

**ELECTRONIC REVISION  
CONTROLLED**



**Technical Manual  
RosenView LX 0603-001**



**Technical Manual, RosenView® LX****© 2007—2012 by Rosen Aviation, LLC**

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## 1. INTRODUCTION

This manual describes how to install the RosenView® LX moving map and passenger briefing system onto your aircraft. It contains everything you need to know to wire the unit and confirm that the system is functioning correctly.

**Note:** Installation and service should be performed only by trained and qualified personnel.

### 1.1. Unpacking

The parts shipped with the RosenView LX.

- RosenView LX Housing Assembly
- Connector kit:
  - Connector kit, w/backshell, HD15, male (P/N **0300-026**)
  - Connector kit, w/backshell, HD26, male (P/N **0300-032**)
  - Connector kit, w/backshell, 21WA4, female (P/N **0300-034**)
- USB flash drive

### 1.2. Additional System Materials

Documentation for the RosenView LX is available on the [Rosen Aviation](#) website. From the home page, select **Products**→**Cabin Information Systems**→**RosenView LX**

- Outline & Installation Drawing (P/N **0603-001-CD**)
- Software Configuration Tool (including manual)
- User's Guide

#### 1.2.1. Optional Controllers

The following controllers (sold separately) are compatible with the RosenView LX:

- Universal Remote with color display
- 7-Button Controller (P/N **0300-407**)
- RosenView Briefing Controllers (sold separately) (P/N **0300-410**, **0300-411**, and **0300-412**)

These controllers ship with the Remote Controller's Technical Information (P/N **100434**).

## 2. DATA SYSTEM CONNECTIONS

There are several ways to connect RosenView LX to the Aircraft's data systems. There are two ARINC 429 inputs and one RS-232 (GPS) input.

The 429 buses can be either low or high-speed buses (the bus speed is auto-detected).

The RS-232 bus speed is auto-detected as well; 1200 to 9600 baud.

Table 1 Labels on the ARINC bus

<b>Data</b>	<b>ARINC Label</b>
UTC Time	125
GMT Time	150
Barro Corrected Altitude	204
True Air Speed	210
Static Air Temp	213
Date	260
Present Position Latitude	310
Present Position Longitude	311
Ground speed	312
Ground Track	313
True Heading	314
Wind Speed	315
Wind Angle	316
Distance To Destination	351
Time to Destination	352
Destination Local Time Offset	353
Destination Airport ID 1*	365
Destination Airport ID 2*	366/364
Equipment ID	371
<b>GAMA Flight Plan</b>	
Data Record header	74
Active Wpt From/To	75
Record Checksum	113
Wpt Mess. Chars 7-9	301
Wpt Mess. Chars 10-12	302
Waypoint Type	303
Wpt Mess Chars 1-3	304
Wpt Mess Chars 4-6	305
Wpt Latitude	306
Wpt Longitude	307

\* Rockwell Collins Proline 21 only

To achieve at least basic operation, labels 125 or 150, 204, 260, 310, 311, 312, and 313 are necessary. Additional labels will provide more information, such as Destination Airport, Outside Air temperature, etcetera, but they will not be shown unless they are supplied.

## 2.1. Moving Map Connection Options

### Option 1

The best option is to connect to the ARINC 429 bus from the FMS or bus concentrator that contains the labels shown previously. This can be connected to either of the ARINC 429 inputs.

### Option 2

Connect two different 429 Buses. For example, connect to your GPS for most information and to another bus (airdata computer) to get the additional information.

### Option 3

Connect to a NEMA-183 GPS RS-232 output from a GPS Unit. This will yield less information since some of the GPS units do not output route information with this, and many do not output altitude.

### Option 4

Connect to one or two ARINC 429 buses, and then connect to an RS-232 output from an airdata computer or GPS (aviation RS-232 format) to get altitude and waypoint information.

With ARINC 429 connected, RosenView LX will always try to use the data there first, and then it will look to the RS-232 connection if connected. Some GPSs output altitude in the type 1 (non-NEMA) information string, but not on their ARINC bus.

### Option 5

Connect the RS-232 input to a NEMA-183, ARNAV, Shadin, Icarus, or Apollo output from a GPS or other instrument outputting this type of information.

### Option 6

Connect two ARINC buses for everything except altitude, and then connect the RS-232 input to an altitude encoder that outputs either Shadin, Icarus, or Apollo format.

