

8.4" LCD
DISPLAY

SlimLine
Model Number
8403

ROSEN
AVIATION

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8403 TECHNICAL
MANUAL

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Introduction and Display Overview

Welcome to the *8403 Technical Manual* for the 8.4" SlimLine IV display. This manual provides information for the following:

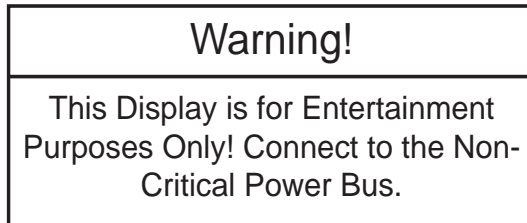
- Pinouts and Installation
- Operation
- Technician Mode
- Troubleshooting
- Specifications

The 8403 base model includes the following features:

- Two Year Warranty
- 8.4" Diagonal Screen
- 450 NIT Brightness
- 8.6" (W) x 7.22" (H) x 1.38" (D)
- Brightness, Contrast, Color, and Tint Adjustments
- NTSC/PAL/SECAM/RS170 (B&W) Video Standards
- 640 x 480 Screen Resolution (VGA)
- On Screen Display (OSD) Functions
- Status LED
- 28 Volt DC Power Operation
- Front Panel Menu Operation

Pinouts and Installation Guidelines

Pinouts

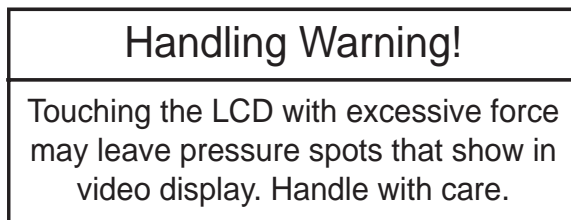


To obtain pinout information, download our engineering *Outline & Installation* drawing from www.rosenaviation.com.

Once you access the home page, click on **Support & Documentation**, and then click on **Technical Drawings & Pinouts**. Search options include searching by model number or browsing by category.

Pinout descriptions are provided to assist in the wiring process. Pay close attention to the pinout information while completing wiring connections.

Installation Guidelines



To obtain product dimensions and/or rotation information, download our engineering *Outline & Installation* drawing from www.rosenaviation.com.

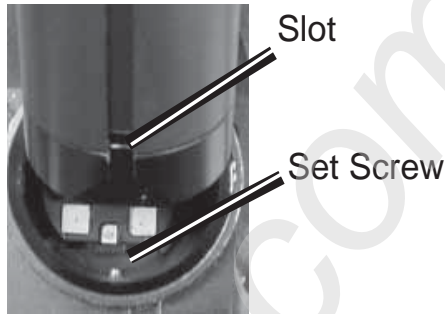
Once you access the home page, click on **Support & Documentation**, and then click on **Technical Drawings & Pinouts**. Search options include searching by model number or browsing by category.

Drawings are provided to assist in the installation process. Pay close attention to dimensions and rotations when considering installation requirements.

Operation

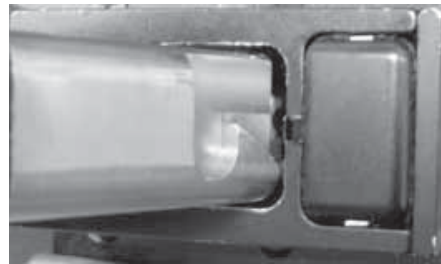
Ensure that when plugging the arm into the base receptacle, the set screw in the base follows the arm's keyed slot and the connection is not forced.

Round Style Plug-In:



Rectangular Style Plug-In:

Ensure that when plugging the arm into the base receptacle, the arm's slot faces toward the release button (as shown) and the connection is not forced.



Use the buttons on your 8.4" display to control screen setup and choose between video source options.

Buttons and screen options are defined in this section on page 6.

