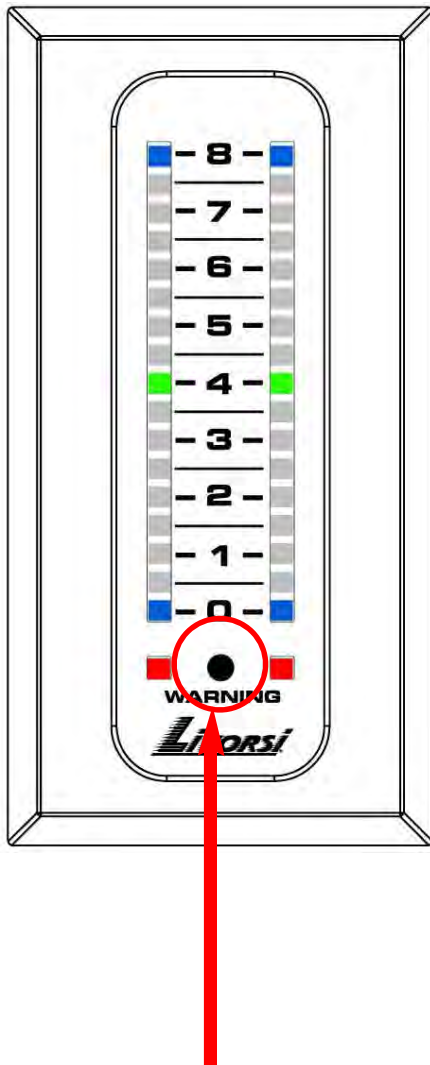
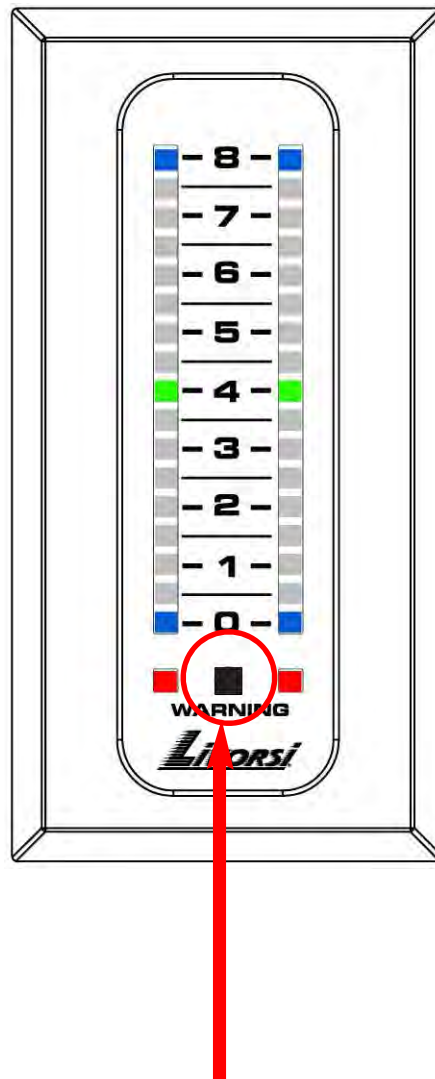


LED INDICATOR VERSION IDENTIFICATION

There are two version of the LED Indicator. To determine which version you have take a look at the sensor on the bottom of the Indicator. If it is square in shape it is version 2. If it is a circle then you have version 1.



Circle Shape Sensor = Version 1



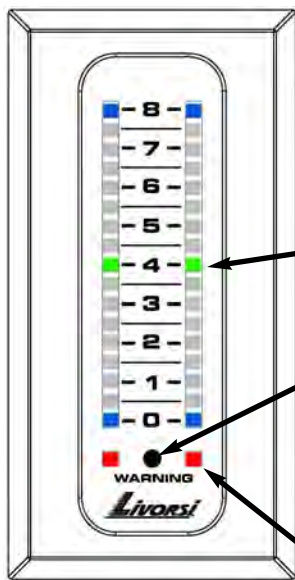
Square Shape Sensor = Version 2

LED Position Indicator Installation and Calibration Instructions

Congratulations on the purchase of your Livorsi LED Position Indicator.

The following instructions will take you step by step throughout the calibration process. LED indicators are sold in multiple configurations: 1, 2, 3, and 4 slot assemblies. These instructions illustrate a one slot indicator but will also serve 2, 3 and 4 slot applications.

Please read the entire procedure before attempting the calibration process. Pay special attention to the set up of your Optimal Running Angle a.k.a. Sweet Spot.



General Terms to be familiar with:

Optimal Running Angle a.k.a. "Sweet Spot" - Green LED

Sensor

The sensor is used to calibrate the LED indicator.
The sensor will detect motion during the calibration process.

Cover and Sweep

A cover of the sensor with your finger and sweep motion over the sensor will be utilized to calibrate the indicator.
Note: This is a proximity sensor not a push button. The sensor detects motion not pressure.

Warning LED with optional sender - Red LED

You may set a warning for your application with an optional sender.

Entering Access Mode (all ALEDI models)

When power is applied the LED indicator will go through its start up cycle of lit LEDs. During this cycle calibration mode access will be obtained by a cover and sweep motion.

If at any time during the calibration process a mistake is made, simply turn power off and start from the beginning of the calibration process.

NOTE: Step 1 is time critical

You will have approximately **10 seconds** to access calibration mode. If calibration is not accessed the indicator will return to normal operation. Once in calibration mode the indicator is no longer time critical.

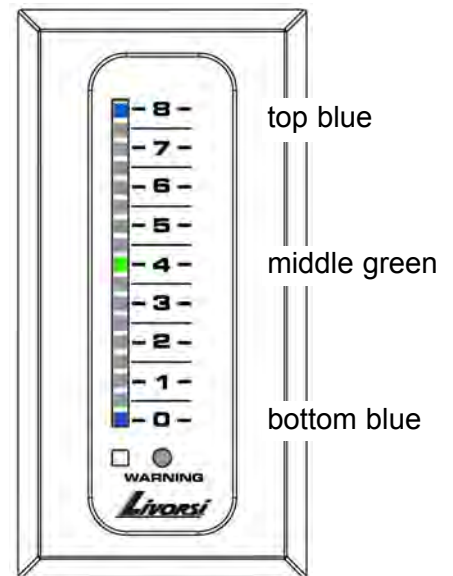
Step 1: Entering calibration mode

- A. Cover sensor with finger and hold
- B. Apply power / Turn unit on
- C. While the indicator is going through its start up cycle, slide finger off the sensor

You should see the top blue / middle green / bottom blue LED'S lit.

- D. Cover sensor with finger, the top blue / middle green / bottom blue LEDs will go bright at this point sweep away

You should see the LEDs running in a fill bar configuration.



NOTE:

If the indicator was built before 05/2013 you will see the internal preset programming. This may be numerous LEDs lit in many different configurations. **You will need to bypass this window.** To bypass cover the sensor, the LEDs will go dim, then go bright-at this point sweep away.

You are now in calibration mode.

After entering the calibration mode you should see one of these two examples:

Figure A:
In a horizontal application the LED'S running from right to left in a ascending fill bar configuration.

Figure A

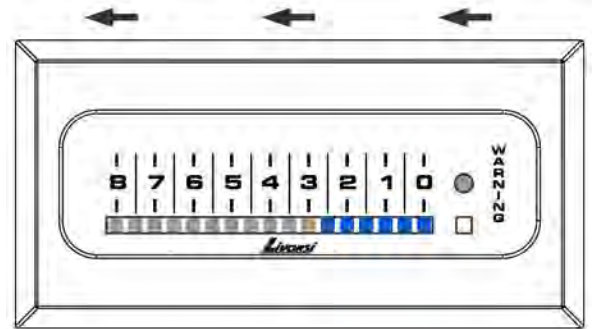
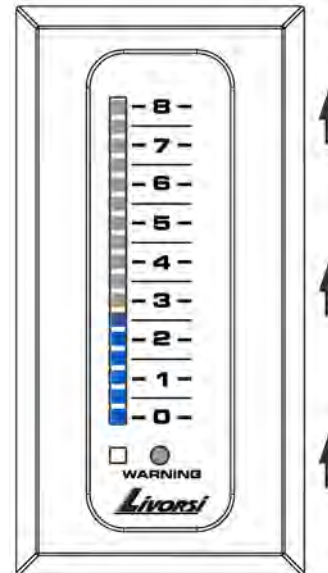


Figure B:
In a vertical application the LED'S will run in an bottom to top ascending fill bar configuration.

