

### ADVANCED DESIGN

StarFish 450F is the affordable high performance towed side scan sonar which produces spectacular images of the seabed. The compact hydrodynamic full body three-fin design improves stability of the sonar while its being towed which helps further improve the quality of images it produces.

### HIGH PERFORMANCE

Utilising advanced digital CHIRP acoustic technology developed from the professional underwater survey industry, StarFish 450F can view targets at longer ranges without any loss in image quality. It competes with many larger commercial systems, yet the intuitive software makes it very easy to use.

### SIMPLE OPERATION

The StarFish 450 Series is designed to be 'Plug and Play', connecting to your Windows PC or laptop via a USB connection. Small, light and rugged, the StarFish 450F can easily be operated by a single person. Simply deploy the sonar by hand and tow from your boat to capture and record real-time images of the seafloor below. Our user friendly software makes seabed imaging easy for everyone.

### PORTABLE SYSTEM

Measuring less than 15 inches long the StarFish 450F sonar is small enough to be transported in your rucksack. Lightweight and quick to deploy, the 450F towed system is independent of the boat requiring no fixed installation which makes it easy to transport and operate from any vessel. The StarFish Peli Case (included in the 450F Advanced Pack) provides a rugged, watertight method for transporting and storing your StarFish 450F Towed System.



