User Guide

1. Introduction

Thank you for purchasing Alignarray. This system is the most advanced laser / inclinometer tool we have ever produced. This device now simply known, as "Alignarray" is the third in a series of tools used to properly install and sight today's line-array speaker systems. The unit mounts either on a speaker enclosure or fly-ware of nearly any speaker system using optional adapter plates.

Alignarray is powered over Ethernet (POE) and now uses a web interface to read inclinometer values, turn on and off the laser, and perform a number of management functions. Options now include a laser blink functions for better viewing, a time out function to conserve laser life and the unit is now accessible on a web browser via user defined IP addresses. Units can now be mounted in any orientation giving users more mounting flexibility.

Our optional reader extends user flexibility which allows reading Alignarray in a non network mode.

Table of Contents

2. Mounting

The unit can be mounted in any orientation. For better accuracy, we suggest that you mount the device in the same orientation throughout your arrays. Sound Services offers specific mounts for many speaker arrays as well as universal designs, which can be mounted on nearly any array. Please contact us for the best option.

The end user is responsible for safe use of this product. Always use a wire safety when mounting this device to any array.

3. Basic Operation / Main Page

Plug the device into a POE switch or injector (see Section 5 for approved devices and wire specifications).

The device LED will blink indicating that it has power and is booting up.

All units are shipped with the IP address: 192.168.1.100

The units are accessed using a web browser. Safari, Firefox and Chrome have been tested and function properly. Please note that “Internet Explorer” has a compatibility issue and will not display angle data properly.

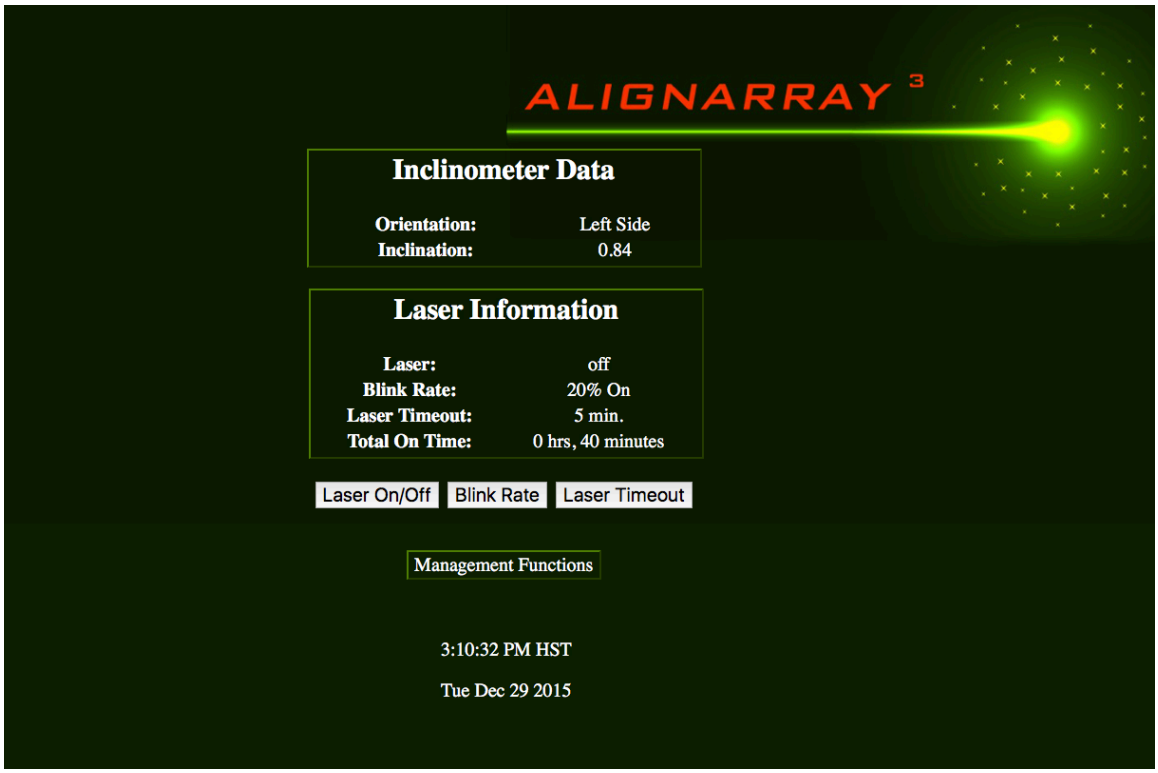
The units can be accessed via Computer, Tablet and Smartphone. Set your network adapter in the following range:

IP Address: 192.168.1.xxx

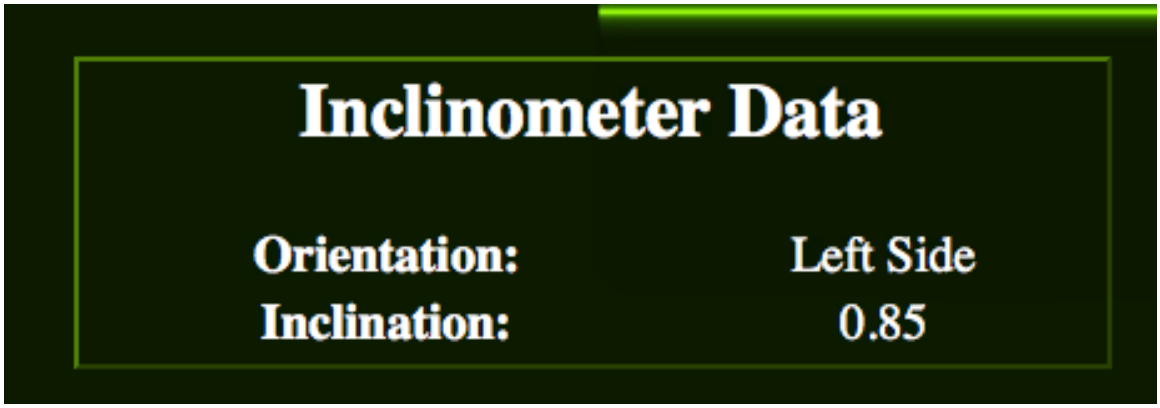
Subnet Mask: 255.255.255.0

Your unit will now be accessible by typing in the unit IP address: 192.168.1.100

Your browser will now display the Alignarray Main Page as shown below.



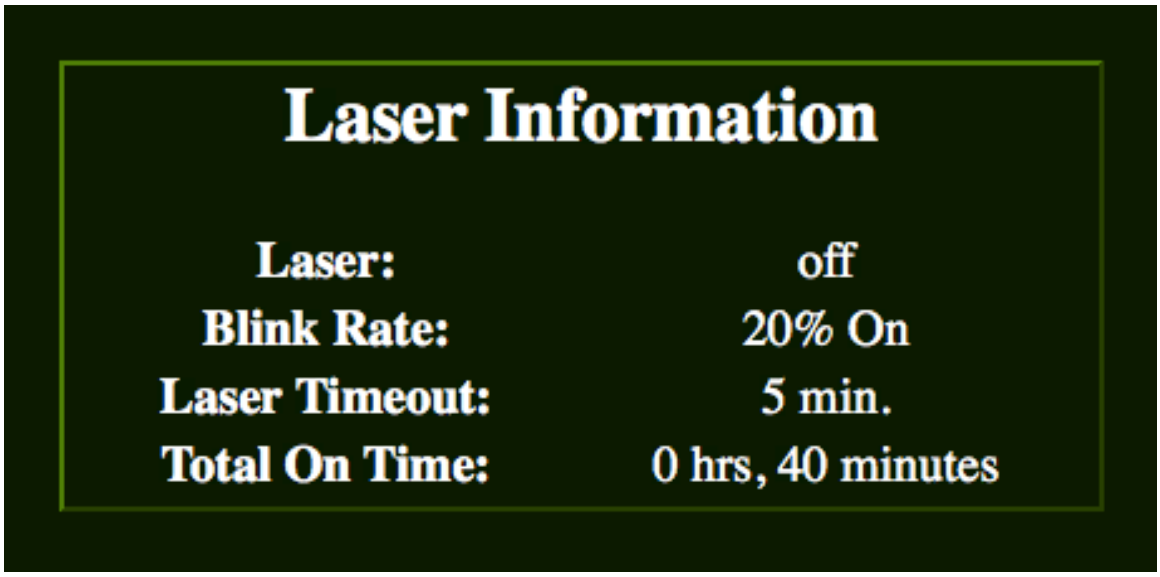
Inclinometer data:



Orientation is Left Side, Right Side, Top and Bottom.

