



# **ADL120**

## **Installation Manual**

Version 1.01

12.03.2014

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## 1 Version History

Version 1.00 published 07.09.2013

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## 2 Page Index

This manual contains numbered pages 1 to 15.

## 3 General Description

The ADL120 is a flight data link device. It allows downloading weather data while in flight. Besides it features in flight SMS communication. The data link works through the Iridium satellite network with global coverage. The data is transmitted to an iPad via WLAN and displayed using the ADLConnect application.

## 4 Mobile operation vs. permanent installation

The ADL120 can be used as a mobile device or installed permanently.

## 5 Certification ADL120

The ADL120 can be installed permanently in certified aircraft if a suitable minor change is used. The device itself does not come with any certification. Please consult the minor change documentation for details.

## 6 Disclaimer

The ADL120 is provided as a non certified component. The only basis on which it can be installed is an appropriate minor change. It is the sole responsibility of the user and installer that is installed and used in a legal way. The device may stop working at any time. Do not undertake flights you would not undertake without the ADL120.

## 7 Warning!

While we do everything we can to ensure quality the ADL120 devices might not work at any time. In addition they may display false information. **Never penetrate weather based on the information provided by the ADL120.** 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. It is not designed 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.

## 8 Emergency procedures

If you suspect any malfunction of the ADL120 or interference with other aircraft systems, deactivate the device by pulling / deactivating the aircraft circuit breaker for the device or pulling the cigarette lighter plug whichever is applicable. Do not reactivate the device until the problem has been investigated and resolved on the ground.

In case of a generator failure or similar situation requiring electric load shedding, deactivate the ADL120 by pulling / deactivating the aircraft circuit breaker for the device or pulling the cigarette lighter plug whichever is applicable.

## 9 Dimensions

Figure 1 shows the outside dimensions of the ADL120 enclosure excluding the connectors.

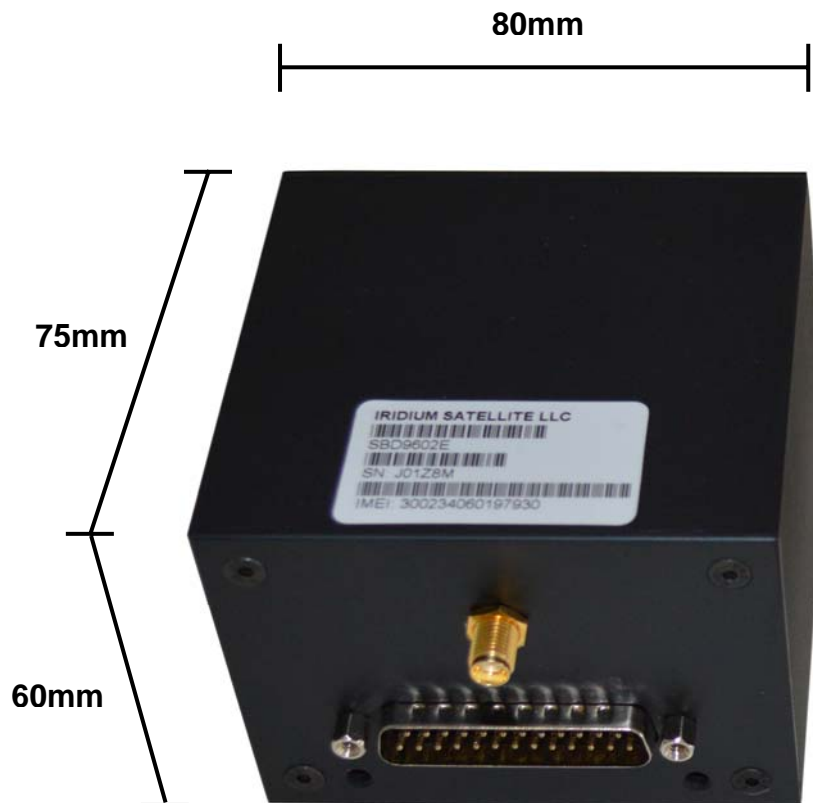


Figure 1 - Dimensions of housing

The front and back plate of the ADL120 contain two M4 threads each. These threads can be used to attach the ADL120 to the aircraft. Figure 2 show the exact dimensions.

