

# SILVA Direction

**EKOLOD • DEPTH SOUNDER**  
**ECHOLOT • SONDEUR**



**Monterings & Bruksanvisning**  
**Installation & Operating description**  
**Installation & Bedienungsanweisung**  
**Description d'installation et d'utilisé**



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# SILVA 30 DIRECTION DIGITAL ECHOSOUNDER

## 1. General description

SILVA 30 is a high quality precision instrument designed to meet the demands from sailors and powerboat owners. The instrument is very easy to read and operate.

NOTE: The instrument must be adjusted to your boat. Read the instruction in section 7.3-4 carefully and adjust accordingly.

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## 2. Contents list for the SILVA 30 digital echosounder

The SILVA 30 comes complete with all necessary fittings and attachments for most installations. Included in this box are the following items. Check now to become familiar with each part prior to installation.

- 1 instrument
- 1 gasket
- 1 cable cover plate
- 3x4 stainless screws and 4 rubber screwcaps
- 1 ribbon plug cable 5 m.
- 1 junction box with connection circuit board
- 1 transducer box
- 1 echosounder transducer
- 1 dummy plug
- 1 silicone grease
- 4 O-rings
- 1 through-hull fitting with nut
- 1 locking device

A two-wire cable from the battery supply is also required.

## 3. Optional accessories

The following items can be supplied as optional extras:

- Option junction box including ribbon cable (part no. 9612). This box is necessary for the connection of optional extras. See further description in section 8.
- External audible alarm (part no. 8147). An audible alarm is included inside the instrument housing.
- Internal mounting kit for the transducer (part no. 9038).
- Bronze through-hull fitting (part no. 9216)
- Remote control "ALOFF" (part no. 9368).

## 4. Correct location of the transducer

The correct positioning of the depth sounder transducer is of prima importance for the accuracy of the instrument. The transducer should be located on an area of the hull that will be under water at all times and free from bubbles or turbulence caused by the keel or the propeller.



Avoid placing the transducer near the edge of sharp hull chines. Transverse waterflow in these areas may be turbulent and thus affect the measurements.

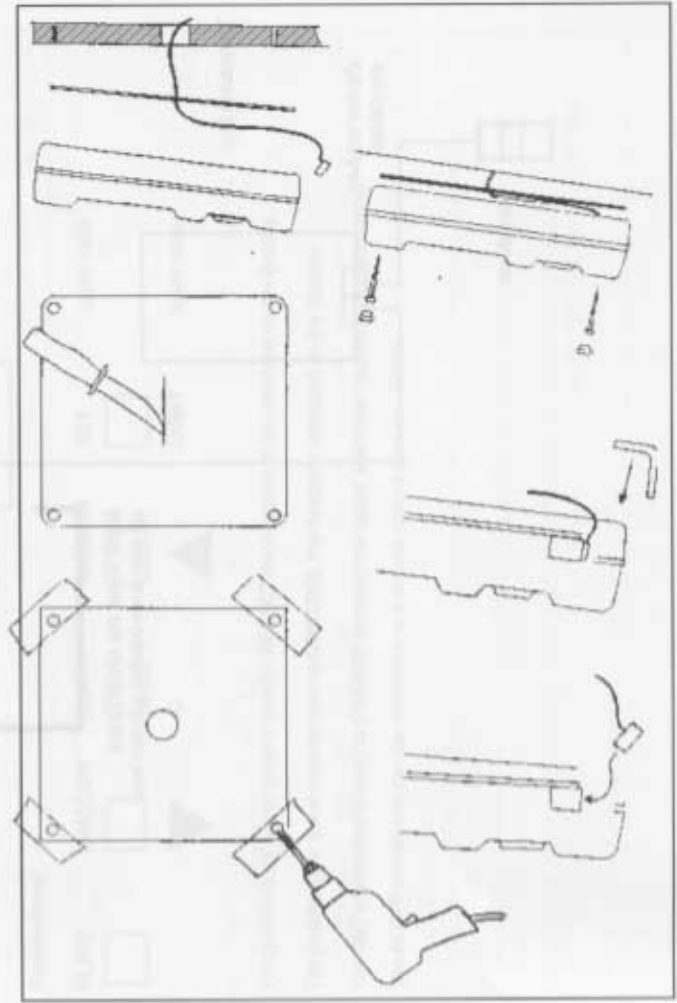


Although the transducer sends out a signal at various angles, the transducer should be installed as vertically as possible. For this reason, a location close to the centreline is preferred.

