New Generation Compact PLC – Present and Future Solutions – Standard

PACSystems™ RSTi-EP CPE200 Series PACs
Machine Automation Solutions

Dec 2024

EMERSON

Our Technologies

Fluid Control Solutions

Fluid Control Solutions Maximize Efficiencies, Optimize Applications and Improve Safety

Smart Pneumatics

Smart Solutions that Provide You with the Insights to Drive Energy Efficiency and Operational Improvements

Linear Motion Control

Innovative Solutions that Provide Precise and Long-Lasting Operation for Your Factory Automation Applications

Feeding & Handling Systems

Flexible Solutions to Automate Your Manufacturing Processes Sustainably and Profitably

Switch & Sensor Technologies

Meeting Industry Demands with Reliable Controllers, Switches & Sensor Technology to Streamline End-to-End Application Performance

Precision Fluid Control

Precision fluid and pressure control solutions that can be customized to meet the needs of critical industries worldwide

Electrical Solutions

The Most Trusted, Rugged Electrical Solutions for Industrial and Hazardous Environments Across the World

Power Conversion & Power Quality

Power Your Machine and Process Control Applications with Our Power Conversion and Power Quality Products

Material joining & Cleaning

Meeting assembly challenges with a portfolio of innovative solutions, backed by deep industry expertise and unparalleled global resources

Industrial PC's, PLC's, PAC's and HMI's

Optimizing industrial machinery and processes safely, securely and reliably to help realize higher performance of operations in any environment

Industrial Software

A powerful platform for supervisory systems and plant analytics solutions essential to Industry 4.0

Edge Hardware

Connectivity and analytics embedded at every layer, from device to control to cloud

Discrete Automation: Combining Device, Control & Software Creates Solutions

DIGITAL FACTORY

DIGITAL MACHINE

Software & Insights that Expands Customer Value

Control Systems & Edge Computing

Intelligent "Software Enabled" Devices

Application Tailored Solutions

Compressed Air

Multi-Media Monitoring

Dust Collectors

Clean In Place

Safety Showers

PACEdge PLANTWEB Movicon.next

Edge Devices

PLC

Software

Instruments & Sensors

Valves & Positioners

Valve Systems

USER BENEFITS

- Sustainability
- Productivity
- Reliability
- Safety

Unilever, Colgate, Nestlé, Arla, B/S/H/, Coca-Cola, Hill's, SIG

Yesterday's Compact PLCs are not Designed for Today's Industrial Challenges

You feel the weight of external pressures…

Supply Chain Challenges

68%

Increase in Supply Chain Disruptions worldwide from 2019 to 2021*

Skilled Labor Shortages

8.1MM

Open Positions in the United States**

Cyber Attacks

110%

Increase in **Reported ICS Vulnerabilities** in the last four years***

Statista, "Number of supply chain disruptions worldwide from 2019 to 2021" https://www.statista.com/statistics/1267082/supply-chain-disruptions-worldwide/
** US BLS Job Openings and Labor Turnover Summary Sept 4 2024 https://www.bls.gov/news.release/pdf/jolts.pdf
*** Claroty, "Biannual ISC Risk & Vulnerability Report: 2H 2021" https://claroty.com/2h21-biannual-report/

Yesterday's Compact PLCs are not Designed for Today's Industrial Challenges

External pressures create internal challenges…

Supply Chain Challenges

Skilled Labor Shortages

Cyber Attacks

Introducing the Next Generation Compact PLC

Everything you need – Built in

- Pre-integrated
- Pre-licensed
- Pre-installed

Emerson RSTi-EP CPE200 Series Compact PLC

Master Supply Chain Challenges With Open Communications – Standard

Open communication allows flexible sourcing; easily add third-party devices

- OPC UA Secure
- PROFINET, Modbus, I/O-Link, DNP3

Reduce the quantity of units to purchase, set up, test and deploy

- Full gigabit communications
- Integrated ethernet switch capability

Expand Your Labor Pool With Open Programming – Standard

Support Traditional PLC Programmers

- Ladder Diagram
- Structured Text
- Function Blocks Diagram

Enable Next-Generation Talent

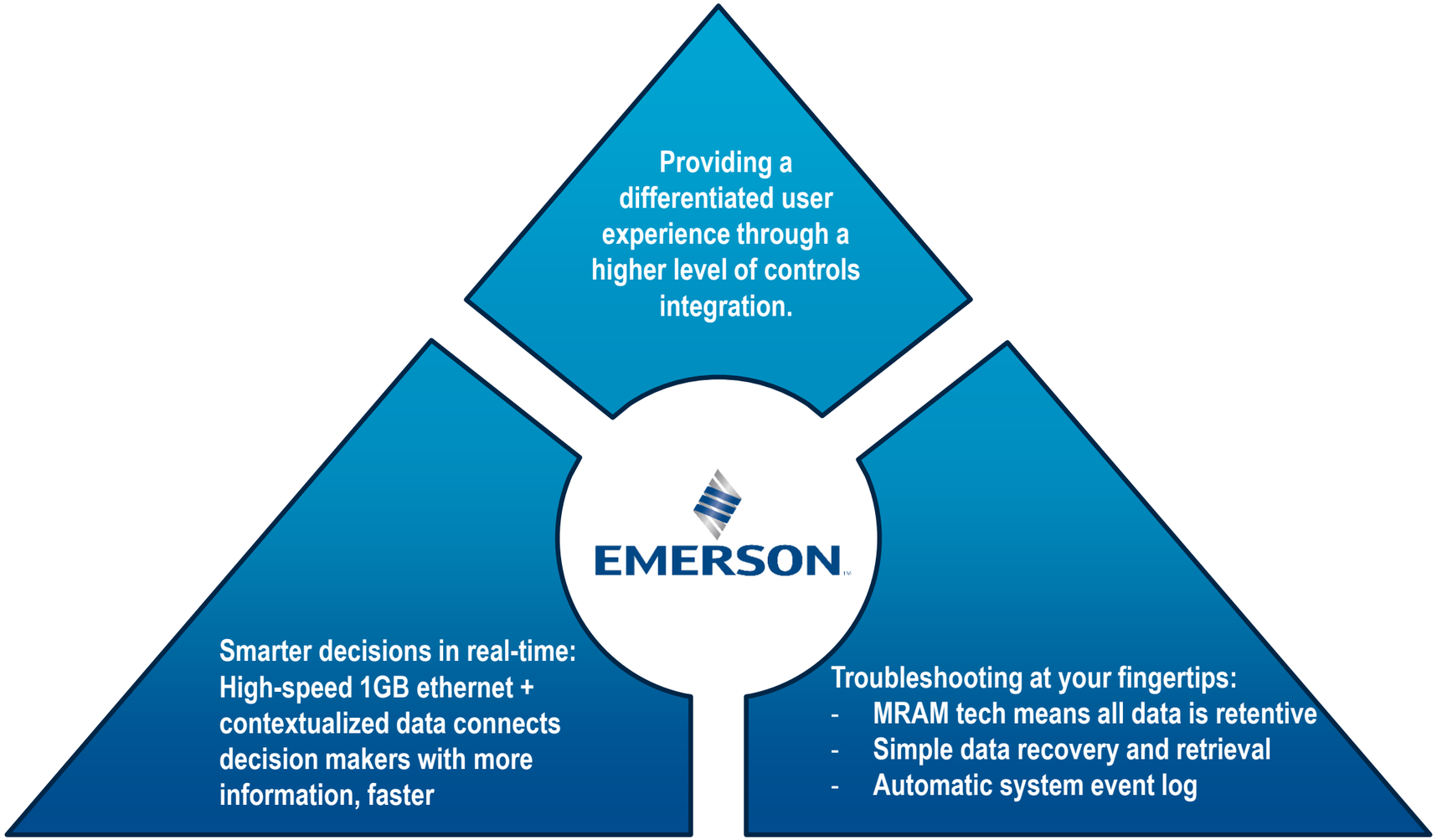
- Natively integrated C programming

Improve Productivity for Both:

- Full Tag-Based Programming
- Broad, Built-in Function Libraries
- User-Defined Data Types (UDT), and Functions (UDFB) with Portable Code Toolchests
- One run-time and tool chain across all PACSystems controllers

Security-by-Design Thwarts Today's and Tomorrow's Cyber Attacks

Increase Productivity With High Performance – Standard



Prepare for Rapid Automation Evolution With Next-generation Capabilities – Standard

IIoT-ready with natively-integrated OPC UA Secure	**Simplifies connectivity to Industry 4.0 and external analytics software platforms**
Emerson's complete line of edge solutions	**Allows rapid and easy integration into advanced edge functions**
Module Type Package (MTP)	**Reduces integration time with DCS by 50%**

Extend OEM/User Partnership With Special Integration Features – Standard

Toolless OEM fleet management

- ✓ Execute fleet-wide application commissioning and updates
- ✓ Portable individual unit tuning parameters
- ✓ Secure remote firmware updates

Data and intellectual property protection

- ✓ Native application encryption and OEM IP locks
- ✓ Native device access control permissions for real-time data and parameters
- ✓ OEM Lock keeps your intellectual property safe

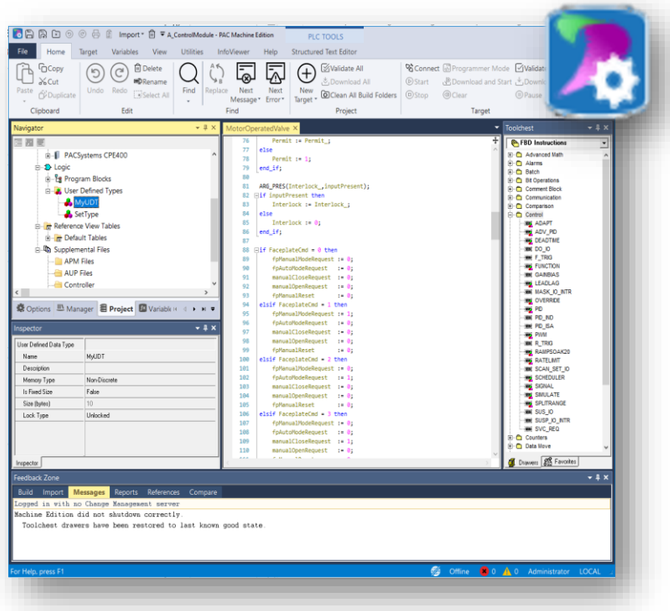
PACSystems™ CPE200 Compact Controllers

Everything you need to meet today's business challenges and prepare for tomorrow's business opportunities.

Key Challenges	The Emerson Advantage
Constrained Supply Chain	Open communications for flexible device integration
Skilled Labor Shortages	Open programming maximizes usability and productivity
Cyber Attacks	Security-by-Design means security built into every layer
Meeting Productivity Demands	Real-time information access speeds critical decision making
Coping with Technology Change	IIoT ready out-of-the-box means future-proofing comes standard
OEM / End User Partnership	Integrated fleet management tools foster closer relationships

Scale Seamlessly Across the PACSystems Controls Families

Now utilize One Runtime and One Toolchain for all your control applications



PACSystems

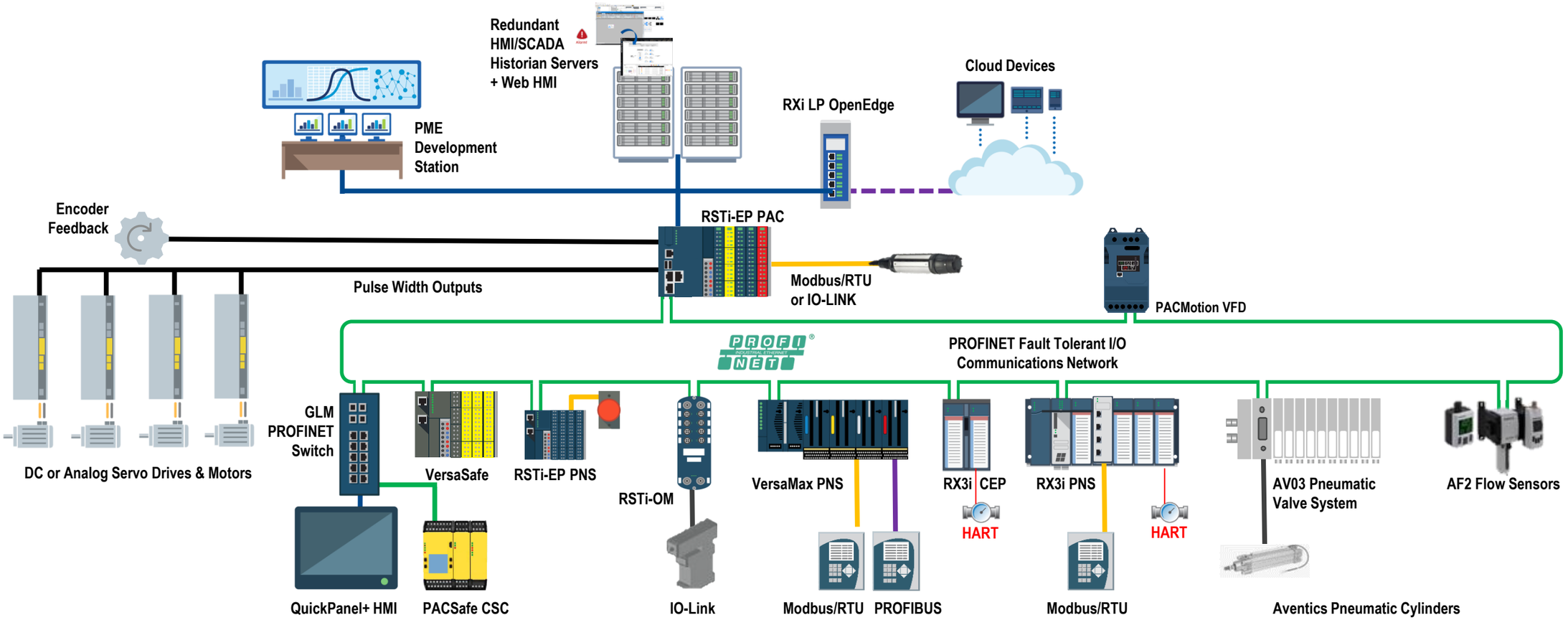
Common IEC Programming Languages & C Programming Native
Common Communication Protocols
Portable Programs and Data Types