The mechanical installation has to be adapted by the installer to the individual situation in the aircraft.

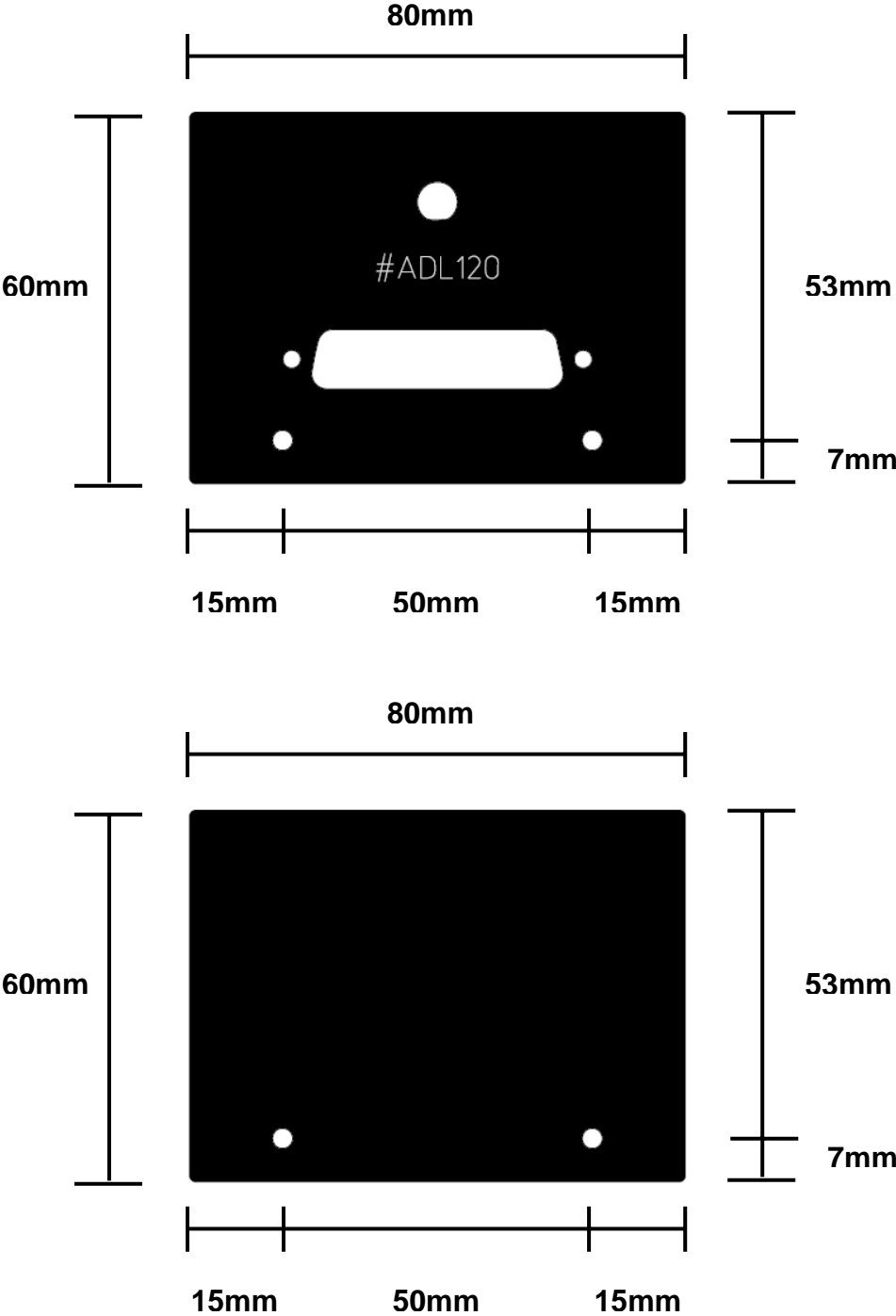


Figure 2 - Location of the M4 threads on the front and back side of the ADL120

**10 Optional external display**

As optional equipment an external display unit can be connected to the ADL120. The following figures show the dimensions of this screen:

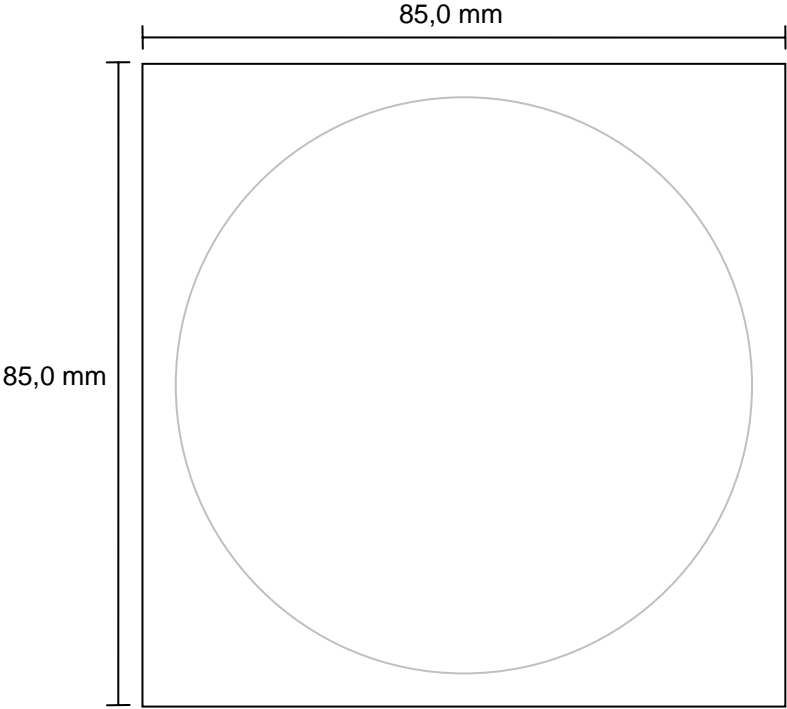


Figure 1 - Front dimensions of external screen

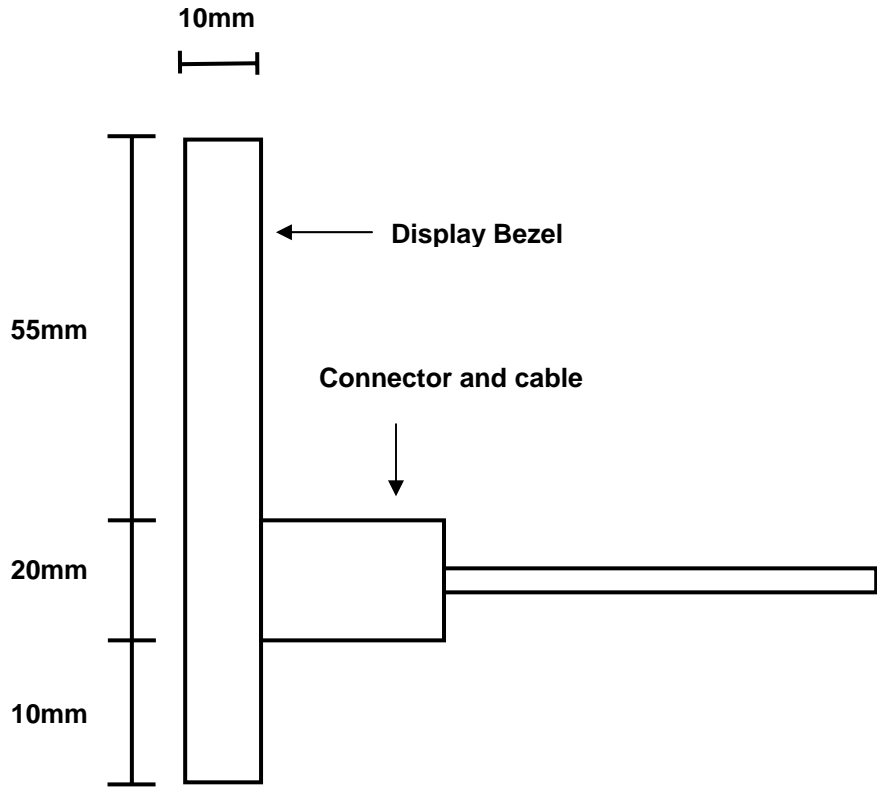


Figure 2 - Side view of external screen

## 11 Installation

### 11.1 Inspection

Inspect the ADL120 and all supplied parts for condition and completeness. Verify on our website that you have the most up to date version of this installation manual.

### 11.2 Iridium Antenna

The device uses an Iridium antenna to communicate with the Iridium satellite network. This antenna is also used by the build-in GPS receiver. If an outside mounted Iridium antenna is available, this will represent the best solution. If such an antenna is not available we recommend using an antenna mounted on the instrument glareshield. This will provide good reception at a much lower cost than an outside antenna installation.

The antenna will be connected to the device using a SMA connector. If your antenna does not come with such a connector it must be crimped on the cable.

#### 11.2.1 Glareshield antenna installation

In the case of a glareshield installation we recommend the **Iridium SYN7391-C** antenna. This antenna has been tested with good results and the antenna does not incorporate any magnetic mount which could deviate the magnetic compass. In general you should try to place the antenna as far forward as possible in order to give it the best panoramic opening to the sky possible.

Figure 5 shows such a glareshield installation of the SYN7391-C antenna.

