

# FD201CMT-LP

## Installation and Operation Manual

### 20.1" LCD and Ceiling Mount



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

**Flight Display Systems**  
*Enhancing the Flight Experience*

FD201CMT-LP

20.1" LCD and Ceiling Mount

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# General Information

The FD201CMT-LP is a 20.1" LCD and Ceiling Mount. The high resolution LCD is perfect for cabin video and graphical entertainment, and has features that allow installation in the smallest of mounting areas with the minimum of interface equipment.

## Front View



## Additional Information

The FD201CMT-LP is very rugged with the mounting structure and the internal pivot parts manufactured from milled aluminum. The ceiling mounting frame is mounted in the aircraft where it will provide optimum viewing enjoyment by the passengers, resulting in a smooth shape that houses the LCD and blends into the cabin headliner.

Deployment is via a mechanical latch at the front of the unit. Sliding the latch releases the display and the display is normally placed at a 90 degree angle for viewing. To stow the display the operator would push the display up to the ceiling position where a positive latch occurs.

The FD201CMT-LP features constant torque friction which enables the user to position the LCD at various positions when deployed. This is especially helpful when there may be glare, sunlight, or a bad viewing angle.

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## Specifications

Screen Resolution	1600x1200 (UXGA)
Display Brightness	300 cd/m <sup>2</sup>
Mount Dimension (Deployed)	20.70" (W) x 16.43" (H) x 17.85" (D)
Mount Dimension (Stowed)	20.70" (W) x 2.00" (H) x 17.85" (D)
LCD Dimension	16.1" (W) x 12.0" (H)
Weight	22 lbs
Power	28VDC @ 1.5 Amps
PC Video Input	VGA (High Density DB-15 Connector)
Standard Video Input	S-Video, Composite
Video Type Supported	NTSC/PAL
Screen Control	On-Screen Menu
Remote Control	IR, included
Materials	Aluminum
Mount Type	Friction Hinge Ceiling
DO-160D Testing	Section 21, Category B

## Installation Instructions

All cabin entertainment equipment, such as the FD201CMT-LP, 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 order in which you proceed is up to the installation center. We suggest that you first look at the mounting plate prior to installing the LCD to make sure you have the proper room and conditions in the aircraft to mount the display to the ceiling. Most aircraft have a significant curvature in the headliner and it will probably be necessary to modify the headliner to mount to a structure that will hold this mount.

Once it has been determined that you have sufficient room and mounting locations for the FD201CMT-LP, the unit can be mounted. The FD201CMT-LP is attached to the aircraft with four #10 screws. There are four attach points on the top of the mounting frame.

There is one DB-15 male connector at the end of a 16" cable exiting the LCD which is used for power, VGA, S-Video and composite inputs.

### Power

This is a **28VDC** monitor that requires 1.5 Amps to operate.

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## Video Wiring Suggestions

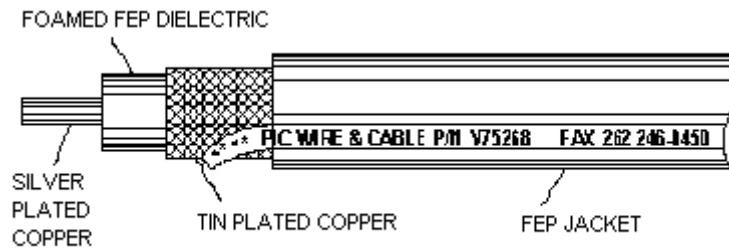
All shields should be grounded to the connector at the source, and floating at the display.

Avoid routing video wiring parallel to:

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

### 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).

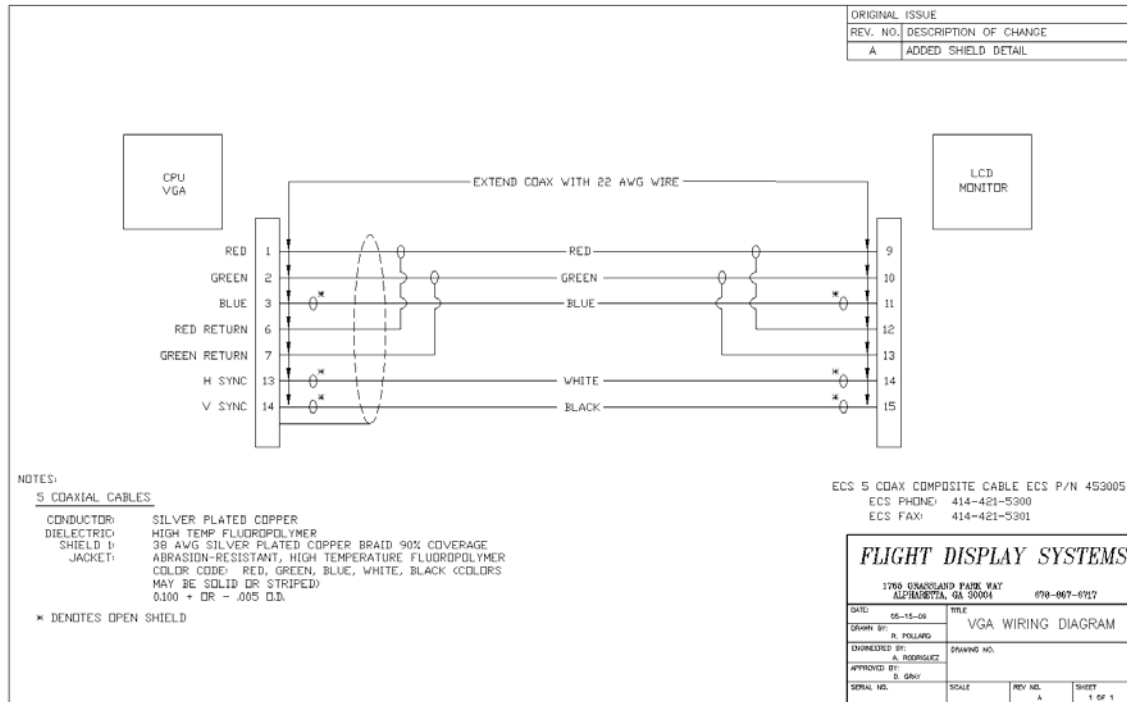


Similar aviation coaxial cable can be used from other vendors, as well.

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](http://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

20 AWG wire is recommended for Power and Ground applications.

## Pinout for High Density DB-15

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

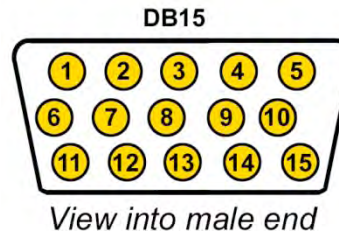
High density, D-sub, 15 contact receptacle (female)

P/N 748565-1

HD15F pins

P/N M39029/57-354

### Wiring Diagram



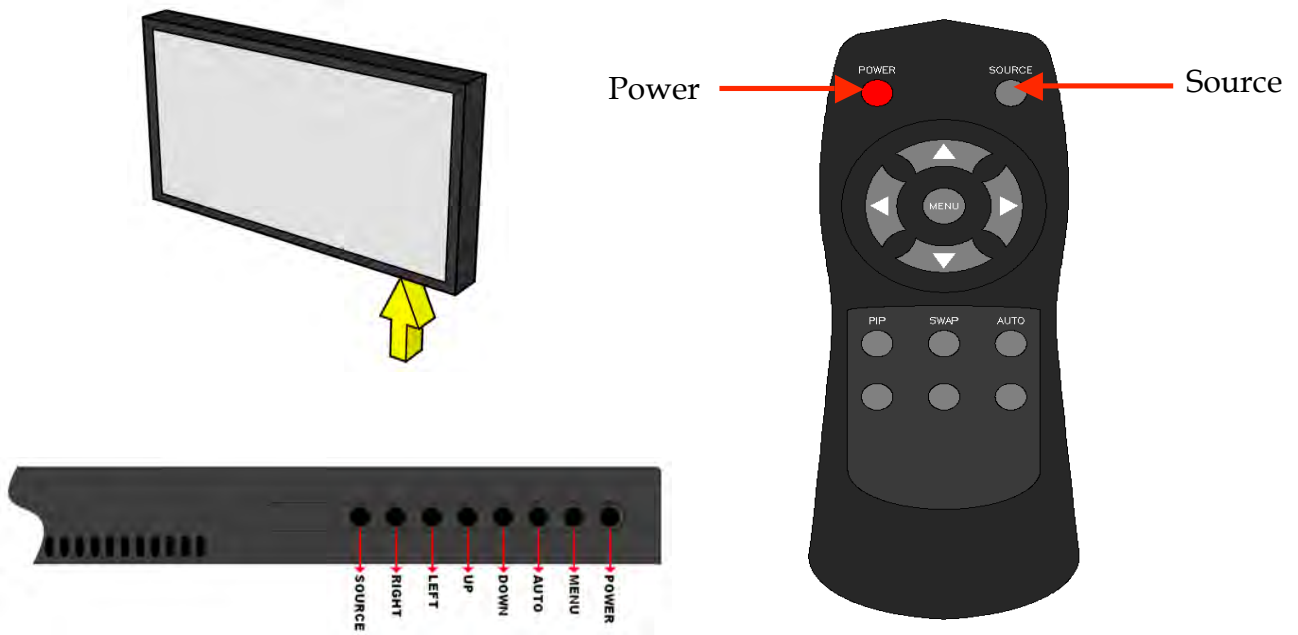
Pin Number	Description
1	28VDC Power
2	28VDC Ground
3	Composite Video - Signal
4	Composite Video - Shield
5	S-Video Y - Signal
6	S-Video Y - Shield
7	S-Video C - Signal
8	S-Video C - Shield
9	Red Video (Pin 1 on Standard VGA)
10	Green Video (Pin 2 on Standard VGA)
11	Blue Video (Pin 3 on Standard VGA)
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)

# Operation Instructions

The FD201CMT-LP 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 FD201CMT-LP remotely throughout the cabin with the included IR remote.

