GE
Digital Energy

EnerVista
PowerLink Advantage

Powerful and Scalable SCADA HMI Platform

Comprehensive view and control of the substation to increase operator efficiency

PowerLink Advantage (PLA) from GE Digital Energy is a Human Machine Interface (HMI) solution for high point count requirements providing an up-to-date, live view of the substation in near real-time. The system is designed to perform "Master" functionality to one or more field devices and provides a means to remotely control and obtain data from them. As a local substation HMI, PC-based Small Master Station, PLA aggregates and intelligently presents relevant real-time and historical data in easy to understand, customizable graphical format with features such as alarm and dynamic text displays to increase operator efficiency.

PLA has optional features such as Power Quality and Digital Fault Recording capabilities that can be added to further extend system awareness and provide indispensable information for in-depth analysis and informed decision making. Furthermore, PowerLink Advantage provides additional language support for French, Russian and Spanish user interfaces through available language packs.

Key Benefits

- Fast, easy configuration and powerful tools decrease setup and configuration effort
- Centralized monitoring, SCADA control and data collection for greater resource efficiency and fault analysis
- Highly scalable system implementation capabilities with real-time data acquisition and control
- Full integration of data into the utility enterprise, including plant archives and advanced data handling capabilities and analysis
- Centralized onsite and remote access/viewing capabilities
- User interface presentation in multiple languages

Key Features

- User-friendly, full-featured graphics editor with extended graphics functionality, including support for image importing to create customized displays
- PowerLink Advantage Configuration Toolkit (PACT) provides an intuitive and intelligent environment to easily create and configure database points and devices
- Enhanced security options and configurable user and group role-based security
- Advanced data handling capabilities and analysis via SQL Server® 2008 R2 and the GE CIMPLICITY v8.1 HMI engine
- Comprehensive alarm management offering superior filtering, sorting, stacking and organizing
- Flexible, wide array of trend displays, including XY plots
- Support for industry standard DNP3 protocol over communications such as serial, TCP/IP, UDP/IP
- Communications channel redundancy

imagination at work

Features

Comprehensive, Customizable Displays

PLA aggregates information from gateways and field devices and intelligently presents relevant near real-time and historical data in an easy to understand, customizable graphical format with features such as alarm and dynamic text displays to increase operator efficiency.

Typical customizable displays include:

- Communications Summary
- One-line Diagrams
- Alarm Viewer
- Historical Alarm Viewer
- Trending
- Detail Pages
- Operator Access Log
- Operator Notes
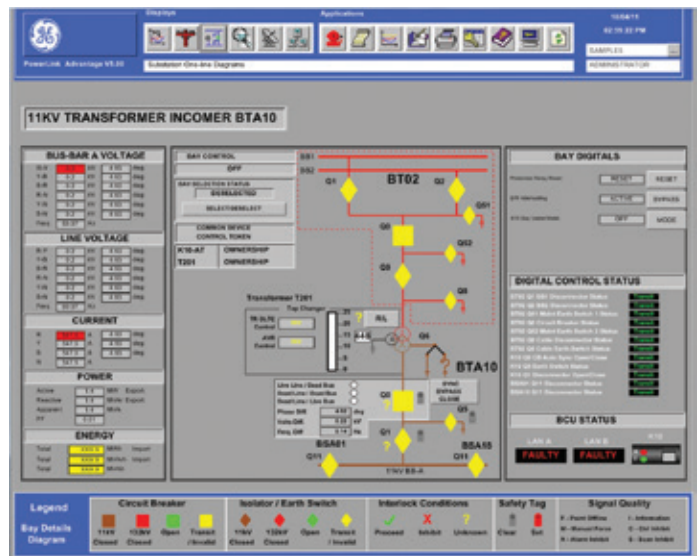
One-line screens for monitoring status, control and tagging

