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Sun 13 04:50:30P
Temp 78.7

ReefKeeper *Lite*

Menu ▲ Enter ▼ Back

Status   Standby

Modules
1
2
3
4

ReefKeeper Lite User Guide
Firmware 2.01

Contents

About This Guide

Icon Definitions

⚠ *A exclamation point within an equilateral triangle is intended to alert the user of a cautionary notice to which attention should be given prior to the products usage.*

ⓘ *A lowercase "i" within a circle is intended to alert the user to the presence of important operating information in the literature accompanying the product. This symbol is also used for Notes.*

⚡ *A jagged arrow within an equilateral triangle is intended to alert the user of a hazardous warning that involves the possibility of electrical shock.*

Disclaimers

- As with most electronic devices, contact with water will cause unrepairable damage and is not covered under any warranty.
- The ReefKeeper Lite carries a limited 1 year warranty against manufacturer defect.
- All probes sold by Digital Aquatics have a limited 90 day warranty unless otherwise stated. Some probes may be covered by the manufacture and not Digital Aquatics.

Commonly Used Abbreviations

RKL	ReefKeeper Lite System	**MLC**	Moon Light Controller
GC2	ReefKeeper Lite Head unit	**ALC**	Advanced Light Controller
SID	System Interface Device	**NET**	Network Interface Device
PC4	Power Controller 4	**SW5**	Switch 5
PC1	Power Controller 1	**RD1**	Remote Display 1
SL1	System Lab 1	**APC**	Advanced Pump Controller
SL2	System Lab 2	**AP1**	Advanced Probe 1

Part 1
Getting Started

Chapter 1: Product Overview

What Is Included

Depending on what ReefKeeper Lite (RKL) system package was purchased, the kit will have the following hardware.

| RKL BASIC	RKL PLUS	RKL NET
1 x RKL Head unit	1 x RKL Head unit	1 x RKL Head unit
1 x PC4 Module	2 x PC4 Module	2 x PC4 Module
1 x SID *	1 x SL1 Module	1 x SL1 Module
1 x iTemp Probe	1 x SID *	1 x NET Module
1 x Programming Coupler	1 x iTemp Probe	1 x SID *
4 x Mounting Screws	1 x pH Probe	1 x iTemp Probe
	1 x 3Ft Bus Cable	1 x pH Probe
	1 x 6Ft Bus Cable	1 x 1Ft Bus Cable
	1 x Programming Coupler	1 x 3Ft Bus Cable
	8 x Mounting Screws	1 x 6Ft Bus Cable
		1 x 7Ft Network Cable
		1 x Programming Coupler
		10 x Mounting Screws

* The SID is the device used to update the RKL and any modules via a USB port on a Windows computer The SID is also used for communication with the myReef Application.

ⓘ *At the time of this printing, the Programming Application is only compatible with the Windows operating system. It is not compatible with the Apple OS or Linux OS.*

Head unit

The RKL head unit is the main control unit for the entire system. All settings and configurations are set and stored within it.
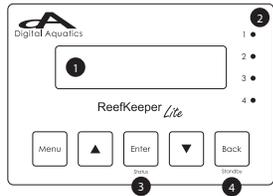
ReefKeeper Lite Head unit

1	ReefKeeper Lite LCD Screen
2	Module Indicator LEDs
3	Dual usage Enter / Status key
4	Dual usage Back / Standby key

iTemp Temperature Probe

The ReefKeeper Lite System has the unique ability to monitor temperature from a probe connected directly to the system bus. The probe consists of a standard temperature probe with an RJ bus connection on one end. This allows the probe to be connected at the end of the bus chain and lets the RKL system monitor temperature without the usage of an SL1. Besides the physical connection of the iTemp probe, iTemp is treated exactly the same as any other input on the system.
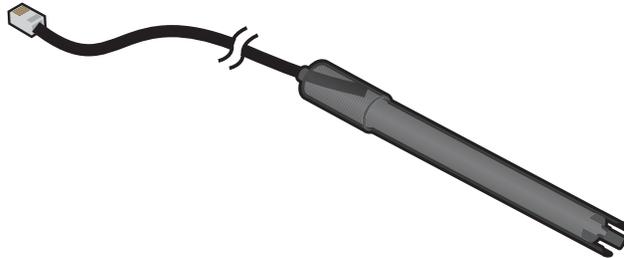
iTemp Temperature Probe

Chapter 2: Installation

Wiring Your System

The ReefKeeper Lite (RKL) is a modular system. All modules are connected together via the bus cables included with the system. There is not a specific order when connecting modules to the system, nor is there a required port order.   Below are connection examples for each one of the RKL system packages. These examples are intended to show a possible connection scheme for your system.
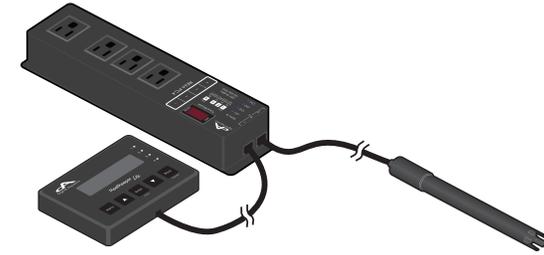
ReefKeeper Lite BASIC: Connection Example
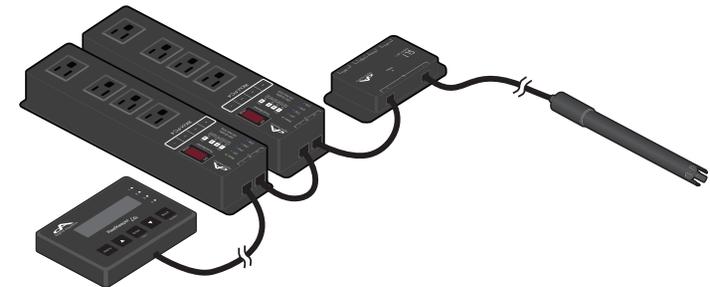
ReefKeeper Lite PLUS: Connection Example
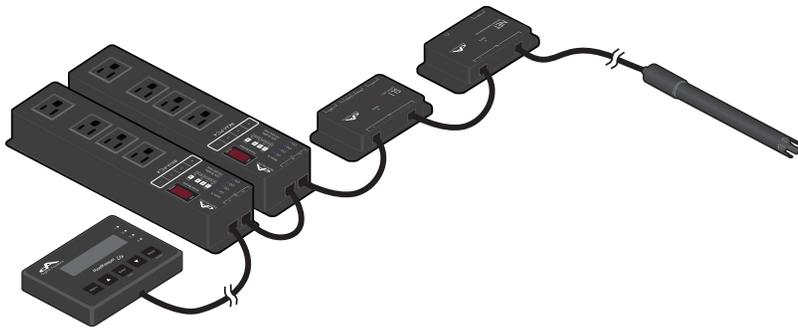
ReefKeeper Lite NET: Connection Example

ⓘ *There is no required order when connecting a ReefKeeper Lite system.*

General Mounting

It is important that electronic equipment never be mounted on the ground or the bottom of a cabinet. All Digital Aquatics modules should be mounted as high as conditions will allow. Also, all bus cables, probe wires, and power cords should use proper drip loops.
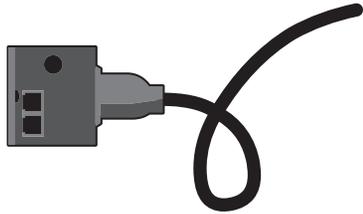
Correct Installation w/ Drip Loop   *Incorrect Installation w/o Drop Loop*

Water damage is not covered by product warranties and is the leading cause of device failure. It is the responsibility of the user to insure safe installation practices are followed.

Mounting the RKL Head unit

Mount the head unit in a location where it can be easily accessed for daily operation. While the face of the head unit is splash resistant, proper ventilation is important.

