Installation and Operation Manual

FD171CV-C-1

17” LCD Monitor

TECHNICAL SUPPORT
470-239-7421 or FDSAvionics.com

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General Information

The FD171CV-C-1 is a panel mounted 17” monitor. Built with retrofit aircraft integration in mind, this display can switch between five video input sources using an infrared remote control or with the buttons located on the top of the unit.

Front View

Additional Information

The FD171CV-C-1 features five available video sources: HD-SDI In-Out, DVI-D, Industry Standard VGA (computer graphics i.e. moving maps), S-Video (via BNC connectors for Y and C components), and Composite Video (via BNC connector).

The LCD is protected with a .060” thick anti-glare, anti-abrasion Lexan lens to prevent scratching of the LCD, and to meet stringent FAA abrasive load criteria.

Specifications

Display Type	17.1″ TFT Color LCD
Display Color	16.7 Million Colors
Screen Resolution	1440 x 900
Brightness	250 cd/m^2
Dimensions	16.25″(W) x 11.00″ (H) x 1.750″(D)
Display Size	14.36″(W) x 8.950″(H)
Weight	7.60 Lb.
Power @ Amp	28V DC @ 1.3A Max. Cont. Steady-State
Video Type Supported	NTSC/PAL
Video Sources	HD-SDI (In-Out), DVI-D, Industry Standard VGA, S-Video, Composite
Screen Control	On Screen Display Menu
Viewing Angle	178° on Both Axis
Materials	Aluminum
Remote Control	IR, included
Pixel Pitch	.255 mm X .255 mm
Operating Temperature	0-50° C (32-122° F)
Test Certifications	FD171CV: DO-160, Sec 21, Cat B DO-160, Sec 7, 8

Installation Instructions

All cabin equipment, such as the FD171CV-C-1, 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 system should it become necessary.

There are (8) 8-32 UNC mounting holes located on the sides and back of the display. Four mounting points are located on the rear and two on each side of the bezel. See installation drawing at end of manual for dimensional details.

Power

This is a **28VDC** monitor that requires 1.3 Amps of maximum continuous steady-state power to operate. The unit turns on automatically upon power application.

Wiring Instructions

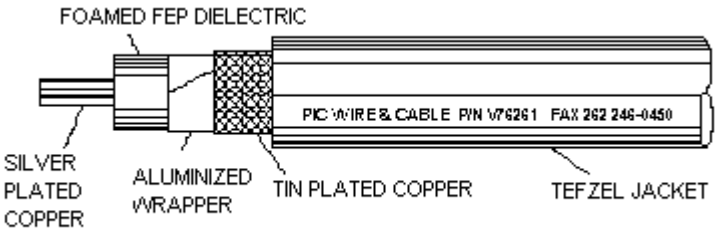
For balanced signals on twisted pair cable, all shields should be grounded to the connector at the source, and floating at the display.

Avoid routing video wiring parallel to:

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

Composite, S-Video, and Audio Wiring

Recommended cable for s-video and audio purposes is PIC 75 Ohm Coax, P/N V76261. 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).

