

Installation and Operation Manual

FD102SMT

10.2” Widescreen LCD and Slide Mount





FD102SMT

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General Information

This high resolution 10.2” Widescreen LCD is perfect for cabin video and graphical entertainment. Built with retrofit aircraft integration in mind, this display can switch between three video input sources using an infrared remote or the control buttons on the top of the monitor.

Front View



Additional Information

The FD102CV, an integral part of the FD102SMT, can be connected to existing video switchers and can take a composite video input from a selector interface box. Multiple input sources can be selected and displayed on the monitor.

The FD102CV is made of all metal components. DO-160 testing has been completed and is available upon request.

The FD102SMT is visible to passengers both while stored and deployed, and can be pulled out and into the aisle for more accessible viewing. The FD102SMT is offered in a Left or Right configuration. The FD102SMT-L is mounted on the Left side of the bulkhead, to extend rightwards into the aisle, while the FD102SMT-R is installed on the Right side of the bulkhead, extending leftwards into the aisle.

Specifications

Display Size	8.7" (W) x 5.2" (H)
Display Type	10.2" Widescreen TFT Color LCD
Display Color	262,144 Colors
Dimensions Deployed	19.50" (W) x 7.44" (H) x 1.75" (D)
Dimensions Stowed	10.00" (W) x 7.44" (H) x 1.75" (D)
Screen Resolution	800x480 / 640x480 ~ 1024x768
Brightness	500 cd/m ²
Weight	4 lbs 11.5 oz
Power	12VDC @ 2 AMPS 28VDC @ .5 AMP
PC & Video Input	SVGA (Analog RGB 15 pin D-sub) 2 Composite Video
Video Type Supported	NTSC/PAL
Screen control	On Screen Display Menu
Remote Control	IR, included
Materials	Aluminum
DO-160 testing	Section 21 Category B

Installation Instructions

All cabin entertainment equipment, such as the FD102SMT, 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.

The FD102SMT is integrated with a rugged slide mount bracket. Usually the FD102SMT is mounted against a bulkhead behind a seat, exposed to the interior. The FD102SMT is secured by four #8 machine screws. The monitor locks into place when stowed and deployed.

There is one DB-15 male connector on a 10" cable coming off of the back of the unit. The FD102SMT comes with a female DB-15 connector and crimp pins. The FD102CV has already been connected to the slide mount and tested prior to shipping.

Power

This is a **12VDC** monitor that requires 2 Amps of power to operate. This is also offered as **FD102SMT (28V)** which is a **28VDC** monitor that requires .5 Amp of power. The unit turns on automatically upon power application.

Wiring Suggestions

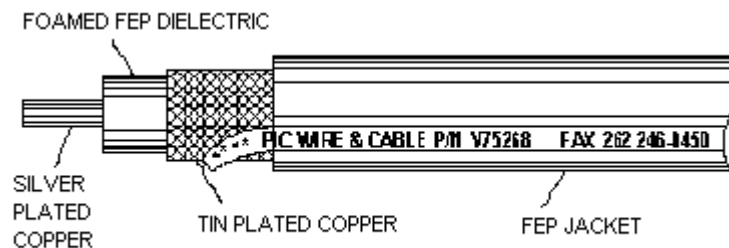
All shields should be grounded to the connector at the source, and floating at the display.

Avoid routing video wiring parallel to:

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

S-Video/Composite and Audio Wiring

Recommended cable for s-video/composite 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).

