Water Level Expansion Manual

V1.0.1

Important Safety Instructions

PLEASE READ AND FOLLOW ALL SAFETY INSTRUCTIONS BEFORE PROCEDING

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

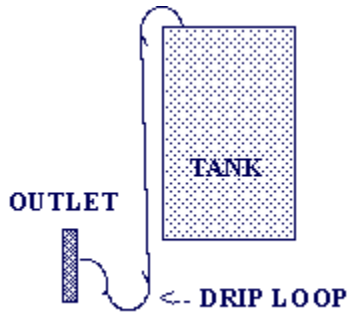


Figure 1

Water Level Expansion Module Unit

Contents:

- Water Level Expansion Module
- 3 feet vinyl tubing ¼”OD
- ½” PVC adapter
- ½” PVC pipe
- Expansion Bus cable

Getting Started

Connecting your Reef Angel Water Level Expansion Module

1. Insert the ½" PVC pipe into the ½" PVC adapter. Make sure it is air tight either by using PVC cement or Teflon tape.

2. Using one end of the vinyl tubing, insert approximately ½" of tubing inside the ¼" orifice of the PVC adapter.

3. Using the other end of the vinyl tubing, insert it into the Water Level Expansion module tubing adapter.

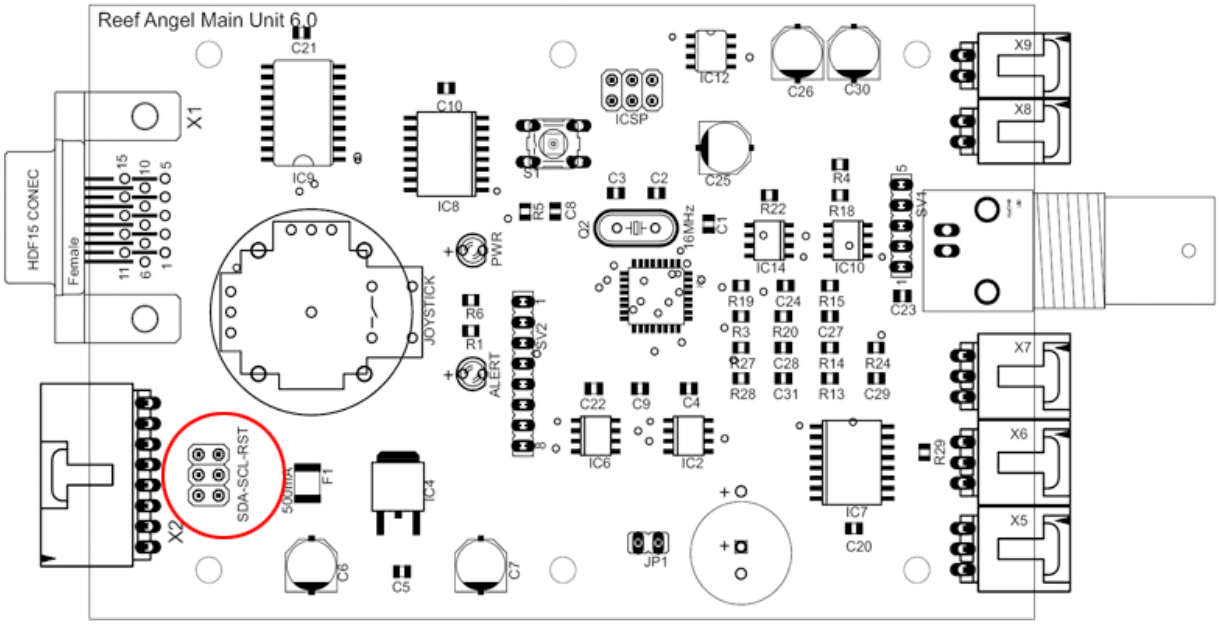
4. Use the expansion bus cable to connect the Water Level Expansion module into your Reef Angel System.

5.

Setting up your Reef Angel Head Unit

1. Your Reef Angel Head unit needs to be setup to be able to communicate with any expansion modules.

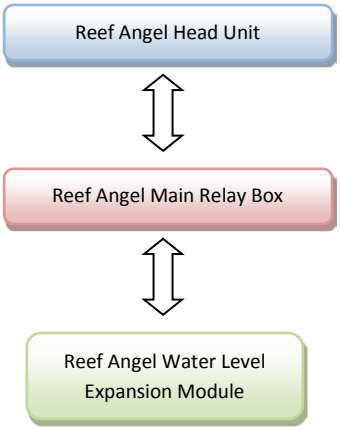
2. You need to place the provided jumpers to the SDA and SCL pins.