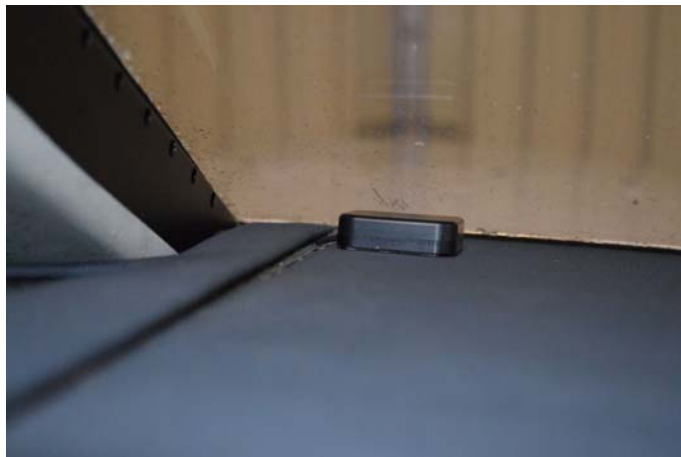


Figure 5 – Iridium SYN7391-C antenna on glareshield

#### 11.2.2 External antenna installation

We recommend the use of the S67-1575-109 antenna manufactured by Sensor Systems Inc. Before attempting the installation of any outside antenna and drilling any holes in the hull, please make sure you have the required documentation and certification. For any certified aircraft a minor or even a major change will be required.



Please note that the ADL120 does not provide any lightning protection. When using an external antenna, the antenna must be grounded and provide full certified lightning protection.

### **11.2.3 Antenna testing**

Please note that the Iridium network requires a better view to the sky than the GPS receiver. Therefore make sure the antenna is placed properly and when testing do not place the aircraft next to a big hangar or similar objects obstructing the sky.

### **11.2.4 External screen installation**

The drilling scheme on the external screen matches exactly the drilling scheme of our product ADL110 / ADL110B. Please look up the drilling pattern and installation options in the installation manual for these devices.

If possible avoid disconnecting the supplied cable from the display. If you want to shorten the cable etc. always do so at the 25 pin D-Sub connector end as this will be a lot easier.

The external screen can also be attached to a Ram Mount attachment. If you want to do so please contact us for details.

