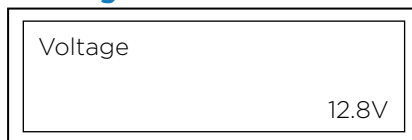
This shows the voltage of the battery that you have connected.

2 Battery Ah Capacity Screen

```
C20 Capacity:

              000.0Ah
```

This screen allows you to set the C20 capacity of your battery. Do this by pressing the UP/DOWN button. If the C20 capacity of the battery is not defined on the labelling of the battery, please ask VALEN for the correct value.

3 Battery Ah Capacity Screen

```
Discharge
```
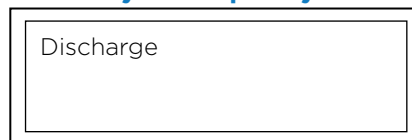
The battery you wish to test needs to be fully charged before you start the test. Press START/STOP button if you want to start the discharge test. Remember to set the correct Ah capacity of the battery in screen 2 before starting the discharge test.

4 Charging Time

```
Discharge
```
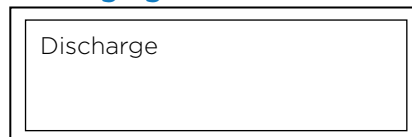
If you wish to start a test with a charger attached you will need to select a charge time. You can change the charging time between 1-16 hours using the UP/DOWN button. Please ensure this is set to 00 if you are just using the discharge option to test one battery.

5 Charging

```
Charging
```
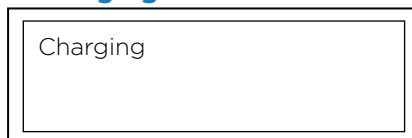
This option has 3 stages; it will charge the battery, discharge the battery and then charge the battery again. You will need to set the correct Ah capacity of the battery and then set a charge time. Attach a 12V charger to the positive and negative charger plugs on the front of the tester. Press START/STOP to start the test. Remember to turn on the charger.

6 24V Charger Test

```
24V charger test
```

This option will allow you to watch/record the charging curve of a 24V charger and charge 2x 12V batteries. You can view the Amps and Volts that the charger produces over a set charge time. You need to connect a 24V charger to the positive and negative charger plugs on the front of the tester and also connect the 2 batteries. To connect 2 batteries to the tester, you need to connect the red positive crocodile clip to the positive of one battery and the black negative crocodile clip to the negative of the other battery. Link the spare positive terminal of one battery and spare negative terminal of the other with the link cable included in your tester box. Press START/STOP to start the test, remember to ensure you set a charge time in screen 4 and turn your charger on after you press START.

7 Read Test Results

```
Read test result
```

The Captester will store your last 3 test results. Press START/STOP and you can view each of the results. You will be able to see the Ah capacity of the tested battery, % Pass or Fail of the battery and how many minutes the test ran for. Press the DISPLAY CHANGE button to cycle through the 3 results. Test one is the last test that you completed. To exit this menu, press START/STOP.

8 Meas. Data ➤ PC

```
Meas. Data ➤ PC
```

If a PC with Captester software AKKU is connected, you can send the stored data of the tester to the PC. Ensure you select the software option to download before you press START/STOP at this menu.

STARTING THE TEST

During the Test

During the test, you can see the following screen:

– **Elapsed time:** this is the time since the beginning of the actual process (charging or discharging)
– **Voltage:** the voltage of the battery (during discharging), or the actual charging voltage (during charging)

Percentage capacity of the battery you will see the calculated C20 capacity.

When the battery test is completed, the tester will show the result as a test result the indication 'Pass' or 'Fail'. Battery <60% will be indicated as a 'Fail'.

You can stop the discharge or charge any time if you press the START/STOP button.

Pendrive Suspend

Before removing the USB stick from the tester, make sure the actual test is finished. Then enter the Pendrive Suspend menu and press the START button. Remove the pendrive and plug it into the PB USB and open the files with Akku.exe.

The test file on the pendrive is finished when the test is finished or stopped by pressing the START/STOP button. Removing the pendrive or disconnecting the battery from the tester during the test will cause the loss of test data of the entire test.

SOFTWARE

Main Icons

With the main icons, you can do the following:

Download Measurements

	Test Report	Opens a test report window
	Read USB Flash Drive	
	Open	Open a measurement from pendrive
	Save	Save the measurement
	Close	
	Help	This screen
	Exit	

These are the small icons, in the upper part of the main window.

Measurement Window

After downloading the measurement data, it appears in a new window which includes the discharge curve. You can see the filename in the upper right corner of the window.

With the small icons, you can do the following:

	Original Size	Restore original size
	Zoom	Zoom any part of the curve
	Activate Vertical Marker	Move the marker with buttons
	Activate Mouse Marker	Move the marker with mouse
	Details	Shows the test result in a small window
	Setting U, I taxers	
	Time	
	Current	
	Voltage	

There are other fields. Here you can enter the values of the axes. You can write the current voltage and time values. Using this feature, you can only see the desired part of the graph. It is useful in case of long curves.

TEST REPORT

Here you can create test reports. You can mark the desired points of the graph documenting the test details, making notes, etc.

To make the report:
  1. Fill the A, B, D, F, E field of the test report.
  2. Select the type of marker you would like to place (Voltage or Current).
  3. With the RIGHT mouse button, you can place Voltage or Current markers to any point of the graph.
  4. Print the test report.
  5. Close the test report.

Moving the Marker

Position the pointer to the marker, and drag the marker while keeping the left button pushed.

Deleting the Marker

Position the pointer on the marker and push the RIGHT mouse button.

TEST WINDOW

  1. Company logo (you can import a BMP logo by pressing the right button).
  2. Company Information
  3. Test Details.
  4. Test Parameters.
  5. Comments:
    – Print the test reports (first you will see the preview)
    – Save the graph as BMP
    – Export test report in Microsoft Word format
    – Copy graph to clipboard
    – Help
    – Close
    – Select voltage or current: define if you would like to place the voltage or current
    – Voltage values: voltage value at the actual cursor position
    – Current value: Current value at the actual cursor position
    – Time value: Time value at the actual cursor position

GRAPH SETTINGS

The measurement window contains a graph setting icon. If you click on the icon, you will have the visisble possibilities.

  – Visible: what you want to be visible/invisible (current, voltage)
  – Scaling Boxes: you can turn the scaling boxes off or on at the side of the graph
  – Grid: you can turn the grid on or off
  – Axis Scale: you can set the step values on the axes (not released at present default is 1)
  – Vertical Marker: you can set the stepping values of the vertical marker