

AUTOMATION STUDIO™

Professional Edition

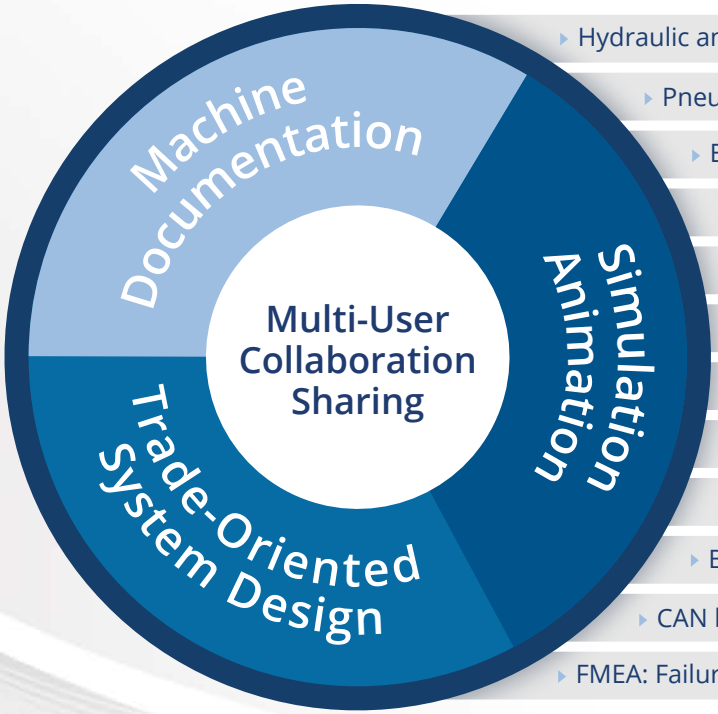
All-in-One Innovative and Flexible Software Solution for Increased Engineering Productivity

Engineering **Synergy**

A Product of Famic Technologies Inc.

AUTOMATION STUDIO™ A Complete Product Lifecycle Solution to Optimize Your Entire Workflow

Automation Studio™ is a unique design and simulation software covering all project/machine technologies including fluid power, electrical, controls, HMI and communications throughout the entire product lifecycle. It helps to easily combine these various technologies in order to design, simulate and document complete systems.



- Hydraulic and Hydraulic Manifold
- Pneumatic
- Electrical and 3D Harness
- Manufacturers' Catalogues
- PLC Ladder Diagram, GRAFCET and SFC
- Multibody System Dynamics
- Robotics Workshop
- Process and Instrumentation Diagram
- HMI and Control Panels
- Block Diagram and Math Workshop
- CAN bus, API and OPC
- FMEA: Failure Mode and Effects Analysis



- Aerospace
- Agriculture
- Construction
- Defense
- Energy
- Forestry
- Marine
- Material Handling
- Metallurgy
- Mining
- Oil & Gas
- Packaging
- Railway
- Utility and Transportation

Increased Productivity and Reduced Time to Market

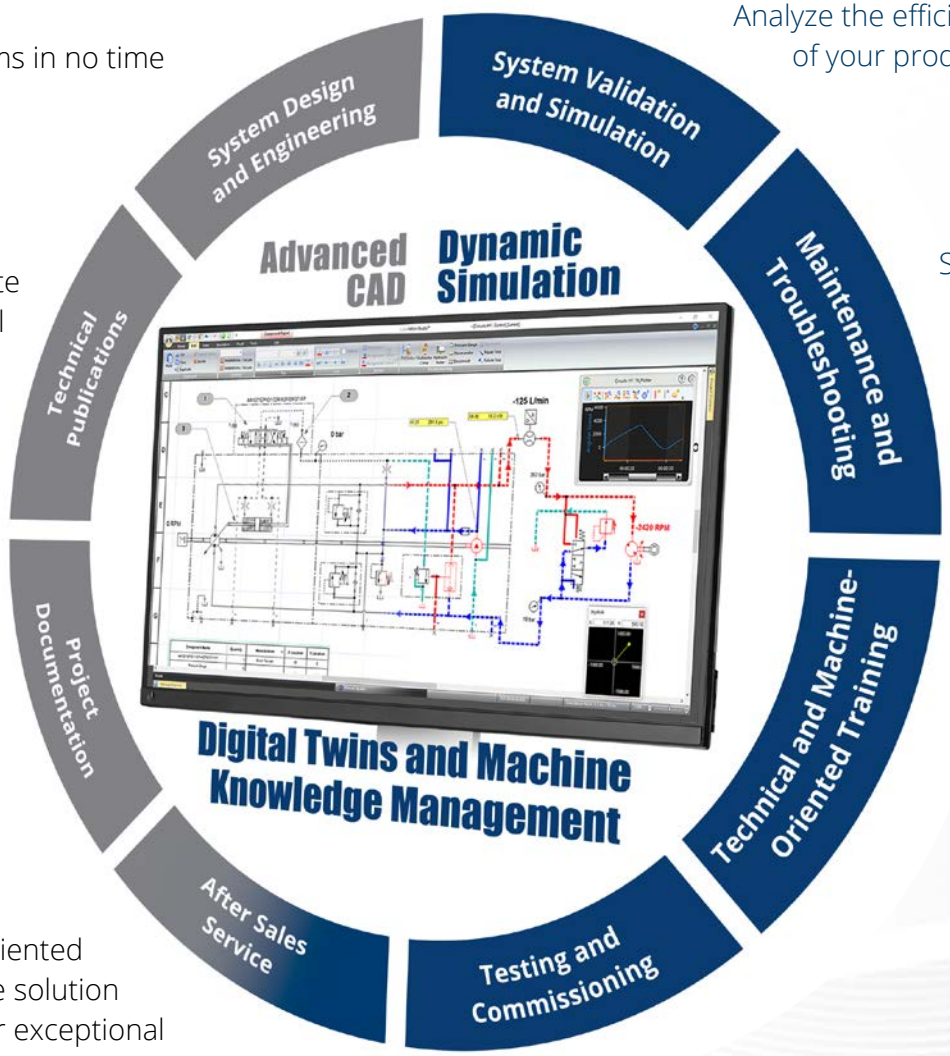
Whether you are involved in design, testing and validation, training, maintenance, sales or production, Automation Studio™ can help you improve your productivity, the quality of your products/services, as well as your work processes. It reduces your costs and enhances all aspects of project communication.

Draw your diagrams in no time

Analyze the efficiency and safety of your product

Easily and quickly create high-quality content for technical publications, for any delivery method

Strengthen the system failure analysis skills or your maintenance teams



Group all the necessary documents within your project to facilitate access and increase your productivity

Create training focused on understanding your machine systems

Your set of essential business-oriented tools to quickly prototype solution concepts and deliver exceptional presentations to your customers

Validate your final project through failure simulation and automated testing

CAD and Documentation 4 - 5
Simulation and Analysis 6 - 7
Hydraulic 8 - 9
Hydraulic Manifold Block 10 - 11
Pneumatic 12 - 13
Electrotechnical 14 - 15
Robotics 16 - 17
FMEA & Multibody System Dynamics 18 - 19
Instrumentation & Process Control 20 - 21
Automation PLC & SFC 22 - 23
Manufacturers' Catalogues 24 - 25
Co-Simulation / Block Diagram-Math 26 - 27
Training Content 28 - 29
Products & Services 30 - 31

AUTOMATION STUDIO™ CAD and Documentation

Trade-Oriented CAD

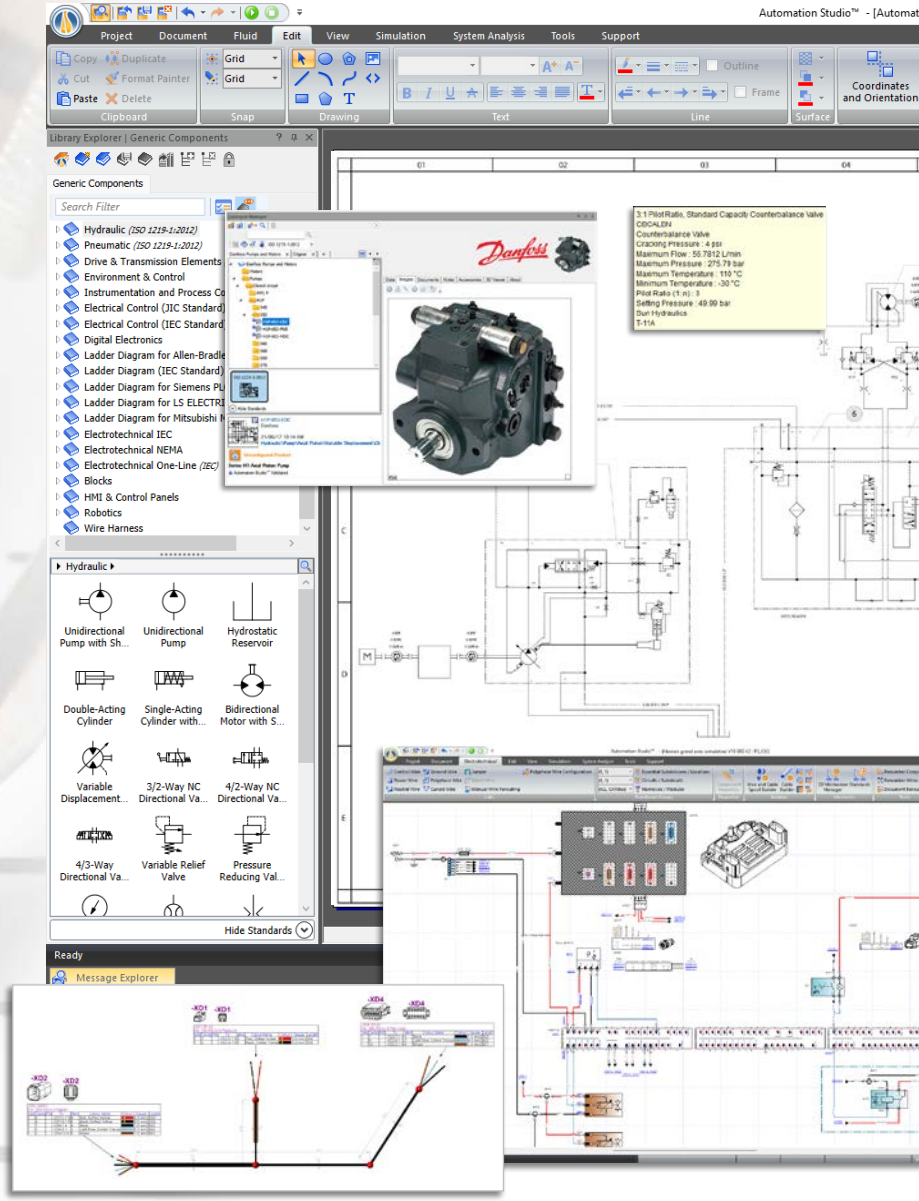
- Drawings and advanced editing tools
- Component libraries by technology for quick drag and drop onto workspace
- Intuitive keyboard shortcuts and key/mouse combinations
- Window layout options (floating/docked) and quick access toolbars
- Grid alignment and grid-scaling tools
- Layer management and functional group tools

Libraries and Catalogues

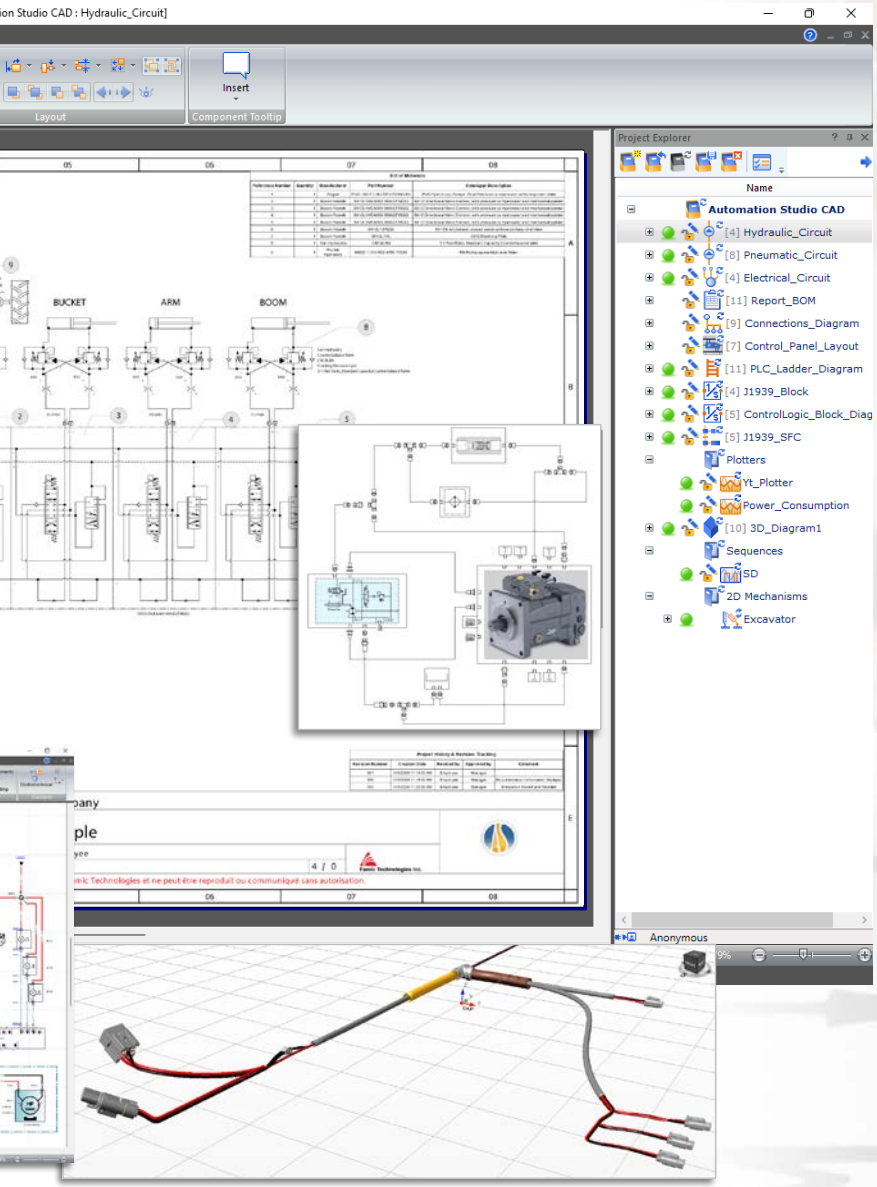
- Customize your own Component Libraries/Catalogues
- Search updated generic and manufacturers' components on older schematics
- Manage the security of your component catalogues, libraries and projects
- Associate technical data, images, documents, notes, 3D files, etc., to each component/ assembly for quick reference and display

Standards and Templates

- Manage naming rules throughout your projects, documents, components and lines
- Select default unit types (metric or imperial)
- Manage history and revision tracking
- Define local and global variables within projects, documents, components and lines
- Customize templates and page setup (document sizes, margins, title blocks, map locators)
- Customize reference appearances, BOM/report templates and exports
- Manage line appearances and line documentation rules for each core technology
- Transfer standards between applications, projects and documents
- Link with PLM/PDM software through API scripts



Advanced **CAD Tools** to Fulfill All Your Schematic Needs in Various Technologies



Schematic Creation, Documentation, Verification and Publication

- Component properties for data and documentation management
- Component builders available for various technologies
- Component tooltips to display additional information (text or hyperlink)
- Custom Component Wizard to create any component symbol with specific behaviour
- Create and edit groups of components using the Assembly Editor
- Display component-level data onto workspace
- Diagnostic tools for schematic verification
- Embedded views to combine schematics of different technologies within the same view
- Find and replace text within projects and/or documents
- Manage language translation of text within projects
- Display settings and visibility options to manage appearance of schematics for publication
- Choice of many export formats (DXF, PDF, SVG, TIFF, XML, ...)

