

TURCK

Your Global Automation Partner

DIGITIZE YOUR CONVEYOR LINES
WITH SMART AUTOMATION

AUTOMATION E-BOOK

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DIGITAL CONVEYOR LINES: THE FUTURE OF SMART MANUFACTURING

Roller conveyors have long been essential for factories and warehouses worldwide, efficiently handling products, parts, and materials. Since the first roller conveyor patent in 1908, these systems have evolved significantly. Today's conveyor OEMs, system integrators and end users have more options than ever thanks to the rise of the Industrial Internet of Things (IIoT) and the trend toward digital transformation. Digital innovation for conveyors is driving the next generation of conveying technology.

Turck's Vertical Sales Director for Intralogistics, Jerry Memoli, says that's where Turck comes in. "Roller conveyors may have a century of history behind them, but we're only just beginning to tap their full potential in the digital age," Jerry said. "With the integration of IIoT, and using smart automation solutions from Turck, conveyors are no longer just passive transport systems. Rather, we help customers turn conveyors into intelligent assets that can monitor motor performance, trigger an alert for conveyor jams, track packages or totes, and even communicate with robots in real time," he continued.

Conveyors that use digital automation solutions provide more data and operational insights, reducing reliance on an aging workforce and addressing the growing skills gap. Today, robots now seamlessly interact with conveyors, using sensors and vision systems to detect, pick and place items while the conveyor is in motion.



Turck's wide range of automation solutions can enhance conveyor performance and reduce system cost. Key technologies include decentralized automation, smart motor control, predictive maintenance with IO-Link and other solutions for data-driven decision-making.

"Welcome to the next chapter in making distribution centers and warehouses faster, smarter, and more resilient," Jerry commented. "Conveying technology is just the beginning. Turck's solutions are hard at work at every stage in material handling, including on fork trucks, loading docks, receiving areas, tool cribs, robotic palletizers and much more," he continued.

We hope this e-book is a valuable resource on your path toward digital transformation in intralogistics.



