Enterprise Technology Solutions

YOKOGAWA

Operation Efficiency Improvement Package

Exapilot for Windows

Standardize and Automate Manual Procedures.
Improve Efficiency of Operation.

Standardize and Automate Manual Procedures

Responding to abnormalities, emergency operation — and operation sequences like startup, shutdown, and product switch over — usually require manual operation.
Variations in operator skills can cause large variations in quality of operation, resulting in bottlenecks.
Exapilot allows the operating know-how of experienced operators to be simply stored as System Standard Operating Procedures, executed automatically for enhanced operating efficiency.

Improve Plant Operating Efficiency

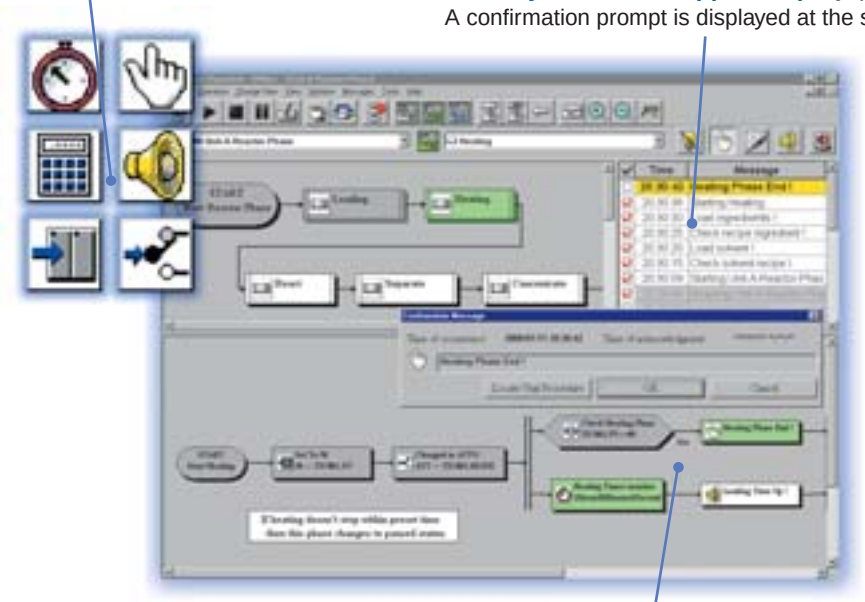
Efficient Standard Operating Procedures can reduce the time that operations take, and so increase productivity. Reducing manual operation can reduce usage of energy, utilities, and materials — thus reducing costs.

Improve Safety of Plant Operation

Since Exapilot operates the plant exactly as defined by stored operating procedures, this virtually eliminates the likelihood of operator errors and omissions, and ensures that optimum operating efficiency — and safe operation — can be maintained.

Represent operating procedures by a sequence of unit procedure icons (Builder window)
Represent an operating procedure as a sequence program simply by linking procedure icons.
Complex procedures can be easily configured.

Virtually eliminate skipped steps (Operation window)
A confirmation prompt is displayed at the start of each step.



Can automate DCS operation and monitoring
Valve opening setting, ramping, level sensing, pump start/stop, can be automated based on operator know-how.

Bulletin 36J06B10-01E

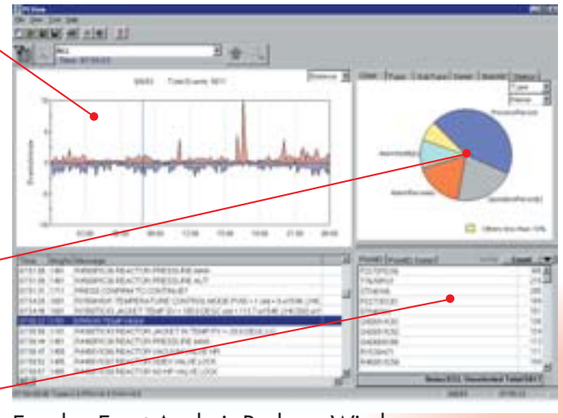
By repeating an operation efficiency improvement cycle, you can maintain or improve efficiency in the long term

Exapilot allows you to continuously repeat an “Identify – Enhance – Engineer – Operate – Evaluate” cycle, to maintain or improve operational efficiency. Exapilot makes it easy to automate manual procedures, and incorporate the know-how and skill of expert operators.

