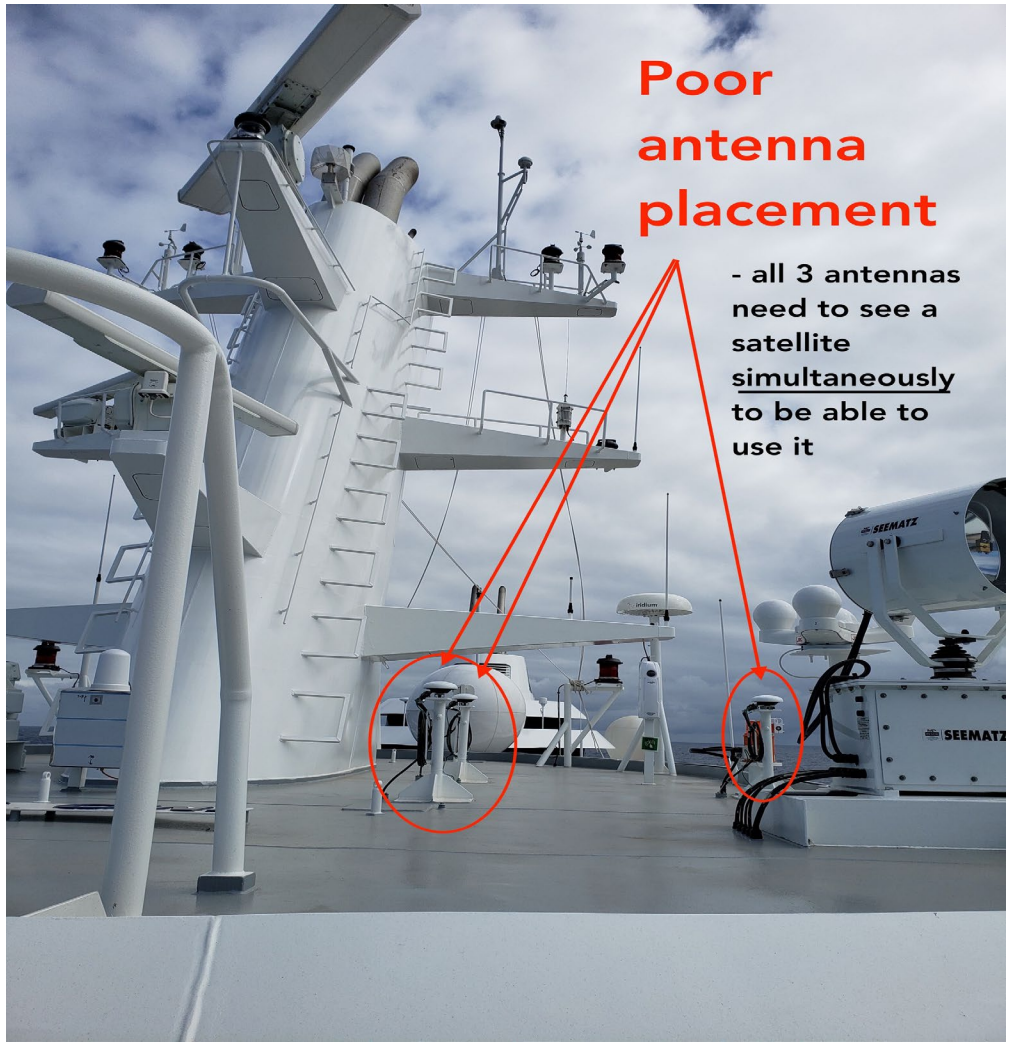
ABX-Two Installation & Configuration

Trimble

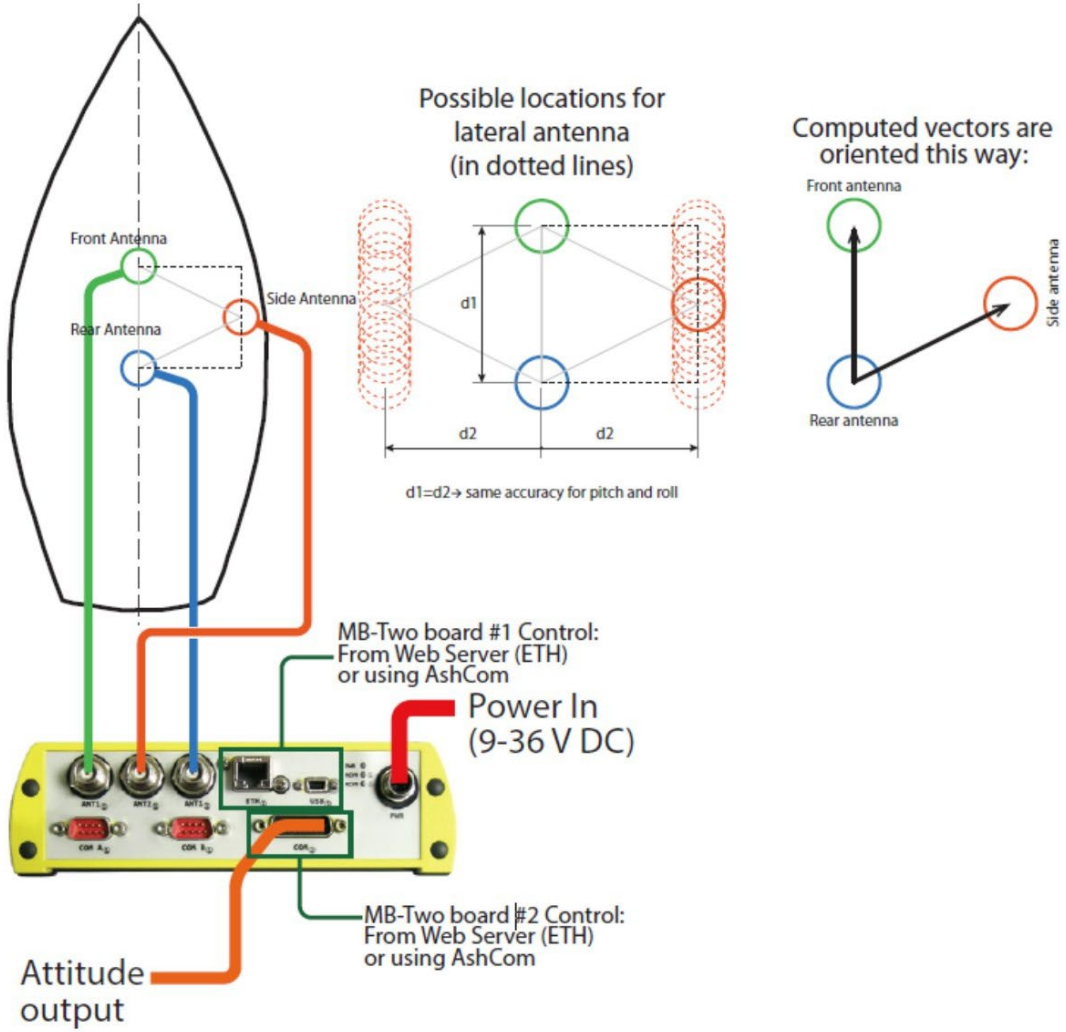
Overview

- Antenna Placement
- Internal components & Ports
- Obtaining IP / Static IP
- Configuring Board #1 – Duo Antenna Mode
- Configuring Board #2 – Sol Antenna Mode

