

SIGMAQ

for QUATTRO-G3D

Dual frequency satellite-based four-antenna system SIGMAQ is a receiver based on our TRIUMPH Technology implemented in our TRIUMPH Chip. For the first time in the GNSS history we offer up to 100 Hz RTK. SigmaQ is a powerful receiver for high accuracy applications. The dual frequency code and carrier data from four antennas are processed to determine the three orientation angles and three dimensional position up to 100 times per second.

216 channels of single or dual frequency GPS, Galileo and GLONASS in a small attractive, sturdy, and watertight box, which contains Quattro-G3D board.

The on-board power supply on SIGMAQ receiver accepts any voltage from +10 to +30 volts and delivers clean filtered voltage where needed. This eliminates the risk of power contamination (ripples) that can be created when clean power is generated elsewhere and delivered to the board via cables. SIGMAQ 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 SIGMAQ receiver is provided complete with all associated hardware and firmware, not just the CAN bus. The same is true with all the serial RS232/RS422 ports in our receiver. Simply stated, additional functions are not needed to incorporate any of our SIGMAQ Receiver in most applications.

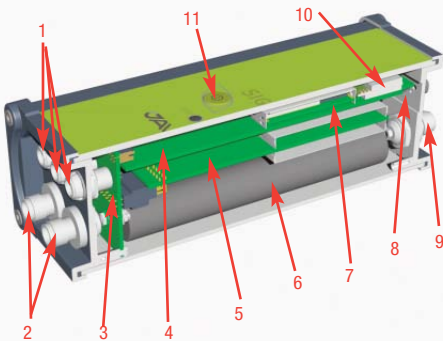
In addition to timing strobe and event marker, the SIGMAQ receiver includes the option of complete IRIG timing system.

Standard Configuration

- SIGMAQ Receiver (0 MB)
- GPS L1/L2
- GLONASS L1/L2
- Galileo E1
- RAIM
- TriPad Interface
- RS232 Serial Port (460.8 kbps)
- 4x External GNSS Antenna TNC Female connector
- Rechargeable Li-Ion Batteries

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
- External Reference Frequency input
- 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
- KFK WAAS/EGNOS (SBAS)
- 2x External Power Inputs
- Mounting Bracket



1. Communication and Power Ports
2. External GNSS Antenna Connectors
3. GNSS Interconnect Board
4. GNSS Power and Communication Board with on-board SIM-card
5. GNSS Receiver with on-board Memory
6. Rechargeable Li-Ion Battery Pack
7. UHF Modem
8. SIM Card Holder
9. External UHF/GSM Antenna Connectors
10. GSM Modem
11. On/Off Button

Specifications are subject to change without notice.

Description

Total 216 channels: all-in-view (GPS L1/L2, Galileo E1, GLONASS L1/L2, SBAS) integrated receiver, rugged aluminum housing complete with TriPad interface

Tracking Specification

| | |
|---------------------------------|--|
| Tracking Channels SIGMAQ-G3D | 1x (GPS L1/L2, Galileo E1, GLONASS L1/L2, SBAS)+3x (GPS L1/L2, Galileo E1, SBAS) |
| Signals Tracked | L1/L2 C/A and P Code & Carrier |

Performance Specifications

| | |
|------------------------------|--|
| Autonomous | <2 m |
| 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 |
| DGPS Accuracy | < 0.25 m Post Processing < 0.5 m Real Time |
| Real time attitude accuracy | Heading ~ 0.004/L [rad] RMS, where L is the antenna separation in [m] |
| Cold Start | <35 seconds |
| Warm Start | <5 seconds |
| Reacquisition | <1 second |

Power Specification

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|----------------------|--|
| Battery | Two internal Li-Ion batteries (7.4 V, 4.4 Ah each) with internal charger |
| Operating Time | Up to 15 hours |
| External power input | 2, 1 - primary, 1 - secondary port(s) |
| Input Voltage | +10 to +30 volts |

GNSS Antenna Specifications

| | |
|--------------|----------|
| GNSS Antenna | External |
|--------------|----------|

Radio Specifications

| | |
|-------------------|---|
| 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 |

I/O

| | |
|---------------------|--|
| External Power port | 2 ports |
| Communication Ports | 2x serial (RS232) up to 460.8 kbps High speed RS422 serial port (up to 460.8 Kbps) High speed USB 2.0 device port (480 Mbps) Full-duplex 10BASE-T/100BASE-TX Ethernet port CAN |
| Other I/O Signals | External Reference Frequency input 2x 1 PPS synchronized 2x Event Marker IRIG |
| Status Indicator | Two LEDs, two function keys (TriPad) |

Memory & Recording

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|--------------------|---|
| Internal Memory | Up to 2048MB of onboard non-removable memory for data storage |
| Raw Data Recording | Up to 100 times per second (100Hz) |
| Data Type | Code and Carrier from GPS L1/L2/Galileo E1/GLONASS L1/L2 |

Data Output

| | |
|------------------------|--|
| 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 |
| Output Rate | Code and Carrier |

Environmental Specifications

| | |
|-----------------------|---|
| Enclosure | Aluminum extrusion, waterproof IP 67 |
| Operating 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) |
| Humidity | 95% non-condensing |
| Dimensions | W: 132 mm x H: 61 mm x D: 190 mm |
| Weight | 1330 g |

