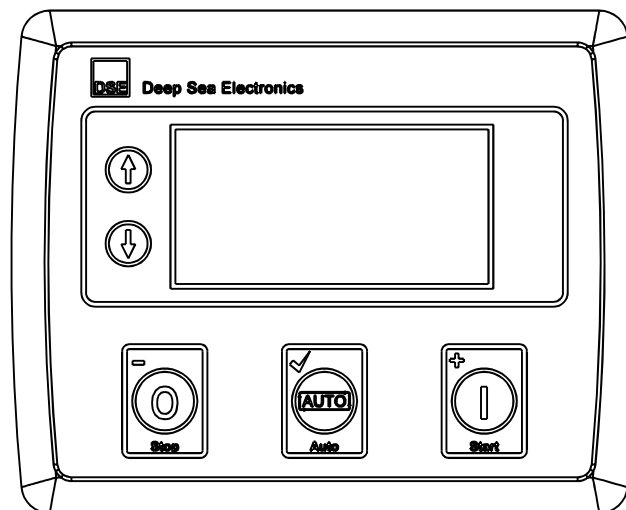


- en **Operator's Manual
DSE® L401 MKII Controller
for ALLMAND® Light Towers**
- es **Manual del operario
Controlador DSE® L401 MKII
para torres de iluminación ALLMAND®**
- fr **Manuel d'utilisation
Commande DSE® L401 MKII
pour les tours d'éclairage ALLMAND®**



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Introduction

About This Manual

TAKE TIME TO READ THIS MANUAL THOROUGHLY

This instruction manual provides necessary instructions for the Deep Sea Electronics L401 MKII controller module for Allmand® light towers.

The information found in this manual is in effect at the time of printing. Briggs & Stratton may change contents without notice and without incurring obligation.

The images throughout this manual are representative, and may differ from your model.

Any reference in this manual to left or right shall be determined by looking at the trailer from the rear.

If uncertain about any of the information in the manual, contact the Allmand service department at

1-800-562-1373, or contact us through the Allmand website, www.allmand.com.

Save these original instructions for future reference.

Products Covered by This Manual

The following products are covered by this manual:
Deep Sea Electronics (DSE) L401 MKII Controller

Safety

Safety Definitions

For your safety, the safety of others, and to protect the performance of equipment, follow the precautions listed throughout the manual before uncrating and assembling, and during assembling procedures.



Indicates a potential personal injury hazard.



DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Information considered important but not hazard related.

Safety Precautions

The following section contains general safety precautions and guidelines that must be obeyed to reduce risk to personal safety. Special safety precautions are listed in specific procedures. Read and understand all of the safety precautions before operating or performing repairs or maintenance.

 **DANGER**



Electrocution Hazard

- Always check overhead wires and obstructions before raising or lowering the light tower.
- Always obey the rules or instructions for your work site and state, province and national electric code for maintaining a safe distance from overhead wires.
- High voltage is present when engine is running. Never attempt to service electrical components while engine is running.
- Do not operate the light tower if the insulation on the electrical cord or other electrical wiring is cut or worn or if bare wires are exposed. Repair or replace damaged wiring before starting the engine.

 **WARNING**

Unsafe Operation Hazard

- Never permit anyone to install or operate the equipment without proper training.
- Read and understand this Operator's Manual, the Engine Operator's Manual, and any other component manuals before operating or servicing the light tower to make sure that safe operating practices and maintenance procedures are followed.
- Safety signs and decals are additional reminders for safe operating and maintenance techniques.

 **WARNING**

Modification Hazard

- Never modify the equipment without written consent of the manufacturer. Any modification could affect the safe operation of the equipment.

 **WARNING**

Exposure Hazard

- Always wear personal protective equipment, including appropriate clothing, gloves, work shoes, and eye and hearing protection, as required by the task at hand.

 **WARNING**

Alcohol and Drug Hazard

- Never operate the light tower while under the influence of alcohol or drugs, or when ill.

 **WARNING**

Flying Object Hazard

- Always wear eye protection when cleaning the equipment with compressed air or high pressure water. Dust, flying debris, compressed air, pressurized water or steam may injure your eyes.

NOTICE


- Any part which is found defective as a result of inspection or any part whose measured value does not satisfy the standard or limit **MUST** be replaced.
- Always tighten components to the specified torque. Loose parts can cause equipment damage or cause it to operate improperly.
- Only use replacement parts specified. Other replacement parts may effect warranty coverage.
- Clean all accumulated dirt and debris away from the body of the equipment and its components before you inspect the equipment or perform preventative maintenance procedures or repairs. Operating equipment with accumulated dirt and debris will cause premature wear of equipment components.
- Retrieve any tools or parts that may have dropped inside of the equipment to avoid improper equipment operation.
- If any alert indicator illuminates during equipment operation, stop the engine immediately. Determine the cause and repair the problem before continuing to operate the equipment.

Safety Decals

Before operating your unit, read and understand the following safety decals. The cautions, warnings, and instructions are for your safety. To avoid personal injury or damage to the unit, understand and obey all the decals.

Keep the decals from becoming dirty or torn, and replace them if they are lost or damaged. Also, if a part needs to be replaced that has a decal attached to it, make sure to order the new part and decal at the same time.

If any safety or instructional decals become worn or damaged, and cannot be read, order replacement decals from your dealer.

Domestic Models	
<p>DANGER - Entering electrical compartment while equipment is in operation will result in death or serious injury. Unplug equipment before entering electrical compartment.</p> <p>Part Nos. 107251 and 118074</p>	

Domestic Models	
<p>WARNING - Unexpected start of engine could result in death or serious injury. Read and follow electronic controller operator's manual before operating or servicing this equipment.</p> <p>Part Nos. 108821 and 118163-3</p>	

International Models	
<p>DANGER - Entering electrical compartment while equipment is in operation will result in death or serious injury. Unplug equipment before entering electrical compartment.</p> <p>Part Nos. 104880 and 118440</p>	

<p>WARNING - Unexpected start of engine could result in death or serious injury. Read and follow electronic controller operator's manual before operating or servicing this equipment.</p> <p>Part No. 107978 and 118442-3</p>	
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All Models	
<p>Emergency Stop</p> <p>Part No. 105567</p>	

Operation Icons

The following table contains operation icons that may be found on the controller module, along with the meaning of each icon.

Icon	Meaning	Icon	Meaning
	Electronic Controller		Menu Up Navigation
	Manual/Start Mode		Menu Down Navigation
	Stop/Reset Mode		Work Light (Older Version)
	Auto Mode		Work Light (Newer Version)

Display Module Screen Icons

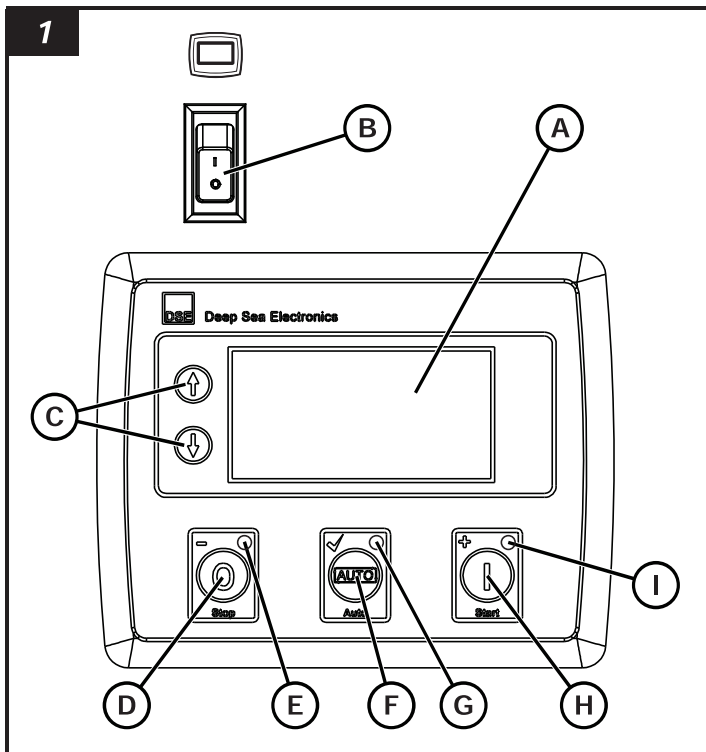
The following table contains controller module screen icons that may be displayed on the screen, along with the description of each icon.

Icon	Description
	Appears when the engine is at rest and the unit is in stop mode.
	Appears when the engine is at rest and the unit is in auto mode.
	Appears when the engine is at rest and the unit is waiting for a manual start.
	Appears when the engine is at rest and the periodic ECU wake up is active.
	Appears when a timer is active, for example cranking time, crank rest, to delay the light output activating or de-activating progress, etc.
	Appears before starting or when the preheat timer is active.
	Appears when the warming up timer is active.
	Appears when the engine is running, and all timers have expired, either on or off load. The animation speed is reduced when running in idle mode.
	Appears when the unit is in the configuration editor.
	Appears when the unit is in the operator editor.
	Appears when the corresponding light output has been configured and is not active.
	Appears when the corresponding light output has been configured and is active.

Features and Controls

The DSE L401 MKII controller is intended for use as on Allmand® light towers to control the operation of the engine and tower lighting.

Identify the features and controls of the electronic controller by comparing Figure 1 with the following table. See **Operation** for detailed information on each feature / control.



Ref	Description
A	Display Module Screen
B	Electronic Controller ON/OFF Rocker Switch*
C	Menu Navigation Buttons
D	Stop/Reset (-) Mode Push Button
E	Stop/Reset Mode LED
F	Auto (✓) Mode Push Button
G	Auto Mode LED
H	Manual/Start (+) Mode Push Button
I	Manual/Start Mode LED

*Note: The electronic controller ON/OFF rocker switch may be in different locations on the light tower control panel than what is shown. The rocker switch will be identified by the electronic controller icon.

Operation

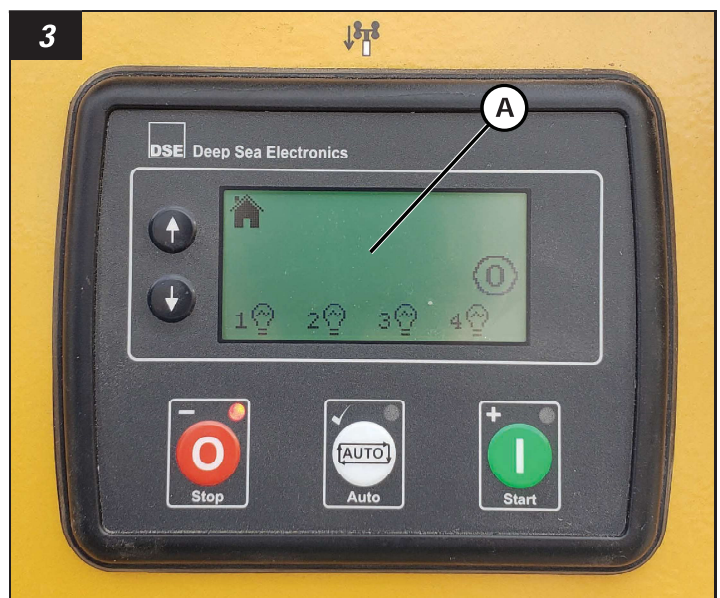
The controller module is operated via the push buttons mounted on the front of the controller with Stop/Reset Mode, Auto Mode, and Manual/Start Mode functions. The Menu Up/Down Navigation push buttons are used for navigating the instrumentation, event log, and configuration screens.

Powering the Controller Module

1. Turn the electronic controller ON / OFF rocker switch (A, Figure 2) to the 'ON' position.



2. The controller module screen will turn on and the home screen (A, Figure 3) will display. The controller is now ready to operate the light tower unit.

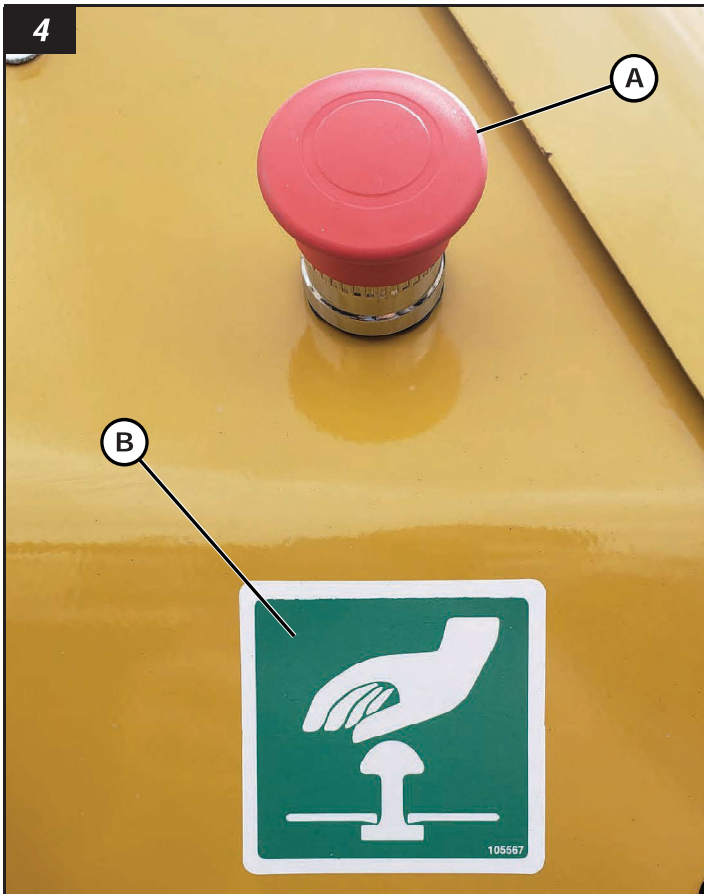


Emergency Stop Operation

The light tower unit has an emergency stop that will immediately shut the entire unit down in case of an emergency.

1. Engage the emergency stop by pressing down on the button (A, Figure 4) on the side of the light tower unit. This button will be labeled with an emergency stop icon decal (B, Figure 4).

Note: Side locations of the emergency stop button will differ with each light tower model.



