

# LASER

# PHANTOM

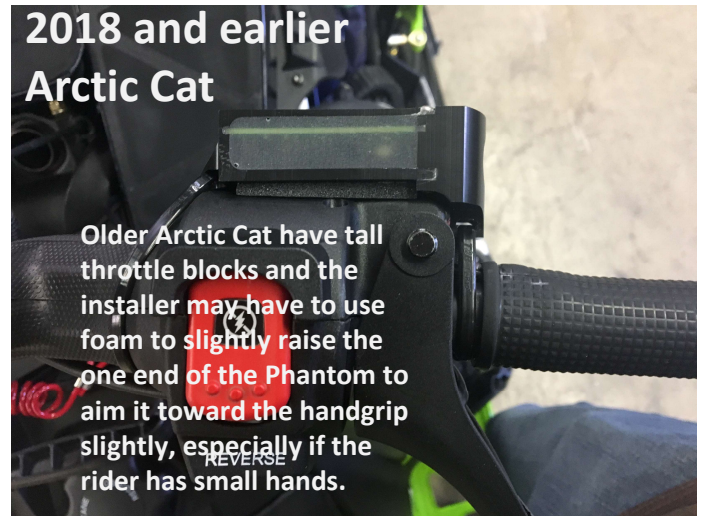
# TETH-AIR

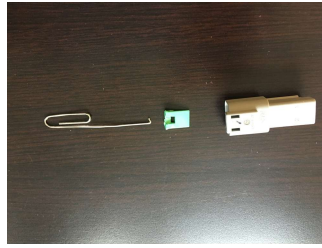


2 Stroke Installation Guide



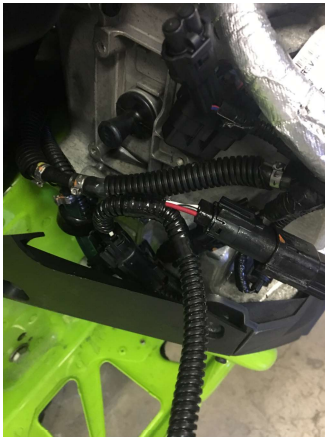
**Step 1:** Mount the Laser Phantom Teth-Air to the throttle block with good quality wire ties. It is recommended to use foam tape between the throttle block and the Phantom. For 2019+ Arctic Cats and all Ski-doo, also install the Spacer block provided and securely attach it to the handle bar with a wire tie. (see right) Foam tape can be used between the block and bars for stability. Repositioning of the kill switch may be necessary. Never trap wires under these wire ties or they may get damaged. The wire tie locking mechanism should be at the front and just beneath the Phantom. Always make sure the ties do not interfere with throttle flipper movement. Phantom should be sitting parallel to handle bars. Movable bar hooks must have hooks turned down to not interfere with laser beam. Run cable along bars securing with wire ties. Always leave good slack to allow for movement of the throttle block.





For 2019 Polaris the tether connector cap is to be reused with the new pin inserted. Remove the green lock with a paperclip as shown. Insert the pin on position 1, to the black wire on the snowmobile. Be sure to reuse the water proofing rubber seal.

## Arctic Cat



**Step 2:** Carefully connect the brand specific wiring harness to the Phantom, make sure the red O-ring is present to make the connection waterproof. Do not force or overtighten the connector, it only goes together in one position as it is keyed. The harness must be fed through to the engine compartment next to the steering post but be careful to ensure the routing does not allow for it to be pinched when turning the handle bars. Leave slack to allow for lock to lock steering. Route the main plugs down to the speedometer sensor plug and Tee into this connection. Be aware on many models that the hot exhaust is often very close and extra foil tape may be required to protect this connection and the wiring. Use wire ties to secure the cable and keep away from all hot, sharp or moving parts. The yellow wire is the kill switch/tether wire.

### 2018 Arctic Cat Shown.

The 2108+ Arctic Cat has the 3 wire speed sensor wiring beside the chain case. This and new models also has a factory tether connector. Tee into the speed sensor with the 3 wire plug and plug into the tether connector with the yellow wire from Phantom. Use foil tape or heat shield webbing to protect wires from hot exhaust components.