If you have questions about the location of the transducer, contact your builder, yacht dealer, or other Silva owners with similar boats for advice. Always remember to account for accessibility from the inside of the yacht when determining the final location!

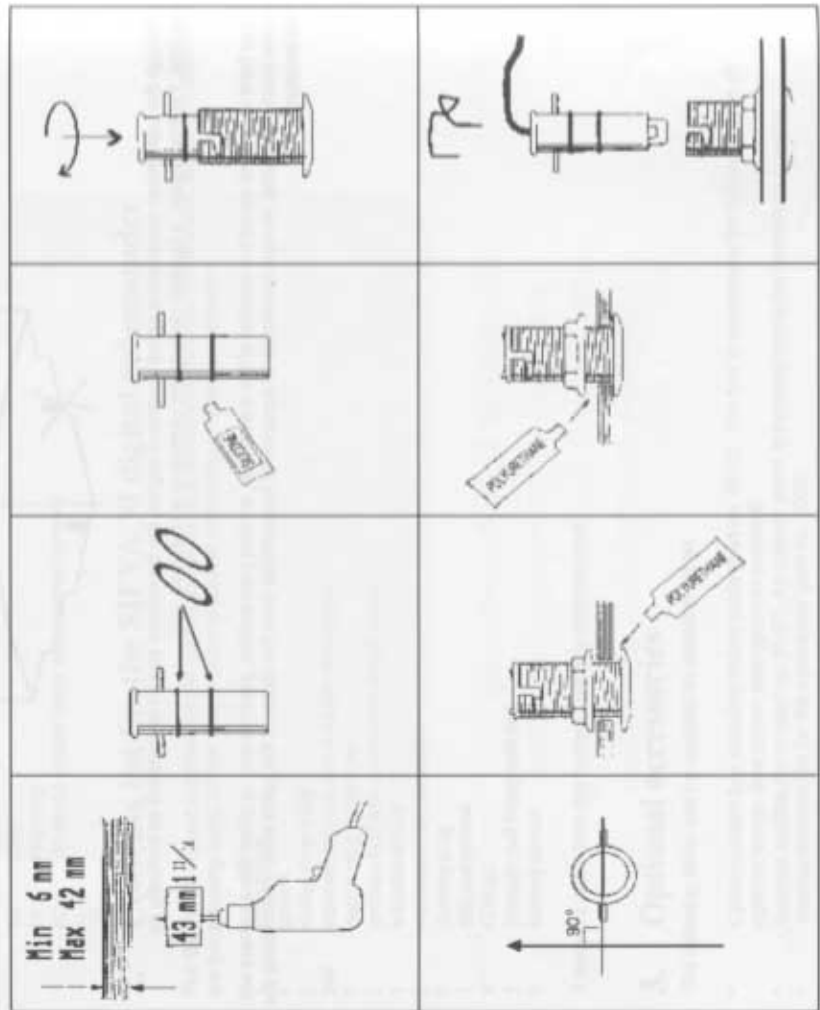
## 6. Installing the instrument

1. Locate the position of the instrument using the template supplied with this handbook. Drill the holes as indicated one in each corner and one for the instrument cable to pass through the bulkhead.
2. Pass the instrument cable through the bulkhead and gasket and connect it to the instrument as illustrated. Mount the cable cover.
3. Use the 4 larger screws supplied to attach the instrument and gasket onto the bulkhead. Alternatively machine type screws and nuts can be used if it is preferred to screw the instrument from the inside (anti-theft reason). Mount the screwcaps.
4. Locate the junction box and the transducer box and fasten them with the smaller screws supplied.
5. Attach the cables to the junction box. Pull the cables through the cover plate's opening, plug in the wires, insert the circuit board up-side-down in the slot and snap on the cover plate. Plug in the cables to the transducer box. See diagram overleaf.
6. When several **SILVA Direction** units are installed, a marking of the junctionboxes and the cables is recommended.



## 5. Installing the through-hull fitting

1. Use a 43mm (1 11/16") hole cutter to cut through the hull. (See section 4 for correct location.)
2. Slide both rubber O-rings onto the dummy plug.
3. Generously apply the silicone grease to the exterior of the dummy plug.
4. Install the dummy plug in the through hull fitting. Use a slow twisting motion and be sure the plug is properly seated into the fitting.
5. Apply polyurethane sealing compound on the outer flange of the through-hull fitting and tighten the nut on the inside by hand.
6. When this outer sealant has cured, remove the nut and apply sealant on the inside. Tighten the nut again by hand.
7. Install the wire locking device onto the dummy plug/transducer.



