



# DriveSync Installation & Operating Instructions

## Mounting the Device

The unit should be mounted in a dry area away from sources of heat. Mounting the unit near the trim pumps will reduce wiring complications. A paper template is included to assist in drilling the mounting holes.

The unit should be mounted with the wires facing either down or to the side. Mounting the enclosure with the wiring facing up could lead to water intrusion and will void the warranty. Any attempt to open the enclosure will also void the warranty.

## Power & Ground Connections

- Connect the RED wire to a 12 Volt power source that can support at least 10 Amps. DriveSync will automatically power down after being idle for one hour and can be connected to a constant 12 Volt power source. Always use the supplied fuse holder and do not connect the unit directly to the battery. **Remove the inline fuse until step one of the calibration procedure has been performed.**
- Connect the BLACK to the engine block or other suitable source of ground. Do not connect to a green bond wire.

## Trim Solenoid Connections

Each drive has a separate trim pump that has two solenoids (figure 1), one for UP and one for DOWN. DriveSync will be configured from the factory for either twin or triple engines. It is important to identify the appropriate UP & DOWN solenoids for each drive. DriveSync must be connected to positive (+) side of the solenoid activation terminal. This would be one of the two smaller terminals at the bottom of the solenoid. Use a test light to locate which solenoid terminal has 12 volts when the trim button is pressed and make note of the direction (UP / DOWN) and position (PORT, STARBOARD or MIDDLE) for each solenoid. DriveSync must only be connected to the solenoid terminal that has + 12 Volts when the trim pump is activated and 0 Volts when at rest. Typically this would *not* be a black wire.



Figure 1 – Trim Pump Solenoid



- PORT Trim Pump Solenoid Connections
  - Locate the PORT trim pump UP solenoid and connect the PURPLE from the DriveSync harness to the solenoid activation terminal.
  - Locate the PORT trim pump DOWN solenoid and connect the ORANGE from the DriveSync harness to the solenoid activation terminal.
  
- STARBOARD Trim Pump Solenoid Connections
  - Locate the STARBOARD trim pump UP solenoid and connect the WHITE from the DriveSync harness to the solenoid activation terminal.
  - Locate the STARBOARD trim pump DOWN solenoid and connect the BLUE from the DriveSync harness to the solenoid activation terminal.
  
- CENTER Trim Pump Solenoid Connections
  - Locate the MIDDLE trim pump UP solenoid and connect the GREEN from the DriveSync harness to the solenoid activation terminal.
  - Locate the MIDDLE trim pump DOWN solenoid and connect the YELLOW from the DriveSync harness to the solenoid activation terminal.

## Trim Sensor Wiring

### Boats with Three-Wire Senders

For boats with three-wire trim senders DriveSync is supplied with factory connectors for each drive. DriveSync will be connected in line with the trim sensors and the factory display/indicator (if equipped) functionality will be retained.

1. Locate the trim wires inside the engine compartment where they pass through the transom assembly.
2. Unplug the connector at the end of this wire and plug in the appropriately colored DriveSync wire/connector.

The colors below reference the middle wire on each of the wiring harnesses.

- PORT – Brown
- STARBOARD – Grey
- MIDDLE - Purple

### Boats with Two-Wire Senders

For boats with Two-wire trim senders DriveSync is supplied with matching bullet connectors. DriveSync can be connected in line with the trim sensors and the factory trim gauge or LED indicator (if equipped).

Locate the trim wires inside the engine compartment where they pass through the transom assembly.

1. Unplug each trim sender and plug in the appropriately colored DriveSync wire. The colors below reference the non-red wire on each of the wiring harnesses.
  - PORT – Brown
  - STARBOARD – Grey
  - MIDDLE - Purple



## Calibration

### **WARNING - DO NOT OPERATE THE BOAT UNTIL THE CALIBRATION IS COMPLETE**

Before you re-install the inline fuse the trim senders need to be checked to make sure they are properly indexed. **Do not press the BOTH button for the drives until the following procedure is followed in its entirety. A red LED indicates that there is a fault or the calibration procedure was not properly performed.**

The calibration process must be followed in the exact order below:

1. Move the drives to their full DOWN position. **Make sure the inline fuse is removed**
2. Following the manufacturers procedure - remove each trim sender and align marks on the housing with the index on the center hex drive. For Bravo HP transom assemblies, the raised index mark on the hex shaft must be aligned with the groove in the link arm.
3. Reinstall the senders but do not tighten the mounting screws.
4. Install the inline fuse for DriveSync. When powered up for the first time the green LED will be flashing to indicate that the unit is connected correctly but has not been calibrated. Please see the troubleshooting section if the green LED is not flashing.
5. To ensure accurate positioning of the drives connect a digital volt meter to a trim sender signal wires and adjust the voltage by rotating the sender. Please note, it will take very small movements of the sender to change the voltage. For three-wire senders adjust the voltage to be between 0.500 and 0.600 volts. For two wire senders adjust the voltage to be between 0.100 and 0.299 volts. Tighten the mounting screws for the sender once the voltage is adjusted and repeat for each drive.
  - a. Gray (starboard)
  - b. Brown (port)
  - c. Purple (center)
6. Move each drive to the full UP position one at a time. Do **not** use the BOTH / ALL button but you can move them each a little at a time to keep them from being too far out of alignment and risk binding. Pause at least one second in-between each move.
7. With the drives in their full UP position press the BOTH-UP button for at least one second but not more than three. The green LED will stop flashing for 20 seconds and then begin flashing again to indicate the position was recognized.
8. Move each drive to the full DOWN position one at a time. Do **not** use the BOTH / ALL button but you can move them each a little at a time to keep them from being too far out of alignment and risk binding. Pause at least one second in-between each move.



