DARRAH ELECTRIC COMPANY

PLC915TSR

Programmable Controller Manual

RevA01_09-06-16

Contents

Features

7" color touch screen programmable controller mounted in a polycarbonate enclosure.

The controller will display and control:

- Start, Stop, Reset, Manual or Recipe Selection
- DC Output Current and Voltage
- 12 Individually Named Recipes
- Ampere Time Meter—Records ampere time in minutes or hours. Available in Preset or Totalizing Counters.
- Batch or Cycle Timer—Unlimited number of uses available in Seconds, Minutes, or Hours.
- Adjustable DC Voltage and Current Ramp Controls—Repeatable accuracy in processes requiring a preset DC Voltage & Current rise over an adjustable time period.
- Stepped Ramp Processes—Adjustable up to 8 Voltage & Current Step Ramps.

Built-in programming for manual operation or up to 12 individually named, pre-programmed recipes.

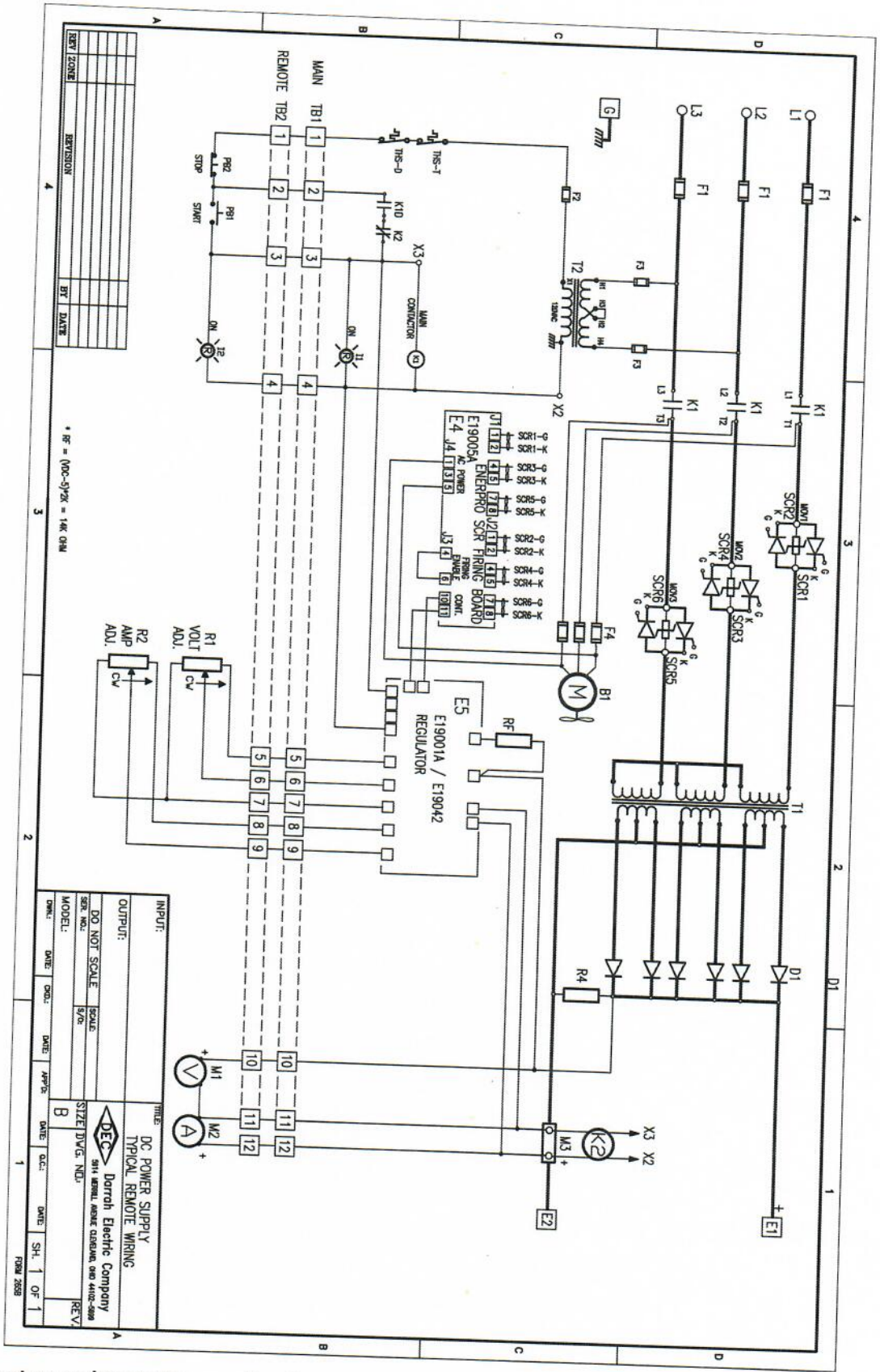
800 x 480 Pixel, full color LED screen.

Cycle complete and DC overload rectifier off alarm via integrated buzzer.

Results from each job/day are easily exportable via USB drive.

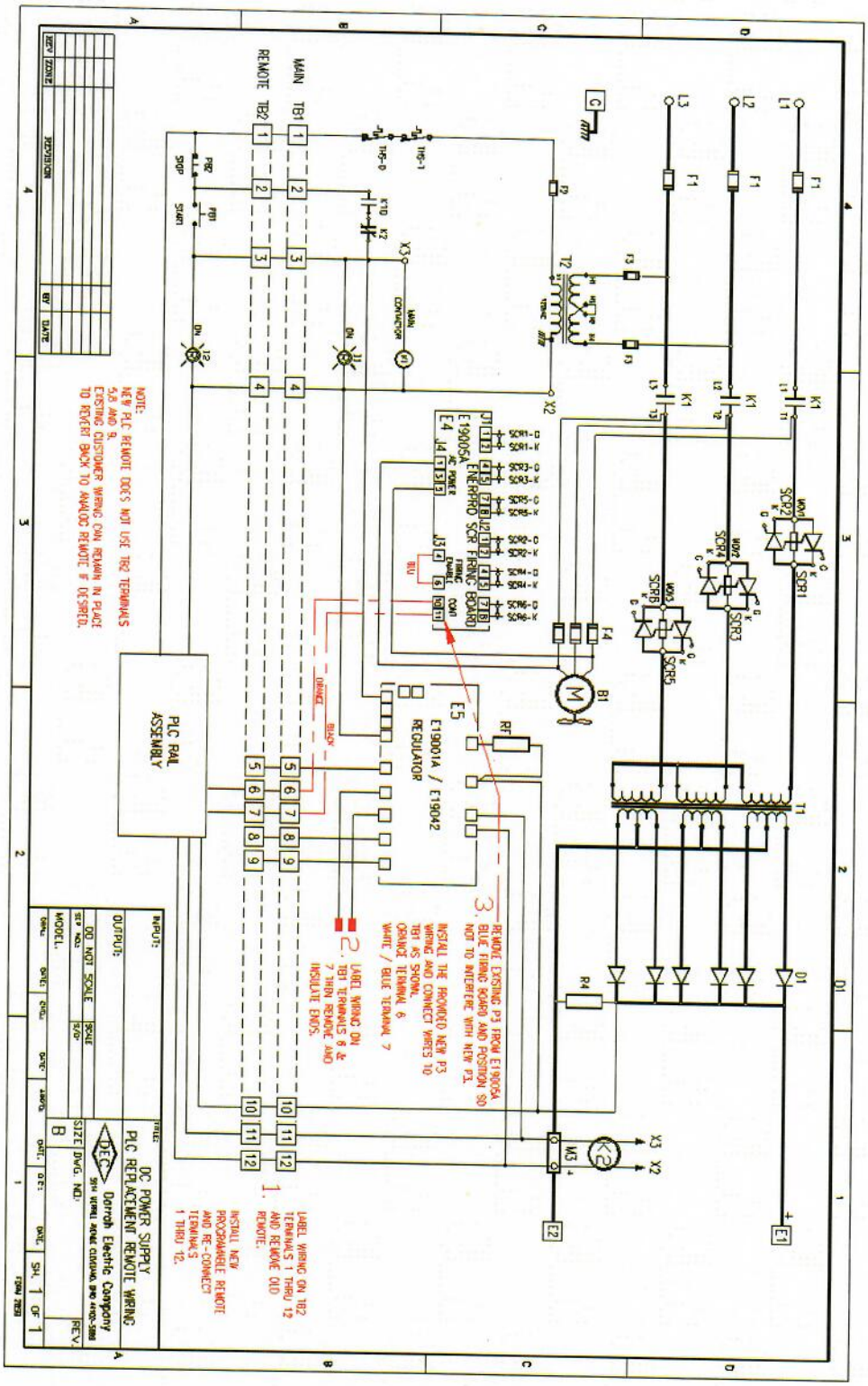
1. Connection Instructions

Typical Standard Darrah Electric Remote Wiring



Note: The shunt must be on the negative bus.

Change for Programmable Controller Connection



Note: The shunt must be on the negative bus.