Figure B

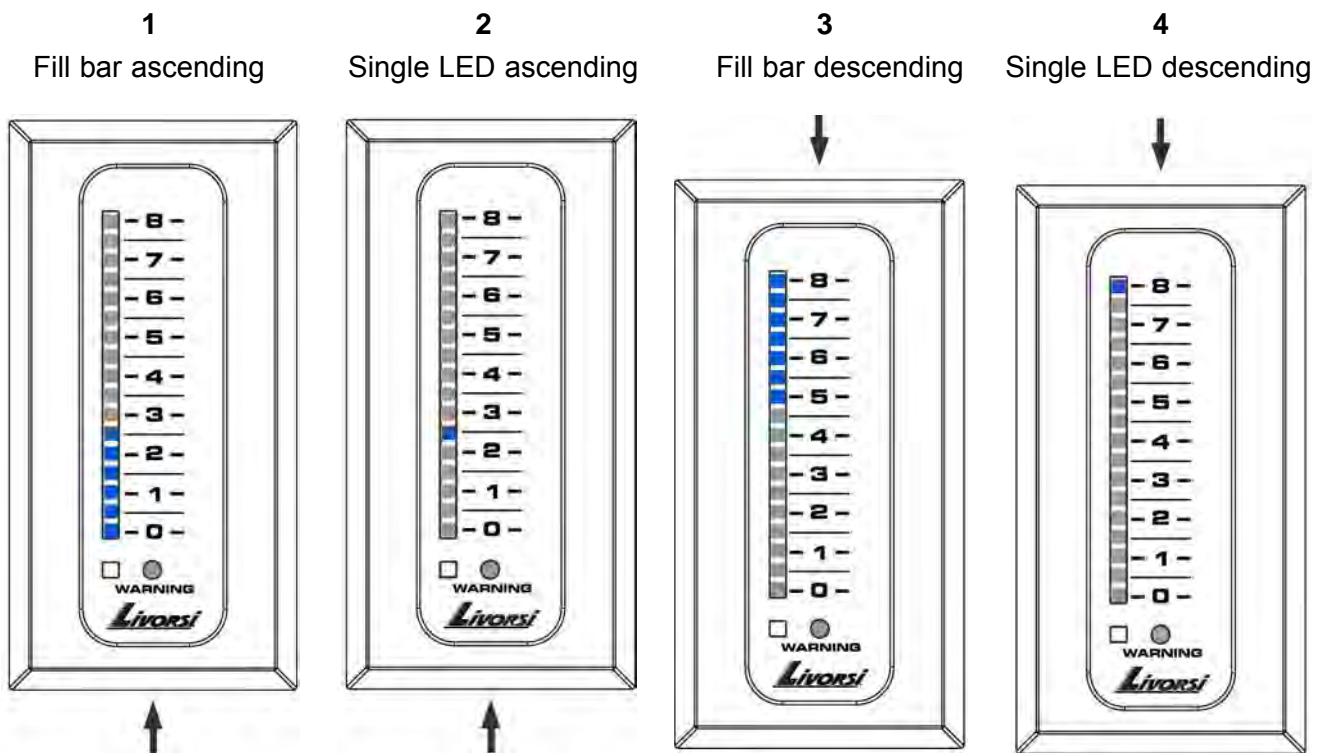


If you did not make it into calibration mode, turn power off and try again.

Step 2: Setting desired LED configuration- single LED or fill bar

- A. To change the configuration cover the sensor for **1 second** and sweep away
 You will need to repeat the cover and sweep motion until you have reached the configuration of your choice

The order of configurations is as follows:



- B. Once you have reached the desired configuration cover the sensor
 The LED lights will go dim then go bright- at this point sweep away

For a 1 slot indicator continue to step 3

In a 2-slot application the indicator will have transferred to the second row of LED'S.
 Repeat steps 2A and 2B for desired calibration

Step 3: Setting the bottom/low side of the indicator

At this point you will have only one LED lit.
This will be the bottom / low side set point

A. At this point the item that is assigned to the indicator

I.E.... Outboard motor, Outdrive, Trim tabs, Etc...
must be moved to the bottom / low set point

I.E....Outdrives / vertical **ascending** configuration...
fully lower Outdrive (s)

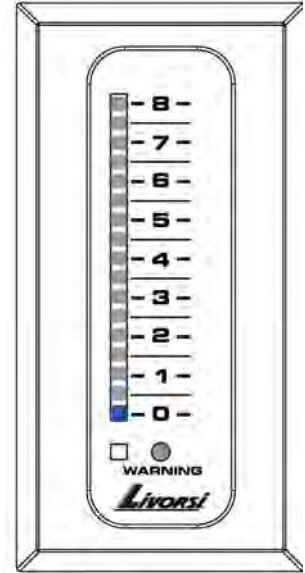
I.E....Trim tabs / Vertical **descending** configuration...
fully raise trim tabs

B. Once item is properly positioned cover the sensor
The LED lights will go dim then go bright-
at this point sweep away

For a 1-slot applications proceed step 4

For 2-slot applications the indicator will have transferred to the
second row of LED'S.

Repeat steps 3A-3B for the second row of LED'S



Example: ascending verticle/
low side

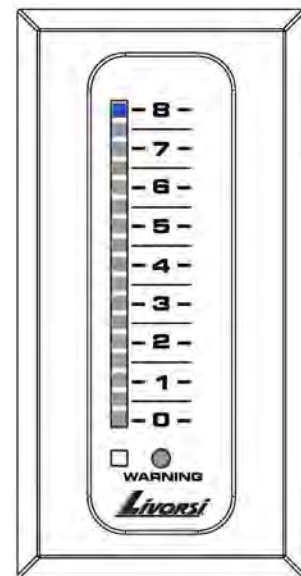
Step 4... Setting the top/high side of the indicator

At this point you will have only one LED lit.
This will be the top / high side set point

- A. At this point the item that is assigned to the indicator
 - I.E.... Outboard motor, Outdrive, Trim tabs, Etc...
must be moved to the top/high side point
 - I.E.....Outdrives / vertical **ascending** configuration...
fully raise Outdrive
 - I.E....Trim tabs / Vertical **descending** configuration...
fully lower trim tabs
- B. Once the item is properly positioned to the top/high side set point
 - Cover proximity sensor
the LED lights will go dim then go bright-
at this point sweep away

1-slot applications proceed to step 5

For a 2-slot application the indicator will have transferred to the second row of LED'S
Repeat step 4A and 4B for the second row of LED'S



Example: ascending verticle top/high side

Step 5: Setting optimal running angle (sweet spot)

To properly set the optimal running angle "sweet spot" you must know where the settings are by **measurement**. In some cases this measurement will be available from your product supplier. In most cases you will have to obtain this information yourself. Due to many different factors: length of boat, weight distribution, multiple engine configurations, Etc... what works for one model may not work for a similar model.

NOTE: It may be necessary to skip this step until you operate the boat to obtain by indication the optimal running angle and note the settings for future reference.

