SILVA 2200

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ESSHÅtryck Stockholm 1986 (/39)

SILVA 2200 is built to fulfil the highest demands of function and quality. In order to get the instrument to work well it is of greatest importance that the mounting and operating is done as per the instructions in this manual.

The instrument consumes very little power and we therefore recommend to keep it energized in order not to interrupt the built-in clock.

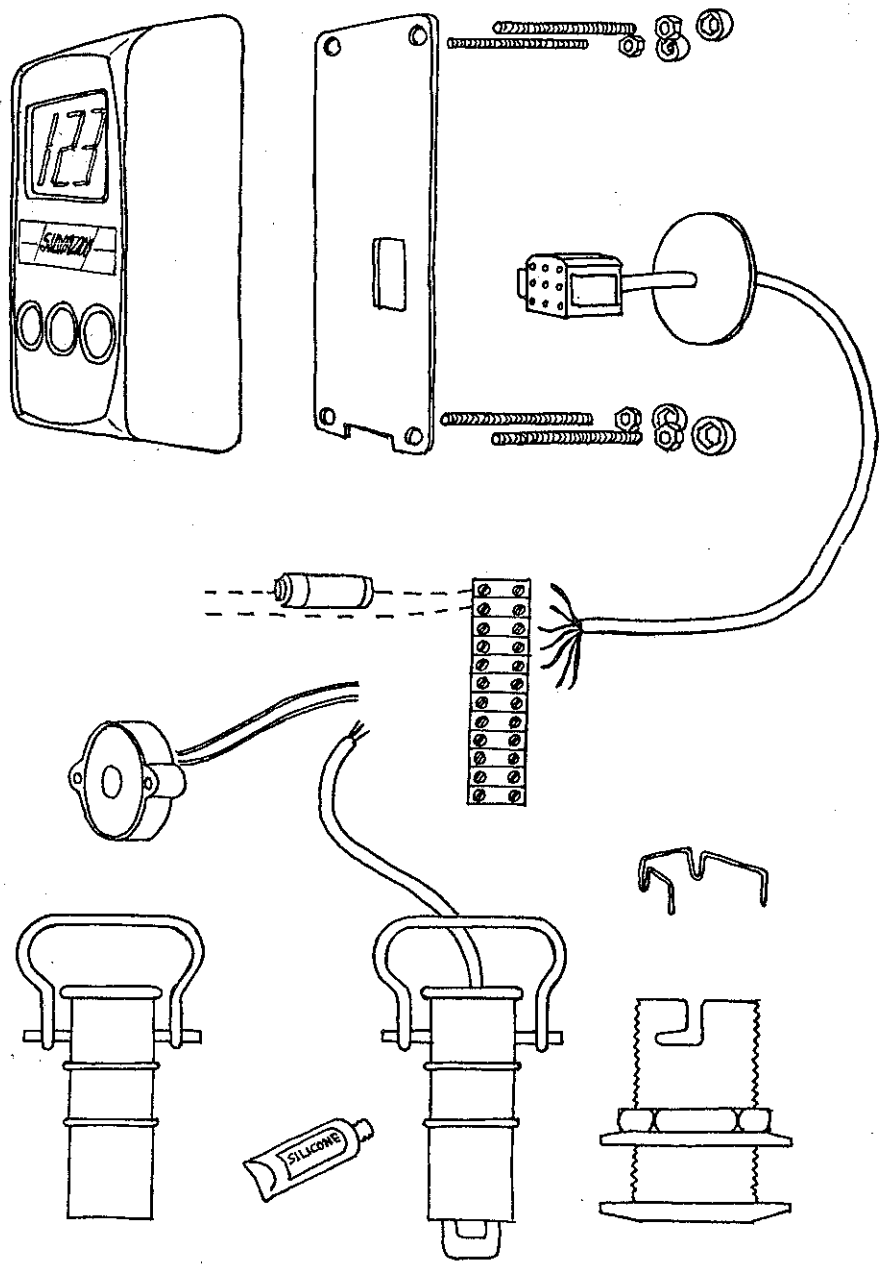
When the instrument is switched off the distances and set values for starting clock and calibration are stored in a non volatile memory. See further point 2.

LIST OF CONTENTS

NOTE!
The log must be calibrated.
Study the manual and then calibrate as per the instructions in points 2.9. and 2.10.

1. Extent of supply

SILVA 2200 consists of instrument housing, through hull fitting, transducer, dummy plug, buzzer, cable and installation material.



2. Operating the instrument

The different functions of the instrument are chosen by pushbuttons. When the rquired function is shown on the display — release the button.

2.1. Speed

4 The average speed of the boat during the last 4 seconds. The value is updated every other second.

10 The average speed of the boat during the last 10 seconds.

40 The average speed of the boat during the last 40 seconds.

ACC Trim function. When engaged, the average speed during the last 20 seconds is calculated and displayed briefly. The display then shows deviations from this speed.

AS Average speed from the time when the instrument was switched on or when the starting clock reached zero.

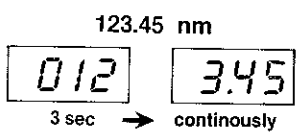
Lit Instrument illumination on. The illumination of the instrument should normally be disconnected in order to save power.

2.2. Log

di 1 Distance counter 1. The three highest digits are shown for 3 seconds and then the three lowest continuously. The resetting is done by pressing LOG and SPEED simultaneously.

di 2 Distance counter 2. As distance counter 1, but is reset also when the starting clock has reached zero.

di t Total counter. As distance counter 1 but not possible to reset.