DIGITAL ROLLER MOTOR CONTROL

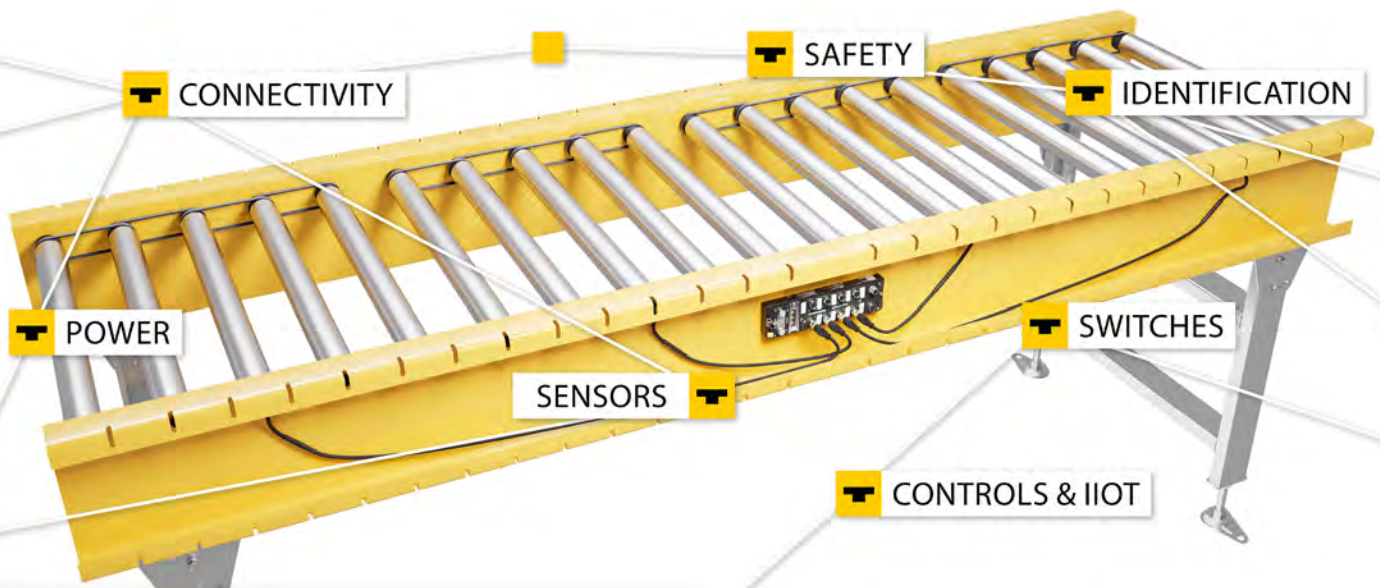
FULL FLEXIBILITY FROM CONTROL TO PREDICTIVE MOTOR MAINTENANCE

One of Turck's most impactful advancements is digitized conveyor roller motor control, which leverages advanced sensors, block I/O and real-time data analytics to optimize motor performance, reduce energy consumption, and

predict maintenance needs before failures occur. Read the "Get Rolling" case study to see how Turck worked with its customer to develop this impressive solution.

SMART CONVEYORS ENHANCE PRODUCTIVITY

- Reduce costs
- Provide seamless integration
- Improve predictive maintenance and reduce downtime
- Deliver more precision and data
- Maximize system availability
- Ensure flexibility
- Increase energy efficiency



GET ROLLING

SSI SCHAEFER, a global leader in intralogistics, is taking conveyor technology to the next level with digitalization solutions. Find out how Turck plays a crucial role in this transformation.

[READ THE ARTICLE](#)

[SEE THE PRODUCT](#)



DIGITAL ROLLER MOTOR CONTROL CONTINUED

With real-time, transparent data at your fingertips, customers can set new industry standards for smart, efficient, and future-ready conveyor systems. The best

way to meet rapidly changing requirements is to use modular, flexibly scalable conveyor lines. Watch the webinar to learn more from the experts at Turck.

ON-DEMAND WEBINAR DIGITAL CONVEYOR TECHNOLOGY – FLEXIBLE, SCALABLE, AVAILABLE!

WEBINAR



YOUR WEBINAR HOSTS:

Holger Spies,
Turck Project Management, Sales

Frank Morassi,
Turck Vertical Sales Manager,
Intralogistics

REGISTER FOR WEBINAR



DISCOVER THE FUTURE OF CONVEYOR SYSTEMS

Achieve maximum flexibility and scalability with a decentralized, modular design—powered by Turck’s TBEN Block I/O Modules. Watch the video to learn more.

PLAY VIDEO



FLEXIBILITY IS THE KEY

FLEXIBLY SCALABLE AND HIGHLY AVAILABLE

Turck's compact TBEN I/O modules from its TBEN series not only enable the control of drum motors on roller tracks but also the digitalization of the entire conveying line, while at the same time ensuring transparency in intralogistics. Michael Corban, editor-in-chief of the German trade journal KEM, interviewed the four Turck specialists Frank Morassi, Holger Spies, Frederik Nitsche and Hendrik Schnabel to find out how decentralized automation, modularization and digitalization make it possible to implement flexibly scalable and highly available conveying lines – a particularly efficient approach when combined with RFID technology for conveyed goods identification.

READ THE ARTICLE



What are the challenges that Turck is meeting with this intralogistics offering?

Frank Morassi (Vertical Sales Manager Intralogistics): In intralogistics, no two systems are the same – flexibility is key. Not only with regard to the components used, but also in order to redesign the conveyor system quickly to meet today's frequently and rapidly changing requirements. On the mechanical engineering side, the answer is modularization; in automation, it is decentralized automation in conjunction with digitalization – and this is where we are at home. In this way we can implement modular and flexibly scalable conveyor lines – offering a high level of availability and operation with zero pressure accumulation if required. With this approach, we can solve a number of tasks that will increasingly arise in the coming years.



