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Controllers & Visualization Technologies and Products

SYD Expo March 28, 2024

Products and Solutions for the Electrical Industry

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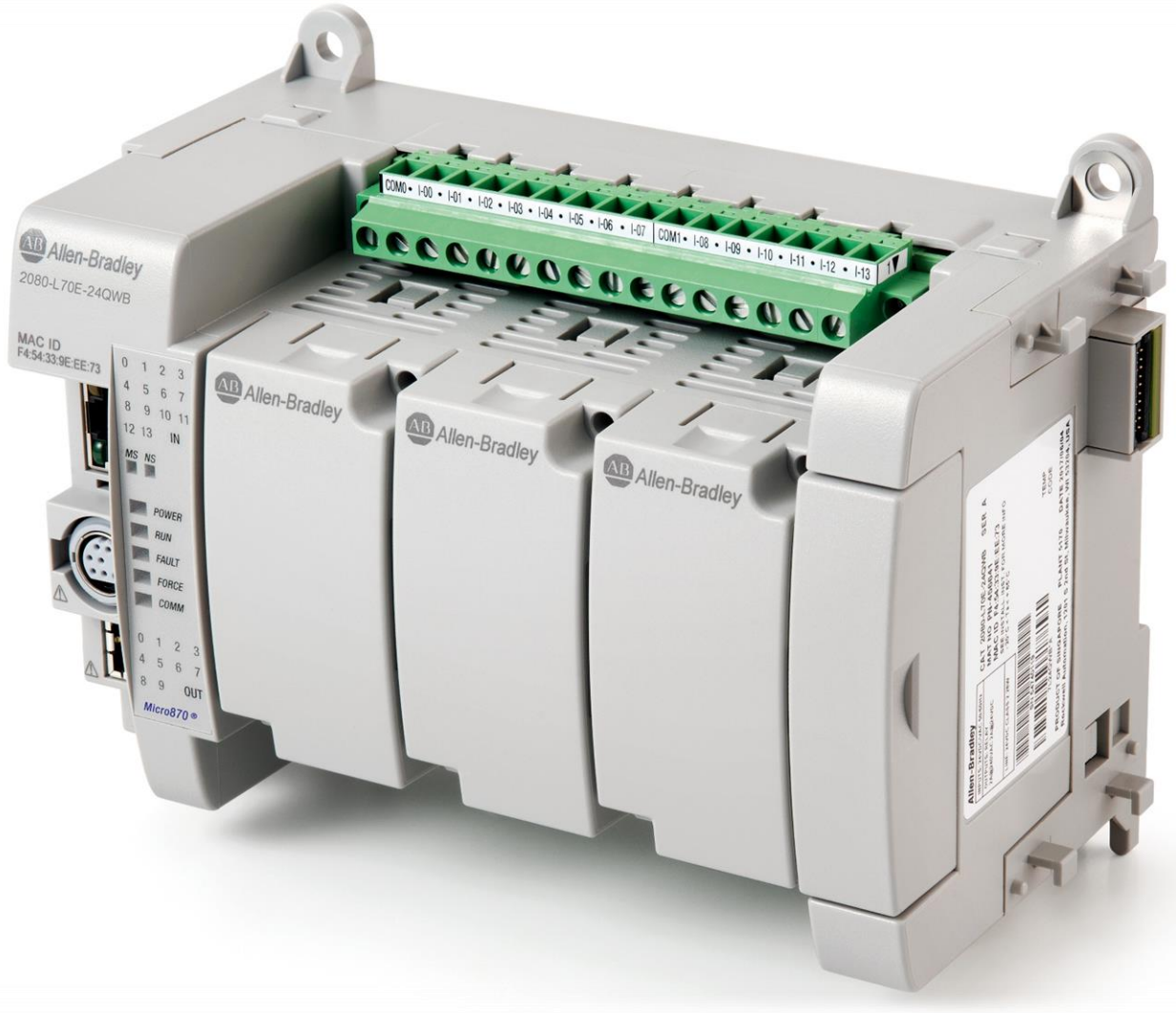
Micro800® Controllers



Micro800™ controller family

Each controller is performance and cost optimized for specific applications

DNP3 support

Class 1 implicit messaging support

DF1 support (Full-duplex, half-duplex and radio modem)

CIP™ Symbolic | CIP™ Symbolic and PCCC

Supports expansion modules

Motion control with pulse train output (PTO)

Supports plug-in modules and microSD™ cards

EtherNet/IP™ enabled | EtherNet/IP™ enabled

Micro810®
Smart relay

Micro820®
Remote automation

Micro830®
Simple motion

Will be discontinued on December 31, 2023

Micro850®
Three axes of motion support

Micro870®
Highest memory and I/O

Performance and features

Memory and I/O

Micro850® and Micro870® controller catalogs 2080-Lx0E

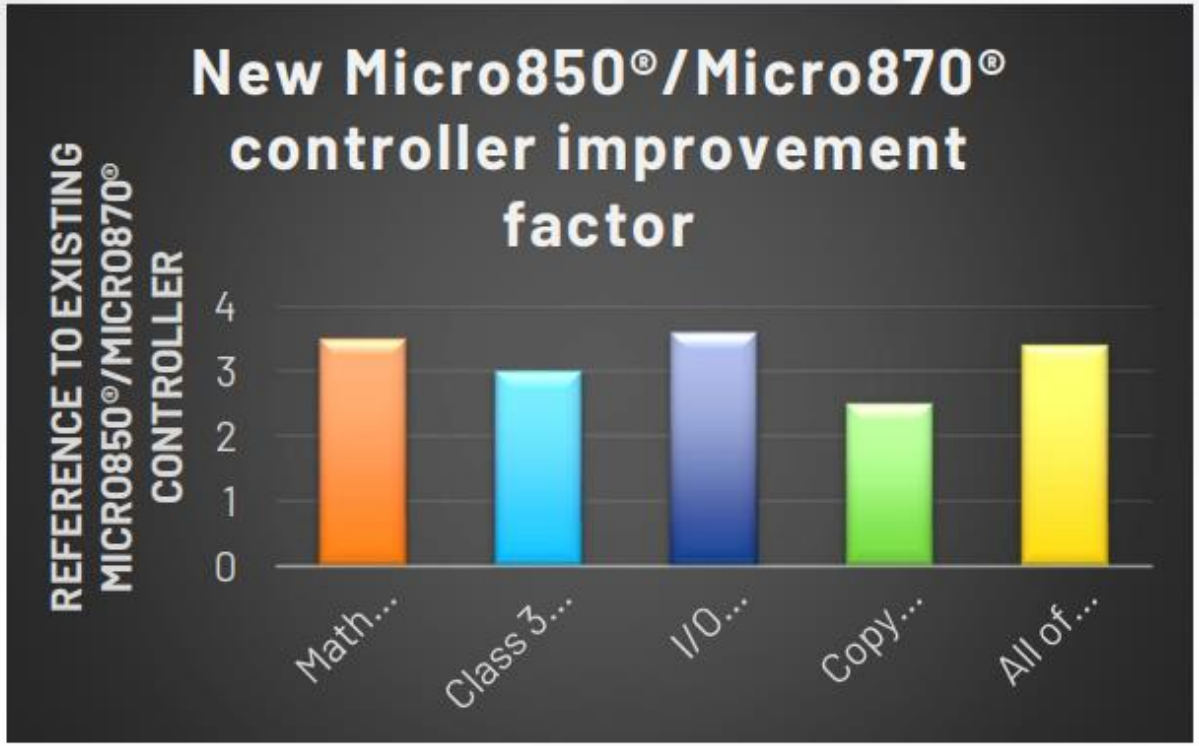
Improve controller performance

Improved download and upload time for the new catalogs 2080-Lx0E

- Download time improved by 40% and upload time improved by 23%, as compared to catalogs 2080-LC50x or 2080-LC70x
- Reduce customer development time

Improved customer throughput

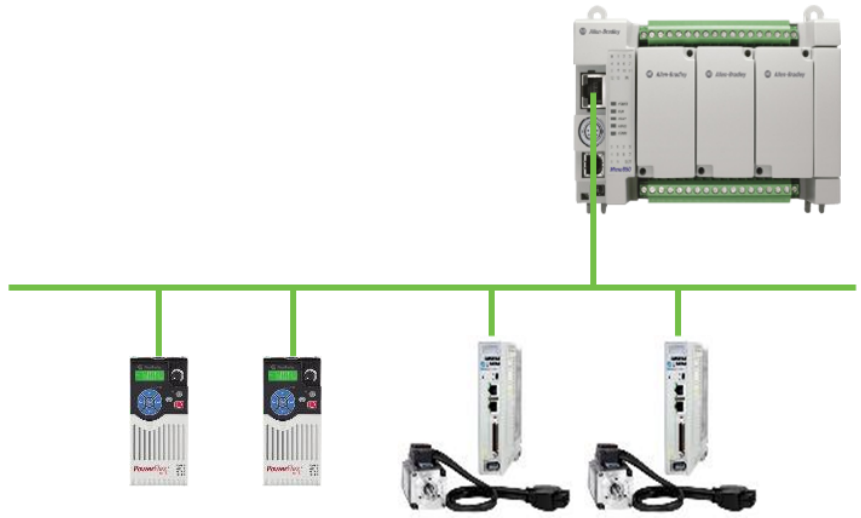
- 2-3x improvement in the following areas:
  - Code execution
  - Embedded I/O response
  - Math instruction processing
  - Communication processing



New and enhanced capabilities for Micro850® and Micro870® 2080-Lx0E controller catalogs

Micro800™ controller with Connected Components Workbench™ software version 21 provides implicit messaging support to EtherNet/IP devices

- Supported in Micro850® 2080-L50E and Micro870® 2080-L70E controller catalogs only
- Requires firmware revision 21.011
- Pre-defined tags available for PowerFlex® 520 series and Kinetix® 5100 drives
- Generic tags for all other EtherNet/IP devices
- Up to eight devices supported
- Pre-developed user-defined function block (UDFB) instructions for PowerFlex® 520 series and Kinetix® 5100 drives



Simple module profile

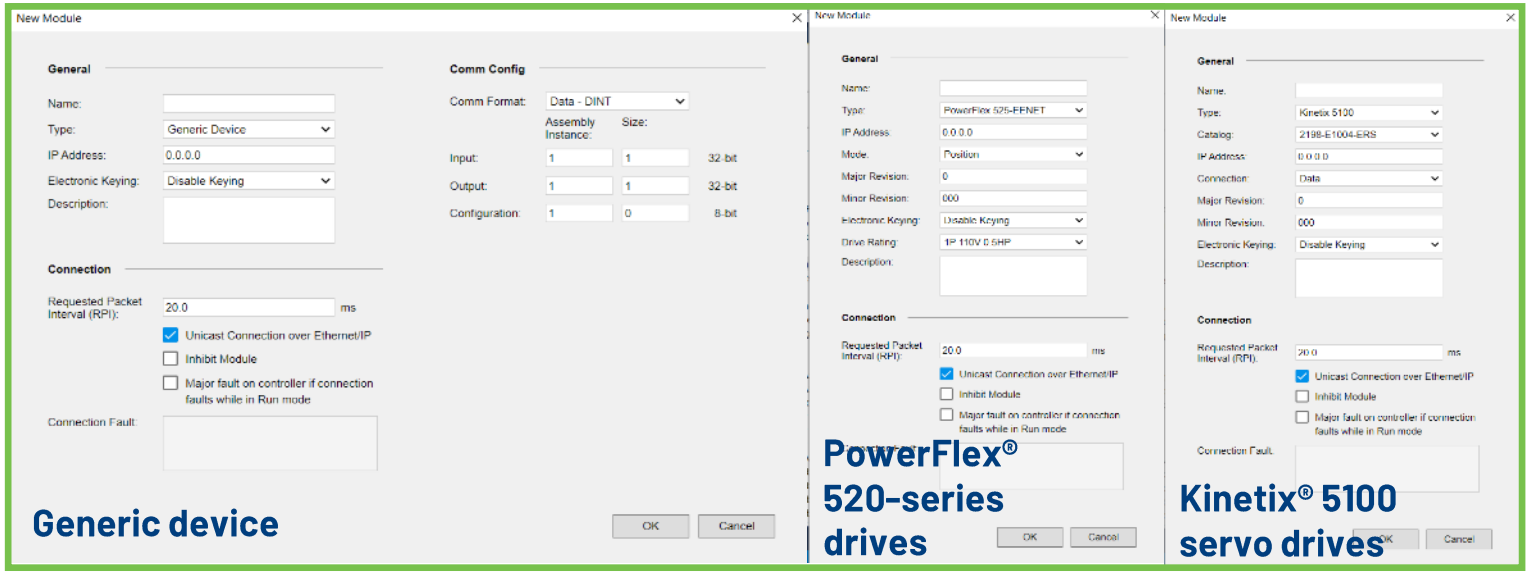
- Controller
  - General
  - Memory
  - Startup/Faults
  - Serial Port
  - USB Port
  - Ethernet
    - Modules
  - Interrupts
  - Modbus Mapping
  - Real Time Clock
  - Embedded I/O
  - Data Log
  - Recipe
- Motion
  - < New Axis >
  - < New Axis >
- Plug-in Modules
  - < Empty >
  - < Empty >
  - < Empty >
- Expansion Modules
  - < Available >
  - < Available >
  - < Available >
  - < Available >