PAC Machine Edition

Seamlessly Program Logic, Motion, Safety, Communications & HMI
One-click Family Conversions
Integrated Simulation Tools

Integrated Small Machine Controls Architecture - Standard

Logic, Motion, HMI, Safety, Communications, Pneumatics, and Edge



Future Proof Your Technology With Full Scalability – Standard

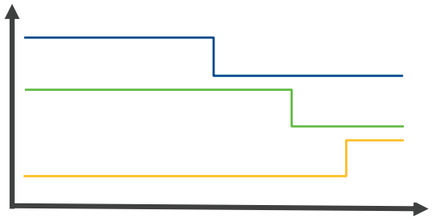
Product Number1	EPXCPE205	EPXCPE210	EPXCPE215	EPXCPE220	EPXCPE240
Retentive User Memory	0.5 MB	1 MB	1.5 MB	2 MB	4 MB
System IO	512 DIO 128AIO	2048 DIO 32128 AIO			
Local IO Modules	16	32		64	
Network Redundancy	MRP Master/Client				
Ethernet Capabilities	**Ethernet Ports:** 1-2-port configurable as 2 NICs or 1 NIC switch 100/1000	**Ethernet Ports:** 1 – 100/1000 1-2-port switch 100/1000			
	Ethernet Protocols: SRTP Client/Server Modbus/TCP Client/Server OPC-UA Server EGD PROFINET	**Ethernet Protocols:** SRTP Client/Server Modbus/TCP Client/Server OPC-UA Server EGD PROFINET DNP3 Outstation			
Remote IO Devices	8 PROFINET	16 PROFINET		32 PROFINET	
Serial Capabilities	**Serial Ports:** 1 – RS-232 **Serial Protocols:** ASCII Serial, Modbus/RTU Slave				
USB Interface	2 – USB A2.0				
Memory Card	1 – Micro SD				
Temp Range	-40 to +70C				

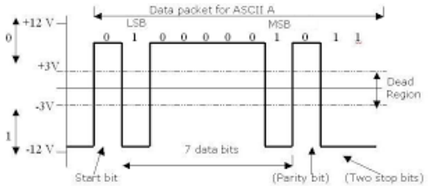
Differentiating New Features for CPE200

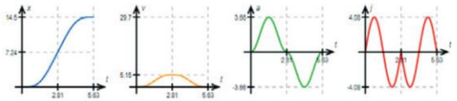
Enabling New Levels of Productivity

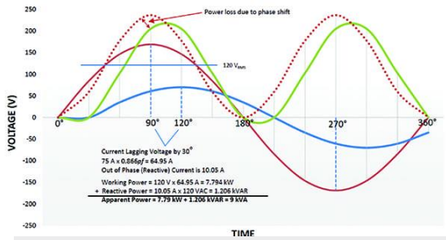
- MRAM User Memory – means retentive User Memory without batteries or Energy Racks
- Store Variables to uSD Card – Use for portable tuning parameters, quickly copy a machine or replace a failed controller without tools
- Controller Activity Log – Keep track of operations executed on and by the PLC, simply upload via PACSAnalyzer
- Basic Motion Control Support – With I/O modules for quadrature and SSI encoder feedback, PWM and analog outputs, control simple motion apps right in the PLC

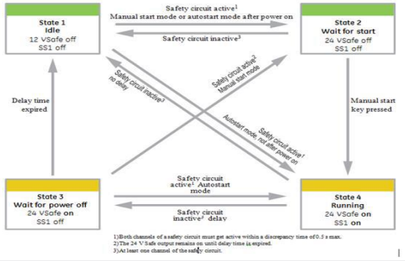
Optimized Design Flexibility with RSTi-EP Backplane Modules - Standard











Standard IO

Traditional discrete & analog IO for basic sensor integration

- 24V DC + 125VDC I/O
- 120/240 AC I/O
- 24VDC – 240AC relays
- V/C analog I/O
- TC/RTD inputs

Communications

Communications interfaces for a variety of protocols and machine control devices

- RS232/RS422/RS485 serial
- IO-Link master

Motion

High-performance motor control and feedback

- Pulse & frequency high-speed counters
- SSI encoder feedback
- Pulse width modulation
- Analog outputs

Power Monitoring

Monitor power consumption and quality for improved machine efficiency and life

- 1-3 phase current monitor, up to 500VAC, 5A, current, voltage, power factor, frequency, power and energy measuring

Integrated SIL3 Safety

Integrate basic machine safety functionality for improved operator safety and increased machine productivity

- SIL3 safe power-feed modules, 1x2 or 2x2-channel SIL3 Inputs, 10A Output, optional programmable off delay

Add Connections Exactly Where and How You Need Them – RSTi-EP Network Adapters

Broad Protocol Support

Communications interfaces for a variety of protocols and machine control devices. Designed to enable supply chain flexibility.

- EPXPNS001; PROFINET IRT Network Adapter
- EPXPNS101; PROFINET System Redundancy Network Adapter
- EPXEIP001; EtherNet/IP Network Adapter
- EPXETC001 EtherCAT Network Adapter
- EPXMBE001; Modbus TCP Network Adapter
- EPXMBE101; Modbus TCP Dual LAN Network Adapter
- EPXPBS001; PROFIBUS DP-V1 Network Adapter

Compact and Flexible

Easily add additional I/O modules to your CPE200 application in the same cabinet or across the campus.

- Add up to 64 11.5mm IO slices per Network Adapter for ultimate design flexibility in a minimum footprint
- Dual RJ-45 connectors on Ethernet-based network adapters
- Built-in 10A power supplies with independent input and output power rails for reduced noise on inputs
- Bumpless I/O hotswap and network redundancy options for maximum reliability
- Firmware update over Ethernet to futureproof deigns

RSTi-EP Network Interface Modules

Communications interfaces for a variety of protocols and machine control devices. Designed to enable supply chain flexibility.

High performance and low performance modules are available depending on your machine needs.

- EPXPNS001; PROFINET IRT Network Adapter, 2 Cu RJ45 ports
- EPXPNS101; PROFINET System Redundancy Network Adapter, 2 Cu RJ45 ports
- EPXEIP001; EtherNet/IP Network Adapter, 2 Cu RJ45 ports
- EPXETC001 EtherCAT Network Adapter, 2 Cu RJ45 ports
- EPXMBE001; Modbus TCP Network Adapter, 2 Cu RJ45 ports
- EPXMBE101; Modbus TCP Dual LAN Network Adapter, 2 Cu RJ45 ports
- EPXPBS001; PROFIBUS DP-V1 Network Adapter
- EPXPNS001LITE; PROFINET RT, 2Cu RJ45 ports, Max number of modules 16*
- EPXMBE001LITE; Modbus TCP, 2 Cu RJ45 ports, Max number of modules 16*

* Available in Summer of FY25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PACSystems High Availability Solutions

August 2024

EMERSON

Let’s Begin with Perspective: The Democratization of Redundancy

THEN

Redundancy ONLY for most critical parts.

NOW

Native redundancy for the price of a spare.

Why Redundant Control Systems?

THREE KEY BENEFITS

Increases Uptime

Mitigates Risk

Cybersecurity

Today, Redundant Control Systems Underpin a Smart Plant Strategy

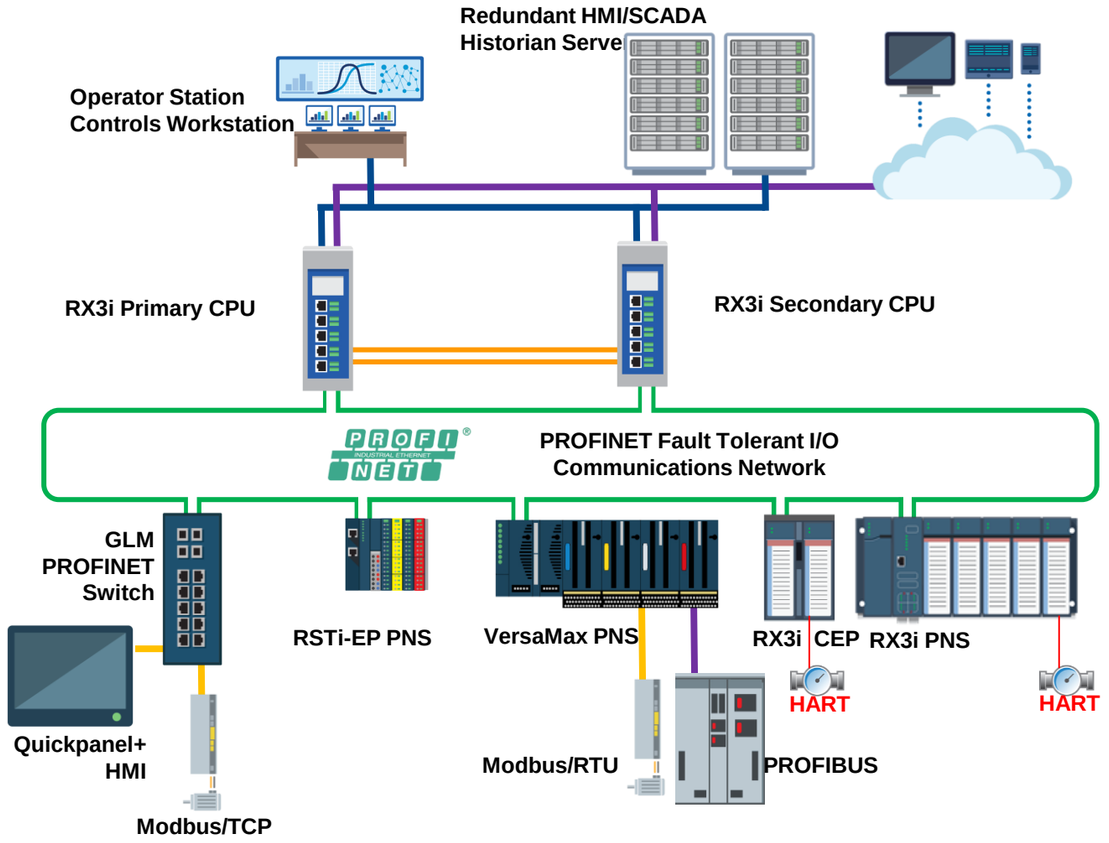
Key Considerations of Redundancy Solutions

Key Customer Topics	Key Customer Considerations
Higher Costs	Is additional equipment worth the price?
Available Space	Will the redundant controls fit in my cabinet?
Complexity	What is required to develop, manage, and maintain redundant control systems?
Training	What specialized solutions equipment and software training are required to develop redundant applications
Cascade Failures	What is required to maintain a deterministic system in the event of failures?
Geo-Redundancy	Can I my redundant control system be resilient to localized catastrophes?
Cyber Security	Can I patch my control system with no downtime?

Cost and Space Considerations: PACSystems Basic High Availability Solution

PACSystems RX3i CPL410 Edge Controller

- Hot-Standby Redundancy at the cost of a spare CPU.
- 60% smaller footprint than traditional modular redundancy architectures, but still includes:
  - Integrated 1 Gbps HMI network
  - Integrated 1 Gbps IO network
  - Integrated dual 1Gbps synch-links
  - Integrated Edge Control



Major Aggregate Producer in North America reduced their maintenance costs by adopting PACSystems Basic High Availability Solution at the price of simplex control systems

Challenge

- Limited skilled maintenance staff on mine sites
- Rising maintenance costs due to paid overtime for night and weekend control systems maintenance work
- No additional cabinet space for controls upgrades

Key Emerson Technology

- PACSystems CPL410 Edge Controller

Solution

- Replaced existing architecture of a simplex RX3i backplane controller with spare RX3i backplane CPU in storage with a pair of Redundant CPL410 Edge Controllers with both powered and synchronized

Cost and Space Consideration

Results

Upgraded to redundant control system in the **same footprint as the existing simplex control** system

Eliminated night and weekend overtime expenditures for control systems maintenance

Cost of redundant control hardware was **almost identical to the cost of the simplex** control system with spare CPU in storage

Complexity and Training Considerations: PACSystems

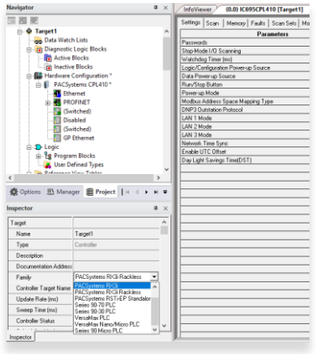
One Toolchain. One Runtime.

