SONAR
Simrad SH80/SP70/SP90

SIMRAD

New generation high and low frequency Sonars

ALWAYS AT THE FOREFRONT OF TECHNOLOGY

SIMRAD
A KONGSBERG Company

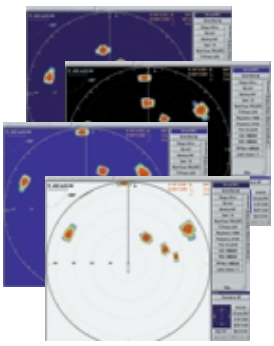
Simrad SH80/SP70/SP90 Sonars

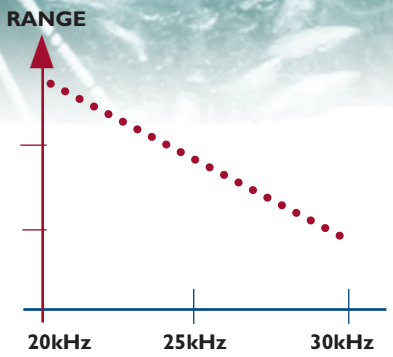
"The Simrad Sonar tracked targets other sonars couldn't see"

Simrad's new sonars offer short and long range performance using advanced wide band transducer design combined with digital transmitting and receiving technology. A frequency modulated (FM) transceiver with special filters enhances fish detection and definition under difficult conditions, while extending the detection range.

Clear presentation

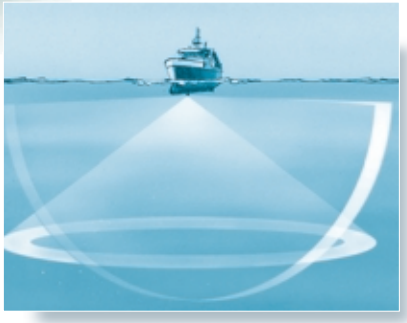
Great emphasis has been placed on giving the best possible overview in the search and catch situation. The result is several display modes, where the favorites easily can be selected on the new well arranged operating panel. In addition, full screen echo presentation, resizable windows, off center, zoom and dual operation are standard functions on all sonar models.





Multi frequency from 20 to 30kHz!

The sound absorption in salt water decreases with frequency thereby giving the lower frequency sonar a longer range. Simrad low frequency sonars can vary the frequency from 30kHz down to 20kHz. By maintaining the transmitting power and the transducer efficiency, the Simrad sonars have detection ranges longer than others.

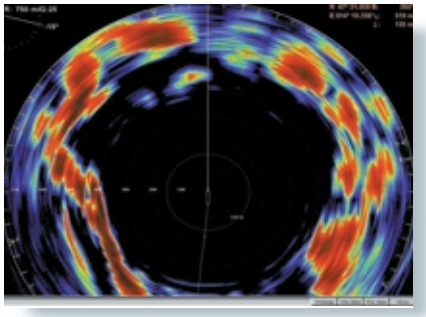


Dual beam

The combination of the horizontal and vertical beams displays the school of fish from above and from the side at the same time. It is not necessary to go over the target to see the vertical distribution on the echosounder.

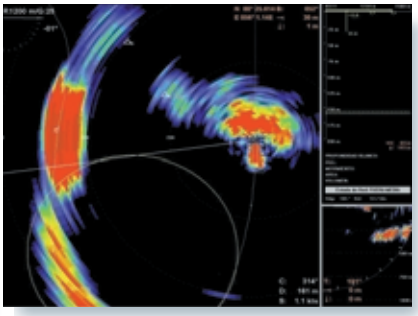
Beam stabilization

When the optional beam stabilizer is activated, both the horizontal and vertical beams will be electronically stabilized for roll and pitch. The full circle beam stays on the target independent of the vessel movement. This maintains contact with the target even in rough seas.



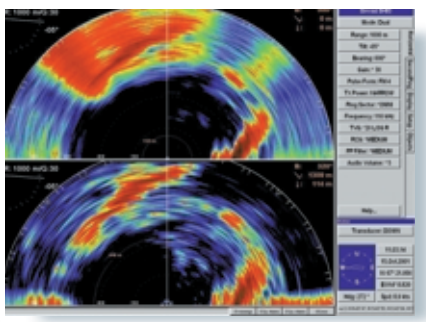
Full screen presentation

In full screen presentation, the echo presentation will be extended to cover all the display area.



