

Installation and Operation Manual

FD270AID

Advisory Information Display





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General Information

The FD270AID is a 5" Advisory Information Display, 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: FD270AID



*Detached Electronics Box
(FD90AID-DEB-SM shown)*

Additional Information

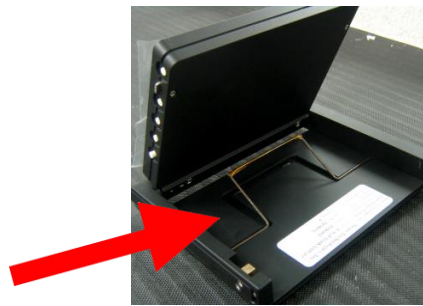
The FD270AID features a “face-out” display, which the pilot would open 90° to be viewed. The FD270AID is available in top or bottom mount configurations. The units are also available in grey or black.



Above is a FD270AID

The Detached Electronics Box ("DEB") allows the half-inch thick LCD to be mounted anywhere in the cockpit. The DEB contains essential graphics circuitry critical to the operation of the FD270AID. The cabling between the DEB and the LCD contains two break-plugs, and should not be cut or extended. There is no degradation of image quality or input sources in this configuration.

The FD270AID uses a torsion spring, which deploys the unit up from the mounting plate when opened. It also has an extended power button which enables the unit to automatically turn off upon closing. (Note: The unit does not automatically power on, and should be on when closed in order to turn off automatically.)



Torsion Spring

Specifications

Display Type	5.0" TFT Color LCD
Screen Resolution	640x480
Brightness	600 cd/m ²
LCD Dimensions	6.1" (W)x.66" (H)x4.75" (D)
DEB Dimensions	5.7" (W)x1.14" (H)x5.05" (D)
Power	28V DC @ .3AMPS
Video Inputs Supported	Analog RGB, 2 Composite Video*
Video Types Supported	VGA, NTSC/PAL
Screen Control	On Screen Display Menu
DO-160 TEST	Sec. 21, Cat. M Sec. 15, Cat. Z Sec. 8, Cat. U2
Weight	Display – 1.33 lb. DEB – .72 lb. DEB Cable - .82 lb.

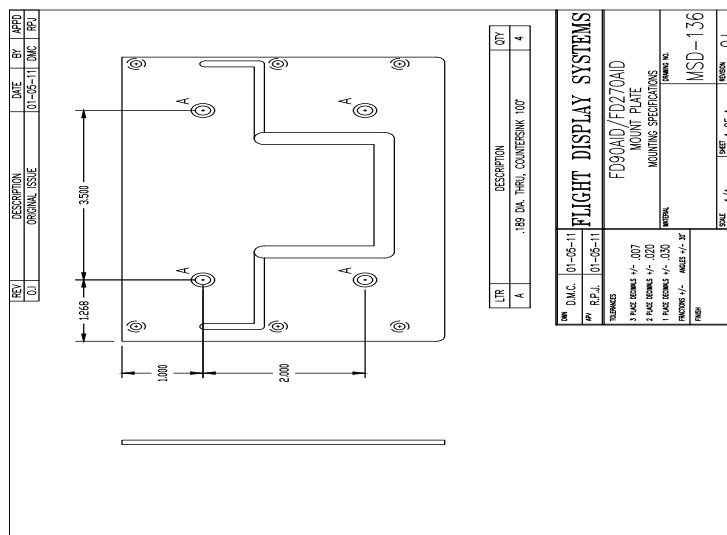
*Optional DVI available on FD90AID-DEB-SM Ver DVI

Installation Instructions

All cockpit accessory equipment, such as the FD270AID, 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 FD270AID 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. FDS Avionics Corp 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 FD270AID 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 FD270AID using (4) 6-32 x 1/2" screws.



Power

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

Wiring Suggestions

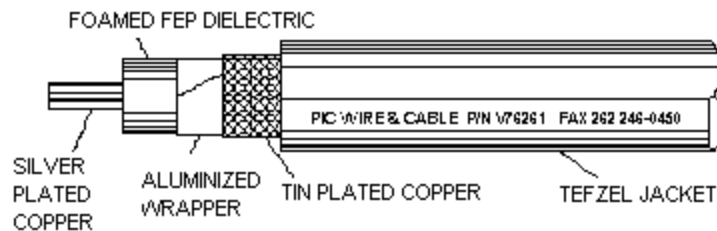
All shields should be grounded to the connector at the source, and floating at the display.

