Datasheet Janus – INS post-processing software





Course Real-Time Navigation

acoustically
ionThe real-time inertial navigation
solution can be optimised using
Janus' outlier rejection functionality
on all raw aiding sensor data and
gives the user the ability to
reconfigure the real-time settings to
enable/disable sensors and to
eliminate any systematic errors such
as incorrect lever arms or mounting
angles/incorrect error model.

Janus also exposes the aiding data availability, usage, rejection and reason. Janus displays the 'health' status of the INS algorithms, communication ports and internal electronics.

Post-processed aiding data not collected by the INS system in real-time can be imported.

Multiple navigation solutions can be stored and compared to help identify the optimum configuration.

Calibration of DVL-to-SPRINT mounting angles, latency and scale factor is performed with a postprocessed forward/backward computation, with superior results than a real-time (forward only) computation.



Optimum Post-Processed Navigation

There are Janus pre-defined navigation export formats available which are compatible with most third party survey suites and added flexibility to create custom export formats.

Janus can be upgraded from the basic (DVL calibration and QC) version to full post-processed navigation capability.

Typical applications

- ROV and towfish positioning
- Hydrographic survey
- Offshore construction
- As-laid and out-of-straightness
- Multibeam survey
- Mobile (laser) mapping

Key features

- Replication of real-time navigation and AHRS
- Kalman smoothed (forwards and backwards) post-processed optimum navigation solution
- Modify, improve or correct realtime subsea navigation

Janus is Sonardyne's acoustically aided inertial navigation (SPRINT), Quality Control and Post-Processing software. A simple user interface allows quick and easy data editing, postprocessing and data export to enhance real time navigation.

Janus utilises raw data from SPRINT and aiding sensors to both replicate the real-time navigation solution (forwards in time only) and significantly improve the navigation solution further using an advanced smoothed (forward and backwards) post-processed solution.

Janus provides proven centimetrelevel dynamic navigation with SPRINT 700 INS, Syrinx DVL and 6G[®] LBL. Janus can also be used to improve and check navigation for SPRINT 300 and 500.

Specifications Janus – INS post-processing software

Sonardyne

SOUND IN DEPTH

DVL Calibration Report



Lever arms (CRP)	Forward (x) [m]	Starboard (y) [m]	Down (z) (m)	
IMU	0	0	0	
USBL	0	0	0	
DVL	0	0	0.350	

Settings		
Tidal correction	off	
DVL sound velocity source	sensor	
IMU mounting angle - a (roll)	0	
IMU mounting angle - b (pitch) [9]	0	
IMU mounting angle - g (heading) [*]	0	
USBL acoustic scale	1	

Results:

DVL params	a (roll) [*]	b (pitch) [*]	g (heading) [*]	Scale factor error [%]	Latency [s]
Before	-179.900	0	90.000	0	0
Calculated	-179.937	0.111	-179.937	-0.263	0.018
Calculated Accuracy	0.094	0.116	0.144	0.214	



Feature		Janus – INS Post-Processing Software		
Aiding data supported	Subsea	USBL and LBL position, pressure depth, DVL, LBL ranges, zero velocity, sound velocity		
	Surface	GNSS, zero mean depth		
	Manual	Position and depth		
	Tide	Automatic compensation from seabed Compatt 6 pressure sensor		
	Import	Any of above		
Configuration	Physical	Lever arms and mounting angles		
	Observations	Pre-INS rejection filter		
		Error model		
		Manual values (e.g. manual sound velocity)		
		Offsets (e.g. surface ambient pressure)		
Outlier rejection	Automatic	Pre-set or configurable thresholds		
	Manual	User selectable from chart		
Plots/graphs	Navigation trajectories	Position, north/east, depth, roll/pitch/heading, velocity		
	Orientation	AHRS and INS		
	Aiding data summaries	Availability, accepted, rejected (pre-filter and INS) or disabled		
	Aiding data observations	Observation values, quality, residuals, rejection reason		
	Time synchronisation	Status, availability, time-between-sync, drift		
	Bias estimates	Angular rates, acceleration, DVL misalignment and scale factor		
	Hardware self-test	Power, communication, internal sensors, INS and AHRS status		
Calibrations	DVL	Mounting angles, latency and scale factor		
		PDF calibration report and calibration file for SPRINT		
	LBL (sparse) array	(Optional) SLAM array calibration		
Navigation export file	Formats	PSONNAV, xxGGA, Janus default, NavLab compatible, QINSy and custom		
Upgrades	Remote	Time limited or perpetual		
User PC requirements	Operating system	Windows [®] XP, Windows 7 and Windows 10 (64-Bit recommended)		
	Minimum memory	8 GB+		
	Minimum processor	Intel [®] Core i7 2600 / 3.4 GHz processor (or similar)		



Specifications subject to change without notice - 03/2023