

# FLS Series

## Mine and Obstacle Avoidance Sonar

The FLS Series is the next generation mine and obstacle avoidance sonar. Derived from the sea proven technology of the 3D Multi-Beam Echo Sounder SeapiX, the FLS Series revolutionizes the market and increases performances.



**FLS 60**



**FLS 150**

### One serie, two products to increase capacity

Ultimate Performance and Reliability

The 3D Multi-Beam Echo Sounder has been developed upon request of French Armament Secretary for multipurpose applications such as mine and obstacle avoidance, real-time mapping and navigation, and Rapid Environment Assessment (REA).

The FLS Series is available in two versions :

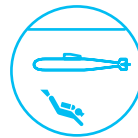
- FLS 150, very compact packaging, for portable and lightweight integration, for patrol ships or USVs integration.
- FLS 60, for large ships or submarines integration.

The FLS Series is fully mission configurable.

### The FLS benefits from iXblue expertise in navigation and imaging

iXblue is recognized throughout the industry for its inertial navigation systems which has revolutionized navigation in the last decade, its seabed mapping systems with unrivaled performances whether in shallow or in very deep water, and its Electronic Chart Display and Information Systems (ECDIS) products, onboard all the French Navy vessels and submarines. All FLS information is updated in a user-friendly ECDIS MMI which facilitates the operator's work. Furthermore, its has a high level of automatization, and can detect, characterize and track targets automatically, although operators are able to manually set up target trackers.

### Applications



Intruder detection



MOAS



REA

### Features

- Bottom, water column and surface object detection
- Forward Looking Bathymetry and real time seabed classification for REA
- Vertical and horizontal scanning
- Database & HTML communication protocol, allowing easy integration in third-party software.

### Benefits

- Real-time 3D detection and geo-referencing with an embedded IMU for optimized stabilization
- 3D volume imaging and visualization into ECDIS environment
- Easy integration with hull mounting capacity and wet mateable connection.

## TECHNICAL SPECIFICATIONS

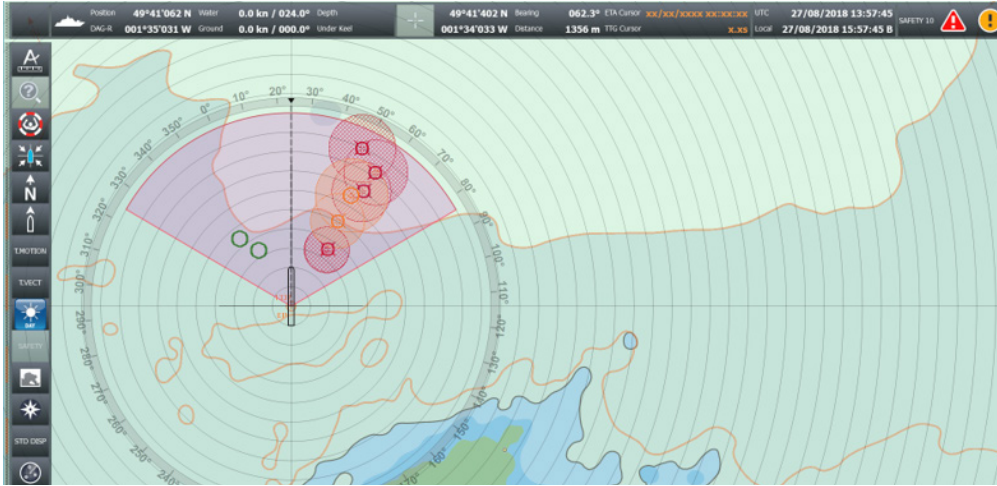
	FLS 150	FLS 60
<b>DESCRIPTION</b>	MOAS FOR OPVS AND UNMANNED SYSTEMS	MOAS FOR SURFACE SHIPS AND SUBMARINES
<b>MAIN DETECTION PERFORMANCES</b>		
<b>ANCHORED MINES (-15 DB)</b>	>330 m	> 650 m
<b>DRIFTING MINES (-15 DB)</b>	> 330 m	> 350 m
<b>BOTTOM MINES (-15 DB)</b>	> 300 m	> 350 m
<b>LOW TS MINES (-25 DB)</b>	> 250 m	> 520 m
<b>SPECIFICATIONS</b>		
<b>MODULATION</b>	CW and CHIRP	
<b>ACROSS TRACK MULTIBEAM SWATH</b>	64 channels, stabilized	
<b>ALONG TRACK MULTIBEAM SWATH</b>	64 channels, stabilized	
<b>BEAM STABILIZATION</b>	Electronically steerable TX + RX, built-in IMU	
<b>BEAM RESOLUTION</b>	1,6° angular / 7,5 cm radial <sup>(2)</sup>	
<b>TRIPLE ECHOGRAMS FROM ALL SWATH</b>	Adjustable from 1° to 120° each	
<b>VOLUME RESOLUTION</b>	0,6m <sup>3</sup> @100m	
<b>VOLUME COVERAGE</b>	120° X 120°	
<b>SIGNAL PROCESSING</b>	SV, TS, NORM, calibrated	
<b>POWER</b>	300 W	4 KW
<b>SONAR ANTENA UNIT (SAU) CABLE</b>	20 m with wet mateable connector	20 m with wet mateable connector
<b>SAU WEIGHT (AIR/WATER)</b>	31,7 Kg / 58 Kg	34 Kg / 73 Kg
<b>MOUNTING</b>	Pole or Hull mounted	Pole or Hull mounted

