

SIEMENS



Why Migrate to Siemens?

Converting from Rockwell to Siemens Automation



Converting from Rockwell to Siemens Automation

Why Choose Siemens?

Migration Steps

Migration Tools

Siemens Ethernet/IP™ Solutions

Resources

Rockwell Conversion Example



When Does it Make Sense to Migrate?



Impending threat of unscheduled downtime/incident

No longer cost effective to support old system, system dead-ended or phased out, no spare parts availability

Old system cannot support new information technology that provides economic advantage

New or emerging business opportunity impossible without a new system

Old system is inflexible and cannot react to rapid shifts in customer demand

Old system lacks visibility that could prevent abnormal situations, equipment breakdown, disruption in supply chain, etc.

Old system does not have the capacity or is not cost effective to expand

Why Choose Siemens?

Global Leader in Automation Solutions

- Innovative hardware, software, and solutions for maximum quality and productivity

Global Sales, Service, and Support

- 165 years international business experience
- Active in 190 countries
- Leading market and technology positions



Innovations

- Patent leader (2012):
 - Germany (no. 3), Europe (No. 1) US (No. 10)
 - High percentage R&D investment
 - Automation product lines are early in their lifecycles

Totally Integrated Automation

- Made possible via the TIA Portal
- A single engineering environment for PLC, PC-based control, HMI, Network configuration and Drives

TIA Portal

One engineering system for all software



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STEP 7 V13



SIMATIC PLC

This block shows the STEP 7 V13 software interface on a computer monitor, alongside various SIMATIC PLC hardware components including a rack-mounted unit and a power supply.

Safety V13



Safety

This block displays the Safety V13 software interface on a monitor, next to a SIMATIC Safety PLC hardware unit.

SCOUT



SIMOTION C,D

This block features the SCOUT software interface on a monitor, along with SIMOTION C and D hardware components.

Startdrive V13



SINAMICS

This block shows the Startdrive V13 software interface on a monitor, accompanied by SINAMICS drive hardware components.

WinCC V13



SIMATIC HMI

This block displays the WinCC V13 software interface on a monitor, next to SIMATIC HMI hardware components including a handheld device and a panel-mounted unit.

Totally Integrated Automation
Portal

TIA Portal

One engineering system for migration



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Time and cost savings as a result of efficient engineering

Minimized downtime due to integrated diagnostic functions

Higher flexibility in production with integrated communication

Plant and network security due to integrated security functions

Improved quality from data consistency



Migrate

- Keep your existing PLC configuration
- Add one or more Siemens “Best-in-Class” components — Featuring state-of-the-art technology
- Compatible, easy-to-configure components
- Flexibility to support both PROFINET or EtherNet/IP
- Global sales support and availability



Why Migrate to Siemens?

Assistance every step of the way

Siemens provides resources to help you implement complete systems or individual components

Conversion Tools

- Comprehensive tool sets that allows use of existing IOs and current wiring, easy set up of data exchange between different Automation Platforms
- Code conversion utilities for reduced efforts
- Tag converters

Documents

- Assistance with standards
- Operating manuals
- Drawings

Training

- Online
- Classroom based
- Hands-on

People

- Siemens experts with experience in your particular industry
- Trusted, experienced, proven partner with migration technical experts
- Experienced network of global Solution Partners



Converting from Rockwell to Siemens Automation

Why Choose Siemens?

Migration Steps

Migration Tools

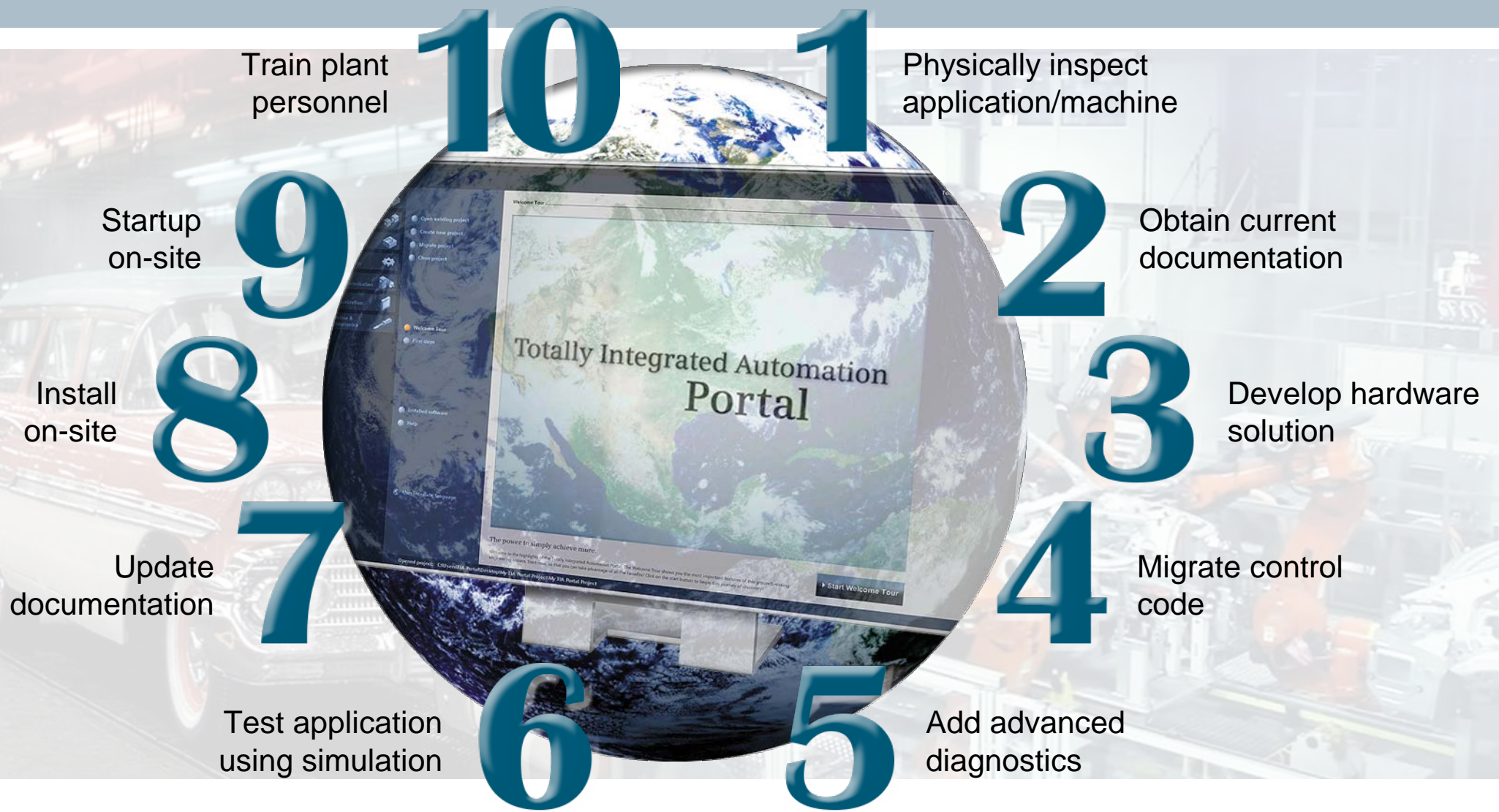
Siemens Ethernet/IP™ Solutions

Resources

Rockwell Conversion Example

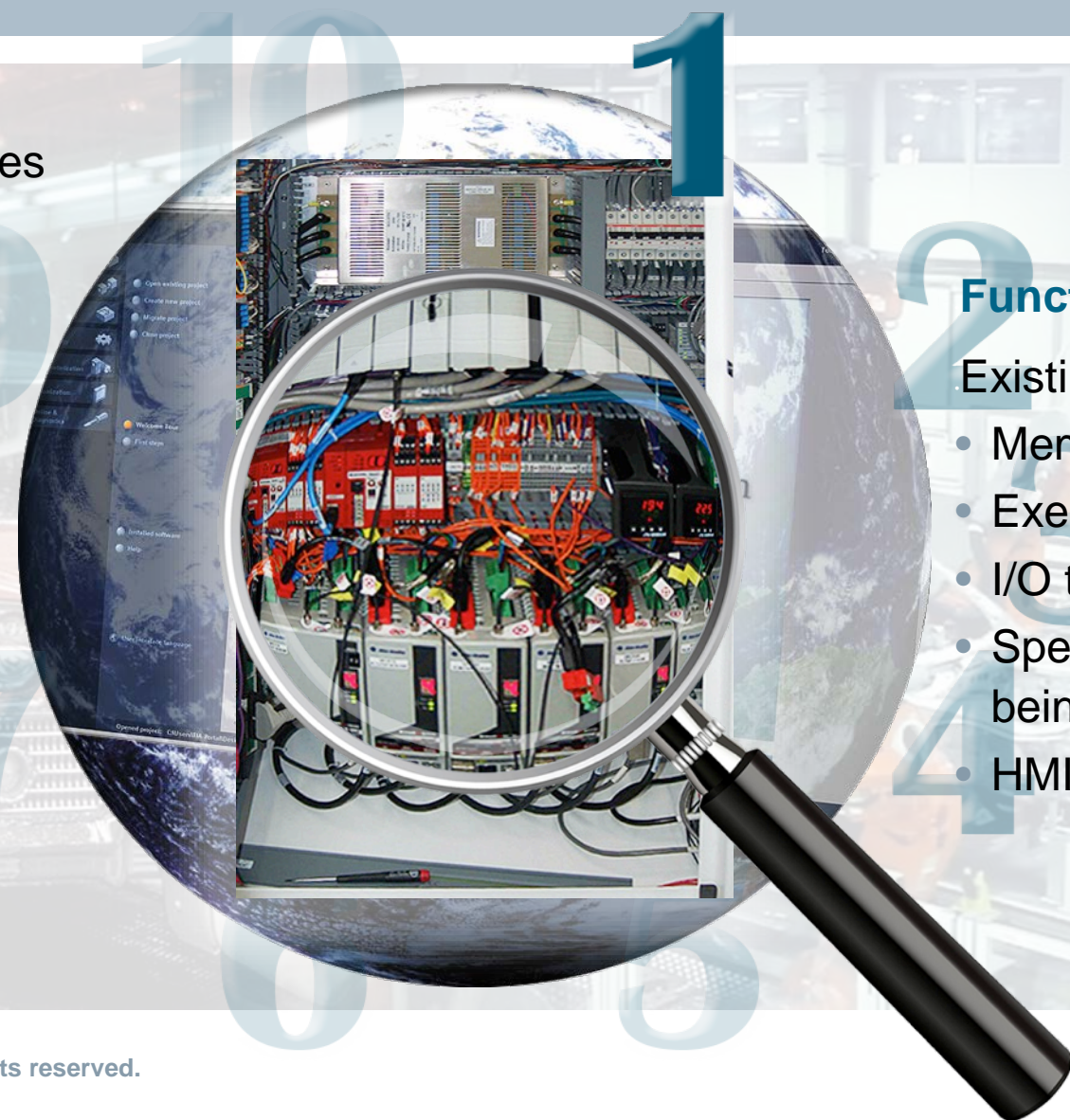


Migration Steps



Migration Steps

Physically inspect application / machine



Fit

- Examine existing panel spaces
- Does new hardware fit into existing spaces?
- Space for new panel(s)?

Networking

- Distributed I/O?
- Drive(s) connectivity?
- Connectivity to MES?

Function

Existing control capabilities

- Memory sizes
- Execution time
- I/O type
- Specialized components being used?
- HMI(s)?

Migration Steps

Obtain a copy of the current documentation

Hardware

Wiring

- Connectivity
- Number of spares
- Sensors used

Controller hardware

- PLC
- I/O
- HMI

Networking details



2

Software

- Symbols (tag names)
- Comments
- Structure
- Logic

Migration Steps

Develop the hardware solution

Special Hardware Needs

- Upgrade/change
 - Encompass partner products
- Gateways
- Sensors



Cross Reference Control Hardware

PLC

- Memory Size
- Execution time
- Networking support
- Certifications

I/O

- Module types
- Quantity
- Wiring
- Panel fit

Drives

HMI

Migration Steps

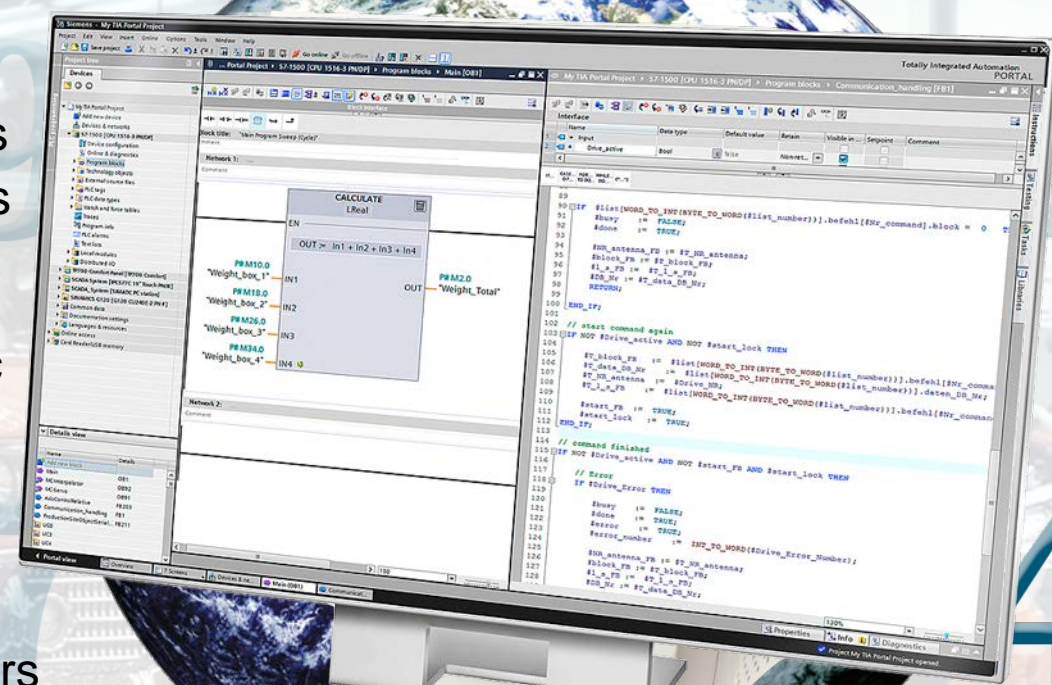
Migrate control code

Create Equivalent Data Files or Structures

- Retain current structure
 - Create equivalent data files with tag names / comments
- ### Symbolic
- Create equivalent symbolic arrays and comments

