Polaview 220
LCD Projector

Table of Contents

Table of Contents

Click to see more

Polaview 220 DLP Projector

Product Overview	Product Description/Positioning, Features-at-a-Glance, What's Included, Technical Specifications, Digital Light Processing Technology-Backgounder, Frequently Asked Questions and Answers
Markets and Applications	Key Markets, Presentation Settings, Workgroup Settings
Competitive Analysis	Competition-at-a-Glance, Product Comparisons
Sales Support and Administration	Internet Services and Support, Customer Support and U.S. Warranty Coverage, PID and Accessories Listing

The Polaview 220 adds to Polaroid's array of advanced, innovative and marketable products. We know it will be an instant sales success.

Product Overview

Click to see more

The Polaview 220 DLP Projector — Product Description/Positioning

Now you can project the same SVGA image you see on your computer screen!

Introducing a Digital Light Processing (DLP) Projector that will deliver "on the screen" the exact detail displayed on your computer.

The Polaview 220 DLP Projector is one of the first true Super Video Graphics Array (SVGA) projectors available in the market today. The projector delivers high-resolution images (800 x 600) through the use of new DLP technology — not LCD. DLP technology enables the Polaview 220 to deliver brighter, crisper, and truer color images than comparable LCD projectors. This is especially true of applications that work with video or images containing fine detail.

continued ▶

Polaview 220 DLP Projector

The Polaview 220 plays an essential role in Polaroid's projector and panel family line. First and foremost, the Polaview 220's SVGA capabilities provide solutions for customers who demand better resolution capability than current VGA (Video Graphics Array) projectors offer. This demand is being driven primarily by the growth of Windows '95 and the predominance of SVGA LCD screens shipping with laptop computers. Customers want, and have asked, for a projector that matches the detail of their SVGA screens. Demand for SVGA is increasing as the use of video in presentations becomes more popular.

continued

The Polaview 220 DLP Projector — Features-at-a-Glance

The Polaview 220 enables customers to project high-quality images that match their laptop computer SVGA screens. Now the same resolution and brightness of a computer screen can be enjoyed on a projection screen measuring up to 240 inches diagonally! Ideal for use in executive briefings, sales presentations or training and education, the Polaview 220 is an essential communication tool.

continued

The Polaview 220 Features and Benefits

- **Incorporates Digital Light Processing (DLP)**
  Narrower pixel gaps, no screening effect, greater fill area, brighter on-screen resolution, higher image definition, absolute picture uniformity, higher contrast ratio and full color from middle to edge.
- **Dimensions of 15.5 x 12.0 x 7.75 inches (38.75 x 30.0 x 19.38 centimeters) and a total weight of 23 pounds (10.35 kilograms)**
  Compact size and weight enable it to be easily moved from room to room or taken on the road.
- **Wireless infrared built-in "turbo" remote control to ranges of 50 feet (150 meters)**
  Gives you control over image settings from various locations around the conference room (remote mouse) includes laser pointer, and features illuminated keys.

continued ▶

Polaview 220 DLP Projector

- **Last setup memory**
  Projector remembers prior configurations.
- **Single reversible cable for projector connections to all Macs, PCs, laptops and desktops**
  Faster, easier hookups to the computer.
- **Simultaneous connection with up to two computers and two video sources, means total interactivity and instant switching between sources**
  Increased multimedia capability.
- **400 ANSI lumens**
  Bright clear projections in all non-direct lighting situations.
- **Broad compatibility with a variety of different computer and video sources**
  Makes the Polaview 220 a versatile tool that easily adapts to the customized choices of each end-user.

What's Included

The Polaview 220 DLP Projector includes:

- Operator's manual
- US power cord or EC and UK power cord
- Macintosh monitor redrive adapter
- Macintosh Multiscan redrive adapter
- VGA/Mac adapter
- Phono to RCA adapter cable
- 1/8 inch phono cable
- VGA/Mac II reversible cable
- Remote control
- Computer IR receiver kit
- RCA composite video cable

Video Kit (included):

