

InfinityHMI – Technological Process Visualization



Purpose

Development, visualization and management of technological process objects in mnemonic schemes in real time.

General Functions

- Creating visual objects allowing to develop a virtual image of the real technological process with a necessary degree of detail.
- Displaying object parameters values with the help of text, graphic objects, animation.
- Complex algorithms development for technological processes controlling and management using
- Microsoft's built-in Visual Basic for Applications programming language.

Features

- An extended set of functions for creating, editing and setting dynamic properties of graphic elements.
- Using a sample elements library to create mnemonic schemes.
- It is an ActiveX container and allows you to include ActiveX elements from different manufacturers in the mnemonic scheme.
- To communicate with external objects, OPC DA and OLE Automation support is implemented.
- Placing objects in different layers and controlling the display of layers.

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General Information

The InfinityHMI component is the development and the execution environment. InfinityHMI combines the tools for developing and viewing graphical mnemonic diagrams of automated workstations of the APCS operator.

Mnemonic schemes (screen forms) can be created on the basis of their own vector graphics tools using the ready-made graphic objects library with dynamics and customized functions, as well as with control ActiveX elements of other manufacturers.

Customizing the graphic objects animation (changing the shape, size, location, color of graphic objects, hiding them, blinking, gradient fill) provides a visual representation of the state of a technological object or process.

Creation and configuring of a secondary data processing algorithms and screen forms management procedures is ensured by the built-in integrated development environment and execution of Visual Basic for Applications scripts.

Easy to Control Technological Process

- Receiving OPC DA data from one or more OPC servers, writing data to the OPC server, providing the ability to change the current parameters of the process controlled by the system, and enabling the dispatcher (operator) to control the process.
- Development tools help to create mnemonic schemes without program code creation, that significantly reduces the requirements for users qualification.
- The time for updating the graphic information is 50 ms, which allows to respond quickly to changes during the technological process.

TZ1_Kotel.grf - Infinity HMI

Файл Правка Вид Масштаб Выделение Рисование Динамика Режим Сервис Макросы Справка

Times New Roman 15 B I U 0 Нулевой Сплошной

12:38:25 18 Апрель, 2016

Свойства объекта Текст

Общие свойства
Текст
Подсказка
Текст

Источник:
`%%({{SERVER}}
 \<<AdminPrefix><<OBJ><<AGR><<SUB><<TAG>>
 .unit}}`
 Редактировать...
 Очистить

Динамический текст

Тип параметра
 Обновление
 Ввод данных
 Подтверждать

Тип данных: STRING
 Формат: 40
 Преобразовать на выводе
 %s

Входной диапазон
 Перекрыть
 От: -1.797E 307
 До: 1.797E 307
 Состояния...

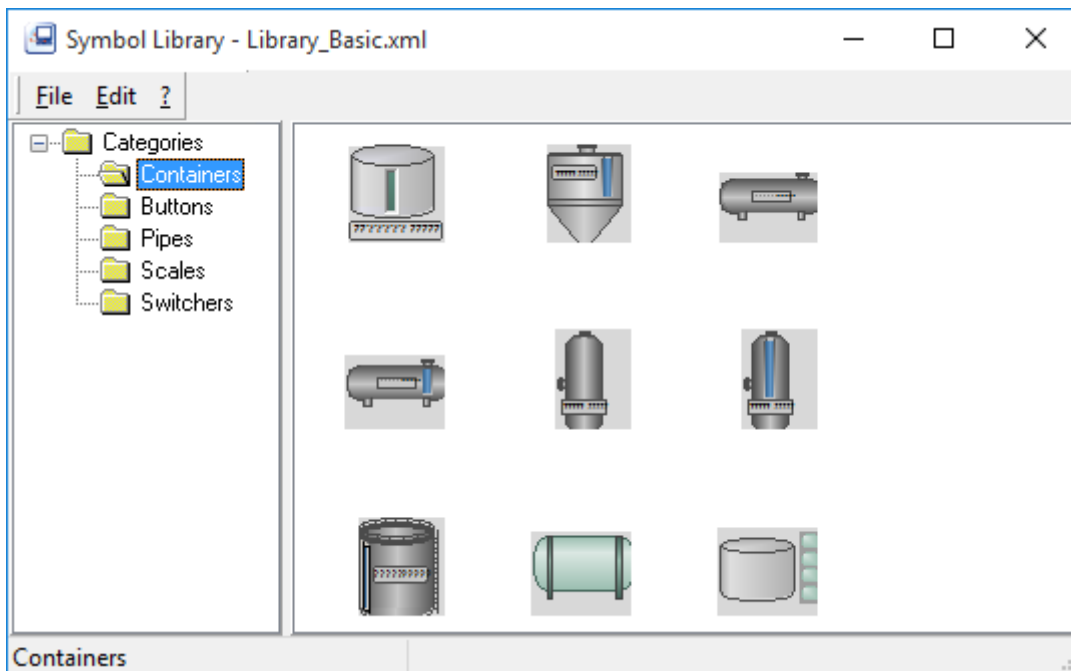
	Котел 1	Котел 2	Котел 3	Котел 4
Давление осн дуги №1, кПа	0000	0000	—	0000
Давление осн дуги №2, кПа	0000	0000	—	0000
Давление осн дуги №3, кПа	0000	0000	—	0000
Давление воздуха, кПа	0000	0000	0000	0000
Разряжение в котле	0000	0000	0000	0000
Давление пара котлов, кПа	0000	0000	0000	0000
Температура пара до коновоагрег., °С	0000	0000	0000	0000
Температура пара после коновоагрег., °С	0000	0000	0000	0000
Температура воды до коновоагрег., °С	0000	0000	0000	0000
Температура воды после коновоагрег., °С	0000	0000	0000	0000