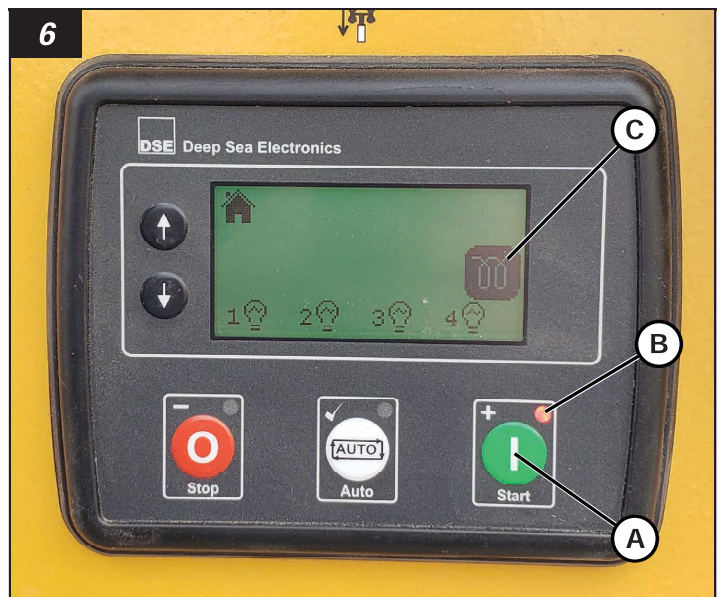
Manual/Start Operation

Manual/Start Mode

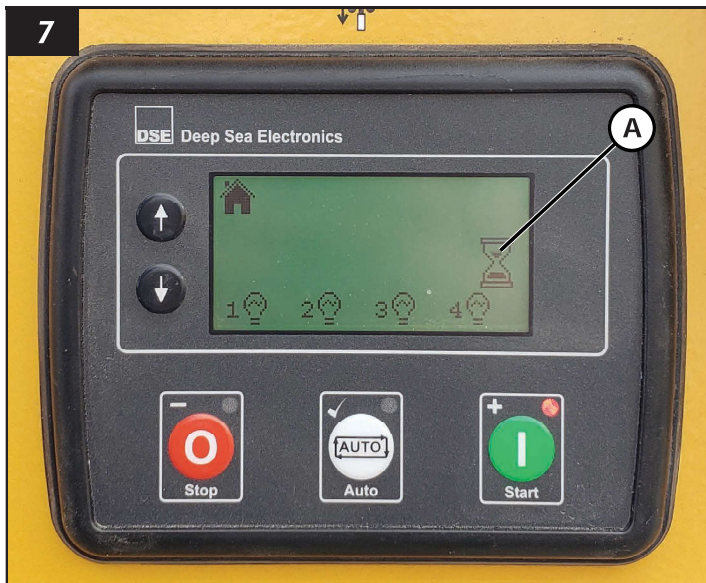
1. Press the Manual/Start (+) Mode (A, Figure 6) push button to start the engine run cycle. The Manual/Start Mode LED light (B, Figure 6) will turn on to indicate that the Manual/Start Mode has been activated. The preheat timer icon (C, Figure 6) will appear on the screen while the glow plugs in the engine are activated.

2. The control module screen will show an emergency stop icon (A, Figure 5) to indicate that the emergency stop button has been pushed.
3. Correct the emergency issue with the unit before proceeding.
4. To reset the controller module operation, first disengage the emergency stop button on the side of the light tower. Then, press the Stop/Reset (-) Mode (B, Figure 5) push button to reset the programming. The controller module is now ready for operation.

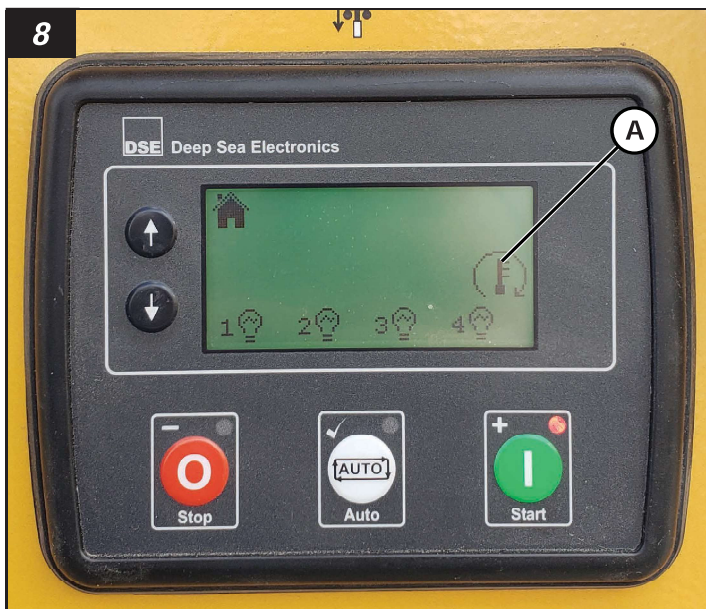
Note: The controller module will not operate in Manual/Start or Auto mode until the emergency stop button is disengaged and the Stop/Reset (-) Mode push button is pressed.



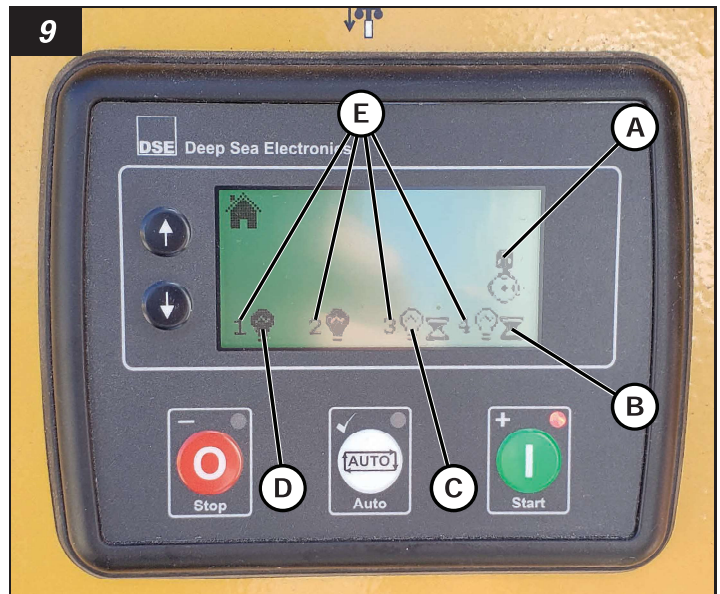
2. After the glow plugs go through the preheat cycle for 2 to 5 seconds. The engine on the light tower unit will start, and display screen will cycle through a spinning hourglass timer icon (A, Figure 7) and the preheat timer icon again.



- When the engine finishes the preheat cycle, the hourglass icon will flash again and switch to the engine warming icon (A, Figure 8). This icon indicates that the engine is running and going through the warming cycle to reach the safe engine run temperature.



- When the engine finishes the engine warming cycle, the hourglass icon will flash again and switch to the engine run icon (A, Figure 9). This icon indicates that the engine is now running at a safe operating temperature.
- The tower lights will begin to automatically power on sequentially. The powering of the lights on the display screen will be indicated by the light icons with a spinning hourglass icon (B, Figure 9) as they switch from inactive (C, Figure 9) to active (D, Figure 9). The number of each light (E, Figure 9) is labeled in the display screen with the corresponding light on the tower.



- The engine and lights on the light tower should be fully operating in Manual/Start Mode. If there are any issues with the operation of the unit see **Troubleshooting**.

Auto Mode Operation

WARNING

Automatic Engine Start Hazard

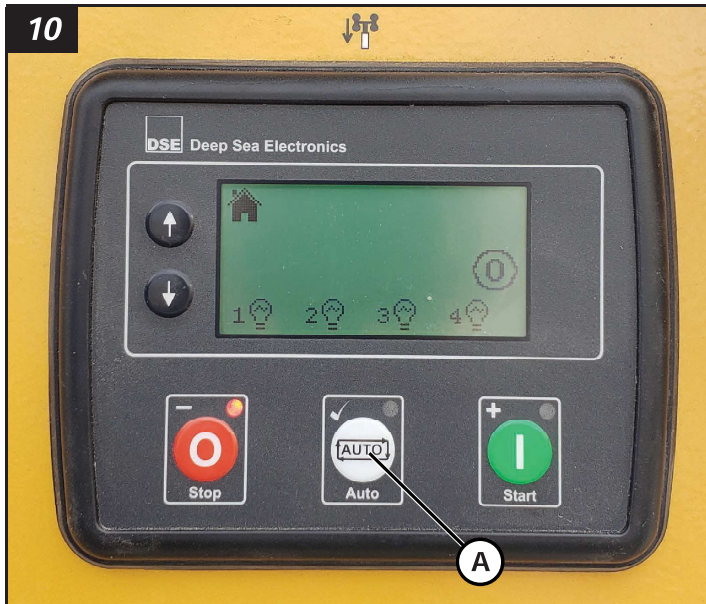
Unexpected start of engine could result in death or serious injury. Read and follow electronic controller operator's manual before operating or servicing this equipment.

Auto Mode Activation

Prior to activating Auto Mode in the control module, edit the time and scheduler parameter settings in the operator and configuration editor pages to set up scheduled light tower runtimes. For instruction on how to set up scheduled runtimes refer to **Time Parameter Settings Editor Pages** section starting on page 16 and **Scheduler Parameter Settings Editor Pages** section starting on page 19. For instruction on how to navigate to these parameter settings editor pages refer to **Operator and Configuration Editor Menu Navigation** section starting on page 13. These sections can all be found in the **Operator and Configuration Editor** chapter.

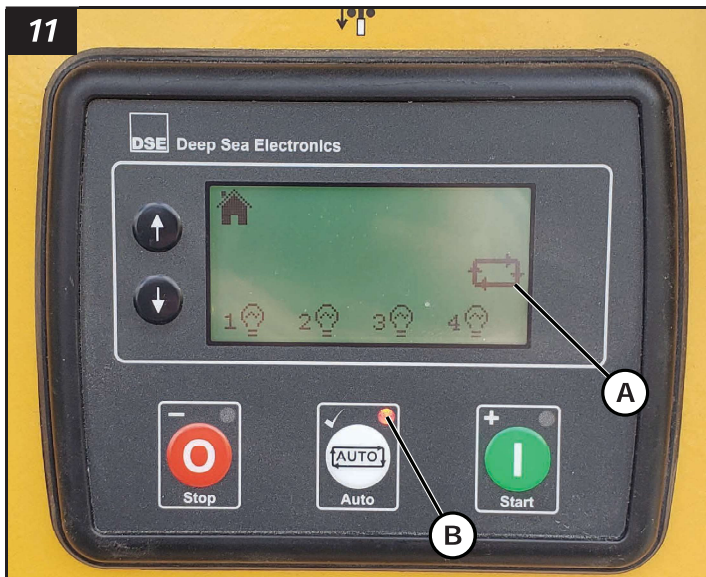
Note: The time and scheduler parameter settings must be set in order for Auto Mode to operate the light tower at the desired scheduled runtimes.

- On the home screen, press the Auto (✓) Mode push button (A, Figure 10) push button to activate the auto mode operation of the light tower unit.



2. The auto mode icon (A, Figure 11) will appear on the screen and the Auto Mode LED light (B, Figure 11) will turn on to indicate that the Auto Mode has been activated. Automatic scheduled runtime operations of the light tower will only occur when auto mode is activated. There are different 3 types of automatic runtime modes that can be set, see below:

- A. For daily sunrise/sunset runtime mode instructions refer to **Daily Scheduler Parameter Settings (Sunrise/Sunset Auto Enable)** subsection starting on page 19.
- B. For daily set timed duration scheduling runtime mode instructions refer to **Daily Scheduler Parameter Settings (Scheduled Start Time and Duration Enable)** subsection starting on page 20.
- C. For weekly scheduling runtime mode instructions refer to **Weekly Scheduler Parameter Settings (Enable)** subsection starting on page 22.



4. Press the Stop/Reset (-) Mode push button to stop and reset the operation of the unit. See **Stop/Reset Operation** for detailed information and procedure.

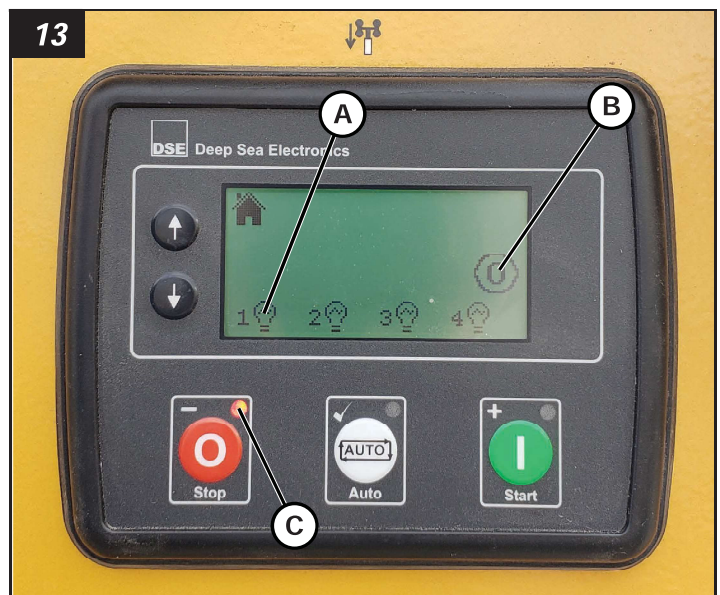
Stop/Reset Operation

Stop/Reset Mode

1. Press the Stop/Reset (-) Mode (A, Figure 12) push button to stop and reset the operation of the unit in Manual/Start and Auto Modes.

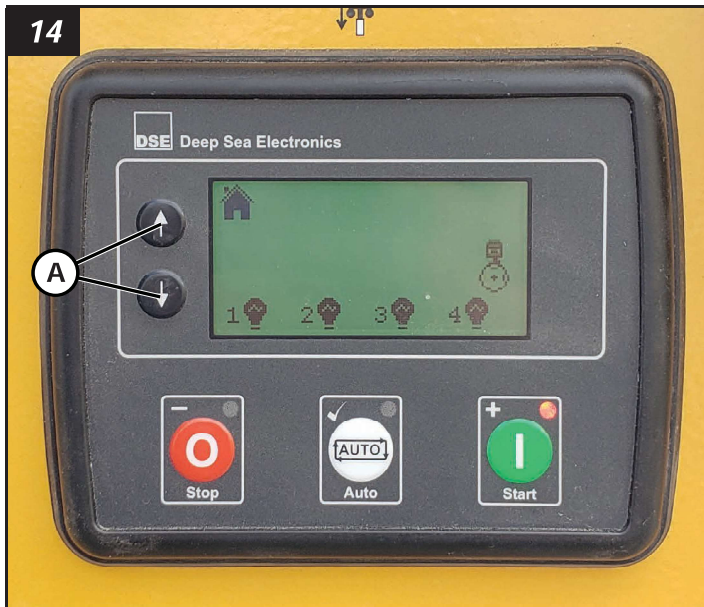


2. If the unit was in operation, the lights will turn off automatically before the engine shuts down. The light icons (A, Figure 13) will switch to inactive. The engine will shut down and the stop (0) mode icon (B, Figure 13) will appear. If the unit was in Auto Mode, auto mode will be deactivated and the stop (0) mode icon will appear. Also, the Stop/Reset Mode LED light (C, Figure 13) will turn on to indicate that the Stop/Rest Mode has been activated. The unit is now stopped and reset for operation.

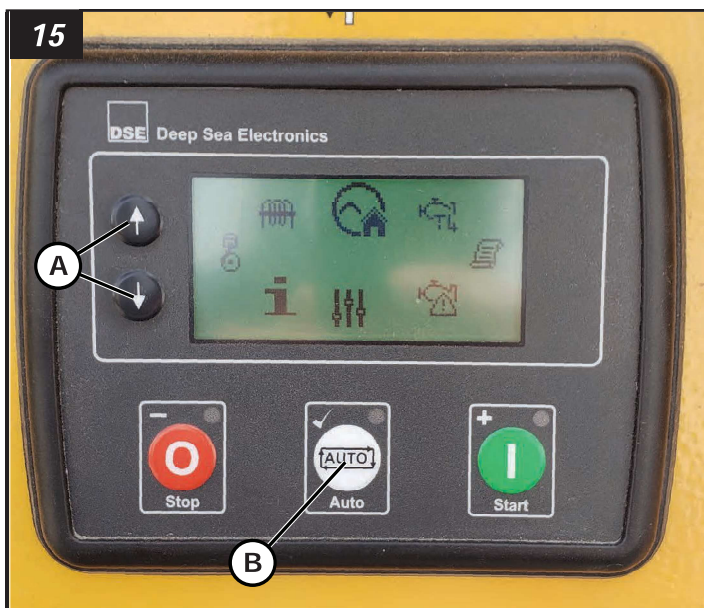


Controller Module Navigation Menu for Instrumentation and Information

- To enter the controller module navigation menu for instrumentation and information press both the Menu Up and Menu Down Navigation (A, Figure 14) push buttons simultaneously.



