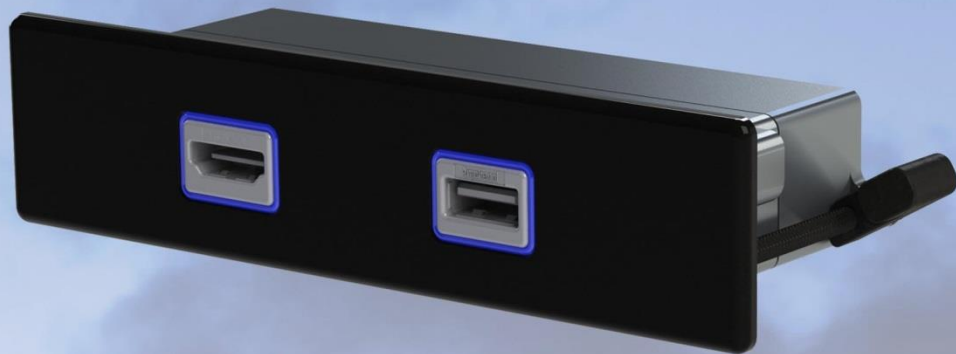


"Unrivaled Customer Satisfaction"

ROSEN
AVIATION

**Electronic Revision
Controlled**

**MIP
Media Input Panel**



Technical Manual

Model MIP100-XXX

Technical Manual, MIP

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Rosen Aviation, LLC
1020 Owen Loop South
Eugene, OR 97402
541.342.3802
888.668.4955
Fax: 541.342.4912

www.rosenaviation.com

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1. INTRODUCTION

This manual provides general instructions about how to install the MIP (Media Input Panel). It contains everything you need to know to wire the components and confirm that the system is functioning correctly.

Note: Only trained and qualified personnel should perform installation and service.

1.1. System Overview

The MIP takes in Audio Video signals and converts them into (2) redundant 3G SDI outputs. SDI outputs are encrypted and require Rosen monitors to decrypt. The MIP also has an analog stereo output. It also has a USB port for charging or sending data to an RVA (RosenView Access) monitor.

The *MIP Outline and Installation Drawings* (P/N MIP100-002 & MIP100-003) provide detailed information about the MIP. Refer to these drawings for mechanical and electrical interface information and performance specifications. Key items found on this drawing include:

- Overall dimensions
- Weight
- Mounting features
- Electrical connectors and pin-outs
- Power, environmental, and image performance specifications

2. INSTALLATION GUIDELINES

2.1. Suggested installation

For part details see Outline and Installation drawing (P/N MIP100-002-CD & MIP100-003-CD).

2.2. Cooling and Ventilation

The MIP does not require any external forced-air cooling. For venting requirements see Outline and Installation drawings (P/N MIP100-002-CD & MIP100-003-CD).

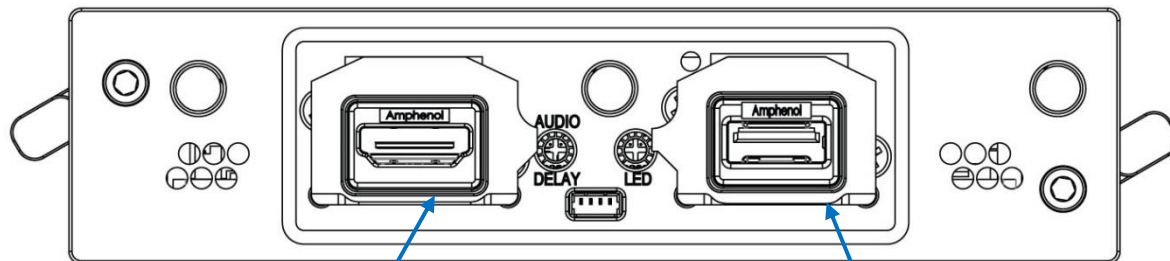
2.3. Electrical Requirements

- Operational Voltage Range: 18 to 32 VDC
- For Max Current see *Outline and Installation* drawing.

2.4. Inputs

2.4.1. MIP uses the following connections and inputs.

Figure 1: MIP view from Front (MIP100-002 Shown & MIP100-003 similar)



1. HD Input*

2. USB

*HD video and audio from a phone, Tablet, chrome cast, Blu-ray, etc.

1. HD Input

The following devices have been tested with this input.