Ethernet - Modules

Add | Config | Delete | Refresh

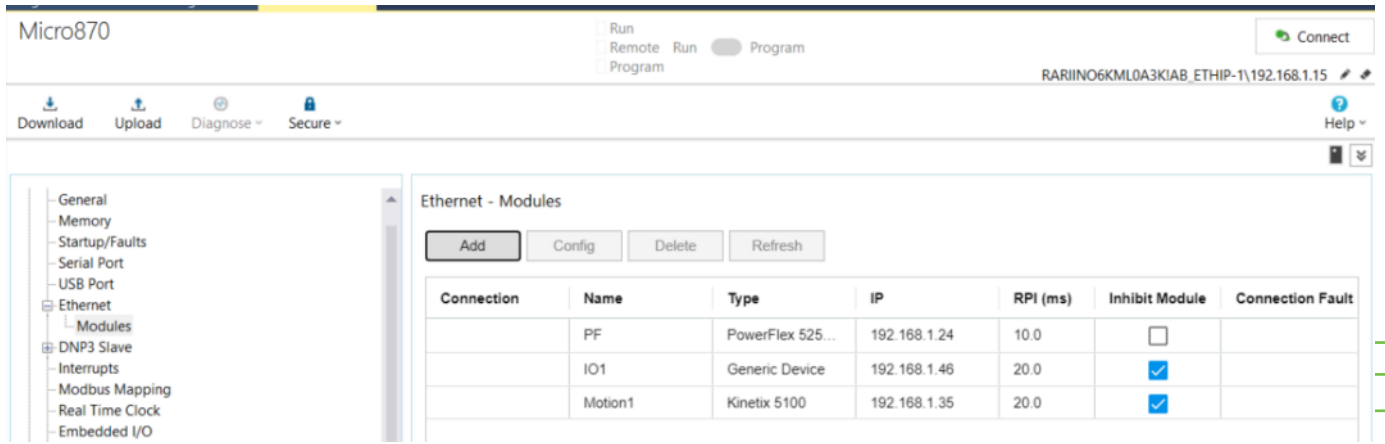
Connection	Name	Type	IP	RPI (ms)	Inhibit Module	Connection Fault

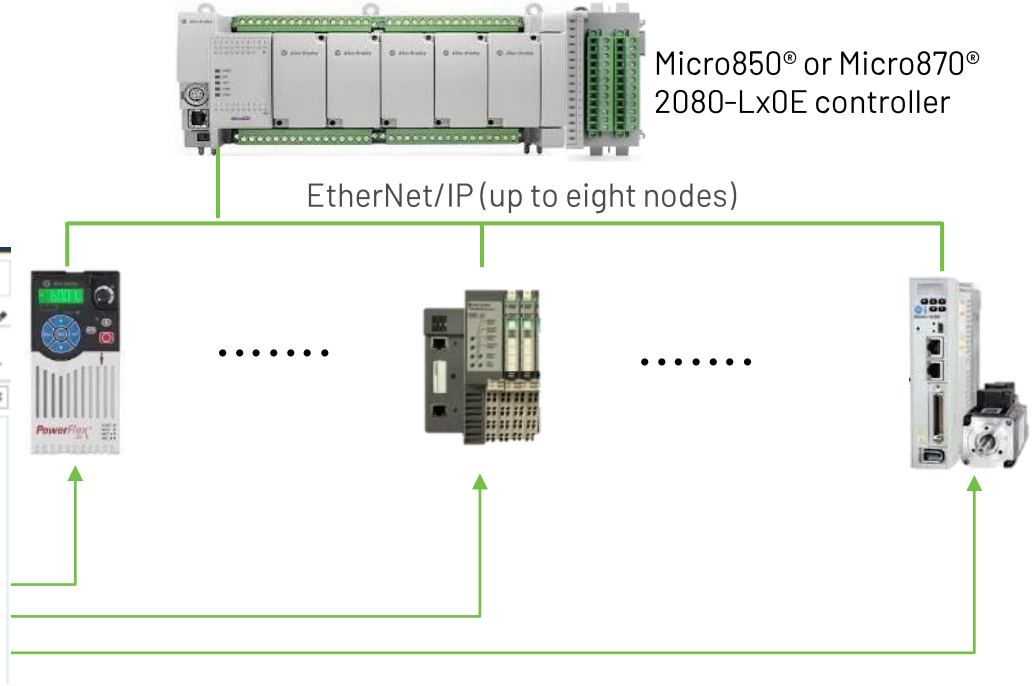
Simple module profile just like in Studio 5000 Logix Designer® application



Remote node connectivity over EtherNet/IP

- Layout view of added EtherNet/IP devices



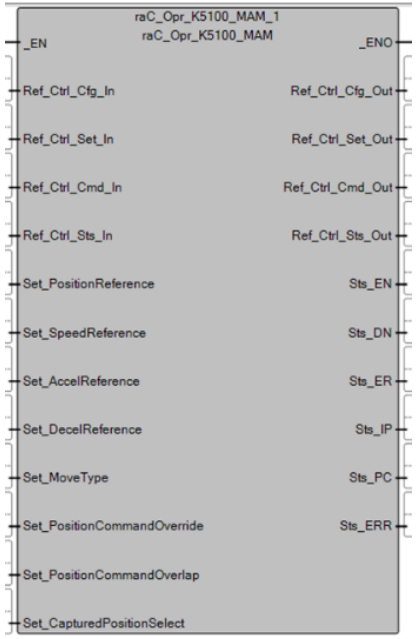


Pre-developed user-defined function blocks (UDFB) for ease of programming

Supported with Class 1 implicit messaging capability

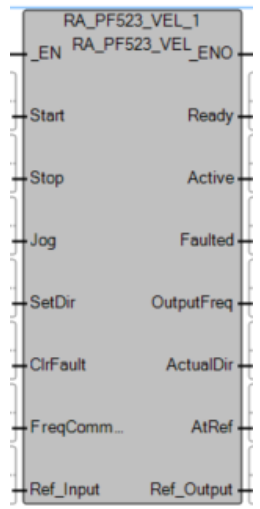
- 11 user-defined function blocks (UDFB) for Kinetix® 5100 servo drives, similar to the Logix user interface using Add-On Instruction (AOI)

Kinetix® 5100 UDFB	
raC_Opr_K5100_MSO	raC_Opr_K5100_MAM
raC_Opr_K5100_MSF	raC_Opr_K5100_MAI
raC_Opr_K5100_MAFR	raC_Opr_K5100_MAG
raC_Opr_K5100_MAS	raC_Opr_K5100_MAH
raC_Opr_K5100_MAJ	raC_Opr_K5100_MAT
raC_Drv_K5100	



- Three user-defined function blocks (UDFB) for the PowerFlex® 520 series drives

PowerFlex® 520 series UDFB
RA_PF523_VEL
RA_PF525_VEL
RA_PF525_POS



CompactLogix Portfolio

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CompactLogix™ 5480 controller

- Integrated Motion on EtherNet/IP up to 150 axes
- Includes three GbE EtherNet/IP ports supporting both dual IP and Linear or Device Level Ring topologies up to 250 nodes
- Enables high-speed I/O, motion control
- Provides a Logix based real-time controller that runs in parallel to an instance of
  Windows 10 IoT Enterprise
- Enhanced security features

CompactLogix™ 5380 controller

- Integrated Motion on EtherNet/IP up to 32 axes
- Two Ethernet ports for dual IP or support for linear and Device Level Ring topologies for up to 180 nodes
- Enables high-speed I/O, motion control
- Integrated safety up to SIL 2, PLd Cat. 3 versions
- Enhanced security features

CompactLogix™ 5370 controller

- Integrated Motion on EtherNet/IP up to 16 axes
- Linear and Device Level Ring network topologies for up to 80 nodes
- Integrated safety up to SIL 3, PLe Cat. 4 versions
- On-Machine™ version

Multiple disciplines

Flexible and scalable

One common design environment

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CompactLogix™ 5480 controller

Multiple disciplines

- Integrated Motion on EtherNet/IP™ up to 150 axes
- Enables high-speed I/O, motion control
- Builds upon the same high-performance architecture first introduced with the ControlLogix® 5580 and CompactLogix™ 5380 controllers

Enhanced productivity with Logix

- Includes three GbE EtherNet/IP™ ports supporting both dual IP and Linear or Device Level Ring topologies up to 250 nodes
- Provides a Logix based real-time controller that runs in parallel to an instance of Windows 10 IoT Enterprise
- Supports up to 31 local Compact 5000™ I/O modules
- Offers simplified architectures with built-in communications, peripheral connectivity,
- Integrated DisplayPort and multiple high-speed Gigabit Ethernet ports

Security capabilities

- Enhanced security features
- Offers embedded Logix security with FactoryTalk® Security user authentication and authorization

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CompactLogix™ 5380 controller

High performance

- Dual one Gb Ethernet port enables high-performance I/O and Integrated Motion on EtherNet/IP™ up to 32 axes
- Controller firmware is optimized for maximum performance

Enhanced productivity with Logix

- Two Ethernet ports for dual IP or support for Linear and Device Level Ring topologies for up to 180 nodes
- Supports up to 31 local I/O modules and memory from 0.6 … 10 MB
- Onboard display allows for enhanced diagnostics and troubleshooting
- USB port supports local programming, troubleshooting and firmware updates

Security capabilities

- Digitally signed and encrypted controller firmware
- Controller-based change detection and logging
- Role-based access control to routines and Add-On Instructions
- Ability to enable and disable all embedded ports

Compact GuardLogix® 5380 Controller

High performance

- Dual one Gb Ethernet port enables high-performance I/O and Integrated Motion on EtherNet/IP™ up to 32 axes
- Controller firmware is optimized for maximum performance
- Safety program execution optimized for high performance

Enhanced productivity with Logix

- Two Ethernet ports for dual IP or support for Linear and Device Level Ring topologies for up to 180 nodes
- Supports up to 31 local I/O modules and standard memory from 0.6 … 10 MB
- Supports safety memory from 0.3…..5 MB
- Onboard display allows for enhanced diagnostics and troubleshooting
- USB port supports local programming, troubleshooting and firmware updates

Security capabilities

- Digitally signed and encrypted controller firmware
- Controller-based change detection and logging
- Role-based access control to routines and Add-On Instructions
- Ability to enable and disable all embedded ports

CompactLogix™ 5370 L3 Controller

Multiple disciplines

- Dual Ethernet ports support Integrated Motion over EtherNet/IP™ for up to 16 axes of motion
- Supports Device Level Ring and Linear topologies
- Control at the machine level for applications requiring smaller amounts of I/O

Enhanced productivity with Logix

- Status indicators offer immediate status of communications, module health and I/O activity
- Local expansion modules support up to 30 local expansion modules with 1769 I/O for increased functionality
- USB port supports high performance and speed for programming and firmware updates

Safety capabilities

- Three-position mode switch selector provides an added layer of security
- Access door allows easy access to the SD card and mode switch

Compact GuardLogix® 5370 Controller

High performance

- Provides integrated safety and motion in a controller
- Supports integrated safety up to SIL 3, PLe Cat. 4
- Supports up to 16 axes of motion on EtherNet/IP™

Enhanced productivity with Logix

- Removable one GB SD card improves data integrity
- Support for kinematics removes the need for additional robot controllers and software
- Reduce need for a network switch with Device Level Ring and Linear support
- Safety status indicators provide on-going safety status about the system
- USB port supports high performance and speed for programming and firmware updates

Safety capabilities

- Three-position mode switch selector provides an added layer of security
- Access door allows easy access to the SD card and mode switch

CompactLogix™ 5370 L2 Controller

Multiple disciplines

- Dual Ethernet ports support Integrated Motion over EtherNet/IP™ for up to four axes of motion
- Supports Device Level Ring and Linear topologies

Enhanced productivity with Logix

- Status indicators offer immediate status of communications, module health and I/O activity
- Embedded power supply offers a smaller form factor for maximized cabinet space
- Universal inputs and outputs offer increased configuration flexibility with Embedded Universal Analog inputs/outputs
- High-Speed Counter inputs support increased performance
- Helps enable more simplified device replacement
- Supports easier initial configuration and deployment
- USB port supports high performance and speed for programming and firmware updates

CompactLogix™ 5370 L1 Controller

Multiple disciplines

- Dual Ethernet ports support Integrated Motion over EtherNet/IP™ for up to two axes of motion
- Supports Device Level Ring and Linear topologies
- Supports up to two axes kinematics for simple articulated robotics

Enhanced productivity with Logix

- Increased storage capacity offers up to one MB of user memory for increased storage capabilities
- USB port supports high performance and speed for programming and firmware updates
- Status indicators offer immediate status of communications, module health and I/O activity
- Combines the Logix platform with the flexibility of POINT I/O™ modules

Armor™ CompactLogix™ and Armor™ Compact GuardLogix®

Multiple disciplines

- Standard and safety control on the machine
- One supports Integrated Motion over EtherNet/IP™ up to 16 axes
- Integrated safety control up SIL 3, PLe, Cat. 4
- Dual Ethernet ports support Linear and Device Level Ring topologies
- Rated for Ingress Protection (IP67) and UL Type four applications and environments

Enhanced productivity with Logix

- Removable one-GB SD card provides nonvolatile memory and permanently stores user programs and tag data
- Four onboard status displays allow for enhanced diagnostics and troubleshooting
- Built-in power supply enables power for each device
- Minimizes hardware in the control cabinet
- Quick-connect cabling streamlines system wiring

Safety capabilities

- Safety status indicators provide on-going safety status
- Easy access to the controller mode switch, USB port, SD card and power supply fuse via four captive screws

