

# Power Control Expansion Manual





## Important Safety Instructions

PLEASE READ AND FOLLOW ALL SAFETY INSTRUCTIONS BEFORE PROCEEDING

**DANGER** Discontinue use if any signs of water are present in any electronic/electrical device.

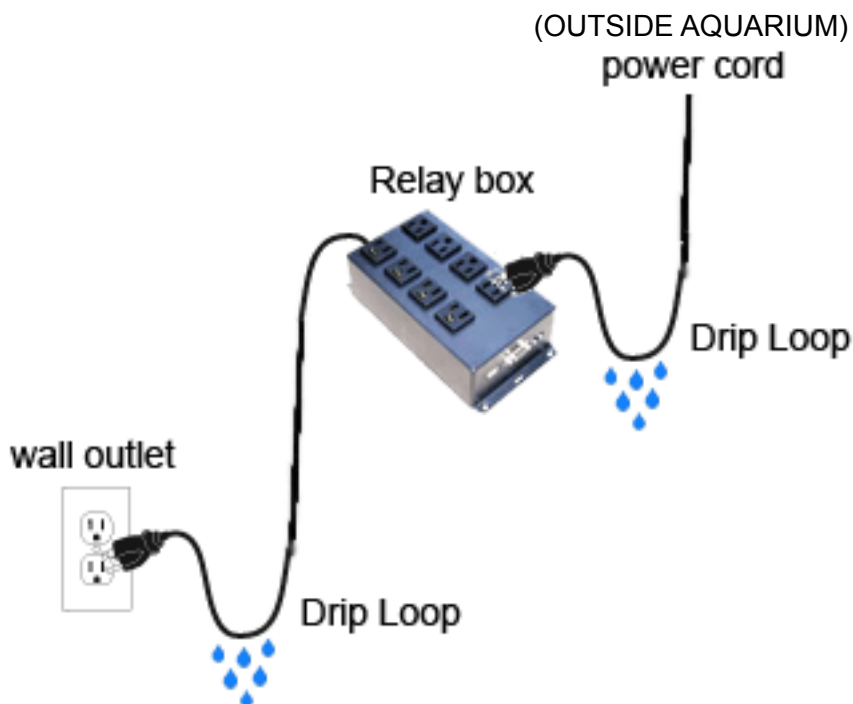
WARNING – To avoid injury to yourself and others, safety precautions should always be observed.

DANGER – Never attempt to service any electronic /electrical equipment before unplugging the device from the outlet. Risk of electrical shock if care is not taken. Special care should always be taken when operating any aquarium equipment. If the plug or receptacle gets wet, NEVER unplug it from the outlet. Always use the fuse or circuit breaker that supplies power to the device. Disconnect it and then examine for water presence.

- If device shows any sign of abnormal appearance, discontinue use.
- Never operate the device if plugs or cords are damaged, torn, ripped or malfunctioning.

NOTE: A “drip loop” should be arranged and position your aquarium stand and tank to the side of the aquarium to avoid the device or power receptacle from getting wet power receptacle. Please refer to Figure 1 below.

Figure 1



## Power Control Expansion Module Unit



### Contents:

- Power Control Expansion Module
- 8x Power Control cables
- 12V DC Power Supply
- Expansion Bus Cable

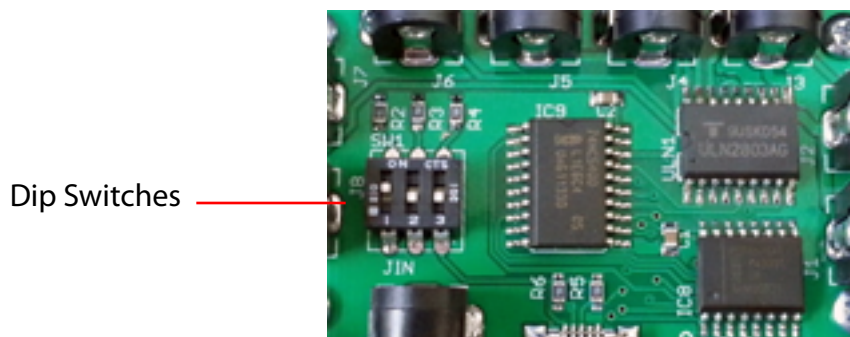
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# Power Control Expansion Module

## Getting Started

### Setting up your Reef Angel Power Control Expansion Module

1. Before you start using your Power Control Expansion Module, you will need to set it up first.
2. Open the enclosure and locate the dip switches.



3. According to the Table 1 below, set the switches so that you have a unique ID for each of your Relay Expansion Modules and Power Control Expansion Modules. Up to 8 Relay and/or Power Control Expansion modules can be simultaneously connected, but each needs to have a unique ID.