Off center presentation

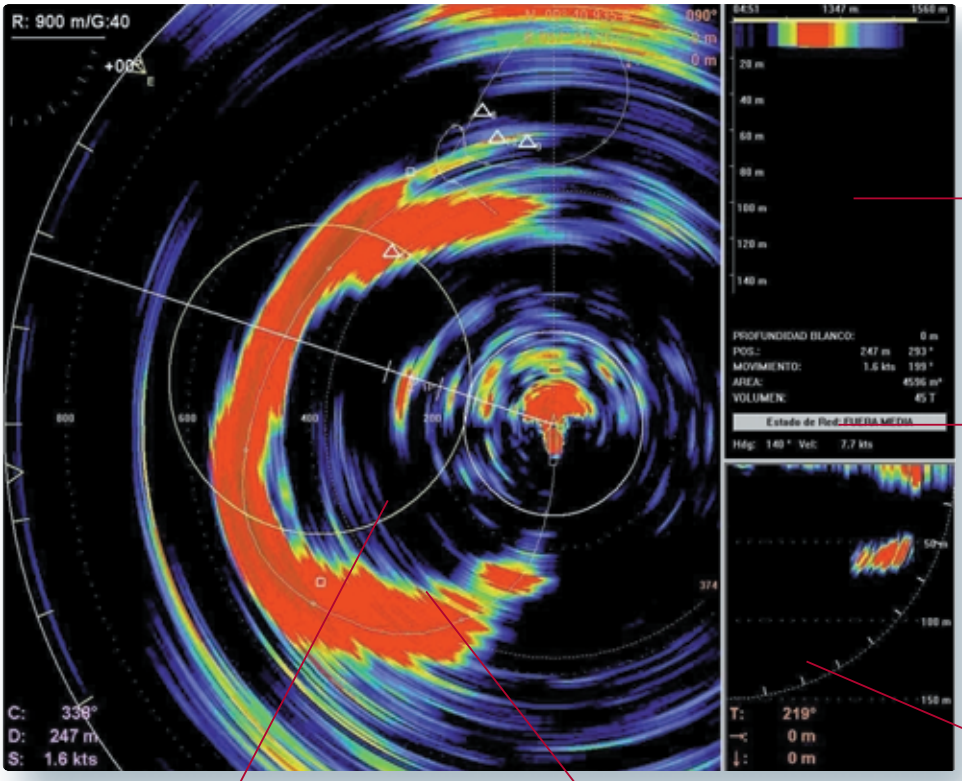
Offset the vessel to any screen position and enlarge the echoes for more detailed information.



"Two sonars in one"

In the dual mode, each sonar picture can be set up as if you had two different sonars. Individual frequencies, tilt angles, ranges, gain and filters can be used.

Evaluate the school while still tracking up to 3 other targets...



Purse seine data
The seine indicator shows the time from the net was shot, the length of shot net, and the total net length. Also the net sinking is shown graphically. With a Simrad PI32 connected the correct net depth and sink rate will be shown in relation to the school and the bottom.

Catch data
All the vital school data is available: Depth, distance, bearing, speed, course, area and volume in tons. In addition, the geographical position in latitude and longitude can be displayed when a GPS is connected.

Vertical view
The vertical view is used for showing the vertical distribution of the school. The tilt angle indicator helps in optimizing the tilt angle for the best picture in the horizontal view. In automatic target tracking, the vertical view remains locked on to the selected target.

A school of fish is detected and tracked by the sonar. The school's swimming speed, swimming direction and swimming history are shown on the screen. This helps the skipper to find the right time and position for setting the net.

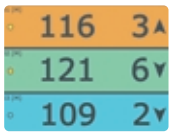
The yellow purse seine symbol is set around the school. The seine dimensions are entered into the sonar for up to three different purse seines. When using the PI32 and depth sensors, each mark will have depth and sink rate values indicated on the screen next to the markers.

Purse seining
The flexibility of the screen presentation gives an optimal overview of the catch situation, where all vital data about the school of fish and the gear are displayed. This is a result of a close collaboration with professional sonar operators, who understand the need of reliable information combined on a single screen.

The Simrad sonar gives a purse seiner a total overview of the catching situation by allowing the skipper to see the fish school in two planes at the same time. After the seine is set he is in full control of the pursing by using the PI32 depth indicators.

