Key benefits

- High availability
- Secure POSIX environment
- Open system architecture
- Multiple network support
- High fidelity data
- Connectivity to PLCs
- Data connection to plant LAN
- Optional applications:
  - Lab Data Entry
  - Logging and Report Generation
  - Quality Analysis & Control
  - classCONNECT/DDE
  - HARMONY 90™
- Optional solutions:
  - e-Process/Bailey Office

From control room to board room

Robust. Secure. Reliable. LAN-90® Process Control View®. The console originally introduced in 1988 has evolved into one of ABB’s best selling console products with more than 3500 installations in over 50 countries.

LAN-90® PCV® is an advanced software system for process control and information management that runs on a variety of PC hardware platforms. LAN-90 PCV interfaces with the traditional INFI 90® and Symphony® systems as well as Micro-DCITM and industry standard PLCs to provide an integrated data acquisition and operations interface.

LAN-90 PCV provides a graphical windowing environment which makes it easy for end users to control processes, view information and manipulate displays as they navigate through the complex domain of process control. On a single screen, LAN-90 PCV can display up to eight application windows through which operators can obtain an accurate view of every process and control with standard “point and click” functionality. An Executive Window occupies the top portion of the console screen and remains visible at all times to provide vital information on system status and plant alarms.

Communicating over a Local Area Network (LAN), LAN-90 PCV stations can act as either clients or servers for your Process Management Information System. LAN-90 PCV offers a true multi-network environment including Ethernet™ and various PLC networks. It also supports the complete TCP/IP communication protocol suite. Optional classCONNECT/DDE™ software provides a seamless interface to MS Windows™ applications.
Features

Architecture

The open system architecture of the LAN-90 PCV system provides many benefits:

- Multi-tasking, multi-use, POSIX certified, real-time operating system
- Client/Server architecture supports any combination of server nodes, client nodes, and peripherals such as printers and mass storage devices
- Each station can be configured to have either full or limited access to any part of the process, anywhere on the LAN
- Can operate over Ethernet, INFI-NET, Symphony and PLC networks simultaneously
- Redundant LAN-90 PCV Server pairs can provide seamless fail-over, guaranteeing client workstations’ uninterrupted information services
- Distributed Tag Databases and Graphical Displays are treated as system-wide resources. Client stations can access any tag or graphic located anywhere on the LAN
- LAN-90 PCV can provide additional functionality by offering the following optional applications: Logging and Report Generation; Statistical Process Control and Time Series Analysis; Lab Data Entry; HARMONY 90 and classCONNECT/DDE
Displays

LAN-90 PCV user-friendly, intuitive feel enhances the user’s interaction with the process control world.

- LAN-90 PCV’s GUI allows simultaneous display of as many as 8 application windows and up to 16 control station faceplates.
- Executive Window is always visible to provide quick access to critical system functions
- 1500 customizable, interactive, dynamic graphic displays available
- Supports PCI and AGP graphics cards (see recommended equipment), 1024 x 768 pixels, 256 colours
- Supports 1280 x 1024 pixels on flat screens

Data Collection

LAN-90 PCV is designed to capture and store any exception report. Up to 2000 tags can be assigned to historical data collection.

Stored exception reports are more than simple process variables. They are macro I/O objects or tags that contain a wealth of data. Since LAN-90 PCV stores the exception report in its entirety, it goes beyond simply storing variables by including additional information such as the mode of a control loop, bad quality status, alarm limits, permissive states, etc. The fidelity of this data allows you to fully understand the process when you play it back later.

Historical class definitions allow the user to optimize data collection parameters for each tag. Data compression techniques and archival storage to an optical disk, to other LAN-90 PCV hard drives or to Microsoft-based hard drives based on the same network, offer further refinements to optimize data collection needs.

Trending

Tags assigned for historical collection can be displayed in a trend format that plots up to 20 process variables against time in a single window.

Time axis scaling, vertical axis scaling and other display attributes can be modified on the fly with a few simple mouse actions.

Operator Assignable Trends allow ad-hoc configuration and display of additional I/O points not normally collected by the data collection system.

Any database point can be selected and displayed as a trend in this manner. While assigned, a history of 3600 values is maintained by the system.

