

MICRO-MINIATURE INERTIAL NAVIGATION SYSTEM

FEATURES

- Extended Kalman Filter
- Shock Survival up to 40 g
- Low Power and Cost Effective
- High performance MEMS gyro
- Multi Constellation RTK GNSS
- CAN Interface
- Miniature size
- Weight: 80 gms
- MIL-STD-810 compliant

APPLICATIONS

- Autonomous Ground Vehicles (AGV)
- Unmanned Ground Vehicles (UGV)
- Driverless Tractors
- Autonomous Control and ADAS
- Precision Agriculture
- Smart off-road Vehicles
- Autonomous Navigation and Tracking

DESCRIPTION

Aeron's Micro-miniature Pollux 2 INS is a family of extremely compact Inertial Navigation Systems. The systems run extended kalman filter offering near tactical performance providing best estimates of navigation parameters including position, velocities, attitude, and heading. Pollux 2 features tri-axial MEMS solid state accelerometers, tri-axial gyroscopes, magnetometer for heading measurement and an integrated multi-constellation GNSS.

Pollux 2 has a compact size, high performance and comes with CAN interface making it suitable for autonomous ground vehicles, driverless tractors, robots and UGV applications. The PLX2-NS40 model (Product Code: 17007) offers centimeter level (2.5 cm) position accuracy in RTK mode and 0.2 m/s velocity accuracy.

PLX2 - NS40



Datasheet Ver. 1.0.2, Apr 2020

TECHNICAL SPECIFICATIONS

Parameter Name	Parameter Value
	PLX2 NS40
Acceleration	
Range	±16 g
Angular Rate	
Range	±450 °/s
Magnetometer	
Range	±8 gauss
Position / Velocity Accuracy	
Horizontal Position ¹	2.5 cm CEP with L1 RTK, 2 m CEP with L1 GNSS
Vertical Position ¹	5 m (1σ) with GNSS
Velocity ¹	0.2 m/s RMS
Attitude	
Roll Range	±180°
Pitch Range	±90°
Roll, Pitch Accuracy	0.1° RMS (static), 0.2° RMS (dynamic)
Heading Range	±180°
Heading Accuracy	<0.3° RMS with GNSS in dynamic conditions ¹ <0.5° RMS with magnetometer ^{2,3}
Angle Resolution	0.01°
GPS / GNSS	
Type	72 Channels - GPS/QZSS L1, GLONASS L1OF, BeiDou B1
Diff. Correction Type ⁴	RTCMv3 (for RTK mode)
Cold Start	26 s
Barometer	
Range	300 - 1200 hPa
Accuracy	±0.5 hPa
Electrical	
Input Voltage	5 V to 28 V DC
Power Consumption	<2 W
Communication	
Update rate	Up to 50 Hz (Navigation Data) Up to 200 Hz (IMU Data)
Outputs	Euler Angles (Yaw, Pitch, Roll), Quaternion, Position, Velocity, Linear Acceleration, Angular Rate and Time
Interface	RS232 (CH1), RS232 (CH2) ⁵ , CAN (CAN Open), USB and 1PPS
Serial Protocol	ASCII NMEA, Binary
Physical and Environmental	
Weight	~ 80 gms
Size	45 mm (L) x 45 mm (W) x 20 mm (H)
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Survival Shock	40 g
Operating Vibration	0.04 g ² /Hz
IP Protection	IP65

1 - Under good GNSS availability

2 - Accuracy after magnetic calibration and setting correct declination / offset angle

3 - After magnetic calibration for Hard Iron and Soft Iron disturbances, and in static magnetic field

4 - RTK mode of operation requires differential corrections from RTK base station in RTCMv3 format

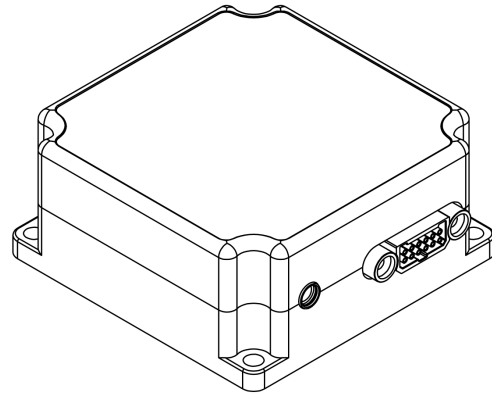
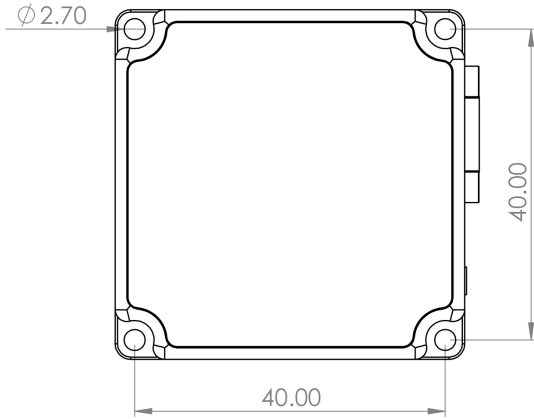
5 - RS232 (CH2) interface is dedicated for receiving differential corrections from RTK base station

MADE IN INDIA

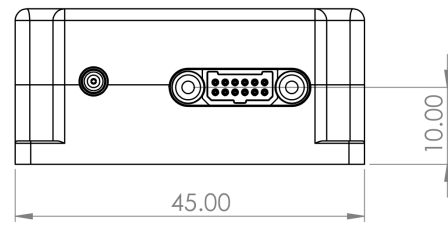
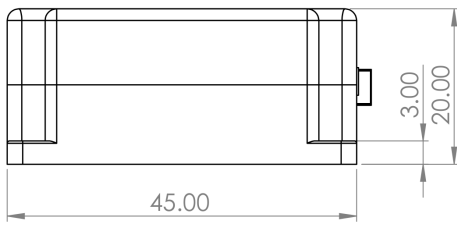
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MECHANICAL DIMENSIONS

All dimensions in mm.



ISOMETRIC VIEW FOR REFERENCE



ORDERING INFORMATION

PLX2 - NS40 (Product code: 17007)