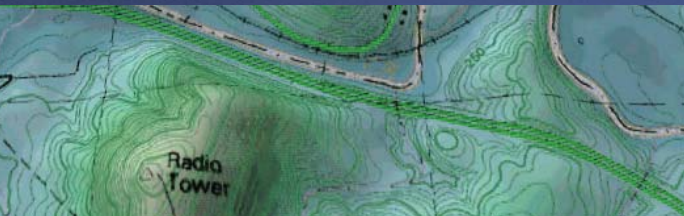


# SF-2040G

## gps products



NavCom's SF-2040G integrated StarFire™ receiver provides instant position information and decimeter accuracy anywhere in the world, anytime. With StarFire, you no longer need a base station to achieve decimeter accuracy. Onboard memory and a geodetic quality antenna enable millimeter level accuracy from post-processing.

### APPLICATIONS

The highly integrated SF-2040G solution is designed for productivity with minimal setup time. Two removable rechargeable batteries provide more than 10 hours performance to get you through a full day of surveying without the need to carry spare batteries. Simply connect your controller solution to the serial port, and receive position data in NMEA format or for additional monitor and control capability, use a NavCom Partner controller solution. The housing is rugged and waterproof, designed to survive a 2m-pole drop, and temporary complete immersion in water.

The primary operating mode uses the StarFire service providing decimeter level accuracy for immediate results in the field; great for navigation and relocation of existing assets. The two onboard WAAS/EGNOS channels provide free GPS corrections, which coupled with dual frequency measurements and NavCom's enhanced SBAS algorithm typically provide half-meter real-time accuracy.

### BENEFITS

The SF-2040G receiver uses our NCT-2100D GPS Engine, the fourth generation of the Touchstone™ ASIC family, of which more than 25,000 are in use worldwide. The SF-2040G incorporates our patented interference suppression and multi-path mitigation, up to 50Hz raw data rate, and geodetic quality positioning up to 25Hz.

The antenna utilizes a tri-band design with an integral ground plane to track GPS, SBAS and StarFire satellites all through one element. This new antenna design provides excellent phase center stability.

Coupled with the StarFire subscription service, the SF-2040G delivers 10 cm position fixes without the use of a second receiver serving as a base station. Add the RTK

Option and an external radio, and the SF-2040G is capable of performing centimeter accurate RTK surveys.

### FLEXIBLE INTERFACE

The SF-2040G is easily configured by the included Windows®-based utility program. For system integrators needing maximum flexibility, the receiver offers the NCT binary user interface that allows complete command and control of the GPS and L-Band Module, thus enabling customization of the interface and receiver operation.

### FEATURES

- Fully integrated receiver in robust housing
- "All-in-view" tracking on 26 channels (12 L1/L2 GPS + 2 SBAS)
- Global decimeter level accuracy using StarFire™ corrections
- Fully automatic acquisition of StarFire™ broadcast corrections
- 2 dedicated WAAS/EGNOS channels
- L1 & L2 full wavelength carrier phase tracking
- C/A, P1 & P2 code tracking
- Two "hot-swappable", rechargeable, lightweight battery packs
- 64MB internal memory for data recording
- User programmable measurement and navigation data rates
- Minimal data latency
- Superior interference suppression
- Patented multipath rejection
- Output format NMEA 0183 or NavCom binary format
- TruBlu™ Wireless Connectivity, Bluetooth® compatible

### UPGRADES

- Raw measurement data rates up to 50Hz
- Positioning rates up to 25Hz
- RTK positioning rates as fast as 25Hz (external comm-link required)
- RTK Extend™ - RTK positioning during comm. outages



**Integrated GPS**

**and StarFire™**

**receiver provides**

**worldwide decimeter**

**level accuracy**

**anywhere, anytime**



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## SF-2040G TECHNICAL SPECS

### PHYSICAL/ENVIRONMENTAL

- Size: .....10.4"W x 5.5"H  
(264mm x 140mm)
- Weight: .....5.5lb (2.5kg)
- External Power:  
Input Voltage: .....10 VDC to 30 VDC  
Consumption: .....< 8 W
- Connectors:  
I/O: .....2 x 7 pin Lemo  
DC Power: .....4 pin Lemo
- Temperature (ambient):  
Operating: .....-40° to +55°C (-40° to +131°F)  
Storage: .....-40° to +85°C (-40° to +185°F)
- Humidity: .....95% non-condensing
- Tested in accordance with MIL-STD-810F for:  
low pressure, solar radiation, rain, humidity, salt fog,  
sand & dust, and vibration