“Decentralized automation enables us to also process real-time applications locally in the field and thus offer total flexibility, from the control and scaling of conveyor lines right through to solutions for predictive maintenance.”

Holger Spies

Turck Project Management, Sales

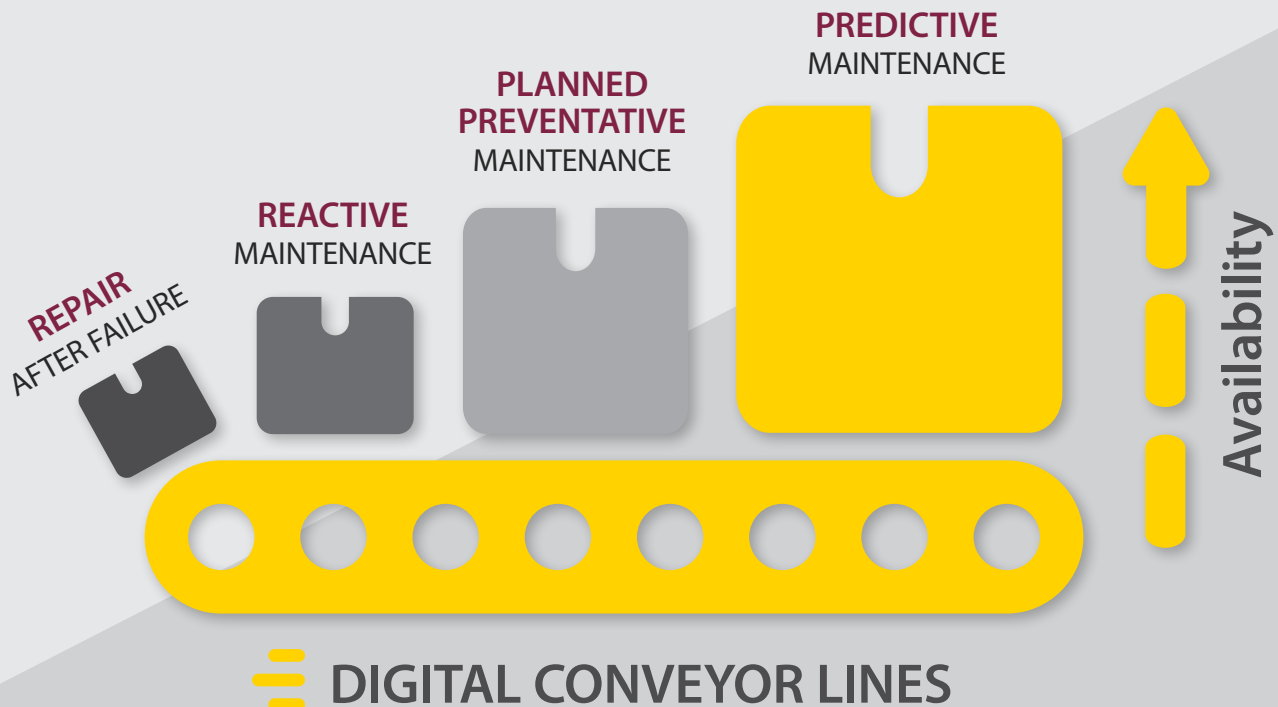


THE VALUE OF PREDICTIVE MAINTENANCE

DATA DRIVEN DECISIONS

Industry 4.0 is transforming maintenance practices by introducing smarter options. Instead of **REACTIVE** or even **PLANNED PREVENTATIVE MAINTENANCE**, what if you could more easily implement **PREDICTIVE MAINTENANCE** throughout your conveying lines? Digitizing conveyor lines will optimize intralogistics by enabling a networked solution which makes predictive maintenance easier, increasing availability. Through real-time data collection and advanced analytics, predictive maintenance minimizes downtime by identifying potential failures before they occur. Networked systems enhance efficiency by seamlessly integrating with other logistics processes, ensuring smooth material flow and reducing bottlenecks. Additionally, this framework allows businesses to adapt to changing demands, creating a more resilient supply chain. Predictive maintenance feeds machine learning by using vast data sets to detect patterns and generate insights.