Tested devices	
Roku	Apple TV
Chrome cast	Amazon Fire Stick
Miracast	Blu-Ray Player
Xbox one	x box 360
Intel Micro computer	Apple phone/tablet with lightning to HDMI adaptor

2. USB

USB 2.0 Type A 1.5 amp charging with data

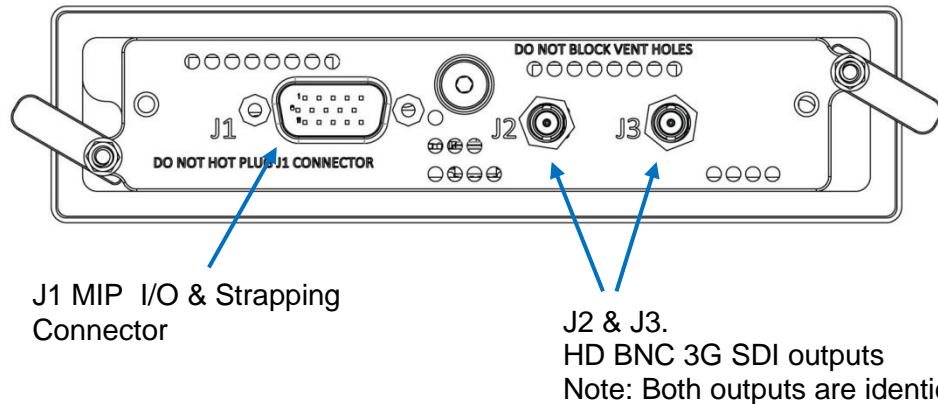
For use with Thumb drives, hard drives, USB phones/tablets, etc.

Note: not all phones & tablets allow use as a mass storage device.

2.5. Connections

2.5.1. MIP uses the following connections and inputs.

Figure 2: MIP view from Rear (MIP100-002 shown & MIP100-003 similar)



Pay close attention to the pinout descriptions on the MIP Outline and Installation Drawings to assist in completing the wiring connections.

Note: Do Not Hot plug this connector.

2.5.2. MIP I/O & Strapping Connector (J1) Pin-out Logic and Function

Table 1: I/O & Strapping Logic and Function **MIP P/N MIP100-002 & MIP100-003**

PIN	FUNCTION
1	Return 28 VDC
2	28 VDC in
3	3G / HD Control in**
4	Chassis GND
5	HD Analog Audio Out Right ◆
6	N/C
7	Signal GND
8	N/C
9	N/C
10	HD Analog Audio Out Left ◆
11	USB VBUS■

12	USB D■
13	USB D+■
14	USB GND■
15	HD Analog Audio Return

** OPEN = 3G-SDI OUTPUT (1080P60 MAX)

GND = HD-SDI OUTPUT (1080P30 MAX)

◆ Analog audio output is line level 2Vrms fixed. Delay can be adjusted by potentiometer located on front face behind bezel.

■ All Four USB lines must be connected for USB to function.

2.5.3. SDI output (J2 & J3) Pin-out

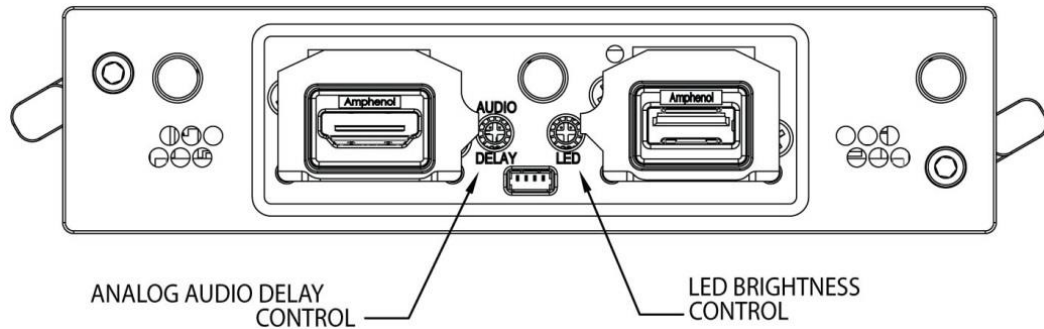
Table 2: SDI pinout for **P/N MIP100-002 & MIP100-003**

PIN	FUNCTION
center	3G Signal*
outer	3G Signal Return*

*SDI is encrypted and only functions with Rosen Monitors

2.6. Adjustments

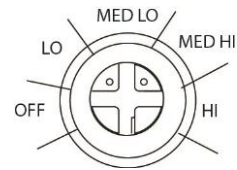
The MIP has two potentiometer adjustments.



2.6.1. **Audio Delay Pot** – This pot is for adjusting the Analog audio delay from zero delay to 166 mil second delay. It is accessed by removing bezel located on face of MIP

Table 3: Audio Delay for MIP P/N MIP100-002

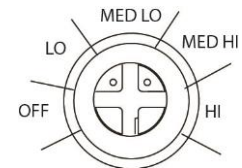
	Analog Audio delay (msec)
HI	166
MED HI	135
MED LO	100
LO	70
OFF	0



2.6.1. **LED brightness Control** – This pot is for adjusting the brightness of the light rings around the connectors. It is accessed by removing the Bezel on the MIP.

Table 4: Led Brightness for MIP P/N MIP100-002 & MIP100-003

	LED (% on)
HI	100
MED HI	56.6
MED LO	19.3
LO	6.8
OFF	0



3. INITIAL POWER UP

Make sure that power is turned off and perform the following steps.

1. Connect the power supply and video source to the appropriate connectors.
2. Supply power and wait for the video to appear on screen.



Do not plug or unplug the J1 Power connector while power is applied.
When cycling power, leave unit off for 5 seconds before restoring power.

