ABX-Two Installation & Configuration
Overview

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

Poor antenna placement
- all 3 antennas need to see a satellite simultaneously to be able to use it

Antennas moved to this location (now excellent data)
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.
Front Antenna  Rear Antenna  Side Antenna

Power In
(9-36 V DC)

Board #1 Serial Port  Attached via Com 2

Serial and UDP output from Board #2

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

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

Attitude output
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")
   user a browser to go to the IP; follow the steps for "board 1"
   Configure Board #1

(2) plug in network cable to ethernet port, 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")
   user a browser to go to the IP; follow the steps for "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 Address>

- Response line if command is successful:
  \$PASHR,ACK*3D

- Check IP Address by running command
  \$PASHQ,ETH
• 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 therefore 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
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.
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.
- 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.
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.
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.
Rover setup should say “Warning! Attitude Computation is ON” as this is Board#2
- 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
Attitude Display shows all information relative to the attitude mode (Heading, Pitch, & Roll)

- **Heading**: 195.300°
- **Pitch**: 0.370°
- **Roll**: 1.050°
- **Vector Length**: 4.102 m / 4.385 m
- **MRRMS**: 0.007 m
- **BRMS**: 0.008 m
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!