Lit The illumination of the instrument disconnected. This reduces the power consumption from 30 to 10 mA.

OFF The log function is disengaged. The display shows OFF. This means that the instrument clock is operating, but the function of the log is switched off. This is to prevent the instrument from registrating the distance when for instance the boat is moored in moving water such as rivers or tidal areas. By pressing any button the log function is engaged.

2.3. Timer

St Starting clock. When engaged, the elapsed time from when the instrument was switched on is displayed. The starting clock starts to operate by pressing the button LOG. In the last 10 seconds before reaching zero a "beep" is given each second and zero is indicated by a long "beep". When the starting clock has reached zero the time measuring starts again from zero and at the same time the distance counter 2 is reset.

The starting clock can be set at an arbitrary time. See point 2.4. At delivery it is set to 5 minutes.

CLO Clock. The time is indicated alternately in hours and minutes. The clock can be set as per point 2.5.

AL The alarm time setting is shown. Alarm is indicated by the buzzer in the same way as the starting clock.

The alarm can be disengaged by setting **00:00**. See point 2.6.

AdJ Adjustment.

When pressing TIMER the following functions are enabled:

St Setting of starting clock

CLO Setting of clock

AL Setting of alarm

SAt / **ECt** Choice of output for satellite navigator or external counter.

CAL Calibration of log. 0—99 percent

2.4. Setting of starting clock

1. Select	○ ○ ●	AdJ
2. Select	○ ○ ●	St → 05
3. Set minutes	○ ● ○	10
4. Select seconds	○ ○ ●	.00
5. Set seconds	○ ● ○	.30
6. Revert	● ○ ○	

2.5. Setting of clock

1. Select	○ ○ ●	AdJ
2. Select	○ ○ ●	CLO → 00.
3. Set hours	○ ● ○	16.
4. Select minutes	○ ○ ●	.00
5. Set minutes (Time-in with seconds)	○ ● ○	.30
6. Revert immediately	● ○ ○	

2.6. Setting of alarm

1. Select	○ ○ ●	AdJ
2. Select	○ ○ ●	AL → 00.
3. Set hours	○ ● ○	09.
4. Select minutes	○ ○ ●	.00
5. Set minutes	○ ● ○	.50
6. Revert	● ○ ○	

2.7. Choice of satellite output

1. Select	○ ○ ●	AdJ
2. Select	○ ○ ●	SAt
3. Revert	● ○ ○	

2.8. Choice of output for external counter

1. Select	○ ○ ●	AdJ
2. Select	○ ○ ●	ECt
3. Revert	● ○ ○	

2.9. Calibration of log *See first point 2.10.*

1. Select	○ ○ ●	AdJ
2. Select	○ ○ ●	CAL → P00
3. Step to P 91	○ ● ○	P 91
4. Check calibration value	○ ○ ●	C20
5. Set calibration value	○ ● ○	C25
6. Revert	● ○ ○	

2.10

The calibration value is established by travelling a known distance in calm water. Use the distance counter 1 or 2 and "zero-set" it when starting.

If current affects the result the distance must be run in both directions.

A correct calibration value is calculated as follows:

$$\frac{\text{real distance}}{\text{measured ditance}} \cdot \text{set calibration value} = \text{new calibration value}$$

Example: Real distance 1.00 nm. Measured distance 0.80 nm

$$\frac{1.00}{0.80} \cdot 1.00^{*}) = 1.25$$

The calibration value is 1.25 i.e. C25 is set on the display as per 2.9.5.

Each step in the calibration value equals 1 percent alteration

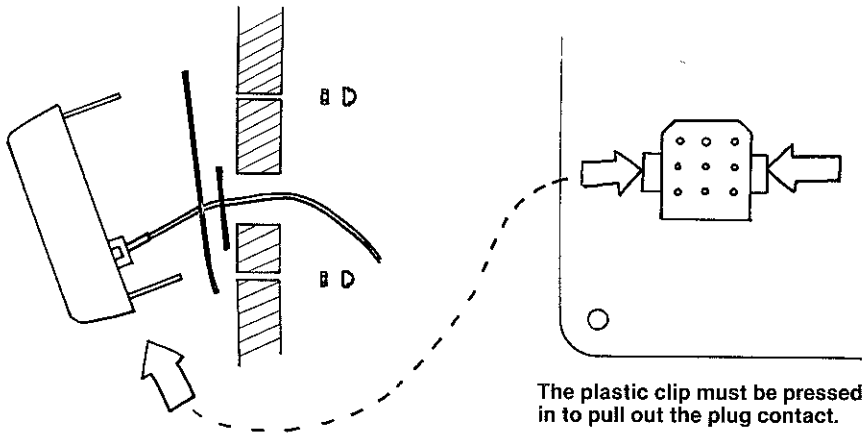
*) The calibration value 1.00 (shown as C00) is set at delivery.

3. Installation

3.1. Mounting of instrument housing

The instrument housing is mounted by drilling holes as per the enclosed drill template. Then the instrument is mounted with the bolts and plastic nuts.

