

# **FDC5TX and FDC5RX**

## **Installation and Operation Manual**

### **HDMI to CAT5E/6 Transmitter and Receiver**



	<b>Document Number:</b>  <b>MAN – FDC5TX – FDC5RX</b>	<b>Rev:</b>  <b>C</b>	<b>Revision Date:</b> <b>05/20/2010</b>  <b>Page 2 of 16</b>
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FDC5TX and FDC5RX

HDMI to CAT5E/6 Transmitter and Receiver

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## General Information

The FDC5TX and FDC5RX combination is the easy and flexible cabling solution for wiring HD components on aircrafts. It uses one CAT5E or CAT6 cable to extend 1080i and 1080p up to 100 feet.

### Front View



*Shown: FDC5TX*

### Rear View



*FDC5RX*

## Additional Information

Both the FDC5TX and FDC5RX have a rotary switch for adjustable equalization to minimize cable skew depending on the distance of CAT5E/6 cable used.



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## Specifications

<b>Power</b>	28VDC @ 0.06A
<b>Max Transmission Range</b>	100' @ 1080p and 1080i Resolution
<b>Dimensions</b>	5.6" x 1.1" x 4.4"
<b>Compliance</b>	HDCP/HDMI 1.2
<b>Weight</b>	5 oz

## Installation Instructions

All cabin entertainment equipment, including the FDC5TX and FDC5RX, 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 enclosures of both units look identical. Careful attention should be given to the FDS stickers on top of the unit to determine which is which. The FDC5TX is the transmitter, and should be connected to source equipment. The FDC5RX is the receiver, and should be placed near HD monitors. There are four mounting slots located on the sides of the FDC5TX and FDC5RX for horizontal mounting. This unit can be mounted in any orientation. Care should be given to make sure the CAT5E/6 & HDMI connectors are firmly seated in the corresponding inputs and outputs and that the aircraft wire bundle will not shift and pull the plugs away from the FDC5TX and FDC5RX. On both units there is an HDMI cable strain relief bracket. When the HDMI cables are firmly seated in the units, wrap a 3/16" cable tie wrap around the HDMI connector and through the square holes on the strain relief bracket to hold them securely in place.

The unit will come on automatically upon applying power. See below for installation settings of the rotary equalization switches.

## Rotary Equalization Switch

Both the FDC5TX and the FDC5RX have a rotary equalization switch to optimize video transmission. The FDC5TX is preset to setting 2, which should be used for all applications of the unit. The FDC5RX should be adjusted and set during installation. The length of the cable run will determine the best setting for the FDC5RX unit. Setting 0 denotes the setting which provides for the most equalization (longer cable run), while setting 7 denotes the setting which provides the least amount of equalization (shorter cable run). The units should be plugged in and the video quality should be tested during installation.