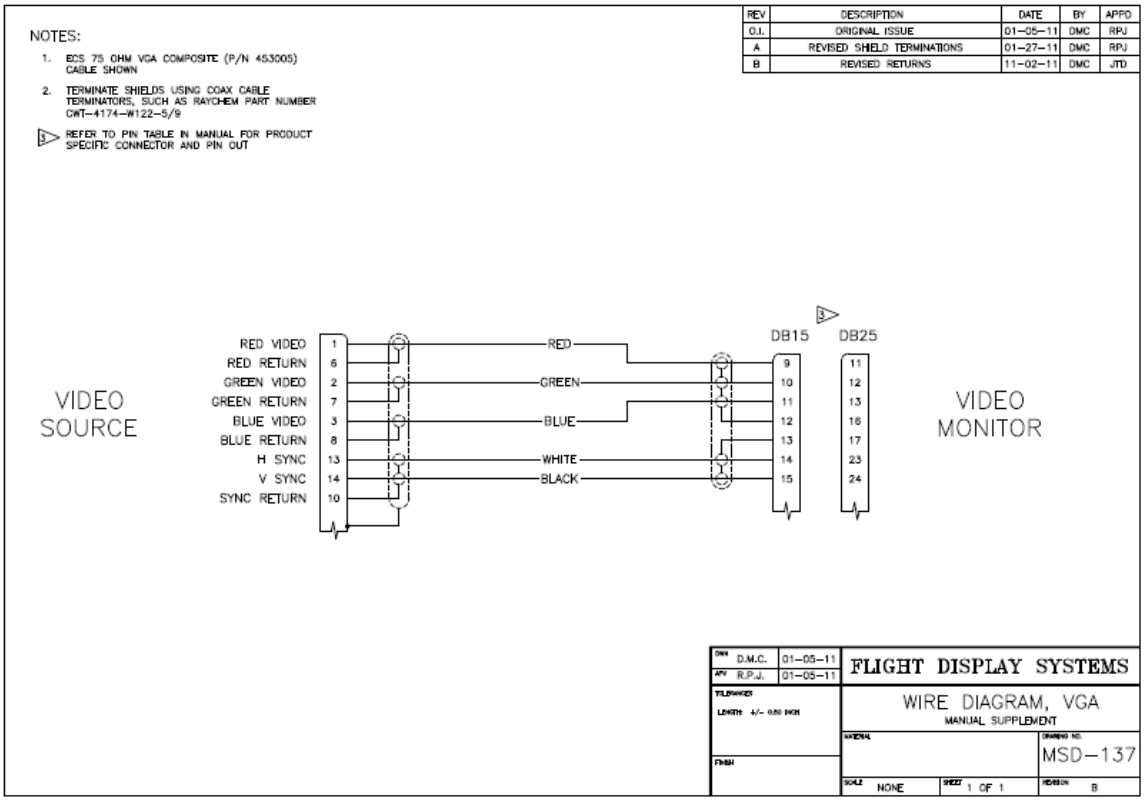


Similar aviation coaxial cable can be used from other vendors, as well.

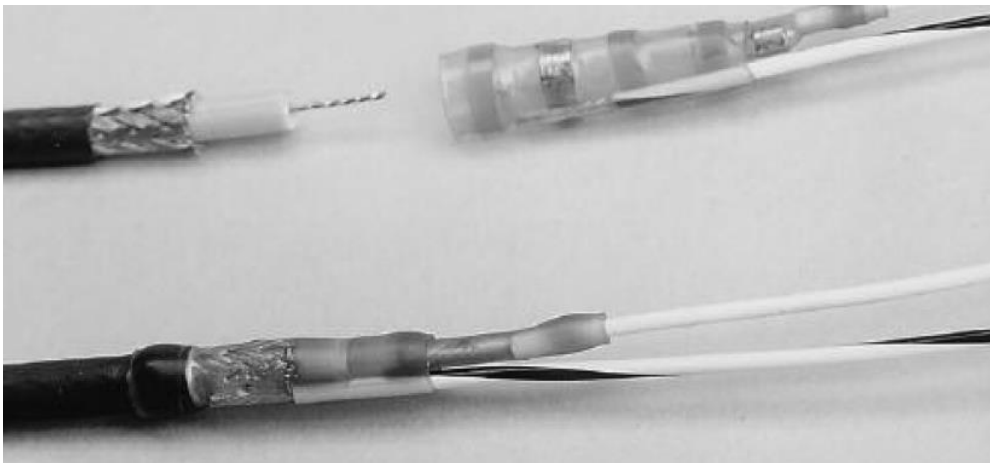
Some aircraft are prone to AC noise - we recommend adding to the composite source a 75 Ohm video isolation transformer such as Deerfield Laboratory, Inc. Part No. 162-1 (www.deerfieldlab.com, (650) 632-4090). In most cases this should be added to the video output of the source.

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.



We recommend coax cables be terminated using solder sleeve coaxial cable terminators such as Raychem Part Number CWT-4174-W122-5/9.



