



HORNET SERIES (ORG14XX)

FULLY INTEGRATED GPS MODULE

Datasheet

OriginGPS.com



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1. SCOPE

This document is a quick start guide for the Hornet Series ORG14XX Evaluation Kits.

2. DISCLAIMER

All trademarks are properties of their respective owners.

Performance characteristics listed in this document do not constitute a warranty or guarantee of product performance. OriginGPS assumes no liability or responsibility for any claims or damages arising out of the use of this document, or from the use of integrated circuits based on this document.

OriginGPS assumes no liability or responsibility for unintentional inaccuracies or omissions in this document. OriginGPS reserves the right to make changes in its products, specifications and other information at any time without notice.

OriginGPS reserves the right to conduct, from time to time, and at its sole discretion, firmware upgrades. As long as those FW improvements have no material change on end customers, PCN may not be issued. OriginGPS navigation products are not recommended to use in life saving or life sustaining applications.

3. SAFETY INFORMATION

Improper handling and use can cause permanent damage to the product.

4. ESD SENSITIVITY

This product is ESD sensitive device and must be handled with care.



5. CONTACT INFORMATION

Support - info@origingps.com or [Online Form](#)

Marketing and sales - marketing@origingps.com

Web – www.origingps.com

6. RELATED DOCUMENTATION

No	DOCUMENT NAME
1	Micro Spider – ORG4475 Evaluation Kit Datasheet
2	Micro Spider – ORG4475 Product Change Notification
3	Spider and Hornet - Software User Manual for CSR® based receivers
4	Spider and Hornet - NMEA Protocol Reference Manual for CSR® based receivers
5	Spider and Hornet - One Socket Protocol Reference Manual for CSR® based receivers
6	Spider and Hornet - Host Interface Application Note
7	Spider and Hornet - Low Power Modes Application Note
8	Spider and Hornet - Jammer Detector and Remover Application Note
9	Spider and Hornet - Client Generated Extended Ephemeris Application Note
10	Spider and Hornet - Server Generated Extended Ephemeris Application Note
11	Spider and Hornet - Ephemeris Push Application Note

TABLE 1 – RELATED DOCUMENTATION

7. REVISION HISTORY

REVISION	DATE	CHANGE DESCRIPTION
A00	January 12, 2011	First release
2.0	January 14, 2015	Format update, content update according to PCN

TABLE 2 – REVISION HISTORY



8. GLOSSARY

A-GNSS Assisted GNSS
BPF Band Pass Filter
CE European Community conformity mark
CGEE™ Client Generated Extended Ephemeris
CMOS Complementary Metal-Oxide Semiconductor
COMPASS PRC GNSS (same as **BDS** BeiDou-2 Navigation Satellite System)
EGNOS European Geostationary Navigation Overlay Service
EMC Electro-Magnetic Compatibility
ESD Electro-Static Discharge
EVB Evaluation Board
EVK Evaluation Kit
FCC Federal Communications Commission
GALILEO EU GNSS
GLONASS Global Navigation Satellite System
GNSS Global Navigation Satellite System
GPS Global Positioning System
I²C Inter-Integrated Circuit
IC Integrated Circuit
ISO International Organization for Standardization
LDO Low Dropout regulator
LGA Land Grid Array
LNA Low Noise Amplifier
MSAS Multi-functional Satellite Augmentation System
MSL Moisture Sensitivity Level
NFZ™ Noise-Free Zones System
NMEA National Marine Electronics Association
MEMS MicroElectroMechanical Systems
PCB Printed Circuit Board
PPS Pulse Per Second
QZSS Quasi-Zenith Satellite System
REACH Registration, Evaluation, Authorisation and Restriction of Chemical substances
RF Radio Frequency
RHCP Right-Hand Circular Polarized
RoHS Restriction of Hazardous Substances directive
ROM Read-Only Memory
RTC Real-Time Clock
SAW Surface Acoustic Wave
SBAS Satellite-Based Augmentation Systems
SGEE™ Server Generated Extended Ephemeris
SIP System In Package
SMD Surface Mounted Device
SMT Surface-Mount Technology
SOC System On Chip
SPI Serial Peripheral Interface
TCXO Temperature-Compensated Crystal Oscillator
TTF Time To First Fix
TTL Transistor-Transistor Logic
UART Universal Asynchronous Receiver/Transmitter
WAAS Wide Area Augmentation System



9. ABOUT HORNET FAMILY

Hornet family is offering the industry's smallest fully-integrated, highly-sensitive GPS and GNSS modules with integrated antennas or on-board RF connectors.