Antenna Placement

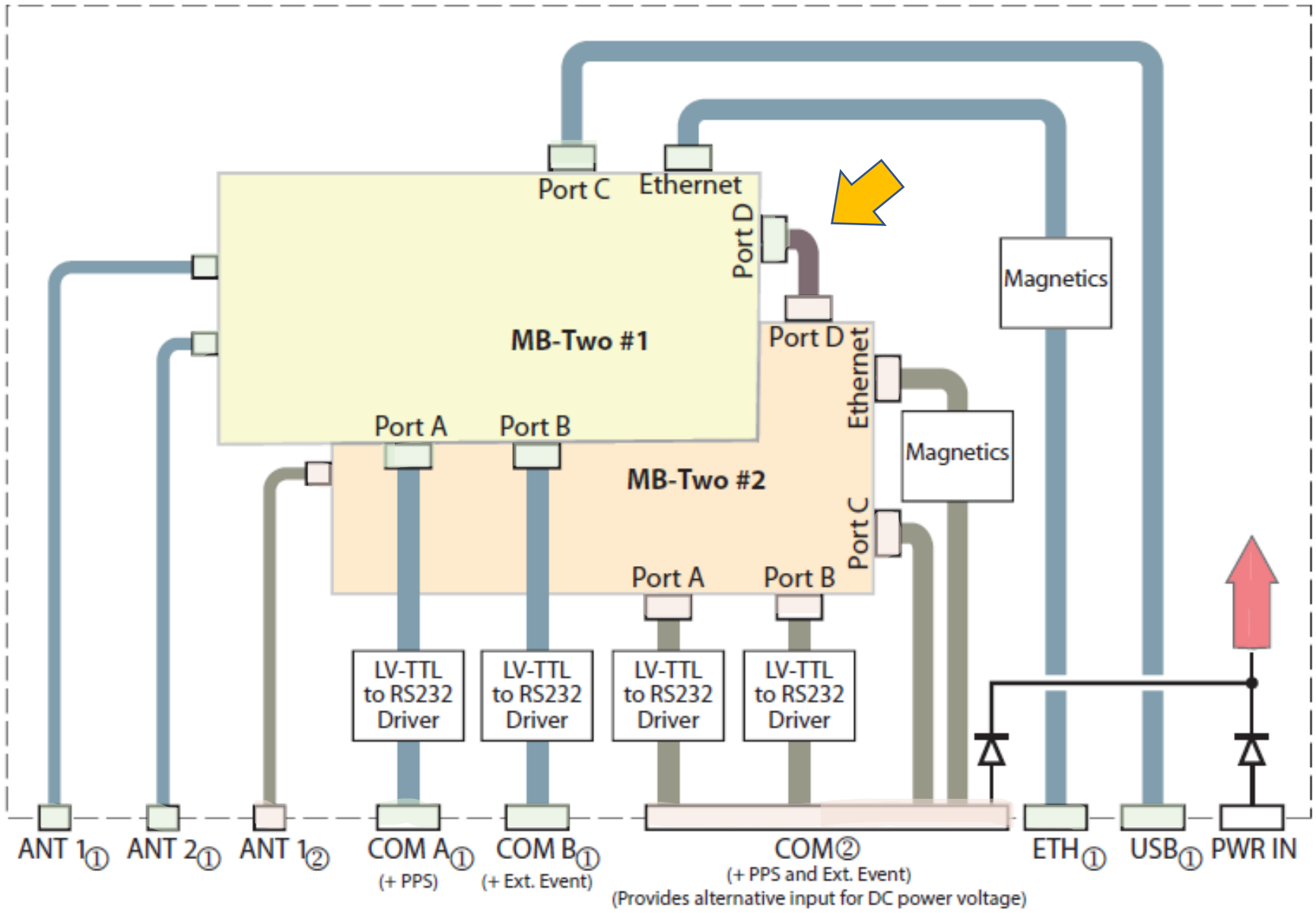


Antenna Placement



- Antenna should be placed on the centerline of the ship if possible
- Front and rear antenna should remain in line with each-other; this removes the need to calculate a Heading Offset
- Base length between the antennas can be between 30cm and >20m
- Best practice is to mount all 3 antennas on the same horizontal plane, this removes the need for an elevation offset.

Internal Diagram



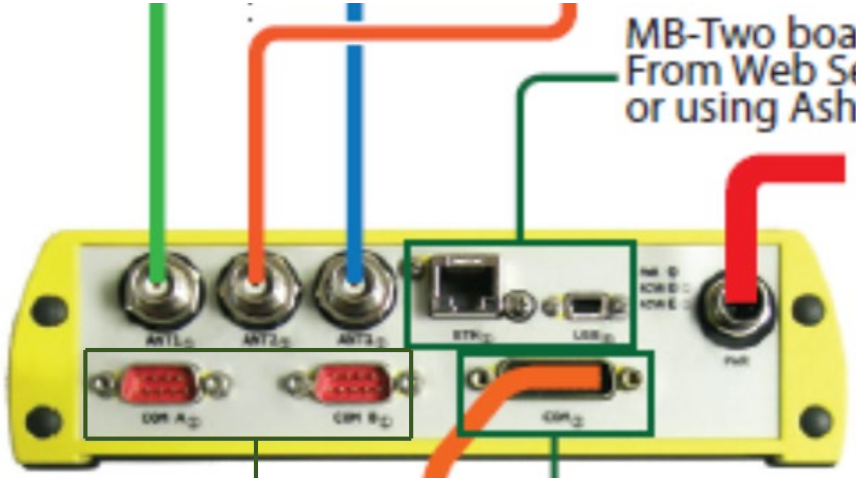
Front Antenna

Rear Antenna

Side Antenna

MB-Two board #1 Control:
From Web Server (ETH)
or using AshCom

Power In
(9-36 V DC)



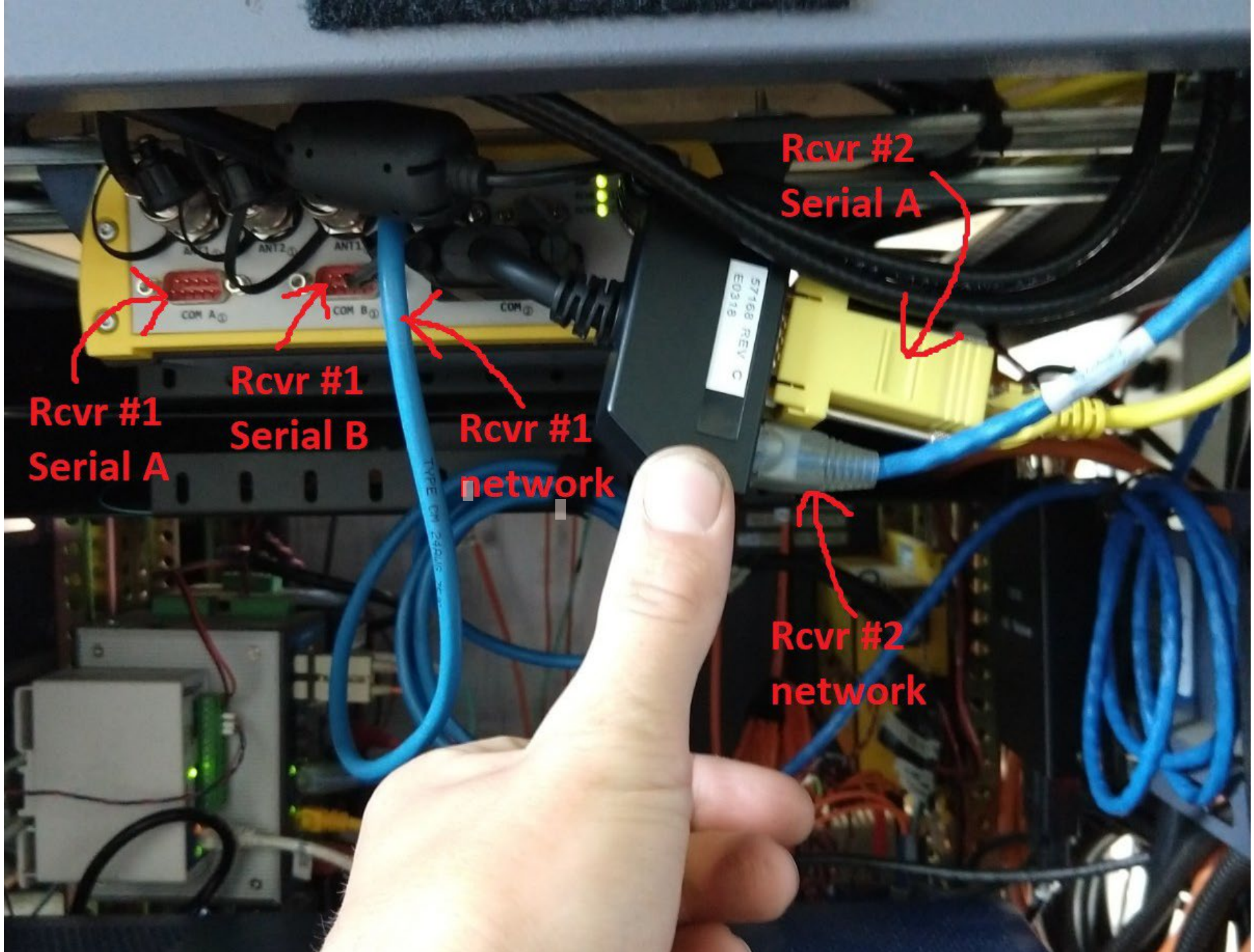
Board #1 Serial Port

MB-Two board #2 Control:
From Web Server (ETH)
or using AshCom

Attached via Com 2

Attitude
output

Serial and UDP output from
Board#2


Rcvr #2
Serial A
Rcvr #1
Serial A
Rcvr #1
Serial B
Rcvr #1
network
Rcvr #2
network