SLC Migration

SLC™ 500 to CompactLogix™ 5380 control system modernization

Ethernet

SLC™ 500 controller

Serial

SLC™ 500 controller

Modernization

CompactLogix™ 5380 controller

EtherNet/IP

1492 I/O wiring and conversion

Serial / DF/DH

CompactLogix™ 5380 controller

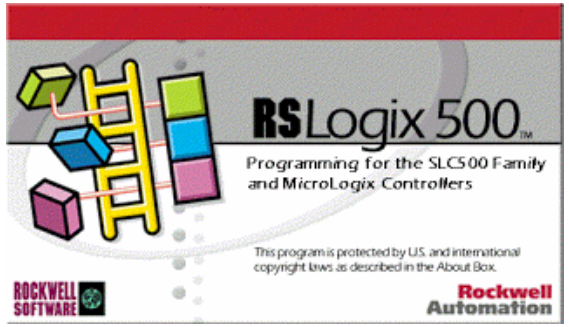
EtherNet/IP

5069-SERIAL

1492 I/O wiring and conversion

1492 I/O conversion system

RSLogix 500® to Studio 5000® application – Code conversion



SLC™ control system

CompactLogix™ 5380 control system

- Convert 80…100% of code using automated code conversion
- Take advantage of power constructs and features that can be leveraged for improvement of applications
- All RSLogix 500® v12 Pro, Standard and Starter applications support the Integrated Migration to Studio 5000 Logix Designer® application
- RSLogix 5000® Translation Tool, v1, v2, v3 and RSLogix™ Project Migrator are now the Integrated Migration to Studio 5000 Logix Designer® application

1492 I/O wiring and conversion system

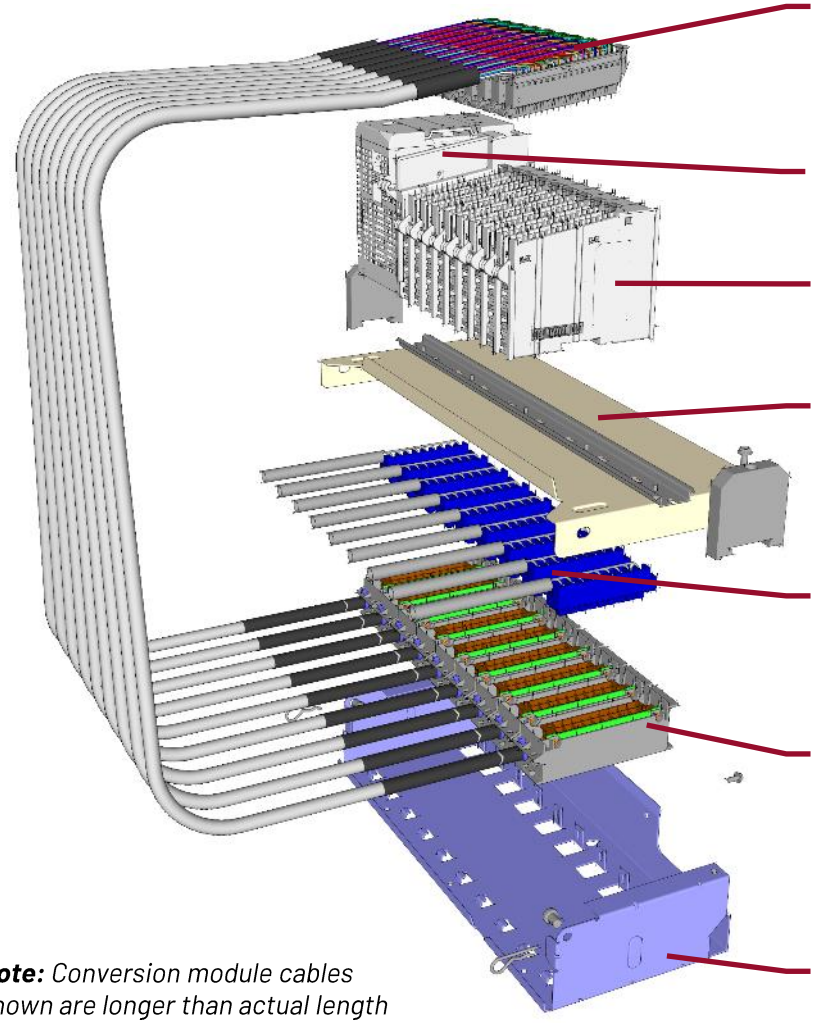
Overview

Advantages

- Provides an easy migration from existing SLC™ 500 control system to a complete CompactLogix™ 5380 control system.
- Allow customers to upgrade their control system while maintaining their existing control cabinet and without rewiring their existing field devices.
- Save installation time by using existing mounting holes.

Values

- Speed - Reduce I/O rewiring time and effort significantly.
- Compatibility - Pre-engineered and pre-tested conversion modules convert old SLC™ I/O terminations to the new equivalent Compact 5000™ I/O terminations.
- Retain existing SLC™ I/O chassis footprint.



Note: *Conversion module cables shown are longer than actual length*

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ControlLogix Portfolio

ControlLogix® 5570 controller

Multiple Disciplines

- Process, motion, discrete, and high-availability applications can run on the same Logix control engine
- Common control engine and one development environment for optimized productivity
- Conformal coating offers added protection in harsh environments
- Integrated Motion on EtherNet/IP™ up to 100 axes
- Redundancy supports high availability requirements
- Removable terminal blocks allow Removal and Insertion Under Power (RIUP)

Enhanced Productivity with Logix

- Onboard display allows for enhanced diagnostics and troubleshooting
- USB port for easy troubleshooting, programming and firmware updates
- Secure Digital (SD) card provides nonvolatile memory and permanently stores user programs and tag data

Security Capabilities

- Three-position keyswitch provides mode selection and added security
- Digitally-signed and encrypted controller firmware
- Controller-based change detection and logging
- Role-based access control to routines and Add-On Instructions

GuardLogix® and GuardLogix-XT™ 5570 Controllers

Multiple Disciplines

- High-performance, safety control for extended protection in standard and extreme environments -25...70 °C (-13...158 °F)
- GuardLogix-XT™ controller provides increased protection in ISA G3 environments
- Conformal coating offers added protection in harsh environments
- Integrated Motion on EtherNet/IP™ up to 100 axes
- Integrated safety control up to SIL 3, PLe, in the same chassis as standard and XT controllers

Enhanced Productivity with Logix

- Onboard display allows for enhanced diagnostics and troubleshooting
- USB port for easy troubleshooting, programming and firmware updates
- Secure Digital (SD) card provides nonvolatile memory and permanently stores user programs and tag data

Security Capabilities

- Three-position keyswitch provides mode selection and added security
- Digitally-signed and encrypted controller firmware
- Controller-based change detection and logging
- Role-based access control to routines and Add-On Instructions

ControlLogix® 5580 controller

Hardware features

Onboard display

Enhances diagnostics and troubleshooting

USB port

Eases programming, troubleshooting and firmware updates

Integrated energy storage

No battery required

Secure digital card

Ships with two GB storage card and provides optional storage for firmware, user program and tag data

Conformal coating

Helps protect in harsh environments

GuardLogix 5580
Safety Controller

Optimize safety and productivity together

The GuardLogix® 5580 safety controller integrates standard and safety control into one controller, software and network. This can reduce development time, purchasing costs and maintenance demands for your systems. Plus, it offers safety functions that can reduce downtime.

- **Safe torque off** allows machines to restart faster after reaching a safe state by removing motor torque without removing power from an entire machine
- **Safety zones** can improve productivity by allowing motion to continue on a machine outside of a safety zone that has experienced a trip

Save space and time: GuardLogix 5580 controllers can achieve faster reaction times and shorter safe distances than legacy controllers. This helps create smaller machines, save floor space and increase operator efficiencies.

Optimize your safety system design: The controller can achieve SIL 2, PLd, CAT 3 with a primary controller and SIL 3, PLe, CAT 4 with the addition of a safety partner.

- Standard memory options from 3...20 MB
- Safety memory options from 1.5...6 MB
- Communication options from 100...250 EtherNet/IP nodes
- Conformal coated options for harsh environments

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Studio 5000 Logix Designer v36

v36

Hardware Support

- 5032 IO-Link
- 1756-L85ES
- iTRAK® 5750

New Capabilities

- Embedded OPC UA
- Granular Safety Signatures
- Additional Safety RLL Instructions
- Axis Test Mode for Safety
- Motion Indirect Referencing

Ease-of-Use

- Multi-device Interaction
- Workstation EDS Harmonization

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Communications

OPC UA + Studio 5000 Logix Designer®

Bringing OPC UA Communications to the Controller Level

OPC UA

Key Features

- ControlLogix® 5580 (including safety and process versions)
- CompactLogix™ 5380 (including safety and process versions)
- Expose controller data via OPC UA
- As an OPC UA Server, or as an OPC UA Client
- Integrated OPC UA Security using FactoryTalk® Policy Manager v6.40 for certificate generation and management

Benefits

- Enables third-party connectivity at the controller
- Logix controllers can directly communicate with other automation devices with built-in OPC UA
- Enables seamless data integration between multiple platforms
- Allows for simpler software architecture

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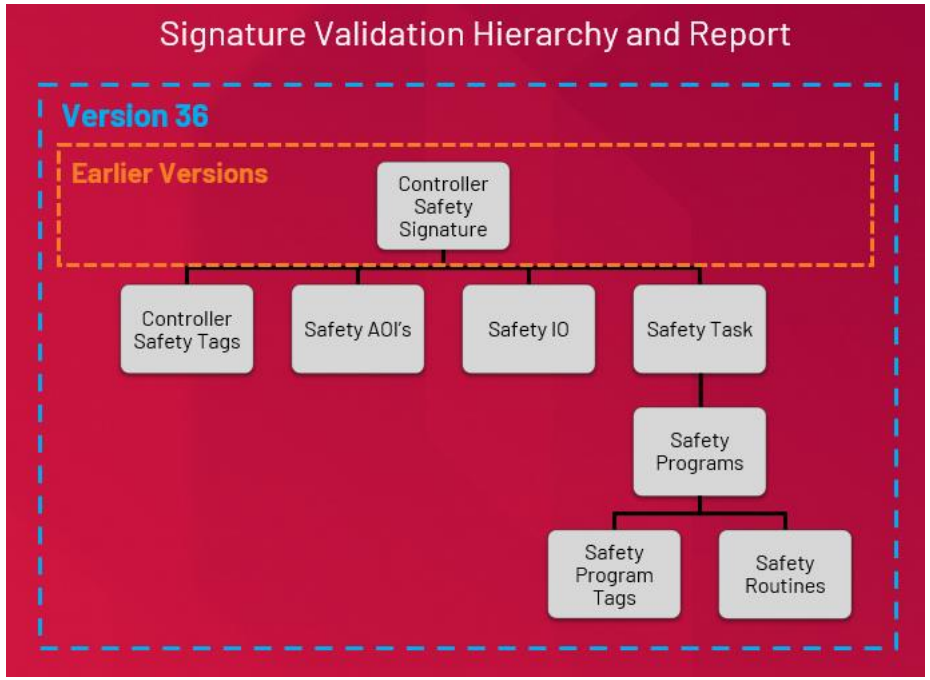
Safety

Granular Safety Signatures

Verify Safety Signatures for every Safety Application Element



Key Features

- Additional Safety Signatures at lower component levels
  - Previously only available at the controller level
- Available for 5x80 Logix Controllers
- Generate a Safety Signature Report for all Safety Signature IDs

Benefits

- Faster time to market by reducing validation and testing time
- Save time during startup and throughout the lifecycle of a machine
- Access and manage safety component signatures in a unified way
- Valuable for Validated Industries

Safety Ladder Instructions

Safety

Additional Safety Ladder Logic

Key Features/Benefits

- Expanded support for Standard Ladder Logic instruction in Safety
- Create more code in Safety routines, instead of referencing Standard routines for desired code functionality
- Simplified programming for easier management, maintenance, and troubleshooting
- Reduce Safety routine dependencies on external routines

Added Safety Ladder Logic

Compare	Trigonometric	Advanced Math	Math Conversion	Array File / Shift	Array File / Misc.
Is Infinity	Sine	Log Base 10	BCD to/from Integer	Bit Shift Left	File Average
Is Not a Number	Cosine	Natural Log	Degrees to/from Radians	Bit Shift Right	File Standard Dev
	Tangent	X to the Power of Y	Truncate	FIFO Load	
	Arc Sine			FIFO Unload	
	Arc Cosine			LIFO Load	
	Arc Tangent			LIFO Unload	

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Standards

Mnemonic Updates

Align Mnemonics with Industry Standards

Key Features/Benefits

- Instruction mnemonics updated to align with industry standards
- Existing files will automatically be updated when moving to Studio 5000 Logix Designer® v36
- Achieve consistency and standardization among different projects in the system with vendor-neutral terminology
- Reduce the risk of errors with automatic conversions to the code over multiple applications

Additional Operators

Additional Math Operators Available for Safety

Key Features/Benefits

- Includes Advanced Math, Math Conversions, and Compute / Math operators
- See User Manual or Online Help files for complete list
- Simplifies programming by completing more Safety-related operations in the Safety routine