Hornet family features OriginGPS' proprietary NFZ™ technology for high sensitivity and noise immunity even under marginal signal condition, commonly found in urban canyons, under dense foliage or when the receiver's position in space rapidly changes.

Hornet family enables the shortest TTM (Time-To-Market) with minimal design risks.

Just connect power supply on a single layer PCB.

10. ABOUT ORIGINGPS

OriginGPS is a world leading designer, manufacturer and supplier of miniature positioning modules, antenna modules and antenna solutions.

OriginGPS modules introduce unparalleled sensitivity and noise immunity by incorporating Noise Free Zone system (NFZ™) proprietary technology for faster position fix and navigation stability even under challenging satellite signal conditions.

Founded in 2006, OriginGPS is specializing in development of unique technologies that miniaturize RF modules, thereby addressing the market need for smaller wireless solutions.



11. PACKAGING LIST

The ORG14XX series Evaluation Kit contains:

- + ORG14XX Series GPS Antenna module mounted on the Demo Board
- + FTDI USB to UART cable
- + Support CD

12. SETUP

12.1. Open CD. Select ORG14XX Series from the main menu.



FIGURE 1 –

12.2. Install FTDI USB-UART driver by pressing Driver button.

The driver setup is done in silent mode.

The presence of the Virtual COM port can be verified via Control Panel-System-Device Manager.



12.3. Install SiRFLive software by pressing SiRF Live Setup button.

Follow on-screen instructions during SiRFLive setup process.

Uninstall any previous SiRFLive version before current setup attempt.