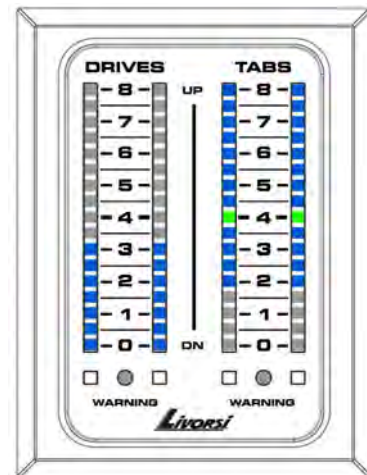
On the following pages there are some examples of how to find (measure) the sweet spot on your drive(s) and tab(s).

Finding your optimal running angle

For example a twin engine boat with two outboards:

This is your boat running both the outboards and tabs at their optimum running angles. This image of the indicator reflects these angles.

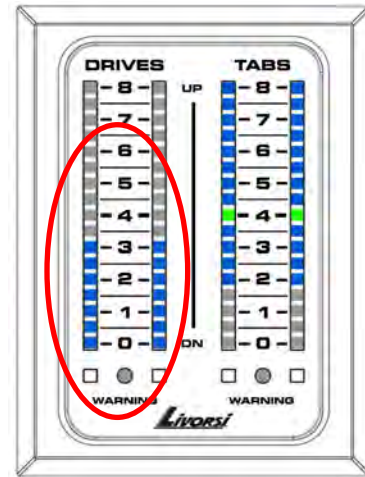
Write these numbers down.



Note: This indicator is calibrated for drives ascending and tabs descending. Drives at #3 and tabs #2.

Taking measurements of the drive(s)

While your boat is docked or out of the water, position your drive(s) at the optimal running angle you recorded earlier.



Once in the correct position use a yard stick or tape measurer to measure from a fixed point on the transom to a point on the drive and **record this measurement**.

You may use any one of these measurement examples A, B or C.

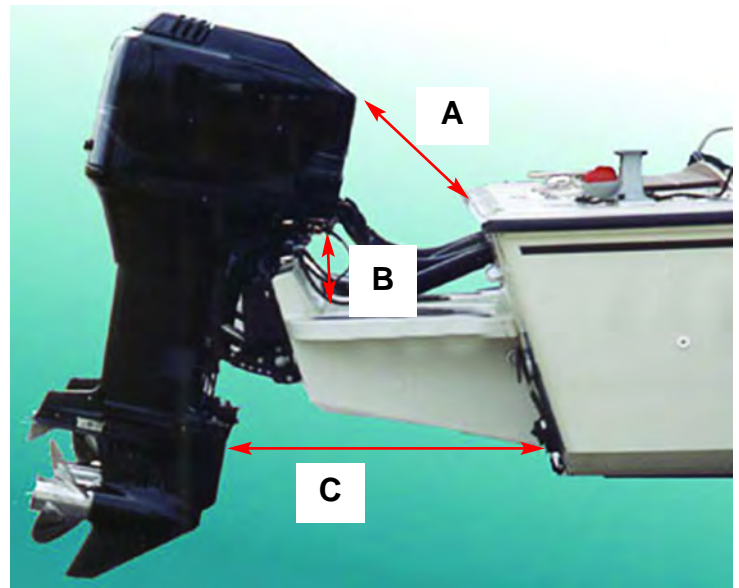
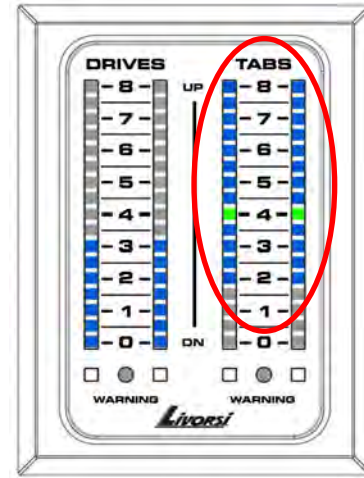


Figure C

Taking measurements of the tab(s)

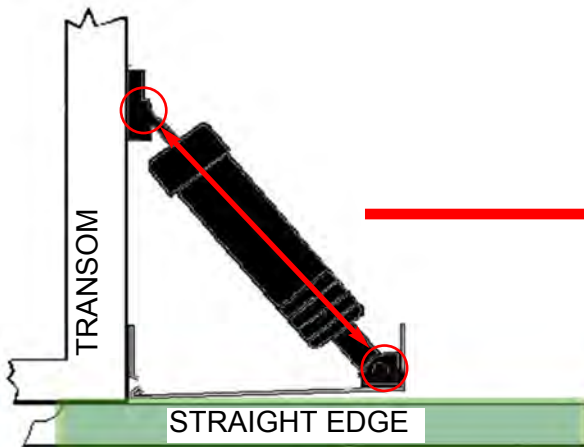
While your boat is docked or out of the water, position your tab(s) at the optimal running angle you recorded earlier.



Taking measurements for Trim Tabs

You may use one of these measurement examples to find your optimal run angle setting

Once in the correct position measure from bolt to bolt and **record this measurement.**



Or

You may use a yard stick to measure from a fixed point on the transom down to the tab.

Write down/record this measurement.



Or

You may use an angle finder as shown here,



another example of an angle finder



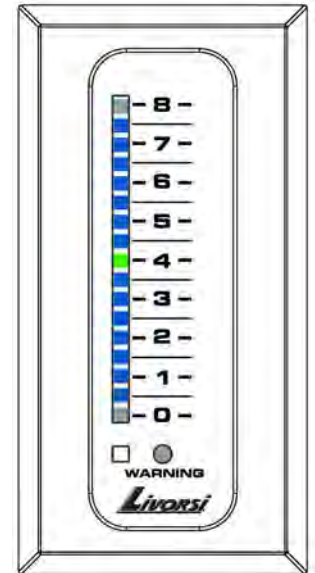
Step 5: Setting optimal running angle (sweet spot)

With the completion of step 4 all LED'S will be lit except for the top #8 and bottom #0

If you choose to skip this step, complete the following:

1. Cover sensor
2. LED's will go dim, then bright- at this point sweep away
3. Proceed to step 6

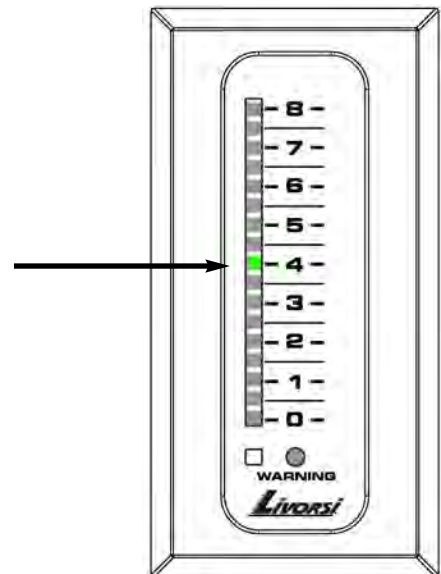
For a 2-slot application the indicator will have transferred to the second row of LEDS repeat steps 1-3.



- A. At this point the drive, tab, etc that is assigned to the indicator must be positioned to the optimal running angle.

Use the measurments you recorded earlier to move the drive, tab, etc in the correct position.
(measurements from Figure C)

- B. Once item is properly positioned, cover the sensor and sweep away
- C. The top LED will light up cover and sweep to move down the row of LED's one by one until you reach the GREEN LED
- D. Cover the sensor
The LED's will go dim then go bright- at this point sweep away



For a 1-slot application proceed to step 6

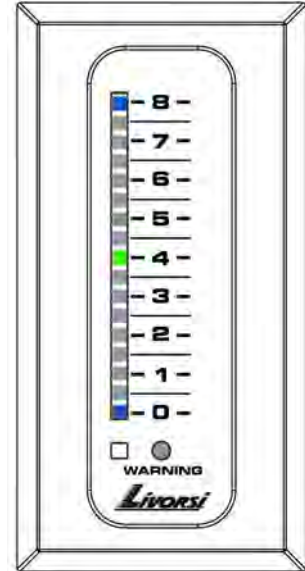
For a 2-slot application the indicator will have transferred to the second row of LED'S.

