



DGM15 Direct Georeferencing Module

SURVEY GRADE PPK



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Survey grade PPK capable GPS/IMU integrated with either a Sony a7r or Phase One iXu metric mapping camera allowing for direct georeferencing of UAS captured images. Based on the Trimble APX-15, these survey grade mapping packages utilize not only GPS position measurements, but also camera external orientation angles Omega, Phi, Kappa. This allows for more accurate data acquisition eliminating the need for Ground Control Points, and reducing the required image overlap to as low as 30%. This results in a 3.5x increase in mapping coverage per flight when compared to typical UAS methods that require 80% overlap!

SURVEY GRADE MAPPING PACKAGES



PHASE ONE IXU
PPK MAPPING
PACKAGE

• System Summary

- o High-Performance Direct Georeferencing Solution Mapping Solution
- o 100 Hz position, roll, pitch and heading output
- o IMU data rate 200 Hz
- o Support for POSPac UAV post-processing software (included)
- o 336 Positioning Channels
 - GPS: L1 C/A, L2C, L2E (Trimble method for tracking unencrypted L2P), L5
 - GLONASS: L1 C/A, L2 C/A, L3 CDMA
 - BeiDou: B1, B2
 - Galileo1: E1, E5A, E5B, E5AltBOC
 - QZSS: L1 C/A, L1 SAIF, L2C, L5
 - SBAS: L1 C/A, L5
- Physical Characteristics
 - o Size: 98 x 88 x 31 mm
 - o Weight: 220g
 - o Power: 12V, 4W

- Input/Output
 - o Compatible with:
 - Sony A7R
 - Sony a6000
 - Phase One iXU
 - Can be used with any 5V TTL Event Input
- Logging
 - o Internal Logging: 6 GByte Flash memory
 - o External Logging: USB 2.0 Device port
 - o Parameters
 - Time tag, status, position, altitude, velocity, track and speed, dynamics, performance metrics, raw IMU data (200 Hz), raw GNSS data (5 Hz)

Environmental Characteristics

Temperature.....-40 deg C to +75 deg C (Operational)
-55 deg C to +85 deg C (Storage)
 Measurement Range.....+/- 6g⁶, +/- 300 dps
 Mechanical Shock.....+/- 75g Survival
 Operating Humidity.....5% to 95% R.H. non-condensing
at +60 deg C
 Maximum Operating Limits.....515 m/sec
18,000 m

PERFORMANCE SPECIFICATIONS² (RMS ERROR)

Unmanned Airborne Vehicle Applications

	SPS	DGPS	RTK ⁴	Post-Processed ⁵
Position (m)	1.5 - 3.0	0.5 - 2.0	0.02 - 0.05	0.02 - 0.05
Velocity (m/s)	0.05	0.05	0.02	0.015
Roll & Pitch (deg)	0.04	0.03	0.03	0.025
True Heading ³ (deg)	0.30	0.28	0.18	0.080

1 Developed under a License of the European Union and the European Space Agency
 2 Typical performance. Actual results are dependent upon satellite configuration, atmospheric conditions and other environmental effects
 3 Typical survey mission profile, max RMS error. Heading error will increase for low speed rotor applications and when hovering
 4 Requires base station and radio link, sold separately
 5 POSPac UAV, short base line operation
 6 Sensor bandwidth (-3 dB amplitude) -50 Hz
 7 Sold separately