## 2.2. Acceptable Input Formats for RS-232

### 2.2.1. NEMA – 183

The following information is an example of NEMA - 183:

```
$GPRTE,2,1,c,0,PBRCPK,PBRTO,PTELGR,PPLAND,PYAMBU,PPFAIR,PWARRN,
PMORTL,PLISMR*73
$GPRTE,2,2,c,0,PCRESY,GRYRIE,GCORIO,GWERR,GWESTG,7FED*34
```

```
$GPRTE    Route info
C         Number of sentences in sequence
C         Sentence number
c/w - 'c' Current active route, 'w' = waypoint list starts with destination waypoint
Name or number of the active route onwards
Names of waypoints in Route
```

### 2.2.2. Type 1 Format (ARNAV Format)

#### Electrical Interface

The output signals will be compatible with RS-232C. This format will generate data at 9600 to 115200 baud with a word length of 8 bits, one stop bit, and no parity. Once the baud rate is determined, it will not change.

The RS-232 data will have the following general format:

**STX** ASCII start-of text character (02 hex)  
**T1s** Type 1 sentences (see following paragraphs for description)  
**T2s** One or more Type 2 sentences (see following paragraphs for description)  
**ETX** ASCII end-of-text character (03 hex)

#### Output Sentences Type 1

The Type 1 output sentences shall have the following general format:

**Id**—item designator (single ASCII alphabetic character)  
**dddd**—item data (1 to 10 printable ASCII characters)  
**CR**—ASCII carriage-return character (0D hex)  
**LF**—ASCII line feed character (0A hex)

Each Type 1 sentence will be output by the unit at least once every second. The track will be output in True (not magnetic) degrees.

#### Output Sentences Type 2

The unit will receive Type 2 sentences that will have the following format:

**Id** item designator (three ASCII characters)  
**Seq** sequence number (1 binary byte)  
**Wpt** waypoint identifier (5 ASCII characters)  
**Lat** waypoint latitude (3 binary bytes)  
**Lon** waypoint longitude (4 binary bytes)  
**Myar** magnetic variation at waypoint (2 binary bytes)  
**CR** ASCII carriage return character (0D) hex  
**LF** ASCII line feed character (0A hex)

Each waypoint in the route being navigated by the unit will have a Type 2 sentence output by the unit at least (approximately) once every second.

If no route is being navigated (i.e., the active route is empty), the following Type 2 sentence should be received approximately once every second:

**Id** item designator (three ASCII characters; route sequence number is "01")  
**Seq** sequence number (1 binary byte; last waypoint flag is set; route sequence number is 1)  
**CR** ASCII carriage return character (0D hex)  
**LF** ASCII line feed character (0A hex)

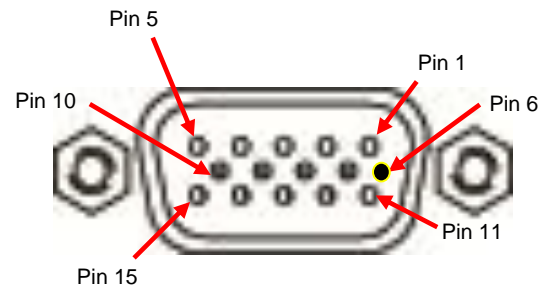
2.2.3. Shadin Formats (Altitude Sentence, Airdata Z, Airdata G, Airdata S)

Only Shadin S format has most of the data required to fully run RosenView LX. Formats Z and G do not have positional information, and none of the Shadin formats have destination information.

2.3. Pinout Connections

2.3.1. J3 – Analog RGB – 15-pin VGA

Connector Type: 15 pin High Density VGA (Female)	
Rosen Connector Kit: 0300-026 (Included)	
Pin #	Signal
1	Red signal
2	Green signal
3	Blue signal
4	NC
5	GND
6	GND (Red return)
7	GND (Green return)
8	GND (Blue return)
9	NC
10	GND (Sync return)
11	NC
12	NC
13	H Sync
14	V Sync
15	NC



Rear view of RosenView LX Connector

**Note:** Do not twist the H Sync and V Sync wires together.

We recommend that you use co-axial cables for all VGA connections.



