
 <p>Flight Display Systems <i>Enhancing the Flight Experience</i></p>	<p>Document Number:</p> <p>MAN – FD70CV-V</p>	<p>Rev:</p> <p>G</p>	<p>Revision Date: 08/17/2010</p> <p>Page 1 of 14</p>
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FD70CV-V
Installation and Operation Manual
7" Widescreen LED



TECHNICAL SUPPORT
678-867-6717, or
www.FlightDisplay.com



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FD70CV-V

7" Widescreen LED

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General Information

The FD70CV-V is a monitor. The monitor uses an LCD screen with an LED backlight to provide superb clarity and color contrast. Built with retrofit aircraft integration in mind, this display can switch between three video input sources via the bezel buttons or the Infrared Remote. It is perfect for cabin video and graphical entertainment. The FD70CV-V has features that allow installation in the smallest of mounting areas with the minimum of interface equipment.


Front View



Additional Information

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 (2x) Composite Video (DVD, Camera or VCR). Both NTSC and PAL formats are auto-detected.

The FD70CV-V 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.

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Specifications

Display Type	7" TFT Color LCD (LED backlight)
Aspect Ratio	16:9
Screen Resolution	800x480 pixels
Maximum Supported Resolution	1600x1200 pixels
Brightness	500 cd/m ²
Contrast	400:1
Video Sources	1x VGA, 2x Composite
Composite Video Type Supported	PAL/NTSC
Power Consumption	12V DC @ 0.80 AMPS, 28V DC @ 0.40 AMPS
Monitor Overall Size	7.72" (W) x 4.88" (H) x 1.42" (D)
Viewable Area	6.00" (W) x 3.60" (H)
Enclosure Materials	Plastic
Weight	1.54 lbs
Certifications	DO-160 Sec. 21 Cat. B, PMA Approved

Installation Instructions

All cabin entertainment equipment, such as the FD70CV-V, 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.

When mounting from inside the bulkhead, it is possible to have only the LED visible to the cabin. The display can be mounted internal, external, or partially internal to the bulkhead. There is one ¼-20 mounting hole located on the bottom of the display. It is sufficient to mount the display by this single attach point. It is recommended that you leave about ¼ inch of space around the rear of the display for air circulation.

Power

This is a **12-28VDC** monitor that requires .8 - .4 Amps of power to operate.

Video Wiring Suggestions

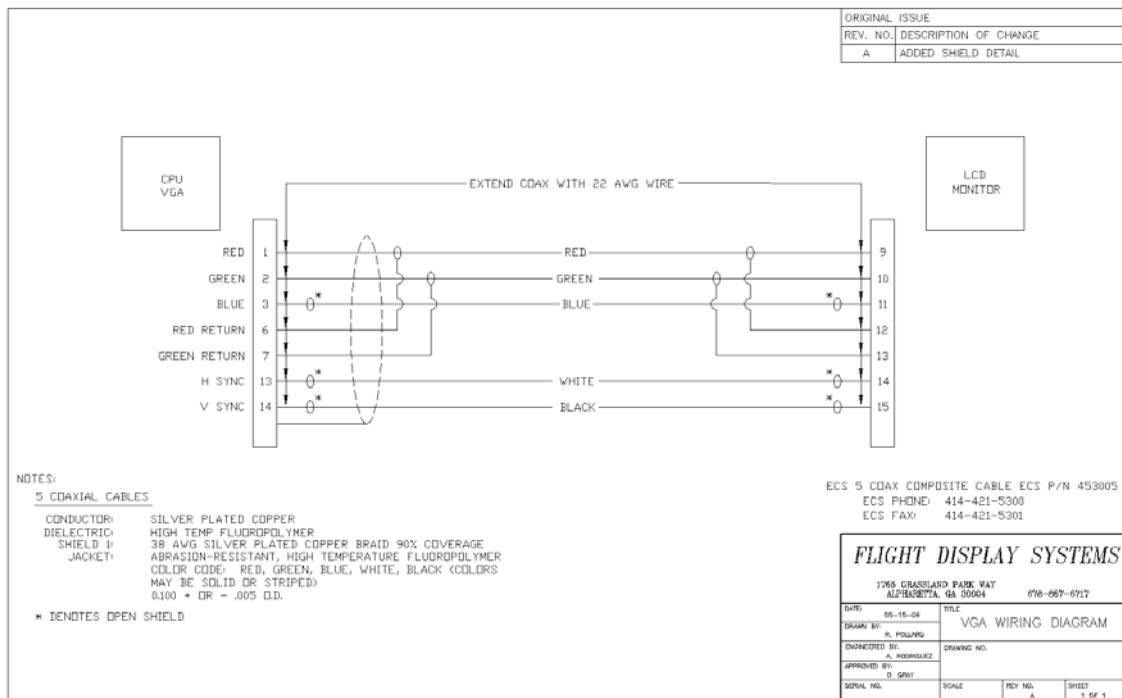
All shields should be grounded to the connector at the source, and floating at the display.