Mounting the PC4

Mount the PC4 in a well ventilated location. Also, make sure it can be accessed in the event maintenance must be done, such as a firmware upgrade.

⚠ *PC4s should never be mounted on the floor or any other surface where water can pool.*

Mounting the SL1 (Included with the RKL PLUS and RKL NET package)

Mount the SL1 in a well ventilated location; close enough to the tank or sump so that all probe wires can reach their mounting locations. Also, make sure it can be accessed in the event maintenance must be done, such as a firmware upgrade.

Mounting the NET (Included with the RKL NET package)

Mount the NET in a well ventilated location. Please be aware that the module must be within wiring distance of a network connection. Also, make sure it can be accessed in the event maintenance must be done, such as a firmware upgrade.

Bus Cable Routing

It is important to make sure bus cables are routed in a way that will keep them safe. Make sure they cannot get pinched or crimped. Damaging a bus cable can cause system wide failure.

It is also important to keep bus cables clear of lighting ballasts and wiring. Bus cables can pick up electronic noise and in extreme cases this noise can cause interference to the system.

Chapter 3: General Interface

Getting Around

The ReefKeeper system and head unit have been designed to be as intuitive and easy to use as possible. Navigation through the head unit can be accomplished by using the **[UP]** and **[DOWN]** arrow keys. The **[UP]** key is indicated by a triangle pointing upward and the **[DOWN]** key is indicated by a triangle pointing downward. Menus can be entered and exited using the **[ENTER]** and **[BACK]** keys receptively.

Home Screen

The home screen gives you quick and easy access to the most important information in your system.
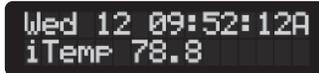
```
Wed 12 09:52:12A
iTemp 78.8
```

Example Home Screen

Date and Time

The Date and Time are displayed in the top half of the display. The date is formatted as the current day of week followed the current day of the month. The time is formatted based on a 12 hour clock using the A (AM) and P (PM) designators.

- Please see page 12 on how to change the current date and time.

Quick Data

Quick Data can display any port (input/output) attached to the system. This allows for quick access to all of your systems parameters without having to navigate through the menus.

ⓘ *A port that has been removed from the system will show up as "error"*

ⓘ *The quick data will always say "None" when powered up as it does not store the sensor that it was previously set to.*

To change quick data

- Press the **[Up]** button to go up through the port list.
- Press the **[Down]** button to go down through the port list.

Standby

Standby is a timer that can be set to turn ON or OFF outputs for a user programmable duration of time. Typically, Standby is used to temporarily turn off pumps for maintenance or feeding. Once the Standby timer has finished counting down, all outputs set to use Standby will automatically resume their normal operation. Each device can individually be set to use standby.

```
Wed 12 09:52:12A
Standby 00:30:00
```

Example screen after Standby has been started

Standby can only be started from the Home Screen. It will appear on the lower line when active. Standby has a factory default setting of 30 minutes.

To set up Standby

- Please see the General menu instructions in Chapter 5.

To set an Output to use Standby

- Please see the output function setup instructions in Chapter 7.

To start Standby

1. When on the Home Screen, Press the **[Back]** / Standby button.

   The lower line will say "Standby".

2. Press the **[Enter]** button to start Standby.

   The time will appear next to "Standby", it will begin to countdown, signaling that Standby is now active. Once the standby time has expired, the system will go back to normal operation and the channels will function based on their programming.

To cancel Standby

- Press the **[Back]** button.

   Standby can be stopped early once activated. Standby and its timer will be removed from the screen. The previous quick data will take its place.

Alarm Notification

When an alarm is set to use a the flash or beep notification, it will appear on the home screen. The alarm will appear on the top line as "AlarmXX", where the XX is the number of the active alarm.

```
Alarm 01
Temp 81.0
```
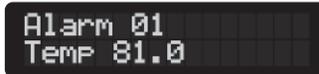
Example Alarm Notification

To stop an alarm's flashing or beeping

▪ When on the Home Screen, Press the **[Back]** button.

To remove the alarm message from the screen

▪ When on the Home Screen, Press the **[Enter]** button.

The alarm condition must be cleared before the alarm message will be removed from the screen. For example, if a temperature alarm of 80 degrees triggers an alarm, the "Alarm" message on the screen will stop displaying if and only if you press **[Enter]** *and the temperature is currently below 80 degrees.*

Part 2
Programming

Chapter 4: Main Menu

Pressing **[Menu]** enters the menu system. The menu system is structured as follows.

▪ General

▪ System

▪ Modules

▪ Timers

▪ Alarms

Pressing the arrow keys will navigate through the menu options listed above. Once the desired item is flashing, press **[Enter]** to make your selection.

Chapter 5: General Menu

The General menu includes the following settings.

- Standby
- Night Mode
- Wave Maker
- Storm Mode

To navigate to the General menu

1 On your ReefKeeper Lite head unit, hit the **[Menu]** key.

2 Press **[Down]** until "General" is flashing and press **[Enter]**.

Standby

The Standby option is a timer that can be triggered from the Home Screen. Outputs can use this timer to turn ON or OFF for various reasons such as feeding or maintenance. Only the minutes and seconds can be set in the Standby timer with a maximum duration of 59 minutes and 59 seconds.

To set Standby

1 From the General Menu with Standby flashing, press **[Enter]**.

The middle time option (Minutes) will be flashing and ranges from 00 to 59.

2 Press the **[Up]** and **[Down]** buttons to change the minutes to the desired value and press the **[Enter]** button to confirm.

The last time option (seconds) will then start flashing and ranges from 00 to 59.

3 Press the **[Up]** button or the **[Down]** button to change the seconds to a desired value and press the **[Enter]** button to confirm.

The screen will change and show "Save".

4 Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Night Mode

The Night Mode option sets a night time period for your system. This feature can be used for the following items:

- The MLC/ALC modules (sold separately) can use the Lunar function to turn on lights during Night Mode.
- The Pump function have options to turn pumps ON or OFF during Night Mode.
- The LCD screen has a brightness option for both Day Mode and Night Mode.

To set Night Mode

1 From the General Menu, press **[Down]** until "Night Mode" is flashing and press **[Enter]**.

The first setting is the Night Mode Start Time. Hours will be flashing.

2 Press the **[Up]** or **[Down]** buttons to change the current values for Hours, Minutes and Seconds. Move from one field to the next by hitting **[Enter]**.

3 After the last field for Night Start is set, press the **[Enter]** button to confirm.

The next setting is the Night Mode End Time. Hours will be flashing.

4 Press the **[Up]** or **[Down]** buttons to change the current values for Hours, Minutes and Seconds. Move from one field to the other by hitting **[Enter]**.

5 After the last field for Night Start is set, press the **[Enter]** button to confirm.

The screen will change and show "Save".

6 Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Wave Maker

The wavemaker setting allows the user to configure two opposing pump cycles, A and B. These settings can be used with the Wave Maker function to generate turbulent flow within your tank. Since these cycles oppose each other, WM A is always ON when WM B is OFF and vice versa.

To set Wave Makers

1 | From the General Menu, press **[Down]** until "Wave Maker" is flashing and press **[Enter]**.

The first setting is the amount of time that Wave Maker A will be ON, shown by "WM A". Hours will be flashing.

2 | Press the **[Up]** or **[Down]** buttons to change the current values for Hours, Minutes and Seconds. Move from one field to the other by hitting **[Enter]**.

Hours range from 0 to 11. Minutes and seconds range from 00 to 59.

3 | After the last field is set, press the **[Enter]** button to confirm.

The next setting is the amount of time Wave Maker B will be ON, shown by "WM B".   Hours will be flashing.

4 | Press the **[Up]** or **[Down]** buttons to change the current values for Hours, Minutes and Seconds. Move from one field to the other by hitting **[Enter]**.

