

# Automation Issue 68 TODAY

ASIA PACIFIC

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Starts Here

Make Smarter  
Decisions with  
Enterprise-Level  
Insights

Reimagine the  
Possibilities with  
Lifecycle Services

IIoT Deployment  
Generates Rapid  
Operational Insights  
and Business Impact



Smart Strategy  
Starts Here



Rockwell  
Automation

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### Automation Today Asia Pacific

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# Smart Manufacturing with Transformational Technology



●●● Many industries were already experiencing disruption prior to Covid-19 but the pandemic has accelerated this rate of disruption. To remain competitive, companies are challenged to work faster, smarter and with greater agility at all phases of their enterprise lifecycle.

Today's business environment is demanding levels of flexibility, agility and performance that only smart solutions can deliver. Smart manufacturing is your gateway to digital transformation. It delivers measurable results by improving safety, quality and optimizing plant performance. Through IT/OT convergence you can unlock hidden data from the entire value chain for more effective decision-making and more efficient operations at every level throughout the enterprise.

To help companies innovate faster and improve efficiencies we are excited to launch our new brand, **LifecycleIQ Services**. This new brand represents the expanding ways customers can engage with Rockwell Automation technology and highly trained professionals. LifecycleIQ Services can help improve your performance by optimizing the investments you make in your machines, equipment and technology.

More businesses are understanding the value of combining the various elements of smart manufacturing – people, process and technology – for a holistic approach to smart solutions. By doing so, they are creating their next competitive advantage.

This issue of Automation Today delves into how transformational technologies enable smart manufacturing. It focuses on how smart manufacturing can help you to address your biggest business and operational challenges.

It features industry topics covering the latest knowledge and insights including: **Smart Manufacturing Starts Here; Make Smarter Decisions with Enterprise-Level Insights;** and, **Reimagine the Possibilities with Lifecycle Services.**

This issue also includes the latest products and technologies, customer case studies that demonstrate how we help customers address their application challenges and recent company news and events.

I hope you enjoy this issue of Automation Today and that it helps you to reimagine what is possible when you accelerate your digital transformation.

Stay Safe, stay connected.

**Scott Wooldridge**  
President, Asia Pacific Region  
Rockwell Automation

# ROK LIVE

A Rockwell Automation Event



SAVE THE DATE  
**Aug 31 – Sep 2**

SYDNEY OLYMPIC PARK • SYDNEY

## Get inspired to innovate!

Join us for ROKLive to explore the explosion of digital technologies in manufacturing today.

This three-day event features exciting keynotes, discussions with industrial leaders, hands-on workshops, product and technology sessions all focused around digital transformation.



## Rockwell Automation and Comau Partner to Simplify Robot Integration for Manufacturers

- **Collaboration offers industrial customers easier, smarter, and more productive ways to design, deploy, and manage robot applications**

Rockwell Automation and Comau, a global leader in industrial automation and robot manufacturer, announced that they are joining forces to give businesses worldwide vital tools to maximize manufacturing efficiencies through unified robot control solutions.

"Industrial companies are looking for efficient ways to integrate robotics into their operations for process optimization and agility," said Rockwell Automation Chairman and CEO Blake Moret. "Rockwell Automation's collaboration with Comau will simplify programming and lifecycle management, accelerating time to value for our customers."

Moret said this expansion of robotic applications is rooted in Rockwell's broader strategy to help industrial companies save time and improve performance with unified robot control, ultimately providing long-term value for their business. The partnership is a collaborative development and selling model that offers the unified robot control product to both companies' customers.

"Comau's robotics and industrial automation expertise, as well as its reputation for high performance, reliability, and quality, combined with Rockwell Automation's global capabilities and experience in automated material handling, food and beverage, household and personal care, and life sciences, gives customers the incremental value of an integrated robot solution," said Comau CEO Paolo Carmassi.

Engineers will now be able to program their entire machine in one environment, including Comau robot arms directly controlled through Rockwell Automation's Logix-based controllers. Rockwell Automation's Studio 5000® automation system design software provides relief from the time-consuming and often difficult task of trying to coordinate traditionally separate machine control and robot systems to work together using two different software tools.

Machine builders, system integrators, and others will gain development and deployment efficiencies through the use of digital engineering tools like Rockwell's **Emulate3D digital twin software**, which creates digital models of production lines, auto-generates machine control code, and has built-in capabilities for Comau robots.

The combined Rockwell and Comau solutions will also offer benefits beyond enhanced integration. For example, end users can use analytics and digital twin tools to gain deeper insights into machine performance and potential production optimization. They can also use safety and security solutions to reduce business risks.

Operators on the manufacturing floor who use Rockwell's FactoryTalk® software suite will benefit from being able to see both line and robot control systems on a single interface. In-plant and remote technicians will only need to learn and maintain one architecture to monitor both systems. They can also leverage Rockwell's augmented reality (AR) tools to improve lifecycle and service cycle maintenance.

## DiversityInc Honors Rockwell Automation

- **For the fourth time, we're a Noteworthy Company; for the first time, we're #15 for Employee Resource Groups**

DiversityInc, an organization that strives to bring education and clarity to the business benefits of diversity, recently announced that Rockwell Automation is named a **2021 DiversityInc Noteworthy Company**.

For the fourth time, we were among the select 42 U.S. companies named to this list, which includes companies whose data indicates they have the potential to make The DiversityInc Top 50. And for the first time, this year we were named **#15 for Employee Resource Groups**.

Now in its 20th year, the DiversityInc Top 50 Companies for Diversity competition had more than 1,000 companies participate last year. Their survey is the most comprehensive, data-driven diversity and inclusion analysis of some of the largest U.S. employers. It is a metrics-driven evaluation based on 2020 company-submitted data in these six key areas:

- Leadership Accountability
- Human Capital Diversity Metrics
- Talent Programs
- Workforce Practices
- Supplier Diversity
- Philanthropy

Our employees are our greatest resource, and these two designations are strong indications of Rockwell's continuing commitment to creating a diverse, equitable and inclusive work environment that enables employees to bring their whole selves to work and contribute their full potential.

We've made progress in operationalizing that commitment as we want to be the place where people can and want to do their best work. We continue to seek out and apply best practices to accelerate the diversity, equity and inclusion of our organization and our industry. Our 14 Employee Resource Groups help employees create a sense of belonging that crosses over functional and geographic boundaries. Visit [ERG Central](#) to learn more.

We are proud and honored to be among those 42 companies named to the DiversityInc 2021 list of Noteworthy Companies and the 25 companies named to the DiversityInc 2021 list of Top Companies for Employee Resource Groups!



