

Innomar Product News 01/2021

Overview

In 2020 INNOMAR introduced new generations for some SBP models:

- “medium-100”
- “medium-70”
- “standard”
- “compact”
- “smart”

There are also new versions for improved integration into autonomous or uncrewed vehicles:

- “standard-usv”
- “medium-usv”

Additionally, a new INNOMAR “autonomous” ASV with an integrated “smart” SBP has been launched, which is perfectly suited for surveys in very shallow waters and sensible environments.

With the new models and generations, INNOMAR starts to remove the former product family name “SES-2000”. This part of the name has been introduced with the “compact” model in 2001 to highlight a completely new hardware generation compared to the forerunner “SES-96” series of parametric SBPs and has then been used with all other new and updated INNOMAR SBPs as well. We are fully aware that removing “SES-2000” from the product name may affect ongoing tenders / procurements and will commit to solve any issue arising from the new naming conventions.



The SESWIN data acquisition software got some new features and the old “SES” envelope data format (*.ses files) has been removed. New ISE and SESConvert releases fixed minor bugs.

Contents

Overview.....	1
New “medium-100” generation.....	1
New “medium-70” generation.....	2
New “standard” generation	2
New “smart” generation	3
New “compact” generation.....	3
New SBPs for ASV/USV	4
New “autonomous” ASV with SBP	4
New SESWIN / ISE features	5
“SES” data format obsolete.....	5

New Innomar “medium-100” SBP topside generation



In August 2020 the first three units of a new INNOMAR “medium-100” SBP generation have been dispatched. The transducer as well as the acoustical specs are unchanged, but the new topside unit is significantly smaller and weighs less compared to the previous generation, see table below. The lower size and weight improve handling during mob/demob and the reduced gross weight results in lower shipping costs. With just below 70 kg, pallet transport is not mandatory for carriers like DHL any more. Data can be logged in the new INNOMAR “SES3” 24-bit full-waveform data format.

	Last generation	New generation	Improvement
Topside Unit			<ul style="list-style-type: none"> • smaller size • lower weight • lower power consumption • improved maintainability
First Delivery	07/2016	08/2020	
Dimensions (LxWxH)	52 cm x 40 cm x 58 cm	52 cm x 40 cm x 44 cm	-24%
Housing	19 inch / 12U	19 inch / 9U	
Weight	56 kg	44 kg	-21%
Max. Power Consumption	450 W	400 W	-11%
Transport Box Dimensions	60 cm x 56 cm x 66 cm	80 cm x 75 cm x 65 cm ⁾	
Transport Volume	0.222 m ³	0.390 m ³	+31% ⁾
Transport Gross Weight	73 kg	69 kg	-22% ⁾

⁾ New box includes topside unit, KVM extender and additional monitor. With the previous generation the KVM extender and monitor were in an extra box, which is considered in volume and gross weight when compared to the new version.



New Innomar “medium-70” SBP topside generation

In August 2020 the first unit of a new INNOMAR “medium-70” SBP generation has been dispatched. The transducer as well as the acoustical specs are unchanged, but the topside unit is significantly smaller and weighs less compared to the previous generation, see table below. The reduced gross weight will make mob/demob easier and results in lower shipping costs. Data can be logged in the new INNOMAR “SES3” 24-bit full-waveform data format.

	Last generation	New generation	Improvement
Topside Unit			<ul style="list-style-type: none"> • smaller size • lower weight • lower power consumption • improved maintainability
First Delivery	03/2015	08/2020	
Dimensions (LxWxH)	52 cm x 50 cm x 74 cm	52 cm x 40 cm x 58 cm	-37%
Housing	19 inch / 16U	19 inch / 12U	
Weight	90 kg	58 kg	-35%
Max. Power Consumption	660 W	450 W	-32%
Transport Box Dimensions	60 cm x 63 cm x 97 cm	60 cm x 56 cm x 66 cm	
Transport Volume	0.367 m ³	0.222 m ³	-40%
Transport Gross Weight	115 kg	77 kg	-33%



New Innomar “standard” SBP topside generation

In December 2020 the first two units of a new INNOMAR “standard” SBP generation have been dispatched. The transducer as well as the acoustical specs are unchanged, but the topside unit is significantly smaller and weighs less compared to the previous generation, see table below. The reduced topside weight and dimensions improves handling as well as transportation and results in lower shipping costs. Data can be logged in the new INNOMAR “SES3” 24-bit full-waveform data format.