Create New Logic

Required for new hardware / gateways / sensors



Convert Logic

- Retain current structure
 - Create equivalent instructions and calling structure
- ### Symbolic
- Create new instructions and calling structure



Migration Steps

Add advanced diagnostics

Application-specific messages

- For the integrated PLC display
- For the HMI display

Fast machine diagnostics

Maintenance without development tools

Reduced downtime and production loss



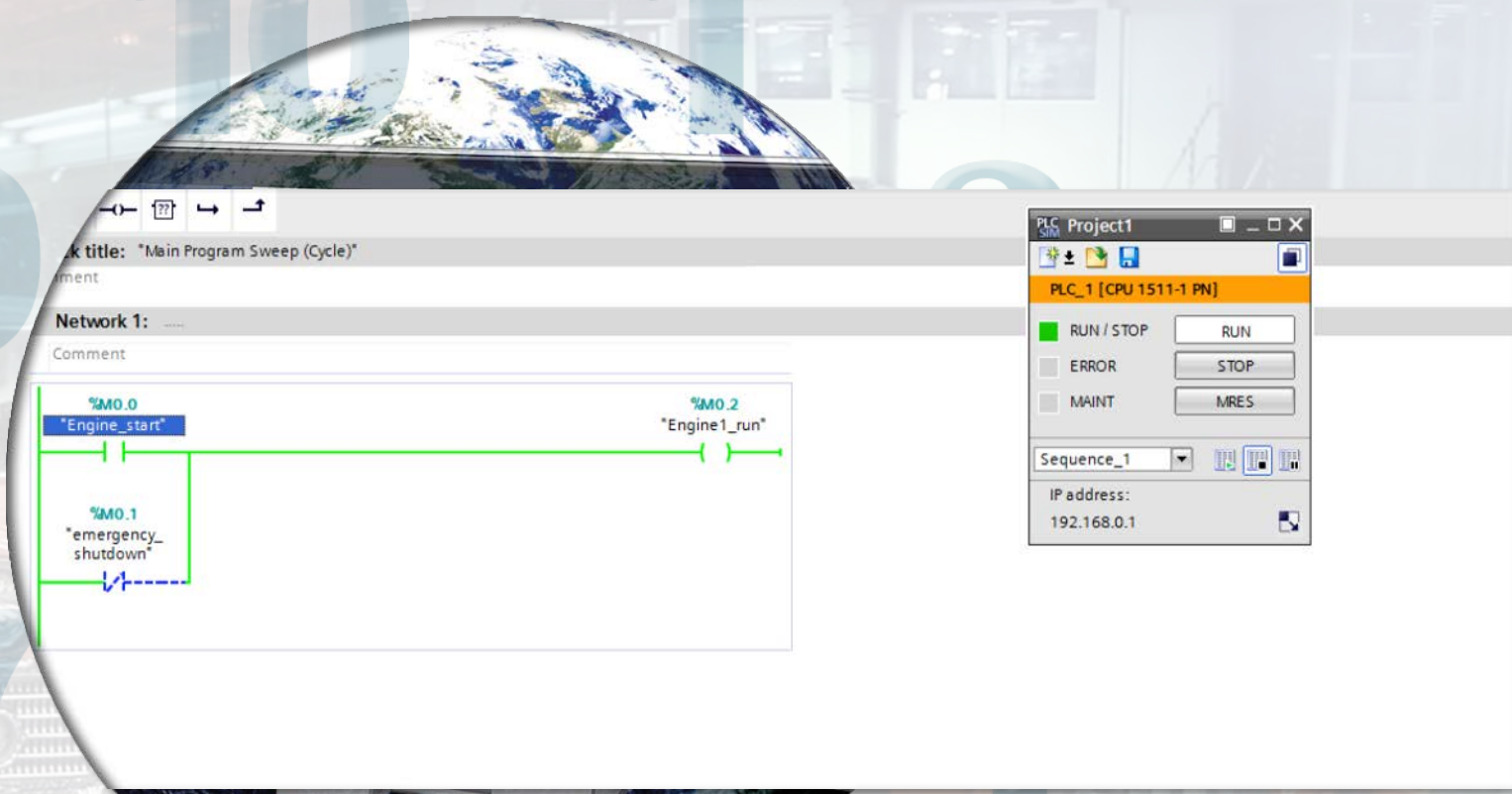
Migration Steps

Test the application using simulation

Test without hardware

Test incrementally

Reduce startup time



The screenshot displays the SIMATIC Manager interface. The main window shows a ladder logic network titled "Main Program Sweep (Cycle)". The network contains three input elements: "%M0.0 Engine_start" (a normally open contact), "%M0.1 emergency_shutdown" (a normally closed contact), and "%M0.2 Engine1_run" (a normally open contact). The output is a coil. To the right, a "PLC Project1" window is open, showing the "PLC_1 [CPU 1511-1 PN]" configuration. It includes a "RUN / STOP" button (checked), "ERROR" and "MAINT" checkboxes, and "RUN", "STOP", and "MRES" buttons. Below these is a "Sequence_1" dropdown and an "IP address" field set to "192.168.0.1".

Migration Steps

Update documentation



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Ensure proper documentation
for plant maintenance

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Industry Online Support USA

Product tree: CPUs (31) | Entry type: Manual (31) | Manual languages: All

- > Manual **SIMATIC S7-1500 CPU 1513F-1 PN**
12/2014, Manual, A5E33827969-AA
+ Versions of this manual
- > Manual **SIMATIC S7-1500 CPU 1511F-1 PN**
12/2014, Manual, A5E33826357-AA
+ Versions of this manual
- > Manual **SIMATIC S7-1200 / S7-1500 Comparison list for programming languages based on the international mnemonics**
12/2014, List manual, A5E33285102-AB
For products: 6ES7413-2XG00-0AB0, 6ES7414-2XJ00-0AB0,...> All products
+ Versions of this manual
- > Manual **SIMATIC S7-1500 /ET 200MP Manual Collection**
12/2014, Reference manual
For products: 6ES7522-1BF00-0AB0, 6ES7505-0RA00-0AB0,...> All products
+ Versions of this manual
- > Manual **SIMATIC S7-1500/ET 200MP Amendments to documentation S7-1500/ET 200MP**
12/2014, Product information, A5E31876033-AG
For products: 6ES7522-1BF00-0AB0, 6ES7505-0RA00-0AB0,...> All products
+ Versions of this manual

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SIMATIC

S7-1500
CPU 1513F-1 PN (6ES7513-1FL00-0AB0)

Manual

This manual contains notices you have to observe in order to ensure you prevent damage to property. The notices referring to your personal safety safety alert symbol, notices referring only to property damage have no shown below are graded according to the degree of danger.

- Danger**
indicates that death or severe personal injury will result if proper precautions are not taken.
- Warning**
indicates that death or severe personal injury may result if proper precautions are not taken.
- Caution**
with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.
- Caution**
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.
- Notice**
indicates that an unintended result or situation can occur if the relevant information is not observed.

Migration Steps

Install on-site

Install new control hardware

- PLC
- I/O
- Network components (distributed I/O)
- HMI(s)
- Sensors
- Drive(s)

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Rewire I/O

- Disconnect/Connect
- Transition cables (if applicable)

Migration Steps

Start up on-site



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Verify I/O

Test machine operation

Make changes
as necessary



Finalize application

Finalize documentation



Migration Steps

Train plant personnel

Hardware training

Development tools training

Operator training



Maintenance training

Documentation overview



Converting from Rockwell to Siemens Automation

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Migration Tools

Siemens Ethernet/IP™ Solutions

Resources

Rockwell Conversion Example



Migration Tools

Benefits

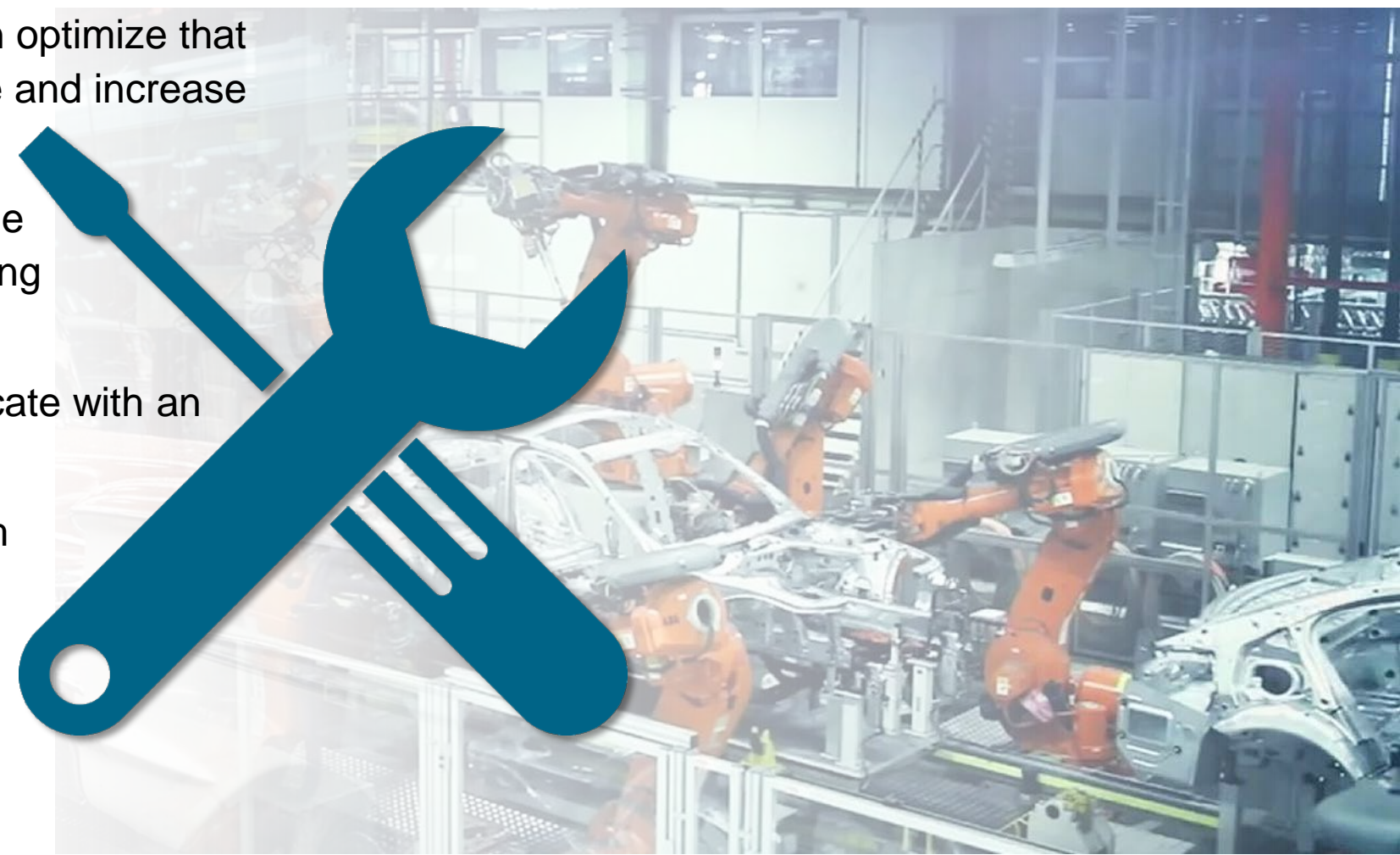
Retain your existing code – and then optimize that code - to make your more productive and increase transparency into your data

Connect to your existing system while keeping your existing wiring – reducing your risk, cost, and downtime

Siemens makes it easy to communicate with an existing ROK system

Increase your current level of system diagnostics without additional programming

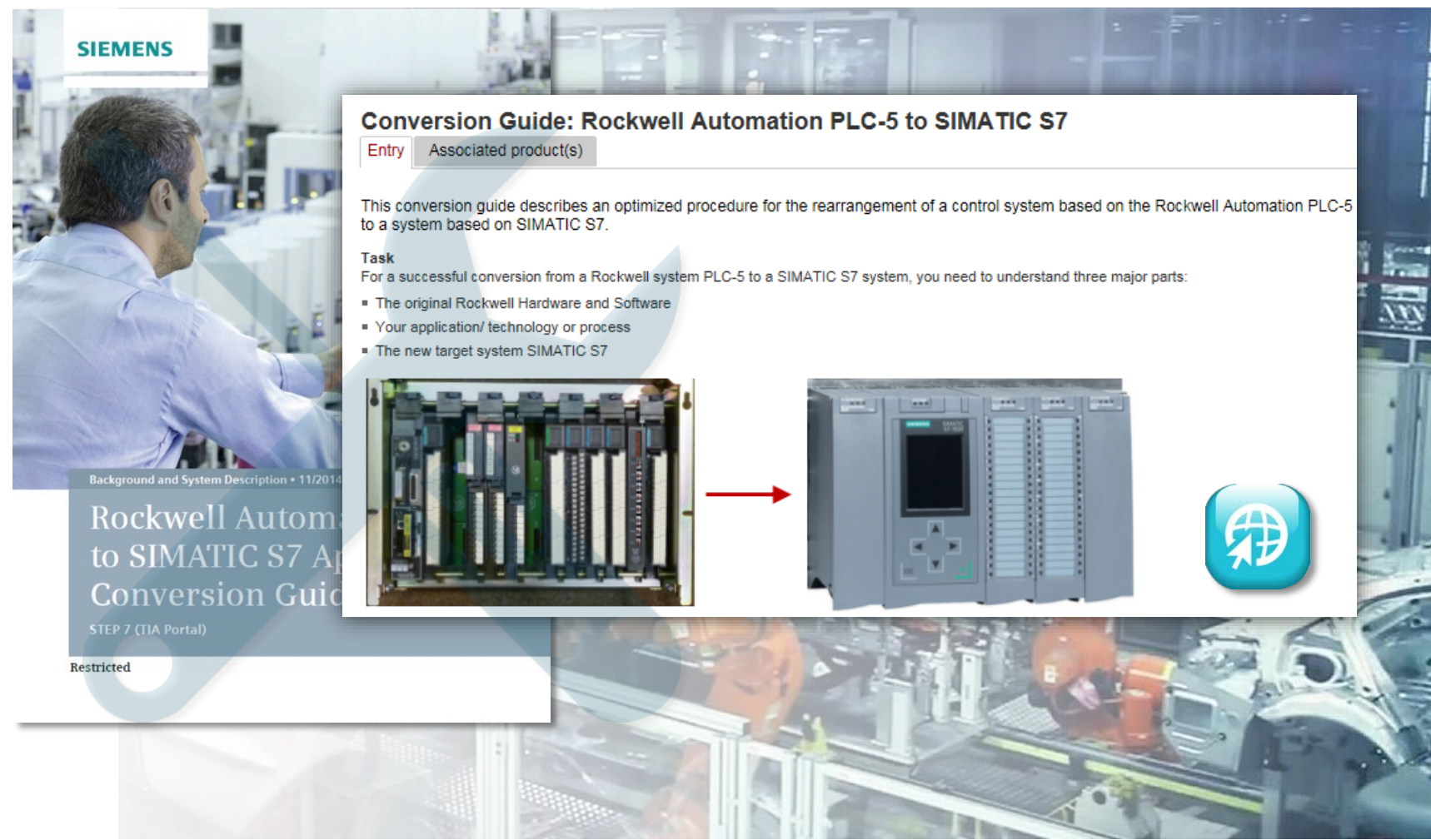
- Minimizing troubleshooting and downtime




