

# IEFIS Lite quick calibration and checkout

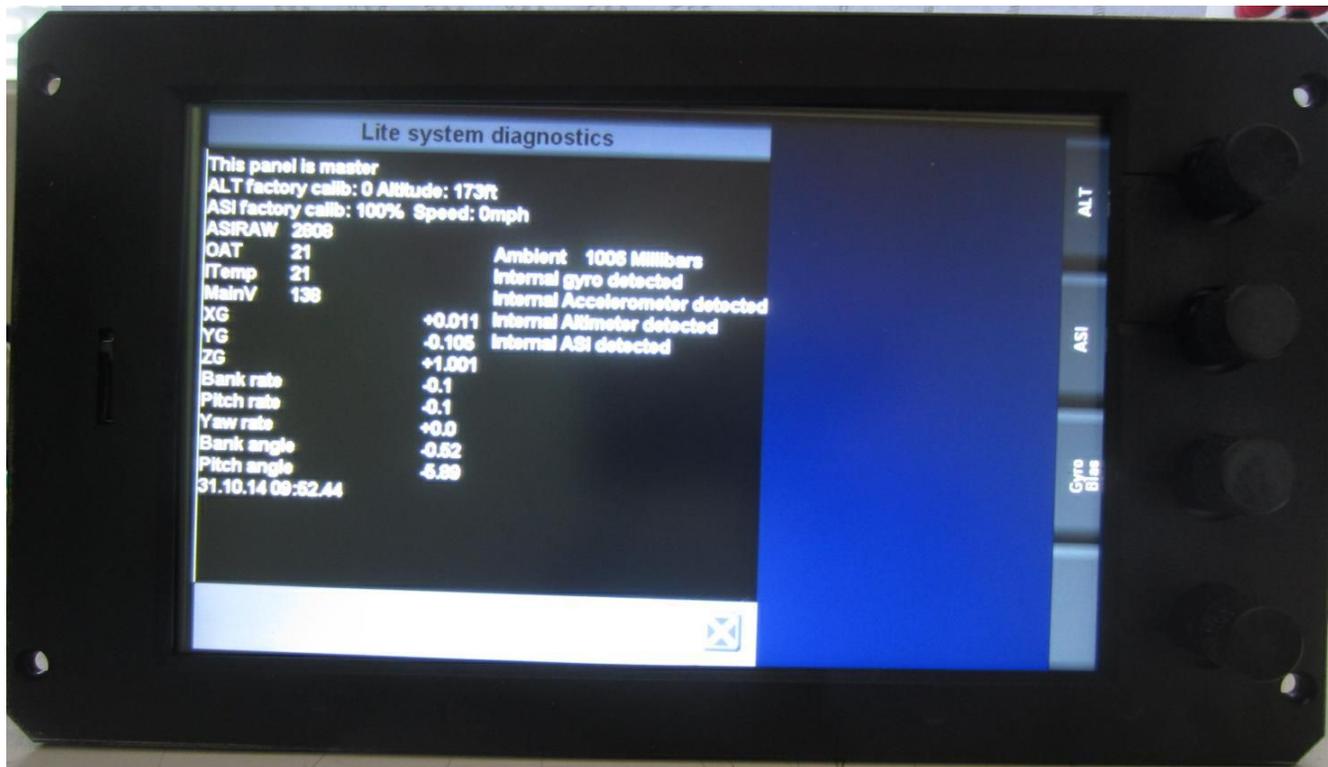


This document describes the “Quick calibration and checkout” function of the iEFIS Lite.

Preliminary documentation

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## The quick calibration and checkout function



Press the rotary control 1 and 3 down (rotary button function) with the EFIS switched off, then, while holding the two controls down apply power. The above display will show.

### ***Panel master/slave***

This line shows the current panel selection (for dual panel systems). This selection is set in the systems operation menu.

### ***ALT factory calib***

This line shows the current factory calibration value for the altimeter (this value should agree with the value shown on the rear of your instrument). You can change this value to cater for aging of the sensor if needed. Note that there is a separate user calibration value which would normally be used for this. The User calibration is adjusted in the internal and external sensor setup menu.

Note: The altitude shown here is with respect to a barometer setting of 1013.25 mB (29.92"Hg).

You can adjust the factory calibration by rotating the ALT rotary control. Note that any changes will only be saved for future use if you exit this screen by tapping the [X] on the bottom right of the window.

This calibration should be performed after the instrument has been running for 10 minutes or longer to allow the sensor to stabilize.

