



# User Manual

## **DSD-5028 Series**

**28" Industrial Stretched Signage  
Display Monitor**

**ADVANTECH**

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## Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

# Declaration of Conformity

## CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

## FCC Class B

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult dealer or an experienced radio /TV technician for help.

## FM

This equipment has passed the FM certification. According to the National Fire Protection Association, work sites are classified into different classes, divisions and groups, based on hazard considerations. This equipment is compliant with the specifications of Class I, Division 2, Groups A, B, C and D indoor hazards.

# Technical Support and Assistance

1. Visit the Advantech website at <http://support.advantech.com> where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
  - Product name and serial number
  - Description of your peripheral attachments
  - Description of your software (operating system, version, application software, etc.)
  - A complete description of the problem
  - The exact wording of any error messages

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## Warnings, Cautions and Notes

**Warning!** *Warnings indicate conditions, which if not observed, can cause personal injury!*



**Caution!** *Cautions are included to help you avoid damaging hardware or losing data. e.g.*



*There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.*

**Note!** *Notes provide optional additional information.*



## Document Feedback

To assist us in making improvements to this manual, we would welcome comments and constructive criticism. Please send all such, in writing, to:  
[support@advantech.com](mailto:support@advantech.com)

## Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
  - The power cord or plug is damaged.
  - Liquid has penetrated into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment does not work well, or you cannot get it to work according to the user's manual.
  - The equipment has been dropped and damaged.
  - The equipment has obvious signs of breakage.
15. **DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20 °C (-4 °F) OR ABOVE 60 °C (140 °F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.**
16. **CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.**

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

**Caution!** *For power adapter selection: the information about the adapter output rating (24 Vdc, 5 A min, or 120 W min) is provided in the user manual for user's selection if the power adapter is not shipped with the unit*





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# Chapter 1

## Overview

Sections include:

- Introduction
- Features
- Applications
- Product Photos
- Naming Rule

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## 1.1 Introduction

The Advantech DSD-5028 series is a brand new Industrial Stretched Signage Display Monitor that offers innovative size/shape and display resolution, designed to meet the needs of customers who want quick and easy integration with Advantech Embedded Box Computers, such as ARK and DS lines.

## 1.2 Features

- 28" (16:3) 1920 x 358, high resolution stretched display with LED backlight
- High brightness of 700 cd/m<sup>2</sup>
- High Contrast ration (1:3000)
- 0 °C ~ 45 °C operating temperature support
- Ultra wide viewing angle (178/178)
- Dual signal interface with VGA & DVI
- RS232 remote control available
- Audio output
- Wall mounting 200 x 100mm
- Fanless design

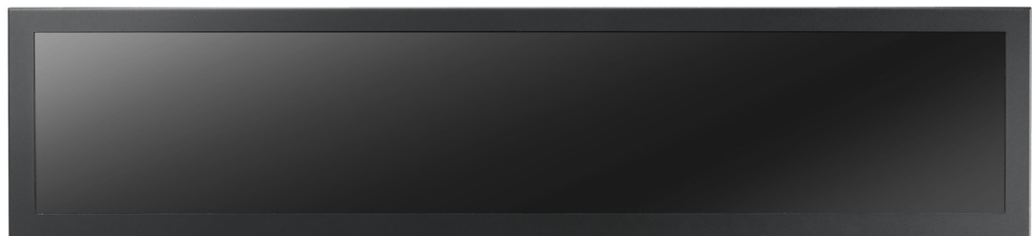
## 1.3 Applications

Application scenarios - public information displays, especially for narrow, limited public spaces:

- Bus / Metro - route maps
- Station information displays (advertisements or schedules)
- Signage displays placed in elevators
- Advertisements in cafeterias and public venues
- Entertainment / Gaming
- Public advertisement machines