## Unleash New Possibilities with LifecycleIQ Services

- **Expanded professional services portfolio combines knowledge and technology to holistically address needs across the industrial value chain and improve business sustainability**

To help companies innovate faster and improve efficiencies during the age of digitalization, Rockwell Automation is evolving its service and solutions capabilities and launching a new brand: LifecycleIQ Services.

The new brand represents the expanding ways that customers can engage with Rockwell Automation technology and highly trained professionals to improve their performance and reimagine what's possible across their industrial value chain.

LifecycleIQ Services provide the transformative partnership that customers need and expect today. By combining digital technologies with expansive human know-how, the services help companies work faster, smarter and with greater agility at every point in their business cycle.

The services can help companies realize the power of a Connected Enterprise during the design, operations, and maintenance stages in greenfield and brownfield facilities.

"LifecycleIQ Services create a more intimate customer engagement model, one that can help companies not only solve problems, but also see new possibilities in production and transform them into reality," said Frank Kulaszewicz, senior vice president, Lifecycle Services at Rockwell Automation. "We're investing in providing a wide range of holistic services to help companies be more productive, safe and secure anywhere in a product, process or plant lifecycle."

Inbavanan Rathinam, senior director, Solutions & Services, Asia-Pacific at Rockwell Automation, said: "One challenge faced by many industrial players in Asia-Pacific is how to adopt smart manufacturing technology quickly whilst seamlessly integrating legacy equipment and machinery. LifeCycleIQ Services help to address this unmet need holistically, enabling enterprises to be future-ready by incorporating agility and flexibility in both infrastructure and processes.

"Driving efficiencies also continues to be increasingly important to businesses across every sector in the region, with growing attention on sustainable operations. LifeCycleIQ Services enables our customers to better plan and service every aspect of the plant, from design to safe operations, enabling reduced energy usage, minimized wastage, and maximized output."

Industrial companies can use LifecycleIQ Services to achieve outcomes like: Capturing more value from digital transformation initiatives, reducing risk with comprehensive cybersecurity support and improving workforce support.

To improve customer experiences, LifecycleIQ Services is also introducing a new way to receive multiple services in one

contract. An **Integrated Service Agreement** allows companies to select a package of offerings to simplify their support needs and have just one number to call to access experts and receive priority service. Companies can get 24x7 technical support, repair services, reports and analytics, field services and more, all in one integrated contract.



## Rockwell Automation Donates Arena® Simulation Software to Support COVID-19 Vaccination Efforts

- Rockwell Automation announced that it is donating its Arena® Simulation Software to nonprofit organizations, governmental organizations, and public health partners to plan COVID-19 vaccination clinics in their communities. The software can be used to monitor patient flow, staffing, shift changes, and maintenance of social distancing guidance for patients in queue.

A nonprofit health system will use the donated software to help manage more than 30 vaccination clinics with several planned in Wisconsin, and a public health department will use the software to plan future vaccination efforts in northeastern Ohio. Conversations with other healthcare providers are ongoing.

"We recognize this software is a potential game changing tool in helping our healthcare partners to better address supply and staffing needs, and ultimately help expedite the vaccination process," said Patricia Contreras, vice president of public affairs for Rockwell Automation. "We look forward to joining forces with more hospitals, health departments and other community organizations to help as many people as possible get vaccinated safely, efficiently, and quickly."

At the start of the pandemic, Northwell Health in New York, and ChristianaCare in Delaware both used Arena® to manage COVID-19 inpatient care. The software is ideal for vaccine clinic planning because it helps decision-makers understand the flow of systems and the constraints of resources in an environment where every day might bring a different scenario.

According to the U.S. Centers for Disease Control and Prevention, as of Friday, March 12, more than 100 million doses of the COVID-19 vaccine had been administered, with 13.5% of adults U.S. population now fully vaccinated. As vaccine supplies change and more people gain access to schedule a vaccination, better and more efficient tools will be needed to support vaccine distribution.

# Smart Manufacturing Starts Here

●●● **Modern market forces demand levels of flexibility, agility and performance that only smart solutions can deliver. Are you keeping pace?**

Thanks to the constant evolution of technology, resulting in open connectivity coupled to modern automation solutions, smart manufacturing has morphed from an abstract concept to a technological reality.

As consumer demands continue to change rapidly, smart manufacturing can help to address these evolving requirements by taking advantage of emerging technology opportunities.

Smart manufacturing delivers measurable results by improving safety, increasing quality and optimizing plant performance. There are various elements of smart manufacturing including people, process and technology and most importantly how they all combine to underpin a holistic approach to smart solutions.

## The true value of data

Real time data taken directly from a machine or operation is a primary benefit of smart manufacturing. However, if that data is not applied properly, or if no action follows, there is no benefit.

How many times have you walked into your manufacturing area to find operators guessing about an issue? To give your people the actionable information they need, your machines must provide contextual actionable insights that improve decision-making.

This starts with your business model, understanding the challenges that impact Overall Equipment Effectiveness (OEE), and how decisions can be driven to the appropriate level to improve

productivity, quality, safety and sustainability.

It is important to acknowledge that smart manufacturing is a process, not a project. Start with one machine, one cell, one line and review that data you can collect, analyze and present. Being intentional about your data strategy – when you need real time data, how you will collect it and how you will use it – provides you a metric for action and a way to gain value from the insights.