- Internal NTSC/PAL/SECAM video board
- S-Video cable

Technical specifications

Light Engine	Digital display engine using digital micro-mirror device
Number of Mirrors/Pixels	480,000 active mirrors out of 508,000
Projector Lamp	Metal halide 270W/250 hour half-life (brightness)
Contrast Ratio	125:1 minimum
Brightness	400 lumens/350 ANSI minimum
Resolution	800 x 600
Colors	16.7 million/256 grayscale levels

continued

Polaview 220 DLP Projector

Screen Size	3 ft. - 20 ft. (measured diagonally) 90 cm - 600 cm
Projection (throw) Distance	3.5 ft. - 35 ft. (lens to screen distance) 105 cm - 1050 cm
Projection	Front, rear, ceiling mount
Inputs	(2) Computer (Mac/PC); (2) video (composite and S-video); Left/Right Stereo for each of four inputs; RS232; 110/220V power
Outputs	RCA and computer stereo, (2) stereo speakers, monitor redrive

continued ▶

Compatibility	SVGA, Mac 16", Mac II, VGA Graphics, VGA Text, NEC PC9801, NTSC, PAL, SECAM, S-Video
Indicators	Lamp restrike, backlit on-board controls
Packaging	DLP Projector, lens cap, remote control, 4 AA batteries, IR computer receiver, VGA/Mac computer cable, Mac adapter, stereo PC audio cable, audio/video RCA cable, operating instructions, warranty/registration card
Keystone Correction	17°

continued

Polaview 220 DLP Projector

Controls	**Built-in control panel:** Interactive menu display for setup, image, and sound selections Multilingual operation for English, Spanish, German, and French **Infrared turbo remote:** Wireless illuminated control with 50 ft. range for full computer mouse control, direct source selection, brightness, contrast, volume, curtain, zoom, focus, and power on/off functions
Speakers	3 inch round x 2 inch, 5 watts stereo
Operating Temperature	0° C (32°F) to 35°C (95°F)

continued ▶

Polaview 220 DLP Projector

Storage Temperature	- 25°C (-13°F) to 60°C (140°F)
Power Supply	90-132 VAC, 180-265 VAC, automatic switching 47-63 Hz
Dimensions **W x H x D**	15.5 in. x 12.0 in. x 7.75 in. 38.75 cm x 30.0 cm x 19.38 cm
Audible Noise	Less than 55 dBA @ 1 meter
Weight	23 lbs./10.35 kg.
Approvals	FCC, UL, CE, NOMI
Warranty	1 year limited

continued

Digital Light Processing Technology – Backgrounder

DLP Technology was invented by Texas Instruments in the early 1990s. It is enabled by use of Texas Instrument's Digital Micro-mirror Device (DMD).

DLP subsystems can project superior data or video images on screens of almost any size. Audiences can view DLP images on screens ranging from 36 inches to 240 inches (3 ft. to 20 ft.) diagonal from any angle. Seamless images expand easily to large screens. Whereas LCD technology limits picture quality, DLP reflects images from their original source directly to the screen. This means crisper images, truer colors and better light control.

continued

Texas Instruments has described the advantages of DLP technology as follows:

DLP based display provides improved resolution and brightness, high contrast and color fidelity. The result is a high-quality image with greater flexibility for a wide range of applications. DLP based projectors feature flicker-free and brighter displays offering more life-like colors, better color convergence and less visual "noise." The reduction in visual noise allows viewers to perceive more detail in foreground and background scenes, producing images that appear to have more depth than current projection display images.

DLP is a promising new technology with big appeal for "early adopters." Currently, DLP's real advantage is its SVGA capability and its superiority to LCD for video and photographic imagery.

continued

Frequently Asked Questions and Answers

How does Polaroid's new DLP Projector compare to today's other data projection technologies?

- **High Apparent Resolution** Each pixel has efficient light distribution.
- **No "Screen Door Effect"** Small inter-pixel gaps and opaque masking between the picture elements virtually eliminates the "screen door effect" — the noticeable pixels that result in an image that appears to be seen through a screen door.
- **Higher Brightness** As the resolution of the Digital Micromirror Device (DMD) increases, the output brightness also increases. Because the technology is reflective, not transmissive as in LCD projectors, brightness increases as the surface area or pixel density increases. In other technologies, increases in resolution reduce the amount of light that can be transmitted.

continued ▶

- **Excellent Image Quality** Outstanding color saturation, color temperature, contrast ratio, and true 24-bit color processing provide image depth, clarity, and richness approaching film quality.
- **Superior Image Uniformity** Other flat panel displays have viewing angle characteristics that require a certain perspective to achieve optimum results. With these, even at optimum angles, there is not consistent uniformity across the image. DLP technology doesn't have these viewing angle limitations.
- **Faster Refresh Rates** The Digital Micro-mirror Device can be updated in microseconds versus the millisecond rates of today's "best" display devices.
- **Sharper Text and Graphics** Because the pixels are in fixed rows and columns, projected horizontal and vertical lines most often associated with text and high-resolution graphics are clear, crisp and very sharp. Large-screen CRT monitors and projectors can't match up due to convergence errors and CRT drift that results in out-of-focus or blurry appearance.

continued ▶

What is the significance of SVGA (800 x 600) resolution?

