

B3 Sigma-B: Sensor Offsets

INS & Sonar transducers



- Pole center (PC) reference origin point is taken on top plate level, not on top of the round cap, but centered on the round cap.

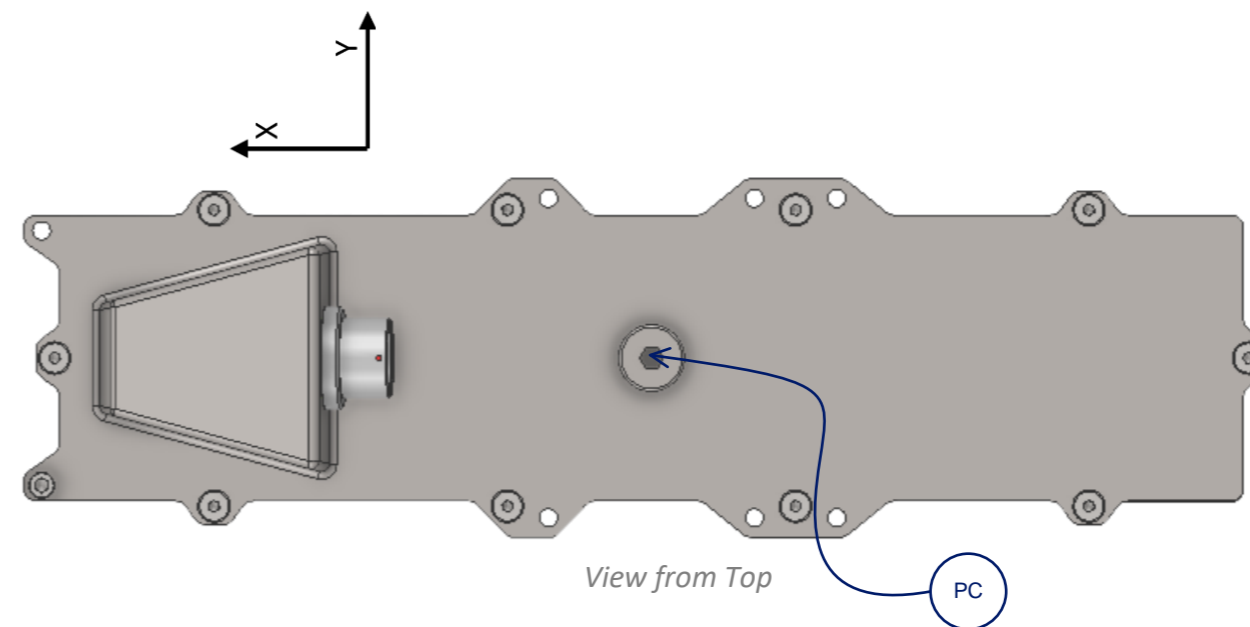
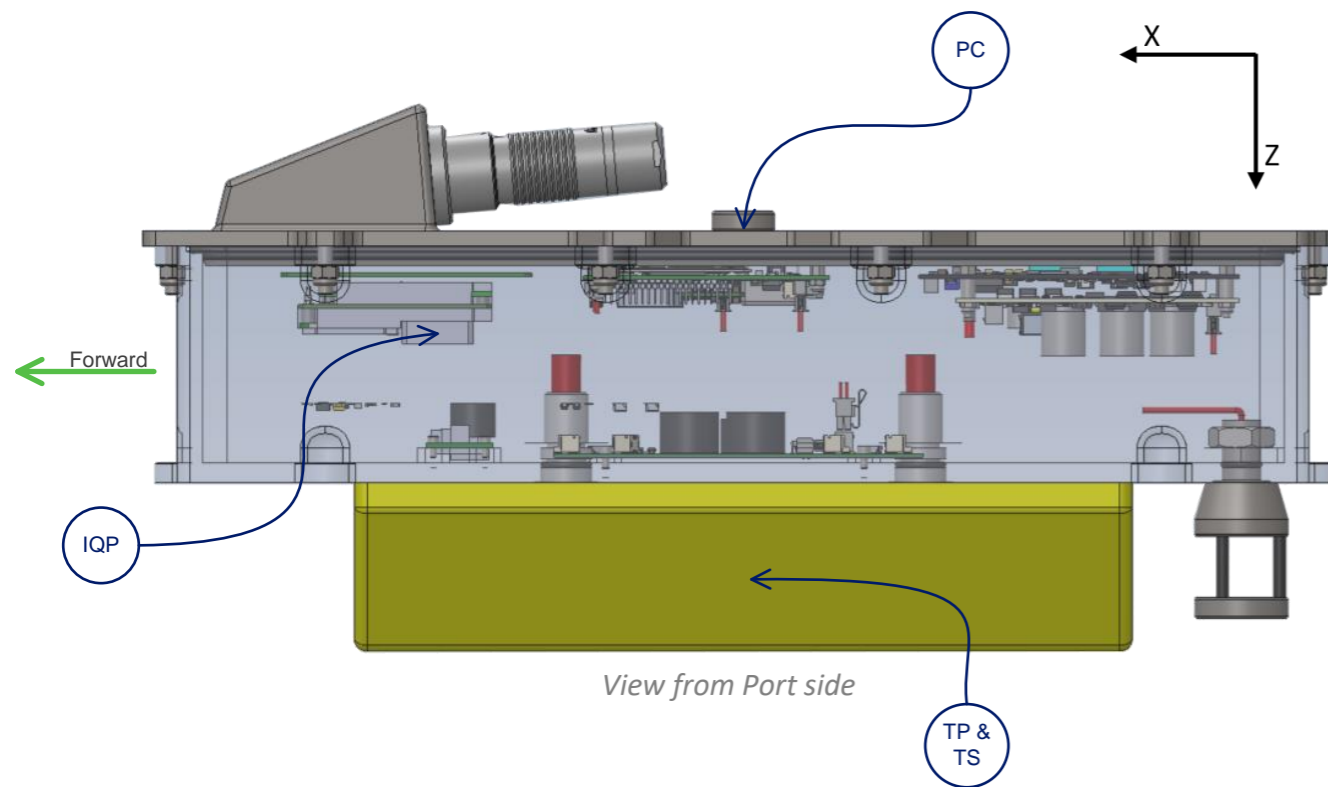
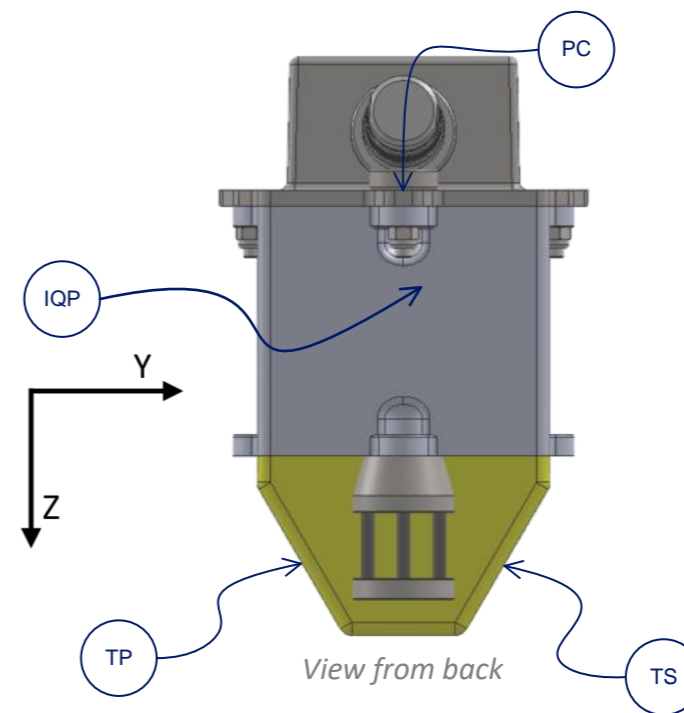
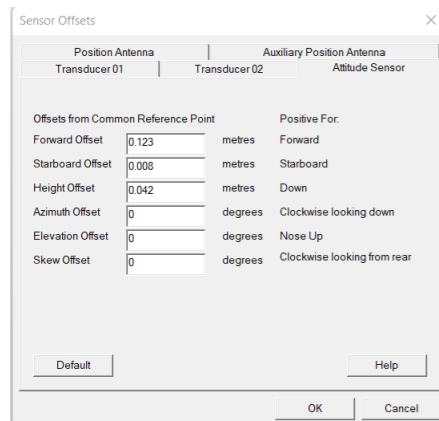