- The navigation menu screen will open as shown in Figure 15. Press the Menu Up and Menu Down Navigation (A, Figure 15) push buttons to cycle through the navigation icons until the desired section of pages is selected, then press the Auto (✓) Mode push button (B, Figure 15) to open the instrument pages.



Navigation Menu (Section) Icons

The following table contains the navigation menu (instrumentation section) icons that may be displayed on the screen, along with the description of each icon.

Icon	Meaning	Icon	Meaning
	Home, Generator / Main Voltage and Frequency Instrumentation		Load Current and Load Instrumentation
	Engine Instrumentation		Module Information
	Light Control		Engine Diagnostic Trouble Codes
	Event Log		Engine Tier 4 Information*

*Note: The Engine Tier 4 Information section is only active if an engine is configured to work with the DSE L401 MKII controller.

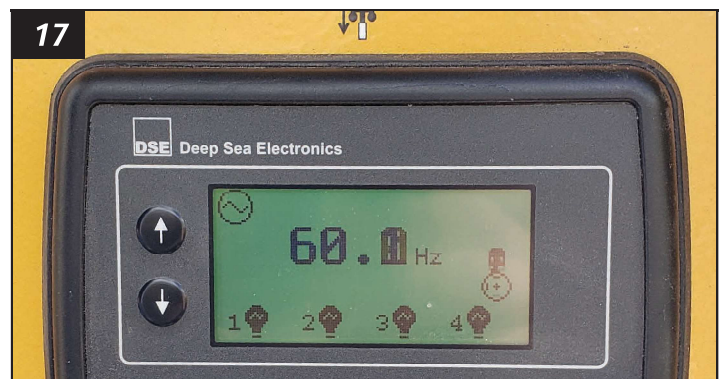
Instrumentation and Information Page Screens

Navigate the instrument pages by pressing either the Menu Up or Menu Down Navigation push buttons to find, electrical numerical readings, engine numerical readings, runtime scheduling, and other information.

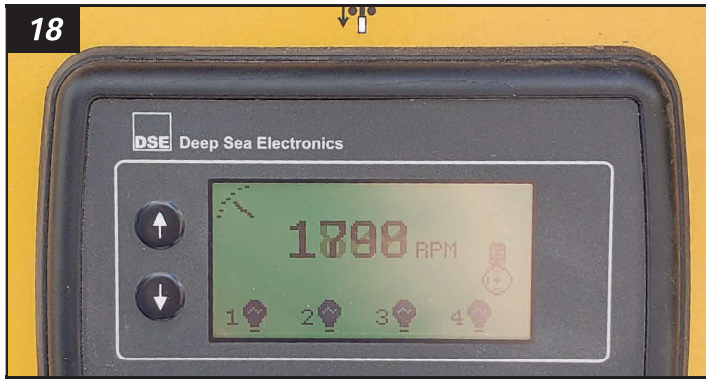
- Voltage Reading (Figure 16) - This instrument page screen shows the voltage (V) output of the light tower unit.



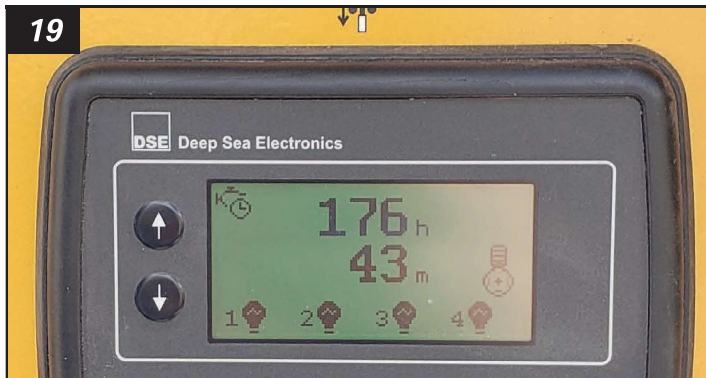
- Frequency Reading (Figure 17) - This instrument page screen shows the frequency (Hz) output of the light tower unit.



- Engine RPM Reading (Figure 18) - This instrument page screen shows the revolutions per minute (RPM) of the engine in light tower unit.



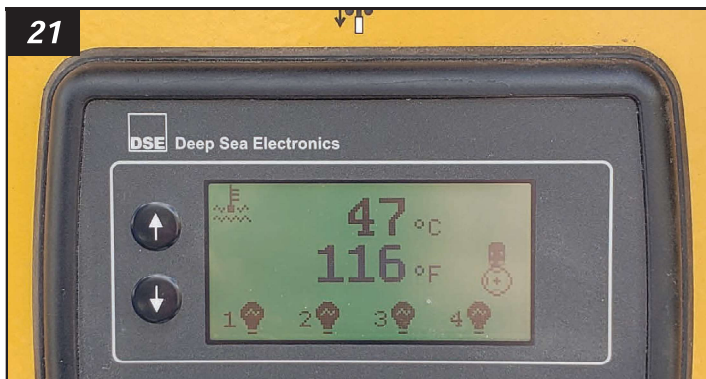
- Hour Meter (Figure 19) - This instrument page screen shows the amount of runtime of the light tower engine has accumulated in its lifetime.



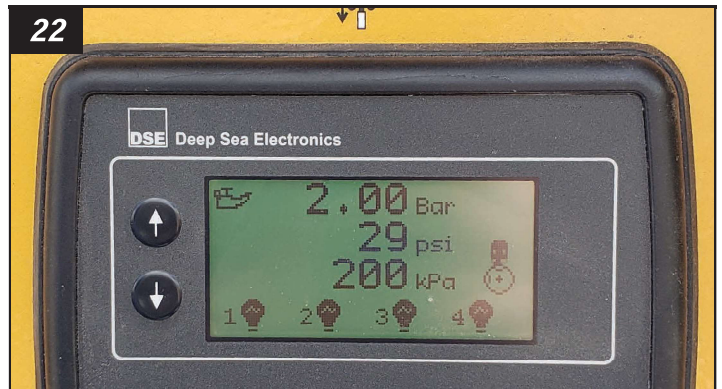
- Battery Voltage Reading (Figure 20) - This instrument page screen shows the voltage (V) output of the battery in the light tower unit.



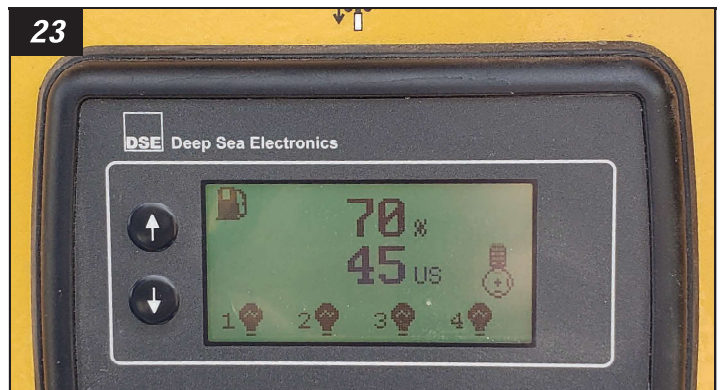
- Coolant Temperature Readings (Figure 21) - This instrument page screen shows the temperature of the engine coolant in both Celsius (°C) and Fahrenheit (°F) in light tower unit.



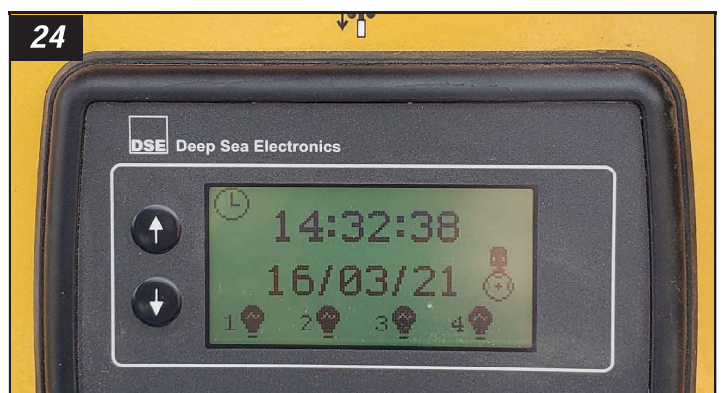
- Oil Pressure Readings (Figure 22) - This instrument page screen shows the readings of the engine oil pressure in the light tower unit. The oil pressure readings that are shown include barometric pressure (Bar), pounds per square inch (psi), and kilopascal (kPa).



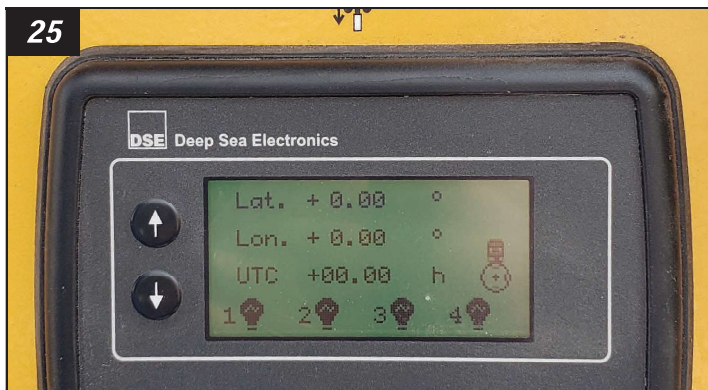
- Fuel Level Reading (Figure 23) - This instrument page screen shows the percentage (%) and amount of gallons (US) of fuel that is left in the fuel tank of the light tower.



- Time and Date (Figure 24) - This instrument page screen shows the current time (hour:minute:second) and current date (day/month/year). See **Operator and Configuration Editor** for detailed information on how to configure settings.



- Latitude, Longitude, and Time Zone (Figure 25) - This instrument page screen is used for setting location of the light tower for automatic time calculations. The location settings that are shown include latitude (Lat.), longitude (Lon.), and Universal Time Coorndinated (UTC). See **Operator and Configuration Editor** for detailed information on how to configure settings.



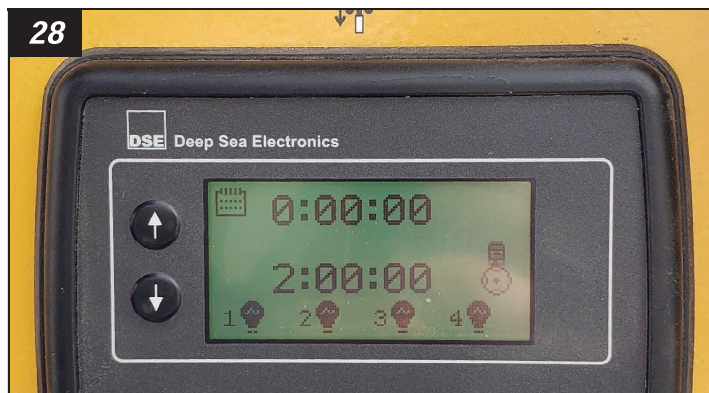
- Scheduler home page (Figure 26) - This instrument page screen is used to indicate the home page for scheduling runtimes for the light tower unit.



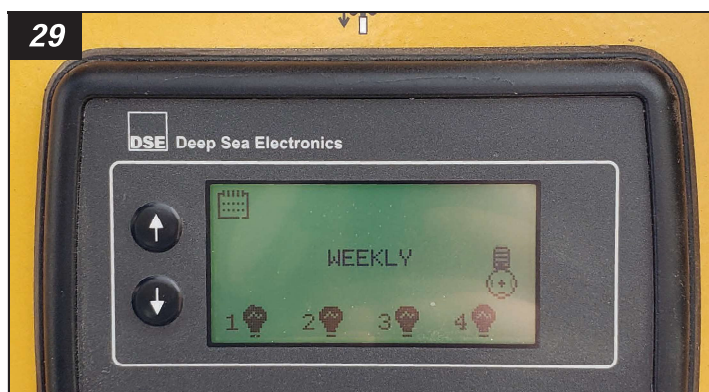
- Daily Scheduler Section Page (Figure 27) - This instrument page screen is used to indicate the section page for scheduling daily runtimes for the light tower unit.



- Daily Scheduler Page (Figure 28) - This instrument page screen is used for setting up scheduled daily runtimes for the light tower unit. See **Operator and Configuration Editor** for detailed information on how to configure settings.



- Weekly Scheduler Section Page (Figure 29) - This instrument page screen is used to indicate the section page for scheduling weekly runtimes for the light tower unit.



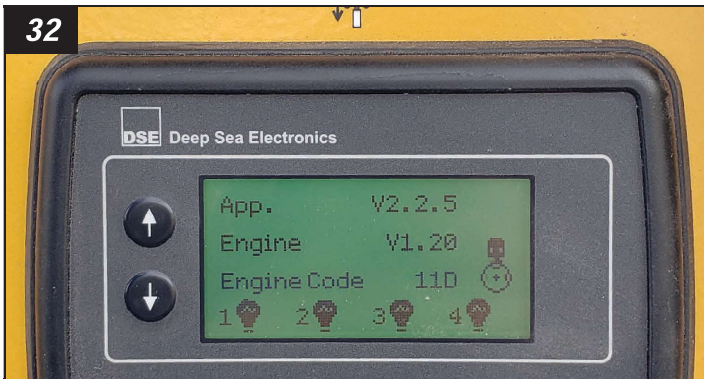
- Weekly Scheduler Page (Figure 30) - This instrument page screen is used for setting up scheduled weekly runtimes for the light tower unit. See **Operator and Configuration Editor** for detailed information on how to configure settings.



- DSE Control Module Description and USB Identification (Figure 31) - This instrument page is used for identifying the DSE control module and the USB number.



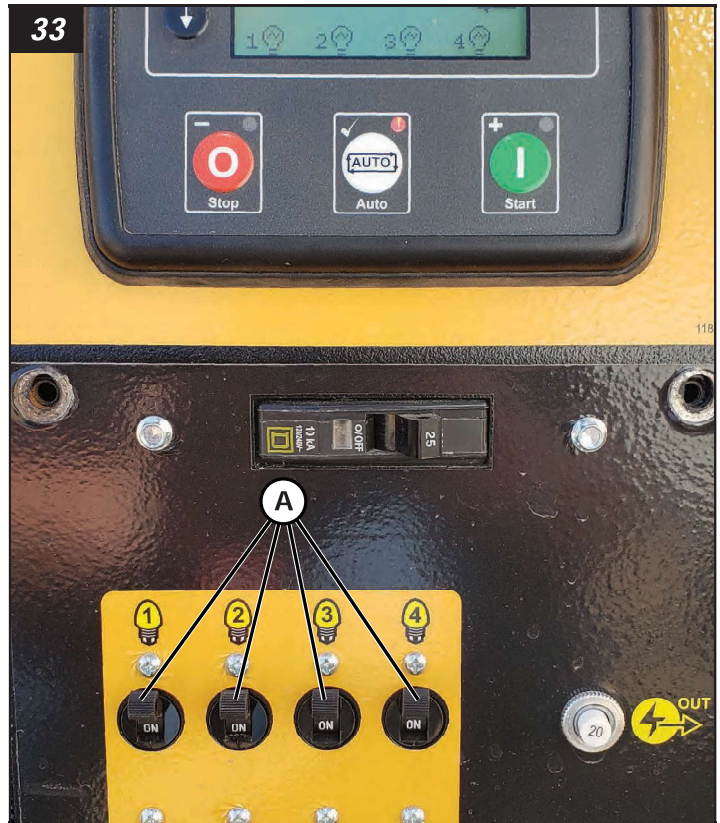
- Software Version and Engine version (Figure 32) - This instrument page is used for identifying the software version of the DSE control module, the engine version, and the engine code.