### Pre 2018 Arctic Cat

Before 2108, Arctic Cat did not have a factory tether plug. In this case locate the violet/red wire that runs from the handlebar kill switch to the ECM. Crimp the Scotch lock connector on to this wire and plug the yellow wire from Phantom into it. Tape seal over the entire connection. Secure all loose wires with wire ties.





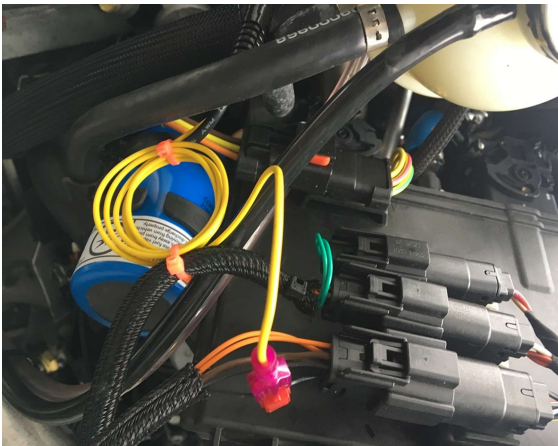
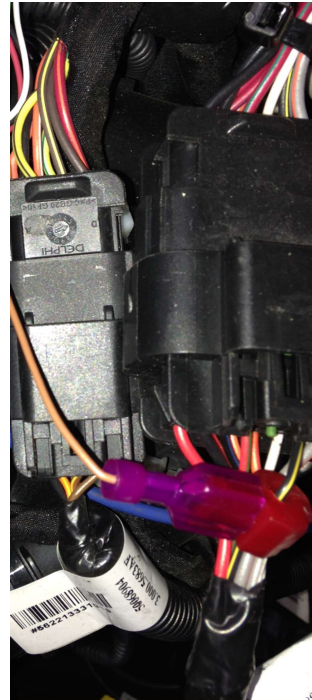
# Ski-doo

## Ski-doo

Ski-doo does not come with a factory tether plug other than the wiring for its own factory tether. When upgrading the tether system to the Phantom Teth-Air the factory cord is to be clipped to the riser and removed only when theft prevention is required.

The G4, XM and XP all use the same wire colours for the handlebar kill switch. It is black/yellow and runs down the steering post. The XM and XP is accessed at the plug beneath the gauges. Remove the gauges and squeeze the scotch lock onto the black/yellow wire as shown. (Right)

The G4 has it's black/yellow kill switch wire in the first plug in the wire tray in the engine compartment. (Below) Clip the Scotch lock onto this wire and plug the yellow wire into it. Secure loose wires with wire ties and tape seal the connection. Use heat proof webbing or foil tape to protect speed sensor wires and connectors. (Middle Right)



# Polaris

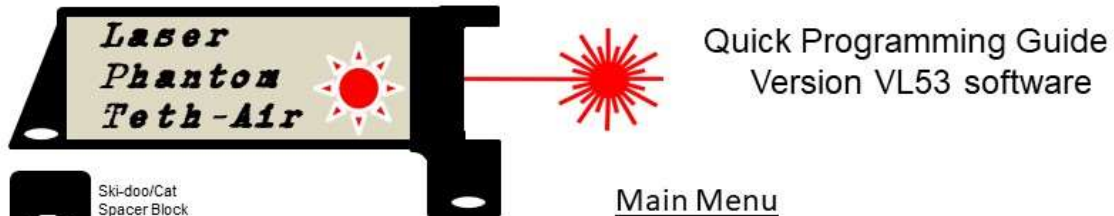
## Polaris

Both the ProRide and AXYS chassis and wiring are very similar. They both have a factory tether plug and both have 3 wire plugs for the speed sensor. The speed sensor for the ProRide is more difficult to access as it is tucked in front of the fuel tank. Remove fuel tank Tee the connector into the harness. Secure the cable with wire ties ensuring it won't get pinched when replacing the fuel tank. The AXYS speed sensor is located near the brake cylinder. Locate the sensor that counts the holes on the brake disk and follow the wires back to the connector. Tee into the harness and secure the wires with wire ties.

Both the ProRide and AXYS have 2 nylon bags that protect the connectors. The upper bag has the connector for the tether. (Right) Locate this connector and plug the yellow wire into it on the black wire side. Tape seal this connection and wire tie any loose wires.



