

# DS-1

## Digital Depth Sounder

### Owner's Manual

**Contains:**

- General Information
- Performance Specifications
- Operation
- Installation
- Maintenance
- Drawings
- Parts Lists



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\* Figures A through G are contained in the pocket in the back cover of the manual.

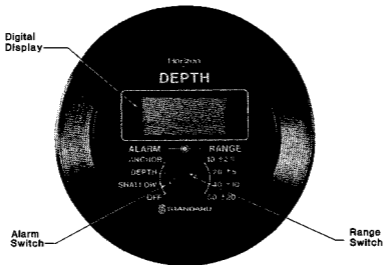


FIGURE 1. DS-1 FRONT PANEL

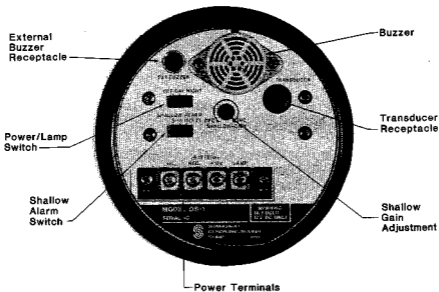


FIGURE 2. DS-1 REAR PANEL

## GENERAL INFORMATION

The Standard Communications Corp. (SCC) Model DS-1 Digital Depth Sounder is specifically designed for sailboat applications. It mounts easily in a standard four-inch instrument aperture and requires 12 VDC input power. All solid-state, it is controlled by an internal microprocessor, which enables such features as:

- Continual reading of depth from 2.6 to 400 feet.
- Shallow alarm with setting of 5, 10, or 15 feet.
- Anchor alarm for deviation of 2.5, 5, 10, or 20 feet from depth at time of anchoring.
- Depth alarm for crossing 10, 20, 40, or 80 feet threshold depth.
- Large liquid crystal display (LCD) for maximum visibility, even in direct sunlight.
- Adjustable shallow gain control to adapt to local bottom conditions.
- Automatic decimal display at depths of less than 10 feet.
- Simple internal wiring change to convert unit of measure from feet to fathoms or meters.

This Owner's Operating and Maintenance Manual will assist you in the installation and operation of the DS-1, and provide guidelines for maintenance should it ever be required. We urge you to read this manual carefully to obtain optimum performance from the depth sounder.

We at SCC thank you for buying Standard, and are sure you will be impressed with the accuracy, reliability, and durability of your Standard Communications equipment for many years to come.

## PERFORMANCE SPECIFICATIONS

Performance specifications are nominal, unless otherwise indicated, and are subject to change without notice.

Depth Range . . . . . 2.6 to 400 feet  
(selectable by . . . . . 0.5 to 67 fathoms  
internal wiring) . . . . . 1 to 133 meters

Alarm Modes/Settings  
Shallow . . . . . 5, 10, or 15 feet  
Depth . . . . . 10, 20, 40, or 80 feet  
Anchor . . . . .  $\pm 2.5, 5, 10, \text{ or } 20$  feet

Transmitter Power . . . . . 40 W min. (RMS)

Sounding Rate . . . . . 2.3 Hz

Transmitter Frequency . . . . . 207 kHz

Sensitivity . . . . . 10  $\mu\text{V}$  max.

Shallow Gain Control . . . . . Adjustable

Transducer Requirements . . . . . 1200 pF/500  $\Omega$

Temperature Range . . . . .  $-10^\circ$  to  $+50^\circ\text{C}$

Input Voltage . . . . .  $+13.8 \text{ VDC} \pm 20\%$   
(12 volt battery system)

Current Drain  
Nominal . . . . . 50 mA

Max. Brightness . . . . . 300 mA

Display . . . . . 0.6 in. liquid crystal display  
with internal backlight

Dimensions . . . . . 5 face x 4 body x 4 deep in.

Weight . . . . . 1 1/4 lb

## OPERATION

For location of controls described in the following paragraphs, refer to Figures 1 and 2.

### 1. Depth Reading

Any time power is applied to the unit, the display will indicate the depth of the water. (However, a display of two horizontal lines will appear if a measurement is not possible, such as when the boat is out of the water, or if the bottom is beyond the measurement range.) To apply power, slide the power/lamp switch to the "Day" position (or the "Night" position if you wish to illuminate the display). For depths under 10 feet, the display will automatically scale the depth in tenths to provide accurate shallow depth measurements.

The shallow gain adjustment should be used to decrease sensitivity (turn adjustment counterclockwise) to fresh wakes and aerated water, which may cause false indications of shallow depth. However, if decreased too severely, contact may be lost with soft, shallow bottoms, in which case it should be increased (turn adjustment clockwise). It may be necessary to experiment to determine the best setting to insure maximum wake rejection and reliable shallow depth indication, depending on local bottom conditions and boat traffic.