Repeat steps 5A-5D for the second row.

Step 6...Saving your calibration

With the completion of step 6 you will see the top blue, middle green and bottom blue LED'S lit. You must now save your calibration.

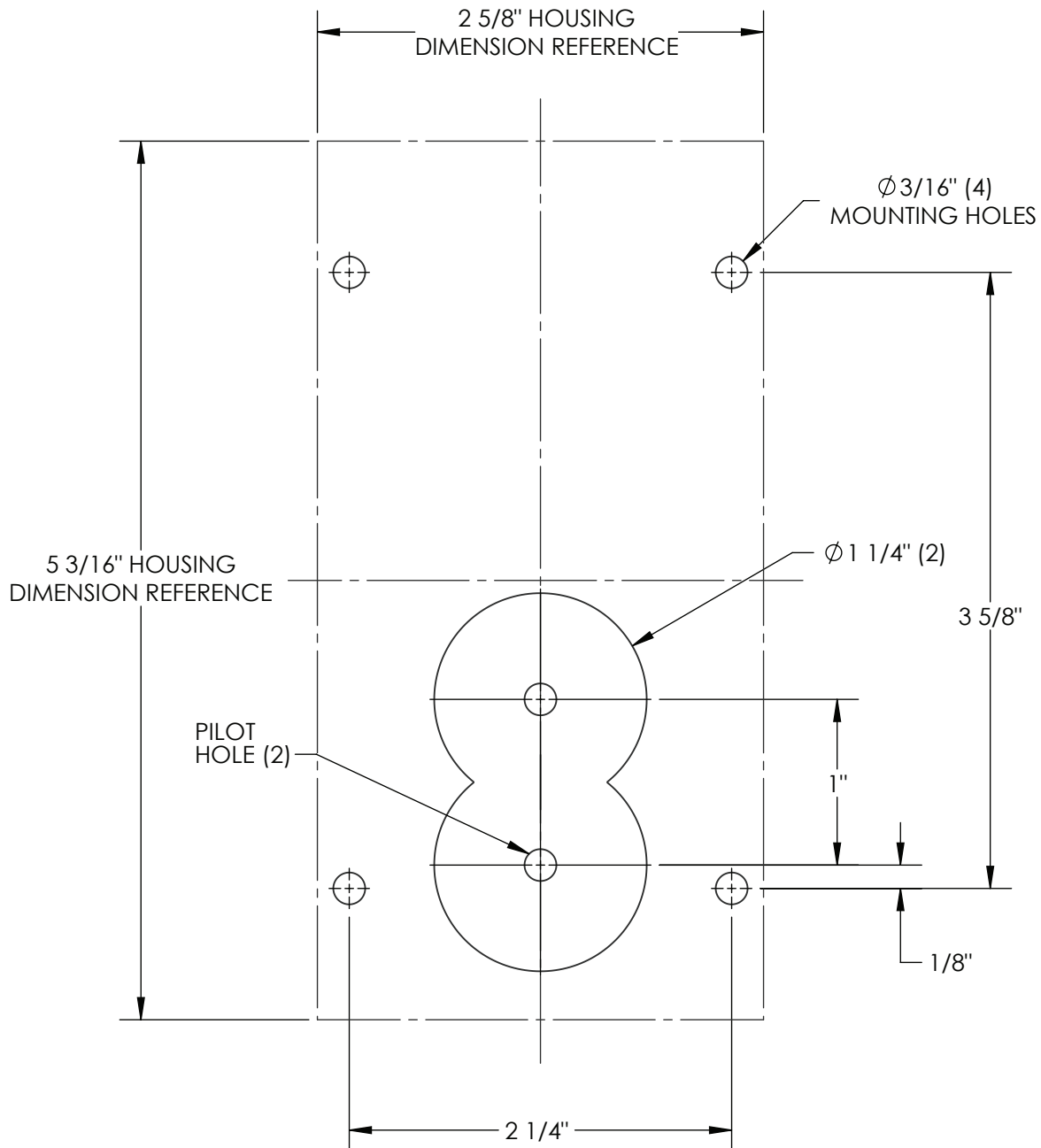
- A. To save the calibration, cover the sensor
The LEDs lights will go dim then go bright-
at this point sweep away.



Your Livorsi LED Position Indicator is now ready to use.