Event Balance Trend (EBT) Window
The balance between process requests (+ axis) — e.g. process alarms & annunciator messages — and operator actions (– axis) can indicate graphically where there is room for improvement.

Category Sort Window
Events, grouped by category, can be displayed as a pie chart or table.

Point ID Sort Window
Displays events, sorted by frequency, with tag names/station IDs.



Exaplog Event Analysis Package Window

Event Analysis Package
Exaplog
Displays a chart of the balance between process requests and operator actions, to clearly and quantitatively show the operator where there are problems.

MES
(Manufacturing Execution System)

Exaquantum
(Process Information Management System)

Identify
Determine areas where efficiency improvement can be expected.

Reduce requests (alarms), reduce manual actions, thus reduce process time.

Enhance
Find areas to fine-tune, to improve operating efficiency.

Engineer
Create procedures to automate operation.

Operation efficiency improvement cycle

Operate
Use automated standard procedures during test operation/actual operation

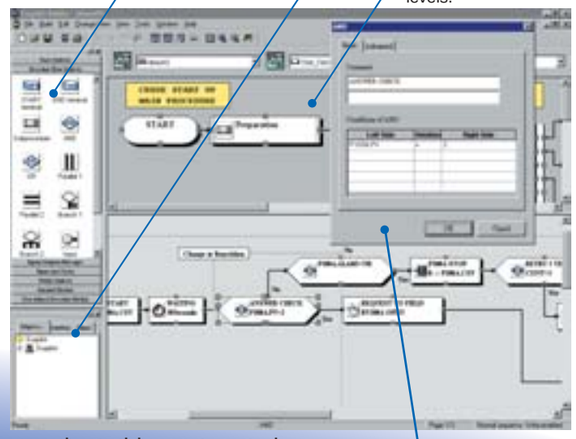
Evaluate
Analyze Exapilot operational log, evaluate improvement.

Display operation history chart, evaluate improvement.

Drawing Object Pallet
Displays several unit procedure icons in groups. Simply drag and drop these onto the builder window, to create a procedure flow.

Main Procedure View
Displays created procedures.

Builder Window
Can display a hierarchy of up to three levels.



Exapilot Builder Main Window

Unit Procedure Definition Window
Detailed definition of unit procedures.

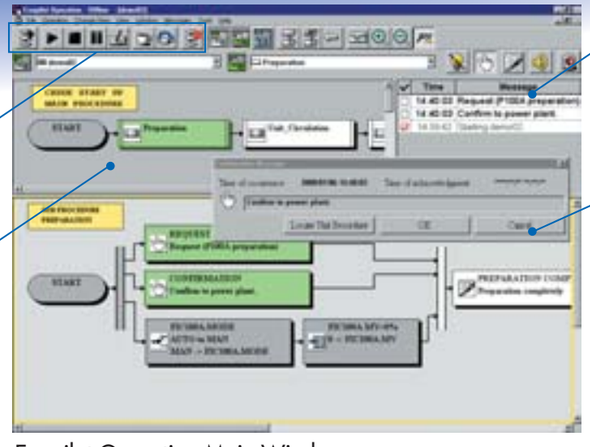
Exapilot

PCS (Process Control System)

OPC Interface Package
Exaopc
Supports OPC (OLE for Process Control), so process information can be shared with external PIMS, MES or ERP applications.

Operation Buttons
For work units/procedure parts, you can Start/Stop/Pause/Initialize/Break/Skip.

Operation Display
Displays execution status of structured procedure.