Migration Tools

PLC5 to S7-1500 Application Conversion Guide

- Provides guidance for users who have used legacy control systems based on Rockwell Automation PLC-5 or SLC-500
- Explains the major differences between the Rockwell Automation control system and the SIMATIC S7 control system
 - Migration approaches are described and explained
 - Certain use cases are demonstrated






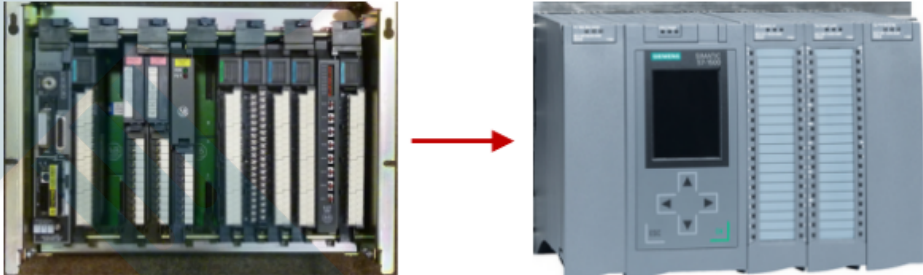
Conversion Guide: Rockwell Automation PLC-5 to SIMATIC S7

Entry Associated product(s)

This conversion guide describes an optimized procedure for the rearrangement of a control system based on the Rockwell Automation PLC-5 to a system based on SIMATIC S7.

Task
For a successful conversion from a Rockwell system PLC-5 to a SIMATIC S7 system, you need to understand three major parts:

- The original Rockwell Hardware and Software
- Your application/ technology or process
- The new target system SIMATIC S7



Background and System Description • 11/2014

Rockwell Automation to SIMATIC S7 Application Conversion Guide

STEP 7 (TIA Portal)

Restricted

Migration Tools

WinCC Tag Converter

Provides fast and easy way to convert tags exported from the Rockwell PLC to a format that can be imported into WinCC (TIA-Portal)

Produces output for

- HMI systems
- SIMATIC Panels
- WinCC Runtime Advanced
- WinCC Professional

Ability to synchronize data between PLC editors and WinCC (TIA-Portal)



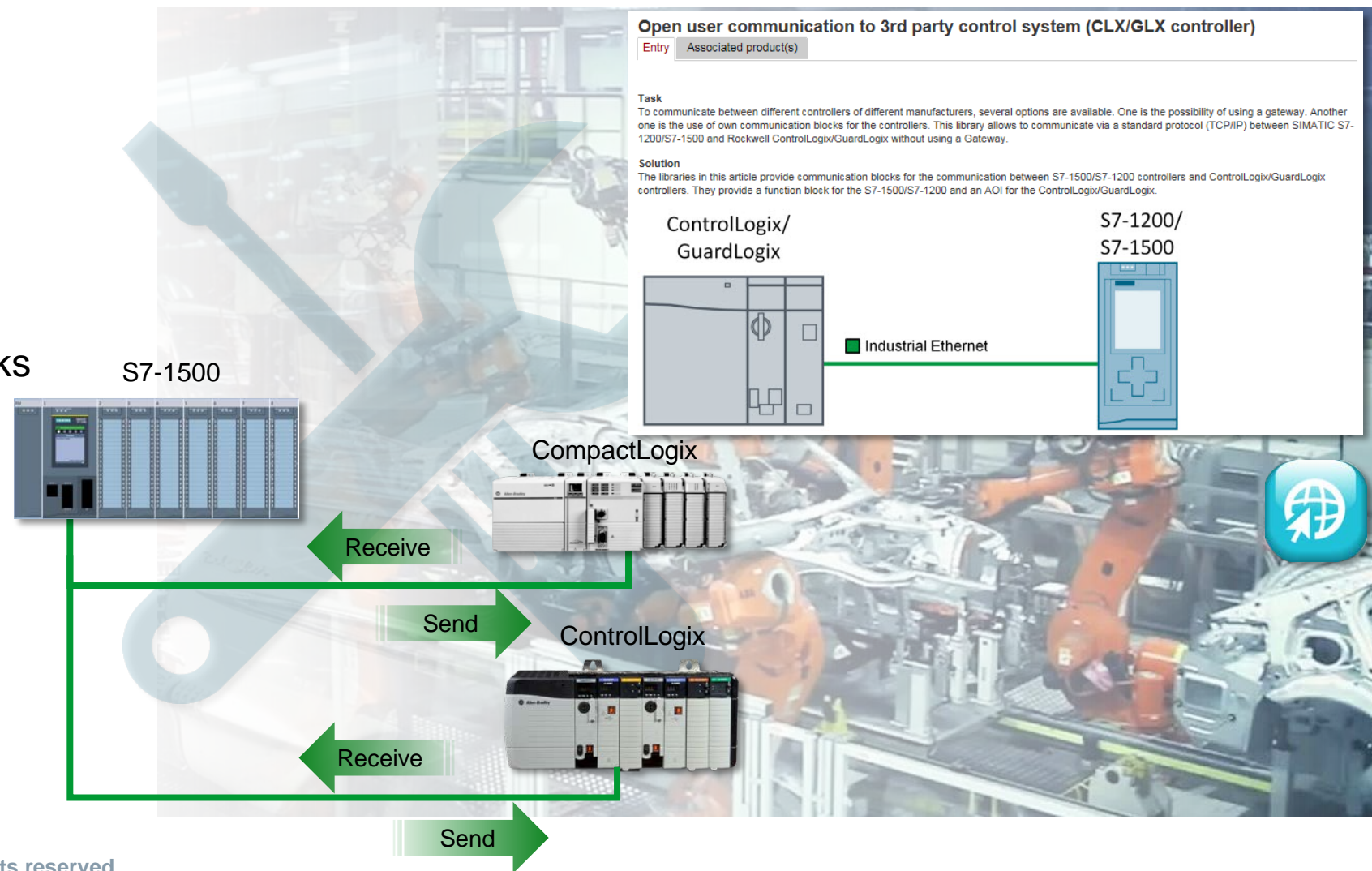


Migration Tools

Open communication between Logix and S7-1200 / S7-1500

Provides library for Rockwell ControlLogix/GuardLogix and SIMATIC S7-1200 / 1500 that allow communication via a standard protocol (TCP/IP) without using a gateway

Libraries contain function blocks for the S7-1200 / 1500 and an AOI for the ControlLogix/GuardLogix



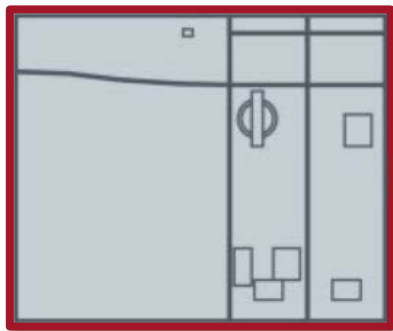
Migration Tools

FAQs (Frequently Answered Questions)

Example

How to achieve the highest possible data throughput between a Rockwell PLC and a SIMATIC HMI

- How to communicate with the maximum data throughput between a Rockwell PLC and a SIMATIC Comfort Panel / Advanced Runtime using the “Allen-Bradley Ethernet/IP”-driver
- Shown measures reduces unnecessary data overhead



Rockwell PLC



Migration Tools

Siemens Migration Studio

Migration Studio reads Rockwell software from...

RSLogix5
(PLC-5)

RSLogix500
(SLC 500)

Studio 5000 *)
(Compact-, ControlLogix)

RSView32
(PanelView32)

Migration Studio converts...

- ✓ data files (tags)
- ✓ code files (logic)
- ✓ program files
- ✓ tasks
- ✓ routines

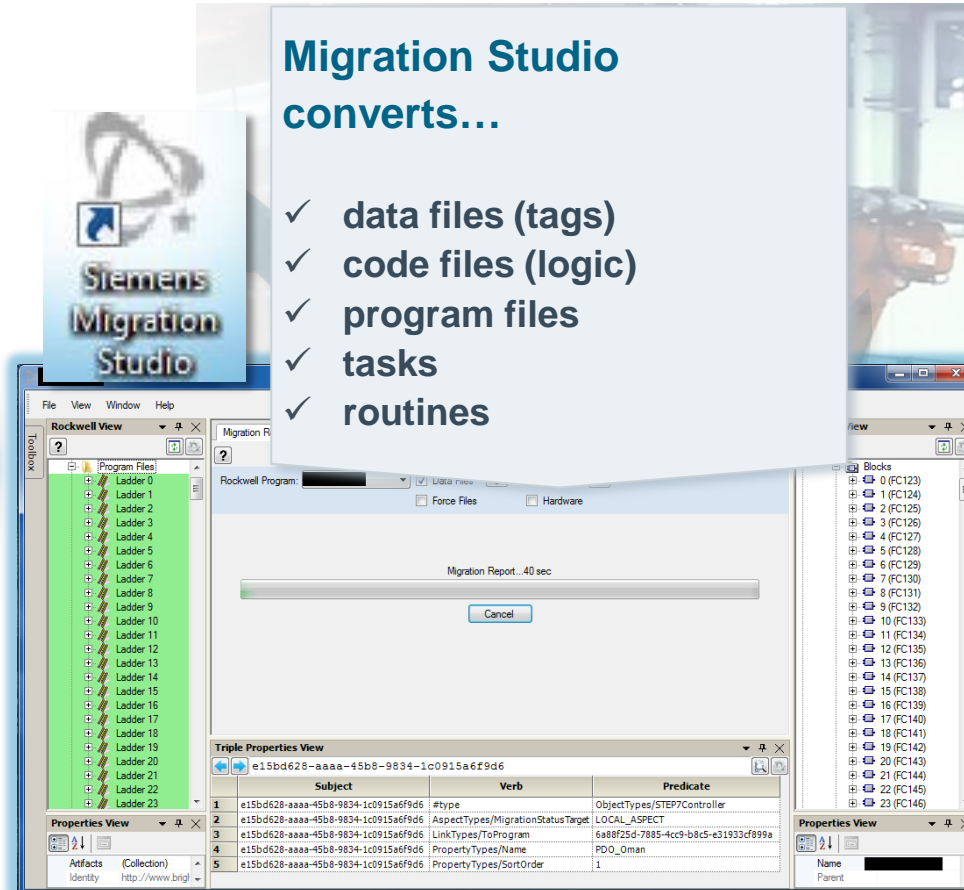
Migration Studio exports to...

TIA Portal V13 SP1 Upd 1
(Openness required)



Hardware Conversion

WinCC Comfort
Advanced



In development

Migration Tools

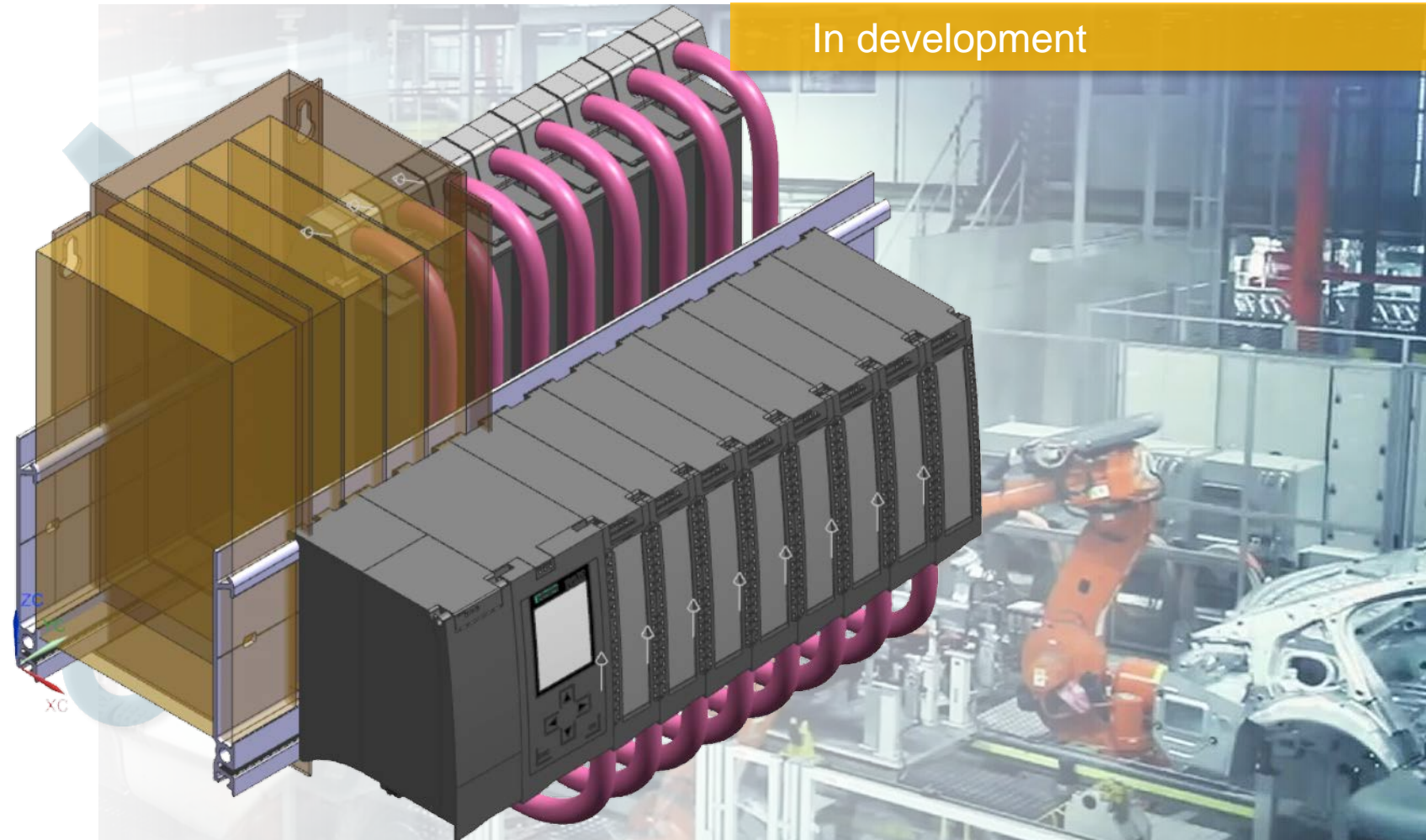
PLC5 / 1771 IO wiring adapter



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Direct connection from Rockwell front connectors to Siemens periphery modules