## 7. Operation instruction for the SILVA 30

### 7.1 Functional description

Display



The display's upper part always indicates depth. The lower part indicates functions as selected by the pushbuttons. These are:

SHALLOW ALARM      DEPTH ALARM      ANCHOR ALARM

Pushbuttons:

ALOFF       SHALLOW       DEPTH       ANCHOR       SET       upper case

           C       LIGHT       lower case

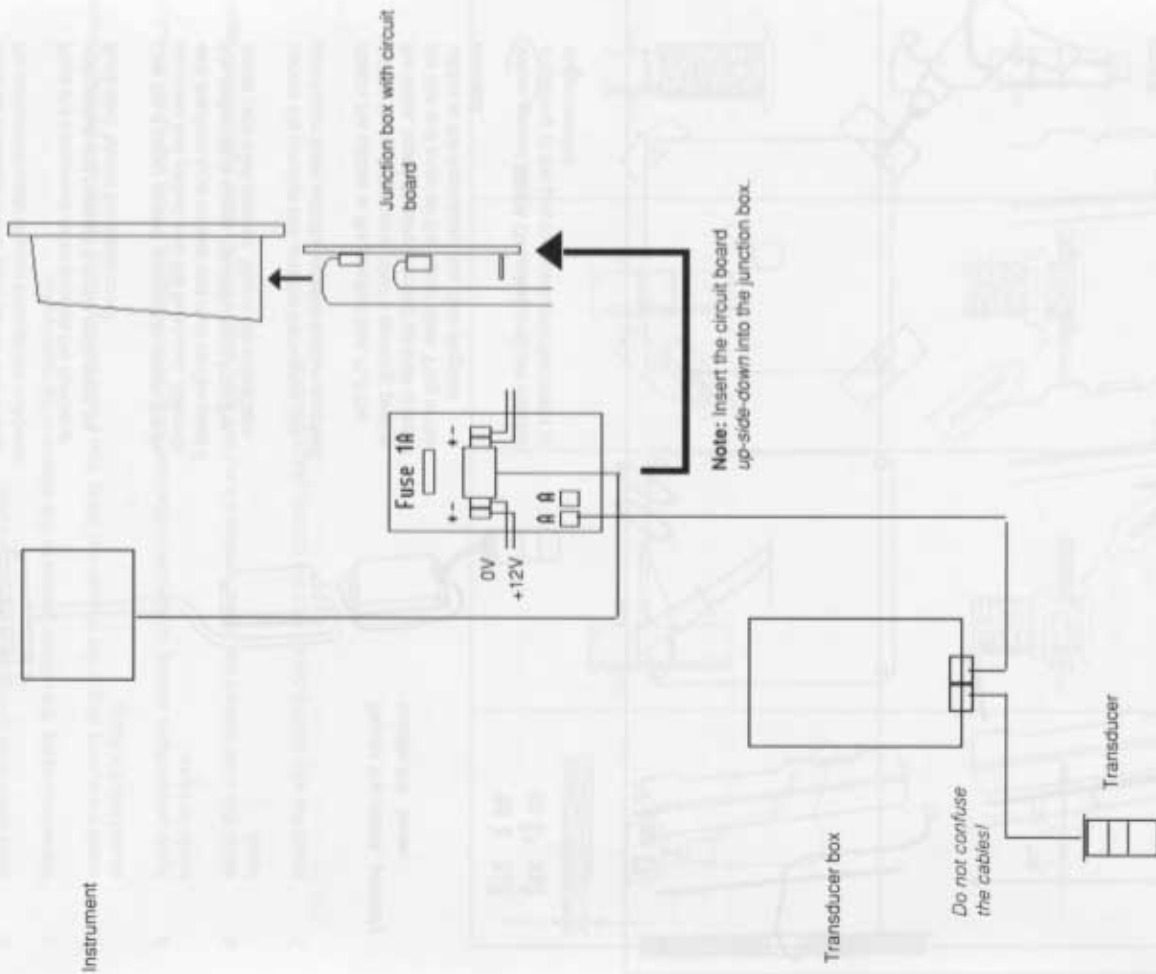
The pushbuttons' upper case is used to **SELECT** the functions to be indicated on the display.

The pushbuttons' lower case is used to **CONTROL** the functions indicated on the display.

The **SET** pushbutton is used to **CHANGE** between the upper and lower case of the pushbuttons.

The **ALOFF** pushbutton can be connected to a remote control (part no. 9368).