5 | After the last field is set, press the **[Enter]** button to confirm.

The next prompt is for "Random". Selecting "Yes" will vary the On and Off durations between zero and the maximum set. The On and Off durations set in the earlier steps determine the maximum value.

6 | Press the **[Up]** or the **[Down]** buttons to change between "Yes" and "No" and press enter to confirm.

The screen will change and show "Save".

7 | Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Storm Mode

The "Storm Mode" setting is used to create random ON and OFF durations of the devices on the system. For example, if a light is programmed to use storm mode, it will turn ON and OFF at random time intervals. Storm Mode can be used on Lights and Pumps.

To set up Storm mode

1 | From the General Menu, press **[Down]** until "Storm Mode" is flashing and press **[Enter]**.

The first option will be "Day Of Week" and the first "-" will be flashing by default. "Day Of Week" represents the days of the week that you would like Storm Mode to operate and is displayed as a sequence of dashes. Any or all of the days can be selected for Storm Mode.

Example: "S - - W - - S" = Sunday, Wednesday, Saturday "Active

2 | Press the **[Up]** or **[Down]** buttons to select the first day, press **[Enter]** to set and move to the next day. Continue until all days are set and press **[Enter]** to confirm.

The next prompt will be for the "Start" time with the first field (hour) flashing.

3 | Press the **[Up]** or **[Down]** button to set the first field (hour), press **[Enter]** to set and move to the next field.

The next prompt will be for the "On Duration" time with the first field (hour) flashing. This is not a standard time but a total duration that Storm Mode is to be in the ON state.

4 | Press the **[Up]** or **[Down]** button to set the first field (hour), press **[Enter]** to set and move to the next field.

The next prompt will be for the "Off Duration" time with the first field (hour) flashing. This is not a standard time but a total duration that Storm Mode is to be in the OFF state.

5 | Press the **[Up]** or **[Down]** button to set the first field (hour), press **[Enter]** to set and move to the next field.

The next prompt is for "Repeat Count" and specifies the number of on/off cycles that the Storm Mode will repeat. The default state is "00" and indicates that Storm Mode will not repeat. When set to 01 Storm Mode will repeat one time.

6 | Press the **[Up]** or **[Down]** button to set the field, press **[Enter]** to set.

The screen will change and show "Save".

7 | Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Chapter 6: System Menu

The System menu includes the following settings.

- Brightness
- Sound
- Date / Time
- Lock Keys
- Units
- Communication
- Info
- Factory Reset

To navigate to the System menu

1   On your ReefKeeper Lite head unit, hit the **[Menu]** key.

2   Press **[Down]** until "System" is flashing and press **[Enter]**.

Brightness

The Brightness setting determines how bright the LCD screen is for viewing. The LCD can have different brightness levels for Day Mode and for Night Mode. The level will automatically change when the system transitions from day to night and back again.

To set the Brightness level of the screen

1   From the System Menu, press **[Down]** until "Brightness" is flashing and press **[Enter]**.

The first setting is for the level of brightness during Day Mode.

2   Press the **[Up]** or **[Down]** buttons to set the desired level and press the **[Enter]** button to confirm and advance to the next value.

The next setting is for the level of brightness during Night Mode.

3   Press the **[Up]** button or the **[Down]** button to set the desired level and press the **[Enter]** button to confirm.

The screen will change and show "Save".

4   Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Sound

The Sound setting is used to turn on or off the tone associated with a button press. Changing the Sound setting to "OFF" does not affect audible alarms.

To set the Sound option

1   From the System Menu, press **[Down]** until "Sound" is flashing and press **[Enter]**.

2   Press the **[Up]** or **[Down]** buttons to change between "On" and "Off" and press the **[Enter]** button to confirm.

The screen will change and show "Save".

3   Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Date/Time

Date is used to keep track of the day of the week as well as the current lunar cycle for the Lunar function. Time is used to trigger lights on and off as well as timers.

ⓘ   *Time does not automatically update with daylight savings time.*

To set the Date and Time

1   From the System Menu, press **[Down]** until "Date/Time" is flashing and press **[Enter]**.

The first option is to set the system's date. The Year will be flashing and ranges from 2000 to 2099.

2   Press the **[Up]** button or the **[Down]** button to change the year to the desired value and press the **[Enter]** button to confirm and advance to the next value.

The next option is to set the system's month and ranges from Jan to Dec.

3   Press the **[Up]** button or the **[Down]** button to change the current month to a desired value and press **[Enter]** to confirm and advance to the next value.

The next option is to set the system's day and ranges from 1 to the current month's maximum.

4   Press the **[Up]** button or the **[Down]** button to change the current day to a desired value and press **[Enter]** to confirm and advance to the next value.

The next option is to set the system's time. The hour will be flashing and ranges from "1" to "12".

5   Press the **[Up]** button or the **[Down]** button to change the hour to the desired value and press the **[Enter]** button to confirm and advance to the next value.

The next option is to set the minutes and ranges from "1" to "59".

6   Press the **[Up]** button or the **[Down]** button to change the current minutes to a desired value and press **[Enter]** to confirm and advance to the next value.

The next option is to set the seconds and ranges from "1" to "59".

7   Press the **[Up]** button or the **[Down]** button to change the current seconds to a desired value and press **[Enter]** to confirm.

The screen will change and show "Save".

8   Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Lock Keys

The key lock ability allows a system to operate as normal, but will not accept a key press. This feature is intended to be used as a safety measure when kids or guests are present.

(i)   *The unlock button combination is: **[Up]**, **[Down]**, **[Up]**, **[Enter]***

To lock the keys

1   From the System Menu, press **[Down]** until "Lock Keys" is flashing and press **[Enter]**.

2   Press the **[Up]** or **[Down]** buttons to change between "Yes" and "No".

3   Press the **[Enter]** button to confirm.

If "Yes" is selected the system will display the Home Screen with "Locked!" on the bottom line. The "Locked" will disappear and display the Quick Data. At any time if a key is pressed and the display is locked the "Locked" will appear for four seconds. To navigate the system again, use the unlock button code.

To unlock the keys

■   From the Home screen, press **[Up]**, **[Down]**, **[Up]**, **[Enter]**.

Your keys should now be unlocked.

Units

The "Units" setting affects the display of temperature on the system. Temperature can be displayed as either Fahrenheit (F) or Celsius (C).

To set Units

1   From the System Menu, press **[Down]** until "Units" is flashing and press **[Enter]**.

2   Press the **[Up]** button or the **[Down]** button to change between "F" Fahrenheit and "C" Celsius and press the **[Enter]** button to confirm.

The screen will change and show "Save".

3   Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Communication

The communication option allows the user to set whether or not devices other than the head unit can control and alter the system. These options have been added for security purposes and it is highly recommended to leave them off if they are not being actively used.

To set the communication settings

1   From the System Menu, press **[Down]** until "Communication" is flashing and press **[Enter]**.

The first setting is for NET control. Setting this to "Yes" will allow a connected NET module to turn ON and OFF channels through the web interface.

2   Press the **[Up]** or **[Down]** buttons to change between "Yes" and "No".

3   Press the **[Enter]** button to confirm.

The second setting is for myReef control. Setting this to "Yes" will allow the myReef application (connected through the SID) to have full control over your system. This includes the editing and saving of all system settings and parameters.

4   Press the **[Up]** or **[Down]** buttons to change between "Yes" and "No".

5   Press the **[Enter]** button to confirm.

The screen will change and show "Save".

6   *Press the* **[Enter]** *button to save.*

You can go back from a save by pressing **[Back]** *when save is flashing.*

Info

The Info menu shows the current firmware version that has been installed on the ReefKeeper Lite.