LED INDICATOR CUT OUT TEMPLATE

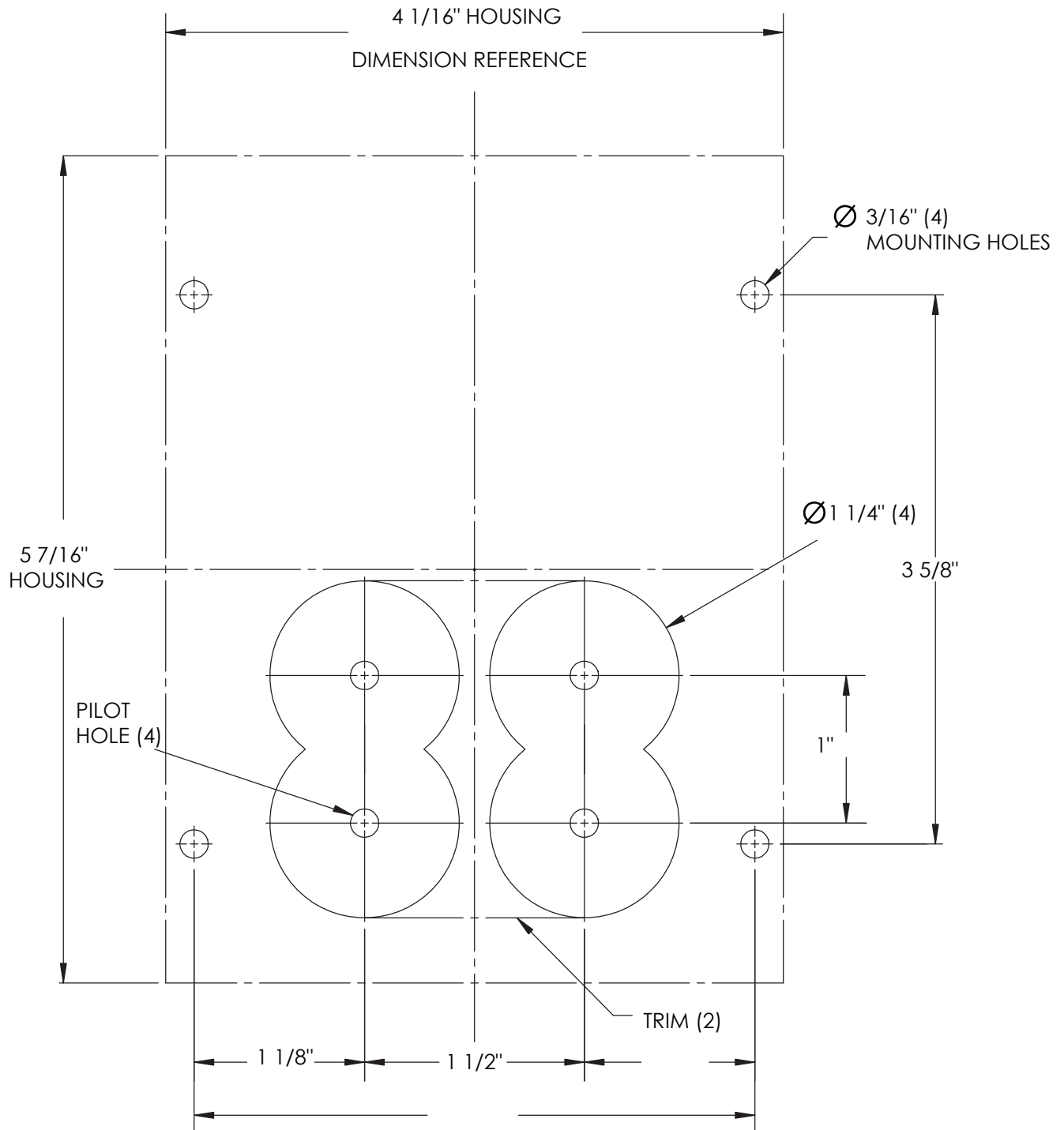
1-2 SLOT HOUSING CUTOUT GEN 3



blank on purpose

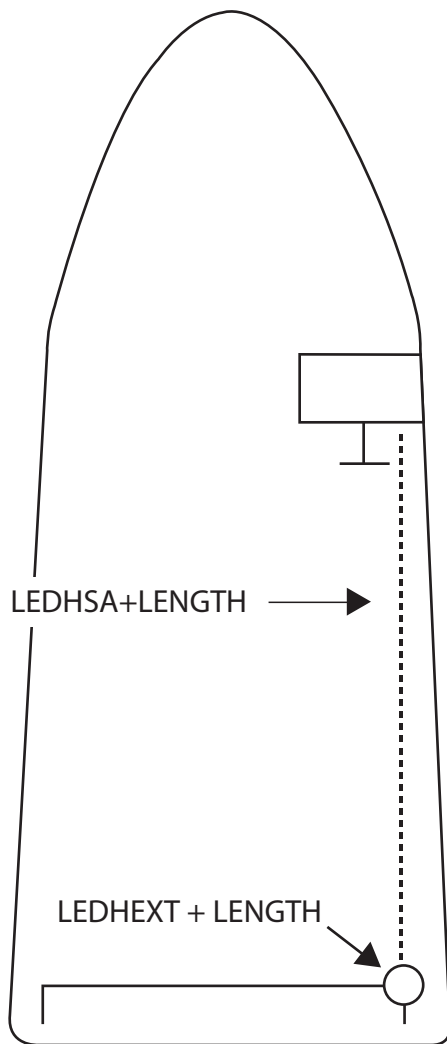
LED INDICATOR CUT OUT TEMPLATE

3 and 4 SLOT HOUSING CUTOUT GEN 3



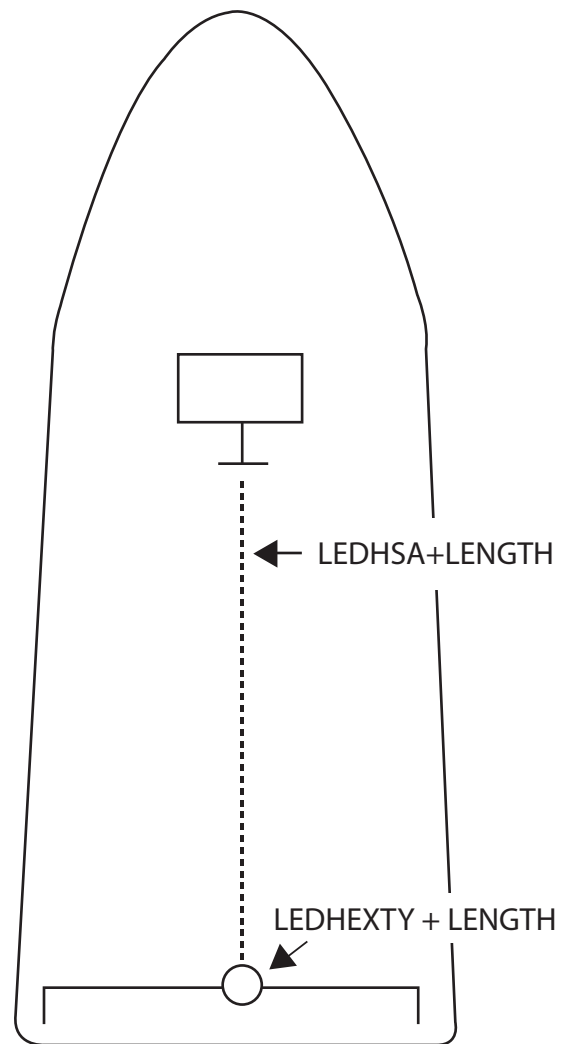
blank on purpose

Typical Installation



LEDHEXT + LENGTH

Designed to be installed on starboard side of boat

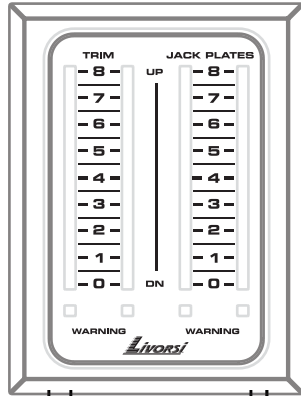


LEDHEXTY + LENGTH

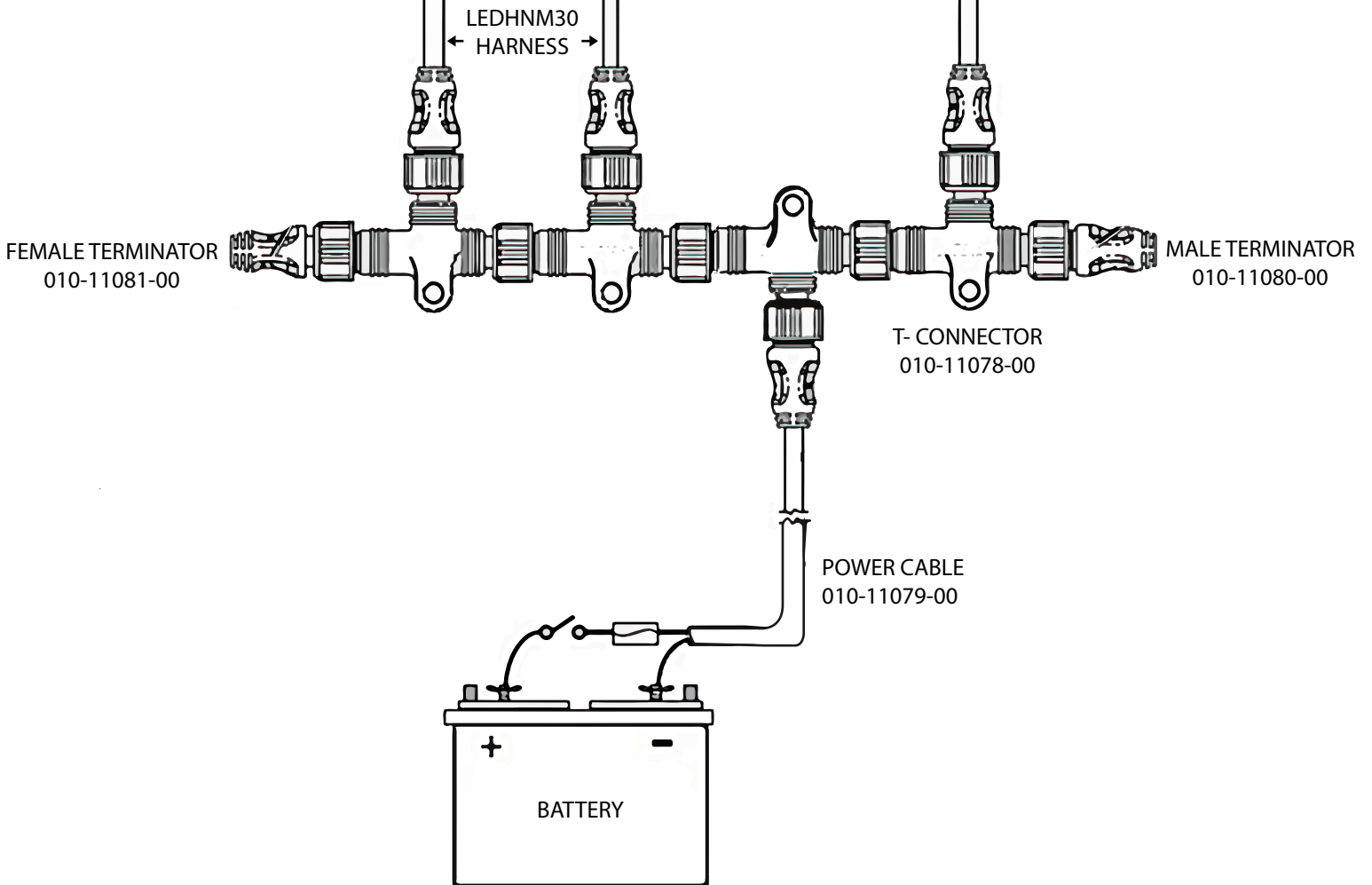
Designed to be installed in center of boat

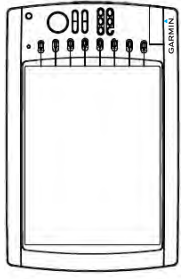
Typical NMEA 2000

DRIVES, TABS, FUEL LEVEL,
WATER LEVEL, ETC.