Maintaining existing field wiring avoiding fault prone and labor intense rewiring



Migration Tools

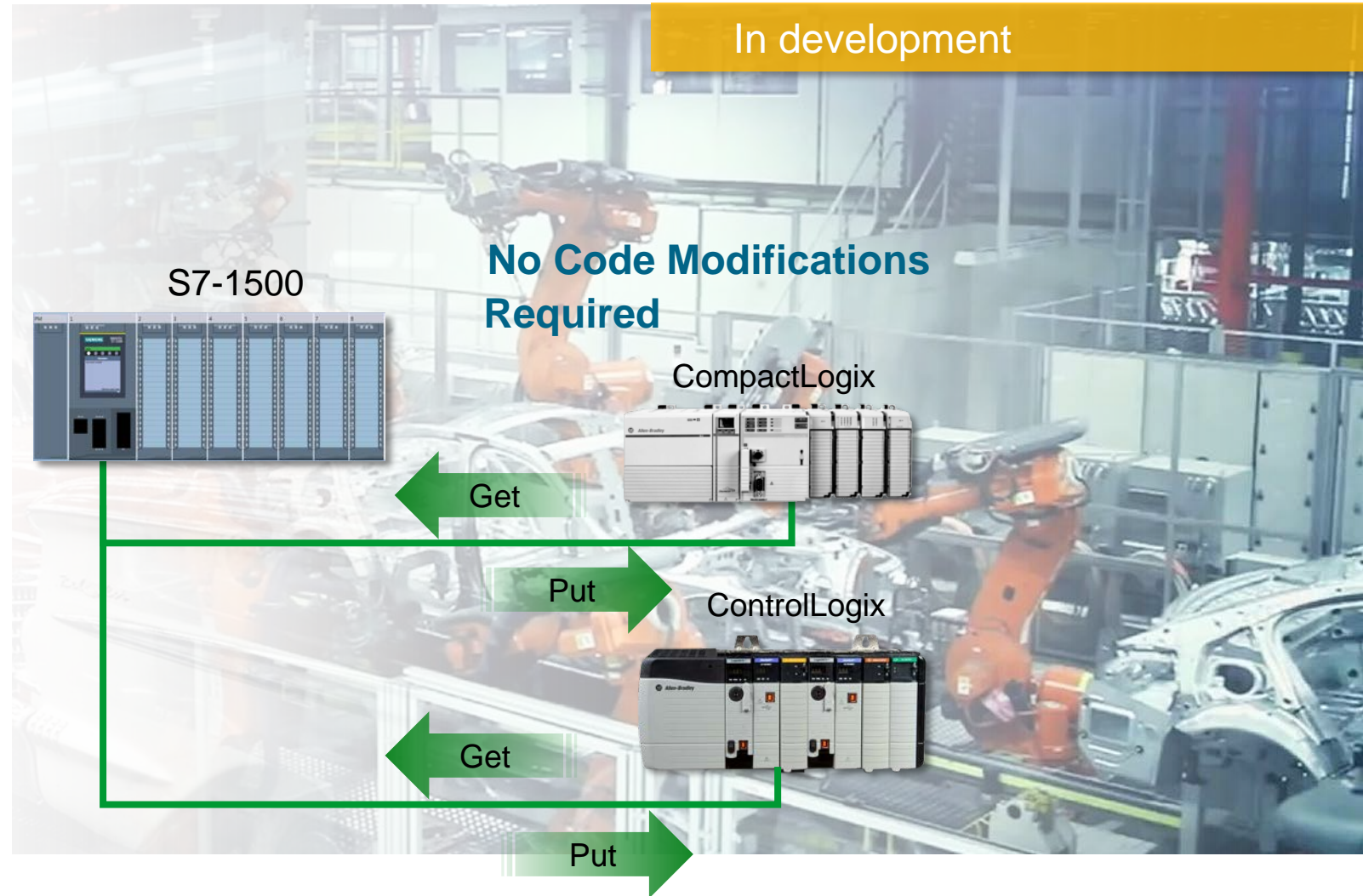
EtherNet/IP™ connectivity



SIEMENS

S7-1500 Ethernet/IP Function Block (GET/PUT)

GET/PUT Function Blocks for SIMATIC S7-1200 / S7-1500 to get/put data to/from a Rockwell controller via Ethernet/IP with no code changes in the Rockwell controller



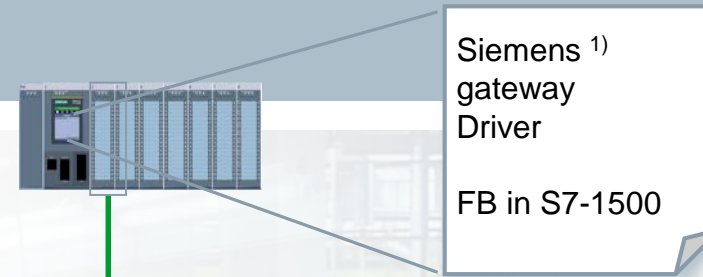
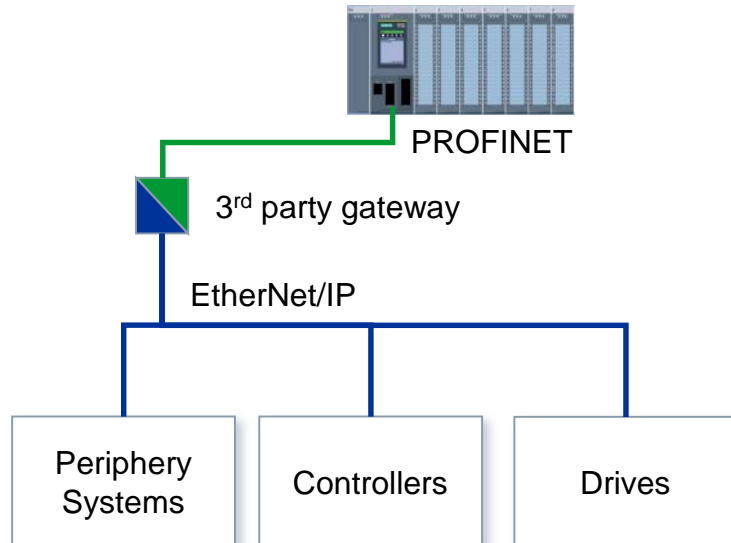
Migration Tools

Gateways

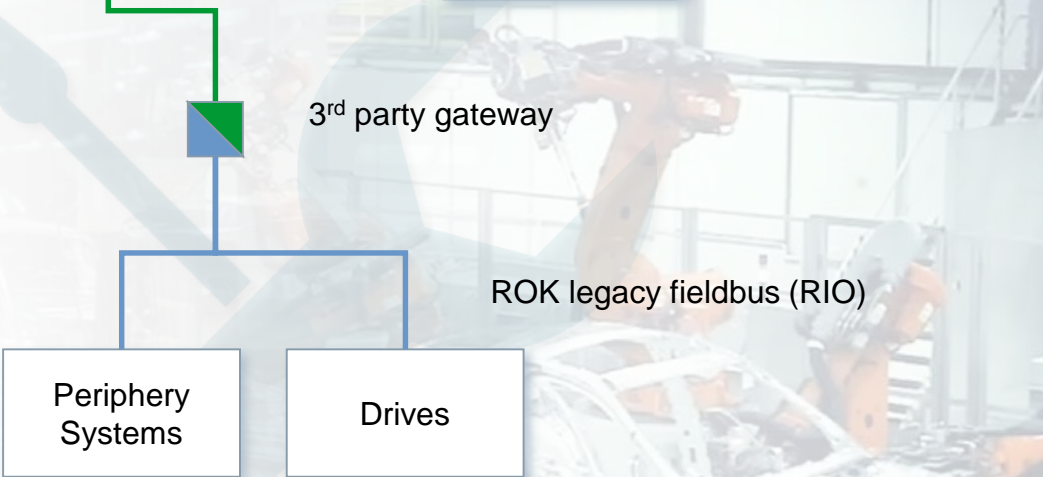
PROFINET to EtherNet/IP™ Gateway

Provide simple connectivity between controllers and periphery using Gateway (Profinet to Ethernet/IP)

Evaluating gateway options possible through other third parties



In development



Function Blocks

Function Blocks for SIMATIC S7-1200 / S7-1500 to communicate EtherNet/IP to Gateway for connectivity to Rockwell Automation legacy network (AB RIO)

Migration Tools

ET200 converter

Quickly converts third-party order numbers (Rockwell – 1734 Point I/O, 1756 ControlLogix, Beckhoff, ...) into SIMATIC ET200 order numbers

- Optimizes conversion result automatically with regard to the number of channels and type of connection

Via Intranet



OrderNr. Rockwell	Description Rockwell	Count Rockwell
1734-AENT	POINT I/O EtherNet/IP Adapter	1
1734-IV4	POINT I/O 24V DC, 4 DI, SOURCE	1
1734-IV8	POINT I/O 24V DC, 8 DI, SOURCE	1
1734-IA2	POINT I/O 120V AC, 2 DI	1
1734-OB8	POINT I/O 24V DC, 1A, 8 DQ, SOURCE	1
(WxHxD)	(103 x 77 x 134)	
With installation leeway (WxHxD)	(103 x 77 x 134) Installation leeway for lost heat	

Results of the conversion

Display all note texts

OrderNr. Rockwell	Description Rockwell	Count Rockwell	Conversion degree	OrderNr. Siemens	Description Siemens	Count Siemens
1734-AENT	POINT I/O EtherNet/IP Adapter	1	●	6ES7155-6AA00-0BN0	ET 200SP, IM155-6PN ST incl. BA 2xRJ45	1
			●	6ES7193-6BP00-0DA0	ET 200SP, BaseUnit Typ A0, BU15-P16+A0+2D	1
			●	6ES7193-6BP00-0BA0	ET 200SP, BaseUnit Typ A0, BU15-P16+A0+2B	2
			●	6ES7193-6BP20-0BB1	ET 200SP, BaseUnit Typ B1, BU20-P12+A0+4B	1
1734-IV4	POINT I/O 24V DC, 4 DI, SOURCE	1	●	6ES7131-6BF60-0AA0	ET 200SP, DI 8X24VDC SOURCE BA	2
1734-IV8	POINT I/O 24V DC, 8 DI, SOURCE	1	●			
1734-IA2	POINT I/O 120V AC, 2 DI	1	●	6ES7131-6FD00-0BB1	ET 200SP, DI 4X120...230VAC ST	1
1734-OB8	POINT I/O 24V DC, 1A, 8 DQ, SOURCE	1	●	6ES7132-6BF00-0BA0	ET 200SP, DQ 8x24VDC/0,5A ST	1
(WxHxD)	(103 x 77 x 134)			(WxHxD)	(115 x 117 x 74)	
With installation leeway (WxHxD)	(153 x 127 x 134) Installation leeway for lost heat			With installation leeway (WxHxD)	(135 x 157 x 74) Installation leeway for lost heat	

Migration Tools Summary



Tool	Description	Availability / Link
PLC5 to S7-1500 Application Conversion Guide	Conversion guide describes an optimized procedure for a rearrangement of a Rockwell Automation PLC-5 system to a SIMATIC S7 system	Internet
WinCC Tag Converter	WinCC Tag Converter provides a fast and easy way to convert tags exported from a Rockwell Automation PLC into WinCC	Internet
Open Communication between Logix and S7-1200 / S7-1500	Provided libraries that allows to communicate via TCP/IP between a SIMATIC S7-1200/1500 and a Rockwell ControlLogix/GuardLogix	Internet
How to achieve the highest possible data throughput between a SIMATIC HMI and a Rockwell PLC	Measure given reduce the overhead in communication between the operator panels and the Allen Bradley controller	Internet
Software Migration Tool	Tool converts different versions of RSLogix projects (Ladder Blocks) to a TIA-Portal project V13 SP1	Internal
PLC5 / 1771 IO Wiring Adapter	Direct connection from Rockwell front connectors to Siemens periphery modules	In Development
S7-1500 Ethernet/IP Function Block (GET/PUT)	GET/PUT Function Blocks for SIMATIC S71200 / S7-1500 to get/put data to/from a Rockwell controller via Ethernet/IP with no code changes in the Rockwell controller	In Development
PROFINET to Ethernet/IP Gateway + Function Blocks	Gateway to connect Profinet to Ethernet/IP & Function Blocks for SIMATIC S7 to communicate Ethernet/IP to Rockwell Automation legacy network (AB RIO) over Gateway	In Development
ET200 Converter	Converts third-party order numbers into SIMATIC ET200 order numbers	Internal



Converting from Rockwell to Siemens Automation

Why Choose Siemens?