PLA provides a complete, scalable, feature rich, secure solution to optimize resource efficiency and ensure reliability
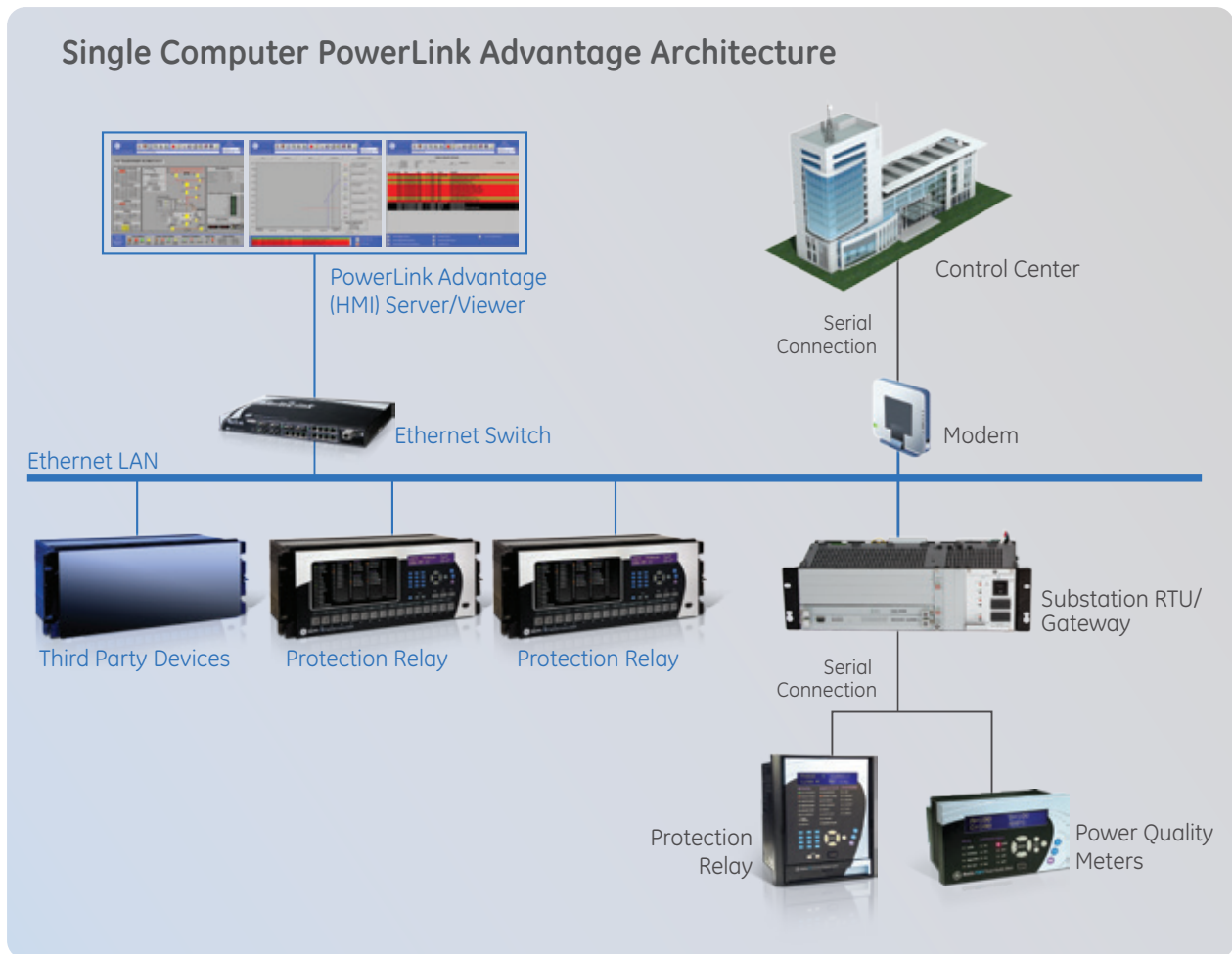
PLA integrates devices in the substation providing a complete, centralized view

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Powerful and Scalable Functionality

PLA provides a wide array of powerful and scalable SCADA and operational functionality to operate and maintain substations at peak reliability and efficiency.

