STANDARD HORIZON

SL150

Digital Speed Log

Owner's Manual

STANDARD HORIZON

LIMITED WARRANTY

STANDARD HORIZON MARINE DIVISION OF VERTEX STANDARD warrants to the original purchaser that each new Marine Product manufactured and/or supplied by STANDARD HORIZON will be free from defects in materials and workmanship under conditions of normal use and service for a period of one (1) year from the date of delivery to the Purchaser. STANDARD HORIZON's liability under this warranty shall be limited to repair or replacement of the defective product, at STANDARD HORIZON's option, under no circumstances shall STANDARD HORIZON be liable for consequential, incidental, or other damages arising out of or in any way connected with a failure of the product to perform as set forth herein.

In the event of a defect, malfunction, or failure of the product to conform to specifications during the one-year warranty period, STANDARD HORIZON will repair or replace, at its option and without charge to the Purchaser, the product which upon examination by STANDARD HORIZON shall appear to be defective or not up to factory specifications. To obtain warranty service, the defective product must be returned to STANDARD HORIZON together with proof of the date of purchase. The Purchaser must pay any transportation expenses in returning the product to STANDARD HORIZON. STANDARD HORIZON will examine the product and respond to the Purchaser in approximately four (4) weeks from date of receipt of the product claimed to be defective.

This limited warranty does not extend to any product which has been subjected to misuse, neglect, accident, improper installation, or subject to use in violation of the maintenance or operating instructions, if any, furnished by STANDARD HORIZON, nor does this warranty extend to products on which the serial number has been removed, defaced, or changed. STANDARD HORIZON reserves the right to make changes or improvements to its products without notice during subsequent production without incurring the obligation to install such changes or improvements on previously manufactured or sold products.

To receive warranty service, the Purchaser must deliver the product, transportation and insurance prepaid, to **STANDARD HORIZON Marine Division of Vertex Standard, 115 North Wright Brothers Dr. Salt Lake City, Utah 84116-2838**. Include proof of purchase and date of purchase. STANDARD HORIZON will return the Product to the Purchaser freight prepaid.

Some states do not allow limitations on the duration of the warranty or exclusions or limitations of incidental or consequential damages so these limitations or exclusions may not apply to you. This warranty gives you specific legal rights, which may vary from state to state.

Lifetime Flat Rate Service Program: For the original Purchaser only, for the lifetime of the unit, STANDARD HORIZON will repair the unit to original specifications.

Note: The flat rate amount is payable by the Purchaser only if STANDARD HORIZON determines that a repair is needed. After the repair, a 90-day warrant will be in effect from the date of return of the unit to the Purchaser.

Owner's Records

Model	Serial number
Purchase date	Dealer

Contents

1 General Information

Note: Please familiarize yourself with the entire manual and transducer installation guide before attempting installation.

1.1 Introduction

The SL150 is a high quality digital speed log. It mounts into a 1¼" (32mm) diameter instrument hole.

The SL150 is capable of displaying speed readings up to 50 knots or 58 miles per hour, permanent log, trip log, trip time, and water surface temperature. In addition, a programmable racing count down timer is provided.

Both logs accumulate distance regardless of the mode the instrument is in. The accumulated logs are maintained in all modes until reset, even if power is removed.

Included:

- Owners manual
- SL150 Digital instrument
- SL150 Panel gasket
- DC150 Dust cover

1.2 Front panel

The front panel includes a multi-function LCD and three-button keypad. The keypad uses both tactile and audible feedback to indicate when a key is pressed. All functions are controlled entirely by these three keys.

1.3 Rear panel

The rear panel contains a Fuji 4-pin connector for connection to the speed transducer. It also contains red and black wires for connection to the power supply and a blue wire for NMEA output for interfacing with WS150 and RP150 or other NMEA listeners.

2 Controls and connections

Figure 1. SL150 Front Panel

3 Accessories

3.1 Optional

SIA51 .... Transom Mount Impeller with 30-foot cable
SIA53 .... Thru-hull Speed Impeller
EX345 .... 15-foot Impeller Extension Cable

3.2 Replacement Parts

The following parts may be ordered from the Standard Horizon Parts Department.