PAC Machine Edition

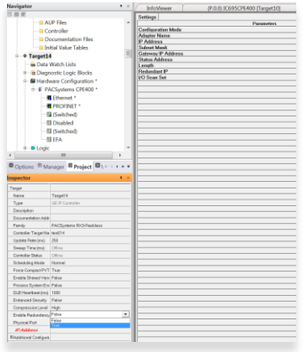
- One tool for configuring simplex, standalone and modular redundancy architectures
- Single-click to change target types
- Simulation of controller + HMI together

PACSystems Runtime

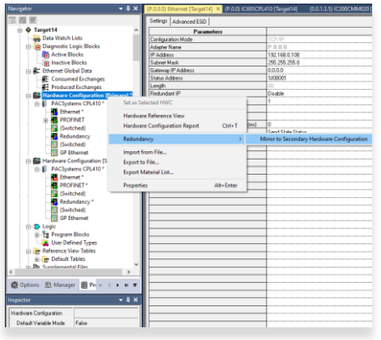
- Same program, without recompiling, can execute in simplex or redundant control architectures
- Common IEC-61131 & C programming
- Common PROFINET IO Device configuration
- Common Open-Standard HMI/SCADA communications – even OPC-UA!



1-Click CPU Type Selection

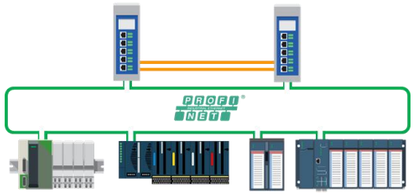


1-Click Redundancy Selection

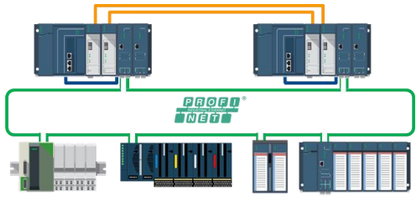


Automated Redundancy Configuration Management

RX3i Simplex Control with Local IO



RX3i Standalone Edge Controllers with PROFINET Remote IO



RX3i Backplane Controllers with PROFINET Remote IO

Major Oil & Gas Producer in North America was able to reuse their application and minimize their validation costs when they moved from simplex to redundant control architecture

Challenge

- Due to increased productivity per wellhead, financial losses due to a well stoppage were becoming unacceptable.
- Had invested a large amount of time and resources in custom control applications and did not want to lose that investment when transitioning from simplex to redundant controls

Key Emerson Technology

- PACSystems RX3i High Availability Controls

Solution

- Redundant PACSystems CPL410 for High Availability Wellpad control. Reuse of the same RX3i IO, just now in PROFINET IO rack instead of main rack.

Results

Single runtime for simplex and redundant control architectures **allows proprietary application reuse with minimal revalidation**

Resiliency to Cascade Failures: PACSystems High Availability Solution

Competitive Redundancy Strategies

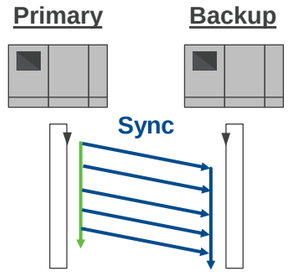
Sync Data Strategy: Sync-by-Exception

Data is only sent from the Active to the Backup PLC when data changes. Can cause both PLCs to stop.

Primary			Backup
30	30		30
1	**0**	▶	**0**
1584	**1351**	▶	**1351**
1	1		1
7	7		7

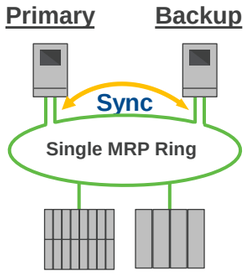
PLC Sync Strategy: "Asynchronous Principle"

Backup PLC may skip synchronization points to "catch up" possibly causing unexpected application behavior.



Sync Link Strategy: Shared Network: IO + Sync Data

Combining synchronization data and IO data onto the same Ethernet network can lead to disruptions in PLC synchronization, interruptions in Remote IO data access, or both.



PACSystems™ RX3i – True High Availability

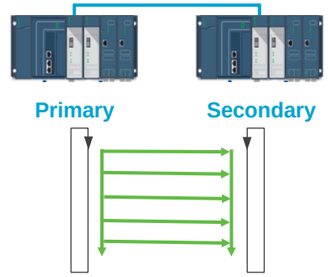
Sync Data Strategy: Full Data Sync

All sync data is sent every PLC scan for consistent performance.

Primary			Backup
30	30	▶	30
1	**0**	▶	**0**
1584	**1351**	▶	**1351**
1	1	▶	1
7	7	▶	7

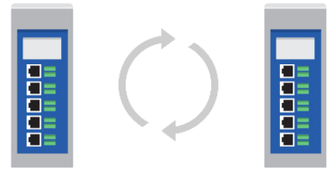
PLC Sync Strategy: Lock-Step Synchronization

Each PLC always waits for its partner, resulting in fast, consistent, deterministic, reliable redundancy operation.



Sync Link Strategy: Dedicated Sync Links

Dedicated synchronization links mean that IO disruptions do not impact PLC failover times, resulting in consistent, defined High Availability operation.



True High Availability Delivers Consistent, Deterministic Control Even if the Application or Environment Changes Rapidly

Floating Production Storage and Offloading (FPSO) Producer in South America Eliminated unplanned control stoppage

Challenge

- Customer experienced cascading failure of competitive redundant control system which caused shut-down of an FPSO at sea, resulting in multi-million-dollar losses

Key Emerson Technology

- PACSystems RX3i High Availability Controls
- PACSystems RX3i PROFINET Remote IO

Solution

- Redundant PACSystems CPL410 for FPSO control and monitoring
- RX3i PROFINET Remote IO

Cascading Failure Consideration

Results

Eliminated unplanned control stoppage due to cascade failure scenario

Geo-Redundancy: PACSystems High Availability Solution

Ultra high-speed deterministic network

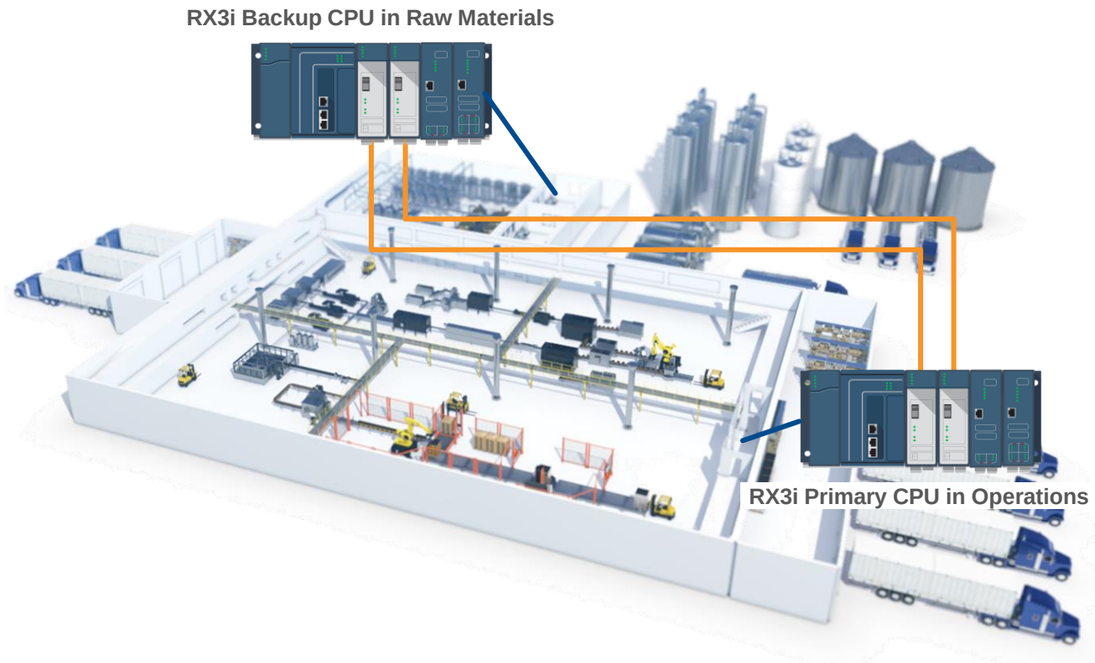
- 2.12 Gbaud data rate

A point-to-point fiber optic communications network

- RMX128 – Multi-Mode Fibre up to 300 meters
- RMX228 – Single-Mode Fibre up to 10 km

No Ethernet protocol stack overhead

Synchronization communications automatically handled by co-processor



Shipbuilder in North America implemented PACSystems Geo-redundancy to prevent loss of control of their vessel in the event of fire at Engineering Control Room

Challenge

- Customer had a relatively minor fire in the Engineering Control Room at sea and lost total control of the ship requiring towing back to port with paying customers aboard.

Key Emerson Technology

- PACSystems RX3i High Availability Controls
- PACSystems RX3i RMX Reflective Memory Sync-Link Modules

Solution

- Redundant PACSysystems RX3i CPE330 controllers with dual RX3i RMX synch-link modules – one located in Engineering, one located on Bridge

Results

With the same control application, the customer was **no longer vulnerable to loss of control** at sea due to a fire in Engineering Control Room

Redundancy for Cybersecure Applications: PACSystems

Flexible Firmware Version Support Between Redundant Controllers

Flexible Version Support Between PACSystems Controllers and PAC Machine Edition Software

Open-Standards-Based Coordinated Redundant Communications

Automotive Tunnel firm in Asia can apply cybersecurity patches without no downtime

Challenge

- Remotely manage a fleet of automotive tunnels over long distances safely and securely

Key Emerson Technology

- PACSystems CPL410 Edge Controller with PACEdge Analytics

Solution

- Redundant PACSystems CPL410 High Availability controllers + PACEdge for tunnel environmental supervisory controls and monitoring and equipment health aggregation
- PACSystems RSTi-EP Controllers for individual equipment controls
- PACSystems integrated secure remote firmware update feature

Results

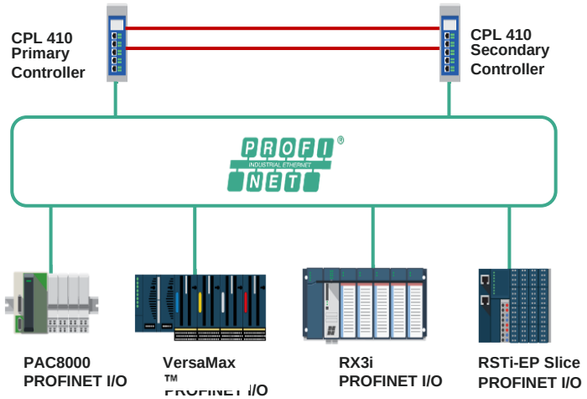
PACEdge equipment health monitoring application provided **secure, remote status of the entire tunnel application** off of any secure web-enabled device.

Secure remote firmware update on the redundant CPL410 controllers **apply cybersecurity patches without losing visibility** to the tunnel application

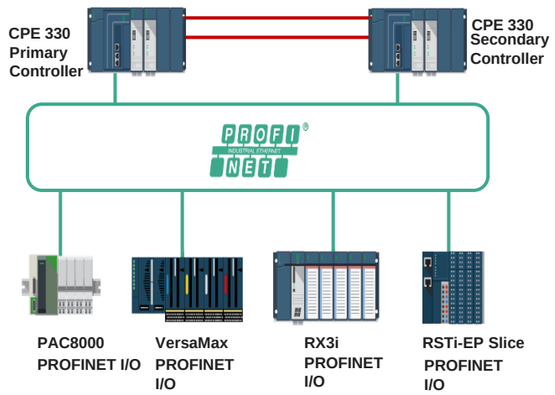
Same code base and communications protocols API for supervisory and equipment controls

PACSystems™ High Availability Options

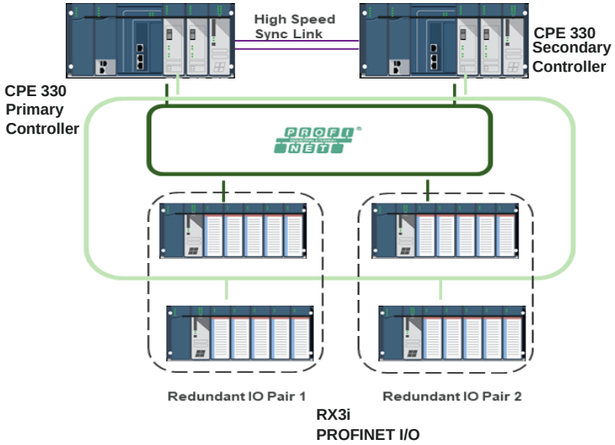
Basic Solution



High Performance Solution



Redundant IO Solution



* *Requires additional module*
** *Only available on select IO modules on RX3i*

	Basic High Availability	High Performance High Availability	1oo2 Redundant IO Availability**
Min. controller switchover time	300ms	1 PLC scan (3-20ms)	1 PLC scan (3-20ms)
Synchronization data transfer rate	1Gbps	2.12 Gbaud	2.12 Gbaud
Max. distance between the controllers	100m	10km	10km
Max # of redundant PROFINET I/O devices	32	255	127
# HMI/SCADA LANs	1	Expandable using ETM module	Expandable using ETM module
Min. PROFINET device update rate	1ms (max 2 devices)	1ms (max 32 devices)	1ms (max 32 devices)
Communication protocols	DNP3, MODBUS TCP, OPC UA, EGD, PROFINET, HART pass-through, 1ms SoE	OPC UA, DNP3*, MODBUS TCP, IEC61850*, IEC104*, EGD, PROFINET, HART pass-through, 1ms SoE	OPC UA, DNP3*, MODBUS TCP, IEC61850*, IEC104*, EGD, PROFINET

PACSystems™ High Availability Integrated Solution Components

Remote IO

- Connect remote equipment, sensors, and actuators reliability through a footprint that makes sense for your application requirement
  - RSTi-EP
  - VersaMax
  - RX3i
  - PAC8000