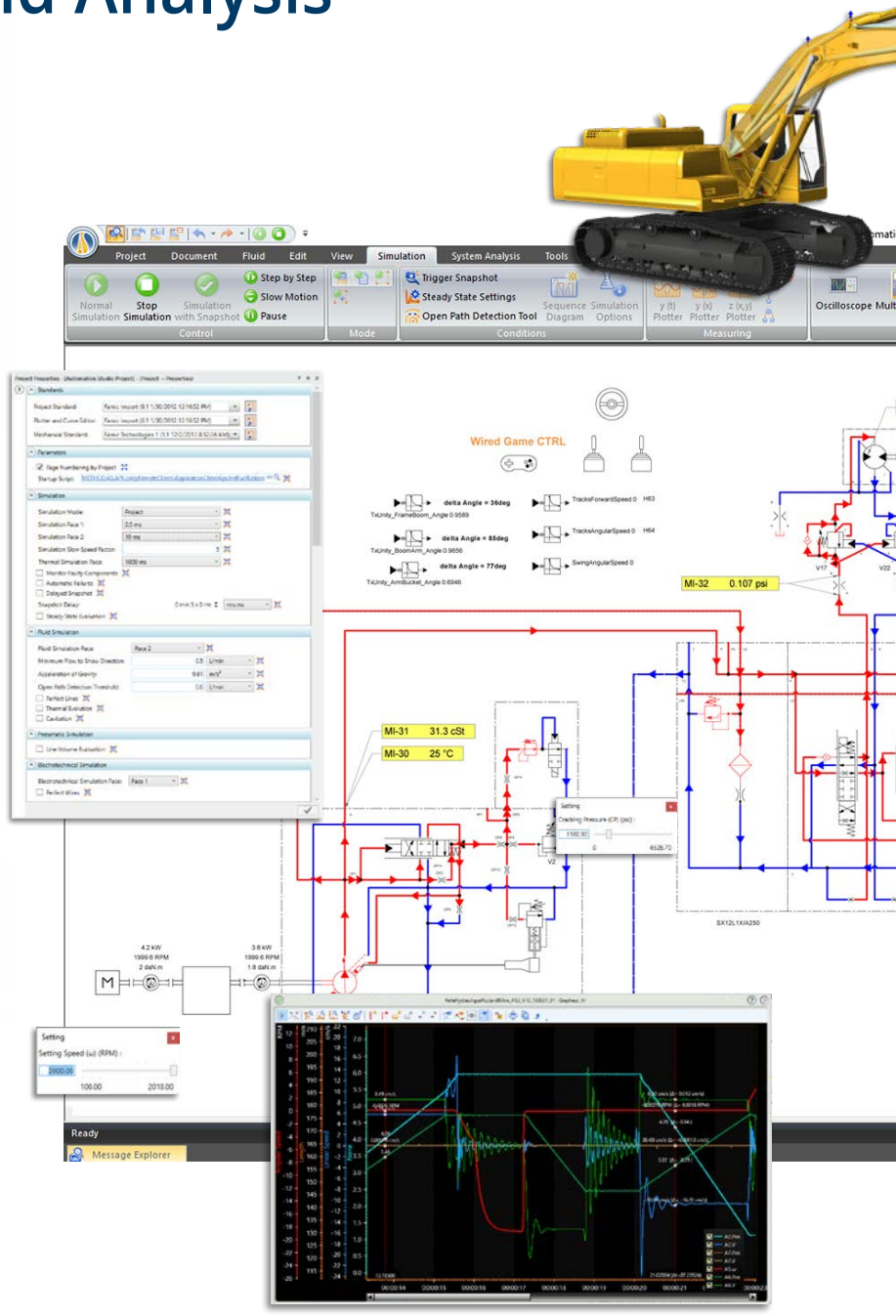
BOM and Reports

- BOM and Reports are generated automatically based on customized templates
- Filtering options on what to automatically include in BOM and Reports
- Column setup, grouping options by documents, references, part numbers, machine functions, assemblies, etc.
- Automatically populate/update BOM fields with component properties
- Modify component and line properties directly from the BOM
- Navigate throughout your projects using component/BOM hyperlinks
- Export options in several formats: PDF, DOCX, XLS/XLSX, HTM/MHT, PNG, etc.

AUTOMATION STUDIO™ Simulation and Analysis

Simulation and Visualization Interface

- Technology oriented simulators
- Simulation modes: normal, slow motion, step-by-step and paused
- Arrows indicating direction of flow, colors indicating different performance thresholds
  - Fluid power: pressure, flow rate, flow speed, temperature
  - Electrical: power, control, group color-coded active wires
- Interact and adjust component settings during simulation to optimize system performance
- Display simulation values of any component during simulation
- Open Path Detection tools to visualize flow paths based on component states and positioning
- Use Simulation Snapshots to capture the system's current simulation state, which can be used as a starting point for a restart



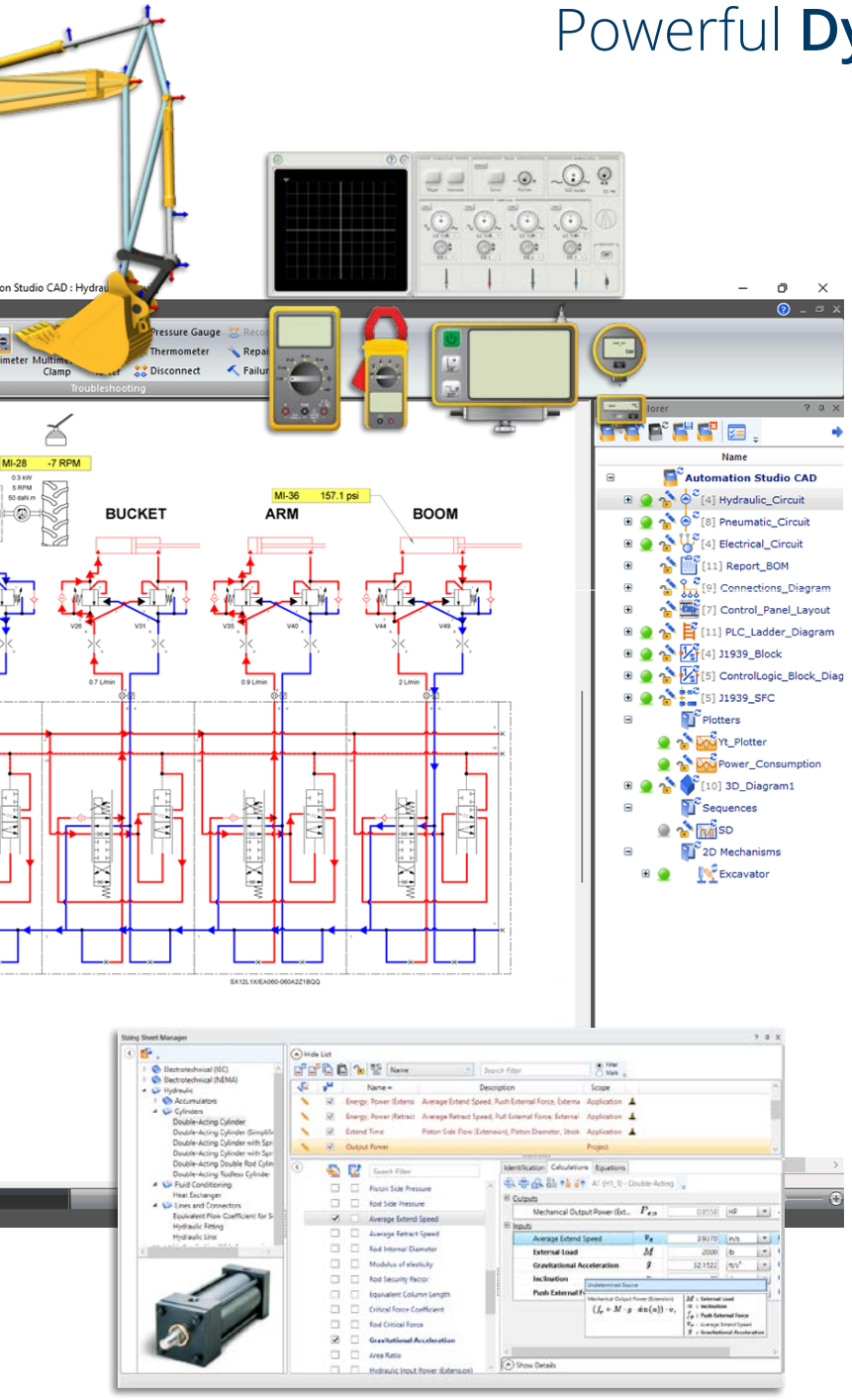
Component and System Modeling

- Configurable modeling parameters and performance curve properties for simulation and analysis
- Sizing Sheets for component modeling
- External force modeling using curve generators, set-point devices, variable assignments, Mechanism Manager or block diagrams

Multi-Technology and Co-Simulation

- Simulate multi-technology systems by linking any technologies together by variable assignment
- Co-simulate with hardware such as PLCs, controllers and gamepads using APIs, OPC or CAN bus J1939 communication
- Co-simulation with 3rd party software using APIs

Powerful **Dynamic Simulation and Analysis** Functions in a User-Friendly Environment



Measuring and Troubleshooting

- Dynamics measuring instruments to display data on any component during simulation
- Plotters: y(t), y(x), z(x,y) to monitor and export the behaviour during simulation
- Create “what-if” scenarios to improve troubleshooting
- Monitor effects of faulty components surpassing maximum operating conditions
- Realistic troubleshooting tools: hydraulic tester, pressure gauge, thermometer, oscilloscope, multi-meter and clamp meter

Simulation Control

- Environmental and control device tools: PID controllers, joysticks, pedals, steering wheels, graph generators and sensors
- HMI and 3D tools available to create control panels to activate functions during simulation and create digital twins of real machines
- Sequence Diagram for graphical control of state and simulation variables

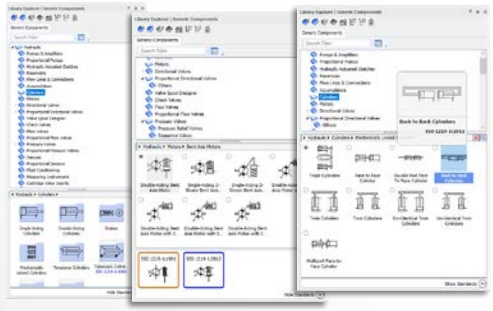
Simulation Properties and Exports

- Simulate entire projects, specific documents or specific sub-circuits
- Manage animation appearance during simulation, such as line colors
- Simulation pace adjustable up to 1µs
- Print simulation views and export data from plotters
- Manage simulation options: thermal evolution, cavitation, steady-state evaluation, etc.

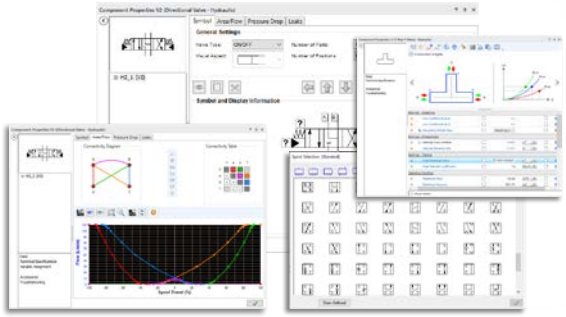
AUTOMATION STUDIO™ Hydraulic

Create, simulate and troubleshoot your hydraulic projects. Compliant with ISO 1219-1 and 1219-2 standards, the Automation Studio™ Hydraulic Library contains all the component symbols required to create any hydraulic system.

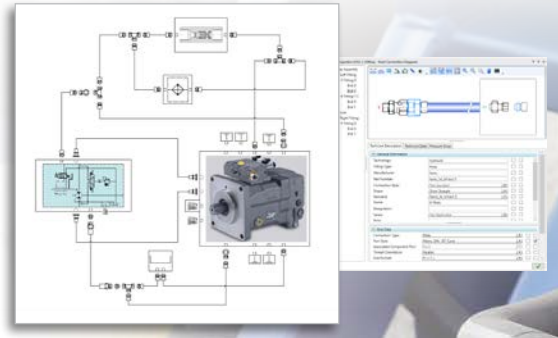
Thousands of Symbols in the Hydraulic Library