Avoid routing video wiring parallel to:

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

S-Video/Composite and Audio Wiring

Recommended cable for s-video/composite 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).

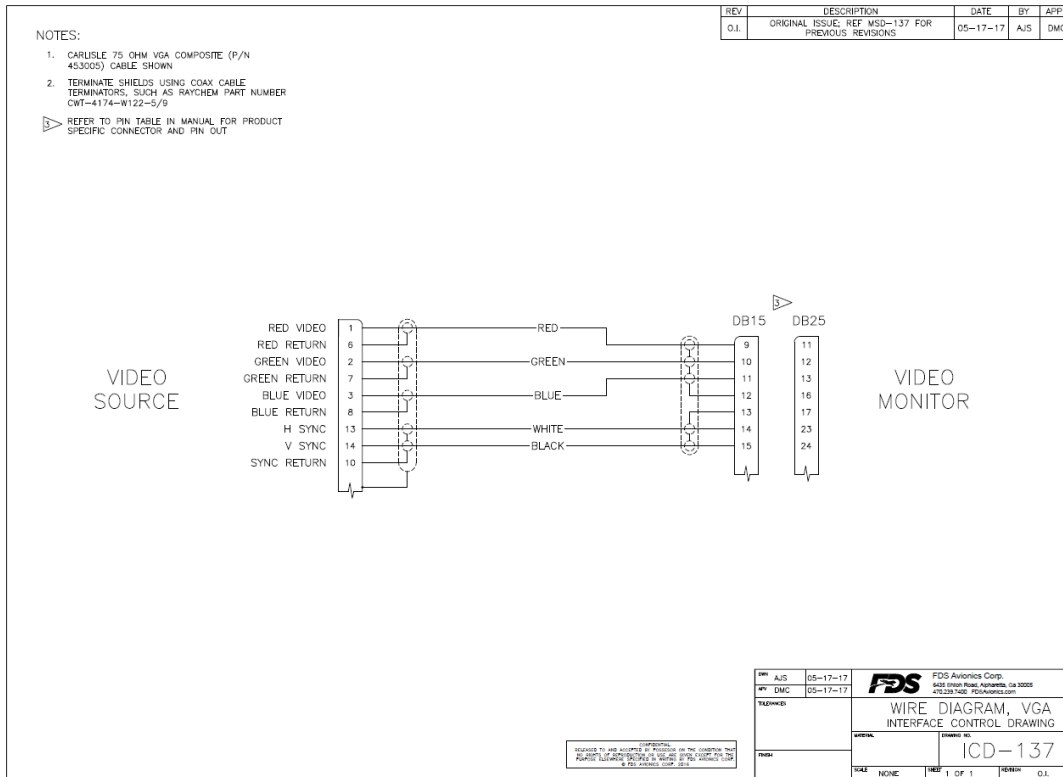


Similar aviation coaxial cable can be used from other vendors, as well.

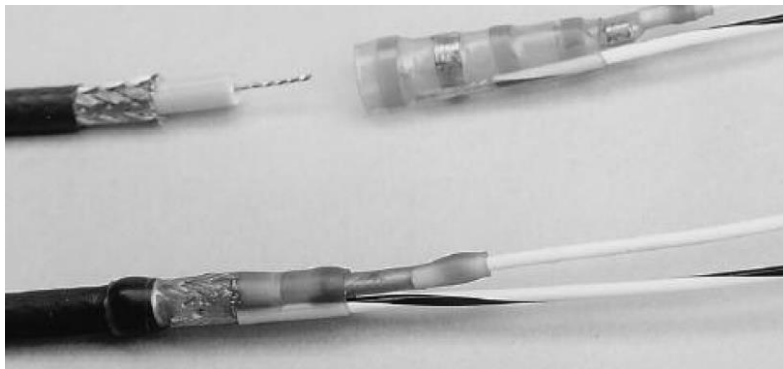
Some aircraft are prone to AC noise - we recommend adding to the composite source a 75Ohm video isolation transformer such as Deerfield Laboratory, Inc. Part No. 162-1 (www.deerfieldlab.com, (650) 632-4090). In most cases this should be added to the video output of the source.

