

FRII-Plus-INS Receiver

GNSS + INS RECEIVER

DELIVERS RELIABLE CENTIMETER ACCURATE POSITIONS

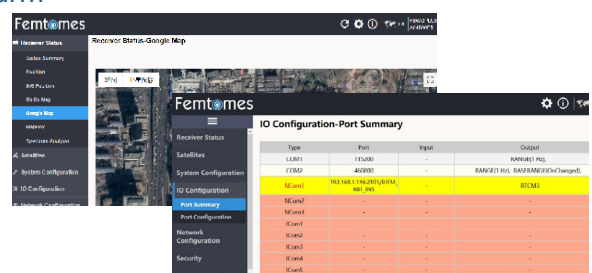


Benefits

FRII-Plus-INS Receiver is a robust high precision receiver which combines advantages of two different but complementary technologies: the absolute accuracy positioning of Global Navigation Satellite System (GNSS) and the stability of Inertial Measurement Unit (IMU). This product provides an excellent price/performance/size GNSS+INS solution delivering a stable and continuously available 3D position, velocity and attitude, even through periods when satellite signals are blocked. The GNSS engine of FRII-Plus-INS supports multiple frequencies from GPS, GLONASS, GALILEO, BDS and QZSS delivers centimeter level real-time positioning. The FRII-Plus-INS integrates a high performance MEMS IMU in a single sealed box as well as various ports and connectivity options, which is highly convenient for you to integrate in your own applications. A built-in web UI enables fast configuration, graphic information display and convenient firmware upgrade in the field.

Features

- GPS, BDS, GLONASS, GALILEO, QZSS multi-frequency support
- Centimeter level high precision RTK positioning
- High performance MEMS IMU integrated
- Integrated DTU supports 4G LTE connection
- Rich peripheral: Serial Port, USB 2.0 OTG, Ethernet, CAN/RS422, TF Card, PPS, event, etc.
- International Protection code 67 (IP67)
- Support NMEA-0183 data output
- Support Femtomes ASCII/Binary data output, BINEX
- Easy Web GUI access, fast configuration, graphic display and firmware upgrade via web browsers
- Support NTP, FTP download, FTP Push, EMAIL abnormal alarm



Performance Specifications

Femto**mes**

Frequency	GPS	L1/L2/L5	Measurement (RMS)	BDS	GPS	GLONASS	GALILEO	QZSS
	BDS	B1/B2/B3	B1/L1 C/A /E1Code	10cm	10cm	10cm	10cm	10cm
	GLONASS	L1/L2	B1/L1 /E1 Carrier Phase	1mm	1mm	1mm	1mm	1mm
	GALILEO	E1/E5a/E5b	B2/L2P(Y) /E5b Code	10cm	10cm	10cm	10cm	10cm
	QZSS	L1/L2	B2/L2 /E5b Carrier Phase	1mm	1mm	1mm	1mm	1mm
Single Point	Horizontal	1.5m	B3/E5a Code	10cm			10cm	
Position L1 (RMS)	Vertical	3.0m	B3/E5a Carrier Phase	1mm			1mm	
Single Point	Horizontal	1.2m	Initialization Time	< 10 s (Typical)				
Position L1+L2 (RMS)	Vertical	2.5m	Time to First Fix	Cold Start : 40s (Typical)				
DGNSS(RMS)	Horizontal	0.4m		Warm Start: 30s (Typical)				
	Vertical	0.8m		Hot Start: 5s (Typical)				
RTK (RMS)	Horizontal	10mm +1ppm	Differential Data	RTCM2.x/3.x CMR CMR+				
	Vertical	15mm +1ppm	Data Format	NMEA-0183、BINEX				
Velocity Accuracy(RMS)	0.03m/s			Femto mes ASCII or Binary				
Time Accuracy (RMS)	20ns		GNSS Data Rate	1Hz / 5Hz / 10Hz / 20Hz				
Inertial Navigation Accuracy	< 5% x driving distance (No GNSS signal, within 30s)		INS/RAW IMU Data Rate	up to 200Hz				

IMU Performance

Gyroscope	Acceleration		
Range: Roll, Pitch	± 200 (°/sec)		Range: X, Y, Z ± 4(g)
Bias Instability	6 (°/hr)		Bias Instability 0.02 (mg)
Scale Factor Accuracy	<0.1 (%)		Scale Factor Accuracy <0.1 (%)
Angle Random Walk	0.3 (°/ √ hr)		Angle Random Walk 0.05 (m/s/ √ hr)

PERFORMANCE DURING GNSS OUTAGES

Outage Duration	Positioning Mode	POSITION ACCURACY (m) RMS		VELOCITY ACCURACY (m/s) RMS		ATTITUDE ACCURACY (DEGREES) RMS		
		Horizontal	Vertical	Horizontal	Vertical	Roll	Pitch	Heading
0S	RTK	0.02	0.03	0.02	0.02	0.02	0.02	0.09
	SP	1.00	0.60	0.02	0.02	0.02	0.02	0.09
	PP	0.01	0.02	0.01	0.01	0.01	0.01	0.04
10S	RTK	0.25	0.15	0.07	0.03	0.04	0.04	0.13
	SP	1.25	0.70	0.07	0.03	0.04	0.04	0.13
	PP	0.01	0.02	0.02	0.01	0.01	0.01	0.04

Physical Specifications

Dimensions	174 x 134 x 56 mm	Temperature	Operating : -40°C ~85°C
Weight	950g		Storage :-55°C ~95°C
Antenna Connector	TNC-F	Humidity	95% non-condensing
4G Antenna	SMA-F	Vibration	GJB150.18-2009, MIL-STD-810
I/O	10/12 Pin aviation plug	Shock	GJB150.16-2009, MIL-STD-810
Protection Class	IP67		

Electrical Specifications

Voltage	9-36VDC(Typical 12VDC)	Impedance matching	50Ω
Power Consumption	5.0W (Typical)		

Functional Ports

Serial Port	2x UART	CAN / RS422	1x CAN or 1x RS422
	UART 3.3V LV-TTL	Communication	Internet、4G、Radio (optional)
	Up to 460800bps	PPS	1x LV-TTL 3.3V/5V
USB	1x USB 2.0 OTG	Event	1x LV-TTL 3.3V/5V

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