## Remote Control

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.



# Troubleshooting

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## 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.

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## 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.

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## Color Distortion

- Adjust brightness and contrast settings using the buttons on the monitor.

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## 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 (678) 867-6717.

**Flight Display Systems**

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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](http://www.flightdisplay.com)

# Instructions for Continued Airworthiness

The FD201CMT-LP is designed not to require regular general maintenance.

## Warranty Information

Flight Display Systems warrants the FD201CMT-LP 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.

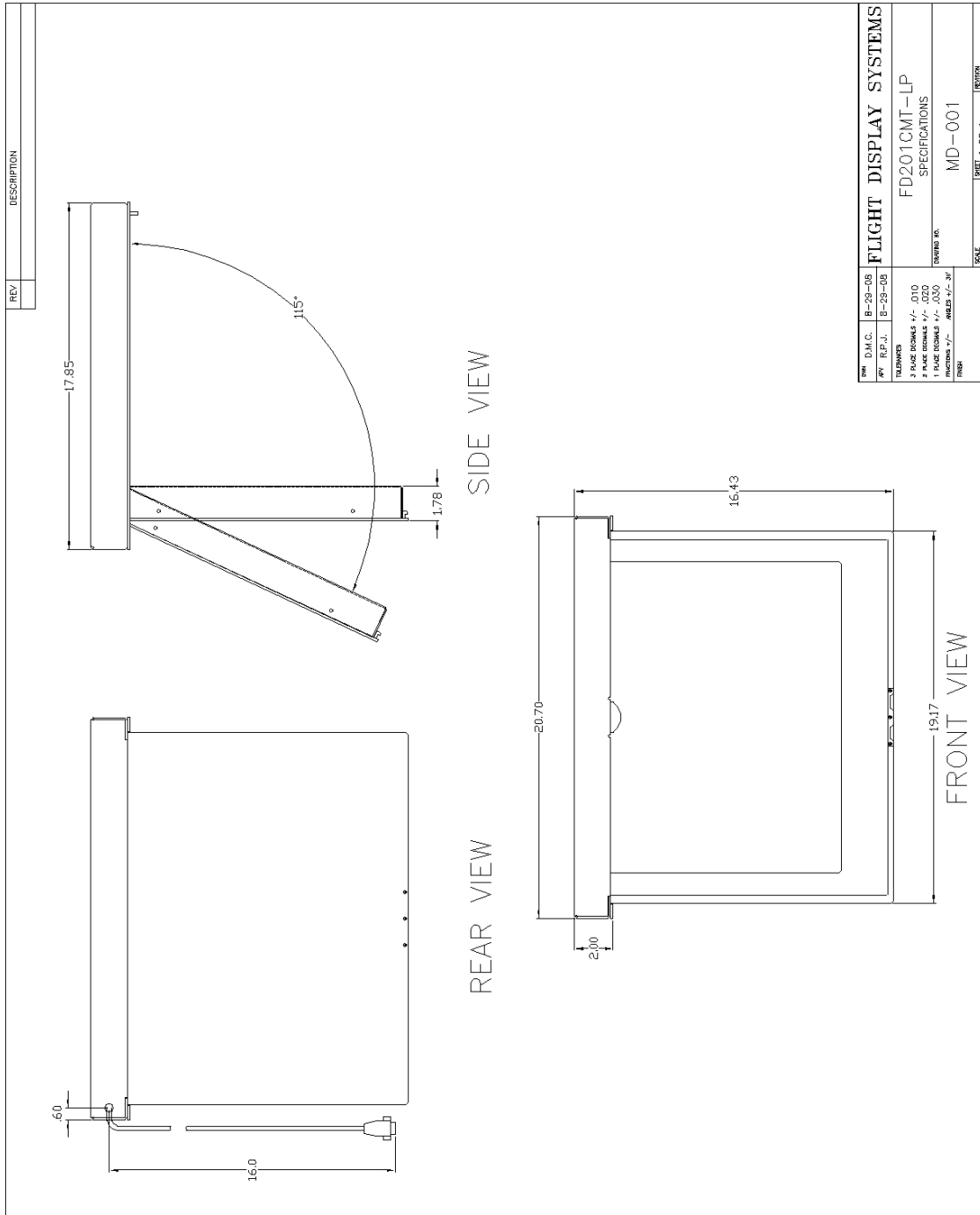
Flight Display Systems will pay Ground Shipping charges for warranted items. Charges for express shipment will be the responsibility of the sender.

