



Installation and Operation Manual

FD932DVD-BLU-2

FD932DVD-BLU-2 VER HDSDI

Blu-ray/DVD/CD/MP3 Player





Specifications

Disc Player		FD932DVD-BLU-2	FD932DVD-BLU-2 VER HDSDI (JS)
	Technology	Blu-ray / DVD	Blu-ray / DVD
	NTSC Supported Formats (59.94/60 Hz)	1080P/1080i/720p/480p/480i	1080p/1080i/720p
	PAL Supported Formats (50 Hz)	1080p/1080i/720p/576p/576i	1080p/1080i/720p/576i
	Audio Outputs	Analog and SPDIF Digital 2-Channel Stereo	Analog and SPDIF Digital 2-Channel Stereo
	Playback Media	CD-ROM/DVD-ROM/DVD-R DVD-RW/Audio/CD/CD-R/CD-RW	CD-ROM/DVD-ROM/DVD-R DVD-RW/Audio/CD/CD-R/CD-RW
	Playback Formats	VC-1/MPEG2/JPEG/MP3	VC-1/MPEG2/JPEG/MP3
Power			
	Power	28VDC 750mA	28VDC 750mA
	Inrush Current	14.8 Amps peak 4.0Amps @50µS 0.8 Amp Steady State @100µS	14.8 Amps peak 4.0Amps @50µS 0.8 Amp Steady State @100µS
Environmental Conditions			
	Operating Temperatures	0-50°C (32-122°F)	0-50°C (32-122°F)
Dimensions			
	External	6.98" (W) x 2.60" (H) x 8.57" (D)	6.98" (W) x 2.60" (H) x 8.57" (D)
	External w/ Mounting Brackets	8.25" (W) x 2.60" (H) x 8.57" (D)	8.25" (W) x 2.60" (H) x 8.57" (D)
	Weight	3 lbs.	3.3 lbs.
	Materials	Aluminum	Aluminum
Features			
	Menu Control	IR, included & 5' IR Extension Cable, RS485, CAN, Physical Buttons	IR, included & 5' IR Extension Cable, RS485, CAN, Physical Buttons
	User Manual		
Qualified Testing			
	RTCA DO-160G	Section 21 Category B Section 7 Category B	Section 21 Category B Section 7 Category B





Connectivity

PRODUCT	CERTIFICATIONS		INPUTS								OUTPUTS								COMMUNICATION					
			PMA		VGA	S-VIDEO	COMP	DISPLAY PORT	HDMI		DVI-D	HDSDI		VGA	S-VIDEO	COMPOSITE	HDMI		DVI-D	SD-SDI	HD-SDI	3G-SDI		RS232
FD932DVD-BLU-2	✓												1*	1								1	1	1
FD932DVD-BLU-2 VER HDSDI	✓												1*				1	1				1	1	1

*** = NTSC or PAL (Depending on the Disc)**

Blu-ray playback through HDMI requires a HDCP compatible monitor.





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General Information

The FD932DVD-BLU-2 (VER HDSDI) player is a combo Blu-ray/DVD player that allows playback up to 1080P/60Hz. This is a slot load disc player which allows for mounting in various angles within the aircraft.

Features

- Plays Blu-ray High-Definition discs (selectable output resolution: 1080p/60 Hz signals available through HDMI and SDI output only)
- Selectable 720p/1080i/1080p video up conversion for DVD
- Outputs for the FD932DVD-BLU-2 include (1) Composite Video and (1) HDMI
- Outputs for the FD932DVD-BLU-2 VER HDSDI include (1) Composite Video and (1) SDI
- Analog and digital audio outputs
- 2-channel stereo audio outputs
- Blu-ray playback through HDMI requires a HDCP compatible monitor

Front View



Caution







This Digital Video Disc player employs a laser system.

Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous exposure to radiation. To prevent direct exposure to laser beam, do not try to open the enclosure. **DO NOT STARE INTO BEAM.**

Ventilation

Slots and openings in the player are provided for ventilation, to ensure correct operation of the product. These openings protect the unit from overheating and must not be blocked or covered. It is recommended that the player have a minimum 1-inch of ventilation around the unit and not be installed in a location that does not have circulating air.

The following types of discs are supported

Disc type	Logo	Disc type	Logo
Blu-ray Disc		DVD-RW	
DVD-video Disc (DVD-ROM)		DVD-R	
Audio CDs (CDDA)		DTS-CD	
DVD-RAM		MP3/WMA/JPEG Data CD	

Notes:

- Writeable discs (DVD-RW, DVD-R) must be finalized, VR-mode only.
- Playback may not work for some types of discs, or when specific operations, such as angle change and aspect ratio adjustment, are being performed. Information about the discs is written in detail on the box. Please refer to this if necessary.
- Do not allow the disc to become dirty or scratched. Fingerprints, dirt, dust, scratches or deposits of cigarette smoke on the recording surface will disrupt the proper operation and may prevent playback of the disc.
- MP3 files must be written to the disc with an .mp3 file extension in order to be recognized and played back properly.
- High bitrate or variable bitrate .mp3 and .wma files may not play back correctly. JPEG picture files must be written to the disc with a .jpeg or .jpg file extension in order to be recognized and played back properly.