To order, call: 562-404-2700 Ext 351

Part	Part Number
Dummy Plug, SIA	356002017A
Dust Cover	DC150
Flapper Valve, SIA53	596001019A
Paddlewheel Repair Kit, SIA51	602002009A
Paddlewheel Repair Kit, SIA53	602005009A
Thru-hull Fitting, SIA53	590170123A
Impeller Nut, SIA53	590170123A
Panel Gasket	108013023A
SIA53 / DST50 Mounting Nut	580001027A
SIA51 Mounting Bracket	160002022A

4 Installation

4.1 Location

The SL150 is designed for above or below deck installation. Select a position that is:

- At least 12 inches (300mm) from a compass
- At least 20 inches (500mm) from any radio
- Easy to read by the helmsman and crew
- Protected from physical damage
- Accessible to electrical cable connections

4.2 Mounting

The mounting surface must be flat. Use the template to set the center of the hole necessary to affix the unit.

- Drill a 1¼" (32mm) diameter mounting hole through the bulkhead.
- Remove the hold-down nut. Peel the protective paper off the foam gasket and attach the gasket to the rear of the instrument.
- Insert the instrument through the bulkhead. Hand tighten the nut and then finally tighten with a spanner. Do not over tighten so that the water sealing ability of the gasket is damaged.
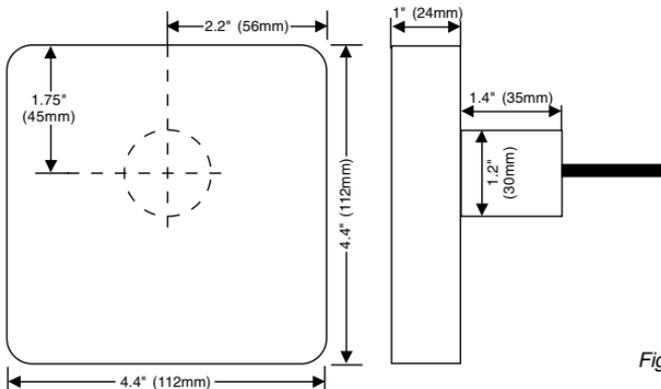
Figure 2. Instrument Dimensions.

4.3 Wiring Connection

Note: An external switch is necessary to turn the unit on and off.

- Battery ground
- speed
- + 12 VDC
- temperature

Fuji plug & Socket

SIA51 or SIA53

Red

Switch

1A Fuse

+12 VDC

Black

Blue

Ground / -NMEA output

+ NMEA output

Pin 1 - Brown Shield
Pin 2 - Green
Pin 3 - Red
Pin 4 - White

Speed transducer (Impeller)
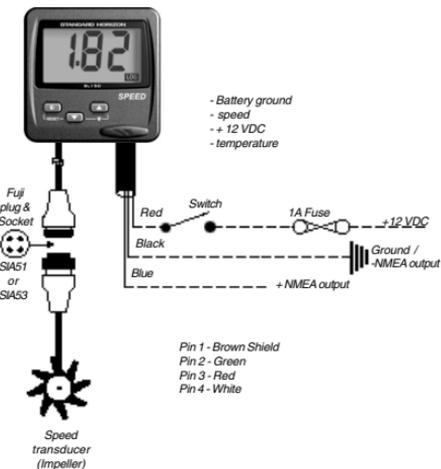
1. Keep electrical and transducer cables away from alternator or other noise generating electrical cables. Avoid connecting the instrument to power circuits that share loads with ignition, alternators, inverters and radio transmitters. Electrical power supply connections should always be as short as possible.

2. Connect the red wire to the positive supply via a 1 amp fuse or a 1 amp circuit breaker. Connect the black wire to the electrical ground. A 1 amp fuse will provide protection for up to five 150 series instruments.

3. Connect the 4 pin Fuji connector to the speed and temperature transducer cable connector. Extension cables are available if the transducer cable is too short.