2. Home Screen

Home Screen

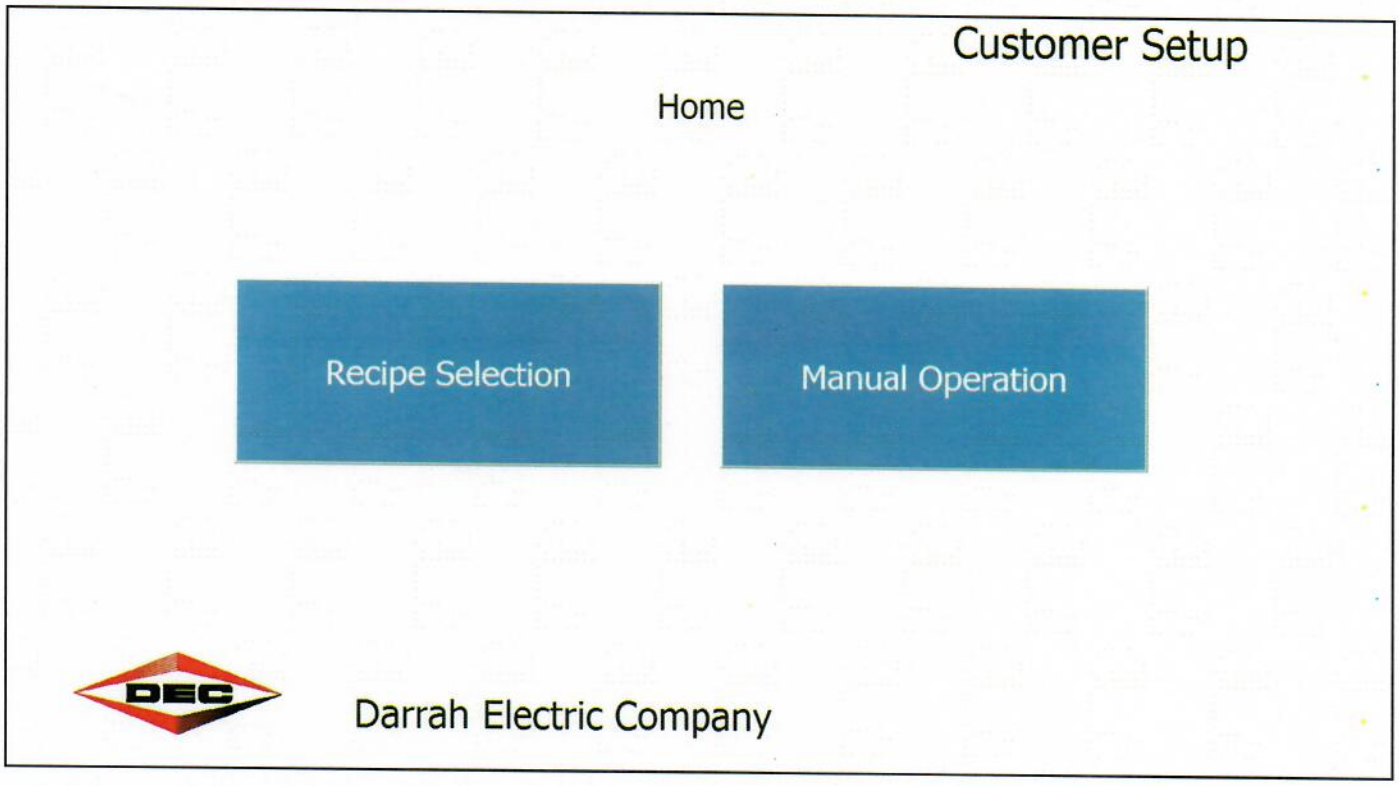
The Home screen allows the operator to select the following options:

- Recipe Selection

  Press this button to advance to the Recipe Selection screen to create, edit, or select the recipe to be used. For more details on the Recipe Selection screen, go to page 10.

- Manual Operation

  Press this button to advance to the Manual Operation Presets screen to edit the manual operation presets. For more details on the Manual Operation Presets screen, go to page 15.



3. Recipe Selection

Recipe Selection Screen

At the top of the Recipe Selection screen, the recipe that is currently selected to run is displayed. The Recipe Selection screen allows the operator to select the following options:

- Select a Recipe

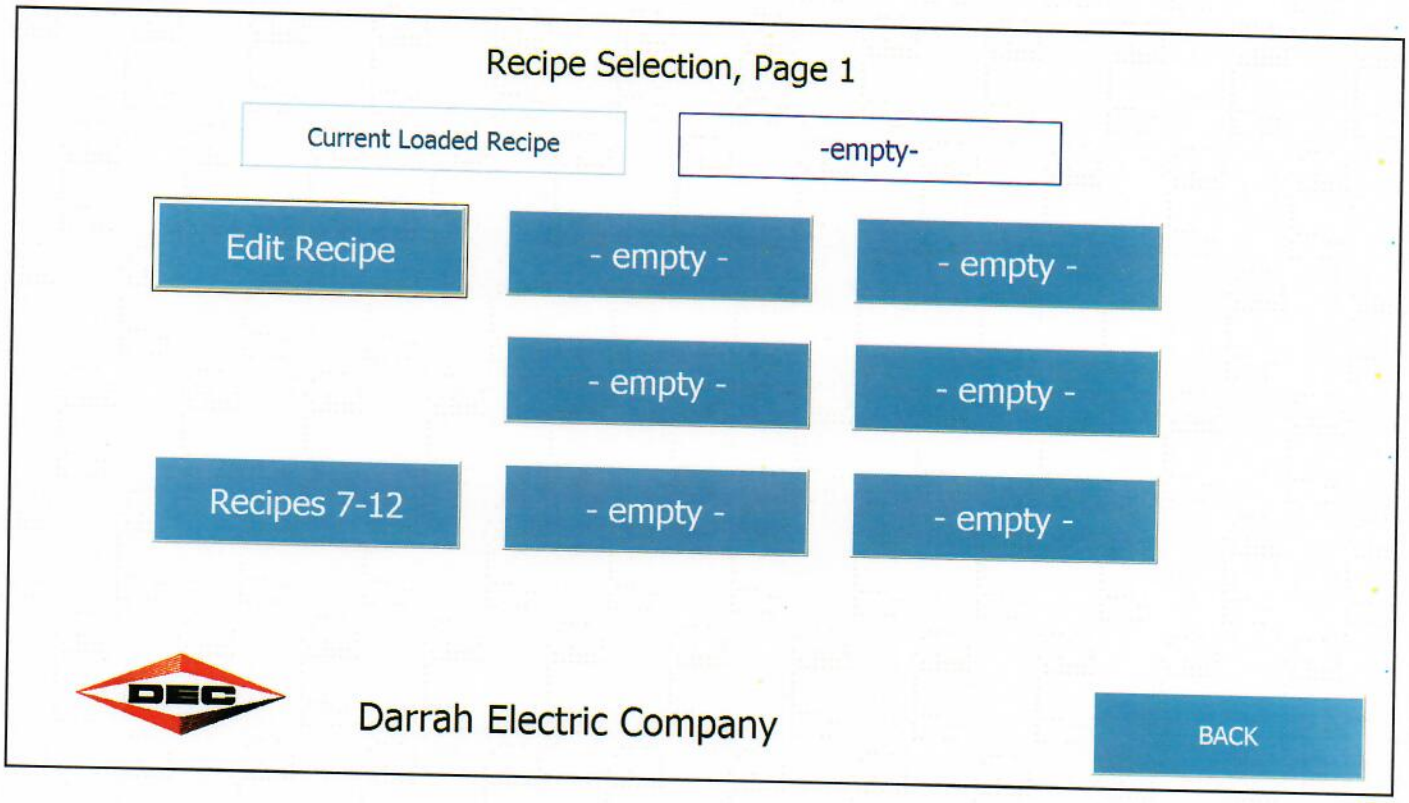
  Press any existing recipe to select it.

- Edit Recipe

  Press this button to edit an existing recipe or create a new recipe. When you press this button it will turn green. Then press the recipe to be edited. A box will appear to type in the password to enter the recipe. Enter the password and Close the box. Then press the Next button to enter the recipe. See page 12 for instructions on setting a new password.

- Recipes 7-12

  Press this button to view recipes 7 through 12.



Recipe Selection (7-12) Screen

This screen shows recipes number 7 through 12. At the top of the screen, the recipe that is currently selected to run is displayed. The Recipe Selection screen allows the operator to select the following options:

- Select a Recipe

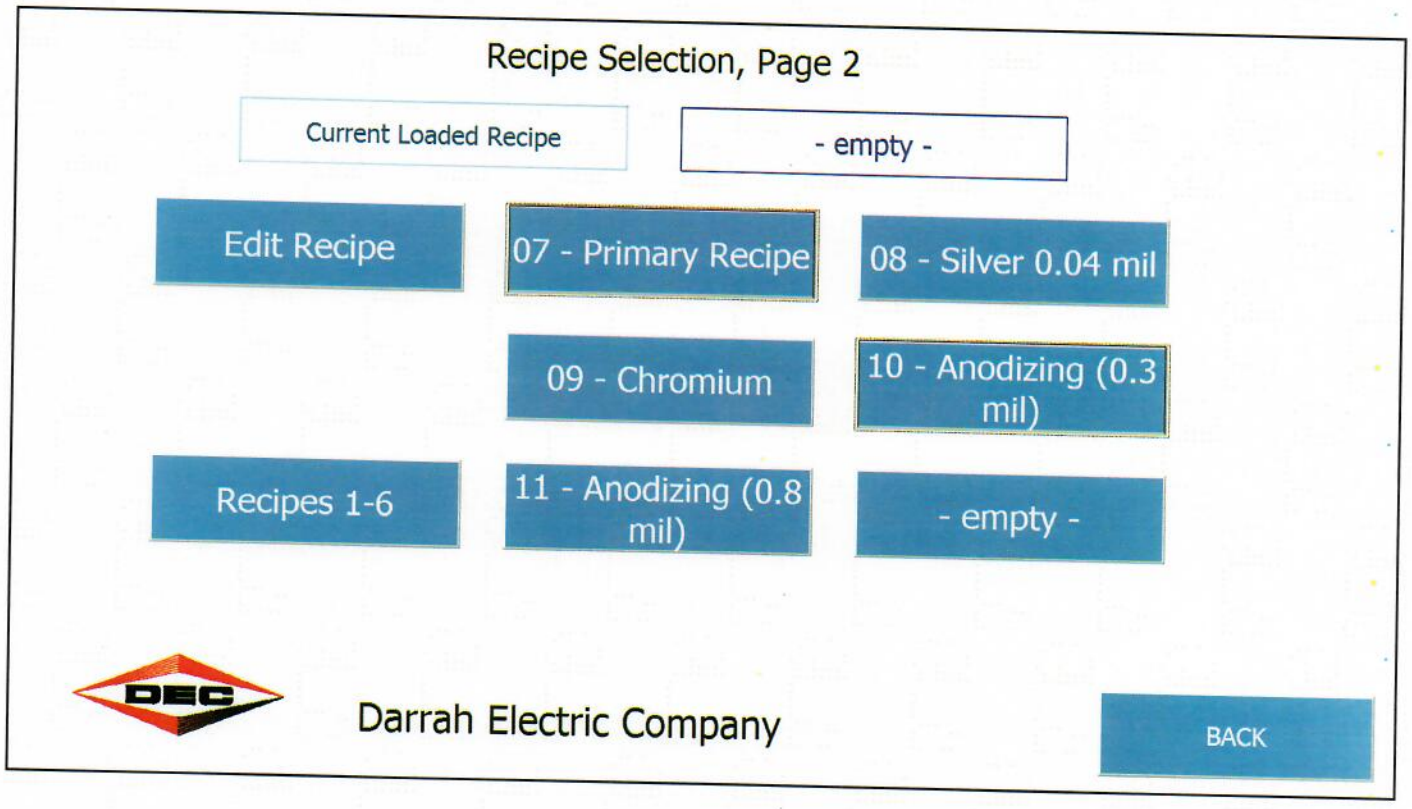
  Press any existing recipe to select it.