X-Y plot displays allow 2 database variables to be plotted against each other using cross hairs, multiple points, continuous curves or time order curves.
Alarms and Statuses

LAN-90 PCV advanced alarm management supports 101 alarm groups, eight priority levels/groups/multiple alarm levels, alarm comments, global and local alarm acknowledgements and alarm inhibiting features. Additional alarm support features include:

- System status and diagnostics windows reports alarms and aids in the diagnoses of system faults
- A virtual (on screen) Annunciator Display Panel (ADP) is standard
- A System Event Log informs users of important system events, operator actions and critical process conditions

Configuration and Safety

System administration and password protection define and control up to 20 different users’ privileges such as monitoring, controlling, tuning and configuration.

Users can specify their own set of graphics to display whenever they log-in. A second personal set of user-specified displays can be restored any time and a default set remains available to all users.

LAN-90 PCV software allows technical staff to monitor, tune and troubleshoot process control logic.

The red tag feature lets users with the appropriate privileges lock out plant equipment using up to three confidential software keys.
LAN-90 PCV’s custom configurable graphic displays provides you with a comprehensive overview of your process. Together with the LAN-90 PCV alarm management system, they keep you informed of any process upset or deviation which may occur. Quick call-up times let you switch rapidly between displays. Each display can show up to 200 dynamic points, including analog, digital and calculated values, pop-up stations and trends. Dynamic data can be represented by numeric values, bars, pipes or other symbols.

The trend tag database is combined with the tag database. Data collection capacity is in accordance with the tag capacity you choose:

<table>
<thead>
<tr>
<th>Tags</th>
<th>Collection Tags</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>1500</td>
<td>500</td>
</tr>
<tr>
<td>3000</td>
<td>1000</td>
</tr>
<tr>
<td>5000</td>
<td>2000</td>
</tr>
<tr>
<td>10000</td>
<td>2000</td>
</tr>
</tbody>
</table>

Each tag that is specified for data collection is assigned to a Historical Class that defines how data will be collected, stored and archived.

Event filter parameters for % significant change and minimum time between exception reports optimizes the fidelity of the data collected. Statistics every hour, shift, day, week and month can be selected to compress raw exception reports into smaller files. Retention period and archival storage files can be selected individually to optimize the amount of data stored on the hard disk or sent off-line.

LAN-90 PCV’s extensive alarm management features allow operators to respond quickly and appropriately to abnormal situations. The alarm display comes complete with the tag description and group location. Because they are updated with each exception report, alarm displays always show the most recent change in point status. Located on the Executive Window, push button icons display the status of configured alarm groups and provide fast access to alarm displays. The executive Window can never be closed or hidden and constantly informs operators of process alarm conditions.

Each of the 101 alarm groups can be assigned to any one of five alarm annunciator tones and configured to one of six external alarm relays.

The system supports distributed data acquisition functions, including multi-level alarms and deviation alarm levels for process variables.

These reports provide a sequential list of process events and operator actions. The reports can be printed continuously, periodically or on demand.
LAN-90 PCV employs both software and hardware security features. Password security is a software feature which ensures that only authorized users can access displays, applications, programs, and system functions in accordance with their Group Permit privileges. Group Permits are essentially job descriptions made from a combination of 20 privileges defined within LAN-90 PCV. Group Permits can also be assigned to any combination of LAN-90 PCV servers or nodes on the network.

A hardware keylock switch is provided as an additional security feature to control access to configuration and tuning parameters used by the process control logic. The hardware keylock is standard equipment with the optional Mylar keyboard.

As a client of ABB's INFI-NET data highway, LAN-90 PCV allows plant personnel to tune and configure modules. Tuning displays and function block details are available for each control loop.

System and node displays are available for every device in the system. LAN-90 PCV provides module problem reports that allow you to diagnose faults down to the individual I/O point level.

LAN-90 PCV software can be provided with a variety of system configurations. ABB can also factory install the software onto recommended PCs and ship a full factory-checked LAN-90 PCV workstation that meets ISO 9000 standards.

For demanding environments, ABB hardware packages are ergonomically designed for the comfort and convenience of the operator. They tolerate heavy use and rigorous conditions.

In order to ensure that LAN-90 PCV customers maximize their investment over time ABB offers LAN-90 PCV System Audit and Upgrade services. These on-site services are performed by one of our technical product experts and involve a thorough examination of the entire operating system configuration and setup.

Software upgrades to the latest LAN-90 PCV revision are separate services but can be combined as part of the audit process.

Your local ABB service representative can provide you with details to meet your individual needs.
Optional Applications

**Lab Data Entry**
The Lab Data Entry subsystem lets users manually enter data into the LAN-90 PCV historical database. The data entered is treated in the same manner as that which is collected by the standard system software, hence all LAN-90 PCV applications such as display elements, trends, Statistical Process Control charts and graphics can show this information.

