

Datasheet

Origin 600 mid-range ADCP



The Origin® 600 Acoustic Doppler Current Profiler (ADCP) enhances Sonardyne’s range of acoustic instrumentation by bringing a versatile, reliable, easy-to-use and cost-effective device to market. Combining field proven transducers with an integrated modem, internal rechargeable battery and advanced software, this device expands ADCP capability for users requiring mid-range current profiles from moderately shallow sites.

Origin 600 has a five-beam configuration with a central vertical beam and a maximum sampling frequency of 4 Hz. It is therefore suitable for waves and turbulence applications, as well as mean currents.

Origin 600 delivers conventional PDO data as standard, whilst optionally logging proprietary formats. The latter allow measurements of structures in velocity and backscatter intensity data at ten times finer fidelity than possible with PDO. An echosounding mode allows high spatial resolution sampling of backscatter intensity on all five beams, while concurrently measuring current profiles.

Data is logged to a 1 TB onboard storage unit and can be streamed via Ethernet for cabled deployments. External sensors can also be integrated via RS232 and their data logged on the ADCP. Origin 600 is further compatible with Sonardyne’s Origin E-Mux, allowing data from up to four such sensors to be logged by the ADCP.

Origin 600 possesses power efficient electronics that, combined with its 55 Ah internal rechargeable battery, allow for deployments of three months and more depending on measurement schedule. A dual battery variant allows for even longer or energy demanding deployments. The long battery life reduces the need for risky and costly device retrieval. External power can be supplied by PoE, allowing the user to program the device and download data without a separate power supply, though this is also supported.

A suite of intuitive software tools are included with Origin 600. Schedules can be configured using the Origin Scheduler PC application, enabling operations to be de-risked prior to deployment. The Origin Portal Web UI facilitates device configuration in operational conditions, including modification of the sampling schedule. Two schedules can be run together, allowing dual monitoring tasks to be performed with a single device. Logged data can be inspected using the Origin Viewer software package.

An MF acoustic modem is integrated as standard and facilitates remote actions using an accompanying topside modem (sold separately) and the Origin Topside PC software. This includes battery/storage checks, data QC and offload, and more; all core ADCP features can be accessed acoustically once deployed.

Origin 600 is compatible with the Sonardyne Edge computing environment. This permits users to upload processing apps to Origin 600 that optimise the data for their specific application. Apps can be uploaded via Origin Portal and the resulting data exported over the acoustic modem, supporting in-situ data harvesting and near real-time topside monitoring.

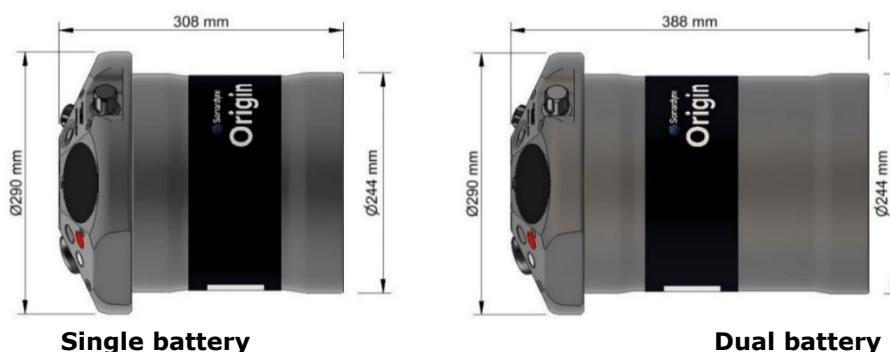
Finally, Origin 600 is compatible with standard mounting infrastructure, reducing risk and cost for upgrading to this device.

Key features

- Class leading 625 kHz ADCP
- Reliable and robust acoustic design using field proven transducers
- Integrated acoustic modem
- Rechargeable battery
- Configuration via Origin Scheduler, Portal Web UI and Topside
- Minimum cell size of 12 mm
- 0.6 to 60+ m profiling range
- 150 m operational depth rating
- Up to 4 Hz ping rate on 5 beams
- Interleaved ADCP/echosounding
- Compatible with Sonardyne Edge computing environment

Specifications

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Features		Type 8382 (-0457 single battery; -0427 dual battery)	
		ADCP	Echosounding
Acoustics	Operating frequency	625 kHz	
	Maximum profiling range	60+ m (environment dependent)	
	Minimum cell size	12 mm	
	Minimum blanking distance	0.6 m	0.04 m
	Velocity range (along beam)	Up to ± 2 m/s or 3.75 m/s	
	Velocity RMS	0.5% of measured value	
	Maximum number of cells	2,500	
	Maximum ping rate	4 Hz (5 beams)	
	Beam width/angle	± 1 degrees/25 degrees	
Echosounding dynamic range/resolution ¹	n/a	79/0.002-2.5 dB	
Acoustic modem	Operating frequency	MF (20-34 kHz)	
	Typical operating range	500 m	
Sensors	Temperature	-5° to 35°C	
	Heading accuracy/resolution	$\pm 1^{\circ}/0.1^{\circ}$	
	Pitch & roll accuracy/resolution & range	$\pm 1^{\circ}/0.1^{\circ}$ & $\pm 90^{\circ}$ (pitch), $\pm 180^{\circ}$ (roll)	
	Pressure	$\pm 0.05\%$ full scale	
Communication and logging	Communications	RS232, Ethernet and acoustic modem	
	Internal logging	1 TB internal memory	
Output	Output telegrams	PD0, A-gram, and B-gram	B-gram
Electrical	External power ^{2 3}	18-48 V power by external cable; PoE+	
	Power	45 mW (acoustic modem on), 3.5 W (fully active)	
	Internal battery	Li-Ion 800 Wh, 1600 Wh dual version ⁴	
	Internal battery recharge	4 hours fast-charge (8 hours for dual battery)	
	Full/scheduled/standby lifespan ⁵	1 week/3 months/2 years	
Environmental	Depth rating	300 m (survivable), 150 m (operational)	
	Operating/storage temperature	-5 to $40^{\circ}\text{C}/-20$ to 55°C	
Mechanical	Construction	Plastic	
	Connector type	Subconn: 8-way for power and comms; 6-way for fast-charge	
	Dimensions (height x max diameter)	308 x 290 mm (dual battery height 388 mm)	
	Weight in air/water ⁶	19.2/7.2 kg (dual battery 23.9/7.9 kg)	
Software	Origin Portal	Embedded Web UI for control & configuration	
	Origin Scheduler	Schedule planning & configuration tool	
	Origin Viewer	File data inspection	
	Origin Topside	Remote configuration & control over acoustic modem	

¹ Backscatter intensity measured in linear units between 0 and 32768. Resolution expressed in dB varies as a function of intensity.

² The DC power input of 18-48 V refers to voltage at the device, not at the power source.

³ PoE is for config/data download only; the device cannot be used operationally via PoE.

⁴ UN 38.3 certified for transport.

⁵ Single battery lifespan using 4 Hz continuous pinging (full), 4 Hz for 1 min & sleep for 14 min (scheduled), no pinging (standby).

⁶ Estimated weights.