Ekinox Series

Product change Notice

This notice is to inform you about an Ekinox series hardware revision update.

1. Description of change

SBG Systems announces a change in Ekinox series hardware, in order to provide easier interfacing, better EMC immunity and a new GNSS receiver on Ekinox-D. This new design comes with improved performance in challenging conditions, thanks to Galileo support and advanced RAIM techniques.

1.1. Improved EMC performance

The new power and Interface board developed allows the Ekinox to pass more stringent EMC norms, such as EN 60945.

1.2. Updated SYNC OUT behavior

Since the Ekinox introduction, the SYNC OUT A and B pins were developed using an "Open Drain" scheme, in order to accommodate various user voltage levels. However, in practice, this required the integrator to have access to a voltage level in order to drive the SYNC OUT "High" level, which made the SYNC OUT integration more complex.

In the new hardware revision, SBG Systems introduces a new TTL SYNC OUT interface, requiring no pull-up voltage. The new SYNC OUT is driven at a 0-5V TTL level.

When connecting an Ekinox to an existing setup, please make sure that there is no pull-up resistor at higher voltages than 5.0V.

> **Note:** For Splitbox users, the SYNC OUT compatibility is ensured by setting the Splitbox Sync Out configuration switch to 5.0V operation.

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1.3. New GNSS receiver specifications

The new receiver provides faster RTK fixing in challenging environment, robust positioning using advanced RAIM, and a more robust positioning in case of difficult RF conditions.

	Specification		Remark
Channels	448		
Signal tracking	**GPS**: L1, L2, L2C **GLONASS**: L1, L2 **GALILEO:** E1 B/C, E5b	**Beidou** B1, B2, **SBAS**, **QZSS**	All constellations & signals enabled by default
Horizontal position accuracy	Single point L1/L2	1.2 m	RTK precision available in option
	SBAS / DGPS	0.6 m / 0.4 m	
	RTK	1 cm + 1ppm	
Velocity accuracy	0.03 m/s RMS		
True Heading Accuracy	0.15° 0.1°	1m baseline 2m baseline	
Velocity limit	515 m/s		Due to export licenses
Time to First Fix	Cold start	< 45 s	
	Hot start	< 20s	
Signal reacquisition		1s	
Output frequency	5 Hz		
Diff. Corrections	RTCM V2.x, V3.x CMR V2.0, CMR+		Sent via serial PORT D
Options	RTK		

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2. Impact of change

SBG Systems has taken all actions to ensure a smooth transition for all users.

New hardware revision is 100% form and fit compatible. Function is compatible as well for most users but some advanced features might be slightly different from previous units. Changes are listed below. Other specification and performance parameters remain the same.

2.1. New hardware revision and product code naming convention

In order to ease future revisions updates, SBG Systems decided to update the way we handle the major and minor version numbers:

Major version number is now located at the end of product code (In this case -V3).

Minor revision number can be found in the calibration report, on the product sticker and in device information data (retrieved using the sbgECom protocol).

2.2. SYNC OUT behavior

The new SYNC OUT are in a TTL 0-5.0V format, instead of Open drain.

Make sure that you don't apply any pull-up voltage higher than 5.0V to prevent damage.

For optimal operation SBG Systems recommends no pull-up resistor in the SYNC OUT lines anymore.

2.3. Reduced power consumption for Ekinox-D

The Ekinox D in its hardware revision 3, has a reduced power consumption, down to 5W.

2.4. Increased boot time

Due to the increased GNSS receiver boot time, the Ekinox-D new hardware revision will generate the first output samples within 30s after power up.

2.5. Different GNSS RAW data protocols

For post-processing applications, it is important to note that the new hardware revision receiver outputs RAW data in the SBF protocol (Septentrio) while previous revision produced a Novatel binary protocol.

Qinertia post processing solution has a native support of this SBF protocol so this will not affect the post-processing workflow.

2.6. Differential correction protocols update

the new receiver does not handle Novatel proprietary corrections (RTCA, RTCAOBS2).