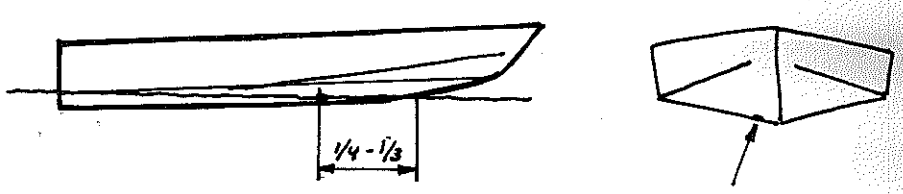
The gasket is used for sealing between the instrument and the bulkhead. ***Make sure that a good seal is obtained between the instrument cable and bulkhead so that no humidity can enter the instrument from the cabin.*** This could cause condensation on the instrument glass. If the instrument is mounted on a horizontal surface the gasket's lower part should be sealed with a sealing compound.



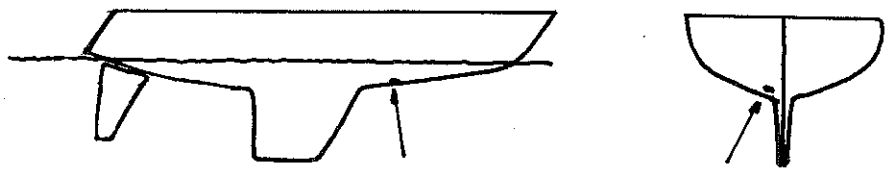
The plastic clip must be pressed in to pull out the plug contact.

3.2. Mounting of paddlewheel transducer

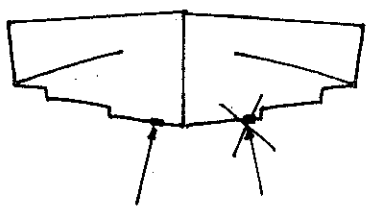
The correct position of the paddle-wheel transducer is of prime importance for the accuracy of the instrument. Generally the transducer is placed 1/4 or 1/3 along the water line measured from the bow (in normal conditions) and close to the centre line.



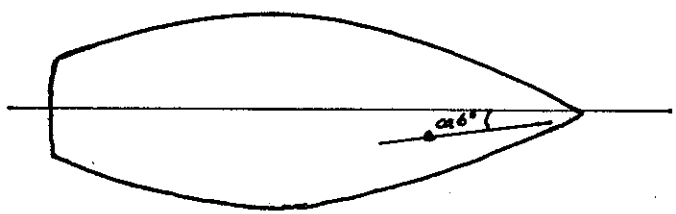
Sailingboats with fin keel must have the transducer placed in front of the keel.



Avoid placing the transducer close to sharp chines where transverse water-streams can disturb the function of the log.



On sailingboats with a pronounced V-shape, for example full-keeled boats, it could be favourable to slightly align the transducer towards the stern in order to get equal characteristic at different bows.

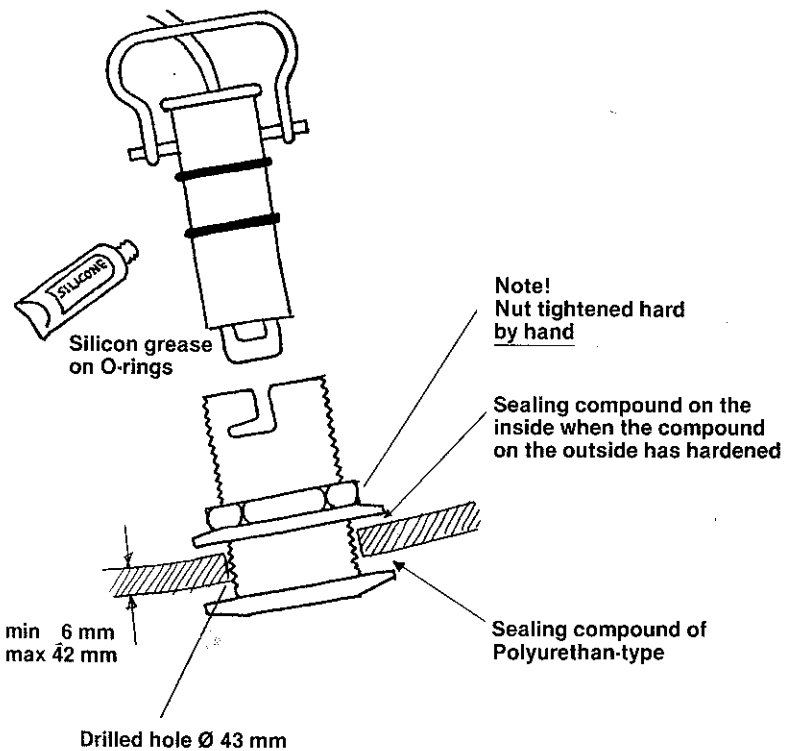


Contact your shipyard, owners to identical boats with a similar log or Silva for advice. Usually the position of the paddlewheel transducer becomes a compromise since one has to consider the access from the inside.

A double mounting of transducers is normally not necessary other than on extreme racing sail-boats. For these the transducers must be shifted with a change-over switch as per wiring diagram 7.3. The change-over switch can be manual or sensitive to heeling.

The through-hull fitting should be mounted in a hole with a diameter of 43 mm. Around the hole the hull should have an even thickness.

When mounting the through-hull fitting the dummy plug should be in position. The through-hull fitting should be mounted so that the dummy plug's handle is transverse to the centreline.