4. If you are not using a repeater or you do not intend to provide NMEA data to another instrument then insulate the bare wire end of the blue cable.

4.4 Multiple Instruments

Fuji plug & Socket

Red

Black

Green   NMEA data to Wind

Blue

Wind Transducer

Red

Black

Blue

On/Off Switch

1A Fuse

+12 VDC

Ground / -NMEA output

NMEA speed data

NMEA wind data

Speed Transducer
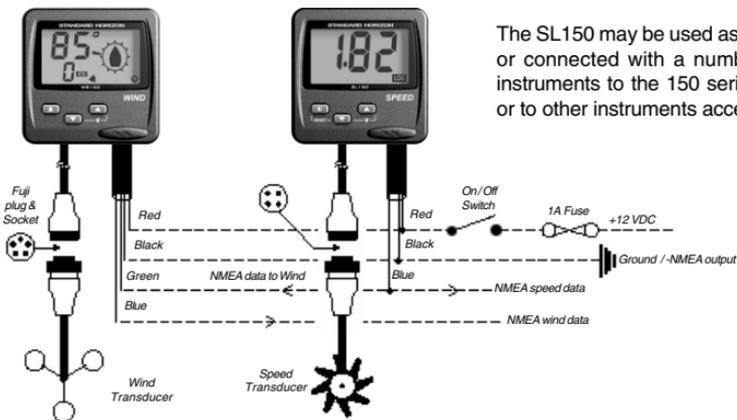
The SL150 may be used as an individual instrument or connected with a number of other 150 series instruments to the 150 series NMEA0183 repeater or to other instruments accepting NMEA 0183 data.

4.5 Impeller Installation

Transom-mount and thru-hull impellers can be used with the SL150. See section 3 for a list of available impellers. Specific installation instructions are supplied with each impeller.

Note: It is wise to check the operation of the impeller before installation. To check; apply power to the instrument, plug in the impeller, spin the paddlewheel, and check the instrument for a speed/temperature reading.

5 Operation

5.1 Function Select Keys

The $\wedge$ or $\vee$ keys are used to scroll through the main display functions of speed, average speed, log, total log and water temperature.

SPEED

AVERAGE SPEED

MAXIMUM SPEED

TRIP DISTANCE

TOTAL DISTANCE

TEMPERATURE
Can be disabled - see Secondary functions
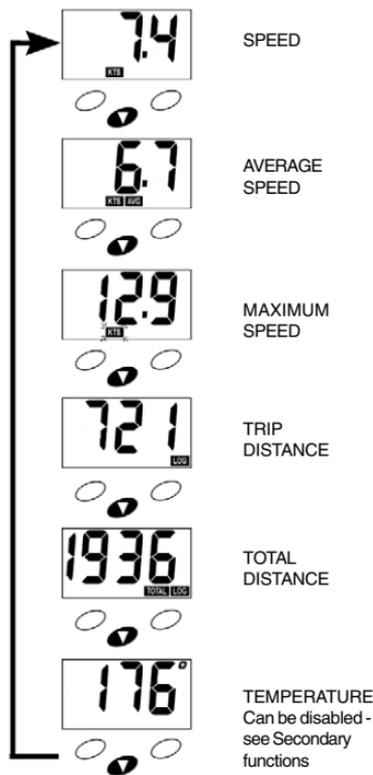
5.1.1 Backlighting On / Off

Simultaneously press the $\wedge$ and $\vee$ keys to turn the backlight on. Repeat this procedure to turn the lighting off.
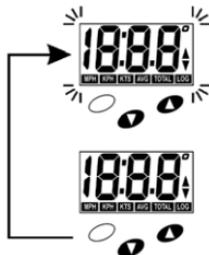
5.1.2 Select Temperature Units

When the display is indicating temperature, press and hold the $\wedge$ or the $\vee$ key for three seconds to change the units of measure.