Table-1: Offset with PC (dimensions in mm)

| Item # | Designation | X | Y | Z |
|--------|--|--------|-------|-------|
| PC | Pole center | 0 | 0 | 0 |
| TP | Portside transducer acoustic center | 0 | -35.4 | 141.6 |
| TS | Starboardside transducer acoustic center | 0 | 35.4 | 141.6 |
| IQP | QuantaPlus Measurement center | 123,25 | 8,55 | 42,22 |

Apply values from Table-1 in Bathyswath Processor.

- Open Menu bar -> Configuration -> Sensor Offsets...
- Apply TP offset values in Transducer 01 tab
- Apply TS offset values in Transducer 02 tab
- Apply IQP offset values in Attitude Sensor tab.
- Don't apply position antenna offsets in Bathyswath Processor, see Page-3



| ISSUE | DATE | MODIFICATION | WRITER | CHECKER |
|-------|----------|------------------|--------|---------|
| 1.00 | 15/03/24 | Initial document | MSE | JSS |

ITER Systems
3 rue du lac du Mont Cenis
73290 La Motte-Servolex, France

DESCRIPTION
Bathyswath-3 Sigma-B Sensor Offsets

PROJECT:
B3S-B

All dimensions in mm – Original frame size: 400x280
www.iter-systems.com - info@iter-systems.com

support@iter-systems.com

DOCUMENT NUMBER
2045

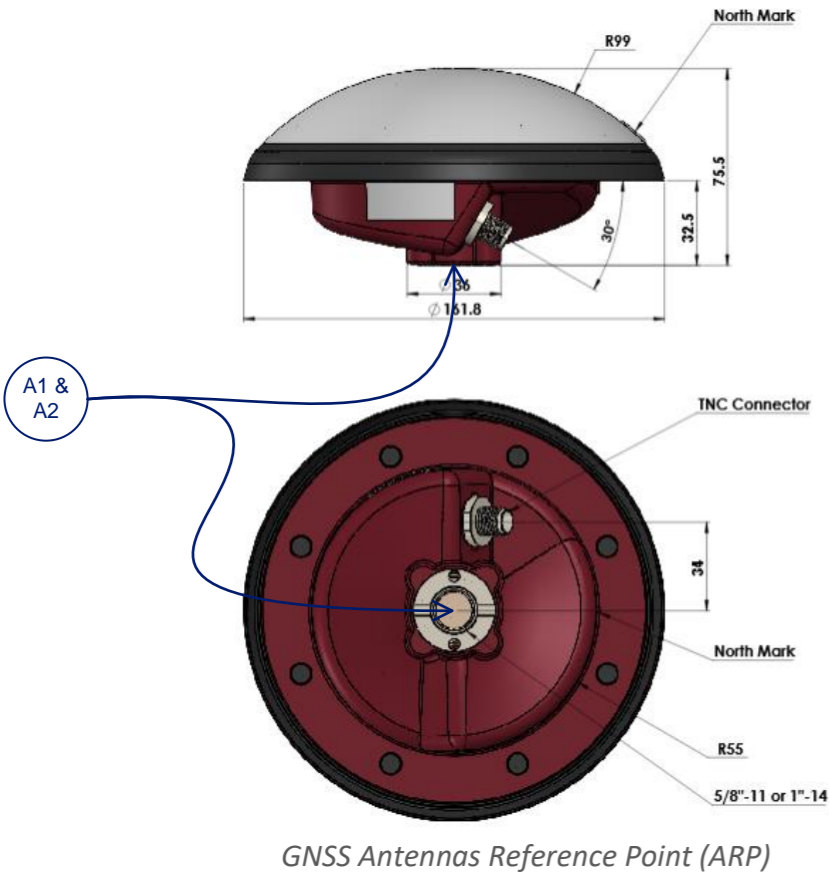
CLASSIFICATION
Unclassified

PAGE NUMBER
1 OF 3

Bathyswath Processor -> Configuration -> Sensor Offsets -> Attitude Sensor

B3 Sigma-B: Sensor Offsets

GNSS Antennas offset calculation



GNSS Antennas Reference Point (ARP)