## 1.4 Product Photos

**Front view**



**Rear view**



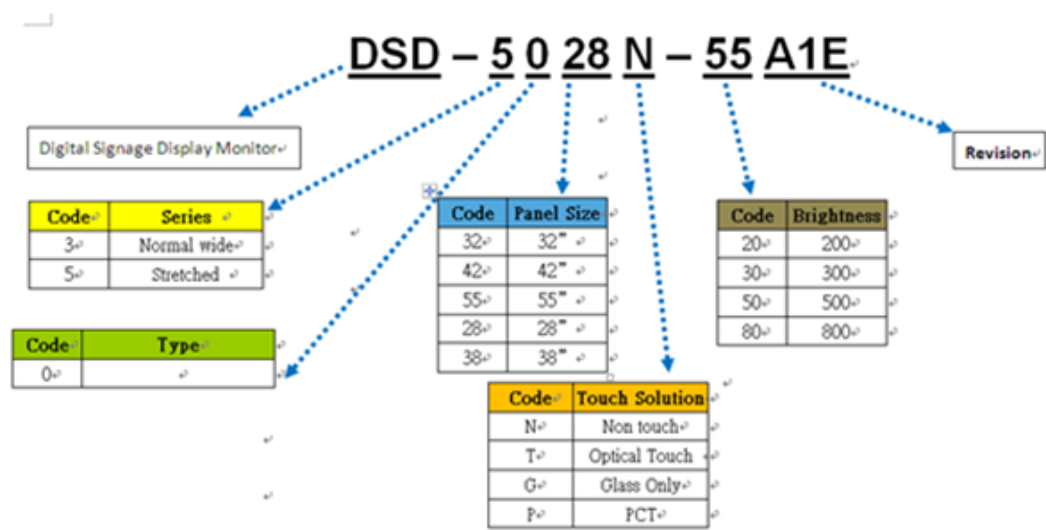
**IO (left/right) view**



**Keys View**



# 1.5 Naming Rule



# Chapter 2

## System Setup

Sections include:

- Specifications
- Dimensions
- Accessory Packing

## 2.1 Specifications

**Note!** The DSD-5028 series offers the following features and meets precise specifications.



Unless otherwise noted, all the information listed below is subject to change without prior notification.

	Model	DSD-5028
Display	Size	28" Stretched LED panel
	Resolution	1920 x 358 (16:3)
	Viewing Angle	178° (H) /178°(V)
	Brightness	700 (cd/m <sup>2</sup> )
	Color Support	16.7 M colors
	Contrast Ratio	3000:1
	Response Time	6.5 [msec]
	Backlight Life	50,000 hrs
Environment	Operating Temperature	0~ 45° C (32 ~ 113° F)
	Storage Temperature	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	80%RH Max. (Ta ≤ 45° C), non-condensing
	Vibration	5-500Hz, 0.002G <sup>2</sup> /Hz, 1 Grms, 1 hour for X,Y and Z per axis
System	I/O	Input: VGA x 1; DVI-D x 1; RS232 x 1 (reserved for remote control); 24V DC power din Output: Audio output x 1; 12V DC Jack (Max 12W)
	OSD	Source/Enter, Menu, Up, Down, Left, Right, Power on/off
	Power	120W power adapter, with AC100-240V input and DC +24V @ 5A output
	EMC Compliance	CE/FCC/CCC

