

CRESTCHIC



Corona DC Loadbank Quick Start Guide for Windows PC

Crestchic Limited
Second Avenue
Centrum 100
Burton upon Trent
Staffordshire
United Kingdom
DE14 2WF

Tel. +44 (0) 1283 531645

Fax. +44 (0) 1283 510103

Reproduction of this document, in part or whole, by any means, electrical, mechanical, optical, chemical, manual or otherwise is prohibited without written permission from Crestchic Limited.

This document reflects Release 1.10 or later of the Corona software. The information contained herein is believed to be accurate as of the date of publication, however, Crestchic Limited will not be liable for any damages, including indirect or consequential, arising from use of the hardware or software described within or reliance upon the accuracy of this documentation. The information contained herein is subject to change without notice.

Revision: B-En1
Date: 2nd June 2015
Author: R. Warwick

1.0 Introduction

This document is intended as an introduction to the essential procedures to get a Corona DC loadbank up and running to a level where it can be used to apply loads either manually or sequenced by the computer.

1.1 Setting Up

The PC should be connected to the Control Terminal socket on the loadbank using any necessary extension cables.

If there is more than one loadbank being used then they should be daisy-chained to the first loadbank using the communications cables supplied for this purpose. Each loadbank is fitted with two inter-module connection ports (A & B) and either or both ports may be used to form the chain.

The cooling fans and control system require an AC power supply to operate. Check the ratings plate on the specific loadbank(s) being used for information about the voltage and frequency range that will be suitable for the control system supply.

The Emergency Stop buttons on the loadbank(s) should be pulled out.

Connect the DC source to be tested to the loadbank terminals and ensure that any configuration links or straps in the terminal chamber are correctly fitted to match the DC output voltage of the battery system.

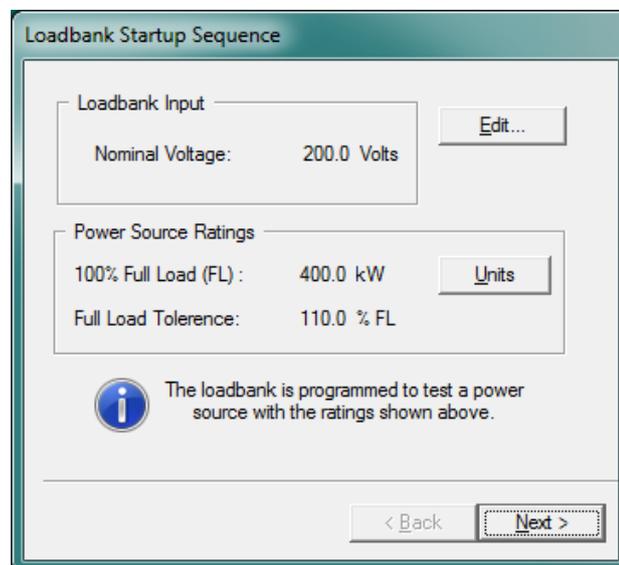
Turn on the PC and allow it to proceed through its start-up sequence until the Windows desktop is displayed. To start the Corona application, double-click the Corona icon on the desktop.

2.0 Start Up

To start using the loadbank press the **GO** button on the Corona toolbar. This will cause the loadbank to perform its start-up sequence. Read the display and respond to the prompts to work through this sequence.

During the start-up sequence the display will show the total capacity of the loadbanks comprising the system and their operating limits. The loadbank protection system will automatically reject load if these values are exceeded. If the limits are not suitable for the required testing please contact *Crestchic*.

At a certain stage in the start-up sequence the operator will be asked to specify the parameters for the supply being tested. It is important that this information is correctly entered, as it is these values that the loadbank software uses to protect the supply from overload. The generator ratings screen is shown below.