To view info

1   From the System Menu, press **[Down]** until "Info" is flashing and press **[Enter]**.

2   Press **[Enter]** or **[Back]** to leave the menu option.

Factory Reset

The Factory Reset option will revert the ReefKeeper Lite back to its default settings.

⚠️   *Factory resetting your head unit will result in the complete loss of all saved user settings. Please take caution as this action cannot be undone.*

To reset the RKL settings

1   From the System Menu, press **[Down]** until "Factory Reset" is flashing and press **[Enter]**.

2   Press the **[Up]** or **[Down]** buttons to change between "Yes" and "No".

3   Press the **[Enter]** button to confirm.

If the Factory Reset was set to "Yes" the screen will display "Reset" on the top line. The bottom line will display a progress bar as the various settings are reset. Once the ReefKeeper Lite has finished resetting its defaults the head unit will automatically restart itself.

Chapter 7: Modules Menu

The Modules menu is the third option in the menu list. This option allows for the viewing and configuring of modules plugged into the ReefKeeper Lite system. It is here that outputs are programmed and probes are calibrated.
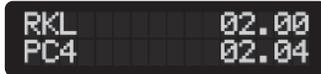
```
RKL          02.00
PC4          02.04
```
Example Modules Menu Screen

To enter the Modules Menu

1 | To get to the Modules Menu press **[Menu]**.

2 | Press the **[Down]** button until "Modules" is flashing and press **[Enter]**.

The menu will now show the list of modules that are currently connected to the ReefKeeper Lite system. The first option in the list is the ReefKeeper Lite itself, which is represented as "RKL". This is where iTemp is accessed and calibrated if needed.

To enter a Module's Port Menu

■ | From the Modules Menu, press the **[Up]** or **[Down]** buttons until the desired module is flashing and press **[Enter]**.

This menu will display a complete list of the Inputs and Outputs for the selected module.

Output Mode

This is the current state of the output and should not be adjusted prior to programming. Once programmed, it will be set to "Auto". Setting the Mode to "On" or "Off" will put the output in that state regardless of the program. An output mode must be placed back into "Auto" to resume the programmed function if the mode is ever changed.

To change an outputs mode

1 | From a Module's Port Menu, while "Mode" is flashing, press **[Enter]**.

2 | Press the **[Up]** button or the **[Down]** button to change between "On", "Off" or "Auto".

3 | Press the **[Enter]** button to confirm.

The screen will change and show "Save".

4 | *Press the* **[Enter]** *button to save.*

You can go back from a save by pressing **[Back]** *when save is flashing.*

Output Function

Functions are used to define how an output should operate. There are 14 different functions that an Output can be programmed with. Below is the complete list and description of these functions. It's important to note that any function can be used in almost any way. If the functions behavior is desired it can be used.

■	On/Off	Standard
■	Heater	**ReadyFit**
■	Fan	**ReadyFit**
■	Chiller	**ReadyFit**
■	Metal Halide	**ReadyFit**
■	Light (Other)	Standard
■	Lunar	Standard
■	Skimmer	**ReadyFit**
■	Wave Maker	Standard
■	Pump (Other)	Standard
■	Controller	Standard
■	Multi-Timer	Standard
■	Advanced Light	Standard
■	Switch	Standard

The ReefKeeper Lite (2.00+) uses the new ReadyFit functions. These are intended to simplify setting up a system for some of the more common functions. All functions have been updated to use the new EasyFlow menu structure where the ReefKeeper Lite will walk you though the configuration options for each function.

On/Off

The On/Off function has a default state of "Off". It can only be affected by alarms, standby and it's mode. This is the most basic function and allows a channel to be always ON or always OFF but still give the option to be controlled by alarms and standby.

To set up the On/Off function

1 From a Module's Port Menu, select "Function" and press **[Enter]**.

2 Press the **[Up]** or **[Down]** buttons to scroll to "On/Off" and press **[Enter]**

The first setting is "Action". The action determines the constant state of the channel. For example, if you want the device to constantly be ON, set the action to "On".

3 Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The next prompt will be for "In Standby" with the options of On/Off/Ignore. This sets the state of the output when you enter Standby mode on the head unit.

4 Press the **[Up]** or **[Down]** buttons to make your selection and press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect.

5 Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

6 *Press the* **[Enter]** *button to save.*

You can go back from a save by pressing **[Back]** *when save is flashing.*

Heater

The Heater function is a ReadyFit function. It allows for quick setup of a heater and requires only a minimal amount of input from the user. If more control is desired, the Controller function can be used.

(i) *This ReadyFit function uses the **iTemp** temp probe that came with your ReefKeeper Lite. When using the Heater Function, this cannot be changed. For increased function options please use the Controller Function.*

To set up the Heater function

1 From a Module's Port Menu, select "Function" and press **[Enter]**.

2 Press the **[Up]** or **[Down]** buttons to scroll to "Heater" and press **[Enter]**

The "Set Point" prompt will be on the screen with 000.0 and the first digit will be flashing.

3 Press the **[Up]** or **[Down]** buttons to set the first digit, press **[Enter]** to set and move to the next digit. Continue until the value is set.

Example: *Input 079.1 for 79.1°*

4 Once the final digit is set press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect. In the case of a heater it is recommended that the default state be set to ON.

5 Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

6 *Press the* **[Enter]** *button to save.*

You can go back from a save by pressing **[Back]** *when save is flashing.*

Fan

The Fan function is a ReadyFit function. It allows for quick setup of a fan or general cooling device and requires only a minimal amount of input from the user. If more control is desired, the Controller function should be used.

ⓘ *This ReadyFit function uses the **iTemp** temp probe that came with your ReefKeeper Lite. When using the Fan Function, this cannot be changed. For increased function options please use the Controller Function.*

To set up the Fan function

1 | From a Module's Port Menu, select "Function" and press **[Enter]**.

2 | Press the **[Up]** or **[Down]** buttons to scroll to "Fan" and press **[Enter]**

The "Set Point" prompt will be on the screen with 000.0 and the first digit will be flashing.

3 | Press the **[Up]** or **[Down]** buttons to set the first digit, press **[Enter]** to set and move to the next digit. Continue until the value is set.

Example: Input 085.0 for 85.1°.

4 | Once the final digit is set press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect.

5 | Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

6 | *Press the* **[Enter]** *button to save.*

*You can go back from a save by pressing **[Back]** when save is flashing.*

Chiller

The Chiller function is a ReadyFit function. It allows for quick setup of a chiller or general cooling device and requires only a minimal amount of input from the user. If more control is desired, the control function can be used.

ⓘ *This ReadyFit function uses the **iTemp** temp probe that came with your ReefKeeper Lite. When using the Chiller Function, this cannot be changed. For increased function options please use the Controller Function.*

To set up the Chiller function

1 | From a Module's Port Menu, select "Function" and press **[Enter]**.

2 | Press the **[Up]** or **[Down]** buttons to scroll to "Chiller" and press **[Enter]**

The "Set Point" prompt will be on the screen with 000.0 and the first digit will be flashing.

3 | Press the **[Up]** or **[Down]** buttons to set the first digit, press **[Enter]** to set and move to the next digit. Continue until the value is set.

Example: Input 079.1 for 79.1°.

4 | Once the final digit is set press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect.

5 | Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

6 | Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Metal Halide

The Metal Halide (MH) function is a ReadyFit function. It allows for quick setup of a metal halide lights and requires only a minimal amount of input from the user. If more control is desired, the Light (Other) function should be used.

The Metal Halide function incorporates another feature that is unique to the function called Sure-on. Sure-on invokes a protection that prohibits the MH bulb from re-firing within a 15 minute window after a power interruption. This insures that the MH bulb does not refire while it is hot.

