SIGMA

Multi-Purpose GNSS Receiver

Key Features

- All GNSS Constellations
- Cell & Radio
- NTRIP Server / Caster
- GNSS Heading & IMU
- Ethernet, USB, Serial
- WiFi & Bluetooth
- CAN, Event, 1PPS
- External Frequency I/O

The SIGMA is a versatile receiver designed for multiple applications that require RTK, with options for GNSS Heading and roll / pitch from a MEMS IMU. With an internal battery, 2 power inputs, and all typical I/O, the SIGMA readily serves multiple GNSS configurations. Featuring integrated cell and radio communications, the SIGMA may be a Reference Station, with NTRIP Caster and Server functions to transmit RTCM corrections via TCP or NTRIP.

SIGMA Specifications

Number of Channels	**874**			
GNSS Constellations	GPS	L1 C/A, L1C, P1, P2, L2C, L5		
	GLONASS	L1 C/A, P1, P2, L2 C/A, L3		
	GALILEO	E1, E5, E5A, E5B, E6		
	BeiDou	B1, B1-2, B1C, B5A, B2, B5B, B3		
	QZSS	L1 C/A, L1C, L2C, L5, L6, L1S, L1Sb, L5S		
	SBAS	L1, L5		
	NavIC	L1 (P+D), L5, S-Band		
	L-Band	1525-1560 MHz		
GNSS Accuracy (RMS)		**Horizontal (m)**	**Vertical (m)**	
	Autonomous (Stand alone)	1.000	1.500	
	SBAS	0.500	0.850	
	DGPS	0.250	0.500	
	JStar (PPP)	0.025	0.050	
	RTK	0.008 + 1 ppm	0.015 + 1 ppm	
	Network RTK	0.008 + 0.5 ppm	0.015 + 0.5 ppm	
	Static/Fast Static	0.003 + 0.1 ppm	0.004 + 0.4 ppm	
	Heading	< 0.09 deg (2m basline)		

GNSS+INS Accuracy (RMS)	**Outage (s)**	**Position Mode**	**Position Accuracy**		**Attitude Accuracy**	
			Horizontal (m)	Vertical (m)	Heading (deg)	Pitch/Roll (deg)
	0	Stand Alone	<1	<1.5	<0.09 2 m baseline	0.04
		RTK	0.008	0.015		
	10	Stand Alone	<1.5	<1.8	<0.20	0.07
		RTK	0.2	0.3		

Time to First Fix	Cold / Warm Start	< 35 s / < 5 s
	Reacquisition	< 1 s
	RTK Initialization	2 to 6 s
Output Rate	Position / Measurments	**3S**: Up to 200 Hz; **DMI**: Up to 100 Hz
	Attitude	**DMI**: Up to 100 Hz
Cell	4G LTE	LTE-FDD, LTE-TDD, DC-HSPA+, HSPA+, HSPA, UMTS (SMA)
Radio	UHF Radio Modem	1W TPO / 2 W EIRP, 406-470MHz UHF transceiver (SMA)
	UHF FH915 (optional)	1W TPO / 2 W EIRP 902-928/ 868-870 MHz ISM transceiver (RP-SMA)
Memory	Non-removable	Up to 64 GB
Status/Interface	LEDs / Keys	2 Buttons: Power & Function
		7 LEDs: Power, Status, Recording, Radio, Cellular, Wi-Fi, Bluetooth
Communication	Ethernet	Full-duplex 10BASE-T/100BASE-TX (7-pin ODU)
	Wi-Fi	5GHz and 2.4GHz, 802.11 a/b/g/n/ac (R-SMA)
	Bluetooth	v5.1, Dual-Mode (R-SMA)
	USB	USB 2.0 (480 Mbps) dual-role port (5-pin ODU)
	Serial	2 x RS232 up to 460.8 kbps (7-pin ODU)
	Serial/CAN	1 x RS232 / RS422 / CAN 2.0 with +12 VDC, 250 mA max (M12, 8 pin)
	1PPS	2 x 1PPS (BNC)
	Event Marker	2 x Event Marker (BNC)
	External Frequency I/O	5 / 10 / 20 MHz (BNC)
	GNSS Antenna	+5 VDC, 0.2 A max (TNC); **3S**: 1 antenna; **DMI**: 2 antennas
Power	Input / Voltage	2 ports, 5-pin ODU, +10 to +30 VDC
	Internal Battery	Rechargeable Li-Ion Battery, 42500 mWh (nom.)
	Operation Time	18 hours
Physical & Environmental	Operating / Storage Temps	-40°C to +65° C / -40°C to +85°C
	Humidity	100%
	Ingress Protection	IP68
	Shock/ Vibration	MIL-STD-810H Method 516.8 / MIL-STD-810H Method 514.8
	Dimensions	212 x 132 x 62 mm
	Weight	1.5 kg

SIGMA Family Nomenclature
3S: single antenna; **DMI**: dual antenna w/ MEMS IMU

GNSS performance is dependent on signal quality, satellite geometry, ionospheric and tropospheric conditions, baseline length, multipath effects and RF interference. Specifications may be changed without notice.