



## Installation and Operation Manual

### **FD154CMT-MTR-R/-L**

15.6" LCD With Motorized Ceiling Mount





## **FD154CMT-MTR**

15.6" LCD with Motorized Ceiling Mount

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<http://support.FlightDisplay.com/>





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## General Information

The FD154CMT-MTR is a 15.6" HSDSI Widescreen LCD with Motorized Ceiling Mount Capability. This high resolution LCD was developed as a drop-in replacement that is form fit and function while offering enhanced viewing and lower power and heat signatures. The 15.6" HSDSI widescreen display replaced a smaller 8.6" display.

The FD154CMT-MTR features the current standard 16:9 aspect ratio and a 1080i screen resolution. The size difference of the newer monitor represents 3 times the viewing area and over 2 times the pixel density. This unit 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



**FD154CMT-MTR Shown, In the Deployed State**

## **Additional Features**

### **HDSDI Loop Through Output**

Provides HDSDI output that can be used for HDSDI input to an additional FD1454CMT-MTR. Multiple units can be “daisy chained” together. All units will display the same video.

### **Monitor Adjustment**

Hue, color and brightness may be adjusted from the passenger cabin using the supplied IR remote control. Each monitor is supplied with an IR remote and all remotes are interchangeable.

### **Auto Redeploy**

In the event a monitor fails to deploy while an ON command is being received the monitor will automatically attempt to redeploy three (3) more times. After three (3) failed redeploy attempts the monitor will stow.

### **Local Override Function**

Pressing the small unmarked Override switch button, located on the panel housing, will cause the monitor to stow if deploying or in the viewing position or deploy if in the stowed position. The monitor will not deploy if the ON command is not received.

### **Safety**

The deployed monitor will retract if a force between 3.0 and 7.5 lbs (1.4 to 3.4Kg) is applied to the lower edge. The monitor will remain stowed until either the ON command is cycled or the local override switch is pressed. In the case of a power loss this unit will automatically return to the stowed position if previously deployed.

### **Uplatch**

When in the stowed position, the monitor will be latched in place to prevent uncommanded deployment.

## Specifications

<b>Viewing Area</b>	13.50" (W) x 7.57" (H)
<b>Display Type</b>	a-Si TFT LCD Panel
<b>Display Mode</b>	TN, Normally Black Transmissive
<b>Operating Temperatures</b>	0° C to 50° C
<b>Dimensions Stowed</b>	22.10" (W) x 13.03" (H) x 3.41" (D) 300" Radius
<b>Dimensions Deployed</b>	22.10" (W) x 14.12" (H) x 11.79" (D)
<b>Operation</b>	Deployment: 6-9 seconds Retract: 6-9 seconds
<b>Screen Resolution</b>	1920 x 1080
<b>Luminance</b>	250 nits
<b>Aspect Ratio</b>	16:9
<b>Contrast Ratio</b>	400:1
<b>Weight</b>	10.5 lbs. ± 1.0 lb.
<b>Power Requirements</b>	+ 28VDC
<b>Power Consumption</b>	J1 Pin 2: Peak: 1.3A @ 28VDC, 5mS (Motor Start & Display On) Nominal: 1.1A @ 28VDC (Motor Run & Display On) Nominal: 0.7A @ 28 VDC (Motor Off & Display On) J1 Pin 6: (Deploy Command Input) Nominal: 15mA
<b>Video Input</b>	HD-SDI SMPTE-292M
<b>Video Angle</b>	106 Degrees
<b>Remote Control</b>	IR, included
<b>Screen Protector</b>	.060" Thick Clear Polycarbonate - SABIC Aircraft - Grade, Flame Retardant Lexan
<b>Touch-Up Paint</b>	Polane T F63TXW25165 Beige (FED-STD-595 Color 37780)
<b>DO-160E testing</b>	Section 21 Category B Section 7 Category B Section 8 Category U

## Installation Instructions

All cabin entertainment equipment, such as the FD154CMT-MTR, should be installed on a non-essential bus and have a dedicated circuit breaker.

### Power

This is a **28VDC** unit that requires 1.1 Amps of power to operate.

### Wiring Suggestions

Avoid routing video wiring parallel to:

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

## Power and Ground Wiring

This is a 28VDC monitor that requires 1.1 amp 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. 1.1 Amps of current on .81 Ohms will drop .89 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.