Due to differing menu formats among Blu-ray and standard DVD-videos, the enter key may be required to start some movies at the home screen, while the play key is required to start other movies at the home screen. This can occur on both Blu-ray and standard DVD movies. If a movie does not start when prompted, try using the enter button if play does not respond, or press the play button if enter does not respond. Again, this is a function of individual Blu-ray and DVD Discs, not the player.

Installation Instructions

All cabin entertainment equipment, such as the FD932DVD-BLU-2 (VER HDSDI), should be installed on a non-essential bus and have a dedicated circuit breaker. The units include two angle mounting brackets which can be installed at the top or bottom on each side of the player. The FD932DVD-BLU-2 player also includes a strain relief bracket which is used to secure the HDMI cable in place with a 3/16" cable tie. **NOTE: Care should be taken to ensure the units are not installed in an area with poor ventilation, or in an area with excessive heat.**



Rear Panel Output/Mechanicals

1. VIDEO OUTPUT

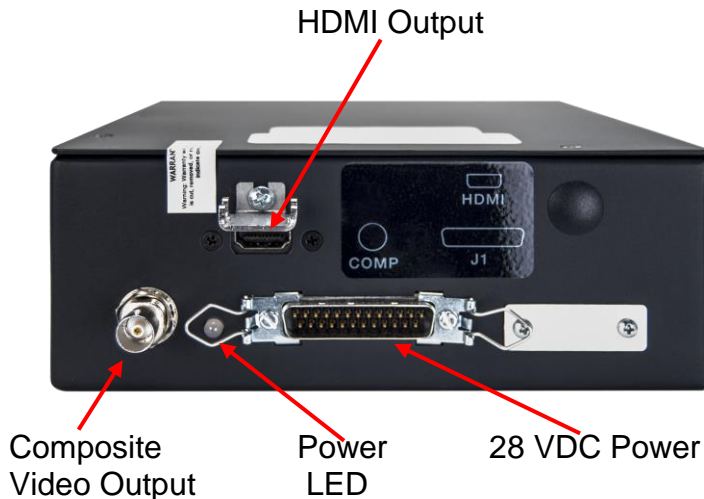
HDMI Video output to HD monitor with HDMI connector (FD932DVD-BLU-2)

SDI Video output to HD monitor or switch with BNC Connector (FD932DVD-BLU-2 VER HDSDI)

