

Combined Speed Log & Echo Sounder

SALT1



System Description

SAL T1 combines the speed log features with echo sounding – measures relative speed as well as bottom track speed in combination with water depth down to 250 metres. SAL T-log is the first type-approved combination of speed log and echo sounder in one housing using only one combined transducer.

Electronics Unit – ELC

The ELC controls the measurements. It contains two independent units, one for speed through water measurement and a combined depth and speed over ground measurement. Both the depth and speed functions are based on the acoustic correlation principle. The basic concept is the measurement of the time delay between the characteristics of reflected sonic pattern sensed by the receivers. The time delay from transmission till echo reception is used for depth estimation. The echo signal modulation is used for speed estimation. The speed is estimated from the fix distance between sensor elements divided by the estimated time delay from correlation, where two signals are compared by shifting one relative to the other in time, and choosing the time shift where the maximum similarity is found.

The speed data calculated in the ELC is sent as serial IEC61162-1 / NMEA messages for further processing in the LPU or directly to any other user.

Transducer – TRU

The combined transducer is mounted in a sea valve arrangement suitable both for single and double bottom designs. The transducer incorporates as standard a 30 metres cable for connection to the ELC. Both speed and depth are measured with this one combined transducer that is equipped with separate crystals for bottom measurement as well as for water track measurement. The crystals work both as transmitters and receivers.

Log Processing Unit – LPU

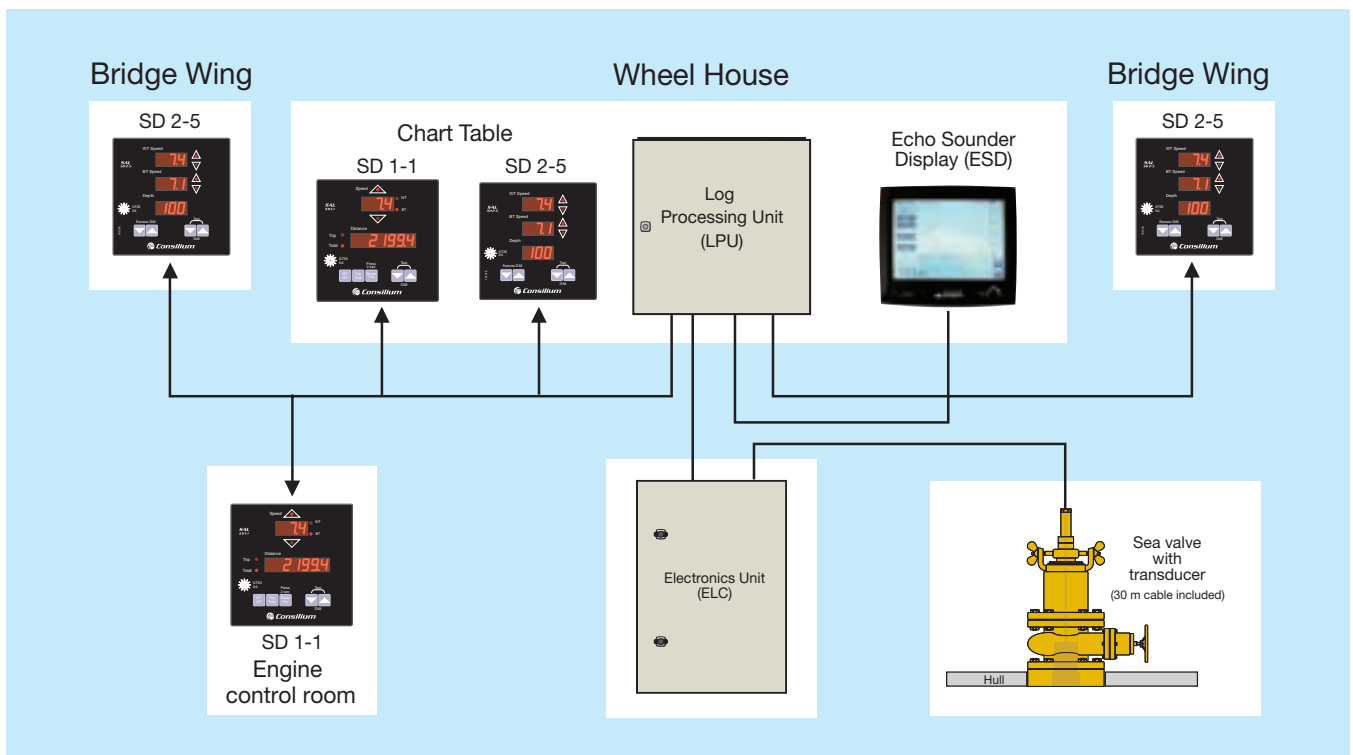
The LPU is mounted on the wheel house area and receives the NMEA message from the ELC. The LPU has various options to perform message conversion and calculations and has also variety of inputs for receiving data from other units. Various outputs are available for external users, such as autopilot, radar, AIS, VDR, fin stabilizers etc.

Serial Digital Indicators – SD1/SD2

The SD1/SD2 series of indicators gives a flexible solution to the presentation of longitudinal speed, distance and depth measurement.

Echo Sounder Display – ESD

The ESD gives a comprehensive graphic overview of the echo sounder presentations.



