

Installation and Operation Manual

FD90AID-7

7" Flip Down Controller





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General Information

The FD90AID-7 is a 7” Flip Down Controller, which creates panel space where none previously existed, providing an excellent opportunity to bring EVS video, satellite weather, or any other VGA Composite source into the cockpit with a low-profile, stowing display.

Front View



Shown: FD90AID-7-T

Additional Information

The FD90AID-7 features a “face-out” display, which the pilot would open 90° to be viewed. The FD90AID is available in top or bottom mount configurations. The 7” flip display is available in a top mount (FD90AID-7-T) for mounting on top of the glare shield and a bottom mount (FD90AID-7-B) for mounting to the underside of the glare shield.

The FD90AID-7 incorporates the use of a torsion spring, which deploys the unit up from the mounting plate when opened. It also has an automatic switch mechanism which enables the unit to automatically power off upon closing and power on upon opening.

Specifications

Display Type	7" TFT Color LCD
Screen Resolution	800x480
Brightness	450 cd/m ²
Overall Dimensions	Open: 7.8" (W) x 4.7" (H) x 5.0" (D) Closed: 7.8" (W) x .89" (H) x 5.0" (D)
Power	12VDC @ .6AMPS 28VDC @ .3 AMPS
Video Inputs Supported	(1) Analog RGB, (2) Composite Video
Video Types Supported	VGA, NTSC/PAL
Screen Control	On Screen Display Menu
DO160 TESTED	Section 21, Category B
Weight	1 lb 8 oz
Materials	Aluminum

Installation Instructions

All cockpit accessory equipment, such as the FD90AID-7, should be installed on a non-essential bus and have a dedicated circuit breaker. It is a requirement that a switch be installed so that the pilot can de-energize the system should it become necessary.

The FD90AID-7 products offer excellent versatility for installation in different aircraft. The mounting plate is not configured with mounting holes. The mounting holes are determined and added during installation. Flight Display Systems recommends that the unit be mounted using the following installation tools, hardware, & instructions. However, it is at the discretion of the installer to mount the unit according to the specific aircraft.

1. With a #12 drill bit (.189" to .193"), drill (4) holes into the metal or plastic support under the glare shield using the dimensions from the drawing below.
2. Fasten (4) 6-32 rivet nuts into the (4) holes under the glare shield with a Rivet Nut Gun.
3. Remove the (6) 4-40 screws from the Mounting Plate.
4. With a #12 drill bit (.189" to .193"), drill (4) equidistant holes into the top mounting plate on the FD90AID per drawing below.
5. With a 100° countersink bit, countersink the (4) holes on the bottom side of the mounting plate.
6. Fasten the Mounting Plate back to the unit with (6) 4-40 screws.
7. Mount the FD90AID using (4) 6-32 x 1/2" screws.

Power

This is a **12VDC-28VDC** monitor that requires .5A - .3A of power to operate.

Wiring Suggestions

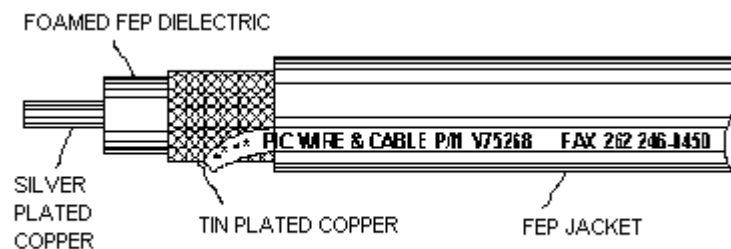
All shields should be grounded to the connector at the source, and floating at the display.

