Point of View Overview

Overview

Point of View is powerful software for developing HMI, SCADA, and OEE/Dashboard projects that can be deployed anywhere.

Each project consists of:

- A project tag database to manage all runtime data, including both internal variables and scanned I/O
- Configurable drivers to communicate in real-time with programmable logic controllers (PLCs), remote I/O devices, and other data acquisition equipment
- Animated HMI screens and OEE dashboards
- Optional modules such as alarms, events, trends, recipes, reports, scriptable logic, schedulers, a security system, and a complete database interface

After you develop your project, you can either run it locally on your development workstation or download it to a remote workstation and run it there using Point of View runtime software. The workstation processes I/O data from connected devices according to your project parameters and then reacts to, displays, and/or saves the data.

Internal Structure

The Point of View project runtime runs on a Windows-based computer and consists of the following modules or threads (program elements that can execute independently of other program elements):

- Background Task (a supervisory task)
- Database Spy (debugging tool)
- DDE Client
- DDE Server
- LogWin (debugging tool)
- Driver Runtime
- OPC Client
- OPC Server
- ODBC Runtime
- TCP/IP Client
- TCP/IP Server
- Viewer

These modules do not communicate directly with each other. Instead, the tag database is used to manage the flow of data between modules. It also stores all tag values and any properties associated with each tag (such as alarm conditioning, timestamp, etc). The tag database is the "heart" of Point of View.
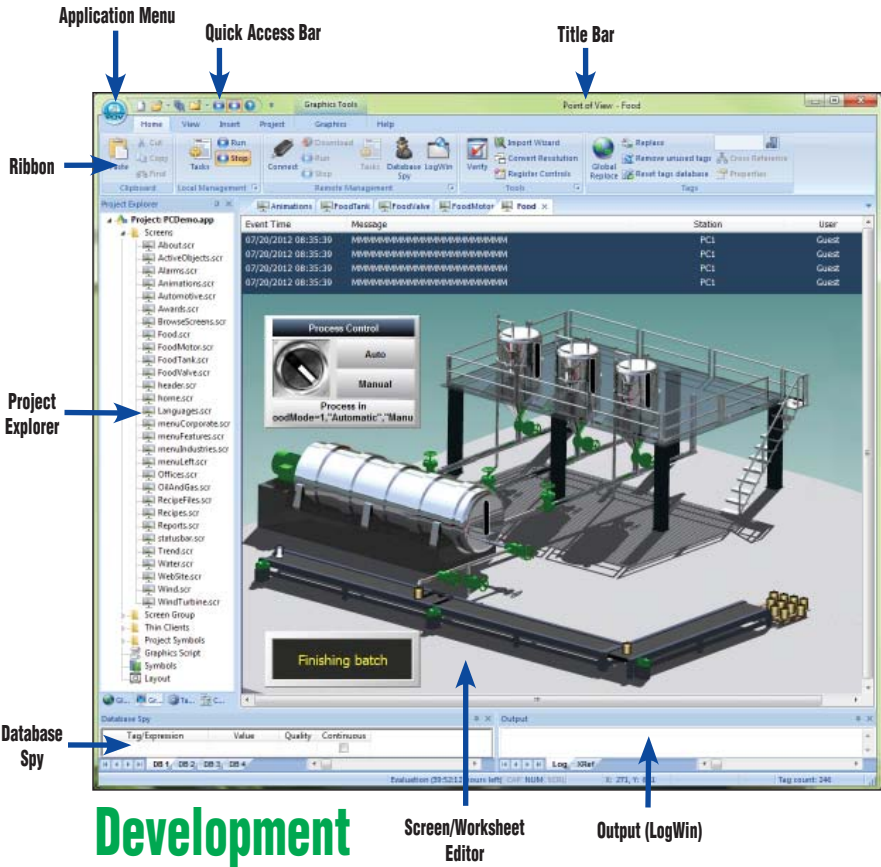
Development

