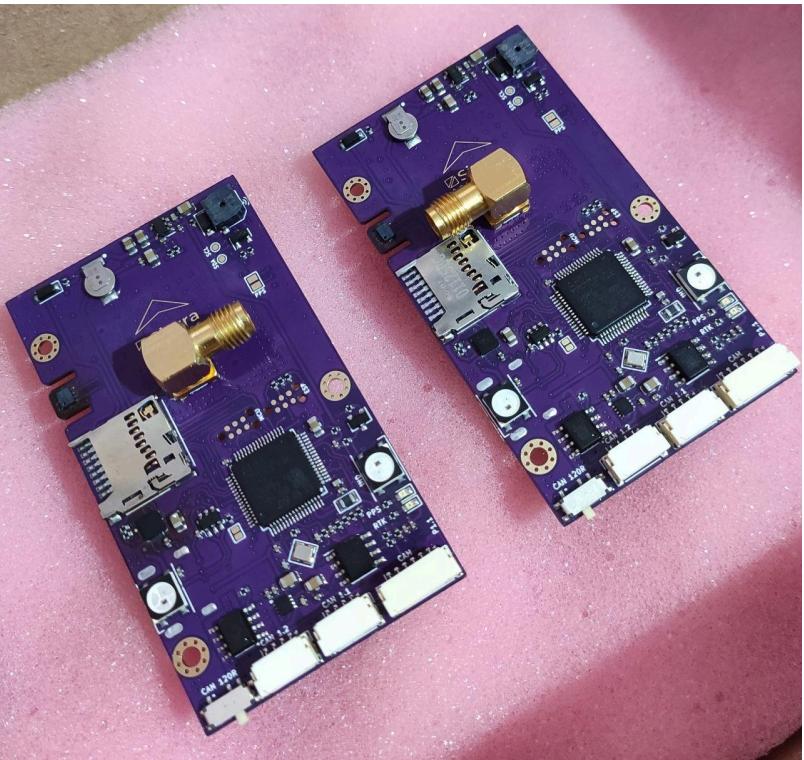




Sierra RTK/PPK

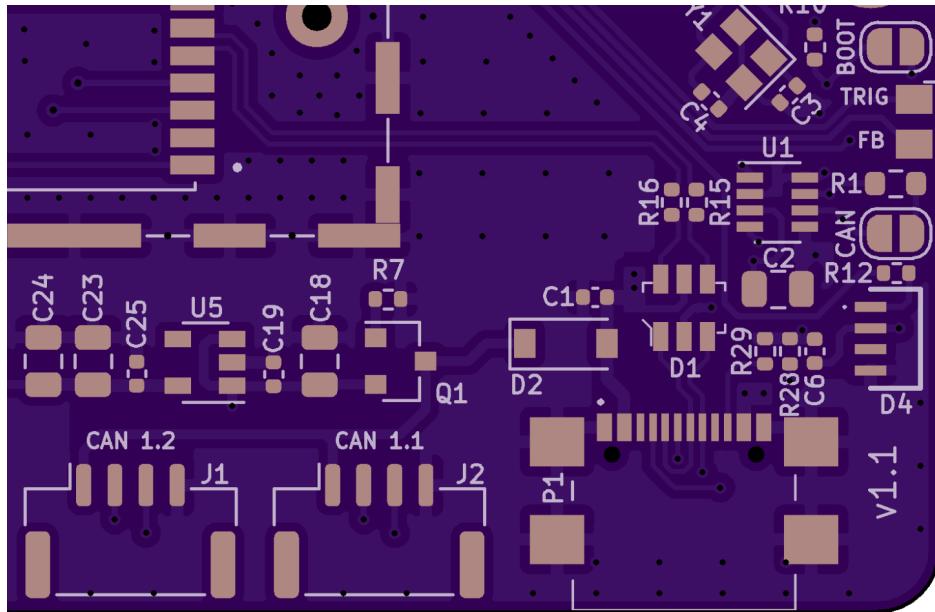


Sierra RTK/PPK is a high precision L1+L2 band navigation module with concurrent reception of GPS, GLONASS, Galileo and BeiDou Multi-band RTK with fast convergence times and reliable performance centimeter-level accuracy in a small and energy-efficient module which communicates to any host device via CANBus and can daisy-chain seamlessly. Integrated with IMU, magnetometer with precise magnetic field measurements and high accuracy barometer.