Avoid routing video wiring parallel to:

- AC wiring
- Strobe wiring
- DC motor supply cables
- Inverter cabling
- Or any other potential noise source.
-

Composite Video and Audio Wiring

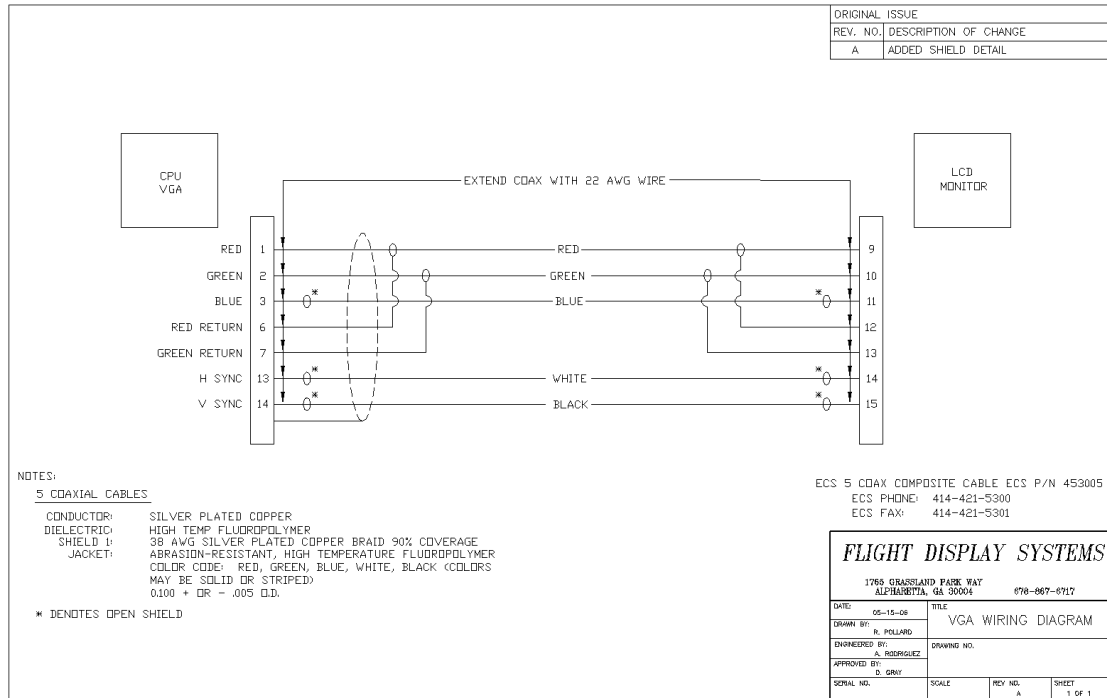
Recommended cable for composite video and audio purposes is PIC 75 Ohm Coax, P/N V75268. This is a lightweight, flexible, and low signal loss cable which meets FAA flammability requirements of FAR 23.1359(d), FAR 25.853(a) and FAR 25.869(a)(4).



Similar aviation coaxial cable can be used from other vendors, as well.

Some aircraft are prone to AC noise - we recommend adding to the composite source a 75Ohm video isolation transformer such as Deerfield Laboratory, Inc. Part No. 162-1 (www.deerfieldlab.com, (650) 632-4090). In most cases this should be added to the video output of the source.

VGA Wiring



Recommended cable for VGA purpose is ECS P/N 453005. This is a single shielded cable containing 5 separate coaxial cables, color-coded to match the functions of the wires.

Note: The above illustration is generic; the pin-out for the wiring on this particular unit is a straight through cable (1-1, 2-2, etc).

The individual wires should be extended with 6" 22awg wires using an environmental splice for the red & green wires, and Raychem caps for the blue, white, and black wires.