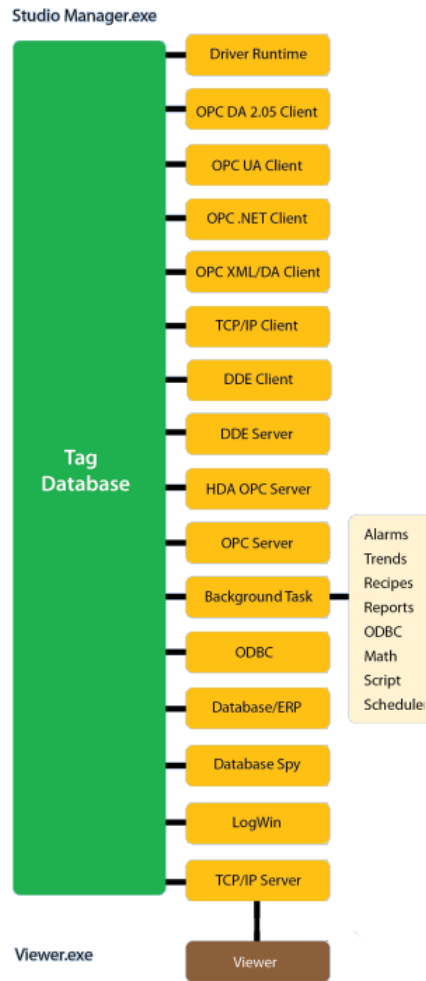**Runtime**

Point of View Overview

Data Flow

When the driver reads a new value from the PLC, the driver updates the tag associated with this value in the tag database. Then, if this new information must display on the project screen, the tag database sends the new tag value to the Viewer task, and the Viewer updates the screen.

Driver reads new value from PLC

Driver

Driver writes new value into the Tag Database

Tag Database

Tag Database sends new value to Viewer

Viewer

Viewer updates the screen

Note that the driver does not send new tag values directly to the Viewer. In addition, there is no pooling between tasks — the tag database receives the updated information and immediately forwards it to all runtime tasks requiring that information.

The architecture of Point of View significantly improves the internal data flow performance and makes it easy for you to add new internal tasks. Even though each task works independently, it can access information from any other task through the tag database.

[Studio Manager.exe diagram]

Studio Manager.exe

Tag Database

- Driver Runtime
- OPC DA 2.05 Client
- OPC UA Client
- OPC .NET Client
- OPC XML/DA Client
- TCP/IP Client
- DDE Client
- DDE Server
- HDA OPC Server
- OPC Server
- Background Task
- ODBC
- Database/ERP
- Database Spy
- LogWin
- TCP/IP Server

Alarms
Trends
Recipes
Reports
ODBC
Math
Script
Scheduler

Viewer.exe — Viewer

Thread Executing

Point of View is composed of modules that must be executed simultaneously. Based on the multi-tasking concept, each runtime module (Viewer, Driver, and so forth) is a thread and the operating system switches from one thread to another automatically.

When you execute a runtime project, the Studio Manager.exe process starts the Tags database and all of the runtime modules configured for the project. The operating system continuously scans all currently active threads, and executes the threads according to their priority value — executing the higher-priority threads first.

System Architecture

The architecture of your finished Point of View project depends on which components you install, where you install them, and how you connect them to each other.

In most cases, you should first install the full Point of View software on your primary workstation. Not only does it set up the project development environment on your computer, it also unpacks the rest of the components so that they can be installed on other computers.

The table, shown below, displays the various software components, functions and platforms required.

Component	Functions	Platforms
Point of View	• RetiredProject development • Tag integration • Remote management • Project runtime server • Project runtime client	• Windows • Windows Server
Mobile Access Runtime	Enables your project runtime server to deliver HTML5-enhanced project screens to tablets and smartphones	Microsoft IIS for Windows
Thin Client (a.k.a. Secure Viewer)	Web thin client (standalone application)	• Windows • Windows Server
ISSymbol	Web thin client (browser plug-in)	Internet Explorer for Windows