The screen resolution of 800 x 600 pixels used in Polaview 220 projectors matches the monitor capabilities of most laptop computers sold today. It gives the users bright and superior computer/video images. Unlike other projectors, Polaview 220 users do not need to adjust their monitor settings to 640 x 480.

Will DLP technology replace LCD?

LCD projection products are and will continue to be viable, competitive products. LCD projectors are Polaroid's most popular products, and double-digit growth rates are expected to continue through the end of the decade. The Polaview 220 is a feature-rich data/video projector with superior image quality. It is a key component in Polaroid's overall data/video projector line-up for the short term and beyond. The bottom line is that business, education and government presenters aren't as concerned with the technology that's inside their projectors as they are with a projection solution that meets their needs.

continued

Why Digital Light Processing?

The DMD (Digital Micro-Mirror Device) is a highly integrated semiconductor light switch and the core of DLP. The DLP-based projection subsystem in the Polaview 220 projector couples the DMD microchip with digital signal processing, memory, software, optical components and an illumination source for projection display. Complete projection system prototypes using DMDs enable compact and lightweight projectors featuring the efficient use of available light sources. DLP, the only all-digital display, provides a distinctive approach to projection display systems.

How does the DMD work?

Computer-controlled signals cause the DMD's square pixels to switch "on" or "off" at a frequency of more than 1000 times per second, offering lightning-fast digital control of reflected images. As a result, a DMD can reflect light quickly and uniformly to create high-quality images that can be projected or displayed on a monitor. Using standard processes and materials, the cost of producing display systems based on emerging DLP technology will be highly competitive.

continued

For reference, how do the three techniques of projection display actually work?

In current projectors based on liquid-crystal displays (LCDs), dichroic beam splitters supply red, green, and blue light to trios of LCD light valves, which pass or block the light as specified by the pixel data (left). In the display based on a single digital micro-mirror device (DMD), a synchronized rotating color wheel in effect tints the light sent to the DMD chip (center). Three consecutive 5.6-ms color fields make one 16.7-ms field, for 180 color fields per second. The cathode-ray-tube (CRT) projector contains three CRTs (red, green, and blue), each with its own cooled projection lens (right). The images converge at a large mirror that reflects them onto a screen. Most CRT displays are rear-projection systems. Current LCD displays are mainly front-projection systems, although rear-projection systems are emerging. The DMD display is suitable for either front or rear projection, with minor modifications to the optics.

Click to see more

Markets & Applications

Key Markets and Applications

Key Markets

- Business
- Education
- Government

The Polaview 220 is designed to increase the productivity of work groups and the effectiveness of presenters. Its SVGA capability allows for projected displays of multi-tasked screens, video clips, or images containing fine detail. It greatly increases the efficiency of information exchange.

continued

Polaview 220 DLP Projector

More than 60% of projectors are sold to businesses. The Polaview 220 expands the potential of the business market even further through its enhanced projection capabilities. The three largest business uses are:

- Presentations
- Product demonstrations, particularly for personal computing hardware and software products
- Training for both computer and non-computer products

Presentation Settings

Executive Briefings

A user can easily prepare and deliver a presentation for everything from a financial conference to a board of directors meeting using the Polaview 220, together with any of several widely available presentation software packages. Since the preparation of a presentation to be delivered with a Polaroid projector does not require the assistance of third-party suppliers, long lead times are not required and information can be easily updated. The presenter can prepare additional, easily accessible backup material in anticipation of questions that may be asked by the audience.