When mounting put the sealing compound around the through-hull fitting's outer flange and screw the nut on the inside so tight that the compound is pressed well. When the outer sealing compound has hardened the nut is released in order to put sealing compound on the inside. Then tighten the nut hard *by hand.*

Fit the O-rings on the dummy plug and paddlewheel transducer and grease them with the enclosed Silicon grease. Take away surplus sealing compound from the outside of the through-hull fitting. The through-hull fitting must not be countersunk in the hull.

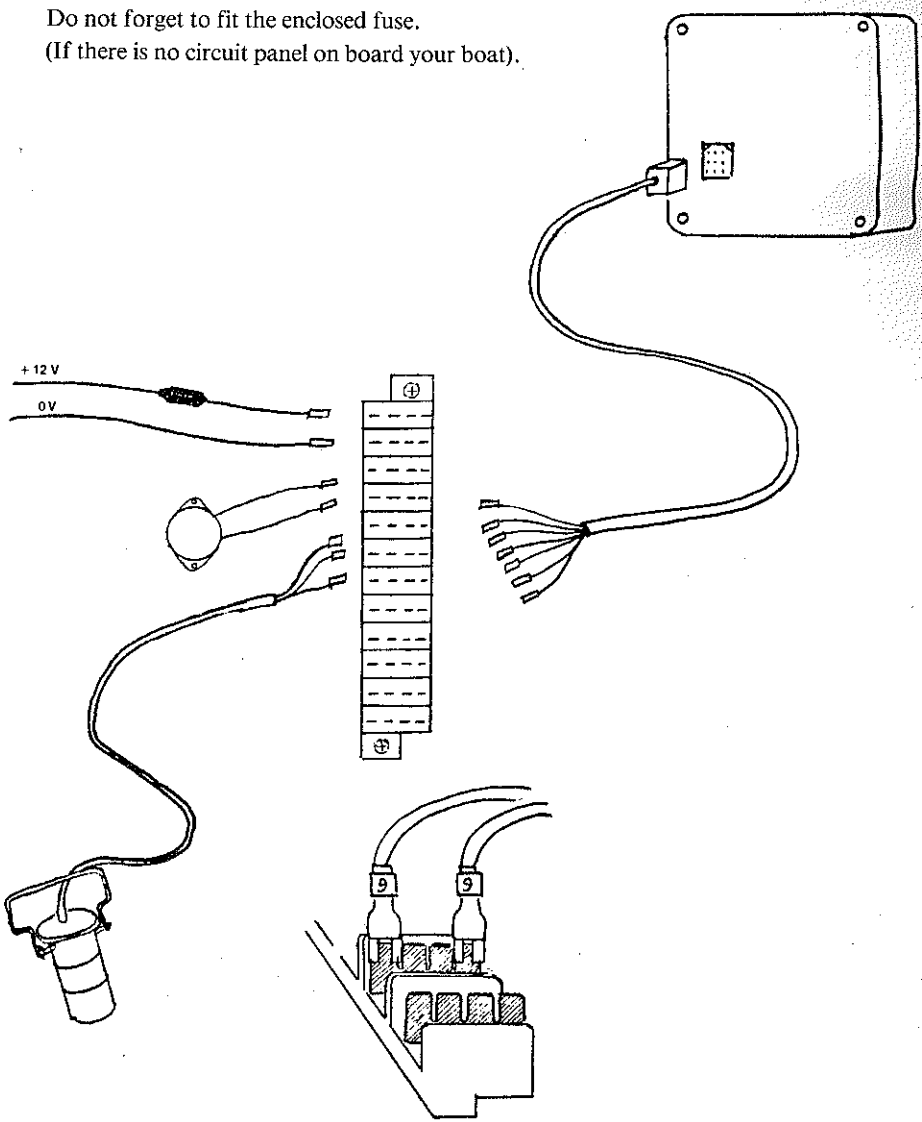
3.3. Electric installation

Most faults in electronic equipment originate from incorrect or faulty wiring. Therefore, one must ensure protection of the cables from chafing, vibration etc.

Connect as per wiring diagram in section 7.

Do not forget to fit the enclosed fuse.

(If there is no circuit panel on board your boat).



All cables are supplied with numbered connectors, which must be connected to the terminal strip as shown in the figure and wiring diagrams.

The numbers of the wire to be connected to each other via the connector block, must match!

If a number is missing, the colours shown in the wiring diagram, are to be taken as valid. (Applies to system with screw terminals).

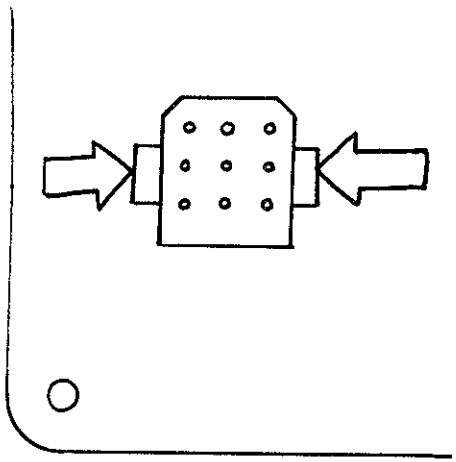
4. Maintenance

Cleaning and checking of the paddle-wheel transducer

The transducer can easily be removed for cleaning. Pull out the safety mounting and put in the dummy plug. If this is done quickly, only little water comes in. The axle of the paddle-wheel can easily be taken out by putting a thin pin or similar through the hole to push out the axle.

The axle and paddle-wheel should be cleaned carefully and reassembled. Then blow on the paddle-wheel so that it rotates and check that the log operates.