Power and Ground Wiring

20 AWG wire is recommended for Power and Ground applications.

This is a 28VDC monitor that requires 3 amps of power to operate. To operate properly this monitor requires an input voltage of 24-29VDC.

The rated current of the equipment and associated voltage drop should be taken into consideration when selecting wire gauge. The following example is based on an install with a 28VDC power system and a total of 50 feet of wire between the circuit breaker, monitor and ground.

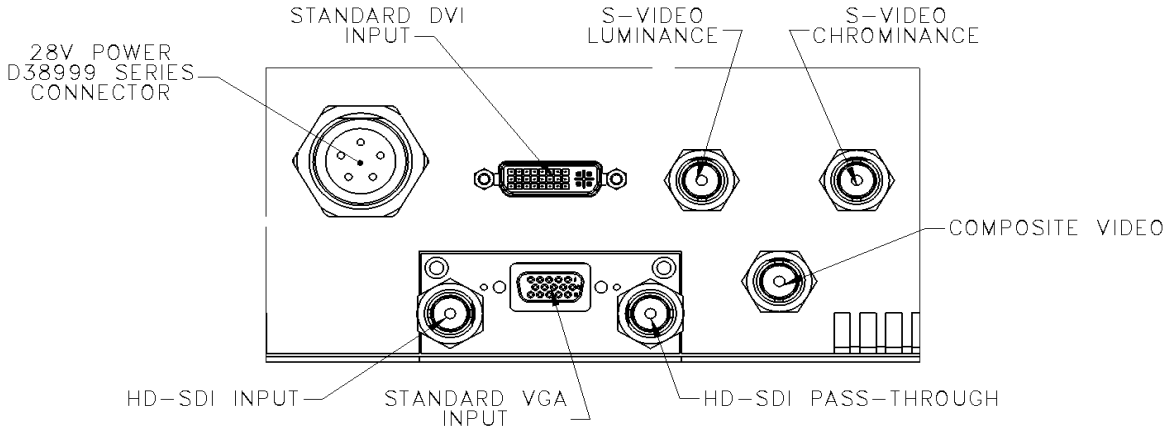
Example: 22awg wire has 16.2 Ohms per 1000 feet, this equates to .81 Ohms for 50 feet. 3 Amps of current on .81 Ohms will drop 2.43 Volts.

Resistance of Wire Type M22759/16-** (** = Gauge)	
Gauge (AWG)	OHMS/1000′
24	26.20
22	16.20
20	9.88
16	4.81
12	2.02
10	1.26
8	.70

Also, use short heavy gauge wire and a clean tight connection for ground.

It is the installer's responsibility to understand the product's requirements to install the product in compliance with industry standards and safety.

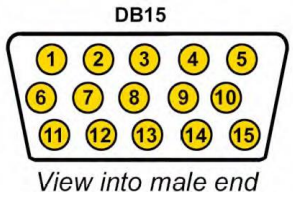
Rear View with Connectors



VGA Video

Pin out for DB-15 Female Connector (Industry Standard VGA)

Connector P/N: 748364-1 or Equivalent
Crimp Contacts P/N: M39029/58-360 or Equivalent

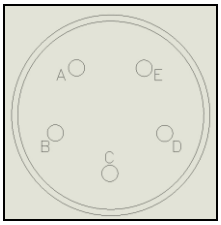


Pin Number	Description
1	Red Signal
2	Green Signal
3	Blue Signal
4	N/C
5	Ground – Horizontal Sync
6	Red Return
7	Green Return
8	Blue Return
9	N/C
10	Ground – Vertical Sync
11	N/C
12	N/C
13	Horizontal Sync
14	Vertical Sync
15	N/C

Pin out for 28V PWR – D38999 connector (supplied)

Mating Connector P/N: D38999/26FB5SA or Equivalent

Crimp Contacts P/N: M39029/56-351 or Equivalent



MATING FACE

Pin Number	Description
A	28VDC Power
B	28VDC Power
C	28VDC Ground
D	28VDC Ground
E	N/C

Pin out for HD-SDI Input (In-Out Pass Thru)
(Standard BNC – 75 OHM) – 31-242 (Supplied)