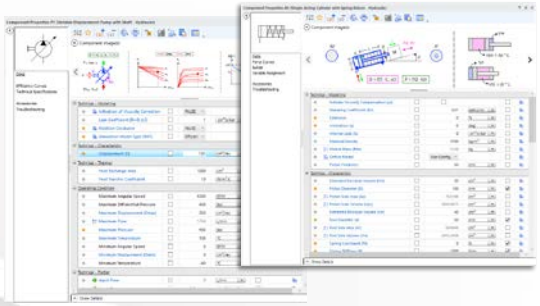
Component Modeling and Builders



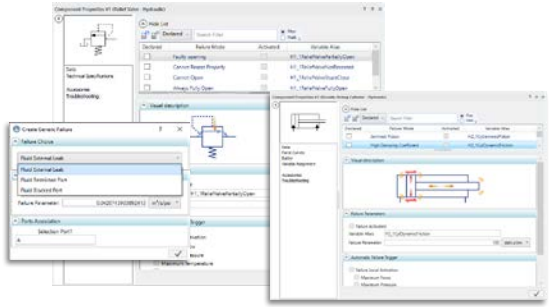
Fluid Connection Diagram



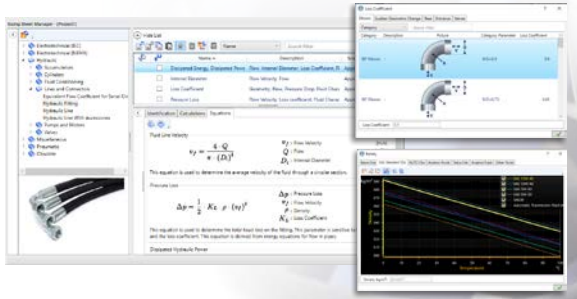
Component Properties



Troubleshooting



Sizing Sheets



Simulation Parameters

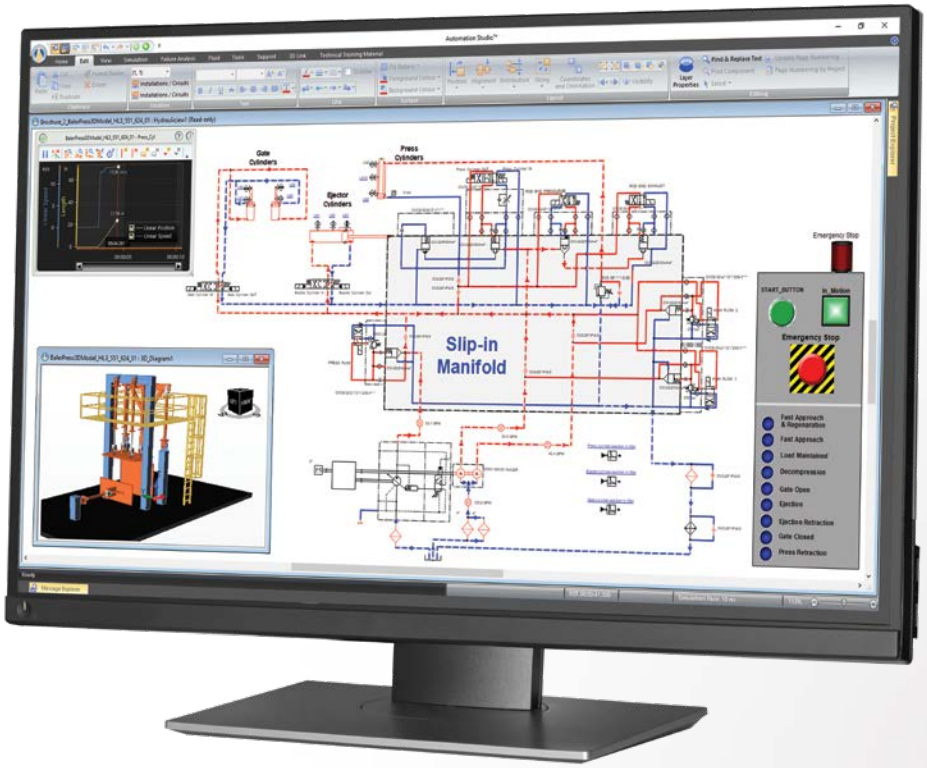
- Pressure drop analysis
- Volumetric flow analysis
- Valve positioning and orifice sizing
- Actuator and valve dynamics
- Pump and motor efficiency curves
- Actuator speed and acceleration
- Actuator load and force profiling
- Energy and power analysis
- Temperature and heat transfer coefficient
- Oil compressibility, density and viscosity
- Line elasticity and material properties
- Component failures (leakage, jamming, clogging)

Partial Features List

- Electro and proportional hydraulics
- Fluid and Line Manager
- Sizing Sheet Manager
- Valve Spool Designer
- Hydraulic circuit installations and functional groups
- Component dimensioning and curve modeling
- Fault insertion and troubleshooting tools
- Mechanical links and Mechanism Manager
- Set-point devices and controllers
- Dynamic measuring tools and plotters

Adopt Automation Studio™ for Your **Hydraulic** Projects!

- Design your hydraulic circuits efficiently using the generic hydraulic library and components from manufacturers' catalogues
- Visualize flow, pressure, torque, speed, temperature and other hydraulic properties during simulation
- Reusable intelligent schematics for drafting, engineering, training and technical publications
- Perform system analysis and optimization to achieve desired design performances through adjustable technical parameters during simulation
- Combine electro-hydraulic components and mechanical links with electrical libraries for control and power applications
- Full range of analysis tools, such as plotters and dynamic measuring instruments
- Improve reliability of hydraulic systems by performing failure test scenarios to reduce equipment downtime long before production
- Benefit from thousands of preconfigured hydraulic oils, lines, components, as well as the flexibility of creating your own set of reusable configurations when defining your standards



Manufacturers' Catalogues

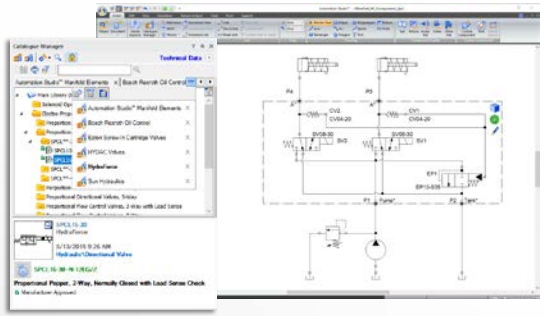
Find an extensive set of attributes for each component including: PDF specifications, 2D symbols ISO 1219:2012 compliant 2D symbols, images, technical data, commercial information, 3D representations, simulation models, virtual test benches and use cases showing that the component behaves according to its specifications. Furthermore, a Product Configurator is also available and is used to build the component's part number as per the manufacturer's ordering code information.

...

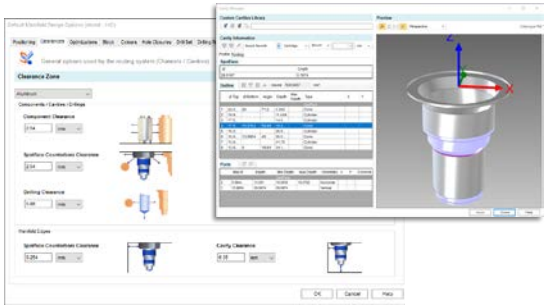
AUTOMATION STUDIO™ Hydraulic Manifold Block

It is the most effective software solution for the design, prototyping, validation and production of hydraulic manifold blocks integrating cartridge valves from a variety of manufacturer catalogues. This module makes it possible to quickly prototype hundreds of manifold solutions automatically through its "Auto-Create Block" algorithms and customizable design preference options.

Schematic/Manifold Project



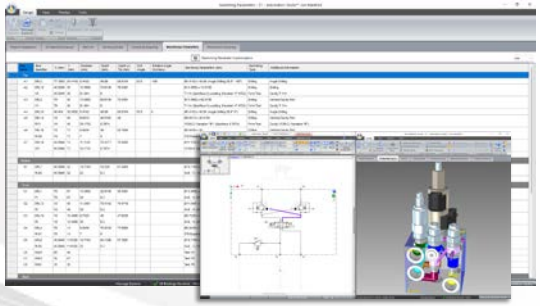
Manifold Preferences and Cavity Manager



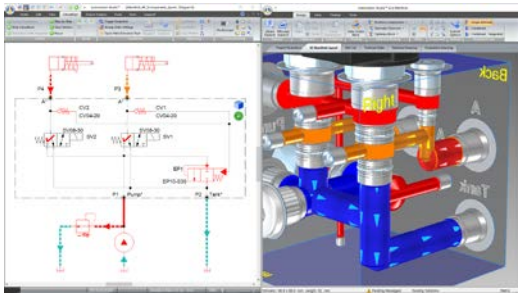
Auto-create Multiple Manifold Solutions



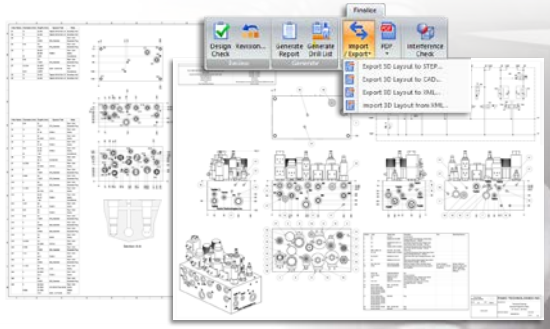
Machining Parameters List and Export



Block Performance Simulation



Technical and Production Drawings



Manifold Routing Preferences

- Preferred face positioning for specific components
- Material dependent component and hole clearances
- Optimization options for routing
- Block layout and channel visibility options
- Preloaded hole closures and drill sets
- Drilling rules to improve manufacturing

Partial Features List

- Manufacturers' Catalogues for synchronous 2D-3D manifold layout
- Advanced CAD-assisted manifold design tools
- Visualization tools, such as cross-section view and exploded view tools
- Automatic and manual creation of engineering drawings and machining parameters
- Extensive and complete project reports
- Export and import to/from STEP, XML and others

Manifold Block

Adopt Automation Studio™ for Your **Hydraulic Manifold Block** Projects!

- Improve your manifold design process using an all-in-one trade-oriented software solution
- Explore different modes of design: auto-routing or manual, according to the complexity of your manifolds
- Benefit from extensive component documentation in our Manufacturers' Catalogues including: PDF specifications, ISO 1219 symbols, simulation parameters, 3D models, etc.
- Reduce design iterations and delivery time by producing clear design details of your manifolds
- Optimize your manifolds according to important design criterion: block size, component and port location, manufacturing process, price, etc.
- Configure and implement manifold design standards to ensure quality and consistency: drilling rules, spacing rules, cavity rules, etc.
- Simulate your manifolds to test, analyze and compare performances of different manifold design solutions throughout your design process in order to exceed client expectations
- Speed up the process of creating a specialized manifold through the intuitive 3D editor and available tools: drag & drop 2D components from schematics to the 3D editor and position, dimension and measure the performances of routing channels
- Avoid design errors with real-time synchronization and interaction between the schematic and the 3D manifold block
- Generate comprehensive project reports including engineering drawings



Streamline communications

Reduce iterations and expenses

Reduce time to market

Initial Requirements

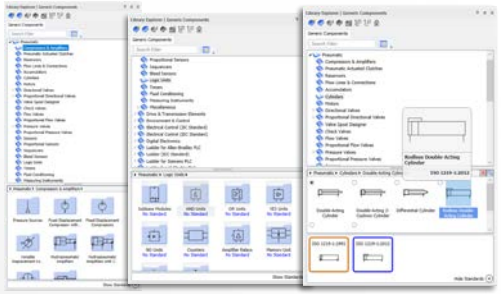
- 2D/3D CAD engineering drawings
- 3D auto-routing solutions and preferences
- Simulate, validate and compare solutions
- Develop/re-engineer manifold solutions
- Machining parameters for manufacturing
- Customize manifold cost calculations for quoting
- Reports & project documentation
- Technical and production drawings
- Export to CAM

Machining

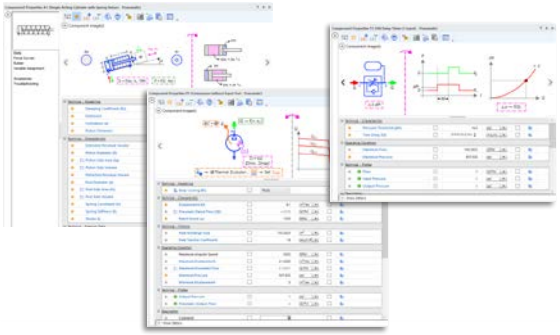
AUTOMATION STUDIO™ Pneumatic

Create, simulate and troubleshoot your pneumatic projects. Compliant with ISO 1219-1 and 1219-2 standards, Automation Studio™ Pneumatic Library contains all the component symbols required to create any pneumatic system.

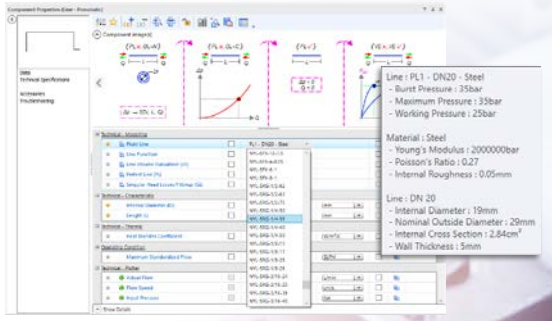
Thousands of Symbols in the Pneumatic Library



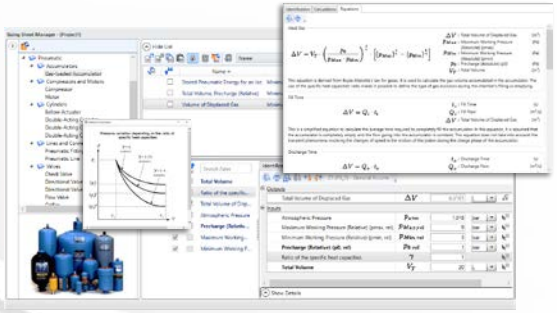
Components Models and Builders



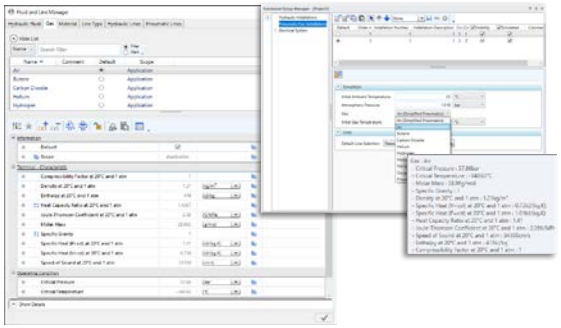
Modeling Lines and Fittings



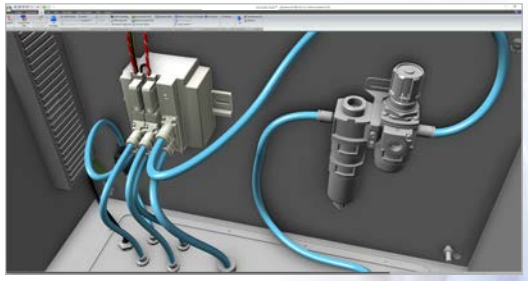
Component Sizing



Preconfigured Gas Model



Electro-Pneumatic Panel Layout



Simulation Parameters

- Pressure and flow analysis
- Valve positioning and sequencing
- Volume and energy dissipation in lines
- Advanced modeling of gas physics
- Isothermal or polytropic process for gas compression and expansion
- Electro-pneumatic and sequencing
- Actuator speed and acceleration
- Actuator load and force profiling
- Temperature and heat transfer coefficients
- Air logic units

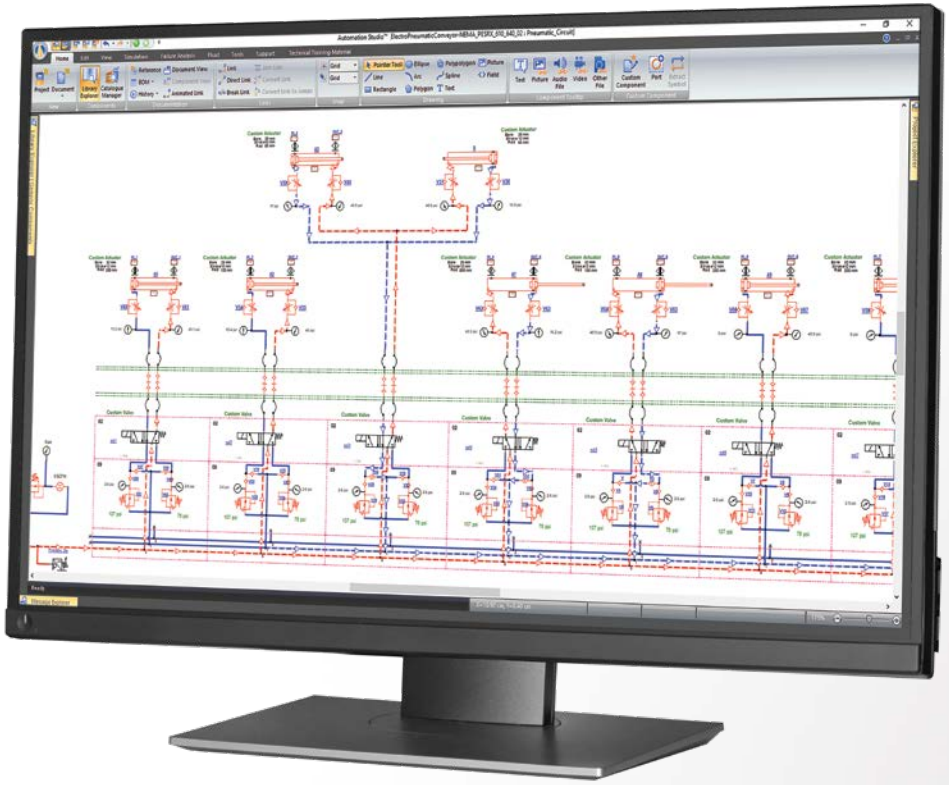
Partial Features List

- Electro-pneumatic control
- Gas and Line Manager
- Sizing Sheets Manager
- Valve Spool Designer
- Pneumatic circuit installation and functional groups
- Component dimensioning and curve modeling
- Fault insertion and troubleshooting tools
- Mechanical links and Mechanism Manager
- Sequence Diagrams
- Dynamic measuring tools and plotters

Pneumatic

Adopt Automation Studio™ for Your **Pneumatic** Projects!