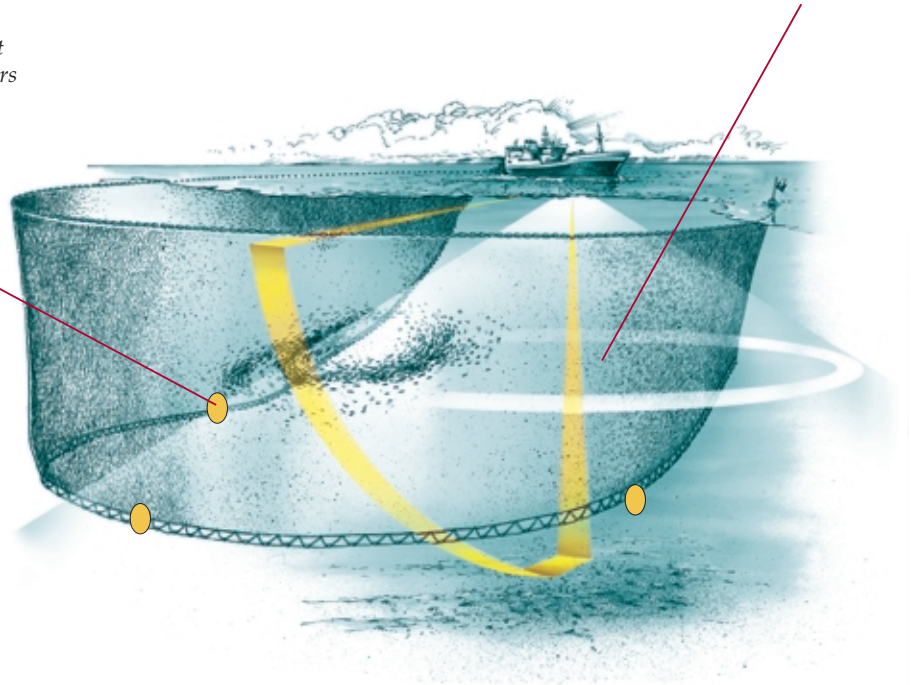
For securing the catch by pursing at the right moment, the Simrad PI32 Net System with three PS30 depth indicators are attached to the bottom of the net.

The PS30 sensor is designed to withstand the extreme forces the sensor encounter when shooting and hauling a purse seine.

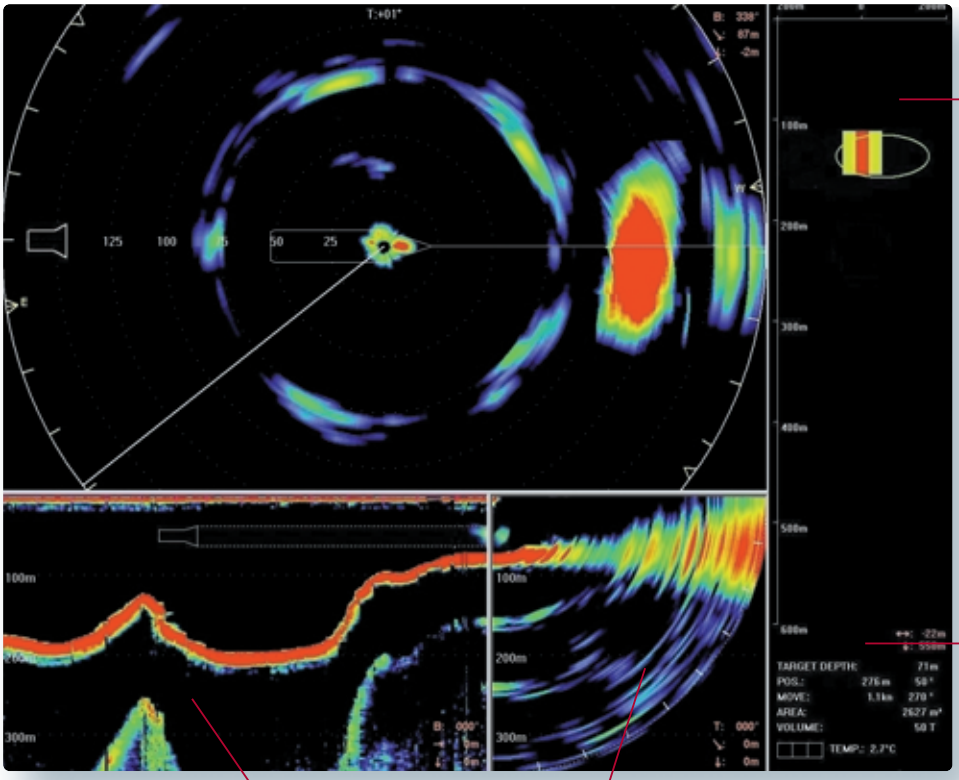


PI32 depth display

PS30 sensor



Full control of the school – from detection to catch...



