
Simrad SH90



Technical specifications

Introduction

This document provides the technical specifications and requirements related to the Simrad SH90 Fish finding sonar.

Note

In Simrad, we are continuously working to improve the quality and performance of our products. Technical specifications may therefore be changed without prior notice.

Performance specifications

This section provides the performance specifications for the Simrad SH90.

Operational frequency

- **Selectable:** 111.5 to 116.5 kHz in steps of 0.5 kHz

Operational range

- **Range steps:** 50 to 2000 meters

Tilt and tip functionality

- **Tilt:** +10 to -60° in 1° steps
- **Tip:** +10 to -90°

Transmission

- **Number of transmitter channels:** 480
- **Transmission modes**
 - 360° omnidirectional
 - 180° vertical
- **Pulse modes**
 - CW (Continuous Wave)
 - Chirp FM (Frequency Modulation)

Reception

- **Number of receiver channels:** 480
- **Gain functions**
 - TVG (Time Varied Gain)
 - AGC (Automatic Gain Control)
 - RCG (Receiver Controlled Gain)

- **Digital filters**
 - Ping-to-Ping Filter
 - Noise filter
 - FM Correlation filter
 - Bottom filter

Echo presentations

- **Number of colours:** 16 or 64
- **Display resolution:** Minimum 1280 x 1024 pixels
- **Colours:** Weak, Normal or Strong
- **Palettes:** Choice of colour palettes to fit ambient light conditions

Beams

- **Horizontal transmission:** 360°
- **Horizontal reception:** 8°
- **Vertical transmission:** 7,5°
- **Vertical reception:** 7,5°
- **Vertical resolution (transmission + reception):** 5,5°

Beam widths

- **User selected:** Narrow, Normal or Wide

Stabilisation

- **Roll stabilisation:** Automatic, $\pm 20^\circ$
- **Pitch stabilisation:** Automatic, $\pm 20^\circ$
- Interface to optional peripheral motion reference unit provided

Standard interfaces

- Five serial lines (RS-232/RS-422/RS-485)
- Transceiver Unit interface (Ethernet)

Optional interfaces

- Scientific output (Ethernet)
- RAW data output for scientific research (Ethernet)

Hull Unit

- **Stroke length:** 1,0 m
- **Maximum vessel speed:** 20 knots
- **Maximum lowering and retrieval speed:** 20 knots

Hull Unit type approval

- **DnV certificate:** S-6344 dated 2010–12–23 (can be downloaded from <http://www.simrad.com>)

Transducer

- **Shape:** Cylindrical
- **Number of individual elements:** 480

User interface

- **Main control:** Dedicated operating panel with direct access to all main functions
- **Secondary control:** Comprehensive menu system
- **Menu languages:** Greek, Turkish, Chinese, English, French, Icelandic, Italian, Japanese, Korean, Norwegian, Russian, Spanish
- **Operating Panel backlight:** Controlled from Display menu
- **Optional equipment:** The sonar can be controlled from a standard computer mouse or trackball

Weights and outline dimensions

This section provides the technical specifications and requirements related to weight and outline dimensions.

Relevant drawings can be found in the *SH90 Installation manual*, or downloaded from our website.

See <http://www.simrad.com/sh90>.

Colour display

- The colour display is not a part of the Simrad SH90 scope of supply. Refer to the documentation provided by the manufacturer.

Processor Unit

- **Depth:** 385 mm
- **Width:** 479,6 mm (fits in a 19" rack)
- **Height:** 177 mm

Operating panel

- **Depth:** 165 mm
- **Width:** 385 mm
- **Height:** 51 mm
- **Weight:** 4 kg

Transceiver Unit

- **Depth:** 505 mm (with shock absorbers)
- **Width:** 595 mm
- **Height:** 750 mm (with shock absorbers)
- **Weight:** 75 kg

Power Supply Unit

- **Depth:** 220 mm
- **Width:** 380 mm
- **Height:** 490 mm (with heat sink and mounting brackets)
- **Weight:** 15 kg

Hull Unit

- **Flange diameter:** 370 mm
- **Height, total:** 2287 mm
- **Height, above trunk:** 1390 mm
- **Weight:** 280 kg

Power specifications

This section provides the technical specifications and requirements related to the AC and/or DC mains supply.