2.3.2. J1 – Main Interface Connector – 21WA4

Connector Type: Combo-D 21WA4 (Male)	
Rosen Connector Kit: 0300-034 (Included)	
Pin #	Signal
1	28V return
2	28V
3	TTL in -Briefing 1 switch input* (Ground Active)
4	TTL in -Briefing 2 switch input* (Ground Active)
5	TTL in -Briefing 3 switch input* (Ground Active)
6	TTL in -Briefing 4 switch input* (Ground Active)
7	TTL in -Briefing play switch input* (Ground Active)
8	TTL in -Briefing cancel switch input* (Ground Active)
9	TTL in –Mode Select (Ground Active)
10	28V Return (not necessary if Pin 1 connected)
11	28V (not necessary if Pin 2 connected)
12	Audio mute (PA override) input (Ground Active)***
13	Briefing Active LED output*
14	Briefing Active output**
15	Briefing Active Output (ground active)**
16	Discrete out 4 (unassigned)**
17	GND
Coax Pin A1	S-Video Y
Coax Pin A2	S-Video C
Coax Pin A3	Composite Video out 1
Coax Pin A4	Composite Video out 2

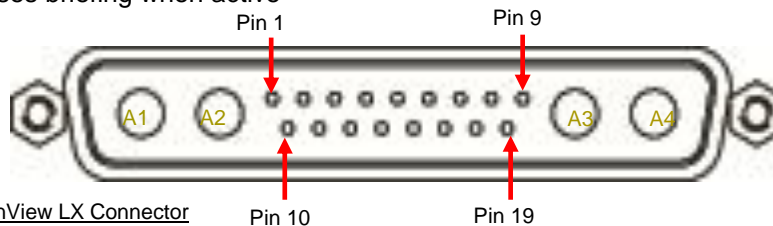
**Notes:**

\*Pins 3-8 and 13 are usually connected to the optional Rosen 0300-410 Briefing Control Panel. All inputs are activated by momentary switches to ground. Use Pin 13 to connect to a LED, 2V at 10-15 mA.

\*\*Discrete output pins 14 and 16 are 5V active logic outputs. DO NOT connect these pins to any device with an open circuit voltage greater than 5V DC. Pin 14 is 5V at 15mA maximum while briefing is active; pin 15 is 28V tolerant output low when briefing is active.

Contact Rosen for custom configurations of unassigned pins.

\*\*\* Pauses briefing when active



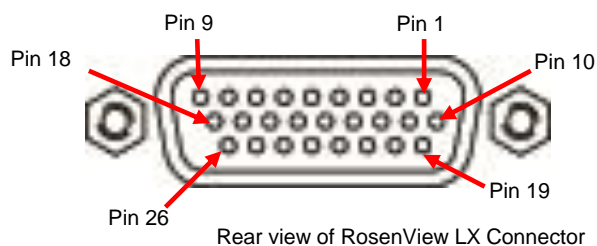
Rear view of RosenView LX Connector

## 2.3.3. J2 – Data Interface Connector – 26-pin D-Sub

<b>Connector Type: 26 pin High Density D-Sub(Female)</b>	
<b>Rosen Connector Kit: 0300-032 (Included)</b>	
Pin #	Signal
1	Left Audio Signal Out
2	Audio GND
3	Right Audio Signal Out
4	GND
5	ARINC 429 Data - Data receiver 1 positive input
6	ARINC 429 Data - Data receiver 1 negative input
7	ARINC 429 Data - Data receiver 2 positive input
8	ARINC 429 Data - Data receiver 2 negative input
9	Discrete Out (unassigned)
10	RS-232 Input (GPS)
11	RS-232 GND (Do not attach to aircraft ground)
12	NC
13	RS-485 A input
14	RS-485 B input
15	RS-485 A output
16	RS-485 B output
17	GND
18	RS-232 input (control)
19	RS-232 output (control) (unassigned)
20	RS-232 gnd (control)(Do not attach to aircraft ground)
21	Discrete Out (unassigned)
22	IR + 5V output
23	Demodulated IR Signal input*
24	IR Ground*
25	Discrete Out (unassigned)
26	GND

**Note:**

\*Do NOT connect any device to pin 23 that has a signal voltage greater than 5V. Do NOT connect an un-modulated IR receiver such as a pin diode from an IR repeater.



