SF30/D altimeter

Display for SF30/D

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bsi. ISO 9001:2015 Quality Management
FM 654831

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Overview

The SF30/D display unit is designed as an accessory for the SF30/D.This display allows for simple mounting and readout of the distance detected by the SF30/D. The display currently outputs the distance data in ft making it the ideal companion to the SF30/D LiDAR. This display can be used in various aviation applications.

Product support

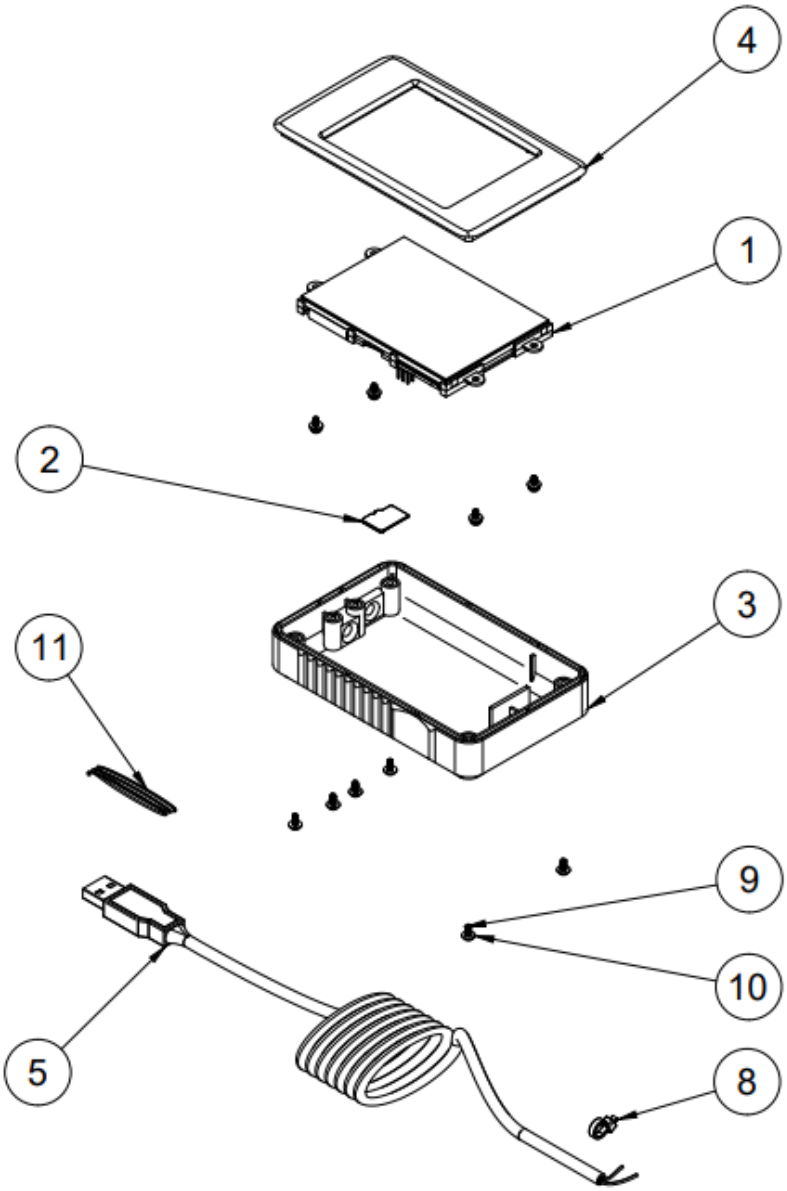
This document supports the following devices:

Revision	Date	Notes
0	12/01/2023	Initial release

Specifications

Performance	
Resolution output of display	10 ft
Connections	
Power supply voltage	5.0 V ... 5.5 V
Power supply current	280 mA typical
Form Factor	
Dimensions	21 mm x 71 mm x 110 mm / 0.8" x 2.8" x 4.33"
Weight	178 g / 6.28 oz (excluding SF30/D)
Enclosure rating	N/A
Environmental	
Operating temperature	-10 ... + 50°C / 14 ... 122 °F
Shipping temperature	- 40 ... + 80 °C / - 40 ... +176 °F