New supported protocol are RTCM V2.x, V3.x, CMR V2.0, CMR+.

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3. New commercial offer

3.1. New pricing

Thanks to significant optimizations in the manufacturing process, the EKINOX-D is now offered at a more attractive pricing, especially when considering the RTK option.

Please contact your sales representative for more information about new pricing.

3.2. Simplified GNSS options and variants

3.2.1. Discontinued Ekinox-N

Now, all single antenna applications are addressed using the dual antenna version Ekinox-D. This change has no impact on the price.

3.2.2. Simplified GNSS options

Now, all units are delivered with a full GNSS constellations support (GPS, GLONASS, GALILEO, BEIDOU), RAW data output enabled for post-processing applications.

3.2.3. New GNSS and features option matrix for D version

New GNSS and features options are summarized below.

Constellation		Signals		Positioning		Options	
GPS + GLONASS + GALILEO + BEIDOU	G	L1/L2	1	Standalone+DGPS + Heave computation	S	RAW Data	B
				RTK + Heave computation	V		
				Standalone+DGPS	I		
				RTK	J		

3.2.4. New features matrix for A and E versions

The A and E models now include a possibility to select advanced functions like ship motion computation at order time. This also unifies the product codes with future revisions of Ekinox and Apogee series.

Constellation		Signals		Positioning		Options	
No internal GNSS	Z	No signal tracking	Z	AHRS / MRU computation + Heave	A	No option	A
				INS computation	I		
				INS + Heave computation	S		

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3.2.5. Product code hardware revision location changed

In order to align with new products versioning scheme, we now introduce the hardware revision of the product at the end of product codes. At order level, the code EKINOX**2**-#### becomes EKINOX-####-**V2.**

On the product sticker labels, the hardware revision is now displayed separately from the product code in order to ease migration to future revisions.

3.2.6. New product codes equivalence

Following table lists the equivalences between previous and new product codes:

Ekinox product code	Hardware rev.	New Ekinox product code	Hardware rev.
EKINOX2-A-G4A#	2	EKINOX-A-G4A#-ZZAA-V3	3
EKINOX2-E-G4A2	2	EKINOX-E-G4A2-ZZAA-V3	3
EKINOX2-E-G4A3	2	EKINOX-E-G4A3-ZZIA-V3	3
EKINOX2-N-G4A#-B1SA	2	EKINOX-D-G4A#-G1SB-V3	2
EKINOX2-N-G4A#-F1SA	2		
EKINOX2-D-G4A#-B1SA	2		
EKINOX2-D-G4A#-F1SA	2		
EKINOX2-N-G4A#-B1VB	2	EKINOX-D-G4A#-G1VB-V3	3
EKINOX2-N-G4A#-F1VB	2		
EKINOX2-D-G4A#-B1VB	2		
EKINOX2-D-G4A#-F1VB	2		

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3.3. Hardware revision 2 EOL announcement

Although SBG Systems strongly recommends to switch to new hardware revision as soon as possible, it is possible to keep ordering V1.1 hardware units according to the next table details:

Ekinox product code	Hardware revision	Last time buy	Last shipping	Remarks
EKINOX2-A-G4A# EKINOX2-E-G4A# EKINOX2-N-G4A#-B1SA EKINOX2-N-G4A#-F1SA EKINOX2-D-G4A#-B1SA EKINOX2-D-G4A#-F1SA EKINOX2-N-G4A#-B1VB EKINOX2-N-G4A#-F1VB EKINOX2-D-G4A#-B1VB EKINOX2-D-G4A#-F1VB	2	April 22nd, 2019	May. 22nd, 2019	Orders with hardware revision 2 will be accepted until stock is exhausted. SBG Systems reserve the right to acknowledge orders using the new hardware revision.

> **Note:** This EOL has a shorter notice than usually, as the new hardware is highly compatible with the previous one and therefore does not require specific re-qualification.

3.4. New hardware revision availability

First deliveries of new hardware revision are expected by May 15th 2019.

4. Contact

If you need any further information after reading this document, please contact us by email or phone.

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