Inclination Data is indicated to the hundredth of one degree as up angle while minus provides down angle of the unit.

Laser Information:



Laser: On / Off

Blink Rate: Always On / 20% / 50%

Laser Timeout: 3 min / 5 min / 15 min

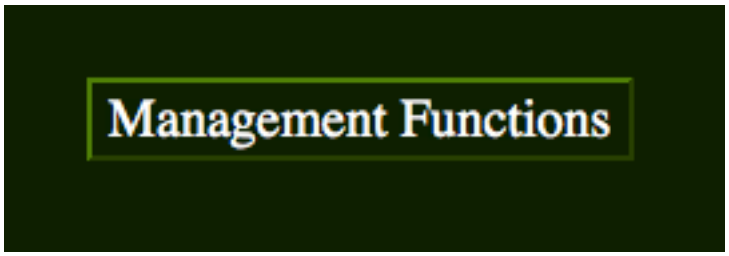
Total On Time of the Unit

Switches toggle each function

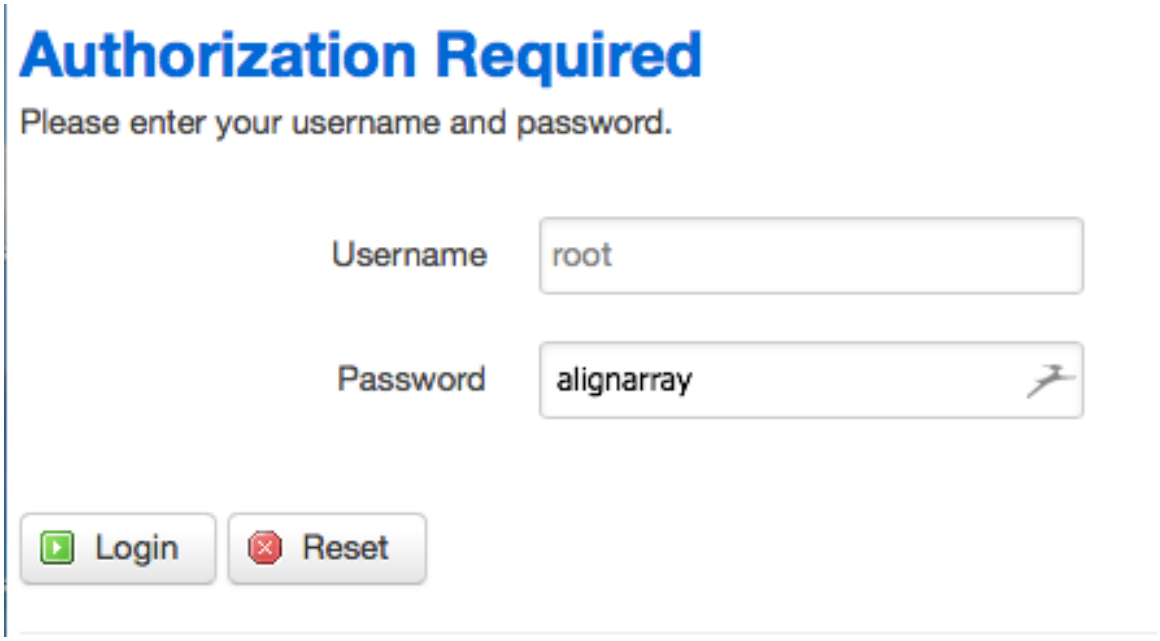
Device Soft Switches

Laser Switch: Once the unit is powered up and fully booted, depressing this switch for 1 second will turn the laser on or off with a default blink rate of 20% and a timeout in 5 minutes

Reset: Hold this button for 15 seconds until the LED is solid, this resets the device to factory settings and restores the original IP address to the default 192.168.1.100.