(1) Mode CW 1ms. Detection threshold 13dB

(2) in line, up to 3,2° @ +/- 60° tilt | Specifications subject to change without notice

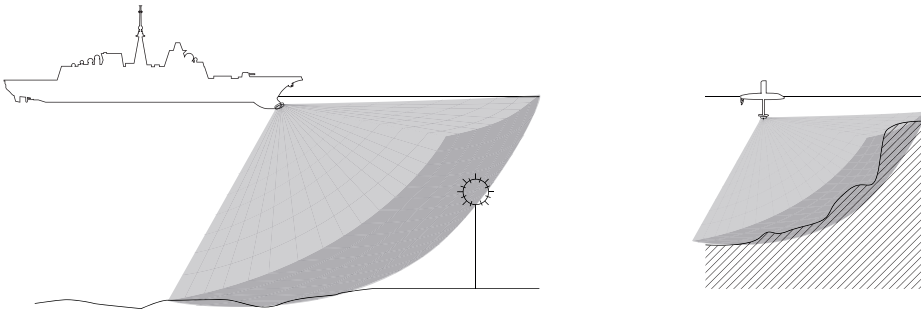
# SOFTWARE

## User-friendly MMI

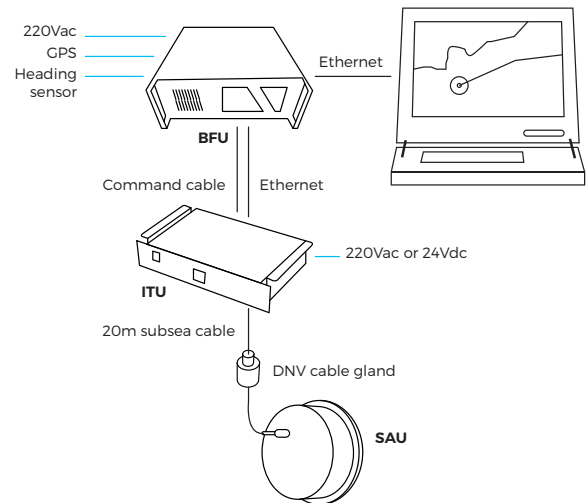
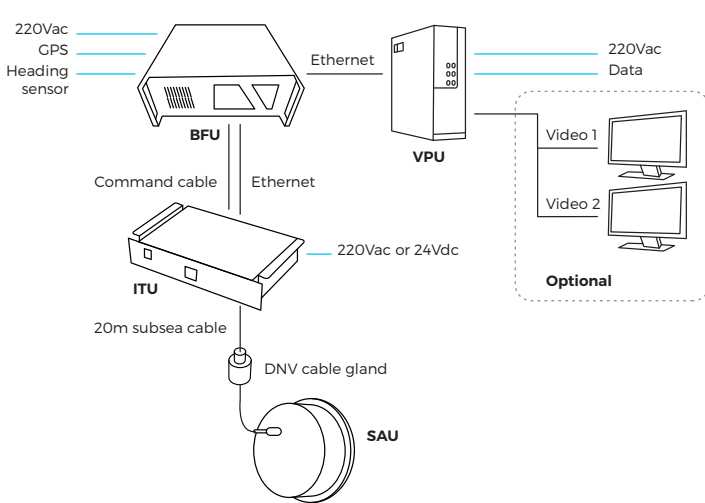


## Available data fusion-integration

Real-time 3D detection and geo-referencing at 120° on the bottom, in the water column and at the surface



## Multiconfiguration available on board



## Integration during refit without modification of Operation center

## Integration within iXblue Wecdis console