**FDC5TX**

Setting	Description
0-1	Unused
2	HDMI
3-7	Unused

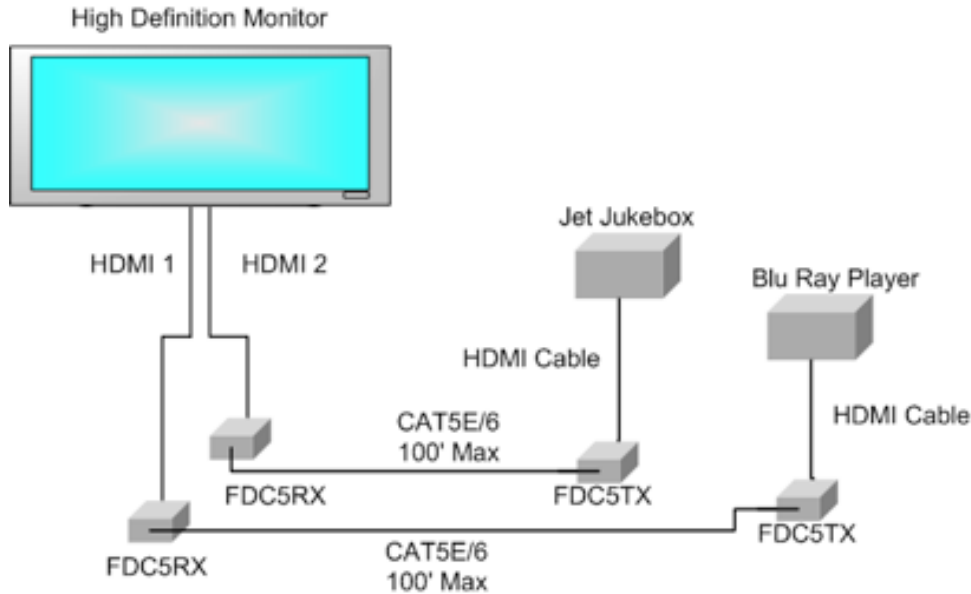
**FDC5RX**

Setting	Description
0	Strongest
1	
2	
3	
4	
5	
6	
7	Weakest



Rotary Equalization Switch

### FDC5TX/FDC5RX Architecture Drawing



### Power and Ground Wiring

22 AWG wire is recommended for Power and Ground applications. The FDC5TX requires 28V @ 0.06 Amps. The FDC5RX requires 28V @ 0.06 amps.

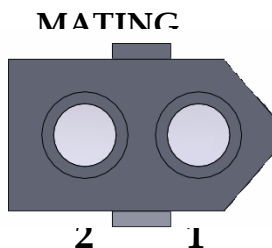
#### MOLEX

Connector

P/N 03062023

Crimp Contact

P/N 02062103



Pin Number	Description
1	28VDC Power
2	28VDC Ground

### HDMI Cable and Connectors

We recommend the use of specialized cable from ECS which is designed to deliver HDMI content in an aircraft installation. The cable is ordered per part number: 600-19786-XXX, where XXX is the length in inches. ECS will preterminate the cables. They can be contacted at 800-327-9473 or 414-421-5300.

## Category 5 Video Wiring

Suggested source for category 5E/6 cables and connectors manufactured by ECS/PIC:

### ECS

Cat 5e Data Bus Cable

P/N 922408

Cat 5e Data Bus Cable

P/N 922608

Connectors (AMP)

P/N 2-569552-2 (Included)

### PIC

Gigabit Ethernet Cable

P/N E50824

Digital Video Cable

P/N DVI50824

Connectors (PIC)

P/N 110303 (with sleeve)

P/N 110339 (with boot)

P/N 110361 (rugged housing)

## Wiring Standard

Use the TIA/EIA-568-B standard for wiring Cat5e/6 cables.



Pin Number	Standard Color	Standard PAIR	ECS 922608 Color
1	White/Orange	PAIR 2	Red
2	Orange	PAIR 2	Orange
3	White/Green	PAIR 3	Black
4	Blue	PAIR 1	Blue
5	White/Blue	PAIR 1	White
6	Green	PAIR 3	Green
7	White/Brown	PAIR 4	Yellow
8	Brown	PAIR 4	Brown

## Ship Kit Items

### Product

FDC5RX

### Shipping Materials

- (1) Connector RJ45 (251-00026-000)
- (1) Connector Terminal Housing (251-00025-01)
- (2) Terminal Crimp Male (252-00021-01)
- (1) Cable Tie (7130K52)
- (1) CD Manual
- (1) 240-2072-ND Ferrite



FDS Manuals on CD

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FDS Manuals on CD

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## Troubleshooting

### Video Noise

Most video noise issues are due to not setting the rotary switch on the FDC5RX. If colors are distorted, image shows noise or signal is intermittently dropped, change the rotary switch setting on the FDC5RX. Verify the cable run does not exceed 100 feet, and that the FDC5TX is set to rotary switch setting 2.


### 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 Video Input

- Verify correct wiring. Check the Cat5e/6 connectors for possibly damaged pins or wiring not consistent.
- Check that the video source is powered on and displaying video.
- Verify that the FDC5TX is set to rotary switch setting 2.
- Verify that the FDC5RX rotary switch setting has been optimized to the length of the cable run.
- Verify that the cable run does not exceed 100 feet.

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## 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 FDC5TX and FDC5RX are designed not to require regular general maintenance.

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## Warranty Information

Flight Display Systems warrants the FDC5TX and FDC5RX 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. \*The (pre-addressed) warranty registration card must-be-returned upon installation in order to validate the two-year warranty. Any warranty registration not returned during this time-period will default to the date of purchase as the warranty start date.

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.