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.



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

This is a 28VDC monitor that requires 0.3 amps of power to operate. To operate properly this monitor requires an input voltage of 18-29VDC.

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. 0.3 Amps of current on .81 Ohms will drop 0.243 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	.701

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.

Additional Options

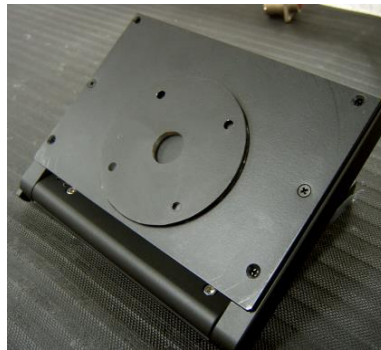
As with all of our displays, multiple FD270AID configurations are possible. A DAPS321 is used to split and amplify the composite signal to multiple units.

For assistance with installation of multiple displays, please contact FDS Avionics Corp at (470) 239-7421.

Dual Installation

Swivel Base

An optional swivel base, FDAID-SW is available for FD270AID products. The swivel base is mounted directly to the existing mounting plate and allows the FD270AID to rotate left and right. The swivel base assembly adds a mere 0.175" to the total height of the unit.



**FDAID-SW Installed
(Optional)**

DVI Version

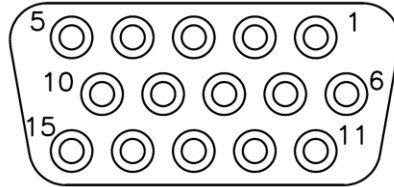
An optional Detached Electronics Box (D.E.B.) with DVI input (FD90AID-DEB-SM Ver DVI) is available for FD270AID products. This D.E.B. has a dedicated DVI-D (single link) input in addition to the existing VGA and (2) composite inputs.

Power/Video

Pin out for High Density DB-15 Receptacle (P1)

Connector
Crimp Contacts

P/N: M24308/2-286 or Equivalent
P/N: M39029/57-354 or Equivalent



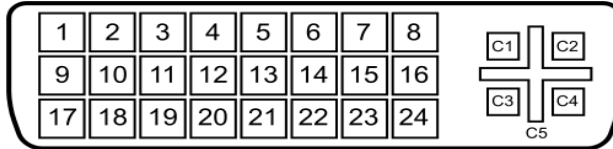
MATING FACE

Pin Number	Description
1	28VDC Power
2	28VDC Ground
3	N/C
4	Composite Video #1 - Signal
5	Composite Video #1 - Return
6	N/C
7	Composite Video #2 - Signal
8	Composite Video #2 - Return
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 Return (Pin 6 on Standard VGA)
13	Green Return (Pin 7 on Standard VGA)
14	H Sync (Pin 13 on Standard VGA)
15	V Sync (Pin 14 on Standard VGA)

DVI Video

Pin out for optional P3 (DVI-D)

J3 accepts a standard DVI-D (Single Link) male connector (not supplied)



