



# ENSIGN SUBSEA SYSTEMS

Maritime Defence

An AAE Technologies Group Company



## WaterHawk IRS - Intruder Recognition System

Protecting assets and installations against the threat of intrusion is of paramount importance in an invisible subsea setting. Harbour entrances, vessels, offshore platforms and infrastructure are all vulnerable to interference from underwater incursions, and the need for monitoring these resources is critical to ensuring a safe and continuous operating environment.

Ensign Subsea's WaterHawk IRS is a key component in the armoury of subsea security & surveillance service providers, giving the ability to deliver real-time data via passive acoustic monitoring of intrusions or disturbances in the areas surrounding protected targets. By determining the specific frequencies and other characteristics of these disturbances, the system operators and watchkeepers can distinguish between genuine threats or say the presence of marine mammals and other sea life.

As an Intruder Recognition System, the WaterHawk IRS can be permanently deployed in a specific location to give unbroken real time surveillance data, live streamed or recorded in raw or processed formats. Alternatively the WaterHawk IRS can be used in a portable and temporary scenario for short term monitoring of vessels and other dynamic assets.

With applications in naval & coastal defence, safeguarding ports & harbours, commercial installations and private establishments, the WaterHawk IRS is a fundamental resource in the field of maritime safety and security.

### Key Features

- Low noise, broadband, synchronous array data
- Low power
- Embedded processing
- Included topside software with real time spectrograms, third octave analysis and simple configuration
- Real time data link for streaming acoustic data, or detection messages
- Autonomous long term acoustic recording

### Applications

- Real time vessel detection
- Anti-submarine warfare (ASW)
- Long range intruder detection
- Real time underwater noise monitoring
- Mobile range operations
- Defence research



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<b>Hydrophone Inputs</b>	
Input Channels	Up to 5
Analog Input Bandwidth	160 kHz
Sampling Rates	24, 48, 96, 192, 384 kHz
ADC	SAR – 16 bits, synchronous
Hydrophone Options	Compatible with numerous vendors, cabled or direct connected to end cap through underwater connector, custom sensitivities
Gain	Programmable in software (-15 dB, 0 db, 30 dB, 45 dB)
<b>Memory and Recording</b>	
Internal Solid State Drive	500 GB standard (Up to 4TB available on request)
SD Card	2 Slots, 256 GB default, up to 1 TB
Recording Schedules	Configurable Duty Cycling on Software
File System	FAT32, exFAT
Acoustic File Format	Multi-Channel .wav
<b>Configuration, Communications and Real Time Data</b>	
Configuration Interface	10/100 Ethernet (TCP/IP)
Real Time Data Streaming Interface	Raw Acoustic Data over 10/100 Ethernet (UDP)
Real Time Processed Data	1/3 octave analysis, SPL, AVG, Maxpp. Percentiles over 10/100 Ethernet (UDP)
Data Download	High Speed USB @ > 40 Mbytes/second
Firmware Update	Full Speed USB
External GPS	Serial 4800 Baud
<b>Power</b>	
External Power Port A	8V-20V
Power Consumption	300 mW to 3.1 W depending on configuration
<b>Mechanical and Environmental</b>	
Depth	200m standard (Deeper on Request)
Pressure Relief Valve	18 psi
Size	178 mm (7") Diameter, 280 mm (11") Length
Weight	5.5kg (12lbs) in air
Operating Temperature	-10 to +50 degrees C

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Figure 1 - Real time spectrogram capture

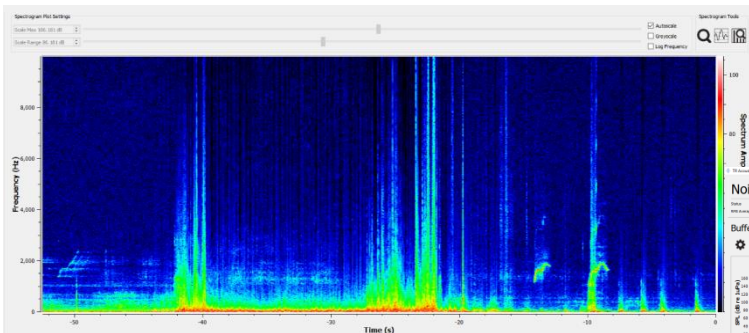


Figure 2 Real time, in-situ, 1/3 octave analysis