2. POWER/GROUND INPUT & AUDIO OUT, IR Extension, CAN BUS, RS-485

3. Composite/NTSC/PAL Video Output For Interface to Non HD Displays

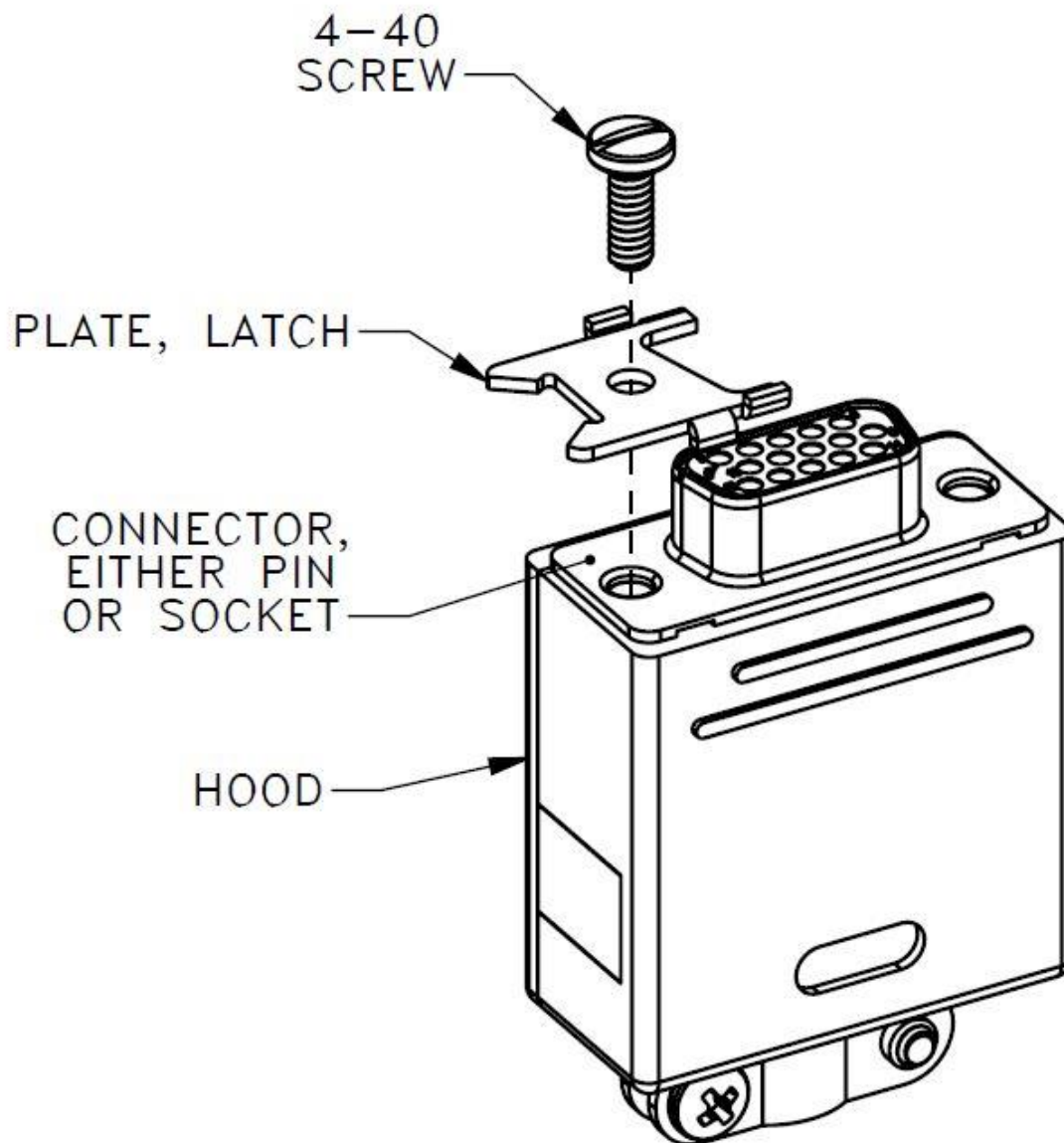
FD932DVD-BLU-2



FD932DVD-BLU-2-HDSDI



Assembly of Connector Spring Latch (WPI Interconnect Products P/N 17-529)

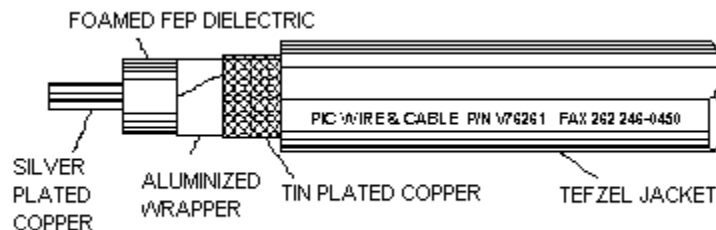


Video Wiring Suggestions

Avoid routing video wiring parallel to:

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

The recommended cable for both composite and SDI 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, (650) 632-4090. In most cases this should be added to the video output of the source.

Audio Wiring for Use with Single Ended Audio Inputs. (i.e.: FDACS)

For best performance, use four individual wires or two twisted pairs in a shielded cable. The four audio wires would be connected to Left +, Left -, Right +, Right -.

All four wires will run from the Blu-ray player to the destination.

Left + and Right + connect to the Left and Right signal inputs respectively.

Left - and Right - will join together at the destination and connect to the receiving equipment's audio return pin. The shield will be connected to the fuselage at one place only.

Audio Wiring for Use with Balanced Audio Inputs

For best performance, use two twisted pairs in a shielded cable or two individual shielded twisted pairs.

One pair is connected to Left + and Left -. The other pair connects to Right + and Right -.

- All four wires will run from the Blu-ray player to the destination.

Left + and Left - connect to the receiving equipment's Left channel input.

Right + and Right - connect to the receiving equipment's Right channel input.

The shield will be connected to the fuselage at one place only.

NOTE: The FD932DVD-BLU-2 (VER HDSDI) has high impedance balanced outputs instead of the more popular low impedance inputs. This is usually not a problem. External audio level pads may be installed at the installer's discretion.



Power and Ground Wiring

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, 1.5 amp equipment load 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. 1.5 Amp of current on .81 Ohms will drop 1.22 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

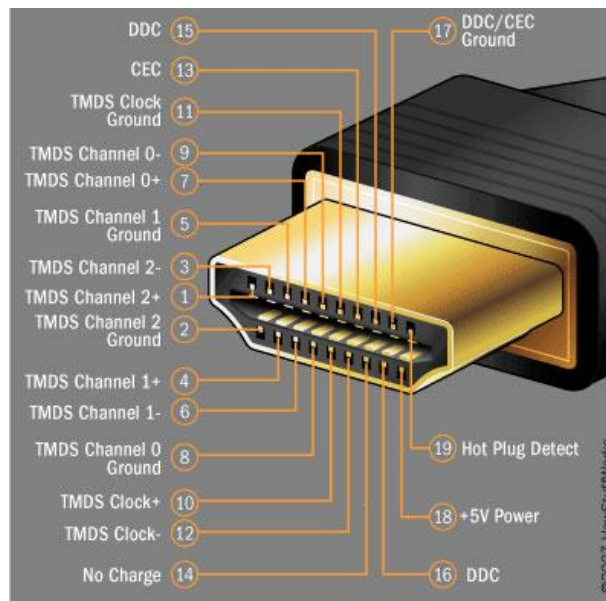
Also, use short heavy gauge wire and a clean tight connection for ground.

