



ProcSee

Graphical User Interface Management System



- Versatile software tool to develop and display dynamic graphical user interfaces
- Designed and optimised for large scale simulators and process monitoring & control applications



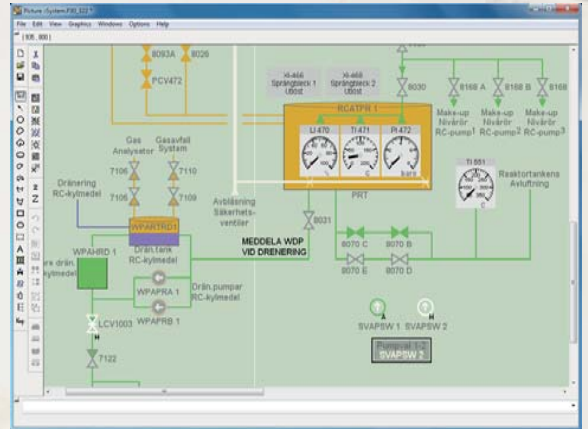
OVERVIEW

ProcSee® supports object-oriented definitions of dynamic graphical user interfaces, enabling visualisation of process measurements and states as their values change over time. With its unique flexibility and performance, ProcSee is particularly attractive to SCADA system or simulator suppliers who can establish generic GUIs for easy adaption and configuration to their customers' needs.

Graphics Editor

An advanced GUI editor is used to define graphics, with dynamic behaviour and powerful event-action dialogues. Any object attribute can be linked to process parameter values, directly or by user-defined functions. A full-featured scripting language provides great flexibility in defining the GUI's dynamic behaviour and response to operator interaction.

Dynamic behaviour can be tested immediately in the editor, and the editor can be connected to a running application at any time for online inspection, debugging and modification.

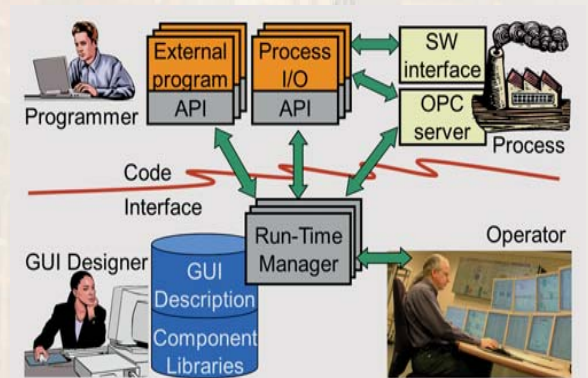


Run-Time Manager (RTM)

The RTM is a ready-to-use executable that realises the GUI on the operator's screen. It automatically updates the GUI according to the specified behaviour whenever new process values are received.

For maximum performance, the RTM uses advanced, highly optimised algorithms to update the graphics, ensuring that only a minimum set of graphics objects are redrawn each cycle. Layers, overlapping objects, and see-through graphics are handled automatically. Double-buffering techniques ensure flicker-free updates.

Operator interaction is handled by the RTM according to the designer's event-action dialogue specifications. Transferring values or commands to the simulator or SCADA system, enables the operator to control the process.



Historic trends and process events

A highly configurable trend-system for logging data and visualising historic trend curves is included.

User-defined events with corresponding user-defined data can be logged and visualised as dynamic graphics objects within the trend diagrams.



Connect to your data using OPC or APIs

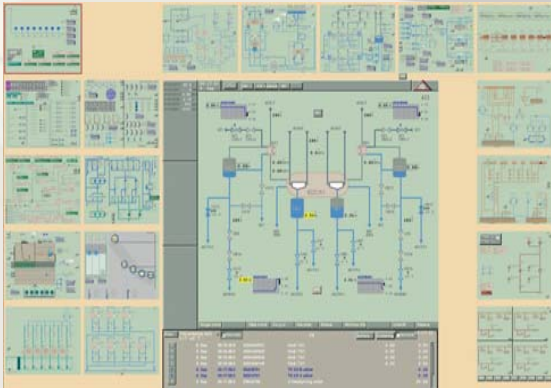
Using ProcSee's OPC client, no programming is required to connect live data from your simulator, SCADA system or real-time databases to the RTM. Simply browse your OPC server for items and associate the corresponding variables in the RTM.

High-level APIs (C, Java, C#, Managed C++, ...) provide functions for external programs to connect to the RTM, transfer variable values, create and modify graphics, call pre-defined or user-defined GUI functions and register call-back functions to be invoked from the GUI.

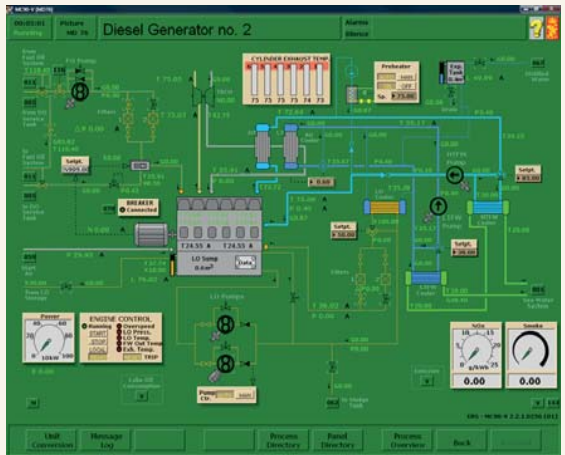
APPLICATION AREAS

ProcSee has been used for simulators and process monitoring & control applications in various industries, including nuclear power plants, oil production platforms, electric power production and distribution, telecommunication networks, ship bridge systems, ship engine systems, paper mills, and environmental monitoring systems. Some of the nuclear applications have been subject to extensive verification and validation testing to obtain licence for use in control room by the relevant national nuclear inspectorate.