	Last generation	New generation	Improvement
Topside Unit			<ul style="list-style-type: none"> • smaller size • lower weight • lower power consumption • improved maintainability
First Delivery	12/2019	12/2020	
Dimensions (LxWxH)	52 cm x 40 cm x 44 cm	52 cm x 40 cm x 34 cm	-23%
Housing	19 inch / 9U	19 inch / 7U	
Weight	39 kg	35 kg	-10%
Max. Power Consumption	335 W	300 W	-10%
Transport Box Dimensions	80 cm x 75 cm x 65 cm	65 cm x 65 cm x 55 cm	
Transport Box Volume	0.390 m ³	0.232 m ³	-40%
Transport Gross Weight	59 kg	46 kg	-22%

New Innomar “*smart*” SBP topside generation



In July 2020 the first unit of a rugged INNOMAR “*smart*” SBP version has been dispatched. This new version comes in a splash-water proof housing (IP65 if all connectors plugged), powered from a DC battery (12 V or 24 V) and can be used on open boats without extra weather protection. An external AC power supply is optionally available to be used during bench test or on larger vessels. For transport the connector panel can be closed, so no additional transport case is required. The reduced topside weight and protection improves handling as well as transportation and results in lower shipping costs. From February 2021 onwards this new topside version replaces the original version with desktop housing.

	Last generation	New generation	Improvement
Topside Unit			<ul style="list-style-type: none"> • IP65 protected • lower weight • improved maintainability • no extra case required
First Delivery	06/2018	07/2020	
Dimensions (LxWxH)	30 cm x 40 cm x 20 cm	33 cm x 43 cm x 23 cm	
Housing	½ 19 inch / 4U	Plastic Box; IP65	
Weight	13 kg	9 kg	-30%
Max. Power Consumption	100 W	100 W	
Transport Box Dimensions	55 cm x 43 cm x 31 cm	33 cm x 43 cm x 23 cm ^{*)}	
Transport Box Volume	0.073 m ³	0.033 m ³	-55%
Transport Gross Weight	21 kg	9 kg	-57%

^{*)} A cardboard box is used for shipping, which does not add much volume nor weight.

New Innomar “*compact*” SBP topside generation

In February 2021 the first unit of a new INNOMAR “*compact*” SBP generation will be shipped. The transducer as well as the acoustical specs are unchanged, but the topside unit is significantly smaller and weighs less compared to the previous generation, see table below. The reduced topside weight and dimensions improves handling as well as transportation and results in lower shipping costs.



	Last generation	New generation	Improvement
Topside Unit			<ul style="list-style-type: none"> • smaller size • lower weight • improved maintainability
First Delivery	11/2011	02/2021	
Dimensions (LxWxH)	30 cm x 40 cm x 30 cm	30 cm x 40 cm x 20 cm	-33%
Housing	½ 19 inch / 6U	½ 19 inch / 4U	
Weight	19 kg	15 kg	-20%
Max. Power Consumption	150 W	150 W	
Transport Box Dimensions	60 cm x 60 cm x 50 cm	75 cm x 50 cm x 35 cm	
Transport Box Volume	0.180 m ³	0.131 m ³	-27%
Transport Gross Weight	30 kg	24 kg	-20%

Please note, for the INNOMAR “*compact*” SBP model there is also a rack-mount version (19” / 3U; dimensions 45 cm x 40 cm x 14 cm; weight c. 20 kg) available. This version is built to order.

New Innomar SBP versions for USV/ASV integration

There are two new SBP versions of the INNOMAR “standard” and “medium-100” models, intended for integration into autonomous or remote-controlled uncrewed vehicles (ASV/USV). These two new SBP versions use an external data acquisition PC rather than an integrated one and do not have a display. Power is possible from battery (24 V), an external AC power supply is delivered with the system to be used during bench test or on larger vessels.

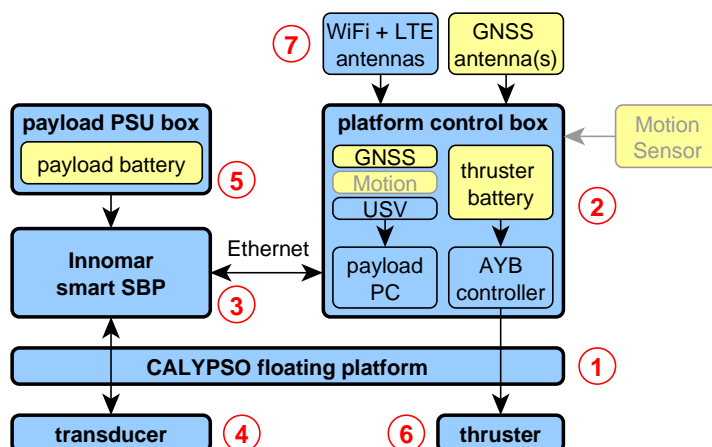
The new “standard-usv” and “medium-usv” models complement the “smart” and “compact” models, which were already available for autonomously or remotely operated survey platforms. The first “standard-usv” unit has been dispatched in November 2020 and the “medium-usv” model is ready to be built immediately after receiving an order.