BOM

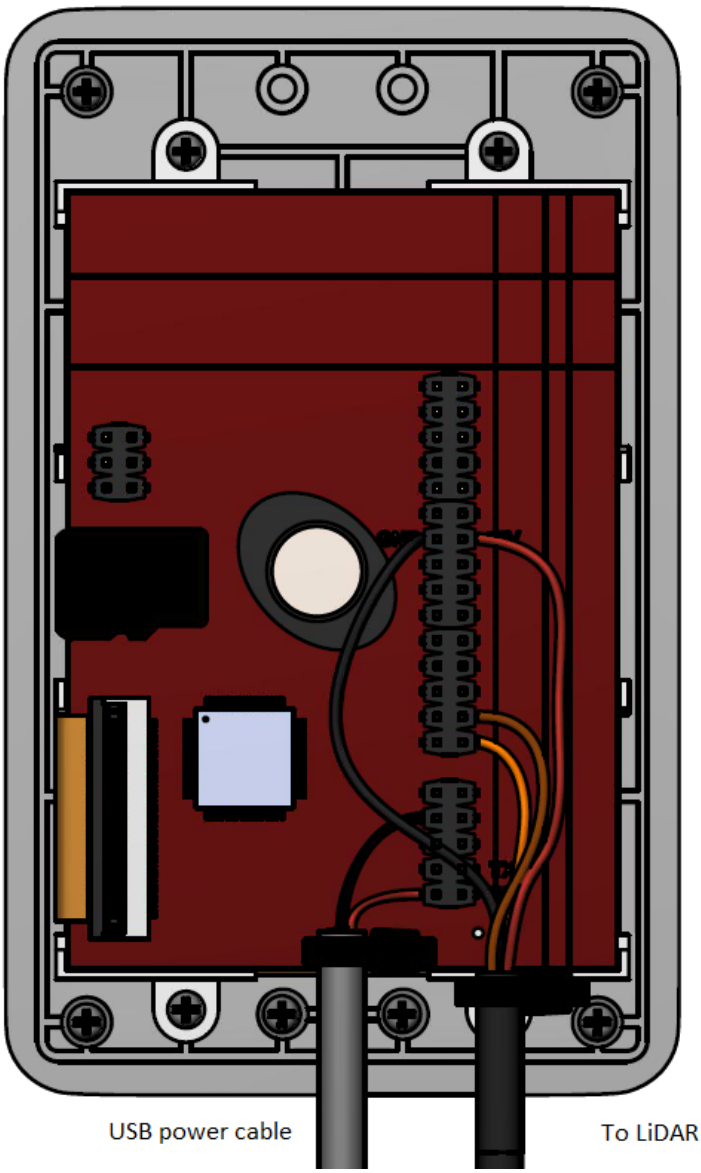


Item	Qty	Part number	Description
1	1	1613-1092-ND - Digikey	4D systems display ULCD-32 PTU
2	1	1582-1021-ND - Digikey	Micro SD card
3	1	Display Housing	3D CAD model
4	1	4D screen Bezel-32B	3D CAD model
5	1	n/a	USB A to Micro B cable, 1.5 m

6	1	841-7875 - RS components	Screen programming cable
8	1	n/a	Cable tie
9	10	n/a	M2 x 5 mm pan Philips screw, black, from 4D Bezel-32B
10	10	n/a	2.0 x 5.0 x 0.5 mm washer from 4D Bezel-32B
11	1	n/a	Twist tie

**The cable supplied with the SF30 can be extended to the desired length, however this should be kept to a maximum of 1m to 2m.

