

# NILE RADAR SERIES

## QUICK START GUIDE

Thank you for purchasing the new WaterLOG Nile radar level sensor! This is the quick start guide; as such it will provide the typical steps to quickly get your Nile Radar sensor returning quality data. For more detailed information regarding the Nile radar sensor visit [www.waterlog.com/nile](http://www.waterlog.com/nile). Please contact us at any time with your comments and feedback about our products and services. We truly value your input.

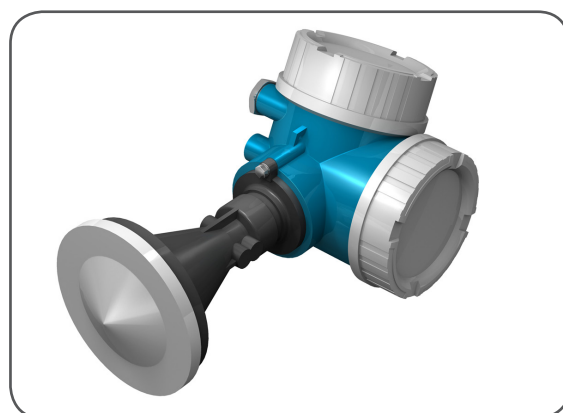
## 1 What's In The Box

Please contact YSI customer service immediately if any expected items listed are not in the box.

Standard Items	Quantity
Nile Radar Sensor	1
Screw Driver (not included with M12 models)	1
Leveling Bubble	1
Quick Start Guide	1

### Optional items:

- LCD Display (PN: Nile KPD)
- 4 conductor shielded cable (PN: H-SDI-CABLE-x)
- 10 conductor shielded cable (PN: 10-CON-CABLE-x)
- Collar clamp mounting bracket (PN: Nile FL)
- Side mounting bracket (PN: Nile MB)

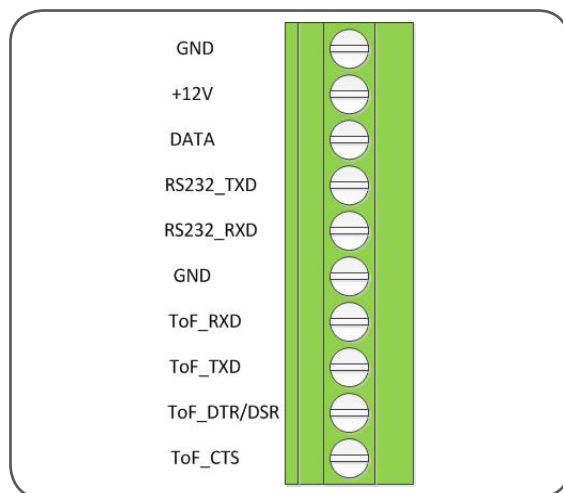


Nile Radar Sensor model 502/504

## 2 Understanding Connections

Below is the wire pinout for the Nile Radar sensor.

Connections	Description
GND	Power Ground Input
+12V	+10V to +16V DC Input
DATA	SDI-12 Data Input
RS232_TXD	RS232 Transmit Output
RS232_RXD	RS232 Receive Input
GND	Digital Ground Input
ToF_RXD	E&H Software Receive Input
ToF_TXD	E&H Software Transmit Output
ToF_DTR/DSR	E&H Software DTR/DSR Input
ToF_CTS	E&H Software CTS Output



Circuit Board Connector for the Nile Radar Sensor

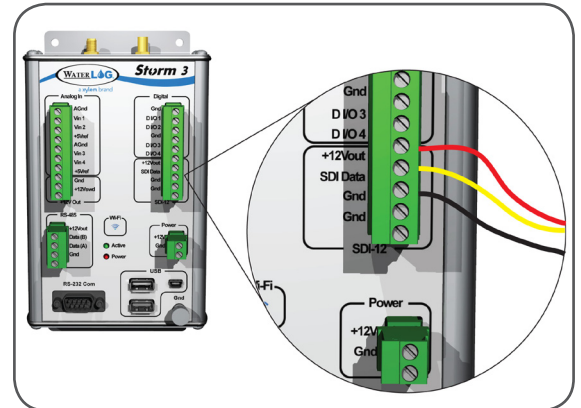
### 3 Connect to SDI-12 Data Logger

**Power Connections:** The Nile radar sensor needs a consistent +10 to 16 Volts DC with at least 25mA current to function properly. Without the proper power source the Nile radar will not perform to required accuracy. Connect the power source to the +12V and GND connections on the circuit board connector.

**SDI-12 Connection:** Connect from the SDI-Data port from the data logger to the Nile DATA circuit board connector. Refer to picture on the right as example on connection to a data logger.