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.

Power and Ground Wiring

22 AWG wire is recommended for Power and Ground applications.

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Cable Attachment Points

There are two cable attachment points to the monitor on the FD70CV-V.

1. The female locking connector is the video source connector. Included with the monitor is a 6-foot cable with one female VGA connector and two female RCA Composite Video connectors.
2. 12-28VDC Power is input on this connector. Power is on the conductor and the ground is on the shield.

Included with the FD70CV-V is a female DB-15 pin kit, six male solder RCA jacks and one power cord. Part Numbers for additional DB-15 connectors, manufactured by Tyco or Amp, follow.


High density, D-sub, 15 contact receptacle (female)	P/N 748565-1
HD15F pins	P/N M39029/57-354

Wiring Colors

For the latest information on Wiring Colors for the FD70ARM, see the document online at:

[http://www.FlightDisplay.com/support/Wiring Colors.pdf](http://www.FlightDisplay.com/support/Wiring%20Colors.pdf)

(Older browsers may require “%20” instead of the space between “Wiring” and “Colors” as shown above.)

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Operation Instructions


The FD70CV-V 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 FD70CV-V 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 new video input.

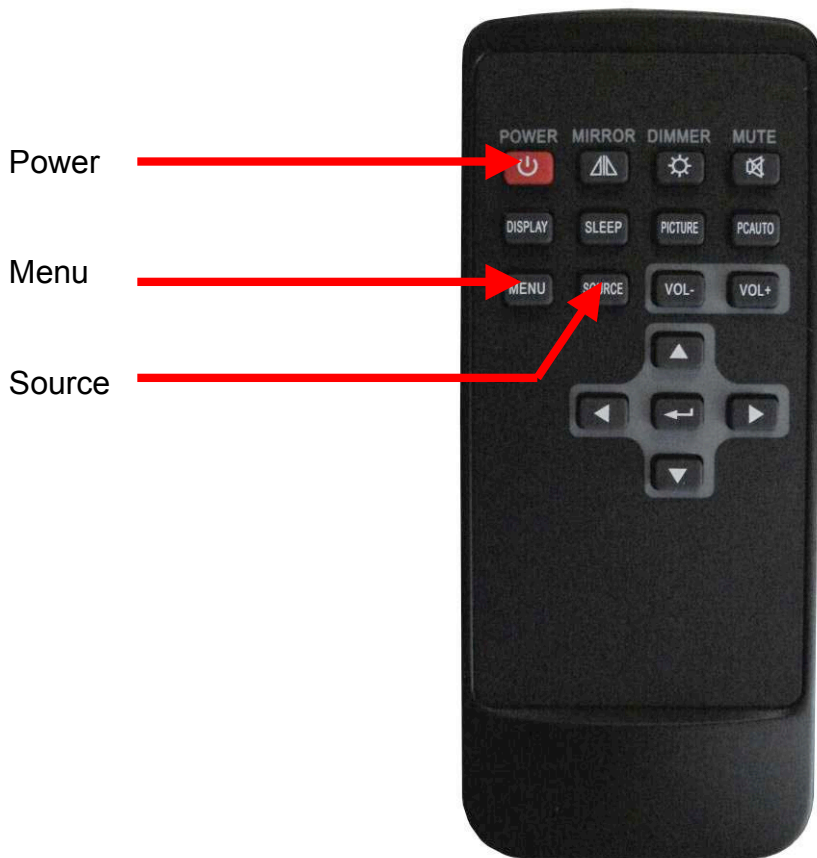
Monitor Control Buttons


Located at the bottom of the 7" 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.



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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.

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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.

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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 FD70CV-V is designed not to require regular general maintenance.

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Warranty Information

Flight Display Systems warrants the FD70CV-V 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.

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.

Log of Revisions

Rev	Date	Page	Description
A	01/25/2007		Initial Release
B	03/22/2007	1,2,5	Added info regarding FD70CV-V (28V)
C	06/21/2007	5	Clarified connection information regarding 12VDC/28VDC
D	06/28/2007	7	Added remote pictures
E	04/09/2008	1 2 5 6 7 11	Removed voltage reference Removed voltage reference, updated specs Revised due to voltage requirement changes Removed voltage reference Removed older style remote image Updated DWG
F	04/09/2010	2,10	Updated specifications, warranty info
G	08/17/2010	2,3,6,7,11	Added new LED monitor, Format Change