Screen connection guide



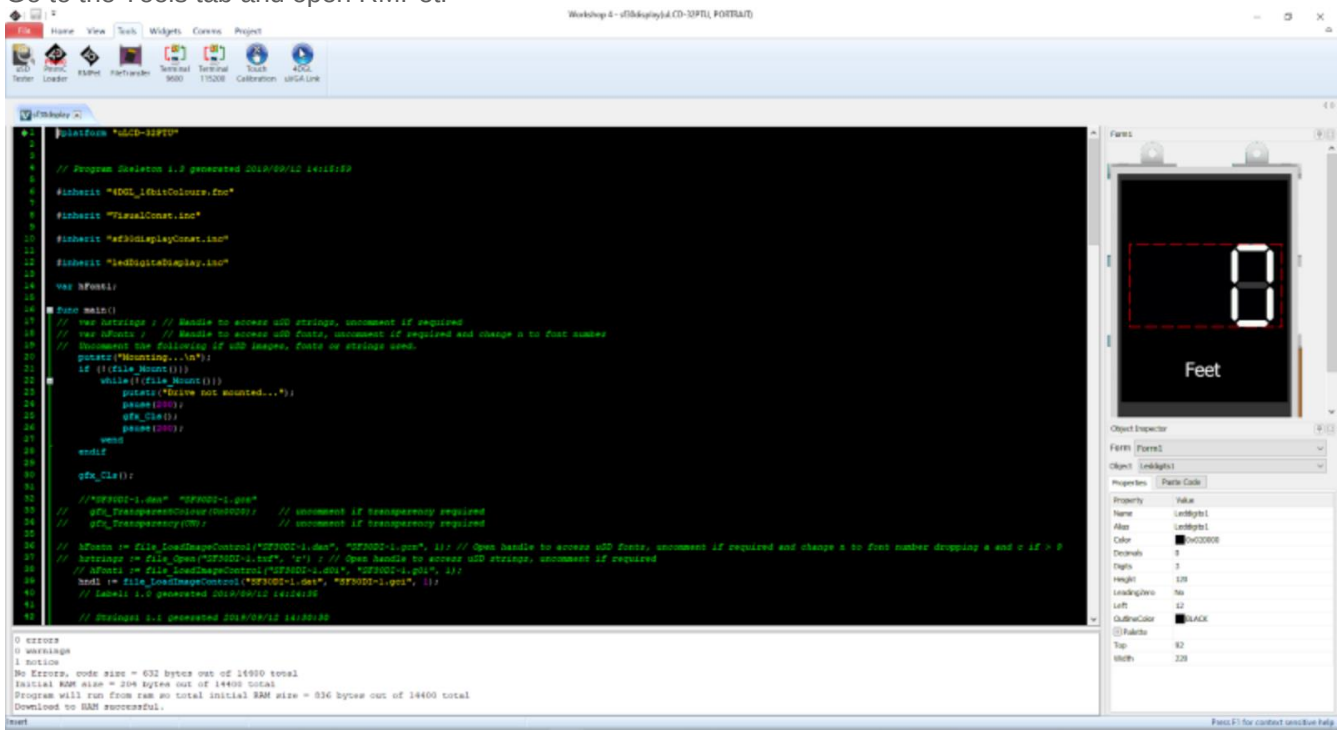
IPUSB1MS	PIN	HEADER
RED	+5V	H2
BLACK	GND	H2
LA 000_148	**PIN**	**HEADER**
ORANGE	RX1	H1
BROWN	TX1	H1
RED	+5V	H1
BLACK	GND	H1

Loading the program

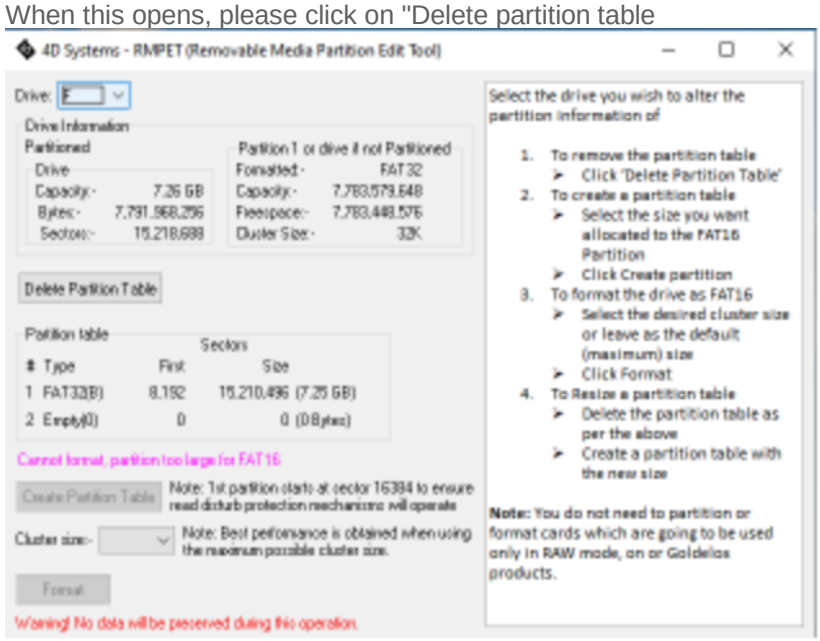
An SD card is required for the screen, 4D systems screens are required to be formatted in FAT 16. This can be done through the 4D systems APP (Workshop4). The APP can be found using the following link: https://4dsystems.com.au/download/2570/