Pin	Description
Center	Video Signal
Shell	Video Return

Pin out for S-Video (Luminance - Y Component)
(Standard BNC – 75 OHM) – 31-242 (Supplied)

Pin	Description
Center	Y Signal
Shell	Y Return

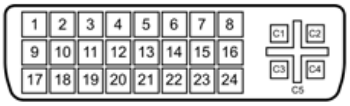
Pin out for S-Video (Chrominance - C Component)
(Standard BNC – 75 OHM) – 31-242 (Supplied)

Pin	Description
Center	C Signal
Shell	C Return

Pin out for Composite Video
(Standard BNC – 75 OHM) – 31-242 (Supplied)

Pin	Description
Center	C Signal
Shell	C Return

Pin out for DVI-D
Accepts a standard DVI-D (Single Link) male connector (supplied)



View into mounted receptacle

Pin Number	Description
1	TMDS data 2-
2	TMDS data 2+
3	TMDS data 2 shield
4	N/C
5	N/C
6	DDC clock
7	DDC data
8	N/C
9	TMDS data 1-
10	TMDS data 1+
11	TMDS data 1 shield
12	N/C
13	N/C
14	+5 V
15	Ground
16	Hot plug detect
17	TMDS data 0-
18	TMDS data 0+
19	TMDS data 0 shield
20	N/C
21	N/C
22	TMDS clock shield
23	TMDS clock+
24	TMDS clock-
C1	N/C
C2	N/C
C3	N/C
C4	N/C
C5	N/C

Operation Instructions

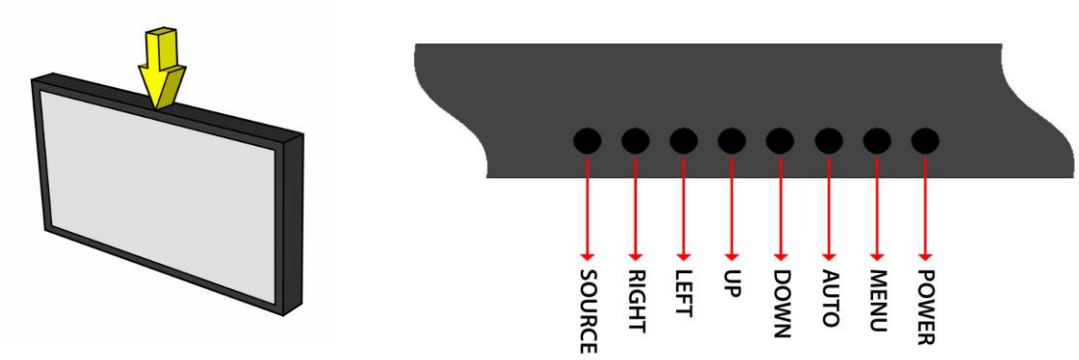
The FD171CV-C-1 is continuously on but can be de-energized by removing power from the video system. No pilot or aircrew action is necessary during flight or ground operation.

The operator will be able to change the video output from the FD171CV-C-1 using the video source select button on the display.

When applying 28VDC 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 Select button will select new video input.