## 12 Wiring ADL120

### 12.1.1 25 D-Sub connector- voltage and aviation data

The device must be connected to the electrical power distribution system of the aircraft. The connector on the device is a 25 pin male two line D-Sub connector. The device will accept DC 7V to 30V. We recommend installing a 1A circuit breaker in line with the ADL120. For additional protection the device has got an internal fuse rated at 1,6A. The maximum power consumption will be 6W.

The ADL120 provides the optional possibility to interconnect the device with a FMS/GPS navigator transmitting the current route/flightplan information via RS232 to the device. **This communication is one way only.** The ADL120 will only act as a receiver. The supported data format is the “Aviation” data format. The device has been tested with the Garmin 530/430/650/750 series devices. If you wish to connect other flightplan sources please contact us.

Please note the Aviation In feature when connected must be activated in the software on the “FPL” page using the right side button “FPL IN”.

Please consult the installation manual of your FMS/GPS for the required pin configuration. Please note that usually the **Garmin 430/530 devices will only be able to supply aviation out data on one RS232 port at a time.** Therefore if you have multiple devices requiring the aviation data you will have to physically connect them to the same pin.

1	GND
2	Manufacturer use
3	RS232 IN - Aviation data input
4	Manufacturer use
5	Manufacturer use
6	Manufacturer use
7	Manufacturer use
8	Manufacturer use
9	Manufacturer use
10	5V out for external display
11	Manufacturer use
12	Manufacturer use
13	Manufacturer use
14	Manufacturer use
15	USB red line or blue line from optional external display
16	USB white line or white line from optional external display
17	USB green line or green line from optional external display
18	Yellow line from optional external display
19	Brown line from optional external display
20	Manufacturer use

21	Manufacturer use
22	Vcc 7V - 30V DC
23	GND
24	GND
25	GND

Table 2 - 25pin D-SUB pin description

### 12.1.2 Antenna connector

The device features a rear SMA input. The Iridium SYN7391-C antenna will be delivered with the correct connector.



Figure 12 – SMA connector

### **13 Cooling**

Generally the ADL120 does not require any means of active cooling. If mounted in a position where the specified temperature limit might be exceeded, additional air cooling should be implemented.

### **14 Post installation checkout**

Disconnect the power connector. Turn on the aircraft electrical system and measure the voltage at the connector is within specification. Turn the aircraft power system off and reinstall power connector.

Verify the wiring is secure and has no interference with any other electrical or mechanical system. Especially make sure the wiring is free of any flight control systems.

Turn the aircraft electrical system on and verify the ADL120 is running. Place the aircraft in a position with good panoramic view to the sky. Verify the device has got Iridium and GPS reception using the iPad application. If the GPS has not been running recently it may require several minutes to get a fix. The Iridium system will usually get a satellite fix much faster.

In order to start an Iridium transmission the software will require a minimum of two Iridium signal quality bars as experience has shown that below this level, transmissions may become unreliable. Do a test run and download a METAR for an airport (for example EDDB).

Please note: A test transmission will only be possible if at the time of installation the Iridium data contract for the device has already been activated.

Verify the rest of the avionics system in order to assure that no other systems have malfunctions after the installation.

### **15 Documentation**

Produce detailed installation documentation. Join this documentation including this manual to the aircraft records.

Join the current ADL user manual to the pilots operation manual.

### **16 Continued maintenance**

No regular maintenance is required.

### **17 Software and database updates**

Please contact us for information on software and database updates.

## 18 Troubleshooting

Verify all connectors and proper power supply. Inspect the device for visible damage. The device does not contain any field serviceable parts. If the device is believed to be defunct please contact us for repair.

## 19 Specifications ADL120

Voltage:	7 to 30V
Circuit breaker:	1A
Internal fuse:	1,6A
Maximum consumption:	6W
Temperature range operation:	-10 to 50°C
Temperature range storage:	-20 to 70°C
Weight excl. installation material:	425g

## 20 Part number reference

Partnumber	Description
ADL120	Datalink weather device
EXT120	Optional external Touchscreen for the ADL120

## **21 Contact**

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