

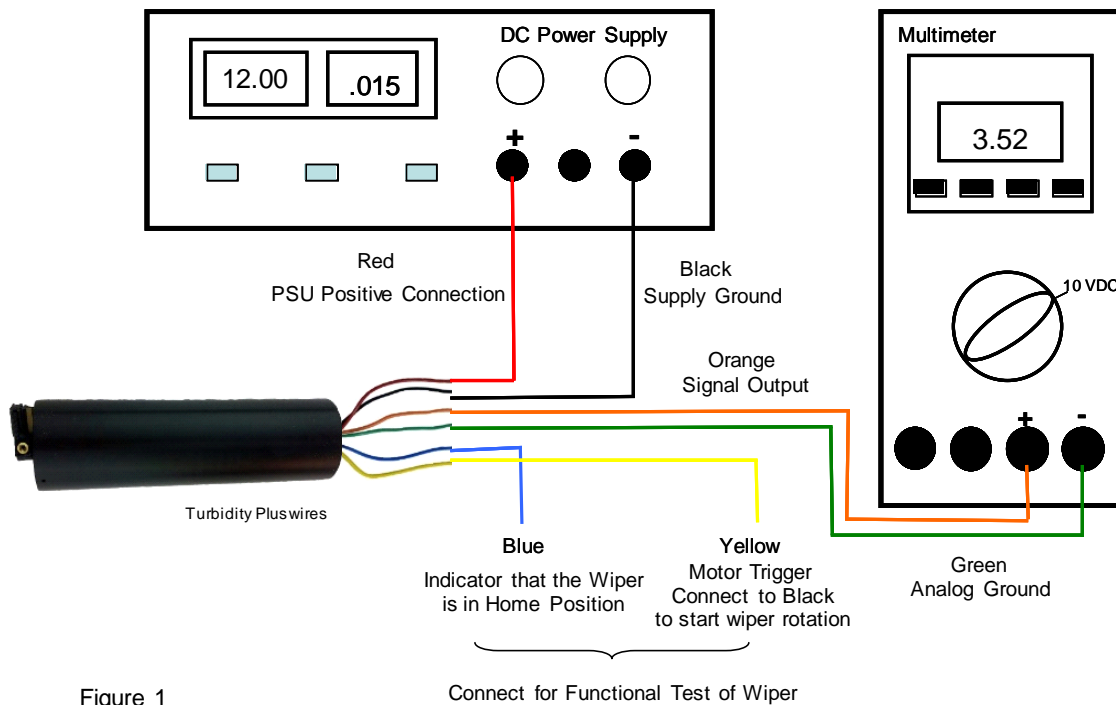
Congratulations on the purchase of your new Turbidity Plus. We are committed to customer satisfaction. If you need assistance, technical specialists are available to answer your questions at 408-749-0994 or toll-free at 877-316-8049. This Guide will help you set up the no connector and no housing versions of the Turbidity Plus so you can start collecting data as quickly as possible.



**Note:** Supply voltages greater than 15 VDC will result in damage to the sensor.

### 1 Connections for functional test for Turbidity Plus with no connector

Connect Turbidity Plus colored wires to the power supply and multi-meter as shown in Figure 1. Do **not** connect or ground the Blue and Yellow wires at this time. The wiper will be tested in Section 3.



**Note:** A visual test of the LED functionality for Turbidity Plus is not possible because it is IR which is not visible.

### 2 Functional Test Validation

With the Turbidity Plus connected as shown in Figure 1, make the following functional checks:

- The multimeter reads >0 VDC
- Moving the light source closer to your hand causes the output voltage to increase.

Color	Function
Red	Supply Voltage 3-15 VDC
Black	Supply Ground 0 VDC
Orange	Signal Out "+", 0-5 VDC
Green	Signal Ground "-", 0 VDC
Blue	Home Signal
Yellow	Wiper Trigger, 3.2 VDC

**3 Connections for functional test of the wiper for Turbidity Plus with no connector**

To perform a functional check on the wiper, connect the colored wires to the power supply and multi-meter following the steps below. Do **not** connect or ground the Yellow, Orange or Blue wires at this time.