- Design your pneumatic circuits efficiently using the generic pneumatic library or components from manufacturers' catalogues
- Visualize absolute flow, density, pressure, torque, speed, temperature and other pneumatic properties during simulation
- Easily maintain up-to-date documentation of pneumatic circuits at all times
- Achieve system optimization and desired design performances through adjustable technical parameters during simulation
- Combine electro-pneumatic components and sensors with electrical, PLC, SFC, sequence diagrams, controllers and other modules of Automation Studio™
- Test your pneumatic design and control techniques through simulation
- Choose from a full range of analysis tools, such as plotters and dynamic measuring instruments
- Benefit from our preconfigured advanced gas models to improve pneumatic circuit analysis



Manufacturers' Catalogues

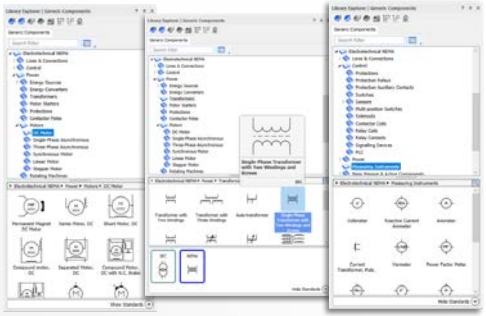
Find an extensive set of attributes for each component including: PDF specifications, 2D symbols ISO 1219:2012 compliant 2D symbols, images, technical data, commercial information, 3D representations, simulation models, virtual test benches and use cases showing that the component behaves according to its specifications. Furthermore, a Product Configurator is also available, allowing to build the component's part number as per the manufacturer's ordering code information.

AUTOMATION STUDIO · CAMOZZI AUTOMATION division · CKD · cy.pag. · DEPRAG machines unlimited · EMERSON Asco · EMERSON AVENTICS · Humphrey · IMI IMI Bimba · IMI IMI Norgren · JANATICS Pneumatic · KOGANEI · KONSTANDIN Pneumatik · Pneutronik · Parker · SMC ...

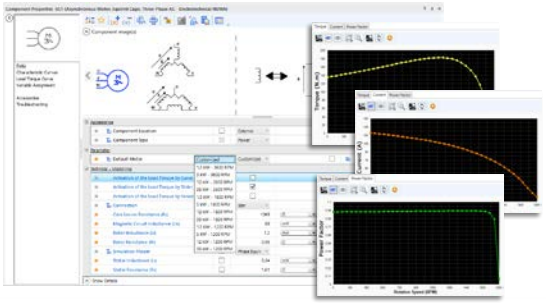
AUTOMATION STUDIO™ Electrotechnical

Compliant with IEC and NEMA standards, the electrical workshop offers a user-friendly and powerful solution for the design, documentation and simulation of electrical systems. Thanks to the electrical configurators for connectors, terminal strips, wires/spools, PLC I/O cards and library component builders, you can quickly and effectively design and troubleshoot your projects.

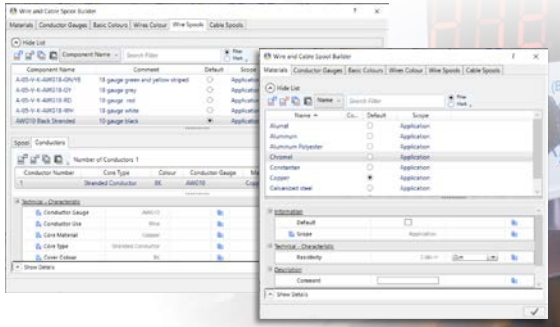
Thousands of Electrical Components in NEMA and IEC Standards



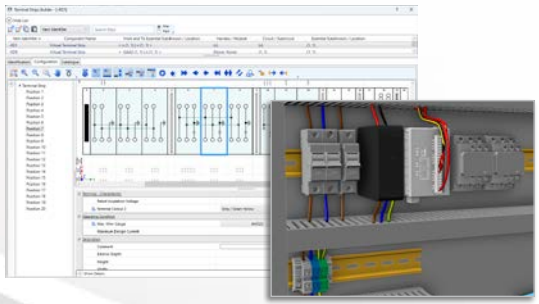
Component Properties and Modeling Curves



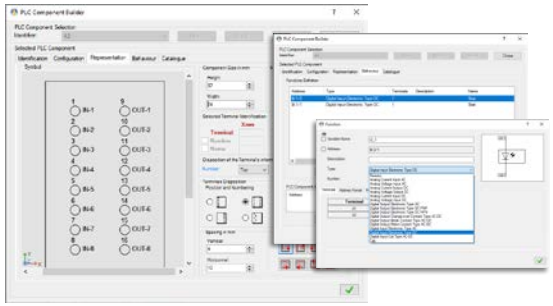
Wire and Cable Spool Builder



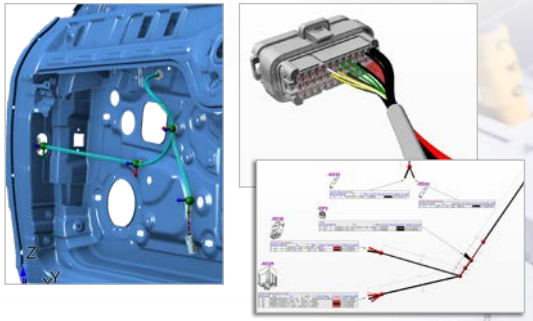
Terminal Strip Builder and Panel Layout



PLC I/O Card and PLC Rack Builders



3D Electrical Harness



Simulation Parameters

- AC/DC current and voltage
- Frequency
- Temperature
- Energy/power analysis
- Speed and torque
- Efficiency
- Component failures
- Resistance, inductance, capacitance
- Motor/generator speed and acceleration
- Inertia and resistive forces
- Breaker tripping time

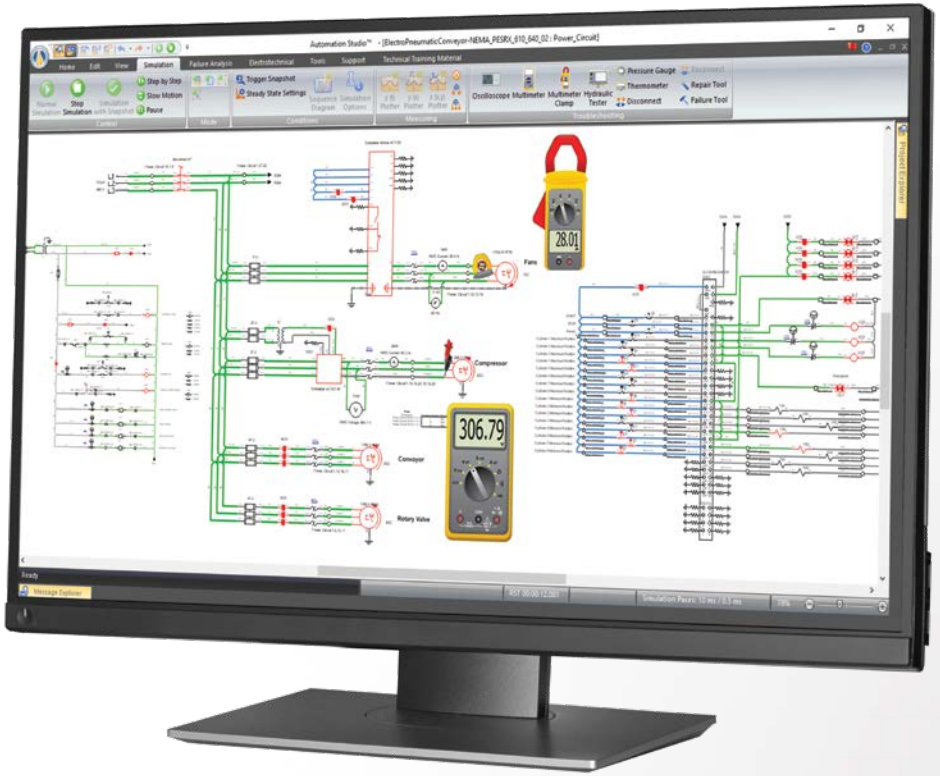
Partial Features List

- Power and control circuits
- Component builders
- Wire, spool and cable builders
- Control panel layout
- Connection diagrams
- Motor soft starters and VFDs
- Solar panels and wind turbines
- PLC rack and PLC component builders
- Terminal strip builders
- Connector and connector box builders
- Digital electronics
- Multimeter, oscilloscope, clamp meter

Electrotechnical

Adopt Automation Studio™ for Your **Electrical** Projects!

- Design your circuits efficiently using the generic electrical library or components from manufacturers' catalogues (3-phase, AC/DC, VFDs, soft starters, timers, PLCs, sensors, etc.)
- Produce all of your electrical schematics and documentation for engineering and technical publications
- Visualize current, voltage, torques, power consumption, active components/lines in power and control circuits among other electrical properties during simulation
- Wide range of troubleshooting tools (oscilloscope, multimeter, clamp meter) to visualize circuits' behaviour
- High fidelity simulation (up to 1 µs sampling rate) to capture accurate electrical behaviour
- Ensure electrical circuits meet power requirements and required protection specifications through simulation
- Link with hydraulic, pneumatic and PLC applications for multi-technology simulation
- Link with PLC, SFC or other automation modules to incorporate controller logic and PLCs in electrical simulation
- Preconfigured/customizable report templates for terminal strip lists, wire/cable lists, splice/connector lists, etc.



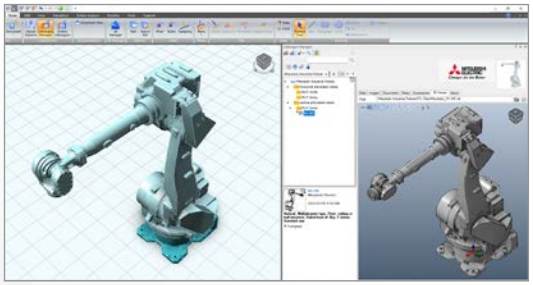
- Reusable electrical schematics for quickly generating connection diagrams and control panel layouts
- Integrated standardized models for quick and easy configuration of phase equivalent circuits and electrical data properties (resistances, inductances, power factor and efficiency)
- Component builders with grouping properties available throughout the electrical libraries for linking coils, contacts, among other component groupings that work together in electrical circuits

...

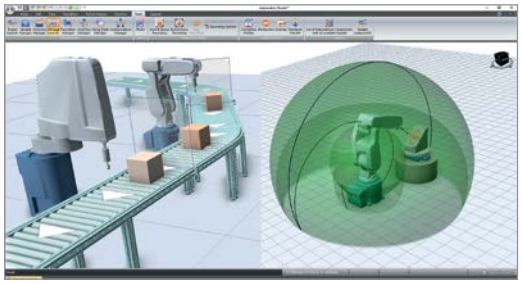
AUTOMATION STUDIO™ Robotics

The Robotics workshop offers a suite of powerful tools to create and simulate sophisticated robotic workcells. Its cutting-edge robot simulator accurately replicates the dimensions and functionalities of various industrial robot systems, enabling users to intuitively operate these virtual robots within a dynamic 3D environment.

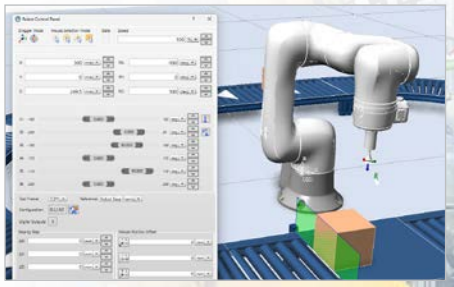
Robotics Catalogues



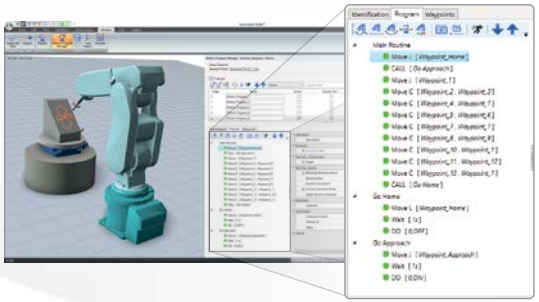
Workcell Visualization



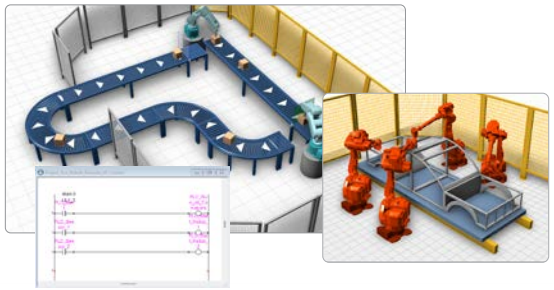
Robot Control Panel



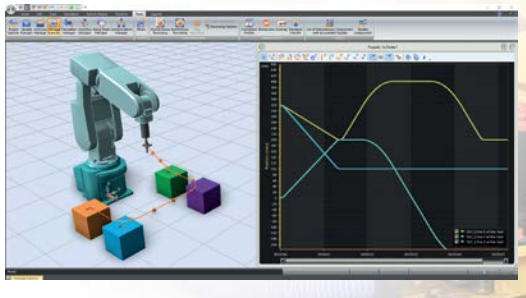
Motion Program Manager



Complete Workcells with Different Technologies Combined



Monitoring During Simulation



Simulation Features

- Synchronize robots with conveyors for seamless operation and efficient load handling
- Real time analysis of the joint velocities to control the precision and to secure your equipment
- Experiment with different path-planning strategies, to ensure optimized motion