- Maximum Line Availability
- Reduced Costs
- High Reliability
- Application of Machine Learning Models



KEY TECHNOLOGIES BEYOND CONVEYOR MOTOR CONTROL

Not just for conveyor motor drive systems alone, Turck is at the forefront of enabling connected intralogistics applications, providing intelligent automation solutions that drive seamless communication, efficiency, and predictability at many process steps. Our decentralized

I/O systems, rugged industrial networking, and innovative sensor technology ensures that conveyor lines and other machines and systems are fully integrated for real-time monitoring and control.

TAP INTO THESE TURCK TOOLS FOR DIGITIZATION



IO-LINK DEVICES: SMART, EFFICIENT & FUTURE-READY

Standard industrial sensors on conveyors and machines are your eyes and ears on the floor. Yet despite the critical role of these devices in your production or material handling process, they don't tell the full story. For example, while they can provide error codes, they don't offer many details into the nature of the error. And while they can be monitored via built-in LED lights, they can't be monitored remotely.

[WATCH THE VIDEO](#) to learn more about all the ways IO-Link unlocks the data already in your field devices.

- Provides a way to get standard sensors and actuators to provide a fuller picture without driving up costs, engineering time or system complexity.
- Supports predictive maintenance by detecting issues before they lead to costly downtime, ensuring maximum availability of machines and lines.
- Simplifies installation and commissioning by enabling automatic parameter setting and remote configuration, reducing manual effort and errors.
- Potential for condition monitoring for digital conveyor lines in one standard interface.



DECENTRALIZED, MODULAR AUTOMATION: OPTIMIZED LOCAL CONTROL

By shifting control functions from a centralized PLC to smart field devices, such as I/O modules and motor controllers, Turck minimizes wiring efforts and lowers installation costs. This modular approach allows conveyor systems to be easily scaled and reconfigured, making them more adaptable to changing production demands.

[LEARN MORE](#) about the benefits of decentralization

- Reduces complexity, increasing efficiency and enabling greater flexibility for conveyors and other machines and manufacturing lines.
- Breaks down rigid hierarchies and shifts responsibilities to local components.
- Reduces commissioning and time-to-market while simplifying the expansion or movement of production resources.



TAP INTO THESE TURCK TOOLS FOR DIGITIZATION



TURCK AUTOMATION SUITE (TAS) & ARGEE SOFTWARE

Turck offers two key software platforms that can help digitize and optimize conveyor systems: Turck Automation Suite (TAS) and ARGEE. Here's how each contributes to improving intralogistics and conveyor applications.

TAS is a powerful software suite designed to manage, configure, and monitor industrial automation devices, including those used in conveyor systems.

ARGEE is a logic programming environment embedded in Turck's I/O devices, allowing PLC-free control of automation systems.

[LEARN MORE](#) about the TAS IIoT platform for Turck device configuration and management.

[READ THE BROCHURE](#) to understand how ARGEE software enables field level control.

- TAS simplifies update management of motors and commissioning of Turck devices in industrial Ethernet networks including ARGEE, BEEP, CODESYS and IO-Link applications.
- Enables Turck's block I/O to function as logic controllers, reducing dependency on a central PLC and improving conveyor responsiveness.
- Allows localized processing of signals from sensors and actuators, helping conveyors react faster to detected conditions such as object presence, jam detection or belt misalignment.
- Users can program logic for conveyor operations without needing deep PLC programming knowledge, making it more accessible for maintenance teams.