A high performance low frequency echosounder is part of the sonar when installing the 90° tilt option. The actual vertical position of the trawl symbol, from a Simrad trawl system, is a real advantage when pelagic trawling.

In the sonar Omni/Echosounder/forward 90° Mode, you have a complete omni directional picture with a forward-looking 90° fan sweeping automatically from side to side. The vertical front view gives an earlier and considerably wider detection area than a standard echosounder, enabling targets outside of the vessel track to be detected.

Trawl sight
When connected to the Simrad ITI Trawl system, the trawl sight will indicate the trawl position relative to the school of fish and can be used to target the horizontal and vertical position of the trawl.

Trawl data
Data about the trawl's width, height and distance from the vessel can be entered into the sonar via the menu.

Trawl position
When the Simrad ITI trawl system is connected to the sonar, the trawl symbol will automatically be shown in the correct size and position on the sonar display.

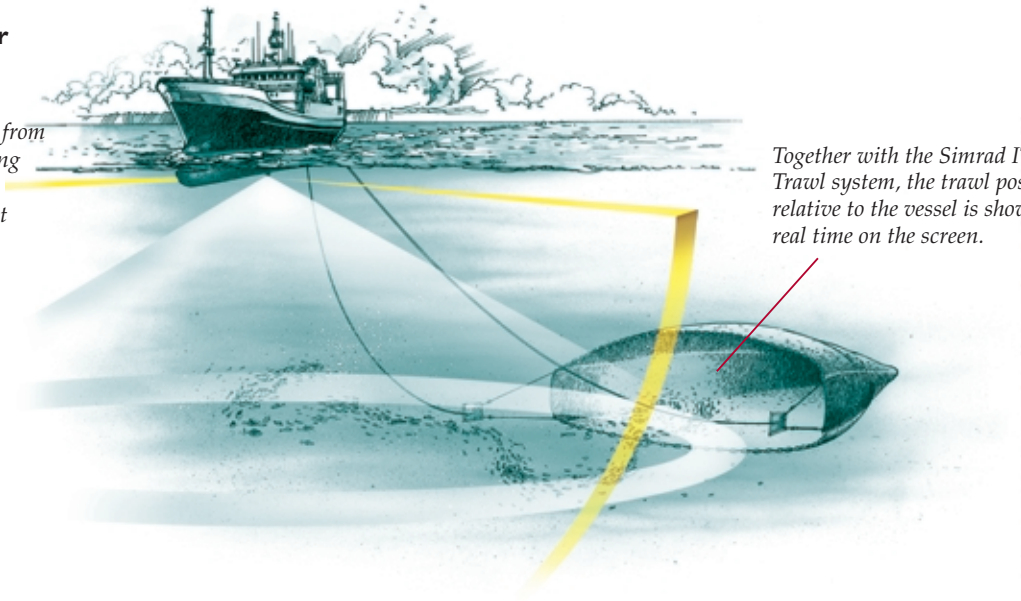
Catch data
All vital school data is available; depth, distance and bearing from vessel, school's speed, course, area and volume in tons is calculated. In addition the school's geographical position in latitude and longitude can be displayed when a GPS is connected. The catch indicators status, from a Simrad ITI or FS20/25, are also shown on this page.

Trawling

The combination of the horizontal and the vertical presentations, gives valuable information for safe and correct positioning of the trawl. The aft view can be locked onto the trawl symbol and will automatically track the net.

In addition to monitoring the trawl catching behind the vessel, it is possible to search for and evaluate additional schools by using the forward looking 90° vertical view. The forward looking 90° view can be trained from side to side while the aft view is locked on the trawl.

"I would never skipper a trawler without the 90° vertical view!"
This is a common statement from the hundreds of skippers using Simrad sonars. For trawlers this feature gives the greatest benefit during a tow.