To set up the Metal Halide function

1 From a Module's Port Menu, select "Function" and press **[Enter]**.

2 Press the **[Up]** or **[Down]** buttons to scroll to "Metal Halide" and press **[Enter]**

The first prompt will be for "On:" time with 00:00:00 and the first field (hour) will be flashing.

3 Press the **[Up]** or **[Down]** buttons to set the first field (hour), press **[Enter]** to set and move to the next block. Note scrolling past 12 noon will toggle the AM indicator to PM. Continue until the on time is set.

Example: 08:30:00AM

4 Once the field is set press **[Enter]** to confirm.

The next prompt will be for "Off:" time with 00:00:00 and the first field (hour) will be flashing.

5 Press the **[Up]** or **[Down]** buttons to set the first field (hour), press **[Enter]** to set and move to the next field. Note scrolling past 12 noon will toggle the AM indicator to PM. Continue until the on time is set.

Example: 05:30:00PM

6 Once the final digit is set press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect.

7 Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

8 Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Light (Other)

This is the general lighting function and allows for a variety of options for T5, PC and other lighting sources. It is quite versatile and can also be used to control Metal Halides if more options are desired.

To set up the Light (Other) function

1 From a Module's Port Menu, select "Function" and press **[Enter]**.

2 Press the **[Up]** or **[Down]** buttons to scroll to "Light (Other)" and press **[Enter]**

The first prompt will be for on time with 00:00:00 and the first field (hour) will be flashing.

3 Press the **[Up]** or **[Down]** buttons to set the first field (hour), press **[Enter]** to set and move to the next field. Note scrolling past 12 noon will toggle the AM indicator to PM. Continue until the on time is set.

Example: 08:30:00AM

4 Once the field is set press **[Enter]** to confirm.

The next prompt will be for off time with 00:00:00 and the first field (hour) will be flashing.

5 Press the **[Up]** or **[Down]** buttons to set the first field (hour), press **[Enter]** to set and move to the next field. Note scrolling past 12 noon will toggle the AM indicator to PM. Continue until the on time is set.

Example: 05:30:00PM

6 Once the final field is set press **[Enter]** to confirm.

The next prompt will be for "In Standby" with the options of On/Off/Ignore. This sets the state of the output when you enter Standby mode on the head unit.

7 Press the **[Up]** or **[Down]** buttons to make your selection and press **[Enter]** to confirm.

The next prompt will be for "Enable SureOn" with the options of Yes/No. This sets the state of the output in the event of a power interruption. SureOn will hold the output OFF for approximately 15 minutes. This is useful when powering Metal Halides as it insures they will cool and refire when power has been restored.

8 | Press the **[Up]** or **[Down]** buttons to make your selection and press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect.

9 | Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

10 | Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Lunar

This function makes setting up the Digital Aquatics lunar pods quick and easy. Moonlight Pods will automatically follow the natural lunar intensity on any given night. It also allows the intensity of the pods to be scaled to fit the application.

(i) *The Lunar function can only be used with the MLC and ALC modules. It must also only be applied to Moonlight ports on those modules.*

To set up the Lunar function

1 | From a Module's Port Menu, select "Function" and press **[Enter]**.

2 | Press the **[Up]** or **[Down]** buttons to scroll to "Lunar" and press **[Enter]**

The "Intensity" prompt will be on the screen with 00 flashing. The POD intensity can be changed to suit the installation. Tanks with more coverage may need to reduce the intensity so to not over power the tank at night. The setting range is from 00%-99%.

3 | Press the **[Up]** or **[Down]** buttons to set the intensity level.

4 | Once the value is set press **[Enter]** to confirm.

The "Ramp" prompt will be on the screen with 00 flashing. The Ramp option can be used to fade in and fade out your lights. It ranges from 0 - 90 and reflects the number of minutes you would like the Ramp to take.

5 | Press the **[Up]** or **[Down]** buttons to set the Ramp duration.

6 | Once the value is set press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect.

7 | Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

8 | Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Skimmer

The Skimmer function is a ReadyFit function. It allows the user to configure such options as "Post SB Delay". "Post SB Delay" is the duration that the skimmer will remain off after the Standby mode has ended. This is quite useful when doing feedings. It will allow the food to go through the complete circulation system without being skimmed out allowing for a second feeding. Once the delay has expired the skimmer will resume operation and remove the uneaten food.

To set up the Skimmer function

1 | From a Module's Port Menu, select "Function" and press **[Enter]**.

2 | Press the **[Up]** or **[Down]** buttons to scroll to "Skimmer" and press **[Enter]**

The first prompt for "In Standby" with the options of On/Off/Ignore will be flashing. This sets the state of the skimmer when you enter Standby mode on the head unit.

3 | Once the field is set, press **[Enter]** to confirm.

The next prompt will be for "Standby Delay" time with 00:00:00 and the first field (hour) will be flashing.

4 Press the **[Up]** or **[Down]** buttons to set the first field (hour), press **[Enter]** to set and move to the next field.

5 Once the value is set press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect.

5 Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

6 Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Wave Maker

The Wave maker function is a ReadyFit function. It allows the user to configure two opposing pump cycles, A and B. These settings can be used with the Wave Maker function to generate turbulent flow within your tank. Since these cycles oppose each other, WM A is always ON when WM B is OFF and vice versa.

To set up the Wave Maker function

1 From a Module's Port Menu, select "Function" and press **[Enter]**.

2 Press the **[Up]** or **[Down]** buttons to scroll to "Wave Maker" and press **[Enter]**

The first prompt will be for "Cycle" with the letter "A" flashing.

3 Press the **[Up]** or **[Down]** buttons to set the output to follow WaveMaker "A" or "B".

4 Once the field is set press **[Enter]** to confirm.

The next prompt will be for "Night Mode" with the default "Off" flashing. It's common to turn off some powerheads at night to allow for a calming affect in the tank.

5 Press the **[Up]** or **[Down]** buttons to set the output to be "On" or "Off" during the programmed Night Mode.

6 Once the field is set press **[Enter]** to confirm.

The next prompt will be for "In Standby" with the options of On/Off/Ignore. This sets the state of the output when you enter Standby mode on the head unit.

7 Press the **[Up]** or **[Down]** buttons to make your selection and press **[Enter]** to confirm.

The next prompt will be for "Standby Delay" time with 00:00:00 and the first field (hour) will be flashing.

8 Press the **[Up]** or **[Down]** buttons to set the first field (hour), press **[Enter]** to set and move to the next field.

9 Once the value is set press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect.

10 Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

11 Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Controller

This is the most dynamic control function for the ReefKeeper Lite. The controller function is used to take an input such as temperature, pH, ORP, salinity and more to cause an output or channel to change it's state. Such as if the pH rises or falls you can turn on or off a reactor pump as needed to stabilize that value. The Controller function also allows for more control over a heater or chiller allowing the user to set the hysteresis. These advanced setting are pre-set in the Heater, Fan and Chiller ReadyFit functions.

To set up the Controller Function using a Probe (ie: Temperature, pH)

1 From a Module's Port Menu, select "Function" and press **[Enter]**.

2 Press the **[Up]** or **[Down]** buttons to scroll to "Controller" and press **[Enter]**

The first prompt will be for "Device" with "None" flashing.

3 Press the **[Up]** or **[Down]** buttons to select the probe or device that will trigger the control function and press **[Enter]** to confirm.

The next prompt will be for "Set Point". Depending on the "Device" selected the value will have different options. For example pH will have a value of 00.00 flashing while iTemp would have 000.0 flashing.

4 Press the **[Up]** or **[Down]** buttons to set the first digit, press **[Enter]** to set and move to the next digit. Continue until the value is set.

5 Once the final field is set press **[Enter]** to confirm.

The next prompt will be for "On When". Options are "Above" or "Below".

When the control function is set to be on "Above" the output will be powered when the device's value is higher than the set point plus the hysteresis.