## 2.2 Dimensions

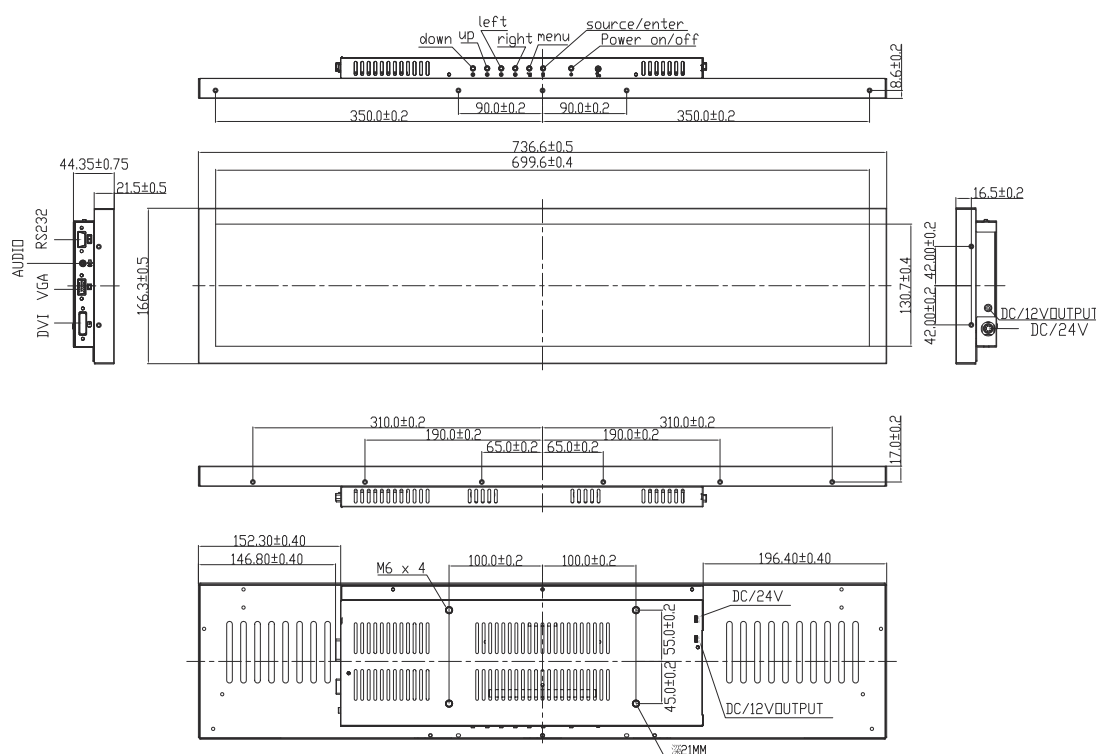


Figure 2.1 DSD-5028 Series Dimensions

## 2.3 Packing List

- 1 x 120W DC24V Power Adapter
- 1 x DVI cable 2.0 meter
- 1 x HDMI to DVI cable(1.5m)
- 1 x RS232 9P/9P 1.8M M/F cable (optional order)
- 1 x Power Cord (optional order)

**Note!** The above accessory cables are subject to change, depending on SKU.



## 2.4 Power Output

DSD-5028 supports 12Vdc output, maximum loading is 12W, which is effective only if the monitor is turned on.





# Chapter 3

## OSD Key Functions

Sections include:

- OSD Functions

## 3.1 OSD Functions (DSD-5028 Series)

Ensure that content design is based on a resolution of 1920 x 358. The OSD key of the DSD-5028 display (1920 x 358 resolution) was selected to illustrate the examples below:

Button	Description
Power	Turns the monitor power ON or OFF
Menu	Activates the OSD menu Exits menu
Auto	Automatically adjusts the clock, phase H-position and V-position
Value Up/Down/Left/ Right	Moves the selector to option Changes the gauge value of the selected option