See to that no anti-foul paint penetrates the through-hull fitting. The paint-edge may obstruct the paddlewheel's rotation.



The paddle-wheel can be painted with a modern, thin anti-foul paint in order to prevent weed growth.

Check once a year that the screws in the screw terminal are tight and that no cable is worn.

We recommend that the instrument is removed and stored at room temperature, when the boat is layed up for the winter. At the same time, spray the plug contacts and screw terminal with moisture-proof spray.

Do not forget to press in the instrument cable-clip when pulling out the plug.

5. Trouble shooting

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:

- the connection is made properly, as per the wiring diagram.
- screw terminals tight.
- no loose ends in the wires causing short-circuits.
- no cable squashed or worn.

Fault-symptom	Check:
No indication (black display)	— is there voltage going to the instrument? — fuse
The instrument shows 1.8.8. constant or unstable values	— battery voltage too low
No indication of speed but the clock works	— the paddle-wheel does not rotate (to be taken out and cleaned) — paddle-wheel not obstructed by anti-foul paint (see point 4) — the connection to the transducer is wrong
Speed and distance wrong	— check the calibration as per point 2.9. — check that the paddle-wheel and hull are free from weeds etc.
The store function does not work (Distance and calibration are lost)	— If the instrument is switched off with the boat's master switch, one can in rare cases get disturbances from other instruments, which derange the store function. The instrument should in such cases be connected with separate switches.

6. Data

Dimensions:

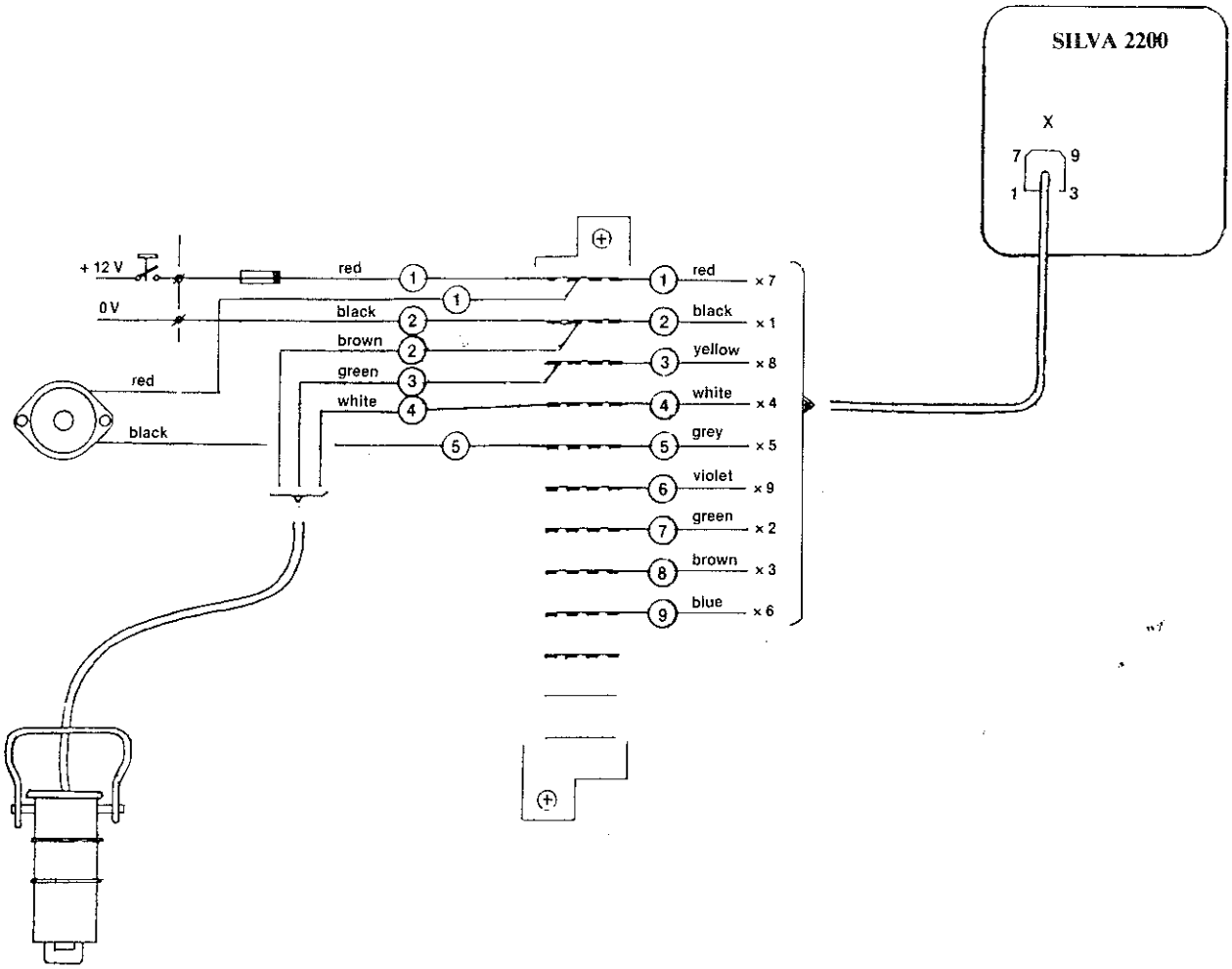
Instrument housing	125 × 125 × 35 mm
Through-hull fitting	Ø 42/31 × 86 mm
Hull thickness min	6 mm
max	42 mm
Instrument cable	3 m
Transducer cable	8 m