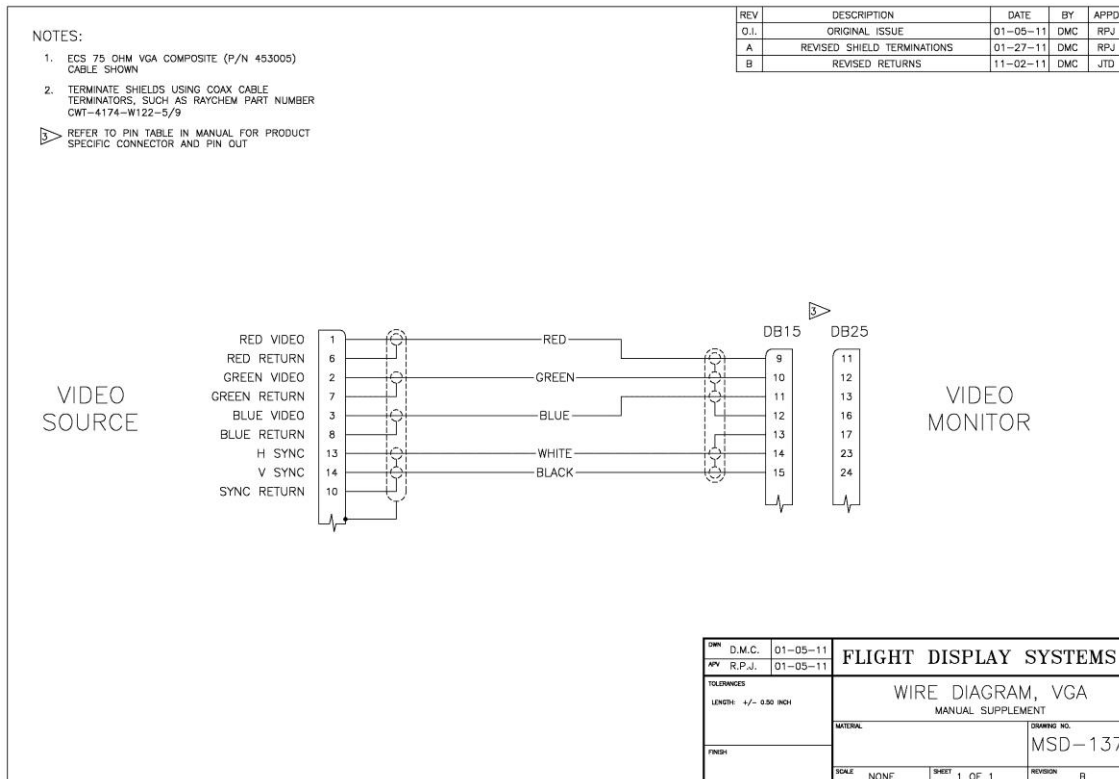


Similar aviation coaxial cable can be used from other vendors, as well.

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.



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.

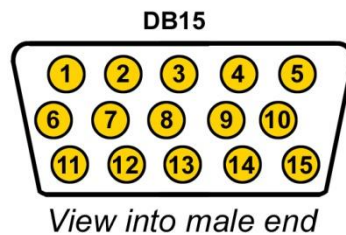
Power/Video

Pin out for High Density DB-15 Receptacle

There is one High Density DB-15 on the rear of the display, which connects Power, Composite Video #1, Composite Video #2 and VGA connections.

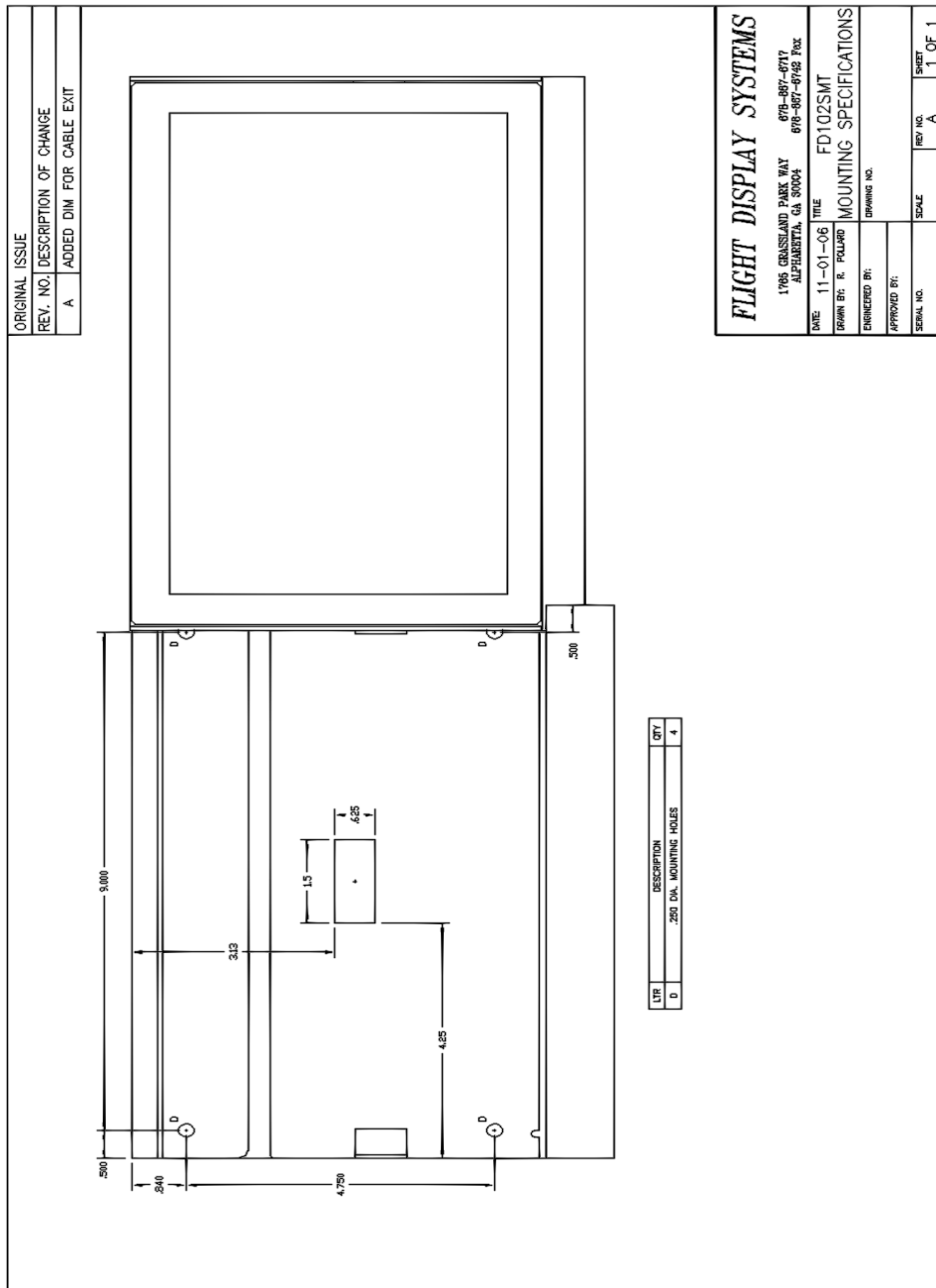
Part Numbers for DB-15 connectors, manufactured by Tyco or Amp.