Prior to replacing the hood and side panels test the Laser Phantom Teth-Air. Your Phantom should be preset for your snowmobile brand and recommended startup settings. Start the motor and the LED on the phantom should go red. Try placing your hand on the right hand grip to confirm that the laser senses your hand. If the laser is green without your hand present check to see if the Phantom is parallel to the bars and there are no obstructions. Anytime the LED is green and no hand is present, snow or other foreign debris could be on the lens. Clean with soft cloth. With properly functioning laser and on track stand, accelerate until track spins. If the LED turns blue, the unit is armed. Now retest with your hand below the throttle block to squeeze the flipper to avoid being seen by the laser. The engine should shut down when the track spins fast enough. Keep in mind the delay is factory set at 1.5 seconds so the track must spin for at least this amount of time for a shutdown to occur. Please read the programming guide for more info.



### Main Menu

Press TACH when LED is red to output current setting for Speed Sensor Count. LED will flash blue corresponding to **button setting** saved. (0-5)  
This is recommended on initial install as TACH setting is brand specific.  
(See Sub-Menu below to modify TACH setting if required)

Press R/O to flash out current Roll-Over time delay setting. (0.5 - 3 seconds)  
Each violet flash = **button setting** saved. (0-5) Wait for solid violet LED for next entry. Press 0-5 to enter desired R/O delay or press R/O to exit and save last setting or press POWER I/O to disable this sensor.  
Unit returns to Run Mode. (Recommended Value, Button 2, see Table "A")

Press PROX to flash out current Laser Proximity time delay setting. (0.5-3 seconds)  
Each yellow flash = **button setting** saved. (0-5) Wait for solid yellow LED for next entry. Press 0-5 to enter desired proximity delay or press PROX to exit and save last setting or press POWER I/O to disable this sensor.  
Unit returns to Run Mode. (Recommended Value, Button 2, see Table "A")

### Sub-Menu

Press POWER I/O to put Phantom into Sleep Mode. Red LED will flash 6 times then periodically and unit will not function.

In Sleep Mode:  
The following sub-menu setting / options are available.

Speed Sensor Count (Brand Select)

0 to 5  
(Recommended Value, see Table "B")

A lower count arms the Phantom at a lower track speed.  
Unit saves new setting and returns to Run Mode.

or  
Exit - Press POWER I/O. Unit returns to Run Mode, and returns the unit to the last saved user settings.

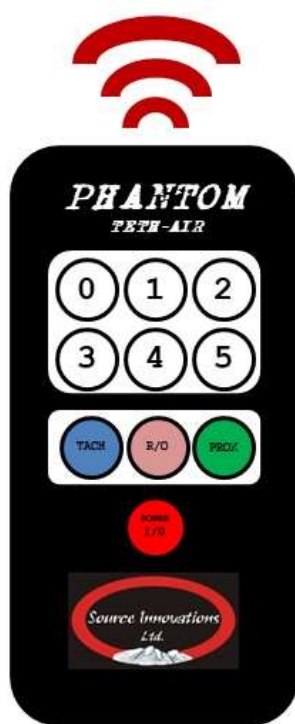
Notes and Warnings: Always test system prior to riding.

A solid Green or Blue LED without hand present, lens cleaning with soft cloth is required.

A solid Violet LED, roll-over detected on start-up. Function disabled for 15 seconds.

Table "A" have recommended values for initial install, shorter times mean quicker response but running with too short of delay can allow for unexpected shutdowns.

Do not operate without the laser window sticker lens on the laser IC or water could damage it.



**TABLE "A"**

R/O and Prox. Time Option:

Button 0 = 0.5 seconds  
Button 1 = 1.0 seconds  
Button 2 = 1.5 seconds  
Button 3 = 2.0 seconds  
Button 4 = 2.5 seconds  
Button 5 = 3.0 seconds

**TABLE "B"**

Speedometer Count Option:  
0=1 count to arm (Arctic Cat)  
1=2 counts to arm (Ski-Doo)  
2=4 counts to arm  
3=6 counts to arm  
4=10 counts to arm (Polaris)  
5=14 counts to arm

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