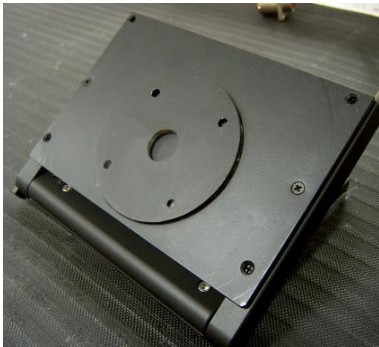
Power and Ground Wiring

22 AWG wire is recommended for Power and Ground applications.

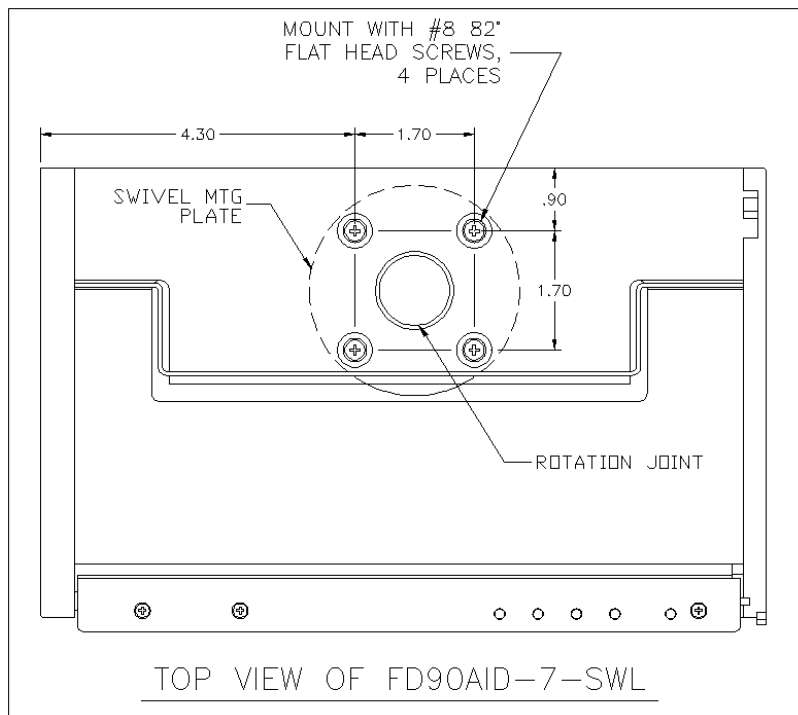
Additional Options

Swivel Base

An optional swivel base, FD90AID-7-SWL, is available which allows the user to rotate the display inboard & outboard. The swivel base is mounted directly to the existing mounting plate and allows the FD90AID-7 to rotate left and right. The swivel base assembly adds approximately 0.175" to the total height of the unit.



FD90AID-7-SWL (Optional)





Dual Installation

As with all of our displays, multiple FD90AID-7 configurations are possible. A DAPS321 is used to split and amplify the composite signal to multiple units. For computer graphics, a DAPS350 is used to split and amplify the VGA signal to multiple units.

For assistance with installation of multiple displays, please contact Flight Display Systems at 470-239-7400..



Pinouts for High Density DB-15

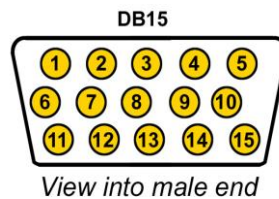
Part Numbers for DB-15 connectors, manufactured by Tyco or Amp.

High density, D-sub, 15 contact plug (Male)

P/N HD-FISC

HD15F pins

P/N M39029/57-354



Pin Number	Description
1	Power 28V +
2	Power 28V -
3	N/C
4	Composite Video #1 Signal
5	Composite Video #1 - Shield
6	N/C
7	Composite Video #2 - Signal
8	Composite Video #2 - Shield
9	Red Video (RGB/VGA)
10	Green Video (RGB/VGA)
11	Blue Video (RGB/VGA)
12	Red Ground (RGB/VGA)
13	Green Ground (RGB/VGA)
14	Horizontal Sync (RGB/VGA)
15	Vertical Sync (RGB/VGA)

Operation Instructions

When 28VDC power is applied, the FD90AID-7 will turn on and search for video input on the last known source. If no video input is found, the display will go into standby mode. Pilots will be able to change the video output on the FD90AID-7 using the Select button on the side of the LCD.

Button Controls



Button controls are located on the top side of the monitor (when deployed). The functions shown below are from left to right.

BUTTON	FUNCTION	DESCRIPTION
1	POWER	Press to turn the monitor on if currently off. Hold to turn the monitor off.
2	SOURCE	Press to switch between sources.
3	UP	Press to increase the value of a menu item.
4	DOWN	Press to decrease the value of a menu item.
5	MENU	Press to activate Menu.