- Edit Recipe

  Press this button to edit an existing recipe or create a new recipe. When you press this button it will turn green. Then press the recipe to be edited. A box will appear to type in the password to enter the recipe. Enter the password and Close the box. Then press the Next button to enter the recipe. See page 12 for instructions on setting a new password.

- Recipes 1-6

  Press this button to view recipes 1 through 6.



Set Password

To set a password, select the Edit button. When you press this button it will turn green. Then press the recipe you wish to edit.

A box will appear to enter a password. The default password is 0000. Type in the password you wish to set. **BE SURE TO WRITE DOWN YOUR NEW PASSWORD AND STORE IT IN A SAFE LOCATION.**

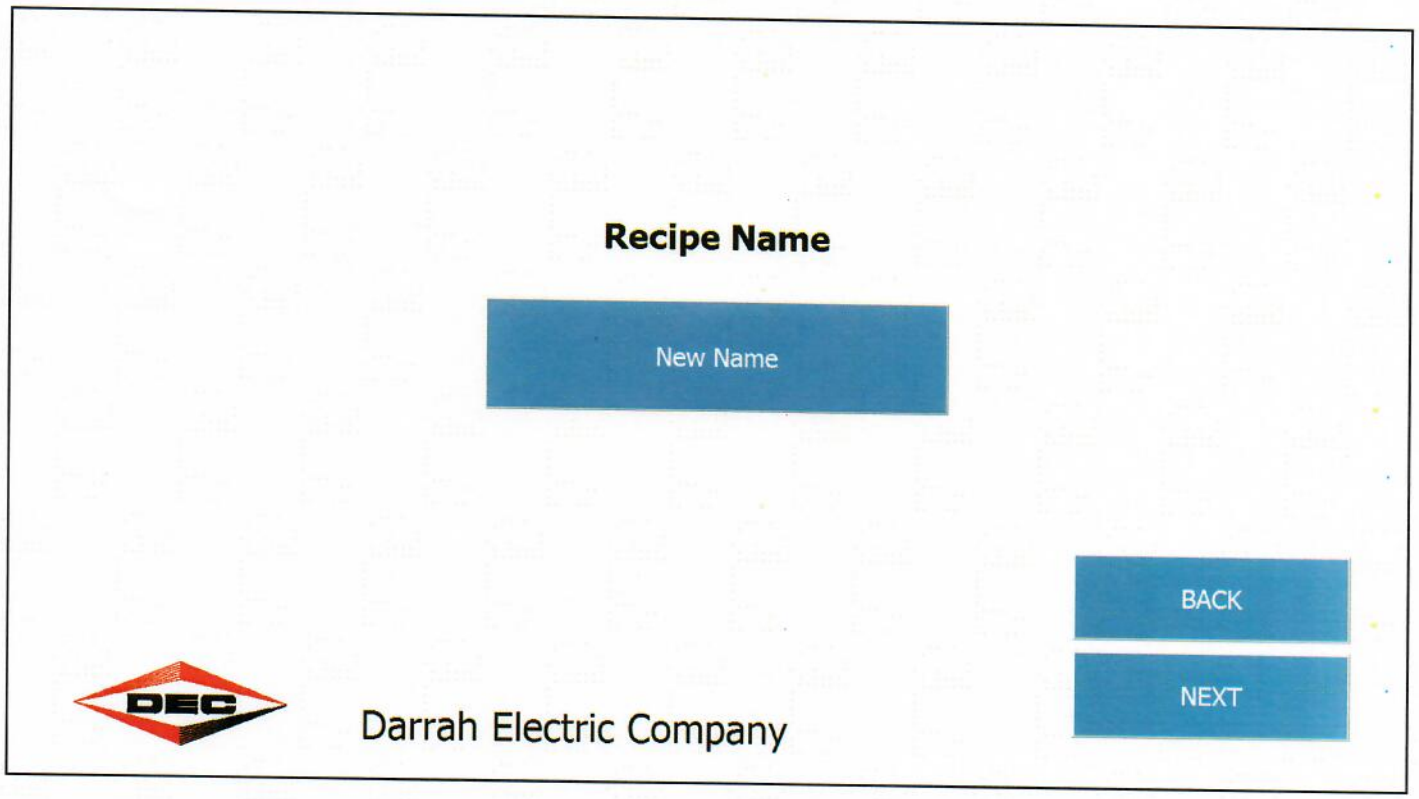
After the password has been entered, close the box. Then press the Next button to enter the recipe.

Create/Edit New Recipe Screen

This screen allows the operator to create a new recipe to be saved as one of the 12 presets. The recipe name is displayed in the box at the top.

Press on the recipe name to bring up the alpha-numeric keypad to change the recipe name.

Press NEXT to advance to the Edit Recipe screen.

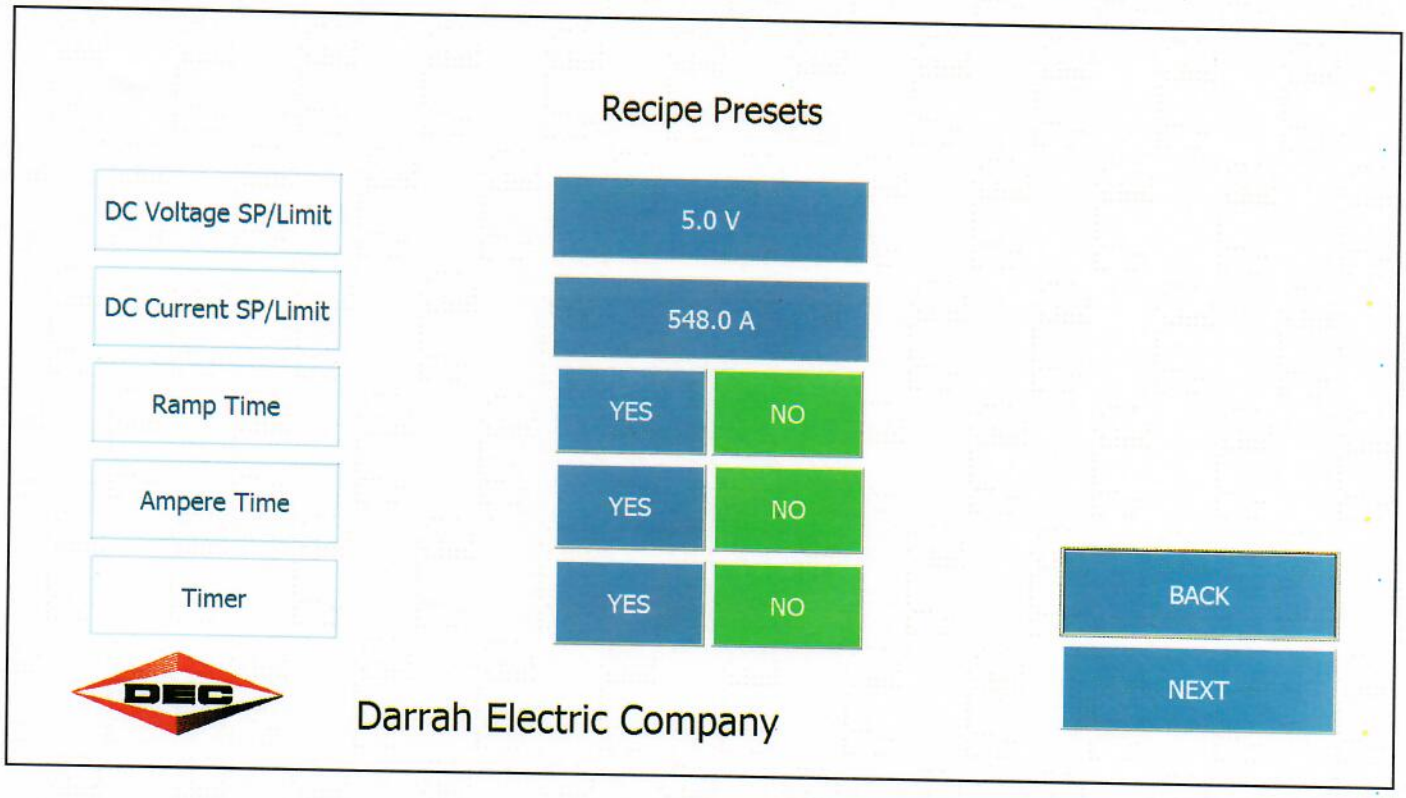


Edit Recipe Presets Screen

This screen allows the operator to edit a new or existing recipe. The following fields can be edited:

- DC Voltage Set Point (SP)/Limit
- DC Current Set Point (SP)/Limit
- Ramp Time
- Ampere Time
- Timer

Press NEXT to save the new recipe and advance to the Manual Operation screen (see page 19).