Variable Frequency Drives

- Now keep drives operational with direct connection to PROFINET MRP networks for simple, streamlined availability with PACMotion VFDs

Industrial Ethernet Switches

- Configure, monitor, and maintain your network infrastructure with the same simplicity and ease with PROFINET-enabled PACSystems GLM PROFINET-enabled Industrial Ethernet Switches

HMI / SCADA

- Connect HMIs and SCADA stations quickly and seamlessly, with many protocol options.
- PACSystems Redundant IP Feature
  - SRTP / EGD
  - Modbus
  - DNP3
- Non-Transparent Server Redundancy
  - OPC-UA Secure

Key Considerations of Redundancy Solutions

PACSystems – the Clear Choice for a True Redundancy Solution

Key Customer Topics	The Emerson Advantage
Higher Costs	CPL410 Solution is a compact redundant control solution for the price of a spare. 
Available Space	
Complexity	Single click conversion of simplex control applications to True Redundancy
Training	
Cascade Failures	Switchover in a single sweep and full lock-step redundancy even in the worst-case scenario
Geo-Redundancy	Redundant Controllers up to 10 km apart with single cable
Cybersecurity	Apply cybersecurity patches without stopping the application

Let’s Begin Your High Availability Journey Today

THREE KEY BENEFITS

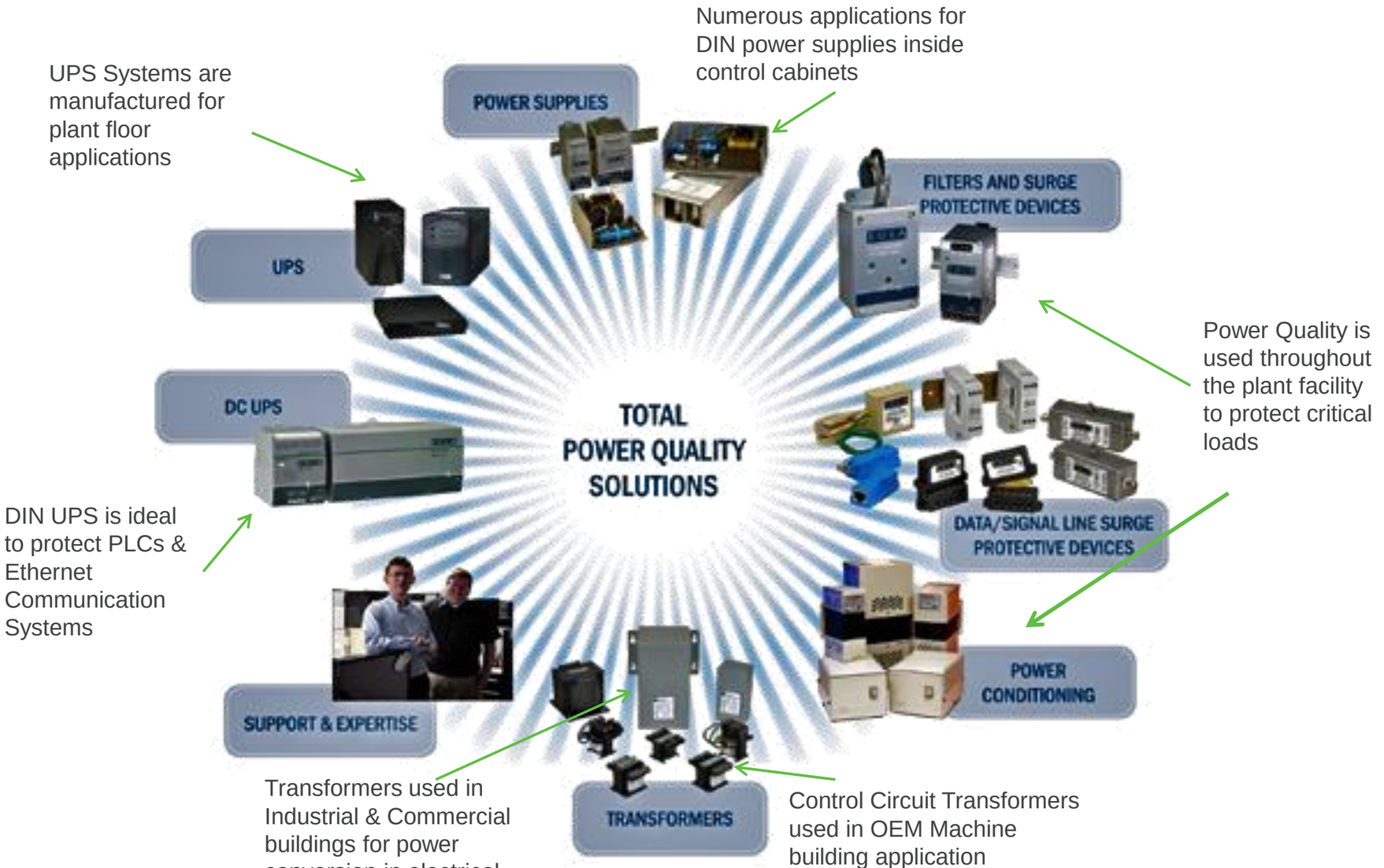
Increases Uptime

Mitigates Risk

Cybersecurity

Today, Redundant Control Systems Underpin a Smart Plant Strategy

Total Power Quality Specialists



UPS Systems are manufactured for plant floor applications

Numerous applications for DIN power supplies inside control cabinets

Power Quality is used throughout the plant facility to protect critical loads

DIN UPS is ideal to protect PLCs & Ethernet Communication Systems

Transformers used in Industrial & Commercial buildings for power conversion in electrical distribution

Control Circuit Transformers used in OEM Machine building application

Online Uninterruptable Power Supply UPS

EMERSON

S4K-D Online Uninterruptible Power Supplies

- S4K-D Launched in July 2024
- Online Double Conversion UPS Topology
- Sizes Available: 1000VA, 1500VA, 2000VA, 3000VA
- 120VAC & 230VAC Input/Output Options
- S4KD Differentiators:
  - Full Steel Enclosure
  - Hardwired Input/Output Terminal Option
  - User Configurable Diagnostics
  - Industrial Connectivity Options
    - USB Connection
    - Optional Network Communication Card
      - RDU101
      - ISRELAY
  - Extended Runtime Solutions with External Battery Cabinets

Applications Served

Heavy Industrial

- Rugged Fully Steel Enclosure for maximum protection of critical electrical components
- Hardwire Input/Output terminals for rigid connections

IT/OT Infrastructure

- Double Conversion Online Topology for constant sine wave output
- Network Connectivity via SNMP or Modbus for remote monitoring

Emergency Lighting and Safety Systems

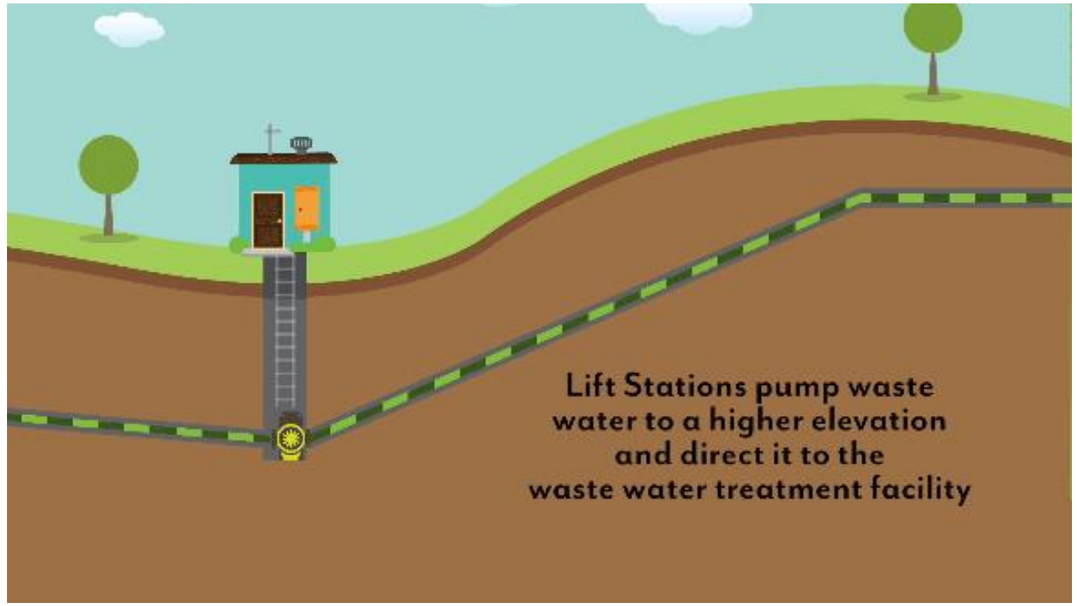
- Mission Critical Uptime and Reliability
- Power Disruption Protection during abnormalities

Security Systems

- Maintain facility security and surveillance capabilities during outages
- Industrial, Corrections, Retail, Etc.

Lift Stations

- Lift stations contain pumps, valves, and electrical equipment necessary to pump storm water and sewage from a low elevation to a high elevation. Lift stations must function in harsh and corrosive environments.
- The installation may be underground or above ground building. These facilities are unmanned and monitored remotely.
- Cities typically have **hundreds** of these facilities. Each location contains pumps, so there's power, and if they have power, then Appleton has an application.
- Many lift stations are approaching end of life, and the pumps/pipes are being updated. This means contractors are already going to be accessing the electrical systems, so that provides an easy opportunity to provide a SolaHD smart power supply and SolaHD online double conversion UPS solution for these unmanned



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Example images of lift stations

Smart Power Supplies

EMERSON

Features of SDN-D with Communication Module

Certified for Hazardous Location Environments

- PLC’s, Process Controllers, HMI Displays, Industrial Computers
- Other 24 Vdc loads
- Ethernet/IP, Modbus, and HART available

Parameter	Value
SCM | Temperature	+75.2 °F
P1 | Vout	24.51 Volts
P1 | Iout	7.76 Amps
P1 | Vin	116.51 Volts
P1 | Temperature	+120.2 °F
P1 | LED	Normal Operation
P1 | Time On Now	24.82 Hours
P1 | Lifetime On	531.04 Hours

Target Industries and Common Applications

Markets

- Industrial Automation
- Process Automation
- Remote Application or Inaccessible Locations

Critical Needs

- High Reliability
- Minimum Unplanned Downtime
- 24/7 manufacturing
- Hazardous environment
- Rugged environments
- Industrial Internet of Things (IIoT)

Applications

- Industrial PCs
- HMI Touchscreens
- PLCs
- Process Controllers
- Sensors, Valves, Solenoids
- Networking Devices (Gateways, Routers, etc.)

Food & Beverage

Oil & Gas

Automotive

Power Generation

Water & Wastewater

Petrochemical

Communication Module

Seamless Integration with IIoT Systems

Power Supplies become part of broader connected ecosystem, enhancing centralized control and automation

Metrics Affected: Higher throughput, due to better coordination among system components

Real Time Monitoring and Alerts

Gain live insights into critical device health, energy consumption, and operational conditions

Metrics Affected: Reduced Downtime, Improved MTBF

Data Driven Decision Making

Access to historical and real time trends helps identify trends and optimize processes

Metrics Affected: Increased productivity, improved equipment utilization rates

Predictive Maintenance

Advanced Diagnostics and predictive analytics alert managers before failures occur

Metrics Affected: Lower Maintenance costs, minimized unscheduled downtime, improved OEE

Enhanced Energy Management

Enables optimization for cost savings and compliance with energy sustainability goals

Metrics Affected: Reduced Energy per unit of output, reduced carbon footprint

Remote Access and Control

Diagnose issues, adjust settings, or reboot systems without physical presence

Metrics Affected: Increase operational efficiency, improved response times to disruptions

Factory Support

Introducing the Tech Support Team

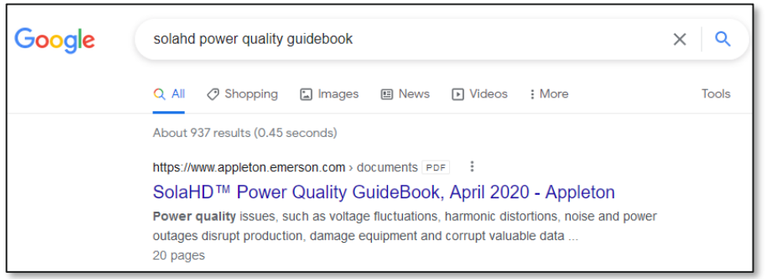
Phones and email are open Normal Business hours only

- 7am to 4:30pm CST- USA (All Brands)
- Typically answer emails until 5:00 pm some nights until 5:30 - 6:00pm

For Technical Support on any Emerson SolaHD Product, contact solahd.technicalservices@emerson.com or call 1-800-377-4384 option 2.

