

## **FD70ARM**

### **Installation and Operation Manual**

7" Widescreen LED on Arm



**TECHNICAL SUPPORT**  
678-867-6717, or  
[www.FlightDisplay.com](http://www.FlightDisplay.com)

	<b>Document Number:</b>  <b>MAN – FD70ARM</b>	<b>Rev:</b>  <b>F</b>	<b>Revision Date:</b> <b>08/17/2010</b>  <b>Page 2 of 15</b>
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FD70ARM

7" Widescreen LED on Arm

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	<b>Document Number:</b>  <b>MAN – FD70ARM</b>	<b>Rev:</b>  <b>F</b>	<b>Revision Date:</b> <b>08/17/2010</b>  <b>Page 3 of 15</b>
---	---	-----------------------------	---

## Table of Contents

<b>General Information</b> .....	<b>4</b>
1. Front View.....	4
2. Additional Information.....	4
<b>Specifications</b> .....	<b>5</b>
<b>Installation Instructions</b> .....	<b>5</b>
1. Power.....	5
<b>Wiring Instructions</b> .....	<b>6</b>
1. VGA Wiring.....	6
<b>Mounting and Base Information</b> .....	<b>7</b>
1. Power and Ground Wiring.....	7
<b>Power/Video</b> .....	<b>8</b>
<b>Operations Instructions</b> .....	<b>9</b>
1. Monitor Control Buttons.....	9
2. Remote Control Buttons.....	10
<b>Troubleshooting</b> .....	<b>11</b>
1. Video Noise.....	11
2. VGA Shadowing .....	11
3. Snow or Sweeping Lines.....	11
4. No Power to Monitor, No Video Input.....	11
5. Color Distortion.....	11
6. Remote Control Inoperable .....	11
<b>Technical Support</b> .....	<b>12</b>
<b>Instructions for Continued Airworthiness</b> .....	<b>12</b>
<b>Warranty</b> .....	<b>13</b>
<b>Installation Drawings</b> .....	<b>14</b>
<b>Log of Revisions</b> .....	<b>15</b>

	<b>Document Number:</b>  <b>MAN – FD70ARM</b>	<b>Rev:</b>  <b>F</b>	<b>Revision Date:</b> <b>08/17/2010</b>  <b>Page 4 of 15</b>
---	---	-----------------------------	---

## General Information

The FD70ARM is a 7" Widescreen LED on a pivoting, rotating Arm. Built with retrofit aircraft integration in mind, this display can switch between three video input sources using the buttons on the bezel or the Infrared Remote.

The arm has both a hinge and a pivot point, and it can rotate 180° around the attach point at the base and 180° at the bottom of the center of the LED. This mount will allow the monitor to tilt back away from the passenger up to 15°.

## Front View



## Additional Information

The FD70ARM is made of all metal components. The milled aluminium arm represents the evolution of several design enhancements for an optimum removable mounting solution.

The 7" Widescreen LED utilizes a state of the art digital video decoding chipset for the analog video input. The three video sources in order of picture quality are VGA (computer graphics, like Moving Maps), and two Composite Video (DVD, Camera or VCR). Both NTSC and PAL formats are auto-detected.

The FD70ARM can also be connected to existing video switchers and can take a composite video input from a selector interface box. In this case, multiple input sources can be selected and displayed on the monitor.

	<b>Document Number:</b>  <p style="text-align: center;"><b>MAN – FD70ARM</b></p>	<b>Rev:</b>  <p style="text-align: center;"><b>F</b></p>	<b>Revision Date:</b> <p style="text-align: center;"><b>08/17/2010</b></p> <p style="text-align: center;"><b>Page 5 of 15</b></p>
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## Specifications

