

TURCK

Your Global Automation Partner

Intralogistics Industry Guide



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Introduction

Proven Automation Technologies for Intralogistics Applications

Modern intralogistics environments require more than isolated automation components, they need integrated system architectures where sensing, connectivity, identification and control technologies work together seamlessly. Only well aligned systems deliver the real-time transparency, process stability and scalability needed for today's dynamic operations.

Whether designing new conveyors, optimizing warehouse processes, or modernizing existing equipment, engineering leaders need platforms that combine rugged hardware, flexible connectivity and intelligent data integration. TURCK provides exactly that: a portfolio where each component strengthens the next, creating a unified automation and data backbone.

This Intralogistics Industry Guide helps executives and engineering teams identify TURCK technologies that support essential warehouse and material handling applications. Practical examples show how sensors, RFID, decentralized I/O, connectivity solutions and IO-Link devices add value across key processes. You'll find solutions for conveyors and loading docks to sortation systems, AGVs and automated storage. Much of today's intralogistics performance depends on existing facilities. Instead of costly rebuilds, TURCK enables step-by-step modernization through targeted retrofit strategies increasing availability, throughput and transparency without disrupting operations. With intelligent sensing, identification, and modular I/O, even older equipment becomes part of a connected, data driven material flow.

This guide provides a practical foundation for planning, expanding or upgrading intralogistics systems with TURCK building a consistent, scalable automation landscape that performs today and is ready for tomorrow.

NEED MORE HELP?

For questions, please reach out to your local TURCK sales representative or email us at intralogistics@turck.com.



Roller Conveyors

From decentralized automation architectures that support scalable conveyor zones to more reliable connectivity that withstands vibration, dust and washdown, TURCK offers rugged, flexible solutions for roller conveyors. Using TURCK's IIoT-enabled automation components, roller conveyors become more intelligent assets that can more easily:

- Provide greater local control and exchange data with higher-level systems
- Ensure seamless integration of power, safety and networking
- Tap into the benefits of IO-Link for sensor-level data and trends
- Improve box and tote detection without complex mechanical systems
- Detect jams and trigger alerts before the line is shut down

Magnetic Sensors



Ultrasonic Sensors



IP67 Power Supply



Industrial Ethernet



M8 & M12 Cordsets



Safety Block, IO-Link Master & TBEN Roller Motor Control

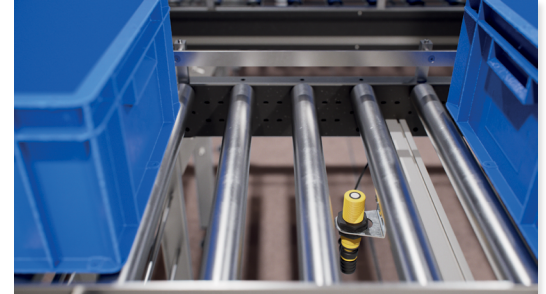


Roller Conveyor Applications

Cost-effective Box/Tote Detection

Ultrasonic Sensors for Detection on Roller Conveyors

Roller conveyors can be found in intralogistics as part of most production lines. To ensure optimum material flow, the equipment must know where the containers are located. TURCK's [ECO series RU50 ultrasonic sensors](#) are perfectly suited for the detection of totes and boxes. The translucent end cap of the plug version ensures that the switching state of the sensor can be clearly seen from almost any angle.



Flexible Power Distribution

Power Up Conveyor Applications in IP67

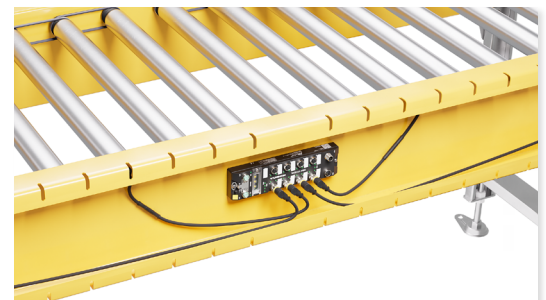
The [PSU67 family](#) can be mounted directly on a conveyor or wall for application flexibility. Protective measures are not required for these IP67-rated devices. These low voltage solutions achieve high efficiency rates of up to 95%, depending on the model chosen. Versions with IO-Link give users options for easier parameter setting, remote monitoring of load currents and resetting the device if needed.



Modular Local Control

Decentralized Control of Conveyor Modules

TURCK's decentralized automation design for conveyor systems involves moving control logic and I/O components from a central control cabinet to the field level, often directly on the conveyor itself. [Using ARGEE](#), TURCK's proprietary programming interface, allows users to realize the full potential of TURCK's standard fieldbus modules and easily process small to medium-level control tasks. Intelligence can be transferred straight to the conveyor system, saving space on the PLC. The stand-alone modules can still communicate with a main control system if needed thanks to multiprotocol Ethernet.