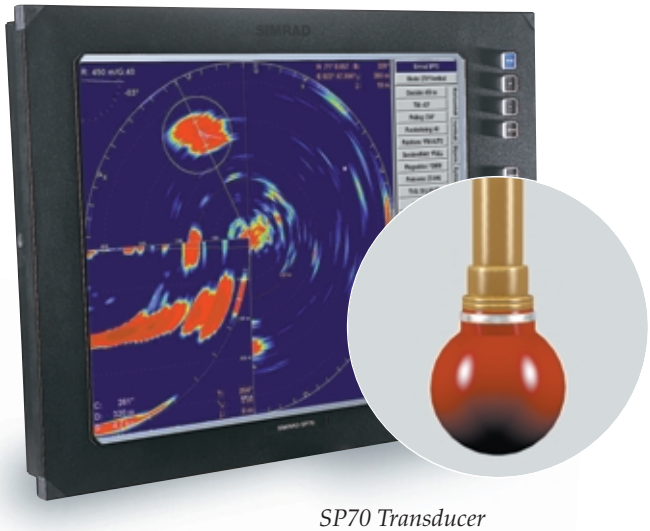
Together with the Simrad ITI Trawl system, the trawl position relative to the vessel is shown in real time on the screen.

Simrad SH80 – 116kHz high definition FM Sonar

SH80 Transducer

- Ideal for mackerel and tuna detection and evaluation
- Detects weak and scattered targets under difficult conditions
- Ideal as "Catching machine"
- Stabilized during transmission and reception for roll and pitch
- 60° vertical presentation
- Multi frequency for interference avoidance
- Same operation and "Sonar Operating Panel" (SOP) for all Simrad sonars

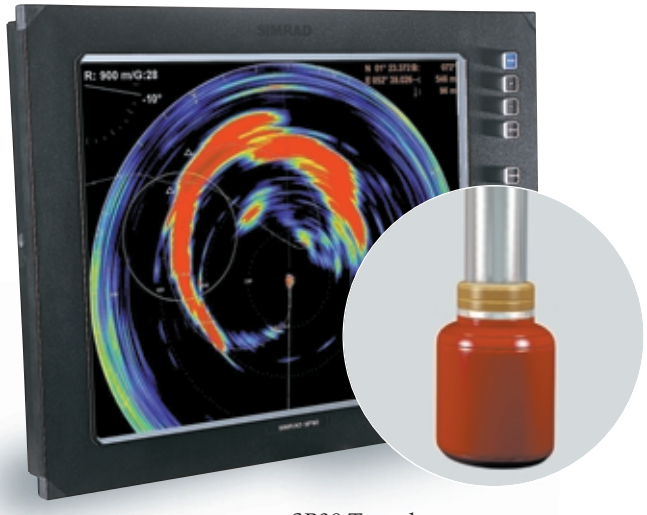
Simrad SP70 – Low frequency long range FM Sonar



SP70 Transducer

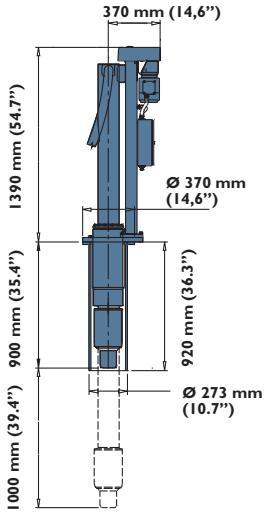
- Vertical presentation mode - can be set in any direction – Shows 60° vertical distribution of the school, (90°/180° as option)
- Multi frequency from 20 – 30kHz gives longer detection range and larger search area
- Dual sonar operating modes for increased efficiency
- Tracking of up to 3 different targets at the same time – Useful when evaluating different schools – area and volume of each target are calculated
- Fully stabilized for roll and pitch

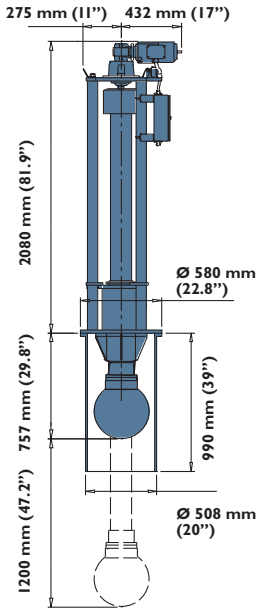
Simrad SP90 – Low frequency long range Tuna Sonar