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



HDMI

HDMI (High-Definition Multimedia Interface) defines the protocol and electrical specifications for the signalling, pin-out, electrical, and mechanical requirements of cable and connectors used for transmitting High-Definition content. The Type A HDMI connector (shown below) has 19 pins with bandwidth to support all SDTV, EDTV, and HDTV modes. The plug's outside dimensions are 13.9 mm wide by 4.45 mm high. There is no audio output available on the HDMI cable.



ECS manufactures an HDMI cable that is terminated at the factory. It is ordered as part number 600-19786-XXX, where XXX is the length in inches for the desired cable.

NOTE: On the following Pinout page, Pin 14, 15, 16 are reserved for CAN BUS integration. The FD932DVD-BLU-2 (VER HDSDI) is only intended to easily integrate with the Flight Display Systems Select CMS. If more information regarding the CAN BUS integration with this device is required please contact Flight Display Systems Technical Support at 470-239-7421.

Power/Video

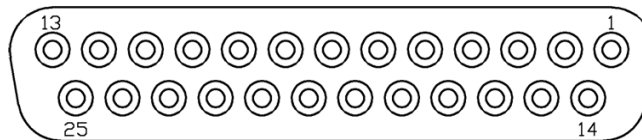
P1 (DB-25 Connector –Supplied with Contacts & Hood)

Connector

P/N: DB-F25H/or Equivalent

Crimp Contacts

P/N: M39029/63-368 or Equivalent



MATING FACE

Pin Number	Description
1	28 VDC Power Input
2	28 VDC Ground Input
3	Force On
4	Audio L+
5	Audio L-
6	Audio R+
7	Audio R-
8	N/C
9	IR Data
10	IR Ground
11	IR 5V
12	Digital Audio Shield
13	Digital Audio
14	Reserved CAN BUS LO
15	Reserved CAN BUS HI
16	Ground
17	N/C
18	RS485A
19	RS485B
20	RS485 Shield
21	N/C
22	Ground Out
23	Address Ground Pin 1
24	Address Ground Pin 2
25	Address Ground Pin 3

NOTES:

As with all IFE Equipment,
the Blu-ray requires a separate bus

Blu-ray Wiring Options:

Option 1

Standard Power applied on PIN 1 only,
DO NOT CONNECT POWER @ PIN 3,

Result: When aircraft is powered ON,
Blu-ray must be physically powered
on using the front control panel on
the unit itself or through RS-485 or
CAN. Remote control does not power
the Blu-ray on or off.

Option 2 (Force On)






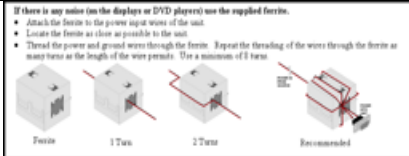

Standard Power applied on PIN 1,
Results: Aircraft is powered on,
Blue-ray powers on when user applies
28V power to PIN 3. Remote control
does not power the Blu-ray on or off.

Ship Kit Items

Product

FD932DVD-BLU-2 and FD932DVD-BLU-2 VER HDSOI

Shipping Materials:

QTY	Part Number	Part Image
1	CD-Manual	
1	CD - BR Region A	
1	CD - BR Region B	
1	CD - BR Region C	
1	Remote	
2	BAT-AA - Batteries	
1	FERRITE INSTALL - Ferrite Installation Instructions	 <p>If there is any noise on the display or DVD player(s) use the supplied ferrite.</p> <ul style="list-style-type: none"> • Attach the ferrite to the power input wires of the unit. • Locate the ferrite as close as possible to the unit. • Thread the power and ground wires through the ferrite. Repeat the threading of the wires through the ferrite as many times as the length of the wire permits. Use a minimum of 3 turns.
1	230-00002-00 - Remote Eye Infrared-Extension	

4	300-63205-0250 - Screw, 6-32 Pan Head, Phillips, 1/4"	
1	240-2072-ND - Ferrite Tube Box, Clamp-on 0.5" White	
1	750-DB25F-LATCH (LATCH KIT) This kit contains the following: (1) - 251-00000-25F - Connector, D-sub, 25 Pin Female (1) - 240-00000-2544H - Hood for DB25 & DB44 Connector (25) - M39029/63-368 - Pins, DB9, Female (1) - Label - Part number	
2	800-00024-00 - Cable Tie, Black	
1	250-00103-00 - BNC Connector	
2	08N43 - Mounting Brackets	



RS485 Controls

Full control of the FD932DVD-BLU-(VER HDSOI) can be achieved through a standard RS485 port on the rear panel. All controls available on the front panel and all controls on the Blu-ray remote control are supported. Please refer to the DB25 connector diagram in the FD932DVD-BLU-2 VER HDSOI manual for connection information.

RS485 Port Configuration: The RS-485 port is standard 9600 baud, no parity, 8 data bits, 1 stop bit, and no flow control. It is standard two wires half duplex.

