07SERIES Brochure

This brochure provides general information of SkyDec's 07SERIES (Military) Navigation host-system and an insight on options and features.

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1 Contents

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2 Introducing SkyDec

SkyDec is a renowned innovative Dutch company supplying Defence markets around the world with highly robust, precise and reliable navigation solutions.
Our in-house R&D enables short response times when it comes to new developments or re-design, being SME we can act fast without the burden of heavy overhead.
The family range of products is designed and manufactured in accordance with relevant Military Standards so that they can withstand severe operational conditions without performance loss.
Interfaces with other platform's equipment are tailor made to customer's requirements, meaning that the systems can be interfaced with all kind of new or legacy (in case of an overhaul) equipment.
DDU functionality is incorporated in most of our host systems.

3 SkyDec's 07SERIES

3.1 Physical appearance

Figure 1: 07SERIES with external battery

The 07 housing is made out of powder coated stainless steel and is highly robust. It is designed to endure under the most demanding circumstances.

The 07 can be bolt onto any panel with studs or bolts and nuts. Depending on HW configuration, an external backup battery may be part of the set-up. In that case a bottom plate is supplied that can hold both 07SERIES and external battery.

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Connectors are located on one of the short sides, two LED indicators are located at a long side.

J1: Antenna
J2: Data
J3: Power
J4: Crypto

Key status LED
Power LED

3.2 Nature

The boards that are inside the system, are designed by SkyDec's in-house R&D team based on a rich history and experience in the Military sector. The team achieved to develop boards that bring highest precision, reliability and robustness.
The SkyDec 07SERIES is designed to survive the most demanding operational circumstances, it survived 581g during shock tests (the moment when the test set-up broke while the unit was still working).
The 07SERIES Host system is a compact unit with a very limited amount of controls and maintenance tasks by its nature. It can mostly be regarded and treated as a sensor.
An overview of features can be found in Annex 2.

3.3 Turnkey performance

Although being host systems for Military SAASM GPS receivers, the 07SERIES delivers robust navigation, timing and synchronization straight out of the box by when provided with the SkyDec OEM multi GNSS receiver. The multi GNSS receiver can be individually configured to perform on GPS, Galileo, GLONASS, BeiDou and QZSS
Interfaces are mutual agreed and laid down in an Interface Control Document (ICD) in the pre-production phase. During FAT all functions and interfaces are tested against that ICD, so it will be pretty much plug and play when the systems come on board. For general specifications see Annex 3

3.4 Proven concept

The 07SERIES is a proven concept that is widely in use by various Naval Forces for many years for both surface and submarine application. A selection of SkyDec customers is given in Annex 4 , note that a number of programs need to remain un-disclosed.

3.5 BIT functionality

As an option, the 07SERIES can be delivered with the Sentinel monitoring/maintenance program that can run on a Windows laptop or PC. The graphical interface brings status information of all critical components of the system. It is also used for installation and Software upgrades.

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4 Options

4.1 Internal encrypted Military SAASM or M-Code GPS

The 07SERIES is designed to host Rockwell Collins (BAE) MIL SAASM GPS receiver, MPE-S or its M-Code successor MPE-M. Where applicable TAA's are in play, giving us authorisation and all needed integration details to host said receivers. Other receivers may be integrated upon request.
Krypto-key loading and handling is in accordance with corresponding - mandatory - guidelines.
Procurement of MIL SAASM GPS receivers is controlled by the United States Government.

4.2 Differential corrections

Depending on the receiver card, the 07SERIES is capable of handling differential corrections.
SkyDec OEM: SBAS
Rockwell Collins: DGPS, RTCM input from external beacon receiver needed.
The use of correction signals enhances position accuracy.

4.3 External signal extenders

In case that the amount of physical interfaces of the 07SERIES is not enough to provide all needed connections, the set-up may include one (or more) signal extender(s).

5 Maintenance package

As applies for all our systems, we can offer a maintenance package that covers all repairs and updates for a period of 15 years after warranty ending for a fixed price per year and per system. This allows the customer to keep only a little set of first-response spare-parts.