By default both Boards are in DHCP mode

(1) connect a serial cable to COM-A, board 1 (p.72)

determine the IP address of board 1 ("$PASHQ,ETH")

(2) plug in network cable to ethernet port, board 1

user a browser to go to the IP; follow the steps for "board 1"

Configure Board #1

(3) connect a serial cable to COM-A, board 2 (on the adapter cable)

determine the IP address of board 2 ("$PASHQ,ETH")

(2) plug in network cable to ethernet port, board 2 (on the adapter cable)

user a browser to go to the IP; follow the steps for "board 2"

Configure Board #2

Using Static IP address (DHCP mode off)

- Connect to each board through its associated serial port
  - Default baud rate 115200Bd

$PASHS,ETH,PAR,DHP,0,ADD,<IP Address>,MSK,<Subnetwork Mask>,GTW,<Gateway IP Address>,DN1,<DNS 1 IP Address>,DN2,<DNS 2 IP Adress>

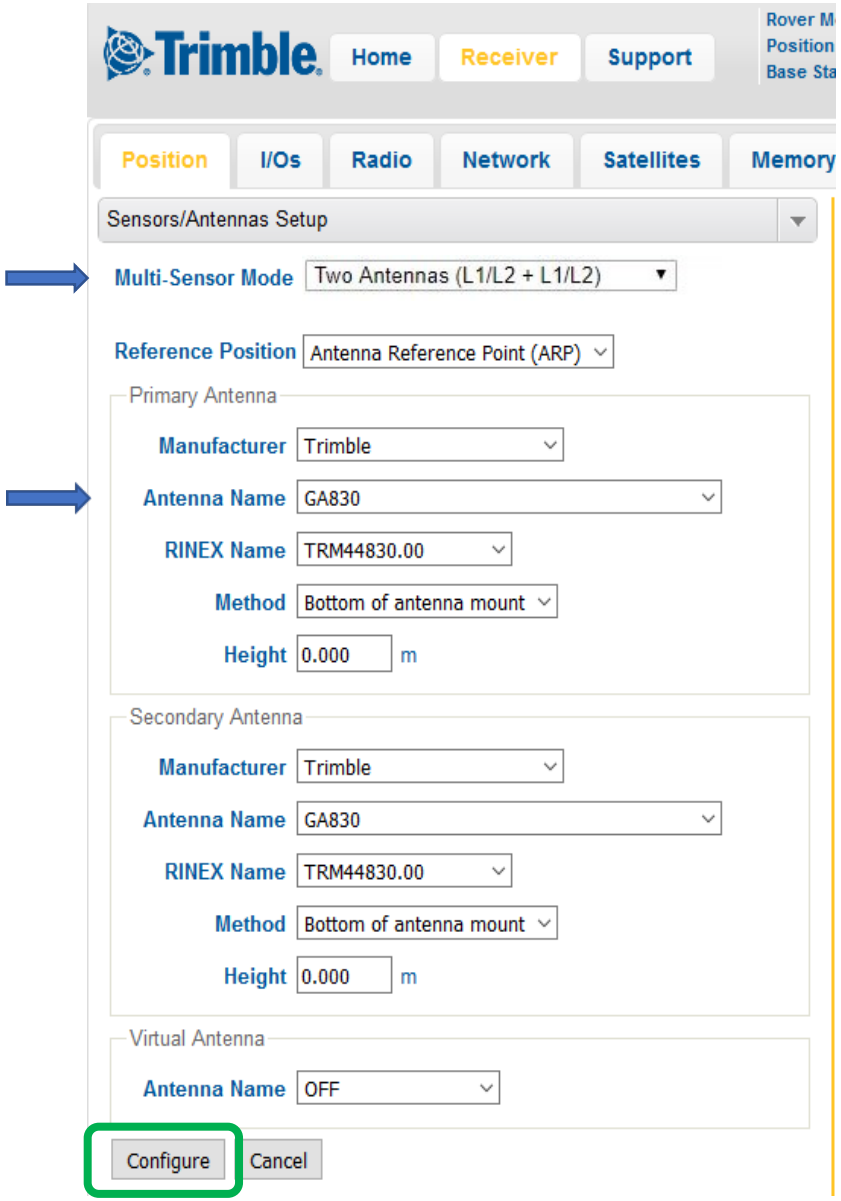
- Response line if command is successful:

$PASHR,ACK*3D

- Check IP Address by running command

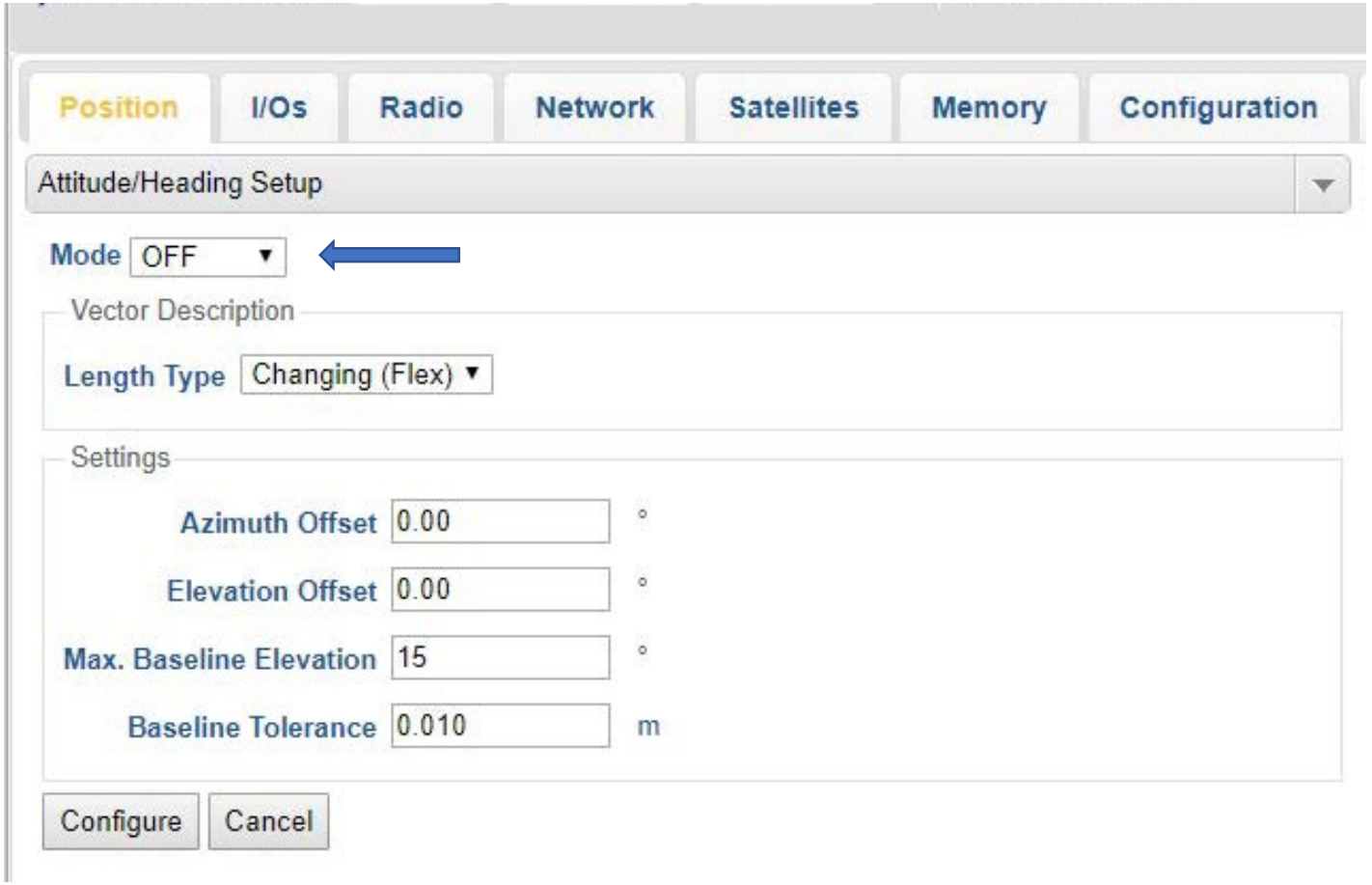
$PASHQ,ETH

Configuration of Board #1 in Duo Mode (two antennas)