Command Format : <Prefix><Device ID><Address><Command><Termination>

Prefix: One Character. All RS-485 remote commands must start with the “!” character.

Device ID: Two Characters. “**BR**” identifies all commands directed to the Blu-ray player.

Address: One character in the range of **0 - 7**. See Address section below.

Termination: One Character; ASCII CR. Each command must end with Carriage Return<**CR**>.

PA Command: PA on will enable PA interrupt.

Command Notes: Each command number corresponds to a remote control pushbutton as shown in the figure shown below. An optional ASCII Line Feed Char permitted after the Carriage Return character.

Example:

!BR135<CR> will send a command to Blu-ray player number 1 to play.

!BR139<CR> will send a command to Blu-ray player number 1 to stop playback.

!BR039<CR> will send a command to all Blu-ray players to stop playback.

!BR0PAOFF<CR> will disable PA interrupt.



Remote Control

Available Commands



Actual Remote for button reference



Image for RS485 Control Reference with command number layover for available commands. Buttons without numerical overlays in the above image do not have available RS485 Commands.



RS485 Commands Cont'd

PA Commands:

“PA ON” will enable PA interrupt.

“PA OFF” will disable PA interrupt.

NOTE: “PA ON” command must be received every 9 seconds or interrupt will time out.

Addresses:

Up to 7 Blu-ray players can easily exist on the same CAN bus. Each unit must have a unique address assigned to it in the range 1 through 7 to permit the commands issued from the remote controllers to be received by the correct units. Use the chart below for information on setting the address of each Blu-ray player. If there is a dot in the pin column of the chart then connect that pin to Pin 22. Up to three address pins may be connected to Pin 22 at the same time.

Examples:

If there is a single Blu-ray player in a system, then it should be set to address 1. The player will be referenced in all Flight Display Configuration Documents as Blu-ray Player #1 or “The Blu-ray Player.”

If there are two Blu-ray players in a system, then one should be set to address 1 and the other should be set to address 2. The player that is set to address 1 will be referenced in all Flight Display Configuration Documents as Blu-ray Player #1. The other Blu-ray Player will be referenced as Blu-ray Player #2.

If there are three Blu-ray Players, then the Blu-ray player referenced as Blu-ray #1 in the Flight Display Configuration Documents should be set to address 1, the Blu-ray player referenced as Blu-ray #2 should be set to address 2, and the Blu-ray player referenced as Blu-ray #3 should be set to address 3.

This addressing system is used for all installations containing from one to seven players.

Address	Pin 23	Pin 24	Pin 25
F1		●	●
F2	●		●
F3			●
F4	●	●	
F5		●	
F6	●		
F7			

● = connect to ground (Pin 22)



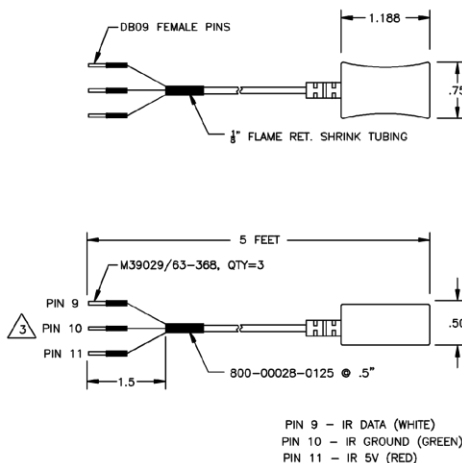
Infrared Control

The FD932DVD-BLU-2 (VER HDSDI) has the ability to use an infrared external eye, which is supplied by Flight Display Systems. The following guidelines should be met when using the external IR eye to insure correct and optimal operation.

- IR Data, IR Ground, and IR 5V pins on DB25 connector listed above are intended for use by supplied 5' IR remote receiver only.
- IR Data line can be used on open-collector style IR receivers. The line needs to be in a Tri-state condition while not in use.
- Contact Flight Display Systems before installing different IR control schemes

NOTES:

1. NOT USED
2. REF. STPS-2104 "CRIMP REQUIREMENTS FOR ELECTRICAL TERMINATIONS"
3. SET CRIMPER TO SEL. NO. 4
4. NOT USED







REV	DESCRIPTION	DATE	BY	APPD
O.I.	ORIGINAL ISSUE	12-31-08	RPJ	DCG
A	ADDED NOTES 1,2; ADDED PART NBR.	05-18-11	RPJ	DCG
B	CHANGED NOTES 1 AND 4 TO NOT USED, CHANGED LENGTH TO 5 FT. – WAS 12, CHANGED COLOR OF PIN 10 TO GREEN – WAS BLACK, CHANGED DIMENSIONS	02-19-14	JBP	DMC

PARTS LIST					
ITEM	PART NUMBER	DESCRIPTION	QTY	LENGTH	VENDOR
1	IR CABLE	CABLE, IR RECEIVER – 5 FT	1	5'	MONOPRICE
2	M39029/64-368	CONTACTS, DB9 FEMALE	3		VARIOUS
3	800-00028-0125	TUBING, FLAME-RET, HEAT SHRINK 1/8" BLACK	1	.5"	McMASTER-CARR