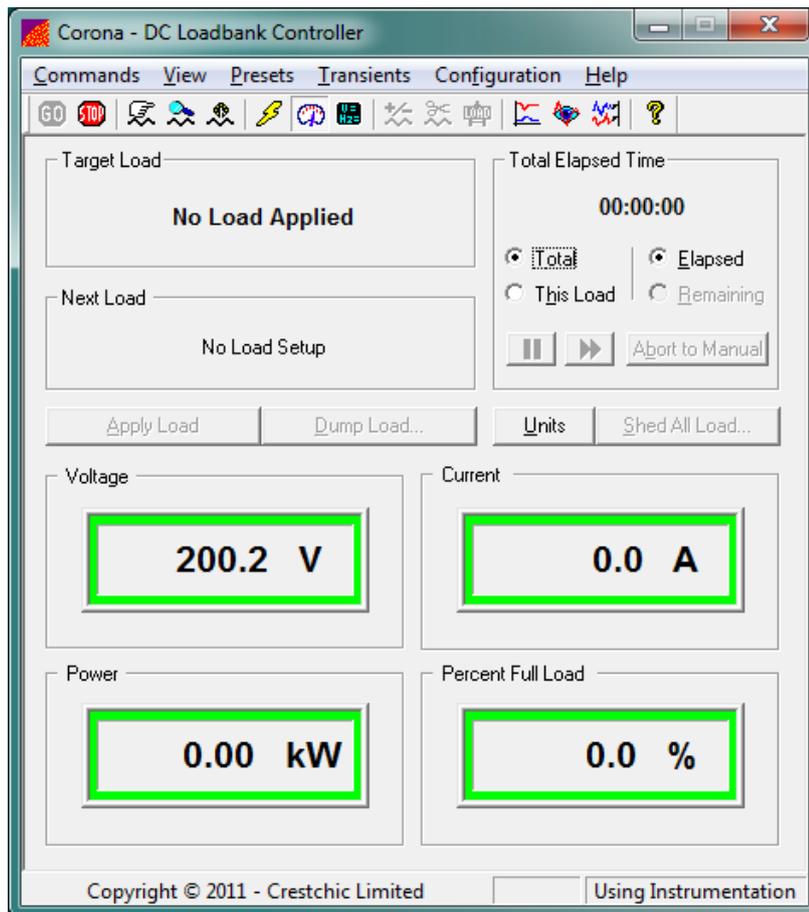


Press the Units button to see the load expressed in Amps or kW. Press the Edit button to edit the test supply parameters. Once the test supply has been correctly specified then press Next button to continue the start-up sequence.

If there are any Learned Loads in the computer memory, the display will show a screen asking if these are still valid or if they should be erased. Normally at the start of a new job any existing Learned Loads should be erased.

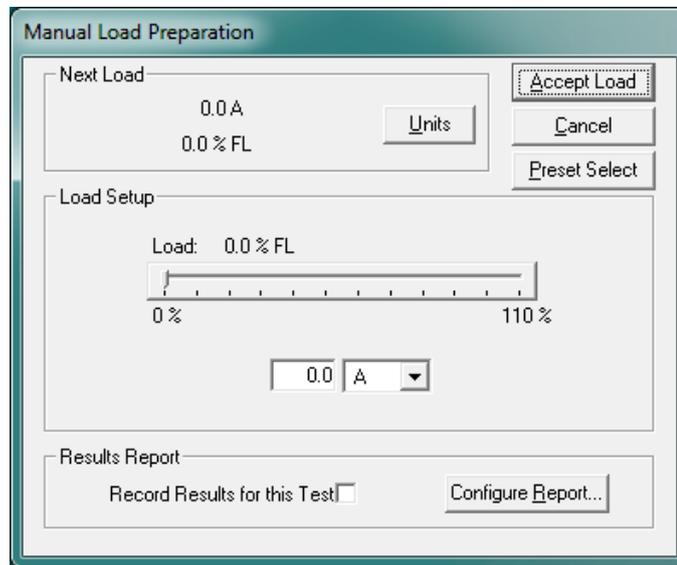
The start-up sequence gives the option of starting the cooling fans. If this option is chosen there will be a short delay whilst each of the fans in the loadbank(s) starts in progression.

This completes the start-up sequence and the Instrumentation screen is displayed.



3.0 Manual Loads

This mode allows loads to be directly entered by the operator. Press the  button on the toolbar to enter this mode. The screen will prompt for the size of load that is required.