CELSIUS

FAHRENHEIT
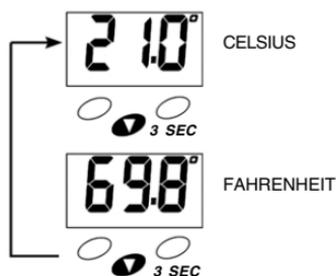
5.1.3 Select Speed Units

While the unit is indicating speed press and hold the $\wedge$ or the $\vee$ key for 3 seconds to change the units of measure.

The three optional units are Knots (nautical miles per hour), MPH (statute miles per hour) or KPH (kilometers per hour).
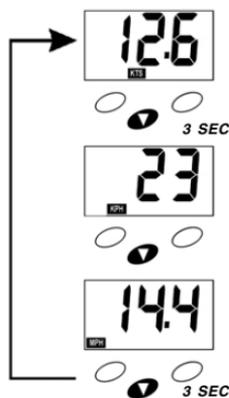
5.1.4 Reset Average Speed, Maximum Speed and Log

With the average speed, maximum speed or the log function displayed, press and hold the 🌐 and $\vee$ keys for three seconds to reset displayed value to zero.

5.1.5 Reset Total Log

With the total log value displayed, press and hold the 🌐 and $\vee$ keys for fifteen seconds to reset the value to zero.

5.1.6 Trend Indicator

There are two arrows on the display that will indicate an increasing or decreasing trend in boat speed. See the figure in section 2.

5.2 Elapsed Timer

The elapsed trip timer will record time from power up. Time is displayed in hours and minutes up to 19 hours and 59 minutes.

1 Press the 🕒 key to show elapsed time.

ELAPSED TIME

2 Press and hold the 🕒 and ∨ keys for three seconds to reset the elapsed time to zero.

3 Press the ∨ key to exit to the speed indicator.
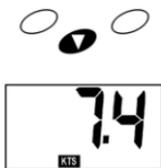
5.3 Count Down Timers

Press the 🕒 key twice to show the count down timer. This timer counts down in seconds from a starting value that can be set in whole minutes from 1 to 10.

When countdown timer mode is entered the last starting value is displayed. To start counting down from this value, press the ∨ key. To select a new value to count from, press the ∧ **key** to scroll through from 1 to 10.

When the desired value is displayed press the ∨ key to start it counting down. The count down timer gives audio beeps while counting down, giving 4 beeps at 4 minutes, 3 at 3 minutes, 2 at 2 minutes, 1 at 1 minute, and finishing with 10 beeps. The beep at 0 seconds is a long beep.

INCREASE VALUE
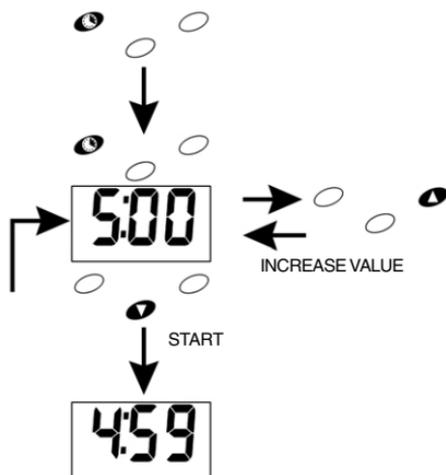
START

To reset the countdown timer, press and hold the 🕒 and ∨ keys for three seconds while the countdown timer is displayed. The display will return to the start value selection.

5.4 Secondary Functions

The secondary modes provide access to calibration of boat speed, enable or disable the sea temperature function, calibration of sea temperature, and speed display options of 1/10th or 1/100th units.