SCADA:

- Full SCADA functionality
- Real-time data acquisition and control with per-point quality and status flags

Operations:

- Interlocking
- Point tagging and forcing
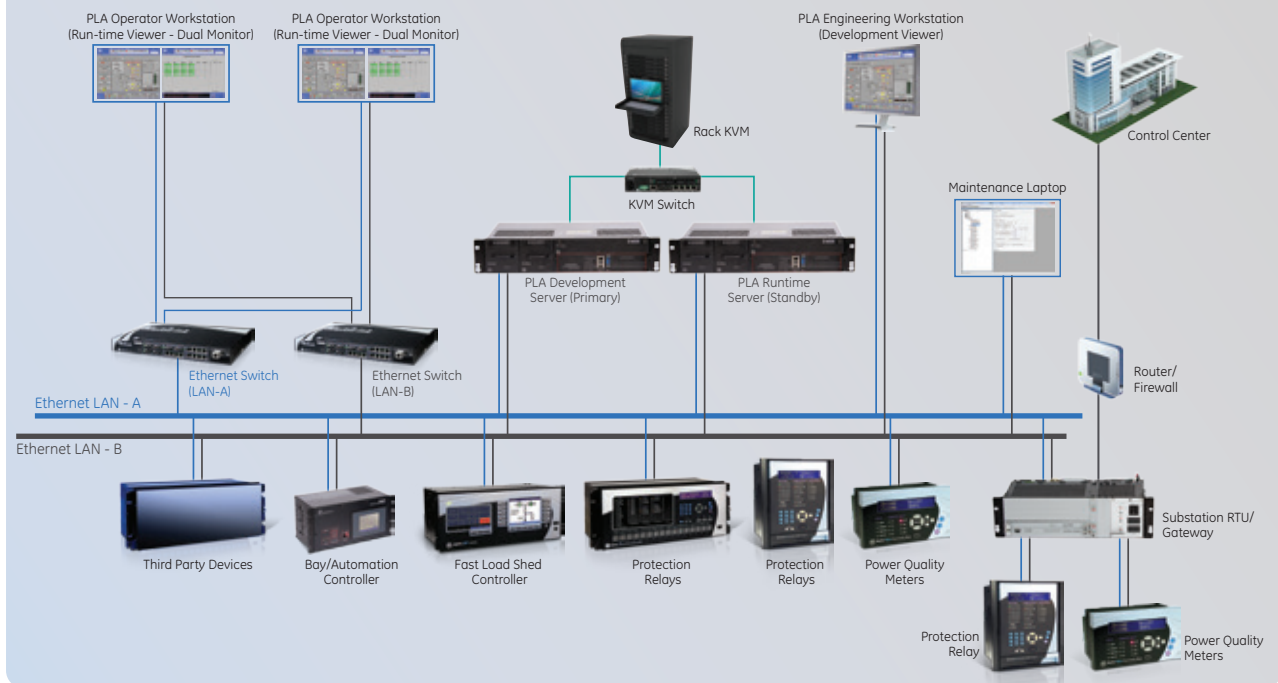- Time synchronization for field devices
- Operator notes
- Diagnostic Tools for serial and Ethernet communications
- Multi-Monitor support

Full SCADA functionality with real-time data acquisition and control

PLA server redundancy to ensure continuous uptime

Configuration

PLA provides a user-friendly, full-featured graphics editor to easily create customizable displays and a database configuration tool Powerlink Advantage Configuration Toolkit (PACT) to reduce setup and configuration time.

The user-friendly, online graphics editor contains extended graphics functionality, including support for image importing to create customized displays.

- Windows graphic editor
- Windows spreadsheet styles
- Smart Objects (animated) library
- On-line screen configuration
- User Built Displays with animated pre-defined PLA library or user custom created symbols

The PowerLink Advantage Configuration Toolkit (PACT) provides an intuitive and intelligent environment to easily create and configure database points and devices.