- Two antennas will be used by board one and they should be set for L1/L2 + L1/L2 as you want both to receive the dual frequencies. The internal MB-two boards do NOT contain the firmware for L-Band and therefor should not be used.
- Use the Antenna Reference point unless mounting the antennas at any angle
- Setting the proper antenna type improves the GNSS receiver, since the L1/L2 phase offsets are known and can be accounted for.
- Height should be set to zero as this references the “above ground” measurement

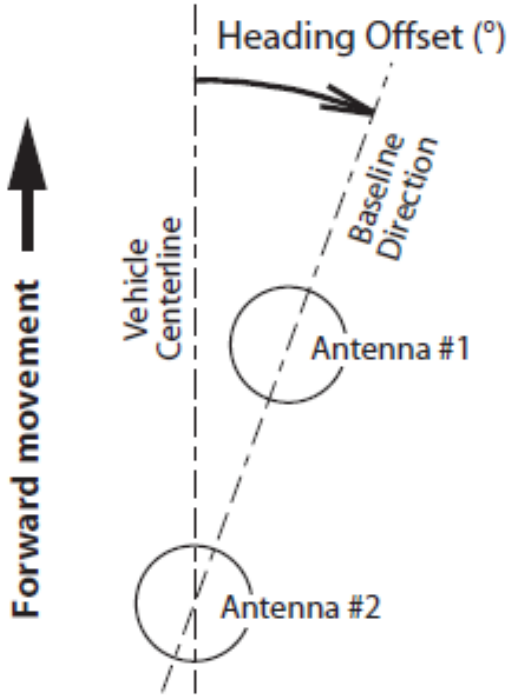
Board #1 Attitude / **Heading OFF**

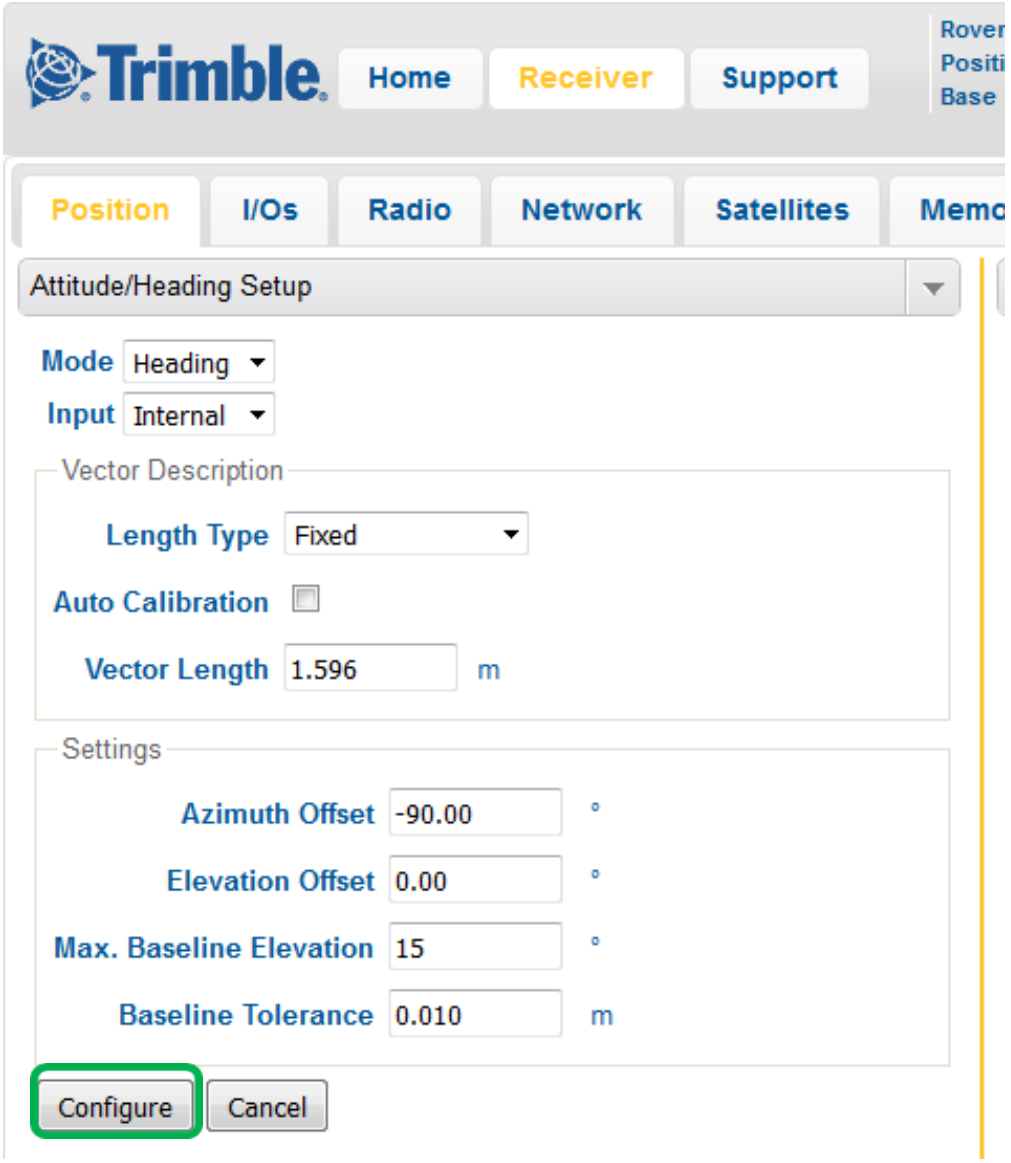


Attitude Mode has to be turned off as the Attitude will be computed and delivered from Board#2

- If the Forward and Rear antenna are unable to be installed in line with each-other, Heading will need to be computed on Board#1 to input offsets.

Board #1 Attitude / **Heading**

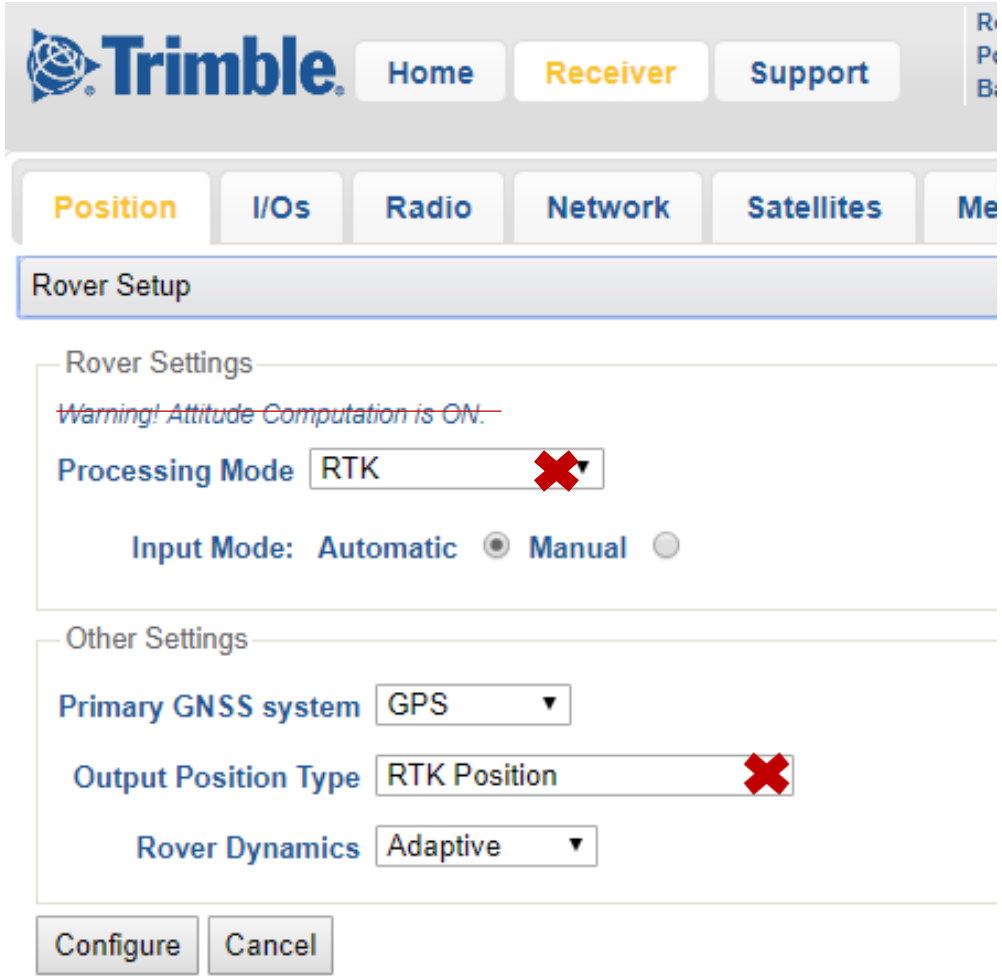




Best Practice to install the Forward #1 and Rear #2 antenna in line with each other and ideally parallel to the centerline of the ship.