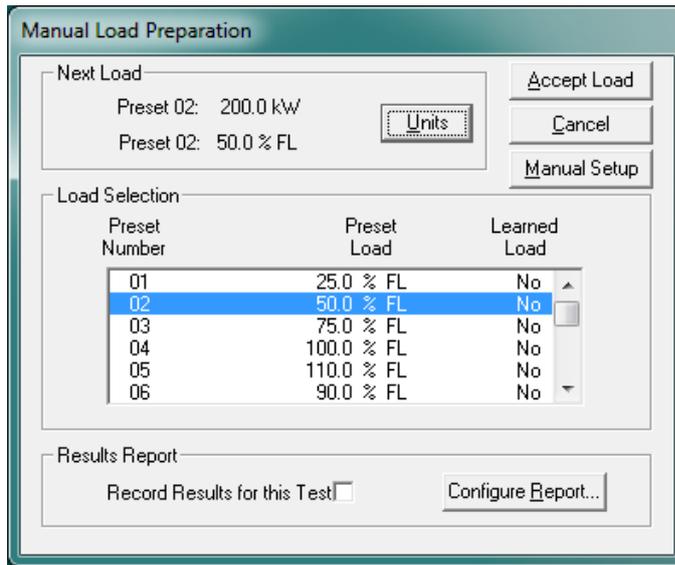
To change the units in which the load is entered select the required item (Amps or kW) from the drop-down list box. Type the load magnitude into the edit box or use the slider control to set the value. Once the load has been correctly specified, press the Accept Load button to confirm the load details.

The screen will now display the instrumentation values but the new load will not yet have been applied. When ready press the Apply Load button to use the prepared load.

To change the load press the  button and enter the new load details as before. When preparing the next load to apply it is possible to choose one of the preset loads stored in the loadbank. Up to twenty loads can be memorised by the loadbank. These are programmed from the Presets menu and details of how this can be done are covered in a later section of this document.

Any of these preset loads can be applied at the operators command. To display a list of the available preset load press the Preset Select button on the Load Preparation dialog box.

The dialog will then change to that show below.



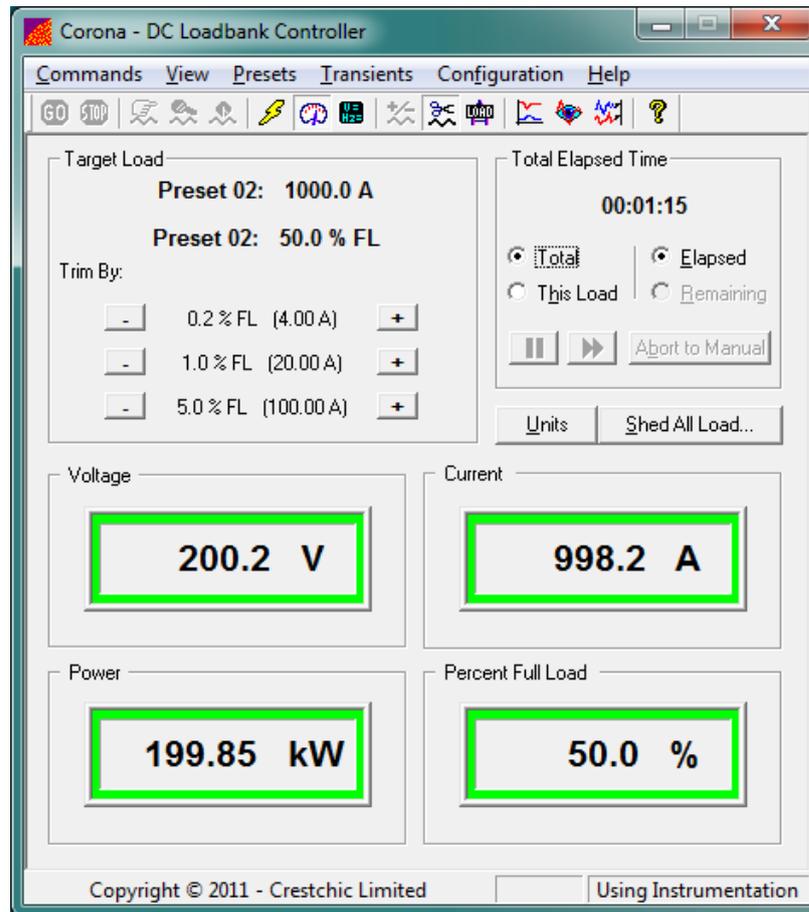
Select one of the presets from those displayed in the list box and then press the Accept Load button. The Load Preparation dialog box will disappear and the preset load will be ready for application. To apply the preset load, press the Apply Load button again.