Features:

- High-performance Cortex®-M4 core with floating point unit
- Ublox ZED-F9P with RF front-end design
- Built-in ICM42688 IMU
- Built-in DPS310 Baro
- Built-in BMM150 Magnetometer
- Support RTK Navigation and RAW Data Logging for PPK simultaneously
- UAVCAN/DroneCAN communication protocol
- Support for CAM_TRIGGER & CAM_FEEDBACK
- Seamless integration with ArduPilot and PX4 stacks
- SD card support upto 32GB
- RTK accuracy: +/-1cm on XY, +/-2cm on Z
- Moving Baseline feature with 0.1 degree accuracy
- Max. Power consumption: 5V, 250mA, Weight: 49g with antenna
- Auto-config for BASE and ROVER usage
- Software configurable CANBus termination
- Convergence time
 - RTK < 10 sec
- Position accuracy
 - RTK: 0.01m+1PPM(X,Y); 0.02m+1PPM(Z)
- Acquisition
 - Cold starts 24 s
 - Aided starts 2 s
 - Reacquisition 2 s

Interface:



1. CAN ports: J2=CAN 1.1 & J1=CAN 1.2

Note: Follows exact pinouts as Pixhawk Cube/ Pixhawk standards

Pin	Signal	Volt
1 (red)	VCC	+5V
2 (blk)	CAN_H	CAN high
3 (blk)	CAN_L	CAN low
4 (blk)	GND	GND

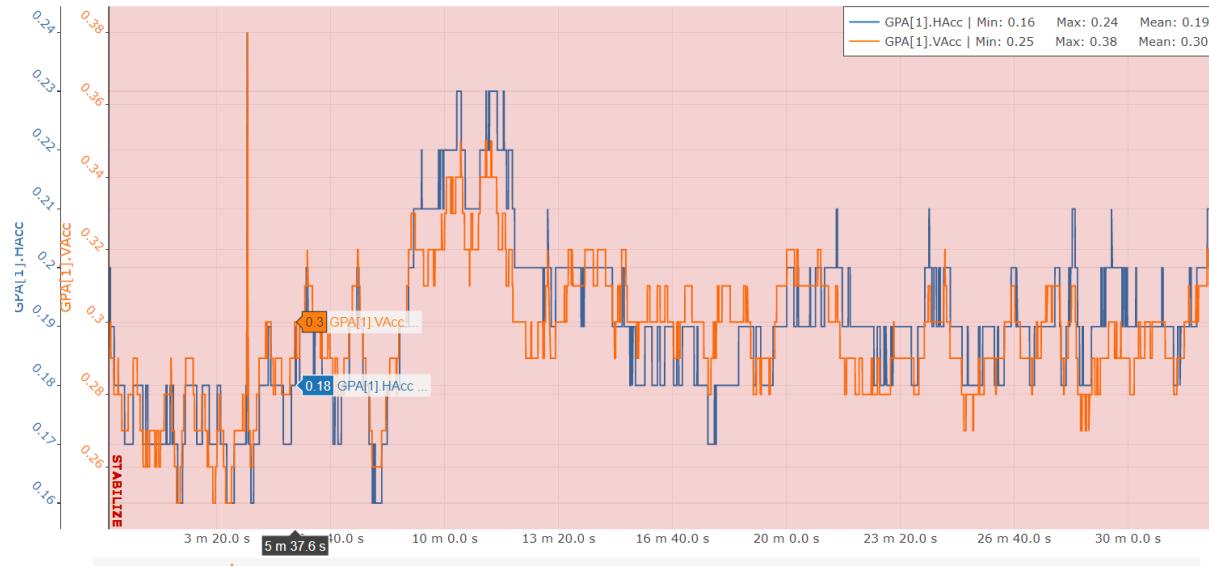
2. USB-C: P1= Ublox F9 USB access
3. TRIG: Auxiliary Timer channel
4. FB: Auxiliary Timer channel
5. CAN: Jumper for 120ohm termination of CANBus.
6. BOOT: Jumper for DFU mode access

TEST DATA:

GPS without RTK correction

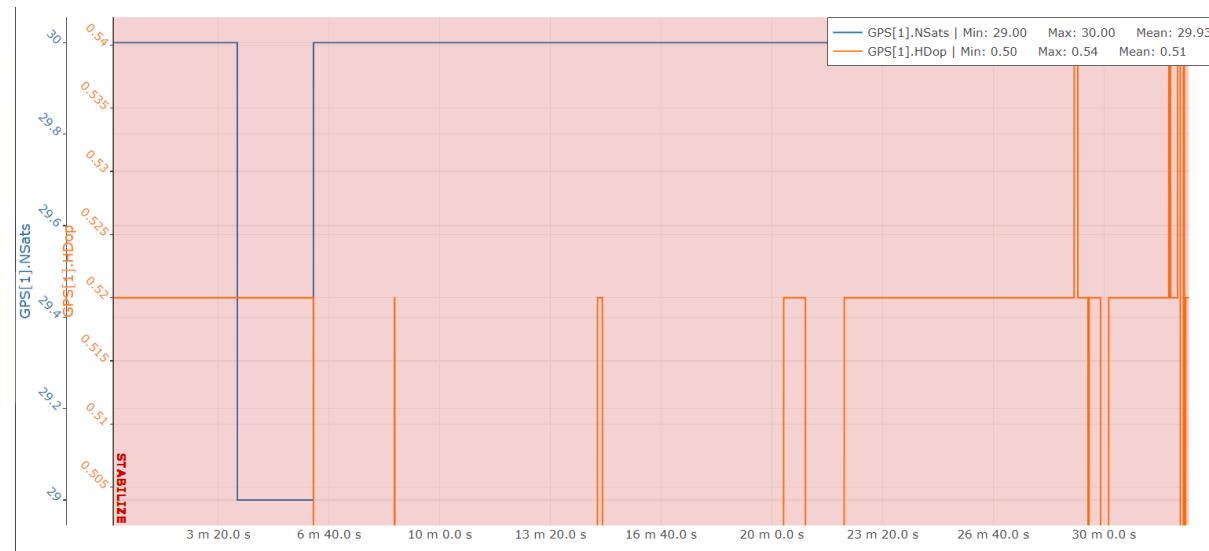
Horizontal accuracy: +/- 0.19m

Vertical accuracy: +/-0.30m



Satellite count: 30

Average HDOP: 0.51

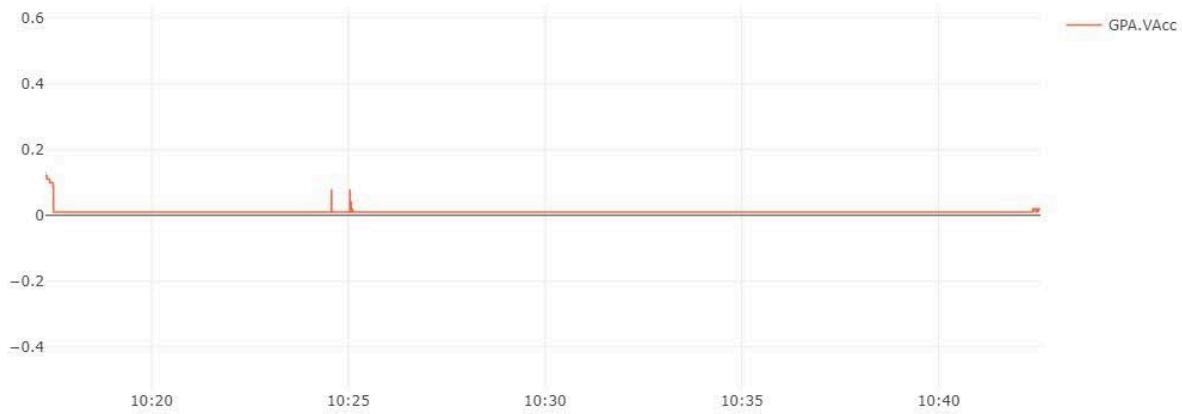


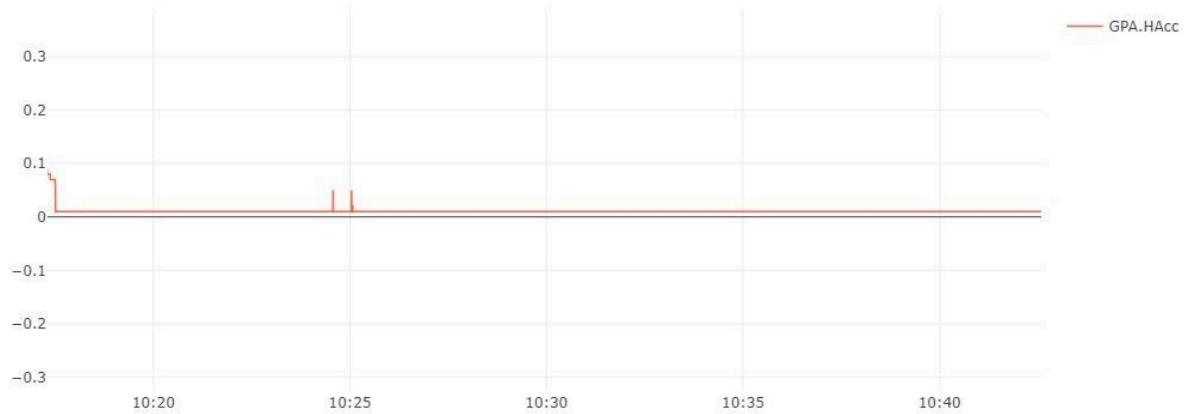


GPS with RTK correction:

Horizontal Accuracy (HAcc): +/- 1cm