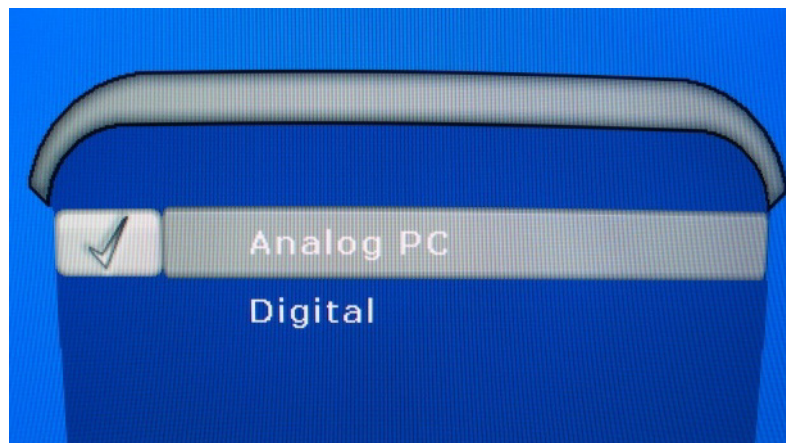
  

LED Function	
DPMS ON	Blue
DPMS STANDBY	Orange

### 3.1.1 Select Signal Input Source

Analog PC: VGA input

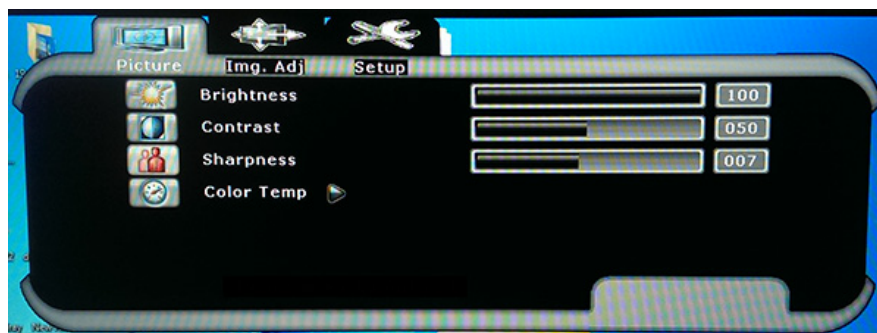
Digital: DVI input



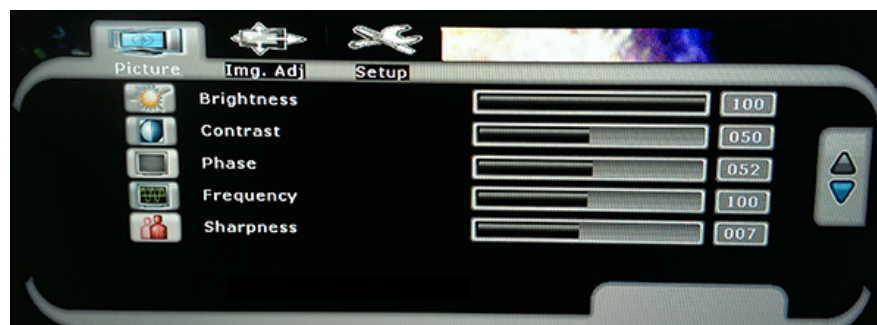
### 3.1.2 Picture Setting

Adjusts the value of Brightness, Contrast, Phase (VGA only), Frequency (VGA only), Sharpness, Color Temp (Note 1), Tint (Note 1).

VGA:



DVI:



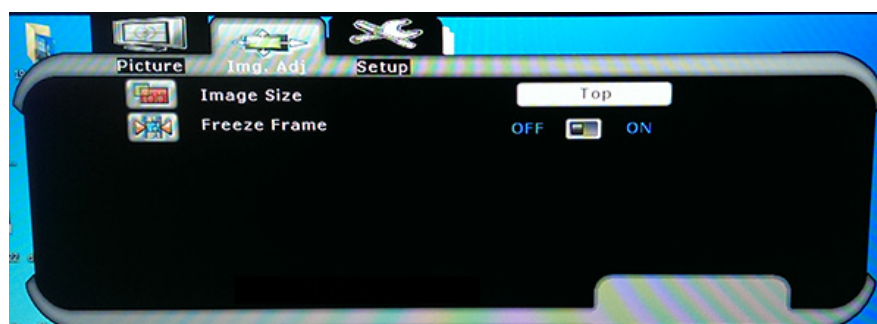
### 3.1.3 Image Setting

The setting of "image size" is effective only when the resolution of source signal is not 1920x358.

#### 3.1.3.1 Image setting for DVI mode

**Image Size:** Zoom in (DVI only, Note 2, 3), Zoom out (Note 3), Top (Note 3), Bottom (Note 3), Middle (Note 3) and **Freeze Frame:** On/Off, DVI only

If input timing does not comply with LCD native timing (1920x358), setting the image size to Top/Middle/Bottom will force display alignment to the top/middle/bottom section of source image (Note 4).