High density, D-sub, 15 contact plug (male)	P/N 748364-1
High density, D-sub, 15 contact receptacle (female)	P/N 748565-1
HD15M pins	P/N M39029/58-360
HD15F pins	P/N M39029/57-354



Pin Number	Description
1	12VDC Power (28VDC for FD102SMT (28V))
2	12VDC Ground (28VDC for FD102SMT (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)

Technical Drawing

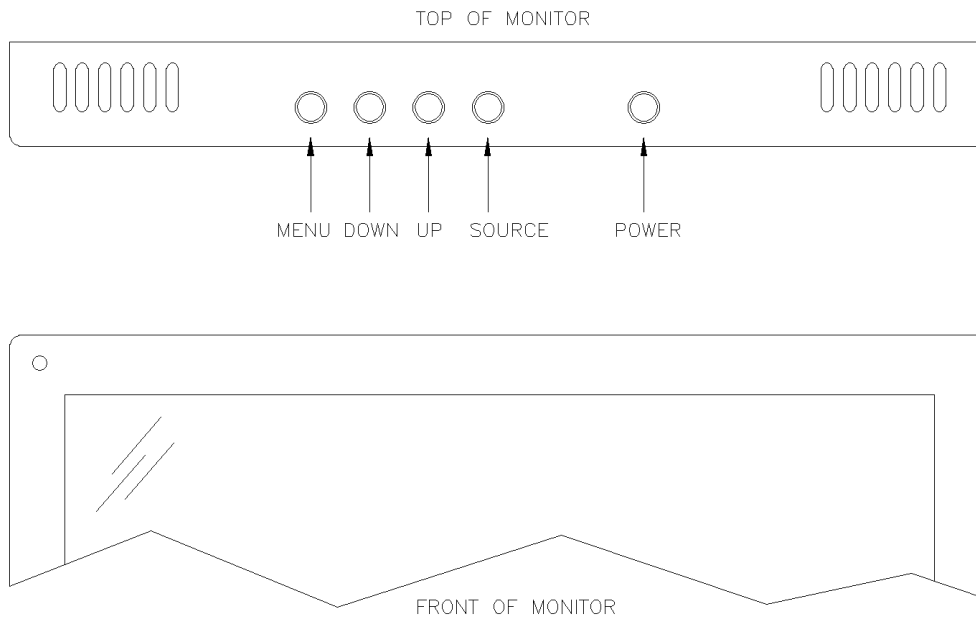


Operation Instructions

The FD102CV 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.

Passengers can change the video output from the FD102CV using the video source select switch on the LCD monitor, or remotely throughout the cabin with the included IR remote.

Button Controls



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.

Remote Control



The remote control included with the FD102CV contains the same functionality available on the display buttons, to include power, source, menu, and directional arrows.

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.

Remote Control Inoperable

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



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.

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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 FD102SMT is designed not to require regular general maintenance.



Limited Warranty

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.



Log of Revisions

Rev	Date	Page	Description
A	01/30/2007	---	---
B	03/27/2007	3,4,5	Added information about FD102SMT (28V)
C	04/11/2007	6	Changed required amperage information.
D	08/09/2007	1	Changed picture to show correct positioning.
E	02/16/2009	2,10	Updated specifications, warranty info
F	12/10/2009	1,6,7	Revised product photo, button controls, remote control
G	08/24/2012		Updated format, warranty and non-PMA info