ProcSee operator interfaces have been implemented on screen sizes ranging from small hand-held devices and conventional operator screens to large wall-mounted overview screens.



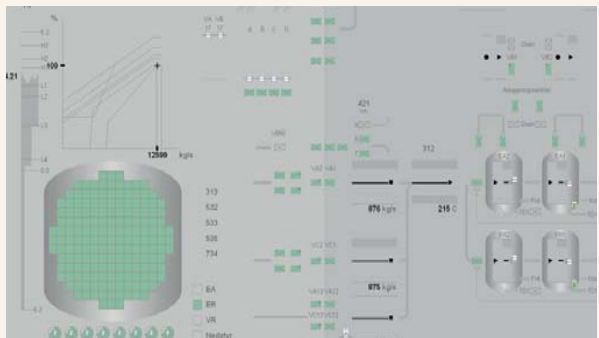
Operator's main overview and operation display.
Quick-access navigation through live icon-displays



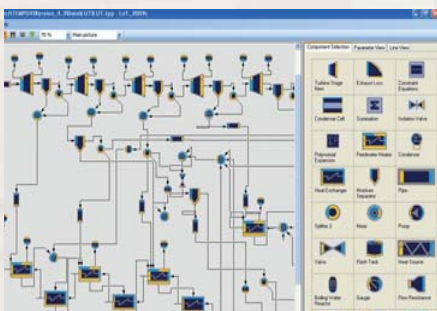
Ship engine room simulator for education,
by Kongsberg Maritime AS



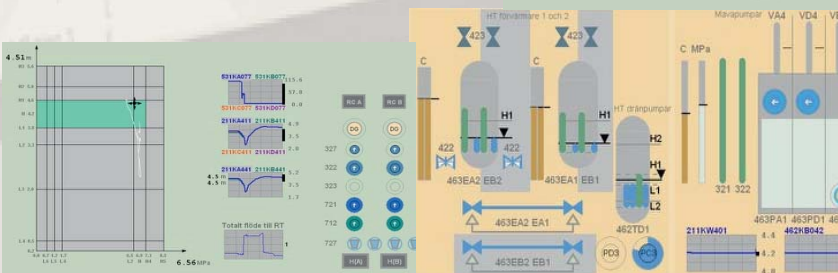
Reactor core surveillance system,
Dukovany nuclear power plant



Excerpt from 6x1.5m wall-mounted overview screen.
Design patent by Institute for Energy Technology



Model-building editor of thermal performance
monitoring and optimisation system



Design elements from HAMMLAB simulators



Trend curves on mobile device, Halden Reactor

PROCSEE KEY FEATURES

- Build your own configurable graphics components with dynamic behaviour and end-user interaction. Store in libraries for easy re-use across projects
- All object attributes can be linked to process data values, directly or through arbitrarily complex user-defined functions
- Graphics and functions can be created, modified and deleted programmatically, even at run-time
- GUIs can be saved in text format, enabling offline editing and auto-generation of GUIs
- Free translation, rotation and scaling of objects. Pictures can scale automatically to fit windows and screens. Zoom and pan as you like
- Gradients and anti-aliasing available to provide nice-looking, smooth graphics
- Layers provide full control of front-to-back order of nearby and partly overlapping objects
- Import third-party COM/ActiveX components
- Import static images of any major graphics format. Put dynamic graphics on top
- Print or export snapshots to popular formats
- Use any font installed on your computer. Character sets like Japanese, Korean and Chinese supported
- Integrated colour editor, also supporting definition of flashing colours
- Trend features include various presentation modes, multi-colour curves, grid, ruler, labels, auto/manual panning, auto/manual scaling, linear/logarithmic scale, and much more
- Applications fully control time. Functions to store and load initial conditions for trend curves
- Supports complex, user-defined data types. Variables and data types in text format
- Designed and optimised for large-scale applications and frequent display updates
- Platform independent GUIs. APIs transparently handle cross-platform data communication
- Runs on Microsoft Windows, Linux, Mac OS, HP-UX and more
- On-line user manuals. First-steps tutorial
- Certified quality system, ISO 9001:2008
- Used in full-scope simulators and 24/7/365 applications by nuclear and oil & gas industry

Institute for Energy Technology (IFE) and Halden Reactor Project (HRP)



With over 550 employees, IFE is Norway's second largest technological research institute. IFE operates the international OECD Halden Reactor Project, a long-term research program jointly financed by more than 100 organizations from 19 countries. HRP's main objective is to develop key information for safety assessments and reliable operation of nuclear power plants and other complex industrial facilities.

Halden Man-Machine Laboratory, HAMMLAB, is a key facility of IFE's research programs within the Man-Technology-Organisation domain. In HAMMLAB, IFE carries out extensive experimental studies to investigate how licenced operator crews use GUIs and different support systems to deal with operational situations. By studying operator crew performance in HAMMLAB, and integrating the knowledge gained into new designs, IFE and HRP contribute to improved operational safety, reliability and efficiency.

ProcSee's features are vital to support IFE/HRP's research and development activities in HAMMLAB.



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