**Quick Tips:**

- When using extended cable lengths up to 200 feet or more take in account voltage loss in the wire.
- When connecting multiple SDI-12 sensors to the data logger connect one at a time and verify the SDI-12 addresses are NOT the same. This will cause sensor conflict resulting in bad or no data.



SDI-12 Connection to Storm 3 Data Logger

### 4 Verify SDI-12 Communication

Using the SDI-12 data logger, send the identify command to verify communication with the Nile radar. The default SDI-12 address is set to '0'. The command and response should look similar to the following.

**Data logger Command:**            **0!**  
**Nile Sensor Response:**        **013 DAA NILE 00AS#001234V030**

### 5 Make a Measurement

Using the SDI-12 data logger, initiate a SDI-12 measurement of the Nile radar sensor. With the default SDI-12 address at '0' the communication should look similar to the following:

**Data logger Command:**            **0M!**  
**Nile Sensor Response:**        **00044**  
**Data logger Command:**            **0D0!**  
**Nile Sensor Response:**        **0-1.234+1.234+12.5**

Final response: 0 = Nile SDI-12 address; -1.234 = Current Stage Level; 1.234 = Distance to the reflected surface; 12.5 = Battery voltage.

## 6 Set Current Stage

The next step is to set the current stage level, use the set current stage command of "aXSCSd.dd" where a = SDI-12 address and d.dd is the current stage level. The SDI-12 communication between the SDI-12 data logger and the Nile radar sensor will look similar to the following:

<b>Data logger Command:</b>	<b>0XSCS10.0</b>
<b>Nile Sensor Response:</b>	<b>00041</b>
<b>Data logger Command:</b>	<b>0D0!</b>
<b>Nile Sensor Response:</b>	<b>0+12.34</b>

Final response: 0 = Nile SDI-12 address; 12.34 = New calculated stage offset

Verify the stage was set by initiating a new measurement, repeat step 5.

## 7 Log and Output the Nile Radar Data

Set up the data logger to automatically measure and record the stage data from the Nile radar. The source or input that will most likely be used if the default settings are not change is SDI-12 address 0 and parameter/value 1 (SDI01).

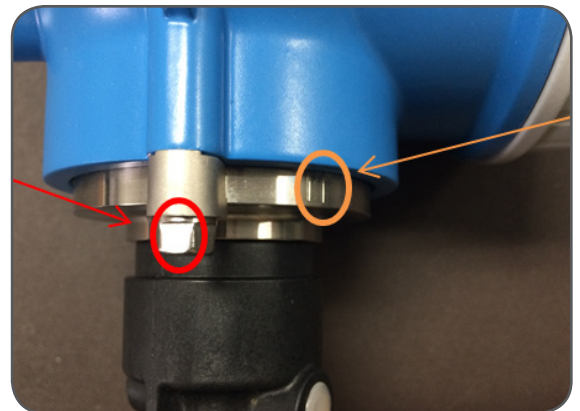
## 8 Install the Nile Radar Sensor

Using the provided leveling bubble ensure that the Nile radar is mounted perpendicular to the surface of the water within +/- 1 degree. Ensure that the Nile radar is mounted to a structure that does not vary in either axis after installation. Typically movement is caused by wind, temperature, and traffic, this movement will affect the accuracy of the data.

### **Beam Mounting Alignment**

The Nile radar beam has an elliptical/parabolic shape type of footprint. To get the best possible data point the Nile radar should be aligned such that the footprint of the beam does not have obstructions on the way to the surface of the water. To do this follow the below steps to optimize your data returned.

1. Locate the two vertical tick marks on the collar at the base of the cone, circled in orange in the image.
2. Align the Nile radar such that the tick marks face away from the mount structure or in some cases toward the greater view of the water surface.
3. Once in place mount such that the Nile will not rotate or move in this axis.
4. If needed, the tick marks can be rotated around the axis by loosening the bolt circled in red in the image and then tighten back down.



Beam Mounting Alignment

## 9 Additional Information: Other SDI-12 Commands

<b>SDI-12 Command</b>	<b>Description</b>
aM1!	NOAA Measurement Type 1
aC1!	NOAA Measurement Type 2
aXRPM!	Read Power Mode, mode 0 = Normal, 1 = Always On
aXWPMd!	Write Power Mode, mode 0 = Normal, 1 = Always On
aXRPM!	Com Port Mode, mode 0 = Normal, 1 = Auto Print, 2 = Wake and Print
aXWCMd!	Com Port Mode, mode 0 = Normal, 1 = Auto Print, 2 = Wake and Print



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