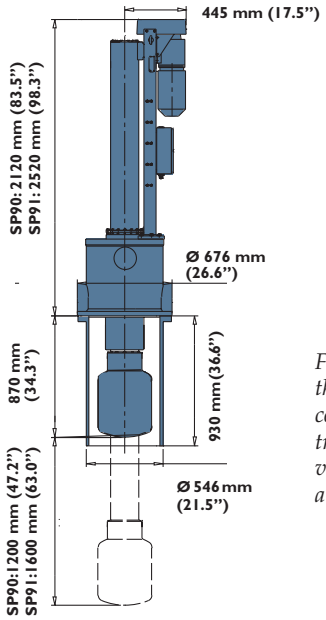


SP90 Transducer

- The longest detection range of any civil sonar – Aquire targets first
- High speed hull unit – Up to 24 Knots
- Narrow Beam gives longer range
- Multi frequency from 20 - 30 kHz – long range detection – interference rejection
- 60° Vertical view – Shows the vertical distribution without going over the fish
- Full circle beam roll and pitch stabilization – Performance maintained in rough weather





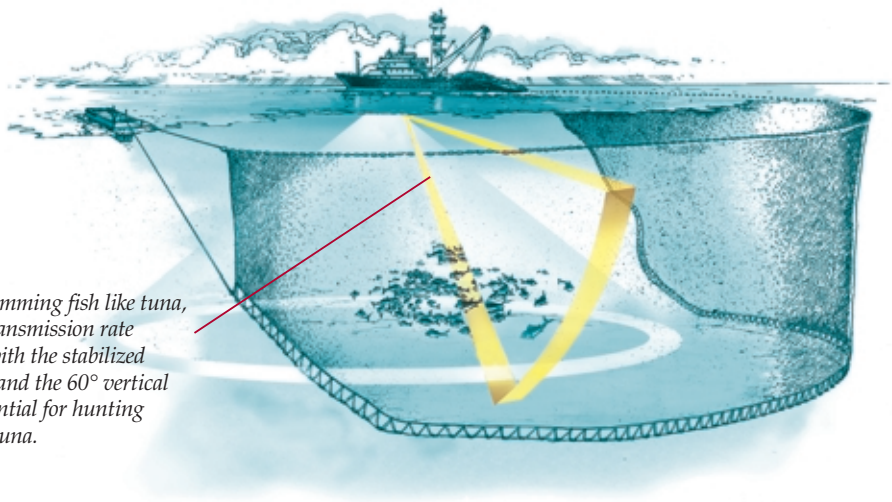


New featurers

Model:		SH80	SP70	SP90
Frequency:	*Single with CW/FM*	●	●	●
	Triple with CW/FM		● 1)	● 1)
	Multiple with CW/FM	● 4)	● 2)	● 2)
Tilt:	*+10° to -60°*	●	●	●
	+10° to -90°		● 3)	
Vertical:	*60° slice*	●	●	●
	90° and 180° slice		● 3)	
Modes:	*Bow Up*	●	●	●
	North Up	●	●	●
	True Motion	●	●	●
	180°/Audio	●	●	●
	180°/Echosounder		● 3)	
	180°/Vertical		● 3)	
	270°/Vertical	●	●	●
	Omni/Vertical		● 3)	
	Omni/Echosounder		● 3)	
	Bow Up/Vertical	●	●	●
	True Motion/Vertical	●	●	●
	Dual Operation	●	●	●
Functions:	*Zoom*	●	●	●
	Off-center	●	●	●
	Record/replay	●	●	●
18" or 20" LCD Monitor		●	●	●
Roll & Pitch Stabilization		●	●	●
Auxiliary Interface (4 x RS232)		●	●	●
Analog Gyro Interface		●	●	●
Scientific Data Output		●	●	●
Selectable Transducer Position		●		●
20 knots Hull Unit		●	●	●
1.6 m Transducer lowering			●	●
Steel trunk for Hull Unit		●	●	●