9. Once all of the drives are in the full DOWN position press the BOTH-DOWN button for at least one second. The LED will change to solid green to indicate the calibration is complete.

Once the calibration is complete it will not need to be repeated unless the boat experiences a mechanical or electrical issue that impacts the drive trim system. In the event of a such a repair (i.e. removing/replacing a trim sender) then the operator can force a calibration by holding the BOTH/ALL UP button for four seconds after the drives reach their full UP position. The LED will turn from solid green to flashing green and the unit will not attempt any corrections until the calibration process is performed again.

## Operation

Once calibrated and the green LED is illuminated DriveSync will monitor the position of each drive and determine if a correction is required after the BOTH / ALL button is pressed and released. DriveSync will always correct the slowest moving drive(s) to match the position of the fastest one. For example, if the operator pressed the BOTH DOWN button and the port drive stops lower than the starboard one, DriveSync will lower the starboard drive to match it.

- DriveSync will not attempt a correction when the drive is near the upper or lower limit of its travel.
- DriveSync will never operate a trim solenoid for more than 3 seconds.
- If the operator moves a single drive then no corrections will be made until the next time the BOTH/ALL button is pressed.
- In the case of any fault the LED will turn red and DriveSync will stop making any corrections. Manual trim function will not be impacted.
- Keep in mind that the mechanical indicators are not as accurate as DriveSync so it is highly likely that the indicators for each drive will not be perfectly matched every time you hit the BOTH button. DriveSync does not rely on the mechanical indicators and is more accurate so verify the physical position of the drives before assuming there is a fault.

## Troubleshooting

If the unit will not calibrate then it is likely that the trim senders are not properly indexed. Manually indexing the senders will be required using the following procedure:

1. Move the drives to their full DOWN position
2. For the Port drive, locate the capped off connector that has a single brown wire where DriveSync is connected to the trim sender. If the boat is equipped with SmartCraft then there will be a harness connected instead of the cap. Remove the harness.
3. Install a digital VOM meter with the positive side on the brown wire and the negative to a suitable ground. Set the meter to read 0-5 volts.
4. Remove the trim sender.
5. Supply power to DriveSync. It will not matter if the LED is red.
6. With the grey hex facing you, slowly rotate the trim sender counter-clockwise until you see a voltage reading of 0.5-0.6.