## ***ASI factory calib***

This line shows the current factory calibration value for the airspeed indicator (this value should agree with the value shown on the rear of your instrument). You can change this value to cater for aging of the sensor if needed. Note that there is a separate user calibration value which would normally be used for this. The User calibration is adjusted in the internal and external sensor setup menu.

Important: This calibration should be performed with a pressure applied to the pitot port equivalent to an indicated airspeed of 90 mph. The value is a percentage difference to a nominal 100%.

You can adjust the factory calibration by rotating the ASI rotary control. Note that any changes will only be saved for future use if you exit this screen by tapping the [X] on the bottom right of the window.

Note: You can also set the zero point of the ASI using the ASI rotary control. To do this ensure that the pressure at the pitot and static ports are exactly the same and then press the ASI rotary control (button function). You will be asked to confirm when ready.

Note: Before adjusting the factory calibration the zero should be performed first.

Both calibrations should be performed after the instrument has been running for 10 minutes or longer to allow the sensors to stabilize.

## ***ASIRAW***

This is a diagnostic value only. It shows the raw ADC reading obtained from the ASI sensor.

Typical values with no pressure applied between pitot and static ports are in the 2000-4000 counts region. Values outside this range tend to signal a fault.

## ***OAT and iTEMP***

These values normally read the same and show the temperature measured by an internal temperature sensor. For aircraft where the temperature of the panel will be close to the ambient temperature this can be used as OAT simplifying installation. Note that there is a calibration in the Internal and External sensor setup menu for this so you can compensate for small differences.

In case an external OAT sensor is fitted, the OAT will show the temperature as measured by that sensor (requires the iEFIS Extender module).

## ***MainV***

This is the supply voltage as measured by the EFIS. It is shown in steps of 0.1 Volt so in the image here we have a voltage of 13.8V. There is a calibration for this in the Internal and External sensor setup menu.

## ***XG, YG, ZG***

These are the three accelerometer readings expressed in units of gravity.

X is the roll direction, Y is the pitch direction and Z is measured in the down direction so with the panel in its normal orientation you should get a reading of 0G on both X and Y and 1G on the Z axis.

There is a calibration function for this: Press the “Gyro” rotary control (button function) and then place the EFIS so the screen is exactly vertical in the up/down axis and horizontal in the roll axis (use a spirit level to ensure this).

After confirmation the EFIS will take a few readings and use these to remove any unwanted sensor bias in order to arrive at the desired readings.

Note: Performing this function requires that the EFIS is kept absolutely still during the process. Never perform this function in flight.

If this function is used incorrectly your AHRS performance can be severely compromised.

Result is saved immediately.

## ***Bank rate, Pitch rate, Yaw rate***

These lines show you the three measured rotation rates from the gyro in units of degrees per second. This is raw, unfiltered data as received from the gyroscope and will be somewhat “noisy” with short excursions by as much as 0.4 degrees/s. This is expected.

There is a calibration function that allows you to reset the gyro bias. Bias is the unwanted reading of a rotation when there is none. Rotate the GYRO rotary control in any direction to activate the bias correction. After confirmation be sure that the EFIS will rest absolutely still for a few seconds (the time it takes to perform the operation).

Result is saved immediately.

## ***Bank and Pitch angle***

These lines show you the actual bank and pitch angles as calculated by your internal IMU. These readings are based on measurements of the three gyroscopic rates, accelerometer readings and velocity from GPS or airspeed readings as well as related information such as turn rates etc. This is the result of a process commonly known as “sensor fusion” and represents a best estimate based on available data.

Note: This AHRS type is often referred to as an ADAHRS or “aided” AHRS.

## ***Date and Time***

This line shows you the current date and time as read from the internal real time clock. There is also a way to set the date and time: Press rotary control 4 (button function) to activate the entry window for the date and time.

## ***Loading a sound file from SD card***

If you press rotary control ALT you activate a function you can use to copy a sound file to the internal SD card.

The sound file has the file name "SOUNDS.ESD". It is available in male and female voice from [www.MGLAvionics.co.za](http://www.MGLAvionics.co.za) and you can also create your own using the Enigma Voice application. This file contains all of the voice phrases and signal tones used with the audio output.

Note: The Sound.esd file is simply copied to the internal SD card route folder. You can also do this using the File manager. The file is read into internal memory on system start only so you need to restart your EFIS to use any newly installed file.

### ***Ambient pressure***

This line shows the ambient pressure in the selected units of measurement (millibars or inches of mercury). This is derived from the altimeter and effectively is the actual pressure at your static port.

### ***Detections***

These four lines show if Gyro, accelerometer, ASI and altimeter sensor devices have been detected. This is mainly used for a quick conformation of basic sensor functionality.