Rear view of RosenView LX Connector

## 2.4. Control Inputs



For Controller drawings, go to [www.rosenaviation.com](http://www.rosenaviation.com). Click on the **Products** tab and then select **Accessories**→**Ext. Controllers**. Select your model from the drop-down list.

### RosenView Briefing Controller (P/N 0300-412)

- i) Import briefing files and allow RosenView LX to reboot (see the *RosenView Software Configuration Manual* (P/N 101127) for importing information).
- ii) To start a briefing, rotate the controller knob to select the briefing and push the knob to begin play.
- iii) To stop a briefing, push the controller knob.

### Briefing Control Panel operation (P/N 0300-410 and 0300-411)

- i) Import briefing files and allow RosenView LX to reboot, see *RosenView Software Configuration Manual* (P/N 101127) for importing information.
- ii) Press **Brief 1** (or the desired briefing) and then press **Play** to start the briefing; the Briefing Control Panel’s green LED will light while the briefing is active.
- iii) Press **Cancel** to stop an active Briefing.

### 7-Button Controller (P/N 0300-407)

The 7-Button Controller offers hard controls for Zoom (in and out), Pan (N, S, E, and W), and Return to return to the aircraft current position.

### RS-485

RosenView LX can be controlled with RS-485. For specifications, request the *RS485 Network Message Definitions* instruction (P/N 9002933) from Rosen Customer Support.

### IR Remote

The RosenView LX can be controlled using a pre-programmed Universal Remote Control.

As an example, the actual transmission of the Enter button would consist of the following bit sequence:

Table 2 Actual transmission of the enter button bit sequence

Lead In Period	Device Code	Inverted Device Code	Function Code	Inverted Function Code
→	d0 d1 d2 d3 d4 d5 d6 d7 1 1 1 0 0 1 1 1	d0 d1 d2 d3 d4 d5 d6 d7 0 0 0 1 1 0 0 0	f0 f1 f2 f3 f4 f5 f6 f7 0 0 0 0 1 0 1 1	f0 f1 f2 f3 f4 f5 f6 f7 1 1 1 1 0 1 0 0

Note that within each byte transmitted, the least significant bit is transmitted first.

If you need assistance in configuring a universal remote control to work with RosenView LX, please contact Rosen Aviation at 541.342.3802.

## 2.5. Audio/Video Outputs

RosenView LX has three available video output formats and one stereo audio output.

1. **Analog RGB Output:** Analog RGB connects to the 15-pin high density connector. Analog RGB will produce the best results when using monitors sized 10" or above.

**Note:** When used with Rosen Aviation bulkhead monitors, a cabin controller can switch between Composite and analog RGB via the source input on the monitor's external switch controller's connector. See the applicable monitor's technical manual for specific source input toggle information.

The RosenView LX resolution is set to 1024x768 by default when shipped from the factory. The analog RGB resolution can be changed to either 640x480 or 800x600 by inserting a USB drive into the RosenView LX that contains a script to change the resolution. For downloads and instructions about how to run the scripts, please contact Rosen Customer Support.

2. **S-Video Output:** S-Video connects to coaxial pins A1 and A2 on the main interface connector (21 WA4).
3. **Composite Video Output:** There are also two separate composite video outputs on pins A3 and A4.
4. **Audio Output:** Audio Left, Right, and Ground connect to pins 1 through 3 on the 26-pin Data Interface Connector.

## 3. INSTALLATION GUIDELINES

### 3.1. Mounting

The RosenView LX may be mounted in any orientation as long as the following conditions are met:

1. The front panel is accessible so a user/technician may perform field updates and configurations.
2. Vents on the front and back are unblocked to supply adequate ventilation. Leave a minimum of one-inch clearance between the vents and any obstructions. A vent pattern or opening in the cabinet must have at least 5.5 square inches of open area.

The maximum mounting-screw penetration into the housing does not exceed .25 inches. Two mounting holes are available on each side for 6-32 screws, as shown below, and on the outline and installation drawing.