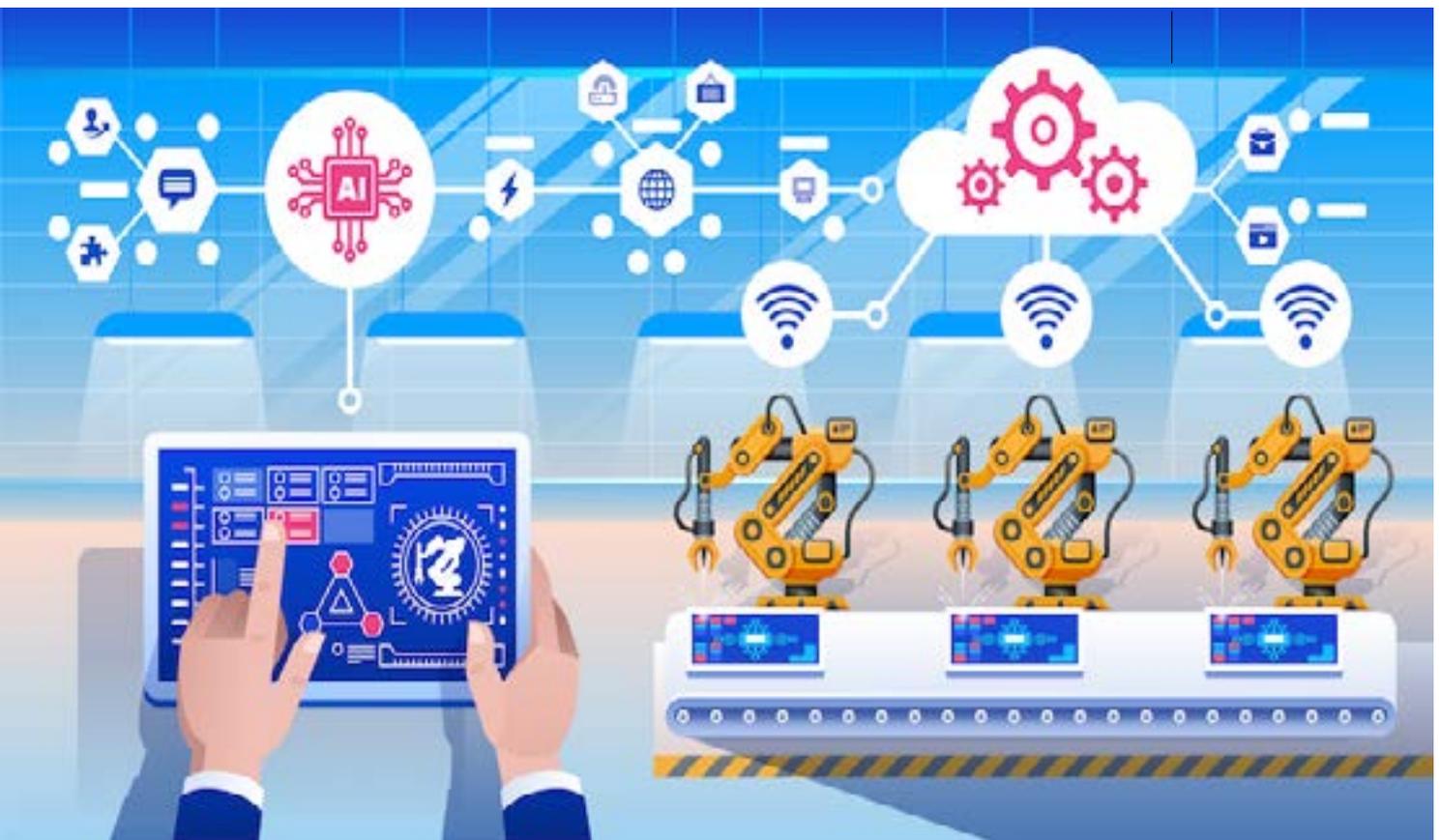
Being smart means leveraging historic and real time operational data in an efficient way to optimize your OEE by deploying smart technologies. Chances are you already have devices in your plant that can generate and deliver their own part of this vital operational data mix. However, it is important to note that simply tapping into these devices will give you data but not information. Smart devices do not make manufacturing smart on their own; they work with users of the information to make it smart.

With smart systems, from component to PLC, coupled to information gateway solutions designed specifically to work between OT and IT systems, the data you collect can be shared throughout your enterprise. Analytics provides the capabilities for you to monitor trends, spot weaknesses, highlight training gaps and predict downtime before they negatively affect your operations.

## Smart software

Smart manufacturing can be defined as a system of connected devices that produce contextual information, allowing people

**Smart manufacturing is a journey, not a destination. As technology evolves, so do the opportunities**



to make the right decisions to drive the desired manufacturing outcomes and reach targeted improvements. Any smart manufacturing system must include software systems that support:

**Visualization:** This includes MES layer integration, machine data visualization, and business unit alignment.

**Optimization:** Focuses on operational efficiency and productivity, application of analytics, and risk management.

**User experience:** Considers the abilities of any user, scalability from plant manager through to operator, and operational intelligence.

Smart manufacturing is your gateway to digital transformation. Use your connected smart devices to open new windows of visibility into processes. Leverage data and analytics to enable better and faster decision making.

## Embrace digital

Digital technologies have revolutionized the way we live, work and play. As technologies continue to advance, we continue to become more reliant on the benefits they provide. This is particularly relevant to manufacturing.

The pressure is on to reduce costs, improve customer experience and increase profitability. Organizations that are embracing digital are disrupting business models with new value propositions.

**Digital engineering** is not an all or nothing strategy. There is no need to replace the tools that your workers know and like today. Instead, you can extend those tools digitally to improve how

designers, production managers, technicians and others work. Start by reviewing your business and determine where you can do things smarter, faster or better using a digital approach.

There are five key areas where digital engineering can help to improve your business:

### 1. Design and prototyping

Virtual design and prototyping can help you build, test and evaluate machine designs digitally. This provides the capability for you to change what is possible in your business. This allows you to get machines to market faster; reduce risk in your designs; and, create higher-caliber, more customised machines.

With simulation software, you can apply physics to your 3D CAD model to bring it to life. This allows you to watch it run and see how it interacts with people or with other machines. It is even possible to bring the model into a VR environment to watch it perform in front of you as if you were on the plant floor.

If changes need to be made, these can be actioned in your digital twin design with just a few clicks rather than buying parts and spending days of labor to build a new prototype. It is not just digital twins that can help you get machines to market faster.

Design software that uses an open data exchange, for example, allows engineers to design a machine once and then import that design data in tools. This can help save hours of rewriting and remapping work on projects. The reusable code allows you to build on the success of existing machines, without redesigning from scratch.

## 2. Commissioning

Waiting until you bring a machine onsite to perform controls testing is a recipe for disaster. You would not know if your machine and its control system are aligned until you are standing next to your customer, with their start-up date approaching. You may discover that your machines operate below expectations or falls short of the specification. Fixing these issues at the last minute can be expensive and lead to missed deadlines.

Virtual commissioning can help you put an end to these problems. By creating a dynamic digital twin of both your machine design and the real operational logic of the control system, you can uncover issues earlier in the design phase, long before you bolt your machine into the floor of a customer's plant. With virtual commissioning, you can exhaustively verify and demonstrate the operation of your machine and the controller, before any resources are committed to them.

Daifuku Webb uses simulation software to test the PLC code for its material handling system in-house, before they go to the field. In one airport project, this led to significant cost savings. "Ordinarily, our people spend many months in the field," said Greg Swisher, senior controls engineer, Daifuku Webb. "And we were able to condense that time down to about a three-week period from the time our engineers hit the field to the time the customer took acceptance."