StarFish 450F  
Towed Transducer Head

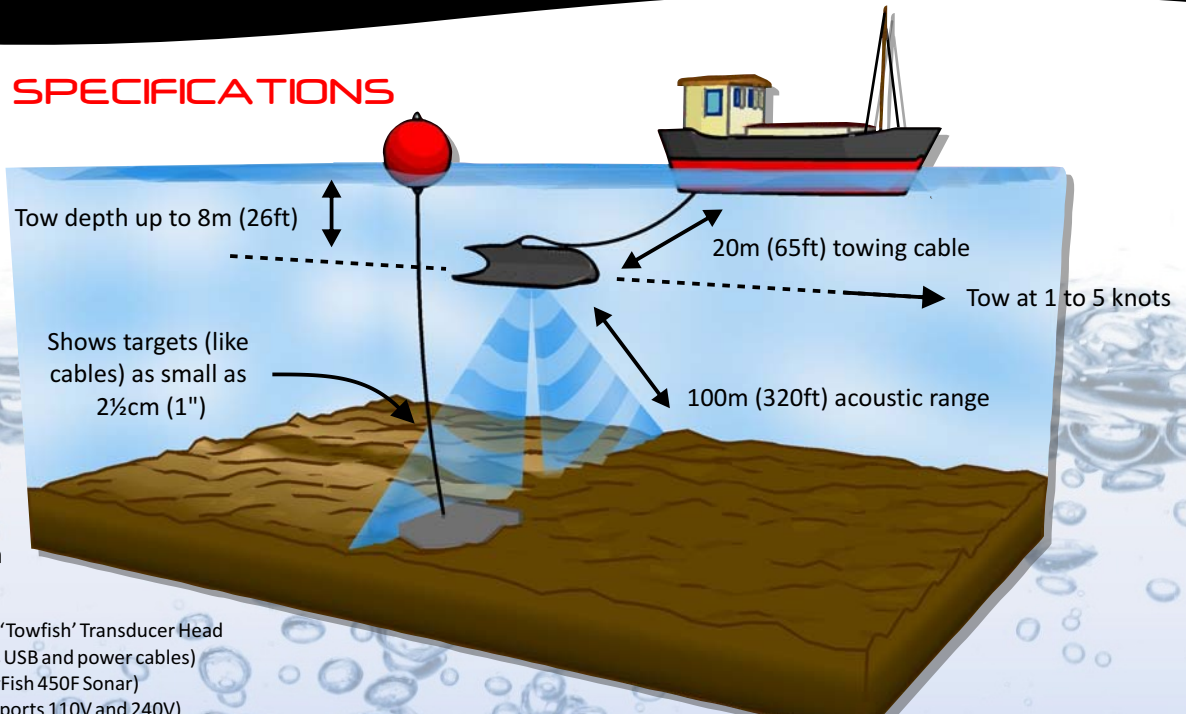


StarFish 450  
Electronics Top Box

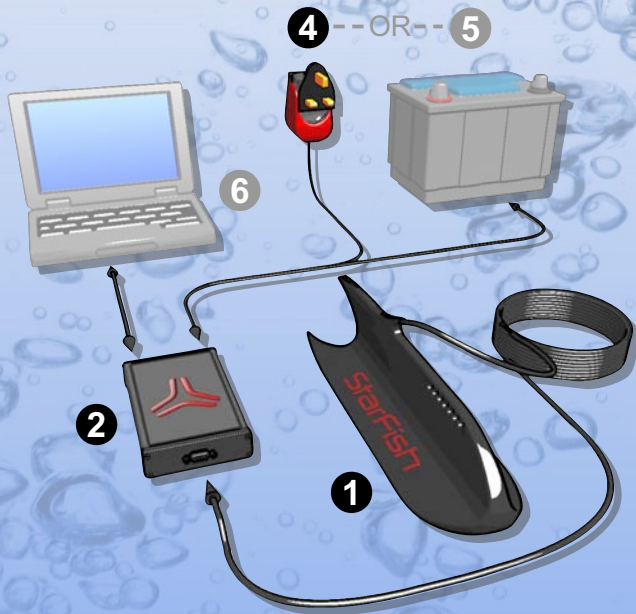
- The smallest towed side scan sonar available.
- Pioneering hydrodynamic design.
- Easily transportable - fits in your rucksack.
- Plug & play USB interface to any PC.
- Easily powered from almost any source.
- Simple & intuitive software.

## OPERATING SPECIFICATIONS

The Sonar connects to the Top Box. The Top Box then connects to the power source and any Windows based PC or Laptop via a USB connection to display, record and playback digital sonar images using StarFish Scanline software.



1. Starfish 450F Side Scan Sonar 'Towfish' Transducer Head
2. Starfish 450 Top Box (includes USB and power cables)
3. 20m cable (included with StarFish 450F Sonar)
4. AC Mains power adapter (supports 110V and 240V)
5. Customer supplied DC power supply 9V-28V (i.e. battery)
6. Customer supplied PC or Laptop (with at least 1 free USB port and Windows 2000, XP or Vista)



## SYSTEM SPECIFICATIONS

<b>Core System Parts</b>	Sonar	StarFish 450F Sonar Head (with 20m tow cable). StarFish 450 Top-Box (with USB interface cable).
	Power Supplies	Universal AC mains to DC power-supply (with international AC adaptors). 2m cigar-plug DC power lead. Crocodile-clip to cigar-socket DC adaptor.
	Software	StarFish Scanline interface software CD and drivers.
	Documentation	User manual, Scanline Manual, Quick start guide.
<b>Advanced System Parts</b>	<i>Core system contents, plus...</i> Rugged Peli™ Transport & Storage Case StarFish GPS (SiRF III) StarFish 450F pole mounting bracket	
<b>Compliances</b>	RoHS	Full compliance to the 2002/95/EC directives
	WEEE	Full EN50419 compliance

## TOP BOX SPECIFICATIONS

<b>Dimensions</b>	Length	166mm (6.54").
	Width	106mm (4.17").
	Height	34mm (1.34").
<b>Weight</b>	In Air	Approx 0.4kg (0.88lb).
<b>Power</b>	Supply Voltage	90-264V AC, 47-63Hz with Mains adaptor. 9-28V DC supply.
	Consumption	2.4W (200mA @ 12V) approx when idle. 6W (500mA @ 12V) approx when scanning.
<b>Interfaces</b>	Power	2.1mm DC jack socket.
	Data	USB B-Type connector.
	Acoustic	9-Way Female D-Type socket.
<b>Environmental</b>	Temperature Range	-5°C to +40°C (23°F to 104°F).
	IP Rating	IP50 (Protected against ingress of dust, no protection against ingress of liquids).

## SONAR HEAD SPECIFICATIONS

<b>Dimensions</b>	Length	378mm (14.88").
	Width	110mm (4.33").
	Height	97mm (3.81").
<b>Weight</b>	In Air	Approx 2.0kg (4.41lb).
	In Fresh Water	Approx 1.0kg (2.20lb).
<b>Body</b>	Costruction	Reinforced black polyurethane rubber.
	Depth Rating	50m (164ft).
<b>Towing Cable</b>	Length	20m (65.6 ft).
	Breaking Strain	>150kg (330.7lb).
	Construction	Black polyurethane jacketed with internal Kevlar reinforcing (strain) member.
<b>Transducer</b>	Min Bend Radius	30mm (1.2").
	Arrangement	Dual fin mounted transducers, with 30° down angle from the horizontal.
	Vertical Beam	60° nominal width (@ -3dB signal level).
	Horizontal Beam	1.7° nominal width (@ -3dB signal level).
<b>Acoustic</b>	Frequency	450kHz nominal.
	Range	1m to 100m (3.28ft to 328.08ft) on each channel providing max 200m (656.17ft) total coverage.
	Mode	CHIRP pulse compression.
	Pulse Length	400µs typical.
	Transmit Source Power Level	<210dB re 1Pa @ 1m.