Executive presenters typically value such features as superior image quality and brightness, color range, multimedia capabilities, portability, ease of use and the ability to access any part of the presentation non-sequentially. Polaview 220 also allows for increased use of video playback in multimedia presentations. An infrared remote mouse enables the presenter to control the presentation while walking around the room interacting with the audience.

continued

Sales Presentations

Because of the portability of the Polaview 220, a salesperson can easily carry it to customer sites. Using a Polaroid projector with any of several widely available presentation software packages, a salesperson can tailor a presentation to each customer situation — a transportable notebook computer can even customize a presentation from the road. Highly valued projection system features are portability, brightness, image quality, the ability to access parts of the presentation non-sequentially, and the ability to customize presentations easily.

Training and Education

Polaroid projection products are used extensively for training and education purposes. In a software training course, for instance, the instructor can project a screen for the entire class, allowing the group to study the material simultaneously. Projection also enables the instructor to provide real-time examples and instruction. Instructors typically value such features as portability, affordability, interactivity, and image brightness.

continued ▶

Workgroup Settings

Financial Analysis

Workgroups can prepare and analyze budgets, forecasts and other financial models using Polaview products along with popular spreadsheet applications such as Microsoft Excel and Lotus 1-2-3. For example, a budget can be analyzed to see the effects on profits should revenues increase or decrease, or should sales commissions change. The ability to work in real time can enhance the performance of workgroups by fostering more interaction among group members and improving the efficiency of the entire process by eliminating delays associated with generating multiple iterations. Workgroups performing financial analysis typically value such features as portability, brightness, price performance, ease of document retrieval, and hardware and software compatibility.

continued

Product Design

Scientists, engineers and product designers can use the Polaview projector product series for group design reviews, project scheduling and management reporting. While evaluating the design or project schedule together, the group can also make and see changes, and view their results immediately. In addition, technical simulations can be run in a group setting. Prior to the advent of electronic projection products, these groups were limited to reviewing static drawings or printed materials, offering suggestions or modifications, then waiting for a revised version to be generated and circulated. Product design groups typically value such features as portability, high resolution, color and brightness.

Competitive Analysis

Click to see more

Competition-at-a-glance – 1

	Polaroid Polaview 220	3M MP8650	In Focus LitePro 620
Display Technology	Active Matrix	Active Matrix	Active Matrix
Resolution	800 (W) x 600 (H)	800 (W) x 600 (H)	800 (W) x 600 (H)
Brightness	400 ANSI lumens	1,000 ANSI lumens	450 ANSI lumens
Maximum Image Size *(measured diagonally)*	240 in.	300 in.	185 in.
Colors	16.7 million	16.7 million	16.7 million

continued

Polaview 220 DLP Projector

	Polaroid Polaview 220	3M MP8650	In Focus LitePro 620
Speakers	2 stereo	2 stereo	4 stereo
Video Compatibility	NTSC/PAL/ SECAM/S-Video	NTSC/PAL/ SECAM/S-Video	NTSC/PAL/ SECAM
Size (WxLxH)	15.5"x12"x7.75" 38.75x30x19.38 cm	12"x7.1"x18.9" 30.5x18x48 cm	8.25"x13"x15.5" 20.63x32.5x38.75 cm
Weight	23 lb./10.35 kg.	31 lb./14 kg.	24 lb./10.8 kg
Zoom Lens	1.5 : 1	No	0.85 : 1
Keystone Correction	17°	Data N/A	Data N/A

continued ▶

Polaview 220 DLP Projector

	Polaroid Polaview 220	3M MP8650	In Focus LitePro 620
Lamp	270W metal halide	350W metal halide	575W metal halide
Presentation Control	Turbo remote	Remote	Remote
Warranty	1 year	1 year	1 year

Competition-at-a-glance – 2

	Polaroid Polaview 220	**Sharp XG-E670U**	**Boxlight Revolution**
Display Technology	Active Matrix	Active Matrix	Data N/A
Resolution	800 (W) x 600 (H)	800 (W) x 600 (H)	800 (W) x 600 (H)
Brightness	250 ANSI lumens	280 ANSI lumens	500 ANSI lumens
Maximum Image Size *(measured diagonally)*	240 in.	150 in.	Data N/A
Colors	16.7 million	16.7 million	16.7 million