Light Control Page Screen

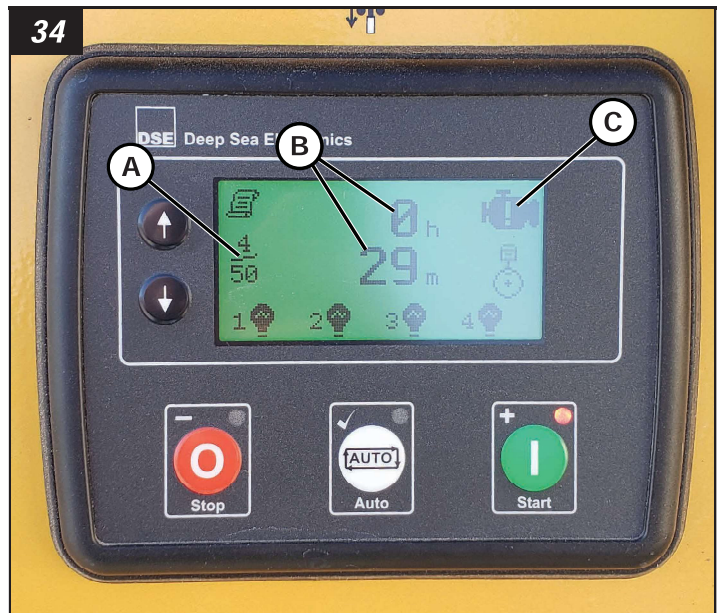
This page is disabled for Allmand programming. The tower lights will turn on automatically when the DSE control module turns on the light tower unit. The light breaker on/off switches (A, Figure 33) control the individual tower lights. Refer to an Allmand® light tower operator manual for tower light operation.

Note: The light breaker switches need to be in the 'on' position for the tower lights to turn on automatically during Manual/Start and Auto Mode Operation. The breaker switches may be in different locations on the light tower control panel than what is shown. The light breaker switches will be identified by numbered work light icons.



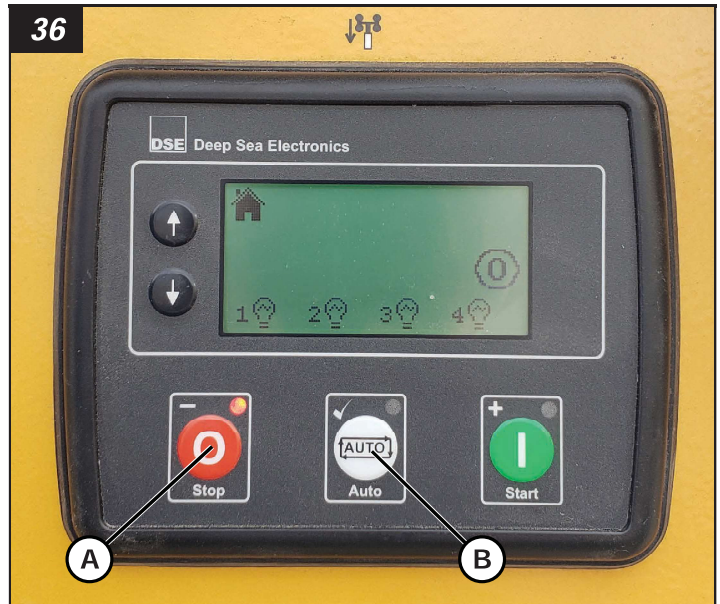
Event Log Page Screens

Navigate the event log pages by pressing either the Menu Up or Menu Down Navigation push buttons to scroll through the last 50 recorded electrical trip and shutdown events (A, Figure 34) at the precise engine run hour and minute (B, Figure 34) they occurred. The event will also be identified by fault icon (C, Figure 34) in the upper right corner of the screen. See **Operation Fault Shutdown** in **Troubleshooting** for more detailed information.



Engine Diagnostic Trouble Codes (DTC) Page Screen

This page will display the engine diagnostic information (A, Figure 35) in the event that engine shuts down unexpectedly due to engine problems. This diagnostic information includes description of the ECU fault as well as the SPN and FMI fault codes. The event will also be identified by fault icon (B, Figure 35) in the upper right corner of the screen. See **Operation Fault Shutdown** in **Troubleshooting** for more detailed information.



2. The operator and configuration editor menu screen will open as shown in Figure 37. Press the Menu Up and Menu Down Navigation (A, Figure 37) push buttons to cycle between the operator icon (B, Figure 37) and the configuration icon (C, Figure 37). Press the Auto (✓) Mode push button (D, Figure 37) to open either operator or configuration editor pages. The operator icon will open up the only the time and scheduling parameter settings editor pages, while the configuration icon will open up all the parameter settings editor pages in program including time and scheduling.

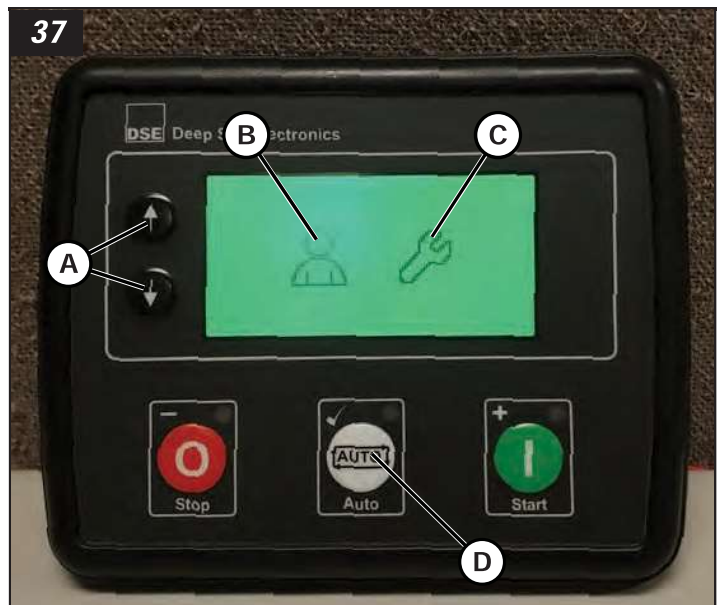
Operator and Configuration Editor

The software programming in the DSE L401 MKII controller module is specific to Allmand® light towers. This section explains how to change the certain settings of the operator and configuration parameters that are essential to the operation the light tower unit. These parameter settings include screen contrast, block heater, scheduling, and time.

Note: Any other configuration parameter setting that is not mentioned in this section should be automatically set up for light tower unit operation and there will be no need to change those settings in the editor pages.

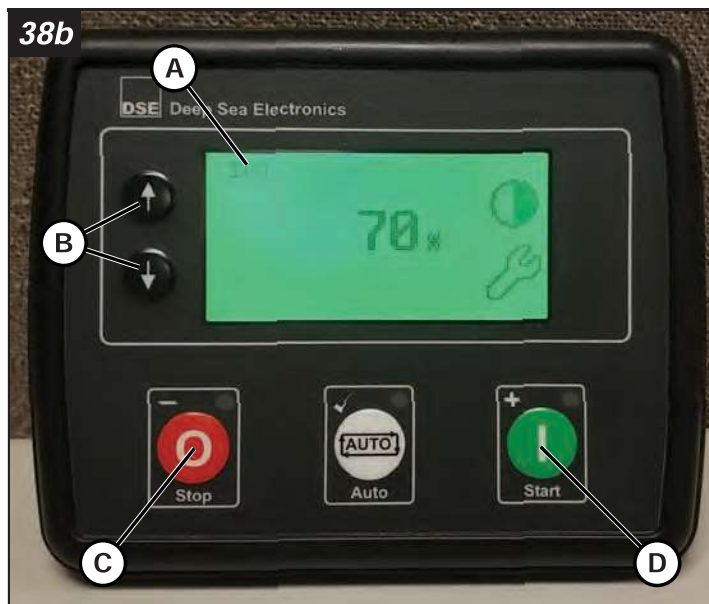
Operator and Configuration Editor Menu Navigation

1. To enter the operator and configuration editor menu, on the home screen press and hold down Stop/Reset (-) Mode push button (A, Figure 36), then press the Auto (✓) Mode push button (B, Figure 36). The light tower unit must be shut off in order to change settings and parameters in the configuration and operator editor pages.



Note: Upon selecting either the operator or configuration icon, the screen will open to the parameter settings editor pages. If the operator icon was selected it will open to the scheduler editor page 901 as shown in Figure 38a and if the configuration icon was selected it will open to the screen contrast editor page 101 as shown in Figure 38b. The parameter setting number (A, Figure 38a-b) in the upper left hand corner of the screen identifies the editor page. To identify parameter setting refer to the **Parameter Settings Editor Page Identification Table**.

3. Press the Menu Up or Menu Down Navigation (B, Figure 38a-b) push buttons to cycle through the editor pages in increments of 100s.
4. Press the Stop/Reset (-) Mode push button (C, Figure 38a-b) or the Manual/Start (+) Mode push button (D, Figure 38a-b) to cycle through the editor pages in increments of 1s.
5. To edit the selected parameter settings editor page:
 - A. See **Screen Contrast Parameter Setting Editor Page**.
 - B. See **Diesel Fired Block Heater Parameter Settings Editor Pages**.
 - C. See **Time Parameter Settings Editor Pages**.
 - D. See **Scheduler Parameter Settings Editor Pages**.



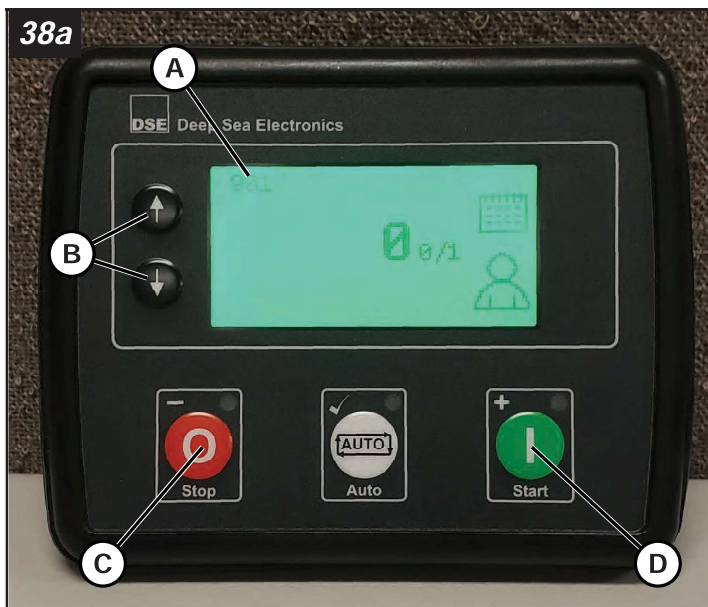
Parameter Settings Editor Page Identification Tables

This table lists the individual parameter settings editor pages that are essential to the operation the Allmand® light tower unit. Other editor pages that are found in the DSE controller module have already been programmed to operate the light tower unit, so they do not need any changes to their settings.

Screen Contrast Parameter Setting	
Page Number(s)	Editor Page Description
101	Screen Contrast

Diesel Fired Block Heater Parameter Settings	
Page Number(s)	Editor Page Description
739	Diesel Fired Block Heater Enable
740	Diesel Fired Block Heater Temperature
741	Diesel Fired Block Heater Runtime

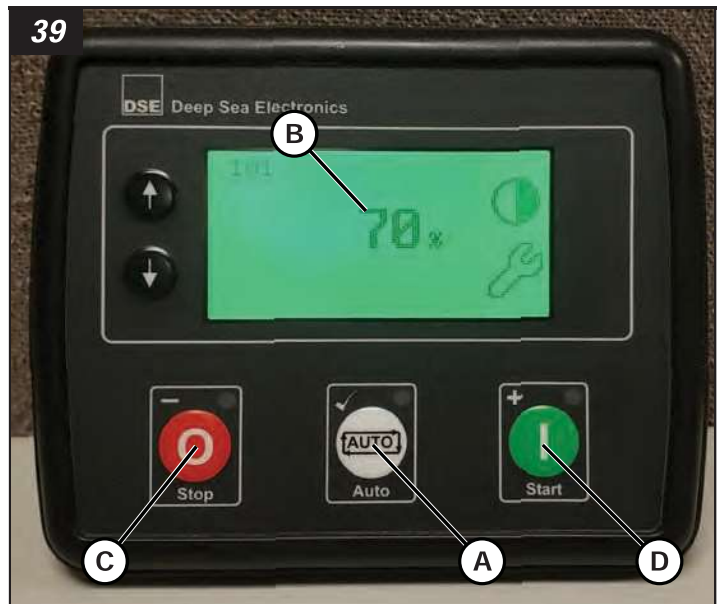
Time Parameter Settings	
Page Number(s)	Editor Page Description
1001	Time of Day
1002	Day of Month
1003	Month of Year
1004	Year
1005	Enable Daylight Saving
1006	Daylight Saving Offset
1007	Latitude
1008	Longitude
1009	Time Zone Offset
1010	Sunset Offset
1011	Sunrise Offset



Scheduler Parameter Settings	
Page Number(s)	Editor Page Description
901	Enable Scheduler
902	Scheduler Period (Bank A)
903, 909, 915, 921, 927, 933, 939, 945	Auto Mode (Entry 1-8)
904, 910, 916, 922, 928, 934, 940, 946	Schedule Mode (Entry 1-8)
905, 911, 917, 923, 929, 935, 941, 947	Start Time (Entry 1-8)
906, 912, 918, 924, 930, 936, 942, 948	Day (Entry 1-8)
907, 913, 919, 925, 931, 937, 943, 949	Week (Entry 1-8)
908, 914, 920, 926, 932, 938, 944, 950	Duration (Entry 1-8)
951	Schedule Period (Bank B)
952, 958, 964, 970, 976, 982, 988, 994	Auto Mode (Entry 9-16)
953, 959, 965, 971, 977, 983, 989, 995	Schedule Mode (Entry 9-16)
954, 960, 966, 972, 978, 984, 990, 996	Start Time (Entry 9-16)
955, 961, 967, 973, 979, 985, 991, 997	Day (Entry 9-16)
956, 962, 968, 974, 980, 986, 992, 998	Week (Entry 9-16)
957, 963, 969, 975, 981, 987, 993, 999	Duration (Entry 9-16)

Screen Contrast Parameter Setting Editor Page

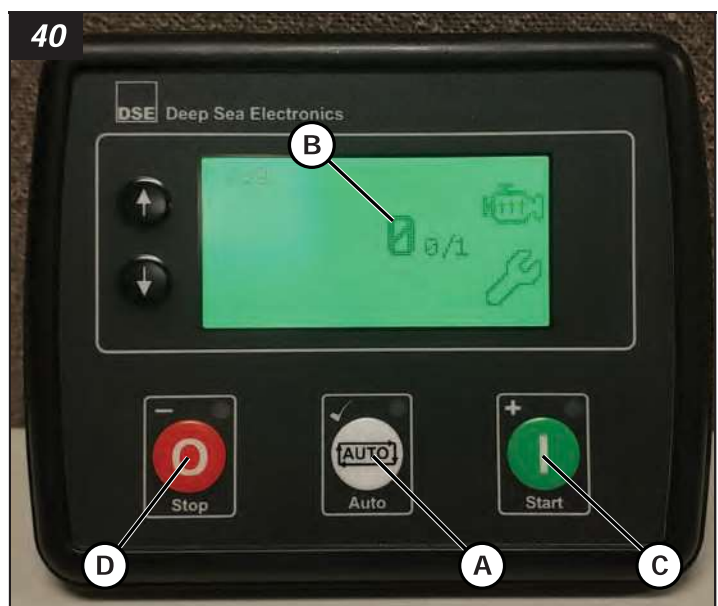
Navigate to the **Screen Contrast Editor Page (101)** as shown in Figure 39. Press the Auto (✓) Mode push button (A, Figure 39) to change the contrast value (B, Figure 39) of the pixels on the screen. Then, press either the Stop/Reset (-) Mode push button (C, Figure 39) to lighten the pixels or the Manual/Start (+) Mode push button (D, Figure 39) to darken the pixels. After setting the desired contrast value of the screen, press the Auto (✓) Mode push button to save the selection. Press and hold down the Auto (✓) Mode push button to permanently save the changes and exit the parameter settings editor pages. The screen will return to the homescreen.