Press the Shed All Load button to remove the entire applied load and finish the test.

When on-load a Load Adjustment feature is available by pressing the  button. This will adjust the applied load as accurately as possible to meet the requested target load.

A trim feature is also available to allow the operator to manually adjust the applied load. Press the  button to commence the trim function.

The Instrumentation screen will display additional load manipulation controls in the Target Load area of the screen.



The trim can be adjusted by different sizes of increment. The amount by which the applied load will be modified is shown at the bottom of the Target Load area. To change the load by the indicated amount press the appropriate **+** or **-** button

If the applied load is from the list of presets and either the automatic Load Adjustment or the Trim facility has been used to adjust it to the required value, the modified load can be learnt by pressing the **LOAD** button. If that preset is called up again the loadbank will not calculate the load elements required but will instead switch in the adjusted load that was previously learnt.

A summary of the buttons in Manual Loads mode is given below:

 button	Specify new load
Shed All Load button	Removes applied load and exits the Manual Loads mode
Dump Load button	Reduce applied load by 25%
 button	Automatic Load Adjustment
 button	Enable Load Trimming facility
 button	Store the adjusted load for a preset
Units button	Display load in different units (Amps or kW)

4.0 Search Mode

This mode allows free adjustment of the applied load using the Load Trimming feature described in the previous section.

This mode is selected by pressing the  button. It immediately changes the Instrumentation screen to display the additional load manipulation controls. The load can be modified by using the  and  buttons as described previously.

A specific load condition (node) can be stored for future retrieval. When running at the desired load, select the Store Node option from the Presets menu. The list of seven nodes that can be stored will be displayed. Follow the screen prompts to store the currently applied load in the desired node location. Previously stored nodes will be overwritten with the new load details.

To apply a previously stored node choose the Apply Stored Node option from the Presets menu and select the load form the list of seven nodes. This process can be repeated as required.

A summary of the buttons in Search Mode is given below:

 button	Enter Search Mode
Shed All Load button	Removes applied load and exits the Search Mode
 button	Automatic Load Adjustment
Units button	Display load in different units (Amps or kW)

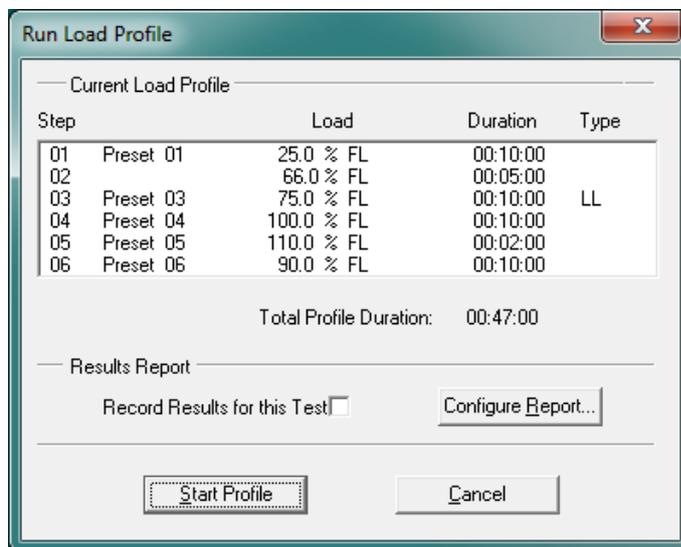
5.0 Automatic Load Profile

This mode allows a sequence of preset loads to be applied under control of the loadbank computer for the specified duration of each load. Details of how this Load Profile is defined will be given later in this document.

