



# **ADL165**

## **User and Installation Manual**

**Preliminary information – Device is not yet available**

Version 1.00

07.02.2024

## 1 Version History

Version 1.00 published 07.02.2024

## 2 Page Index

This manual contains numbered pages 1 to 10.

## 3 Possible Interference

If you suspect any malfunction of the ADL165 or interference with aircraft systems, please switch off the device immediately. Do not restart the device until the problem has been investigated and resolved on the ground.

## 4 Weather Warning

While we do every possible effort to ensure quality, the ADL165 devices might not work at any time. In addition the system may display false information. **NEVER PENETRATE WEATHER BASED ON THE INFORMATION PROVIDED BY THE ADL165** This information is for situational awareness only. The device features a GPS moving map system. This system is designed to display the aircraft position in relation to the weather data. **THE ADL160 IS NOT SUITABLE AS A MEANS OF PRIMARY NAVIGATION.** Especially the build in database is not updated in a regular aviation cycle. It is also not maintained to the standards of certified aviation databases

## 5 General Description ADL165

The ADL165 is a small size satellite weather receiver designed to be placed on the glare shield in the aircraft. It is powered via Micro USB (5V). The ADL165 can be used as a mobile device or can be installed permanently.

## 6 Certification ADL165

The ADL165 can be installed permanently but currently there is not yet any paperwork available. So this option is limited to experimental, ultra light aircraft or situations where you generate your own paperwork.

## 7 The Iridium satellite service

Before you can use the ADL165 you have to subscribe to one of our Iridium satellite service plans. Please login to the ADL customer portal to order the different service plans:

<https://www.ing-golze.de/login.jsp>

If you have no login yet, please contact us by email at [mail@ing-golze.de](mailto:mail@ing-golze.de).

PLEASE NOTE: The ADL165 will show satellite signal even without an active satellite service plan and will even be able to transmit data. But this data will not be processed and the device will receive no data.

## 8 General Operation

The ADL165 is designed to be as simple as possible. Place the device on the glare shield with the rounded side facing up. This is important as the internal antenna will not work when upside down. Then power the device by connecting a Micro USB cable. Note there are no switches or similar on the ADL165. Once it receives USB power, it starts until power is cut.

## 9 USB Power Supply Details

The quality of the USB power supply is crucial. USB is specified at 5V but there will be loss in cables etc. When operating the ADL165 you can check on the Config page of the ADLConnect app the actual voltage measured by the device. That should not be below 4.7V to 4.8V or there could be outages when the ADL165 is communicating with the satellite. Also the voltage should be as stable as possible when the ADL165 transmits and uses more power. Some low quality USB outlets might not keep up with that. Also using low quality or long USB cables can cause issues. On average the ADL165 will consume approximately 500mA at 5V.

## 10 External Iridium Antenna

On the back side the ADL165 has got a MMCX connector which allows connecting a separate wired Iridium antenna. This antenna will then work in parallel to the Iridium antenna internal to the ADL165. Configurations where the ADL165 is placed on one window and the second antenna is placed on another window opposite are possible or also configurations where the ADL165 itself does not have any view to the sky and it then operates only with the separate antenna. A typical 90 degrees MMCX connector usually works best for the connection.



Figure 1 ADL165 Back side with MMCX Iridium antenna connector

## 11 Interconnect Options

The ADL165 supports all WiFi GDL90 interconnect options available on nearly all ADL devices. This means you can interface to ForeFlight, SkyDemon and other WiFi GDL90 compatible apps. But the ADL165 does have pins on its bottom side for a wired connection. Specifications for this interface will follow at a later date.

## 12 ADL165 Sending Wireless Data to GTN650/750, G500/G600/G1000, G3X etc.

The ADL165 can send weather data wireless to compatible displays as so called “FIS-B” data. It is important to make sure the receiving installation is able to receive FIS-B ADS-B in.