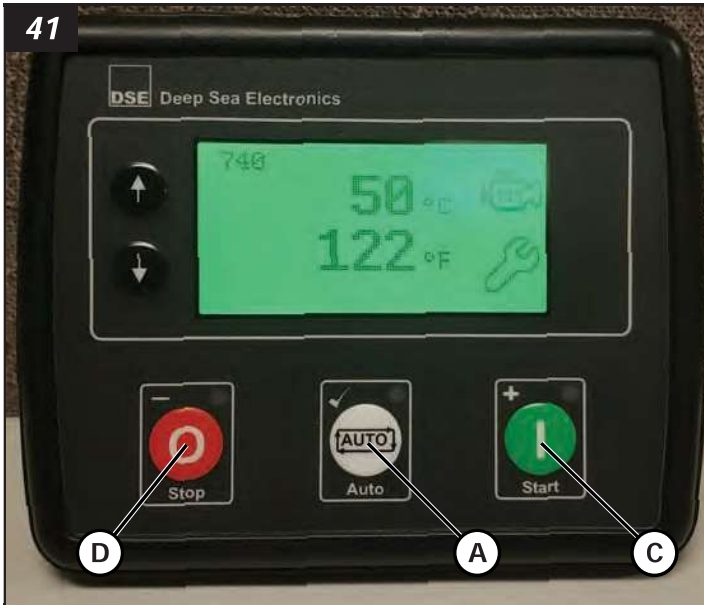
Diesel Fired Block Heater Parameter Settings Editor Pages

Note: These parameter settings are only available to Allmand® light towers that are equipped with a diesel fired block heater for the engine.

1. Navigate to the **Diesel Fired Block Heater Enable Editor Page (739)** as shown in Figure 40. Press the Auto (✓) Mode push button (A, Figure 40) to either enable or disable the diesel fired block heater function. To enable the block heater, change the numeric value (B, Figure 40) from zero to one by pressing the Manual/Start (+) Mode push button (C, Figure 40). To disable the block heater, change the numeric value from one to zero by pressing the Stop/Reset (-) Mode push button (D, Figure 40). After the block heater is enabled or disabled, press the Auto (✓) Mode push button to save the selection.

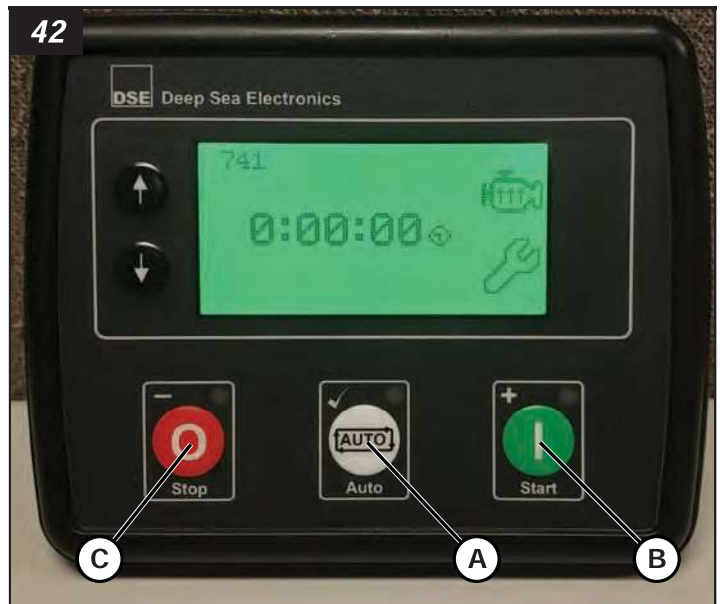


- If the diesel fired block heater is enabled, navigate to the **Diesel Fired Block Heater Temperature Editor Page (740)** as shown in Figure 41. Press the Auto (✓) Mode push button (A, Figure 41) to change the temperature (°C/°F) of the block heater. Then, press either the Stop/Reset (-) Mode push button (B, Figure 41) to decrease the temperature or the Manual/Start (+) Mode push button (C, Figure 41) to increase the temperature. After setting the desired temperature of the block heater, press the Auto (✓) Mode push button to save the selection.



- If the diesel fired block heater is enabled, navigate to the **Diesel Fired Block Heater Runtime Editor Page (741)** as shown in Figure 42. Press the Auto (✓) Mode push button (A, Figure 42) to change the runtime duration (0:00:00) of the block heater. Then, either press the Manual/Start (+) Mode push button (B, Figure 42) to increase the runtime duration or press the Stop/Reset (-) Mode push button (B, Figure 42) to decrease the runtime duration. After setting the desired runtime duration of the block heater, press the Auto (✓) Mode push button to save the selection. Press and hold down the Auto (✓) Mode push button to permanently save the changes and exit the parameter settings editor pages. The screen will return to the homescreen.

Note: Press and hold either the Manual/Start (+) Mode or the Stop/Reset (-) Mode push button change runtime value more quickly. The increments will change the longer the buttons are held. There is a maximum programmed runtime of 1:00:00 for the block heater.



Time Parameter Settings Editor Pages

Note: The time parameter settings should be changed prior changing any of the scheduler parameter settings.

- Navigate to the **Time of Day Editor Page (1001)** as shown in Figure 43. Press the Auto (✓) Mode push button (A, Figure 43) to change the time of day (24:00:00) in the control module. Then, either press the Manual/Start (+) Mode push button (B, Figure 43) to increase the time of day or press the Stop/Reset (-) Mode push button (C, Figure 43) to decrease the time of day. After setting the time of day in the control module, press the Auto (✓) Mode push button to save the selection.

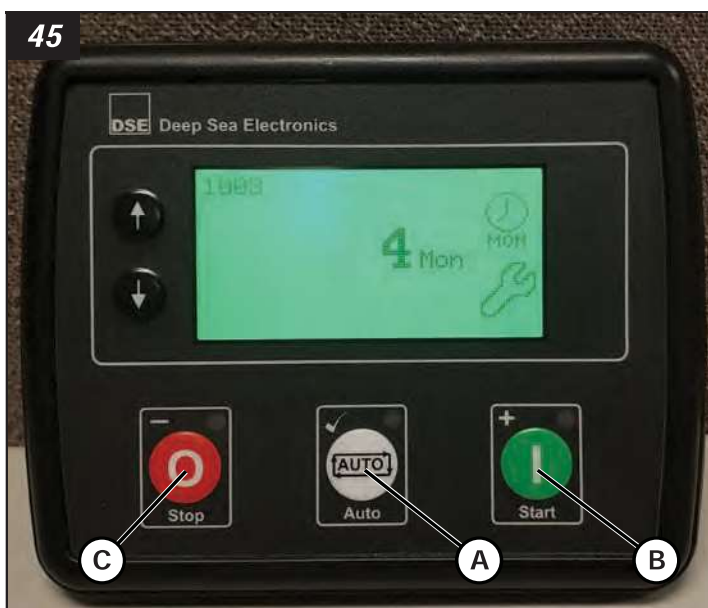
Note: Press and hold either the Manual/Start (+) Mode or the Stop/Reset (-) Mode push button change time of day value more quickly. The longer either button held, the increments will change from every minute to every half hour when setting the time.



2. Navigate to the **Day of Month Editor Page (1002)** as shown in Figure 44. Press the Auto (✓) Mode push button (A, Figure 44) to change the day of month (1-31) in the control module. Then, either press the Manual/Start (+) Mode push button (B, Figure 44) to increase the day of month or press the Stop/Reset (-) Mode push button (C, Figure 44) to decrease the day of month. After setting the day of month in the control module, press the Auto (✓) Mode push button to save the selection.



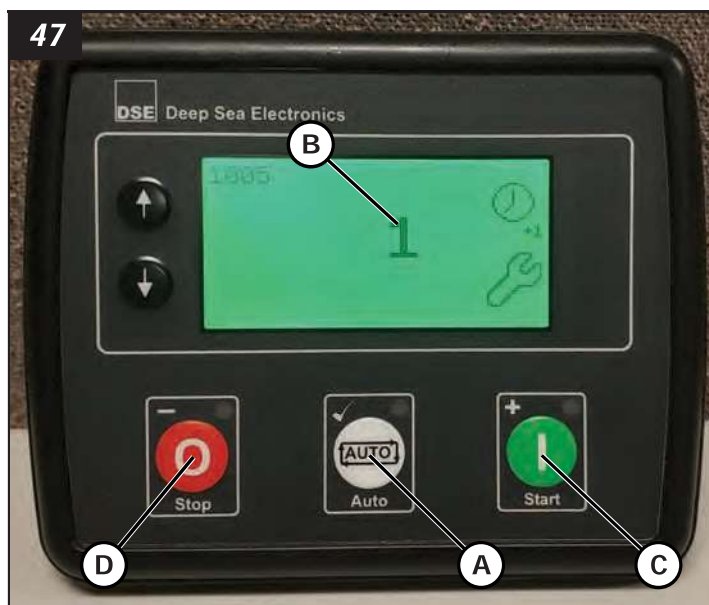
3. Navigate to the **Month of Year Editor Page (1003)** as shown in Figure 45. Press the Auto (✓) Mode push button (A, Figure 45) to change the month of year (1-12) in the control module. Then, either press the Manual/Start (+) Mode push button (B, Figure 45) to increase the month of year or press the Stop/Reset (-) Mode push button (C, Figure 45) to decrease the month of year. After setting the month of year in the control module, press the Auto (✓) Mode push button to save the selection.



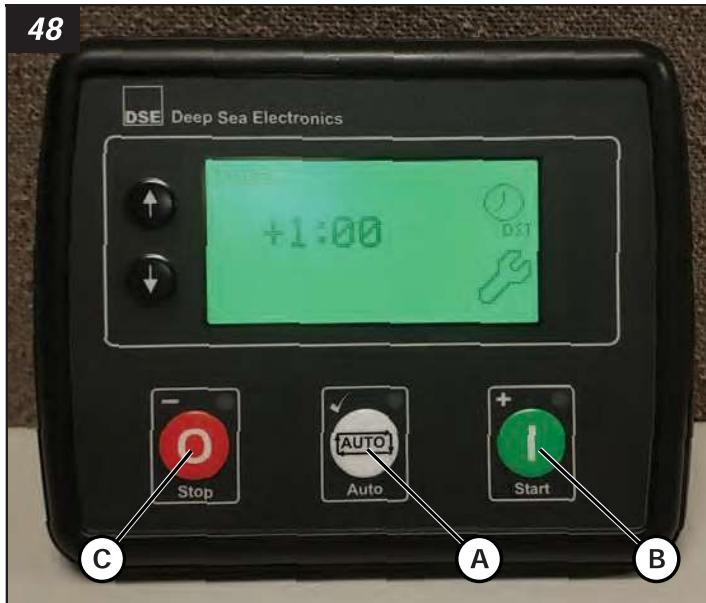
4. Navigate to the **Year Editor Page (1004)** as shown in Figure 46. Press the Auto (✓) Mode push button (A, Figure 46) to change the year (20XX) in the control module. Then, either press the Manual/Start (+) Mode push button (B, Figure 46) to increase the year or press the Stop/Reset (-) Mode push button (C, Figure 46) to decrease the year. After setting the year in the control module, press the Auto (✓) Mode push button to save the selection.



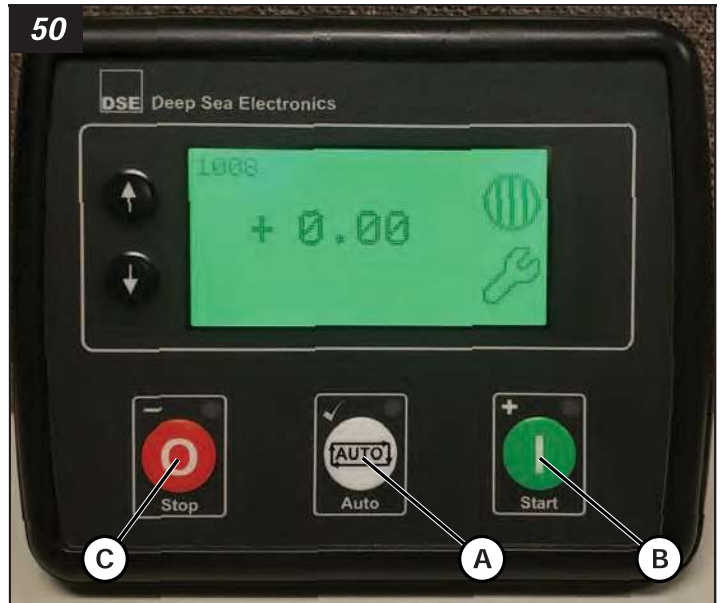
5. Navigate to the **Enable Daylight Saving Editor Page (1005)** as shown in Figure 47. Press the Auto (✓) Mode push button (A, Figure 47) to either enable or disable the daylight saving function. To enable daylight saving, change the numeric value (B, Figure 47) from zero to one by pressing the Manual/Start (+) Mode push button (C, Figure 47). To disable daylight saving, change the numeric value from one to zero by pressing the Stop/Reset (-) Mode push button (D, Figure 47). After daylight saving is enabled or disabled, press the Auto (✓) Mode push button to save the selection.



- Navigate to the **Daylight Saving Offset Editor Page (1006)** as shown in Figure 48. Press the Auto (✓) Mode push button (A, Figure 48) to change the daylight saving offset time (+0:00) of the control module. Then, either press the Manual/Start (+) Mode push button (B, Figure 48) to increase the offset time or press the Stop/Reset (-) Mode push button (C, Figure 48) to decrease the offset time. After setting the desired daylight saving offset value, press the Auto (✓) Mode push button to save the selection.



- Navigate to the **Longitude Editor Page (1008)** as shown in Figure 50. Press the Auto (✓) Mode push button (A, Figure 50) to change the longitude location ($\pm 180^\circ$) of the light tower unit. Then, either press the Manual/Start (+) Mode push button (B, Figure 50) to increase the longitude value or press the Stop/Reset (-) Mode push button (C, Figure 50) to decrease the longitude value. After setting the longitude location of the light tower unit, press the Auto (✓) Mode push button to save the selection.