Pressing the  button on the toolbar enters the Automatic Presets Mode.

A dialog box giving details of the Load Profile is displayed and the operator should check this to ensure the profile will perform the desired test. If the operator is satisfied with the profile details then pressing the Start Profile button will start the test.

This dialog box is reproduced below.



The computer will work through the list of load-steps in the Load Profile applying each load sequentially for the specified duration.

Once all the load-steps in the sequence have been applied for their specified durations all load will be shed and the Automatic Load Profile Mode will be completed.

All keys operate as described in the Manual Loads section of this document with the exception of the  button. This is now disabled, as it is the computers responsibility to sequence the load changes.

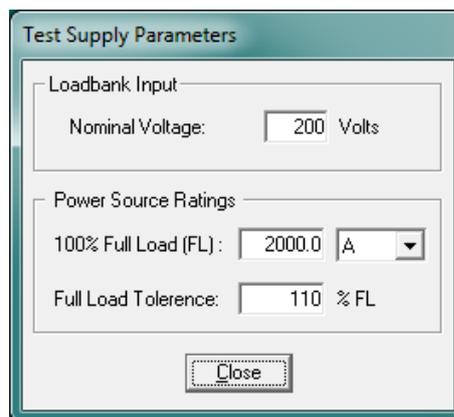
6.0 Configuration Options

If it is intended to only operate in Search Mode or Manual Loads mode without using preset loads then no set-up is required from this Configuration menu. All other modes operate with loads specified using options from this menu.

The Configuration options that are important for basic loadbank operation are covered in this section. Other options from this menu should not normally require alteration except in special circumstances.

6.1 Test Supply Set-up

Press the  button on the Corona toolbar to display the current test supply parameters. If these are incorrect press the Edit button to allow these parameters to be altered. This will display the dialog box shown below in which the correct parameters can be entered.

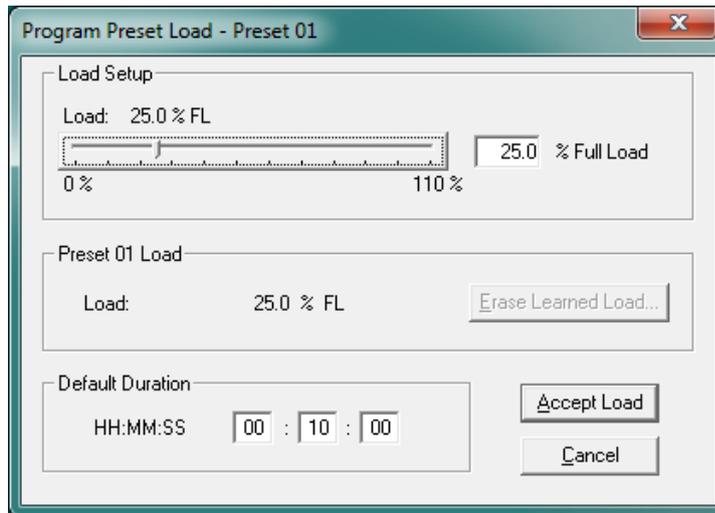


Enter the requested parameters for generator being tested. The full-load tolerance is the desired maximum load that the loadbank is to draw from the test supply, expressed as a percentage of the full-load entered above. The loadbank software uses these values to protect the test supply from excessive loads so it is important that the generator parameters are correctly specified.

6.2 Program Presets

To program a preset load select the Program Presets option from the Presets menu. A dialog box will be displayed showing a list of the twenty preset loads stored in the loadbank's memory. Select a preset from this list and press the Edit button.

The dialog box reproduced below will be displayed.



