

# GEMAP

## GENERIC MULTI ARRAY INTERCEPT PROCESSOR

### OVERVIEW

The Generic Multi Array Active Intercept Processor (**GEMAP**) provides a suite of processing algorithms capable of displaying CW or LPM active intercept contacts across a wide variety of intercept arrays utilising special signal processing techniques covering the following areas:

- Zero Crossing Detection - generic
- Pulse Detection
- Temporal and Spatial Fusion
- Contact Management
- Open, Modular and Scaleable
- Multiple input data streams
- Range of Analysis tools to view individual channels
- Aural Capability
- Multiple Frequency Bands
- Automatic Dual Integration Displays
- Reconfigurable for Single or Multi Arrays

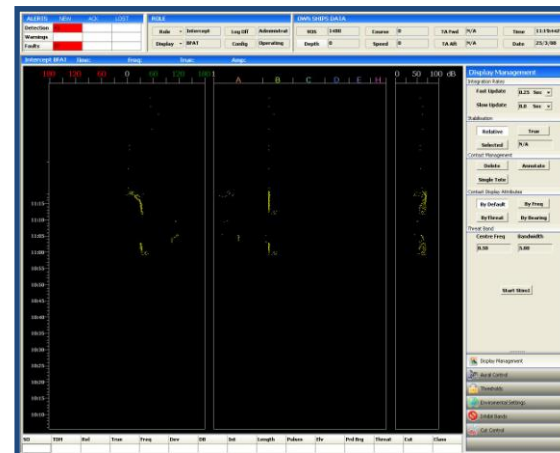
### FUSION PROCESS

The fusion processes use both temporal (time) and spatial (space) fusion algorithms specifically designed to cater for high reverberation and low level signal detection across multiple array sites. These algorithms have been tested using at-sea data.

### HUMAN COMPUTER INTERFACE (HCI)

The HCI allows for very accurate front-end tuning utilising dedicated 'engineering and operator control' screens as well as standard totes for viewing contacts (Bearing, Frequency and Time – BFAT; Plan Position Indicator – PPI and standard Contact Tote displays). The specialised operator control screens allow the operator to select various fusion and contact management parameters to aid the signal detection in non-ideal sea conditions.

### Display Formats



**Fig 1 – Fusion BFAT Window**  
*Synthetic Contacts are displayed automatically within the Bearing, Frequency and Time (BFAT) Window together with contact parameters*

### Capabilities

- Automatic Bearing and Elevation Contact Detection
- Contact Strength Detection
- Automatic Modulation Detection - CW/LPM
- Pulse Length Recognition
- Multi-Integration Display (built in)
- Cursor Readouts
- Relative / True Bearing Indication

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### ENGINEERING CONTROLS

To allow operation of the processing system under high reverberation and / or non-ideal sea conditions the **GEMAP** system allows the operator full control of various processing parameters, including control over the zero crossing, pulse detection and contact fusion algorithms.

### OPERATOR CONTROLS

The Operator Controls allow configuration and setup of the following parameters:

- Frequency and bearing inhibit bands
- Bearing, Frequency and Time windows for the contact association
- Contact deletion management
- Environmental settings

### INPUT DATA TYPES

Input data types can conform to any open standard, a set of translation applications are provided to suit a number of input types.

### OPEN ARCHITECTURE

The system can be configured to run on any Windows™ compatible PC. Clear definitions of input data and contact display messages are provided.

### RECORDING EQUIPMENT (GEMAR)

To complement the recording of array data for replay through the **GEMAP** system, ALS technologies has designed a fully open Generic Multi Array Recorder (**GEMAR**) that can be used for digitising and recording the front end array analogue signals to a high resolution. Fully scaleable for use with Intercept, Towed or Bow arrays.

*Contact ALS Technologies to discuss the full detailed specifications and to arrange a demonstration of the GEMAP capabilities.*

### Display Formats



**Fig 2 – Fusion POLAR Window**  
*Synthetic Contacts are scaled (in frequency or amplitude) and displayed via the Plan Position Indicator (PPI) Window*

### Capabilities

- Fusion Polar Window
- Bearing, Frequency and Target Strength
- Scaleable by Frequency or Amplitude