***"Ordinarily, our people spend many months in the field, and we were able to condense that time down to about a three-week period from the time our engineers hit the field to the time the customer took acceptance."***  
***– Greg Swisher, senior controls engineer, Daifuku Webb***

## 3. Training

**Virtual training** eliminates the requirement to for both machines and operators to be onsite together. A digital twin allows you to train workers before a machine arrives. By either wearing a VR headset or working from a screen, workers can build skills and competency in a safe and immersive virtual environment. One of the greatest benefits of virtual training is the freedom it gives you.

It allows you to conduct training at anytime and from anywhere by delivering the flexibility to provide training to whoever needs it, whenever they need it and wherever they need it. Furthermore, virtual training does not have the same restrictions as real-world training. Workers can learn how to keep production running in ideal operations and they can be put to the test with simulated faults and extreme conditions that may not be possible to physically replicate. This can better prepare them for responding to similar incidents in production and ultimately reduce downtime.

Workers can be free to make mistakes in virtual training without worrying about disrupting production. If an operator does something wrong, that action can be recorded for remediation

purposes. In addition, they can be required to prove their competency in training before they experience live production.

As seasoned workers retire and a new generation takes their place, virtual training can help workers learn their jobs in a more familiar way. They can use devices like tablets and VR headsets that they have at home and training can be enhanced in a virtual environment to gamify learning.



## 4. Operations

The value of digital engineering does not stop after machines are commissioned and operators are trained. Once production starts, digital twins can mimic processes, machines and controls to help plant personnel learn about operations and experiment with changes. An ever-growing digital thread of information can reveal insights into how production can be improved.

Operations of all types can reach new heights when they can continuously drive improvements in production and adjust on the fly using insights from your digital thread. Use trial line startups and production scheduling and sequencing to optimize product mixes and volumes. Experiment with machine configurations to improve quality, reliability and throughput.

In addition, you can use your digital thread to detect anomalies in processes to uncover operational issues before they impact quality and cause scrap downtime. You can test run new products or machines to optimize throughput and avoid problems like downstream bottlenecks – saving precious production time.

***A global manufacturer implemented a digital thread alongside its MES and saw a 50% lead time reduction to customers, a 50% reduction in defective parts and a 4% improvement in productivity.***

## 5. Maintenance

Maintenance teams can fight downtime like never before using digital simulations and real time or even predictive insights. Data flowing through a digital thread can help technicians detect problems as they happen, to prevent or minimize downtime.

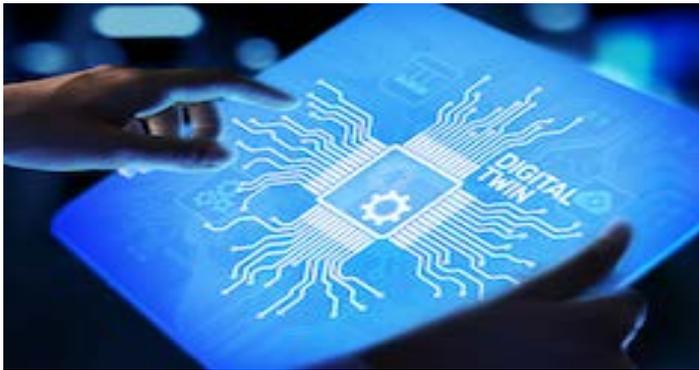
This includes health and diagnostic data from control system devices that can notify technicians when maintenance is needed.

It also includes network data, for example, from switch level alarms, which today is just as critical to uptime.

In an ideal world, maintenance teams would never need to respond to downtime events because they could predict them. This is increasingly possible thanks to the use of predictive analytics. These analytics use machine learning and artificial intelligence to learn your operations, identify machine issues early and alert technicians of those issues. Technicians can then schedule maintenance during a planned downtime.

Digital twins can help you improve MTTR in a number of ways. First, virtual training allows technicians to prepare for downtime problems in advance rather than troubleshooting them the first time they happen. When problems do happen, technicians can use AR technology to overlay diagnostics or work instructions on a physical machine to diagnose and fix problems faster.

“As industrial organizations manage transitioning workforces, predictive analytics solutions can help ensure maintenance decisions and processes are captured and repeatable by incoming personnel.” – ARC Advisory Group, Digital Twins Roadmap: From Reactive to Prescriptive Maintenance.



### Smarter supplier solutions

No matter where you are on your digital journey it is worthwhile asking your suppliers for smarter, safer, more connected and secure machines, equipped with smart components and smart objects at the controller level. This means that when connected, all the data is there, organized and instantly usable – allowing you to get value the moment you connect.

As an end user, you must engage, specify and question OEMs. Ask yourself, “What additional value would I get if this machine deployed smart technology?” Then ask your OEM exactly the same question.

Price should not be the primary metric upon which you base your purchasing decisions. It is important to consider the whole life cost of the asset, including its operation and consumption, and the extra value that the data it generates can deliver.

Work closely with your suppliers, explaining your smart aspirations and then challenge them to exploit technology that helps you reach your smart manufacturing goals.

Imagine if your operations could benefit from:

- Operational data that allows users to be more proactive and gain insights into their operations
- Faster return on investment and greater uptime
- A framework of design and operation tools that will simplify system integration, operation and maintenance
- Integration on a common platform
- Safety features that enhance both safety and productivity by improving machine access, reducing downtime and reducing restart time
- Secure remote access to speed diagnostics and troubleshooting while minimizing worker exposure to hazards

With smart manufacturing, this could now be your reality. By converging plant-level and enterprise networks and securely connecting people, processes and technologies – you can redefine what is possible.

### Redefine what is possible

Now more than ever, businesses are stretched to do more with less. Adding to this, changing demographics are creating workforce challenges for manufacturers and industrial operators with retirement, economic expansion and technology evolution overwhelming companies' abilities to staff operations.

Many contemporary business outcomes are based around knowledge-driven operations and smart, flexible manufacturing. Providing your operators, maintenance technicians, engineers, managers, and executives with actionable insights that optimize your workforce's strengths and capabilities is a key element of smart manufacturing.

New insights that are revealed through better data access can help you reduce bottlenecks, implement demand-based decisions, and improve maintenance. Greater digitization can help you reduce downtime and improve profitability.

Benefit from collaborating in real time across the value chain, validating new lines and processes virtually, simplifying data science and increasing your manufacturing flexibility.

Digitally transform your operations to unlock the possibilities and improve almost any aspect of your enterprise performance. **AI**



# Caterpillar IIoT Deployment Generates Rapid Operational Insights and Business Impact



The equipment maker used a rapid IIoT deployment to gain data-based insights and optimize production at a components plant. Now, the company is taking the deployment global.