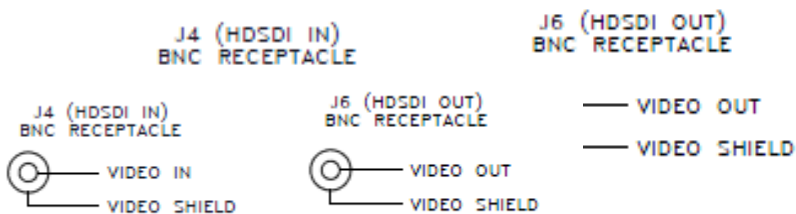


## Power/Video



J1 MS24264R12B12PN	
1	RESERVED
2	+28VDC IN
3	DC GND
4	RESERVED
5	CHASSIS GND
6	DEPLOY CONTROL 28 VDC = DEPLOY OVDC / OPEN = STOW
7	RESERVED
8	RESERVED
9	RESERVED
10	RESERVED
11	RESERVED
12	RESERVED

J2 NSFSB MS24264R8B3PN	
1	NO SMOKING
2	FASTEN SEATBELT
3	GND



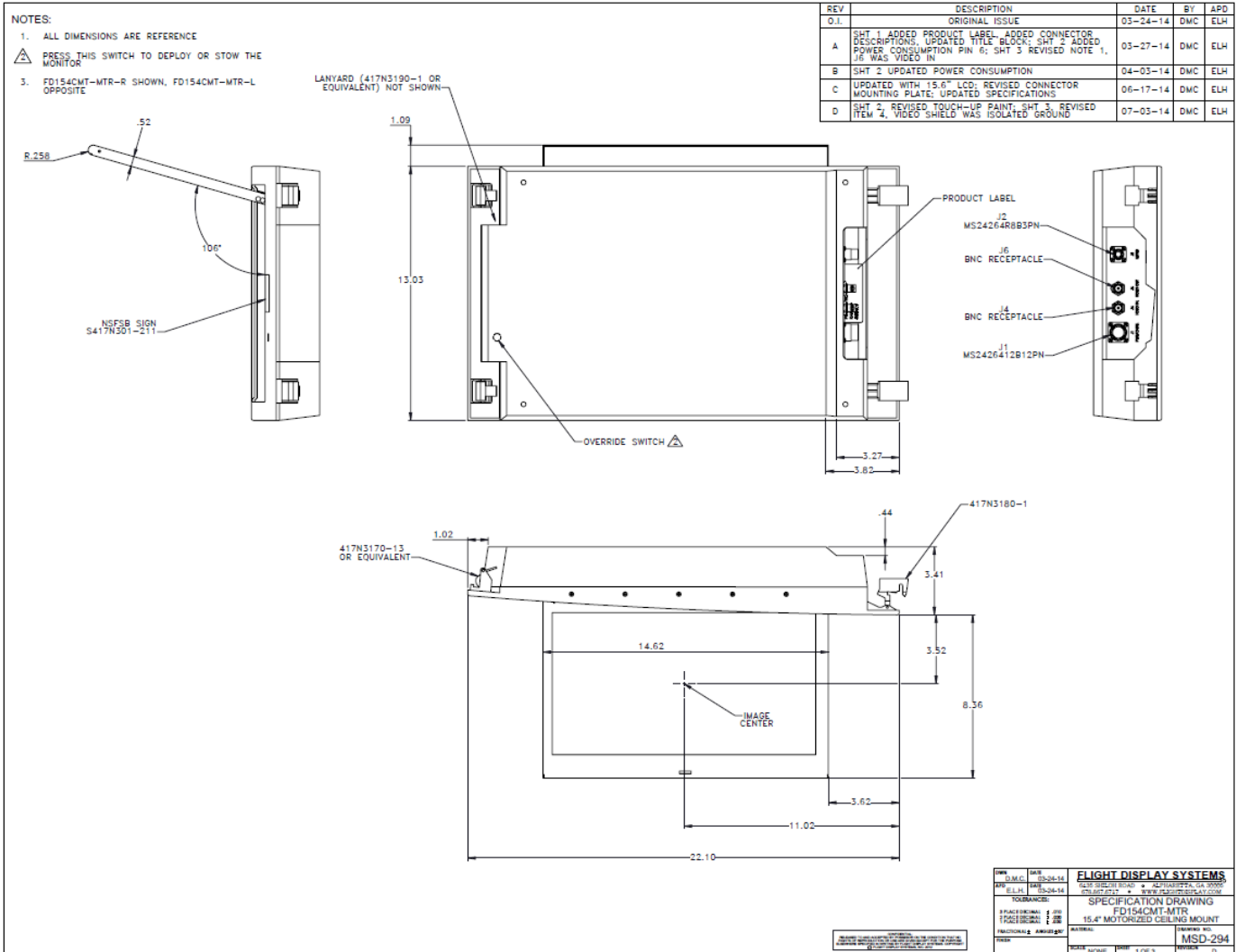
## Operation Instructions

The FD154CMT-MTR will deploy and power on when an ON command is received from the crew, when the ON command is removed the unit will stow and power down. It is necessary to stow the display during take-off and landing. This unit will also automatically stow in the event of lost power

The passengers will be able to change the video output on the FD154CMT-MTR using the IR remote. Point the IR remote at the top of the LCD to make changes.