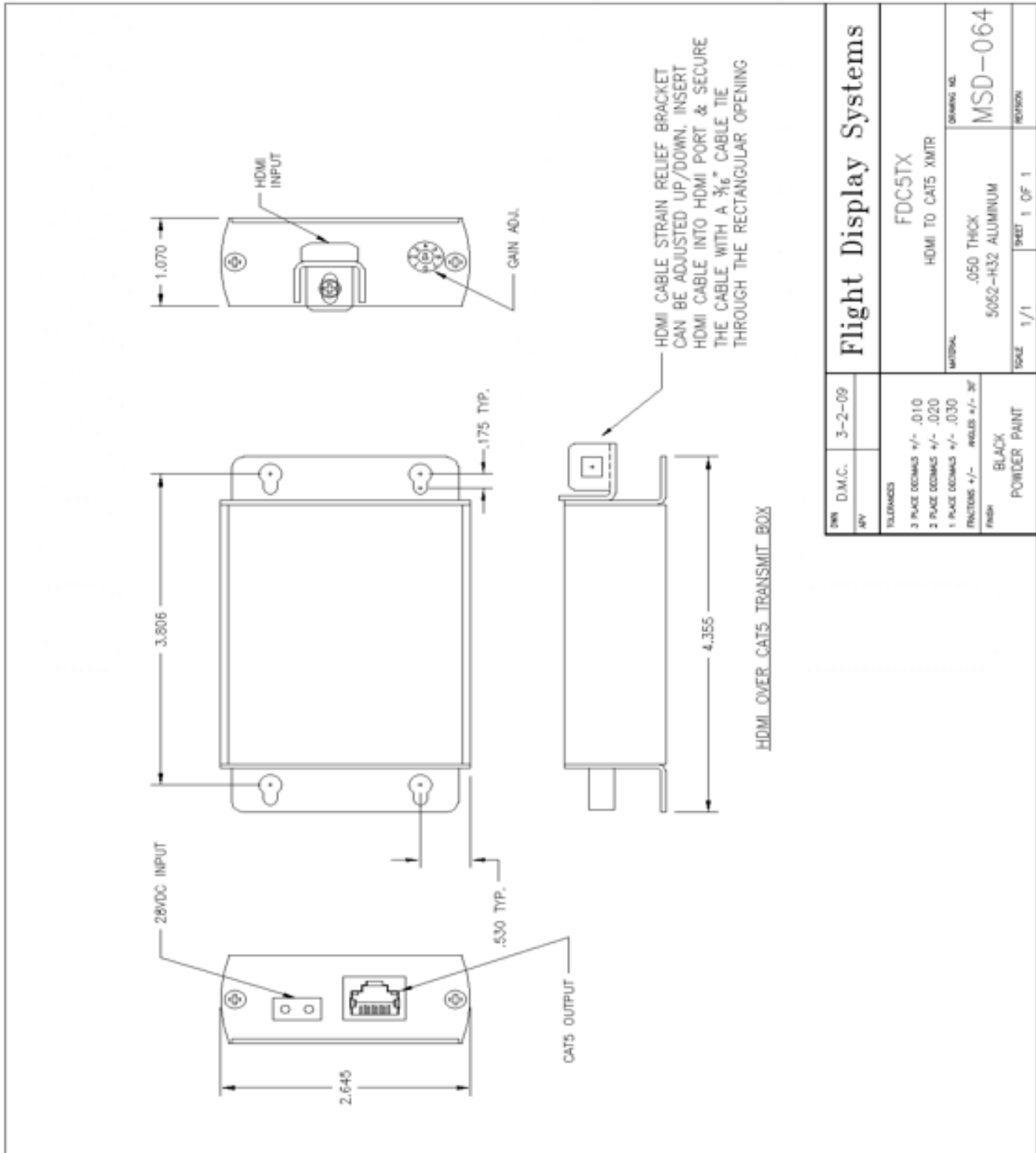
Flight Display Systems will pay Ground Shipping charges for warranted items. Charges for express shipment will be the responsibility of the sender.