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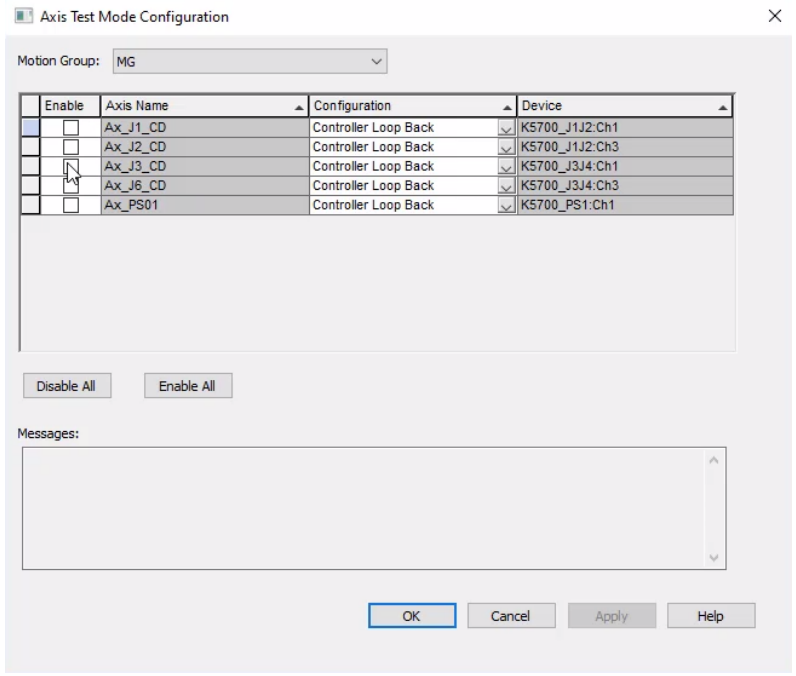
Motion

Axis Test Mode

Achieve Motion Virtualization for Safety



Key Features

- (v35) Axis Test Mode for motion virtualization for Kinetix®, PowerFlex®, and iTRAK® 5730 CIP Motion devices
- Validate safety code including safety tasks, CIP Safety drive connections, safety feedback, safety attributes, and pass-through safety parameters

Benefits

- Execute motion control
- No dependencies on physical motion hardware during design or testing, reducing overall cost
- Data and tag values can be tracked and see performance visually without hardware

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Motion

Motion Indirect Addressing

Extension of Reference Data Types in Motion

Direct

```
MAM(Axis1,mam_control[0],moveType,endPos,speed,Unitspersec,accel,
    Unitspersec2,decel,Unitspersec2,SCurve,100,100,%ofTime,Disabled,Current,0,None,0,0);

MAM(Axis2,mam_control[0],moveType,endPos,speed,Unitspersec,accel,
    Unitspersec2,decel,Unitspersec2,SCurve,100,100,%ofTime,Disabled,Current,0,None,0,0);


MAM(Axis3,mam_control[0],moveType,endPos,speed,Unitspersec,accel,
    Unitspersec2,decel,Unitspersec2,SCurve,100,100,%ofTime,Disabled,Current,0,None,0,0);
```

Indirect

```
FOR mam_index = 0
    TO 3
    BY 1
    DO MAM(axisInstanceID[mam_index],mam_control[mam_index],moveType,endPos,speed,
          Unitspersec,accel,Unitspersec2,decel,Unitspersec2,SCurve,100,100,%ofTime,Disabled,Current,0,None,0,0);
END_FOR;
```

Key Features

- Provide use of an ID# reference for the axis in motion instructions
- Create efficient code by using this variable in the motion instructions instead of the named axis
- This is an extension of the Reference data types in Motion instructions

Benefits

- Enables efficient code
- Simplified code can result in improved system performance and improved memory utilization

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Usability

Multi-device Interactions

Cut/Copy/Paste in IO Tree

Key Features/Benefits

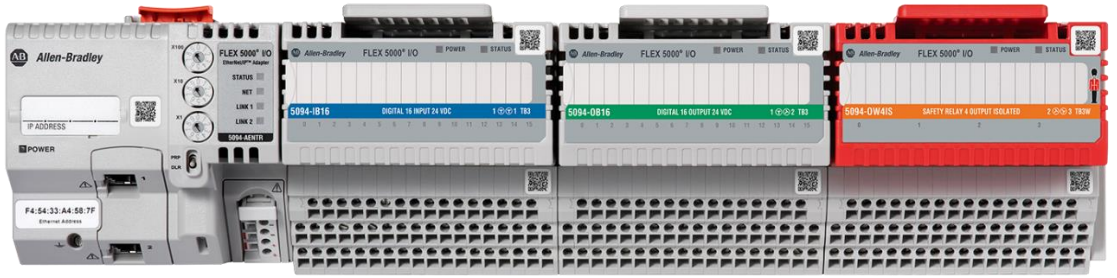
- Use Cut/Copy/Paste to duplicate devices in an IO tree
- Enhance productivity by eliminating tedious manual configuration of each device
- Also supported in L5X file

Workstation EDS Harmonization

Consistent EDS, IO-Link IODD, and HART DD between workstations

Key Features/Benefits

- New Export feature facilitates seamless transferring of device description files (EDS, IO-Link IODD, and HART DD) between workstations
- Delivers consistency in device information
- Simplifies workflows and reduces likelihood of error



IO Module Platforms

Benefits of POINT I/O™ modules

Key differentiators

Removal and insertion under power (RIUP)

- No rewiring, no power cycle

- **Integrated safety**
  - Up to SIL 3, PLe and Cat. 4
- **Granularity, scalability and configurability**
  - 2, 4, 8 points (digital and analog)
  - Fault mode configuration (analog output)
  - Configurable filters (digital and analog)
  - Module-level sampling rate (RPI)
- **CIP messaging**
  - Online reconfiguration
  - Direct connections
  - EtherNet/IP to PC (personal computer) capable

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FLEX 5000® I/O

Next generation 5000 series I/O platform technology

Rugged design

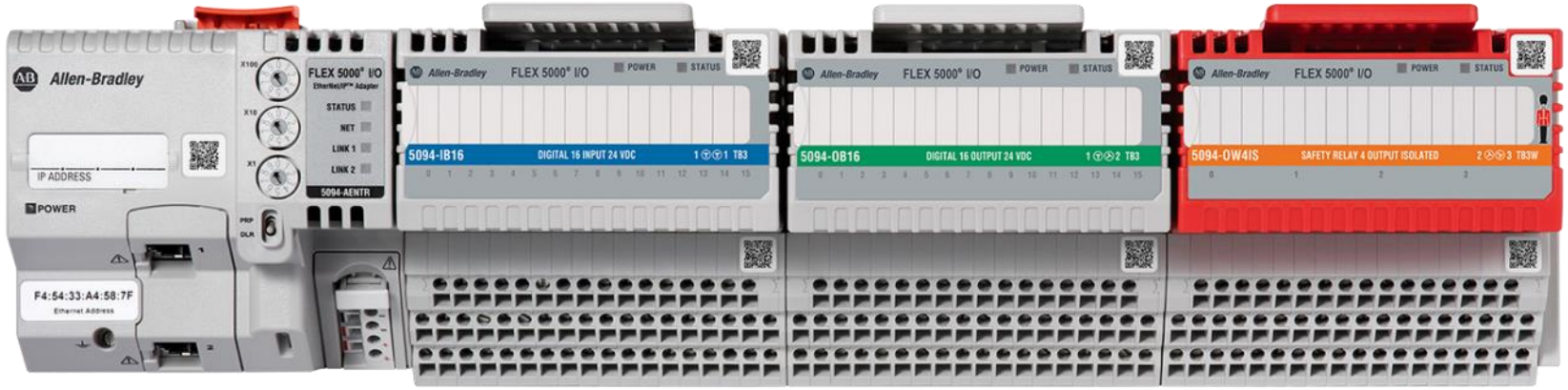
Operating temperature:
-40...+70 °C
(-40...+158 °F)

Hazardous environments:
Class I, Div. 2
Zone 2 Groups
A, B, C, D

Performance
1 gigabit (Gb) EtherNet/IP
1 gigabit (Gb) backplane speed

Standard I/O
8/16/32-channel digital in/out
8-channel analog in/out

Safety I/O (SIL 3, PLe, Cat. 4)
16-channel digital in/out
4-channel analog in/out



Network media and topologies
2 copper/2 fiber ports
Supports Device Level Ring (DLR), Star, Linear, Parallel Redundancy Protocol (PRP)

Easy snap-on installation
Removal and Insertion Under Power (RIUP)

Consistent I/O wiring
Direct termination of 2-, 3- and 4-wire devices

Distributed I/O for ControlLogix® 5580 controller, GuardLogix® 5580 safety controller
Distributed I/O for CompactLogix™ 5380 controller, CompactLogix™ 5480 controller, Compact GuardLogix® 5380 safety controller

Visualization

PanelView™ 5310

A right-sized visualization solution for smaller applications

FEATURES

- Connect to one **ControlLogix®** or **CompactLogix™** processor through embedded Ethernet port
- On-screen navigation button easily displays information
- Up to 100 screens
- Five screen size options: 6", 7 W", 9 W", 10", 12 W"
- Two USB hosts, one USB device, one SD card
- c-UL-us, CE, KC, RCM, EAC, RoHS
- NEMA and UL Type 12, 13, 4X, also rated IP66 as classified by UL

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PanelView™ 5510

Designed for OEMs and end users who require a high degree of integration between their HMI and controller

FEATURES

- Touch-only or touch+ keypad option
- Connect to as many as four ControlLogix® or CompactLogix™ processors
- Up to 500 screens*
- Two Ethernet ports with internal switch and device level ring (DLR) support
- Navigation button below the screen opens configurable navigation menus
- Seven screen size options: 7”, 7 W”, 9 W”, 10”, 12 W”, 15”, 19”
- Two USB hosts, one USB Device, one SD card
- c-UL-us listed; Class 1, Div 2, Groups A, B, C, D; KCC; CE (EMC); CE (LVD); RoHS; RCM
- NEMA and UL Type 12, 13, 4X, also rated IP66 as classified by UL; EAC, Marine

* With V8 Firmware

A Family- and Employee-Owned Company

PanelView Plus 7 Performance Series B

- Hardware features
  - Operating system: Windows 10 IoT Core
  - Software: FactoryTalk View Machine Edition Station
  - CPU: Intel x86, 1.46 Ghz, dual core
  - RAM: 4 GB
  - System storage: 19.87 GB (~2GB available for user storage)
  - Web browser: Microsoft® Edge (HTML5 compatible)
- Stays consistent with Series A versions
  - Certifications
  - Panel cutouts
  - Accessories
  - Catalog numbers
  - List prices

Runs applications developed on Series A without modifications!

FactoryTalk View SE Version 14.00

RUNTIME MODERNIZATION

- SE Client rendering and scaling
- Runtime scale quality improvement
- Improved multi-touch interaction
- Runtime Navigation Menu
- Runtime Navigation Menu – Integrated Runtime Search
- Multi-language switching popups
- Multi-monitor display docking and sizing

MOBILITY

- Step Line Trending
- Data Grid Time Range Filtering
- ViewPoint FactoryTalk® Administration Console refresh and modernization
- Enhanced System Status Portal
- System Status Portal – Alarm Dashboard

APPLICATION DESIGN

- Radar Chart
- Built-in .NET Control integrating with Apache E-Chart Widgets
- Tag Browser UI
- Command button enhancements
- Custom user message for Toggle action
- New Data Log Pro with edge historian capability built on InfluxDB™
- FactoryTalk® View Studio: HMI Components filtering

FEEDBACK-DRIVEN ENHANCEMENTS

- Electronic Signature for SE Functional Buttons
- Exclude tag scanning for invisible objects

CONNECTIVITY AND VISUALIZATION

- Data Grid – FactoryTalk® Historian Data Source
- TrendPro & XY Plot Enhancements
- Show annotations on the TrendPro

ALARMS AND EVENTS

- Language Switching Extended Tag Properties in alarm messages
- Alarm and Events Summary Live Data Value
- Additional Alarm and Events built-in functions

AND MORE....

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Revolutionary software for HMI, IIoT, and Industry 4.0 applications...

A Family- and Employee-Owned Company

FactoryTalk® Optix™

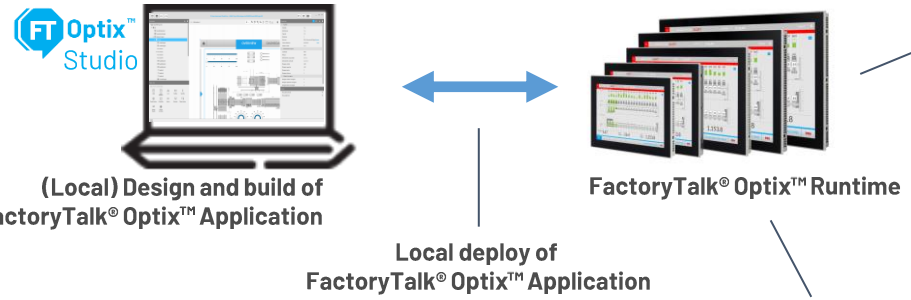
System components explained FactoryTalk® Optix Studio™ **Standard** 1-800-998-1621 • www.sydist.com

1 FactoryTalk® Optix Studio™

- Integrated Design environment for creating FactoryTalk® Optix™ Applications
- Design & test your HMI projects from a Windows desktop editor

2 FactoryTalk® Optix™ Application built by FactoryTalk® Optix Studio™

- **Project** – application logic, objects, communication parameters, etc.
- **Runtime** – runtime modules strictly necessary to run a specific application



3 FactoryTalk® Optix™ Application is deployed to devices

- **Locally** from the computer hosting a local installation of FactoryTalk® Optix Studio™

4 FactoryTalk® Optix™ Runtime is running on devices

- Rockwell Automation® devices – open and closed
- 3rd Party PCs and devices
- Rockwell Automation® & 3rd party communications

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FactoryTalk® Optix™

System components explained FactoryTalk® Optix Studio™ **Pro**

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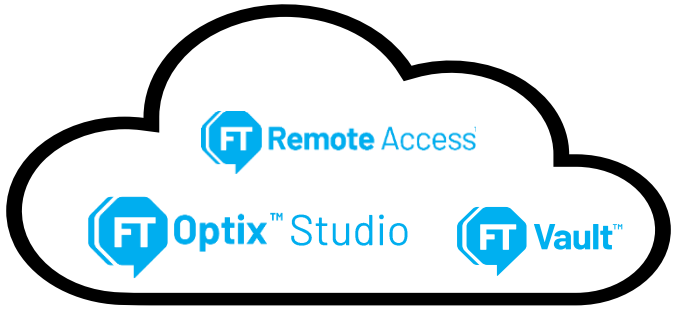
1 FactoryTalk® Optix Studio™