Минимизировать Аварийная рекомендация Экран и отчет событий Очистить Выпрямить Сигнальный режим

Лицензия найдена: тип - Насп4 Time, id (2013299016) 56,2% Main

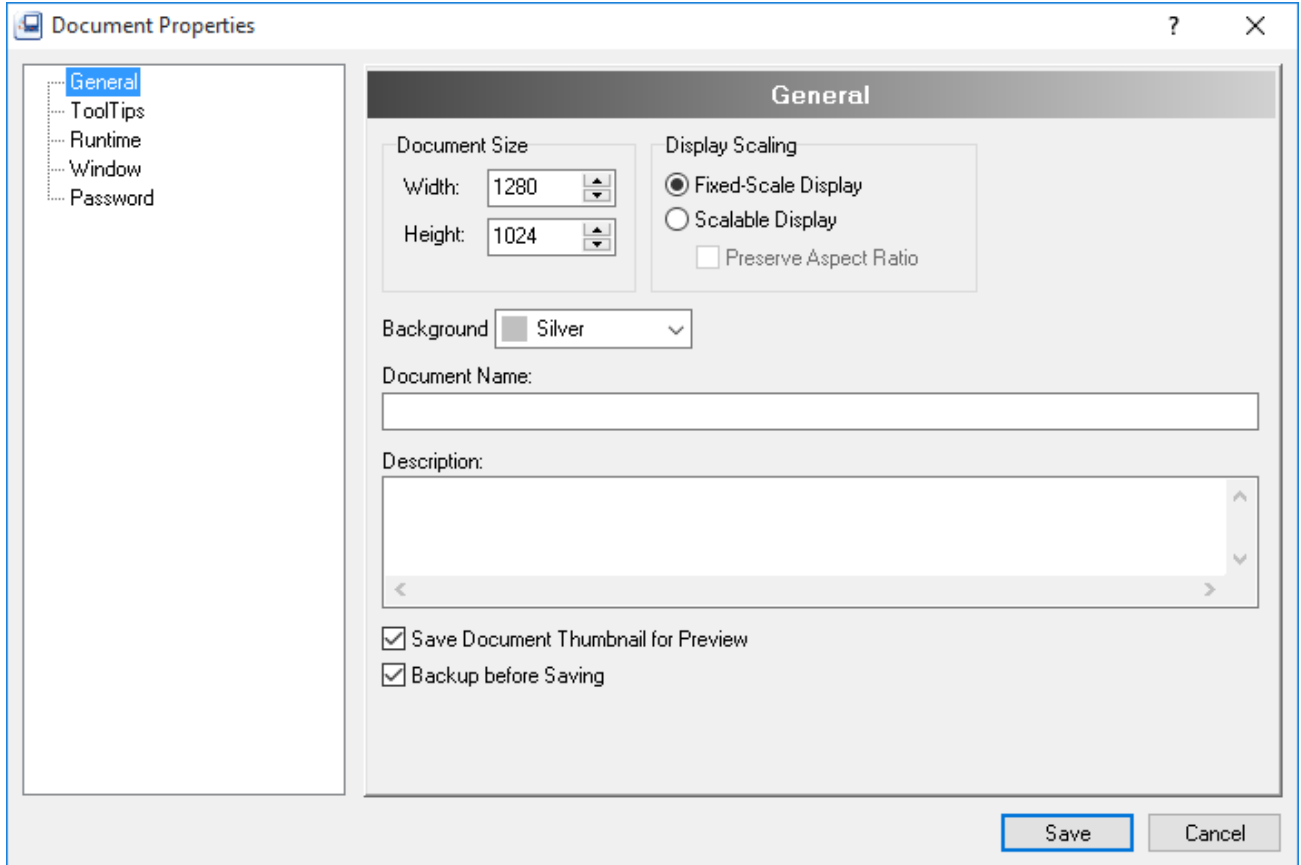
Quick and Easy to Build Mnemonic Schemes

- The library of graphic symbols and dynamic objects provides saving frequently used technological objects images with the animation functions assigned to them. Each library can be divided into any number of categories.
- The mechanism of grouping objects provides a random combination of several graphic elements into a single object.
- The Drag&Drop function copies graphic and dynamic objects from one mnemonic scheme to another, and also to other applications.