●●● **Caterpillar** equipment imprinted with the iconic “CAT” logo is a hallmark on job sites defined by grit and hard work – from building construction sites to rugged and remote mines.

Helping give Caterpillar equipment the durability its users expect is the company’s Advanced Component Manufacturing Division. The internal manufacturing group makes transmissions, hydraulic components and other parts for the machine and aftermarket businesses of Caterpillar.

Recently, the division embarked on a project to create not a new part, but rather something less tangible: data-driven insights about its production operations.

## Unearthing data to improve critical production processes

Accessing production data would open up new possibilities for the component division.

Its critical manufacturing processes were “black box” operations. This meant workers had no data proving that the process and product were actually meeting engineering specifications. The lack of data also resulted in inefficiencies and sub-optimal processes,

which ultimately drove rework and other non-value-added costs. “Our goal was twofold,” said Brent Ruth, global ACM ERP CoE Leader, Caterpillar. “First of all, we wanted to learn how to connect and utilize IIoT devices within our factory environment and get some quick wins. And secondarily, we wanted to gain insight into our actual manufacturing processes to include understanding what is happening in real time to be able to improve and optimize our process and efficiency.”

## Starting the journey

An initial proof-of-concept took place over a blistering four weeks before Christmas. The goal? Capture PLC data from critical-constraint machines and present it with graphical analysis to manufacturing engineers, all of which would be done using the **FactoryTalk InnovationSuite**, powered by PTC.

For the project, Ruth built a team that brought together deep technical and process expertise, while also leveraging the support of Rockwell Automation and PTC. Team members came from IT and OT backgrounds that historically have had competing priorities. But they were able to work together because they both understood the vision of the project and were involved in executing it.

“We formalized collaboration between IT and OT through direct

interaction,” Ruth said. “We did this by really rolling up our sleeves and working together as one team, all the way from refinement of strategy and vision up front, to project execution, and every step in between. By doing this, we were able to forge strong working partnerships.”

To generate and prioritize use cases, the team spent weeks on-site at plants to assess their readiness for digital transformation. They plumbed ERPs, dove deep into master data, and looked at how business was conducted both in the back office and on the shop floor. All this helped the team develop and prioritize digital initiatives that were aligned to business needs and goals.

“During those initial stages, we took a lot of time to engage our local business and finance people in quantifying the benefits and making sure that we had really good estimates based on industry, and also agreed assumption,” said Haydn Powell, global supply chain manager, Caterpillar.

**A watershed moment**

Creating operational insights and proving that production was indeed meeting engineering specs was a “watershed moment” for the component division.

With access to rich data context that it never had before, the division was able to see all of the non-value-added time in the process. And manufacturing engineers were able to improve and optimize the

process quickly. So quickly, in fact, that they reduced overall process time by over 5% on day one.

Several hundred thousand dollars of cost were also saved by showing the plant didn’t need to add assets or shifts. Capacity was available after all – the division just needed the data to prove it.

Meanwhile, this early success proved to be just the start. The project scope was expanded beyond the critical-constraint machines to include the rest of the plant and other domestic and international plants.

“This work has been very instrumental in defining our future direction,” Powell said. “The initial sprint that we accomplished was done in weeks. And the current activity is continuing, because it’s really part of a journey.” **AT**



# Simplify Automation

## And Reduce Integration Effort

System integrators and machine builders have specific requirements on automation. IND360 is tailored to these needs, and delivers:

- **Easy integration with device drivers and sample code**
- **Simple configuration through web interface and cloning function**
- **Extremely fast weighing with up to 960Hz**
- **Unique security functions with SMART5™ alarms**



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# Make Smarter Decisions with Enterprise-Level Insights

●●● **Conquer your data challenges for improved decision-making and productivity. FactoryTalk Edge Gateway can help accelerate edge to cloud digital transformation and unlock higher value business insights at the enterprise level.**

Industrial data is generated in such volumes and high speeds that it is difficult to capture accurately. Even if you could, its use is likely limited by lack of both context and consumability.

With operational data locked in disparate devices or siloed in systems of record, data scientists expend significant effort on data preparation and are hard-pressed to extract actionable industrial performance insights.

Connecting the dots across these industrial data silos by building relevant OT data context is critical for generating higher value actionable insights. Furthermore, unless the industrial OT data is packaged into a logical data model that both IT and OT applications understand, IT/OT convergence remains a farfetched prospect.

**FactoryTalk Edge Gateway** software from Rockwell Automation addresses these challenges – unlocking actionable plant and enterprise-level insights to accelerate IIoT digital transformation. It simplifies and automates collection, contextualization and organization of industrial equipment across machines, devices, and automation assets at the source itself, enabling high data integrity from the outset.

It provides the right foundation to drive edge-to-cloud IT/OT convergence at the enterprise level so that everyone from the shop floor to the enterprise can make smarter decisions.

## The edge you need

FactoryTalk Edge Gateway is an important foundation of a broader edge platform offering that will include elements of pre-built data analytics models, machine learning, tailored applications, and scalable compute.

It is also a key pillar in Rockwell Automation's strategy to **accelerate digital agility** across the industrial devices to cloud spectrum with partnerships, including PTC and Microsoft.

A leading Fortune 100 pharmaceuticals manufacturer explained, "Legacy systems today are not IIoT enabled and need many different software programs to collect and organize data. With existing methods, the operational attribute values collected have different timestamps, so it is impossible to synchronize the data together. Compared to that, FactoryTalk Edge Gateway automatically stitches the data together and puts it in a payload using pre-configured information model hierarchy. It gives one solution to collect and organize the relevant data.

FactoryTalk Edge Gateway's unique data management capabilities result in up to a staggering 70 percent reduction in analytics data preparation efforts for data scientists or analysts, while providing higher quality OT data.

The underlying common information data model is orchestrated by the unique Rockwell Automation FactoryTalk Smart Object capability and can be efficiently mapped to on-premises or cloud applications to generate predictive insights across the enterprise.

"Industrial businesses need actionable enterprise-level insights to achieve their goals. As customers continue to drive IT/OT integration and leverage operational data to drive insights, they are realizing that having the right OT data context is critical to scale their digital transformation initiatives," said Arvind Rao, Director, Product Management for Information Systems at Rockwell Automation.

**FactoryTalk Edge Gateway's capabilities result in up to a staggering 70 percent reduction in analytics data preparation efforts for data scientists or analysts, while providing higher quality OT data.**





“With FactoryTalk Edge Gateway, we are dramatically reducing the time and effort required to build, maintain and enrich this critical OT context. This provides our customers with the opportunity to realize double-digit operational improvements through analytics.”