12.4. Connect FTDI USB to UART cable between the Demo Board and the PC.

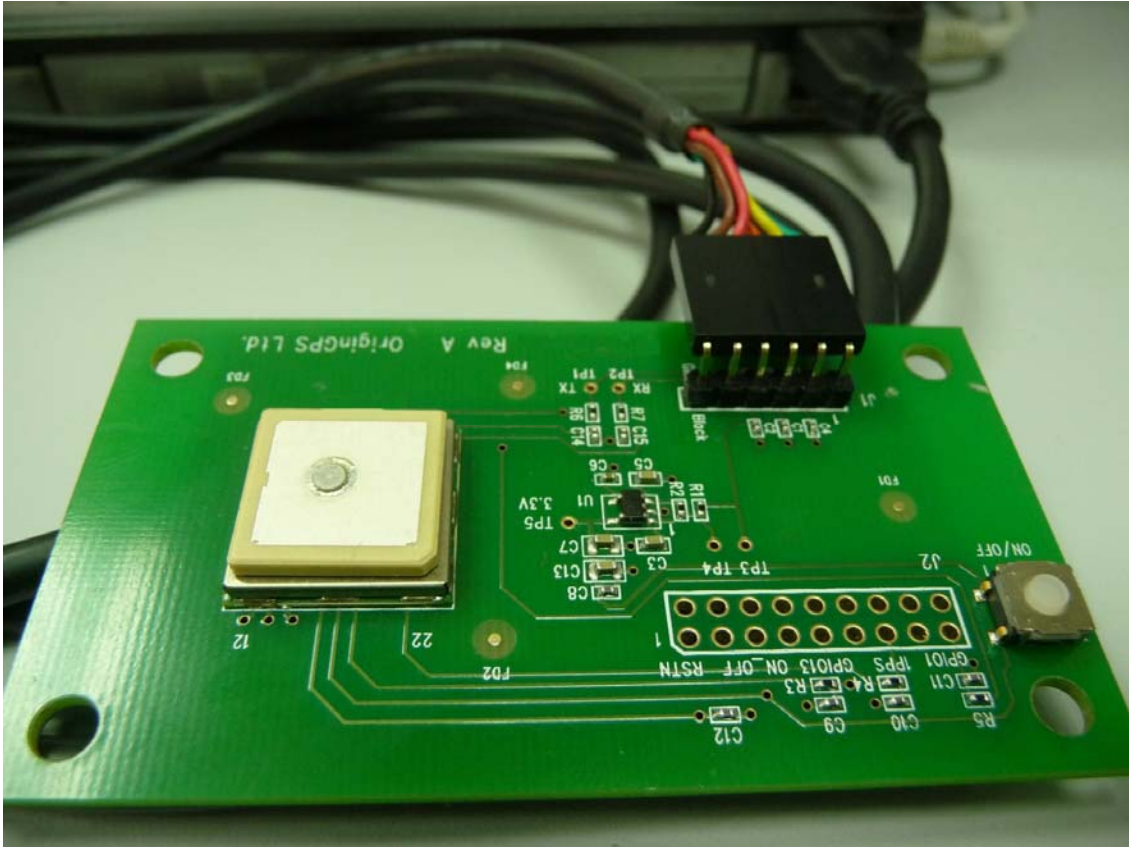


FIGURE 2 –



13. SiRFLive ESSENTIALS

13.1. Open SiRFLive by clicking desktop icon.

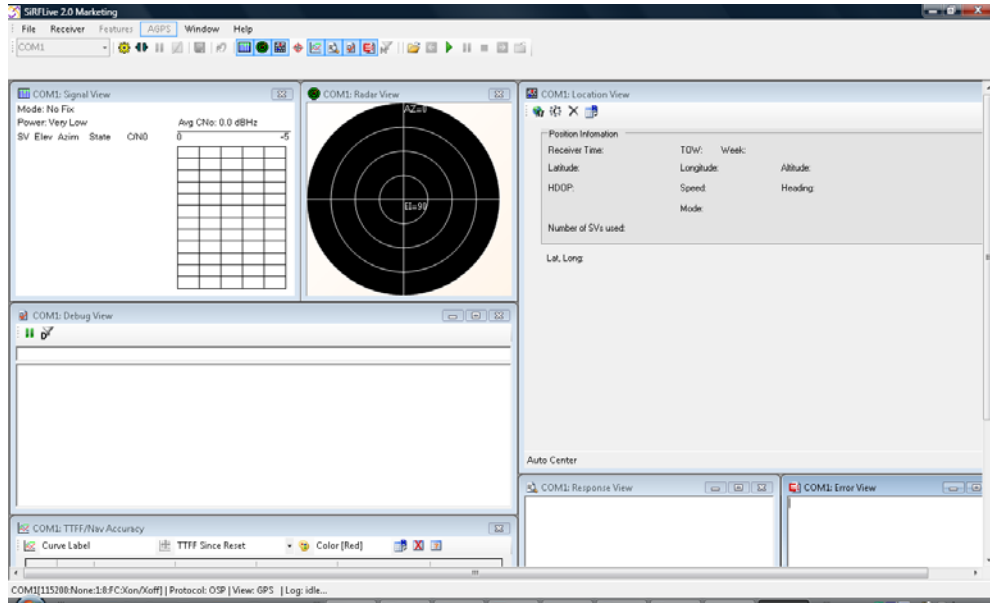


FIGURE 3 –

13.2. Press Receiver Settings button on the main toolbar.

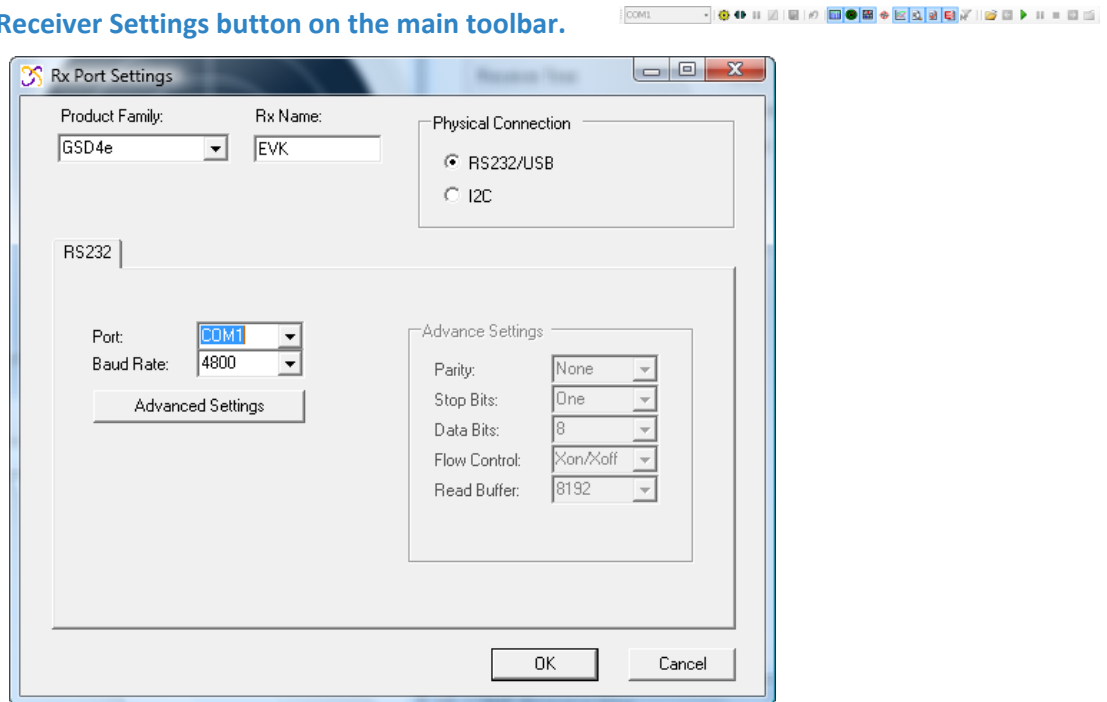


FIGURE 4 –

- Select GSD4e in Product Family box.
- Select RS232/USB for Physical Connection.
- Select the Virtual COM port as assigned by the driver. Typically it would be the highest available.
- Select 4800 for Baud Rate.
- Press OK when finished.



13.3. Press Connect button on the main toolbar.

Auto Baud Rate routine will start.