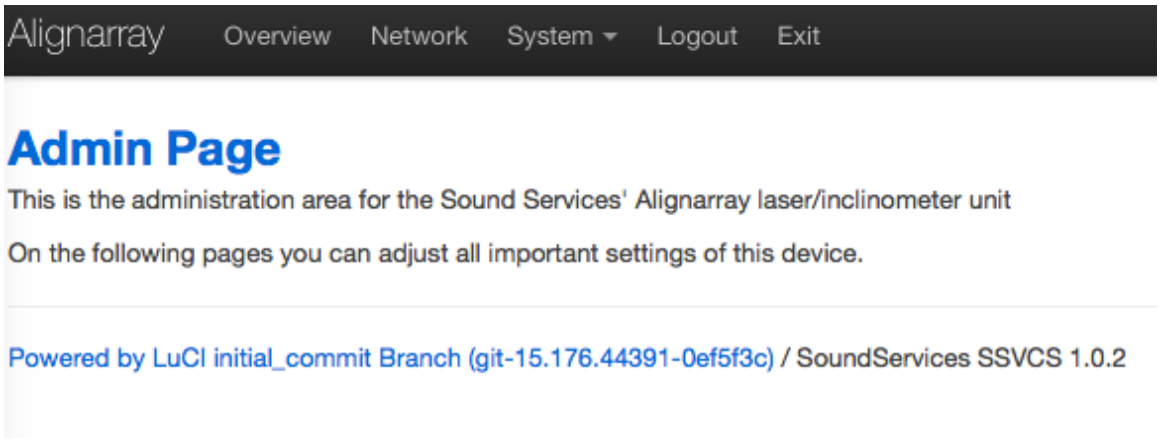


Clicking the Management Functions provides access to the administrative pages of Alignarray. The default login is as follows:



Admin / Overview Page

The Admin Page has a set of menu items across the top header. This is the “Overview” page. From here, all other management functions can be selected from the menu bar across the top. “Network” brings up the network management page. “System” is a dropdown menu with “General,” “Calibration,” “Admin Password,” “Flash Firmware,” and “Reboot” options. “Logout” logs the user out, and returns them to the login menu. “Exit” returns the user to the main page. The text “SoundServices SSVCS 1.0.4” indicates the firmware version.