However if this is not possible a Heading (azimuth) offset must be measured

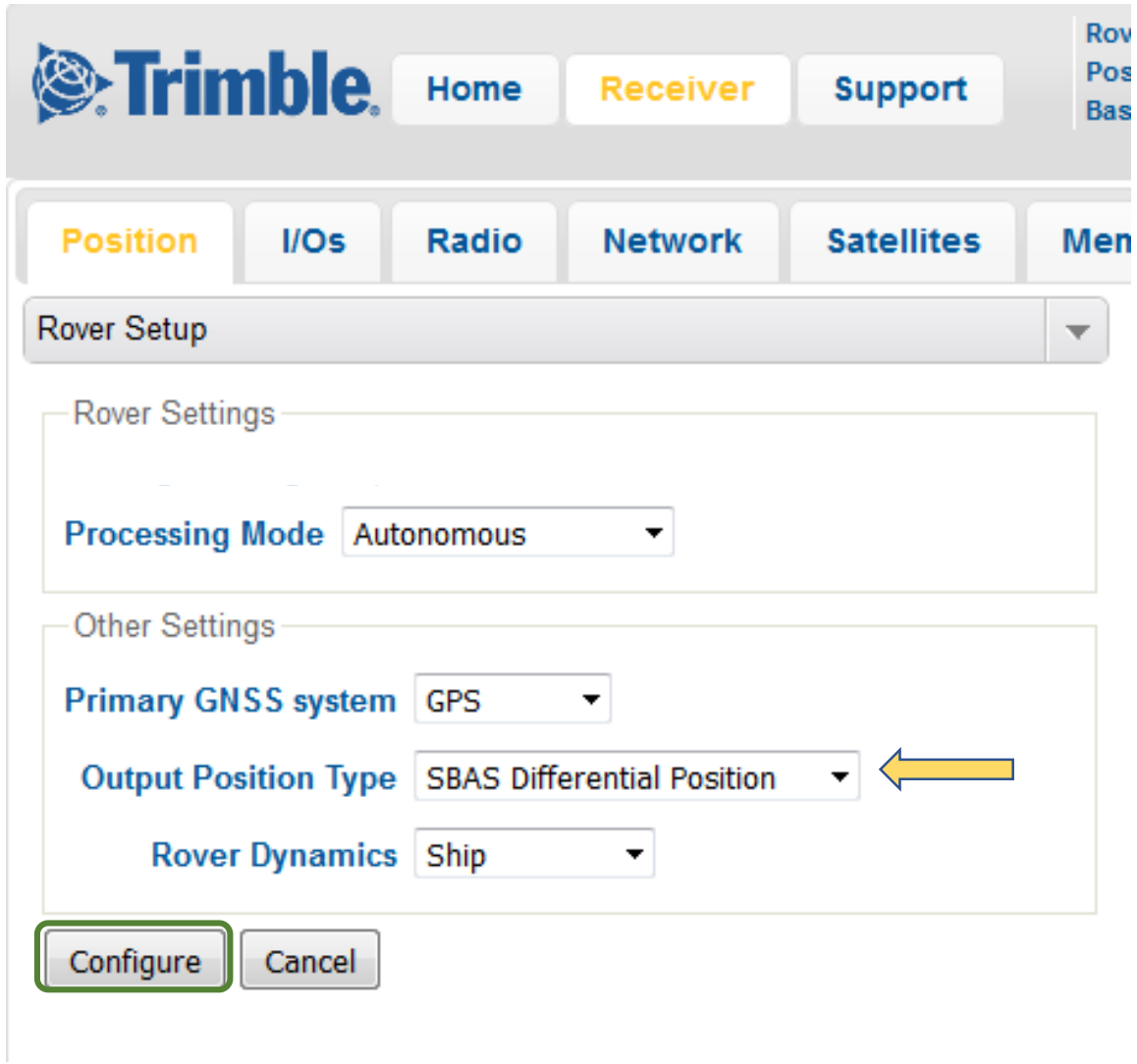
Board #1 Rover Configuration



- Remember - “Attitude Computation ON” should not be displayed as this is it will be computed by Board#2

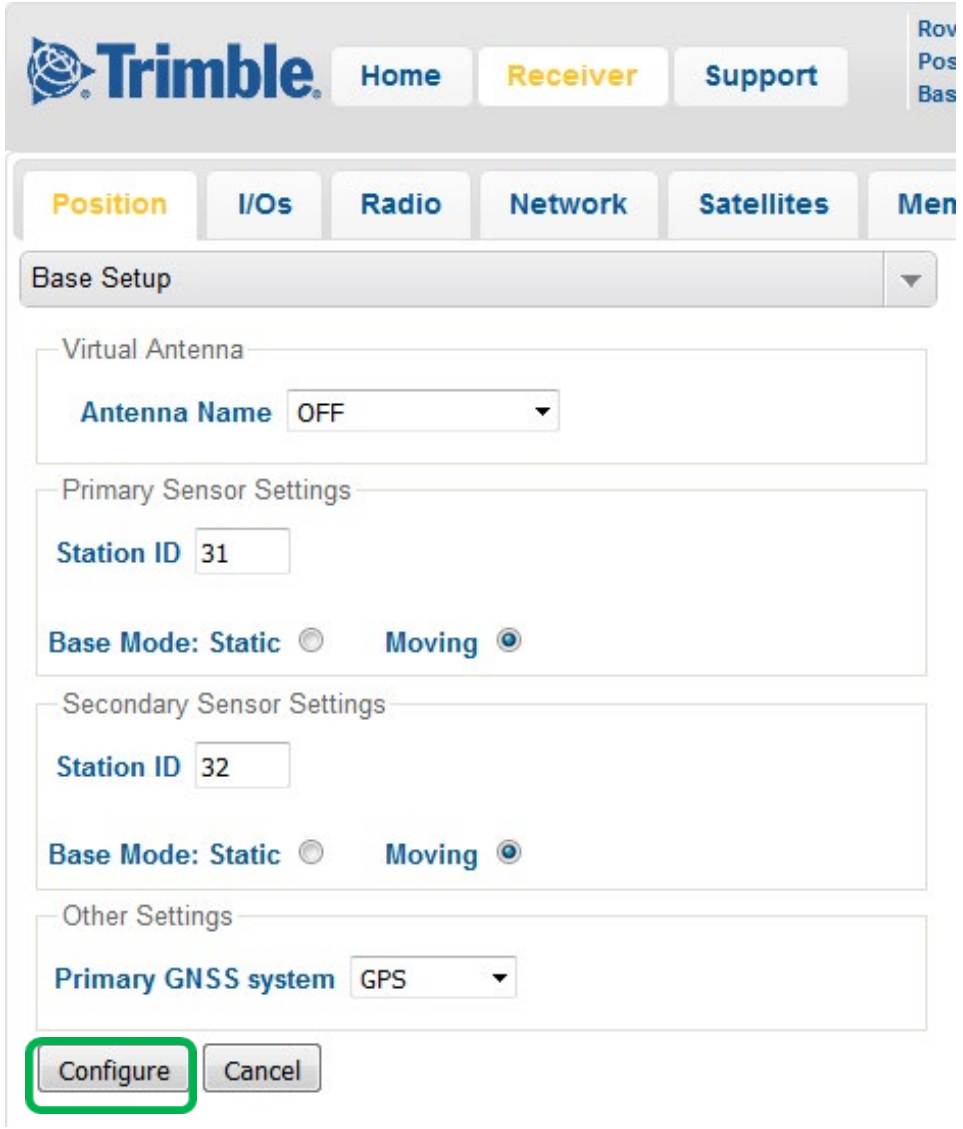
- **Do NOT** set Rover to RTK as no DGPS corrections are received.
  - RTK requires an additional receiver to intake corrections from land base stations.
  - Land base stations have a range of 10-30km displaying their inadequacies in suppling correction to the ABX-2

Board #1 Rover Configuration



- Rover should be set up using SBAS (Satellite-based augmentation systems)
- DGPS corrections are received by the installed antenna, removing the need for an additional receiver.