- Integrated Design environment for creating FactoryTalk® Optix™ applications
- Design & test your HMI projects from a web browser or desktop editor



(Cloud) Design and build of FactoryTalk® Optix™ Application

Remote deploy of FactoryTalk® Optix™ Application via FactoryTalk® Remote Access™ (VPN)

2 FactoryTalk® Optix™ Application built by FactoryTalk® Optix Studio™

- **Project** – application logic, objects, communication parameters, etc.
- **Runtime** – runtime modules strictly necessary to run a specific application

(Local) Design and build of FactoryTalk® Optix™ Application

FactoryTalk® Optix™ Runtime

Local deploy of FactoryTalk® Optix™ Application

3 FactoryTalk® Optix™ Application is deployed to devices

- Locally from the computer hosting a local installation of FactoryTalk® Optix Studio™
- **Remotely** from the cloud-hosted version of FactoryTalk® Optix Studio™

4 FactoryTalk® Optix™ Runtime is running on devices

- Rockwell Automation® devices – open and closed
- 3rd Party PCs and devices
- Rockwell Automation® & 3rd party communications

5 FactoryTalk® Hub™

- Design editor available in the cloud
- Project storage and retrieval in the cloud
- Open to third-party version control systems like GitHub in the cloud

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FactoryTalk® Optix™

Feature Highlights

Design options

Design & test your HMI projects directly from a web browser

Collaborative workflows allow modifications from anywhere, anytime

Version management tracks changes keeps track of who did what and when

Build project dynamically, by scripting, or even at runtime

Deployment options

Flexible host hardware

Panel • Station • Web Clients

Pay only for what you use

Graphic options

Responsive graphics

Reporting, dashboarding

Style sheets

Multi-language

Extensible options

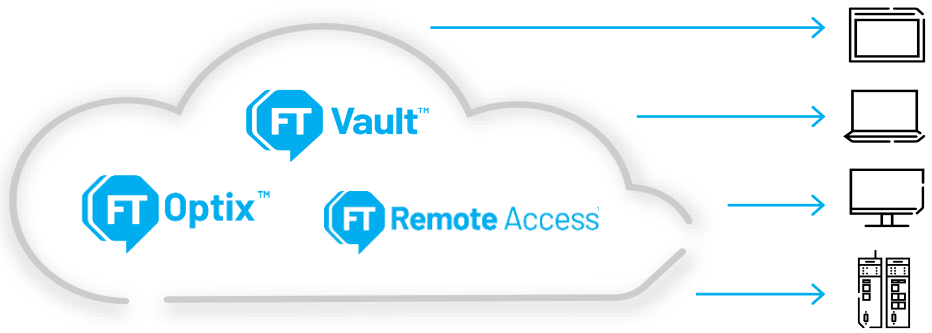
Library management

Third-party drivers

IoT native connectivity

Full support of OPC UA companion specs

Open interface with C# scripting



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FT Optix

Design options

Build your HMI projects wherever you are

Don’t have FactoryTalk® Optix™ installed on your PC? No problem!

- Design, test, and deploy your HMI projects directly from a web browser using cloud-based FactoryTalk® Optix Studio™, available from FactoryTalk® Hub™
- Collaborative workflows allow modifications anywhere, anytime

No internet connection? No problem!

- Install FactoryTalk® Optix Studio™ locally on your laptop
- Seamlessly transitions from browser to desktop app for disconnected editing and deployment

Not sure which HMI device you’ll be using? No problem!

- Build projects and deploy dynamically – even at runtime

Create an application once...

FT Optix

Deployment options

Deploy to any sized device

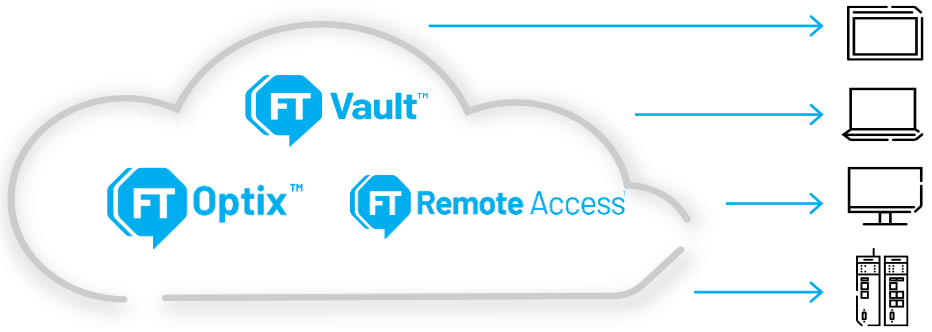
- Panel • Station • Web Clients
  - Including **OptixPanel™** and Logix **Embedded Edge Compute**
- ARM and x86 architectures
- Linux and Windows operating system
- Containers (demo mode/preview now)

Scalable deployments to target devices

- What gets configured is the only content that gets deployed
- Pay only for what is deployed

Choose any client type

- **Thick** client: Native FactoryTalk® Optix™ client
- **Web** client: Native HTML clients viewable from a web browser



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FT Optix Graphic options

Responsive displays

Build a display once and view it on any piece of glass

- Relative positioning of the objects enables responsive interfaces adaptable to any form factor or display resolution.
- Automatically adaptable to various formats (wide/4:3) and resolutions (HD, Full HD)
- Identical native and HTML5 client rendering

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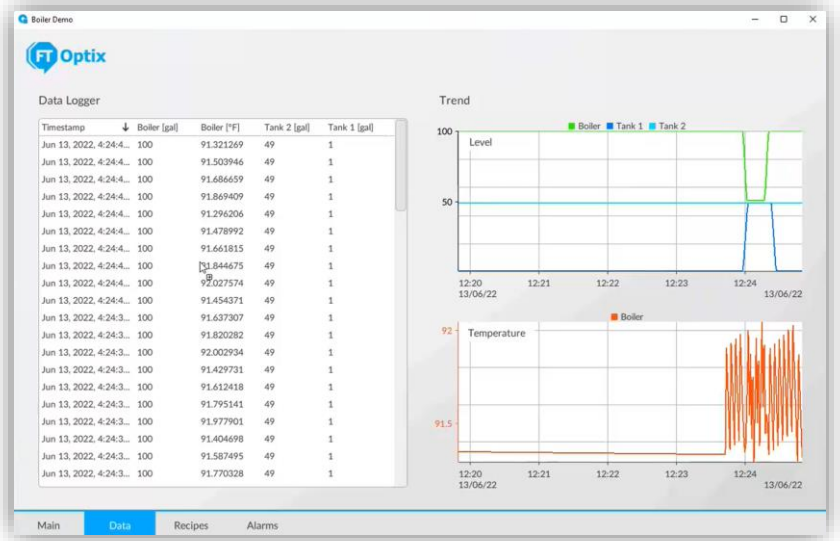
FT Optix

Graphic options

Logging, reporting and dashboarding

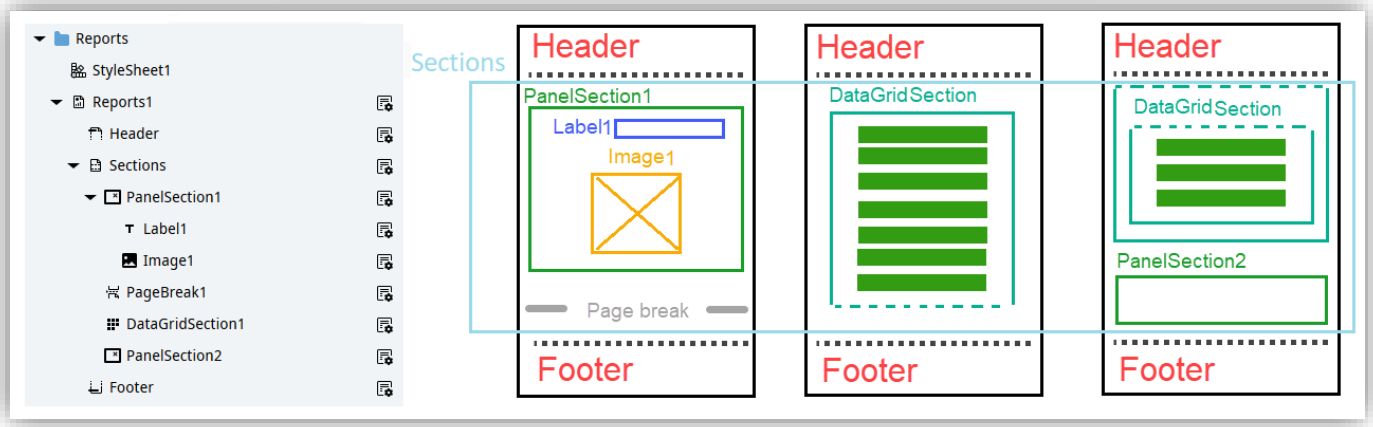
Simple database interface available for all components of the project

- Display historical or real-time data
  - Alarm history
  - Trending
  - Recipes
  - Data Grid
  - Text box control



Lightweight reports and dashboarding

- Customizable layouts containing text, tables, and static graphics.
- Live dashboards
- Automatically generated PDF reports



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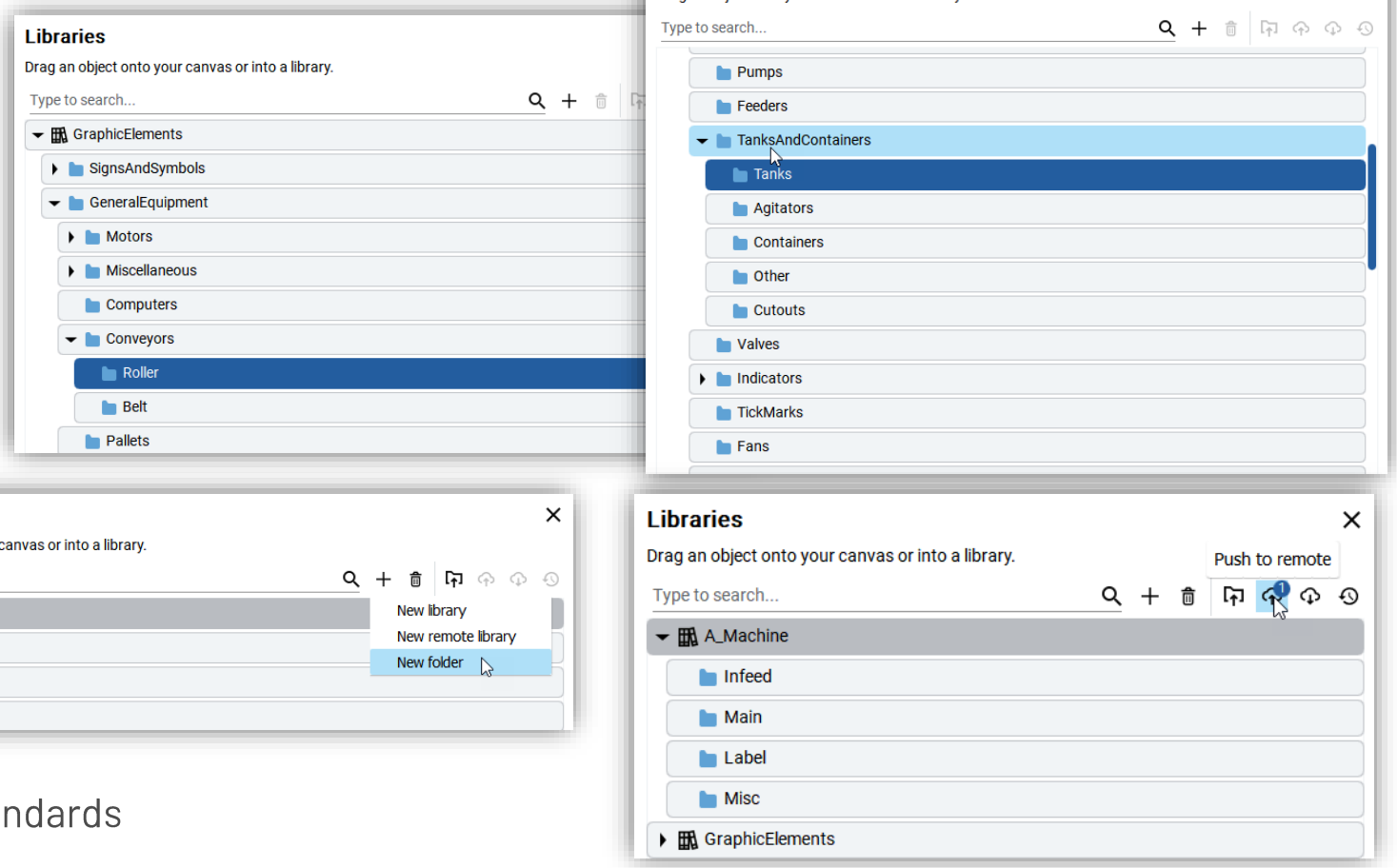
Libraries and library management

FT Optix
Extensible options

Extensibility, reuse and management made simple

- 1,000s of graphical objects
- Industry standard objects
- Search to quickly find and filter objects
- Logical folder organization
- Reuse made easy – drag n drop
- Rockwell Automation standard libraries
- User-defined libraries
  - Save single object or complete project
- Library Management Options
  - Save Local or Remote
  - Multi-user collaboration helps manage library standards with plant engineering, OEMs and Integrators
    - Commit, Push, Pull, History