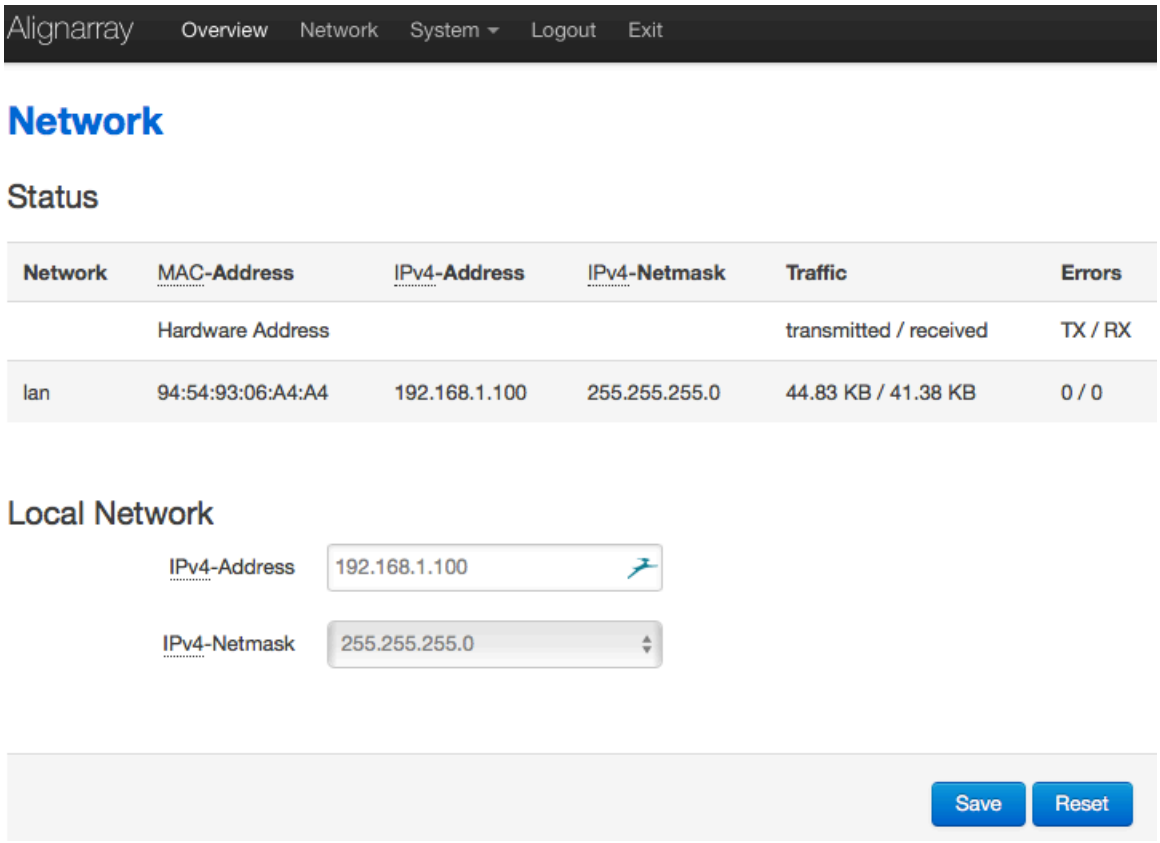


Network Page

The first section of the network page is a table listing the network status.

The next section lets the user change the IP address and net mask. This is necessary when more than one Alignarray device is placed on the same network, or if there is another system on the network with the Alignarray's default address.

Pressing the "save" button will store the new value into the Align Array device and redirect you to the new address in a new tab. On some browsers the redirect can take up to 30 seconds while the command only takes 10 seconds to complete.



System Page - General

The system page is accessed from the “System->General” drop down. It contains basic system information and lets the user configure the host name and the time zone. The Hostname can be used to identify which Alignarray is connected.

System Page – Calibration

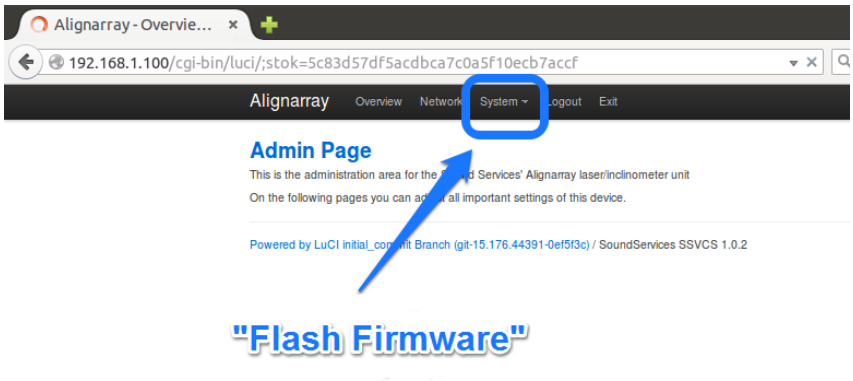
Should calibration become necessary, please contact Sound Services.

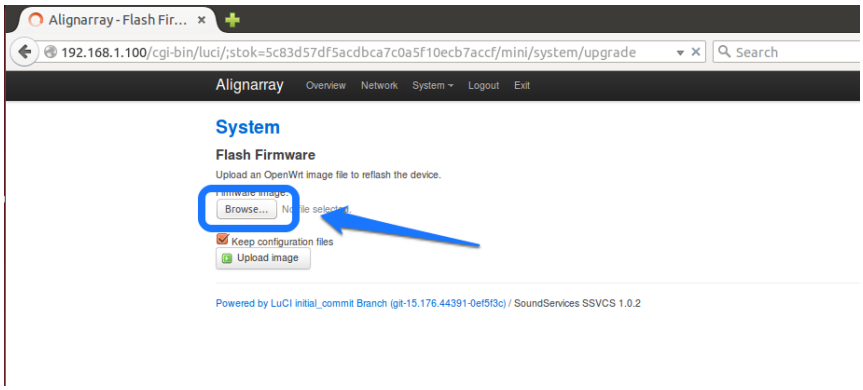
Admin Password

If you desire to change your password select this option, type in a new password into the Password and the Confirmation fields and click on submit. If you lose your new password, resetting the device will restore the default password.

