7-inch Dual-channel Navigation Sounder

DS207

Operation & Installation Manual

NINGLU

Document: NLT-DS207-SSEN
Edition: V130822

Contents

Working Principle

Working Principle of the Sounder

The acoustic velocity is 340m/s in the air and 1,500m/s in the water. The acoustic time is one second during the round-trip distance of the underwater 750m. So, the target depth can be calculated by measuring the round-trip time of acoustic wave (Fig. 1).

Due to ultrasonic frequency is higher than that of the sound waves by human-ear hearing, ultrasonic is suitable for underwater detection. The ultrasonic transducer of the sounder can launch and receives the ultrasonic wave. Through recording, the underwater target is displayed on the LCD screen and the water depth is calculated for display.
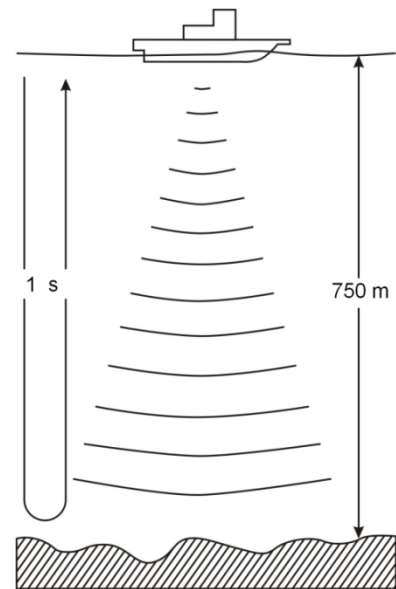
Fig. 1

Screen Display

The ultrasonic wave is sent and received repeatedly by the sounder. The latest echo is recorded as a line on the far right of the screen. The image is consisting of the moving-to- left echo.
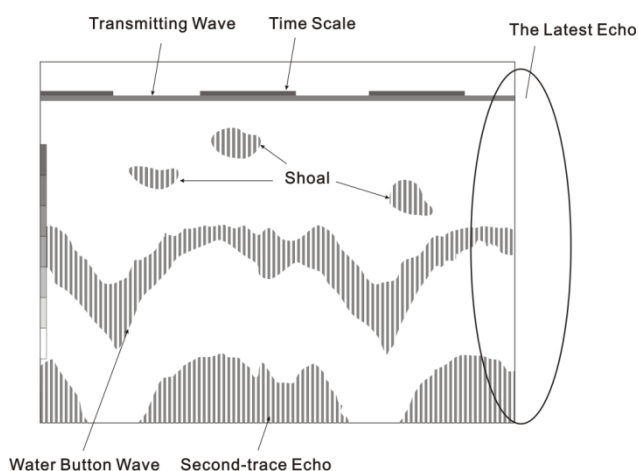
Fig. 2

The discontinuous yellow line is the time scale of 30 seconds.   Under the time scale, the horizontal line is the transmitting wave. Shown in Fig. 2, the three spot may be the shoal. Under shoal, there are the water-button wave and second-trace echo, which depth is the twice of the water-button wave depth. The water button is harder, the echo is stronger and thicker.

Introduction

DS207 dual-channel echo sounder is of high sensitivity and advanced detecting software which can display the water bottom landform, depth and figures accurately. With 7 inch color TFT LCD screen of high resolution (480X234 Pixel), it is easily operated and used for ship navigation.

Screen
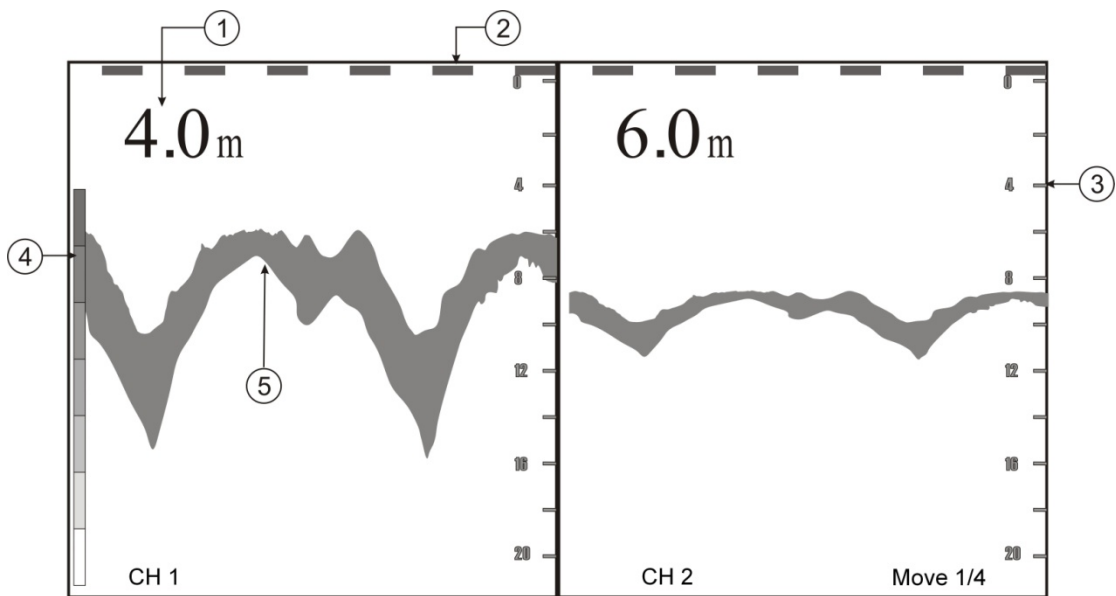
① Depth ② Time scale ③ Basic range ④ Echo Level ⑤ Echo