Technical Specification – SAL T1

Water track speed

Speed range	±55 knots sensed water speed
Speed inaccuracy	0.1 knot or 0.5%, whichever is greater
Distance inaccuracy	<±0.5% of travelled distance in water
Min. water depth	3 metres below transducer

Bottom track speed

Speed range	±40 knots longitudinal speed
Depth range	2 – 250 metres below transducer
Speed inaccuracy	0.1 knot or 0.5%, whichever is greater
Distance inaccuracy	Travelled Distance Inaccuracy
	2 - 10 NM ±0.2%
	10 - 50 NM ±0.1%
	> 50 NM ±0.05%

Echo sounder depths

Depth range	2-250 metres
Accuracy	±0.5 metres on the Shallow range scale, respectively ±5 metres on the Deep range scale; or ±2.5% of the Indicated depth, whichever is greatest

Electronics Unit – ELC

(Acc. Speed Log requirements, IEC61023, and echo sounder requirement ISO 9875)

Environmental conditions	IEC 60945
System voltage	230 V AC -15% / +10% 115 V AC -15% / +10% Option
Frequency	46 - 66 Hz
Power consumption	< 300 VA
Serial outputs	IEC 61162-1* \$VDVBW, \$VDDPT & \$VDVLW
Dimensions (WxHxD)	360x480x240 mm
Weight	18 kg
Colour	RAL 7032

Transducer – TRU

Acoustic elements	Water tracking 2 elements, 4 MHz frequency Bottom tracking, 5 elements 150 kHz frequency
Cable length	30 m. standard (40 m. option)
Dimensions	144 mm height, Ø 122 mm
Weight	23 kg (incl. 30 m. cable)

Indicators – SD1 / SD2

Environmental conditions	IEC 60945
Power input	10-30 V DC approx 300 mA
Data input	IEC 61162-1*
Connections	10 pole (SD1) / 14 pole (SD2)
Read-outs	SD1: 3 digit + 6 digit + 8 LED SD2: 3 digit + 3 digit + 3 digit + 8 LED
Memory	Non-volatile memory for configuration and distance counter
Front panel	Waterproof foil

Dimensions (WxHxD)	144x144x33 mm
Weight	0.6 kg
Colour	NCS-9000-N (panel), NCS-6507-N (text)
Accessories:	- Sealing frame kit for outdoor mount - 48/115/230 AC power supply SDP - Bulkhead mounting box BMB - Remote control SDR (for SD1) - Extension board SDE (for SD2) - Gimbal mounting box

Log Processing Unit – LPU

Environmental conditions	IEC 60945
System voltage	230 V AC -15% / +10% 115 V AC -15% / +10% Option
Frequency	46 - 66 Hz
Power consumption	max 300 VA
Serial outputs	IEC 61162-1* \$VDVBW, \$VDVLW & \$ESDPT
Dimensions (WxHxD)	500x500x200 mm
Weight	20 kg
Colour	RAL 7032

Inputs

Speed input from ELC	IEC 61162-1*
Auxiliary inputs	2 serial IEC 61162-1* or RS232 interfaces and 3 analogue inputs

Outputs

Relay, opto and analogue outputs configurable to carry water track or bottom track speeds as required.

- Separately buffered IEC 61162-1* 7 pcs
Each unit can be loaded with more than one user
- Switch-over contact relays 4 pcs
- Closing-contact relays 12 pcs
- Opto-couplers 8 pcs
- RS232 output for ESD 1 pc
- Analogue 0.1 VDC/knot 2 pcs

Aux serial outputs with IEC 61162-1* and RS232 drivers.
24 V DC and AC outputs for ESD etc.

Echo Sounder Display – ESD

12.1" SVGA monitor integrated with PC computer in IP22 cabinet	
Environmental conditions	IEC 60945
Data input	RS 232 (COM1)
Power input	24 V DC
Data storage capability	24 hours history review
Dimensions (WxHxD)	320x288x81
Weight	4,5 kg
Colour	RAL 9011

Sea valve – MSSBSV (Standard, single bottom)

Dimensions (WxHxD)	Ø250x734x515 mm
Weight	75 kg

Sea valve – MSDBSV (Optional, double bottom)

Dimensions and weight depending on tank height.

* IEC 61162-1, 2nd Edition, closely aligned with NMEA 0183 ver 2.30



Consilium Navigation AB

P.O.Box 5021
SE-131 05 NACKA
STOCKHOLM, Sweden
Phone: +46-8-563 051 00
Telefax: +46-8-563 051 99
E-mail: navigation@consilium.se
Internet: www.consilium.se



SWEDEN
Consilium Marine Group AB
Phone: +46-8 563 05 300
Telefax: +46-8 563 05 399

Consilium Marine AB
Phone: +46-31 710 77 00
Telefax: +46-31 710 78 00

ITALY
Consilium Selesmar Srl
Phone: +39-0571 681 21
Telefax: +39-0571 67 07 98

GERMANY
Consilium GmbH
Phone: +49-40-822 22 95 0
Telefax: +49-40-822 22 95 99

HOLLAND
Consilium Marine Systems BV
Phone: +31-182 382 422
Telefax: +31-182 386 675

UNITED KINGDOM
Consilium Marine UK
Branch Office
Phone: +44-1268 417745
Telefax: +44-1268 417051

USA
Consilium US, Inc.
Phone: +1-978-486 9800
Telefax: +1-978-486 0170
Consilium Marine U.S. Inc.
Phone: +1-954-791 75 50
Telefax: +1-954-791 75 99

SINGAPORE
Consilium Marine Singapore Pte Ltd
Phone: +65 6251 6016
Telefax: +65 6251 6017

SOUTH KOREA
Consilium Marine Korea Ltd
Phone: +82-51-740-5871/72/73
Telefax: +82-51-740-5870

CHINA
Consilium Shanghai Rep. Office
Phone: +86-21-644 803 98
Telefax: +86-21-644 812 11

China Sweden Marine
Equipment Co. Ltd
Phone: +86-21-5885 6638
ext. 2421/2561
Telefax: +86-21-5885 8422