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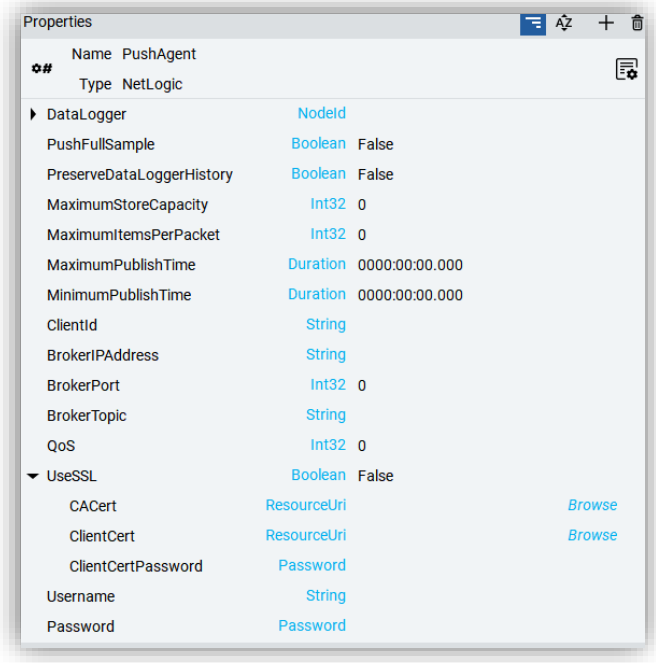
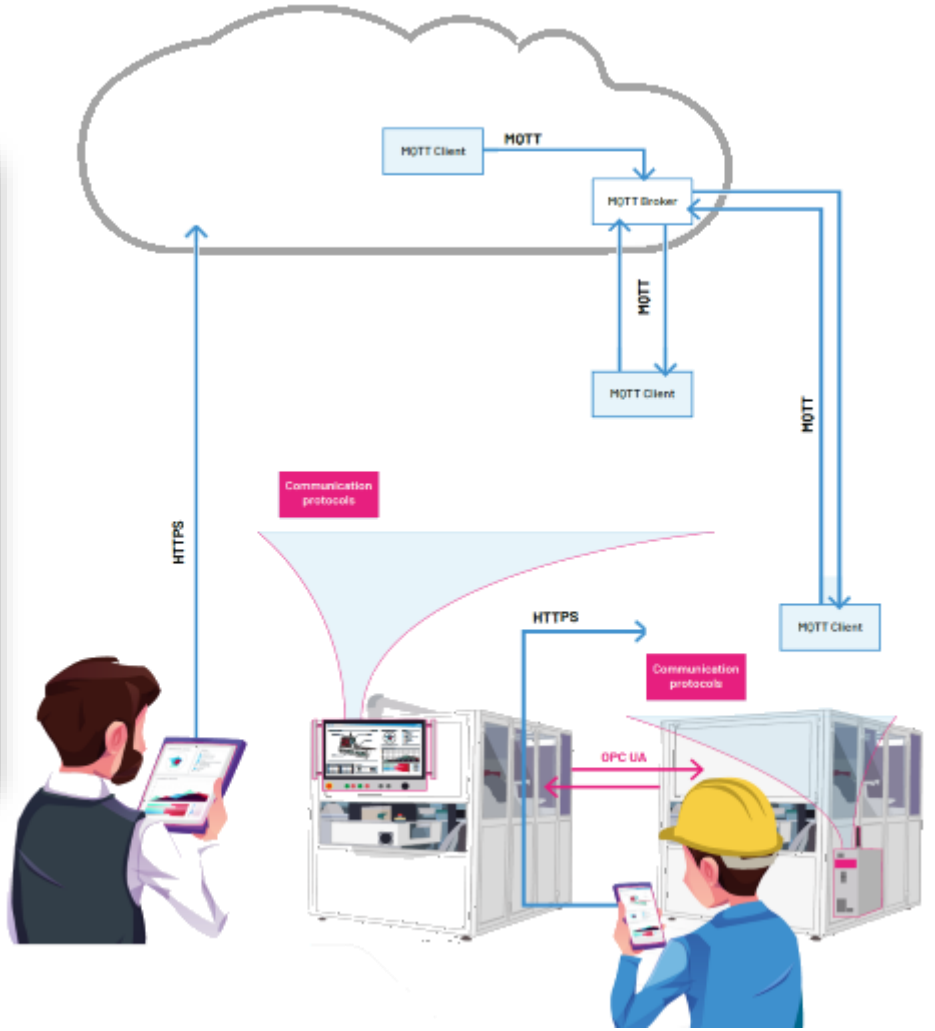
Flexible and secure connectivity

FT Optix
Extensible options

Built-in reliable connectivity – from the controller to the cloud

- Preferred Rockwell Automation connectivity
- IoT and IIoT connectivity (MQTT)
- Secure HTTPS protocols
- Native OPC UA protocols
- Native third-party drivers included





- RA EtherNet/IP Driver
- CODESYS Driver
- MELSEC Q driver
- MELSEC FX3U Driver
- Modbus Driver
- OMRON EtherNet/IP driver
- OMRON Fins Driver
- S7 TIA PROFINET driver
- S7TCP driver
- Serial port
- TwinCAT driver

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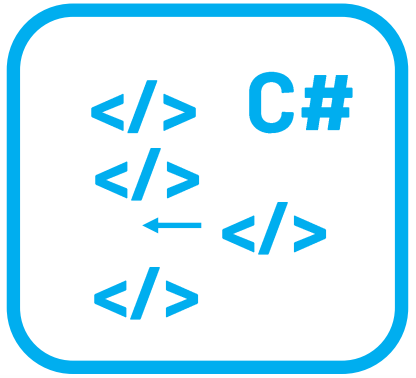
FT Optix

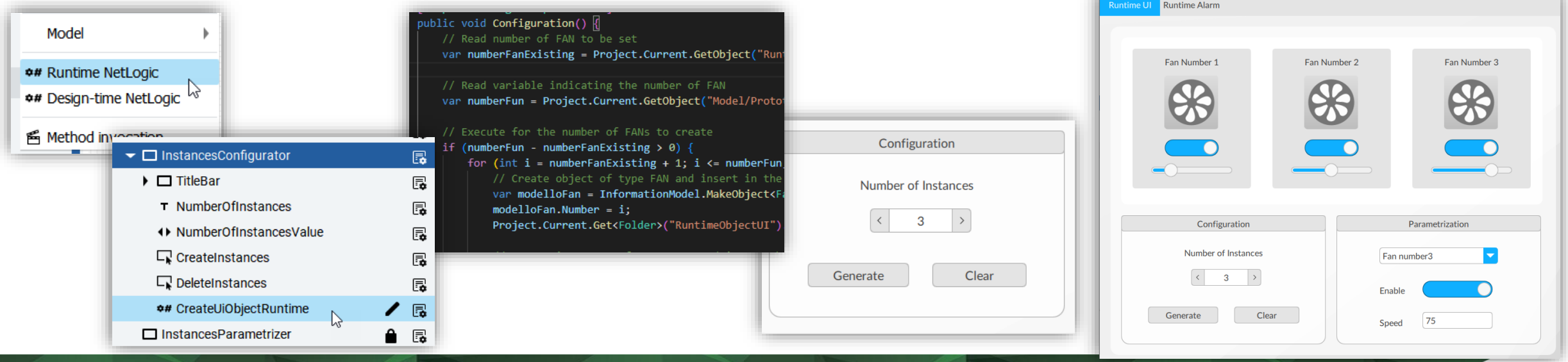
Extensible options

Open interfaces with scripting capabilities

Unlimited customizations and automatic generation

- Open API available to all aspects of a project available by C# scripting
- Create application logic for customized functionality
- Automatically generate parts of the project at design time and runtime
- Customize the visual style of graphics instantly





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Only pay for what you need

FT Optix™ Runtime

Runtime licenses aligned to your specific requirements

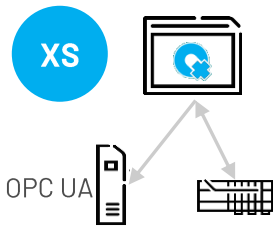
Typical Applications

Examples Only

X-Small

Controller connectivity acting OPC UA server and basic display

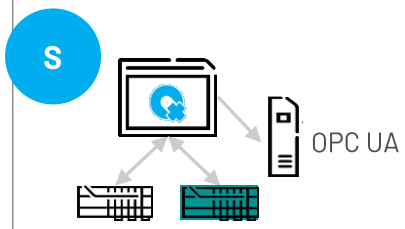
- Single controller (Rockwell Automation®)
- OPC server (1 connected client)
- Data Logging with local DB
- HMI graphics



Small

Basic HMI including capabilities of XS plus:

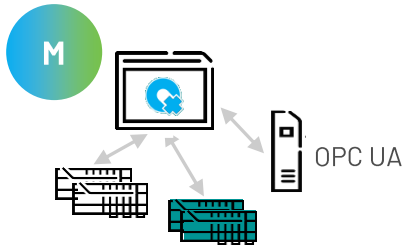
- 3rd party controller support
- Alarming
- Basic Reporting
- Security w/ Active Directory



Medium

HMI station including capabilities of S plus:

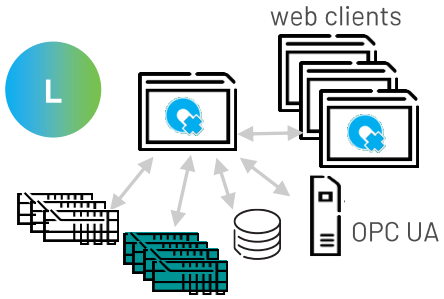
- Multiple controller (Rockwell Automation® or 3rd party)
- Recipes
- OPC UA Client



Large

Comprehensive HMI including capabilities of M plus:

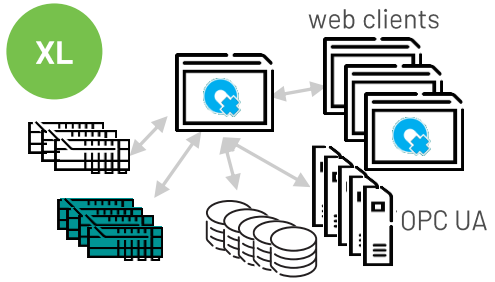
- HTML5 HMI up to 3 web clients
- Audit signatures
- Database – ODBC w/ 1 db connection



X-Large

HMI with extensibility including capabilities of L plus:

- Multiple OPC UA Client connections
- OPC UA Server for multiple clients
- DB – ODBC, multiple db connections



UNL **Unlimited station runtime also available**

Flexible packaging: You can exchange capabilities shown in the examples above for specific capabilities you need

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OptixPanel™ Compact

FT Optix **Runtime** options

- The embedded hardware solution optimized for FactoryTalk® Optix™

OEM focus – small machines, simple applications

- Specifications
  - Wide display sizes*: 4.3″ and 7″
  - Resistive and PCAP touch
  - FactoryTalk® Optix™ Runtime **Small** (8 feature tokens)
  - FactoryTalk® Remote Access™ Runtime **Basic**

- Optional License Upgrade
  - FactoryTalk® Optix™ Runtime Medium (11 feature tokens)
  - FactoryTalk® Remote Access™ Pro

Embedded Hardware with FactoryTalk® Optix™ Runtime

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OptixPanel™ Standard

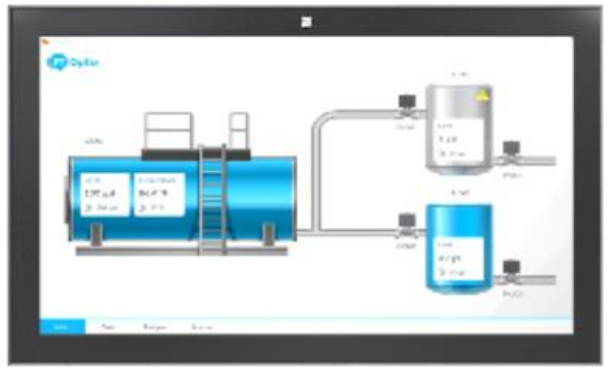
FT Optix

Runtime options

- The embedded hardware solution optimized for FactoryTalk® Optix™

OEM focus – midrange machines and applications

- Specifications
  - Wide display sizes*: 7”, 10.1”, 12.1”, 15.6”, 18.5”, 21.5”
  - 4:3 display sizes*:10.4”, 12”, 15”
  - Resistive and PCAP touch
  - FactoryTalk® Optix™ Runtime **Medium** (11 feature tokens)
  - FactoryTalk® Remote Access™ Runtime **Pro**



- Optional License Upgrade
  - FactoryTalk® Optix™ Runtime Large (15 feature tokens)

Embedded Hardware with FactoryTalk® Optix™ Runtime

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Embedded Edge Compute Module

