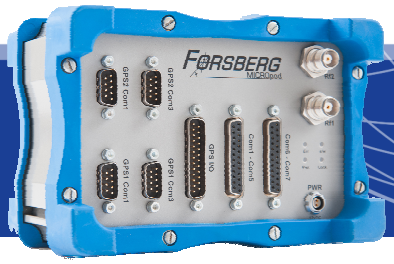
MICROpod

Enhanced GPS Receiver with Dynamic Applications



MICROpod-HDG model

We introduce the versatile MICROpod enhanced GNSS receiver. Combining GNSS with or without a programmable processor this receiver can utilise various firmware modules to provide bespoke, custom solutions and applications. FSL provide a range of EDGE-WARE software and firmware products maximising the GNSS receiver potential. A variation is the MICROpod-HDG which is a dual receiver system. A further option is designed for the Train Control Network (TCN). All variations can be paired with an IMU for full attitude determination. All provide accurate ,affordable position and velocity measurements.

MICROpod model

Features	Advantages
2 GPS COM PORTS (3 ports when no micro fitted) 4 GPS COM PORTS (HDG) .	Direct access to the GNSS receiver to allow for adding radios, IMU and other peripheral devices.
10 x 232/422 ports (when micro fitted) 1 x USB and CAN ports.	Connectivity for all purposes at up to 12 Mbit/sec.
Compliancy.	CE, FCC. IPX7 and RoHS. Railway standards (see reverse)
Optional 1 or 2 NovAtel GNSS receivers.	Fully featured GPS, GLONASS and Inertial product range. OEMStar, OEM615, OEM628, OEM638. (OEMV and OEM4)
Optional 1 or 2 Rockwell MPE GPS receivers.	SAASM P/Y code product range.

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MICROpod Performance[1]

Position Accuracy	95 %	CEP
Single Point L1	3.0 m	1.0 m
Single Point L1/L2	2.4 m	0.8 m
SBAS[13] L1	1.4 m	0.5 m
SBAS[13] L1/L2	1.2 m	0.4 m
DGPS (L1, C/A)	0.9 m	0.3 m
RT-2	1.2 cm	<0.5 cm +1 PPM
Terrastar-D	0.1m	0.04 m
CDGPS (free)	<1.0m	<0.50m

Static	5 mm + 1 ppm (hor.), 10 mm	+ 1 ppm (vert.)[3]
Rapid Static	5 mm + 1 ppm (hor.), 10 mm	+ 1 ppm (vert.)[3]
Kinematic, Stop & Go	10 mm + 1 ppm (hor.), 20 mm	+ 1 ppm (vert.)[3]

Azimuth Accuracy[4]	0.32° 95% (1m)[5] 0.08° 95% (4m)[5] 0.1° 95% (INS)	0.11° CEP (1m)[5] 0.03° CEP (4m)[5] 0.04° CEP (INS)
Roll, Pitch Accuracy[4]	0.5° 95% (1m)[5] 0.014° 95% (INS)	0.16° CEP (1m)[5] 0.005° CEP (INS)

Time Accuracy[6]	20 ns RMS
Velocity Accuracy	0.03 m/s RMS
Dynamics	
Velocity[7]	515 m/s
Vibration	20G option (sustained tracking)
Measurement Precision	
L1 C/A Code	6 cm RMS
L2 P (Y) Code	25 cm RMS (AS on)
L1 Carrier Phase	0.75 mm (differential channel)
L2 Carrier Phase	2 mm (differential channel)
Data Rate	
Measurements	Up to 100 Hz (100Hz inertial)
Position	Up to 100 Hz (100Hz inertial)
Latency	~7.5 milliseconds[12]
Time to First Fix	
Cold Start[8]	50 sec
Warm Start[9]	40 sec
Hot Start[10]	30 sec
Signal Reacquisition	
L1	0.5 s (typical)
L2	1.0 s (typical)
RTK Position Reaquisition[11]	< 5-8 seconds typical Continuous with inertial

MICROpod Physical & Electrical

Size	173 x 116 x 114 mm
Weight	~1.00 kg
Antenna LNA Power	
Output	+5 VDC
Output voltage	100 mA
Maximum current	
Power	
Input voltage:	+9 to 18VDC
Power consumption at a nominal 12VDC (typical values).	2.04W/3.1W (1 x OEM615/OEM628 fitted) 4.2W (with OEM638 fitted) 3.8W (2 x OEM615 fitted)
Maximum power rating: (external devices)	30W @ 12VDC nominal
Regulatory	IPX7, RoHS, FCC, CE, Options for EN50151, EN50121-3-2, DIN 5510, IP30, EN61373 Cat 1 Class B, IEC61375 (Train Control Network)
Environmental	
Temperature	
Operating	-40°C to 85°C
Storage	-40°C to 85°C

1. Typical values. Performance specifications subject to GPS system characteristics, US DOD operational degradation, ionospheric conditions, satellite geometry, baseline length, and multipath effects.
2. Expected accuracy after three minute static convergence.
3. 95% confidence level.
4. Accuracy obtained using a baseline length of 3 to 10 metres.
5. Where BL (baseline) is antenna separation in metres.
6. Time accuracy does not include biases due to RF or antenna delay.
7. Export licensing restrictions apply.
8. Typical value. No almanac or ephemeris and no approximate position or time.
9. Typical value. Almanac saved and approximate position and time entered. No recent ephemeris.
10. Typical value. Almanac and recent ephemeris saved and approximate position and time entered.
11. After a complete loss of satellite signals this is the typical period the receiver takes to compute an acceptable position in a high dynamics scenario.
12. Dependant on choice of output message
13. SBAS includes WAAS, EGNOS and MSAS type systems.

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