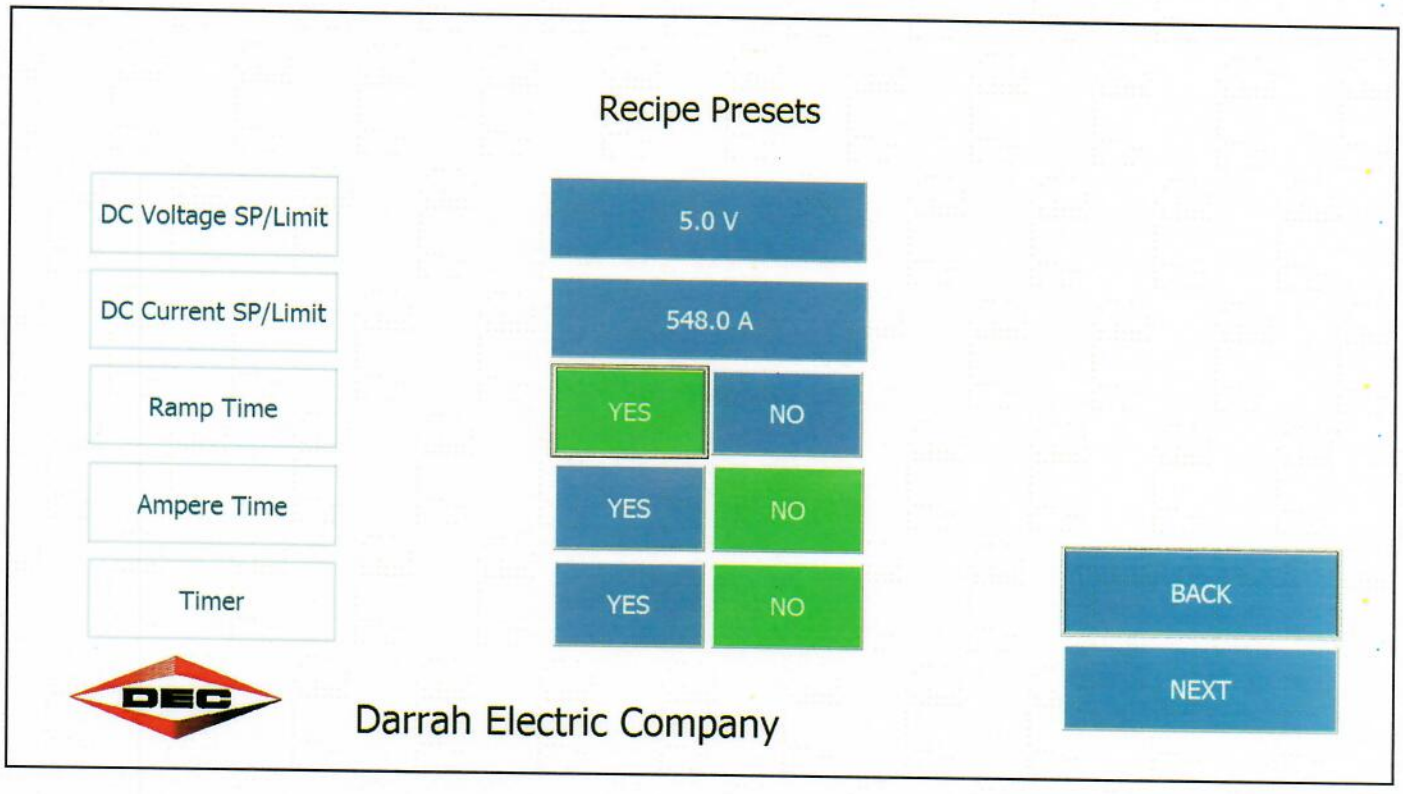
4. Manual Operation

Manual Operation Presets Screen

This screen allows the operator to establish the settings for manual operation. The following fields can be edited:

- DC Voltage Set Point (SP)/Limit
- DC Current Set Point (SP)/Limit
- Ramp Time (see page 16)
- Ampere Time (see page 18)
- Timer

Press NEXT to advance to the Manual Operation screen (see page 19).



Voltage Ramp Time Screen

This screen allows the operator to set the voltage or current ramp time. The operator can set the following time:

- Seconds
- Minutes

You can choose the following Ramp Type:

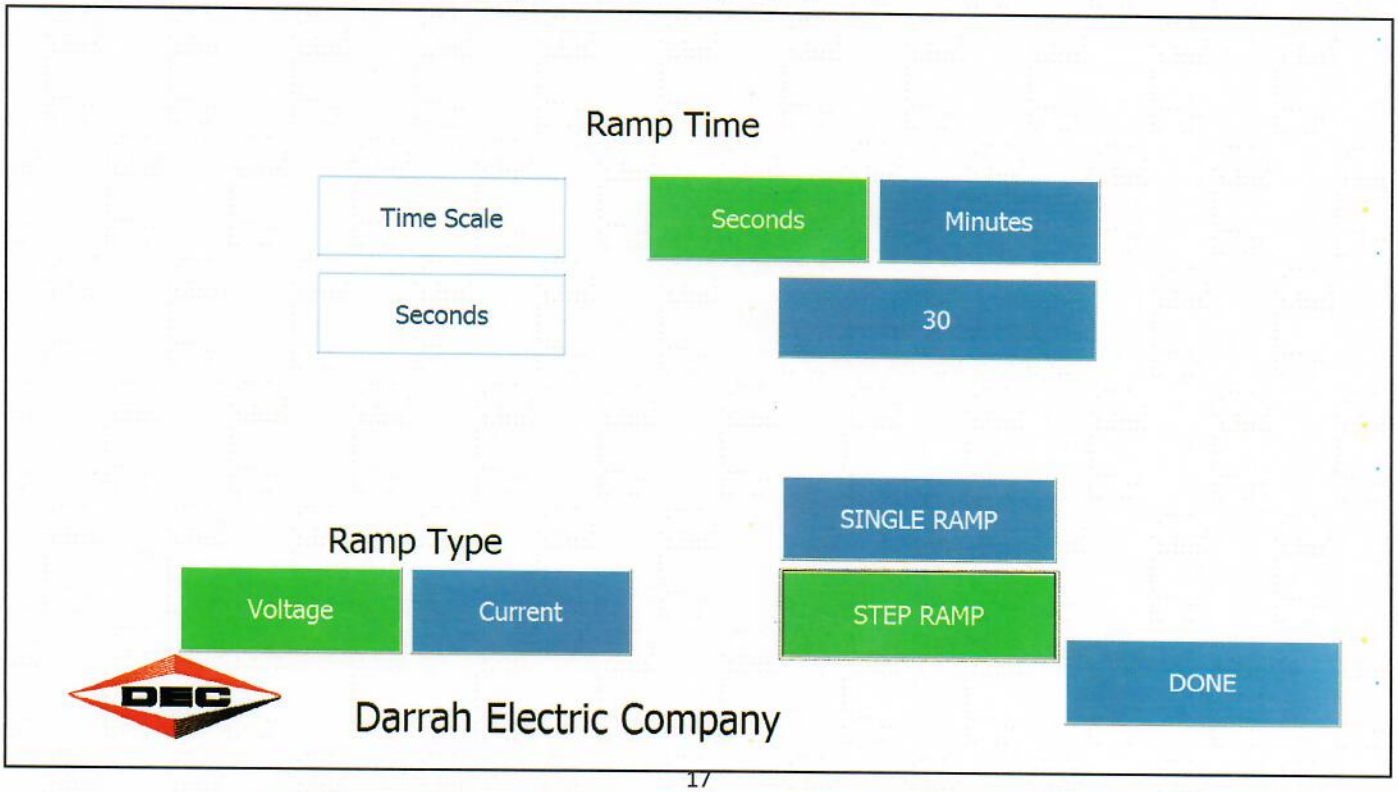
- Voltage
- Current

You can choose the following Ramp setting:

- Single Ramp
- Step Ramp (see page 17)

Note: The voltage and current preset limits should always be set at or slightly above the max ramp output settings.

Press DONE to advance to the Manual Operation screen (see page 19).



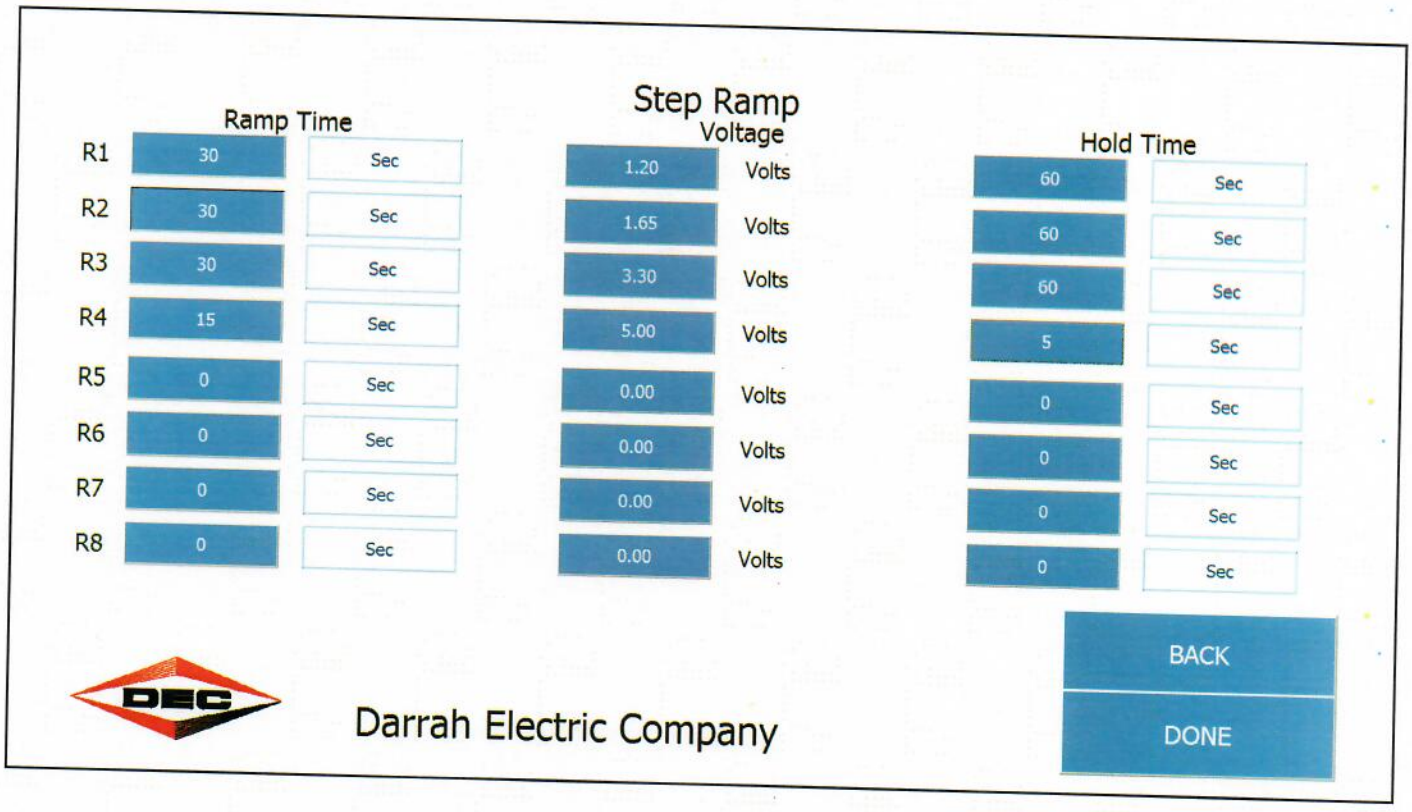
Step Ramp Screen

This screen allows the operator to change the Step Ramp settings. The operator can modify the following:

- Up to 8 Ramps (R1—R8)
- The Ramp Time for each Ramp
- The Voltage or Current for each Ramp
- The Hold Time for each Ramp

Note: Not all 8 steps need to be used. After the last hold time has elapsed, a "Ramp Complete" message will be displayed in the Batch Operation Screen.

Press DONE to advance to the Manual Operation screen (see page 19).



Ampere Time Screen

This screen allows you to change the Ampere Time settings. The following can be set:

- Type of Counter—Choose between Totalizing and Predetermined.