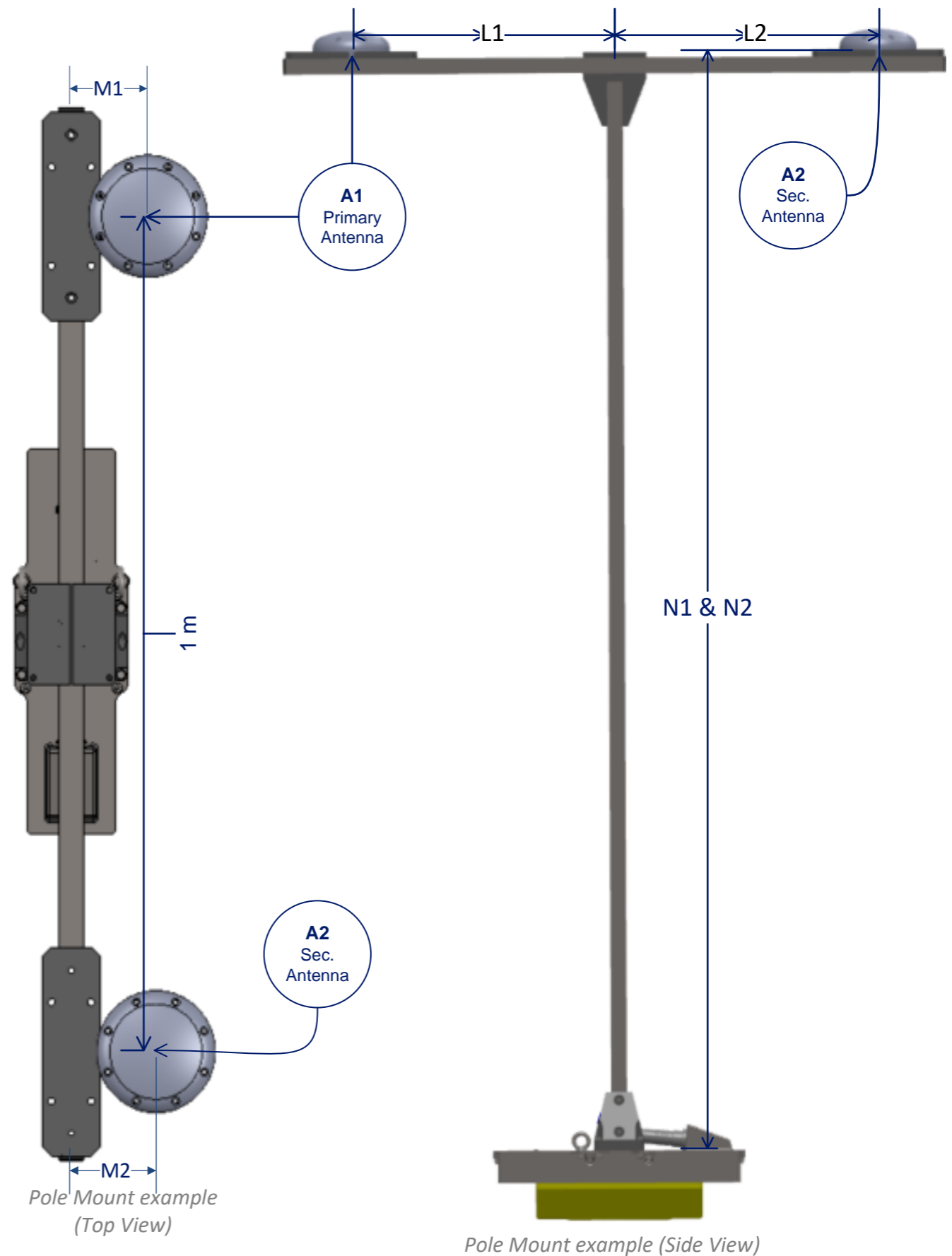
- Offset of GNSS antennas depends on customer mount. Measurement is needed.
- ARP (Antenna Reference Point) of antenna is at center of the antenna (X & Y), and from bottom of screw thread (Z)
- When Offset are measured, you will need to add those offset information in SBG QuantaPlus system
- When measuring offset of antennas, don't forget to put the positive or negative sign in front of values (Corresponding to the axe. Useful for Offset calculation)