Vertical Accuracy (VAcc): +/- 2cm



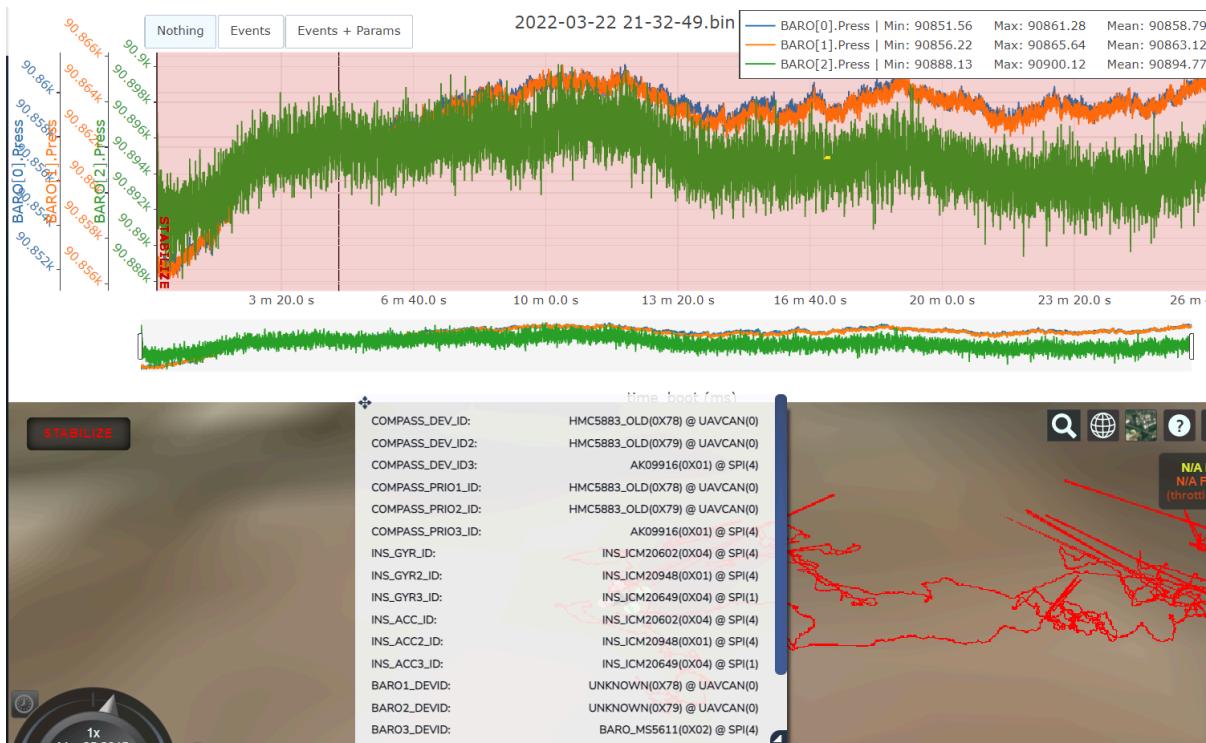


Moving Baseline via CANBus: Heading accuracy of +/-1.5degree at 30cm baseline



Barometer Test 1:

Sierra barometers are BARO0 and BARO1 on UAVCAN and BARO2 is from Cube



Barometer Test 2:

Sierra barometers are BARO0 on UAVCAN and BARO1 & BARO2 is from Cube