At the end, the NMEA messages will start bursting in Debug View window.

It's highly recommended to switch to Binary Protocol by Receiver-Command-Switch Protocols:

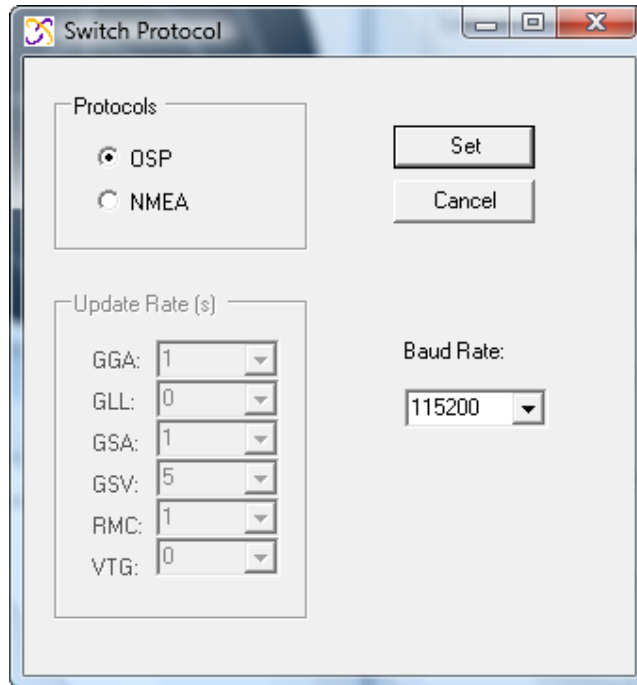


FIGURE 5 –

For extended support for SiRFLive software refer to the SiRF Live Manual on this CD.



14. EVALUATION KIT ESSENTIALS

14.1. PATCH ANTENNA

GPS antenna is embedded on the top of the module.

GPS antenna upper surface should be placed up towards the sky to keep GPS satellites in view.

14.2. TACTILE SWITCH FUNCTION

The tactile switch is used to wake up to GPS module from the Hibernate state of one of the low power modes, typically for triggering Push-To-Fix (PTF™).