continued ▶

Polaview 220 DLP Projector

	Polaroid Polaview 220	Sharp XG-E670U	Boxlight Revolution
Speakers	2 stereo	1 speaker	Data N/A
Video Compatibility	NTSC/PAL/ SECAM/S-Video	NTSC/PAL/ SECAM	Option
Size (WxLxH)	15.5"x12"x7.75" 38.75x30x19.38cm	8.3"x13.8"x18.1" 20.75x34.5x45.25cm	13"x6"x9" 32.5x15x22.5cm
Weight	23 lb./10.35 kg.	20.5 lb./9.23 kg.	10.9 lb./9.23 kg
Zoom Lens	1.5 : 1	No	No
Keystone Correction	17°	No	No

continued ▶

Polaview 220 DLP Projector

	Polaroid Polaview 220	Sharp XG-E670U	Boxlight Revolution
Lamp	270W metal halide	350W metal halide	250W metal halide
Presentation Control	Turbo remote	Remote	Remote
Warranty	1 year	1 year	1 year

Competition-at-a-glance – 3

	Polaroid Polaview 220	ASK Impression 860
Display Technology	Active Matrix	Active Matrix
Resolution	800 (W) x 600 (H)	800 (W) x 600 (H) (H)
Brightness	250 ANSI lumens	500 ANSI lumens
Maximum Image Size *(measured diagonally)*	240 in.	268 in.
Colors	16.7 million	16.7 million
Speakers	2 stereo	Data N/A
Video Compatibility	NTSC/PAL/ SECAM/S-Video	NTSC/PAL/ SECAM

continued

Polaview 220 DLP Projector

	Polaroid Polaview 220	ASK Impression 860
Size (WxLxH)	15.5"x12"x7.75" 38.75x30x19.38cm	12.7"x9"x25.1" 31.75x22.5x62.75cm
Weight	23 lb./10.35 kg.	27.6 lb./12.42 kg.
Zoom Lens	1.5 : 1	No
Keystone Correction	17°	8°
Lamp	270W metal halide	575W metal halide
Presentation Control	Turbo remote	Batmouse
Warranty	1 year	1 year

The Polaview 220 DLP Projector competitive advantage

When compared to the:	3M MP8650
The Polaview 220 advantage:	• Lighter • Smaller • Features DLP instead of single-panel LCD • Interactive laser/mouse remote control • Superior image uniformity • True color reproduction • Intelligent VGA and video expansion that fills the screen • Superior video quality

continued ▶

When compared to the:	In Focus LitePro 620
The Polaview 220 advantage	• Interactive laser/mouse remote control • Intelligent VGA and video expansion that fills the screen • Manufactured with several technology enhancements including tweaked gamma calculations, calibrated color filters, zoom lens (In Focus currently ships only fixed focus), and improved video

continued

When compared to the:	Sharp XG-E670U
The Polaview 220 advantage	• Brighter • Interactive laser/mouse remote control • Superior image iniformity • Superior video • Intelligent VGA and video expansion that fills the screen • Features DLP instead of single-panel LCD that delivers greater color rendition, and contrast

continued

Polaview 220 DLP Projector

When compared to the:	Boxlight Revolution
The Polaview 220 advantage	• Interactive laser/mouse remote control • Superior data and video image quality

When compared to the:	ASK Impression 860
The Polaview 220 advantage	• Lighter • Smaller, more compact design • Interactive laser/mouse remote control • Superior data and video image quality

Sales Support & Administration

Click to see more

Statement of Internet services and support

Polaroid Customer Support Services is now offering Internet support for all Polaroid Digital Imaging Products on the Polaroid Home Web Page. Following is a brief description of each section on the Web Page concerning Polaroid Digital Imaging (PDI) products.

Products

- General product information is contained here. There will be links to the following locations:
- An FTP site containing current "free" software drivers and/or patches
- FAQs - Frequently Asked Questions. These are the top 10 (or so) most frequently asked questions and associated answers received from the US phone support organization.
- Service Page
- Home Page

continued

Service

E-mail service is being offered to all customers with products listed in this section. A customer may send an E-mail with any pre-sales or post-sales question. As soon as the message is received, an automatic response lets the customer know that their message has been received and that they will be contacted via E-mail with an answer within one business day. Non-US customers are directed to the listing of international service centers. Obviously, nothing prevents an international customer from sending an E-mail message. All efforts will be made to answer the question. The 800 number for PDI service is listed here, as well as the phone numbers and addresses of all service centers worldwide.

The following types of questions will NOT be answered:

- sales/pricing/literature
- product repair
- products not sold in the US

continued

For these questions, an E-mail message will be sent to that customer, referring him/her to the closest Polaroid service center.