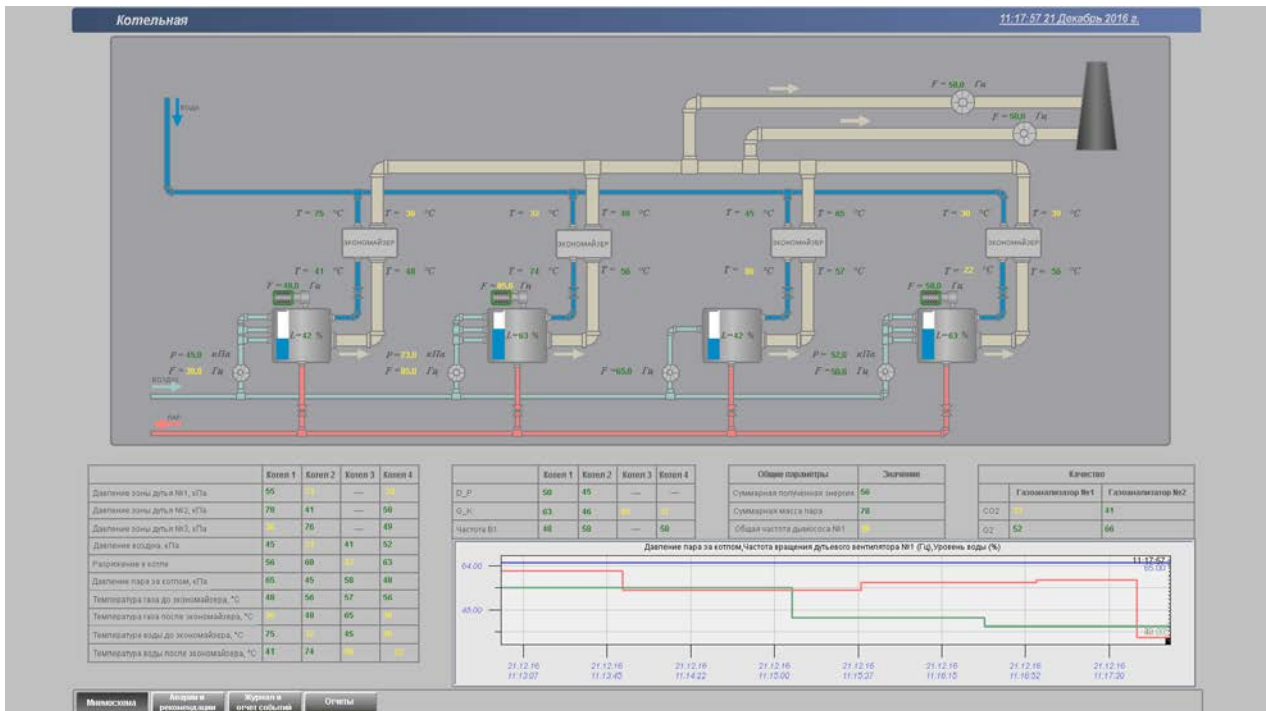
Scaling Mnemonic Schemes

- Scaling can be done both in the development mode and in the execution mode.



- Automatic scaling of mnemonic schemes in the execution mode on monitors with different resolutions.

- Scaling in the manual mode is performed on the selected area, on selection, on the visible area, showing the entire screen form, setting an arbitrary scale.



Managing the Distribution of Information

- The mechanism of controlling the screen form layers, regulating the degree of detail of information about the technological object and simplifying control of the mnemonic scheme.

The screenshot displays a software application window titled 'TZ1_Kotel.grf - Infinity HMI'. The interface includes a menu bar (Файл, Правка, Вид, Масштаб, Размещение, Рисование, Динамика, Режим, Сервис, Макросы, Справка), a toolbar, and a main workspace showing a detailed industrial process diagram. The diagram features various components like pumps labeled 'ЭКОНОМАЗЕР', tanks, and piping, with numerical values and labels such as 'ВОДА' and 'ВАР'. Two 'Свойства слоя' (Layer Properties) dialog boxes are open. The left dialog shows a list of layers with 'Main' selected. The right dialog provides settings for the 'Main' layer, including visibility, data request, and scaling options.