Point of View Features

Point of View Features			
Alarms	In addition to all the alarm functions you'd expect, Point of View also sends alarms using multi-media formats such as PDF. Use remote notification to have alarms sent to your inbox, a printer, or a smartphone. Alarms are real-time and historical; log data in binary format or to any database.	**Recipes**	Save time and maintain consistency by automating part parameters or production quantities with any triggering event.
Animation	Point of View gives you great command over graphics. Paste images, and even rotate them dynamically. Fill bar graphs with color, or adjust the scale of objects with easy-to-use configuration. Other animations include "command" (for touch, keyboard and mouse interaction), hyper-link, text data link, color, resize (independent height and width), position, and rotation (with custom rotation point).	**Redundancy**	For critical applications where data is vital, Point of View supports web server, database and overall system redundancy.
Database	Connect to any SQL database (MS SQL, MySQL, Sybase, Oracle), or MS Access or Excel, and ERP/MES systems (including SAP). Flexible enough to have a built in interface without the need to know SQL (for trends, alarms/events, grid and other objects), or use any SQL statement you need anywhere you need it.	**Scalable**	Develop once and deploy everywhere. Take an application created for Windows XP and deploy it on any supported Microsoft operating system, including Windows 7, Windows 8, and Server editions.
Drivers	Contains 18 built-in drivers for the following PLCs: Productivity3000, DirectLogic, Allen Bradley, Omron, Siemens, GE and Mitsubishi. Also includes a driver for Modbus communication. See the Point of View Driver List on the following page.	**Scheduler**	Schedule custom tag changes on date/time, frequency, or any trigger. Use this for simulation, to trigger reports or other functionality at a particular time of day, or even to trigger driver worksheets to read/write at a scan rate you choose.
Email	Send email using SMTP to desktop, email enabled phone, or any email enabled device. Get real-time information on alarms, process values, and other events. Supports SSL encryption allowing the use of third-party providers such as Gmail.	**Scripting**	Two powerful scripting languages are supported. Use built-in POV functions or use standard VBScript to take advantage of widely available resources. Both can be used simultaneously to give you the functionality you need.
Events	POV offers traceability for operator initiated actions or internal system activity. Log events such as security system changes (user logon or off), screen open/close, recipe/report operations, custom messages and system warnings. Also any tag value changes including custom messages.	**Security**	Includes support for group and user accounts, e-signatures, and traceability, as well as support for the ADAM Server, in addition to standard LDAP Servers. Integrate your project to the Active Directory (Users and Groups).
FDA Traceability	Built-in functionality creates 21 CFR part 11 compliant projects with traceability and e-signatures. These features are often used for pharmaceutical and food applications, but also for any application where traceability is a must.	**SSL Support for Emails**	Native support for Secure Socket Layer (SSL), makes it easy and secure to send emails from Point of View using third-party tools such as Gmail.
FTP	Automatically upload or download files during runtime to/from remote storage locations using FTP protocol and flexible scripting functions. Configure FTP via scripting or the included configuration interface.	**Standards**	Take advantage of common industry standards to develop applications that are compatible with any format. TCP/IP, .Net, ActiveX, OPC (client and server), ADO/ODBC, COM/DCOM, OLE, DDE, XML, SOAP, and HTML are supported.
Graphics and Design Tools	Create powerful screens to meet any application need using the tools in the graphic interface. Combine built-in objects to create any functionality required. Store graphics in the library for future use, or easily make project across a product line share a consistent "look and feel".	**SNMP**	Easily configure managed networked devices on IP networks (such as switches and routers) using incorporated SNMP configuration commands and an easy-to-use configuration interface.
Historical Performance	Optimized trend history module. Designed to load millions of values from SQL relational databases with high performance, with built-in data decimation in the Trend Control. Easy-to-use tools provide quick access to Statistical Process Control (SPC) values without any need for programming.	**Symbols**	Included library features push buttons, pilot lights, tanks, sliders, meters, motors, pipes, valves and other common objects. Use the included symbols in your project, modify existing symbols to suit your needs, or create your own from scratch. Plus support for third-party symbol libraries and graphic tools.