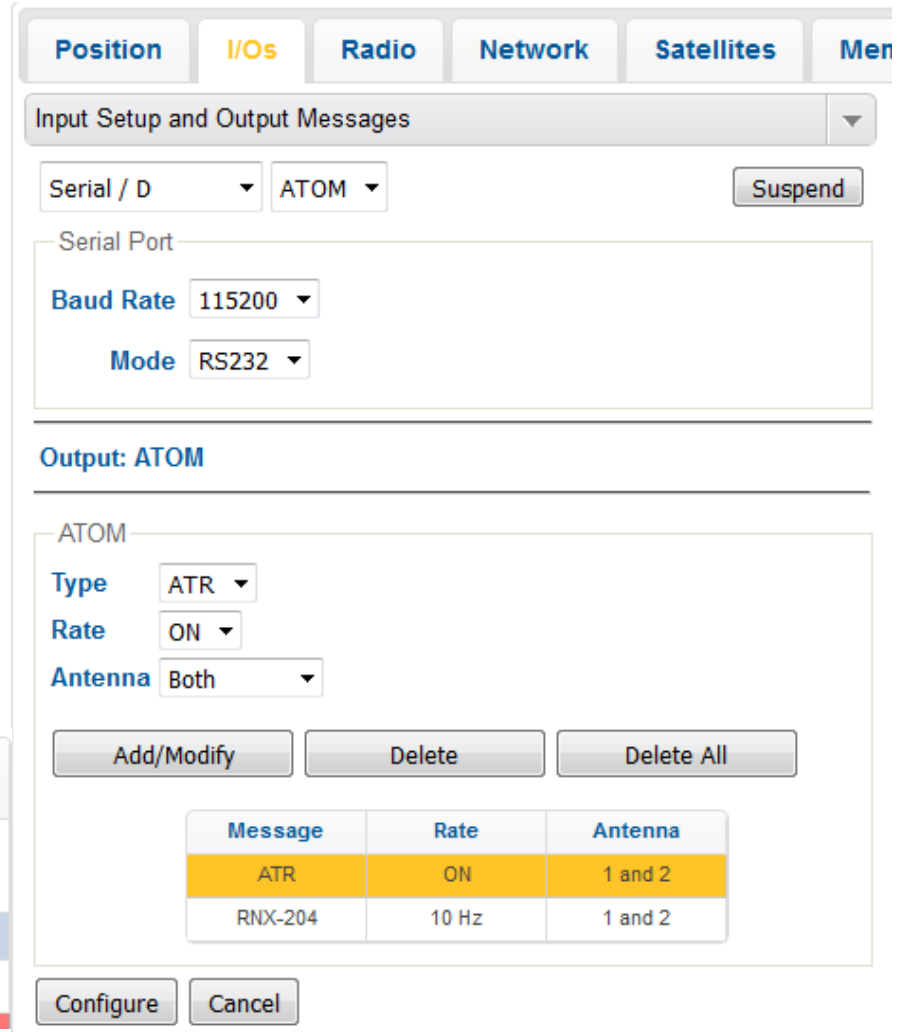
Board #1 Base Configuration – Moving Base



Board #1 Output Messages

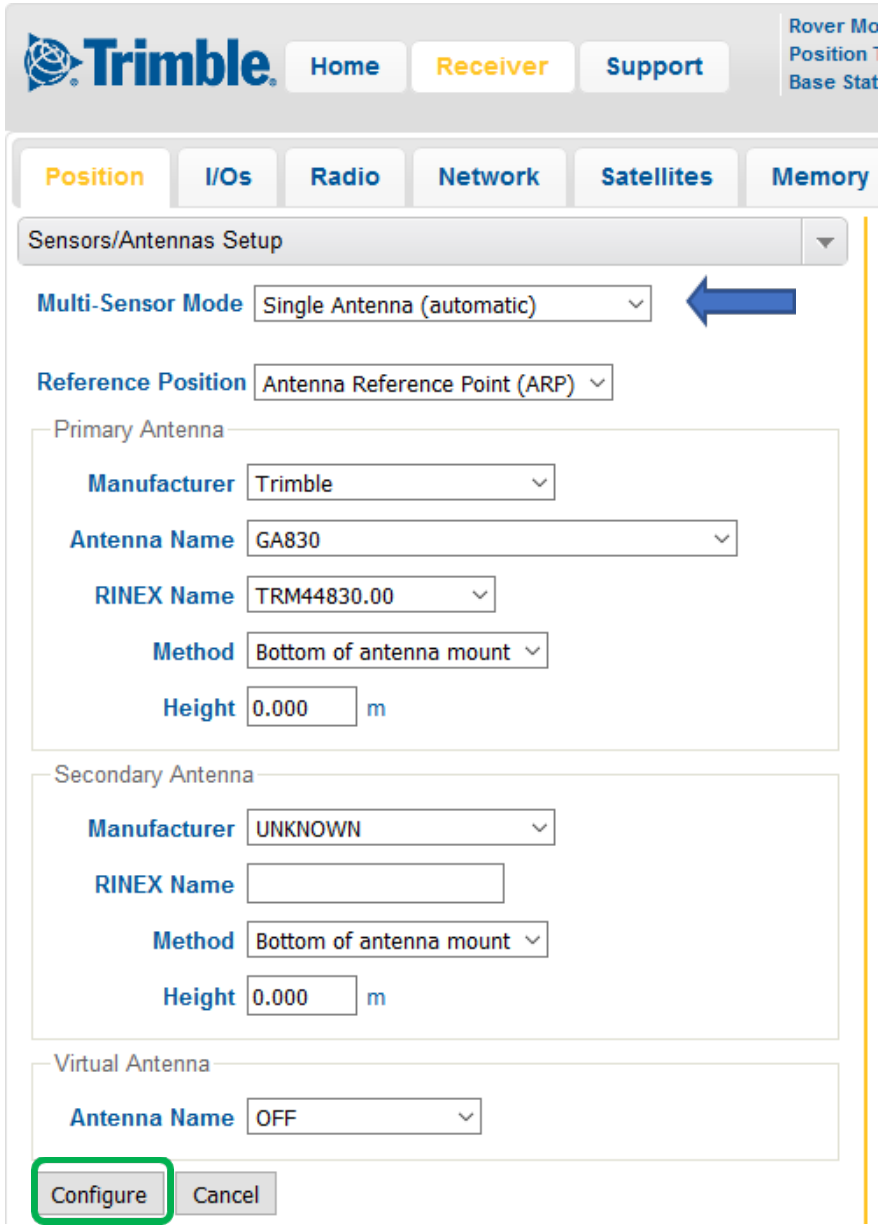
RNX&ATR corrections stream (ATOM format necessarily) have to be generated on port D and related to the rear antenna

Ask for 10Hz Corrections stream



Type	Port	Name	Input	Output Primary Antenna	Output Secondary Antenna
Serial	A (9600bds)	A	-	NMEA-GGA(1 Hz) NMEA-RMC(1 Hz) NMEA-VTG(1 Hz) NMEA-ZDA(1 Hz)	-
Serial	B (115200bds)	B	-	-	-
Serial	D (115200bds)	D	-	ATOM-ATR ATOM-RNX-204(10 Hz)	ATOM-ATR ATOM-RNX-204(10 Hz)

Configuration of Board #2 in Sol Mode (1 antenna)