<b>Display Type</b>	7" TFT Color LCD (LED backlight)
<b>Aspect Ratio</b>	16:9
<b>Screen Resolution</b>	800x480 pixels
<b>Maximum Supported Resolution</b>	1600x1200 pixels
<b>Brightness</b>	500 cd/m <sup>2</sup>
<b>Contrast</b>	400:1
<b>Video Sources</b>	1x VGA, 2x Composite
<b>Composite Video Type Supported</b>	PAL/NTSC
<b>Power Consumption</b>	12V DC @ 0.80 AMPS, 28V DC @ 0.40 AMPS
<b>Monitor Overall Size</b>	7.72" (W) x 4.88" (H) x 1.42" (D)
<b>Viewable Area</b>	6.00" (W) x 3.60" (H)
<b>Enclosure Materials</b>	Plastic/ Aluminum
<b>Weight with Base</b>	2.31 lbs
<b>Certifications</b>	DO-160 Sec. 21 Cat. B, PMA Approved

## Installation Instructions

All cabin entertainment equipment, such as the FD70ARM, should be installed on a non-essential bus and have a dedicated circuit breaker. It is a requirement that a switch be installed in the cockpit so that the pilot can de-energize the entertainment system should it become necessary.

It is recommended that you leave approximately ¼ inch of space around the rear of the display to have circulating air.

## Power

This is a **28V DC** monitor that requires .4 AMPS of power to operate.

## Wiring Suggestions

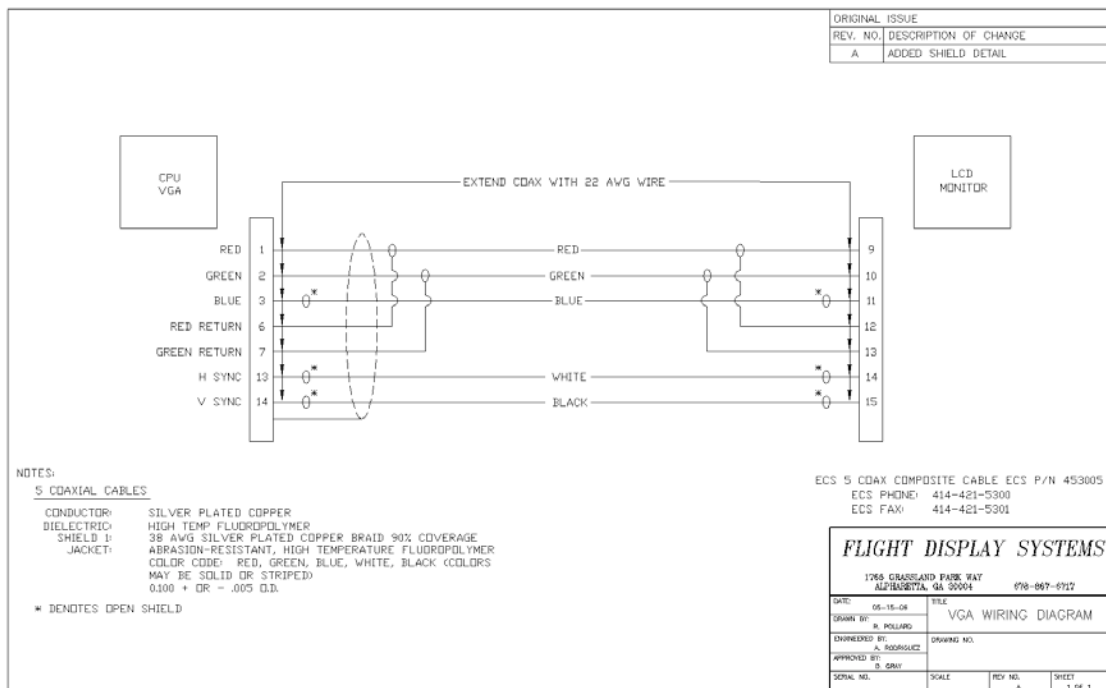
All shields should be grounded to the connector at the source, and floating at the display.

Avoid routing video wiring parallel to:

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

## 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.



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.

## **Mounting and Base Information**

The FD70ARM mates with a drink rail mount, FDBASE (left), or a wall mount, FDBASE-W (right).