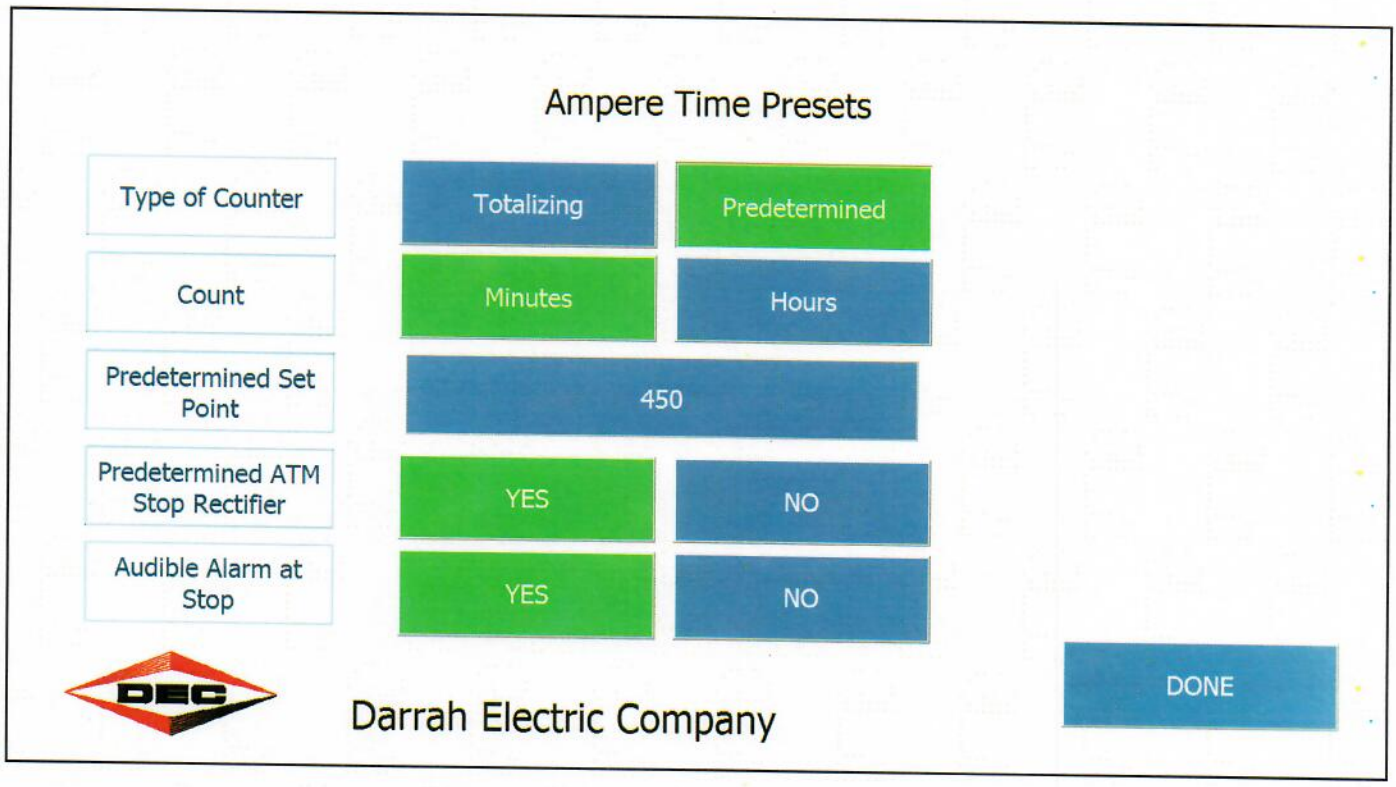
  Note: Both options can be selected.

- Count—Choose between Minutes and Hours

  Note: Only one option can be selected.

- Predetermined Set Point
- Predetermined ATM Stop Rectifier—Choose Yes or No
- Audible Sound at Stop—Choose Yes or No

Press DONE to advance to the Manual Operation screen (see page 19).

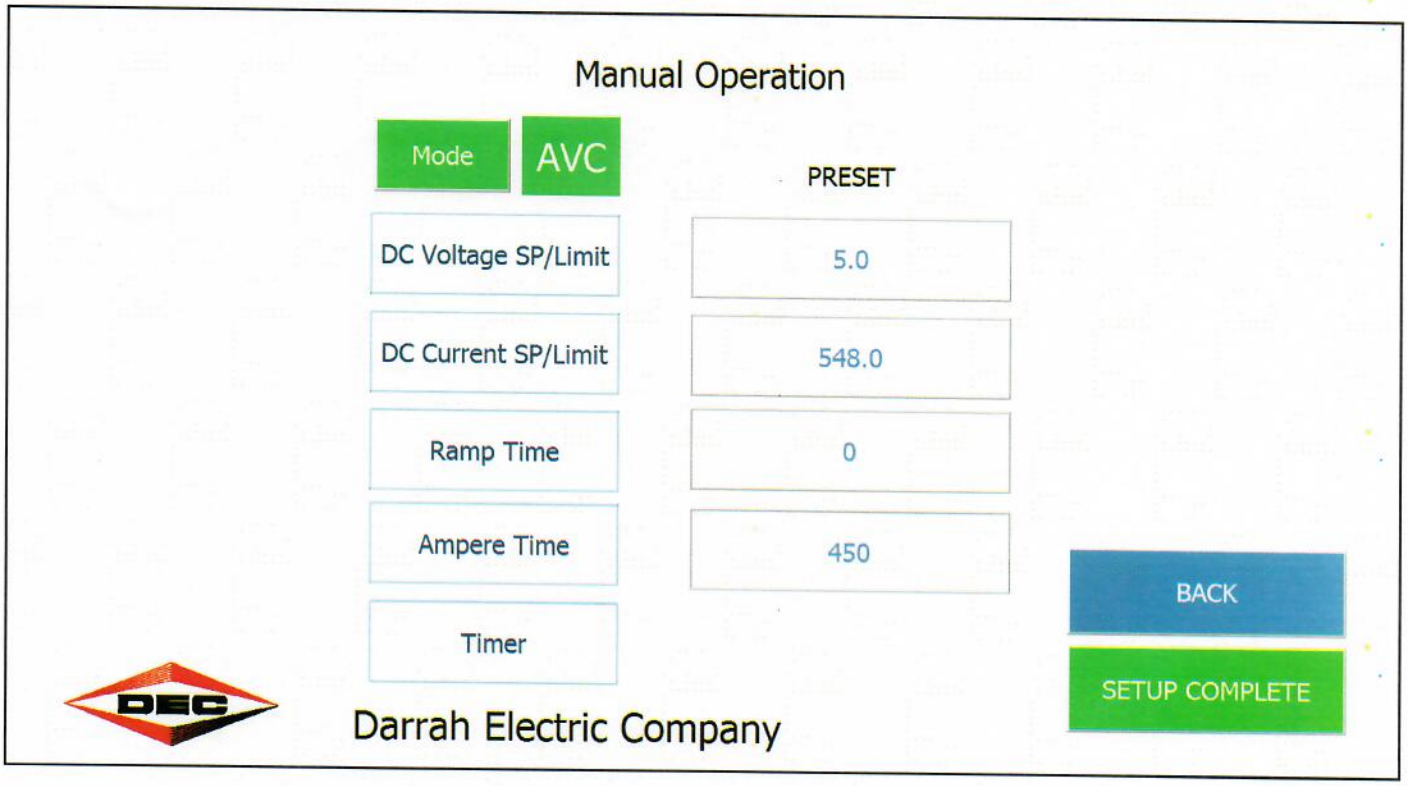


Manual Operation Screen

This screen allows the operator to view the manual operation presets before starting the rectifier.

Select Automatic Voltage Control (AVC) or Automatic Current Control (ACC) by pressing the green button.

Press SETUP COMPLETE to access the metering screen (see page 20).



Metering Screen

This screen is normally selected when the rectifier is running.

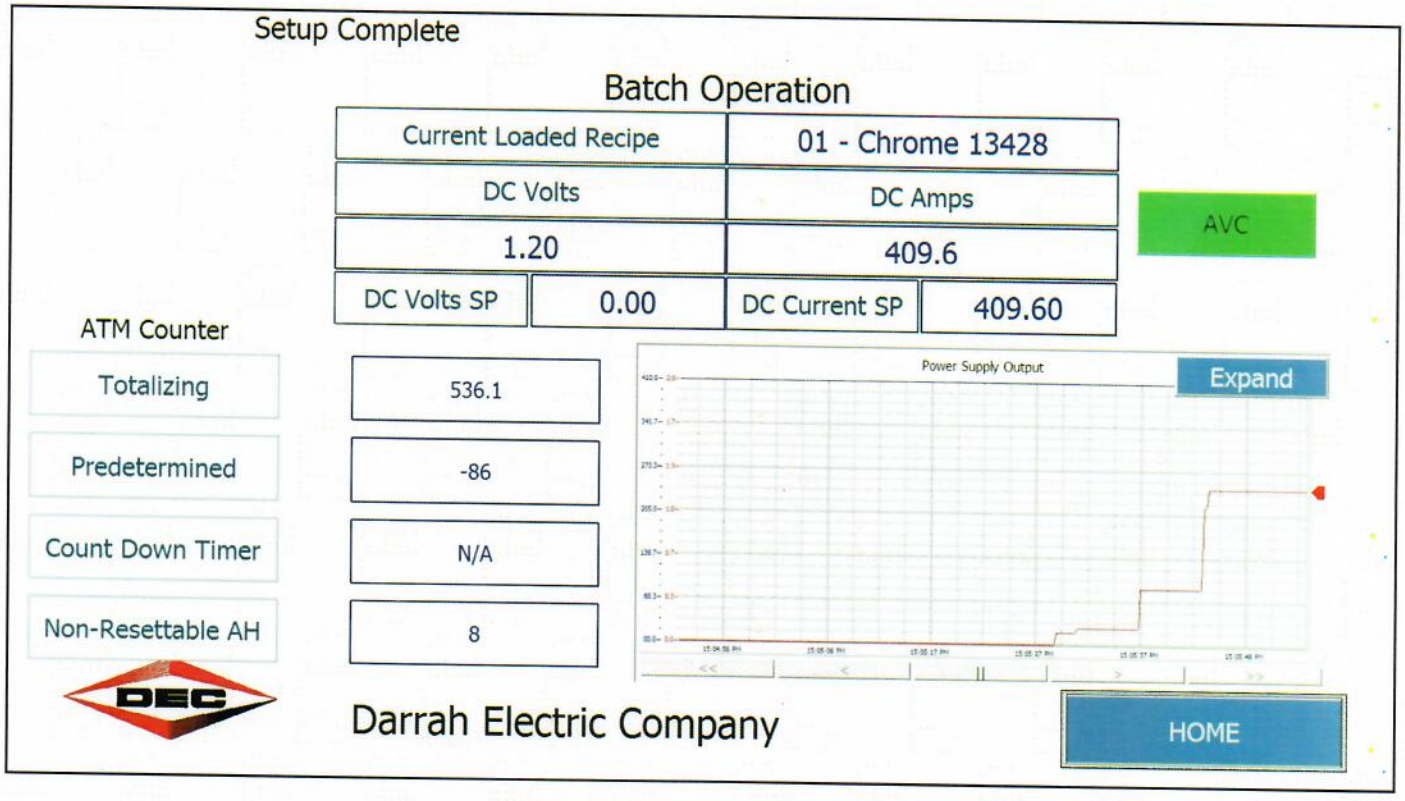
Press the green "Start" button on the box to start the rectifier.