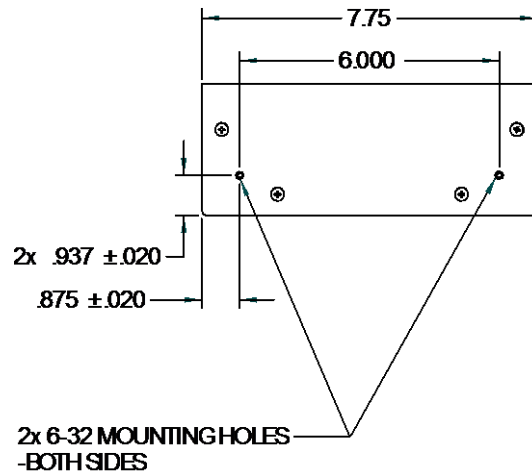


Figure 1 RosenView LX mounting requirements

#### 4. ROSENVIEW LX CONNECTIONS, LEDS, AND CONTROLS

The front side of the RosenView LX unit houses the PS/2 keyboard connection, USB port, Reset/Power button, and LED displays. The plug in the lower left covers a connector used only by Rosen Aviation technicians.



Figure 1 RosenView LX front panel

##### 4.1. Front Panel Indicators

Except for resetting the unit, you cannot control the RosenView LX from the front panel; however, you can control the moving map using an IR remote.

You can connect either a PS/2 or USB keyboard to the RosenView LX. PS2 keyboards must be plugged in before power-up; USB keyboards can be plugged in anytime.

Table 3 RosenView LX front panel controls

Control	How it Works
<b>PS/2 Keyboard Connection</b>	Connect a PS/2 keyboard to this connection before power up to access setup and customization screens.
<b>USB port</b>	Connect the USB flash drive (thumbdrive) with customized files to

	the USB port to import custom configuration files into RosenView LX, or connect an empty USB flash drive to export a RosenView LX custom configuration to be loaded onto another RosenView LX or saved for later.
<b>Reset/Power</b>	Press and hold the Reset/Power button for about one second and then release it to reset RosenView LX; the system will cycle power and reboot.

Table 4 RosenView LX LED definitions

LED	How it Works
<b>IR</b>	A blinking blue light indicates active remote control input.
<b>HD</b>	(Hard Drive) LED remains off during normal idle operation and blinks when the hard drive is active.
<b>PC Power</b>	A green LED indicates three possible conditions: a) Remains on during normal operation. b) Blinks while the RosenView LX system is booting up. c) Remains off if a system error prevents boot up.
<b>Reset/Power</b>	A steady red light indicates the unit is operating normally. To reset the RosenView LX, press and hold the Reset/Power button for about one second and then release it. The system will cycle power, reboot, and reset the map processor.
<b>Temp</b>	The temperature alarm indicator: A blinking red LED indicates the internal system temperature is either above or below the allowed parameters. This LED remains off during normal temperature conditions. (The RosenView LX monitor screen will also be blank if the internal system temperature is above or below the allowed parameters.)
<b>Briefing</b>	The active briefing indicator: A blinking blue LED indicates the unit is playing a briefing. The Briefing LED will blink as long as the briefing is active; it remains off when no briefing is active.
<b>Control</b>	Control activity indicator. It blinks blue when any control inputs are active (RS-232 serial control, IR control, or RS-485). This LED remains off when no control inputs are active.
<b>GPS</b>	(Global Positioning System) LED indicates activity on the RS-232 GPS data input. A blinking blue LED indicates when the unit is receiving data.
<b>ARINC</b>	(Aeronautical Radio, Inc): This LED indicates activity on the ARINC 429 data input. A blinking blue LED indicates the unit is receiving valid data. <b>Note:</b> when both GPS and ARINC inputs are in use, only the ARINC light will blink.

### Test Mode

1. To enter test mode, remove 28V power from RosenView LX, and then while pressing and holding in the Reset/Power button, turn on the 28V power supply.
2. Continue to hold in the Reset/Power button for a couple seconds and then release.
3. After booting up, test mode will run on the monitor.

The GPS and ARINC LEDs blink in unison for the first few minutes when RosenView LX is in Test Mode.

**NOTICE** If the GPS and ARINC LEDs are alternately toggling on and off, then no data is being received, or there is a connection/wiring error.



Figure 2 RosenView LX rear panel connections

## 5. TECHNICAL REFERENCES AND SUPPORT

**NOTICE** Always check the [Rosen Aviation](http://www.rosenaviation.com) website under the Products tab to ensure that you are working with the most current revision of technical documentation.