Power Quality Guidebook
- Solutions Selection Table & Frequently Asked Questions

	POWER QUALITY SOLUTION							
DISTURBANCE	**UPS**	**POWER CONDITIONERS**	**SURGE PROTECTIVE DEVICES**	**ACTIVE TRACKING FILTERS**	**K-FACTOR TRANSFORMERS**	**DRIVE ISOLATION TRANSFORMERS**	**TRANSFORMERS**	**DC POWER SUPPLIES**
Power Interruptions	●							
Brownouts	●	●						
Voltage Sags	●	●						
Voltage Swells	●	●						
Voltage Transients	●	●	●		●			
Harmonics	●	●			●	●		
Electrical Noise	●	●		●	●	●	●	●
AC/AC Conversion		●			●	●	●	
AC/DC Conversion								●
DC/DC Conversion	●							●



Success Stories

Food Packaging Equipment — North America

Challenge

Large electric oven causing power sags when powering on (cold start) resulting in control equipment resets on multiple machines on the production floor. Machine Builder blamed poor supply voltage and utility blamed voltage sag on customer's oven load (meaning the customer would have to pay for upgraded service)

Application

Powering controls for food packaging machine

Solution

Replaced competitor's DIN power supplies with Emerson's SolaHD SDN-C series which meet SEMI F47 sag immunity standard on select machines

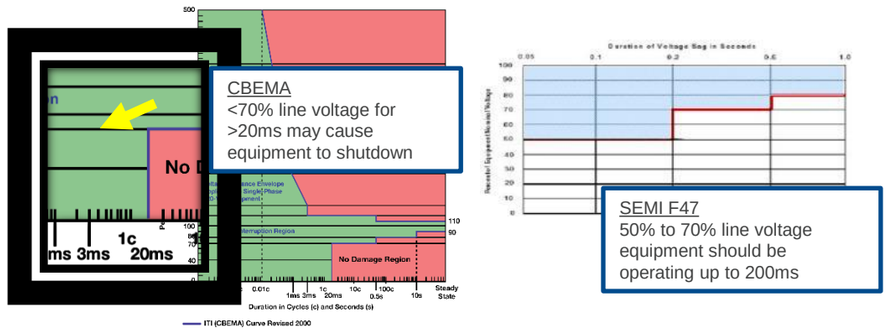
Result

CBEMA => Computer & Business Equipment Manufacturers' Association

CBEMA Curve => Power Quality graph addressing energy performance

- Power supplies meeting SEMI F47 will operate during deeper and longer sags then units that are only designed to CBEMA standards
- Equipment with the new power supplies operated perfectly even during the sag event, saving the customer from the expense of upgrading their utility service

CBEMA curve VS SEMI F47



$$\text{OEE Before}\quad 86.7\% = \frac{558\ \text{hours} - 74\ \text{hours}}{558\ \text{Hours}}$$

$$\text{OEE After}\quad 96.7\% = \frac{558\ \text{hours} - 18\ \text{hours}}{558\ \text{hours}}$$

Large Scale Conveyor Design Manufacturer – North America

Challenge

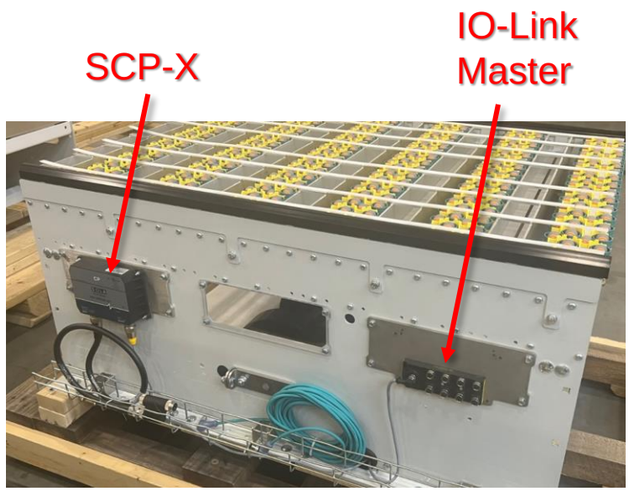
The conveyor manufacturer required power for each IO-Link master module to provide industrial communications for each individual conveyor bed segment. Each conveyor system is built up of 30-40 of these bed segments put together. Having a panel and DIN power supply installed for each bed segment would be costly ($800+ each), bulky, and labor-intensive.

Solution

Emerson's SolaHD SCP-X Standalone power supply was conveniently mounted on the side of each conveyor bed segment since it does not require an enclosure.

Result

Each conveyor bed segment can now have flexible power for their industrial communications master modules. This prevents the need for a bulky enclosure, as well as saving time and money when installed over the entire conveyor system. At $800 additional cost per bed segment, this saves the customer $24k - $32k total per conveyor system.



Application

Providing Power for Industrial Communication Modules

Major Oil Drilling Rig Manufacturer — Global Installations

Challenge

Customer’s drill motors caused major power disturbances when the drills operated on generator power – This resulted in resets(downtime) and damage to drilling controls.

Solution

SolaHD S4K UPS system provided clean power by cleaning up the dirty/noise-filled power provided by the standby generator. SolaHD’s S4K and S5K double-online conversion UPS products are the only ones recommended for generator applications

Result

Equipment related downtime was significantly reduced, which improved drilling times.

Application

Powering controls for drillers chair and cabin

Major E-Commerce Retailer – North America

Challenge

During a power cycle or unexpected power outage, automation and electronic computer devices with volatile memory (ex. SRAM) will lose important variable data or become corrupted. This could apply to computer-based controllers, scan tunnel servers/controllers, fieldbus network devices, and industrial ethernet equipment with diagnostic capabilities & features.

Solution

Emerson's SolaHD SDU-DC & SDU-AC DIN Rail Mount UPS units were integrated to provide back-up power for these electronic devices to safely complete a proper shut-down sequence.

- For 24Vdc powered devices, the SDU-DC UPS was used.
- For 120Vac powered devices, the SDU-AC UPS was used.

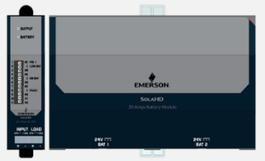
Result

Important system process data was no longer prone to corruption or loss during an unexpected power outage. The UPS devices also provided monitoring feedback and alerts when the UPS was low on batter power or sensed an internal fault condition.

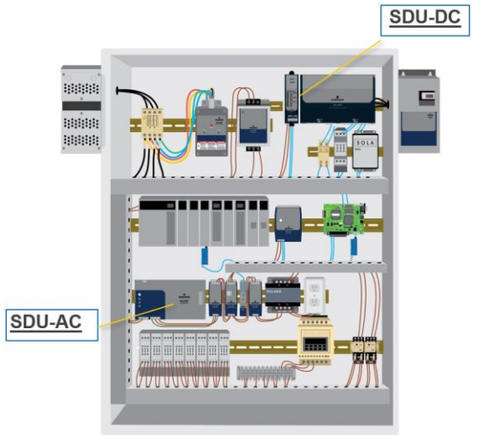
Application

Temporary back-up power for soft shutdown of automation devices

SDU-DC



SDU-AC



White Vinegar Processing Plant — North America

Challenge

Storm induced lightning kept knocking out hospital grade generator set. This resulted in scrapping large quantities of questionable vinegar batches, limiting supply of an ingredient used by a large ketchup producer. On average one of every 6 batches were lost annually.

Solution

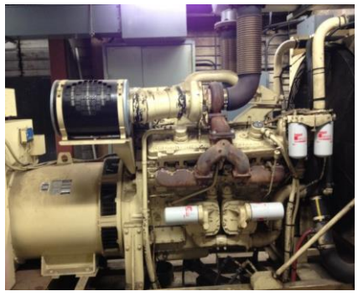
Customer added Emerson's SolaHD STV200K surge protective devices at the branch panels on the emergency backup power circuit to ensure continuous generator operations – diverting high transient energy away from the load

Result

- Hospital grade generator stayed operational during storms.
- Vinegar production was improved by 16% annually with minimal investment preventing costly shutdowns, production hours loss and scrap materials

Application

Protecting GENSET During power outage/storm Vinegar Fermentation



Emerson's Movicon.NExT

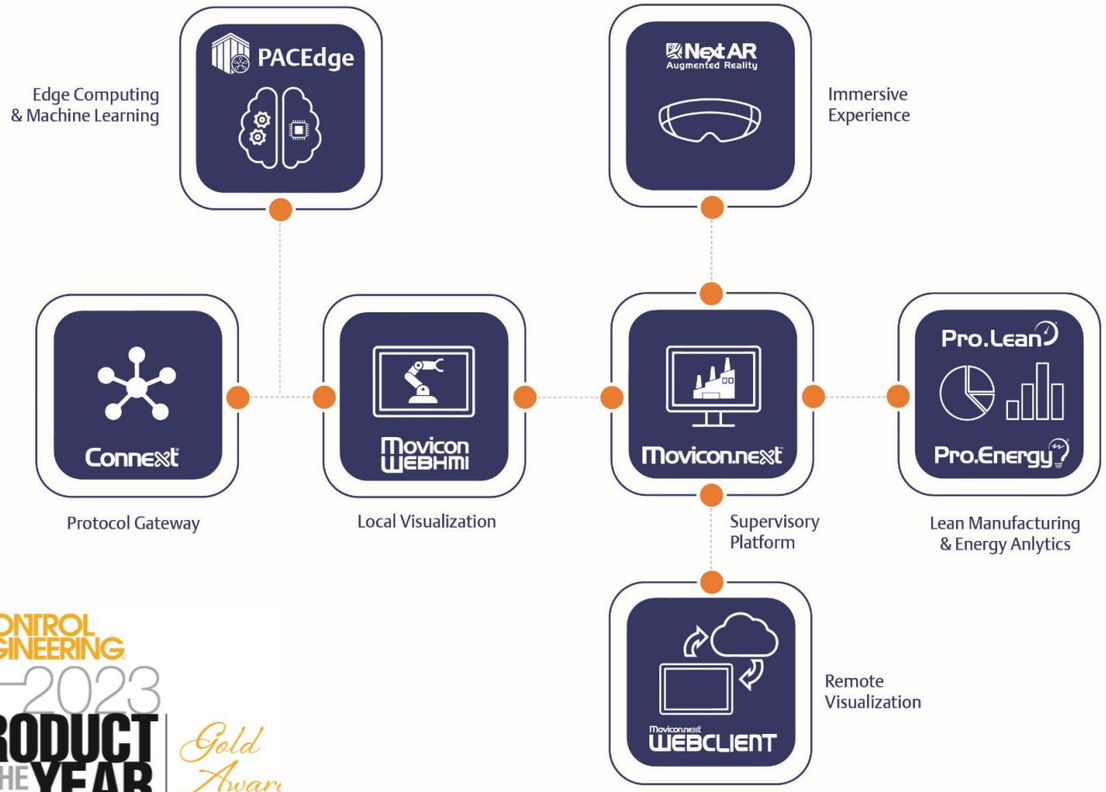
The Ultimate SCADA/HMI Solution for Industrial Automation

October 2024

EMERSON

Movicon Portfolio Is Uniquely Positioned to Help Customers Achieve Productivity, Safety and Sustainability From Floor to Cloud™

One Software Solution for Countless Applications



CONTROL ENGINEERING 2023 PRODUCT OF THE YEAR Gold Award

Strong Experience in Automation Software Solutions

Movicon Since 1991

Empowering Global Industries for +30 years: your business automation partner

+150k Projects

Empowering businesses worldwide: your global automation solution across every industry

Tailored Automation in Every Solution

+200 Licenses Types

Delivering focused solutions for every unique industrial automation need

+150 Options

Crafting tailor-made solutions for peak industrial automation efficiency

Openness & Integration

+80 Native Drivers

Enable Connectivity, ensuring integration across diverse industrial automation ecosystem

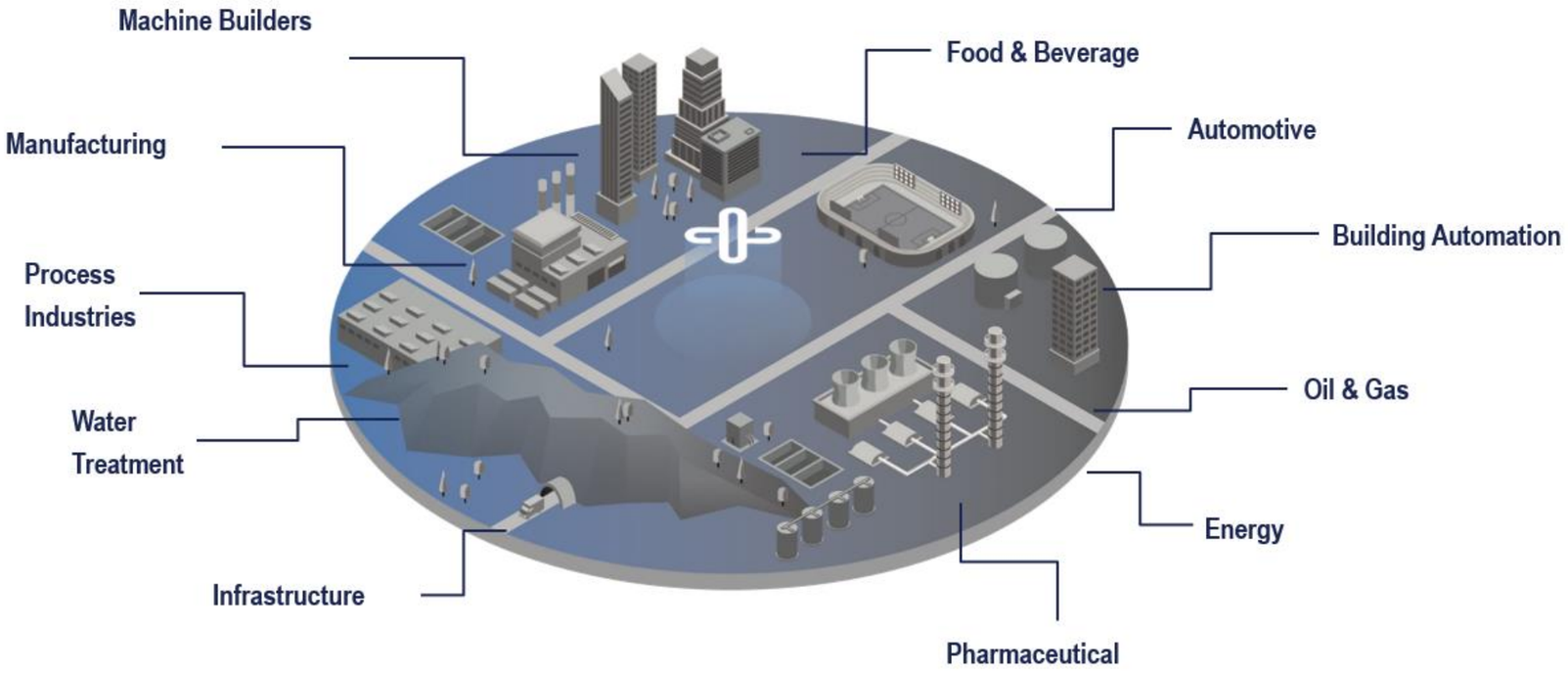
5 Modules

To expand the Movicon Framework and help deliver efficiency, data acquisition and management

Transforming Data to Scalable Solution That Deliver Quantifiable Business Results for Our Customers

Through robust functionalities → **We Revolutionize Industries** → **From Manufacturing to Energy** → **To Achieve your industrial goals**

- Automation-Centric
- Real-time analytics
- Interconnectivity
- User-friendly
- Scalable architecture
- Advanced monitoring
- Versatile functionality



- **Productivity & OEE**
- **Sustainability**
- **Safety**

Floor to Cloud™

A Single Platform Bridging Multiple User Experiences

Open framework
.NET and plug-ins

HTML5 Web
Client and apps

New generation
WPF graphics

OPC UA and
I/O driver
connectivity

High-performing
databases, trends,
analysis and reports

Security with
users and
membership

Common Development Platform
Movicon.NExT™ platform saves time by managing single Platform.