### 2. Shallow Alarm

To set the alarm to warn you of a shallow depth of 5, 10, or 15 feet, set the alarm switch to the "shallow" position. Set the shallow alarm switch to the desired warning depth. The buzzer will sound when the actual depth is shallower than the warning depth. The buzzer will stop sounding if the actual depth returns to a level deeper than the warning depth.

### 3. Depth Alarm

To set the alarm to warn you of crossing a threshold depth of 10, 20, 40, or 80 feet, set the alarm switch to the "Depth" position. Set the range switch to the desired threshold depth. The buzzer will sound when the threshold depth is first crossed (one continuous tone when the actual depth is deeper than the threshold depth; many short tones when the actual depth is more shallow than the threshold depth), then continue to sound each time the threshold depth is crossed again. To reset, either change the threshold depth (range switch) or the alarm switch.

### 4. Anchor Alarm

To set the alarm to warn you of deviation in depth after anchoring, set the alarm switch to the "Anchor" position (thus establishing the "pre-set" depth). Set the range switch to the desired position ( $\pm 2.5$ ,  $\pm 5$ ,  $\pm 10$ , or  $\pm 20$ ). The buzzer will sound when the actual depth deviates from the pre-set depth by more than the amount selected by the range switch. (As with the depth alarm, a deeper depth than the pre-set depth produces one continuous tone; a shallower depth than the pre-set depth produces many short tones.) The buzzer will stop sounding if the actual depth returns to the allowed deviation from the pre-set depth.

### 5. Operation With Converted Unit Of Measure

To change the unit of measure on the display from feet to meters or fathoms, simply remove diodes Q302 and Q303 as indicated on the digital circuit display schematic diagram (Figure B). If you do so, take into account that the settings for the alarms are still in feet, and thus will not agree with the display when the buzzer sounds. (For example, if you convert the display to read in fathoms, and set the shallow alarm at 15 feet, the buzzer will sound at a display reading of 2.5 fathoms (15 feet).

## INSTALLATION

### 1. General

When selecting the location for mounting the depth sounder, keep in mind that the controls must be accessible to the user, and the electrical connections (power, transducer, and external buzzer) should be routed to their sources as directly as possible. Additionally, to preserve the life of the depth sounder, we recommend that it be mounted in a location to avoid direct exposure to water or rain.

### 2. Mechanical

With the mounting bracket (003V, Figure F) removed from the depth sounder, insert the unit into a standard 4-inch instrument aperture until the back of the face is flush with the outside mounting wall. Slide the bracket over the body of the depth sounder, then tighten it with the hex head bolt (002V, Figure F). Secure the bracket to the inside mounting wall with the supplied hardware.

### 3. Electrical

Connect the supplied power cord to the power terminals marked "Battery" on the back of the unit; black to negative ground ("Neg",) red to positive voltage ("+12"). Connect the other end of the power cord to the specified power source. (Obtain the power as directly from the battery as possible, avoiding power circuits which share loads with ignition, alternators, radio transmitters, etc. Excessive electrical noise associated with such devices may prevent the depth sounder from operating properly.)

For operation of the display backlight, simply jumper its terminal ("Lamp") to the positive voltage terminal.

The RCA plug on the end of the transducer cable must be inserted into the transducer receptacle. A remote



buzzer (fitted with a mini-plug,) if desired, may be installed into the external buzzer receptacle.

#### 4. Transducer

Correct installation and maintenance of the transducer is essential for optimum operation of the depth sounder. Select a location for the transducer using the following guidelines:

- a. Mount as close as possible to the centerline to insure contact with water at all times. (However, avoid location at the centerline to prevent damage to the transducer in case of grounding.)
- b. Avoid location close to deep keels, rudders, shafts, thru-hulls, propellers, etc., to minimize turbulence, and thus aeration, upon the face of the transducer.
- c. Generally, a location approximately 2/3 aft is best. However, this may vary dependent upon the hull of your boat.

The method employed for mounting will also vary, dependent upon the type of transducer and the deadrise angle of the hull location used. In general, always insure that the transducer is mounted facing directly downward, using a fairing block if necessary. A recessed mounting may also be used for minimum projection and low drag. If the transducer is projected rather deeply, an epoxy may be used to form a fairing filler to minimize drag. A good underwater sealing compound should be used to secure all parts of the transducer system. See Figure 3 for a transducer installation aid.

After installation, always keep the transducer face clean. Do not strike the transducer face with a sharp blow.