DWN	R.P.J.	12-31-08	FLIGHT DISPLAY SYSTEMS		
APV	D.C.G.	12-31-08	REMOTE EYE INFRARED EXTENSION CABLE		
TOLERANCES			MATERIAL		
LENGTH: +/- 0.00 INCH			DRAWING NO.		
FINISH			IR CABLE		
			230-00002-00		
			REVISION B		
			SCALE 1/1 SHEET 1 OF 1		

Operating Instructions Using Front panel and Remote Control

Basic Playback



1. Press the PWR button on the front panel to turn on your player.
2. Turn on the monitor, then select the input setting on the monitor that matches the connection method used to connect your player.
3. Press EJECT  to open the disc tray.
4. Place a disc on the disc tray with the label facing up, then press EJECT  to close the disc tray. It may take a few seconds for the disc to load.
5. If the disc does not start playing automatically, press PLAY.
6. If a Blu-ray Disc or DVD menu opens, press PLAY  or ENTER to begin playback.
7. To eject the disc, press EJECT .

NOTES:

The device will enter screen saver status (Black screen) automatically after five minutes of the following conditions:


1. Eject or No Disc;
2. "Pause" or "Stop" during MP3/CD/WMA/DVD/JPEG/BD playback; Pressing any key on remote control or face panel will deactivate the black screen saver immediately.

Stop Playback



1. Press the STOP  button to go to stop mode, the monitor screen will show the start logo. Some discs can recall to the location where it was stopped, such as a Blu-ray disc.
2. Press PLAY  to resume playback from the location where playback has been stopped or from the beginning of the disc.
3. Press STOP twice to stop completely.

Note: Not all Blu-ray Discs support the resume feature. The resume information is saved even when the power is turned off.

Playback

1. Press PLAY  to resume normal playback.

Previous and Next

Pressing the PREV  will take you back to the previous chapter unless it is pressed within the first five seconds of the current chapter. In that case it will start at the beginning of the current chapter. Each press of NEXT  key during playback will skip the current chapter and play the next one.

Notes:

1. "⊘" may appear on the monitor during operation. A "⊘" means that the operation is not permitted by the unit or the disc.

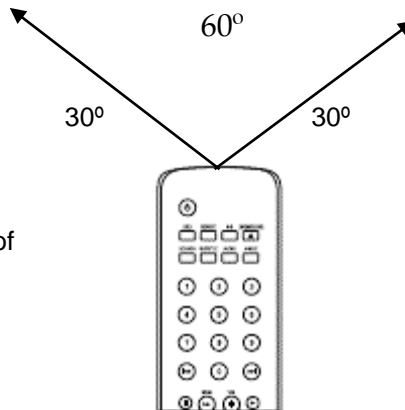
In addition to the basic operating controls using the front panel listed above, the remote control can be used for added functionality. See additional functionality listed on the next page.

Operating with the Remote



Distance: Approximately 7m (23 feet) from
The front of the remote sensor.

Angle: Approximately 30° in each direction of
the remote sensor.



Do not expose the remote sensor of the unit to a strong light source such as direct sunlight or other illumination. If you do so, you may not be able to operate the unit via the remote control.

Notes on the remote control

- Point the remote control at the remote sensor of the unit.
- Do not drop or give the remote control an electrical shock.
- Do not leave the remote control near an extremely hot or humid place.
- Do not spill water or put anything wet on the remote control.
- Do not open the remote control.



IMPORTANT NOTICE:

THE FOLLOWING FUNCTIONS ARE APPLICABLE ONLY TO BD DISCS. IF OTHER DISC FORMATS ARE PLAYED, SCREEN DISPLAY AND OPERATION WILL BE DIFFERENT.

Special Features of Blu-ray Discs

INTRODUCTION

The massive storage capacity of a Blu-Ray Disc (BD) allows a far higher standard of picture and audio quality and a wealth of special effects and enhanced features.

BLU-RAY AND HDMI

HDMI is the only domestic medium capable of transmitting the huge volumes of data required by the very high picture resolutions and advanced Digital audio codes that made Blu-Ray such an exciting medium.

PLAYING A BLU-RAY DISC

Blu-Ray discs play very much like standard DVDs but with a very much higher level of interactivity. All the standard features of DVD play operate exactly the same but there are some differences.

Play resume: This feature is not available on BD-Java discs.

A-B repeat is disabled on some BD discs.

How to Change Region Codes



The FD932DVD-BLU-2 can change region codes two ways.