J3

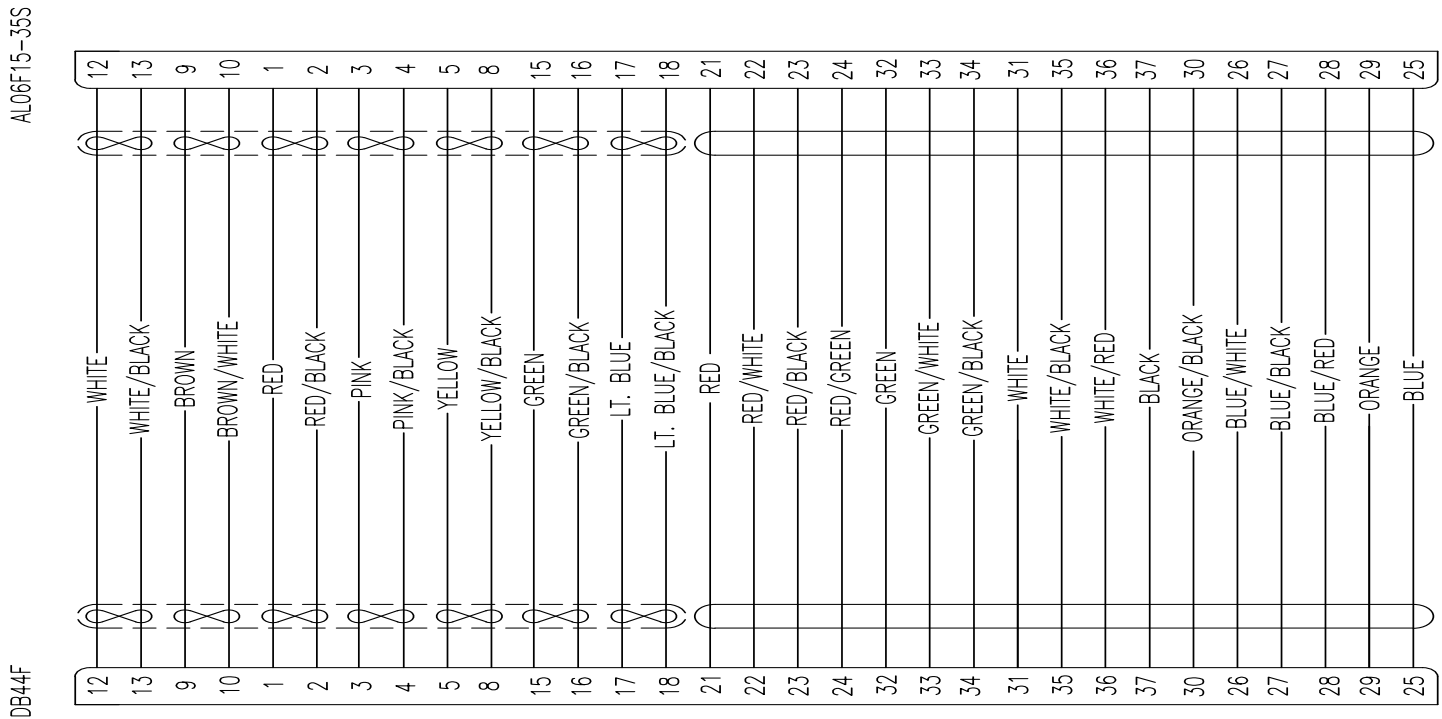
Pin Number	Description
1	TMDS data 2-
2	TMDS data 2+
3	TMDS data 2 shield
4	N/C
5	N/C
6	DDC clock
7	DDC data
8	N/C
9	TMDS data 1-
10	TMDS data 1+
11	TMDS data 1 shield
12	N/C
13	N/C
14	+5 V
15	Ground
16	Hot plug detect
17	TMDS data 0-
18	TMDS data 0+
19	TMDS data 0 shield
20	N/C
21	N/C
22	TMDS clock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

NOTE: On earlier versions of the Detached Electronics Box (D.E.B.) the J2 connector was a DB37; current versions now use a DB44 connector. If you are replacing an existing DB37 version D.E.B with the current DB44 version then, you will need Data/LVDS DB44 to DB37 Adapter Cable Assembly part number 620-00002-4437. Adapter Cable will be supplied free of charge from FDS Avionics Corp upon request.

Cable Harness

The following wire diagram of the supplied 620-00002-09 cable assembly is provided should it be necessary to de-pin a connector to pass through an opening.

NOTE: Some harness assemblies do not contain all wires shown.



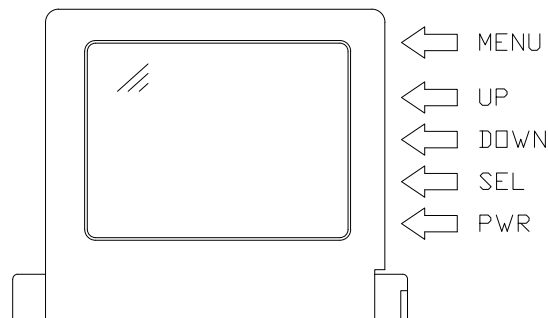
Operation Instructions

When 28VDC power is applied, the FD270AID 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 FD270AID using the Select button on the side of the LCD.