This is a list of the typical compatible receivers:

- Garmin GTX345 (and all its versions like GTX345R, GTX45)
- Garmin GDL39 (and all its versions like GDL39R)
- Garmin GDL50 (and all its versions like GDL50R)
- Garmin GDL52 (and all its versions like GDL52R)
- Garmin GDL88
- Lynx NGT-9000

The display devices able to display the data are (among others):

- Garmin GTN650/750 (and all its versions)
- Garmin G500/G600/G1000/G3000
- Garmin G3X (and its versions)
- Garmin GPS695 and many more Garmin portables
- Avidyne IFD440/540, EX5000 but please note those can usually be connected in an easier way with a direct RS232 link (see above)

According to the device type and capabilities set the ADL165 UAT in the hardware configuration on the Conif page of the ADLAonnect app. Available settings are “Avidyne” “Garmin Basic”, “Garmin Full”, “G100/NXi”. The difference between Garmin Basic and Garmin Full is that Basic only contains METAR/TAF and radar while full adds satellite and lightning data. Not all displays can process those, so choosing basic can speed up processing for displays not capable of showing more data anyway.

## 13 Wireless Interconnect – FIS-B

As detailed above in the chapter “ADL190 or ADLS1G Sending Wireless Data to GTN650/750, G500/G600/G1000, G3X etc” the ADL system can communicate wireless with a compatible receiver and transmit traffic and weather data.

## 14 Dimensions

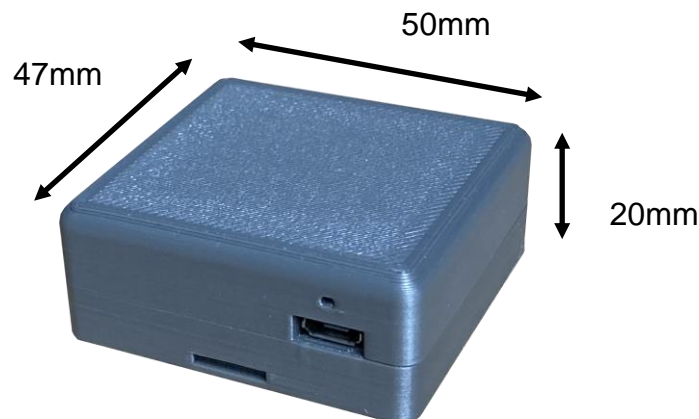


Figure 2 ADL165 Dimensions excluding USB cable (in millimeters)

## 15 Heat Considerations

The ADL165 is supplied in grey color to reduce the heat buildup in direct sunlight, compared to a black enclosure, and still minimize visual disturbances in the front window. We do not recommend painting the enclosure black or similar as overheat situations might result. The device is tested to be stored and operated between – 20°C and 60°C. If you operate in extremely hot climates and experience heat related issues, please contact us and we might be able to provide a lighter color enclosure. Often you can also protect the device from some heat by placing it below the glare shield unless it is made of conductive material shielding the satellite signal. An ad hoc solution can also be to protect the ADL165 below a white piece of paper or similar.

## 16 Placement and Optional Installation

The ADL165 contains an internal Iridium and GPS antenna. This is a directional antenna. The device has to lie in the right side as shown below to get good view of the sky. We recommend placing the device on the glare shield. Do not place the device upside down or satellite reception will be very poor.



Figure 3 ADL165 on the glare shield in the right orientation

If you wish to install the ADL165 permanently, attach it to the glare shield with double sided adhesive or velcro. You can also place the device below the glare shield if it is made from non conductive material. In that case please make sure the same side with

the round corners faces up and glue it to the glare shield with non metallic adhesive or velcro. Make sure there are no metal parts like fasteners or similar above the device.

## 17 Connecting your iPad/iPhone/Android device to the ADL165

After powering up the ADL device you have to connect your portable device to the WiFi access point provided by the ADL device. Go to the settings screen of your device. We show this step for the Apple iPad but other devices will work in a similar way. Choose "Wi-Fi" on the left side. Then on the right side you will see the network "ADL Connect". Choose this network and make sure the iPad really connects to the ADL Connect wireless network.