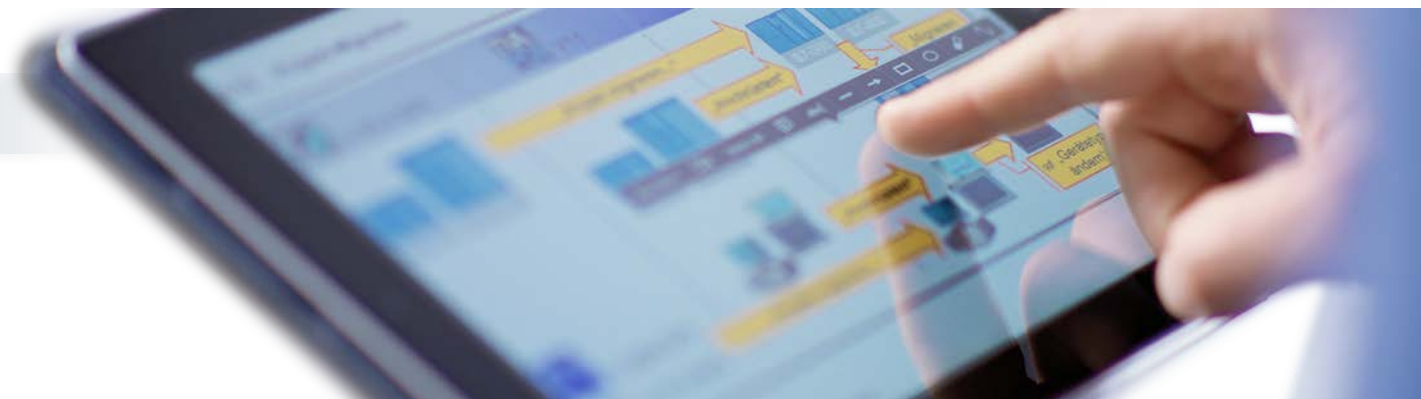
Migration Steps

Migration Tools

Siemens Ethernet/IP™ Solutions

Resources

Rockwell Conversion Example





Siemens Ethernet/IP™ Solutions

Connecting ET200S I/O through EIP-200S adapter interface

EIP-200S adapter interface facilitates the connection of ET200S modules with EtherNet/IP networks

An application example demonstrate the setup, installation and use of the EIP-200S module with a CompactLogix



Connecting Rockwell EtherNet/IP networks with Distributed I/O ET 200S through Molex EIP modules

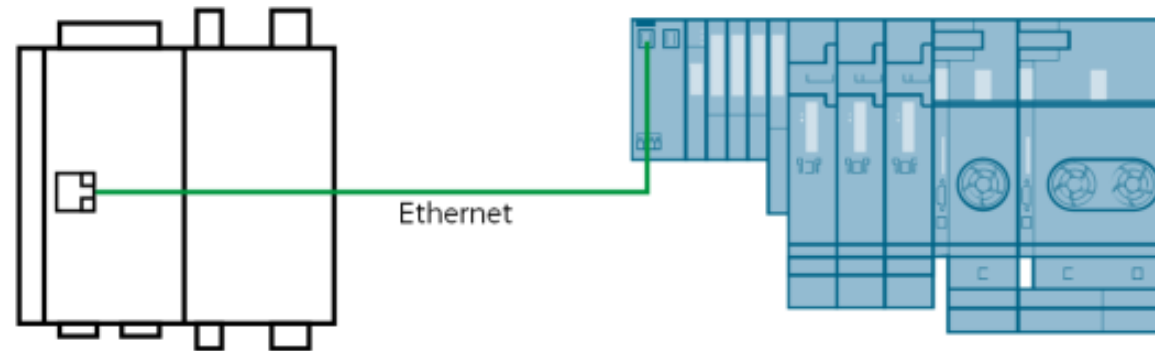
Entry Associated product(s)

Automation Task

EtherNet/IP is a network predominantly used for the communication of PLCs and components manufactured by Rockwell Automation with each other. At the same time, it is often desirable to include distributed I/O modules like the ET 200S as participants in the EtherNet/IP network.

Rockwell Automation
CompactLogix CPU

Molex ET200S EIP
Interface Module



Siemens Ethernet/IP™ Solutions

SINAMICS drives



SIEMENS

SINAMICS G120 General Performance Vector Drives

- In compact, modular, distributed, and enclosed versions
 - Choose correct Ethernet control module

SINAMICS G130 High-horsepower Modular Drive Components

- Choose correct control module plus CBE20 board

SINAMICS G150 Enclosed Drives

- Choose correct control module plus CBE20 board

SINAMICS S120 High Performance / Servo Drive System

- In chassis, bookshelf, blocksize, and enclosed cabinets
 - Choose correct control module plus CBE20 board



CBE20
Communication
Board

SINAMICS S150 Enclosed Regenerative Drive

- Choose correct control module plus CBE20 board

SINAMICS DCM DC Drives

- Choose correct control module plus CBE20 board



Siemens Ethernet/IP™ Solutions

SIMATIC Ident – RFID and code reading solutions

Rockwell does not currently have a complete RFID solution

The RFID181EIP module acts as the interface to an Ethernet/IP network



Siemens Ethernet/IP™ Solutions

Networking infrastructure / cabling



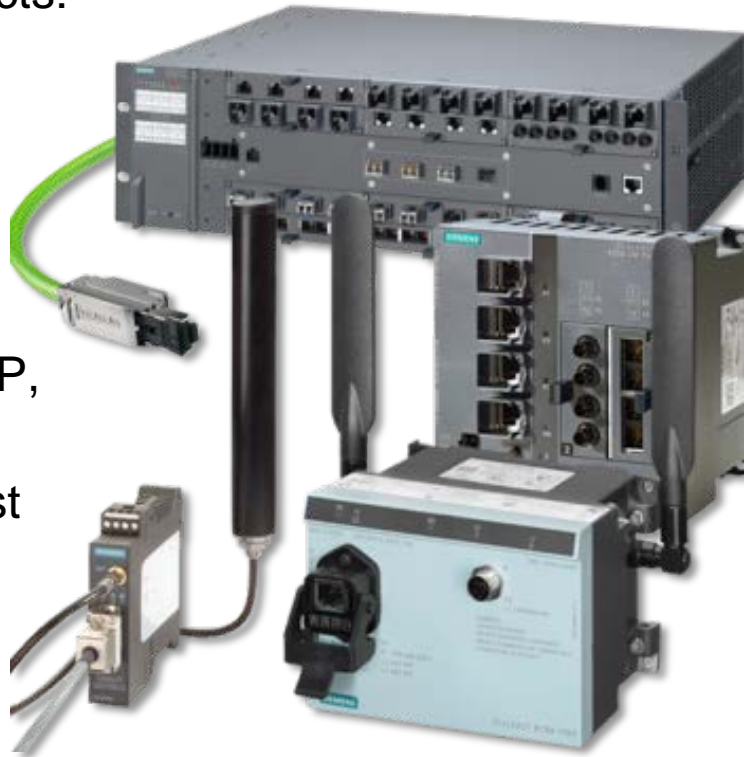
SIEMENS

Wired / Wireless Communications

Ethernet/IP requires IGMP snooping, supported in following products:

- X-500
- X-400
- X-300

Ethernet/IP is standard TCP/IP, the networking components just transport the information



FastConnect

Most superior cabling solution in the market



Converting from Rockwell to Siemens Automation

Why Choose Siemens?

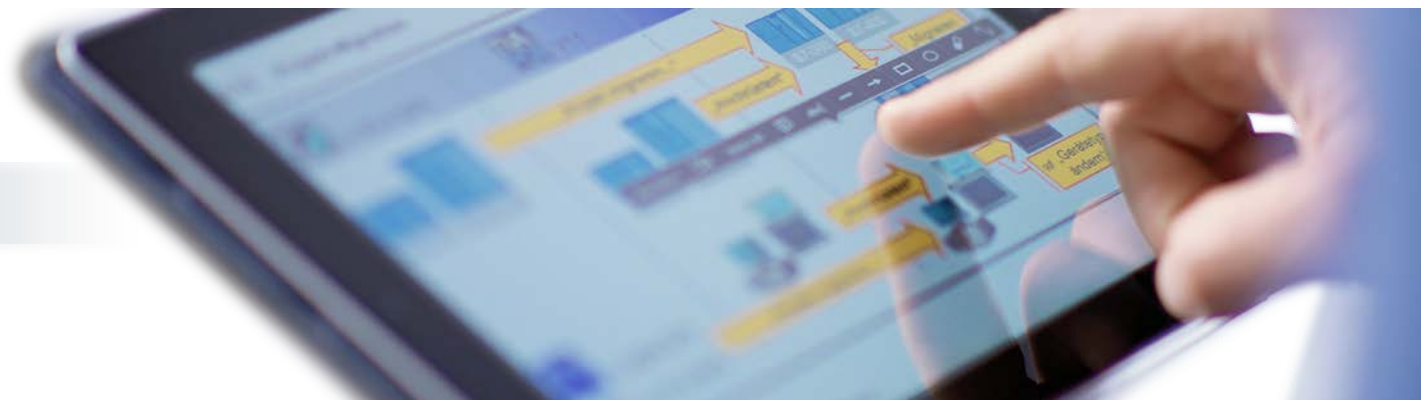
Migration Steps

Migration Tools

Siemens Ethernet/IP™ Solutions

Resources

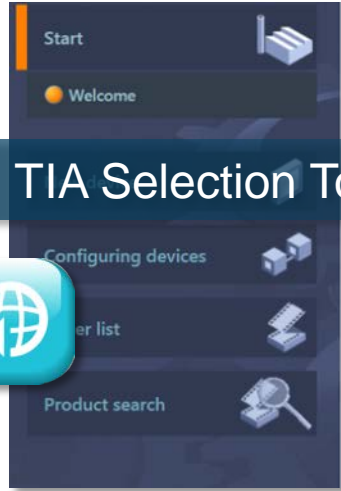
Rockwell Conversion Example



Converting from Rockwell to Siemens Automation Online Resources



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TIA Selection Tool

Totally Integrated Automation Selection Tool



You can select, configure and order devices for Total Automation with the TIA Selection Tool. The TIA Selection Tool offers wizards for selecting the required devices. There are also configuration wizards for selecting accessories as well as for verifying that the final order. The TIA Selection Tool generates a complete order based on your product selection or product code. After you have placed your order, you can export your configuration directly to the Industry Mall or the CA 01.



PLC Conversion: Migrating legacy automation systems can minimize risk & improve ROI up to 30%. Customized solutions & support from Siemens.

Migration Website



Solve automation tasks efficiently with SI



Automation Tasks in 10 minutes or less

TIA Portal: Time Savers - Faceplate Technology

Automation Tasks Videos

TIA Portal: Time Savers - Intelligent Drag & Drop
Intelligent drag & drop can be a huge time saver for any engineer because all the editors in the TIA Portal work together and do things in the background so you don't have to.

Link > 78389996

TIA Portal: Time Savers - Change Device Type
During automation projects new requirements often occur, the ability to be able to easily change device type to meet those new

Link > 78389995



Service & Support Website

Welcome to the new The Siemens Industry Online Support site (SIOS), has recently undergone a complete redesign, but don't worry, you'll find your favorite features are still available.

- > Favorites
- > Personal messages
- > My requests
- > CAx downloads
- ☑ User online ((0)) (24)

Minimize Risk ...Siemens Support



SIEMENS

Siemens Hotline

- Technical support toll free number with live operators: 96% zero hold time.
- Technical support until product maturity during normal business hours: 2 hour target response time.
- Remote Diagnostics for standard support during normal business hours: 2 hour average response time target
- Online support services: FAQ's, Service Packs, CAD files, Code examples, E-mailed product technical bulletins, community forums and knowledge base.
- Priority technical support provides the next available specialist will return the call, usually within just a few minutes.
- 24 hour technical support enables around the clock, 365 days per year. A specialist normally returns the call within 2 hours.
- Extended support if Standard Hotline support exceeds an hour.

(800) 333 7421
helpline.sii@siemens.com

Siemens Support Services provide customers with value which reduces their Total Cost of Ownership (TCO)



Application Engineering Support

- Siemens regional Application Engineer support
- Local distribution support

Factory Automation Engineering Support

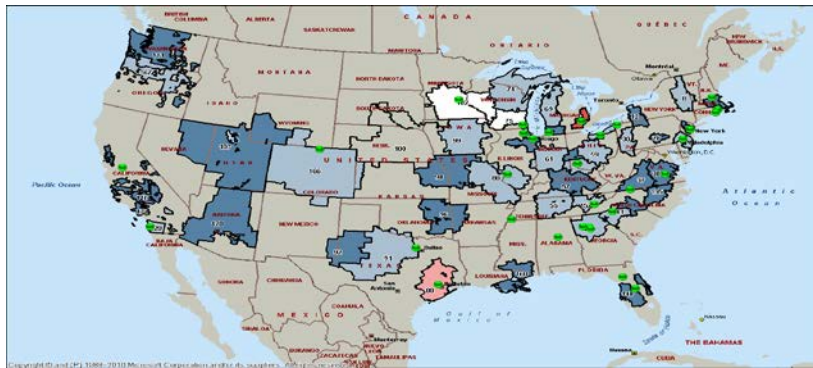
Regional Support



SIEMENS



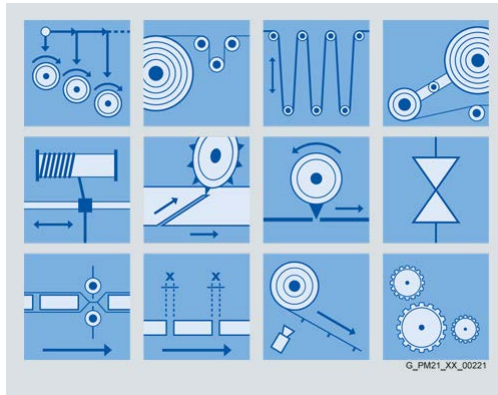
- Consistent engineering support coverage with resources located near the customer / potential business
- Ensure systematic opportunity development support with Business Development and Sales Organizations
- Provide Training/Assistance to Channel AE's
- Collaborate with Technology Support and Application Center to convert strategic opportunities



Factory Automation Engineering Support Application Center



SIEMENS



- Provide application expertise in production machines and in key FA industries:
 - Printing
 - Metal Forming
 - Renewables
 - Textiles
 - Glass
 - Building Materials
 - Packaging
 - Converting
 - Plastics
 - Machine/Material Handling
 - Oil and Gas
 - Food and Beverage
 - Automotive
 - Critical Power
 - Mechatronics
 - Migration
- Develop value-add applications that are repeatable to drive OEM business and End-User specification
- Collaborate with Regional Support and Technology Support teams to convert strategic opportunities

Factory Automation Engineering Support

Technology Support



SIEMENS



- Provide system level support for the key TIA technologies:
 - Engineering Software (TIA Portal)
 - SCADA
 - Profinet and Networking Infrastructure
 - Safety Integrated
 - Motion Control (SIMOTION)
- Provide added depth and support to Regional Support team to convert strategic opportunities
- Provide product/technology expertise to the Application Center for the development of repeatable applications and specific vertical/industry support





Minimize Risk ...Enterprise License Program (ELP)

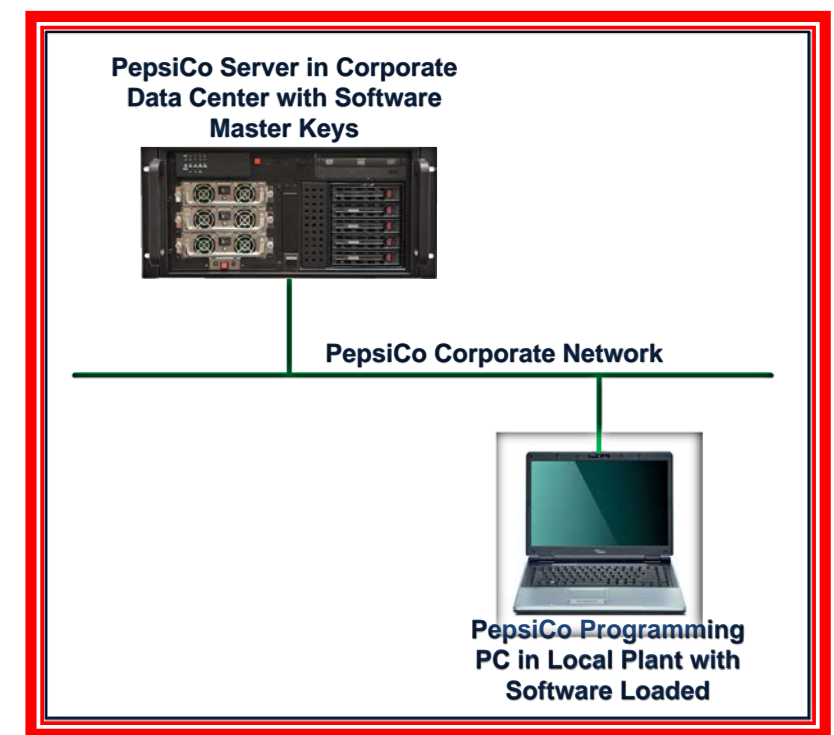
Allows easier distribution, installation, license management and maintenance of Siemens Engineering Software at key, multi-site accounts with large number of users.