	“standard-usv”	“medium-usv”
Topside Unit		
First Delivery	11/2020	
Dimensions (LxWxH)	45 cm x 36 cm x 18 cm	45 cm x 36 cm x 31 cm
Housing	19 inch / 4U	19 inch / 7U
Weight	16 kg	24 kg
Power Supply	20 – 30 V DC / < 200 W	20 – 30 V DC / < 300 W

New Innomar “autonomous” survey platform with SBP

The first two units of the new INNOMAR “autonomous” remotely operated surface vehicle with SBP have been dispatched in October and November 2020. This new ASV is perfectly suited for surveys in very shallow waters, sensible environments such as drinking-water reservoirs and automatic data acquisition in pre-defined areas with narrow line spacing for shallow-seismic 3D modelling. Users can easily integrate various third-party equipment, such as MBES, ADCP or sidescan.

Platform	180 cm x 93 cm x 20 cm / 16 kg	(max. payload 150 kg)
Platform Control Box	66 cm x 52 cm x 38 cm / 29 kg	(weight excl. batteries)
Payload PSU Box	43 cm x 33 cm x 23 cm / 4 kg	(weight excl. batteries)
Innomar “smart” SBP	43 cm x 33 cm x 23 cm / 9 kg	



New SESWIN / ISE Features

The latest SESWIN version (2.2.4.0) has been released for the first SBPs in October 2020, a new manual will be published soon. There are some new features within the last SESWIN versions:

- a zoomed echo plot section,
- (optional) 24-bit data recording for the “*deep-xx*”, “*medium-xx*” and “*standard*” models,
- negative gain values possible for working in extremely shallow water,
- adjustable source level and power-soft-start function (marine mammal protection) for the “*deep-xx*”, “*medium-xx*” and “*standard*” models,
- The Innomar “SES” data format (*.ses files) is removed from SESWIN 2.2.3.8 onwards; the new default format is “RAW” or (for 24-bit data recording) “SES3”.

The latest ISE version (2.9.5.63) has just been released. The most important improvement within the last releases is the zoom functionality in the echo plots.

“SES” Data Format Obsolete / Removed from SESWIN

The “SES” format has been deemed obsolete for years and customers have been encouraged to use the “RAW” format, but there seem to be many people still using “SES” instead of “RAW” as standard file format. The table below compares the three INNOMAR data formats to show that there is no point in using (or missing) the old “SES” file format. Both full-waveform file formats, “RAW” and “SES3”, can be easily processed to get similar echo plots as the old “SES” files, but at higher resolution and with more processing capabilities.

	SES	RAW (SES2)	SES3
File Extension	*.ses	*.raw	*.ses3
Introduced	1997	2005	2015
Bits	16	16	24
Sample rate	reduced, range dependent	full	full
Samples per trace	fixed (480)	depends on range	depends on range
Recorded Data	processed (envelope); magnitude only	full-waveform raw data; magnitude & phase	full-waveform raw data; magnitude & phase
Post-Processing	INNOMAR ISE 2.x; limited processing due to already processed data (envelope)	INNOMAR ISE 2.x / 3.x; full processing options, including envelope functions to get “SES” like echo plots	INNOMAR ISE 3.x (2.x); full processing options, including envelope functions to get “SES” like echo plots
SEGY Conversion	INNOMAR SESConvert 16-bit SEG Y with limited processing capabilities	INNOMAR SESConvert 16-bit SEG Y with full processing capabilities	INNOMAR SESConvert 32-bit SEG Y with full processing capabilities
Notes	range-dependent sample rate causes lower resolution than for “RAW” and “SES3” formats; limited processing options	full sample resolution, usually better than for “SES” data	sample resolution like for “RAW” data, but higher dynamic range; supports multi-channel data and 24-bit recording

The INNOMAR post-processing and data converter software still support the “SES” file format to be able to read and process old data, but this format must not be used for new projects. There are some older INNOMAR “compact” SBPs, which cannot be upgraded to record the new file formats and therefore still have to use the “SES” file format.