

Before you commence any attempt at installing this instrument it is your duty to familiarize yourself with the relevant aircraft equipment installation requirements and regulations of your country. Proceed only if you are certain that you are permitted to install this instrument or seek approval from the required authorities. Also note that in some countries only approved persons may perform the installation of this instrument.

This instrument has not been submitted to CAA or FAA approval of any kind. Although this instrument surpasses all known specifications, it has not been the manufacturers intention to submit this instrument for approval due to the large costs involved. In addition, the instrument is targeted for aircraft classifications that do not require or warrant such approval.

In particular the instrument is intended for use with:

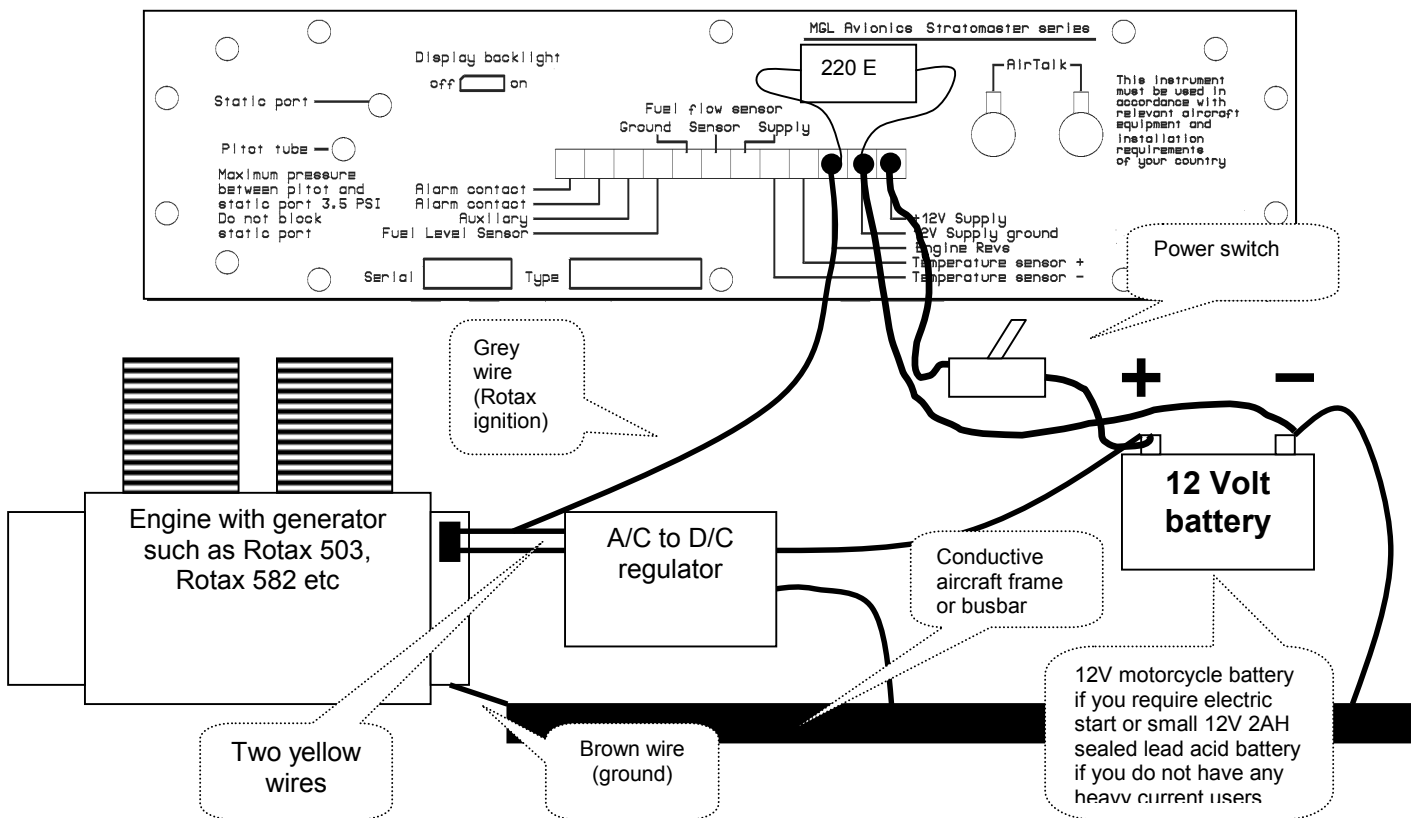
- Home built or amateur built aircraft
- Experimental aircraft
- Microlight and Ultralight aircraft
- Aircraft not falling in any of the above categories that may use non-certified instruments
- Aircraft having obtained special flight permits specifying the use of this instrument