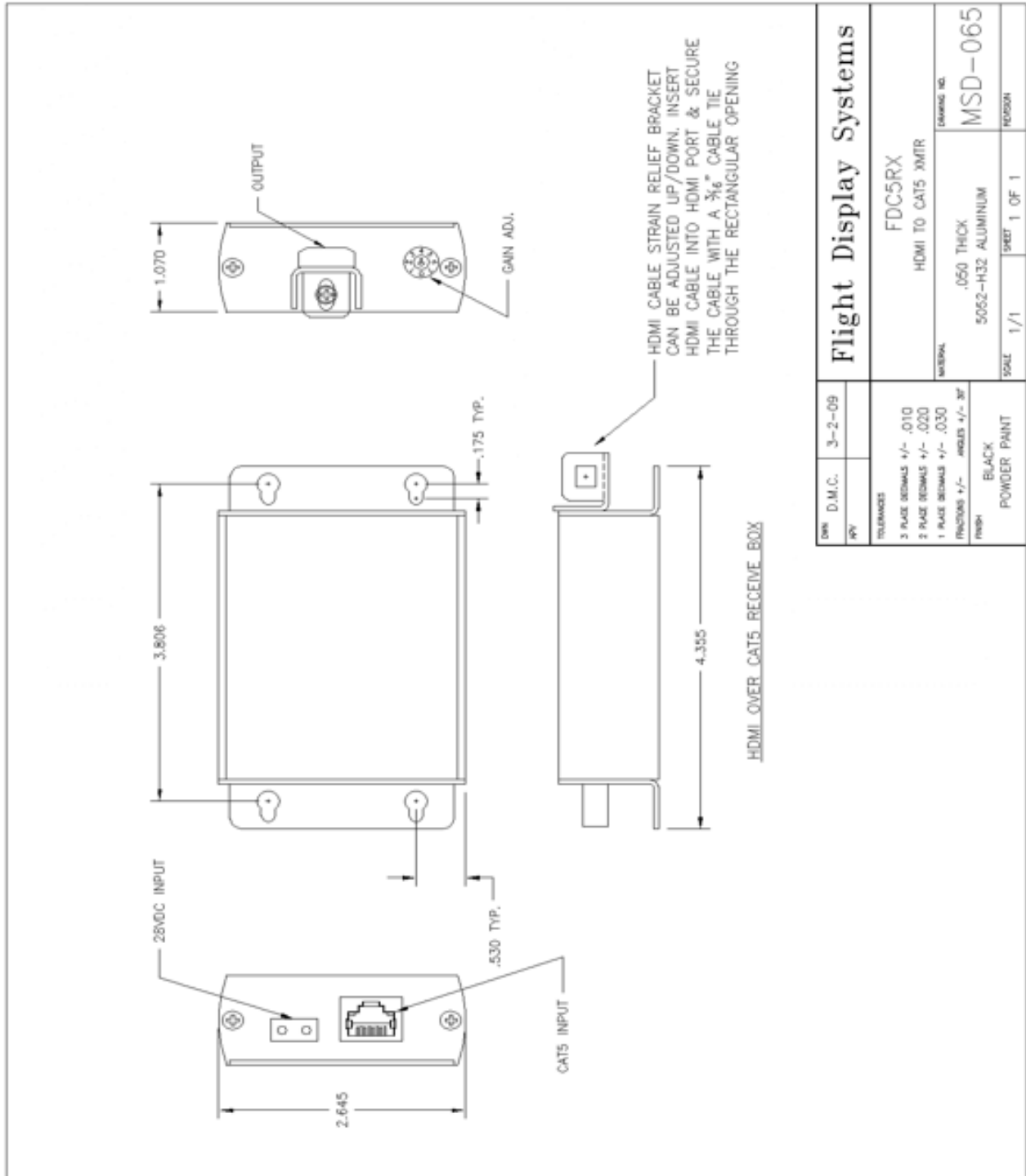
This warranty is not transferable. Any implied warranties expire at the expiration date of this warranty. We shall not be liable for incidental or consequential damages.

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.

# Installation Drawing





OWN	D.M.C.	3-2-09	Flight Display Systems	
REV			FDC5RX	
TOLERANCES			HDMI TO CAT5 XMITR	
3	PLATE DIMS	+/- .010	MATERIAL	.050 THICK
2	PLATE DIMS	+/- .020		5052-H32 ALUMINUM
1	PLATE DIMS	+/- .030	FINISH	BLACK POWDER PAINT
	FRONTS	+/- .005	SCALE	1/1
	ANGLES	+/- .2F	SHEET	1 OF 1
			PERSON	
			DRAWING NO.	MSD-065

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## Log of Revisions

Rev	Date	Page	Description
A	6/25/09		Initial Release
B	11/16/09	6	Updated Pinout for Power Connection
C	05/20/2010		Format Change