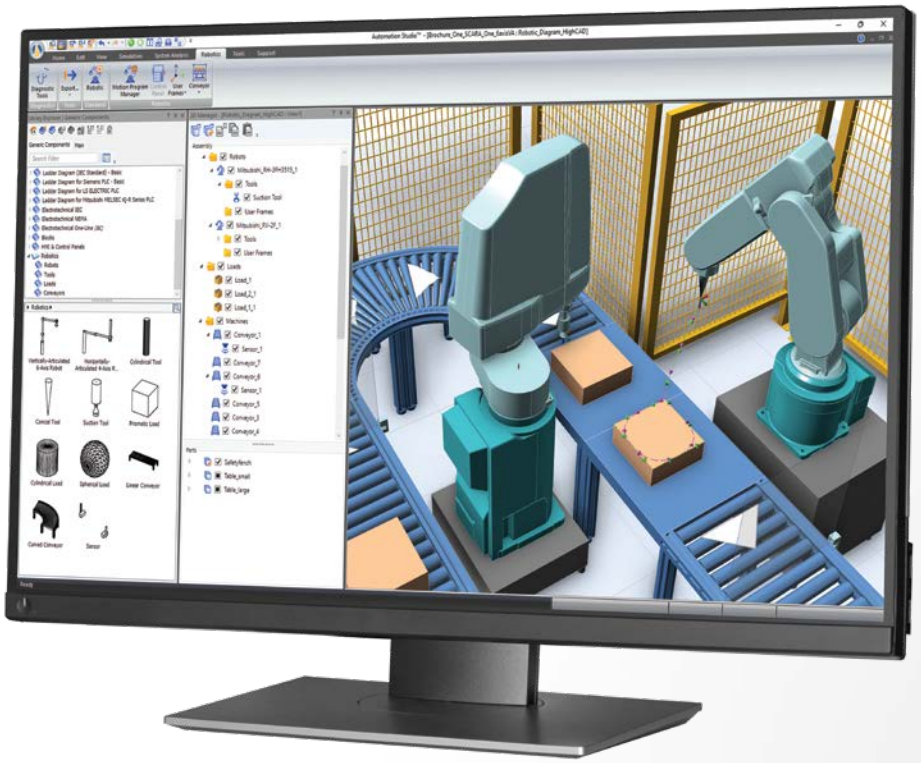
Workcell Design

- Effortlessly position robots, conveyors, sensors or 3D objects within the workcell to build customized production lines or automation setups
- Access the standard library with configurable robots, conveyors, loads and tools
- Utilize 2D and 3D work envelopes to visually verify robot reachability



Adopt Automation Studio™ for Your **Robotics** Projects!

- Simulate the behaviour of real-world preconfigured industrial robot models
- Create motion programs using a variety of instructions (such as move joints, move linear, move circle) tailored to most automation tasks
- Visualize the robot's path directly within the 3D scene or on a plotter using several validation tools
- Export the motion program to the native language of industrial robots
- Enjoy a user-friendly programming experience with no prior coding skills required, thanks to an intuitive tree structure and easy-to-use interfaces
- Include multiple robots in a workcell and operate them simultaneously, with interactions between robotic objects automatically handled by the simulator
- Enable robots to execute different motion programs based on commands from other devices, enhancing operational flexibility
- Simulate robot motions in either kinematic or dynamic mode, tailored to your specific needs
- Leverage the Workshop's capability to create all-in-one simulations by integrating robots with other technologies within Automation Studio™



Robot Manual Operation

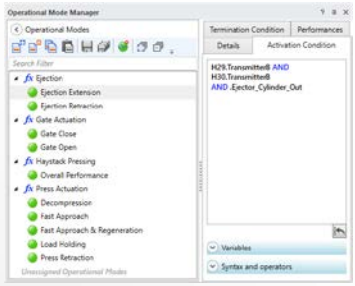
- Experience seamless manual operation with features like jogging joints, adjusting the Tool Center Point with respect to custom frames and varying speeds
- Quickly position the Tool Center Point using intuitive dragger or mouse selection tools
- Optimize robot operations by selecting arm configurations
- Control digital input/output ports with ease

AITRON TECH · KUKA · MITSUBISHI ELECTRIC Changes for the Better · ROBOTIS · ROBOT PHOENIX · TM ROBOT · TiS ROBOT ...

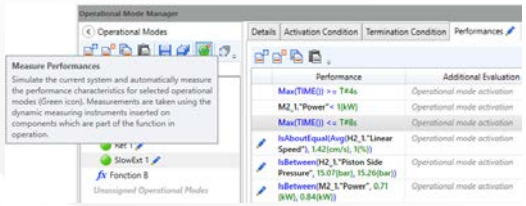
AUTOMATION STUDIO™ FMEA Module - IEC 60812 Standard

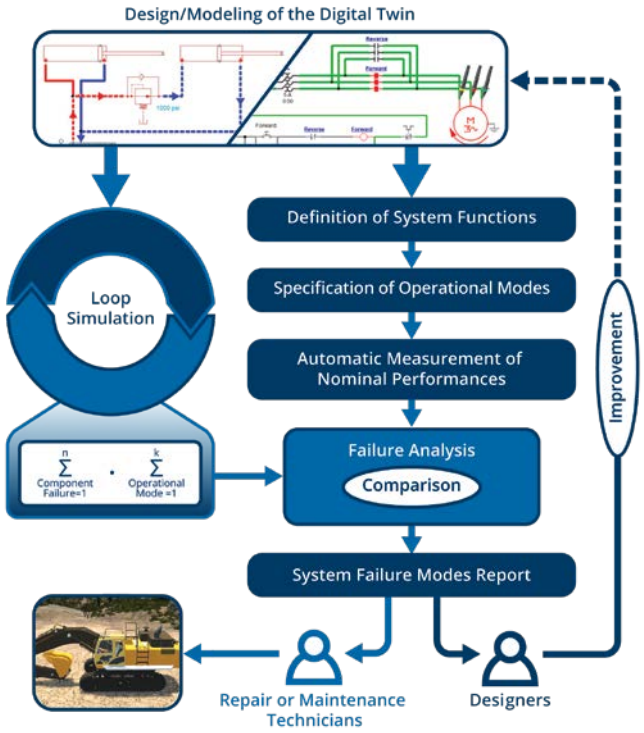
The FMEA module enhances the reliability and troubleshooting of your systems. It automatically lists and analyzes potential component failures in a system by comparing current performance to expected performance and documenting the differences detected. The information collected according to IEC 60812 (FMEA) identifies potential causes to prioritize diagnostics and mitigation solutions. The analysis report helps to improve design and maintenance procedures, reduces documentation time, as well as optimize intervention time.

Specification of Function Operational Modes

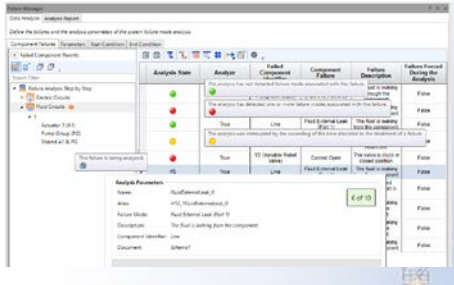


Automatic Determination of Entire System's Current Performance

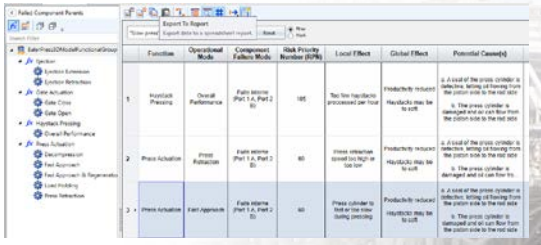




Analysis of Component Failure Modes



Analysis Report



FMEA – System Analysis Advantages

- Automatic and sequential triggering of component failures
- Automatic generation of failure analysis report
- Analysis carried out using simulation data acquisition
- Specify expected performance and monitor performance for each operational mode of functions

Partial List of Benefits

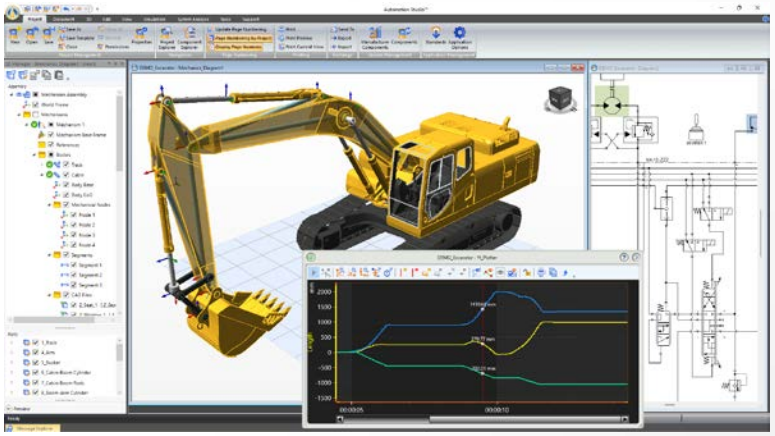
- Reduce the time in completing the FMEA work process
- Document the consequences of failure modes to provide clear and concise instructions to technicians in the field: diagnostic and troubleshooting procedures
- Quickly communicate relevant information, including potential solutions to mitigate the effect of the failure in the field
- Determine design methods for improving reliability (redundancy, operational constraints, integrated security, etc.)

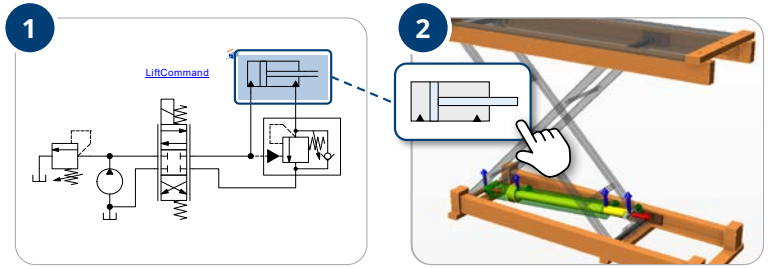
AUTOMATION STUDIO™ Multibody System Dynamics

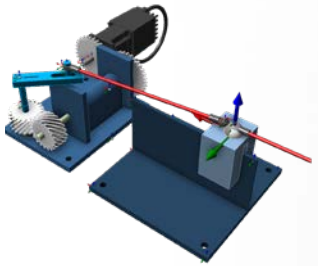
The 3D Mechanism workshop of Automation Studio™ offers a suite of powerful tools to create and simulate sophisticated spatial multibody dynamic systems. The workshop allows you to construct models with interconnected bodies, constraints, applied forces; and then it predicts the dynamic responses by automatically formulating differential motion equations and solving them numerically.

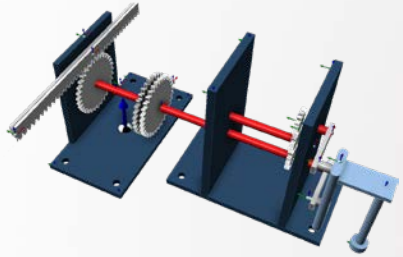
The Workshop Offers:

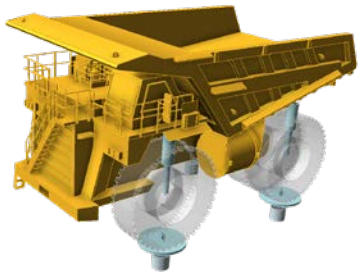
- Effortlessly place and orient bodies, joints, gears, or external loads in 3D
- Switch between skeleton representation and real-world CAD models
- Extensive collection of joints and transmissions
- Easy integration of actuators such as hydraulic cylinder or motor shaft
- Advanced simulation capabilities for 3D multibody dynamics
- Wide range of state variables (positions, velocities, forces, torques) for analysis
- Seamless integration and co-simulation with hydraulics, electrical, pneumatics, math and PLC workshops

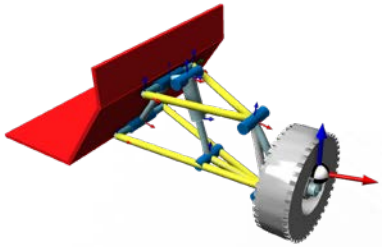


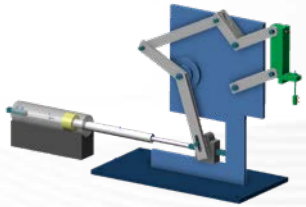


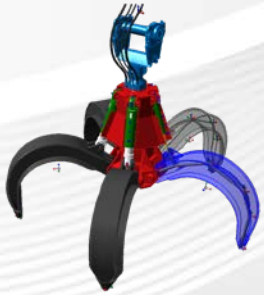








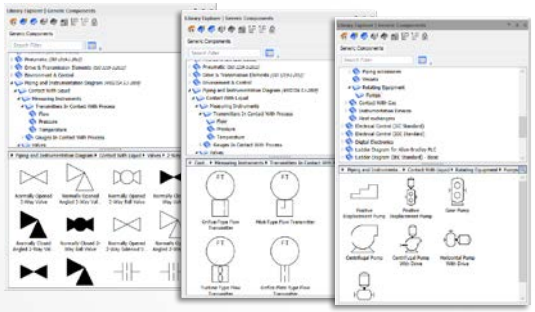




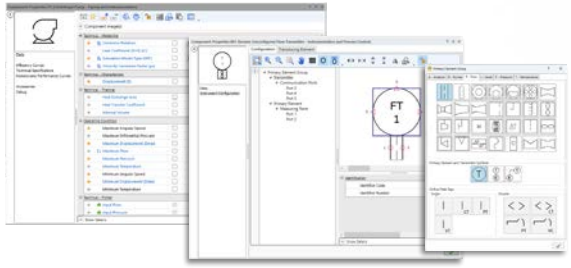
AUTOMATION STUDIO™ Instrumentation & Process Control

Draw, simulate and analyze piping and instrumentation diagrams and process control systems. This document type is fully compatible with ISO 1219 hydraulics and pneumatics components to create and document complete comprehensive multi-technology projects.