When the control function is set to be on "Below" the output will be powered when the device's value is lower than the set point plus the hysteresis.

6 Press the **[Up]** or **[Down]** buttons to set this field and press **[Enter]** to confirm.

The next prompt will be for "Hysteresis". This sets the window in which the control function will operate. Please see page XX for a detailed description of Hysteresis.

7 Press the **[Up]** or **[Down]** buttons to set the first digit, press **[Enter]** to set and move to the next digit. Continue until the value is set.

8 Once the final digit is set press **[Enter]** to confirm.

The next prompt will be for "In Standby" with the options of On/Off/Ignore. This sets the state of the output when you enter Standby mode on the head unit

9 Press the **[Up]** or **[Down]** buttons to make your selection and press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect. In the case of a heater it is recommended that the default state be set to ON.

10 Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

11 Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

To set up the Controller Function using a switch input (ie: Float Switch)

1 From a Module's Port Menu, select "Function" and press **[Enter]**.

2 Press the **[Up]** or **[Down]** buttons to scroll to "Controller" and press **[Enter]**

The first prompt will be for "Device" with "None" flashing.

3 Press the **[Up]** or **[Down]** buttons to select the probe or device that will trigger the control function and press **[Enter]** to confirm.

The next prompt will be for "On When". Options are "Open" or "Closed".

When the control function is set to be on "Open" the output will be powered when the device's value is Open.

When the control function is set to be on "Closed" the output will be powered when the device's value is Closed.

4 Press the **[Up]** or **[Down]** buttons to set this field and press **[Enter]** to confirm.

The next prompt will be for "In Standby" with the options of On/Off/Ignore. This sets the state of the output when you enter Standby mode on the head unit

5 Press the **[Up]** or **[Down]** buttons to make your selection and press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect.

5 Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

6 Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

To set up the Controller Function using a channel or other output Device

1 From a Module's Port Menu, select "Function" and press **[Enter]**.

2 Press the **[Up]** or **[Down]** buttons to scroll to "Controller" and press **[Enter]**

The first prompt will be for "Device" with "None" flashing.

3 Press the **[Up]** or **[Down]** buttons to select the probe or device that will trigger the control function and press **[Enter]** to confirm.

The next prompt will be for "On When". Options are "On" or "Off".

When the control function is set to be on "On" the output will be powered when the device's value is ON.

When the control function is set to be on "Off" the output will be powered when the device's value is OFF.

4 Press the **[Up]** or **[Down]** buttons to set this field and press **[Enter]** to confirm.

The next prompt will be for "In Standby" with the options of On/Off/Ignore. This sets the state of the output when you enter Standby mode on the head unit

5 Press the **[Up]** or **[Down]** buttons to make your selection and press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect.

6 Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

7 Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Pump (Other)
Similar to WaveMaker, the Pump (Other) function allows for advance pump setup without linking the pump to the oscillating wavemaker function.

To set up the Pump (Other) function

1 From a Module's Port Menu, select "Function" and press **[Enter]**.

2 Press the **[Up]** or **[Down]** buttons to scroll to "Pump (Other)" and press **[Enter]**

The first prompt will be for "Night Mode" with the default "Off" flashing. It's common to turn off some powerheads at night to allow for a calming affect in the tank

3 Press the **[Up]** or **[Down]** buttons to set the output to be "On" or "Off" during the programmed Night Mode.

4 Once the field is set press **[Enter]** to confirm.

The next prompt will be for "In Standby" with the options of On/Off/Ignore. This sets the state of the output when you enter Standby mode on the head unit.

5 Press the **[Up]** or **[Down]** buttons to make your selection and press **[Enter]** to confirm.

The next prompt will be for "Standby Delay" time with 00:00:00 and the first field (hour) will be flashing.

6 Press the **[Up]** or **[Down]** buttons to set the first field (hour), press **[Enter]** to set and move to the next field.

7 Once the value is set press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect.

8 Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

9 Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Multi-Timer
Multi-Timer allows for the linking of one or two unique timers to an output. This is a very versatile function and can be used for such things as dosing pumps, advanced pump, light functions and more. Please see page 32 for more information about programming Timers.

To set up the Multi-Timer function

1 From a Module's Port Menu, select "Function" and press **[Enter]**.

2 Press the **[Up]** or **[Down]** buttons to scroll to "Multi-Timer" and press **[Enter]**

The first prompt will be for "Timer A" with "00" flashing.

3 Press the **[Up]** or **[Down]** buttons to select the first timer that will trigger the on state and press **[Enter]** to confirm.

The next prompt will be for "Timer B" with "00" flashing.

4 Press the **[Up]** or **[Down]** buttons to select the second timer that will trigger the on state and press **[Enter]** to confirm.

The next prompt will be for "In Standby" with the options of On/Off/Ignore. This sets the state of the output when you enter Standby mode on the head unit.

5 Press the **[Up]** or **[Down]** buttons to make your selection and press **[Enter]** to confirm.

The next prompt will be for "Standby Delay" time with 00:00:00 and the first field (hour) will be flashing.

6 Press the **[Up]** or **[Down]** buttons to set the first field (hour) and press **[Enter]** to set/move to the next field.

7 Once the final field is set press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect.

8 Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

9 Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Advanced Light
The Advanced Light function allows for direct control of the AquaIlluminations LED array as well as 0-10VDC outputs on the ALC module.

The Advanced Light function should be used with the MLC and ALC modules.

To set up the Advanced Light function

1 From a Module's Port Menu, select "Function" and press **[Enter]**.

2 Press the **[Up]** or **[Down]** buttons to scroll to "Advanced Light" and press **[Enter]**.

The first prompt will be for "Ramp" with "00" flashing.

3 Press the **[Up]** or **[Down]** buttons to select the ramp time and press **[Enter]** to confirm.

The next prompt will be for "Color Temp". This only applies to the AquaIlluminations LED fixtures.

4 Press the **[Up]** or **[Down]** buttons to select the color and press **[Enter]** to confirm.

The next prompt will be for "Intensity" prompt will be on the screen with 000 flashing.

5 Press the **[Up]** or **[Down]** buttons to set the intensity level for the fixture and press **[Enter]** to confirm.

The next prompt will be for "Timer".

6 Press the **[Up]** or **[Down]** buttons to select the timer that will determine the on state of the Advanced Light and press **[Enter]** to confirm.

The next prompt will be for "In Standby" with the options of On/Off/Ignore.
This sets the state of the output when you enter Standby mode on the head unit.

7 Press the **[Up]** or **[Down]** buttons to make your selection and press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect.

8 Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

9 Press the **[Enter]** button to save.

You can go back from a save by pressing **[Back]** *when save is flashing.*

Switch

The Switch function takes up to two switch inputs and can be used to control an Auto Top Off (ATO) system or water change system. It allows you to trigger a timer with one switch and use a second switch as a safety cut off.

To set up the Switch function

1 From a Module's Port Menu, select "Function" and press **[Enter]**.

2 Press the **[Up]** or **[Down]** buttons to scroll to "Switch" and press **[Enter]**.

The first prompt will display "On Device" with "None" flashing.

3 Press the **[Up]** or **[Down]** buttons to select the probe or device that will trigger the switch function and press **[Enter]** to confirm.

The next prompt will be for "On When" and is referring to the state of the switch.

4 Press the **[Up]** or **[Down]** buttons to select between the two options "Open" or "Closed" and press **[Enter]** to confirm.

The next prompt will be for "Timer" with 00 flashing

5 Press the **[Up]** or **[Down]** buttons to select the timer that will be activated and press **[Enter]** to confirm.

The next prompt will be for "Off Device". While any device can be picked you should use a switch input for the function to operate correctly.

6 Press the **[Up]** or **[Down]** buttons to select the probe or device that will terminate the switch function and press **[Enter]** to confirm.