Installing/Removing SlimLine Arm Assemblies

To install or remove a SlimLine arm assembly, press in the arm button all the way.

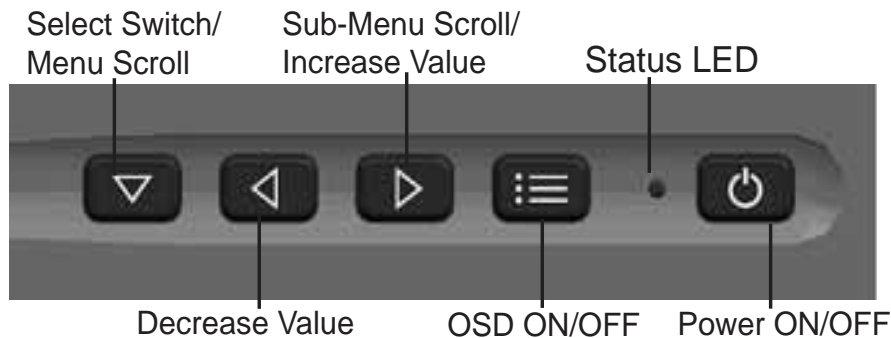
To release a SlimLine locking arm feature so that it rotates, press in the arm button only half way.





Operation


8.4” Display Button Functions


Display buttons are shown and defined below.





- 
Select Switch/Menu Scroll: Press this button to switch between video source options , or to scroll down when viewing On Screen Display (OSD) menu options. Use the Advanced menu to adjust Select switch timing for changing sources.

- 
Decrease Value: Press this button during normal operation to decrease backlight intensity. When using the OSD, press this button to decrease an OSD menu’s range value or press this button to return to the previous menu when using a submenu.

- 
Sub-Menu Scroll/Increase Value: Press this button during normal operation to increase backlight intensity. When using the OSD, press this button to scroll to an OSD sub-menu when available, or use it to increase an OSD menu’s range value.

- 
OSD ON/OFF: Press this button to display the OSD Main menu. Pressing the button again will remove the OSD menu from the screen.

- 
Status LED: The Status LED shows red when the display is in standby mode, green when the display is active, and amber when the Select Switch is pressed.

- 
Power ON/OFF: Press this button to turn the display ON or OFF.

On Screen Display (OSD) Main Menu

The On Screen Display (OSD) provides a set of menus that enable users to adjust or view screen setup features. Some Main menu selections lead to sub-menus with additional setup options. Press the OSD ON/OFF button to view the Main menu. Main menu options are described below, and then available sub-menus are listed in the tables that follow.

Main Menu Options Description

Brightness (default 11 bars)	Use display buttons to increase or decrease these options' range values
Contrast (default 9 bars)	
Color (default 12 bars)	
Tint (default 7 bars)	
Sharpness (default 6 bars)	
Backlight Dimming (default 17 bars)	
Advanced Menu	Use display buttons to access the Advanced menu's sub-menu

Advanced Menu

Options

Description

OSD Time-Out (default 15 bars)	Use display buttons to adjust the range of time that elapses before a menu will time-out
Power Up (default auto-on)	Use display buttons to select Auto-on, Auto-off, or Restore. Choose Auto-on to have the display turn ON when power is applied. Choose Auto-off to have the display go into Standby mode when power is supplied. Choose Restore to have the display return to its last power-ON status if power is interrupted
RGB Auto Detect	This Option is not available with this Display
Restore Defaults	Select this option to restore factory default settings
Video Formats	Scroll to this selection's sub-menu to view video format options (shown on the next page)

continued...