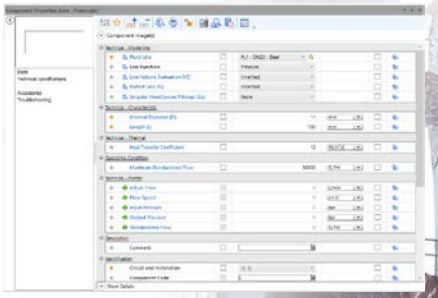
ISA 5.1-2009 and ISO 14617 Symbol Libraries



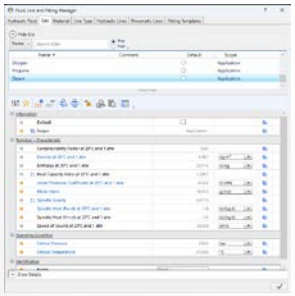
Component Models and Builders



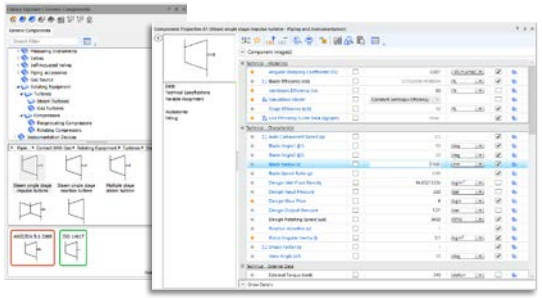
Modeling Lines and Fittings



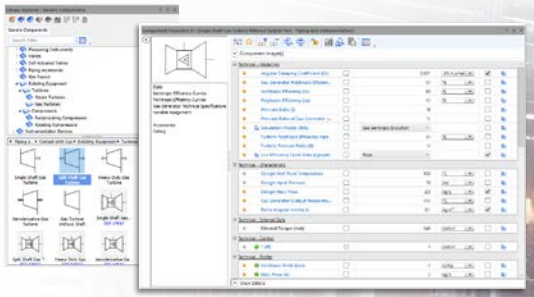
Additional Gas Models



Steam Power Generation



Gas Power Generation



Simulation Parameters

- Pressure and flow analysis
- Valve positioning and sequencing
- Advanced modelling of gas properties
- Isothermal, isentropic or polytropic process for gas compression and expansion
- Additional gas models (steam)
- Electrical fluid power sequencing and signal communications
- Steam and gas power generation units

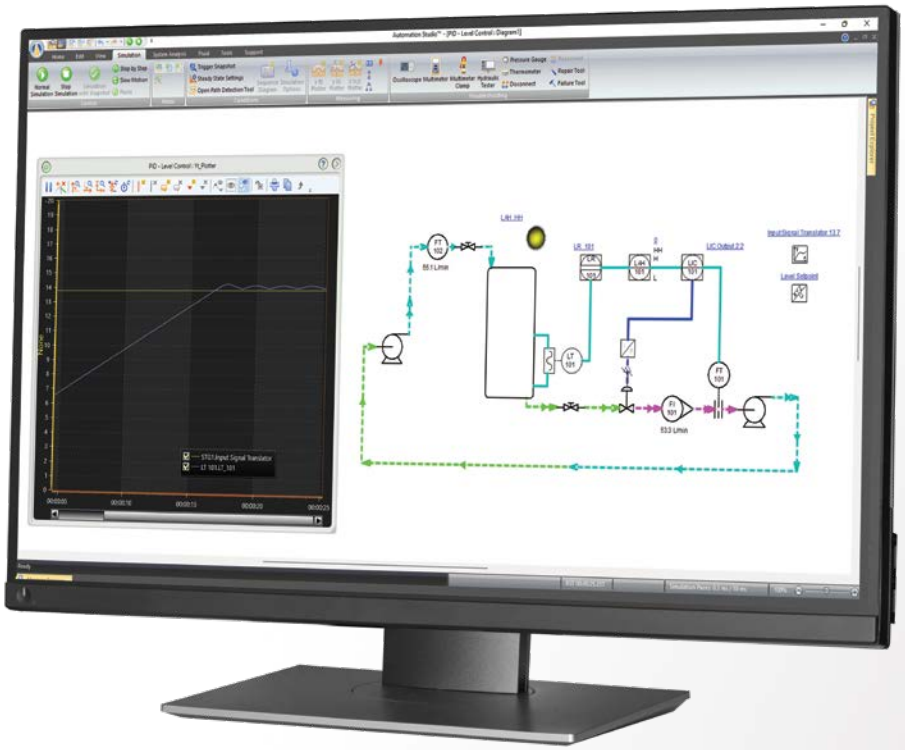
Partial Features List

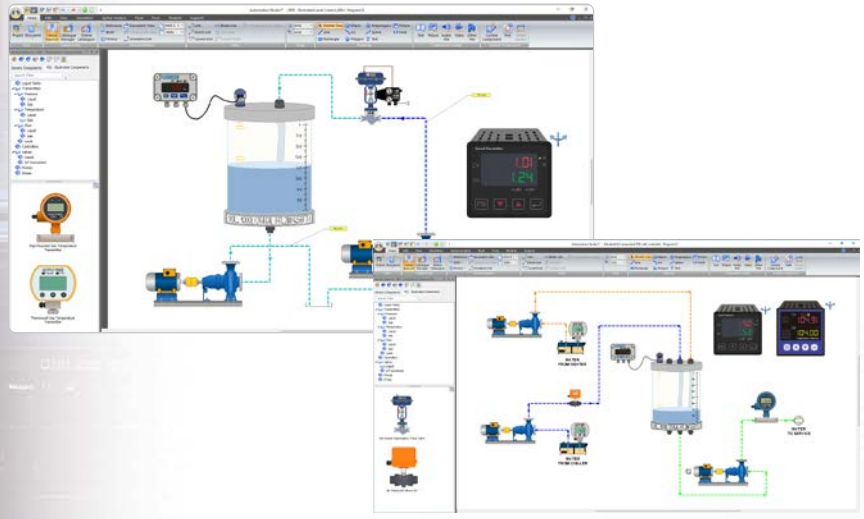
- Multi-technology control
- Instrumentation bubble representation
- Gas and Line Manager
- Sizing Sheet Manager
- Valve Spool Designer
- Liquid and gas simulation
- Component sizing and curve modelling
- Dynamic measuring tools and plotters

Instrumentation & Process Control

Adopt Automation Studio™ for Your **Instrumentation & Process Control** Projects!

- Easily design multi-technology circuits, including instrumentation representation
- Visualize key parameters during simulation, such as flow, temperature, density, pressure, torque, speed and power
- Effortlessly keep your circuit documentation up to date
- Perform optimization case studies by adjusting technical parameters and component performance during simulation
- Combine ISA components with other technologies, such as hydraulics, pneumatics, PLC, SFC, sequence diagram, controller and other Automation Studio™ modules
- Test key instrumentation and process control loops using simulation
- Use advanced analysis tools, such as plotters and dynamic measuring instruments



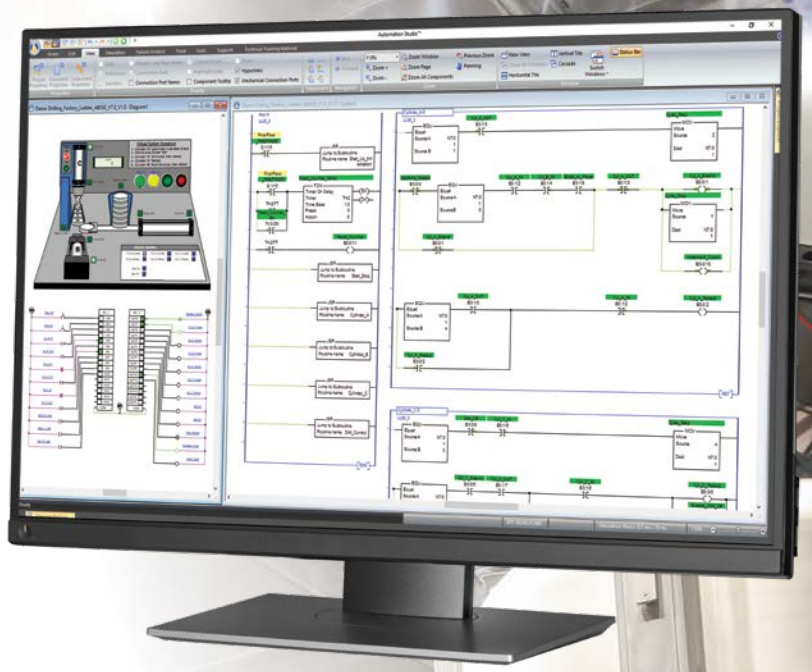


Create Training Materials

- Libraries of illustrated components frequently used in instrumentation and process control
- Preconfigured project templates for volume and temperature control training
- Create your own virtual training environment

AUTOMATION STUDIO™ PLC™

Control your hydraulic, pneumatic or electrical systems with programmable logic controllers.
The PLC Ladder Logic workshop implements a rich set of instructions, which lets you perform bitwise and logical operations, comparisons, mathematical operations, move instructions, file shifts, etc.



Component and Function Sets According to Manufacturer Specifications

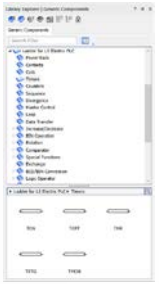
ALLEN-BRADLEY



SIEMENS



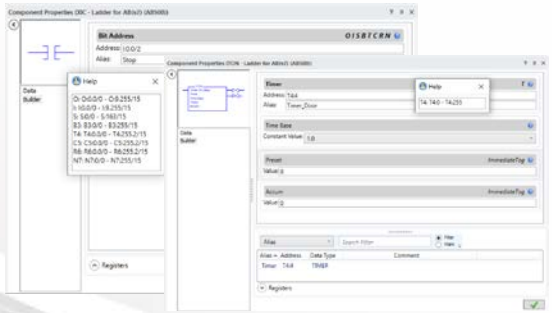
LS ELECTRIC



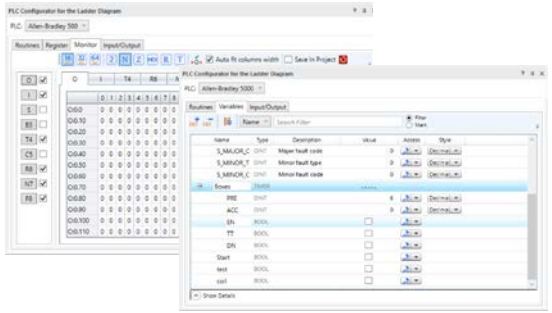
MITSUBISHI



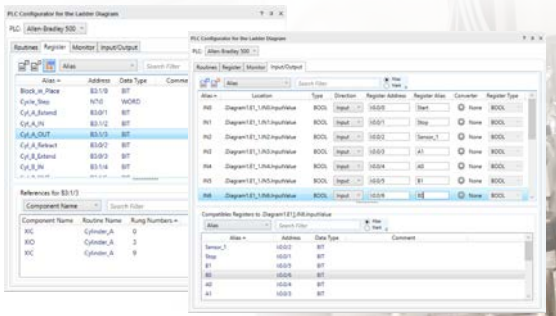
Syntax Help and Validation



Monitoring During Simulation



Cross Reference Inputs/Outputs



Simulation Features

- Control other technologies: hydraulic, pneumatic, electrical, etc.
- Cross reference instructions during design and simulation
- Instructions set for AB-500, AB-5000, SIEMENS S7, Mitsubishi, IEC 61131-3
- Force instructions during simulation
- Insert additional rungs or columns between already made logic

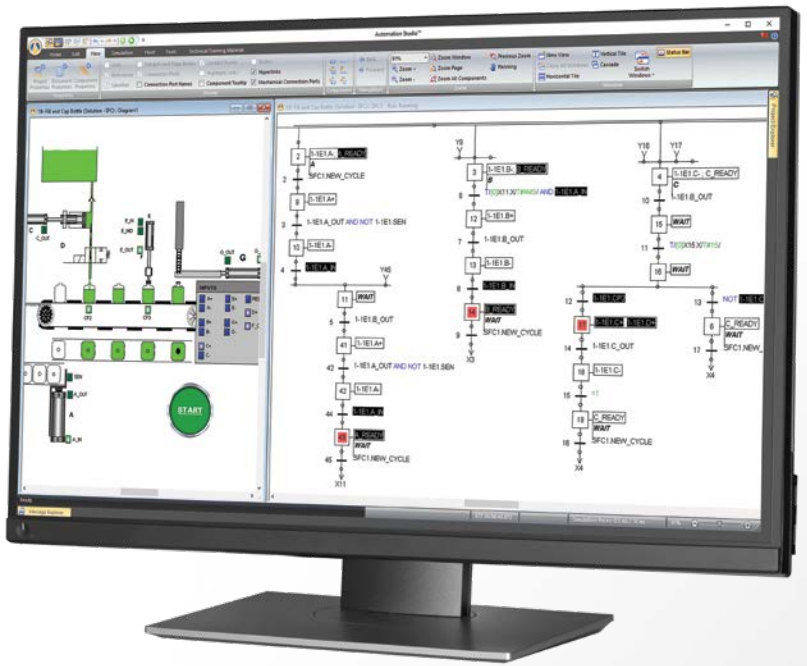
Communicate with Real Devices

The OPC Client and OPC Server are standard software interfaces that allow Automation Studio™ to exchange data with any PLC or other control devices for which an OPC Server or an OPC Client is available.

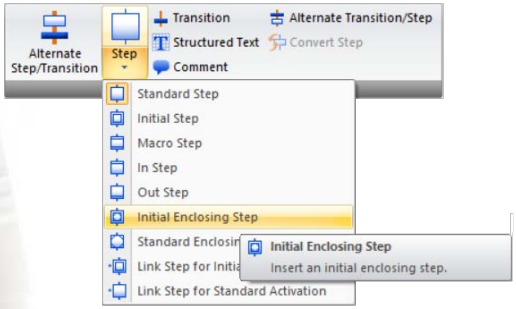


AUTOMATION STUDIO™ SFC

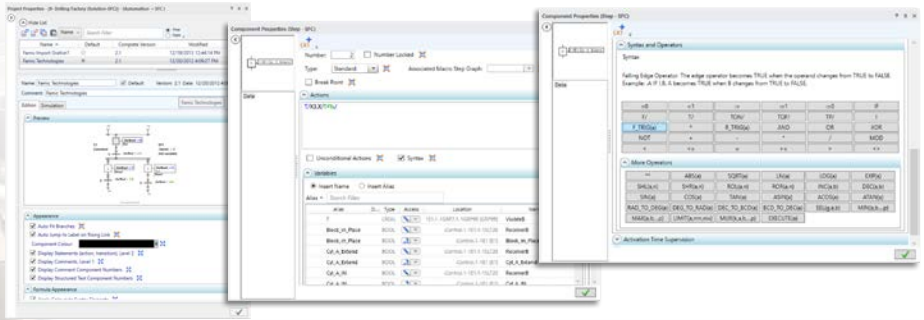
The Sequential Function Chart (SFC) / GRAFCET and Structured Text workshop implements Sequential Function Chart control structures according to the IEC standard for PLC programming languages.