Troubleshooting

VGA Shadowing

Most of shadowing problems are due to shielding on the wire. Locate the point where all of the shields are connected. Cut away the shields, one at a time, while viewing the display on the screen to observe which shield is causing the noise. Cutting away one shield at a time will allow you to focus and isolate the video noise issue.

- Twisted pair wiring is prone to video noise. ECS VGA Wire (Detailed under “Video Wiring Suggestions”) is recommended.

Snow or Sweeping Lines

Lines that slowly sweep up and down are a result of AC noise. This AC noise can be generated by a power cart on the aircraft. Take the power cart off of the aircraft. Be careful of inverter wiring, which can also cause noise. Stand off the wires, if necessary.

If snow or sweeping lines persist, it is possible that the ground is at an incorrect point in the aircraft. Try moving the ground to another location.

No power to Monitor, or No video Input

- Verify correct wiring. Check the base receptacle connectors for possibly damaged pins.
- Check that the video source is:
 1. Powered on,
 2. In Play mode, and
 3. Displaying video.

Color Distortion

- Adjust brightness and contrast settings using the buttons on the monitor.



Technical Support

Should you have any questions concerning this product or other Flight Display Systems products, please contact our Product Support representatives at 470-239-7421.

Flight Display Systems

6435 Shiloh Road

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Phone: 470-239-7400

Fax: 678-867-6742

Email: sales@FlightDisplay.com

For further product information, technical data and sample wiring diagrams, please click on the **Dealers** section of our web site at www.FlightDisplay.com

Instructions for Continued Airworthiness

The FD90AID-7 is designed not to require regular general maintenance.





Warranty Information

All Flight Display Systems (FDS) products are warranted to be free from material or manufacturing defects for a period of 24 months from the date of shipment for General Aviation customers or 12 months from the date of shipment for Government/Special Mission customers. Any material or repair workmanship for in warranty repair service will be specifically warranted for 90 days or the remainder of the original warranty period, whichever is longer. If the original warranty period has expired, the 90 day repair warranty is limited to the material and workmanship specific to the repair activity completed.

The following conditions are exclusions to warranty coverage:

1. Labor costs associated with installation, removal or reinstallation of any product.
2. Damage to or malfunction caused by any unauthorized alteration made to the product.
3. Resolving signal quality issues caused by externally generated noise introduced by aircraft electrical systems or other components connected to any FDS product.
4. Any malfunction caused by improper installation or connection to aircraft wiring, industry standard cabin management/ inflight entertainment systems, or third party commercial equipment not specifically identified as compatible with FDS products.
5. Any malfunction caused by installation that does not conform to precautions associated with operating environments listed in the operating manual or consistent with industry best practices such as; high temperature, adequate ventilation, high humidity, high dust, or power surges.
6. Cosmetic damage or damage to internal components caused by installation or removal, failure to follow installation or operating instructions, or any neglect or misuse of the product.
7. Any product that is returned for service with a broken tamper evident seal, indicating tampering or improper handling of the product by an unauthorized person. Violation of product tamper evident seals or modification of factory installed serial and PMA labels voids any warranty, either expressed or implied.

The FDS technical support team is available to provide distance troubleshooting support during business hours (8:00am to 5:00pm EST) Monday through Friday at (470) 239-7421.

Many repair requests can be resolved through distance support and may not require return of merchandise to the factory. If a product must be returned to the factory for repair, an RMA number will be issued as directed by the technical support team and communicated by the repair coordinator.

Upon request by the customer, FDS may send a service technician onsite to repair any non-PMA products. The travel expenses incurred to include transportation, lodging and meals along with the technician's hourly rate shall be payable by the customer in accordance with FDS' applicable rates and procedures.

Flight Display Systems will, upon receipt of returned merchandise, remanufacture or replace the unit at our discretion and return the product by Ground Return Shipping. Express return shipment will be the responsibility of the sender.