Customers who have a long trusting relationship with Siemens qualify for this program and are able to host Siemens Engineering Software without any copy protection on a centrally located server. Economic solution for customers to maintain a large number of engineering software installations across multiple sites

- One central software and license management location**
- Lean and efficient processes
 - Complete transparency of software use ensures compliance
 - Easy software inventory provides ad hoc reporting

- Master Software DVD and reusable Master License Key**
- Time saving and standardized installation
 - Immediate reinstallation in case of hardware crash or change
 - Existing current licenses can be applied to EPL

- Easy software maintenance**
- Supports Engineering Software related to Automation and Drive families
 - Provides more price stability and simplifies budgeting for the customer



Minimize Risk ...Training

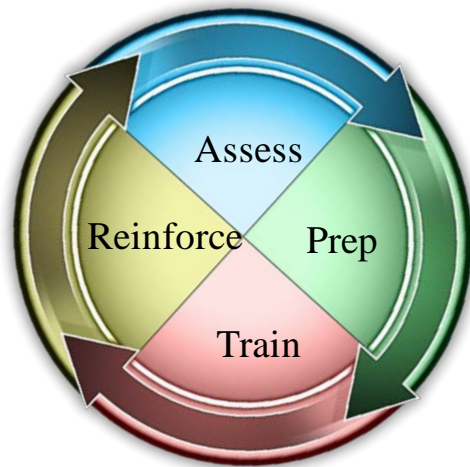


Training Objectives

- Train Engineers how to program and design (Atlanta Training Center)
- Train Maintenance Technicians how to troubleshoot and maintain (Plant)

Training Plan

- Ensure one super user at each plant
- Ensure all maintenance technicians can troubleshoot and maintain



Maintenance

- SIMATIC TIA Portal
AB to S7 Service Fast Track
- SINAMICS G120
Basic Maintenance

Maintenance Advanced

- SIMATIC TIA Portal
Service 1
- Industrial Networking

Engineering

- SIMATIC TIA Portal
AB to S7 Fast Track
- SIMATIC TIA Portal
Programming 2

- Industrial Networking
- SINAMICS G120
Set-up & Maintenance

Engineering Advanced

- SIMATIC TIA Portal
SCL Programming
- SIMATIC TIA Portal
Safety Engineering
- SIMATIC WinCC
Comfort / Advanced



Converting from Rockwell to Siemens Automation

Why Choose Siemens?

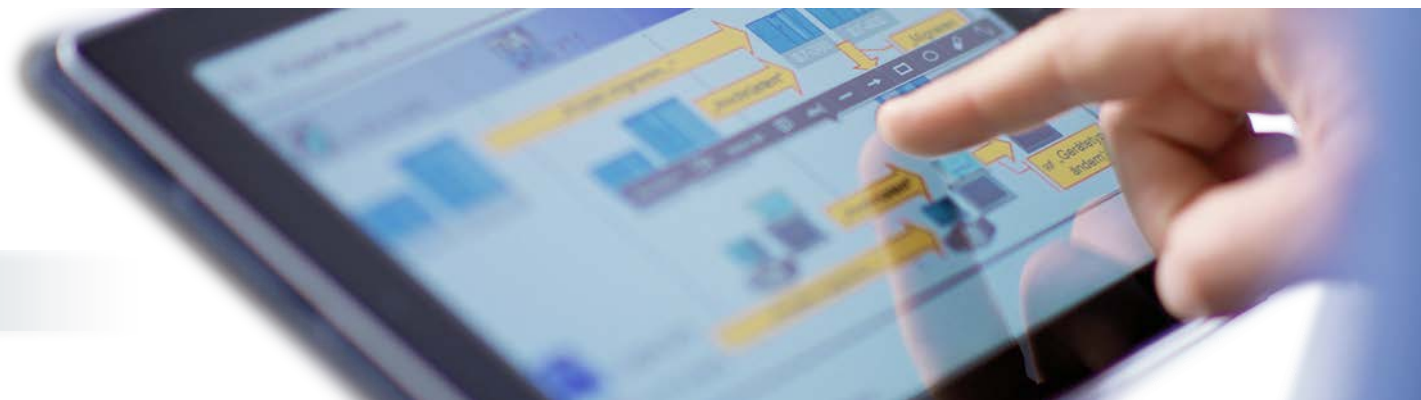
Migration Steps

Migration Tools

Siemens Ethernet/IP™ Solutions

Resources

Rockwell Conversion Example





Rockwell Conversion Example

Packaging machine

Rockwell

- Allen Bradley SLC 500
- Panelview
- AMCI Resolver



Siemens

- SIMATIC S7-1500
- SIMATIC Basic Panel
- SIMOTICS Encoder



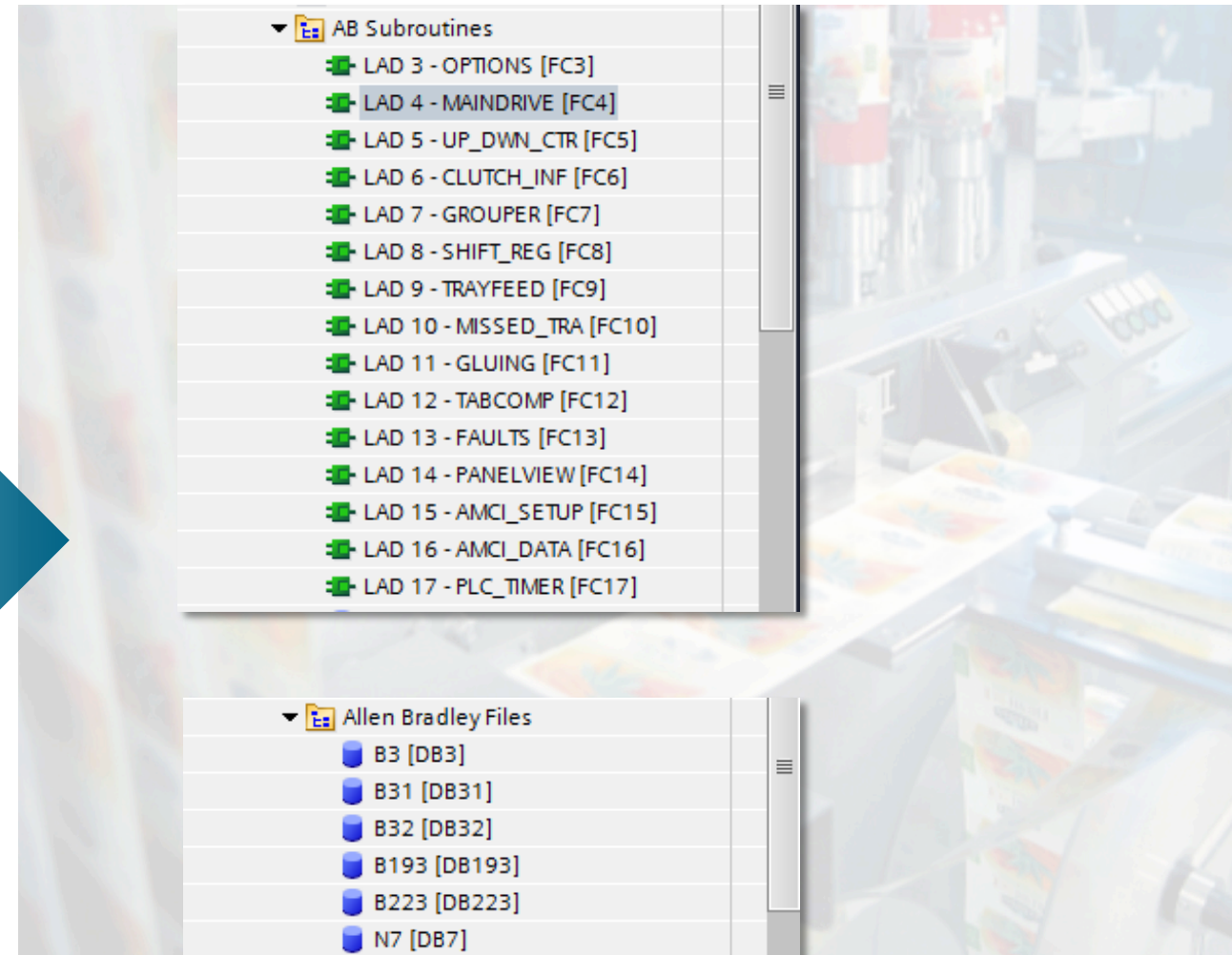
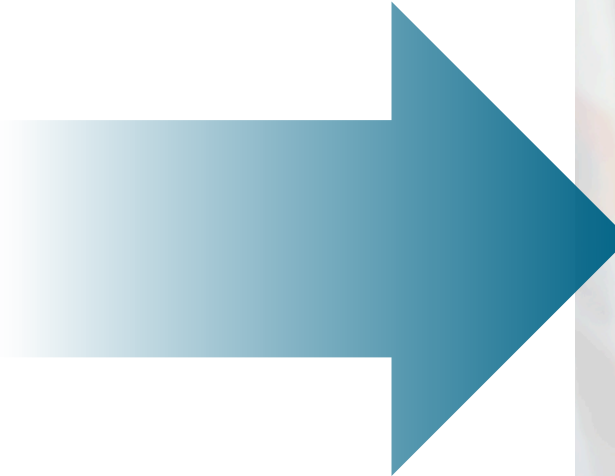
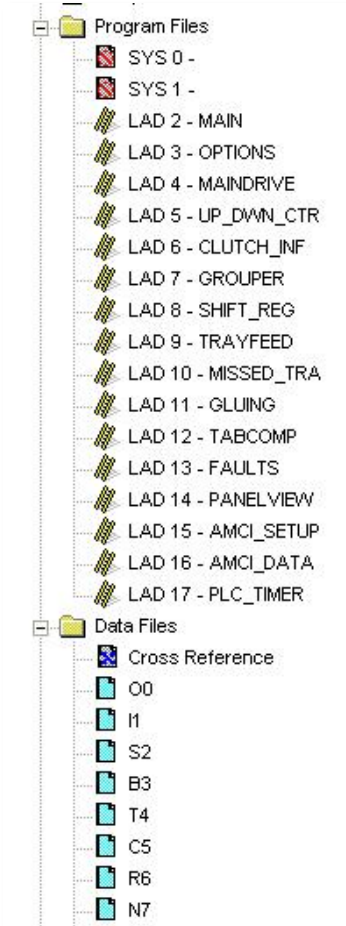
Rockwell Conversion Example

PLC program structure



SIEMENS

Similar program structure for maintenance personnel



Rockwell Conversion Example

PLC program file structure

Offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
B3:0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B3:1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
B3:2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B3:3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B3:4	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
B3:5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
B3:6	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1
B3:7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B3:8	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B3:9	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
B3:10	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
B3:11	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
B3:12	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
B3:13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B3:14	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
B3:15	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1
B3:16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
B3:17	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0
B3:18	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
B3:19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B3:20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
B3:21	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
B3:22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B3:23	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
B3:24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B3:25	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1
B3:26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Similar file naming structure for but more intuitive

Siemens can still work with absolute data files

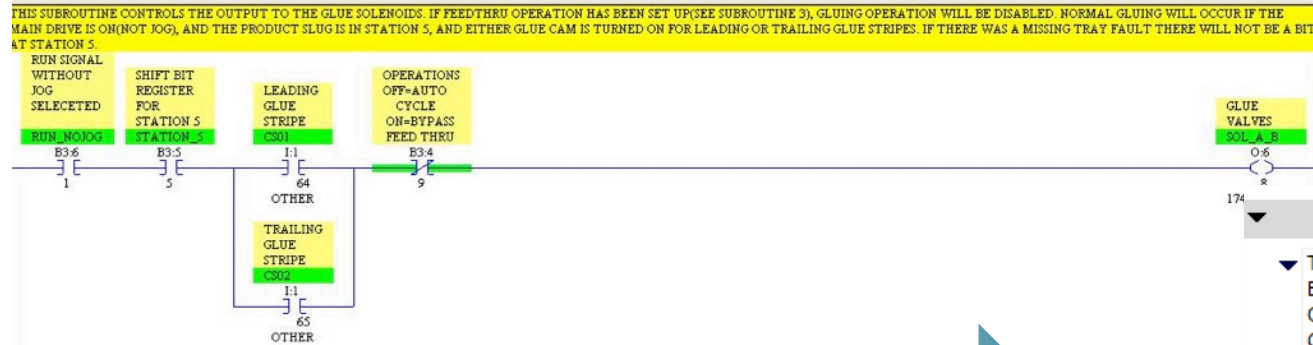
- No need to convert to arrays

Pepsi 50229R Machine ▶ 59227PR [CPU 1516-3 PN/DP] ▶ Program blocks ▶ Allen Bradley Files ▶ B3 [DB3]