### PERFORMANCE 1

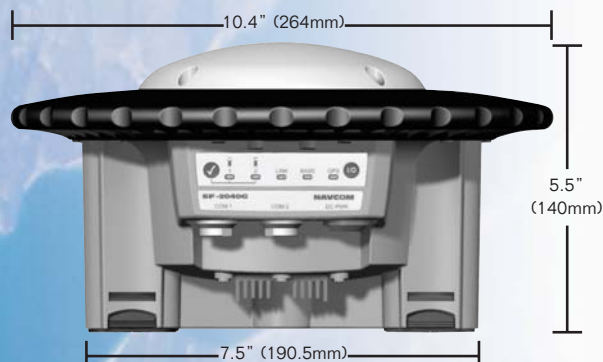
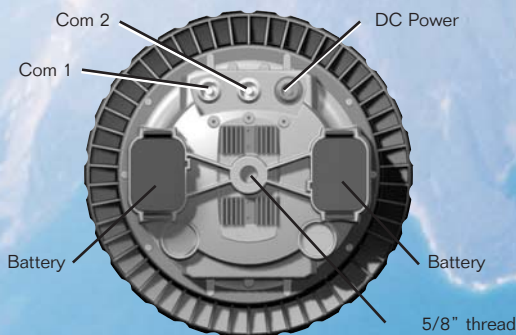
- Measurement Precision (RMS):  
Raw C/A code: .....20 cm @ 42 dB-Hz  
Raw carrier phase noise: .....L1: 0.95 mm @ 42 dB-Hz  
L2: 0.85 mm @ 42 dB-Hz
- Velocity: .....0.01 m/s
- Real-time StarFire Accuracy (RMS):  
Position (H): .....<10 cm  
Position (V): .....<15cm
- Enhanced SBAS (WAAS/EGNOS) Positioning Accuracy (RMS):  
Horizontal: .....0.5m  
Vertical: .....0.7m
- RTK Positioning <10kms (Software option)(RMS):  
Horizontal: .....1 cm + 1ppm  
Vertical: .....2 cm + 1ppm

- RTK Extend (Software option) (RMS):  
Horizontal: .....2 cm + 1ppm  
Vertical: .....4 cm + 1ppm
- Code Differential GPS Positioning <200kms (RMS):  
Horizontal: .....12 cm + 2ppm  
Vertical: .....25 cm + 2ppm
- User programmable output rates:  
Position Velocity Time: .....5 Hz (10Hz, 25Hz Optional)  
Raw measurement data: ..5 Hz (10Hz, 25Hz, 50Hz Optional)
- Data Latency:  
Position Velocity Time: .....< 20 ms at all rates  
Raw measurement data: .....< 20 ms at all rates
- Time-to-first-fix:  
Cold Start, Satellite Acquisition: .....< 60 seconds (typical)  
Satellite Reacquisition: .....< 1 second
- Dynamics: (Speed & Altitude restricted by export laws)  
Acceleration: .....up to 6g  
Speed: .....< 1,000 knots (515 m/s)  
Altitude: .....< 60,000 ft (18.3km)

<sup>1</sup> Performance dependent on location, satellite geometry, atmospheric conditions and GPS corrections.

### COMMUNICATIONS

- Messages:  
Data/Control: .....NCT Binary Messages  
NMEA: .....ALM, GGA, GLL, GSA, GST, GSV,  
RMC, VTG, ZDA
- Corrections: .....RTCM Code (Msg. 1, 3 & 9)  
SBAS (WAAS/EGNOS)  
StarFire™
- RTK Corrections: .....NCT Proprietary  
(Optional) .....RTCM (Msg. 18/19 or 20/21)  
CMR (Msg. 0, 1, 2)  
CMR+



Technical specifications are subject to change at NavCom's discretion.  
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