NMEA 2000 DATA FROM:
GATEWAY
VESSEL VIEW
MERC MONITOR
ETC.





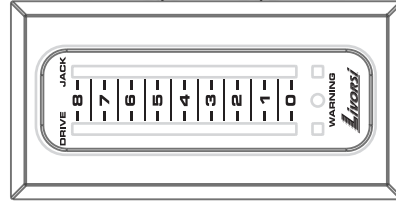
Junction "T"

Terminator Terminator

RESISTIVE 2 WIRE* and 0-5VOLT 3 WIRE



*NOTE: **WHITE** IS **NOT** USED WITH RESISTIVE 2 WIRE SENDERS.



LEDHSA + LENGTH

TO NMEA 2K NETWORK



LEDHSA + LENGTH

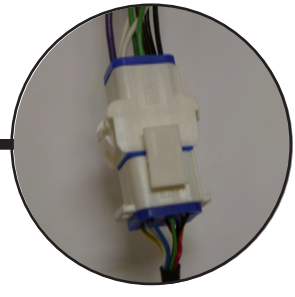
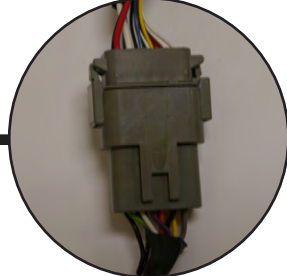
OPTIONAL WARNING LIGHT CONNECTION

LEDHEXT +10 or 15
NOTE: DESIGNED TO BE INSTALLED ON STBD SIDE OF BOAT.