A 4Gb SD card is more than sufficient for this project. To format the SD card, please follow the following steps: (Throughout this process please ignore any requests from Windows to format the drive!)

1. Insert the SD card into your computer, through this process please ignore any requests to format the SD card.
2. Go to the Tools tab and open RMPet.

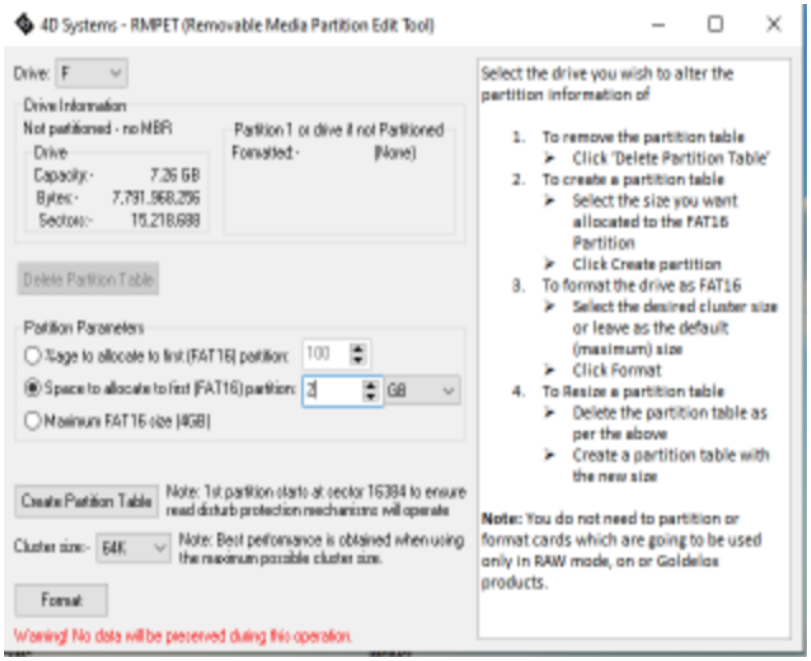


3.
4. When this opens, please click on "Delete partition table



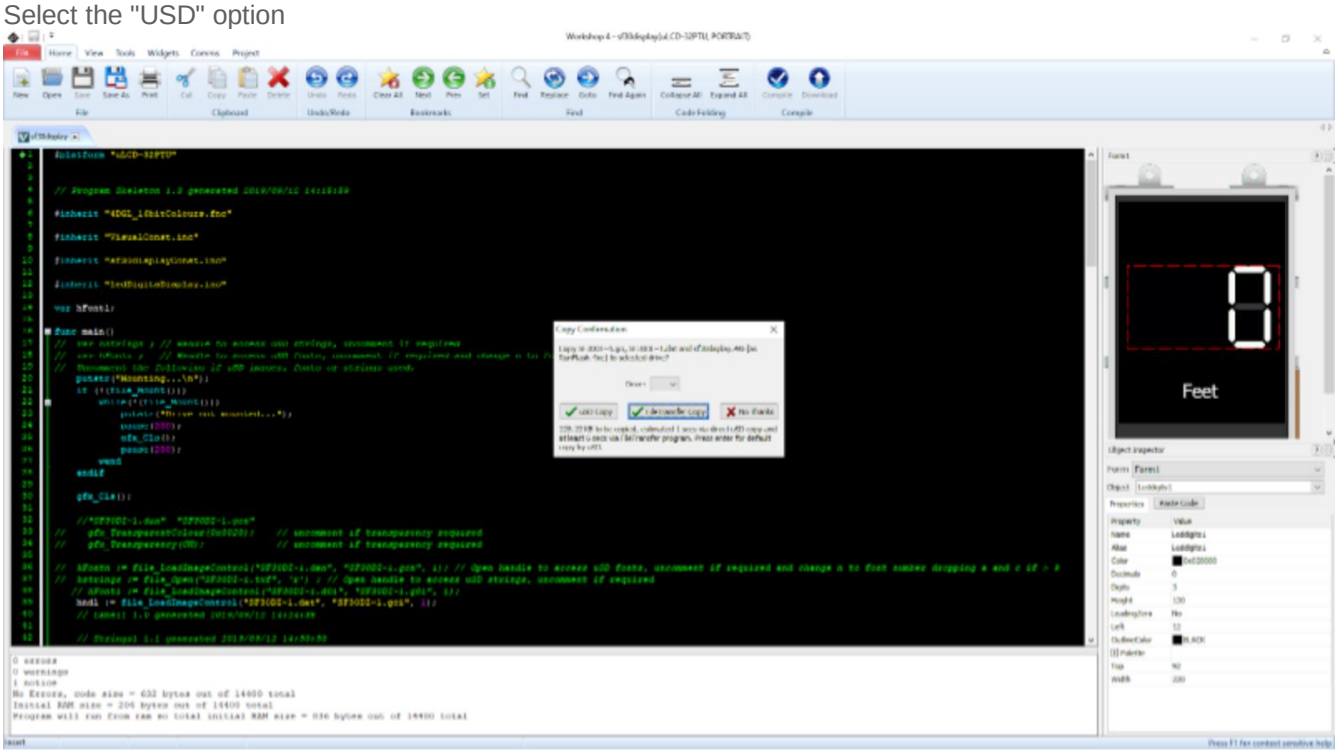
5.
6. Next ensure that the following is selected:
    a. Select "Space to allocate to first (FAT16) partition : 2 GB (You may need to click on the drop down arrows to select GB)

b. Click on "Create Partition Table"

c. 

7. You will be prompted, "Really Create / Alter Partition? " Please select “Yes”
8. Once this has been created, you may be prompted to format by Windows, **PLEASE IGNORE THIS!!**
9. You can now click on the "Format" button. - only in RMPet
10. Once this is complete. You can close RMPet and safely eject the SD card from the computer.

Next we need to program the Display

1. Plug the screen to your computer using the cable described in the BOM item 6.
2. Open the program file for the SF30.
3. Check the Comms tab to ensure that the device is recognised. (This is done by clicking Home>>Comms>>Select port (wait for blue dot))
4. Next go to the Home tab and select "Comp nLoad"., then click on "File Transfer Copy".
5. Once this has been successful, please navigate back to the "Project" tab.
6. Select the "USD" option
7. 

8. Navigate back to the "Home" tab and select "Comp nLoad" again and this time click on USD copy.