### Unlock industrial performance insights

With access to OT contextualized data, IT applications can help you to extract equipment insights across your enterprise. This provides the capability for you to quickly, easily and proactively identify process and production inefficiencies and product defects.

With less required data preparation time, you can focus on using your data to detect and resolve equipment issues and improve production output. The use cases below relating to the food and beverage and automotive and tire industries respectively, highlight the value of accurate production data and connecting your entire operational and supply chain.

#### Use Case 1: Delivering accurate production data

In the food and beverage industry, quality issues are often discovered after the product hits retail shelves or is in consumer hands. While initiating recall of a certain batch or lot, manufacturers need to find the issue’s root cause. For effective root cause analysis (RCA), accurate production data with timestamps for every batch and serial number is critical.

With FactoryTalk Edge Gateway software, you can collect data at high speeds and build an information model at the data source that contains the batch and serial numbers corresponding production data, including metrics such as current level, torque and speed at each stage. This information model can be pushed to data storage or IT applications, either on premise or in the cloud. With accurate production information, IT applications can now enable both process engineers and data scientists to perform RCA and prevent similar quality issues into the future.

#### Use Case 2: Connecting your value chain

As a result of fluctuating raw material costs and operational efficiencies, the automotive and tire industry is often faced with operational and supply chain challenges, as well as continuous pressure to maintain profitability. The tire manufacturing process is a unique mix of batch production in upstream and discrete

manufacturing in downstream operations. A heterogeneous mix of control systems, protocols and outputs is very common, and plants run in departmental silos with very little data shared across the value chain.

With FactoryTalk Edge Gateway software, you can connect heterogeneous sets of assets across the complete value chain, capturing contextual OT data into a common information model and eliminating data islands.

Upstream IT applications can also use this model to establish a single source of truth to measure operational, machine and quality performance across the enterprise. With the right set of analytical tools on top of the information model, you can use the underlying OT data to predict machine and process failures and accelerate root cause analysis of quality problems.

### Edge to enterprise analytics

Accelerate your digital transformation with edge to enterprise analytics that simplifies and automates industrial data collection, contextualization, and organization across equipment, devices and automation assets.

FactoryTalk Edge Gateway software integrates with a variety of cloud, IIoT and big data applications. It provides the capability to create information models in the OT layer and efficiently map to upstream IT applications to improve performance metrics such as OEE, predictive quality and process efficiency. **IAI**



# Reimagine the Possibilities with Lifecycle Services

## ●●● Digital technologies and domain expertise helps you reimagine what is possible and unlock the potential of your automation investments

Industry as we know it is changing rapidly – from a shortage of skilled workers and high turnover to advancements in connectivity and IoT. Innovation is driving us to augment in-house experience and institutional knowledge with intuitive technology and partner support.

To remain competitive, many companies are challenged to work faster, smarter and with greater agility at all phases of their enterprise lifecycle. The key goal is to optimize the investments you make in your machines, equipment and technology. However, this can be easier said than done.

How can you make the most out of your production assets, systems, plants and processes? LifecycleIQ Services from Rockwell Automation can help you to expand what is possible through active collaboration and support. Whether you are designing, operating, maintaining or innovating, our support can help you navigate the complexities and find success.

### Defining the roadmap

The first step is to define the roadmap to meet your business outcomes. This involves generating a long-term plan based on innovative concepts and analytics that align with the business strategy. Lifecycle services can deliver proven outcomes to help you address aging infrastructure, reduce the workforce skills gap or achieve sustainable growth. These smart, connected services bring together industry, technology, operational and application expertise to enable safe, secure and reliable manufacturing.

We can partner with you using our digital technologies and expansive domain knowledge to enable you to be more productive every stage of the lifecycle. The roadmap to success can be defined in four key stages:

**Innovate:** Leverage our industry expertise to identify new opportunities to improve. Identify how to turn process and machine data into meaningful information for data-drive decision making. Use predictive analysis to reduce downtime. Accelerate the speed of innovation through knowledge, reuse, speed of change and access to information.

Whether it is a feasibility study, digital transformation initiative or modernization strategy – innovative technologies, services and solutions can help.

**Design:** Use intelligent insights to build a flexible design with system readiness and agility for future innovation and change. Leverage our domain expertise in system design and simulation, network design or as your main automation contractor to enable safe, secure and reliable manufacturing.

By designing your networks, systems, and applications to be integrated and intelligent you can increase speed to market with early access to information. This also helps to reduce risk in your operation, with a digital backbone and enhanced cybersecurity.

**Operate:** Use application and technical expertise combined with scalable project delivery to improve your operations. Leverage our proven expertise for a better user experience. From installation and commissioning to project management and operational technology infrastructure as a service – we can help you achieve facility and process operational requirements.

Benefit from faster commissioning for faster time to value and improve operator performance and reduce training time with augmented and virtual reality tools.

**Maintain:** Our lifecycle services allow you benefit from one point of access to highly trained engineers. Connect your data, systems and processes to leverage information that helps you predict what is ahead. Reduce Mean Time to Repair (MTTR) through remote assistance.

Empower your operations to make better, faster decisions and improve operational excellence for ongoing production – discover new possibilities and transform them to reality.

### Minimize risk to maximize productivity

If your equipment goes down, how prepared are you to recover quickly? Most companies require some level of outside support, especially as they contend with skills shortages, obsolescence risks and increasing operational complexity. Adding to this, is the growing pressure to maximize productivity and minimize operational risk. As a result, your ability to support, maintain and keep your current systems running optimally is critical.

Rockwell Automation is here to help. Our LifecycleIQ services combine digital technologies with our expansive domain knowledge to help your company work faster, smarter and with greater agility at all phases of your enterprise lifecycle. The lifecycle services that we offer provide the long-term partnership you need and expect at all stages of your lifecycle journey to enable safe, secure and reliable manufacturing.

Leverage digital insights to maintain optimal operations. Connect all of your data, systems and processes to provide you with the right information at the right time - information that can help you



predict what's coming, anticipate an issue before it happens, and make your business more connected, productive and intelligent.

### LifecycleIQ Solutions in Action

LifecycleIQ services help enable you to expand what is possible through active collaboration and support. The use cases below detail how lifecycle services add value to a variety of applications including data center management, application support management and network management.