4. TECHNICAL REFERENCES AND SUPPORT

Table 5 Technical references

Product	Part Number	Location
MIP Outline and Installation Drawing	MIP100-002-CD & MIP100-003-CD	Contact Rosen Technical Support

4.1. Troubleshooting

Table 6 Troubleshooting tips and solutions

Problem	Possible Solutions
Screen is black	<ul style="list-style-type: none"> • Verify the unit is receiving power. • Verify the pinout is correct. • Verify the correct video input is selected on display.
Distorted Picture image	<ul style="list-style-type: none"> • Verify the cabling is correct. • Verify a valid signal is reaching the unit.

4.2. RTCA DO-160G Qualifications for MIP

The table below shows the DO-160 compliance of the MIP, unless otherwise noted. **Omitted test sections/categories are not applicable to this product or its expected installation.**

Table 7 The Touchscreen Control Panel is compliant with the following DO-160 Level G test categories

DO-160 Section	Category	Description	Comments
4		Temperature and Altitude	
4.5.1	A1	Ground Survival/Short-Time Operating Low Temperature	
4.5.2	A1	Operating Low Temperature	
4.5.3	A1	Ground Survival/Short-Time Operating High Temperature	
4.5.4	A1	Operating High Temperature	
4.6.1	A1	Altitude	

4.6.3	A1	Overpressure	
5		Temperature Variation	
5.3.1	C (2C/min)	Temperature Variation	
6		Humidity	
6.3.1	A	Standard Humidity	
7		Operational Shocks & Crash Safety	
7.2.2	B	Operational Shocks	
7.3.2	B	Crash Safety (Impulse)	
7.3.3	B	Crash Safety (Sustained): Fixed-Wing Transport Aircraft, Random Orientation (9g /axis)	
8		Vibration	
8.5.2	S (Curve B)	Random Vibration – Fixed Wing Aircraft	
9	-	Explosion Proofness	
10	-	Waterproofness	
11	-	Fluids Susceptibility	
12	-	Sand and Dust	
14	-	Salt Fog	
15		Magnetic Effect	
15.3	A	Magnetic Effect	
16		Power Input [DC, Designation Z(A)IX]	
16.6.1		Normal Operating Conditions (DC)	
16.6.1.1	Z	Average Value Voltage (DC)	
16.6.1.2	Z	Ripple Voltage (DC)	
16.6.1.3	Z	Momentary Power Interruptions (DC)	
16.6.1.4	Z	Normal Surge Voltage (DC)	
16.6.1.5	Z	Engine Starting Under Voltage Operation (DC)	
16.6.2		Abnormal Operating Conditions	
16.6.2.1	Z	Voltage Steady State (DC)	
16.6.2.3	Z	Momentary Under Voltage (DC)	
16.6.2.4	Z	Abnormal Surge Voltage (DC)	
17		Voltage Spike	
17.4	A	Voltage Spike	
18		Audio Frequency Susceptibility	
18.3.1	Z	AF Conducted Susceptibility- Power Inputs	
19		Induced Signal Susceptibility	
19.3.1	AC	Magnetic Fields Induced Into Equipment	
19.3.3	AC	Magnetic Fields Induced Into Interconnecting Cables	
19.3.4	AC	Electric Fields Induced Into Interconnecting Cables	

19.3.5	AC	Spikes Induced Into Interconnecting Cables	
20		Radio Frequency Susceptibility	
20.4	T	Conducted Susceptibility (CS) – 10 kHz to 400 MHz	
20.5	T	Radiated Susceptibility (RS) – 100 MHz - 8 GHz	
21		Emission of Radio Frequency Energy	
21.4	M	Conducted RF Emission- 150 kHz - 152 MHz	
21.5	M	Radiated RF Emission-- 100 MHz - 6 GHz	
22	-	Lightning Induced Transient Susceptibility	
23	-	Lightning Direct Effects	
24	-	Icing	
25		Electrostatic Discharge	
25.5	A	Electrostatic Discharge	
26	C	Flammability	

4.3. Supported Video Specifications

4.3.1. 3G-SDI Resolutions

- 1024x768@ 60 Hz
- 1280x720p@ 50 Hz
- 1280x720p@ 59.94 Hz
- 1280x720p@ 60 Hz
- 1920x1080i@ 29.97 Hz
- 1920x1080i@ 25 Hz
- 1920x1080i@ 30 Hz
- 1920x1080p@ 23.976
- 1920x1080p@ 24 Hz
- 1920x1080p@29.97
- 1920x1080p@ 30 Hz
- 1920x1080p@59.94 HZ
- 1920x1080p@ 60 Hz

5. DEFINITIONS

3G HD SDI 3 Gigabit Hi-Definition Serial Digital Interface

A Amperes

OS Operating System

SDI Serial Digital Interface

USB Universal Serial Bus; a high-speed differential signaling serial bus typically used to connect peripheral devices to a personal computer

VDC Volts Direct Current

RVA RosenView Access - Rosen's new Product line of smart monitors

6. 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	04/24/18	Initial Release	18-0280