PRESS & HOLD FOR 3 SECONDS
TO ENTER SECONDARY MODE

PRESS KEYS TO
CHANGE VALUE

CAL

SPEED CALIBRATION

SEE NEXT PAGE FOR
INSTRUCTIONS

PRESS BOTH KEYS TO
STEP TO NEXT FUNCTION

On
OFF

ON   OFF

TEMPERATURE DISPLAY
ENABLE/DISABLE

CAL°

TEMPERATURE CALIBRATION

SEE NEXT PAGE FOR
INSTRUCTIONS

0.0
0.00

0.0   0.00

TENTHS OR HUNDREDTHS SELECT

EXIT

TO EXIT AT ANY TIME
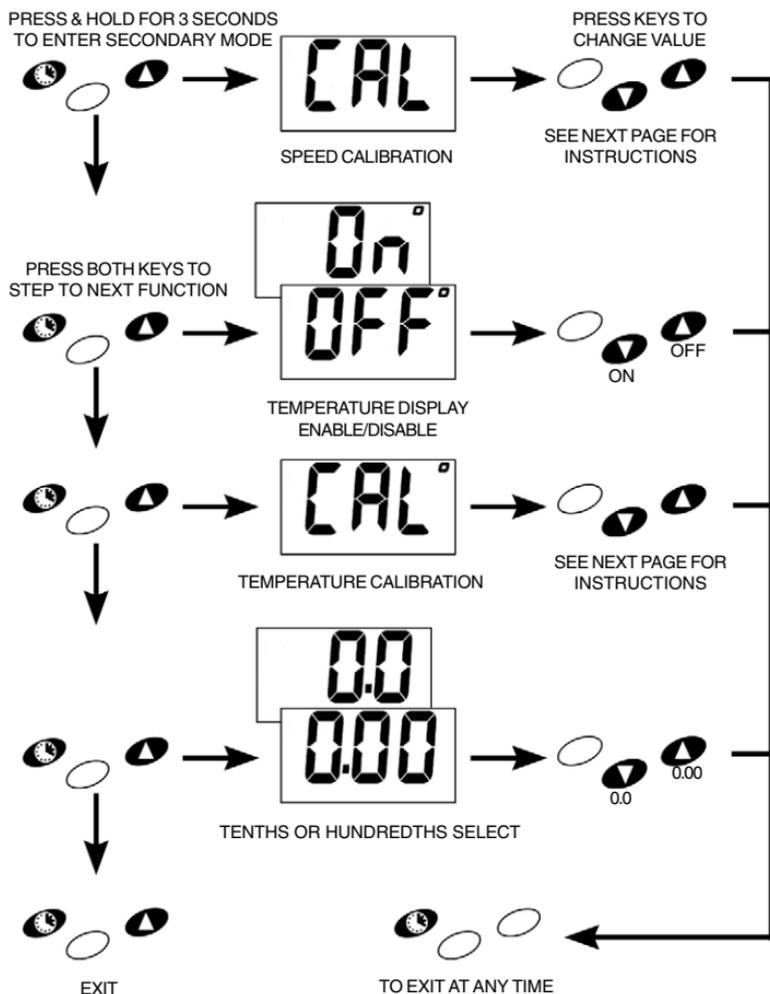
If no key is pressed for 10 seconds, the instrument will automatically exit secondary mode and return the display to normal. Changes made will not be saved.

5.4.1 Speed Calibration

To adjust the speed displayed to match that of another craft or the speed displayed on a GPS receiver, perform the following steps.

1 Press and hold the 🌐 and ⋀ keys for 3 seconds to enter the calibration mode.

2 To increase reading press the ⋀ key.
3 To decrease reading press the ⋁ key.
4 To enter the calibration setting into memory and exit press the 🌐 key.

5.4.2 Temperature On/Off

1 While in speed calibration mode, press both the 🌐 and ⋀ keys.
2 Press the ⋁ key to enable the temperature display. "ON" will be displayed.
3 Press the ⋀ key to disable the temperature display. "OFF" will be displayed.

5.4.3 Temperature Calibration

To adjust the temperature displayed.

1 While in temperature on/off mode, press both the 🌐 and ⋀ keys.

2 To increase reading press the ⋀ key.

3 To decrease reading press the ⋁ key.
4 To enter the calibration setting into memory and exit press the 🌐 key.

5.4.4 Tenths or Hundredths Select

1 While in temperature calibration mode, press both 🌐 and ⋀ keys.
2 Press the ⋁ key to select tenths. "0.0" will be displayed.
3 Press the ⋀ key to select hundredths. "0.00" will be displayed.
4 Press the 🌐 key to exit.

5.5 Simulation Mode

The SL150 has a simulation mode.