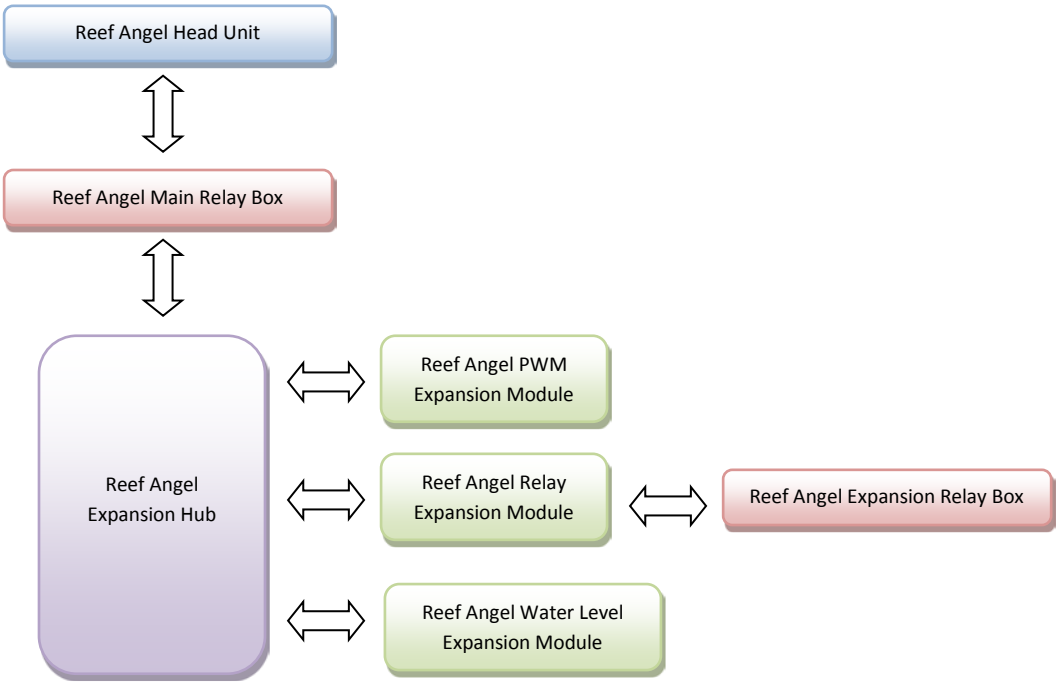
Adding your Water Level Expansion Module to your Reef Angel system

1. Plug the blue bus cable to the bus port of the 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.



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



Calibrating your Reef Angel Water Level Expansion Module

1. Using the joystick, navigate to “Water Level Calibration”.
2. Hold the pvc pipe outside of the water.
3. Let the reading stabilize and press the “Ok” button.
4. Immerse the PVC pipe in water until it reaches the PVC adapter.
5. Let the reading stabilize and press the “Ok” button.

Testing your Reef Angel Water Level Expansion Module

Uploading the test code

1. Start your Arduino software
2. Open the Water Level Expansion test code by going to menu File->Sketchbook->Example Codes and selecting CustomMainScreen_WaterLevel or copy and paste the code below.
3. Upload the code to your Reef Angel Controller.

```
#include <Salinity.h>
#include <ReefAngel_Features.h>
#include <Globals.h>
#include <RA_Wifi.h>
#include <Wire.h>
#include <OneWire.h>
#include <Time.h>
#include <DS1307RTC.h>
#include <InternalEEPROM.h>
#include <RA_NokiaLCD.h>
#include <RA_ATO.h>
#include <RA_Joystick.h>
#include <LED.h>
#include <RA_TempSensor.h>
#include <Relay.h>
#include <RA_PWM.h>
#include <Timer.h>
#include <Memory.h>
#include <InternalEEPROM.h>
#include <RA_Colors.h>
#include <RA_CustomColors.h>
#include <RF.h>
#include <IO.h>
#include <ORP.h>
#include <AI.h>
#include <PH.h>
#include <WaterLevel.h>
#include <ReefAngel.h>
```

```
void DrawCustomMain()
{
  // the graph is drawn/updated when we exit the main menu &
  // when the parameters are saved
  ReefAngel.LCD.DrawDate(6, 122);
  pingSerial();
#if defined DisplayLEDPWM && ! defined RemoveAllLights
  ReefAngel.LCD.DrawMonitor(15, 60, ReefAngel.Params,
  ReefAngel.PWM.GetDaylightValue(), ReefAngel.PWM.GetActinicValue());
#else // defined DisplayLEDPWM && ! defined RemoveAllLights
  ReefAngel.LCD.DrawMonitor(15, 60, ReefAngel.Params);
#endif // defined DisplayLEDPWM && ! defined RemoveAllLights
  pingSerial();
  char text[10];
  ConvertNumToString(text, ReefAngel.WaterLevel.GetLevel(), 1);
  strcat(text,"  ");
  ReefAngel.LCD.DrawText(DefaultFGColor,DefaultBGColor,15,93,"Water Level:");
  ReefAngel.LCD.DrawText(DefaultFGColor,DefaultBGColor,88,93,text);
  pingSerial();
  byte TempRelay = ReefAngel.Relay.RelayData;
  TempRelay &= ReefAngel.Relay.RelayMaskOff;
  TempRelay |= ReefAngel.Relay.RelayMaskOn;
  ReefAngel.LCD.DrawOutletBox(12, 103, TempRelay);
}

void DrawCustomGraph()
{
  ReefAngel.LCD.DrawGraph(5, 5);
}

  /*

  For more information about custom main screen: http://forum.reefangel.com/viewtopic.php?f=14&t=109

  */

void setup()
{
  ReefAngel.Init();  //Initialize controller
}

void loop()
{
  ReefAngel.ShowInterface();
}
```