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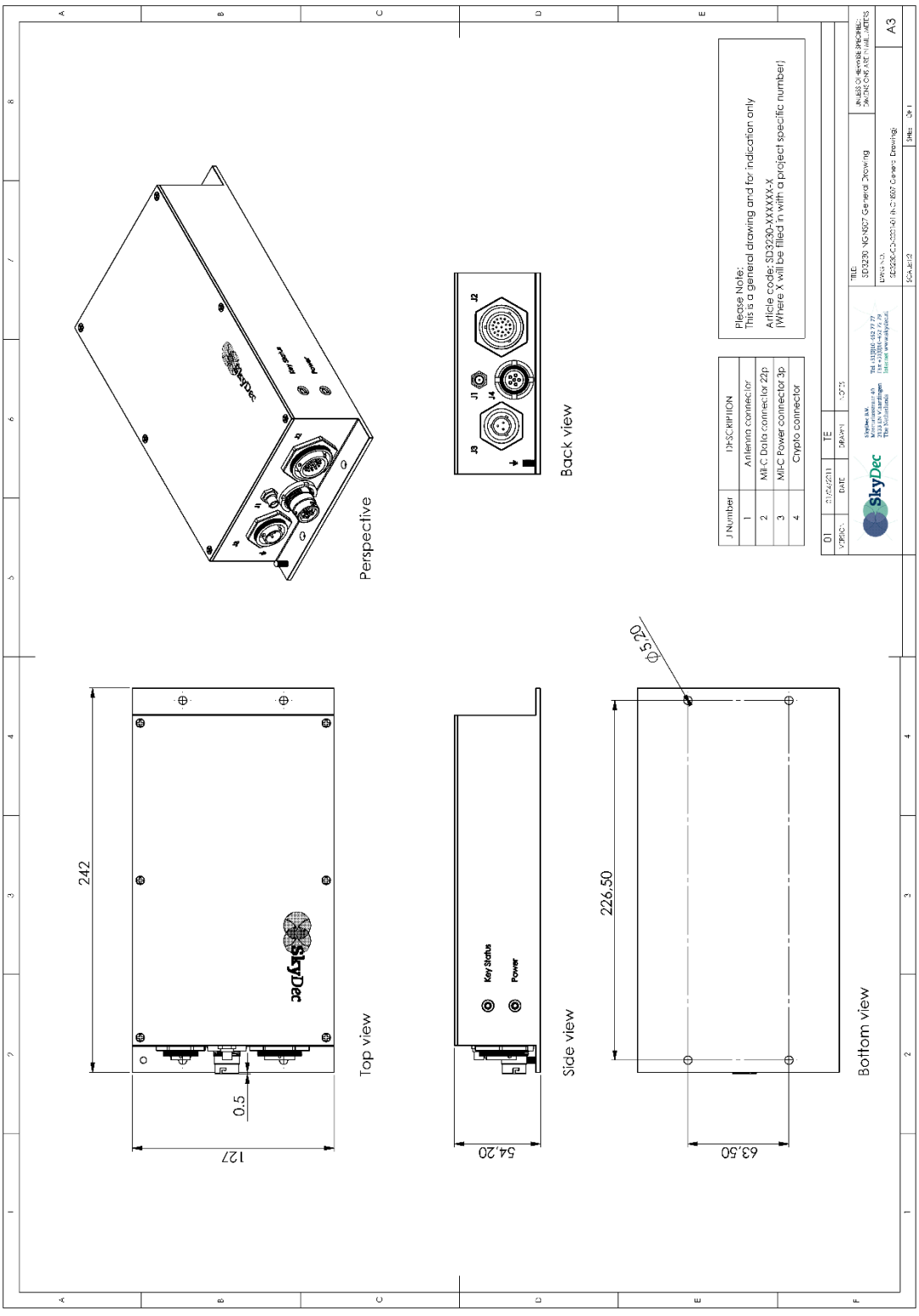
Annex 1, 07SERIES general drawing



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Annex 2, 07SERIES feature list

- Up to 3 independent RS422 interfaces for configurable outputs, customized to customers' requirements.
- Factory configurable Havequick interface (RS-422 or TTL)
- 1PPS interface (according to ICD-60)

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Annex 3, 07SERIES general specifications

GENERAL		
Interface	3 x RS422 IO, configurable with – NMEA and/or Proprietary (configurable messages) – GPS-ICD-153 (configurable messages) – Tipy subset – RTCM (in) 1 xHQIIA output (RS-422 or TTL) 1x 1PPS/10PPS output (according to ICD-60) Configuration is defined in a mutual agreed Interface Control Document (ICD), the unit will get an unique ID related to the platform name.	
Connectors	Antenna Connector: Power Connector: Data Connector: Krypto Connector	SMA MIL-C 3 pole (m) MIL-C 22 pole (f) Crypto 6p male GC283
Dimensions	± 127 mm x 54 mm x 242 mm	
Weight	Approximately 2,1 kg	
Power	19-36 VDC	
Power consumption	<12 Watt, depends on opted receiver(s)	
GNSS		
Receiver type	72-channel GPS engine GPS L1C/A SBAS L1C/A QZSS L1C/A GLONASS L1OF BeiDou B1 Galileo E1B/C 2, ready for E5, E5a, E5b, E6	
Horizontal position accuracy CEP, 50%, 24 hours static, -130 dBm, > 6 SVs , combined GPS & GLONASS	Autonomous: SBAS:	2,5 m 2,0 m
Shock, Environmental and EMC		
Shock	Profile according to BR3021 and STANAG 4137 Shock Grade D level 2 ,Grade C level 2 and Grade B level 1. Half sine 581g in 1,6ms Square wave 170g in 6,2ms	
Vibration	According to IEC 68-2-6 Resonance search sine sweep vibration Profile 4Hz – 100Hz 1 g peak acceleration According to MIL STD 810 F	

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	Random vibration Used Figure 514.5C-15 Shipboard random vibration exposure Profile 1Hz – 100Hz 0,001 g2/Hz 2 hours per direction
Operational Temperature	-20 to 70°C
Storage Temperature	-20 to 85°C
Enclosure	IP56
EMC	According to VG 95373

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Annex 4, References list

As an amount of programs needs to remain un-disclosed, this listing only shows a selection of customers where SkyDec supplied 07SERIES systems.

Customer	Amount (PCS)
Portuguese Navy	8
Royal Norwegian Navy	6
Turkish Navy	25

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