Operation

Keyboard

Power ON/OFF

⏻   Switch on/off the power supply

Brightness

⚙   Adjust the LCD brightness (LCD backlight)

GAIN

【Gain+】 & **【Gain-】**

In single channel model，set gain by pressing【Gain+】&【Gain-】directly.

In dual channel model, using 【Menu】to adjust gain value.

RANGE

【Range▲】 & **【Range▼】**

Press【Range▲】&【Range▼】directly to adjust basic depth range, while the Auto range is off (set in Menu).

MODE

Press【MODE】 repeatedly to choose among three display model: Channel 1, Channel 2, Dual-channel.

MOVE

The picture speed function is to set the screen frame rolling speed based on per ping of transmission. Press【MOVE】 repeatedly to choose among speed：1/4、1/2、1/1、2/1、4/1.

MENU

Press【Menu】into menu.

【▲】：UP　　　　【▼】：DOWN

【◄】：LEFT　　　　【►】：RIGHT

Operation

|	
GAIN_1	Gain for channel 1：01-20
GAIN_2	Gain for channel 2：01-20
ALARM	Set alarm depth: OFF/0.4-10m
BUZZER	Turn on/off the alarm buzzer
LEVEL	Set echo colors: 3-8
AUTO	Auto range：OFF, Track 1 (channel 1), Track 2 (channel 2) When auto range is on, range cannot be adjusted manually.
POWER	Power output：BIG/SMALL
ColorSet	Set background color：Blue/Black
PUSH〔OK〕EXIT	Save all setting and quit form menu

Installation

Host installation

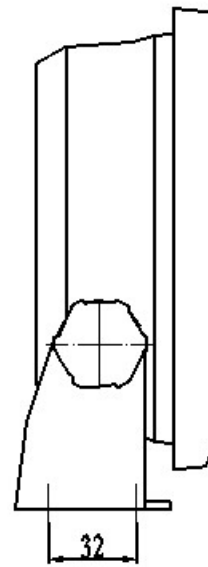The host installation can be in the type of Hung、Table and Flush.
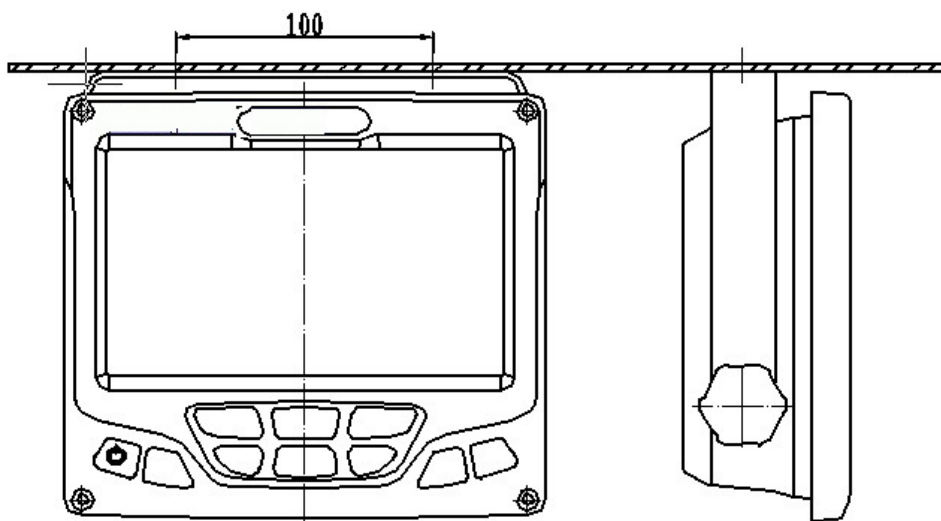
Operator unit