THE CASE FOR DIGITIZATION SIX APPLICATION STORIES

1 [MODULAR CONVEYOR SYSTEM](#)

2 [PREVENTING PACKAGING JAMS IN LOGISTICS](#)

3 [CONVEYOR MODULE DECENTRALIZED CONTROL](#)

4 [PREVENTATIVE MAINTENANCE ON CONVEYOR BELTS](#)

5 [DETECTION OF TRANSPORT CONTAINERS](#)

6 [ITEM LEVEL DETECTION ON CONVEYOR BELT](#)

In today's fast-paced material handling and supply chain logistics, the ability to move products and parts efficiently is critical. Digitization is transforming intralogistics by enhancing visibility, optimizing workflows, and reducing downtime. Turck's innovative automation solutions empower businesses to modernize their conveyor systems with real-time monitoring, decentralized control, and seamless IIoT connectivity.

Explore how industry leaders are optimizing intralogistics applications with Turck. Each of these six application success stories highlights why digitization is key.



HOW FORKLIFTS, CONVEYORS & RFID WORK TOGETHER TO BOOST MATERIAL FLOW



Forklifts and conveyors play a crucial interconnected role in material handling applications, ensuring seamless movement of products and materials within warehouses, distribution centers, and manufacturing facilities. It's no secret that forklifts provide the "muscle" to transport heavy loads across varying distances, feeding materials onto conveyors for continuous, automated transport. But what if you could gain more insight into your inventory location, inbound/outbound shipment status, and faster, more precise tracking capabilities? When you add RFID to both the forklift and conveyor - together they can be a game-changer for logistics operations.

RFID FORKLIFT SYSTEM

RFID makes production and logistics processes highly transparent, from incoming goods to production and warehousing right through to shipping – an ideal solution also for the efficient management of returnable transport items (RTIs)

[LEARN MORE](#)

[READ RTI WHITEPAPER](#)



SMART SOLUTIONS FOR CONVEYOR DIGITIZATION



MAXIMUM FLEXIBILITY & SAFETY

Turck's IP67 hybrid safety block I/O modules combine safety and standard I/O in a single, rugged, on-machine device. Safe block I/O modules control safety-related applications directly on a conveyor line via PROFIsafe or CIP Safety.

**IP67 SAFETY
SOLUTIONS**



IIOT EDGE CONTROLLERS

Turck's edge controllers are compact, rugged devices designed for decentralized automation in harsh industrial environments. Featuring an IP67-rated housing, they eliminate the need for control cabinets and enable direct installation on machines.

HMI/PLC

**IP67 CONTROL
MODULE**



RELIABLE ETHERNET SWITCHES

Whether IP20 or IP67, managed/unmanaged, or in ring topology, reliable Ethernet switches provide high performance and secure networks for modular conveyor lines.

**INDUSTRIAL
SWITCHES**



WELL THOUGHT-OUT CONNECTIVITY

Sophisticated connection technology, especially with M12 quick connectors, reduces wiring effort and supports modularization.

M12 POWER

M12 STANDARD



COMPACT, RUGGED ENCODERS

Turck's encoders provide reliable, wear-free position and speed feedback for conveyor systems. They ensure precise motion control for tasks like product sorting, speed regulation and position tracking.

PREMIUM LINE

INDUSTRIAL LINE



VERSATILE INDUCTIVE SENSORS

These non-contact sensors are commonly used on conveyors to detect the presence and position of metal objects, such as flaps. Turck's sensors offer reliable operation even in areas with dust, vibration or moisture. IP69K washdown versions are available.

**INDUCTIVE
WITH IO-LINK**

**INDUCTIVE
WASHDOWN**



SMART SOLUTIONS FOR CONVEYOR DIGITIZATION

SMART BLOCK I/O MODULES



Block I/O modules, featuring ARGEE logic, are engineered to manage decentralized control tasks at the field level. These modules enable localized processing and decision-making capabilities, reducing the need for central PLCs.

[BLOCK I/O](#)

DECENTRALIZED SWITCHING POWER SUPPLIES



Decentralized switching power supplies ensure the energy supply in modular systems from -25 to +70 °C fail-safe thanks to no-load, overload and short-circuit protection.