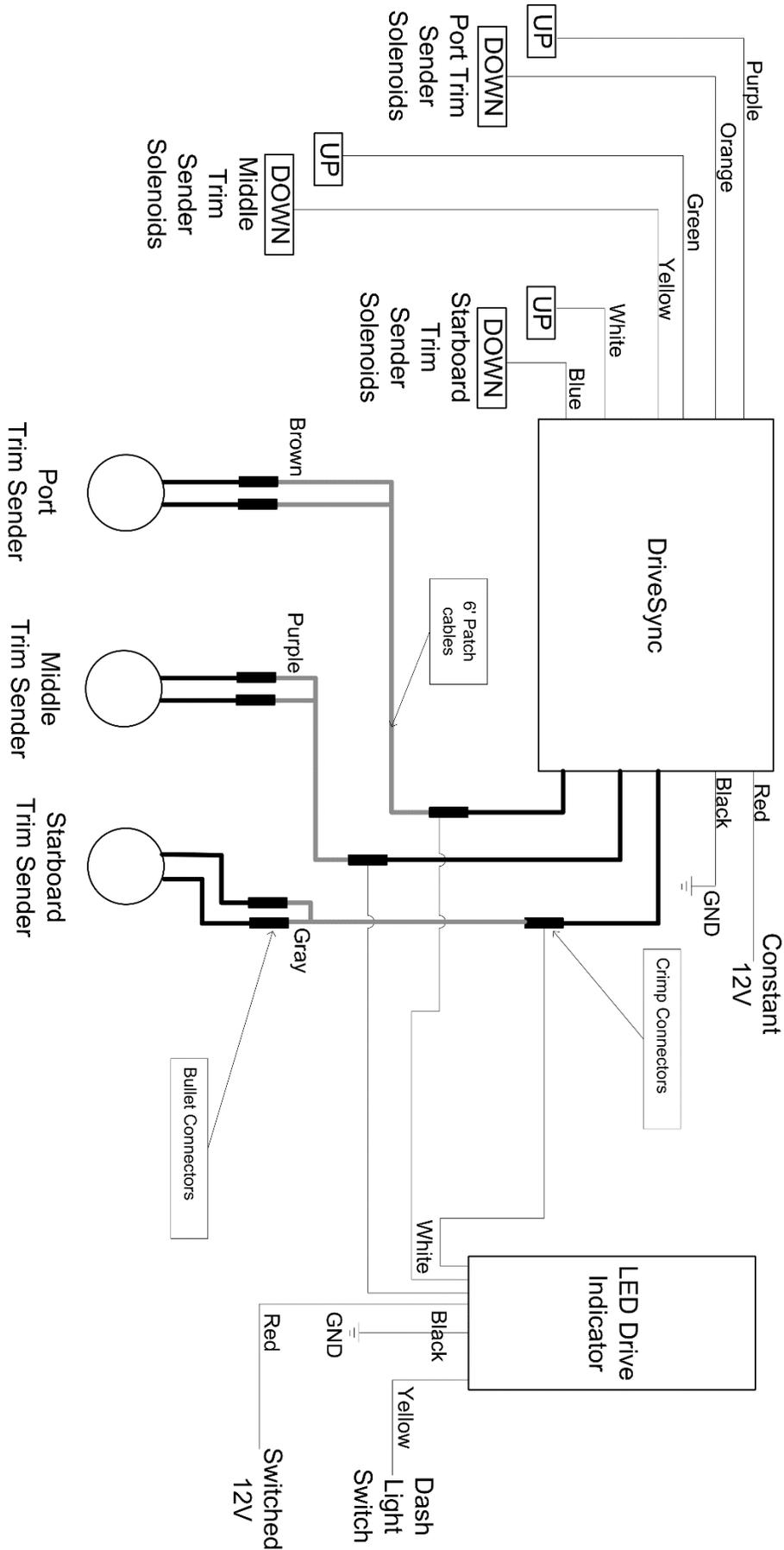
7. Continue turning counter-clockwise until the reading reaches greater than 2.0 volts.
8. If the voltage does not rise steadily between your two readings then keep rotating the hex until you find another spot that will give you the 0.5-0.6 volts. The sender does not have windings 360 degrees so we are looking for the section that is wired. The total sweep will be approximately 40 degrees.
9. Once the proper sweep is found move the hex back to the 0.5-0.6 volt position and re-install it.
10. Repeat the above process using the grey wire on the starboard side.
11. With the drives in their full UP position press and hold the both UP button for three seconds and the green light will begin flashing and enter calibration mode. The full up position will be recorded
12. To complete the calibration process, move each drive to the full DOWN position one at a time. Do **not** use the BOTH / ALL button but you can move them each a little at a time to keep them from being too far out of alignment and risk binding. Pause at least one second in-between each move.

LED Indicator	Operation / Condition
Constant Green	Normal operation
Flashing Green	Calibration required
Constant Red	Drive DOWN threshold exceeded, or 0 volts from sender(s)
Flashing Red	Drive(s) did not move during a correction. Potentially a failed solenoid or hydraulic/mechanical issue

### Manufacturer Warranty

THE MANUFACTURER OF THIS PRODUCT HAS PROVIDED YOU, THE END USER AND BUYER WITH A ONE YEAR WARRANTY FOR PRODUCT DEFECTS NOT OTHERWISE CAUSED BY YOU. THIS WARRANTY IS IN LIEU OF ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THOSE OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE NOT EXPRESSLY SET FORTH HEREIN AND IS, IN FACT THE ONLY WARRANTY OFFERED BY THE MANUFACTURER. MANUFACTURER SHALL IN NO WAY BE LIABLE FOR ANY LOSSES, TIME EXPENSES, INCONVENIENCE, OR INCIDENTAL, SPECIAL, PUNITIVE AND/OR CONSEQUENTIAL DAMAGES. THE PARTY’S EXPRESSLY AGREE THAT MANUFACTURER SHALL ONLY BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF THE PRODUCT TO THE EXTENT IT IS FOUND TO BE DEFECTIVE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THIS WARRANTY. BUYER WAIVES ANY RIGHT TO CLAIM ANY OTHER LOSSES OR CLAIMS FOR DAMAGES. THIS WARRANTY DOES NOT COVER AND SPECIFICALLY EXCLUDES WATER DAMAGE AND/OR FAULTY INSTALLATION. IN ADDITION, IF THE PRODUCT IS OPENED AND/OR THE SEAL TO THE PRODUCT IS OTHERWISE BROKEN, THE WARRANTY SHALL BE VOID AND OF NO EFFECT.

THE BUYER’S PURCHASE OF THE PRODUCT, AGREEMENT, AND WARRANTY SHALL BE GOVERNED BY AND CONSTRUED UNDER THE LAWS OF THE STATE OF ILLINOIS AND ANY DISPUTES UNDER THIS AGREEMENT SHALL BE LITIGATED EXCLUSIVELY IN FEDERAL OR STATE COURTS LOCATED IN COOK COUNTY, ILLINOIS. THE SELLER SHALL BE ENTITLED TO RECOVER FROM BUYER ITS REASONABLE COSTS AND ATTORNEYS’ FEES RELATED TO ANY LAWSUIT OR CLAIM BY AND/OR BETWEEN BUYER AND SELLER.





Drive Sync Mounting Template