- Navigate to the **Latitude Editor Page (1007)** as shown in Figure 49. Press the Auto (✓) Mode push button (A, Figure 49) to change the latitude location ($\pm 90^\circ$) of the light tower unit. Then, either press the Manual/Start (+) Mode push button (B, Figure 49) to increase the latitude value or press the Stop/Reset (-) Mode push button (C, Figure 49) to decrease the latitude value. After setting the latitude location of the light tower unit, press the Auto (✓) Mode push button to save the selection.



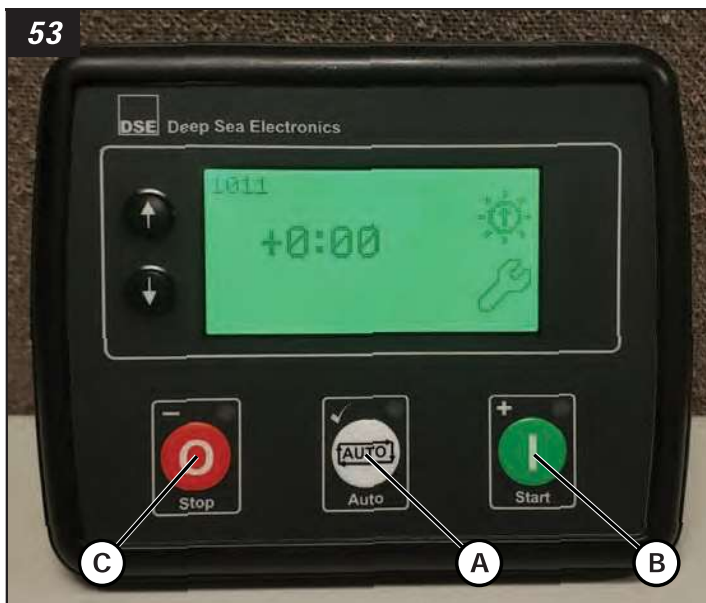
- Navigate to the **Time Zone Offset Editor Page (1009)** as shown in Figure 51. Press the Auto (✓) Mode push button (A, Figure 51) to change the time zone offset location ($\pm 12:00$) of the light tower unit. Then, either press the Manual/Start (+) Mode push button (B, Figure 51) to increase the time zone offset value or press the Stop/Reset (-) Mode push button (C, Figure 51) to decrease the time zone offset value. After setting the time zone offset location of the light tower unit, press the Auto (✓) Mode push button to save the selection.



10. Navigate to the **Sunset Offset Editor Page (1010)** as shown in Figure 52. Press the Auto (✓) Mode push button (A, Figure 52) to change the sunset offset time ($\pm 2:00$) for the powering up of the tower lights on the unit. Then, either press the Manual/Start (+) Mode push button (B, Figure 52) to increase the sunset offset value or press the Stop/Reset (-) Mode push button (C, Figure 52) to decrease the sunset offset value. After setting the sunset offset time, press the Auto (✓) Mode push button to save the selection.



11. Navigate to the **Sunrise Offset Editor Page (1011)** as shown in Figure 53. Press the Auto (✓) Mode push button (A, Figure 53) to change the sunrise offset time ($\pm 2:00$) for the powering down of the tower lights on the unit. Then, either press the Manual/Start (+) Mode push button (B, Figure 53) to increase the sunrise offset value or press the Stop/Reset (-) Mode push button (C, Figure 53) to decrease the sunrise offset value. After setting the sunrise offset time, press the Auto (✓) Mode push button to save the selection.



12. Press and hold down the Auto (✓) Mode push button to permanently save the changes and exit the parameter settings editor pages. The screen will return to the homescreen.

Scheduler Parameter Settings Editor Pages

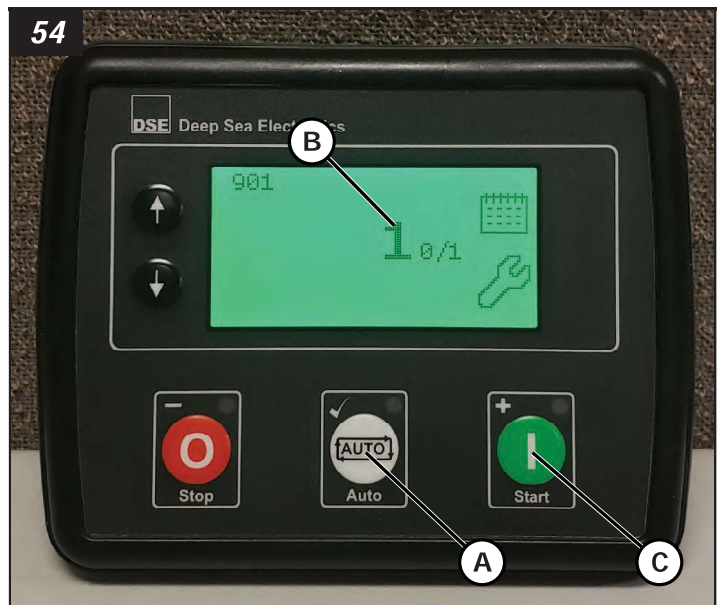
Daily Scheduler Parameter Settings (Sunrise/Sunset Auto Enable)

This subsection covers how to set the schedule parameter settings for a daily automatic run of the light tower unit. The unit will power on/off everyday in accordance with the location and sunrise/sunset settings that were made with the time parameter settings editor pages.

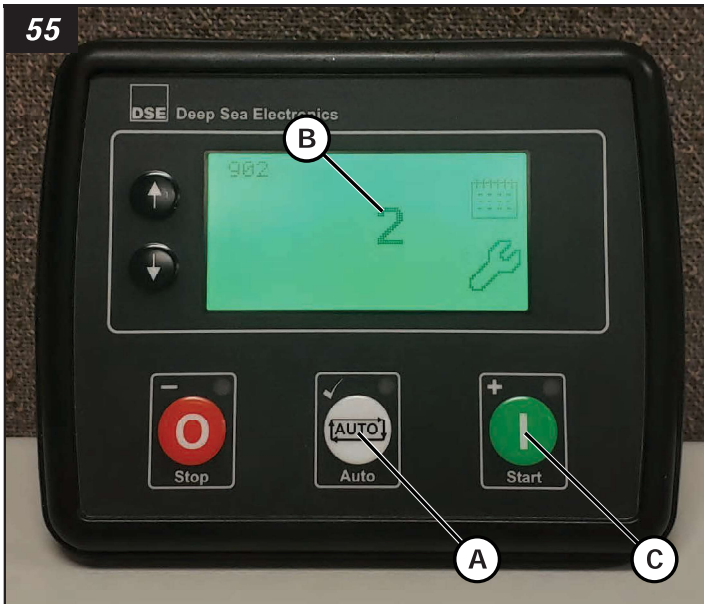
Note: The time parameter settings must be set prior changing any of the scheduler parameter settings to allow for desired light tower runtimes when the Auto Mode Editor Page is enabled.

1. Navigate to the **Enable Scheduler Editor Page (901)** as shown in Figure 54. Press the Auto (✓) Mode push button (A, Figure 54) to enable the scheduler function. To enable scheduling, change the numeric value (B, Figure 54) from zero to one by pressing the Manual/Start (+) Mode push button (C, Figure 54). After the scheduler is enabled, press the Auto (✓) Mode push button to save the selection.

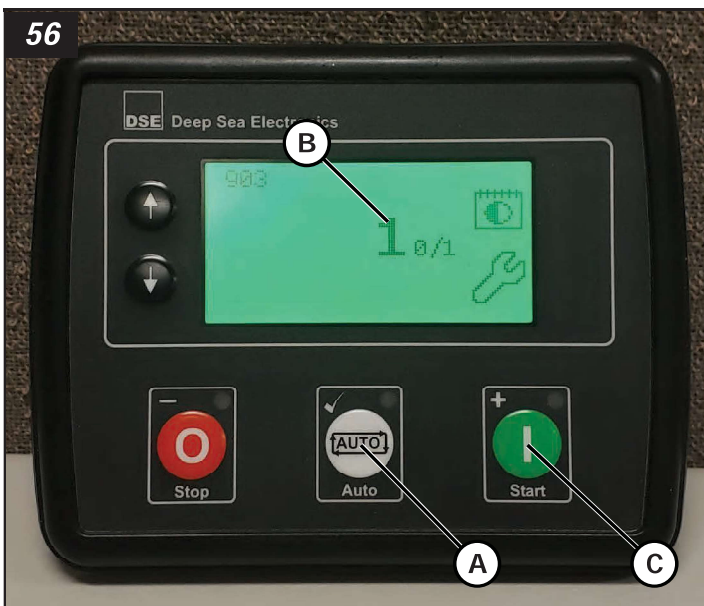
Note: Enabling the scheduler allows controller module to operate the light tower in Auto Mode Operation when activated.



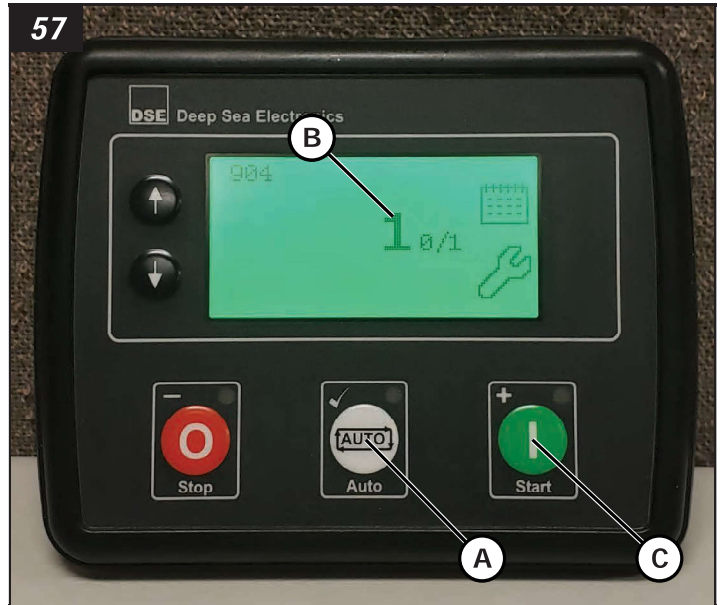
- After the scheduling has been enabled, navigate to the **Scheduler Period Editor Page (902)** as shown in Figure 55. Press the Auto (✓) Mode push button (A, Figure 55) to edit selection to daily schedule. To enable daily scheduling, change the numeric value (B, Figure 55) to two, if the value is at zero increase by pressing the Manual/Start (+) Mode push button (C, Figure 55). After the numeric value of two is shown to select daily scheduling, press the Auto (✓) Mode push button to save the selection.



- After the daily scheduling has been selected, navigate to the **Auto Mode Editor Page (903)** as shown in Figure 56. Press the Auto (✓) Mode push button (A, Figure 56) to enable the auto mode function. To enable auto mode, change the numeric value (B, Figure 56) from zero to one by pressing the Manual/Start (+) Mode push button (C, Figure 56). After auto mode is enabled, press the Auto (✓) Mode push button to save the selection.



- After the auto mode has been enabled, navigate to the **Schedule Mode Editor Page (904)** as shown in Figure 57. Press the Auto (✓) Mode push button (A, Figure 57) to edit the on load selection in schedule mode. To enable on load, change the numeric value (B, Figure 57) from zero to one by pressing the Manual/Start (+) Mode push button (C, Figure 57). After on load is enabled in the schedule mode, press the Auto (✓) Mode push button to save the selection.



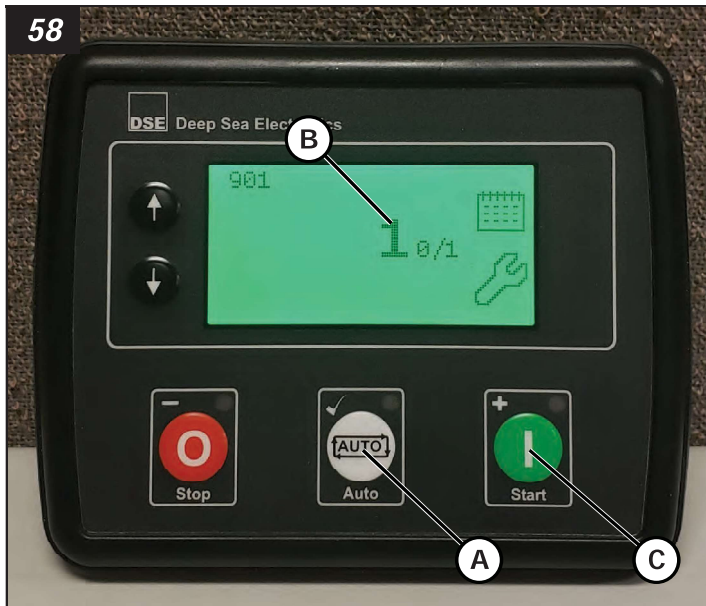
- The scheduler parameters are now set up for the light tower to run automatically daily according to how the time parameter settings are set. Press and hold down the Auto (✓) Mode push button to permanently save the changes and exit the scheduler parameter settings editor pages. The screen will return to the homescreen, then press the the Auto (✓) Mode push button to activate auto mode. Refer to **Auto Mode Operation**.

Daily Scheduler Parameter Settings (Scheduled Start Time and Duration Enable)

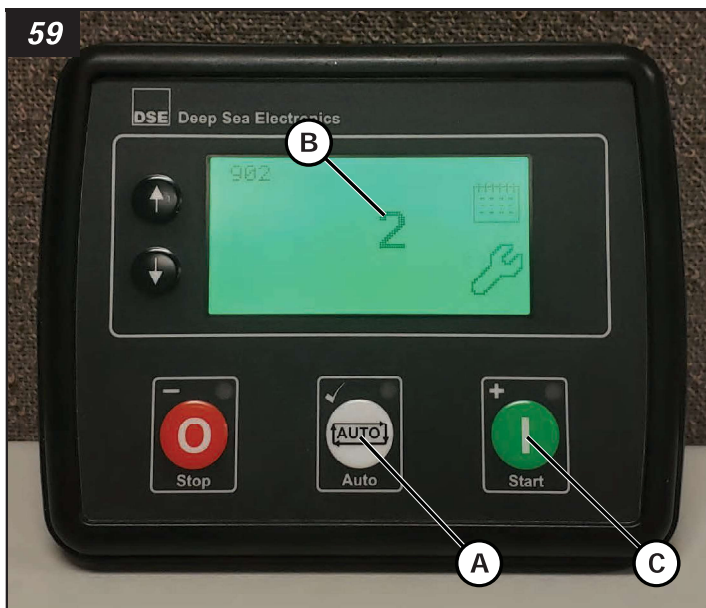
This subsection covers how to set the schedule parameter settings for a daily scheduled run of the light tower unit. The unit will power on/off everyday in accordance with the start time and duration settings that are made with the scheduler parameter settings editor pages.

- Navigate to the **Enable Scheduler Editor Page (901)** as shown in Figure 58. Press the Auto (✓) Mode push button (A, Figure 58) to enable the scheduler function. To enable scheduling, change the numeric value (B, Figure 58) from zero to one by pressing the Manual/Start (+) Mode push button (C, Figure 58). After the scheduler is enabled, press the Auto (✓) Mode push button to save the selection.