### 6.1 Connection



## 7.2 Operation

### DEPTH

The upper display indicates depth in feet, fathoms or metres. The quality of the echo is always indicated by the dots on the display where three dots are the best. The quality is mostly dependent on the seabed. Loose clay gives a bad echo and sand or stone give good echoes. Two dots should be considered normal.



### SHALLOW ALARM

Engage

Press

SHALLOW



If a value is set the alarm is activated. The alarm symbols and 1 are displayed.

Set

Press

SET SET

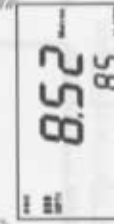


The alarm value can be set within the instruments full range.

Acknowledge

Press

ALOFF

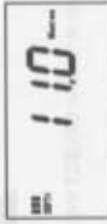


A LOFF extinguishes audible alarm when alarm condition is present.

Disengage

Press

ALOFF



A LOFF disengages alarms when audible alarm is not present.

### DEPTH ALARM

The depth alarm works the same way as the shallow alarm, but is engaged with the **DEPTH** pushbutton.

When a depth alarm is set the display indicates **2** and the alarm symbols.

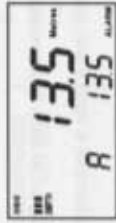
If you wish to extinguish the limit figures from the lower display while still keeping the alarms engaged, press **DEPTH** or **SHALLOW** respectively.

### ANCHOR ALARM

Engage

Press

ANCHOR

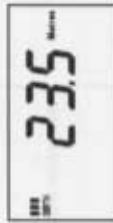


The actual depth  $\pm$  20% are stored as shallow and depth alarms. Actual depth is stored on the lower display as reference. "A" indicates that the anchor guard is activated.

Acknowledge/Disengage

Press

A LOFF



A LOFF extinguishes audible alarm and disengages anchor alarm.

### LIGHT

Press

LIGHT and hold



Instrument light is switched medium-strong-off. Power consumption is only 50 mA when light is switched off.

## 7.3 Adjusting the SILVA 30

The following adjustments can be made:

- measurement from the waterline or from under the keel  
Note: When measuring from the waterline it is still advisable to adjust the transducer-keel distance as this will prevent possible false echoes from the keel.
- selection of metres, fathoms or feet
- master or slave selection, see further fig B.1

## 7.4 Start up procedure

Your instrument must be set up with certain values to operate with the best possible accuracy. The following routine need only be done once.

Once inserted the values are stored permanently even when the power is shut off.

Press **ALOFF** and **SET** simultaneously until a code is indicated on the upper display. The lower display indicates the value to be altered.

- **C0: selection of fathoms, feet or metres**

to alter, press **C** **SET** new value indicated

the next code is automatically brought up when **SET** is pressed.

- **C1: insert of distance from transducer to water level**

adjust, press **SET** distance displayed. N.B. This adjustment must be done in metres.

- **C2: insert of distance from transducer to keel**

adjust, press **SET** distance displayed. N.B. This adjustment must be done in metres.

- **C3: selection of measuring from waterline or keel**

select, press **C** **SET** until 00 or 01 appear. 00 = waterline reference  
01 = keel reference

- **C4: set at factory to 3**

- **C5: set at factory to 6**

- **C6: set at factory to 10**

- **C7: set at factory to "..."**

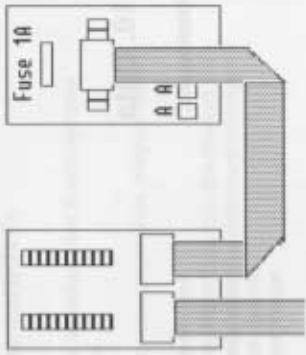
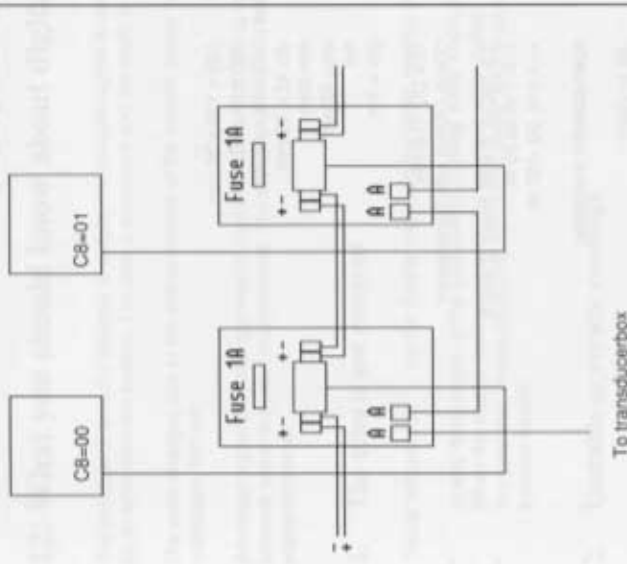
- **C8: master-slave selection. Set at factory as master.** 00 = master  
01 = slave

## 8. Electrical connections / circuit diagrams

When installed according to section 6 the instrument operates without any further precautions.

