SIGMA

for TRE-G2T, TRE-G3T, TRE-G3TAJ, Duo-G2, Duo-G2D, Quattro-G3D

SIGMA receivers' family is based on our TRIUMPH Technology implemented in our TRIUMPH Chip and is designed to meet all the needs of today's high precision GNSS satellite receiver market.

For the first time in the GNSS history we offer up to 100 Hz RTK. 216 channels of single or dual frequency GPS, Galileo and GLONASS in a small attractive, sturdy, and watertight box. SIGMAS contains either TRE-G2T, TRE-G3T, or TRE-G3TAJ, SIGMAD contains Duo-G2 or Duo-G2D, and SIGMAQ contains Quattro-G3D board.

With the ability to process GPS, Galileo and GLONASS L1/L2, E1 signals as well as SBAS and L5, E5 if necessary, the SIGMA receivers work with optimum signal available creating the most reliable results, saving your time and money.

SIGMAD and SIGMAQ receivers process the dual frequency code and carrier data from two, or four antennas to determine the three orientation angles and three dimensional position up to 100 times per second.

SIGMA is very useful in the most of high accuracy applications, such as reference stations and CORS.

The on-board power supply on SIGMA receiver accepts any voltage from +10 to +30 volts and delivers clean filtered voltage where needed. SIGMA receiver also includes TriPad (two LEDs, ON/OFF and function button), GSM module, UHF modem, and batteries. In addition, the receiver comes with large amount of flash for data storage. The CAN interface in the SIGMA receivers is provided complete with all associated hardware and firmware, not just the CAN bus. CANopen slave protocol is provided optionally. The same is true with all the serial RS232/RS422 ports in SIGMA.

SIGMA

SigmaS.
Universal standard GNSS receiver

SIGMAS receiver includes TriPad (two LEDs, ON/OFF and function button), GSM module, UHF modem, Ethernet capability, up to two serial ports, up to two even markers and 1PPS timing strobes, and recargeable batteries.

The well-designed and implemented SIGMAS receiver will be very useful in your surveing applications, and work can begin within minutes of arriving at a site.

SigmaD.
Real-Time Heading

Usually, one needs two receivers interconnected through the serial ports. One of them is a moving base and another is a rover. SIGMAD combines both boards connected internally in one unit. SigmaD is a powerful receiver for high accuracy applications, such as reference stations and CORS.

SigmaQ.
Real-Time Attitude and Position calculation

The dual frequency code and carrier frequency data are processed to determine the three orientation angles and three-dimensional position up to 100 times per second.

SIGMAQ can also operate in the RTK or DGPS modes receiving differential corrections from an external base station to provide differentially corrected position and velocity.

Standard Configuration
- GPS L1/L2, L5 (G2T, G3T, G3TAJ only)
- GLONASS L1/L2 (G3T, G-3TAJ, Q-G3D only)
- Galileo E1 (D-G2, D-G2D, Q-G3D only)
- RAIM
- TriPad Interface
- RS232 Serial Port (460.8 kbps)
- External GNSS Antenna TNC Female connector

Optional Feature
- Update Rate 1 Hz, 5Hz, 10Hz, 20Hz, 50Hz & 100Hz
- RTK Rate 1 Hz, 5Hz, 10Hz, 20Hz, 50Hz & 100Hz
- Data Recording up to 2048MB
- Multi-Base Code Differential Rover
- Code Differential Base
- Advanced Multipath Reduction
- In-Band Interference Rejection
- Two Event Markers
- Two 1 PPS timing strobes
- CAN 2.0 port
- Up to 2 high Speed (460.8 kbps) RS232 Serial Ports
- High speed RS422 serial port (up to 460.8 kbps)
- USB port
- Ethernet
- Internal UHF Modem
- Internal GSM/GPRS Module
- External UHF/GSM Antenna Connector
- KFK WAAS/EGNOS (SBAS)
- 2x External Power Inputs
- Mounting Bracket

Specifications are subject to change without notice.

Features/Receiver Type	SigmaS			SigmaD		SigmaQ
	G2T	G3T	G3TAJ	G2	G2D	
Channels	216					
GPS L1	√	√	√	2	2	4
GPS L2/L2C	√	√	√	-	2	4
GPS L5	√	√	√	-	-	-
Galileo E1	√	√	√	2	2	4
Galileo E5	√	√	√	-	-	-
GLONASS L1	-	√	√	-	-	√
GLONASS L2	-	√	√	-	-	√
SBAS	√	√	√	√	√	√
Max no. satellites tracked	all in view					
Size, mm (WxHxD)	132 x 61 x 190					
Weight, g	1270	1277		1290		1330
Autonomous Accuracy	<2m					
Static, Fast Static Accuracy	Horizontal: 0.3 cm + 0.5 ppm * base_line_length Vertical: 0.5 cm + 0.5 ppm * base_line_length					
Kinematic Accuracy	Horizontal: 1 cm + 1 ppm * base_line_length Vertical: 1.5 cm + 1.5 ppm * base_line_length					
RTK (OTF) Accuracy	Horizontal: 1 cm + 1 ppm * base_line_length Vertical: 1.5 cm + 1.5 ppm * base_line_length					
Real time attitude accuracy	-			Heading ~ 0.004/L [rad] RMS, where L is the antenna separation in [m]		
DGPS Accuracy	< 0.25 m Post Processing, < 0.5 m Real Time					
Pos/ fix update rate	up to 100 Hz			up to 50 Hz RTK +heading	up to 20 Hz RTK+attitude	
Cold start	<35 s					
Warm start	<5 s					
Reacquisition	<1 s					
GSM/GPRS Module	Internal GSM/GPRS quad-band module, GPRS Class 10					
UHF Radio Modem	Internal 406-470 MHz radio transceiver, up to 38.4 kbps					
Base Power Output	1 Watt					
IBIR	-	√		-		-
External Frequency	√			-		√
RS232	2					
RS422	1					
USB	1					
Ethernet	√					
CAN	1					
IRIG	√					
Event Marker	2					
1PPS	2					
Battery	Two internal Li-Ion batteries (7.4 V, 4.4 Ah each)					
Operating Time	Up to 15 hours					
External power input	2, 1 - primary,1 - secondary port(s)					
Input Voltage	+10 to +30 volts					
TriPad	Two buttons, two LEDs					
On-board flash, MB	2048					
Enclosure	Aluminum extrusion, waterproof IP67					
Operation temperature	-30 ° C to +55° C (with batteries) -40° C to +80° C (without batteries)					
Storage temperature	-20° C to +45° C (with batteries) -45° C to +85° C (without batteries)					
GNSS Antenna	External					
Real time data outputs	RTCM SC104 versions 2.x and 3.x Input/Output					
ASCII Output	NMEA 0183 versions 2.x and 3.0 Output					

JAVAD GNSS
www.javad.com

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