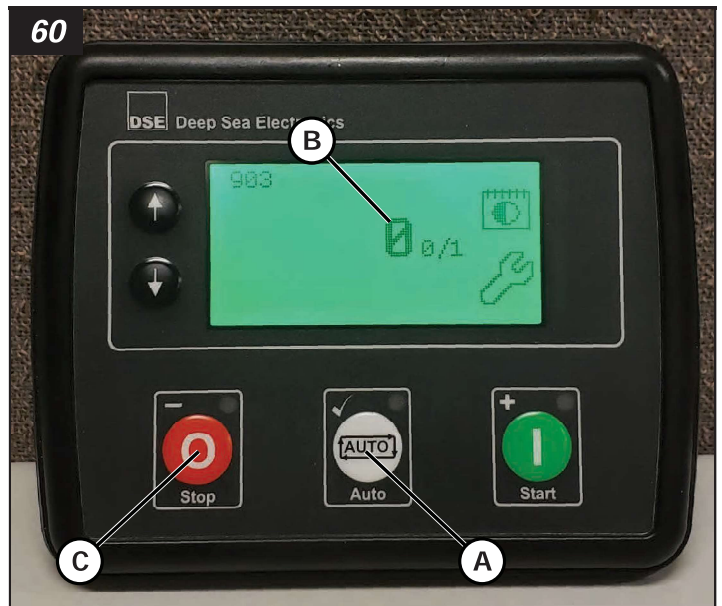
Note: Enabling the scheduler allows controller module to operate the light tower in Auto Mode Operation when activated.



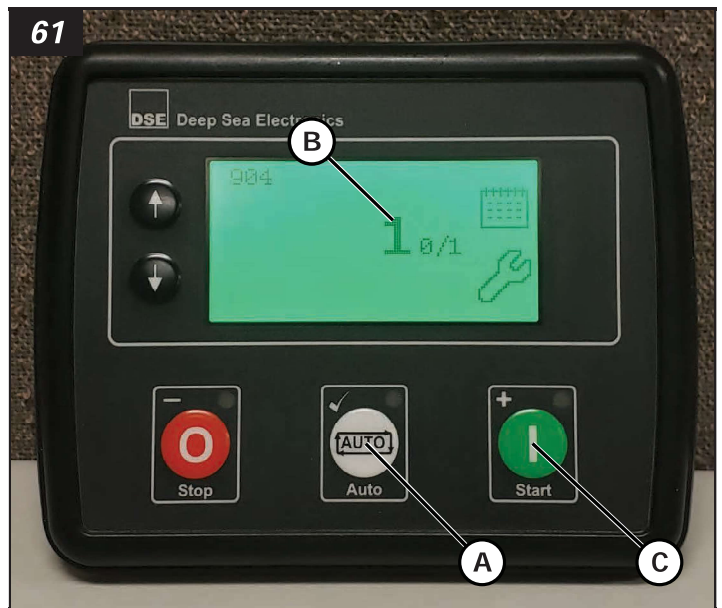
- After the scheduling has been enabled, navigate to the **Scheduler Period Editor Page (902)** as shown in Figure 59. Press the Auto (✓) Mode push button (A, Figure 59) to edit selection to daily schedule. To enable daily scheduling, change the numeric value (B, Figure 59) to two, if the value is at zero increase by pressing the Manual/Start (+) Mode push button (C, Figure 59). After the numeric value of two is shown to select daily scheduling, press the Auto (✓) Mode push button to save the selection.



- After the weekly scheduling has been selected, navigate to the **Auto Mode Editor Page (903)** as shown in Figure 60. Press the Auto (✓) Mode push button (A, Figure 60) to disable the auto mode function. To disable auto mode, change the numeric value (B, Figure 60) from one to zero by pressing the Stop/Reset (-) Mode push button (C, Figure 60). After auto mode is disabled, press the Auto (✓) Mode push button to save the selection.

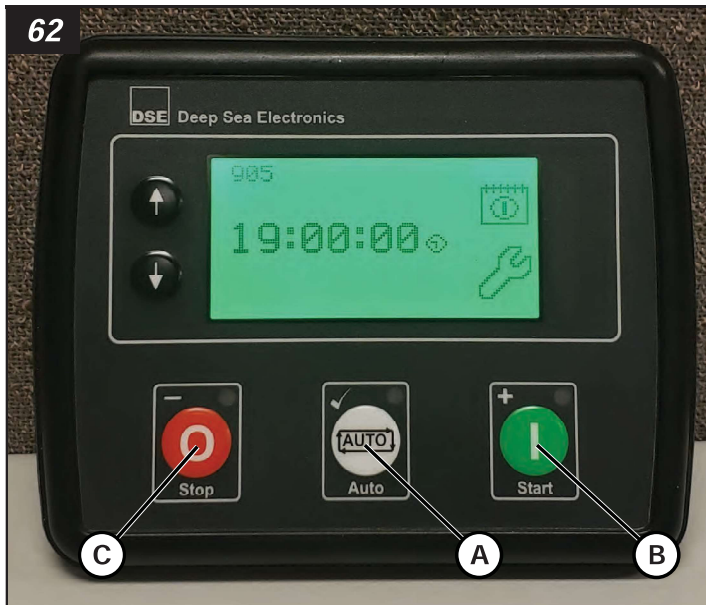


- After the auto mode has been disabled, navigate to the **Schedule Mode Editor Page (904)** as shown in Figure 61. Press the Auto (✓) Mode push button (A, Figure 61) to edit the on load selection in schedule mode. To enable on load, change the numeric value (B, Figure 61) from zero to one by pressing the Manual/Start (+) Mode push button (C, Figure 61). After on load is enabled in the schedule mode, press the Auto (✓) Mode push button to save the selection.



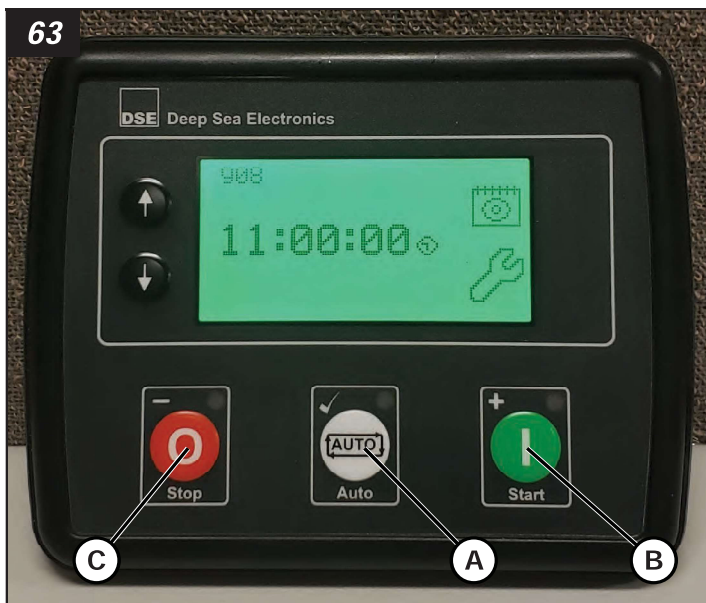
- Navigate to the **Start Time Editor Page (905)** as shown in Figure 62. Press the Auto (✓) Mode push button (A, Figure 62) to edit the start time (24:00:00). Then, either press the Manual/Start (+) Mode push button (B, Figure 62) to increase the time of day or press the Stop/Reset (-) Mode push button (C, Figure 62) to decrease the time of day. After setting the start time, press the Auto (✓) Mode push button to save the selection.

Note: Press and hold either the Manual/Start (+) Mode or the Stop/Reset (-) Mode push button change time of day value more quickly. The longer either button held, the increments will change from every minute to every half hour when setting the time.



6. Navigate to the **Duration Editor Page (908)** as shown in Figure 63. Press the Auto (✓) Mode push button (A, Figure 63) to change the runtime duration (0:00:00) of the light tower unit. Then, either press the Manual/Start (+) Mode push button (B, Figure 63) to increase the runtime duration or press the Stop/Reset (-) Mode push button (C, Figure 63) to decrease the runtime duration. After setting the desired runtime duration of light tower, press the Auto (✓) Mode push button to save the selection.

Note: Press and hold either the Manual/Start (+) Mode or the Stop/Reset (-) Mode push button change runtime value more quickly. The longer either button held, the increments will change from every minute to every half hour when setting the time.



7. The scheduler parameters are now set up for the light tower to run automatically daily according to the start time and duration scheduler parameter settings that are set. Press and hold down the Auto (✓) Mode push button to permanently save the changes and exit the scheduler parameter settings editor pages. The screen will return to the homescreen, then press the the Auto (✓) Mode push button to activate auto mode. Refer to **Auto Mode Operation**.

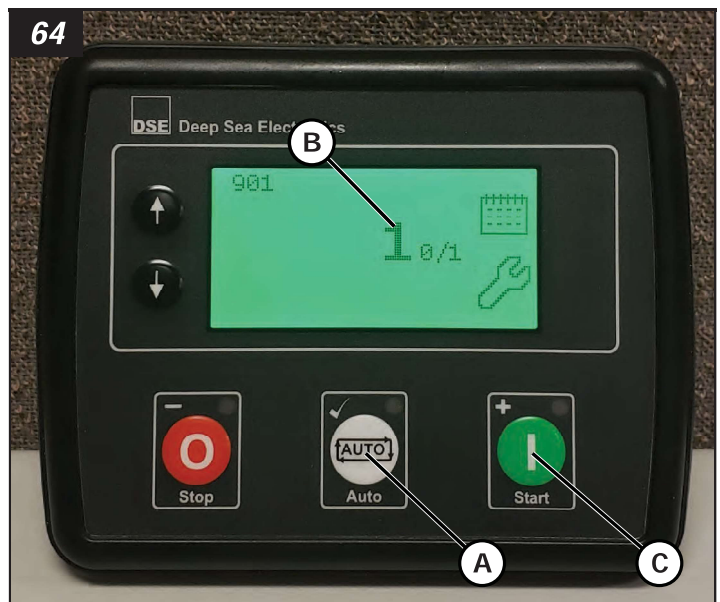
Weekly Scheduler Parameter Settings (Enable)

This subsection covers how to set the schedule parameter settings for a weekly run of the light tower unit. The unit will power on/off in accordance with the start time and duration settings that are made with the scheduler parameter settings editor pages and/or in accordance with the location and sunrise/sunset settings that are made with the time parameter settings editor pages. Runtimes that are set in the weekly scheduler can follow either setting or a combination of both. A total of 16 different runtime entries can be set up in the weekly scheduler.

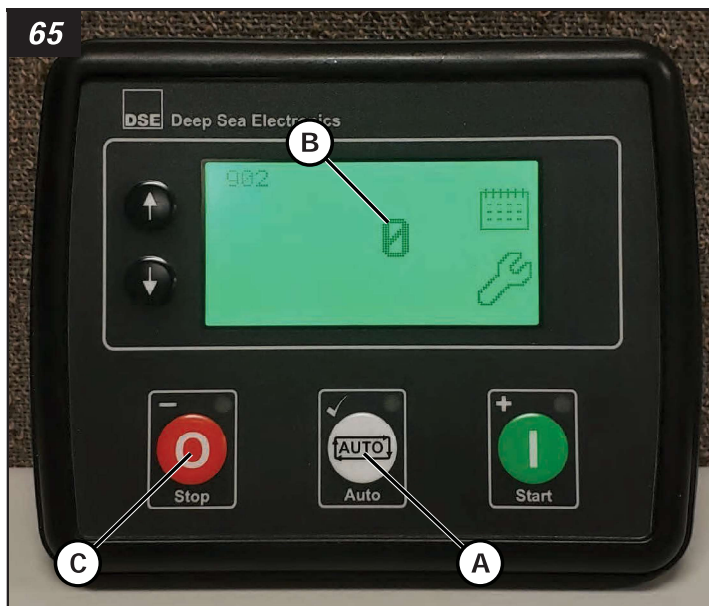
Note: The time parameter settings must be set prior changing any of the scheduler parameter settings to allow for desired light tower runtimes when the Auto Mode Editor Page is enabled.

1. Navigate to the **Enable Scheduler Editor Page (901)** as shown in Figure 64. Press the Auto (✓) Mode push button (A, Figure 64) to enable the scheduler function. To enable scheduling, change the numeric value (B, Figure 64) from zero to one by pressing the Manual/Start (+) Mode push button (C, Figure 64). After the scheduler is enabled, press the Auto (✓) Mode push button to save the selection.

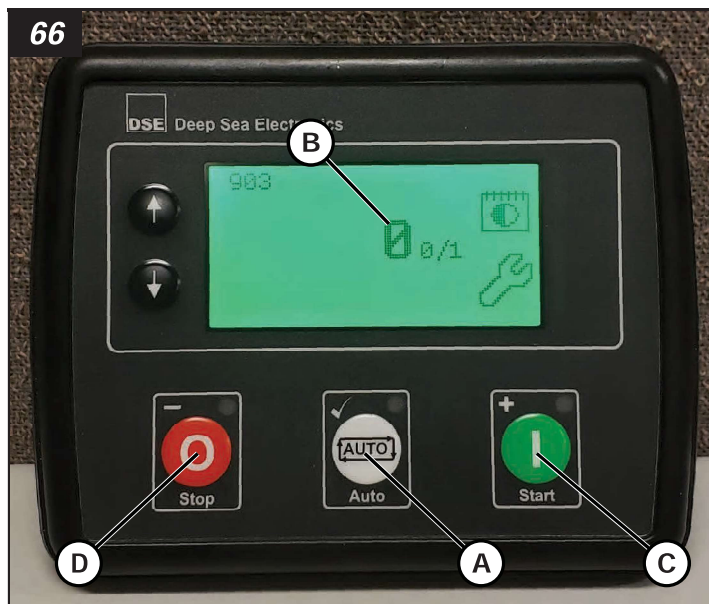
Note: Enabling the scheduler allows controller module to operate the light tower in Auto Mode Operation when activated.



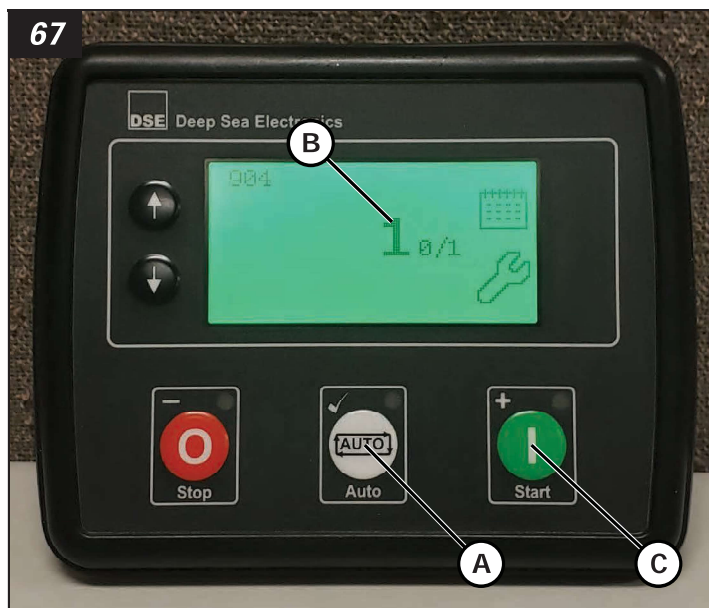
- After the scheduling has been enabled, navigate to the **Scheduler Period Editor Page (902)** as shown in Figure 65. Press the Auto (✓) Mode push button (A, Figure 65) to edit selection to weekly schedule. To enable weekly scheduling, change the numeric value (B, Figure 65) to zero, if the value is at two decrease by pressing the Stop/Reset (-) Mode push button (C, Figure 65). After the numeric value of zero is shown to select weekly scheduling, press the Auto (✓) Mode push button to save the selection.