Table 5 Technical references

Product	Part Number	Location
Optional Briefing Controllers	0300-410, 0300-411, and 0300-412	<a href="http://www.rosenaviation.com">www.rosenaviation.com</a>
7-Button Controller	0300-407	<a href="http://www.rosenaviation.com">www.rosenaviation.com</a>
RosenView LX Software Configuration Manual	101127	<a href="http://www.rosenaviation.com">www.rosenaviation.com</a>
<i>RS-485 Network Message Definitions</i>	9002933	Contact Rosen Customer Support
Universal Color Remote Control	Contact Rosen Sales for part number availability	



## 5.1. Troubleshooting

If the display does not function properly, refer to the following troubleshooting table for symptoms and possible solutions before contacting Rosen Customer Support

**Note:** Always use an oscilloscope to verify the video signal. Always use a multimeter to verify voltages. Check actual results against the requirements described in this manual.

Table 6 Troubleshooting tips and solutions

Problem	Possible Solutions
No destination data	<ul style="list-style-type: none"> <li>Enabled once the pilot inputs the flight data.</li> </ul>
Data is missing	<ul style="list-style-type: none"> <li>Verify the label is correct on the ARINC bus. It is possible to hook up two different ARINC buses. <b>Note:</b> Certain data points do not show up on the GPS/RS-232 bus.</li> </ul>
No video	<ul style="list-style-type: none"> <li>Verify that a signal is reaching the display using an oscilloscope or another display.</li> <li>Verify that the display is turned on.</li> <li>Verify that the pinout is correct.</li> </ul>
Screen is black	<ul style="list-style-type: none"> <li>Verify that the display is receiving power.</li> <li>Verify that the pinout is correct.</li> <li>Verify that the video source is on.</li> <li>Verify all connections between the source and the display.</li> <li>Ensure the internal system temperature is not above or below the allowed parameters.</li> </ul>
Image flickers	<ul style="list-style-type: none"> <li>Verify that the signal cable is secure.</li> <li>Verify that the vertical frame frequency is 75 HZ or less.</li> </ul>
Image is distorted	<ul style="list-style-type: none"> <li>Verify pinouts.</li> <li>Verify that a signal is reaching the display using an oscilloscope or another display.</li> <li>Examine the display for pinched or damaged cables.</li> </ul>
GPS and ARINC LEDs are blinking on and off	<ul style="list-style-type: none"> <li>The unit is not receiving data or there is a connection/wiring error.</li> </ul>

## 5.2. RTCA DO-160E Qualifications

The table below shows the DO160 compliance of the RosenView LX, unless otherwise noted. Omitted categories are not applicable to this product or its expected installation.

Table 7 DO-160 Level E test criteria

Description	Section	Category	Comments
<b>Temperature and Altitude</b>	<b>4</b>		
Ground Survival/Short-Time Operating Low Temp	4.5.1	A1	
Operating Low Temperature	4.5.2	A1	
Ground Survival/Short-Time Operating High Temp	4.5.3	A1	
Operating High Temperature	4.5.4	A1	
In-flight Loss of Cooling	4.5.5	–	Not applicable
Altitude	4.6.1	A1	
Decompression	4.6.2	A1	(50,000 ft.)
Overpressure	4.6.3	A1	
<b>Temperature Variation</b>	<b>5</b>		
Temperature Variation	5.3.1	C	
<b>Humidity</b>	<b>6</b>		
Humidity	6.3.1	A	
<b>Operational Shocks &amp; Crash Safety</b>	<b>7</b>		
Operational Shocks	7.2.1	B	
Crash Safety (Impulse)	7.3.2	B	
Crash Safety (Sustained)	7.3.3	B	
<b>Vibration</b>	<b>8</b>		
Random Vibration – Fixed Wing Aircraft	8.5.2	S (Curve B)	
<b>Magnetic Effect</b>	<b>15</b>		
Magnetic Effect	15.3	Z	
<b>Power Input</b>	<b>16</b>		
<b>Normal Operating Conditions (DC)</b>	<b>16.6.1</b>		
Average Value Voltage (DC)	16.6.1.1	A	
Ripple Voltage (DC)	16.6.1.2	A	
Momentary Power Interruptions (DC)	16.6.1.3	A	
Normal Surge Voltage (DC)	16.6.1.4	A	
Engine Starting Under Voltage Operation (DC)	16.6.1.5	B	

(Table continues)