#### Data Center Management

A food company needed to improve server reliability to reduce the number of server issues it was experiencing. The Operational Technology Infrastructure services solution involved:

- Management of virtual environments and Industrial Data Centers
- Secure environment with managed deployments (patches, antivirus and firmware)
- Single point of contact for support
- Reduced time to implement by providing the design and implementation of the architecture

**The result: A 90% reduction in troubleshooting time**

#### Application Support Management

A global mining company needed to support their sites with proper personnel but was facing a skills gap. This made it difficult to manage the risk associated with supporting their global sites. The Application Support Management agreement provided:

- Consistent technical expertise to fill the skills gap and improve processes
- 50 hours per year of reduced downtime
- Global disaster recover solution to help mitigate safety risk

**The result: \$1.1 million saved annually**

#### Network Management

A leading beverage company could see the potential value of enabling information convergence but was challenged with aging infrastructure, cyber hygiene risks and a legacy install base.

Modernization was required to improve productivity, so they called on Rockwell Automation to provide LifecycleIQ services. The Managed Support solution delivered:

- A modernized network infrastructure
- Management of operational technology network assets
- Managed services to mitigate cyber risks
- Application support to reduce the cost of operations
- Design and implementation of the architecture deployed.

**The result: The solution enabled a response time of only 10 minutes or less. [AS3](#)**





## Stratus solutions enable businesses to work in an “Always On World”

### Modern Edge Computing platforms will drive operational excellence

For any business, ensuring the continuous availability of mission-critical applications is paramount. This was the case for an aviation maintenance company that was looking to upgrade their existing safety systems with programmable logic controllers (PLC) and the installation of SCADA monitoring systems. HoST, the appointed system integrator, incorporated Stratus ftServer as the Edge Computing platform at the core of the solution, that fully addresses the customers' needs.

It was critical that no single point of failure was present and there was reduced production downtime even on the enterprise level. Stratus ftServer provided 99.999% uptime

and ran in Active-Active mode that makes any switchovers unnoticeable with no data loss during these switchovers.

This newly implemented system ensures the reduction of operational hazard and possible downtime that could arise from a hazardous working environment. The customer obtained peace of mind with added confidence that all data is reflected in a safe and resilient environment.

### Your leading IT and OT technology partner for zero-touch computing



## Stratus wins the SBR Technology Excellence Awards 2021

Stratus was conferred the Computing award at the SBR Technology Excellence Awards 2021. By ensuring the Aerospace company's business-critical applications were always-on, Stratus met the customer's objectives related to safety, regulatory compliance, operational excellence, and customer satisfaction.



Fortune Global 500 companies, small to mid-sized organizations, OEM-machine builders, system integrators, and distributors all rely on Stratus to keep them up and running in their Edge Computing environments.



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## PowerFlex 6000T Medium Voltage Drives

●●● Industrial companies can now benefit from multiple enhancements to the **Allen-Bradley PowerFlex 6000T medium voltage drives**. The drives now include TotalFORCE technology from Rockwell Automation, which provides precise control of speed and torque, diagnostic information for tracking system health and automatic adjustments to keep operations running smoothly.

The PowerFlex 6000T drives follow speed or torque commands very closely in both open- and closed-loop vector control modes to deliver the precise control required for high performance and large loads. The drives also continuously monitor operations to track the health of electrical components in the drive and motor, and provide real-time diagnostic information to the control system. With this information, users can better predict maintenance requirements well before component failures and take action to prevent unplanned downtime.

Additionally, adaptive control features within the PowerFlex 6000T drives help isolate potentially harmful vibration and resonances, and automatically compensate for variances to help keep applications running. With load-observer technology, they also effectively reject disturbances when loads change suddenly, helping to keep operations running smoothly and

## New Allen-Bradley IEC Industrial Relays Save Energy and Simplify Selection

●●● *Rockwell Automation has released a new line of IEC industrial relays that save energy and simplify selection.*

The new **Allen-Bradley Bulletin 700-EF control relays** offer universal wide-range coils. Four coil options cover control voltages from 24V to 500V, 50 to 60 Hz DC, making selection easier. These contactors save energy by reducing inrush apparent power (VA) by up to 68% and sealed VA by over 75% compared to standard, non-electronic coils and allow coil input terminals to be moved from the line to load side of the contactors without disassembly.

The Bulletin 700-EF relays are ideal for applications that involve switching heavier loads in industrial environments.



## Rockwell Automation Expands Space-saving NEMA-rated Contactor Options

●●● Rockwell Automation has released new sizes in its line of energy- and space-saving **Allen-Bradley Bulletin 300 NEMA contactors**. The contactors, now available in NEMA sizes 00 to 8, feature universal electronic coils that reduce inrush apparent power (VA) by up to 68% and sealed VA by over 75% compared to standard, non-electronic coils. The electronic coils also save engineering time by covering 20 to 500 V AC/DC coil voltages with only four coil options, greatly simplifying selection.

These contactors allow coil input terminals to be moved from the line to load side of the contactors without disassembly. This can make wiring and access easier when building starter assemblies. They also offer a direct PLC interface option for contactors above NEMA size 3, as well as a full line of accessories and reversing contactors.

Exclusive NEMA-rated safety contactors are available for

applications requiring a safety solution, mechanically linked or mirror contact performance.

Rockwell Automation offers two types of NEMA-rated contactors. Bulletin 500 contactors use a traditional field-serviceable design that offers installers plenty of room for maneuvering wiring into place. Bulletin 300 contactors have an optional wide-range, energy-saving coil. The footprints of Bulletin 300 products are also up to 25% smaller than traditional NEMA contactors.

All Allen-Bradley contactors are tested in combination with relevant motor overload relays and circuit breakers to provide two- or three-component motor starters. Using the online Global Short-Circuit Current Rating tool, users can obtain documentation certifying the compliance of specific product combinations to IEC and UL standards.



## Rockwell Automation Expands Its Threat Detection Services with Cisco Cyber Vision



●●● **Rockwell Automation and Cisco to bring IT and OT teams together to combat today's rapidly evolving industrial cybersecurity threats**

The longstanding alliance between Rockwell Automation and Cisco continues to find new ways to provide customer value with the recent announcement that Rockwell Automation is adding **Cisco's Cyber Vision** solution to its existing **LifecycleIQ Services** portfolio of cybersecurity threat detection offerings.

The two companies have been working together for more than a decade – recognizing before many that the information technology (IT) and operational technology (OT) worlds were coming together. While convergence is essential to a digital transformation, it also presents challenges such as siloed networks, cybersecurity threats, skills shortages and an abundance of production data and solutions. The leaders in their respective industries have worked together to offer jointly developed architectures, services and products to help companies address these challenges as they work toward building a Connected Enterprise.