Exapilot Operation Main Window

Message Display
Confirmation messages, guidance messages, alarm messages, and system alarm messages.

Confirmation Window
Confirmation dialogs can be displayed by procedure parts, so you can confirm phase progress.

Operating Environment

Hardware Operating Environment

Machine:	IBM PC/AT (or DOS/V) compatible (which will run Windows NT or Windows 2000)	
CPU:	Pentium III 450 MHz or faster	
Main Memory:	256 MB or larger (512 MB or larger when two packages are installed)	
Disk:	4 GB or larger	
Color:	At least 32,768 colors	
Resolution:	At least 1024 x 768	
Sound:	Recommended (for annunciator output)	
Network:	VF701	(Yokogawa control bus interface card for Exaopc). (VF701 is required to connect to CENTUM CS 3000, CENTUM CS 1000, CENTUM CS).

Software Operating Environment

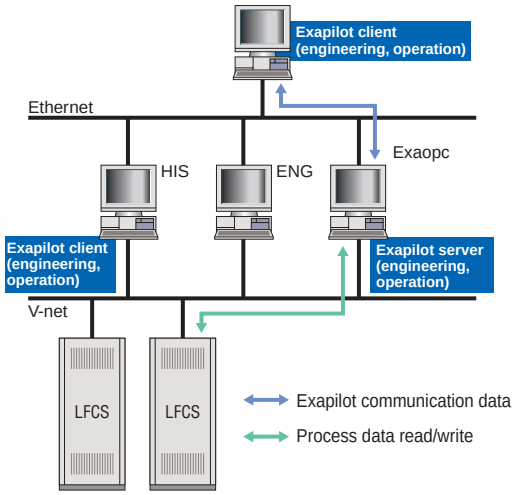
1) Exapilot (Server functions)

O.S.:	Windows 2000 Professional or Server (Service Pack 1). Windows NT Workstation 4.0 or Server 4.0 (Service Pack 4, 5, or 6).
Application:	Visual C++ V6 (required to create user-defined functions (unit procedures)).

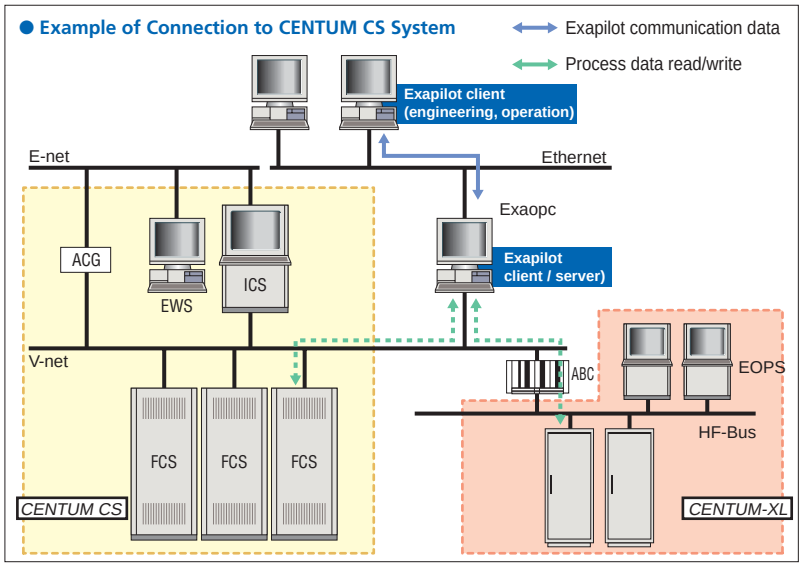
2) Exapilot (Client functions)

O.S.:	Windows 2000 Professional (Service Pack 1). Windows NT Workstation 4.0 (Service Pack 4, 5, or 6).

● Example of Connection to CENTUM CS 3000 System



● Example of Connection to CENTUM CS System



Refer to Exaopc (OPC Interface Package) GS 36J02A10-01E when configuring system

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