[SMART POWER
SUPPLIES](#)

WIDE RANGE OF RFID



RFID solutions improve identification applications in logistics and asset management. From warehouses and distribution centers to the factory floor you'll find our RFID solutions providing visibility to inventory and reducing errors.

[RFID OVERVIEW](#)

TOUGH INDUSTRIAL ETHERNET CABLE



Turck's industrial Ethernet cables deliver dependable, high-speed data transmission for logistics applications and more. Designed to withstand vibration, moisture, oil, and extreme temperatures, these rugged cables ensure consistent performance.

[ETHERNET CABLE](#)

CMMT MAGNETIC SENSOR



Help prevent package jams with CMMT magnetic sensors. As boxes, totes or products travel along a conveyor line, any magnets in the packages can get stuck on metal parts. The CMMT identifies strong magnets which prevents jams.

[CONVEYOR
APPLICATION](#)
[VIEW PRODUCT](#)

ULTRASONIC SENSORS



These non-contact sensors are commonly used on conveyors to detect the presence and position of metal objects, such as flaps. Turck's sensors offer reliable operation even in areas with dust, vibration or moisture. IP69K washdown versions are available.

[ULTRASONIC
SENSORS](#)


THE FUTURE OF DIGITAL CONVEYORS

THE TREND TOWARDS DIGITALIZED CONVEYOR LINES

Modularization and digitalization are among the top issues in mechanical and plant engineering, not least in intralogistics. The best way for today's users to meet their customers' rapidly changing requirements is with modular and flexibly scalable conveyor lines. For these to also offer high availability and work ideally with zero pressure accumulation, an efficient digitalization strategy is unavoidable. The trend is moving away from massive, centrally controlled and driven lines towards decentralized control modules and roller drives directly in the field.

READ THE ARTICLE



“Digitalized conveyor lines offer high performance, are highly flexible, and can be set up with zero pressure accumulation in no time at all.”

Frank Morassi

Turck Vertical Sales Manager, Intralogistics

IN THE CLOUD FULLY CONNECTED SMART FACTORIES

Digitization is entering more and more industrial sectors. Technologies such as IO-Link, RFID and Ethernet increase the amount of data from the machine environment many times over, and cloud services enable mobile access worldwide.

But: How do you extract the information that is really relevant to you from the Internet of Things – without overloading networks or revealing protected content? Turck's answer: With networked sensors, efficient edge controllers and simple cloud solutions – in short, with decentralized automation.

READ SUCCESS STORY



AI DRIVEN AUTOMATION: MACHINE LEARNING

How can Turck help you get ready for AI? Machine learning and data-driven decision-making have transformed industrial processes, improving efficiency and workflow. Turck's industrial Ethernet solutions, for example, support smart factory frameworks like IIoT, while cloud-based systems enable real-time data exchange across organizations. Machine learning enhances predictive maintenance and process optimization, further boosting efficiency. This shift has had a significant impact on the industry, accelerated by the pandemic.

Automation can take over repetitive or risky steps, freeing operators for tasks requiring more skill. It can also increase production and quality for better overall

equipment effectiveness (OEE). Products enabled with AI can perform some real-time decision-making without human intervention. But automation systems can also be designed to be very user-friendly. The ramp-up time with new operators can be really challenging. OEMs can create an end product or system or process that allows someone new to ramp up quickly, with minimal specialized knowledge needed. Our goal here at Turck is to simplify a lot of the machine operator and system integration that's required. If we make it easier for companies to adopt automation in this way, it lets them think differently about their workforces, hiring individuals who can evolve into their roles, supported by automation.



NEED HELP DIGITIZING YOUR CONVEYOR LINES?

With more than 30 subsidiaries and 60 agencies worldwide, Turck is always nearby. Go to [Turck.us](https://www.turck.us) to find your local Sales Representative.