Flash Firmware

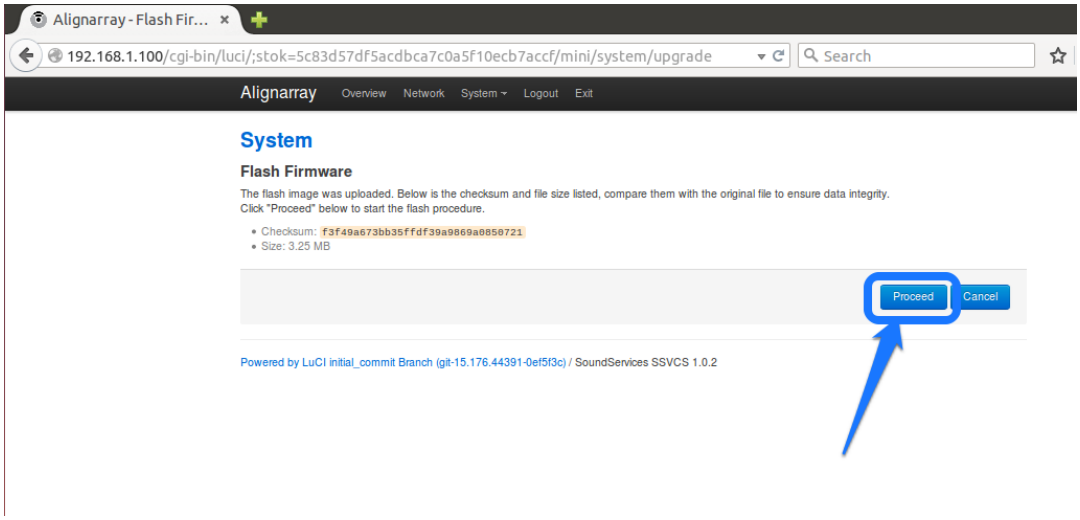
Should a firmware update become necessary, click “Flash Firmware” from the list. Click “Browse” and navigate to the location of the firmware file.



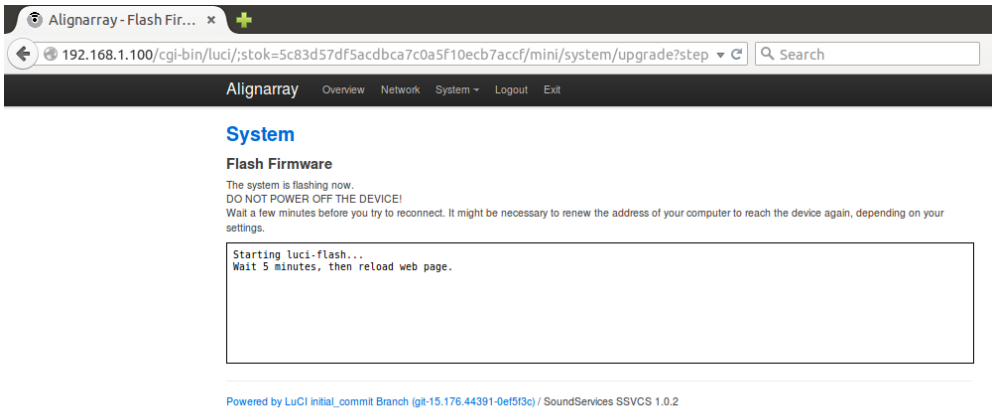


After choosing the file, double-check that it was selected and click “Upload Image” (Keep the “Keep Configuration Files” checkbox checked).

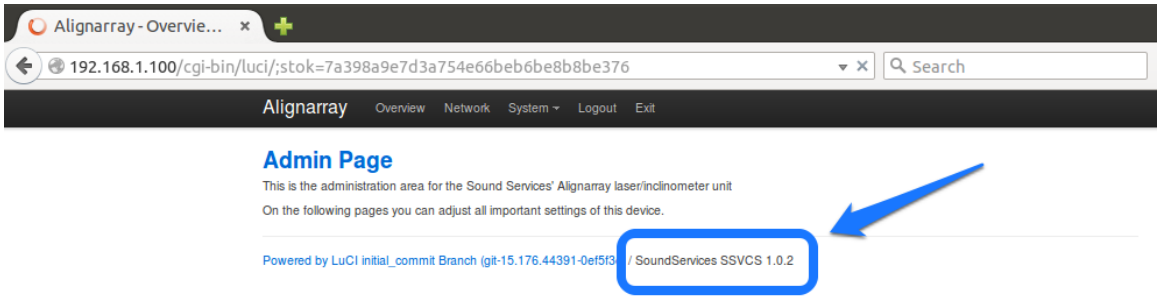
A screen will appear verifying the Checksum and the file size. Click “Proceed” after verifying file integrity.