Create screens quickly using preconfigured objects in the online graphics editor

Easy creation and comprehensive configuration of devices and database points PACT

Alarm Management

Identifying and addressing exception conditions with the system is a key Operator responsibility. PLA provides a multitude of alarm notification and management functionality to increase operator awareness, decrease response time and improve system reliability.

- Visual and audible notification
- Historical logging
- Millisecond resolution time stamping
- Group, area and priority categories
- Advanced filtering with primary, secondary, tertiary and quaternary sort keys
- Stacking
- Comments
- Graphic links

Active alarm viewer to increase operator awareness, decrease response time and improve system reliability

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Trending

PLA provides aggregates trending data from substation devices and presents them in a clear visual format that is fully customizable to facilitate quick identification of potential issues or to assist in problem analysis.

- Customizable with selectable colors, gridlines and scaling
- Real-time and historical displays
- Dynamic trending
- XY plots
- Full database connectivity
- Support up to 300 logged points per logging table

Dynamic trending to clearly visualize substation activity

Security

PLA provides enhanced security options and configurable user and group role-based security. The security configuration allows access and operational permissions to be set for individual users and for user groups. Furthermore, PLA has an operator access log to trace operators access and aid in security reporting.

Customizable security access and operational permissions settings for individual users and for user groups

Communications

PLA supports industry standard communications using DNP3 protocol over Ethernet and serial TCP/IP, UDP/IP. Furthermore, PLA also provides advanced communications and timestamp functionality.

- Polling and/or unsolicited messaging
- Communications channel redundancy
- Multiple channels per device with auto-failover
- Support for dual communication links
- Support device UTC timestamp
- Support for automatically checking the status of each alternate communications channel at a configurable frequency

Monitor communications status with substation devices

Optional Features

Redundancy

Redundancy ensures system availability in the event of a hardware failure. PowerLink Advantage can be configured with redundancy so that a secondary system is ready to take over operations automatically should the primary system fail. During a failure, all main PowerLink Advantage functions are transferred to ensure that critical data acquisition, alarming, logging and security operations continue.

Multiple Viewer Stations

Multiple Viewer Stations provide client-server connectivity from additional computers on the LAN.

Remote Desktop (Terminal Services)

Remote Desktop (Terminal Services) licenses provide access from remote computers (requires Windows® Server operating system).

System Sentry

System Sentry improves system availability by constantly providing real-time information about the health of the PowerLink Advantage system. It provides detailed performance data at any given moment for every resource ranging from available hard drive space to CPU usage. System Sentry also provides configurable, automated alerts for problem conditions and the tools for problem determination to restore system functionality.

Digital Fault Recording Display and Analysis

Digital Fault Recording Display and Analysis is a tool within DirectView providing advanced waveform viewing through capabilities to set multiple cursors and markers; waveform superimposition and waveform comparison functions. It also provides functionality to visualize harmonic spectrum and perform zero sequence current calculations. IEEE® COMTRADE file compatible.

Alarm Cast

Alarm Cast provides integration of PowerLink Advantage alarms for remote notification through a variety of channels such as internet, mobile and PC media including pagers, SMS, email, ODBC, UCP and more. The notification can contain key operational information and conditions.

Reporting

PLA makes it easy to generate the reports based on a timed or event basis. The report viewer allows quick, convenient access to any report.

Power Quality Event Viewer

Power Quality Event Viewer provides sag, swell and interruption plots.

DirectView

DirectView provides a Digital Fault Recording (DFR) COMTRADE file viewer and analysis application. DFR COMTRADE files are automatically retrieved from compatible field devices connected via Ethernet LAN.