Press the red "Stop" button on the box to stop the rectifier.

The actual output for voltage and current are displayed underneath the boxes marked DC Volts & DC Amps.

The green button to the right will note whether the rectifier is in Automatic Current Control (ACC) or Automatic Voltage Control (AVC). Note: The AVC/ACC button will turn from green to red if not in the pre-selected mode.

Press the "Expand" button to expand the graph to see live metered voltage and current output. The red line shows voltage and the blue line shows current.

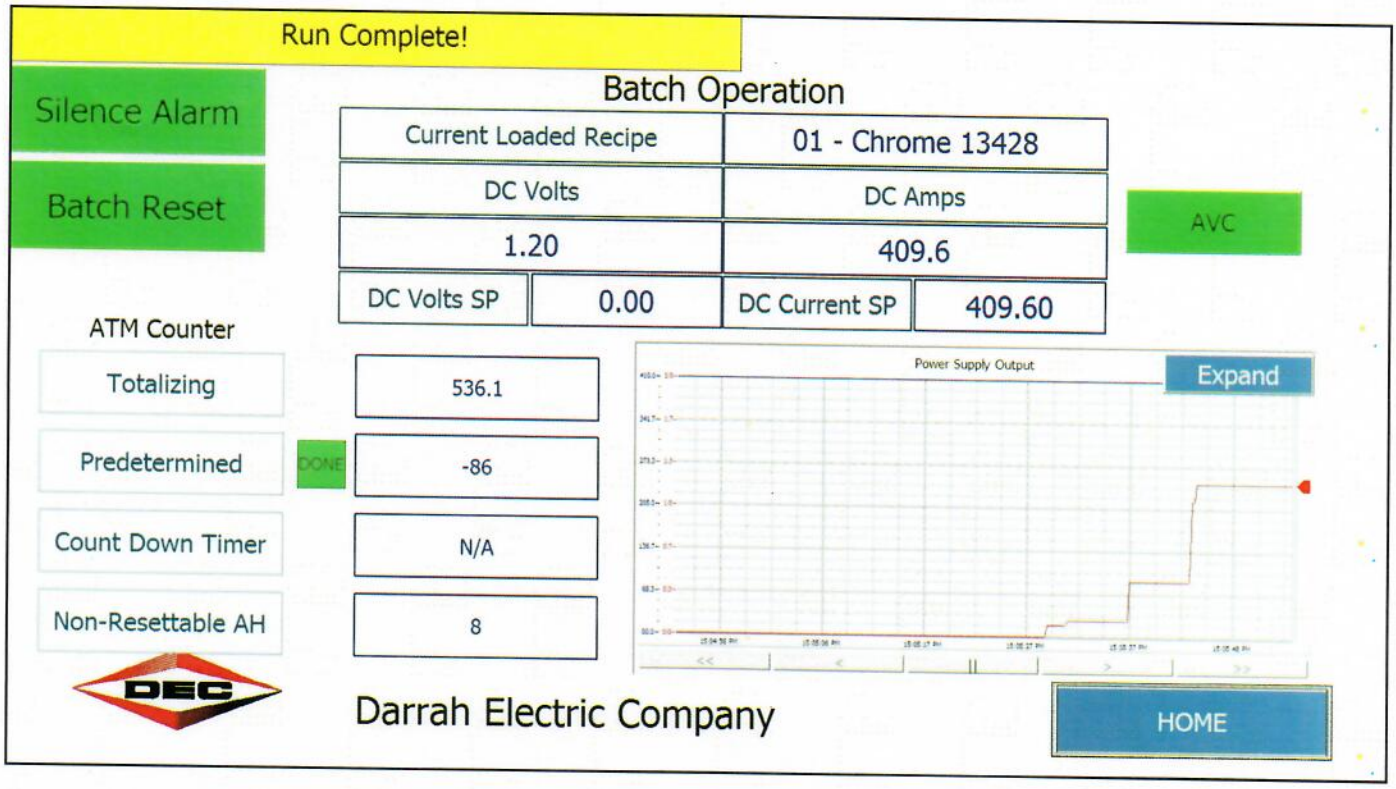


Run Complete Screen

This screen is shown once the cycle had been completed.

Press the green "Silence Alarm" button to turn off the audible alarm (if selected in setup).

Press the green "Batch Reset" button to reset and run another cycle. This must be done to reset & restart the power supply. The Start switch is inactive unless the "Batch Reset" button is pushed.



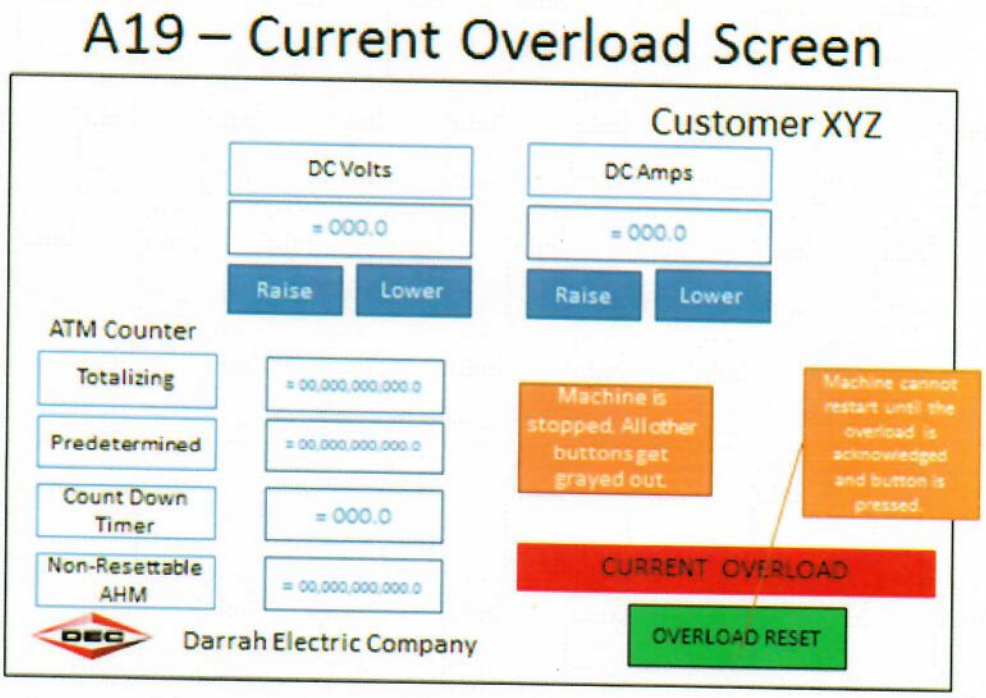
Current Overload Screen

This screen is shown when there is a current overload and the rectifier has stopped.

The rectifier will not restart until the OVERLOAD RESET button has been pressed to acknowledge the overload.

The CURRENT OVERLOAD alarm will sound and shut down the rectifier when the unit detects a DC overload above its factory pre-set current value.

Note: This alarm will be displayed on all screens.

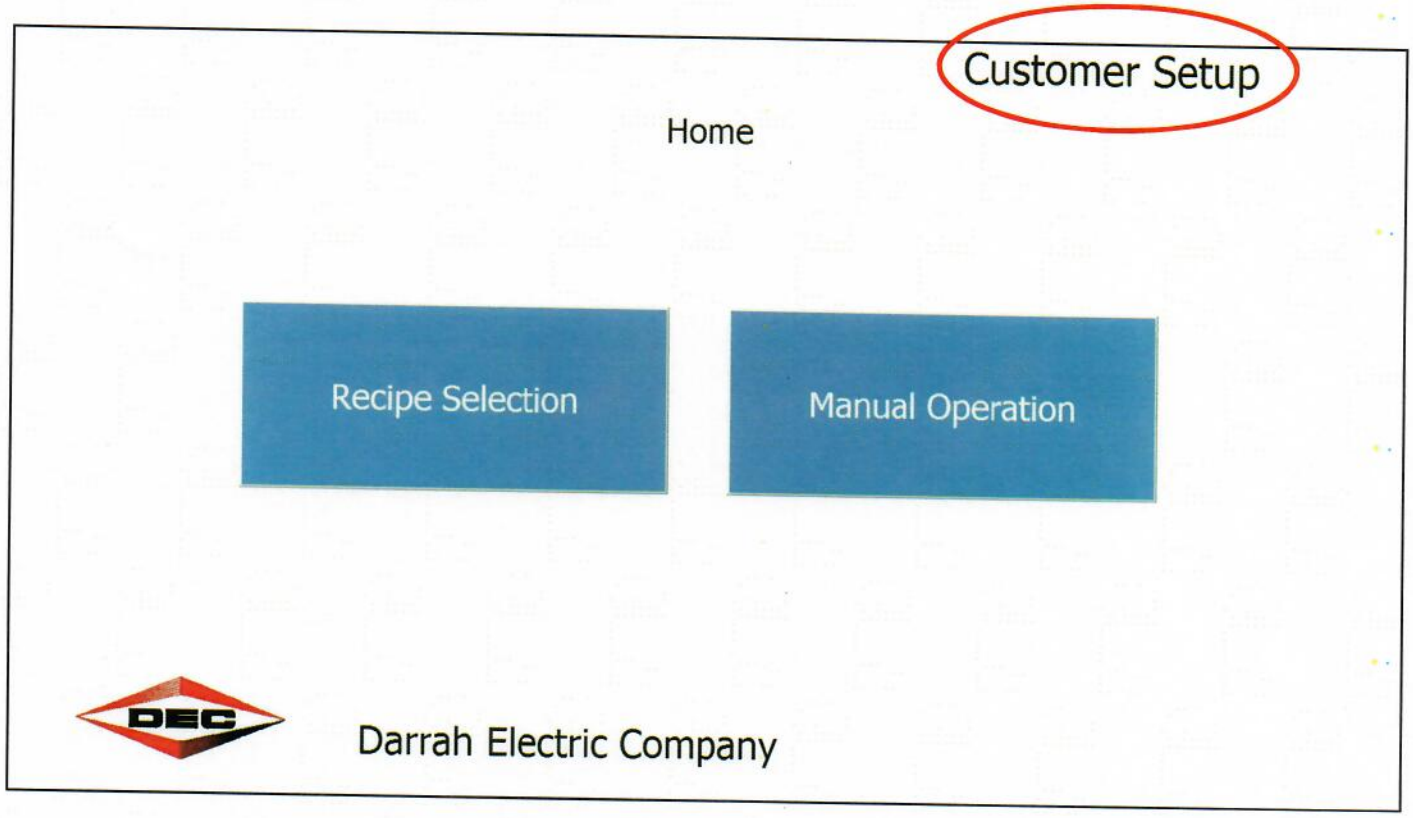


5. Customer Setup

Home Screen (Customer Setup)

From the Home Screen, the operator can enter the Customer Setup screen.

