

Apogee Series

Product change Notice

Document
Date

PCNAPG02
Jul 19, 2019

Support
support@sbg-systems.com
+33 1 80 88 45 00

Doc. Type
PCN: New Apogee series hardware revision

SBG Systems
1, avenue Eiffel
78420 - Carrières-sur-Seine - FRANCE

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

1. Description of change

SBG Systems announces a change in Apogee series hardware, in order to provide easier interfacing, better EMC immunity and a new IMU revision, featuring improved vibration handling performance.

1.1. Improved EMC performance

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

1.2. Updated SYNC OUT behavior

Since the Apogee 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 Apogee 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.

1.3. New IMU specifications

The Apogee V2 IMUs embed a set of 3 MEMS capacitive accelerometers that provide a consistent performance in all conditions, including vibrating environments.

A single range ($\pm 10g$) is able to support all applications. This simplifies the use of a single sensor in various markets, and also helps reducing delivery time. The increased accelerometer measurement range provides also a significantly reduced Vibration Rectification Error for marine applications. Marine applications will therefore benefit from a better handling of vibrations and shocks.

This new IMU is also the first IMU calibrated on the new production tools. This improves the overall performance thanks to higher precision alignments.

The specifications are listed in the table below, depending on the IMU configuration.

Accelerometer specification	A3	Remarks
Full scale (g)	± 10	
Velocity Random Walk ($\mu g/\sqrt{Hz}$)	30	Allan variance - @ 25°C
In run bias instability (μg)	7	Allan variance - @ 25°C
Bandwidth (Hz)	100	Attenuation of 3 dB
Orthogonality (°)	< 0.02	Over temperature range

The Apogee V2 IMUs embed 3 high performance MEMS gyroscopes. The specifications are listed below:

Gyroscope specification	G3	Remarks
Full scale (°/s)	± 200	
In run bias instability (°/hr)	0.05	Allan variance - @ 25°C
Angular Random Walk (°/√hr)	0.012	Allan variance - @ 25°C
Bandwidth (Hz)	100	Attenuation of 3 dB
Orthogonality (°)	0.02	Over temperature range

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. 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.

2.2. New hardware revision and product code naming convention

Until now, all products were uniquely identified using a “Product Code” that was used both for logistics purpose and for hardware identification.

In order to ease future revisions updates, SBG Systems decided to improve our configuration management by introducing new notions:

- The Hardware Code which is used internally to identify a product hardware
- The product Name that easily identifies a product type, including main function and options
- The Part Number that is uniquely identifies a specific product, in a specific hardware revision, software configuration, with specific licenses (eg RTK). This part number should now be used for ordering process.

2.3. Old product codes vs Part Number equivalence table

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

Typical market	Old Apogee product code	Hardware rev.	New Product Name	Hardware Rev.	New Part Number
MARINE	APOGEE-A-G#A1	1	APOGEE-A Marine MRU	2	100-2214
	APOGEE-E-G#A1	1	APOGEE-E Marine INS	2	100-2215
	APOGEE-D-G#A1	1	APOGEE-D Marine INS - GNSS	2	100-2210
	APOGEE-D-G#A1 + SW-SEP-Ax4-RTK	1	APOGEE-D Marine INS - GNSS RTK	2	100-2211
LAND / AIR	APOGEE-A-G#A3	1	APOGEE-E Land Air INS	2	100-2216
	APOGEE-E-G#A3	1	APOGEE-E Land Air INS	2	100-2216
	APOGEE-D-G#A3	1	APOGEE-D Land Air INS - GNSS	2	100-2212
	APOGEE-D-G#A3 + SW-SEP-Ax4-RTK	1	APOGEE-D Land Air INS - GNSS RTK	2	100-2213

2.4. Hardware revision 1 EOL announcement

Depending on product variant, we may not have any more stock of the previous hardware revision. Please contact your sales representative if you need to purchase V1 hardware.



Note: This EOL has a short notice, as the new hardware is fully compatible with the previous one and therefore does not require specific re-qualification.

2.5. New hardware revision availability

The new hardware is available to order with a 4 weeks lead time.

3. Contact

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

EMEA:

SBG Systems S.A.S.
1, avenue Eiffel
78420 – Carrières-sur-Seine
FRANCE

Phone: +33 1 80 88 43 70
support@sbg-systems.com

Americas:

SBG Systems North America, Inc
5932 Bolsa Avenue, Suite #103
Huntington Beach, CA 92649
USA

Phone: +1 (657) 549-5807
support@sbg-systems.com