



## ArNav M Series

Navigation Systems for Drones, Land Vehicles  
and All Autonomous Systems

### KEY FEATURES

- Robust MEMS Technology
  - GNSS/INS with RTK and Dual Antenna capabilities
  - MEMS based alternative to the tactical systems
  - Ruggedized packaging and robust calibration
  - Easy to use with User APIs
  - Appropriate for challenging land, sea and air applications
- **ArNav** incorporates enhanced calibration techniques and a sophisticated Kalman filter to provide consistent performance in challenging dynamic conditions over a wide temperature range. Systems output high frequency position, velocity and attitude information in addition to calibrated 3D acceleration, rotation, magnetic field and pressure data. Double antenna systems yield accurate heading data even in static conditions.
- **Onboard Sensor Calibration**  
Highly sophisticated filters running on the system continuously estimates the errors of inertial sensors in an optimal manner to output highly accurate navigation solutions.
- **Magnetometer Calibration**  
Easy to use hard-iron and soft-iron calibration procedure for magnetometers.
- **Multi-Measurements**  
Various type of measurements may be switched on or off with respect to the needs of applications.
- **Double Antenna GNSS Based Heading**  
Two GNSS antenna based heading estimations maintain highly accurate heading data even under low dynamic situations.
- **Easy to Use**  
Hex and binary messages. Arview User Interface.
- **Multi-band GNSS**  
GNSS/INS with 184 channels (L1C/A, L1OF, E1, B1I, L2C, L2OF, E5b, B2I) and various constellations (GPS, GLONASS, Galileo, BeiDou, QZSS, SBAS)

Capabilities	M2G	M2GR	M2D	M2HD
Inertial Measurement	✓	✓	✓	✓
Magnetic Heading	✓	✓	✓	✓
Attitude	✓	✓	✓	✓
Pressure Altitude	✓	✓	✓	✓
Position & Velocity	✓	✓	✓	✓
GPS, GALILEO, GLONASS, Beidou	✓	✓	✓	✓
Multiple Band			✓	✓
Real Time Kinematic		✓	✓	
Double Antenna				✓

Performance	M2 Series
Accelerometer Full Range	±15 g
Gyroscope Full Range	±500°/sec
Output Update Rate	100 Hz
Roll, Pitch Accuracy	0.1°
Heading Accuracy (GNSS & Dynamic)	0.2°
Heading Accuracy (Magnetometer/Double Antenna)	1° / 0.1° (2 meter antenna separation)
Pressure Altitude Accuracy	< 10 m (with baro setting)
Position Accuracy (Horizontal-Vertical)	2.0 m -2.5 m
Position Accuracy (with L1 RTK)	10 cm -15 cm
Position Accuracy (with L1\L2 RTK)	2 cm -3 cm
Velocity Accuracy	0.05 m/s
Velocity Accuracy (with L1 RTK)	0.01 m/s
Velocity Accuracy (with L1\L2 RTK)	0.007 m/s

	Gyroscope	Accelerometer
Dynamic range	±500 °/s	±15 g
Bias repeatability	0.1°/s	4 mg
Bias stability	9°/hr	25 µg
Noise density	0.006°/s/√Hz	110 µg/√Hz
Alignment error	1 mrad	1 mrad
Bandwidth	190 Hz	190 Hz

Mechanical & Electrical	M2 Series
Size(mm)	62 x 60 x 30
Weight	< 200 g
Data & Power Connector	Fischer Ultimate Series
GNSS RF Connectors	SMA/SMA
Interface	Dual RS232 and RS422 (optional TTL, CAN)
Input Voltage	5V to 36V
Power Consumption	< 1 W
Operating Temperature	-40°C to +85°C

#### R&D Office :

Middle East Technical University  
Technopolis, Gumus Block, 29/24,  
06800, Ankara/Turkey

#### Phone :

+90 312 220 07 47

#### E-Mail :

info@ardiclabs.com