● *Standard* ● *Option*

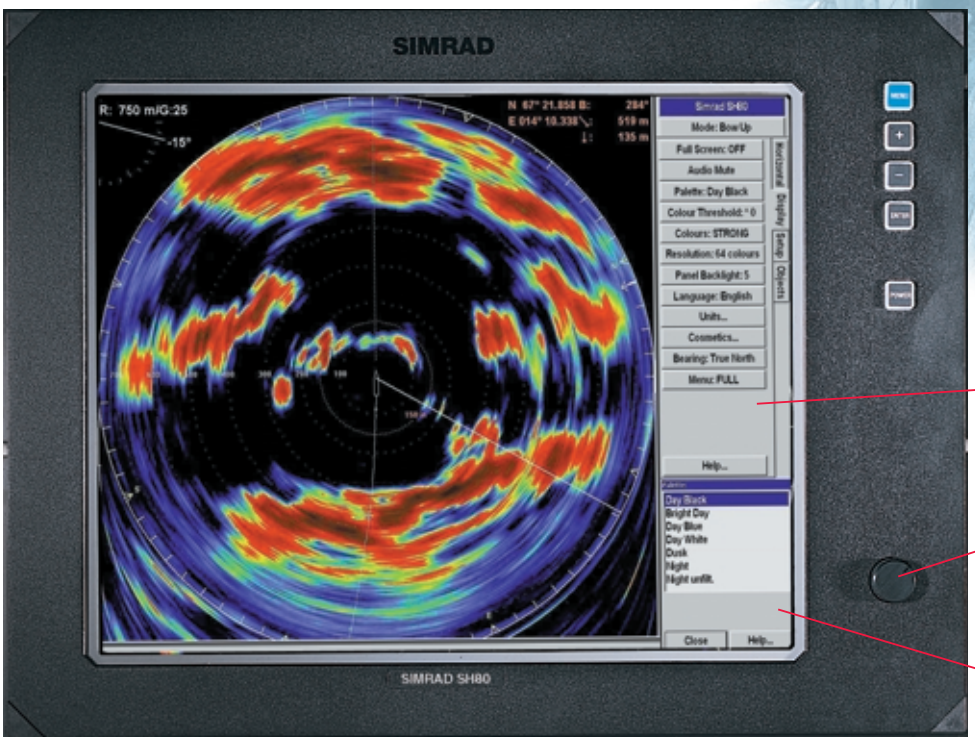
1) Triple frequency: 24kHz, 26kHz and 28kHz
2) Multiple frequency: 20 to 30kHz in 1kHz step
3) Tilt from +10° to - 90°
4) Multiple frequency: 110 to 122kHz



For fast swimming fish like tuna, the quick transmission rate combined with the stabilized transducer and the 60° vertical view is essential for hunting a school of tuna.

The future with Simrad...

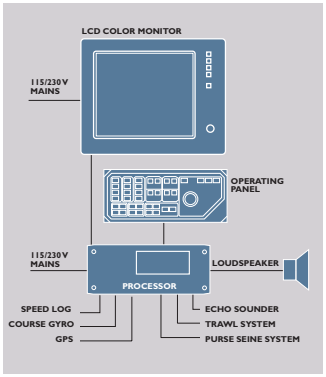
The state of the art operating system allows for future expansion and lifetime upgrade. Since the Simrad sonar is software driven, all future improvements, features and updates can be put into your sonar without changing expensive hardware. With Simrad you will always have the latest sonar model available.



An easy to read operation menu, in your language, operated from a remote roller ball.

Dimmer facility controls the display brightness for best operation when dark.

Compass rose with date, time and lat./long.



Bridge configuration

As shown in the diagram, several external sensors can be connected to the sonar to give an on screen display. The most vital inputs in the catch phase, will be the gear data input which displays the purse seine or trawl in the correct position relative to the school of fish, bottom and your own vessel.

Menu system

A well arranged menu system with easy selection of the index menus for the display mode. Two possible ways of operation – dedicated keys or on-screen rocker switch menus.