FT Optix

Runtime options

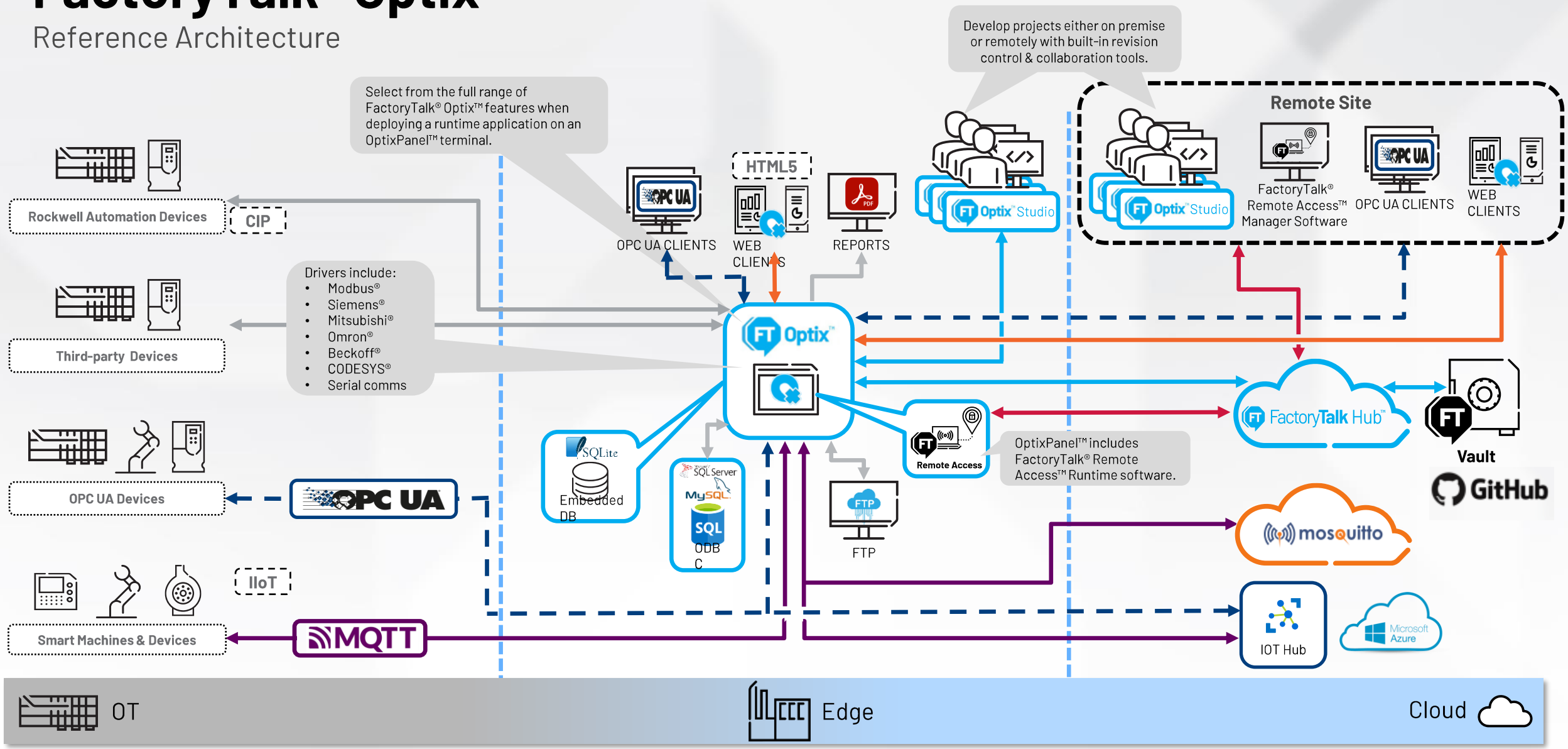
Scaled to meet wide range of customer needs:

- OEM and End User – Simple to complex Machines and Applications
- Includes
  - FactoryTalk® Optix™ Runtime **Extra-Small (XS)**
  - FactoryTalk® Remote Access™ Runtime **Pro**
  - Optional License Upgrade to FactoryTalk® Optix™ Runtime (Small, Medium or Large)
- Value
  - Close proximity of data to computing - Save and analyze larger amounts of data in real time at the machine yielding more informed decisions
  - Reduced storage costs - Analyze data right where it originates and local data can be pre-processed to be more efficiently sent to the cloud.
  - Access control management – Control of what data is processed close to the machine. Store and analyze machine data close to automation layer.

Embedded Hardware with FactoryTalk® Optix™ Runtime

FactoryTalk® Optix™

Reference Architecture



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View Designer PanelView™ 5000

Machine Level HMI

Premier integration with ControlLogix® + I/O high-speed jog functionality

Design-time software included with Studio 5000®

Automatic diagnostics and Logix alarming

FactoryTalk® View ME PanelView™ Plus

Machine Level HMI

ControlLogix® & 3rd party controllers via Kepware

Common design-time across all PanelView™ Plus products and IPCs

Best migration for PanelBuilder32

FactoryTalk® View SE on a Windows PC

Scalable HMI

PlantPAx® Modern DCS

Fully distributed with redundancy

ControlLogix® & 3rd party controllers via Kepware

Best migration for RSView®32

FactoryTalk® Optix™ OptixPanel™

Scalable HMI

Cloud-enabled through FactoryTalk® Hub™

Native 3rd party and MQTT connectivity

OPC/UA interoperability

Web clients, remote management/access

Simplicity → Flexibility

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ASEM 6300 Portfolio

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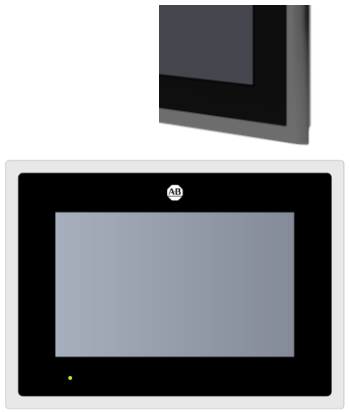
ASEM™ 6300P Panel PCs

- Screen sizes from 12" to 24"
- Wide screen or 4:3 aspect ratios
- Resolutions up to Full HD: 1920x1080
- Stainless steel IP69K version available
- Allen-Bradley® branded or brandless
- Processor options: Celeron, i3, i5 or i7
- Memory options from 4GB to 32GB
- Fanless design for increased reliability
- SSDs with up to 1TB each
- With Windows or no OS preinstalled
- One PCIe slot for expansion in the field
- Multiple USB ports
- ThinManager-ready BIOS

Over 2,000 variants available

The ASEM™ 6300P family of industrial panel PCs

			
Aluminum with USB Standard (IP65)	Aluminum with USB Widescreen (IP65)	IP69K Stainless Steel	Aluminum-Glass PCAP (IP65)
IP65	IP65	IP69K	IP65
12″ and 15″ (1024x768 4:3) 17″ and 19″ (1280x1024 5:4)	15.6, 18.5″, 21.5″, 24″ (FHD)	12.1″ (1280x800 16:10)	15.6, 18.5″, 21.5″, 24″ (FHD)
Analog Resistive			PCAP
Allen-Bradley® branded			Brandless option

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ASEM™ 6300B Box PCs

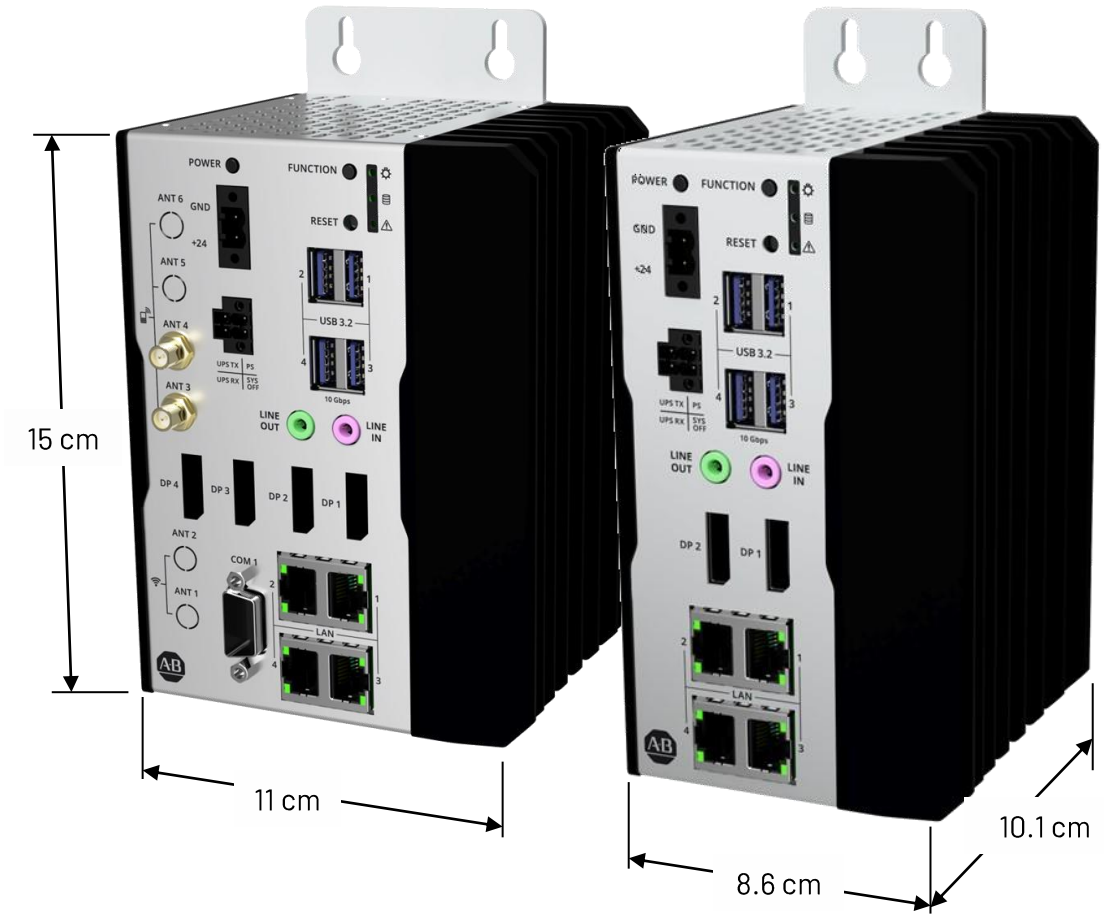
- Packaging options
  - Sub-compact DIN rail mount or book mount
  - Modular iClass book mount with PCIe expansion with optional cooling fan
  - Wall mount iClass with PCIe expansion and optional cooling fan
  - Desktop / tower
- Highly configurable
  - Processor options: Atom x5, Atom x7, Celeron, i3, i5 or i7
  - Memory options from 4GB to 32GB
  - Most versions are fanless design for increased reliability
  - One or two SSDs with up to 1TB each
  - With Windows or no OS preinstalled
  - One or two PCIe slots for expansion in the field
- ThinManager® Ready BIOS
  - Four serial & USB COM port options
  - Additional ethernet port
  - Additional display ports (two)
  - CFast options
  - Remote Video Link (RVL)
  - ATX power option
  - Trusted Platform Module (TPM) options

Almost 5M variants available

ASEM™ 6300B-JB1

New iClass compact book mount box PC

- Celeron, i3, i5 or i7 processors
- Two or four DisplayPort connectors
- Four USB connectors
- Audio line in and line out
- RS-232 serial port (four display only)
- ThinManager-Ready BIOS
- Windows 10 LTSC 2021
- Trusted Platform Module (TPM) option
- Storage options from 0B to 2TB
- RAM from 4GB to 32GB
- Future enhancements
  - Wi-Fi and cellular 5G options
  - Thin-client version



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ASEM™ 6300P-EW1 & ASEM™ 6300B-EW1

Upcoming Atom-class panel PC and box PC

- Cost-effective, entry-level IPCs for lower-end applications
  - Elkhart Lake Intel Atom® x6425E
  - RAM: LPDDR4 up to 16 GB
  - Storage: M.2 SSD PCIe NVMe, SSD/HDD 2.5", or CFast
  - OS: Windows 10 IoT Enterprise 2021 64 bit

- Built-in
  - 4x USB 3.1 Gen2 (10Gbps)
  - 2x Ethernet 1Gbps
  - 1x Ethernet 2.5Gbps
  - 1x DisplayPort++
  - 1x DB9M multi std isolated serial port
- Optional
  - 2x USB
  - 1x Ethernet 1Gbps + 1x USB
  - 1x Ethernet 1Gbps
  - 1x RVL
  - 2x DB9 multi std isolated serial port
- Paired with our collection of front panels
  - 4:3 Aluminum and Aluminum TrueFlat from 10.4" to 19"
  - Wide screen Aluminum, TrueFlat and Aluminum & Glass PCAP from 12.1" to 24"

AFC March '24

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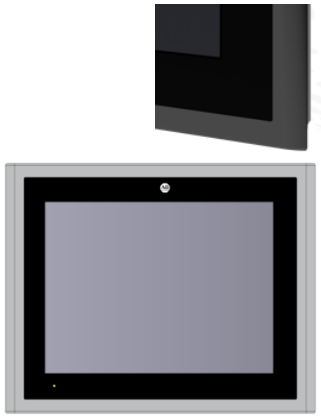
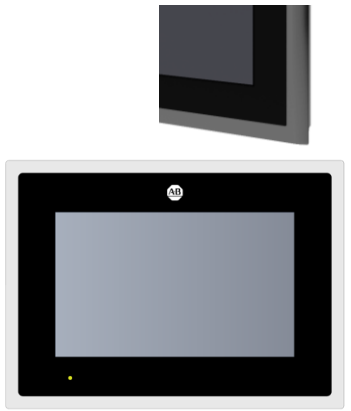
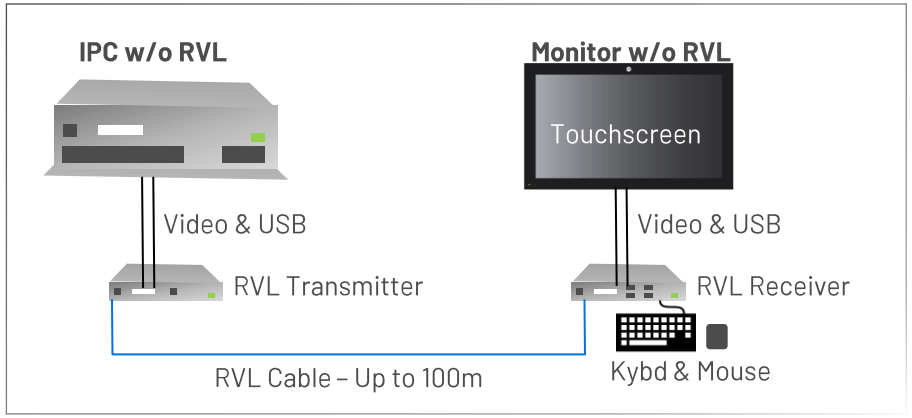
The ASEM™ 6300M family of industrial monitors