Button Controls

Located on the edge of the monitor, are the following button controls.

BUTTON	DESCRIPTION
MENU	Opens the menu, and escapes out of menus.
UP	Increases selected option's value, and enters menu pages. Outside of the menu this button increases the backlight intensity.
DOWN	Decreases selected option's value. Outside of the menu, this button decreases the backlight intensity.
SELECT	Scroll through video sources: (2) Composite, and VGA. In the menu, selects between options and menu pages.
POWER	Turns the unit on or off.



FD90AID button configuration shown above.

Frequently Asked Questions

My video was working fine, but now I don't have any display.

If the pilot lowers the backlight all the way down to the lowest setting (No illumination), the unit will remember this setting and appear to be inoperative. Simply raise the level of backlighting to view the display.

Is there a locking mechanism to keep the FD270AID open?

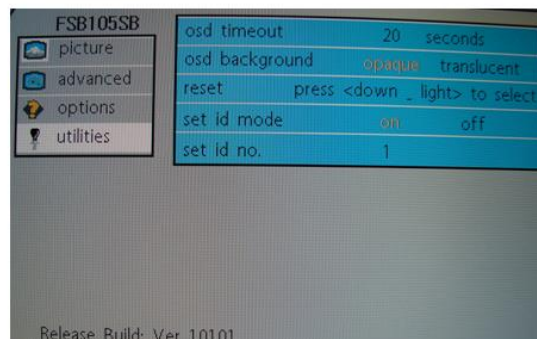
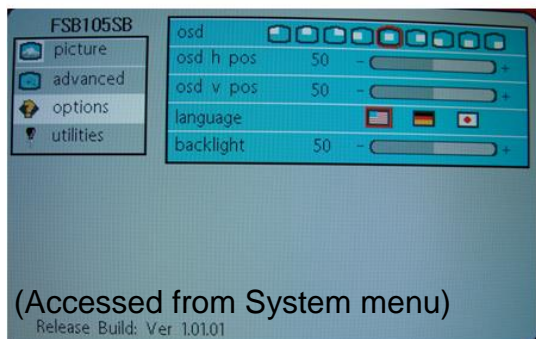
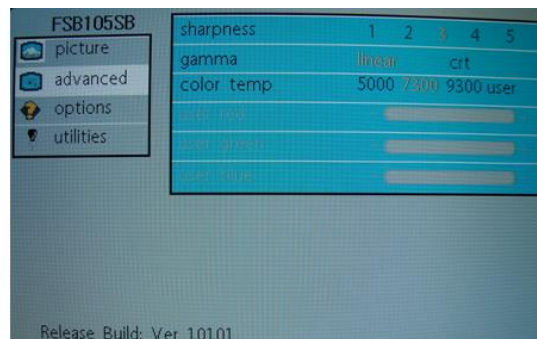
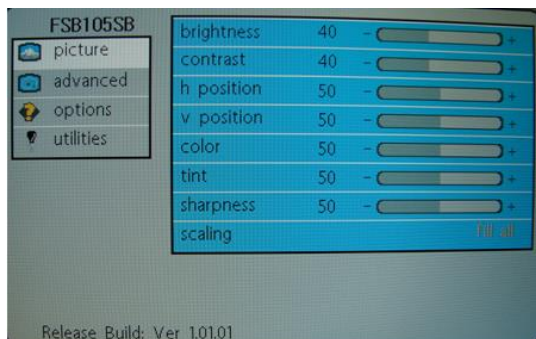
No, however the tension can be adjusted by tightening the two 6-32x⁵/₁₆" socket head cap screws next to the latch bar.