Point of View Features

Point of View Features			
Intellectual Property Protection	Screens, documents, scripts and even math worksheets can be individually password protected. This prevents unauthorized viewing or editing of your corporate custom functionality. Protect the entire project with just a few mouse clicks.	**Tag Database**	Object oriented database with boolean, integer, real, strings, arrays, classes (structures), indirect tags and included system tags.
Multi-Language	Develop your application in one of many development languages, including English, Portuguese, German, and French.	**Thin Clients**	Remotely view screens as web pages using Internet Explorer web browser, or POV Secure Viewer. Use SMA (Studio Mobile Access) to monitor or access process values and alarms with remote devices such as tablets and mobile phones. Enhanced SMA offers data in easy-to-read widgets that can be viewed on any WebKit (HTML5) based web browser found on iPads, and Android phones and tablets.
.NET and ActiveX	Use third-party controls to enhance your project. POV is a container for ActiveX and .NET controls. Add functionality such as browsers, media players, charting, and other tools that support the ActiveX or .NET interface standards.	**Trends**	Real-time and Historical trends are supported. Log data in binary format or to any database locally and remotely. Color or fill trends with graphic elements to enhance clarity of data. Date/Time based or numeric (X/Y plot) trends give you the flexibility to display information that best suits your application.
OPC	Drivers for most major brands of PLCs are built in, but any OPC server may optionally be used. Supports OPC DA (Server/Client), OPC HDA(Server), UA (Client) and OPC .NET 3.0 (Client).	**Troubleshooting**	Quickly debug and verify a project using local and remote tools for troubleshooting, including status fields, DatabaseSpy and LogWin. Capture screen open and close times, see communications in real-time, and messages related to OPC, recipes/reports, security, database errors and even custom messages.
PDF Export	Send alarms, reports, or any file (including .doc or .txt) to a production supervisor, quality manager, or maintenance staff using the included PDF writer.		

Point of View Driver List	
DLL	**Description**
ABCIP	Allen Bradley Ethernet CIP Protocol (CE) [v11.0]
ABENI	Allen Bradley, AB-1761-NET-ENI Gateway interface (CE) [v1.11]
ABKE	Allen Bradley, DF1 Protocol (PLC2, PLC5 and SLC500) Families (CE) [v10.4]
ABTCP	Allen Bradley Ethernet, DF1 Protocol (PLC2, PLC5 and SLC500) Families (CE) [v10.6]
FANUC	GE FANUC, SNP Serial Protocol - Series 90 / 90/30 CPU 341 (CE) [v10.4]
KOYO	DirectLogic Koyo, CCM/ECOM protocol (DL240/DL250+H2-ENET)(CE) [v1.14]
MELSE	MELSE, Mitsubishi - MELSEC Protocol (CE) [v10.3]
MITSU	MITSUBISHI Protocol, FX Series (CE) [v10.5]
MODBU	MODBUS Protocol RTU/ASCII (CE) [v10.6]
MODSL	Protocol Modbus Slave (ASCII and RTU)(Serial and TCP/IP) (CE) [2.7]
MOTCP	MODBUS Protocol RTU via TCP/IP (CE) [v10.7]
OMETH	OMRON, OMPLC Protocol - FINS communication / CS1 and CV (CE) [v10.5]
OMPLC	OMRON, Host Link Protocol - C Series/Sysmac Way/Host Link Units (CE) [v3.01]
PAC3K	AutomationDirect PAC Devices (CE) [v1.1]
SIEME	SIEMENS, S7 PLC communicating via Serial interface (CE) [v10.8]
SIETH	SIEMENS, S7 PLC communicating via an Industrial Ethernet interface (CE) [v10.8]
SIPPI	SIEMENS, S7-200 PLC communicating via PPI interface (CE) [v10.8]
SRTP	GE Fanuc, SRTP TCP/IP Protocol (CE) [v10.2]
SSTDH	SST DHP Protocol, Interface Cards for Allen Bradley [v1.8]

Point of View System Requirements

System Requirements

Minimum:

To install and run the full Point of View software, you must have:

- A Windows-compatible computer with a standard keyboard, pointer input (e.g., mouse, trackpad, or touchscreen), and SVGA-minimum display
- A Windows or Windows Server operating system that is currently supported by Microsoft, which at this time includes:
  - Microsoft Windows XP Service Pack 3
  - Microsoft Windows Vista Service Pack 2
  - Microsoft Windows 7 Service Pack 1
  - Microsoft Windows 8
  - Microsoft Windows Server 2003 Service Pack 2
  - Microsoft Windows Server 2008 Service Pack 2
  - Microsoft Windows Server 2008 R2 Service Pack 1
  - Microsoft Windows Server 2012
- Microsoft .NET Framework 3.5.1
- Microsoft Internet Explorer 6.0 or later
- 2 GB free hard drive space or non-volatile memory
- An Ethernet or Wi-Fi network adapter, for TCP/IP networking or Serial COM ports and adapters to be used for direct communication with PLCs and other devices
- A USB port, to be used with hardkey licensing

Recommended:

We recommend the Home Premium, Professional, Enterprise, and Ultimate editions of Windows, because they include Microsoft Internet Information Services (IIS) as a pre-installed feature that can be turned on. IIS is used to make your projects accessible to web thin clients and mobile devices. We do not recommend the Starter and Home Basic editions because they do not include IIS, but you can still use them if you do not plan to use those features.

The following items are optional but recommended:

- A DVD-ROM drive, to install the software from disc
- Microsoft IIS installed and turned on, to make your projects accessible to mobile devices and thin clients

Ordering the Software

Complete package — includes one Development Environment license, one Run-time Engine license and all drivers. Hardware Key (PV-HWKEY) sold separately.

Development package — includes one Development Environment license and all drivers. Hardware Key (PV-HWKEY) sold separately.

Run-time package — includes one Run-time Engine license and all drivers. Hardware Key (PV-HWKEY) sold separately.

Notes:

- Point of View limits the maximum number of different drivers configured simultaneously in the same application. Each driver implements a protocol and uses one physical port of the station where the application runs. For example, in order to exchange data with 10 PLCs that support the same protocol (e.g.: Modbus over TCP/IP), you just need one driver (one protocol and one Ethernet port). However, in order to exchange data with two PLCs via two different serial ports of the computer, you need two communication drivers, even if both PLCs support the same protocol. If more drivers are required, please contact AutomationDirect.com.

  500 tag count = 1 communication driver supported

  1000 tag count = 3 communication drivers supported

  5000 tag count = 10 communication drivers supported

- You need to purchase one Development Package for each PC used for application development.
- If the PC used in your run-time application is not your development PC, you also need to purchase a Runtime Package for the HMI PC.
- Point of View is available for ordering online only, using the POV configuration tool to ensure selection of all the needed components.

Part Number	Description	Price
Complete Package		
PV-500	Point of View Development/Runtime 500 Tags. Requires PV-HWKEY.	$495.00
PV-1000	Point of View Development/Runtime 1000 Tags. Requires PV-HWKEY.	$795.00
PV-5000	Point of View Development/Runtime 5000 Tags. Requires PV-HWKEY.	$2,995.00
PV-1000-UPG	Point of View Upgrade 500 to 1000 Tags Development/Runtime.	$300.00
PV-5000-UPG	Point of View Upgrade 1000 to 5000 Tags Development/Runtime.	$2,200.00
PV-500-REV	Point of View Major Revision Update.	$195.00
PV-1000-REV	Point of View Major Revision Update.	$315.00
PV-5000-REV	Point of View Major Revision Update.	$1,195.00
Development Only		
PV-500-DEV	Point of View Development 500 Tags. Requires PV-HWKEY.	$225.00
PV-1000-DEV	Point of View Development 1000 Tags. Requires PV-HWKEY.	$345.00
PV-5000-DEV	Point of View Development 5000 Tags. Requires PV-HWKEY.	$1,295.00
PV-1000DEV-UPG	Point of View Upgrade 500 to 1000 Tags Development Only.	$120.00
PV-5000DEV-UPG	Point of View Upgrade 1000 to 5000 Tags Development Only.	$950.00
PV-500DEV-REV	Point of View Major Revision Update.	$90.00
PV-1000DEV-REV	Point of View Major Revision Update.	$139.00
PV-5000DEV-REV	Point of View Major Revision Update.	$518.00
Runtime Only		
PV-500-RT	Point of View Runtime 500 Tags. Requires PV-HWKEY.	$345.00
PV-1000-RT	Point of View Runtime 1000 Tags. Requires PV-HWKEY.	$495.00
PV-5000-RT	Point of View Runtime 5000 Tags. Requires PV-HWKEY.	$1,995.00
PV-1000RT-UPG	Point of View Upgrade 500 to 1000 Tags Runtime Only.	$150.00
PV-5000RT-UPG	Point of View Upgrade 1000 to 5000 Tags Runtime Only.	$1,500.00
PV-500RT-REV	Point of View Major Revision Update.	$139.00
PV-1000RT-REV	Point of View Major Revision Update.	$195.00
PV-5000RT-REV	Point of View Major Revision Update.	$798.00