Increase Connectivity
The OPC UA-based data model of Movicon.NExT helps ensure maximum native connectivity.

Achieve Faster Project Design
Allows you to operate in one all-inclusive, easy-to-use development environment

Powerful Graphical Interfaces
Allows you to create powerful and versatile graphical interfaces, customized for your process

Improve Operational Productivity
Extension modules can be used to manage plant intelligence.

Powerful Graphical Interfaces Simplify System Design

DESIGN ENHANCED VISUALIZATION GRAPHICS

Support for dynamic 3D graphics visualization

REALISTIC GRAPHICAL REPRESENTATIONS

Use 2D and 3D graphics rendering to build the interface

ENHANCED GRAPHICS QUALITY

Boost the quality of the WPF/XAML vector graphics in 2D and 3D

ANIMATED SCREENS

Create animated screens using symbols, objects, wizards, faceplates, power templates and native multi-touch user interaction

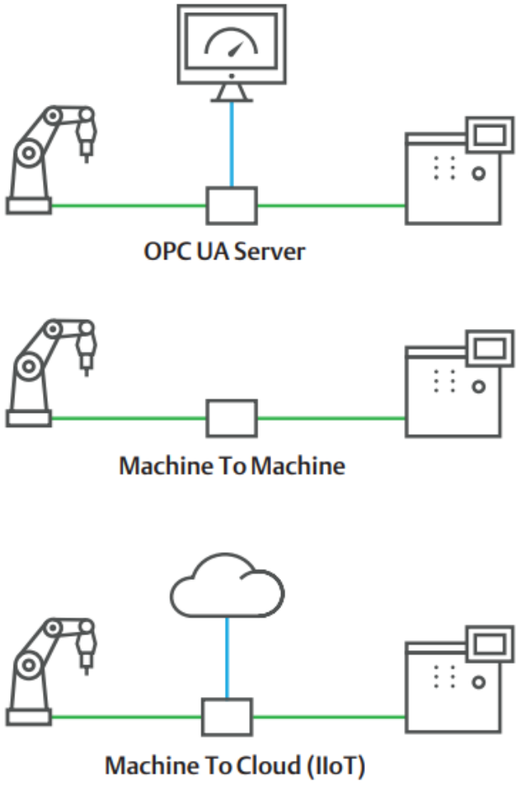
THOUSANDS OF SYMBOLS

The graphics editor includes thousands of high-quality XAML vector symbols and a toolbox rich in the latest graphical objects, or you can import your own drawing

Connext – The OPC UA Server for Industry 4.0 Systems

Connext OPC UA software is a connectivity engine for every data acquisition, deployment and recording need in M2M, cloud, and IIoT deployments

Connectivity for all systems, from IoT to embedded Linux



Connext Transforms Efficiency in a Large Food Processing Company

Greatly improved production control of

32 machines connected to the MES

Improved production efficiency due to elimination of manual processes and the reporting capability due to data logging and historian functionality.

Francesco Alberti
General Manager
Technologies for Automation S.r.l.u. (TFA)

Case Study: https://bit.ly/3S0jFl0

Movicon WebHMI
Web Technology for Scalable and Powerful HMI Visualization

Movicon WebHMI™

Movicon WebHMI is a cross-platform solution that distributes Movicon.NExT projects across the enterprise, from small, embedded HMI to SCADA and management systems.

Much More than a simple HMI

Unlimited Clients
Movicon WebHMI technology does not restrict the number of users that can connect at any one time.

Integrated in Movicon.NExT
WebHMI leverages Movicon.NExT's powerful interoperability. Projects can run in WebHMI or WPF SCADA mode.

Reliable Performance
Speedy communications, real-time data management and enhanced graphics are ensured — without any performance compromise

Web Technology for Scalable Solutions

Movicon WebHMI (for Linux version) is installed on each of the

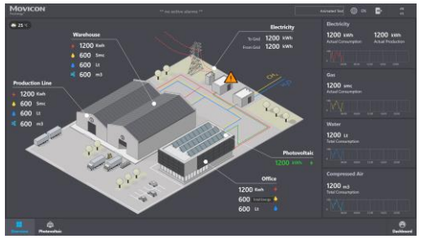
70 production machines

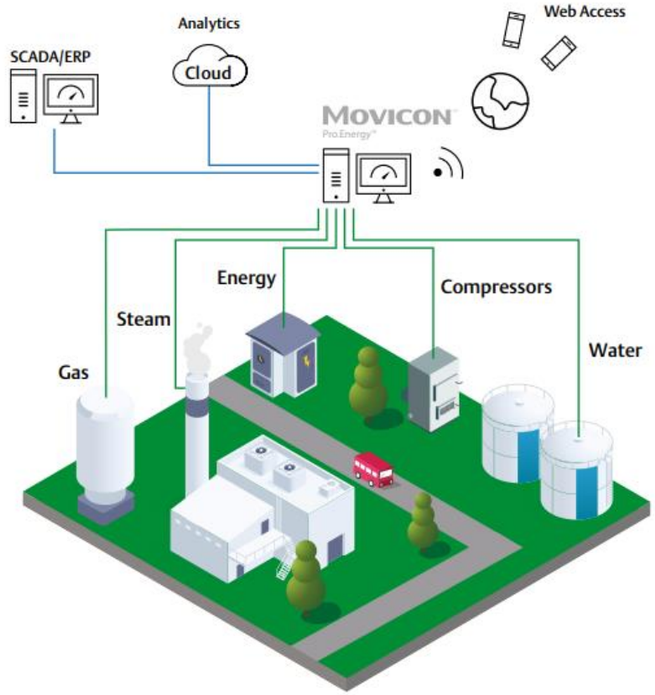
allowing real-time knowledge of which item is being processed, the order number, and the alloy type, significantly increasing visibility on production processes.

Gian Luca Volpi
Service Engineering Coordination
Giacomini S.p.A.

Pro.Energy
The Software Technology for Energy Monitoring

Pro.Energy is an open solution with complete connectivity, intuitive interfaces, simplified monitoring and robust data acquisition and analysis capabilities that helps you set and achieve realistic consumption goals.





Pro.Energy makes plants run more efficiently by detecting the Key Indicators that help you reduce consumption and increase profits

An open, intuitive, and cost-effective method for energy usage control

Simple, fast and cost-effective
Creates and configures energy monitoring projects in a few simple steps.

Connectivity and Data Acquisition
Simplified linkage to any measuring device or network analyzer in your facility.

Openness and Integration
NExT functionality enables supervision, alarms, notifications and control logic.

Pro.Lean
Enhance Plant Productivity and Overall Equipment Effectiveness (OEE)

Pro.Lean allows you to communicate with any field system or device, collect and record data on database to analyze the Key Performance Indicators (KPI), calculate the Overall Equipment Effectiveness (OEE) and measure downtime.

A Lean Manufacturing and Plant Intelligence Solution

OEE, KPI, & Downtime Analysis Modules
Generate data-rich reports, tables, and charts for complete production analysis

Intuitive & Cost-Effective Deployment
Ready-to-use, powerful tools help you create projects with simplicity and speed.

Deliver efficiency across factory
Reduce waste and increase profits by collecting real-time production data for OEE, KPI and downtime analysis.

Movicon.NExT and Pro.Lean Software Optimize Productivity for Global Company in 115 Production Plants

18 month — Installation in 115 plants in 35 countries required only 18 months

4-5 days — Record-breaking installation of in each plant

Case Study: https://bit.ly/45qcF3T

Augmented Reality for a Real Industrial World

Augment Reality HMI systems offer new experiences in using, managing and controlling industrial plants.

Less learning time is needed, and operators gain the mobility they need to intervene faster to give on-the-spot maintenance that will reduce downtimes.

next™
Augmented Reality

For the Operators of the Future

Device hardware-independent AR application
Supports HoloLens (Windows) and SmartGlass (Android).

Simple design engineering,
using Movicon.NExT as a development tool

Supports cognitive recognition
Recognize objects and retrieve the related real-time data

For SmartGlass Devices (Android) and Microsoft Hololens (Windows)

4 Key Benefits on Use Movicon.NExT™

Security and conformity to standards
Ensures safe server-to-client data management with IEC 62443-3-3 compliance and meet the requirements of the most relevant industrial standards requirement such as GAMP 5/CFR 21 Part 11.

Exceptional graphics
Create dynamic vector interface system graphics in 2D and 3D, with graphics libraries of high-quality objects, symbols and animated elements.

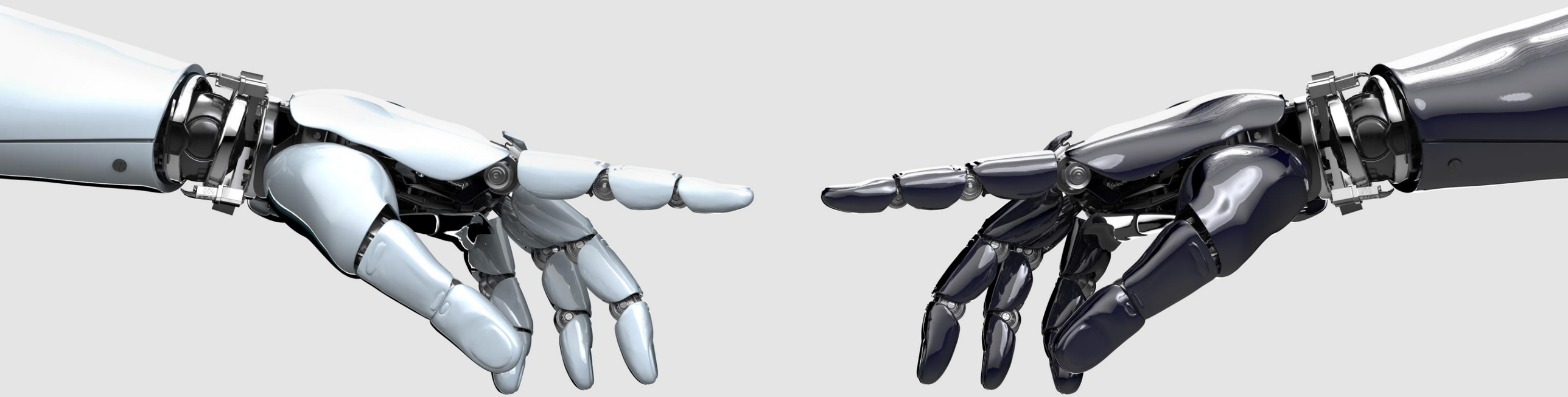
Openness & Scalability
Configuring a system for deployment, regardless of scale, can be made much easier with the use of “plugin” features. These provide unique interoperability with whatever system is being used and a single configuration environment.

Perpetual License Model
Movicon.NExT provides a perpetual license model, allowing customers to make use of the software without any time limitation or need for recurrent payments.