Finally, a screen will show the instructions. DO NOT POWER OFF THE DEVICE while the device is updating.



After about 3-5 minutes, the device can be accessed via the IP address. To confirm the firmware version, access the “Management Features” and check the footer of the web page.



6. Alignarray Reader III

Basic Operation

The reader can be powered by either 6 AA batteries or using an approved AC adapter. Connect the reader to a laser using an ethernet connector. Power the system using the switch on the top of the unit. The system will boot with a red display, the display will turn green when connected and is ready for use.

Display

Line one of the display defaults as “Alignarray”. This can be customized in the management functions

Line two displays laser device orientation, inclination, laser on / off and blink.

Device Soft Switches

Laser Switch: Once the unit is powered up and fully booted, depressing this switch will turn the laser on / off.

Option Switch: Toggles between laser on steady and laser blink.

IP Address:

Please note that this device will only read the Alignarray default address of 192.168.1.100

6. Specifications

Wire

Shielded Cat 5 up to 100 meters

Power over Ethernet Devices (POE)

The following devices have been tested and are approved for use with Alignarray

TRENDnet TPE-S44

TP-Link TL-SF1008P

Ubiquiti POE 50-60W Power over Ethernet Injector

Alignarray Device Specifications

Alignarray Hardware Specifications and Description

12/1/2015

Ethernet / PoE

The Ethernet port on the Alignarray module is 10/100 Base-T Compliant for data communication. The device is also powered over Ethernet using a standard PoE IEEE 802.3af compliant configuration. The expanded 1000 Base T pins have been connected to the PoE supply in supplement to the standard data pins to allow operation from both standard PoE wiring configurations.

Ethernet Pinout

Pin	Name	Description	PoE
1	TX+	TX Data +	V1 +
2	TX-	TX Data -	V1 +
3	RX+	RX Data +	V1 -
4	BI2_CM	Not Used Data, PoE Common 2+	V2 +
5	BI2_CM	Not Used Data, PoE Common 2+	V2 +
6	RX-	RX Data -	V1 -
7	BI3_CM	Not Used Data, PoE Common 2-	V2 -
8	BI3_CM	Not Used Data, PoE Common 2-	V2 -

Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Units
Input Supply Voltage	V_{IN}	36	48	57	V
Under Voltage Lockout	V_{lock}	30		36	V
Operating Temperature	T_{OP}	-20	25	60	°C
Storage Temperature	T_S	-40		80	°C
Angular Sense Accuracy	S_A	0.1			°

Laser Optical Characteristics

Parameter	Nom. Value	Units	Test Conditions
Wavelength	520	nm	T_C = 25°C
Output Power	<= 5.0	mW	T_C = 25°C
Beam Diameter	< 12	mm	@100ft, T_C = 25°C
	< 25	mm	@200ft, T_C = 25°C
Divergence	0.20	mrad	T_C = 25°C
Bore Sighting	0.30	mrad	

6. *Product Warranty*

ALIGNARRAY

Sound Service, LLC
Limited Warranty

Length of nontransferable warranty:

This warranty on your Sound Services, LLC product known as "Alignarray," remains in effect for 90 days from the original date of purchase.

What is Covered:

Except as specified below, this warranty covers all defects in materials and workmanship in these products during the warranty period.

What is Not Covered:

Any product that has been opened, tampered with, modified, accidentally damaged, act of nature damage, water damage, misuse, neglect or failure to follow instructions supplied with this product.

Repair, attempted repair, or attempted calibration by anyone not authorized by Sound Services, LLC will void this warranty.

What we will pay for:

If during the applicable warranty period from the date of the original purchase, your product is found to be defective, Sound Services, LLC will repair or at its option replace with new, used or equivalent model, such defective product without charge for parts and labor.