Dedicated Toolbar to Improve Design Time



SFC Standards, Syntax Guidance and Validation



Structured Text

```
ST1
CYLINDER_B_EXT :=0 if E1_1.Start;
CYLINDER_A_EXT :=0 if E1_1.Start;

B_POS:= B_POS + B_SPD IF (( CYLINDER_B_EXT) AND (B_POS < 100)) ;
B_POS:= B_POS - B_SPD IF ((CYLINDER_B_RET) AND (B_POS >= 0));

CYLINDER_B_IN:=1 IF B_POS <= 0;
CYLINDER_B_MID:=1 IF ( B_POS >= 40) AND B_POS <= 45);
CYLINDER_B_OUT:=1 IF B_POS >= 100;

CYLINDER_B_IN:=0 IF B_POS > 0;
CYLINDER_B_MID:=0 IF (( B_POS <40) OR B_POS >45);
CYLINDER_B_OUT:=0 IF B_POS < 100;

C_POS:= C_POS + C_SPD IF (( CYLINDER_C_EXT_R= 1) AND (C_POS < 100)) ;
C_POS:= C_POS - C_SPD IF (( CYLINDER_C_RET_R= 1) AND (C_POS >= 0));

D_POS:= D_POS + D_SPD IF (( CYLINDER_D_EXT_R= 1) AND (D_POS < 100)) ;
D_POS:= D_POS - D_SPD IF (( CYLINDER_D_RET_R= 1) AND (D_POS >= 0));
```

Partial Features List

- Interfacing with other technologies to control hydraulic, pneumatic or electrical circuits
- Hierarchical level management, branches and jumps
- Macro and enclosing steps
- Simulation shows active steps and variable values
- Control of sequence and step activation time
- Brake points available in simulation
- Syntactic parsing for all actions and conditions
- Variable types according to IEC 1131-3

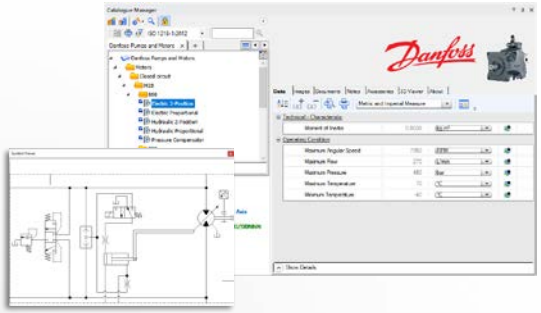
Import and Export

- Import GRAFCET code from XML
- Export SFC to Allen-Bradley SFC 500 and MicroLogix
- Export SFC to Siemens STEP 7 SFC for 3xx and 4xx PLC
- Export code to XML file

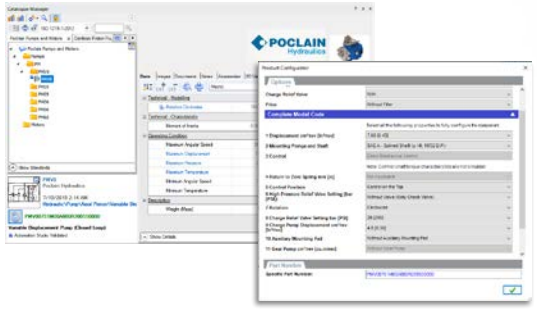
AUTOMATION STUDIO™ Manufacturers' Catalogues

Get unlimited access to components from Manufacturers' Catalogues, preconfigured for faster design and complete documentation. The Catalogue Manager allows users to quickly navigate to obtain information on components such as, their data, images, documentation, specifications sheets, 3D files and much more. It also allows users to create and manage their private catalogues.

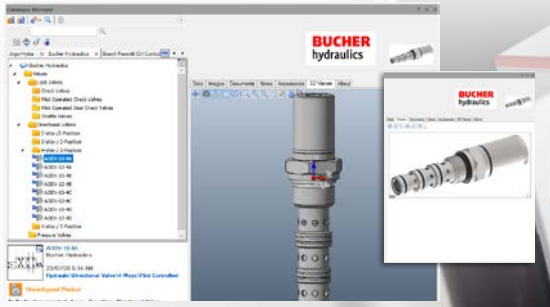
Catalogue Manager Overview



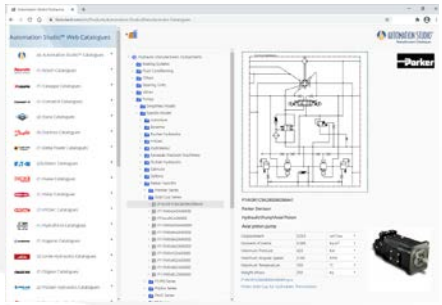
Product Options Editor



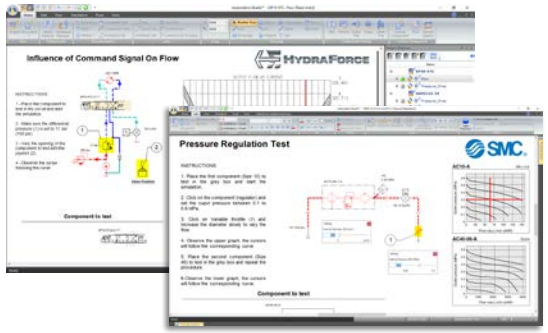
Component 2D/3D Views



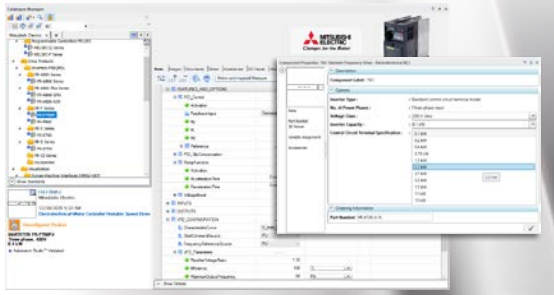
Online Catalogues



Virtual Test Benches



Catalogue Properties and Product Management



Complete Product Documentation

- Product categorization
- Symbol and technical data
- Metric or imperial unit system
- Technical specification sheets
- 3D views
- Product versions, revisions and validation states
- External links and commercial information
- Any other related information: images, videos, user's guides, etc.

Create Your Own Catalogues

- Increase your drawing, documentation and schematic simulation efficiency
- Customize data fields to manage internal part numbers
- Combine components from Manufacturers' Catalogues into your own catalogues
- Facilitate data transfer between ERPs, PDMs and Automation Studio™
- Manage access security, editing permissions, custom data fields and component revision tracking



Ready-to-Use Components and Models from Major Fluid Power and Electrical Component Manufacturers

The Manufacturers' Catalogues contain ready-to-simulate components which will greatly reduce your time for circuit design, modeling and validation.

Manufacturers' Catalogues Overview

- Locate components by browsing through the catalogues directory, by searching for component families or by text search
- Configure component options according to model codes provided by manufacturers' specification sheets
- Simply Drag & Drop configured components directly onto the schematic
- Virtual test benches on all components allow users to validate the simulation model's performance prior to integrating them into intelligent schematics

Catalogues and On-Demand Components

Automation Studio™ catalogues include thousands of hydraulic, pneumatic and electrical components from various manufacturers. Users with access to Manufacturers' Catalogues can also request a specific component to be developed according to available specifications.

Online Catalogues

Users now have access to the Manufacturers' Catalogues through the web. This removes the need to download and store Manufacturers' Catalogues in local or network directory, saving time and space. Online catalogues allow advanced searches based both on technical properties present in the catalogues and on keywords. Technical data for research can be adjusted quickly and the application of filters on manufacturers and catalogues is possible, thanks to a user-friendly interface.

For information on the current list of manufacturers' catalogues available in Automation Studio™, visit: https://www.famictech.com/Manufacturers-Catalogues

Want to add your catalogue to Automation Studio™ Manufacturers' Catalogues?
Contact us: https://www.famictech.com/contact

...

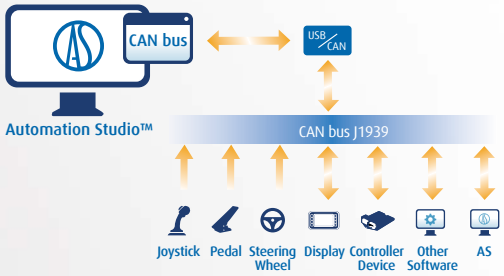
AUTOMATION STUDIO™ Co-Simulation

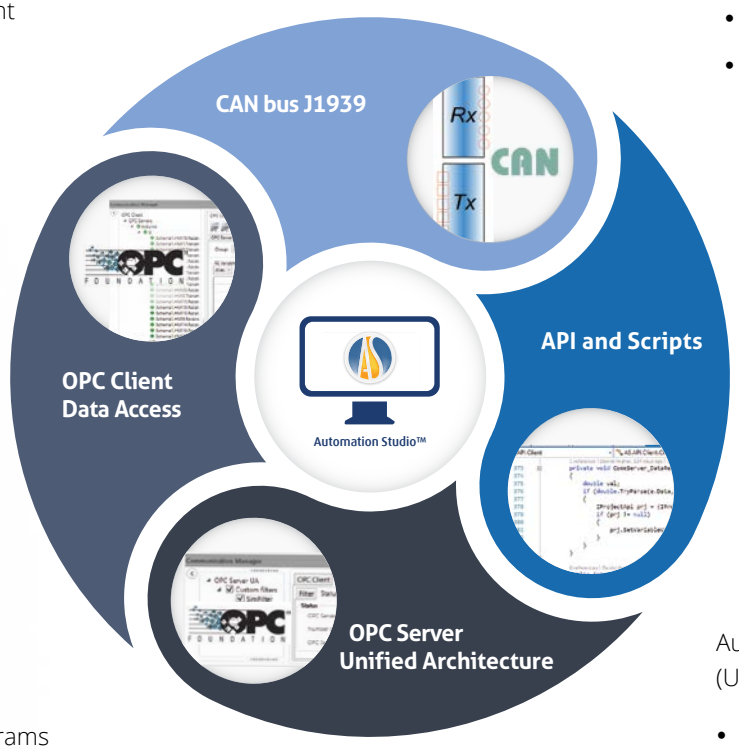
Co-simulate multi-technology systems modeled in Automation Studio™ with third-party software, control devices and PLCs.

Co-simulation with **CAN bus J1939**

Automation Studio™ can communicate with any CAN bus J1939 device, allowing users to:

- Create a cost-effective operator training environment
- Test a controller's algorithm with a complete virtual machine
- Reduce maintenance costs by performing quicker diagnostics and troubleshooting

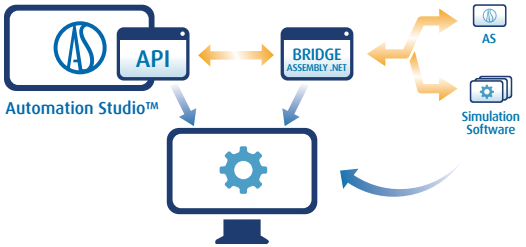




Co-simulation by **API**

Automation Studio™ can communicate via APIs with third-party simulation software, allowing users to:

- Create a model-in-the-loop (MIL) testing environment
- Simulate Automation Studio™ projects with other complementary multi-physics simulation software



Co-simulation by **OPC Client**

Automation Studio™ can communicate via OPC Client (UA/DA), allowing users to:

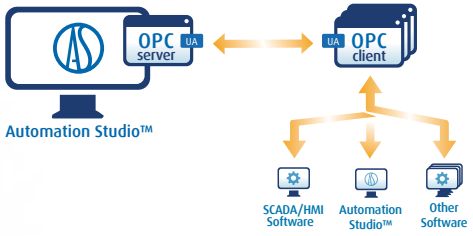
- Simulate Automation Studio™ Ladder and SFC programs with real sensors and actuators
- Test PLC programs with virtual systems developed in Automation Studio™
- Monitor PLC programs and their input/output values directly from Automation Studio™



Co-simulation by **OPC Server**

Automation Studio™ can communicate via OPC Server UA (Unified Architecture), allowing users to:

- Analyze input/output collected from SCADA/HMI software directly from Automation Studio™
- Test your SCADA/HMI software applications with virtual systems simulated in Automation Studio™

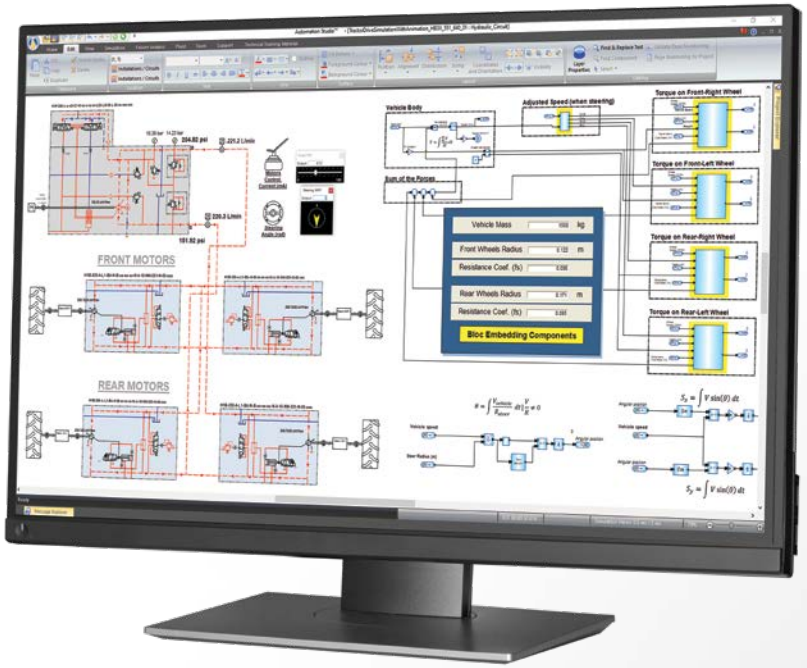


Block Diagram

AUTOMATION STUDIO™

Block Diagram-Math

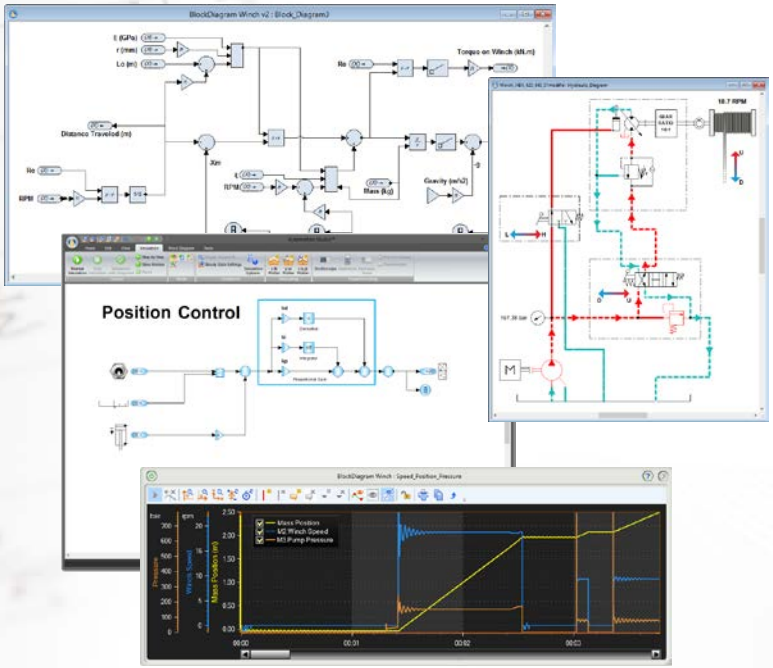
The Block Diagram is a graphical environment workshop that allows the creation of mathematical models of dynamic behaviour for all technologies, control algorithms and custom components.



Mathematical Modeling

The users have the freedom to create their own mathematical models to represent the behaviour of custom components of any technology. This modeling capability will allow you to enrich models of all workshops.

A more in-depth simulation can also be accomplished by modeling physical phenomena such as air resistance, resistance, friction, slippage, etc.



Control Algorithms

The Block Diagram Workshop can be used to create and test control loops with multi-technology systems. Users can observe the effects of modifying algorithm parameters on the machine's characteristics. This helps to better understand the system's behaviour for complex applications, improve performance and prevent issues ahead of time.