Roller Conveyor Applications

Reliable Industrial Ethernet Network

Safeguard Against Network Failures

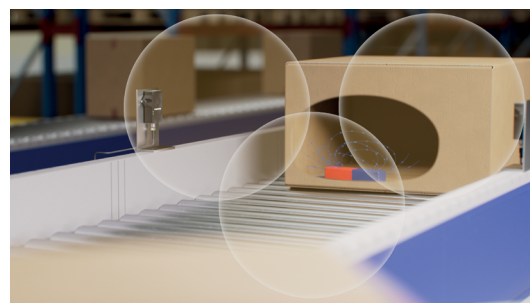
Smart warehouses are connecting more data into the network than ever before using [industrial Ethernet cables](#). TURCK's connectivity helps safeguard against network failures. Specifically, TURCK's Ethernet solutions feature advanced shielding and are ideal for conveyor applications. They provide rugged, high-speed (up to 10 Gbps) and reliable data communication, resisting vibration and dust with an IP67 rating. The metal contact holder isolates each of the pairs from the others, reducing interference. Options include M12 and RJ45 over-molded cordsets, fieldwireables and panel mount receptacles.



Proactive Jam Prevention

Reduce Downtime from Magnets

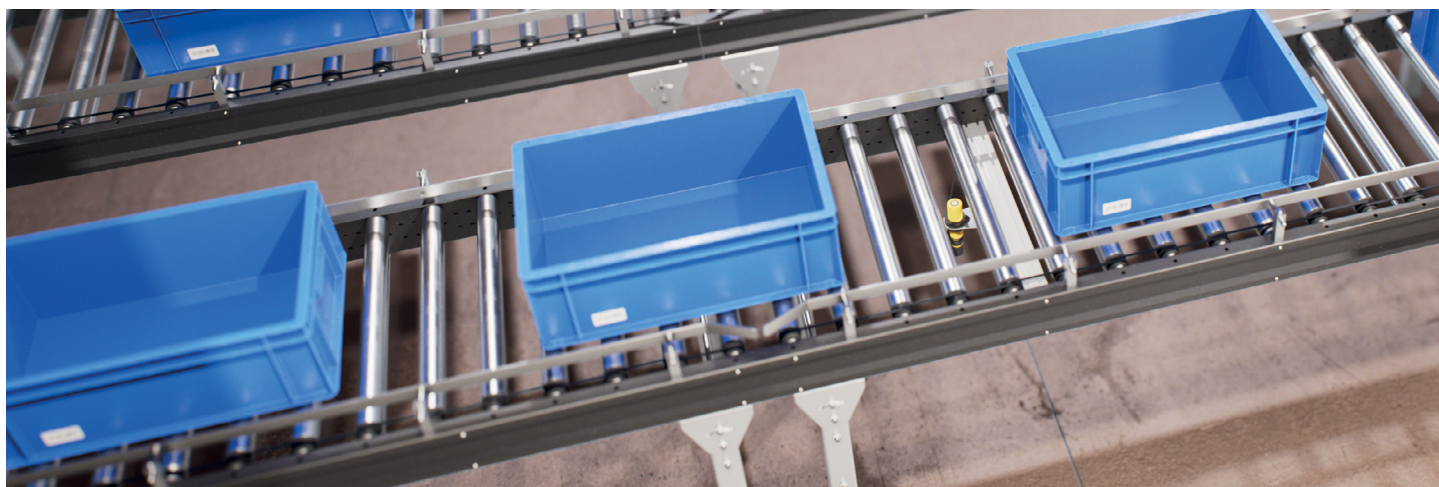
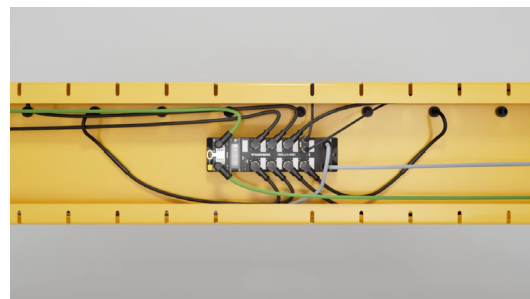
When packages contain strong magnets, they often pose a hidden risk on conveyors. Magnets can adhere to metal components on the conveyor line, leading to unexpected jams. These jams can disrupt entire material flows, causing unplanned downtime. Using TURCK's [CMMT magnetic field](#) sensor enables early detection of magnets. Thanks to its non-contact, multi-axis detection, the sensor can identify magnets at the infeed even before the packages reach the actual conveyor line.



Digitized Roller Motor Control

Smart Motor Control Provides Real-time Analytics to Optimize Performance

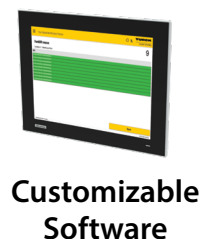
Digitized conveyor roller motor control leverages advanced sensors, block I/O and real-time data analytics to optimize motor performance, reduce energy consumption and predict maintenance needs before failures occur. The [TBEN I/O modules](#) with on-board logic are engineered to manage decentralized control tasks at the field level, enabling localized processing and a modular system architecture.