Atlas Industrial Flat Panel PC Monitors

Mounting clip installation

To install the monitor, make a cutout (according to the cutout diagram for the respective monitor) through one of the walls of your NEMA enclosure. Next, hold the monitor in place and install the mounting clips. The monitor uses "U"-shaped clips and a special gasket to achieve a proper seal. Tighten the clips to the point where the back of the monitor's bezel just begins to contact the front of the NEMA enclosure. The use of an adjustable torque driver is recommended. The screws should be tightened to 8 inch-pounds. Tighten the clips in a cross pattern to develop an even pressure on the sealing gasket. DO NOT OVERTIGHTEN AS DAMAGE CAN RESULT, CAUSING LOSS OF SEALING INTEGRITY.

Mounting Clip Diagram
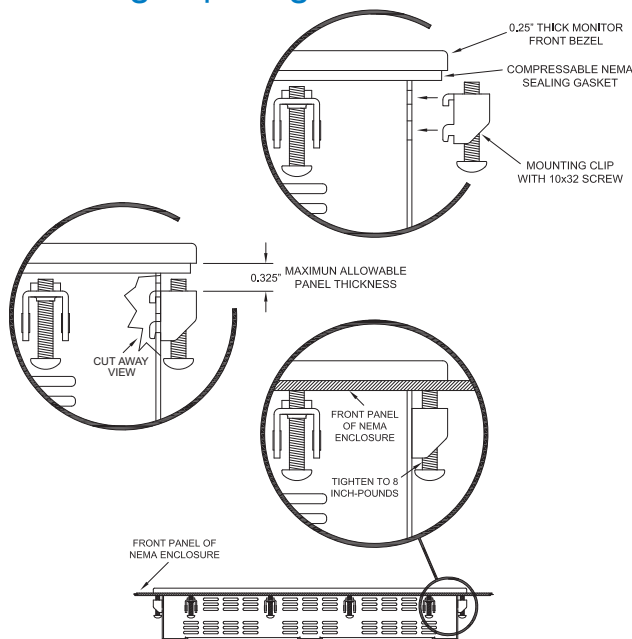
Connecting power

The monitor is powered from 100-240 VAC, 50/60 Hz. Power is connected to the monitor through a removable Phoenix Contact plug (ADC P.N. ATM-AC-CON or Phoenix Contact P.N. 1777992) that allows for screw termination of field wiring. The use of 18 AWG or greater (12 AWG maximum wore) wire is recommended. Connect the field wiring according to the appropriate table below. After the connections are made, make sure the power cnoconne screws (the two screws shown in the "Front View" below) are securely tightened. This will prevent the plug from pulling out.
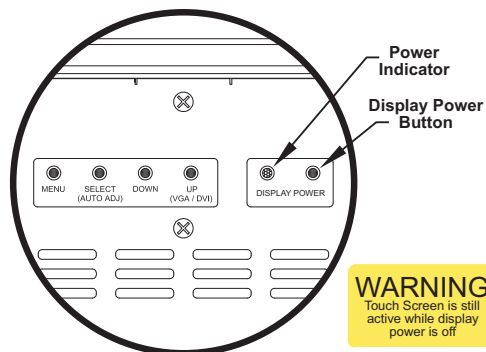
Power Wiring Diagram
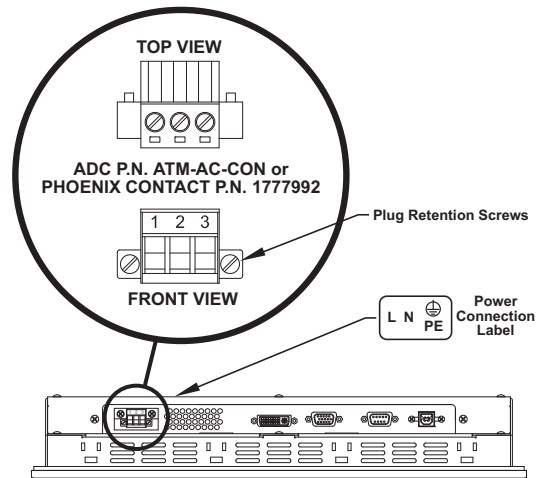
100 VAC - 240 VAC INPUT (1.0 Amps Min)		
	PIN No.	Definition
	1	AC Line Input
	2	AC Neutral Return
	3	Protective Earth Ground