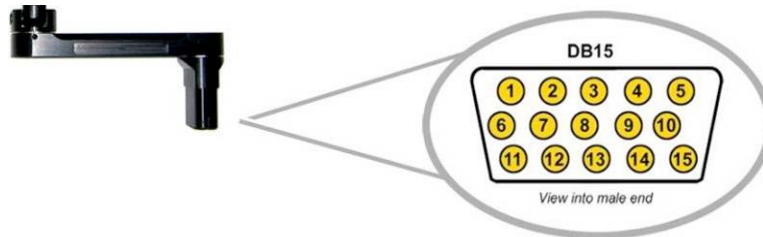
The connector seats deeply in the mount and is held in place by either gravity or a locking pin. The secure High Density DB15 pin and connector can only be connected one direction. The mount is keyed to prevent inadvertent misalignment.

## **Power and Ground Wiring**

22 AWG wire is recommended for Power and Ground applications.

## Power/Video

Pin out for (High Density DB-15 inset in the bottom of the arm)




This male DB-15 has Power, Composite Video #1, Composite Video #2 and VGA connections.

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

High density, D-sub, 15 contact receptacle (female) P/N 748565-1

HD15F pins P/N M39029/57-354

Pin Number	Description
1	28V DC Power
2	28V DC Ground
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 (Pin 1 on Standard VGA)
10	Green Video (Pin 2 on Standard VGA)
11	Blue Video (Pin 3 on Standard VGA)
12	Red Ground (Pin 6 on Standard VGA)
13	Green Ground (Pin 7 on Standard VGA)
14	Horizontal Sync (Pin 13 on Standard VGA)
15	Vertical Sync (Pin 14 on Standard VGA)

	<b>Document Number:</b>  <b>MAN – FD70ARM</b>	<b>Rev:</b>  <b>F</b>	<b>Revision Date:</b> <b>08/17/2010</b>  <b>Page 9 of 15</b>
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## Operation Instructions


The FD70ARM is continuously on but can be de-energized by removing power from the entertainment system. No pilot or aircrew action is necessary during flight or ground operation.

The passengers will be able to change the video output from the FD70ARM using the video source select switch on the LED monitor, or remotely throughout the cabin with the included IR remote. Point the IR remote at the top of the LED to make changes.

When applying power, the display will turn on and look for a valid input on the last known source. If no input is found, the display will go to standby mode. Pressing the Input Select button (S) will select a new video input.

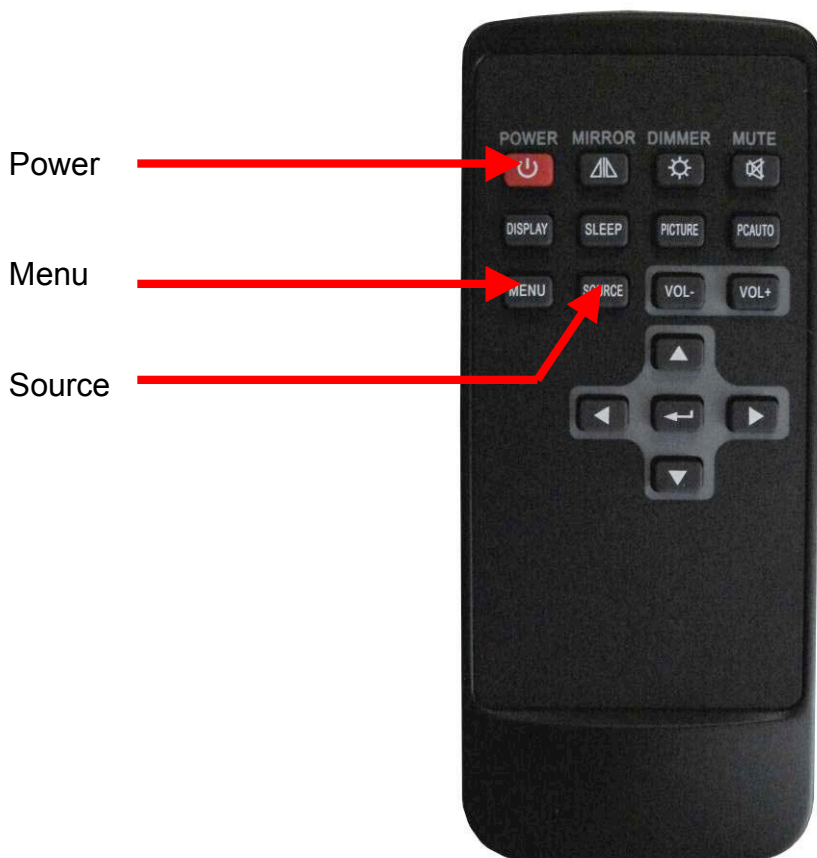
### Monitor Control Buttons

Located at the bottom of the FD70ARM LED are five buttons and one status LED. Operations are as follows:

BUTTON	FUNCTION	DESCRIPTION
^	Adjust UP	Incremental adjustment or Menu selection
v	Adjust DOWN	Incremental adjustment or Menu selection
S	INPUT SELECT	Press and select between VGA, Composite #1 and Composite #2.
M	MENU	Pressing this will activate the Menu.
•	Status Light	Green – on and operating; None – Off or standby
	Light Sensor	Senses level of outside lighting
	POWER	On/Off

## Remote Control Buttons

See “Button Controls” above for Remote Control Button functions.



	<b>Document Number:</b>  <b>MAN – FD70ARM</b>	<b>Rev:</b>  <b>F</b>	<b>Revision Date:</b> <b>08/17/2010</b>  <b>Page 11 of 15</b>
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## Troubleshooting

### Video Noise

Check for an incorrect ground in the installation wiring. See specific examples of video noise below, or visit <http://flightdisplay.com/Grounding.pdf>

### 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.

### Remote Control Inoperable

- Confirm that the infrared eye on the LED screen is visible.
- Replace battery in remote control.

	<b>Document Number:</b>  <b>MAN – FD70ARM</b>	<b>Rev:</b>  <b>F</b>	<b>Revision Date:</b> <b>08/17/2010</b>  <b>Page 12 of 15</b>
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## Technical Support

Should you have any questions concerning this product or other Flight Display Systems products, please contact our Product Support representatives at (678) 867-6717.

**Flight Display Systems**  
1765 Grassland Parkway  
Alpharetta, GA 30004  
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Fax: 678-867-6742  
Email: [sales@flightdisplay.com](mailto: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](http://www.flightdisplay.com)

## Instructions for Continued Airworthiness

The FD70ARM is designed not to require regular general maintenance.

	<b>Document Number:</b>  <b>MAN – FD70ARM</b>	<b>Rev:</b>  <b>F</b>	<b>Revision Date:</b> <b>08/17/2010</b> <b>Page 13 of 15</b>
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## Warranty Information

Flight Display Systems warrants the FD70ARM against material or manufacturing defects for a \*two-year period (effective 1/1/2009 on all equipment shipped with 2009 pricing). Warranty begins on date of installation. \*The warranty registration card must be returned upon installation in order to validate the two-year warranty. Any warranty registration not returned during this time period will default to the date of purchase as the warranty start date.

If product support is required, please call our Technical Support team at 678-867-6717 to obtain assistance. If the return of the unit to the factory is required, an RMA number will be issued at that time. Flight Display Systems will, upon receipt of the failed hardware, remanufacture or replace the unit at our discretion.