Efforts are under way to broaden the international support offered on the WEB site.

Fresh stuff

This section contains any new information about Polaroid, it's products, and it's WEB site. Any new PDI product information including new drivers and software will be located here.

Let's get digital

This section is dedicated to the digital product line. Currently it contains information concerning the PDC-2000 Digital Camera. This site will change periodically but will always highlight one of the digital products.

Customer Support Services

U.S. Service & Support Information

Telephone Assistance
For technical assistance, customers in the United States call Polaroid's toll-free Technical Assistance Hotline at 1-800-432-5355. The hours of operation are Monday through Friday, 8 A.M. to 8 P.M EST. Our highly trained specialists can answer questions, from general to specific technical issues.

When calling with a technical question, ask for an Electronic Imaging or Digital Imaging Specialist. Please identify the Polaroid product/model, computer and video card you are using before describing the issue. Also, (if possible) have the equipment in front of you when you call.

Technical Assistance:
Polaroid Corporation
565 Technology Square – 3B
Cambridge, MA 02139
Phone: 800-432-5355/Fax: 781-386-9688

continued ▶

Software Support
For application software support, please contact the software manufacturer.

Manufacturer
Polaroid provides a one year warranty for its Polaview LCD products.

Standard Warranty

Limited One Year Warranty Polaroid Corporation warranties the Polaview LCD products against defects for a period of one year from the date of purchase. To verify the warranty period, the sales slip or other proof of the purchase date is required.

Should this product, or any component or accessory included with it, become defective at any time during the warranty period, Polaroid Corporation will, at its discretion, either repair or replace this item, without charge, provided the product is returned to the designated servicing location (prepaid and insured).

continued ▶

This Limited Warranty does not apply to product damage resulting from accident, incorrect installation, unauthorized modification, misuse or abuse.

This warranty excludes all incidental and consequential damages and does not affect your statutory rights.

Note: No user-serviceable parts inside. Attempts to modify mechanical or electronic parts inside will void your warranty, and may be hazardous.

Out-of-Box Failures

It is the reseller's responsibility to contact their local Polaroid Distribution Center regarding "out-of-box failures." Distribution will issue an RA (return authorization) number and the reseller may then return the product to Polaroid for a replacement unit.

If you believe you have an "out-of-box failure" but are not sure, you can call the toll-free Technical Assistance Hotline at 800-432-5355. The technical expert will troubleshoot the problem, confirm it is an out-of-box failure and instruct you to contact Distribution.

continued ▶

Service

If your product is under warranty, out of warranty, or covered by an extended warranty and requires service, call Polaroid Technical Assistance Hotline, toll-free, 800-432-5355. A trained technician will diagnose the problem.

If the technician determines your equipment needs service, you will be given a service RA# and will be instructed where to ship your equipment.

For complete line of Polaroid LCD Projector Products see Polaroid Home Page at **www.Polaroid.com**.

Polaview 220 DLP Projector

PID#	Product description	List price
622196	**Polaview 220 DLP Projector**	**$10,900.00**

With high-resolution images and brighter, crisper colors, this Digital Light Processing Projector delivers "on the screen" just what you see on your computer. Ideal for business, education and government use, the Polaview 220 has drastically improved presentation and workgroup applications.

Features:

- Projected image matches SVGA computer screens
- Features new DLP technology, for sharp, brilliant images
- Compact, lightweight
- Video playback

continued

Projector accessories

PID#	Product description	List price
623374	Replacement lamp assembly	$312.00
623375	Soft carry case with wheels	$285.00
623376	ATA-300 style carry case with wheels	$495.00

Glossary of Terms

Amorphous A type of LCD without defined form or shape; uncrystallized. Yields a sharper image.

Analog Signal A continuous signal that takes time to make a transition from one level to another. Standard audio and video signals are analog. This signal has an infinite number of levels between its highest and lowest value. (Not represented by bits, such as with digital.)

Aspect Ratio Horizontal dimension of a picture expressed relative to the vertical dimensions. The aspect ratio of all broadcast composite video systems is 4 units wide by 3 units high.

Bandwidth A frequency range, or "band" of frequencies, within which a device operates.

Brightness Ratio The difference between the brightest and darkest object in a picture. Too much of a difference can cause unacceptable contrast.

continued

CGA (Color Graphics Adapter) 1983 IBM introduced their first product to display both color and graphics. Pixel x Line resolution of 640 x 200. The horizontal scan frequency of 15.75 kHz and vertical frequency of 60 Hz. The output is a 9 pin "D" type connector.