CB Pacific Update

PACEdge™

January 2025



Introducing PACEdge™

PACEdge Software is a Powerful Easy-to-Use Application Development Environment With Full Lifecycle Support

Easy-to-Use

Graphical development environment
Intuitive user interface
Built-in tooling & platform services
Large Support Communities
Open Platform Confidence

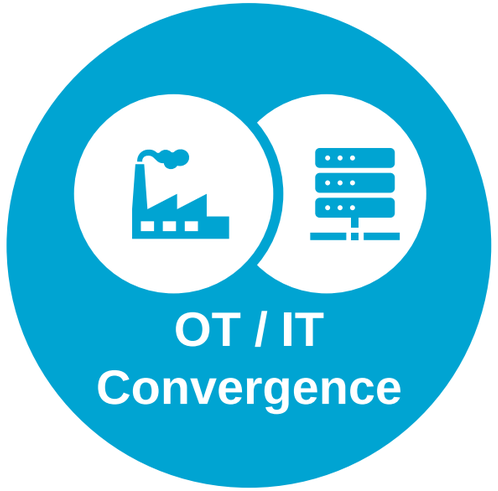
Powerful

Modern data and machine visualization
Communicates with 20+ protocols
On-board data storage & processing
AI/ML execution environment

Supported

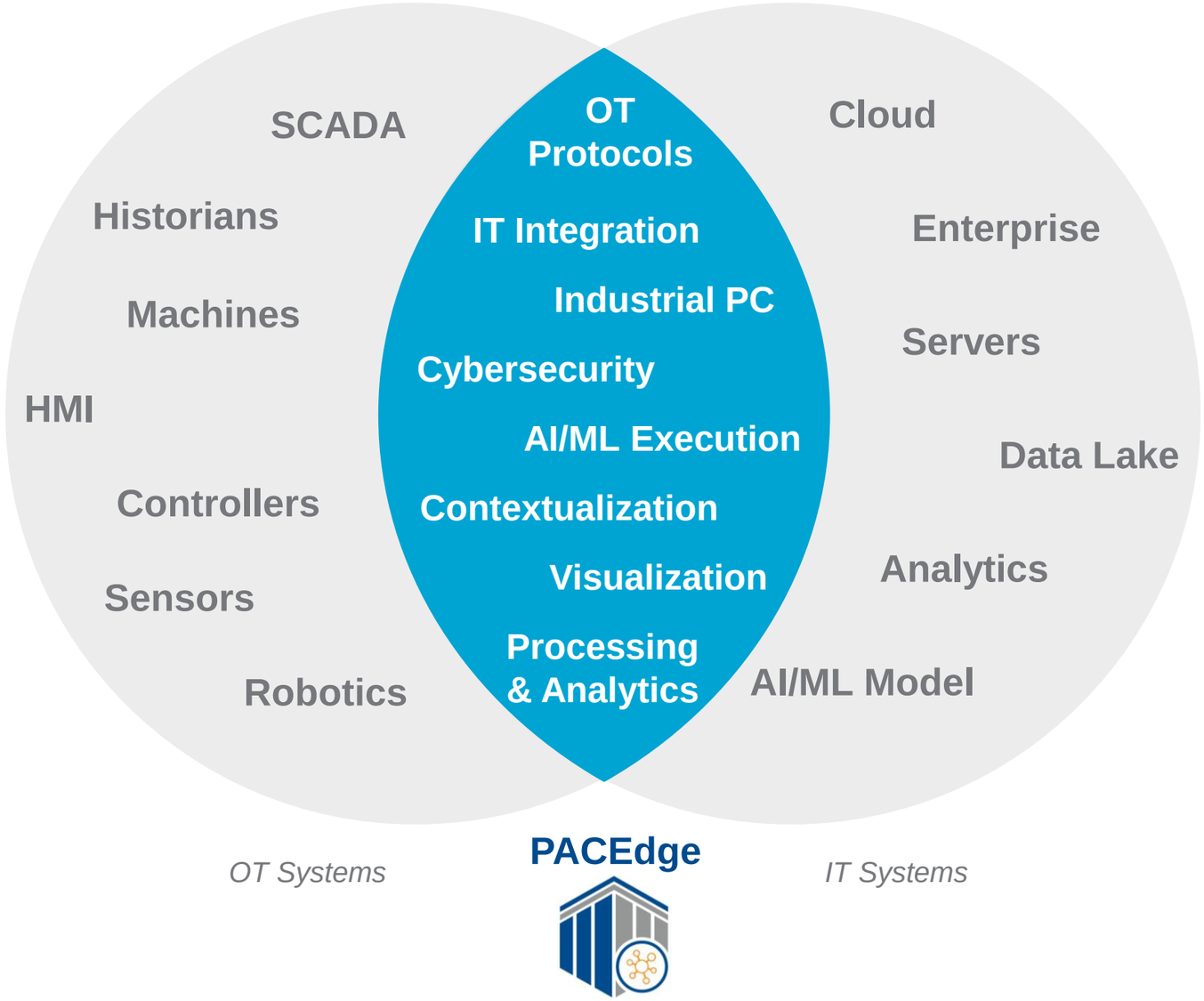
Fully integrated and validated releases
Timely security and defect resolution
Continuously enhanced features

PACEdge IIoT Application Platform



Scalable data intensive Industry 4.0 IIoT solutions requiring integration between the OT and IT domains without disrupting OT assets, architectures or systems while satisfying IT cybersecurity, communications and application requirements.

PACEdge Software Supports the Unique Needs of Applications That Lie at the Intersection of OT and IT Systems



PACEdge Software Enables the Rapid Development of Powerful IIoT Applications

Edge as a Flexible Industrial Gateway

Flexible Gateways are capable of complex communication topologies, scale quickly and easily to meet higher demands, include internal firewalls, and are designed to meet the needs of todays modern industrial environment

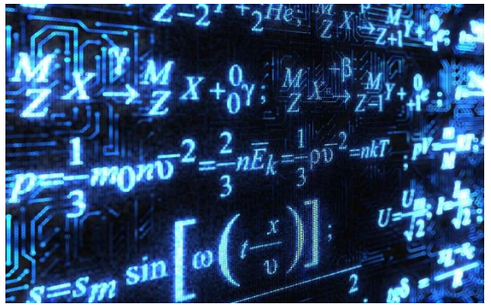
Edge as a Report Management Tool

Many use cases include the need for the generation of timely and focused reports. Both OEMs and end users have a need to validate equipment efficacy, track losses, and report information to government authorities.

Edge as an Engine for Real Time Analytics

Whether the customer is watching a single data point, or the interconnectivity of 1000, the need for real time analytics is real. Outside of the established SCADA & HMI norms, developing control center dashboards is crucial to a timely response.

Edge as an Advanced Computing Platform



As customers fine tune their equipment there is little room for error. With the hallmark of standardized industrial processes comes the need for Advanced Computing algorithms also known as machine learning.

PACEdge IPC Hardware

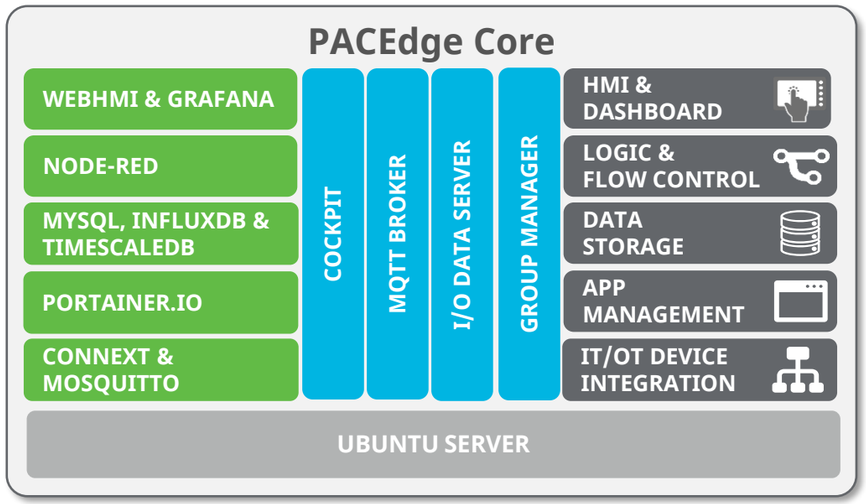
IPC 2010 family

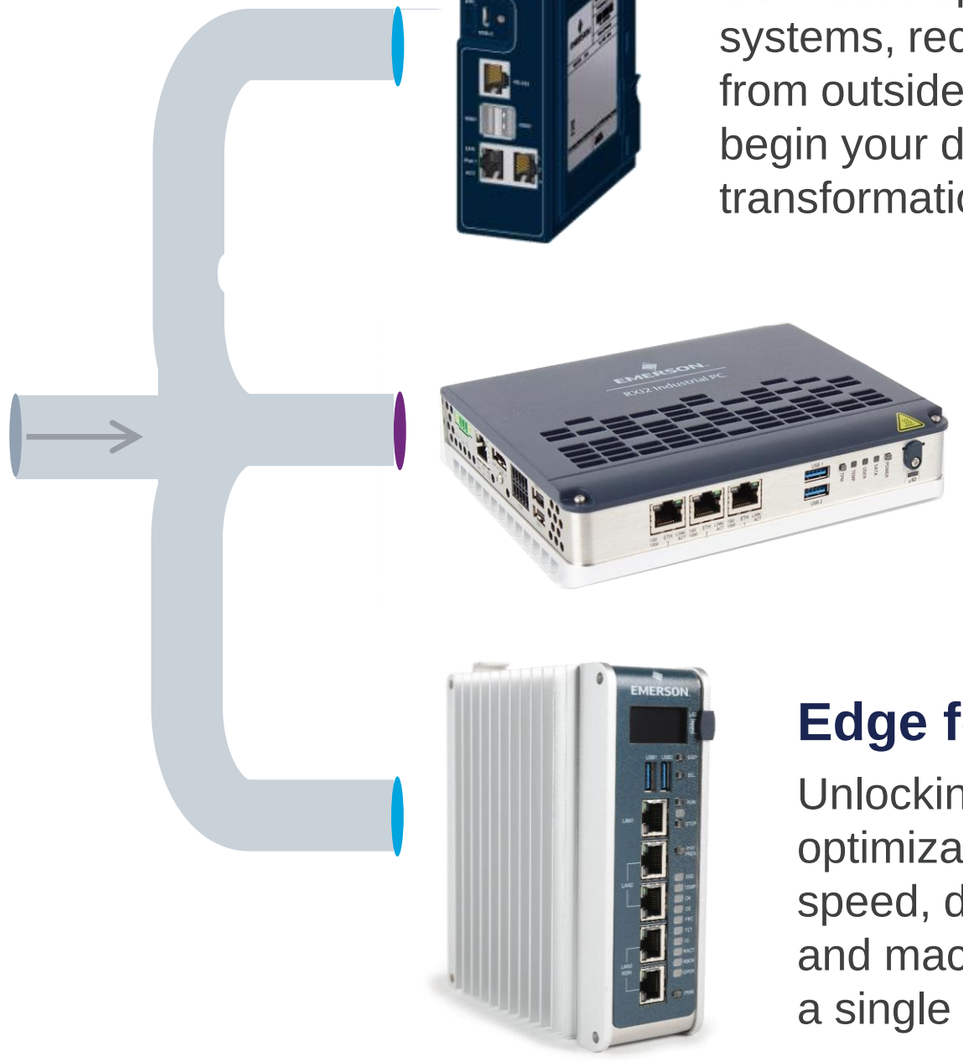
- Designed and constructed in house.
- Budget friendly pricing
- Smallest form factor for compact applications
- ARM processor based – Dual and Quad core options available
- Attachable WiFi Modem kits that provide near global support for most LTE and GSM networks
- 2 Ethernet ports, 2 USB ports, and DisplayPort++
- All PACEdge SKUs include the base edge license with options to upgrade to include Connext or WebHMI
- Plans to expand offering and include additional peripherals in the roadmap.

RXi2 BP options available now
IPC 6010+ families available soon.

- Designed and constructed in house.
- Highly configurable performance product
- Best thermal management in class without throttling.
- Passively cooled with no standard moving parts.
- Intel's 13th Gen CPU/GPU processing technology.
- Support for up to 4 full size PCIe slots.
- 64GB of DDR5 RAM available
- 6 – 2.5GB ethernet ports. (floating port configuration)
- RAID support available
- On board WiFi antennae options
- DIN mountable

PACEdge Software Simplifies Deployment by Coming Installed and Licensed on Edge Computing and Edge Controllers





Edge as a Gateway

Connect disparate systems, reconvene data from outside sources and begin your digital transformation journey.

Edge for Computing

Harnessing data from any source to deliver real-time insights and machine learning that is immediately accessible to operators.

Edge for Control

Unlocking real-time process optimization through high-speed, deterministic control and machine intelligence in a single device.

PACEdge Software Options

PACEdge

- Plug and play ready containerized software platform designed to save customers time and resources developing IOT applications.
- Open ended interface for secure, custom configuration with support for latest requirements including CRA 2027

mosquitto, jupyter, influxdb, MariaDB, Node-RED, TensorFlow, Grafana, docker, Timescale, OPC UA

PACEdge + Group (Fleet) Manager

- All of the great features of the base PACEdge experience plus licensing for an Ansible based Group (fleet) Manager with support for the management of up to 100 child devices in a standard perpetual license structure.
- Intuitive GUIs for doing version control, scheduling updates, and managing device health.