1. The first method uses the supplied firmware discs which will change the player's firmware. This will allow the region code change to persist through a power cycle. Flight Display Systems recommends loading the appropriate firmware based on country where the Blu-ray discs are purchased. See the country codes below:

Blu-ray Regions

- A – East Asia (except Mainland China and Mongolia), Southeast Asia, the Americas and their dependencies
- B – Africa, Southwest Asia, Europe (except Russia), Oceania and their dependencies
- C – Central Asia, East Asia (Mainland China and Mongolia only), South Asia, central Eurasia (including Russia) and their dependencies

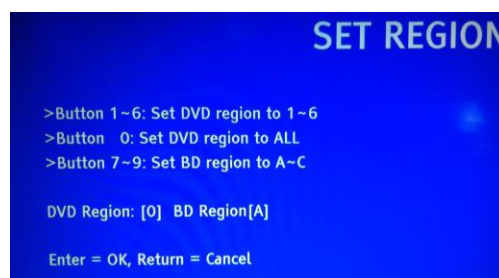
Insert the desired region disc into the player and follow the on screen prompts to apply the firmware update.

Note the DVD region will always be set to region free.

2. The second method change changes the region temporarily and it is then reverted back to the default, firmware set region code.

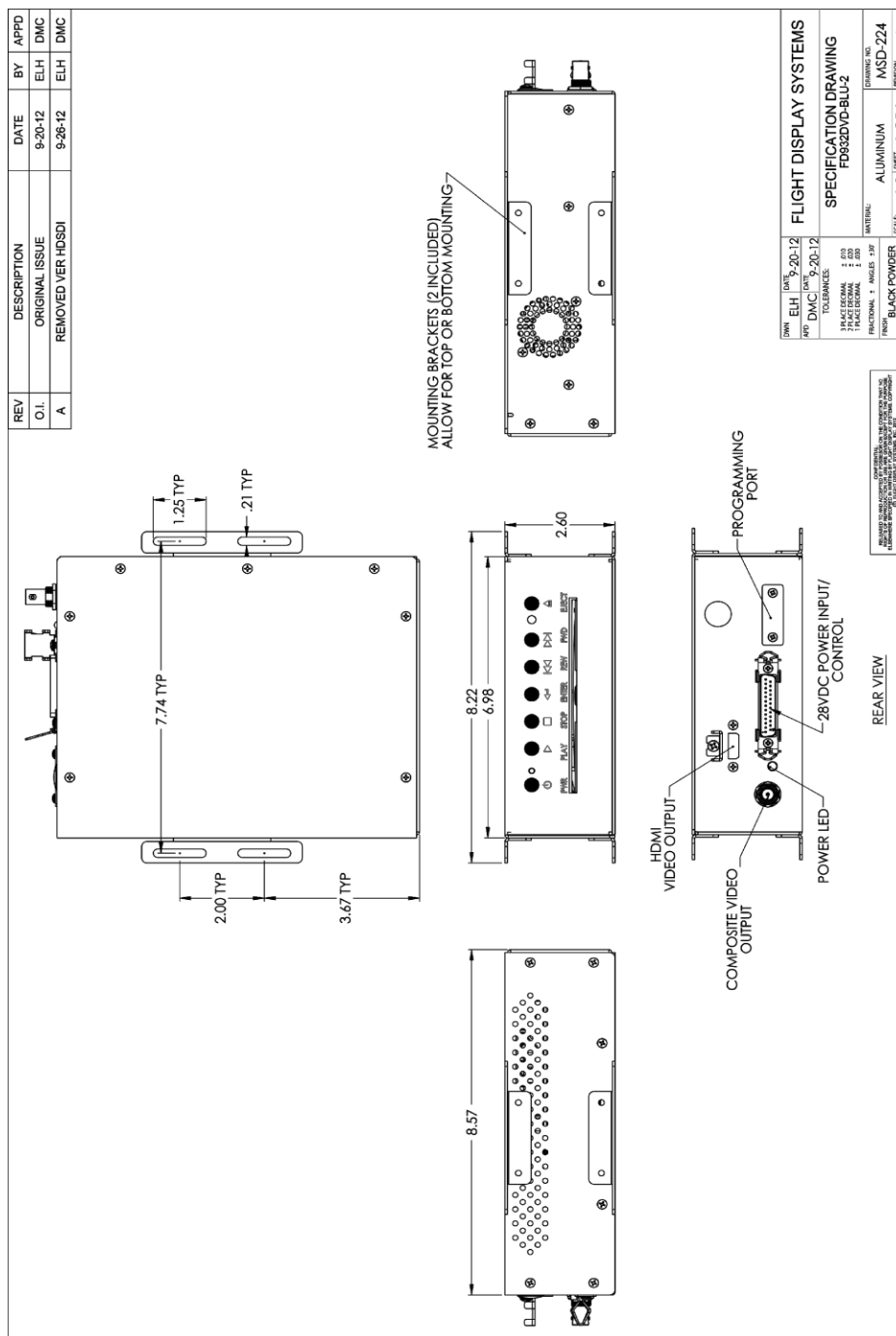
Using the IR remote at the Blu-ray player home menu, press the **Repeat** button followed by **7353**.

This will pop up an additional menu that will allow the region code to be temporarily changed.