Operation

Advanced Menu Options Continued		Description
Select Switch		Scroll to this selection's sub-menu to adjust the time delay when pressing the Select switch to change video sources
Monitor Info		Scroll to this selection's sub-menu to view monitor information (see next page)
Back		Select this option to return to the Advanced menu

Video Formats Sub-Menu Options		Description
NTSC/PAL/SECAM (default) or NTSC/PAL Only		Use display buttons to select between the two choices of auto detection. The Display will automatically detect and switch to the input video standard*
Back		Select this option to return to the Advanced menu

Select Switch Sub-Menu Options		Description
Relay Active Time		Use Relay Active Time to set the (default 9 bars) time delay experienced when pressing the Select switch to change video sources
Repeat Delay (default 5 bars)		Adjust Repeat Delay to set the time delay experienced when pressing and holding the Select switch to change video sources
Back		Select this option to return to the Advanced menu

*If the image is black and white when switching from SECAM to PAL video standard, press the Select switch

continued...

Monitor Info Sub-Menu Options	Description
Hours	This option displays the hour and minutes of the display's life
SW Rev	This option displays the current software revision
Power Cycles	This option displays the number of times power has been cycled
Source	This option displays the current selected video standard (NTSC/PAL/SECAM)
Temperature Menu	Scroll to this selection's sub-menu to view monitor temperature information (shown on next page)
Signal Level	This option will show Low, Good, or High. If the signal shows Low or High, adjust the video level at the source
Back	Select this option to return to the Advanced menu

continued...

Operation

Temperature Sub-Menu Options	Description
Current Temperature	This option displays the most recent temperature reading within the display. Temperature readings update approximately every 30 seconds
Avg Temp	This option displays the average of approximately the last eight current temperatures
Max Temp	This option displays the highest temperature ever recorded within the display
Min Temp	This option displays the lowest temperature ever recorded within the display
Over Temp	This option displays the number of over-temperature shut downs that have occurred. *A safety feature shuts down the monitor if it reaches or exceeds 140 degrees Fahrenheit
Under Temp	This option displays the number of under-temperature shut downs that have occurred. *A safety feature shuts down the monitor if it reaches or drops below 32 degrees Fahrenheit
Back	Select this option to return to the Monitor Info sub-menu

*If an Over Temp or Under Temp shut down occurs, Temp Shutdown is shown on the OSD for approximately 30 seconds, and then the display shuts off until the temperature reaches acceptable temperature limits. The display will then automatically turn back on.

Technician Mode

Technician mode provides the ability to customize and restrict access to the Main menu for specified options. This section describes how to enter, enable and disable options, and exit Technician mode.

Entering Technician Mode

Complete the following list to enter Technician mode:

- 1 Apply 28V to the display and wait until the status LED turns green (if the display is in auto-off, press the power ON/OFF button).
- 2 Once the status LED turns green, press the power button to turn it off.
- 3 Press and hold the power button down for 10 seconds before releasing it (more than 10 seconds is OK).
- 4 Press the OSD ON/OFF button and confirm that the word **On** or **Off** is shown to the left of each menu option in the Main menu. This verifies that the display is in Technician mode.

Main menu options when starting Technician mode:

On Brightness
On Contrast
On Color
On Tint
On Sharpness
On Backlight
Off Advanced >>

Enabling/Disabling Individual Menu Items

Use the display buttons per normal operation to navigate through menu options. Adjust the menu options as desired and then enable or disable the option for users as desired.

Disable a menu option as follows:

- 1 Highlight the desired menu option.
- 2 Press and hold the Select switch in for 5 seconds.
- 3 Release the Select switch; the next option becomes highlighted and the word OFF appears next to the disabled menu option.

*Technician Mode***Enabling/Disabling Individual Menu Items
Continued...**

Enable a menu option as follows:

- 1 Highlight the desired menu option.
- 2 Press and hold the Select switch in for 5 seconds.
- 3 Release the Select switch; the next option becomes highlighted and the word ON appears next to the enabled menu option.

When the monitor is returned to normal mode, any items which were disabled in technician mode will no longer be available in the main menu. It is possible to disable all Main menu items; in this case there will be no user accessible functions in the Main menu.