Colour display

- The colour display is not a part of the Simrad SH90 scope of supply. Refer to the documentation provided by the manufacturer.

Processor Unit

- **Voltage requirement:** 115/230 Vac / 47–63 Hz / single phase, selectable (nominal)
- **Maximum voltage deviation:** 15%
- **Maximum transient:** 20% of nominal voltage, recovery time 3 s
- **Power consumption:** Approximately 150 VA

Operating panel

Not applicable. This unit is not powered by AC mains.

Operating Panel Power Supply

- **Voltage requirement:** 115/230 Vac / 47–63 Hz / single phase, nominal
- **Maximum voltage deviation:** 15%
- **Maximum transient:** 20% of nominal voltage, recovery time 3 s
- **Power consumption:** Approximately 10 VA

Transceiver Unit

- **Voltage requirement:** 230 Vac / 47–63 Hz / single phase
- **Maximum voltage deviation:** 15%
- **Maximum transient:** 20% of nominal voltage, recovery time 3 s
- **Power consumption:** Approximately 600 VA

Power Supply Unit

- **Voltage requirement:** 230 Vac / 47–63 Hz / single phase
- **Maximum voltage deviation:** 15%
- **Maximum transient:** 20% of nominal voltage, recovery time 3 s
- **Power consumption:** Approximately 500 VA

Hull Unit

- **Voltage requirement:** 230/380/440 Vac / 47–63 Hz / 3-phase
- **Maximum voltage deviation, 230 Vac:** 15%
- **Maximum voltage deviation, 380/440 Vac:** 340 to 485 Vac
- **Maximum transient:** 20% of nominal voltage, recovery time 3 s
- **Power consumption:** Approximately 3000 VA

Environmental specifications

This section provides the technical specifications and requirements related to the environmental conditions.

Reference standards

- IEC 60945

Note

To extend the lifetime of the equipment, it is strongly recommended to mount the units at dry and clean locations with sufficient ventilation. Observe the sonar room requirements in the Simrad SH90 Installation manual.

Colour display

- The colour display is not a part of the Simrad SH90 scope of supply. Refer to the documentation provided by the manufacturer.

Processor Unit

- **Operating temperatures:** -15 to +55°C
- **Storage temperatures:** -20 to +70°C
- **Relative humidity:** 10 to 95% (non-condensing)

Operating Panel

- **Operational temperature:** 0 to +50°C
- **Storage temperature:** -40 to +70°C

- **Relative humidity** 5 to 95% relative non-condensing

Operating Panel Power Supply

- **Operational temperature:** 0 to +50°C
- **Storage temperature:** -40 to +70°C
- **Relative humidity** 5 to 95% relative non-condensing

Transceiver Unit

- **Operational temperature:** 0 to +50°C
- **Storage temperature:** -40 to +70°C
- **Relative humidity** 5 to 95% relative non-condensing

Power Supply Unit

- **Operational temperature:** 0 to +50°C
- **Storage temperature:** -40 to +70°C
- **Relative humidity** 5 to 95% relative non-condensing

Hull Unit

- **Operational temperature:** 0 to +50°C
- **Storage temperature:** -20 to +40°C
- **Relative humidity** 5 to 95% relative non-condensing

Important

The transducer must not be exposed to direct sunlight for a long period of time.

Minimum display requirements

Unless specifically ordered from Simrad, the SH90 is not provided with a colour display. This item must be purchased locally. You can use one or two displays on your SH90 computer depending on personal and operational preferences.

It is important to make sure that the chosen display model meets the technical system requirements. Make sure that the display design and construction allow for marine use, easy access to cables, and a safe installation.

The minimum requirements are:

- **Resolution:** Minimum 1280 x 1024 pixels.
- **Interfaces:** Must match the video output formats provided by the computer.
The SH90 Processor Unit offers video output on DVI, HDMI and VideoPort formats.
- **Physical size:** Depends on personal and operational preferences. The SH90 software supports 9:16 displays.