When the unit is deployed, the display will turn on and look for a valid video source input. If no input is found, the display will go to standby mode.

# Technical Drawing





## Technical Specifications

SPECIFICATIONS (all dimensions are reference)	
Weight	10.5 lbs. ±1.0 lb.
Operating Temperature	0°C to 50°C
Power Requirements	+28VDC
Power Consumption	J1 Pin 2 Peak: 1.3A @ 28VDC, 5mS (motor start & display on) Nominal: 1.1A @ 28VDC (motor run & display on) Nominal: 0.7A @ 28VDC (motor off & display on) J1 Pin 6 Nominal: 15mA
Operation	Deployment: 6–9 seconds Retract: 6–9 seconds
Overall Dimensions	Stowed: 22.10" x 13.03" x 3.41" 300" Radius Deployed: 22.10" x 14.12" x 11.7g"
Video Input	HD–SDI SMPTE–292M
Viewing Area	13.50" x 7.57"
Viewing Angle	106 degrees
Display Type	a–Si TFT LCD Panel
Display Mode	TN, Normally Black Transmissive
Native Resolution	1920 x 1080
Aspect Ratio	16:9
Contrast Ratio	400:1
Luminance	250 nits
Screen Protector	.060" Thick Clear Polycarbonate – SABIC Aircraft – Grade, Flame Retardant Lexan
Touch–Up Paint	POLANE T F63TXW25165 Beige (FED–STD–595 Color 37780)

DWN D.M.C.	DATE 03-24-14	<b>FLIGHT DISPLAY SYSTEMS</b> 8405 SHILOH ROAD • ALPHARETTA, GA 30006 878.887.8717 • WWW.FLIGHTDISPLAY.COM
APD E.L.H.	DATE 03-24-14	
TOLERANCES: 3 PLACE DECIMAL ± .010 2 PLACE DECIMAL ± .020 1 PLACE DECIMAL ± .030		SPECIFICATION DRAWING FD154CMT-MTR 15.4" MOTORIZED CEILING MOUNT
FRACTIONAL ± ANGLES ± 30'		
FINISH	MATERIAL	DRAWING NO. <b>MSD-294</b>
SCALE	SHEET	REVISION
NONE	2 OF 3	D

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## Technical Specifications

### ADDITIONAL FEATURES:

#### 1. Monitor Adjustment

Hue, color and brightness may be adjusted from the passenger cabin using the supplied IR remote control. Each monitor is supplied with an IR remote and all remotes are interchangeable.

#### 2. Auto Redeploy

In the event a monitor fails to deploy while an ON command is being received, the monitor will automatically attempt to redeploy three (3) more times. After three (3) failed redeploy attempts the monitor will stow.

#### 3. Local Override Function

Pressing the small unmarked Override switch button, located on the panel housing, will cause the monitor to stow if deploying or in the viewing position or deploy if in the stowed position. The monitor will not deploy if the ON command is not received.

#### 4. Safety

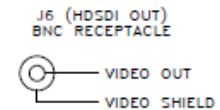
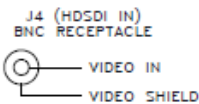
The deployed monitor will retract if a force between 3.0 and 7.5lbs (1.4 to 3.4 kg) is applied to the lower edge. The monitor will remain stowed until either the ON command is cycled or the local override switch is pressed.

#### 5. Uplatch

When in the stowed position, the monitor will be latched in place to prevent uncommanded deployment.

J1 MS2426412B12PN	
1	RESERVED
2	+28VDC IN
3	DC GND
4	RESERVED
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6	DEPLOY CONTROL 28VDC = DEPLOY 0VDC/OPEN = STOW
7	RESERVED
8	RESERVED
9	RESERVED
10	RESERVED
11	RESERVED
12	RESERVED

J2 NSF5B MS24264R8B3PN	
1	NO SMOKING
2	FASTEN SEATBELT
3	GND



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FRACTIONAL ± ANGLES ± 30°		
FINISH		MATERIAL
		DRAWING NO. <b>MSD-294</b>
SCALE NONE		SHEET 3 of 3
		REVISION D

## Troubleshooting

### 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 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 IR Remote.

### Remote Control Inoperable

- Confirm that the infrared eye on the Ceiling Mount is visible



## 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.

### **Flight Display Systems**

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Fax: +1 (678) 867-6742

Email: [sales@FlightDisplay.com](mailto:sales@FlightDisplay.com)

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 FD154CMT-MTR is designed not to require regular general maintenance.





## Warranty Information

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.







## Revisions Log

Rev	Date	Page	Description
A	09/30/2014	All	New Release