The next prompt will be for "Standby Mode". This is the state that the output will take during standby regardless of the state of the function

7 Press the **[Up]** or **[Down]** buttons to select between the options, "On", "Off" or "Ignore" and press **[Enter]** to confirm.

The next prompt is for setting the default state for the output. If the programmed module can no longer communicate with the head unit, the module will set the output to the state chosen in the default setting. For example, if a heater is plugged into channel 1 on a PC4 and it can no longer communicate with the head unit, the default state will take affect.

8 Press the **[Up]** or **[Down]** buttons to choose between the "On" and "Off" options.

The screen will change and show "Save".

9 Press the **[Enter]** button to save.

You can go back from a save by pressing **[Back]** *when save is flashing.*

Output Alarm

Each output can be affected by an alarm. There are two setting for this option; Alarm number and Action. "Alarm" number is set to indicate what Alarm will trigger the change in state, while "Action" sets the Outputs actual state when the Alarm is present. An output can be set to turn "On" or "Off" if the indicated Alarm is present. Please see page 34 on how to program an alarm.

To set up an Alarm

1   Make sure that you have configured the alarm you would like to use correctly. Please see page XX on how to program an alarm.

Once an alarm is programmed it can be used by any output as many times as you would like. For example, if you configure alarm 1 to be triggered once your temperature reaches 81 degrees, you can use the same alarm for both of your Metal Halides on different channels.

2   From a Module's Port Menu, while "Alarm" is flashing, press **[Enter]**.

The prompt will display "Alarm" with "00" flashing.

3   Press the **[Up]** or **[Down]** buttons to select the Alarm number you would like to use and press **[Enter]** to confirm.

The next prompt will display "Action" with the options of On or Off. This sets the state of the output when the Alarm is triggered.

4   Press the **[Up]** or **[Down]** buttons to make your selection and press **[Enter]** to confirm.

The screen will change and show "Save".

5   Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Input Calibration

Many probes used with the RKL system require calibration in order to account for slight variations. Often probes require calibration solution of some kind to complete the process. In most cases it is recommended that the calibration solution is placed in tank water of a known temperature so that you may adjust the calibration settings. This is most commonly recommended for both pH and ORP.

(i) *Temperature probes do not require calibration upon newly opening a system. After time the probe may require calibration if it is believed that the probe has drifted.*

To calibrate a single point probe (Temperature, ORP)

1   Set the target data using the **[Up]** and **[Down]** arrows. This is accomplished by changing each digit in the target and pressing **[Enter]** to move to the next target digit.

2   Once the target data has been set, press **[Enter]** with the last digit in the target value flashing. This will cause the "raw data" to begin flashing.

3   Once the "raw data" value has stabilized, press **[Enter]** to save the calibration.

To calibrate a double point probe (pH)

1   Set the target data using the **[Up]** and **[Down]** arrows to change a digit in the target, and **[Enter]** to move the next target digit.

2   Once the target data has been set, press **[Enter]** with the last digit flashing. This will cause the "raw data" to begin flashing.

3   Once the "raw data" value has stabilized, press **[Enter]** to save that calibration point. The screen will proceed to the second calibration point.

4   Rinse the probe in RO water.

5   Transition the probe to the second packet of calibration solution.

6   Repeat steps 1 through 4 for the second calibration point.

Chapter 8: Timers Menu

The ReefKeeper Lite has 16 timers that can be used. Timers have a number of settings that allow them to be used in powerful ways. Timers are used to run on/off cycles that can be linked to a variety of functions. They can be set to turn on for specific days of the week, have their durations be set to random and have added repeat cycles.

To navigate to the Timers menu

1 On your ReefKeeper Lite head unit, hit the **[Menu]** key.

2 Press **[Down]** until "Timers" is flashing and press **[Enter]**.

To set up a Timer

1 From the Main Menu with Timers flashing, press the **[Enter]** button.

"Timer01" will be flashing.

2 Press the **[Up]** button or the **[Down]** button to scroll to the Timer you wish to set up and press the **[Enter]** button.

The first option will be "Day Of Week" and the first "-" will be flashing by default. "Day Of Week" represents the days of the week that you would like the timer to operate and is displayed as a sequence of dashes. Any or all of the days can be selected for a Timer.

Example: "S - - W - - S" = Sunday, Wednesday, Saturday "Active

3 Press the **[Up]** or **[Down]** buttons to select the first day, press **[Enter]** to set and move to the next day. Continue until all days are set and press **[Enter]** to confirm.

The next prompt will be for the "Start" time with the first field (hour) flashing.

4 Press the **[Up]** or **[Down]** button to set the first field (hour), press **[Enter]** to set and move to the next field.

The next prompt will be for the "On Duration" time with the first field (hour) flashing. This is not a standard time but a total duration that the timer is to be in the ON state. It is set just as a time is, however.

5 Press the **[Up]** or **[Down]** button to set the first field (hour), press **[Enter]** to set and move to the next field.

The next prompt will be for the "Off Duration" time with the first field (hour) flashing. This is not a standard time but a total duration that the timer is to be in the OFF state. It is set just as a time is, however.

6 Press the **[Up]** or **[Down]** button to set the first field (hour), press **[Enter]** to set and move to the next field.

The next prompt is for "Repeat Count" and specifies the number of on/off cycles that the timer will repeat. The default state is "00" and indicates that the timer will not repeat. When set to 01 the timer will repeat one time.

7 Press the **[Up]** or **[Down]** button to set the field, press **[Enter]** to set.

The next prompt is for "Oscillate". If "Yes" is selected, the timer will ignore all settings except for the On duration and the Off duration. It will start as soon as the setting is saved and continue indefinitely.

8 Press the **[Up]** or the **[Down]** buttons to change between "Yes" and "No" and press enter to confirm.

The next prompt is for "Random". Selecting "Yes" will vary the On and Off durations between zero and the maximum set. The On and Off durations set in the earlier steps determine the maximum value.

9 Press the **[Up]** or the **[Down]** buttons to change between "Yes" and "No" and press enter to confirm.

The screen will change and show "Save".

10 Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Chapter 9: Alarms Menu

The ReefKeeper™ Lite has 16 alarms that can be used. Alarms can be tripped by any input or output and linked to any output to trigger a change in state of the channel. To set an alarm, follow the steps below.

To navigate to the Alarms menu

1   On your ReefKeeper Lite head unit, hit the **[Menu]** key.

2   Press **[Down]** until "Alarms" is flashing and press **[Enter]**.

ⓘ   *Setting an Alarm is different than using the Alarm. An Alarm must be configured before it can be linked to an output's alarm option.*

To set an Alarm using a Probe (ie: Temperature, pH)

1   From the Main Menu with Alarms flashing, press the **[Enter]** button.

"Alarm01" will be flashing.

2   Press the **[Up]** button or the **[Down]** button to scroll to the Alarm you wish to set up and press the **[Enter]** button.

The first prompt will be for "Alert" and "---" will be displayed as default. Each one of the "-" marks indicate a different type of alert that can be enabled or disable. Enabling these values will display the letter that represents the type of the alarm. The first "-" is to set the flashing of the screen, the second is to set the unit to beep and the third is to set the NET module to send an e-mail.

3   Press the **[Up]** or **[Down]** buttons to set the first character, press **[Enter]** to set and move to the next option. Continue until all options are set and press **[Enter]** to confirm.

The next option will be Device and "None" will be flashing.

4   Press the **[Up]** button or the **[Down]** button to scroll through the available devices and press the **[Enter]** button when the desired probe is flashing.

The next prompt will be for "Set Point". Depending on the "Device" selected the value will have different options. This value determines the point at which the Alarm will trigger. For example pH will have a value of 00.00 flashing while iTemp would have 000.0 flashing.