Figure 4 iPad Wi-Fi Settings

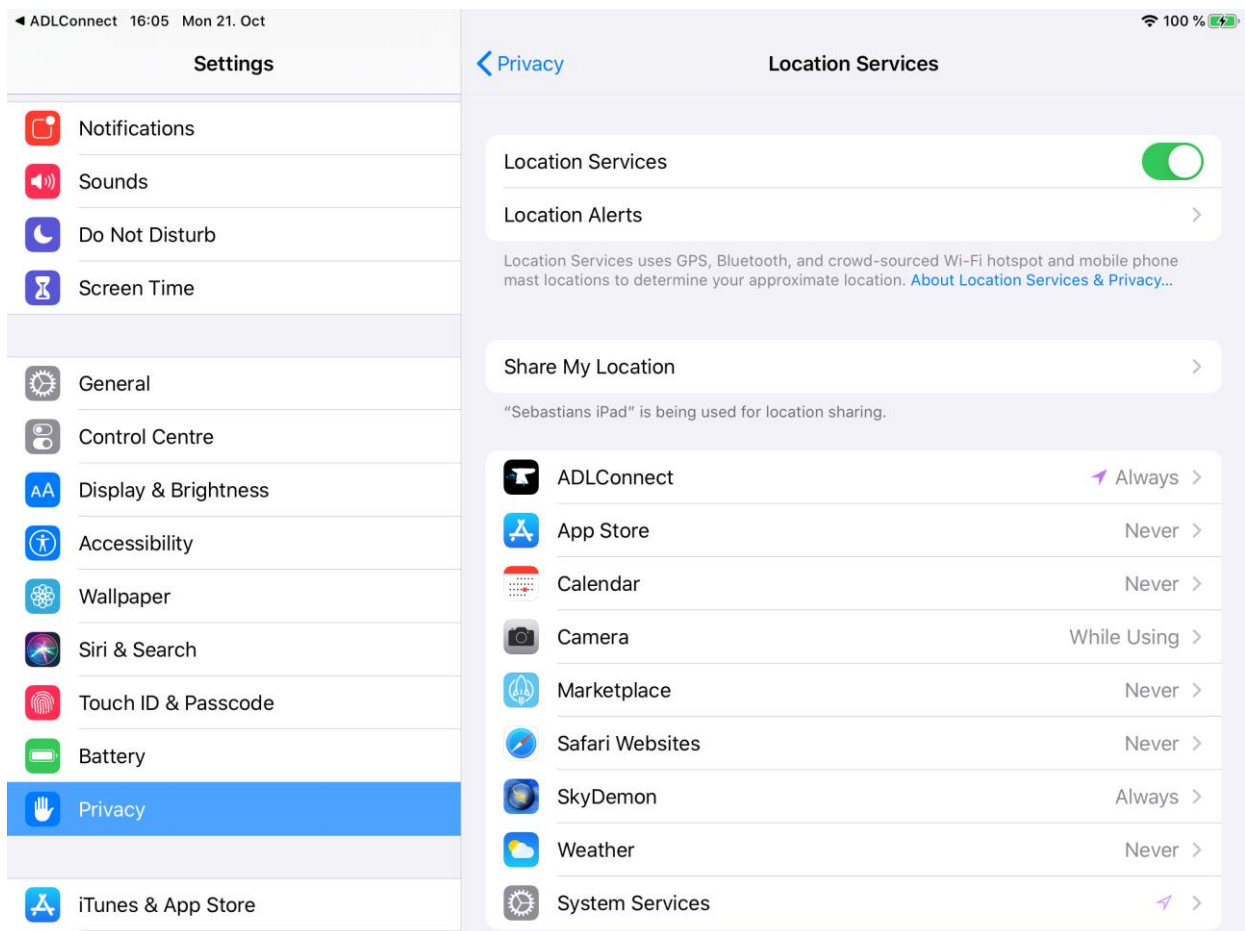
## 18 Installing the ADLConnect App and Login

Before you can start to use the ADL with your mobile device, you have to install the ADLConnect iPad app. On Apple devices open the app store and search for “ADLConnect” and install the free app. On Android devices please open the Google play store and also search for “ADLConnect”.

When starting the app the first time, it will ask you to log in with the email and password supplied to you by us on purchase of the ADL device. Please refer to the ADLConnect documentation for the detailed usage of the ADLConnect app.

## 19 Important ADLConnect Privacy Setting

When running iOS 13 or later it is essential to configure the location privacy setting properly. The setting should be shown in the following screenshot. Enable the location services and authorize ADLConnect to use this information "Always". ADLConnect will only use this privilege when connected to an ADL device, else it will not use your location. But disabling the location can cause severe issues regarding the WiFi communication between the ADLConnect app and the ADL device.



## 20 Your first weather download

Go to the Download page. Select Radar / Infrared / Strikes / Minima: Download and Wind / Temps: Download. Select an appropriate flight level range for the wind data. Finally select one or more ICAO codes for which you would like to download the METAR and or TAF. Then press "Single ADL Download" and the download will start. A satellite download will take an average of 2 minutes but this can vary a lot depending antenna and satellite position etc.