Buzzer*)	Ø 30.5 mm 34.5 mm between fixing holes
Power supply	9—15 V DC
Current consumption:	10 mA
Current consumption with illumination:	30 mA

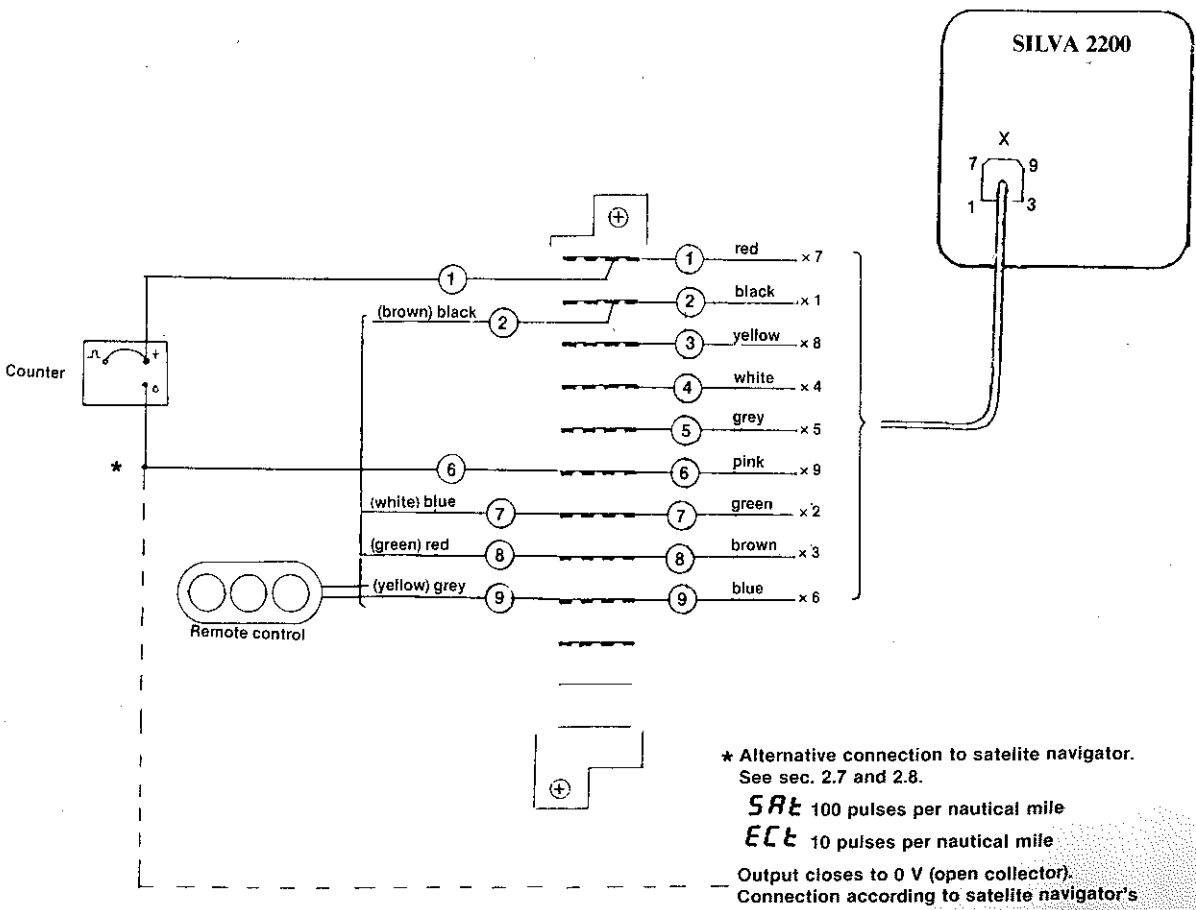
*) tone 3500 Hz 75 dB

7. Wiring diagrams

7.1. SILVA 2200 Wiring diagram



7.2. SILVA 2200 Wiring diagram for external counter or satelite navigator and remote control