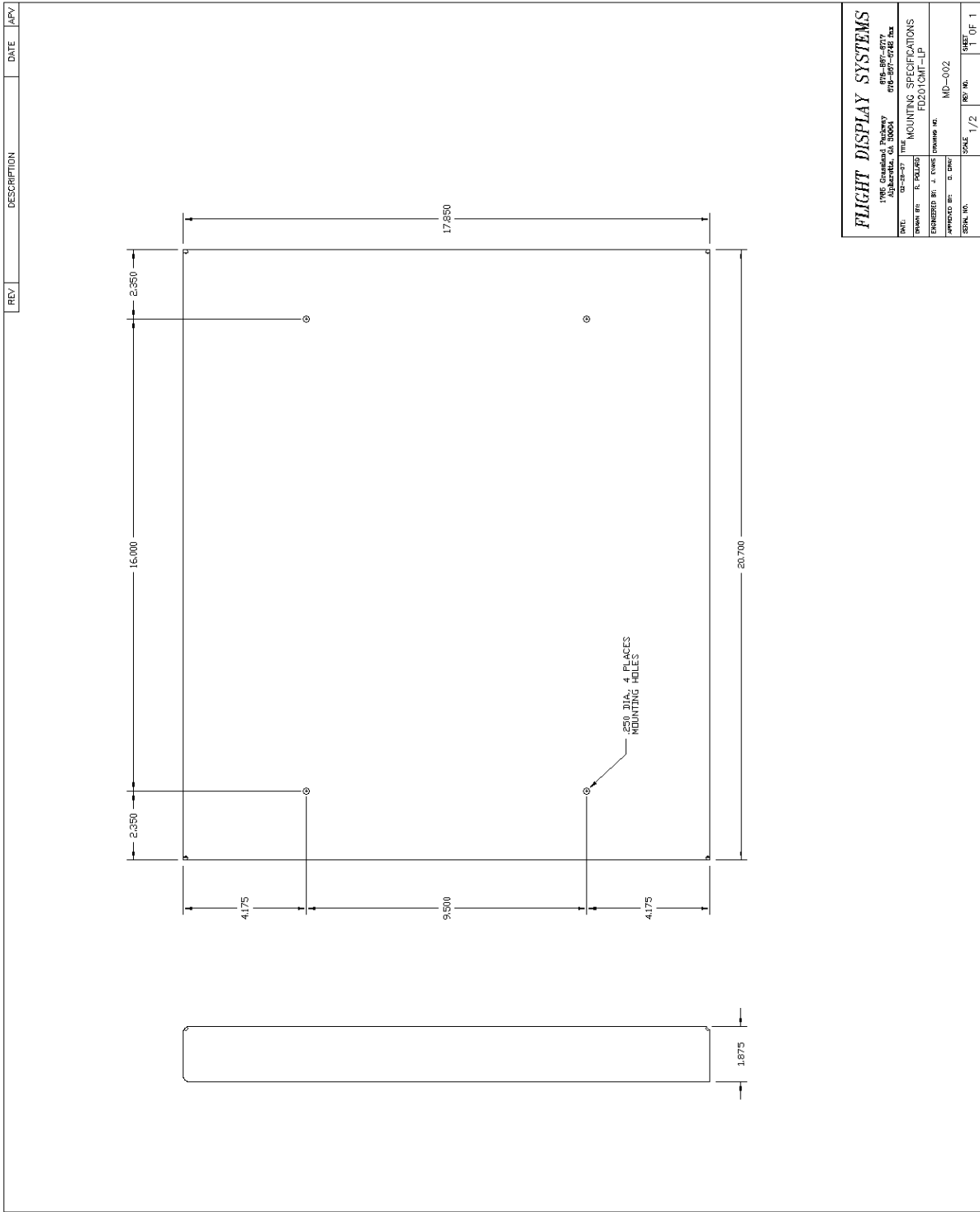
This warranty is not transferable. Any implied warranties expire at the expiration date of this warranty. We shall not be liable for incidental or consequential damages.

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.

# Assembly Drawing





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DRAWN BY: R. POLLESE	TITLE: MOUNTING SPECIFICATIONS
ENGINEERED BY: J. EVANS	PROJECT NO.: FD201CMT-LP
APPROVED BY: D. DORR	ISSUE NO.: MD-002
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## Log of Revisions

Rev	Date	Page	Description
A	05/20/2008	---	---
B	06/20/2008	10	Updated assembly drawing
C	08/27/08	1,6	Updated front view photo, updated remote control
D	04/10/2009	2,9	Updated specifications, warranty info