Please note that Iridium satellites move very fast over the sky. Thus, the reception will vary all the time and a bad or good connection at a single moment does not say much about the general quality of the reception.

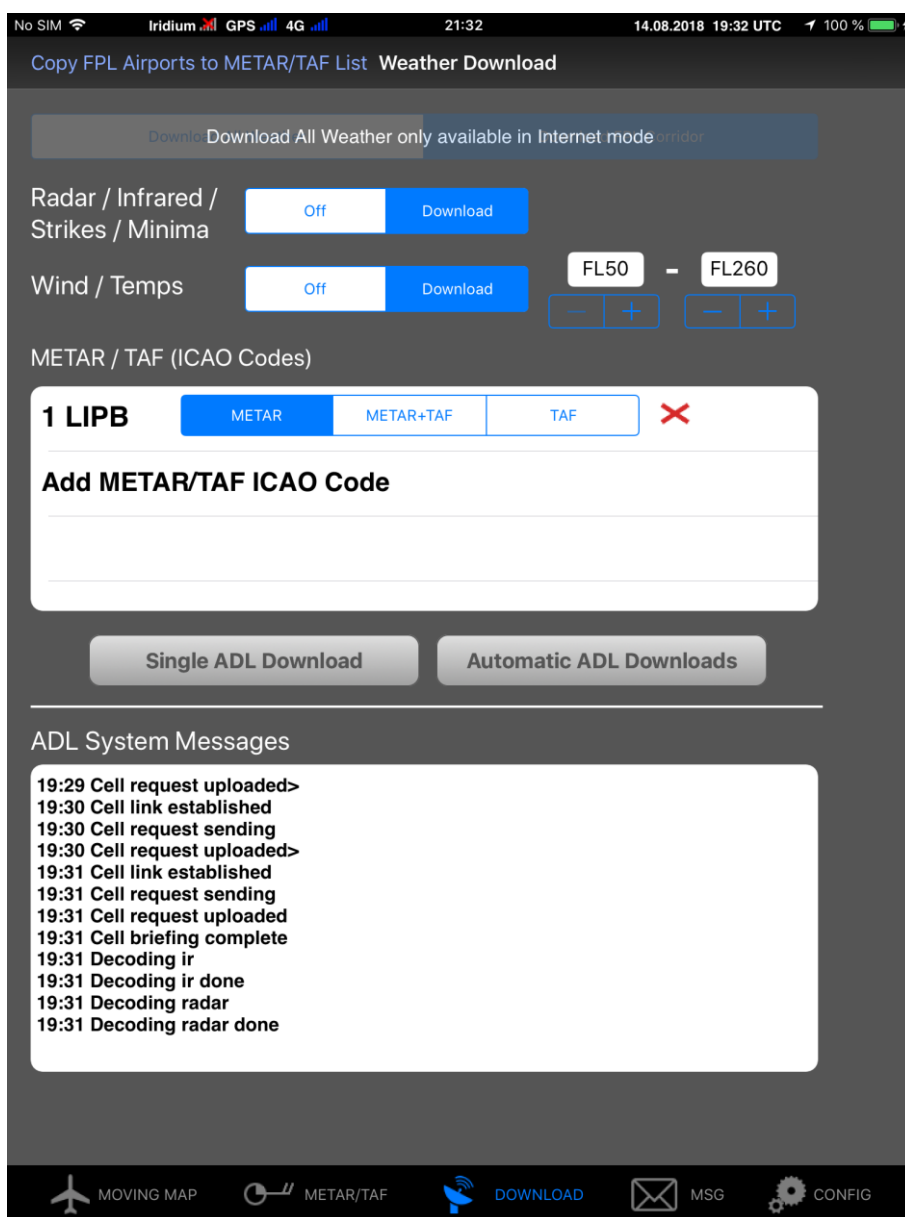


Figure 5 Download Page



Finally you can see the weather information on the moving map page. Please note that the weather information is downloaded as a corridor along the flight plan you did enter. Therefore enter at least the destination of your flight in the flight plan table right to the moving map to get the weather for your whole flight path.

## **21 ADL165 Technical data**

- Operating and storage temperature range -20 to 60°C
- Dimensions: 50 x 47 x 20mm
- Mass: 60g
- Requires USB micro power, 5V, 500mA minimum

## **22 Contact**

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