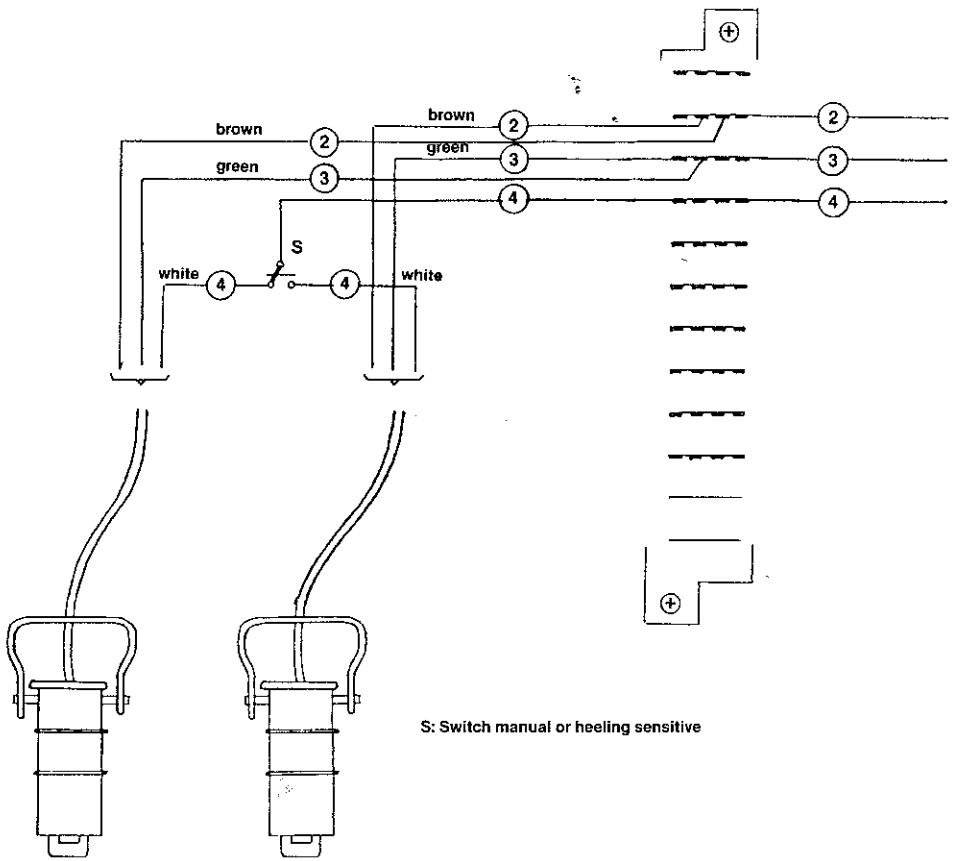
★ Alternative connection to satelite navigator. See sec. 2.7 and 2.8.

SAt 100 pulses per nautical mile

ECt 10 pulses per nautical mile

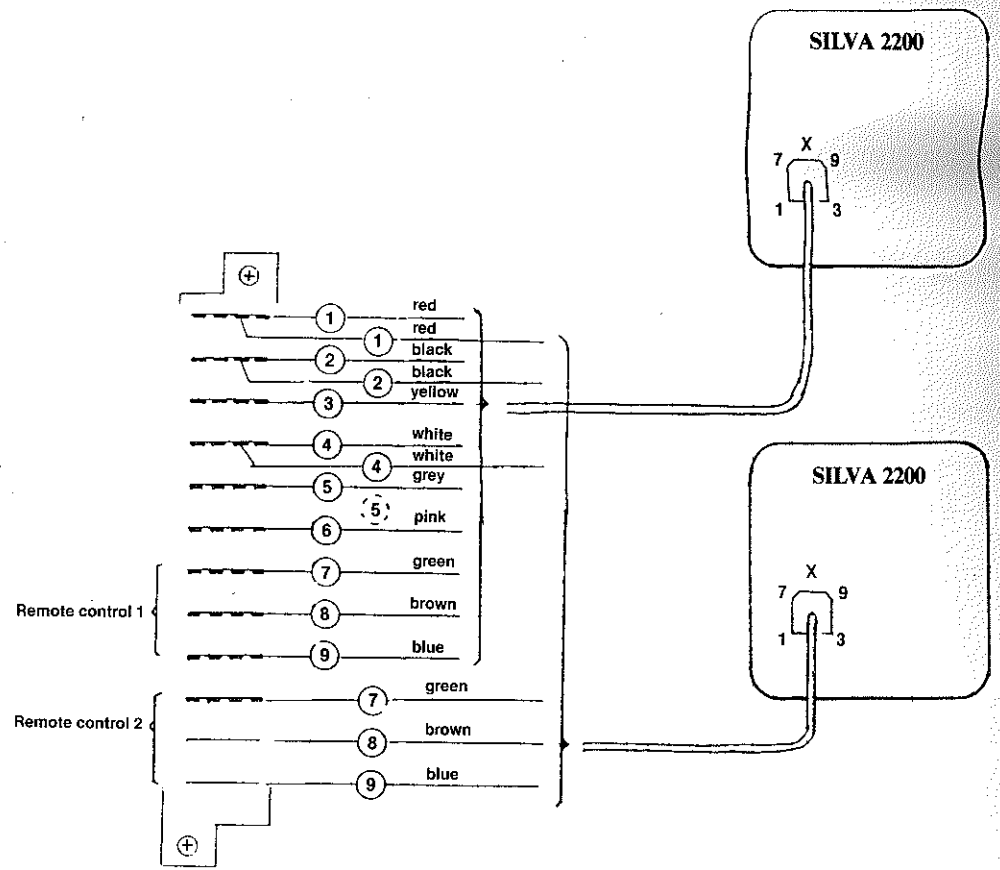
Output closes to 0 V (open collector). Connection according to satelite navigator's manual.