Setting the On-Screen Display (OSD) controls

The On Screen Display (OSD) controls are used for making adjustments to the monitor's settings and are located on the back of the monitor. They consist of a single LED and five pushbuttons (functions are described in Chapter 3 of the respective monitor's Hardware User's Guide) located on the Documentation and Driver CD, or downloadable from the Online Documentation area of the *AutomationDirect* Web site.

OSD Controls

OSD Main Menu Display

```
           MAIN MENU
  BRIGHTNESS/CONTRAST
  COLOR
  POSITION
  SETUP
  EXIT
  1280X1024    63.9KHZ/60HZ
```

Atlas PC Monitor Accessories

Accessories & Replacement Parts

Part Number	Description	Price
ATM-CBL-VGA10	10 ft. 15-pin coaxial VGA cable. Connects any Atlas monitor to a standard VGA card.	$45.50
ATM-CBL-VGA25	25 ft. 15-pin coaxial VGA cable. Connects any Atlas monitor to a standard VGA card.	$96.00
ATM-CBL-VGA50	50 ft. 15-pin coaxial VGA cable. Connects any Atlas monitor to a standard VGA card.	$136.00
ATM-CBL-DV3M	10 ft. (3 meter) DVI (type D) video cable. Connects M1700 and M1900 to a standard DVI-D port. DVI cables provide a higher bandwidth video interface than the VGA cables.	$82.75
ATM-CBL-10	10 ft. serial communication cable. Connects Atlas monitor to std. 9-pin RS-232 port.	$25.00
ATM-CBL-25	25 ft. serial communication cable. Connects Atlas monitor to std. 9-pin RS-232 port.	$45.50
ATM-CBL-50	50 ft. serial communication cable. Connects Atlas monitor to std. 9-pin RS-232 port.	$66.00
USB-CBL-AB3	3-ft (0.9 meter) Standard USB 2.0 cable with Standard-A plug to Standard-B plug. Suitable for all USB devices.	$7.50
USB-CBL-AB6	6-ft (1.8 meter) Standard USB 2.0 cable with Standard-A plug to Standard-B plug. Suitable for all USB devices.	$9.50
USB-CBL-AB10	10-ft (3 meter) Standard USB 2.0 cable with Standard-A plug to Standard-B plug. Suitable for all USB devices.	$18.00
USB-CBL-AB15	15-ft (4.6 meter) Standard USB 2.0 cable with Standard-A plug to Standard-B plug. Suitable for all USB devices.	$22.50
ATM-AC-CON	Replacement Power Wiring Connector for AC Powered Units.	$15.00
ATM-CLIP	Replacement flat panel mounting clip kit. Package of 16 clips and screws.	$35.50

USB-CBL-AB3
USB-CBL-AB6
USB-CBL-AB10
USB-CBL-AB15

ATM-CBL-VGA10
ATM-CBL-10
ATM-CBL-VGA25
ATM-CBL-25
ATM-AC-CON
ATM-CBL-VGA50
ATM-CBL-50
ATM-CLIP
ATM-CBL-DV3M