Description	Section	Category	Comments
<b>Abnormal Operating Conditions</b>	<b>16.6.2</b>		
Voltage Steady State (DC)	16.6.2.1	A	
Low Voltage Condition, (DC)	16.6.2.2	B	
Momentary Under Voltage (DC)	16.6.2.3	A	
Abnormal Surge Voltage (DC)	16.6.2.4	B	
<b>Voltage Spike</b>	<b>17</b>		
Voltage Spike	17.4	B	
<b>Audio Frequency Conducted Susceptibility</b>	<b>18</b>		
AF Conducted Susceptibility- Power Inputs	18.3.1	Z	
<b>Induced Signal Susceptibility</b>	<b>19</b>		
Magnetic Fields Induced Into Equipment	19.3.1	Z	
Magnetic Fields Induced Into Interconnecting Cables	19.3.2	Z	
Electric Fields Induced Into Interconnecting Cables	19.3.3	Z	
Spikes Induced Into Interconnecting Cables	19.3.4	Z	
<b>Radio Frequency Susceptibility</b>	<b>20</b>		
Conducted Susceptibility (CS) – 10kHz to 400MHz	20.4	T	
Radiated Susceptibility (RS) – 100MHz to 18GHz	20.5	T	
<b>Emission of Radio Frequency Energy</b>	<b>21</b>		
Conducted RF Emission	21.4	M	
Radiated RF Emission	21.5	M	
<b>Electrostatic Discharge (ESD)</b>	<b>25</b>		
Electrostatic Discharge (ESD)	25.5	A	

### 5.3. Specifications

Weight	3.5 lbs [1.59kg]
Power Requirements	28V DC
Audio/Video Outputs:	
DVD Video Out	1V peak-to-peak, 75 Ohms
DVD Audio Out	1V RMS (0db FS), 600 ohms
Auxiliary Video In	1V p-p, 75 ohms
Auxiliary Audio Line In	1V RMS nominal, 4.7k ohms; max input voltage 5.8V p-p
Switched Video Out	1V p-p, 75 ohms; unity gain from auxiliary video input
Switched Audio Out	Unity gain from auxiliary audio input is 600 ohms
Operating Temperature	0°C - 50°C

## 6. DEFINITIONS

<b>ARINC</b>	Aeronautical Radio, Inc. Data bus standard for transmission of avionics data on a differential serial bus.
<b>DC</b>	Direct current
<b>FMS</b>	Flight Management System
<b>GMT</b>	Greenwich Mean Time
<b>GND</b>	Ground
<b>GPS</b>	Global Positioning System
<b>HD</b>	Hard Drive
<b>IR</b>	Infrared
<b>LED</b>	Light-emitting Diode
<b>NEMA</b>	National Electrical Manufacturers Association – group which maintains the GPS sentence format standards
<b>PC</b>	Personal Computer
<b>PS/2</b>	Personal system 2 (trademarked IBM keyboard specification)
<b>RF</b>	Radio frequency
<b>RGB</b>	Red, Green, Blue
<b>RS-232</b>	Standard for transmitting serial information using single-ended signaling (data lines referenced to ground)
<b>RS-485</b>	Standard for transmitting serial information using differential signaling on a pair of wires. Offers higher data rates and more noise immunity than RS-232.
<b>USB</b>	Universal Serial Bus
<b>UTC</b>	Coordinated Universal Time
<b>V</b>	Volts
<b>WPT</b>	Waypoint

## 7. REVISION HISTORY



Revision E is limited to draft or prototype documents. Revisions I, O, Q, S, X and Z are not to be used.

Revision	Date	Revision Description	EC
A	9/22/06	New Release	06240
B	12/29/06	Add Mode menu input	06371
C	1/15/07	Overhaul per new software revision	07014
D	2/27/07	Update 1.4.4 tables 1 & 2 software code changes	07061
F	8/8/07	Change O&I drawing reference and add Revision History	07311
G	06/27/08	Add intro, briefing controller, and wiring note; update remote	08272
H	9/17/08	Add Change Screen resolution	08345
J	9/24/09	True airspeed label incorporated into the data system connections ARINC list in Section 2.2	09387
K	03/23/12	Clarify use of PS/2 keyboard and USB keyboard; add DO160E, mounting, troubleshooting, and more RS-232 ARNAV format information; update packaging and website references; remove RS-485 section and reference 9002933 instead	12-0150
L	05/31/12	Remove IR codes from tech manual	12-0309