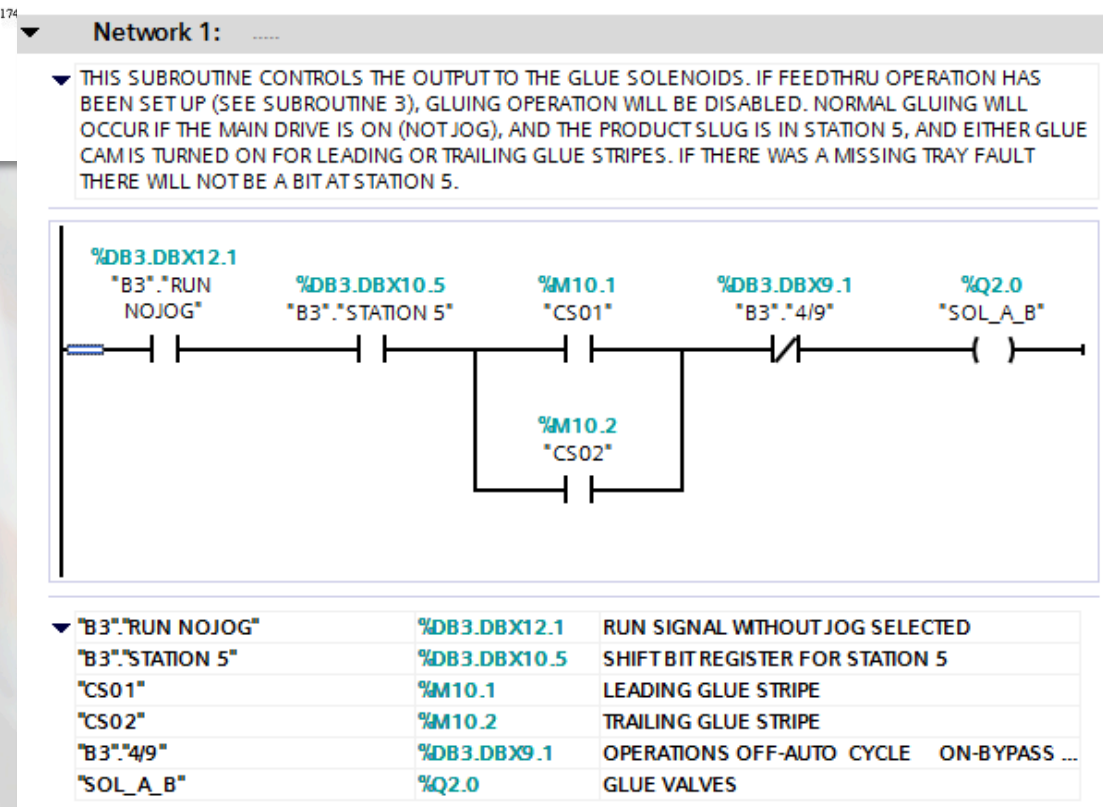
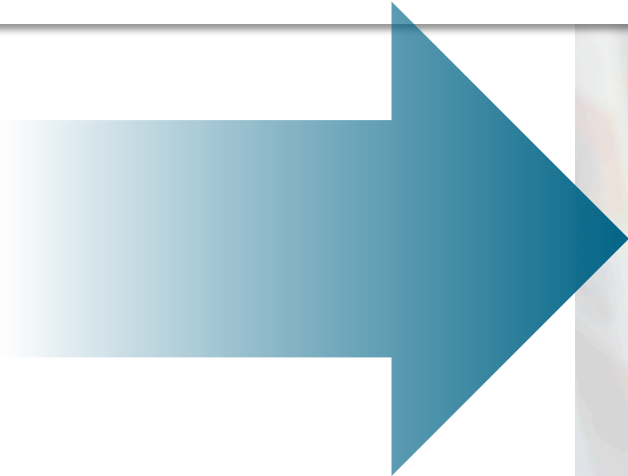
	Name	Data type	Offset	Start value	Retain	Visible in ...	Setpoint	Comment
1	Static							
2	NEVERSET	Bool	0.0	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3	O/1	Bool	0.1	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CS02 GROUPER START ONE SHOT
4	O/2	Bool	0.2	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5	CR3	Bool	0.3	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TRAYFEED START SIGNAL (MEMORY)
6	O/4	Bool	0.4	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CONDITIONS ARE OK TO START GROUPER CYCLE
7	O/5	Bool	0.5	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SUFFICIENT PRODUCT ON INFEEED
8	O/6	Bool	0.6	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	AMCI MODULE FAULTED
9	O/7	Bool	0.7	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CS05 MISSING TRAY BEFORE GLUING ONE SHOT

Rockwell Conversion Example

PLC program logic structure



Ladder logic is ladder logic
 Similar symbols
 Comments the same



Rockwell Conversion Example

PLC tags



Tag names nearly identical

Similar addressing

Same comments

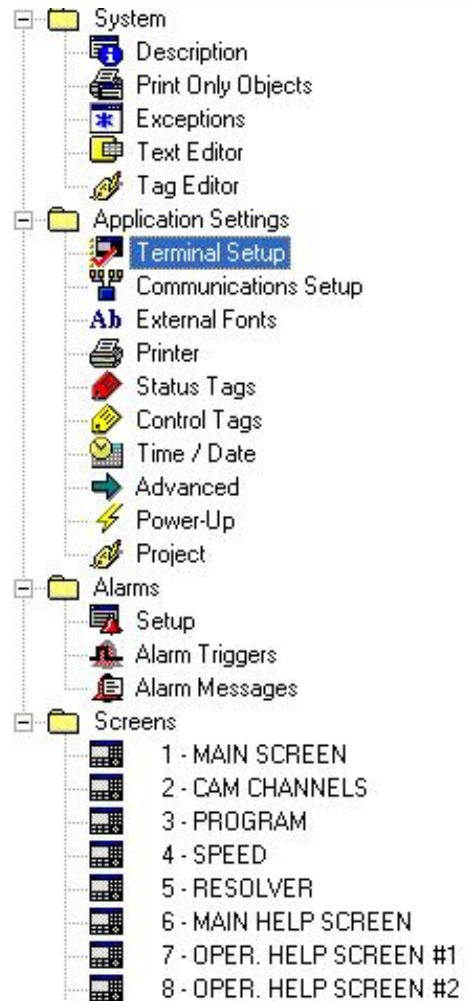
N17:0/1	AMCI	Global	ZERO RESOLVER POSITION IN AMC
B3:1/10	AUTO_STEP_1	Global	AUTOMATIC END OF CYCLE 1ST S7
B3:1/11	AUTO_STEP_2	Global	AUTOMATIC END OF CYCLE 2ND S7
B3:1/12	AUTO_STEP_3	Global	AUTOMATIC END OF CYCLE 3RD S7
S:5/11	BATT_BIT	Global	PROCESSOR BATTERY LOW BIT
0:6/7	CON_1	Global	NO TRAY FEED FAULT ENABLE MAI
0:6/13	CON_2	Global	BOARD FEED MOTOR
0:6/6	CON_51	Global	DISCHARGE CONVEYOR CONTACTOR
I:2/4	COVERS	Global	ACCESS GUARD DOOR(S) ARE OPE
0:6/10	CR02	Global	GROUPER CLUTCH/ BRAKE CONTROL
0:6/11	CR03	Global	TRAYFEED CLUTCH/ BRAKE CONTR
0:6/12	CR04	Global	MAIN MOTOR BRAKE RELAY
0:6/14	CR05	Global	CLUTCHED INFEEED CONVEYOR REL
0:7/3	CR06	Global	NO OPEN FLAP OK TO RUN DOWNST
0:7/10	CR10	Global	INTERFACE OKAY TO RUN UPSTRE
B3:8/14	CR142	Global	OPEN FLAP FAULT
B3:10/8	CR168	Global	CS06 LATCH UNTIL CS08 FOR FWL
B3:0/3	CR3	Global	TRAYFEED START SIGNAL (MEMORY)
B3:2/1	CR33	Global	SIGNAL TO START MAN END OF C7
I:3/12	CR_01	Global	WRAPPER OR STACKER RUNNING OF
I:1/64	CS01	Global	LEADING GLUE STRIPE
I:1/65	CS02	Global	TRAILING GLUE STRIPE
I:1/66	CS03	Global	GROUPER START SIGNAL
I:1/67	CS04	Global	TRAYFEED START SIGNAL
I:1/68	CS05	Global	TRAYFEED SAFETY



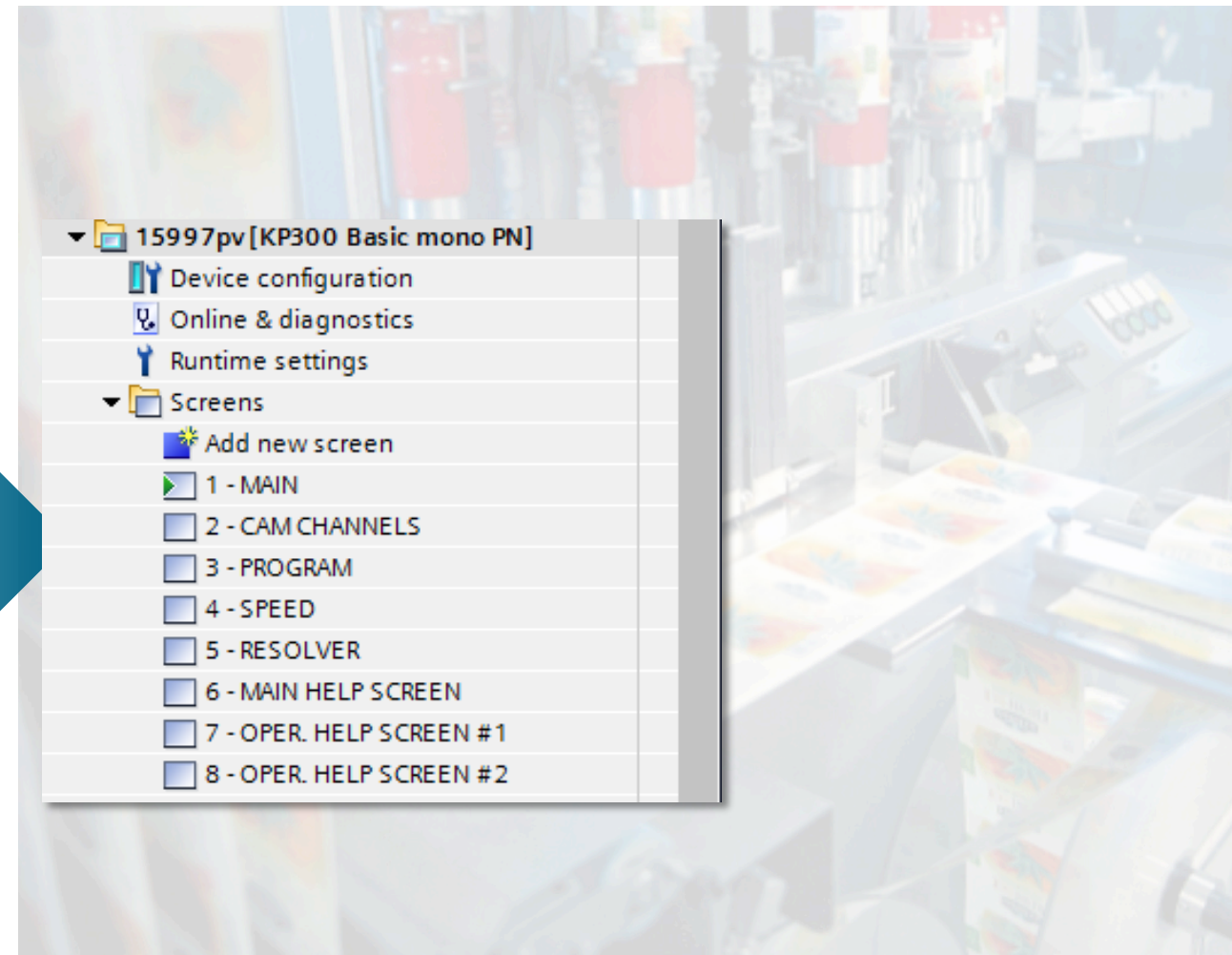
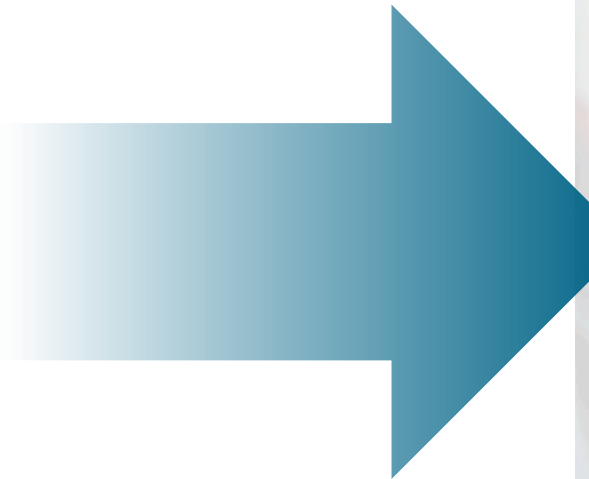
	Name ▲	Data type	Address	Retain	Visibl...	Acces...	Comment
1	AlwaysFALSE	Bool	%M1.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2	AlwaysTRUE	Bool	%M1.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3	AMBER TELE BEACON	Bool	%Q4.5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	AMBER TELE BEACON
4	AMCI 8511 ERROR	Bool	%M13.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	"AMCI 8511 ERROR"
5	AMCI SECOND INPUT WORD	Int	%MW2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6	CON_1	Bool	%Q1.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NO TRAY FEED FAULT ENABLE MAIN DRIVE
7	CON_2	Bool	%Q2.5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	BOARDFEED MOTOR
8	CON_51	Bool	%Q1.6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	DISCHARGE CONVEYOR CONTACTOR ON
9	COVERS	Bool	%I0.4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ACCESS GUARD DOOR(S) ARE OPEN
10	CR_01	Bool	%I3.4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	WRAPPER OR STACKER RUNNING OR DISCH...
11	CR02	Bool	%Q2.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	GROUPER CLUTCH/BRAKE CONTROL
12	CR03	Bool	%Q2.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TRAYFEED CLUTCH/BRAKE CONTROL
13	CR04	Bool	%Q2.4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MAIN MOTOR BRAKE RELAY
14	CR05	Bool	%Q2.6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CLUTCHED INFEEED CONVEYOR RELAY
15	CR06	Bool	%Q3.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NO OPEN FLAP OK TO RUN DOWNSTREAM ...
16	CR10	Bool	%Q4.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	INTERFACE OK TO RUN UPSTREAM EQUIP.
17	CS01	Bool	%M10.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	LEADING GLUE STRIPE
18	CS02	Bool	%M10.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TRAILING GLUE STRIPE
19	CS03	Bool	%M6.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	GROUPER START SIGNAL
20	CS04	Bool	%M7.6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TRAYFEED START SIGNAL
21	CS05	Bool	%M11.4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TRAYFEED SAFETY
22	CS06	Bool	%M11.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SCAN PHOTO FOR MISSING TRAY BEFORE ...
23	CS07	Bool	%M0.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PRODUCT TRACKING POSITION SLUG WAS ...
24	CS08	Bool	%M4.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	END OF CYCLE, STOP MACH FOR TAB COM...
25	DH+ STATION MONITORING	Bool	%M0.5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
26	DiagStatusUpdate	Bool	%M1.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
27	DISC_51	Bool	%I1.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	DISCHARGE CONVEYOR DISCONNECT IS ON
28	DISCH_MTR	Bool	%I3.5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TURNER ON (SYST) OR DISCH CONVEYOR O...