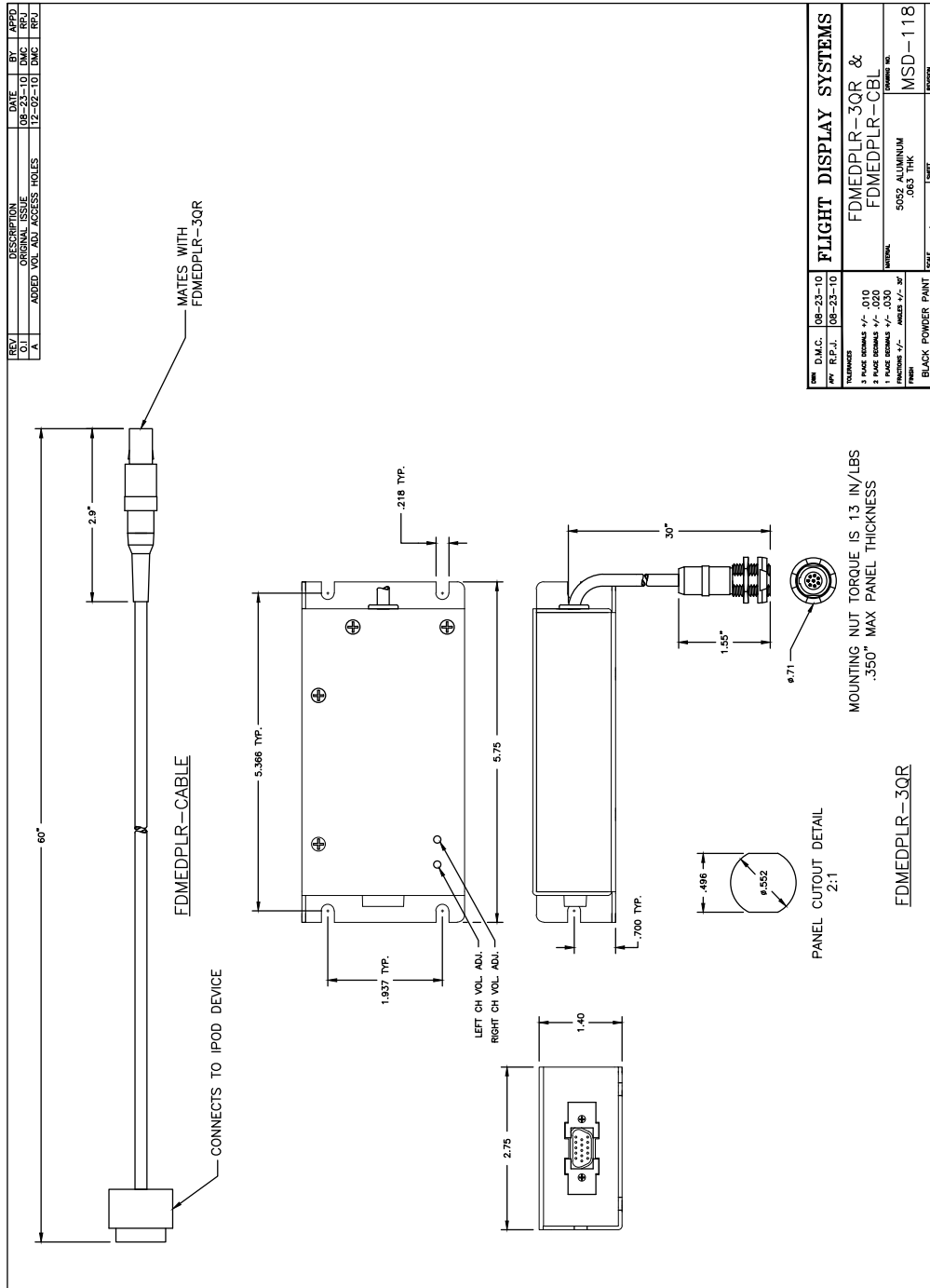
How do I navigate through the menus?