ID	DIP Switch 1	DIP Switch 2	DIP Switch 3
1	Off	Off	Off
2	On	Off	Off
3	Off	On	Off
4	On	On	Off
5	Off	Off	On
6	On	Off	On
7	Off	On	On
8	On	On	On

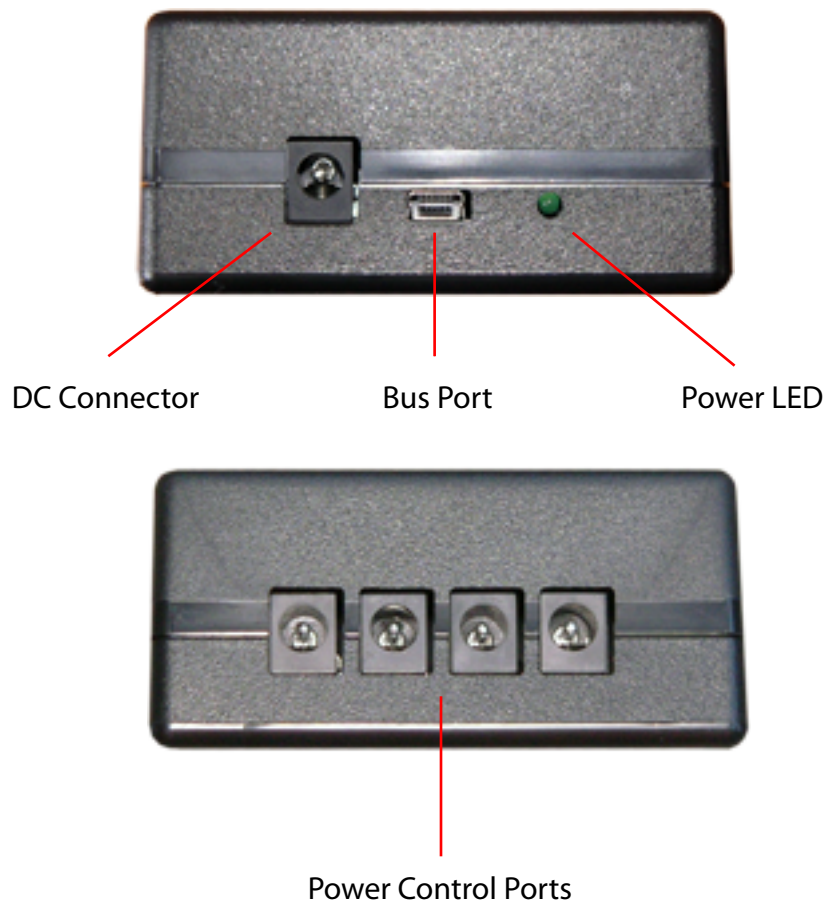
Table 1

4. Close the enclosure.

## Power Control Expansion Module

### Getting Started

Connecting your Reef Angel Power Control Expansion Module

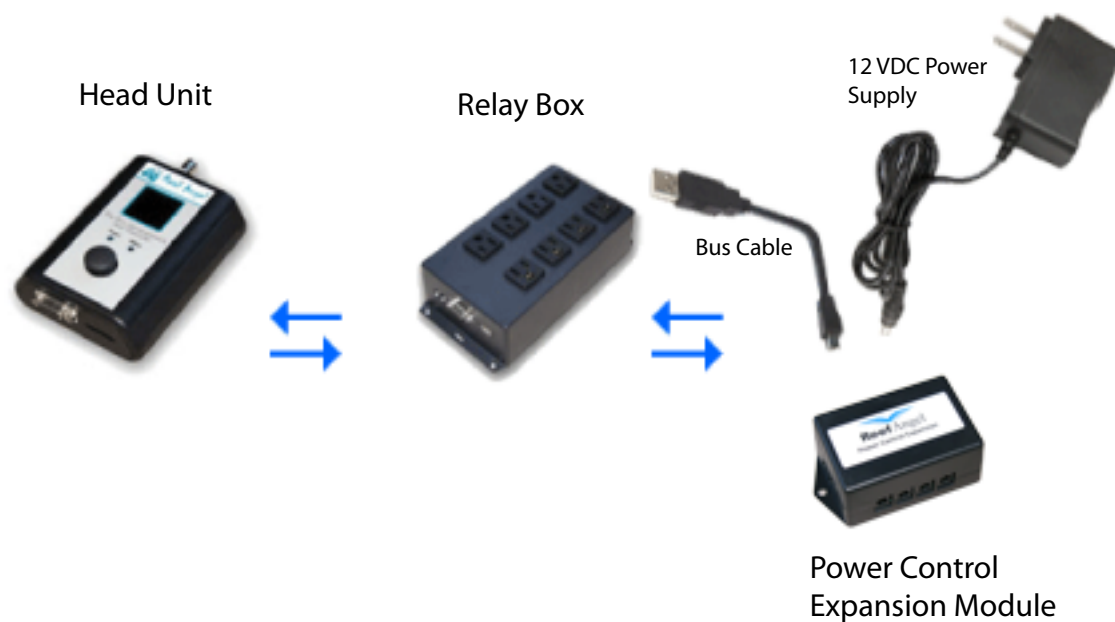


1. 12V DC is required by the Power Control Expansion Module to ensure proper functionality. Use the 12V DC power supply and plug it into the DC connector.
2. Connect one end of the Power Control cable to one of the Power Control Ports and the other end to the device you will be controlling. Please make sure the device you are controlling requires 12VDC voltage.
3. Use the bus cable to connect the Power Control Expansion Module in to the Reef Angel System.