T: able-2Offset with PC (dimensions in mm)

| Item # | Designation | X | Y | Z |
|--------|---|----|----|----|
| PC | Pole center | 0 | 0 | 0 |
| A1 | VSP6037L-SBG1 Primary (Main) Antenna Reference Point | L1 | M1 | N1 |
| A2 | VSP6037L-SBG1 Secondary (Aux) Antenna Reference Point | L2 | M2 | N2 |



See Page-3 for GNSS aiding configuration in Quanta Plus INS



B3 Sigma-B: Sensor Offsets

Quanta Plus Configuration

1

Offset Calculation after measurement :

- Primary Antenna : $X_1 = L_1 - IQP_x$
 $Y_1 = M_1 - IQP_y$
 $Z_1 = IQP_z + N_1$
- Secondary Antenna : $X_2 = L_2 - IQP_x$
 $Y_2 = M_2 - IQP_y$
 $Z_2 = IQP_z + N_2$

(IQP = QuantaPlus coordinates offset specified in table at page 1)

2

Quanta Plus Web interface

- Access web interface in any web browser at 192.168.2.34 (default IP).
- Go to « Configure » accessible from top right of the SBG systems window

3

Aiding Setting > GPS 1 :

- Select your receiver Model to **internal**.
- Set GNSS Lever Arms (X,Y,Z) corresponding to position of antennas based on INS origin.
- Keep rejection filters to Auto rejection.

Please contact support@iter-systems.com for further assistance

The screenshot shows the 'Device Settings' page for 'GPS 1'. The left sidebar contains a menu with options: Installation Overview, IMU Setup, Sensor, Aiding Assignment, Aiding Setting (selected), Inputs/Outputs, Data Output, Advanced, and Administration. The main content area is titled 'GNSS Setup' and includes the following sections:

- GNSS Setup:** Select the receiver model and if you plan to use single or dual antenna mode. Dual antenna heading is useful for low dynamics applications and to initialize the INS in static conditions.
 - Receiver Model: NMEA (Trimble/...
 - Select Antenna Model: GENERIC
 - GNSS Heading Mode: Dual antenna (known lever arm)
- GNSS Lever Arms:** Please enter the primary and secondary lever arms FROM the INS, TO the GNSS antenna ARP with an accuracy better than 1 cm. If you plan to use the calibration mode, please at least provide lever arms with an accuracy better than 20 cms.
 - Primary Antenna (X,Y,Z): -0.555, -0.008, 0.060 m
 - Secondary Antenna (X,Y,Z): 0.445, -0.008, 0.060 m
- Aiding Use and Rejection:** You can change the rejection filter to define how the INS should use the measurements coming from this GNSS. To use in the INS solution both Position/Velocity and True Heading measurements from this GNSS receiver, please select Auto Rejection. Auto rejection is the preferred mode as the INS will detect and ignore inconsistent measurements automatically.
 - Position/Velocity: Auto rejection
 - True Heading: Auto rejection

At the bottom, there is a 'Note for Dual Antenna GNSS' section: 'If you are using a Trimble or Ashtech GNSS receiver with NMEA protocol, please select the specific NMEA (Trimble/Ashtech) as these receivers are using a different convention for dual antenna operations.' The page ends with 'Save' and 'Cancel' buttons.