Note: the Increase and Decrease Value buttons will not work to adjust menu options disabled in Technician mode.

Below is an example of how adjustments in Technician mode affect the appearance and options within the normal Main menu.

Technician Mode**Main Menu:**

On Brightness
On Contrast
On Color
Off Tint
Off Sharpness
Off Backlight
Off Advanced

Normal Mode**Main Menu Options:**

Brightness
 Contrast
 Color

Exiting Technician Mode

To exit the Technician mode, simply turn the power off and on again either with the power button or through the 28V supply.

Troubleshooting

If the monitor does not function properly, refer to the following troubleshooting table for symptoms and possible solutions before contacting Rosen field support.

Notes:

- 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

PROBLEM	POSSIBLE SOLUTION
No power	Verify that the pinout is correct . Push and hold the power switch for about one second. Verify Monitor is fully inserted into base receptacle.
No video on screen	Verify that the pinout is correct. Verify that the video source is on and has a tape or DVD installed. Verify video signal at monitor end, Use an oscilloscope or another monitor.
Screen is black	Verify that the monitor is getting power (green LED on) and the pinout is correct. Verify that the video source is on and has a tape or DVD installed. Verify all connections
Screen is blue	Verify signal at monitor end, Use an oscilloscope or another monitor. Verify that the pinout is correct. Verify that the video source is on and has a tape or DVD installed.

Troubleshooting

PROBLEM	POSSIBLE SOLUTION
Red LED is on	Monitor is connected to 28 volts but is either switched off or is not receiving a video signal (Standby mode) An over temp or under temp occurred (see pages 9 and 10)
Image is distorted	Verify that the pinout is correct. Use the OSD Monitor Info sub-menu to verify that a signal is present and not too high or low (see page 9) Examine system for pinched or damaged cables
Image is black and white when switching between SECAM and PAL	If the image is black and white when switching from SECAM to PAL video standard, press the Select switch
Select Switch will not change video sources	The Select switch timing needs to be adjusted. Use the Advanced menu to access the Select Switch sub-menu options and adjust the timing as necessary

Technical Support

For field support or to order parts, contact Rosen Aviation Displays at: 1-888-668-4955

or visit us at: www.rosenaviation.com

Cleaning Display

The LCD should be cleaned with a lens grade tissue for cleaning optical surfaces and isopropyl alcohol.

Specifications

LCD Performance

Screen Resolution (pixels)	640 w x 480 h
Display Viewing Area	6.73 x 5.05 in
Viewing Angle (At contrast ratio 10:1)	
Horizontal	±55°
Vertical	+40° up -70° down
Contrast Ratio	500:1 (Typical)
Backlight Lamp Life	50,000 hours continuous operation
Screen Brightness	450 cd/m ² (Typical)

Mechanical Packaging

Arm Mount Weight	(See Appropriate Drawing)
Bulkhead Weight	2.9 lbs ±5%

Power Requirements

28V DC 350 mA Nominal

Video Performance

Video Standards	NTSC, PAL, SECAM, RS-170 (B&W)
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Video input

1V Peak-to-Peak, 75 Ohms

Operating Temperature

0°C - 50°C Free Air Installation
0°C - 40°C Insulated Installation

Warranty

2 year

DO-160D Testing

This display is compliant with and has been tested to applicable DO-160D standards. For specific information contact a Rosen Customer Service Representative at 1.888.668.4955.

Disclaimer

Disclaimer

All information, including illustrations, is believed to be reliable. Users and/or installers, however, should independently evaluate the suitability of each product for their application. Rosen makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use or installation. Rosen's only obligations are those in the Rosen Standard Terms and Conditions of Sales for this product, and in no case will Rosen be liable for any incidental, indirect or consequential damages arising from the sale, resale, use or misuse of the product. Specifications are subject to change without notice. Rosen reserves the right to make changes - without notification to buyer - to materials or processing that do not affect compliance with any applicable specifications.