GE Automation Projects

Complete Solution for Complex Substation Automation Systems

GE Automation Projects delivers a complete solution for utilities and Industrial customers to address challenges in managing all aspects of increasingly complex substation automation systems:

- Substation Engineering
- Protection, Control and Automation
- Communications
- Cyber / Physical Security
- Data Management
- Enterprise System Operations
- Standards-based Solutions

In today's enterprise there are many publishers and subscribers of data. While all the requirements of a traditional substation automation system project are relatively unchanged with respect to solid power engineering practices for protection control and automation, there are many new requirements being introduced to the integration of systems and devices at the substation level, and the need to achieve interoperability and integration many enterprise applications for the purposes of security, data warehousing, and compatibility with international standards such as IEC 61850.

Comprehensive Solutions and Services Offerings

GE delivers a complete modern substation automation solution based with deep knowledge and expertise in best in class products; configuration tools, and industry standards with the following offerings:

Automation Projects – Managed Solutions

The GE Automation Projects team provides complete end-to-end system solutions including Hardware, Software and Resources from initial evaluation to ongoing Maintenance and Support.

Automation Projects – Technical Services

From initial Site Evaluation to ongoing maintenance of the system, the GE Automation projects team provides services for the complete lifecycle of a solution.

- Site Evaluation
- Consultation
- System Design
- Project Management
- Procurement
- System component assembly
- Configuration and Commissioning Services
- System Testing
- Training
- Lifecycle Support of System

System Requirements – Development/Runtime Server

COMPONENT	REQUIREMENT
Supported Operating Systems	• Windows® XP Pro SP3 – 32 bit • Windows® Server 2008 SP2 – 32 bit • Windows® 7 -32 bit
Computer and Processor	**Minimum:** • Pentium® IV 3 GHz processor or higher • DVD-ROM drive • Mouse (minimum two buttons) • Keyboard • Speakers (to support audible alarms) **Recommended (Server):** • Processor: Quad-core Intel® Xeon® processor E3-1200 product family or Dual-core Intel® Core™ processor i3-2100 product family • 4 GB Memory • 500 GB 7.2K RPM SATA 3.5" Hot Plug Hard Drive • RAID Controller, RAID 1, 2 HD • Network Adapter: Intel PRO 1000PT 1GbE Single Port NIC, PCI (for single LAN), Intel PRO 1000PT 1GbE Dual Port NIC, PCI (for Dual LAN) • USB Keyboard and Optical Mouse
Memory	2 GB of RAM (minimum), 4 GB (recommended)
Hard Disk	4 GB of free hard disk space for installation (additional space required for project configuration)
Display	Minimum 17" monitor, with 1280 x 1024 resolution, 16-bit color
Connectivity	Ethernet (10/100/1000BASE-T) Single Port (for single LAN), Dual Port (for Dual LAN)
Other	N/A

System Requirements – PLA Viewer

COMPONENT	REQUIREMENT
Supported Operating Systems	• Windows® XP Pro SP3 – 32 bit • Windows® Server 2008 SP2 – 32 bit • Windows® 7 -32 bit
Computer and Processor	**Minimum:** • Pentium® IV 3 GHz processor or higher • DVD-ROM drive • Mouse (minimum two buttons) • Keyboard • Speakers (to support audible alarms) **Recommended:** • Processor: Intel® Core™2 Quad; Intel® Core™2 Duo; Intel® Pentium® Dual Core; Intel® Celeron® Dual Core; Intel® Celeron® • 4 GB Memory • 500 GB 7.2K RPM SATA 3.5" Hard Drive • Network Adapter: Ethernet 10/100/1000 Single Port (for single LAN), Dual Port (for Dual LAN) • USB Keyboard and Optical Mouse
Memory	2 GB of RAM (minimum), 4 GB (recommended)
Hard Disk	4 GB of free hard disk space for installation (additional space required for project configuration)
Display	Minimum 17" monitor, with 1280 × 1024 resolution, 16-bit color
Connectivity	Ethernet (10/100/1000BASE-T) Single Port (for single LAN), Dual Port (for Dual LAN)
Other	N/A

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