Имя	Значение
Давление воды до котла, кПа	0000
Давление воды дутья В2, кПа	0000
Давление воды дутья В3, кПа	0000
Давление воздуха, кПа	0000
Разница в котле	0000
Давление пара на котле, кПа	0000
Температура газа до котла, °C	0000
Температура газа после котла, °C	0000
Температура воды до котла, °C	0000
Температура воды после котла, °C	0000

Свойства слоя

Имя слоя: Main

Описание:

Видимость Заморозить Схематически

Данные в режиме Исполнение

Запросить данные для скрытого слоя

Освободить элементы данных после скрытия слоя

Масштабирование

Минимальный порог видимости, %: 0

Максимальный порог видимости, %: 0

Лицензия найдена: тип - Насп4 Time, id (2013299010) 56,2% Main

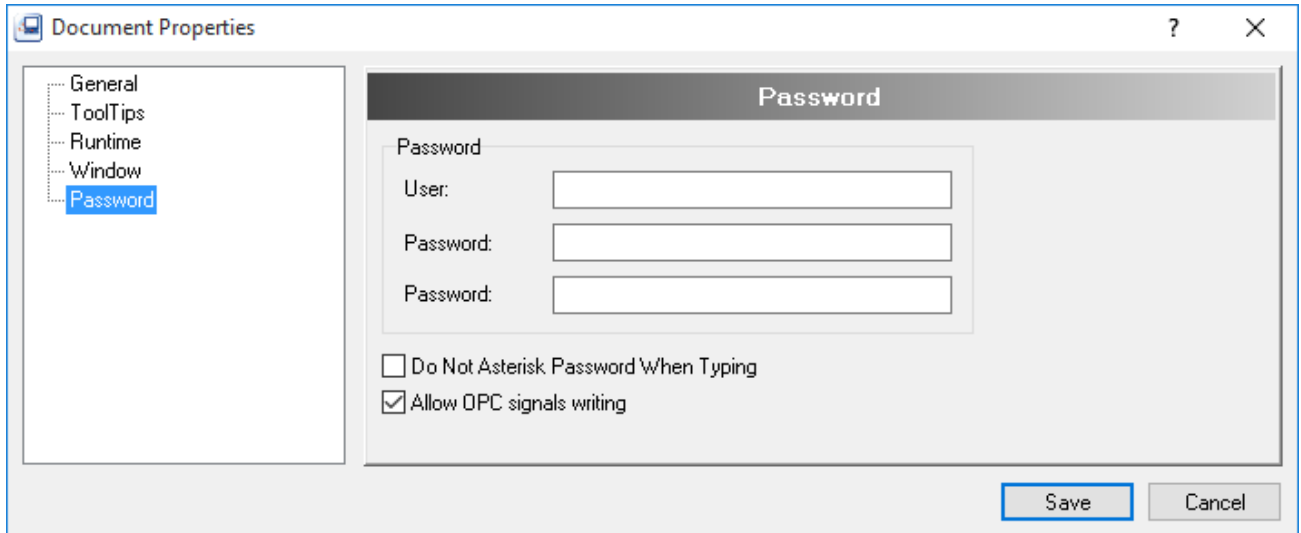
Pop-ups

- Pop-ups helps to quickly get visual clarifying information about the technological process.

The screenshot displays the 'Koms_ARM_Combine_Prohodka.grf - Infinity HMI' application. The main interface features a central diagram of a machine labeled 'КП-21' with various control buttons. To the right, there are sections for 'Крен' (Pitch) and 'Тангаж' (Roll) with corresponding gauges. Below these are several data visualization panels: 'Токловая нагрузка приводов' (Drive current load), 'Маслостанция' (Oil station), 'Система орошения' (Irrigation system), 'Сопротивление изоляции обмоток приводов' (Winding insulation resistance), and 'Входное напряжение' (Input voltage). A 'Подсказка' (Hint) pop-up window is open, showing a checked 'Подсказка' checkbox, a text input field containing 'текст подсказки', and 'Добавить' (Add) and 'Удалить' (Delete) buttons. The application's status bar at the bottom indicates 'Лицензия не найдена. Приложение будет закрыто через 27 минут' (License not found. Application will be closed in 27 minutes), a zoom level of 57.8%, and the name 'Against'.

Secure Access to Management

- InfinityHMI reliability and safety is provided with an integrated security system that regulates the opening of mnemonic schemes with the help of passwords, allowing or prohibiting users to record OPC signals.



ActiveX Container Functions

- Integration of ActiveX control elements: InfinityTrends plots, InfinityAlarms components, third-party ActiveX controls.
- The function of exporting a mnemonic schemes in the html format allows you to view mnemonic schemes in a web browser.