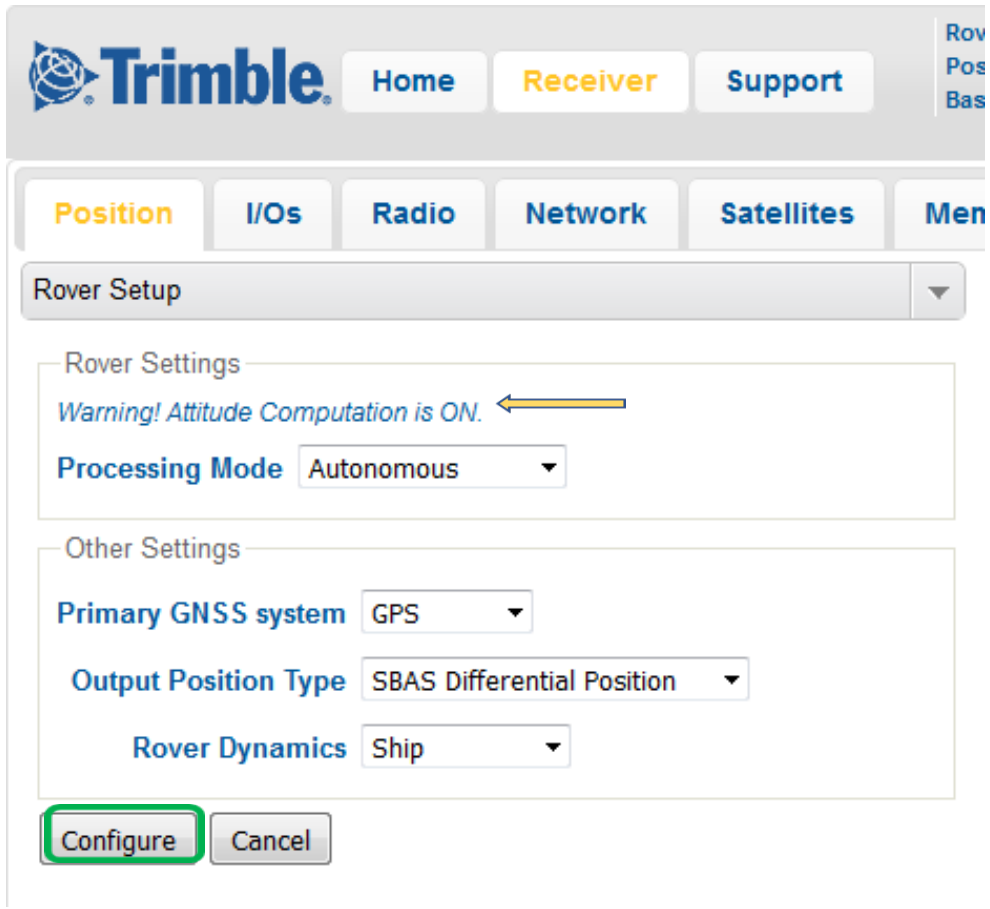


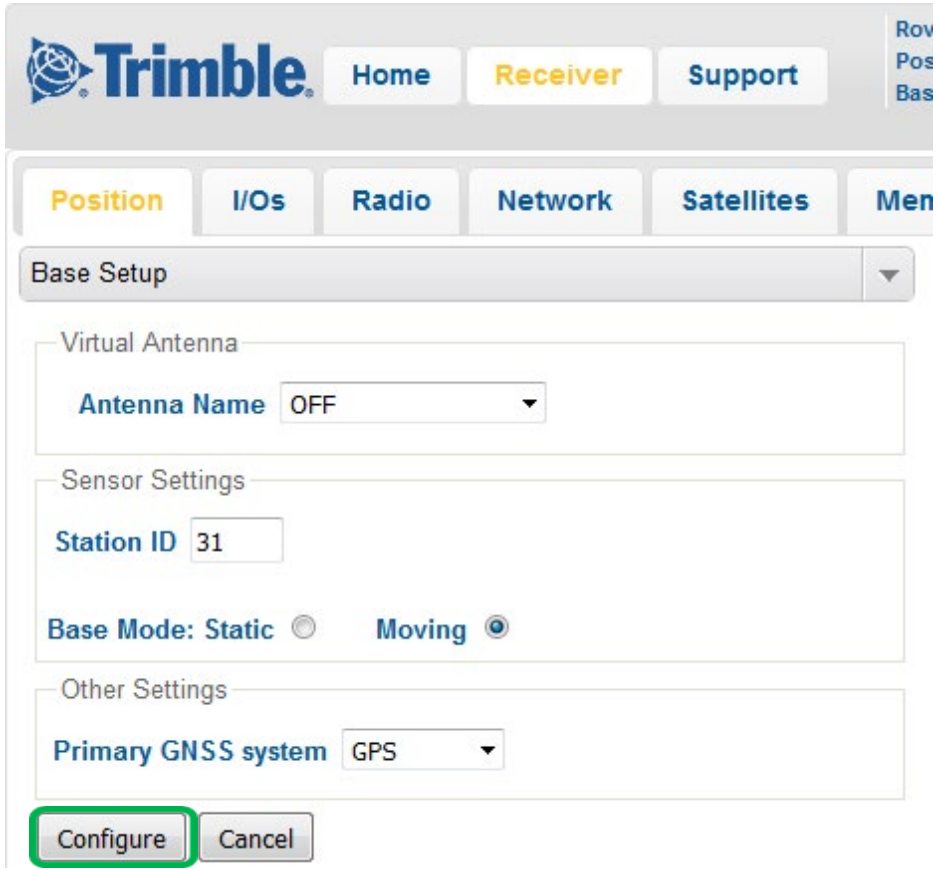
- Web server access to Board#2 gained by ethernet port of Com2 dongle. Navigate to web Server by IP specific to Board#2

- Set Board#2 as a single antenna using the same reference point as Board #1 antennas