### 8.1 Two or more instruments to one transducer

Note: One instrument must be set as master and the others as slaves.

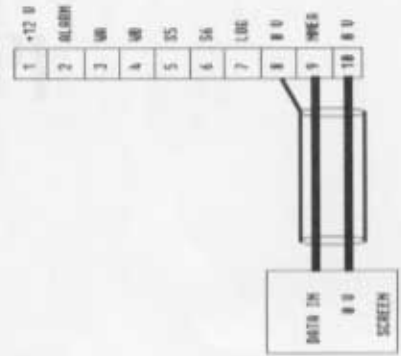


To instrument

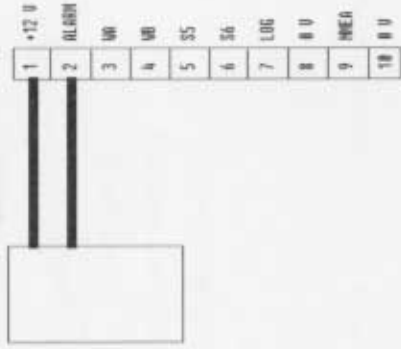
**Note:** Insert the circuitboards up-side-down into the boxes as shown in 6.1.

The connection of optional extras is shown below.

### 8.2 NMEA 0183 connection



### 8.3 External alarm



## 9. Fault finding

Most faults on electronic equipment can be found in the outer wiring and this should always be checked first if a fault arises.

Check that:  
no cable squashed or worn.  
screw terminals tight.  
the connection is made properly as per the wiring diagram.

## 10. Data

### Dimensions:

instrument housing  
junction box  
transducer control box  
through-hull fitting  
hull thickness  
instrument cable  
transducer cable

125 x 125 x 30 mm  
140 x 66 x 42 mm  
140 x 66 x 42 mm  
dia 42 x 86 mm  
min 6mm  
max 42mm  
5m  
2m + 7m  
12V DC (10-18V)  
50mA (70mA with illumination)  
0.6-150 m, 0.4-80 fthms, 2-495 ft  
+/-0.1 m to 20 m  
+/-1.0 m 20 -150 m

### Power supply:

open collector transistor  
-35 to +85C  
-10 to +70C

### Current consumption:

8 data bits (D7=0), no parity, 2 stopbits  
1/second  
0 - 10 V DC, sink/source 25 mA,  
\$XXDBT...0000.0.M., metres  
\$XXDBT...0000.0.F., feet  
\$XXDBT...0000.0.F. fathoms

### Measuring range:

external alarm  
storage operation

### Output:

data format  
repetition  
output  
message

### Temperature range:

external alarm  
storage operation

### NMEA 0183 data output:

8 data bits (D7=0), no parity, 2 stopbits  
1/second  
0 - 10 V DC, sink/source 25 mA,  
\$XXDBT...0000.0.M., metres  
\$XXDBT...0000.0.F., feet  
\$XXDBT...0000.0.F. fathoms

## 11. Warranty

SILVA gives a two year warranty against manufacturing faults or faulty components. A purchasing receipt must be shown if a warranty claim is made.

## 12. What you should know about digital echosounders

The principle of an echo sounder is simple. An acoustic signal is sent from the transducer and is received back as an echo from the bottom. The time is measured and the depth is calculated.

The echo changes due to the characteristics of the bottom, heavy layers of salt and temperature, irregular bottom vegetation, fish etc.

Advanced signal processing prevents these variations from giving unstable readings. Transitory disturbances may however occur in some circumstances. The reasons for this and how it is expressed in the instrument readings is explained below.

### 1. The echo is not received

This is indicated by "--" on the display replacing the depth reading and might occur:

- In very deep water, or the combination of deep water and a soft bottom.
- When the boat is heeling severely, for example when sailing.
- In a propeller stream producing airbubbles under the transducer, either by powering astern or by following a power vessel.

### 2. Unstable or erratic readings

This might occur:

- When going in shoal water with uneven and high bottom vegetation.
- In heavy layers of salt or noticeable ranges of water temperatures.
- In heavily agitated water containing sand or other contamination.
- When moored to a bridge which has been anchored by chains or piles.