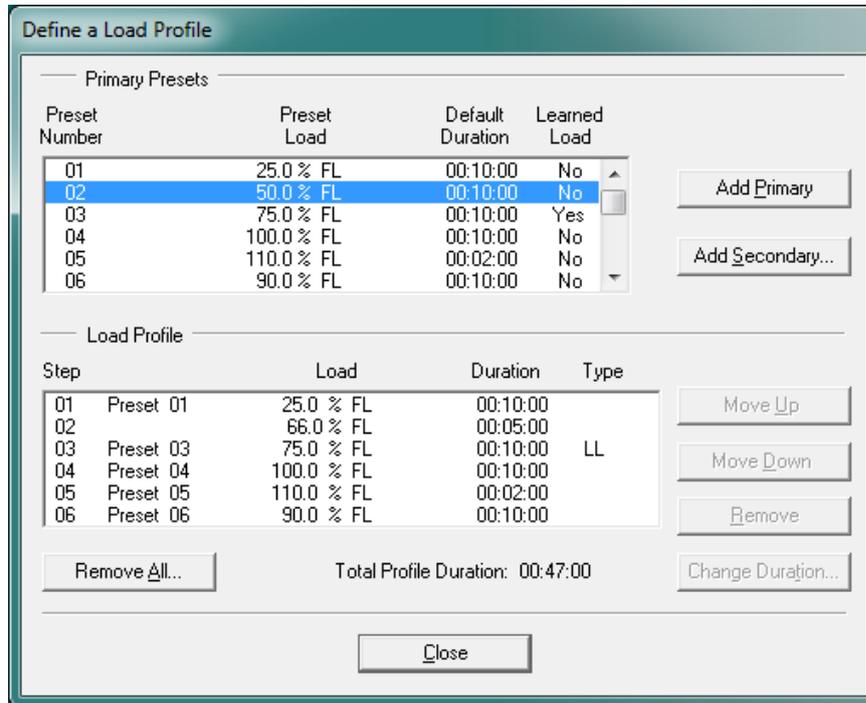
Use this dialog box to enter the percentage of full-load for the selected preset's load. The duration must be specified if the preset is to be used in Automatic Load Profile mode.

Once the preset had been defined press the Accept Load button to return to the list of presets and select another for further editing if required.

6.3 Program Load Profile

To define a Load Profile for use in the Automatic Load Profile mode described previously, select the Create/Edit Load Profile option from the Presets menu.

The dialog box shown below will be displayed.



The top-half of the dialog box shows a list of the twenty preset loads that are available. The bottom list box will initially be empty.

To create a profile select the required preset from the list and press the Add Primary button. The selected preset will be inserted at the end of the list of load-steps in the Load Profile list box. Repeat this operation to add different presets to the profile until the required sequence of loads has been constructed.

The load profile can be edited to change the position of a load-step in the profile, remove a load-step from the profile or modify the duration of a specific load-step. To do this, select the required load-step in the Load Profile list box. Then use the Move Up and Move Down buttons to change its position in the profile list or press the Remove button to delete the load-step from the defined profile. To modify a load-step's duration, select the step and press the Change Duration button.

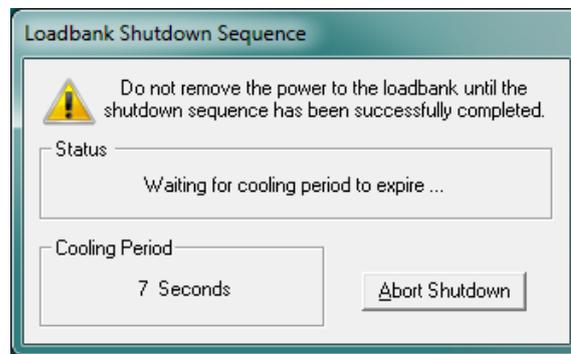
Once the load-profile has been satisfactorily defined the dialog box can be closed and the profile is ready for use in Automatic Load Profile mode.

7.0 Shutdown Loadbanks

When all load testing has been completed and no load is applied, the  button can then be used to initiate the loadbank shutdown sequence.

Once this sequence commences the fans will run for up to 240 seconds to ensure the loadbank elements are at a sufficiently low temperature before the cooling fans are stopped and the loadbank power is removed.

During the shutdown sequence the screen below will be displayed showing the remaining countdown and allow the shutdown to be aborted if required.



Once the cooling period has expired the fans will stop and the loadbank may be powered down.

The Corona program can then be closed by selecting the Exit option from the Commands menu or by pressing the Close button on the application title bar.