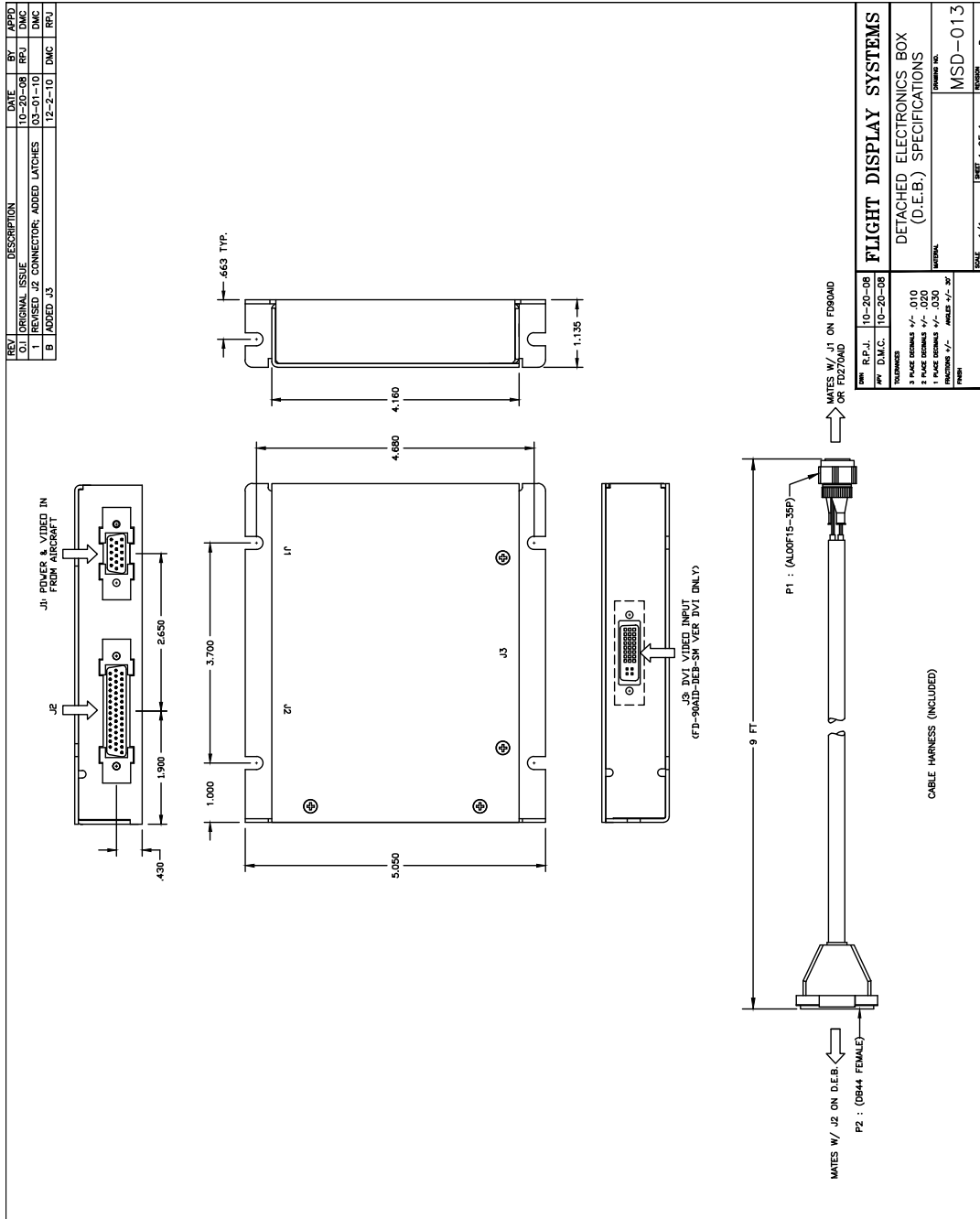
Use the Menu button to open the menu.

Use the Select button to choose the applicable menu page, and press Up to enter the selected menu page. Use the Select button to scroll through the options, and then use the Up and Down buttons to increase or decrease the options' values.



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.
6435 Shiloh Road
Alpharetta, GA 30005
Phone: 470-239-7400
Fax: 470-239-7439
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 FD270AID is designed not to require regular general maintenance.



Limited Warranty

All FDS Avionics Corp. 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	02/18/2009		
B	07/13/2010		Table of Contents – DB-37 to DB-44, Replace DEB image and add front view, remove remote dimming, updated DB-15 pinout, Change DB-37 wiring to DB-44 wiring, change header to high density DB-15 and DB-44, replace wiring diagram, replace installation drawings, format change
C	01/18/2011		Updated image, Specifications, Mounting Instruction Drawing, Power, S-Video/Composite, VGA Wiring Drawing, Power & Ground, DEB Info, Power/Video, Operation Instructions, Added Troubleshooting, Replaced Technical Drawing
D	08/07/2012		Updated format, additional non-PMA info
E	08/01/2017	ALL	Name change and Copyright Update, Updated Warranty, Removed Troubleshooting