1. Table
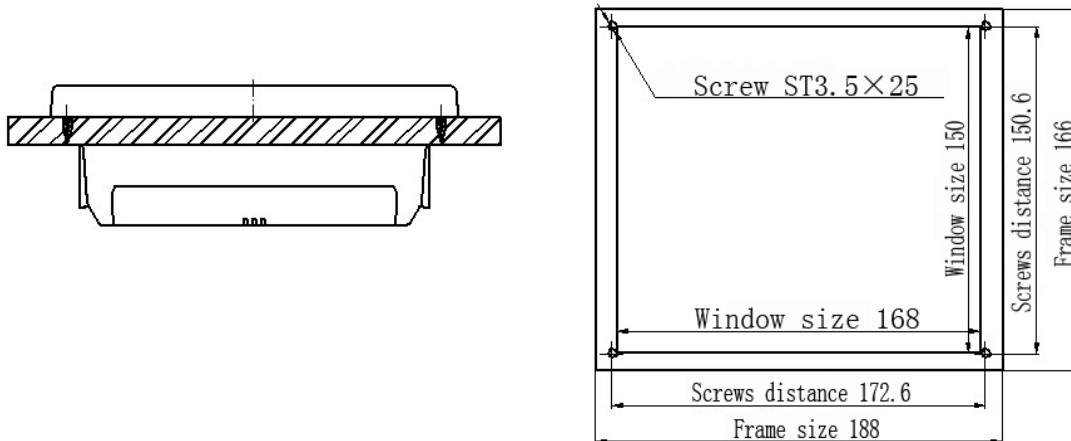
Unit: mm
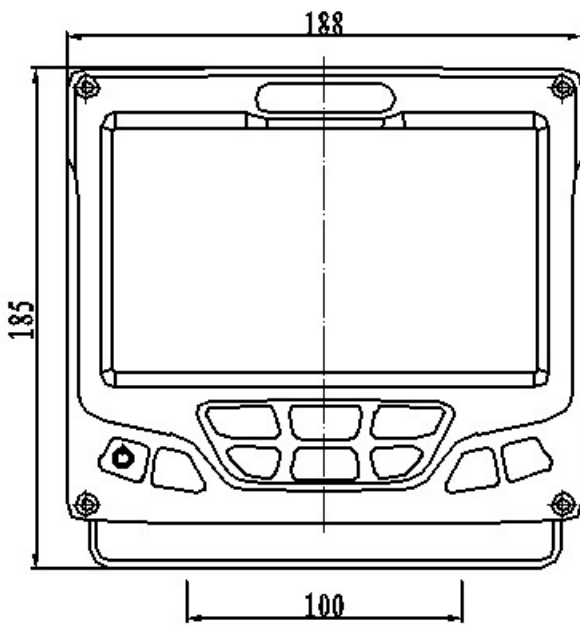
Screws location   Screws location

2. Hung

Installation

3. Flush

Transducer installation

Single transducer is normally installed in the fore-ship. Larger Vessels are often fitted with two transducers, one fore and one aft, select with an optional transducer selector. Optimal system operation is achieved by fitting the transducer as deep as possible on the hull. The transmitting surface of the transducer must be installed horizontal. On vessels with a deep keel, if the transducer must be fitted higher than the keel, it should be fitted towards the side, as far from the keel as possible to avoid false keel echoes.

Do not mount transducers close to the propeller or aft of other hull installations (outlets, vents or other protruding details). It is of course necessary to select a part of the hull that is submerged under all load and speed conditions, and to avoid positions where air is trapped in heavy weather. If a flat, horizontal section is not available for transducer fitting, the shipyard must construct a suitable bed. Do not paint the surface.

Installation

Connection

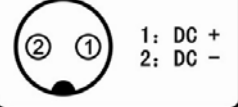# Specification

Item	Specification
Display	7 inch TFT LCD，480×234 pixel
Frequency	Dual-channel 200kHz
Range	2.5-200m
Accuracy	The higher value between ±1% of the range and ±0.1m
Resolution	0.1m
Min. depth detectable	0.3m
Auto range	Yes
Depth output	NMEA0183
Output power	200kHz, 300W
Time scale	On screen 30s time scale
Echo Levels	8 colors signal levels
Alarm Types	Shallow
Alarm Beeper	Buzzer(switch able),flashing
Power supply	DC24V（19~33V），20W
Temperature	0~50℃，IEC 60945
Water proof	IP52，IEC 60529