Please note:

You should perform the following settings after installation:

1. ASI/VSI zero procedure.
2. Verify that Altimeter correction and ASI gain are set to the values noted on the calibration sticker of your instrument.

Rear panel view of the Stratomaster UL – Power and rev counter wiring



Please note that the above wiring suggestion is based on the following assumptions:

You want to use a Rotax engine with Ducati DCDI ignition;

You have a 12 Volt rechargeable battery. This would be a sealed or open lead acid battery in most cases;

Please note that the 220 Ohm ballast resistor has been installed between the ignition wire terminal and the 12V supply ground terminal. This resistor is only required for the Ducati system. It is possible to get unstable rev counter readings if you do not install this resistor.

Please note that the resistor can get fairly hot during operation of the engine so please do not install it in such a way that plastic or cable insulation could get damaged.

Wiring for engines other than the Rotax engines follows similar lines as above. A suitable signal for the rev counter can often be picked up from the A/C lighting coil outputs. Once you have established how many pulses are created per rev you can adjust the Stratomaster Flight in the "rev counter setup" menu accordingly.

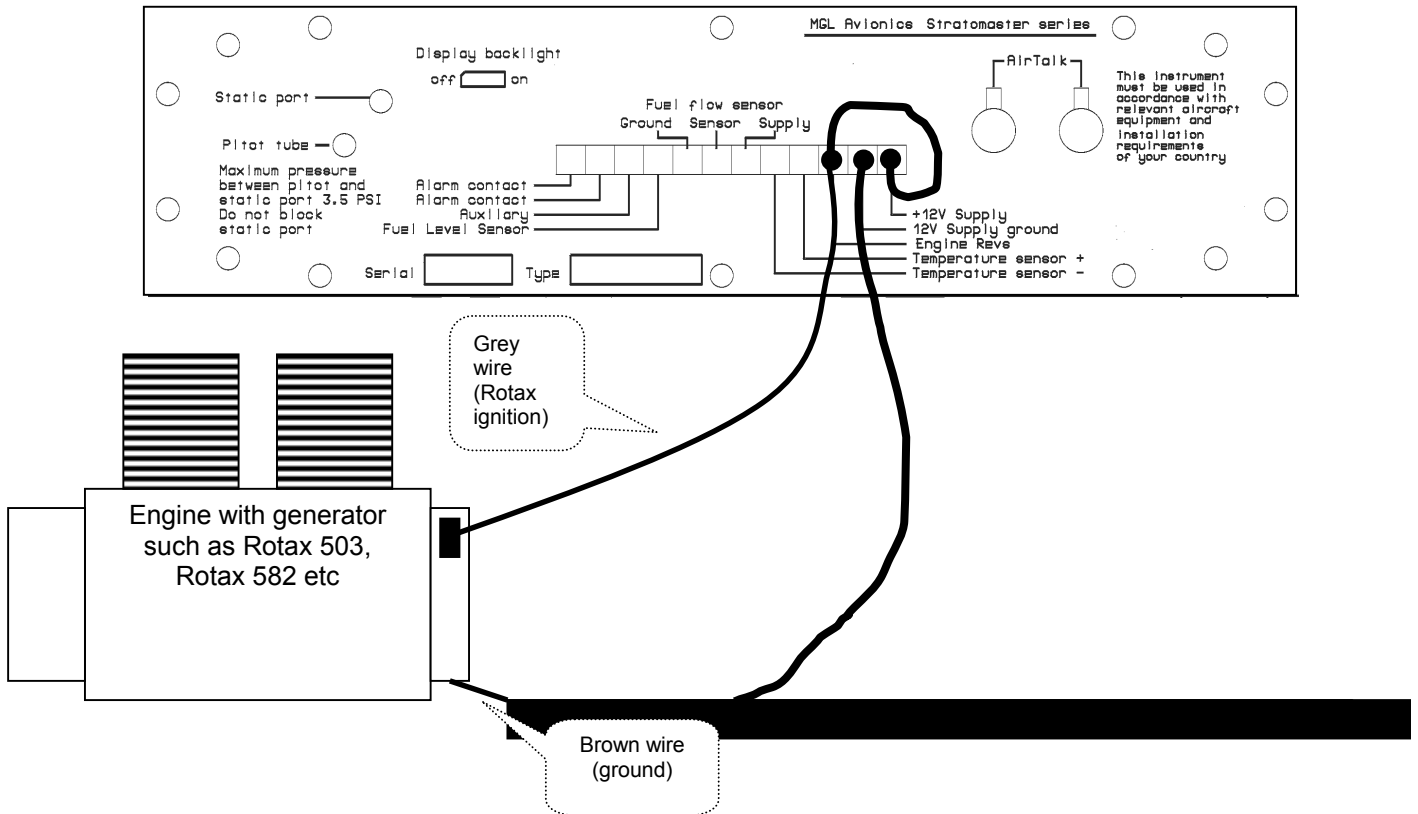
Here are some typical figures:

Rotax 503 DCDI, 582 DCDI – 6 pulses per rev.

Rotax points ignition – 2 pulses per rev.

Rotax 912/914 – 1 pulse per rev.

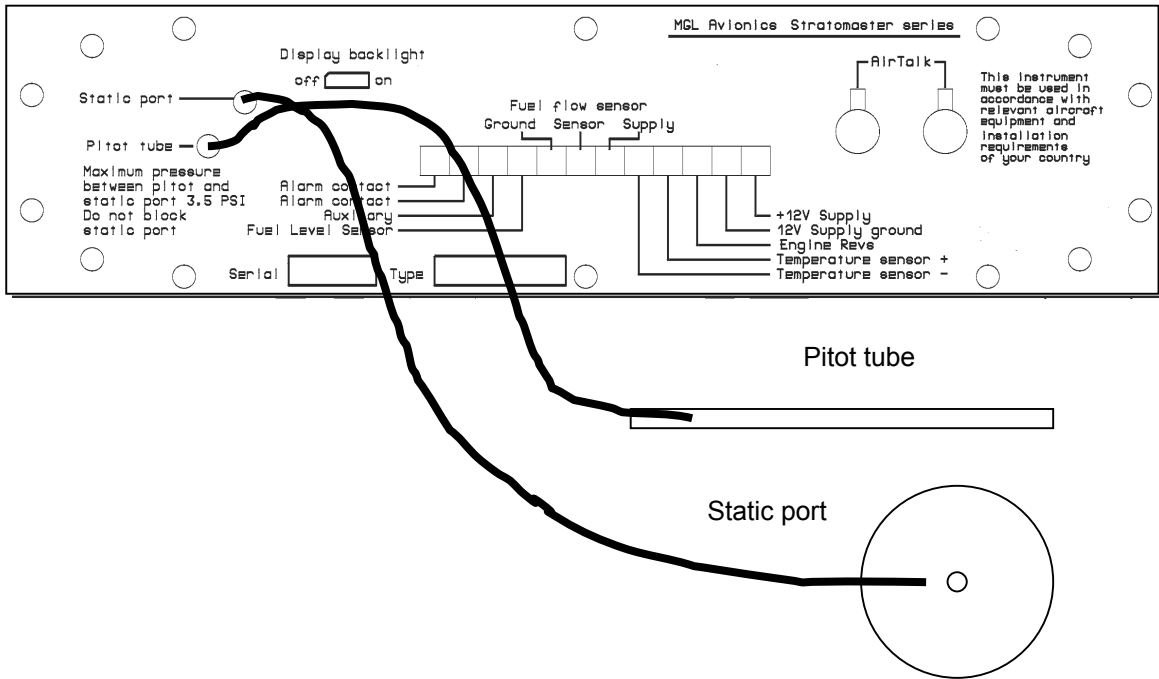
Stratomaster UL rear view – Power supply wiring if engine power is to be used directly (no battery)



It is possible to power the Stratomaster UL directly from the ignition system of a Rotax DCDI or similar system. In this case simply wire the grey rev counter wire to the +12V Supply terminal as well as the rev counter input. In this case you might not need to install the 220 Ohm ballast resistor but we recommend that you do so anyway. This will lead to a more stable rev reading on some engines.