### 3.1.3.2 Image Setting for VGA mode

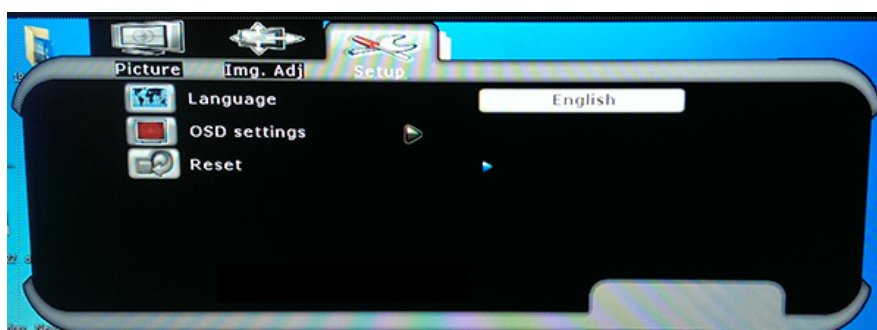
**Image size:** Zoom out (Note 3), Top (Note 3), Bottom (Note 3), Middle (Note 3)  
**Horizontal Position, Vertical Position and Auto Adjust.**

If input timing does not comply with LCD native timing (1920x358), setting the image size to Top/Middle/Bottom will force display alignment to the top/middle/bottom section of source image. (Note 4)



### 3.1.4 Language Setting

Options: English, Traditional Chinese, Simplified Chinese.



### 3.1.5 OSD Manager

Transparency, OSD Timeout (sec.), Reset



**Note1** Only DVI input Video Timing (480i, 480p, 720p, 1080i, 1080p) support Color, Tint function



**Note 2** Only DVI input Video Timing (480i, 480p, 820p, 1080i, 1080p) support Zoom-in mode



**Note 3** Mode select



## 3.2 RS-232 Remote Control

### 3.2.1 Configuration

BAUDRATE: 19200  
 PARITY: NONE  
 BITS: 8  
 STOPBIT: 1

### 3.2.2 Commands

KEY	COMMAND
POWER	BE EF 02 06 00 AE D7 07 00 00 00 00 00
SOURCE	BE EF 02 06 00 7F D6 06 00 00 00 00 00
MENU	BE EF 02 06 00 C8 D7 01 00 00 00 00 00
RIGHT	BE EF 02 06 00 4C D6 05 00 00 00 00 00
LEFT	BE EF 02 06 00 9D D7 04 00 00 00 00 00
UP	BE EF 02 06 00 FB D7 02 00 00 00 00 00
DOWN	BE EF 02 06 00 2A D6 03 00 00 00 00 00

VGA mode only

KEY	COMMAND
AUTO Adjust	BE EF 02 06 00 58 D5 11 00 00 00 00 00



# Appendix **A**

## Troubleshooting

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## A.1 Introduction

If experiencing trouble with the monitor, or it fails to operate correctly, please refer to the following instructions before calling the Advantech service center. If unable to correct the faults using the instructions below, then please contact the distributor or the service/repair center.

## A.2 Troubleshooting

### No image appears on screen

- Check to see that all the I/O and power connectors are installed correctly and connected. (Refer to 1.4, IO (left, right) view.)
- Make sure that none of the connectors are crooked, broken or loose.
- Make sure that the OSD power on the LED is turned on.
- Make sure that brightness is not set to minimum.
- Make sure that the screen resolution is set to the correct setting for the type of LCD, and that the setting does not exceed the resolution specified for the particular model of LCD.

### The image is incorrectly displayed, or the full screen image does not appear

- Please make sure the screen resolution on the motherboard is correct.

### The position of screen is not in the center

- Adjust the H-position and V-position or perform "Auto".

### Out of Range

- When the message "Out of Range" appears onscreen, it indicates that the signal of the computer is not compatible with the LCD display; i.e. the resolution exceeds the specified resolution for the LCD.
- Adjust the BIOS setting to match the correct resolution.

### No signal

- The display is powered on, but can neither receive nor display any signal from the computer. Check all power switches, power cables and VGA signal cables to ensure that all are connected correctly on both sides.

### Going to sleep

- If the system goes to sleep, then the display has either been set to power-saving mode, or the display is experiencing a sudden signal disconnection problem. For the former, check the BIOS system settings, and/or Windows configuration. For the latter, check power cable connections to computer on both sides.







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