Catalogue of Mathematical Blocks

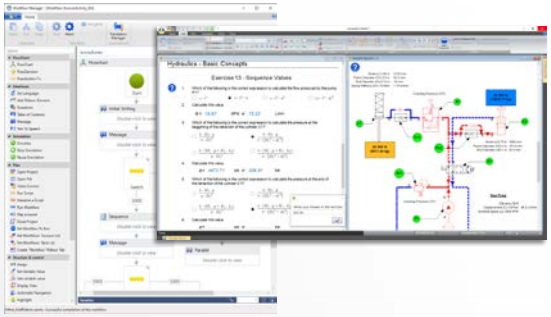
The catalogue of mathematical blocks provides the ability to create custom and adjustable components, objects, functions and systems from mathematical models to drill down into the sub-component level.

The users can choose and customize the behaviour they want for their system simulation: by performance curve, by their own mathematical models of their own, or a combination of both. This catalogue provides unmatched flexibility to Automation Studio™.

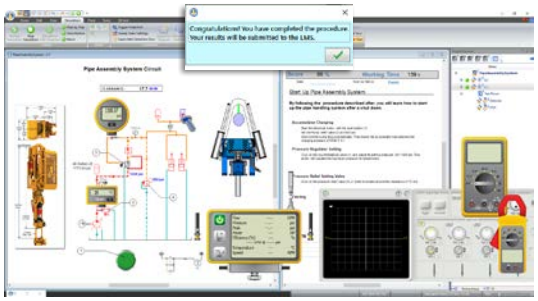
AUTOMATION STUDIO™ Teaching & Training

Automation Studio™ offers the ideal environment for creating and packaging trade-oriented training content on hydraulics, pneumatics, electrical and automation. Automation Studio™ supports many training delivery methods, including instructor lead training (ILT) and online training using Learning Management Systems (LMS), or other training and evaluation methods.

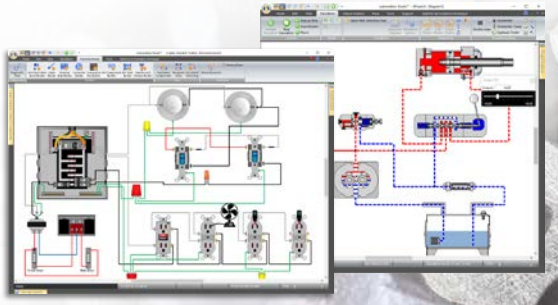
Workflow Manager and Teachware Exercises



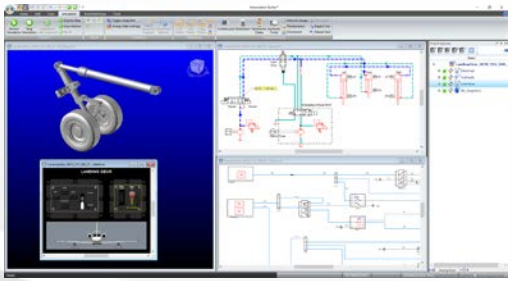
Troubleshooting and Failure Diagnostic Tools



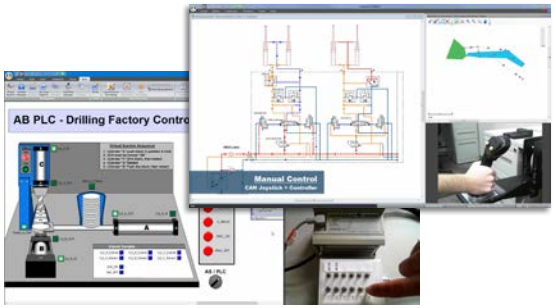
2D Animation and Cross Section View



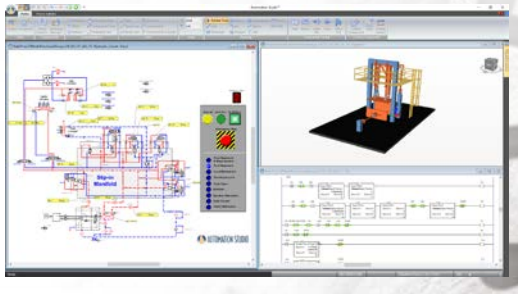
HMI Tools and Control Panel (buttons, lights, joysticks, pedals)



Connection with Real Equipment



Multi-technology Training Content and Digital Twins



Create & Package Training Content

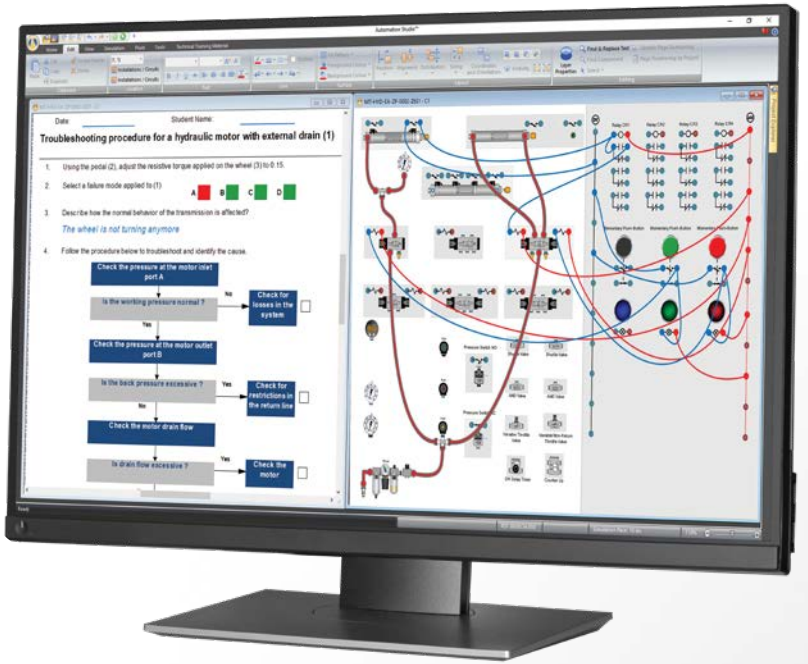
- Create and animate schematics
- Create customized 2D animations
- Import and animate 3D CAD files or connect with Unity 3D
- Integrate videos, images, text-to-speech and more
- Workflow Manager and Teachware for all technologies
- Create/trigger component failures and monitor their effects
- Build multi-technology training content
- Translation Manager

Delivery & Evaluation Training

- Use realistic troubleshooting and measuring tools (gages, oscilloscope, multi-meters, etc.)
- Video and audio recording
- Integrate real equipment, such as joysticks, control devices, PLCs using OPC or CAN bus
- Manage training exercise templates and Q/A test formats
- Quick navigation via hyperlinks
- Capture snapshots of simulation and export technical publication material
- Manage permissions and access rights for trainer and trainee profiles

Training Content

Adopt Automation Studio™ for Your **Training** Projects!



- Create the digital twin of your multi-technology machines to improve the technical skills of your teams
- Centralize your training material by creating your own libraries, import pictures, videos, add a hyperlink to other training content
- Add HMI and 2D/3D animations to build an interactive training environment
- Help trainees master operations and troubleshooting techniques before going hands-on
- Use APIs to connect to LMS or other software tools used for training
- Create autonomous training material (Teachware) using the Workflow Manager
- Create a real-life troubleshooting environment to easily perform "what-if" scenarios
- Make use of the integrated audio and video recording tools to create visual training material
- Integrate training exercises, Q&A with multiple choice and fill-in-the-blank type questions, among several other test formats and evaluation methods
- Use the Translation Manager to manage all user created texts within a project and simply select the language to display your project accordingly



AUTOMATION STUDIO™ Editions and Deployment Options

Whether you are a single user, a small business, or a multi-national with multiple satellite offices, Automation Studio™ provides a deployment option that will meet your needs.

Network Configurations

Automation Studio™ licenses are available in the following modes:

- Single station: for individual users
- Network : To allow license sharing

The WAN configuration offers 4 different options: WAN1 (the time zone difference between the server and the workstation must be plus or minus one hour or less), WAN3, WAN4, or World WAN (no time zone limit).

Software Editions

Professional Edition

Includes both Design and Simulation capabilities. No limitations. Licenses can be configured specifically for your project requirements.

FREE Viewer Available

=

Design Edition

Allows only CAD functions without simulation capabilities. Projects created can be simulated with either a Professional or Simulation Edition.

FREE Viewer Available

+

Simulation Edition

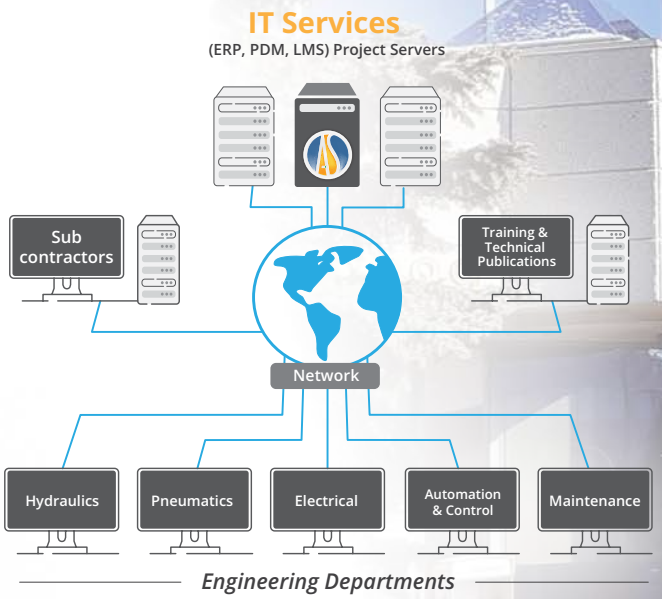
Allows to simulate, in read-only mode, projects created via the Professional or the Design Edition. This Simulation Edition doesn't allow to create or modify a project.

Network License Manager

- Easy update of licenses and activation codes
- License management and software accessibility, rights and priorities
- Manage authentication modes (username and password, Windows domain user, computer ID or anonymous authentication)
- Access priorities, allocation and revocation of licenses
- View in-use/available licenses, access schedules and license usage reports
- Manage access points for license sharing between offices within the same organization

License Configuration, Updates and Permissions

- Configuration of profiles to support ERP integration as well as pre-configuration of user information for Automation Studio™ templates
- Implementation of product codes, mass updates and much more
- Automation Studio™ Project Server: local and remote connection options
- Multi-user mode for users to work on the same project
- Templates and standards database

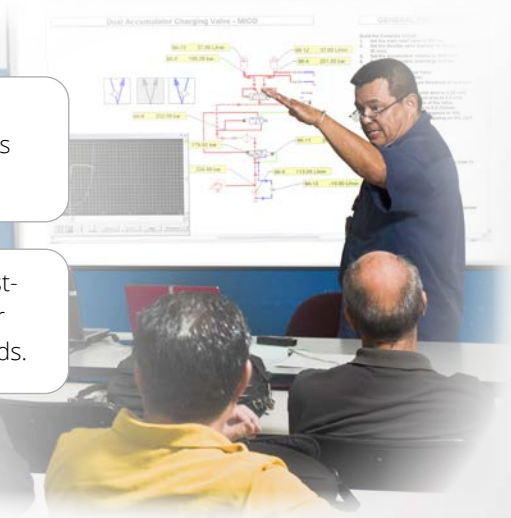


Improve Your Automation Studio™ Skills

Famic Technologies offers training courses for new and long-time users of Automation Studio™ to help broaden their knowledge on different technologies and features of the software. Join in on a group training offered in our Montreal office and other centers across the globe or request a personalized training session to cover specific topics. Our instructors can also meet with you online or travel to your facilities.

Training

On-Site	We will deliver hands-on training at your premises for 3 to 5 days with topics relevant to your specific applications. The trainer will be dedicated to answering your questions regarding Automation Studio™ features.
Online	Quick and easy! The online training sessions and live demos are a convenient and cost-effective solution for those wanting to get personalized training in the comfort of their own office. The topics and duration of the online session(s) will be based on your needs.



Customer Catalogues and Software Adaptation

Improve your team's ability to finish products/projects in a timely fashion. Benefit from our expertise to implement your component catalogues into Automation Studio™ and adapt our software to meet your specific needs.

Consulting Services

Project Consulting

- Schematic development
- Simulated schematic
- Digital Twin creation

Software Integration and Deployment

- Standards and templates
- Custom catalogues and components
- Integration with other applications (ERP, PLM, LMS, etc.)

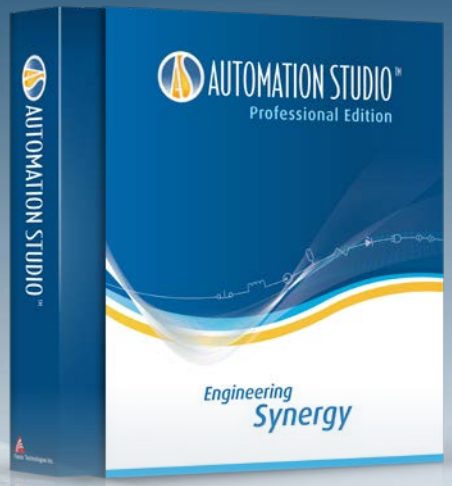
Custom Software Development

- Manifold configurator
- API development
- Custom applications

AUTOMATION STUDIO™
Professional Edition

Free Online Demonstration
See Automation Studio™ and
Andon Studio™ in action!
www.famictech.com/Online-Demo

www.famictech.com/pro



Libraries and Modules

- Hydraulics
- Hydraulic Manifold Block
- Pneumatics
- Fluid Connection Diagram
- Electrotechnical (IEC/NEMA)
- Electrical Wire Harnesses and Formboards
- Electrotechnical One-Line
- Electrical Control
- Digital Electronics
- Component Sizing
- Instrumentation & Process Control (P&ID)
- Robotics
- Mechanical Links
- Multibody System Dynamics (3D Mechanism)
- HMI and Control Panels
- Block Diagram-Math Workshop
- GRAFCET, Sequential Function Chart (SFC) and Structured Text
- PLC Ladder Logic: Allen Bradley™ Siemens™, IEC 61131, Mitsubishi, etc.
- Automation Studio PLC™
- OPC Client/Server
- CAN bus Module
- Application Programming Interface (API) and Scripts
- Communication Interface with Unity 3D™
- Failure, Troubleshooting and Diagnostics
- FMEA
- Bill of Materials (BOMs) and Reports
- Custom Component Wizard
- Client/Server Multi-user
- Workflow Manager
- Catalogue Manager
- Manufacturers' Catalogues

A Product of
Famic Technologies Inc.

Canada (Headquarters)
Famic Technologies Inc.
300-8585, route Transcanadienne
Saint-Laurent QC H4S 1Z6
Canada
+1 (514) 748-8050
+1 (514) 748-8521

Germany
Famic Technologies GmbH
Julius-Hatry-Straße 1
68163 Mannheim,
Germany
+49 (0) 621 15028 579

India
Famic Technologies Pvt. Ltd.
Tower S4, Unit No. 204, Magarpatta
Hadapsar, Pune, Maharashtra 411028
India
+91 020 6509 3300

www.famictech.com

Distributed by

Automation Studio™ is the property of Famic Technologies Inc. All trademarks are the property of their respective owners. Printed in Canada. FT-BRO-2070.2