## Adding your Power Control Expansion Module directly on your Reef Angel System

1. Plug the bus cable to the bus port of the Power Control Expansion module.
2. If you are only using one expansion module you can plug the other end of the bus cable straight into the expansion port of the main relay box. Please refer to Figure 3 below.

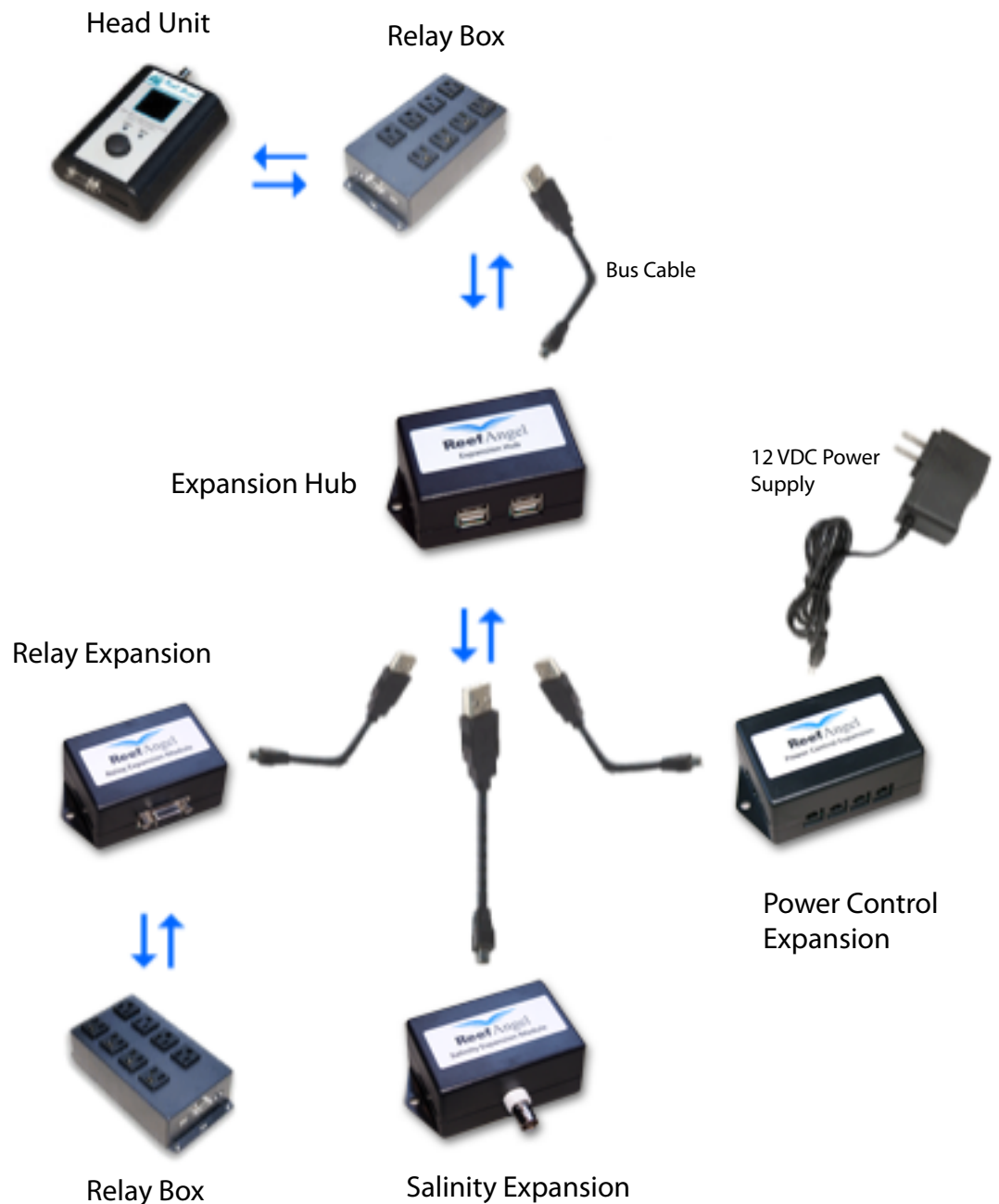
**Figure 3**



## Adding your Power Control Expansion Module with other Reef Angel Devices.

3. If you are connecting more than one expansion module, you will need an expansion hub, which offers 8 additional usb ports to connect more expansion modules. Please refer to Figure 4 below.

Figure 4



## Preparing and uploading the code to the Reef Angel controller.

1. Start your Arduino Software using your computer.
2. Open the Power Control Expansion test code by going to the menu File -> Example Codes and selecting CustomMainScreen\_PowerControlExpansion.
3. Upload the code to your Reef Angel Controller.