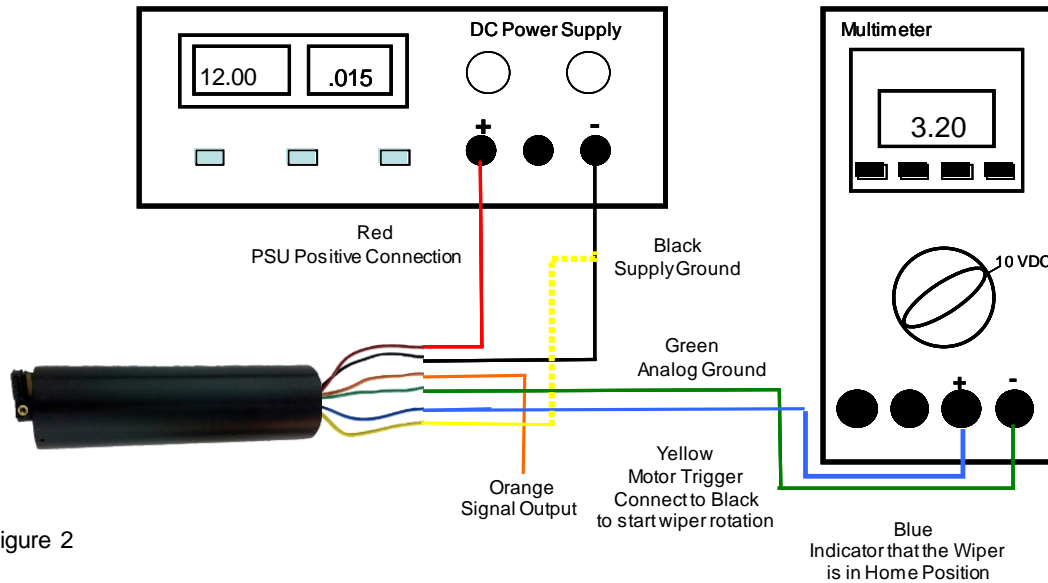


Figure 2

**4 Wiper Functional Test Validation**

To perform a functional check on wiper, connect the colored wires to the power supply and multi-meter following the steps below, shown in Figure 2.

- Disconnect the orange wire from the meter and connect the blue wire in its place. It should read about 0 volts.
- Briefly touch the yellow wire to the black wire.
- The wiper should start rotating and the meter should read about 3.2 volts until the wiper returns to its home position.

**Note:** The sensor has built in protection if the wiper becomes blocked and cannot move. In this case the wiper will stop and will try to return to the home position the next time it is triggered.

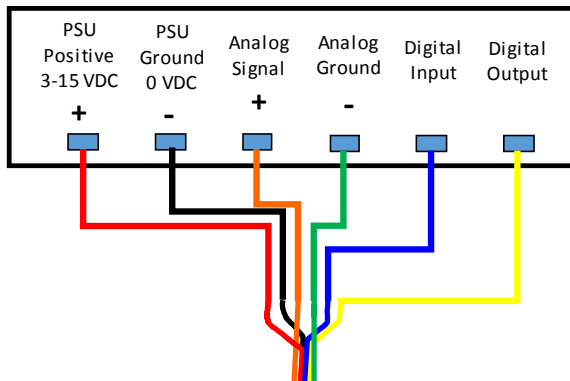
**Warning:** Do not move the wiper by hand. This can cause permanent damage to the sensor.

### 5 Integration of the Turbidity Plus with no connector

Once Turbidity Plus has been tested you can proceed with integration into your platform. Refer to the power requirements in Attachment A in the Users Manual to make sure that your system is set up correctly. Refer below for typical use with a data acquisition system wiring configuration.

**Note: The wire colors are different for connector versions, refer to Appendix D in the Users Manual for the colors.**

- Taking measurements
  1. Supply power to the sensor.
  2. The digital output to the wiper trigger should normally be a “1” or high and the digital input from the Home Signal should read “0” or low.
  3. Take readings if desired, readings are valid 3 seconds after full power is applied.
- To wipe
  1. Take the digital output to the wiper trigger momentarily low or “0”. The wiper will start rotating on the transition from high to low. The pulse low should be for a minimum of 50 milliseconds. Multiple rotations of the wiper can be achieved by sending multiple pulses on the trigger signal while the wiper is rotating. The wiper will rotate the number of pulses it receives.
  2. The home signal can be monitored on the digital input. It is normally a “0” or low. When the wiper is rotating this signal will go to a “1” or high.
  3. While the wiper is rotating (when the home signal is “1”) readings are not valid.
  4. When the digital input monitoring the home signal returns to “0” that means the wiper is in the home position and readings are now valid.



Color	Turbidity Plus	Function
Red	Supply Voltage	Power Positive
Black	Supply Ground	Power Ground
Orange	Signal Out	Analog Input Signal
Green	Signal Ground	Analog Input Ground
Blue	Home Signal	Digital Input
Yellow	Wiper Trigger	Digital Output