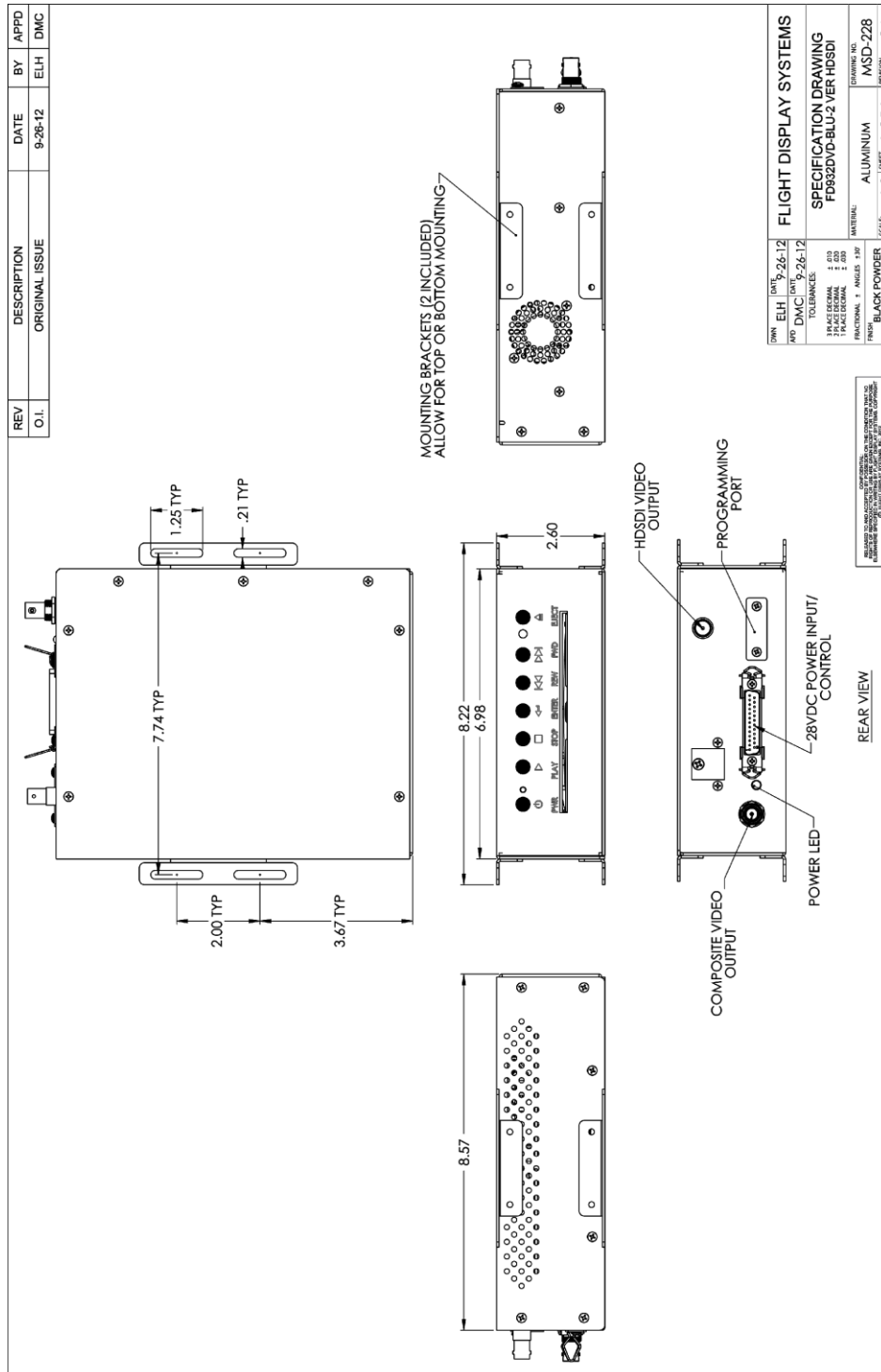


Press the appropriate button corresponding to the desired region as shown on the screen. Keep in mind the once power is cycled the Blu-ray region will revert back to the firmware set region code.

Technical Drawing



Technical Drawing



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.

Remote Control Inoperable

- Confirm that the infrared eye on the unit, or the external IR sensor (if applicable), is visible
- Replace battery in remote control.

Will not Physically Accept Discs

The FD932DVD-BLU-2 (VER HDSDI) may be in Standby Mode. Even though you may be able to hear a cooling fan blowing air, the Blu-ray player may still be in standby mode. Press the Standby/On button to turn the unit on.

Low Audio Volume

Movie audio is normally not compressed in order to provide the full dynamic range of the theatre experience. This fact makes it hard to compare movie soundtracks to music soundtracks with music that is “compressed”. To test, insert a music CD and compare audio volume with other devices.



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
6435 Shiloh Road
Alpharetta, GA 30005
Phone: 470-239-7400
Fax: 678-867-6742
Email: 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

Instructions for Continued Airworthiness

The FD932DVD-BLU-2 & FD932DVD-BLU-2 VER HDSDI is designed not to require regular general maintenance.





Limited Warranty

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	09/21/2012			Initial Release
B	7/30/2013		16,21	Updated 485 commands, updated region changing section
C	9/24/2015		All	New Format, Warranty