Numbered markers with exact latitude/longitude positioning

Easy selection of your favorite display modes

Separate gain and range selection for horizontal and vertical presentation

Selection of "Full Screen" or "Menu" presentation

Easy selection of your trawl or purse seine symbol

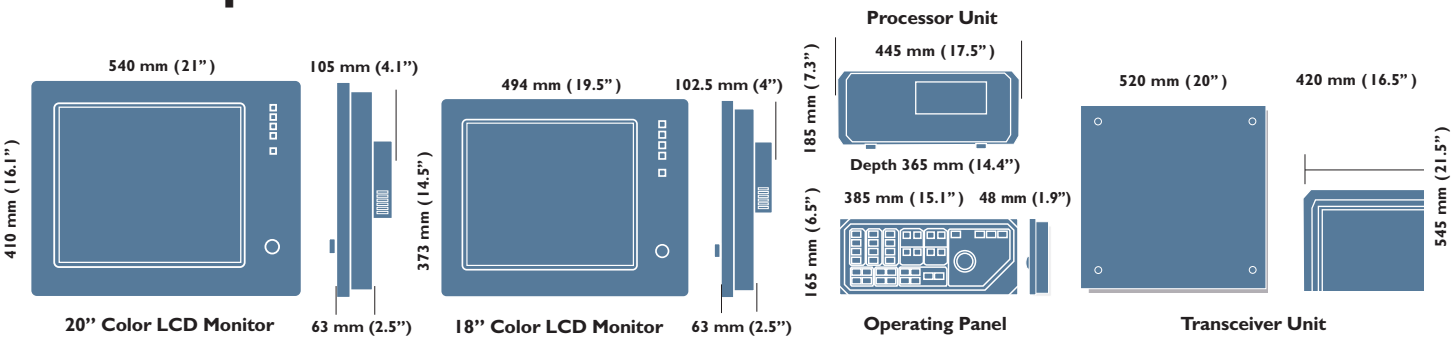
Enlarge the echoes for more detailed information

Storage of echo pictures for later evaluation

Sets the vessel off-center to maximize screen use

Target tracking of 3 individual targets

Technical Specifications



Sonar:	SH80	SP70	SP90
Frequency:	116kHz (see options)	26kHz (see options)	26kHz (see options)
Range (min/max):	50m/2000m (10 step)	150m/8000m (12 step)	150m/8000m (12 step)
Tilt:	+10° to - 60°	+10° to -60° (-90° as option)	+10° to - 60°
Source Level (SL):			
Omni mode:	210 dB/1µPa	216 dB/1µPa	217 dB/1µPa
Single Beam:		222 dB/1µPa	223 dB/1µPa
Detection Range:	750 m against 0 dB target	2800 m against 0 dB target	3000 m against 0 dB target
Transceiver:	240 transmitter channels 480 receiver channels	241 transmitter channels 241 receiver channels	256 transmitter channels 256 receiver channels
Transducer:	Cylindrical with 480 elements	Spherical with 241 elements	Cylindrical with 256 elements
Horizontal beam:	8°or 360°	12° or 360°	11.5° or 360°
Vertical beam:	9° or 60°	12° or 60° (90°/180° as option)	11.5° or 60°
Data I/O (RS232):	Speed log, Gyro, GPS, Echo-sounder, ITI/FS Trawl system, PI32 Net system	Speed log, Gyro, GPS, Echo-sounder, ITI/FS Trawl system, PI32 Net system	Speed log, Gyro, GPS, Echo-sounder, ITI/FS Trawl system, PI32 Net system
Mains supply:			
Display Unit:	115/230VAC, 50/60Hz, 100W	115/230VAC, 50/60Hz, 100W	115/230VAC, 50/60Hz, 100W
Processor Unit:	115/230VAC, 50/60Hz, 200W	115/230VAC, 50/60Hz, 200W	115/230VAC, 50/60Hz, 200W
Transceiver Unit:	230VAC, 50/60Hz, 600W	115/230VAC, 50/60Hz, 600W	115/230VAC, 50/60Hz, 600W
Hull Unit (3-phase)	230/380/440VAC, 1100W	230/380/440VAC, 750W	230/380/440VAC, 3000W
Hull Unit:			
Transducer lowering:	1000mm	1200mm (see options)	1200mm (see options)
Raising time:	23 sec.	25 sec.	30 sec.
Max Speed:	20 knots	15 knots	24 knots
Options:			
Display:	18" or 20" LCD (1280x1024 pixels)	18" or 20" LCD (1280x1024 pixels)	18" or 20" LCD (1280x1024 pixels)
Tilt:		+10° to -90°	
Triple frequency:		24kHz, 26kHz and 28kHz	24kHz, 26kHz and 28kHz
Multiple frequency:	110kHz to 122kHz (1kHz step)	20kHz to 30kHz (1kHz step)	20kHz to 30kHz (1kHz step)
Beam stabilization:	±20 roll and pitch	±20 roll and pitch	±20 roll and pitch
Gyro Interface:	Analog to serial line converter	Analog to serial line converter	Analog to serial line converter
Hull Unit:	DnV approved Trunk	1200mm / 25 knots 1600 mm / 20 knots DnV approved Trunk	1600mm / 20 knots DnV approved Trunk

Note: Specifications are subject to change without notice.

SIMRAD MARKETING 2.000 10.01