1 To enter this mode, hold down the 🌐 key and then switch on the power. The instrument will remain in this mode even when power is switched off.
2 Repeat this procedure to exit simulation mode.

Note: Settings that are made while in simulation mode will remain in effect after returning to normal mode.

5.6 Microprocessor Reset

When the instrument is not functioning properly, the microprocessor can be reset as follows:

1 Turn off the instrument power.
2 Press and hold the ⋀ and ⋁ keys then turn the power back on.
3 All calibration settings will be reset to factory-set defaults.

6 Maintenance

Your depth sounder is designed for years of trouble free operation assuming proper installation and care are provided. Following the operation and installation guidelines in this manual should ensure optimum performance of the instrument. In the unlikely event that the instrument shall fail to perform or shall need servicing, contact:

Factory Repair Facility
Standard Horizon
115 North Wright Brothers Drive
Salt Lake City, UT 84116

Telephone number (800) 366-4566
Fax number (801) 359-4122

7 Specifications

Power supply
- 10.7 to 16.6 VDC, 30 mA with backlight on.

Operating temperature
- 32° to 113°F (0° to 45°C)

Size of display
- 4.4 x 4.4 x 1" (112 x 112 x 24mm), overall depth 1.4" (35mm) behind panel.

Display type.
- Twisted Nematic (TN) grey background, 32° to +158°F (0° to +70°C).

Illumination
- Red LED switchable from key pad.

RF interference
- Less than 6 dB maximum quieting on any marine radio channel with 3 dB gain antenna within 1 meter of instrument display head

Boat speed
- 0 to 50 knots (depending on transducer type). User selectable to display in 0.1 or 0.01 increments.

Speed units and resolution
- 0.0 to 19.9 and then 20 to 50 in knots, MPH or KPH.

Average speed
- Unit selectable to 50 knots, resets to zero via key pad or at power down.

Maximum speed
- Records max. speed to 50 knots. Reset to zero via key pad or at power down.

Trip log
- 0 to 1999 units key pad resettable.

Total log
- 0 to 1999 units key pad resettable.

Timers
- 1 to 10 minute count down timers with audible alarms, 0 to 19:59 hours count up elapsed time.

Sea temperature
- 32.0° to 99.9°F (0.0° to 37.7°C) 10kOhm at 77°F (25°C). Tenths of a degree are displayed.

Sea temperature sensor type
- 10k ohm NTC at 25°C (77°F).

NMEA Outputs
- The SL150 outputs the following NMEA0183 data sentences; DBT, VHW, VLW, MTW, PTTK.

8 Troubleshooting

No display:
- Check DC power connections and DC polarity with voltmeter. Voltage must be between 10.7 and 16.6 volts.

No speed reading:
1. Under normal operation, the life of a paddlewheel is 2 years. Replace if worn. See section 3.2 for replacement part.
2. Remove speed impeller from thru hull, spin paddlewheel manually and check for reading.
3. Check for fouling on paddle and thru-hull fitting.
4. Check for break in cable.

Low or high speed reading:
1. Check calibration.
2. Inspect for damage to paddlewheel or fouling of fitting or paddle.

Erratic speed reading:
1. Is there clear water flow over paddlewheel?
2. Is paddlewheel aligned fore and aft correctly?
3. Is the paddlewheel clean and turning freely?
See section 3.2 for replacement parts.

Erratic readings while the engine is running:
To isolate the problem, remove the impeller. If the problem goes away, reroute the cable away from the engine. If problem persists:

1. Add feed through filter capacitor on the positive terminal of the ignition coil.
2. Add and alternator whine filter to alternator.
3. Replace spark plug with resistive type.

No, or inaccurate temperature reading:
Remove, inspect and clean transducer if needed. Measure resistance between pins 1 and 4 on connector. Transducer is defective if shorted or open.

1. Check calibration
2. Check for break in cable

Speed cable is not long enough:
- Use EX345 optional cable. A maximum of two cables can be connected.

Simulation Mode
- At power up, if all the segments display for 5 seconds then the instrument is in simulation mode. See section 5.5.

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