**Logging and Report Generation**
Intelligent, timely plant reports are essential to any successful operation. Logging and Report Generation provides users with a powerful tool for strategic process management. Data collection and report generation are easily automated by filling in user friendly configuration menus. Data can be exported to other applications in the form of ASCII or DIF files. A family of five logging and reporting functions is included.

- **Periodic Logs** automatically generate reports at regular, user scheduled intervals (hour, shift, day, week, month or year). Based on a real-time spreadsheet with over 100 different functions, this environment provides a powerful means of implementing operator logs, heat and material balances, product costing, plant efficiency figures, and other reports.

- **Sequence of Events (SOE) Logs** collect data from external SOE recorders that capture digital events time-stamped at a resolution of 1 millisecond. The data is organized into pre-formatted reports that allow operations to review critical process events.

- **Trend Logs** organize and print information by the Trending System and each can be assigned one of four periods (hour, shift, day, week). Trend logs can be produced automatically or at the request of the operator.

- **Trip Logs** provide a group snapshot of up to 15 analog and 30 digital tags. As many as 20 trip criteria representing critical plant conditions can be assigned to each Trip Log. Initiation of the log occurs when any of these criteria are met.

- **Trigger Logs** produce summaries of a particular operation or batch process. Data collection and printing for each report is initiated by user-defined process conditions, typically a chosen state of a digital tag.
Quality Analysis and Control

SPC and TSA are offered together under LAN-90 PCV’s Quality Analysis and Control package, providing a powerful team for analyzing and monitoring your process.

Statistical Process Control (SPC) software provides both real-time and historical SPC charts which aid operations personnel in monitoring, tuning and optimizing their process. Applying SPC theory and “what if” scenarios is simplified with displays configured from a choice of five different Shewhart charts (X-Bar R, X-Bar S, XmovingR, ME MidR and Me-R) as well as CUSUM and EWMA charts. Process target shifting will ensure optimum product quality and maximum profit. Control charts are generated automatically in real-time from live process variable inputs configured within the LAN-90 PCV system. Upper and Lower control limit excursions and SPC alarms are fully integrated with LAN-90 PCV’s alarm management system.

Time Series Analysis (TSA) software performs fast Fourier Transform computations on information collected by the data collection system. Mathematical and graphical techniques are used to analyze process variability in the time/or frequency domain. Selectable chart types include: Detrended Time Series, Auto correlation, Power Spectrum, Cumulative Power Spectrum, Cross-Correlation, Coherence and Coherent Power. TSA is a very powerful analytical device which assists you in enhancing controller performance, and ultimately quantifies the maximum variance benchmarks for your process.

classCONNECT/DDE

classCONNECT/DDE provides MS Windows clients a seamless interface to all LAN-90 PCV servers. Using Dynamic Data Exchange (DDE) as the vehicle, the application unlocks the rich data warehouse of process values, engineering specifications and high fidelity historical data maintained by LAN-90 PCV servers.

The key to information is our Tag Wizard, a powerful configuration tool that uses point and click, cut and paste techniques to simplify the procedure of data analyses and report generation on the MS application of your choice.

HARMONY 90™

HARMONY 90 is the I/O subsystem manager for LAN-90 PCV’s real-time database. HARMONY 90 supports a variety of drivers such as Micro-DCI controllers, industry standard PLCs and other non-ABB devices. Besides providing a single window to control the process, HARMONY 90 enables clients on the network a uniform view of data and a consistent set of real-time data services.
Optional Solutions

**e-Process / Bailey Office**

*e-Process* is a comprehensive web-based solution providing applications for reporting, monitoring, and process analysis as a strategic component of the business strategy.

The base of the Internet/Intranet solution is the e-Process web server, an extension of existing web technology providing integration of the control and automation system of the plant with the global enterprise.

Enhancing the web server is the integrated suite of applications designed to provide you with the ability to:

- view trends via eTrends
- configure, monitor, schedule and execute process reports using both real-time and historical data with e-Process Report
- run ad-hoc queries with classQUERY
- analyze environmental reports
- develop specialized applications for your specific requirements

All applications have inherent security features ensuring system integrity.

*Bailey Office* is the predecessor to e-Process. The suite of applications runs on an MS NT Workstation or Windows and contains the applications classREPORT Writer, classVIEW and classQUERY.

The main differentiators between the two solutions are:

- e-Process is web-based
- Bailey Office offers the additional ability to view Operator Console graphic displays right on your desktop PC.