5   Press the **[Up]** or **[Down]** buttons to set the first digit, press **[Enter]** to set and move to the next digit. Continue until the value is set.

The next prompt will be for "Trip When". Options are "Above" or "Below".

When the alarm is set to be on "Above" the alarm will be triggered when the device's value is higher than the set point.

When the alarm is set to be on "Below" the alarm will be triggered when the device's value is lower than the set point.

6   Press the **[Up]** button or the **[Down]** button to select the correct value and press **[Enter]** to move to the next step.

The screen will change and show "Save".

7   Press the **[Enter]** button to save.

You can go back from a save by pressing **[Back]** *when save is flashing.*

To set an Alarm using a switch input (ie: Float Switch)

1   From the Main Menu with Alarms flashing, press the **[Enter]** button.

"Alarm01" will be flashing.

2   Press the **[Up]** button or the **[Down]** button to scroll to the Alarm you wish to set up and press the **[Enter]** button.

The first prompt will be for "Alert" and "---" will be displayed as default. Each one of the "-" marks indicate a different type of alert that can be enabled or disable. Enabling these values will display the letter that represents the type of the alarm. The first "-" is to set the flashing of the screen, the second is to set the unit to beep and the third is to set the NET module to send an e-mail.

3   Press the **[Up]** or **[Down]** buttons to set the first character, press **[Enter]** to set and move to the next option. Continue until all options are set and press **[Enter]** to confirm.

The next option will be Device and "None" will be flashing.

4   Press the **[Up]** button or the **[Down]** button to scroll through the available devices and press the **[Enter]** button when the desired probe is flashing.

The next prompt will be for "Trip When". Options are "Open" or "Closed".

When the alarm is set to trip when "Open", the alarm will be triggered when the device's value is Open.

When the alarm is set to trip when "Closed", the alarm will be triggered when the device's value is Closed.

5   Press the **[Up]** button or the **[Down]** button to select the correct value and press **[Enter]** to move to the next step.

The screen will change and show "Save".

6   Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

To set an Alarm using a channel or other output device

1   From the Main Menu with Alarms flashing, press the **[Enter]** button.

"Alarm01" will be flashing.

2   Press the **[Up]** button or the **[Down]** button to scroll to the Alarm you wish to set up and press the **[Enter]** button.

The first prompt will be for "Alert" and "---" will be displayed as default. Each one of the "-" marks indicate a different type of alert that can be enabled or disable. Enabling these values will display the letter that represents the type of the alarm. The first "-" is to set the flashing of the screen, the second is to set the unit to beep and the third is to set the NET module to send an e-mail.

3   Press the **[Up]** or **[Down]** buttons to set the first character, press **[Enter]** to set and move to the next option. Continue until all options are set and press **[Enter]** to confirm.

The next option will be Device and "None" will be flashing.

4   Press the **[Up]** button or the **[Down]** button to scroll through the available devices and press the **[Enter]** button when the desired probe is flashing.

The next prompt will be for "Trip When". Options are "On" or "Off".

When the alarm is set to trip when "On", the alarm will be triggered when the device's value is On.

When the alarm is set to trip when "Off", the alarm will be triggered when the device's value is Off.

5   Press the **[Up]** button or the **[Down]** button to select the correct value and press **[Enter]** to move to the next step.

The screen will change and show "Save".

6   Press the **[Enter]** button to save.

*You can go back from a save by pressing **[Back]** when save is flashing.*

Part 3
Support

Appendix A: Glossary

Channel	Channels are used to describe outputs on various modules in the Reef-Keeper system. For example, the PC4 module has four outlets.
Chiller	A chiller is a device that is placed in an aquarium to lower the temperature of the water.
EasyFlow™	The new EasyFlow™ menu system from Digital Aquatics walks you through the configuration of channels and menu items. Other controllers require you to navigate a complicated maze of menus or learn a programming language to setup the controller.
Fan	A fan is a device that is placed in an aquarium to lower the temperature of the water. This type of cooling is called evaporative cooling.
Function	A channel's function is the behavior programmed to the output and is usually based on a form of input such as time (for lighting,) or a probe such as temperature for a heater or chiller.
Heater	A heater is a device that is placed in an aquarium to raise the temperature of the water.
Humidity	Humidity is the amount of water vapor in the air.
Input	This manual refers to inputs as those ports which are typically monitored and used to control an output. Examples of inputs include probes such as temperature, pH, ORP, and salinity as well as float switches.
Night Mode	Night Mode is a user settable fully integrated timer period where certain system functions are affected such as Lunar PODs, wavemakers, and other affects that are used to simulate the natural environment.
ORP	
Outputs	This manual refers to outputs as those ports which are use to control, drive or power an external device. Examples of outputs include channels, moonlight pod ports and 0-10V ports.
pH	Is a rating of the acidity of substance. A common pH range for a saltwater aquarium is 8.2pH.
Port	A port is any input or output in the system.
Powerhead	A powerhead is a type of pump commonly used to generate flow within the aquarium's main/display tank.

Probe	A device that monitors a parameter such as temperature, pH, ORP and Salinity.
ReadyFit™	ReadyFit™ functions are programs that are pre-setup to make programming your ReefKeeper™ Lite straight forward and fast. These function were designed based on years of customer input and help reduce the time needed to configure your system.
Relative Humidity	Relative humidity is defined as the ratio of the partial pressure of water vapor in a parcel of air to the saturated vapor pressure of water vapor at a prescribed temperature.
Salinity	Salinity is the saltiness or dissolved salt content of a body of water.
Skimmer	Also called a protein skimmer, this device is used to pull excess waist from an aquarium – skimmers only work in saltwater aquariums.
Temperature	Monitored in either Fahrenheit or Celsius.

Appendix B: Function Examples

Controller Function Examples

These examples have been designed to give a brief description of the settings required to generate an intended result using the controller function.

Example Settings for a Heater
This example covers the basic function of turning on a heater when the temperature has reached a low point.

Device	iTemp (any temp probe can be used)
Set Point	78.0
On When	Below
Hysteresis	0.1
	* 0.1 is a the smallest usable hysteresis that can be set for temp and is suggested.

No alarms or standby are needed to operate a heater.

Example Settings for a Fan or Chiller
This example covers the basic function of turning on a chiller when the temperature has reached a high point.

Device	iTemp (any temp probe can be used)
Set Point	78.0
On When	Above
Hysteresis	0.1
	* 0.1 is a the smallest usable hysteresis that can be set for temp and is suggested.

No alarms or standby are needed to operate a fan or chiller.
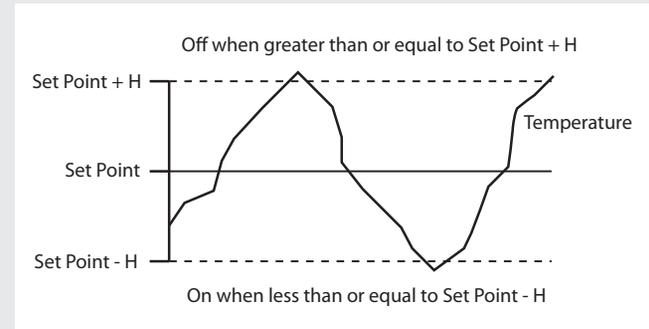
Example Settings for a pH Controller
This example covers raising pH and it should be noted that an SL1 is needed to monitor pH.

Device	pH
Set Point	8.25
On When	Below
Hysteresis	0.05

No alarms or standby are needed to operate a fan or chiller.

Example of Hysteresis
This example shows a temperature graph for a common setup utilizing the controller function to turn on and off a heater.   When using the Controller function for a heater, the function setting for "On When" should be set to "Below". Hysteresis is abbreviated by H.

Off when greater than or equal to Set Point + H

Set Point + H

Temperature

Set Point

Set Point - H

On when less than or equal to Set Point - H

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