Chrominance Signal This is the signal that represents color in a video picture. Chroma is the characteristics of color information independent of luminance intensity. Hue and saturation are qualities of chroma. Chrominance is abbreviated as "C".

Color - 24 bit Refers to the total number of colors possible per pixel. 24 bit = 16.7 million colors. 8 bits of information per color (RGB) per pixel. The total possible color combination is greater than 16.7 million.

Color Mapping The translation of many video display monitor colors into fewer LCD projection colors. The more colors an LCD product has, the better the color mapping.

Color Palette The total number of colors available for use by a device.

continued ▶

Composite Video A mixed signal comprised of the luminance black and white, chrominance (color), blanking pulses, sync pulses and color burst.

Contrast Degree of difference between the lightest and darkest parts of a picture. Low contrast is shown mainly as shades of gray, while high contrast is shown as blacks and whites with very little gray.

Convergence The alignment of the Red, Green, and Blue video on a projected display.

DOT Clock (also Pixel Clock) The highest data rate that a graphics device can produce.

EGA (Enhanced Graphics Adapter) First introduced in 1984 by IBM. Resolution is 640 x 350 with 16 colors at 60 Hz. EGA is obsolete.

Frequency Range Refers to the low-to-high limits of a device, such as a computer, projector or monitor. Also “bandwidth”.

continued

Front Projection Projecting onto the screen or wall for viewing from the same side (also see Rear Projection).

Full Motion Video TV-quality, or better, moving video images displayed in a window or full screen on your PC (30 Frames Per Second or greater)

Ghosting A term used to describe the appearance of a dual image or losing the cursor that is being projected onto the screen. This is most prevalent in passive matrix panels/projectors.

Gray Scale A term used to describe an image containing a number of gray shades as well as black and white.

Hertz (Hz) A measure of frequency in cycles per second.

High Resolution 1024 x 768 pixels per image.

Horizontal Rate (Frequency) The number of complete horizontal lines, including trace and retrace, scanned per second. Typically shown as a measure of kHz.

continued

Hue (Tint Control) Red, yellow, blue, etc., are hues of color, or types of color. Hue is the parameter of color that allows us to distinguish between colors.

Interlaced The process of scanning whereby the alternated lines of both scanned fields fall evenly between each other.

Keystone Effect A distorted picture where one edge is not the same dimension as the opposite edge. Typically results when the image is projected at an angle. In stone buildings, the tapered stone at the top of an arch was the "key" that prevented the arch from falling.

Kilohertz (kHz) Thousands of Hertz, or a frequency rate in units of thousands of cycles per second. For example: CGA's horizontal scan rate is 15,750 hertz (Hz), or 15.75 kHz.

continued ▶

LCD (Liquid Crystal Display) Display technology that relies on polarizing filters and liquid-crystal cells rather than phosphors illuminated by electron beams to produce an on-screen image. To control the intensity of the red, green, and blue dots that comprise pixels, an LCD's control circuitry applies varying charges to the liquid-crystal cells through which polarized light passes on its way to the screen. The amount of light that makes it through to the screen depends on the amount of charge applied to the corresponding cell before passes through a second polarizing filter and a red, green, or blue color mask. It was first developed in 1968 by RCA laboratories.

Lumen A unit of measure for the amount of light emitted by a light source.

Luminance This is the signal that represents brightness in a video picture. Luminance is any value between black and white. Luminance is abbreviated as "Y".

Lux The amount of light per square meter, incident on a surface.

continued ▶

MHz An abbreviation for megahertz. This is a unit of measurement and refers to a million cycles per second. Bandwidth is measured in megahertz.

Non-Interlaced A method by which all the video scan lines are presented on the screen in one sweep instead of two (also see Interlaced).

NTSC (National Television Systems Committee) The television standard for North America, Japan, and certain countries in South America. NTSC is 525 lines of resolution with a refresh rate of 60 Hz. NTSC refers to a type of video or television signal.

PAL (Phase Alternate Line) The television standard for Western Europe, Asia, Australia, certain countries in Africa and South America. PAL is 625 lines of resolution with a refresh rate of 50 Hz. PAL refers to a type of video or television signal.

continued

Passive Matrix An LCD technology that uses pixels which are made up of RGB (Red, Green, Blue). Passive pixels are at rest until activated by pulses of signals. Passive matrix has a slower response time causing moving objects to streak or ghost unlike active matrix.