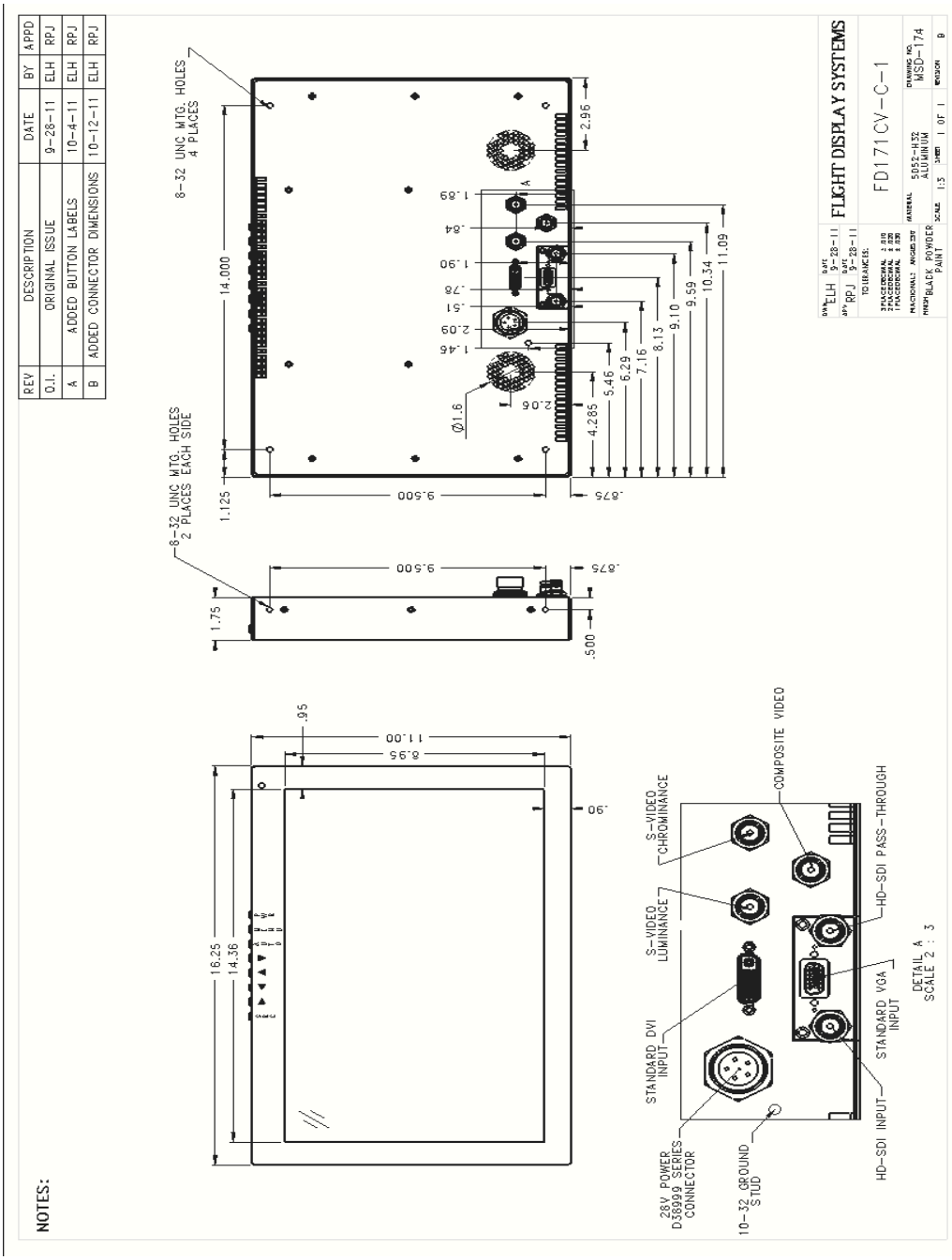
Button Controls

Located at the top (center) of the FD171CV-C-1are 8 buttons. Their functions are shown below:



BUTTON	DESCRIPTION
POWER	Toggles the power ON or OFF. Also, wakes the display up from SLEEP mode.
MENU	Opens the MENU.
AUTO	Auto-adjusts the display's size and position.
DOWN	Moves to the next selection in the menu.
UP	Moves to the previous selection in the menu.
LEFT	Decrease the selection's value in the menu.
RIGHT	Increases the selection's value in the menu.
SOURCE	Switches between sources coming into the display.

Technical Drawing



Technical Support

Should you have any questions concerning this product or other FDS Avionics Corp. products, please contact our Product Support representatives at (470) 239-7421.

FDS Avionics Corp.
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Alpharetta, GA 30005
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Email: sales@FDSAvionics.com

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

Instructions for Continued Airworthiness

The FD171CV-C-1 is designed not to require regular general maintenance.

Limited Warranty

All FDS Avionics Corp. (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.

FDS Avionics Corp. 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	09/27/11		Initial Release
B	10/05/11	5,13	Updated Specifications, Technical Drawing
C	10/12/11	13	Revised Technical Drawing
C	1/11/2017	All	New company name and formatting change. No revision change necessary.