REACT

GNSS SMART ANTENNA

PRECISION PERFORMANCE IN THE TOUGHEST CONDITIONS

- **High Precision: 1cm RTK to 1.5m Single Point**
- **Multi-frequency and constellation**
- **Interference detection and rejection**
- **Robust and rugged enclosure**
- **Built-in processor for custom applications**

REACT (Receiver Antenna Compact Technology) is a compact, rugged enclosure containing a high quality GNSS receiver, antenna offering a cost effective and flexible solution to your requirements. REACT provides the latest technology for precise positioning, velocities, heading and attitude using GNSS on its own or inertial navigation.

FUTURE PROOF

With a multi-frequency and multi-constellation engine, REACT can be scaled to suit the application and can be upgraded through software when requirements change.

SCALABLE PRECISION PERFORMANCE

REACT can operate as a single position to 1.5m or upgraded to use correction sources and achieve positions as precise as 1cm (RTK). The REACT is well suited to operate as an RTK base station or a rover and can be configured to output GNSS heading. REACT can be connected to an IMU to create an Inertial Navigation System.

BUILT FOR RUGGED ENVIRONMENTS

REACT has been qualification tested against a strict set of standards to ensure that the system can operate in harsh environments. The compact, rugged enclosure is MIL-STD qualified with respect to EMC, shock, vibration and environmental standards. A full list is found on the back of the data sheet.

INTERFERENCE PROTECTION

High performance NovAtel OEM7 receiver provides options for signal protection against interference and jamming.

REACT VARIANTS

The REACT is a modular product which can be constructed to meet a variety of applications. The R models contain a single frequency L1 GPS + GLONASS antenna, for dual frequency L1/L2 or L1/L5 quad constellation a Q model is required.
NS models provide RS232/422, USB and CAN communication ports in addition to PPS and event strobes with options of straight or right angled I/O connector cables. The NSc models have an integrated centre feed I/O cable from the base of the unit.

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REACT SPECIFICATIONS

PERFORMANCE[1]

Horizontal Position Accuracy (RMS)

Single Point L1	1.5m
Single Point L1/L2	1.2m
SBAS[2]	0.6m
DGPS	0.4m
RTK	1cm + 1ppm
RTK Initialisation Time	<10 sec

Azimuth Accuracy[3] (ALIGN)	0.1° (2m), 0.05° (4m)[4]
Roll, Pitch Acuracy[3] (ALIGN)	0.2° (2m), 0.01° (4m)[4]
Time Accuracy[4]	20 ns RMS
Velocity Accuracy	0.03 m/s RMS - 0.05 m/s RMS
Velocity[5]	515 m/s
Vibration	Up to 20G (sustained tracking)

Channel Configuration

Up to 555 Channels[12]

ReACT-RNS	GPS L1, GLONASS L1
ReACT-QNS L1/L2	GPS L1/L2, GLONASS G1/G2/G3, Galileo E1/E5b, BeiDou B1/B
ReACT-QNS L1/L5	GPS L1/L5, GLONASS G1, Galileo E1/E5a, BeiDou B1/B2a, NavIC L5

Measurement Precision (RMS)

L1 C/A Code	4cm	L1 Carrier Phase	0.50mm (differential channel)
L2 P(Y) Code[7]	8cm	L2 Carrier Phase	1.00mm (differential channel)
L5 Code	3cm	L5 Carrier Phase	0.50mm (differential Channel)

Data Rates (Measurements and Positions)

Up to 100Hz

Time to First Fix

Cold Start[8]	<50 sec
Hot Start[9]	<35 sec

Signal Reacquisition

L1	0.5 sec (typical)
L2 & L5	1.0 sec (typical)
RTK position reacquisition[10]	5-8 sec

1-Typical values. Performance specifications subject to GPS system characteristics, US DOD operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference sources. Independent tests performed at FSL office using L1L2 GPS+GLO showed improved performance figures than the stated typical values.
2-SBAS includes WAAS, EGNOS and MSAS type systems, GPS only.
3-Accuracy obtained using a baseline length of 2 to 4 metres.
4-Time accuracy does not include biases due to RF or antenna delay.
5-Export licensing restrictions apply.
6-Dependant on receiver model installed
7-L2 P for GLONASS
8-Typical value. No almanac or ephemeris and no approximate position or time.
9-Typical value. Almanac and recent ephemeris saved and approximate position and time entered.
10-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.
11-GPS L1/L2, GLONASS L1/L2
12 –Depends on hardware model

PHYSICAL AND ELECTRICAL

Dimensions	NS/D5: 116mm x 116mm x 84mm NSc/D5c: 116mm x 116mm x 79mm
Data Cable Length	5m 1m ('c' Models with centre mount cable)
Weight	~600g
Input voltage	+9 to +36 VDC
Power consumption at typical values	<3W[12] typical

Communication Ports

1× RS232 / RS422
1x RS232
2x RS232 EDGE-WARE ports (D5 Model)
1x CAN 1Mbps (D5 model)
1x USB 2.0, 12 Mbps
Auxiliary strobe signals, including a configurable PPS output for time synchronization and mark.

FEATURES AND MOUNTING

3x M6 for plate mounting (standard)
3x 10-32 UNF for plate mounting (optional)
5/8" thread for centre mounting (NS/D5 only)
Field-upgradeable software
PAC multipath mitigating technology
Differential GPS positioning
Differential correction support for RTCM 2.1, 2.3, 3.0, 3.1, CMR, CMR+ and RTCA
EDGE-WARE Modules

ENVIRONMENTAL

Temperature

Operating	–32°C to +75°C
Storage	–40°C to +85°C

Regulatory:

EMC	European CE, 89/ EEC EN 55022 Class B, EN50082-1
EMC	MIL-STD-461F (Ground, Army), FCC Class A
Immersion	MIL-STD 810F, method 512.4, IEC 60529 IPX7
Humidity	MIL-STD 810F, method 507.4, procedure 1
Salt Spray	MIL-STD 810F, method 509.4
Sand and Dust	MIL-STD 810F, method 510.4
Fluids Susceptibility	MIL-STD-810F, method 504
Vibration	MIL-STD 810F, method 514.5, Category 20 MIL-STD 810E, method 514.4 tbl. 514.4-AXVII
Shock	MIL-STD 810F, method 516.5, Procedure I, IV
Electrostatic Discharge (ESD)	IEC 61000-4-2 level 2 (± 4 KV)
Ultraviolet Light Protection	MIL-STD-810F, method 505.4
Compliancy	RoHS, WEEE

Includes NovAtel's GNSS Engine

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