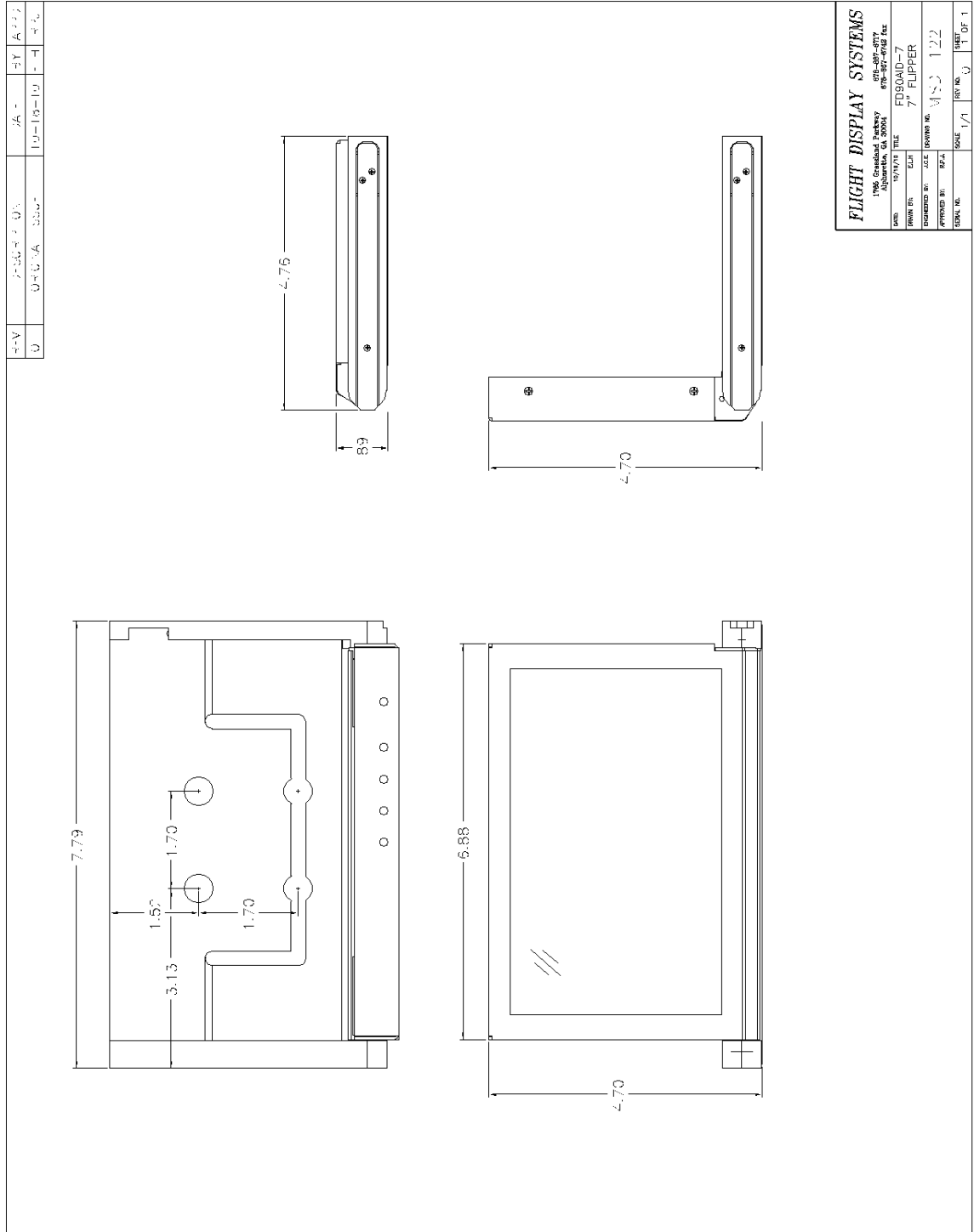
This warranty is not transferable.

Any implied warranties expire at the express limited warranty expiration date. FDS shall not be held liable for any indirect, special, punitive, incidental or consequential damages.

Some states do not allow limitation on the length of an implied warranty. In such states, the exclusions or limitations of this limited warranty may not apply.



Installation Drawing





Log of Revisions

Rev	Date	Page	Description
A	10/21/2010		Initial Release
B	10/29/2010	5, 9, 10,11	Weight, Revised Button Controls, Added DAPS350 info, Updated Pinout Info