Rockwell Conversion Example

HMI structure



Same screen names



Rockwell Conversion Example

HMI tags



Tag names nearly identical

	Tag Name	Data Type	Array Size	Description	Node Name	Address	Initial Value
1	bfeed	Bit	0	MANUAL BOARD FEED	KAYAT504	B31.1	0
2	bfeed2	Bit	0		KAYAT504	B31.1	0
3	bfeedt	Bit	0		KAYAT504	B32.2	0
4	bfeedt2	Bit	0		KAYAT504	B32.2	0
5	bplnerd	Unsigned Inte	0		KAYAT504	N200.23	0
6	casecnt	Unsigned Inte	0	COUNT	KAYAT504	N10.2	0
7	channel	Unsigned Inte	0		KAYAT504	N10.11	0
8	clrout	Bit	0	ALLOWS CLEARING OF GROUPE R D	KAYAT504	B31.5	0
9	clroutt	Bit	0		KAYAT504	B32.1	0
10	cpm	Unsigned Inte	0	HOLDS SPEED IN CPM	KAYAT504	I1.2	0
11	ctrlcam	Bit	0		KAYAT504	B3/347	0
12	ctrlpack	Bit	0		KAYAT504	B3/346	0
13	ctrlspeed	Bit	0		KAYAT504	B3/400	0
14	direction	Bit	0	ALLOWS CLEARING OF GROUPE R D	KAYAT504	B31.9	0
15	dirIt	Bit	0		KAYAT504	B32.5	0
16	dposrd	Unsigned Inte	0		KAYAT504	N200.22	0
17	drpmrd	Unsigned Inte	0		KAYAT504	N200.32	0
18	jog	Bit	0	JOG MACHINE	KAYAT504	B31.0	0
19	joga	Bit	0		KAYAT504	B31.0	0
20	jogalt	Bit	0		KAYAT504	B31.0	0
21	jogb	Bit	0		KAYAT504	B31.0	0
22	jogbt	Bit	0		KAYAT504	B31.0	0
23	jogc	Bit	0		KAYAT504	B31.0	0
24	jogct	Bit	0		KAYAT504	B31.0	0
25	joglt	Bit	0	JOG LIGHT ON	KAYAT504	B31.0	0
26	messageval	Unsigned Inte	0		KAYAT504	N10.3	0

Pepsi 50229PR Machine ▶ 15997pv [KP300 Basic mono PN] ▶ HMI tags ▶ AB Tags [46]

Name	Data type	Connection	PLC name	PLC tag
bfeed	Bool	HMI_connection_3	59227PR	B31.*0/1*
bfeed2	Bool	HMI_connection_3	59227PR	B31.*0/1*
bfeedt	Bool	HMI_connection_3	59227PR	B32.*0/2*
bfeedt2	Bool	HMI_connection_3	59227PR	B32.*0/2*
bplnerd	Int	HMI_connection_3	59227PR	N200.23
casecnt	Int	HMI_connection_3	59227PR	N10.2
channel	Int	HMI_connection_3	59227PR	N10.11
clrout	Bool	HMI_connection_3	59227PR	B31.*0/5*
clroutt	Bool	HMI_connection_3	59227PR	B32.*0/1*
ctrlcam	Bool	HMI_connection_3	59227PR	B3.*21/11*
ctrlpack	Bool	HMI_connection_3	59227PR	B3.*21/10*
ctrlpack(1)	Bool	HMI_connection_3	59227PR	B3.*21/10*
ctrlpack(2)	Bool	HMI_connection_3	59227PR	B3.*21/10*
ctrlpack(3)	Bool	HMI_connection_3	59227PR	B3.*21/10*
ctrlspeed	Bool	HMI_connection_3	59227PR	B3.*25/0*

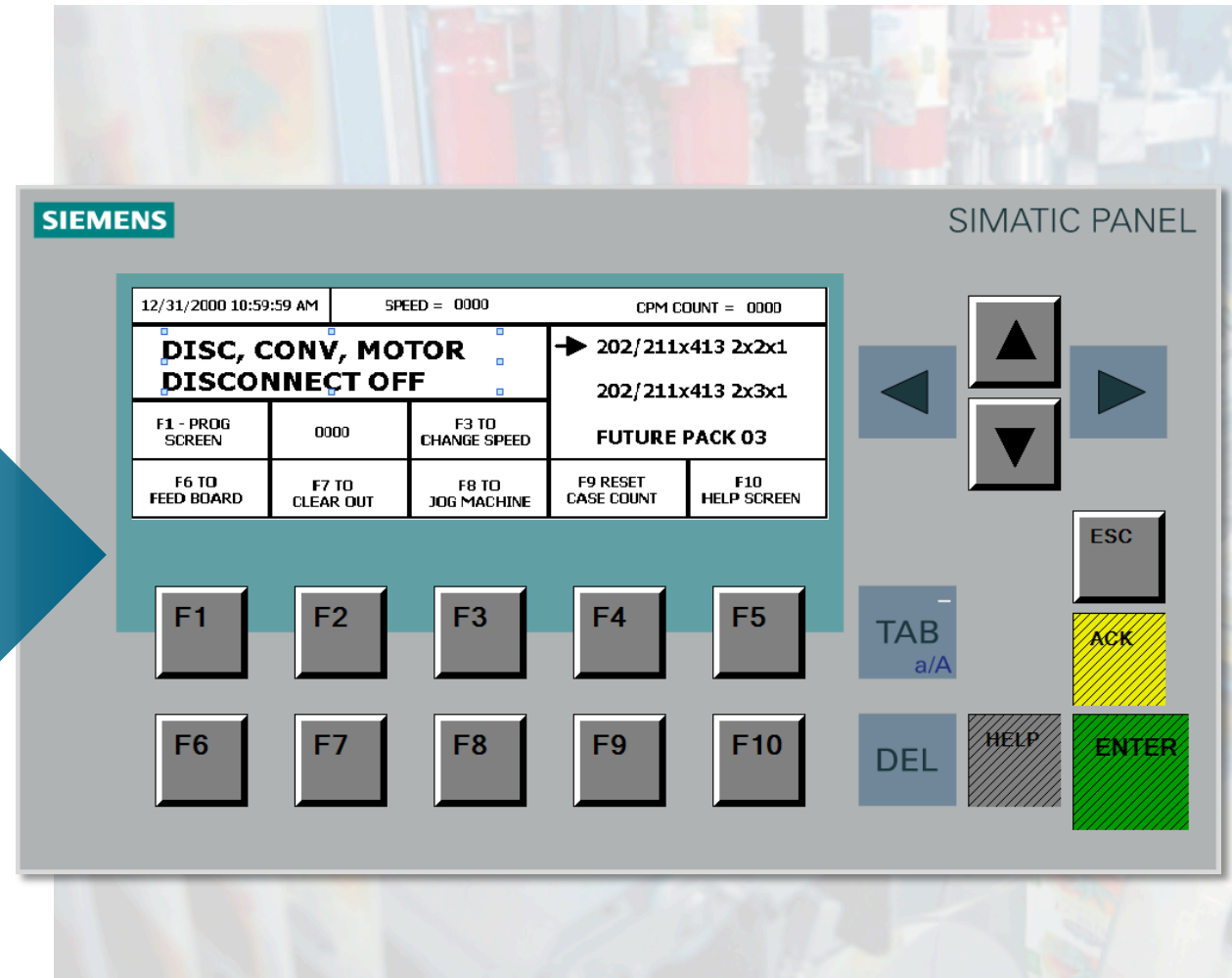
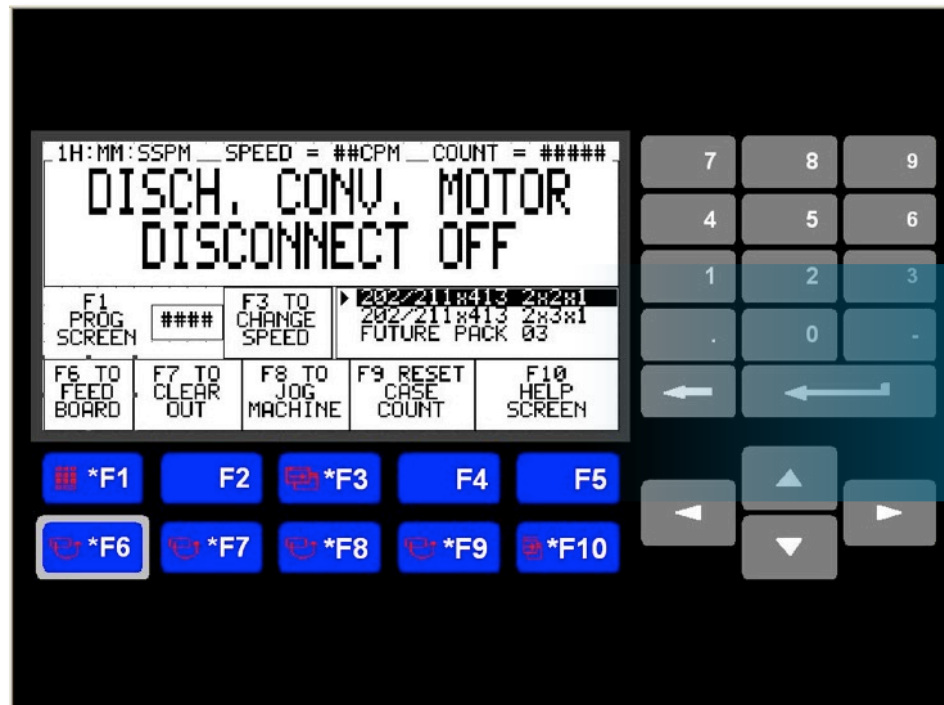
Rockwell Conversion Example

HMI screens



SIEMENS

Similar look, similar feel



Rockwell Conversion Example

New diagnostic features



SIEMENS

Integrated PLC display

- Hardware diagnostics
- Machine diagnostics
- Command functions
- System Maintenance
- No PC required
- Password protected

Rockwell
Automation



Rockwell Conversion Example Benefits



SIEMENS

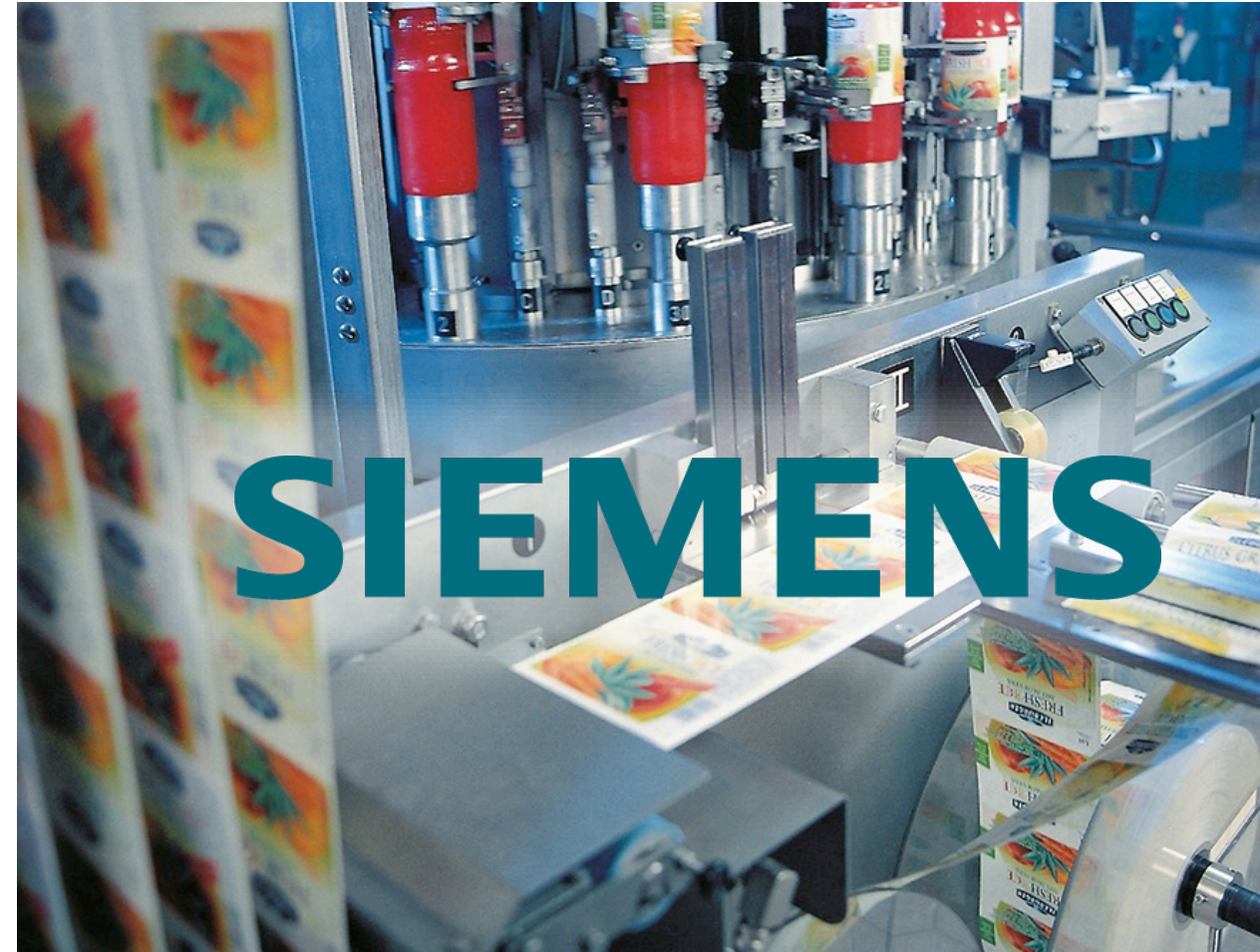
No surprises for maintenance

- PLC program structure
- PLC logic
- PLC tags
- HMI structure
- HMI tags
- HMI screens

Enhanced Diagnostics

- PLC Display
- Self configuring Ethernet devices
- Web pages

New 30 year hardware





Thank you!



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Factory Automation
Engineering Support Manager – North Region**

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brian.boyington@siemens.com

Answers for industry.