STARBOARD

PORT

OPTIONAL WARNING LIGHT CONNECTION

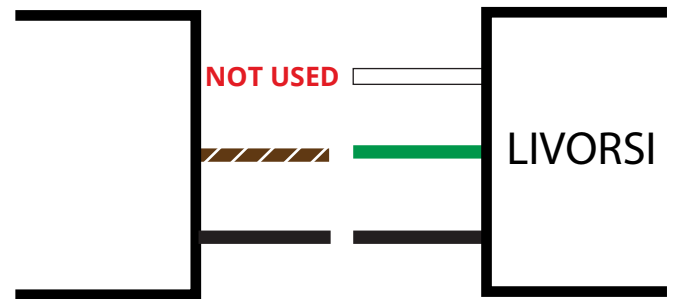


Outboards

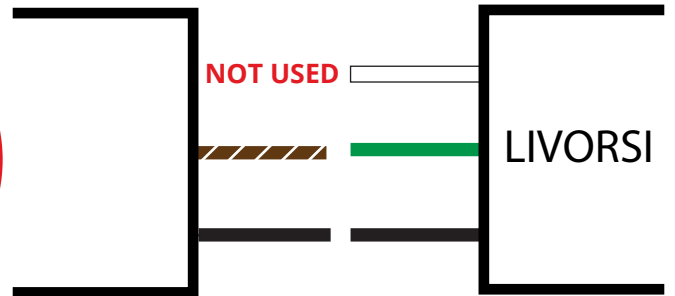
MERCURY 3 WIRE OUTBOARD DIGITAL SENDER



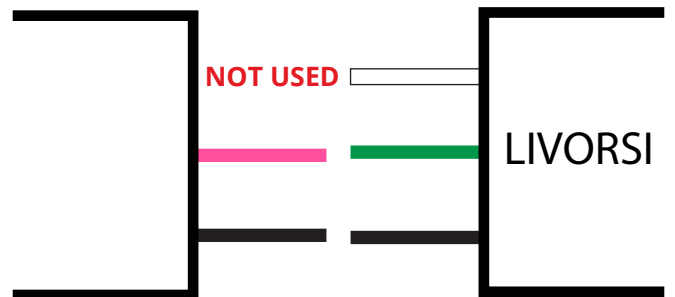
MERCURY 2 WIRE OUTBOARD ANALOG SENDER



JOHNSON / EVINRUDE 3 WIRE OUTBOARD DIGITAL SENDER

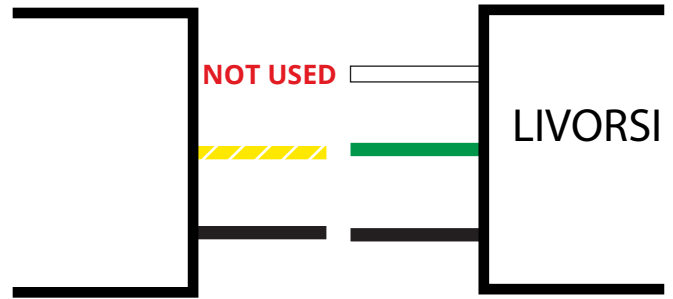


YAMAHA 3 WIRE OUTBOARD DIGITAL SENDER

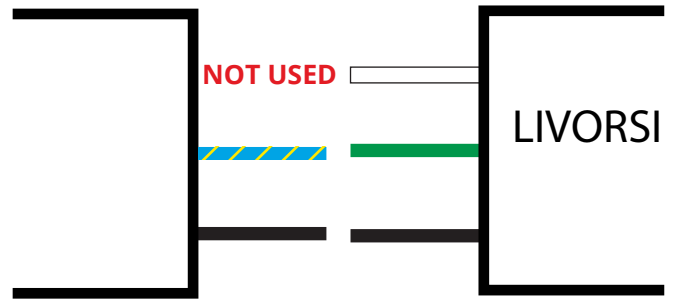


Outboards

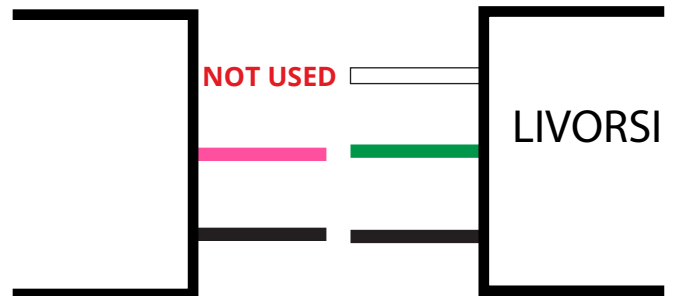
SUZUKI 3 WIRE OUTBOARD DIGITAL SENDER



HONDA 3 WIRE OUTBOARD DIGITAL SENDER

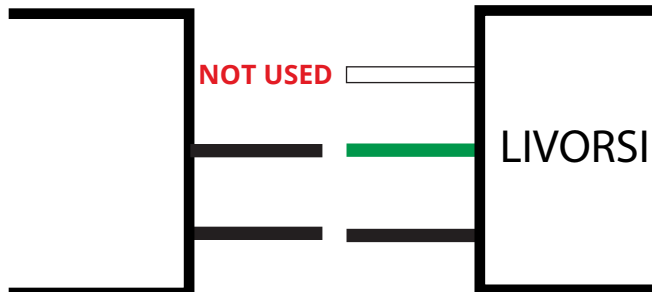


TOHATSU 3 WIRE OUTBOARD DIGITAL SENDER

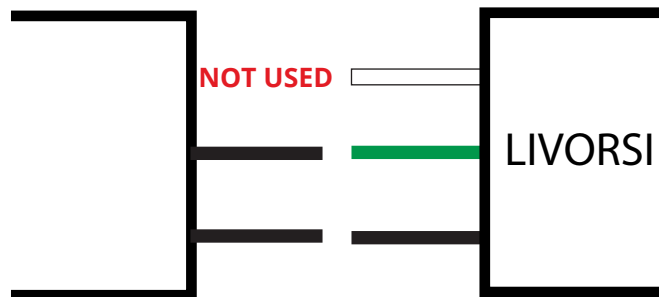
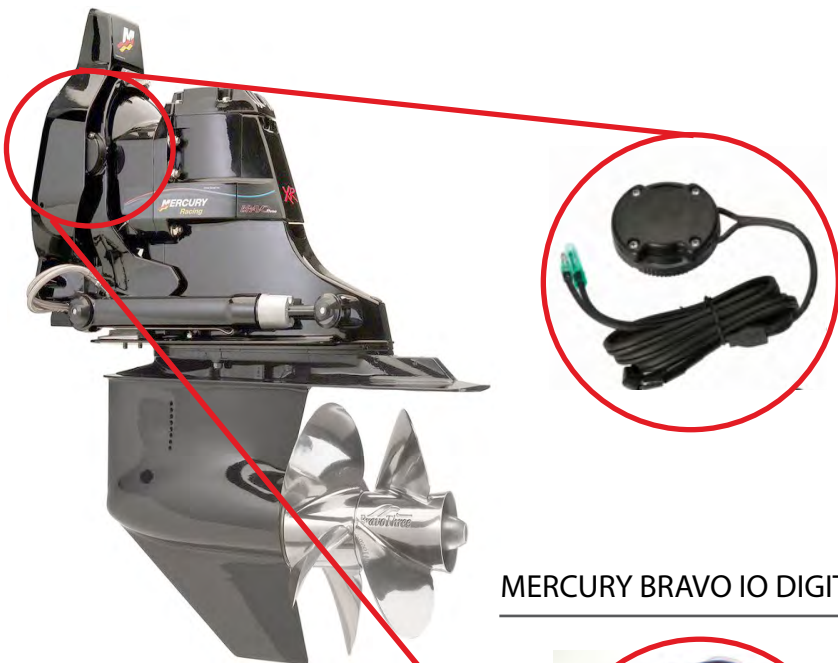


IO'S

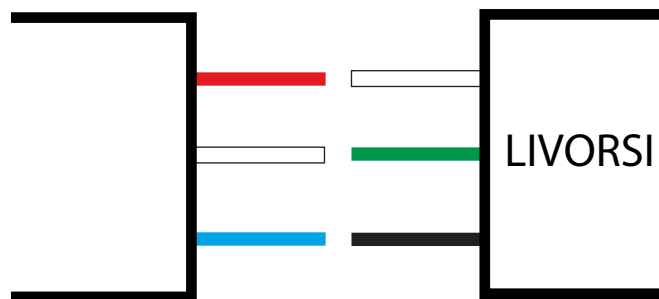
MERCURY ALPHA IO ANALOG SENDER



MERCURY BRAVO IO ANALOG SENDER

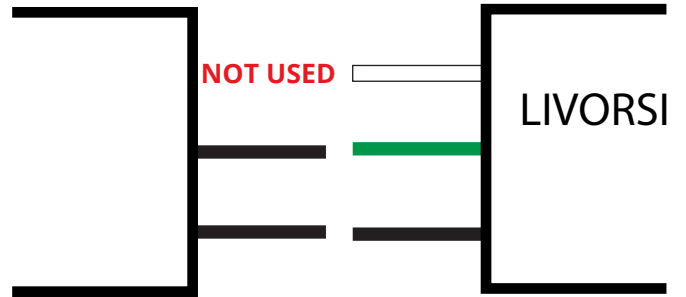
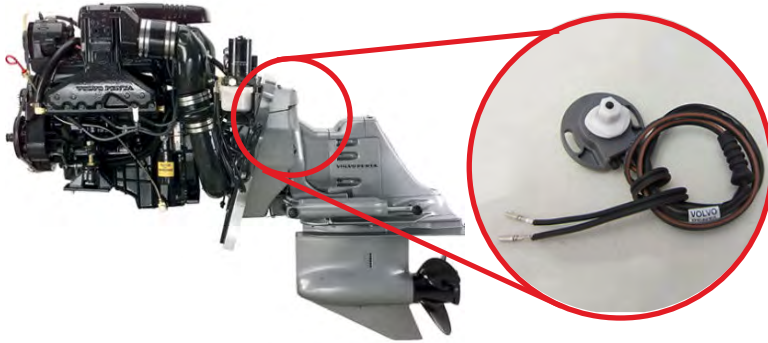