7.3. SILVA 2200
Wiring diagram for connection of two paddle-wheel transducers



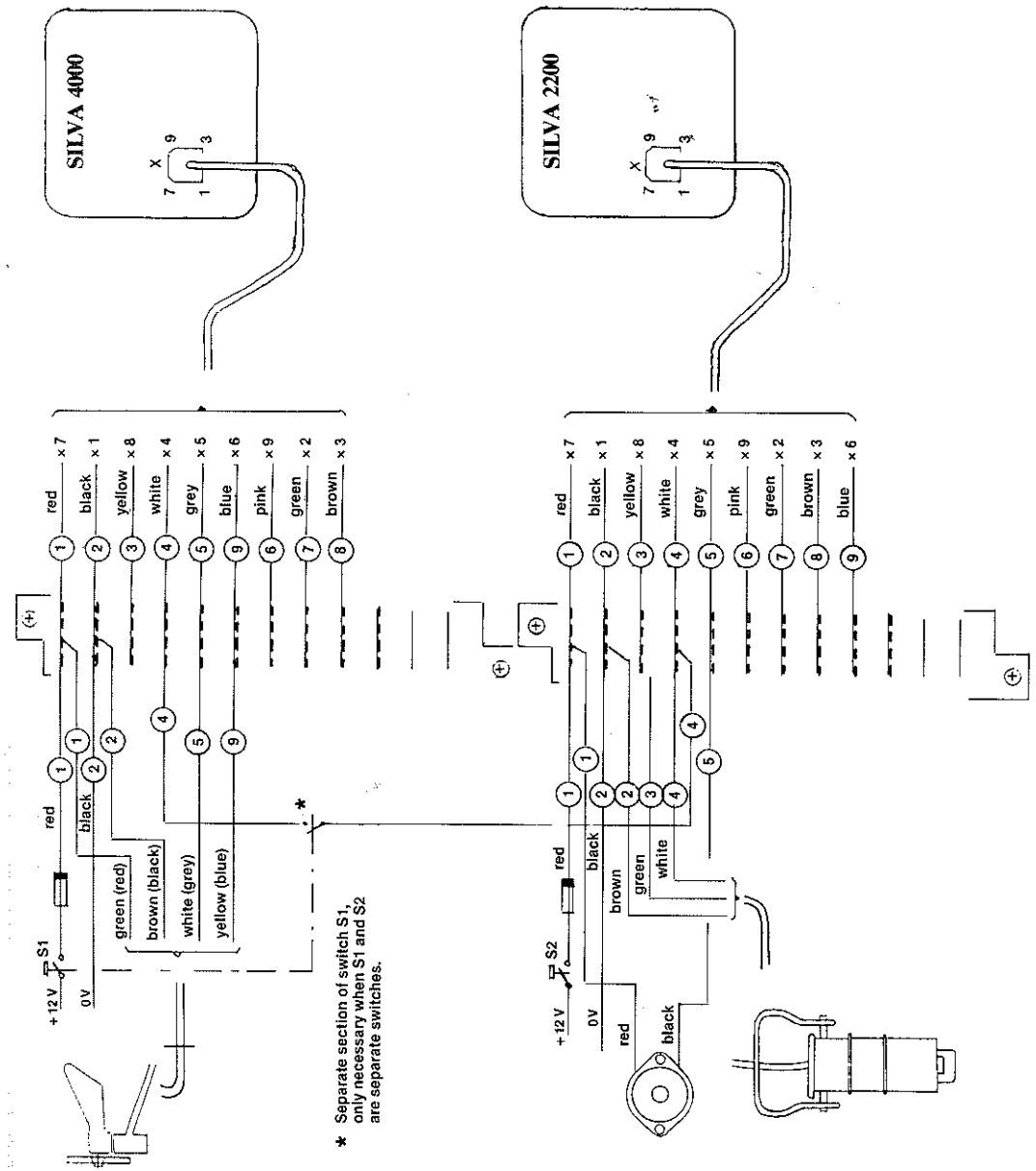
7.4. SILVA 2200
Wiring diagram for 2 instruments

See also 7.1.

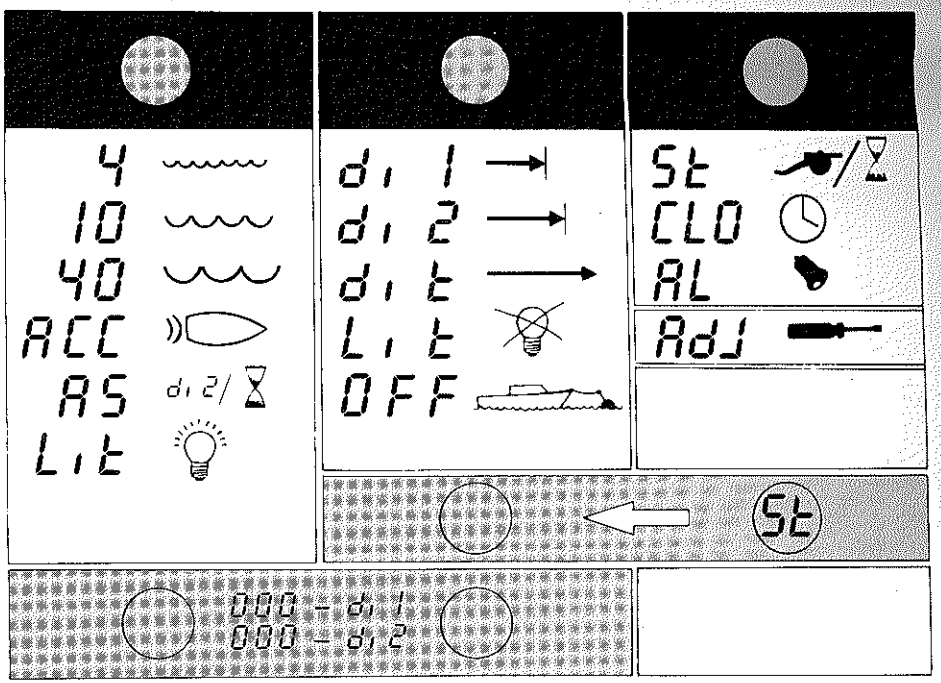


7.5. SILVA 2200

Wiring diagram for electric interconnection with SILVA 4000



This is how to use your SILVA 2200



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