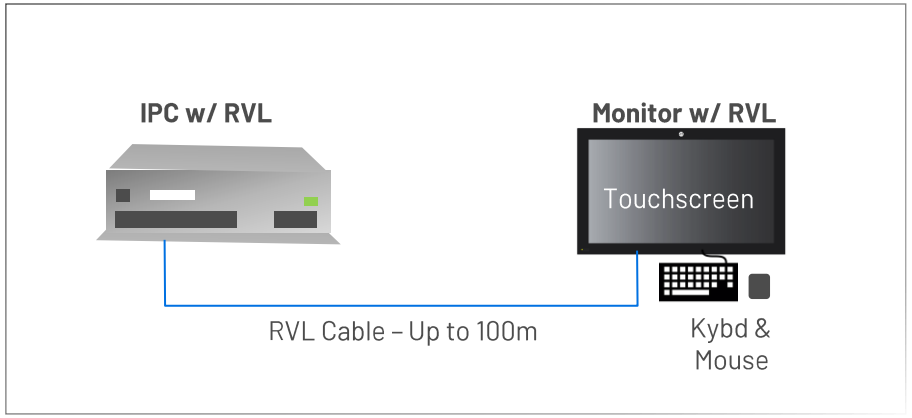
DC units have UL, CE and Class 1, Div II

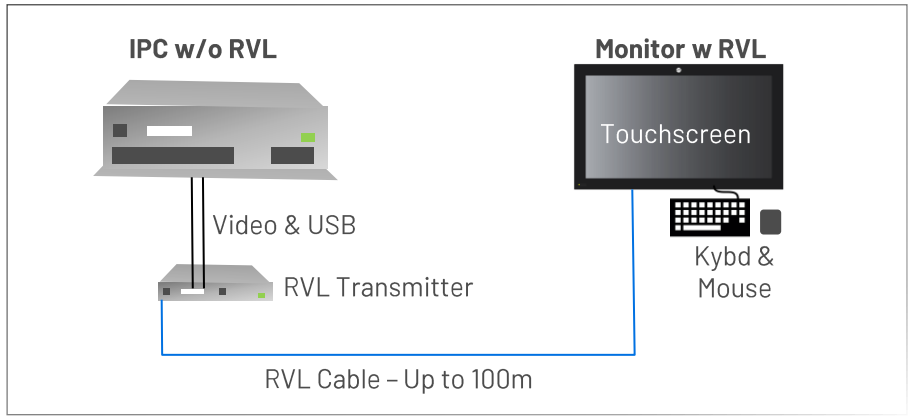
					
Aluminum with USB Standard (IP65)	Aluminum with USB Widescreen (IP65)	Aluminum TrueFlat (IP65)	IP66 Stainless Steel	IP69K Stainless Steel	Aluminum & Glass PCAP (IP65)
8.4″ and 10.4″ (4:3) 12″ and 15″ (1024x768 4:3) 17″ and 19″ (1280x1024 5:4)		12″ & 15″ (1024x768 4:3) 17″ & 19″ (1280x1024 5:4)	12″ & 15″ (1024x768 4:3) 17″ & 19″ (1280x1024 5:4)	12.1″ (1280x800 16:10) 15.6, 18.5″, 21.5″, 24″ FHD	10.1″ & 12.1″ (1280x800 16:10) 15.6, 18.5″, 21.5″, 24″ FHD
Analog Resistive					PCAP
Allen-Bradley® branded					Brandless option
AC & DC option for all sizes; Native long-distance option					

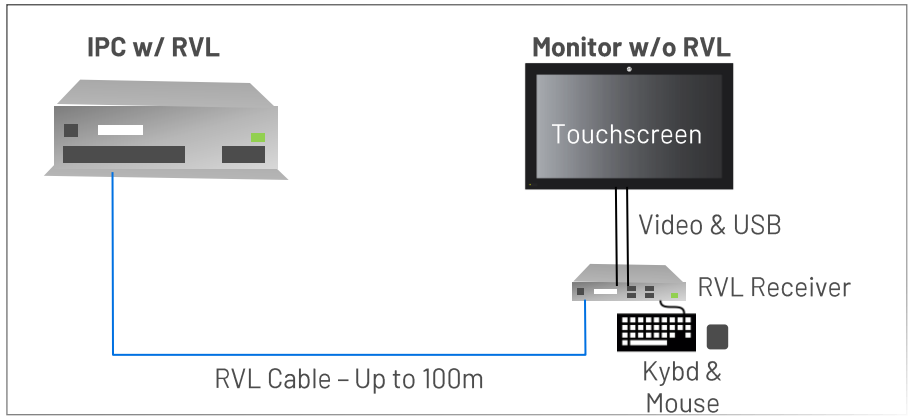
Remote Video Link (RVL)

- Remote your RVL-compatible monitor up to 100m from your RVL-compatible IPC
- Purchase units with integrated RVL or use RVL transmitters and/or receivers









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ASEM™ 6300T Thin Clients

Compact and cost-effective connections to ThinManager® systems

- Atom class processor
- ThinManager-ready BIOS
- Single or dual DisplayPort connections with 4K resolution
- 4GB or 8GB of RAM
- Two RJ45 Ethernet connections
- Book mount or DIN rail mount
- No local storage
- Standard Allen-Bradley® branding
- Single board design with all components soldered to the board for great resistance to shock and vibration
- Extremely compact form factor

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ASEM™ 6300PA On-Machine™ Panel PCs – *Now available*

- VESA 75/100 mounting
- 15.6", 18.5", 21.5" and 24" wide 16:9 aspect ratio
- Full HD TFT LED backlight LCDs
- Aluminum and glass True Flat projected capacitive multitouch-screen front panels
- Portrait or landscape formats
- Intel Celeron, Core i3 and i5 processors options
- 4GB or 8GB of RAM and up to 512GB SSD storage
- Windows 10 IoT 2019 LTSC or No OS
- Optional long-distance Remote Video Link (RVL)
- Configurable Button Area for the installation of Ø22 hard-wired elements
- ThinManager-ready BIOS

6300MA on-machine monitors will be AFC by end of CY23

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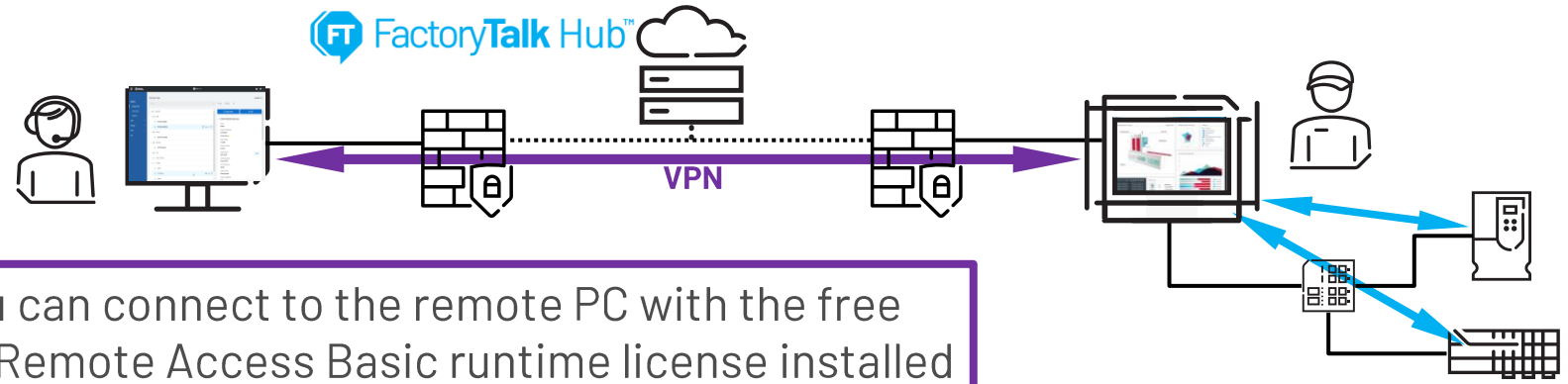
Now included in the purchase of any ASEM 6300 PC!

FactoryTalk® Remote Access™ Basic runtime license

- FactoryTalk® Remote Access™ delivers secure communications over the internet to enable performance and security for on-demand remote assistance, installation, programming, troubleshooting, and maintenance of any remote automation system and application
- The FactoryTalk Remote Access Runtime Basic enables you to register your ASEM 6300 in FactoryTalk Remote Access Manager, a subscription software available in FactoryTalk Hub
- The free Basic runtime is available for all ASEM 6300 box PC, panel PC and on-machine PCs – including those already purchased and installed in the field



You can connect to the remote PC with the free FT Remote Access Basic runtime license installed

When you upgrade to FT Remote Access Pro, you can connect through the remote PC to devices like controllers and drives

Download release 13.6 or later from the Product Compatibility and Download Center (PCDC)

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FactoryTalk® Remote Access™

Only *two* key components

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1 FactoryTalk® Remote Access™ Manager

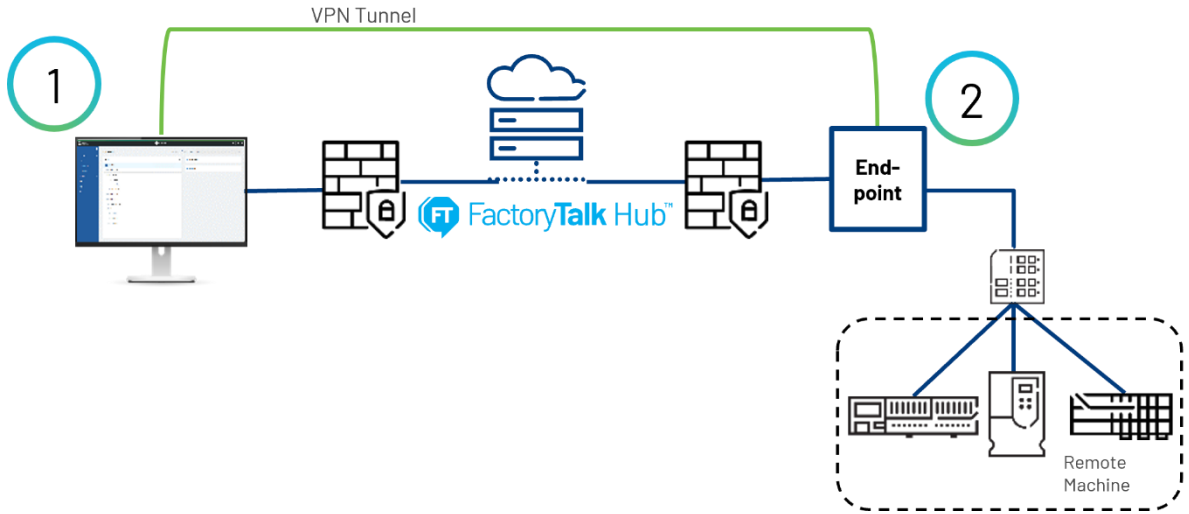
A web-based client used to maintain and initiate remote connections:

- Allows management of account, users and permissions, and device registration
- Activates VPN for remote connectivity

2 Remote Access Endpoint

- **FactoryTalk® Remote Access™** Runtime
- **Stratix® 4300 Remote Access™ Router**
- **OptixPanel™** Graphic Terminal
- **Embedded Edge Compute™** Module
- **ASEM™ 6300** Industrial PC

Select the endpoint that works best for your application.



FactoryTalk® Remote Access™ Endpoint: Stratix® 4300

- Remote access to devices connected via Gigabit Ethernet, serial interfaces, Wi-Fi and/or cellular
- Quick and easy installation to existing remote networks where a runtime cannot be installed and/or a physical separation between the automation subnet (LAN) and the enterprise network (WAN) is required
- First-time configuration via local Ethernet port or USB
- Routing and NAT (1-to-many and 1:1) functionality
- Remote management via FactoryTalk® Remote Access™ Manager
- Protection against unauthorized domain modification
  - Router remains connected to original configured domain after factory reset to help protect against malicious activity
- Hardware commands and digital I/O
  - Can be used to allow or deny remote connectivity at the local machine

Stratix® 4300 Remote Access™ Router Part Number

Features	1783-RA2TGB	1783-RA5TGB	1783-RA2TGC4G	1783-RA2TGW	1783-RA2TGWC4G	1783-RA5TGC4G	1783-RA5TGW	1783-RA5TGWC4G
Total RJ45 ports	2	5	2	2	2	5	5	5
WAN	1 GE	1 GE	1 GE / Cellular	1 GE / Wi-Fi	1 GE/Cell / Wi-Fi	1 GE / Cellular	1 GE / Wi-Fi	1 GE / Cell / Wi-Fi
LAN	1 GE	4 GE	1 GE	1 GE	1 GE	4 GE	4 GE	4 GE
USB 2.0	✓	✓	✓	✓	✓	✓	✓	✓
Serial port	✓	✓	✓	✓	✓	✓	✓	✓
Digital input/output	✓	✓	✓	✓	✓	✓	✓	✓

Thank You!

Products and Solutions for the Electrical Industry

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