Quickstart guide

The unit is a plug and play device, however there are a few parameters that are required on the SF30/D in order for the sensor to output distance data to the display unit.

To ensure that your SF30/D has the correct values please use our LightWare Studio software to configure the sensor. LightWare Studio is an application (available for Windows, macOS, and Linux) that can configure, update, and visualize data for the SF30/D.

Once you have downloaded the LightWare Studio application from our website, connect the SF30/D to your computer via the USB cable. In LightWare Studio, under the parameters tab, please ensure that the following settings have been used.

Menu item	Value	Recommendation
Communication		
Serial port baud rate	115200	Controls the baud rate used by the serial UART interface in kbps.
Measurement		
Exposure time	25587 us (39/sec)	Slower update rates are recommended.
Return mode	First/last	First/last return is dependent on the application and mounting of the device. If the SF30/D is mounted behind a protective glass, then it is advised that the last return is used.
Lost signal confirmations	25	25 is the default value that is set, this can be adjusted per application
Legacy data output		
Output type (legacy)	Distance over Serial	This output is required to output the data on the SF30/D via the communication cable

Once this has been set up, all that is required is to plug the SF30/D into the display unit. Then connect the display unit to a 5V power supply via the USB cable on the unit.

Document revision

Revision	Date	Comments
Rev 0	2023/01/12	First edition