Press on the Customer name in the upper right corner to advance to the Customer Setup screen.

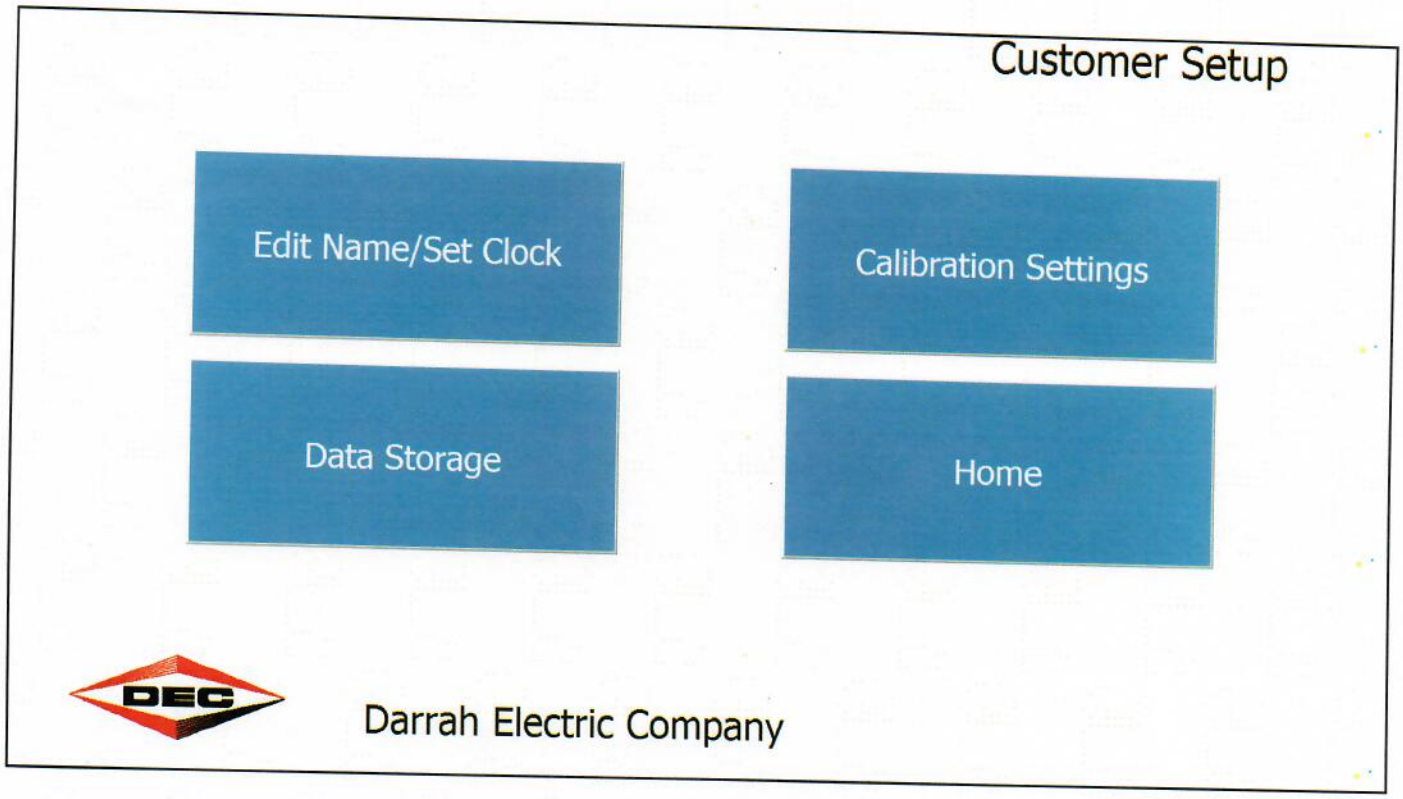


Customer Setup Screen

This screen allows the operator to select the following:

- Edit Name/Set Clock (see page 26)
- Data Storage (see page 27)
- Calibration Settings—This screen is locked, and is used by Darrah Electric when setting up the controller.

Press "Home" to return to the Home screen.



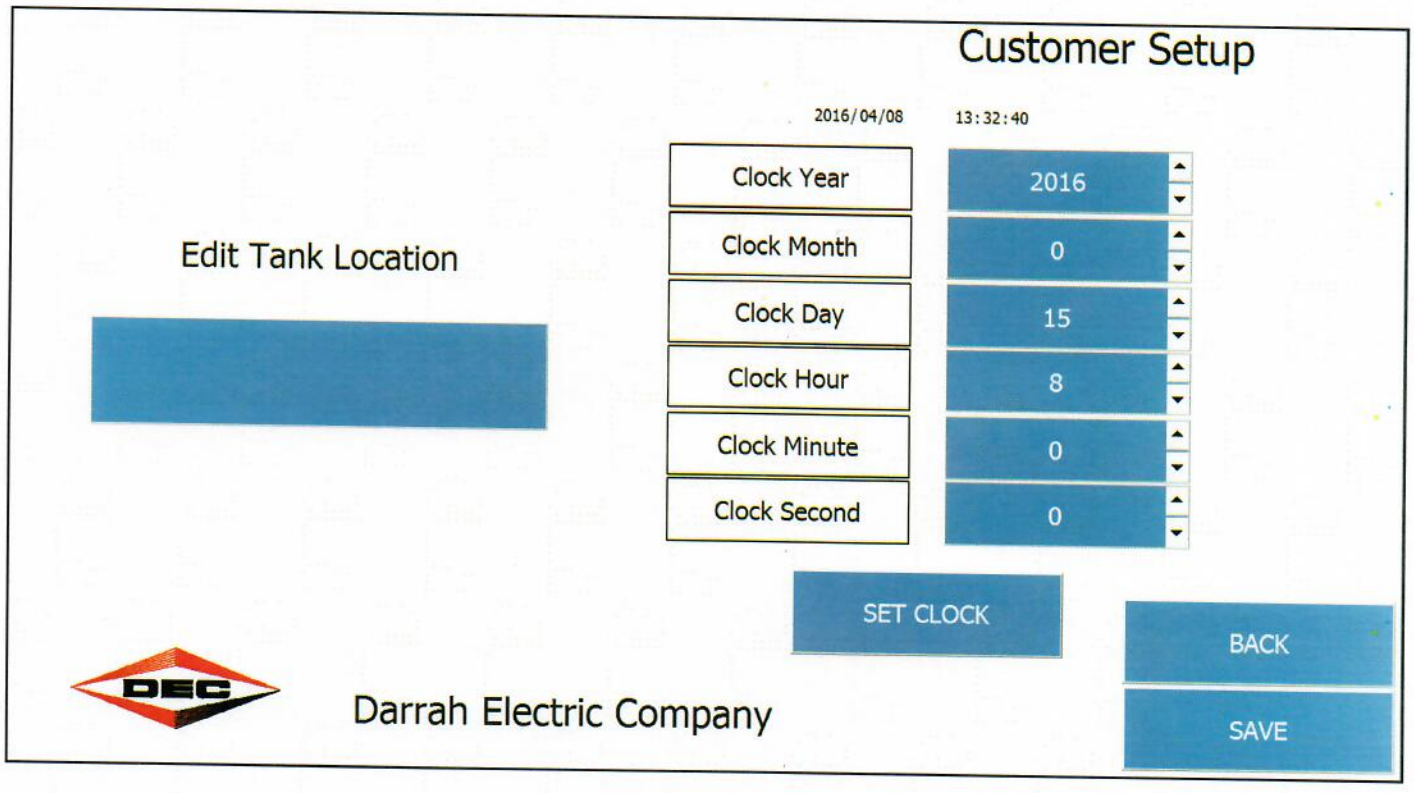
Edit Name/Set Up Clock Screen

This screen allows the operator to change the tank name to match the job, project, or company.

The operator can also set the clock by adjusting the following:

- Clock Year
- Clock Month
- Clock Day
- Clock Hour
- Clock Minute
- Clock Second

Press any blue button to bring up the alpha-numeric keypad.



