

WaveDroid

BLOCKIII DATASHEET

WAVEDROID BLOCKIII:

WaveDroid is a new generation of wave measurement buoys based on solid state sensors. Ocean wave measurements are an indispensable part of any MetOcean project. WaveDroid is based on recent advances in sensor and data technology, ensuring a light-weight, flexible, reliable and affordable wave buoy.

The BlockIII is WaveDroid's latest and premium buoy model. It will suit your wave observation needs on any project, regardless of location and budget. Accurate wave data makes its way to your desktop in real-time through a robust telemetry solution. WaveDroid BlockIII was designed to make your life easy: no receiver station needed, powered by ordinary alkaline batteries, a simple mooring solution, deployable by hand and transportable as check-in luggage.

KEY FEATURES

- Real-time data (GSM & Satellite)
- Bulk wave parameters
- Directional wave spectrum
- Online WaveDroid Data Portal
- GPS position & watch circle
- Low purchase & operational costs
- Compact & light weight
- Easy to deploy & service
- Suitable as check-in luggage
- Long battery life with standard alkaline batteries

MAIN APPLICATION AREAS

- Marine & Coastal engineering
- Oceanographic research
- Environmental monitoring
- Work compliance monitoring



ACCURATE, FULLY DIRECTIONAL WAVE DATA:

WaveDroid BlockIII uses a combination of motion sensors and an electronic compass to measure the directional wave field with high accuracy. This yields the directional wave spectrum and all parameters that can be derived from it, such as the 1-dimensional energy-density spectrum and a range of bulk wave parameters (significant wave height, peak wave period, peak wave direction, etc.).

REAL-TIME ACCESSIBILITY:

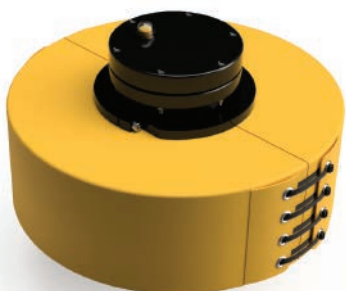
Wave data is sent to the WaveDroid servers in real-time. The secure WaveDroid data portal enables you to view and download the data or forward them to your own server. Key settings, such as the real-time output interval and the location of the GPS fence, can be adjusted on the fly. The BlockIII buoy offers two main modes of communication: the GSM network (2G / GPRS) and a satellite network (Iridium). While the GSM network offers low-cost data transfer in coastal waters, satellite communication ensures global data coverage. A 20-slot FIFO queue is able to close connectivity gaps up to 10 hours or more. Additionally, it is possible to work with a hybrid data transfer mode that will attempt to send data over the GSM network first, before switching to satellite communication.

RELIABLE

While satellite communication ensures a stable real-time data connection, the use of GPS positioning combined with automated status notifications emails make the system reliable. The GPS position reported by the buoy is continuously compared to the user-specified deployment location. If the distance between the actual and intended position of the buoy exceeds a pre-defined threshold (the watch circle), an email notification is sent to the user. Similar notifications are sent in case of a data gap, low battery level or exceedance of a user-specified wave height threshold.

EASY TO DEPLOY

Deployment of the WaveDroid BlockIII wave measurement buoy at sea is a simple operation. A mooring can be constructed using low-cost, easy-to-source materials in accordance with WaveDroid's mooring guideline. In low-current environments, the buoy can be anchored with a relatively light-weight ship anchor (ship crane not needed!).



WaveDroid



FLEXIBILITY IS OUR PRIORITY!

At WaveDroid, we realise that every project is different. All our instruments and components are developed and produced in-house and can be adjusted to suit your particular requirements. Just let us know what you need!

TECHNICAL SPECIFICATIONS

DATA SPECIFICATIONS

Wave spectrum	Fully directional (cosine-2s estimation)
Bulk wave parameters	Hm0, Hmax, Tp, Tm01, Dirp, σ_p
Additional parameters	Latitude, Longitude, Battery voltage, Signal strength
Sample frequency	5.82 Hz
Filtered frequency range	0.05 Hz – 1.00 Hz (20 sec – 1 sec)
Burst duration	23 minutes
Burst interval	30 minutes
Storage	On-board micro SD card

PHYSICAL CHARACTERISTICS

Float diameter	500 mm
Housing diameter	160 mm
Housing height	300 mm
Eye bolt inner diameter (mooring connection)	15 mm
Weight excl. batteries	7kg
Weight incl. batteries	12kg

ELECTRICAL CHARACTERISTICS

User replaceable battery pack	1.5 V Alkaline D-cells (Qty. 36)
Operating voltage	2.7 V – 5.0 V
Battery lifetime	Approx. 6 months (water temp. > 10° C, premium battery brand)

TELEMETRY SPECIFICATIONS

Communication modes	GSM (GPRS/2G), Satellite (Iridium), Hybrid
Real-time data interval	30 minutes – 24 hours (user selectable)
Real-time wave data	Bulk wave parameters, full directional wave spectrum (GSM) or compressed directional wave spectrum (satellite)
GSM data load	1 kB per message (bulk parameters only) or 10 kB per message (bulk parameters & spectra)
Satellite data load	1 credit per message (bulk parameters only) or 6 credits per message (bulk parameters & compressed spectra)

WEB-PORTAL SPECIFICATIONS

Online graphs	Bulk wave parameters & battery voltage
Downloads	Bulk wave parameters, 1D wave spectra, directional wave spectra (text files or png)
Forwarders	JSON API or HTTP post
Status notification emails	Online/offline, GPS watch circle, battery level, wave height threshold

FACTORS ADVERSELY AFFECTING OPERATION

Water temperature < 5° C	Reduced battery lifetime
Breaking waves	Reduced accuracy
Strong currents > 0.5 m/s	Reduced accuracy
Water depth < 4 m	Reduced accuracy, risk of excessive mooring wear

PRICING

WaveDroid BlockIII buoy	€5,000 including 2-year web-portal license and 5,000 satellite communication credits
GSM communication	Micro SIM card and sufficient data credit to be arranged by user
Satellite communication	€0,05 per credit, line rental €11.50 per month (invoiced to user every 3 months)
WaveDroid data portal license	€200 - €500 per year (depending on required functionality)

WaveDroid

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