Board #2 Rover and Base Configuration

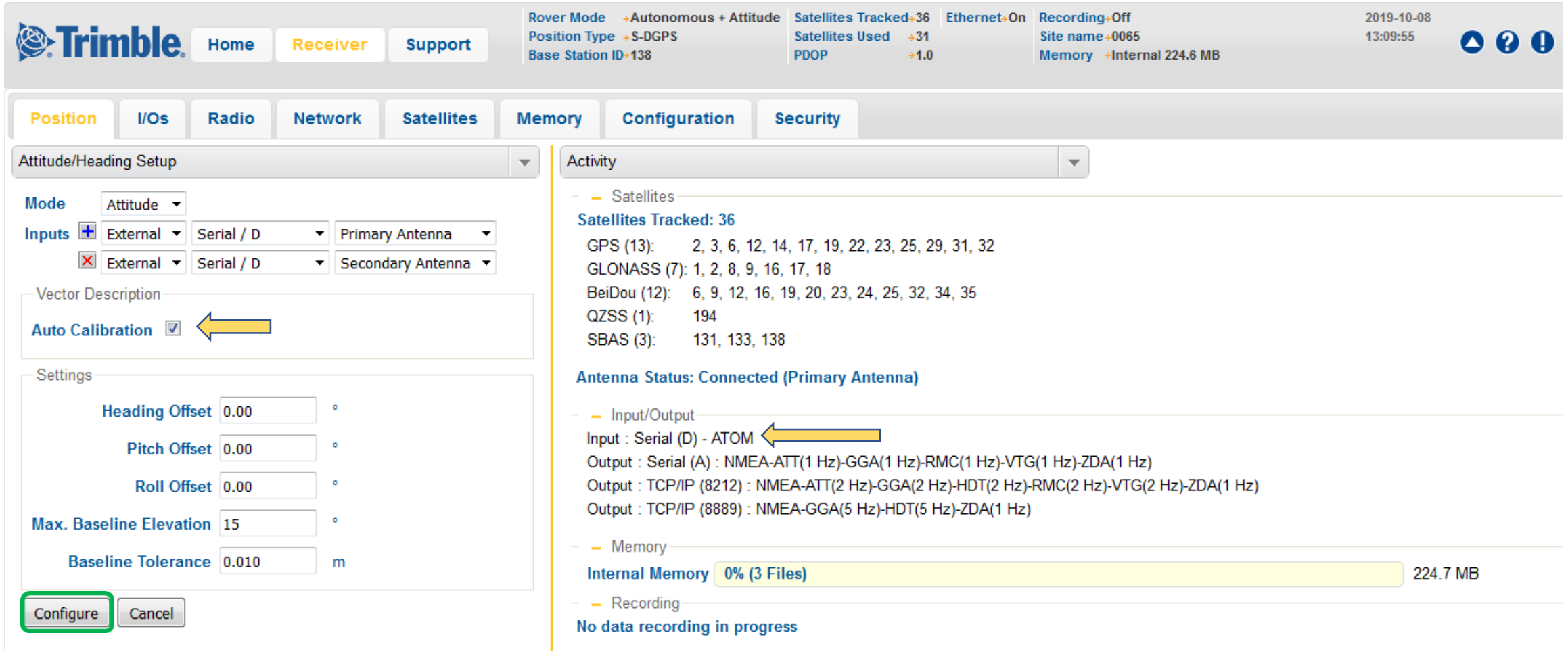
Mirror Settings from Board #1





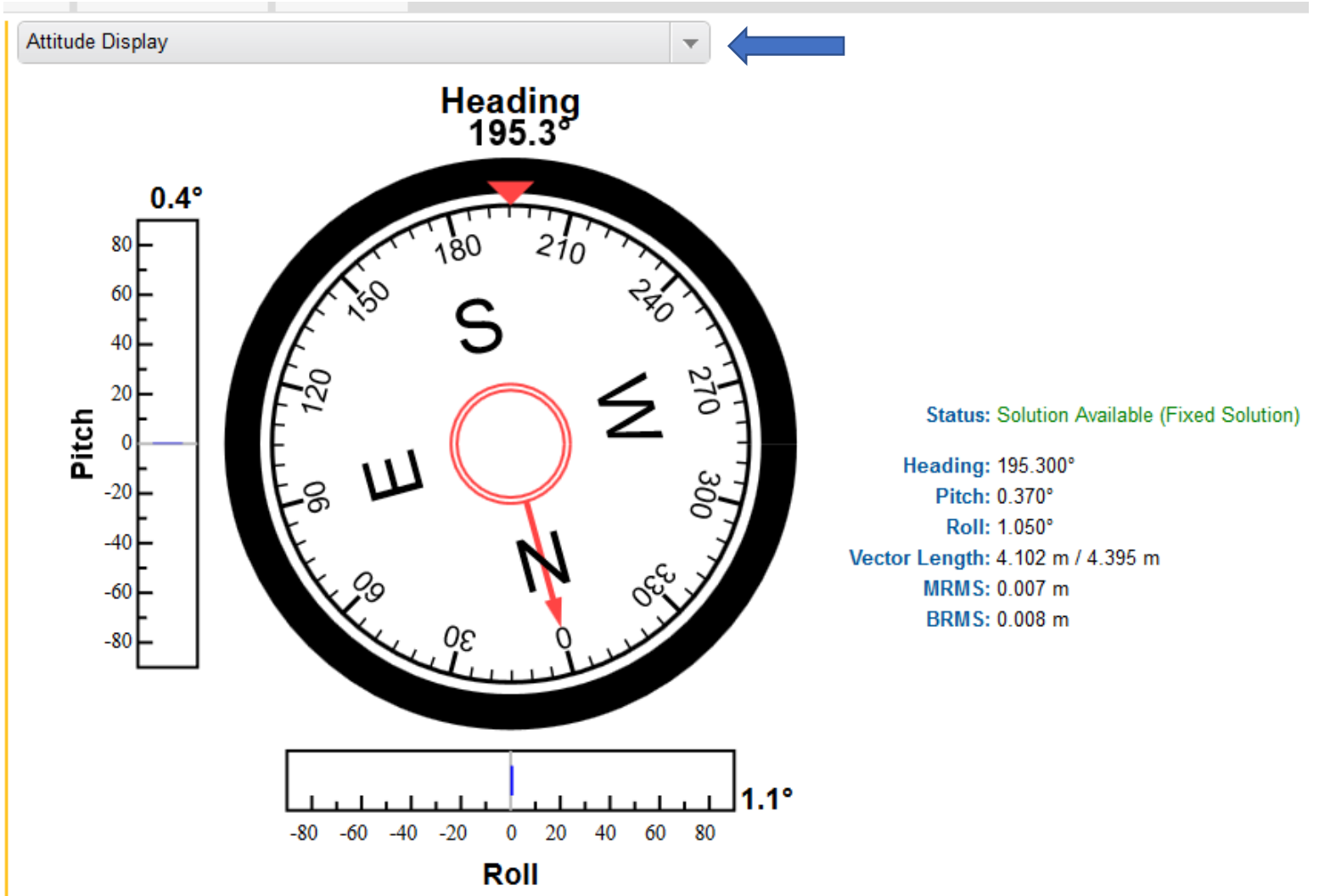
Rover setup should say “Warning! Attitude Computation is ON” as this is Board#2

Board #2 **Attitude** / Heading



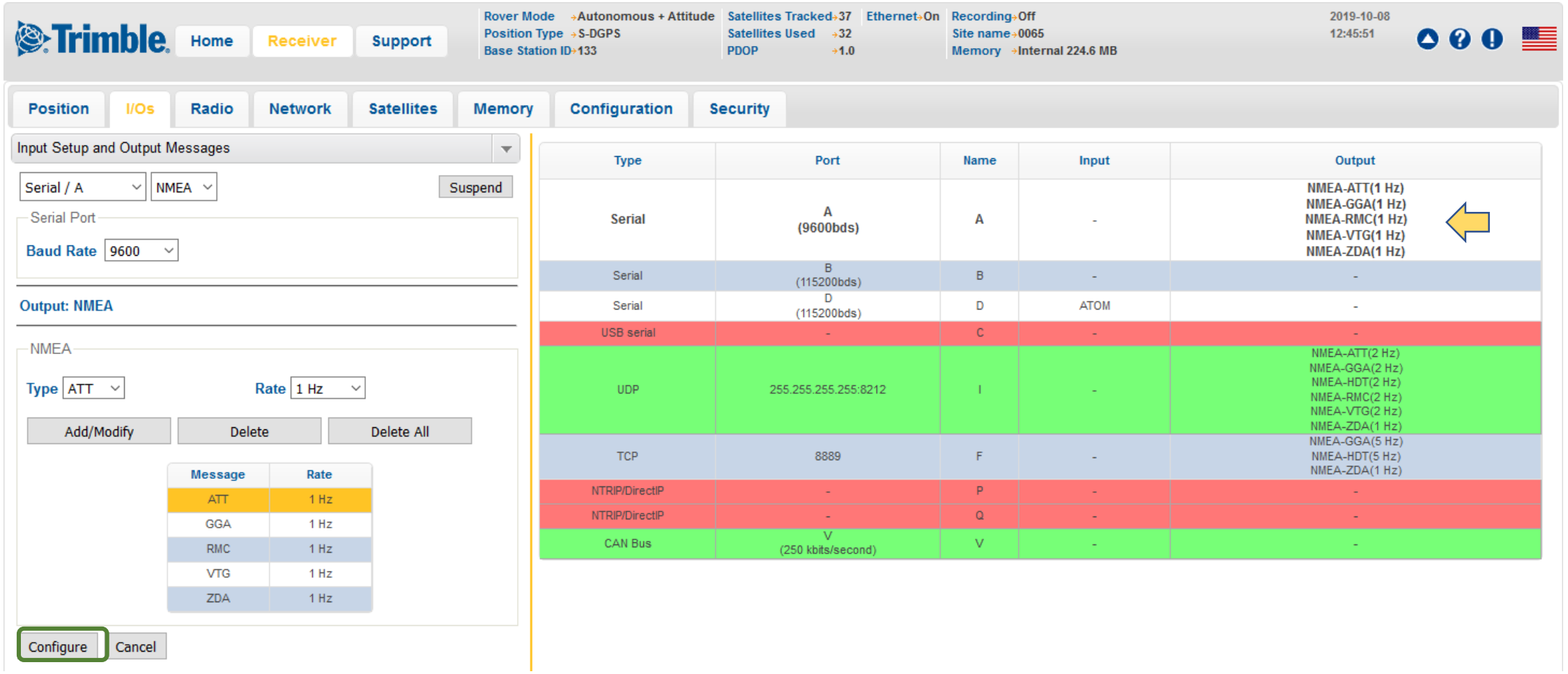
- Board#2 will compute Attitude with corrections via Serial Port D (internal) from the Primary (forward) and Secondary (rear) antenna
- Auto Calibration should be selected in this application

Board #2 **Attitude** / Heading



Attitude Display shows all information relative to the attitude mode (Heading, Pitch, & Roll)

Board #2 Output Messages



- Board #2 will output user defined NMEA strings via “Serial A” or over UDP
- Note: both of these ports are located on the dongle connected to Com2.

SUCCESS!
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