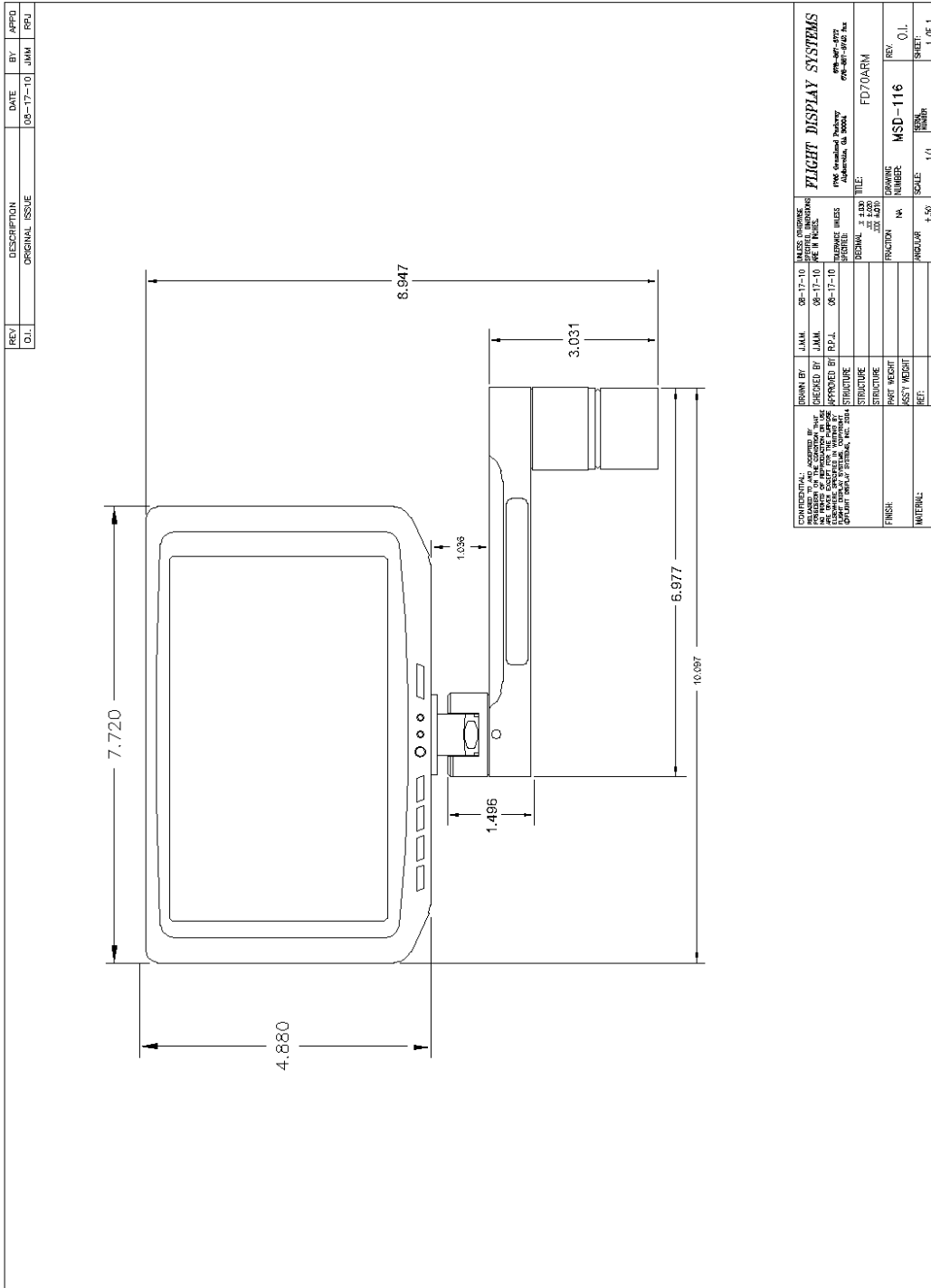
Flight Display Systems will pay Ground Shipping charges for warranted items. Charges for express shipment will be the responsibility of the sender.

This warranty is not transferable. Any implied warranties expire at the expiration date of this warranty. We shall not be liable for incidental or consequential damages.

This warranty does not cover a defect or failure that has resulted from improper or unreasonable installation, use or maintenance, as determined by Flight Display Systems. This warranty is void if there is any attempt to disassemble or open this product without factory authorization.

Any labor charges associated with the removal of product or related troubleshooting by a firm other than Flight Display Systems or its designee will not be covered.

# Installation Drawing





Document Number:

**MAN – FD70ARM**

Rev:

**F**

Revision Date:

**08/17/2010**

**Page 15 of 15**

## Log of Revisions

Rev	Date	Page	Description
A	01/25/2007		Initial Release
B	03/28/2007	2,6,7	Added info regarding FD70ARM (28V)
C	06/28/2007	8	Added remote pictures
D	02/26/2009	2,11	Updated specifications, warranty info
E	07/20/2009	2	Updated FAA/PMA Approval
F	08/17/2010	1,2,4,8,9,13	Added LED monitor, Format Change