Pixel A definable location on a display screen that consists of multiple or single triad of dots (red, green, and blue). A computer picture is typically composed of a rectangular array of pixels (i.e. 300 x 450). The resolution of a picture is expressed by the number of pixels in the display. For example, a picture with 560 x 720 pixels is much sharper than a picture with 275 x 400 pixels.

Plug & Play (PnP) A term used to indicate that a device can be installed with no setup (program installation, software settings, etc.). Many devices require software, setting changes, or boot after installation. This is not true of a plug and play device.

Projector A presentation device that has its own light source built-in, sometimes called an all-in-one projector. Plug the computer into the unit and project the computer's image onto a screen or wall.

continued ▶

Rear Projection Projecting an image through a translucent screen material for viewing from the opposite side (also see Front Projection)

RGB Red, Green, Blue

Saturation The intensity of the color is called saturation. Example: A lightly saturated red looks pink. Fully saturated red is like the red of a crayon. Not be confused with brightness, saturation is the amount of pigment in a color, and not the intensity. Low saturation is like adding white to the color.

SCSI (Small Computer Systems Interface) Pronounced "scuzzy". SCSI is the second-most popular interface standard for hard disks. Most scanners and CD-ROM drives are SCSI. You can hook up to seven SCSI devices to one SCSI interface.

SECAM (Sequential Coleur A Memoire) Pronounced "Sea-Cam". Sequential color with memory. The television standard for France, Eastern Europe, Russia, the former Soviet Republics and some countries in Africa. SECAM is 625 lines of resolution with a refresh rate of 50 Hz. SECAM refers to a type of video or television signal.

continued ▶

SVGA (Super Video Graphics Array) Also referred to an extension of the VGA video standard. SVGA video adapters support resolutions of 800 x 600 pixels and higher with up to 16.7 million colors (known as true color).

TFT (Thin Film Transistor) A technology used to make active matrix LCD panels where each pixel has its own transistor switch. This technology allows for sharper looking colors than ColorStripe or TSTN.
TFT is used in Amorphous TFT and Polysilicon TFT.

Vertical Rate (Frequency) The number of times the screen is refreshed per second. Typically shown as a measure of hertz (Hz).

VGA (Video Graphics Array) Also referred to as Video Graphics Adapter. Introduced by IBM in 1987. VGA is an analog signal with TTL level separate horizontal and vertical sync. The video outputs to a 15 inch HD connector, has a horizontal scan frequency of 31.5 kHz, and vertical frequency of 60 to 70 Hz non-interlaced. The signal has a Pixel by Line resolution of 640 x 480 with a color palette of 16 from 256,000.

continued ▶

XGA (Extended Graphics Array) IBM's graphics standard that includes VGA and extended resolutions up to 1024 x 768 pixels, interlaced, 35 kHz. An XGA video card has a 15-pin HD connector.

XGA-2 (Extended Graphics Array, 2nd Generation) Capable of scanning from 31 to 68 kHz and resolutions up to 1600 x 1200 pixels. An XGA2 video card has a 15-pin HD connector.

Polaview Projector Product Positioning

Polaview 10

Super portable, low cost VGA projector

VGA 640 x 480

Adequate for most lighting conditions

Laptop size under 10 lbs.

$5,995

Polaview 110

Best VGA projector for well-lighted environments and business graphics applications

VGA 640 x 480

SVGA 800 x 600 compressed

Rich saturated colors

High brightness

24 lbs. (10.8 kg.)

$8,295

---

continued

Polaview 220 DLP Projector

Polaview 220

Best SVGA projector
Best projector for video and full color/photographic images

SVGA 800 x 600

Full screen VGA (640 x 480)

Excellent uniformity

No LCD “screen door” effect minimum pixelization

Best video and full color imagery

23 lbs. (10.35 kg.)

$10,900

continued

Polaview 305

Portable high-resolution projector (Compared to competitive CRT and LCD projectors)
Optional Adobe Acrobat Player System for presentation without connecting a PC

XGA 1024 x 768

VGA (640 x 480) to EWS (1280 x 1024) compatibility

High detail/resolution

31 lbs. (13.95 kg.)

$16,995