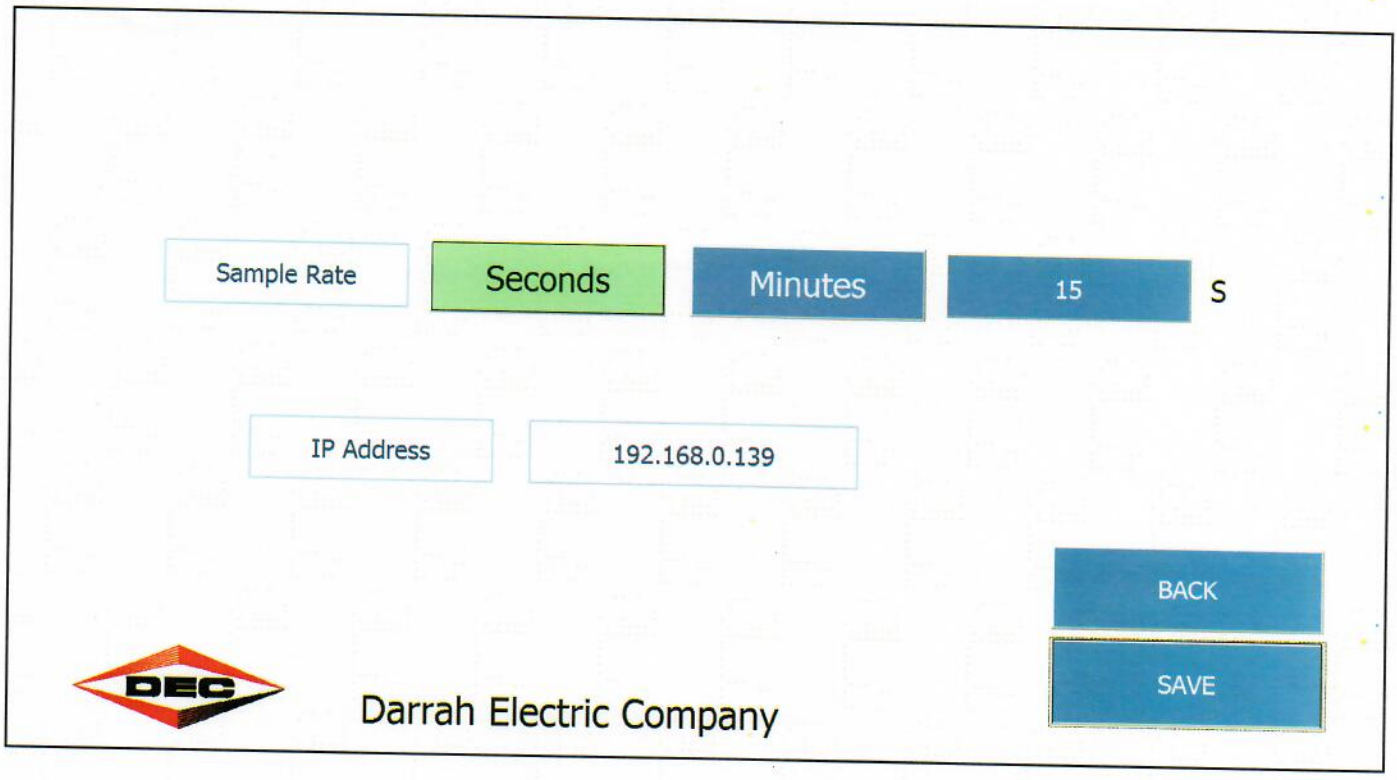
Data Storage Screen

This screen allows the operator to configure the sample time for stored data to be sent out to a USB drive.

Press SAVE to store sample time.

Click the Delete Data File button to clear the data on the device. A box will appear to type in the username and password.

To set the password: Please note that the default password is 0000. Enter the new username and password and press OK. This will save the password for future use.

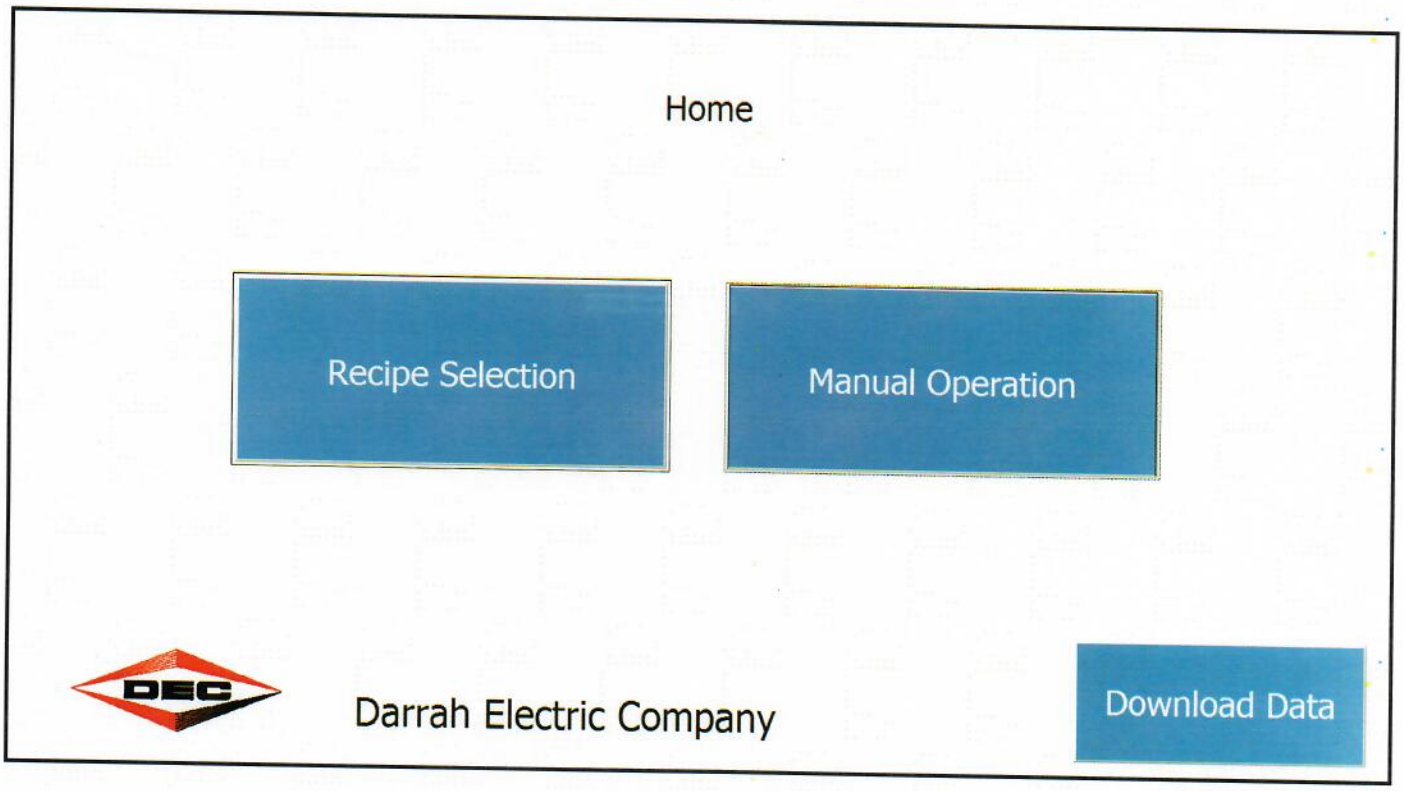


Data Export

Once a run is complete, return to the Home screen to download data.

This screen allows the operator to export the data to a USB drive.

Make sure the USB drive is plugged into the port on the front of the box. Press "Download Data" to download the data to the drive. The screen will flash, and then remove the drive.



Exported Data

Plus the USB drive into a computer. If it does not automatically open, Click on My Computer, then open the USB drive.

Click the file titled "tblBatchResults" to open in Microsoft Excel. The following columns will be displayed:

- GMT —This is the GMT time the results were collected
- Milliseconds—This indicates the milliseconds relating to the recording time
- Local— This is the local time the results were collected
- User— This reports who the logged in User is when the batch is made
- Reason— This explains the purpose of the data collection
- Current —This is the current recorded
- Voltage —This is the voltage recorded
- AmpTime —This is the ampere time used
- AmpTimeHours—This is an On/Off indicator whether someone has selected AmpMinutes (Off) or AmpHours (On) in the recipe
- Tank Name —This is the name of the tank used

1	GMT	milliseconds	Local	User	Reason	Current	Voltage	AmpTime	AmpTimeHours	TankName
2	01:56.0	0	01:56.0		Recording Variable	0.018667	0.024109	0.005447	Off	DARRAH 1
3	01:57.0	0	01:57.0		Recording Variable	0.018667	0.024109	0.087165	Off	DARRAH 1
4	01:58.0	0	01:58.0		Recording Variable	3.392818	5.081291	0.168722	Off	DARRAH 1
5	02:00.0	0	02:00.0		Recording Variable	3.344636	5.007381	0.254398	Off	DARRAH 1
6	02:01.0	0	02:01.0		Recording Variable	3.335152	4.9944	0.32593	Off	DARRAH 1
7	02:03.0	0	02:03.0		Recording Variable	3.335152	4.9944	0.40757	Off	DARRAH 1
8	02:04.0	0	02:04.0		Recording Variable	3.325182	5.001054	0.508972	Off	DARRAH 1
9	02:06.0	0	02:06.0		Recording Variable	3.323879	5.009455	0.58273	Off	DARRAH 1
10	02:06.0	0	02:06.0		Recording Variable	3.326242	5.006018	0.599962	Off	DARRAH 1
11	02:07.0	0	02:07.0		Recording Variable	3.323273	5.006891	0.658206	Off	DARRAH 1
12	02:09.0	0	02:09.0		Recording Variable	3.323273	5.006891	0.744659	Off	DARRAH 1
13	02:10.0	0	02:10.0		Recording Variable	3.319213	4.986819	0.830013	Off	DARRAH 1
14	02:12.0	0	02:12.0		Recording Variable	3.328454	4.993418	0.92366	Off	DARRAH 1
15	02:13.0	0	02:13.0		Recording Variable	3.333333	5.000891	0.998024	Off	DARRAH 1
16	02:15.0	0	02:15.0		Recording Variable	3.333333	5.000891	1.081713	Off	DARRAH 1
17	02:16.0	0	02:16.0		Recording Variable	3.329061	5.000673	1.165412	Off	DARRAH 1
18	02:17.0	0	02:17.0		Recording Variable	3.329637	5.006127	1.242439	Off	DARRAH 1
19	02:18.0	0	02:18.0		Recording Variable	3.327152	5.007109	1.264054	Off	DARRAH 1
20	02:19.0	0	02:19.0		Recording Variable	3.324303	5.007491	1.336081	Off	DARRAH 1
21	02:21.0	0	02:21.0		Recording Variable	3.324303	5.007491	1.415058	Off	DARRAH 1
22	02:22.0	0	02:22.0		Recording Variable	3.322727	5.001055	1.500553	Off	DARRAH 1
23	02:24.0	0	02:24.0		Recording Variable	3.326424	4.994236	1.574273	Off	DARRAH 1
24	54:57.0	0	54:57.0		Recording Variable	0.012697	0.0156	0.000366	Off	DARRAH 1
25	54:59.0	0	54:59.0		Recording Variable	1.115909	1.670291	0.029229	Off	DARRAH 1
26	55:00.0	0	55:00.0		Recording Variable	1.57397	2.352654	0.07001	Off	DARRAH 1
27	55:01.0	0	55:01.0		Recording Variable	1.57397	2.352654	0.127646	Off	DARRAH 1
28	55:03.0	0	55:03.0		Recording Variable	2.656485	3.989782	0.201312	Off	DARRAH 1

- All reasonable care has been taken in production of this manual, but if you find any points which are unclear or in error please contact Darrah Electric directly.

- In the interests of product development, the contents of this manual are subject to revision without prior notice.

- Unauthorized reproduction or copying of this manual is prohibited.

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