As this deeper integration between IT, cloud and industrial networks creates security issues that become digitization obstacles, Cyber Vision provides full visibility into industrial control systems to build secure infrastructures and enforce security policies – achieving the continuity, resilience, and safety of industrial operations. The addition of Cyber Vision to the LifecycleIQ Services threat detection offerings provides a unique switch-based architecture for customers with existing Cisco solutions, greenfield networks or those updating their Cisco network infrastructure.

“We are excited to continue growing our strategic alliance offerings with Cisco,” said Angela Rapko, director, Portfolio & Business Management – Customer Support and Maintenance (CSM), Rockwell Automation. “Our partnership brings together Cisco's worldwide leadership in IT networking and security with the global leadership of Rockwell Automation in industrial automation and OT. The addition of Cisco Cyber Vision to our cybersecurity threat detection services portfolio benefits our customers by

expanding the integration between the Rockwell Automation and Cisco ecosystems, particularly around cybersecurity.”

“The addition of Cisco's Cyber Vision to Rockwell Automation's threat detection portfolio is exemplary of our joint commitment to help customers bolster the cybersecurity of their industrial operations,” said Vikas Butaney, VP and GM of Cisco IoT. “With Cyber Vision we are embedding cybersecurity within industrial networks, making it easy for our customers to secure their business-critical operations at scale. We are proud to offer the most comprehensive portfolio of products and services to enable the collaborative workflow and the shared vision that IT and OT teams need to manage these critical risks and solve their industrial security challenges.”

The new offering builds on the work Rockwell Automation and Cisco are already doing together to solve customers' industrial networking and security challenges. This includes jointly developed – and freely available - Converged Plantwide Ethernet (CPwE) Architectures that provide blueprints for customers to design and deploy scalable, secure industrial networks, as well as co-developed Allen-Bradley Stratix managed switches to provide customers with a secure switching infrastructure for harsh environments.

### Zero Touch Computing for your Critical Edge Applications

●●● Stratus, a Rockwell Automation Encompass Partner, delivers edge computing solutions to improve machine performance, increase yield and ensure high availability and reliability.

As more data gets generated by Internet connected devices and processed at these edge locations, companies need advanced computing infrastructure that is simple to use, easy to protect, and more autonomous.

The **zTC Edge** from Stratus can help. It is a secure, rugged, highly automated computing platform that helps improve productivity, increase operational efficiency, and reduce downtime risk at the edge of their corporate networks. Designed for both OT and IT, zTC Edge is easy to deploy and secure, easy to locally and remotely manage, and easy to maintain and service. Self-monitoring, self-protecting, and self-synchronizing, zTC Edge helps to save companies time and money.

With its built-in virtualization, automated protection, industrial interoperability, OT manageability, and field serviceability, zTC Edge enables the quick, easy delivery of both highly available and fault tolerant virtualized edge applications. Suitable for the harsh conditions typically found in industrial locations, zTC Edge nodes can be deployed in the control room, control panel, or on the shop floor, closer to your devices that are generating data.

## PowerFlex 755T AC Drive Enhancements

●●● Industries such as pulp and paper, automotive, tire and rubber, metals and water/wastewater may benefit from corrosive gas protection, which is now standard on **Allen-Bradley PowerFlex 755TL, TR and TM drives**. These drives have been tested to one of the most severe corrosive environment test protocols that combines industry leading, 30-day exposure in mixed flow gas testing per ASTM B845 Method K with proprietary tests for industries with sources of gaseous sulfur compounds.

The PowerFlex 755T drives also now have an embedded dual ethernet port, which is capable of gigabit speeds to give users smart device insights. Additional enhancements new firmware updates for industrial control system security, maintenance resource optimization and energy usage.

The PowerFlex 755T drives also now have a new option card to support TLink, a high-speed drive-to-drive fiber optic communication network. This card can be beneficial for applications that require tight coordination of torque or speed between drives.

Users can speed time to market with the added flexibility of a configured-to-order (CTO) option for PowerFlex 755T frames 5 through 12. Packaging options include NEMA 1 and 12 type enclosures and can be ordered through the Rockwell Automation ProposalWorks tool.

## Reliable Decoding at the Speed You Need

●●● The new **Allen-Bradley 48CR Code Reader** delivers 1D, 2D and Direct Part Marked (DPM) code reading – including barcodes and QR Codes – in a small package. This rugged code reader is designed for easy, cost-effective integration into the Connected Enterprise. Simple integration delivers data from the plant floor directly into a control system to help minimize downtime and increase productivity.

With powerful scanning and flexible programming, the 48CR streamlines code reading processes across several applications, especially in automotive, packaging, material handling, pharmaceutical, and food and beverage industries.

The 48CR can successfully read damaged and incomplete symbols – even with poor prints, scratches or other obstructions – without slowing down the scanning process.

Because the configurations can be saved remotely, personnel on the floor can even swap out a code reader without extended downtime to reconfigure or wait for a specialized technician – allowing you to save on maintenance and reduce downtime.

The 48CR is available in a standard model (0.3 MP resolution, fixed focus) and an advanced model (1.2 MP resolution, autofocus). For reliable decoding at the speed you need, the 48CR has speeds up to 60 fps for fixed focus and 42 fps for autofocus.

## Improve Productivity with New Smart Signalling Solution

●●● The new **Allen-Bradley 856T Control Tower Stack Light system** provides maximum flexibility in meeting the widest range of applications with fewer components.

This system uses a modular design that incorporates brighter LED illumination and a broad offering of sound technologies. All signals in the system are 24V AC/DC powered, which means that just three power modules can cover the entire system. The latest additions to the 856T Control Tower Stack Light family are IO-Link enabled versions that provide diagnostic information and ease integration into a Connected Enterprise.

With greater requirements for production and machine information comes the need for industrial-grade smart devices. Smart devices are integral components for smart machines and crucial to capturing operational data.

These smart devices provide real-time insight into the status of a control system, resulting in smarter, more informed decisions. By choosing IO-Link enabled versions of Bulletin 856T Control

Tower Stack Lights, users can monitor tower light and machine status in real-time, while allowing for simple remote set-up and troubleshooting.

Smart devices, such as the 856T IO-Link tower light, are foundational to smarter machines and equipment, smart systems and knowledge-driven operations. They are often the first step in a digital transformation because they deliver raw, real-time data.

This valuable information can reduce one of the most significant issues – unplanned downtime. Improve productivity with information that starts at the plant floor with devices that enable predictive maintenance, pinpoint performance issues and reduce repair time.





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**Services**

by ROCKWELL AUTOMATION

# Our domain expertise is yours

**Digital transformation. Modernization. Remote operations. Cybersecurity.** We can help you navigate the complexities of your lifecycle journey and transform your ideas into reality.

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