MGL Avionics recommends that you consider using a rechargeable battery instead as shown in the previous diagram. This will allow you to operate the instrument even if the engine is not running. Due to the low power consumption of the Stratomaster UL it is quite OK to use a rechargeable battery even if you do not install a regulator. In many cases a small 12V lead acid battery (such as used with alarm systems) will power the instrument for a few days of continuous operation before you need to recharge using a simple car battery charger.

Rear Panel view of Stratomaster UL – Pitot and static port

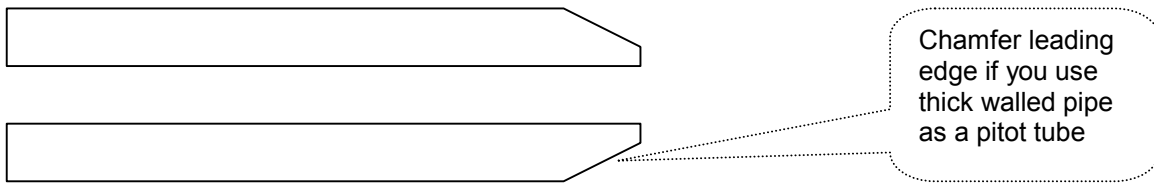


Pitot tubes are found in a large variety in at your aircraft parts shop, in mail order catalogs or you can make your own.

Stratomaster Flight contains a sensitive silicon diaphragm sensor that measures the pressure difference between the pitot pressure port and the static port. This measurement is used to calculate the airspeed. In addition, the static port is connected to the altimeter sensor.

Contrary to popular belief, Pitot tubes are not carefully designed and calibrated but are simple orifices or tubes that get pointed in the direction that you are flying. The forward movement of the aircraft causes air to dam inside the pitot tube. This increases the pressure inside the tube. The Most small aircraft such as ultralights or microlights do not require a connection to a static port. In these cases, simply leave the static port open. Ensure however that the static port does not receive pressurized air due to the forward movement of the aircraft. Static ports are usually mounted at a strategic position on the rear side of the aircraft fuselage for faster, pressurized aircraft.

Suitable pitot tubes can be made from a short piece of hollow aluminium or copper piping. Length and diameter are not important. Ensure that the front of the pitot tube has a suitable chamfer if you use thick walled tubing or you may introduce a speed reading error if you have a faster aircraft.



Example cross-section of thick walled pitot tube.

Suitable connection hose for both pitot tube and static port can be obtained from a hardware store or even a pet shop. Good quality tubing is often used for fish tanks and it has just the right diameter.

Please note that this kind of tubing is not advised for pressurized aircraft. In this case you would need to obtain aircraft grade tubing of suitable diameter. You would also have to use hose clamps to fasten the hose onto the Stratomaster pitot and static ports.

The Stratomaster Flight instrument allows you to calibrate the airspeed reading. This is done in the “Menu” under section 4.1 “Set ASI Gain”. The main reason for this is to be able to remove errors introduced due to the airflow around your aircraft which may have an effect of your pitot tube pressure build up.

If you have a GPS receiver with a ground speed function you can use this as reference after allowing for any winds (Choose a wind still, absolutely calm day if possible).

You should also compensate for density altitude before you correct the ASI reading. It is quite normal to under-read on the ASI if you are flying at higher than sea level in moderate or high temperatures. The manual gives examples on how to calculate true airspeed (TAS) from your indicated airspeed (ASI)

Zeroing the air-speed sensor.

It may be required from time to time to zero the airspeed and VSI readings. This will be true if you are reading a small VSI or ASI when the aircraft is standing still on the ground.

Ensure that the readings are not caused by winds or other factors before performing the zero calibration. Also, ensure that no wind is blowing into the pitot tube. The procedure is outlined in section 4.2 "Zero ASI/VSI". It is quick and easy and will ensure that your Stratomaster Flight will perform at its best at all times.