- After the weekly scheduling has been selected, navigate to the **Auto Mode Editor Page (903)** as shown in Figure 66. Press the Auto (✓) Mode push button (A, Figure 66) to either enable or disable the auto mode function. To enable auto mode, change the numeric value (B, Figure 66) from zero to one by pressing the Manual/Start (+) Mode push button (C, Figure 66). To disable auto mode, change the numeric value from one to zero by pressing the Stop/Reset (-) Mode push button (D, Figure 66). After auto mode is disabled, press the Auto (✓) Mode push button to save the selection.

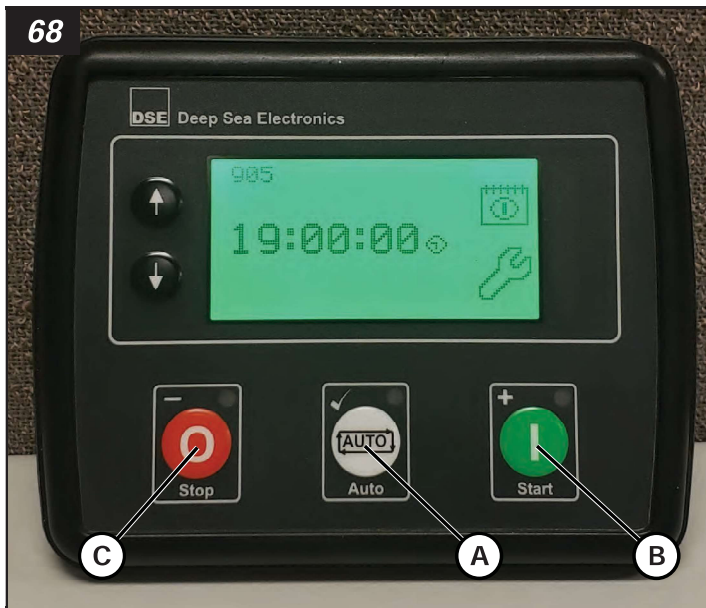


- After auto mode has either been enabled or disabled, navigate to the **Schedule Mode Editor Page (904)** as shown in Figure 67. Press the Auto (✓) Mode push button (A, Figure 67) to edit the on load selection in schedule mode. To enable on load, change the numeric value (B, Figure 67) from zero to one by pressing the Manual/Start (+) Mode push button (C, Figure 67). After on load is enabled in the schedule mode, press the Auto (✓) Mode push button to save the selection.



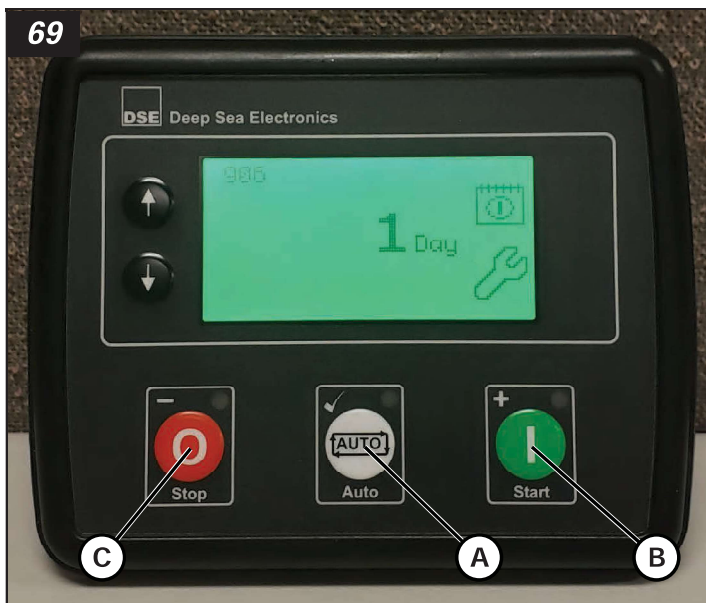
- If auto mode is enabled skip this step. If auto mode is disabled, navigate to the **Start Time Editor Page (905)** as shown in Figure 68. Press the Auto (✓) Mode push button (A, Figure 68) to edit the start time (24:00:00). Then, either press the Manual/Start (+) Mode push button (B, Figure 68) to increase the time of day or press the Stop/Reset (-) Mode push button (C, Figure 68) to decrease the time of day. After setting the start time, press the Auto (✓) Mode push button to save the selection.

Note: Press and hold either the Manual/Start (+) Mode or the Stop/Reset (-) Mode push button change time of day value more quickly. The longer either button held, the increments will change from every minute to every half hour when setting the time.



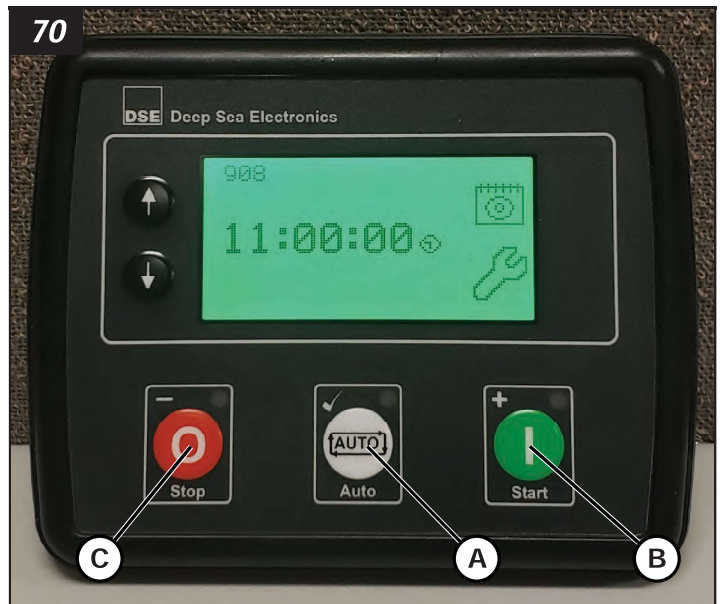
6. Navigate to the **Day Editor Page (906)** as shown in Figure 69. Press the Auto (✓) Mode push button (A, Figure 69) to change the day of week (1-7) in the control module. Then, either press the Manual/Start (+) Mode push button (B, Figure 69) to increase the day of week or press the Stop/Reset (-) Mode push button (C, Figure 69) to decrease the day of week. After setting the day of week in the control module, press the Auto (✓) Mode push button to save the selection.

Note: The day editor page follows the settings in the time parameter pages. The days in the day editor page are numbered as follows: 1-Monday, 2-Tuesday, 3-Wednesday, 4-Thursday, 5-Friday, 6-Saturday, and 7-Sunday.



7. If auto mode is enabled skip this step. If auto mode is disabled, navigate to the **Duration Editor Page (908)** as shown in Figure 70. Press the Auto (✓) Mode push button (A, Figure 70) to change the runtime duration (0:00:00) of the light tower unit. Then, either press the Manual/Start (+) Mode push button (B, Figure 70) to increase the runtime duration or press the Stop/Reset (-) Mode push button (C, Figure 70) to decrease the runtime duration. After setting the desired runtime duration of light tower, press the Auto (✓) Mode push button to save the selection.

Note: Press and hold either the Manual/Start (+) Mode or the Stop/Reset (-) Mode push button change runtime value more quickly. The longer either button held, the increments will change from every minute to every half hour when setting the time.



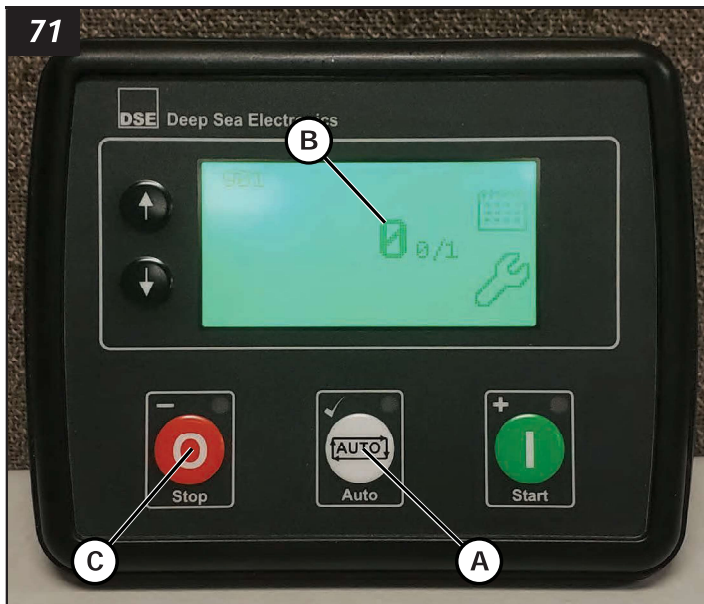
8. There are 16 runtime entries available to schedule. To schedule another light tower runtime, repeat steps 3-7 (and on the 9th scheduled runtime repeat steps 2-7). Schedule the runtime entries as needed for operation. Refer to the **Parameter Settings Editor Page Identification Tables** for the next set of scheduler parameter settings pages and entries.

Note: Days of the week that do not have scheduled runtimes, the light tower will not operate accordingly. The light tower will operate according to the runtime entries that are scheduled.

9. The scheduler parameters are now set up for the light tower to run automatically during the week according to the how the start time and duration scheduler parameter settings and/or how the time parameter settings are set. Press and hold down the Auto (✓) Mode push button to permanently save the changes and exit the scheduler parameter settings editor pages. The screen will return to the homescreen, then press the the Auto (✓) Mode push button to activate auto mode. Refer to **Auto Mode Operation**.

Daily and Weekly Scheduler Parameter Settings (Disable)

1. Navigate to the **Enable Scheduler Editor Page (901)** as shown in Figure 71. Press the Auto (✓) Mode push button (A, Figure 71) to disable the scheduler function. To disable scheduling, change the numeric value (B, Figure 71) from one to zero by pressing the Stop/Reset (-) Mode push button (C, Figure 71). After the scheduler is disabled, press the Auto (✓) Mode push button to save the selection. Press and hold down the Auto (✓) Mode push button to permanently save the changes and exit the scheduler parameter settings editor pages.



Troubleshooting



DANGER



Electrocution Hazard

- High voltage is present when engine is running. Never attempt to service electrical components while engine is running.
- Contact with wires made bare by damaged, cut or worn insulation could result in death or serious injury. Replace damaged wiring before operating unit.

Before trying to do any troubleshooting, read **Safety**.

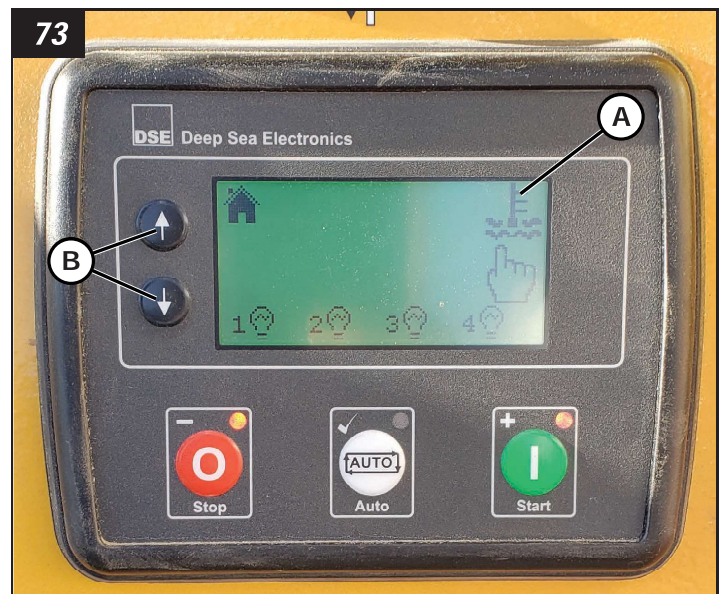
Troubleshooting Chart

Problem	Possible Cause	Remedy
DSE Control Module not operating	Main breaker in control/outlet box not turned on or tripped.	Turn on / reset breaker.
Light(s) not operating	Light breaker(s) in control/outlet box not turned on or tripped.	Turn on / reset breakers.
	Connection between light bar and fixture(s) not secure.	Check and secure connections.
	Too much power being drawn from auxiliary outlets.	Remove load(s) from auxiliary outlets.

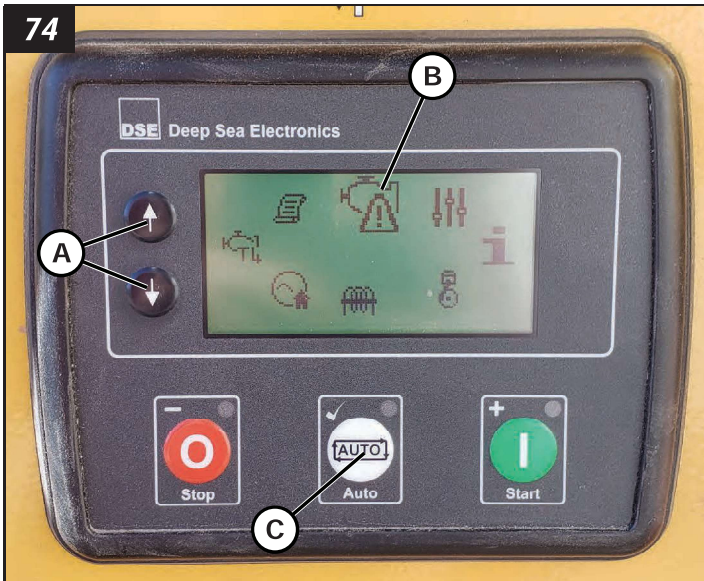
Operation Fault Shutdown

In the event that engine ECU detects an error with the operation of the engine. The ECU will shut down the engine and communicate the error to the controller module.

1. The error will be displayed on the home (run) screen of the controller with an fault icon (A, Figure 73). See **Operation Fault Shutdown Icons** for a table identifying each icon.
2. To see more information on fault shutdown, enter the Navigation Menu on the DSE controller by pressing the up and down push buttons (B, Figure 73) simultaneously.



3. Scroll through the menu icons using the up or down push buttons (A, Figure 74) and select the Engine Diagnostic Trouble Codes section icon (B, Figure 74). Selecting the icon by pressing the Auto (✓) Mode push button (C, Figure 74), the next screen will show the description of the potential engine ECU fault as well as the SPN and FMI fault codes.



- To reset the engine diagnostic trouble code, press the Stop/Reset (-) Mode (A, Figure 75) push button, turn the DSE control module on/off switch (B, Figure 75) to the off position, and fix the engine error. After the engine is repaired, turn the on/off switch to the on position, DSE control module screen should reset for engine operation. For engine maintenance and repair refer to the engine operator's manual, or contact Allmand Parts & Service, or the authorized dealer.



Operation Fault Shutdown Icons

The following table contains the operation fault shutdown icons that may be displayed on the screen, along with the fault description of each icon.

Icon	Fault	Icon	Fault
	Engine Fault		Battery Under/Over Voltage
	Check Engine Unknown Fault		Charge Failure
	Oil Pressure		Generator/Mains Under Voltage
	Engine Coolant Temperature		Generator/Mains Over Voltage
	Over Speed		Generator/Mains Under Frequency
	Under Speed		Generator/Mains Over Frequency
	Fail to Start		CAN Data Fail
	Low Fuel Level		

For all other troubleshooting issues, contact Allmand Parts & Service, or authorized dealer.