How to Obtain a Warranty Repair:

If your unit needs service, return the item to Sound Services, LLC or your authorized dealer. The following procedures apply whenever your unit needs to be transported for warranty repair:

1. You are responsible for shipping your product to us for repair.
2. You must pay for the initial shipping, if your product repair is covered under warranty, we will pay for the return shipping.
3. When returning your unit for warranty service, a copy of the original invoice must be included.
4. Please include the following information with your return. Your company name, company contact, daytime telephone contact, item returned and serial number, a description of the problem.

THIS WARRANTY IS EXPRESSLY MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

OUR LIABILITY IS LIMITED TO THE REPAIR OR REPLACEMENT, AT OUR OPTION OF ANY DEFECTIVE PRODUCT AND SHALL IN NO EVENT INCLUDE INCIDENTAL OR CONSEQUENTIAL COMMERCIAL OR PROPERTY DAMAGES OF ANY KIND. WE ARE NOT RESPONSIBLE FOR PRODUCTS LOST, STOLEN AND/OR DAMAGED DURING SHIPPING.

SOME STATES / COUNTRY / TERRITORY DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS AND/OR DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY.

This warranty gives you specific legal rights, but you may also have other rights, which vary from state to state, Country or Territory. This warranty may not be altered other than in writing signed by an officer of Sound Services, LLC.

6. FCC – CE Compliance

FCC CFR 47 Part 15 Subpart B Class A and
ICES-003 Class A
Information Technology Equipment Electromagnetic Interference Test Report

Rigado, LLC

Align Array

January 29, 2016

Tests Conducted by:

ElectroMagnetic Investigations, LLC

20811 NW Cornell Road, Suite 600, Hillsboro, Oregon 97124, USA
Tele (503) 466-1160 Fax (503) 466-1170 **support@emicomply.com**

Test Summary Information

Report Number: **RIG20160118**
Issue Date: **January 29, 2016**
Test Item: **Align Array**
Serial Number: **None**
Power Supply: **Internal**

Emissions:

Result	Product Standard	Test Standard	Description
Pass	FCC Part 15 Class A, CISPR 22: 2008 Class A	CISPR 22:2008 Class A, ICES-003 Class A	Radiated Emissions
Pass	FCC Part 15 Class A, CISPR 22: 2008 Class A	CISPR 22:2008 Class A, ICES-003 Class A	Conducted Emissions

DECLARATION OF CONFORMITY

CTS (NINGBO) TESTING SERVICE TECHNOLOGY
OPERATE ACCORDING TO ISO/IEC 17025

EC DECLARATION OF CONFORMITY

EU - ELECTROMAGNETIC COMPATIBILITY DIRECTIVE -

This declares that the following designated product

Align Array
Model No.: Align Array 3
(Product identification)

Complies with the essential protection requirements of the European Parliament and of the Council Directive 2014/30/EU on the approximation of the laws of the Member States relating to electromagnetic compatibility.
This declaration applies to all specimens manufactured in accordance with the attached manufacturing drawings which form part of this declaration.
Assessment of compliance of the product with the requirements relating to electromagnetic compatibility was based on the following standards:

EN 55032:2015
EN 61000-3-2: 2014, EN 61000-3-3: 2013
EN 55024:2010+A1:2015
(Identification of regulations / standards)
This declaration is the responsibility of the Applicant / importer

Rigado, LLC
3950 Fairview Industrial Dr SE, Suite 100, Salem, OR 97302, USA
(Name / Address)

CE

THIS DOC IS ONLY VALID IN CONNECTION WITH TEST REPORT NUMBER: CGZ3160617-00960-E

MANUFACTURER / IMPORTER

(Date)

(Surname, forename)

(Company stamp)

TEST LABORATORY

This is the result of test, that was carried out from the submitted type-samples of a product in conformity with the specification of the respective standards.
The declaration holder has the right to fix the CE-mark for EMC on the product complying with the inspection sample

27 June 2016
(Date)

(Company stamp)

CTS (Ningbo) Testing Service Technology Co., Ltd.
NB test site:2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang,China
GZ test site: A101, No.65, Zhuji Road, Tianhe District, Guangzhou, Guangdong, China.