ANSIBLE

PACEdge + Connext Gateway

- All of the great features of the base PACEdge experience plus a 2000 tag license for use with the Movicon Connext IO data server.
- Typically used as a flexible industrial gateway, this license can also be used to take advantage of Movicon's over 100 PLC and IT/OT drivers as either data

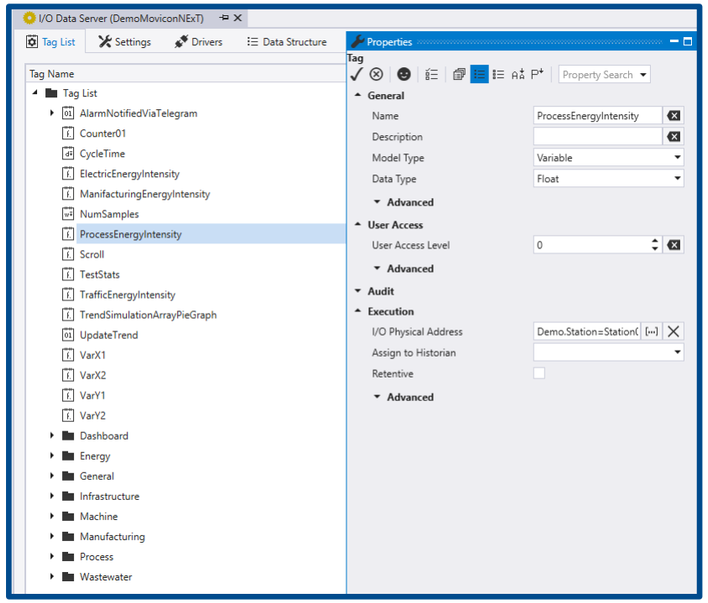
Connext

PACEdge + Movicon WebHMI

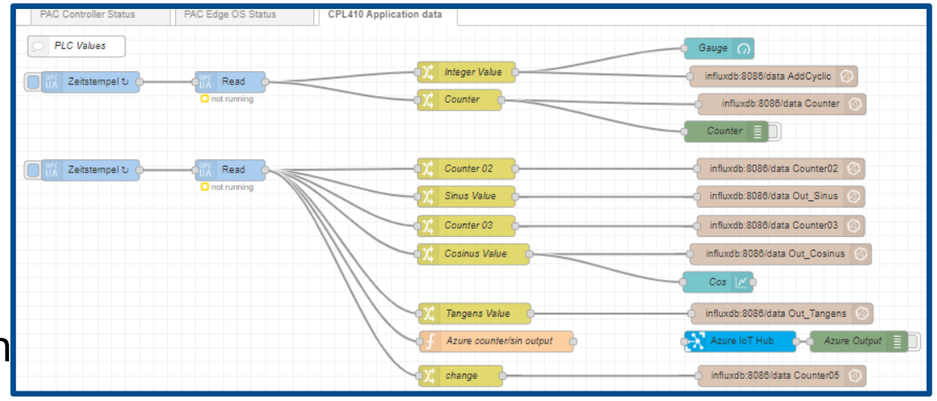
- All of the great features of the base PACEdge experience and the Connext experience this option extends those 2000 tags to include a web server-based HMI.
- With access to two concurrent screens this headless HMI provides the capabilities for the customer to mount a rigid panel or take the HMI with them.

Movicon WebHMI

Intuitive Drag & Drop Workflows With a Broad Array of Functionality Accelerates Development and Simplifies Maintaining Applications



Device Integration & Data Collection

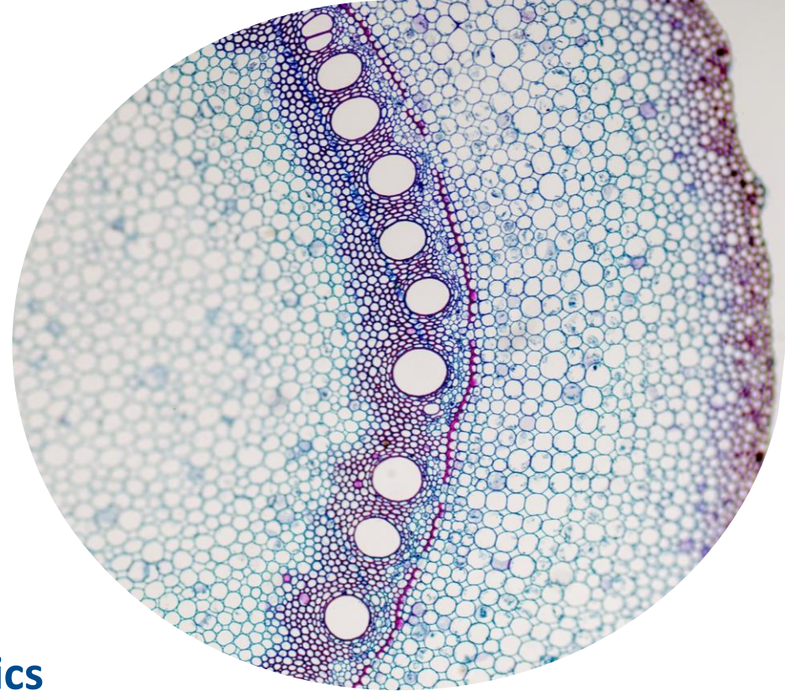


Data Processing, Flow Control & Logic

Dashboards and Visualization

PACEdge™ Use Cases

PACEdge Workspace Improves Sample Processing Pipeline in Cancer Therapeutics Through use of AI



Challenge

- Although Qualitative Analysis of Cancer samples is a quick process, Quantitative analysis requires large amounts of time and is often prone to error
- In many experiments lab technicians will be responsible for hand measuring samples. This includes hand counting of cells, sorting them by size as well as color differentiation.
- Due to the time constraints, most labs operate on a technical backlog

Key Emerson Technology

- PACEdge Software for Edge Computing.

Solution

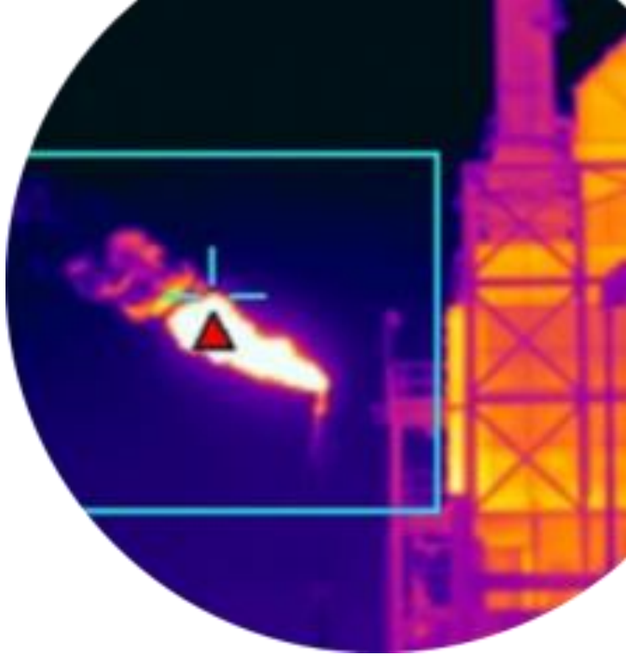
- PACEdge enabled IPC with Jupyter and TensorFlow resources enabled.
- Camera, IPC/DVR, and drivers provided by customer.
- The use of a TensorFlow model to evaluate cell count, cell shade, and cell size.
- Node Red dashboards for image visualization, training the models, and a review of recent sample analyses.

PACEdge Analytics

Results

- **Automated quantitative analysis has removed the backlog and further streamlined the lab's ability to process samples.**
- **Process improvements have helped improve QOL for the lab techs that were periodically suffering from strained eyes.**
- **Customer was able to garner insights through these advanced analytics.**

PACEdge Platform Improves Reliability and Flexibility in Custom Flare Monitoring Solutions



Challenge

- International petroleum harvesting operation with hundreds of wells and flares.
- In an effort to keep operations running smoothly operations will use aircraft and helicopters to monitor operational integrity.
- Once problems are identified, reliability staff are deployed to problem areas to further diagnose issues and perform repairs.

Key Emerson Technology

- PACEdge Software for Edge Computing.

Solution

- PACEdge enabled RXi2 with Group Management Utility.
- Customizable container experience allowing for the addition of customer provided thermal imaging software.
- The use of Node-Red to further analyze photographs and issue a pass/fail rating.
- Grafana dashboards for gage visualization and timescale analysis.

PACEdge Supervisor

Results

- **Realtime feedback of flare performance has improved repair response times, regulatory compliance, and process expenses.**
- **Over 100 flare monitors set up. Using the Group Management service, they can provide timely updates to their algorithms.**
- **Long-term relationship formed with a large petroleum customer.**

PACEdge Platform Improves Product Vitality and Viability in Industrial Refrigeration.

Challenge

- Skid deployments and commissioning were conducted manually, and data was either collected by hand, and often not tracked
- Data was unreliable and disparate, making a tracking process difficult.
- Conflicting controller manufacturers made integration expensive and feature limiting.
- Solution needed to be able to talk a wide array of common industrial languages to fit into the customers' existing sites.

Key Emerson Technology

- PACEdge Software for Edge Computing.

Solution

- With the help of the PACEdge team, the customer began capturing their process and control variables in addition to the setpoints of their system.
- The customer was able to export this data into reports to share the initial startup conditions of the system, adding value to their startup validation
- To add additional value, the customer upgraded their devices to include cellular connectivity collecting and managing the skids as part of their lifecycle services organization.

PACEdge Analytics

PACEdge Gateway

Results

- **Collection and storage of performance data critical to the operation of refrigeration skids.**
- **OEM provided performance reports allow our customer to grow Field Service pull throughs.**
- **Remote connection and sync allows OEM customer lifecycle services to troubleshoot issues, improve operational efficiency, and offer great differentiating value to their customers.**

PACEdge Platform Enables Rapid Expansion in Methane Compression OEM

Challenge

- Remote sites make rapid deployment of maintenance staff difficult and costly
- New technology proves challenging to troubleshoot and maintain for existing staffing
- Pipeline management requires a near-pure inlet product, making process stability paramount

Key Emerson Technology

- PACEdge Software for Edge Computing.
- Movicon Connext IO Server

Solution

- PACEdge enabled RXi2 with added Connext License
- Connext Ethernet IP drivers for Rockwell Automation PACs

- Node Red for alarm management, store & forward
- Grafana dashboards for localized visualization and timeseries analysis.
- InfluxDB Cloud for remote data storage/backup

PACEdge Gateway

Results

- **Considerable Lifecycle Services growth for OEM through new revenue streams related to product adoption.**
- **End customer product vitality has improved substantially increasing both margin and market share**
- **Continuous monitoring data shared with R&D has led to new product innovations and breakthroughs.**

PACEdge Platform Allows Petroleum Industry Leader to Undertake Massive Digital Transformation Journey.

Challenge

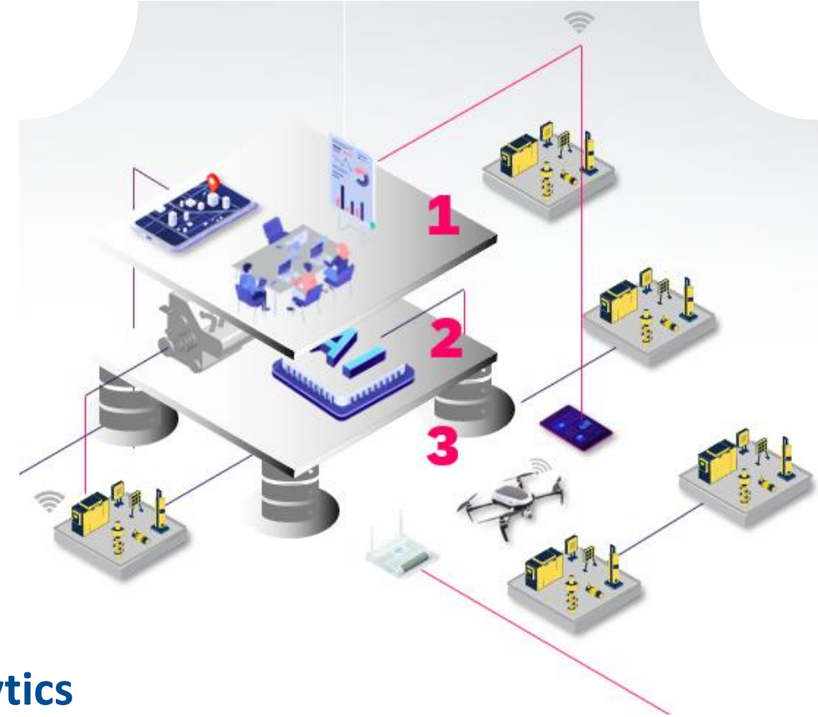
- International petroleum management operation with thousands of wells.
- Most well head operation was low-tech, and hands-on.
- Once problems are identified, reliability staff are deployed to problem areas to further diagnose issues and perform repairs.
- Reaction times are slow, and site dangers possible

Key Emerson Technology

- PACEdge Software for Edge Computing.
- PACEdge Group Management Software.

Solution

- PACEdge enabled RXi2 with 4TB SSD for image storage and buffering
- Customizable container experience allowing for the addition of customer provided thermal imaging software.
- The use of Node-Red to further analyze photographs and issue a pass/fail rating.
- Grafana dashboards for gage visualization and timescale analysis.
- Azure Blob Storage for image transport and buffering.



PACEdge Analytics

Results

- **Near real time feedback of well performance has improved repair response times, production rates, site safety and regulatory compliance.**
- **Entire project to include over 3000 well site monitoring skids. Using the Group Management service, they can provide timely updates to their algorithms, and manage their harvest monitoring operations across the globe.**

Global Chemical Processing Leader Manages Portfolio Greening Process with PACEdge HMIs and Gateways

Challenge

- Large Chemical Processing Facility
- New solar and wind power generating infrastructure ran with controls from manufacturers outside of existing company standards.
- Majority of new controllers speaking an array of alternate protocols.
- No existing system was in place to harmonize controls and aggregate for historian.

PACEdge Supervisor

PACEdge Gateway

Key Emerson Technology

- PACEdge Software for Edge Computing.
- Movicon Connext IO Server

Solution

- PACEdge enabled RXi2 with Added Connext IO License
- Custom Container Experience for seamless data sharing with CDF cloud extractor.
- Node Red derived custom OPC UA Server, MQTT Server, and HTTP Client
- Grafana dashboards for data visualization, backup extraction, and timescale analysis.

Results

- **Secure Deployment of 200 PACEdge devices managing power generation through data gateway, buffering, secure cloud connections, and HMI**
- **Simplified Purdue Architecture Model through secure MQTT handshakes.**
- **Custom Container Layout enabled additional Services Sales and established a long-term relationship.**