MERCURY BRAVO IO DIGITAL SENDER

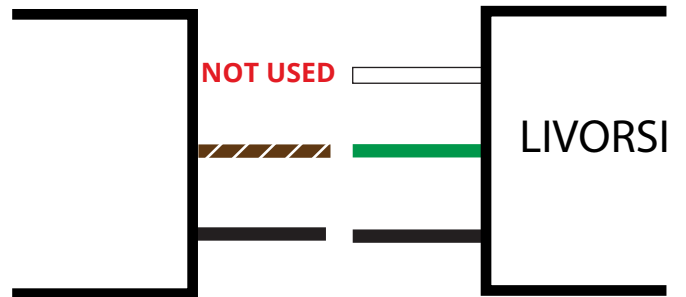


IO'S

VOLVA PENTA

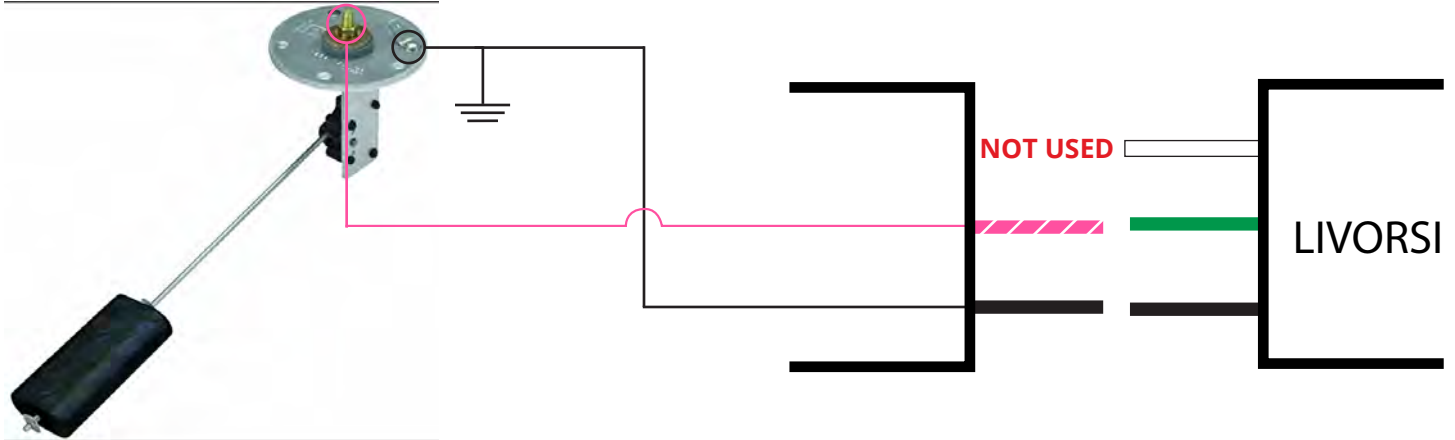


COBRA OMC

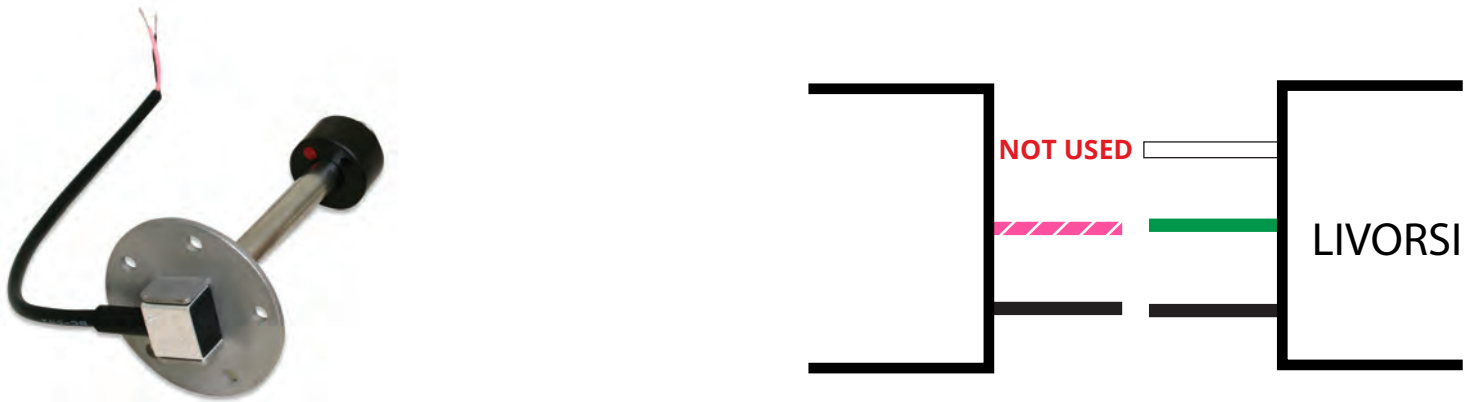


Fuel Senders

2 WIRE FUEL/WATER SENDER (ANALOG)

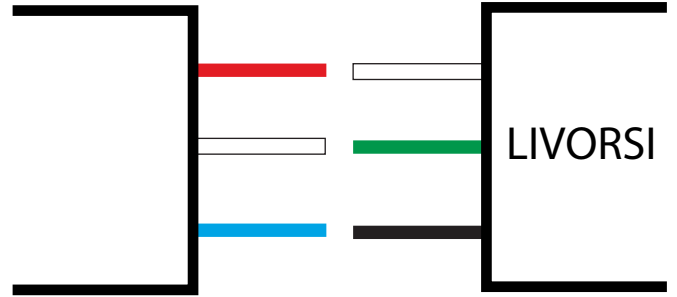
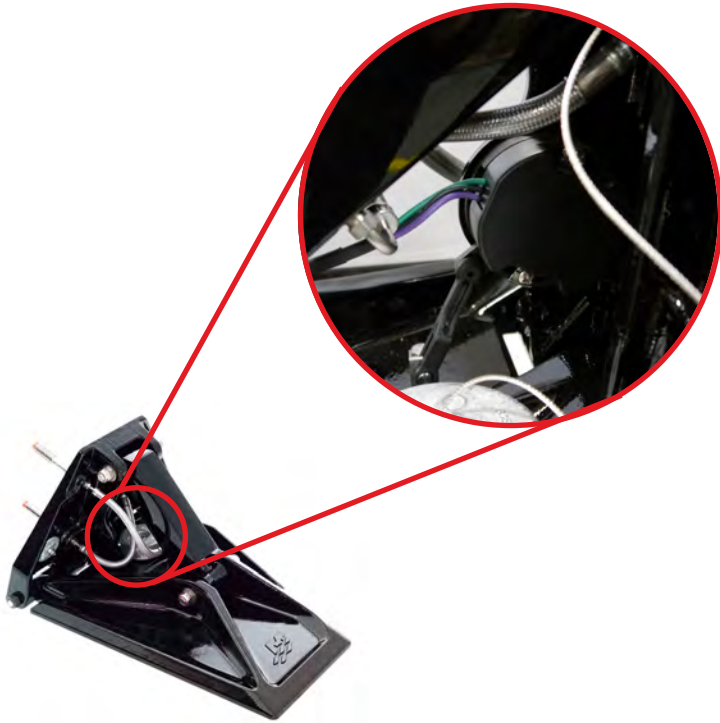


2 WIRE FUEL/WATER SENDER (ANALOG)

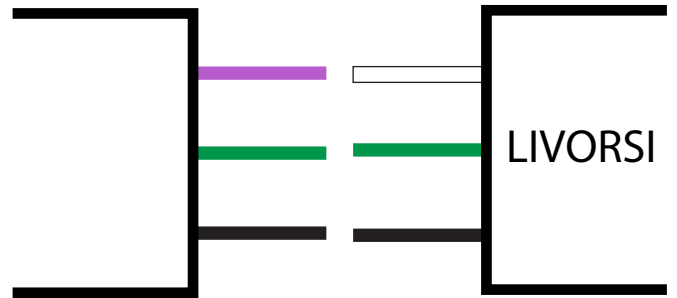


Trim Tabs

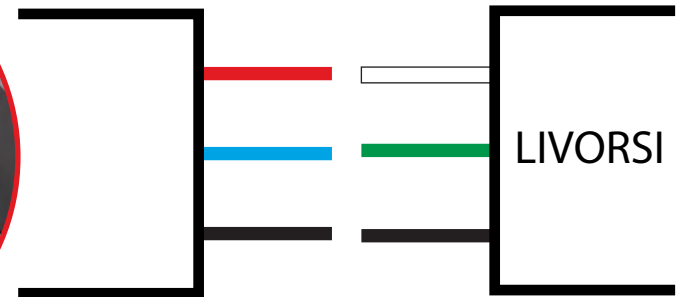
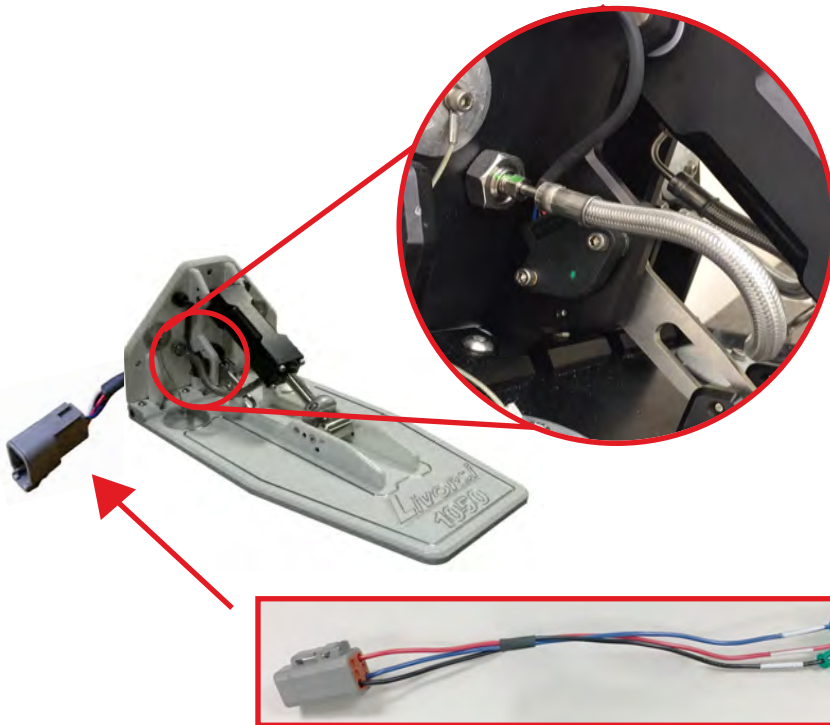
MERCURY TRIM TAB SENDER



OR



LIVORSI TRIM TAB SENDER



Adaptor harness - Part #TTIWH

CONVERTER BOX

CONVERTER BOX CBME5