Loading Dock

TURCK offers a wide range of solutions to automate critical dock door operations and eliminate manual failure points. Radar sensing provides reliable truck detection, helping operators accurately position trailers. High-speed RFID gates enable automated shipment verification without line of sight, reducing manual entry errors and providing real-time visibility into goods movement in and out of the dock. Forklift-mounted systems extend that visibility deeper into the warehouse, automatically tracking pallets and assets as they move. And customizable software platforms integrate with existing business systems to build traceability and inventory control into every step of the process. With solutions from TURCK, warehouse shipping and receiving managers can more easily:

- Detect trucks for accurate trailer positioning, reducing collisions at the dock door
- Verify shipments automatically with high-speed RFID gates
- Reduce manual data entry errors while enabling real-time visibility of goods
- Extend pallet and asset visibility into the warehouse using forklift-mounted RFID systems
- Integrate customizable software platforms with existing WMS/ERP systems



Loading Dock Applications

Reliable Truck Detection

Reduce Collisions with Radar Sensors

Easily sense moving and stationary trucks at dock doors up to 15 meters away. The [DR Distance Radar sensors](#) are unaffected by dust, rain, fog or bright lights that challenge optical sensors. TURCK radar sensors enhance dock door operations by reliably detecting approaching trucks, ensuring more accurate truck positioning for safety, reducing errors and improving overall throughput. They also offer IP67/69K protection for harsh outdoor environments and features like IO-Link for easy setup and data analysis. Background suppression capabilities help ignore objects below a programmed height.



Asset Tracking with RFID

Reduce Shipment Errors & Improve Inventory Control

Get more accurate shipment verification, reduce errors from manual entry and improve product and part tracking with the [TURCK RFID Gate](#) (some features require advanced software). This high-speed automatic identification system provides simultaneous tag reading of pallets, boxes and totes as they pass through the gate – no line of sight needed. The direction detection feature uses two read zones and proprietary algorithms to determine if items are entering or exiting the dock door, eliminating stray reads from nearby gates.



More Reliable Product Tracking

Smart Forklifts Provide Visibility

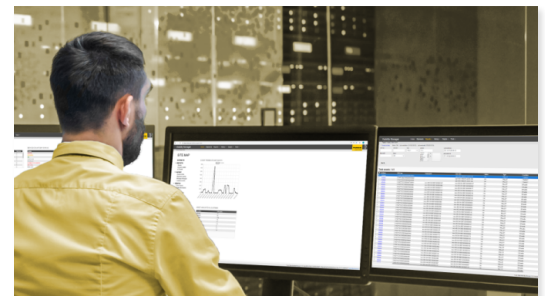
The [TURCK RFID Forklift System](#) is an inventory tracking solution that mounts on nearly any type of forklift to identify, track and log materials (pallets, containers, high-value assets) in real time. This eliminates manual scanning by using RFID readers and antennas to communicate data directly to WMS or ERP systems. This ensures accurate, up-to-date visibility of goods movement at the loading dock or anywhere in the warehouse where transfers are made with forklifts. Device independent software can be run on multiple tablets or other device types.



Proprietary Software Platform

Optimize RFID Tracking with Flexible Software

TURCK provides a comprehensive, proprietary track and trace [software platform](#) that uses RFID and RTLS (Real-Time Location Systems) technologies to provide visibility and automation for industrial supply chains. The TURCK software platform offers applications that automate dozens of common use cases and are compatible with a wide variety of RFID readers, industrial PCs and mobile devices commonly used in industrial environments. This platform is highly configurable, can be customized to specific customer use cases and will integrate with existing business systems.



Sortation Systems

Increase throughput with precisely timed diverts, merges and transfers, ensuring items are routed correctly even at high speeds. Distribution centers can optimize sortation systems with products from TURCK by providing accurate box/tote position and conveyor speed data in addition to reliable machine communication networks, and decentralized, scalable control. RFID solutions enhance package tracking in sortation systems for continuous visibility of each package's identity and location throughout the sortation process. When you partner with TURCK, you can more easily:

- Get precise, real-time coordination of sortation processes, improving throughput, accuracy and system availability
- Communicate with higher-level systems but maintain local control at the machine level using TURCK's ARGEE software and IO-Link device masters
- Maintain reliable power distribution with D-size solutions that offer greater amperage and power delivery to more components



**D-Size Powerfast
Cordset & Tee**



**TBEN-L-8IOL
Multiprotocol
Block I/O**



**RI-10/RI-12
Incremental Encoder**



**UHF Q150 RFID
Read/Write Head**



**M12 Power
Field Wireable**

Sortation System Applications

Drive More Reliable Performance with Encoders

Measure Speed, Distance & Position

[Encoders](#) play a vital role in sortation systems by delivering precise feedback on conveyor speed, travel distance and product position. This real-time data enables control systems to accurately time sortation decisions, activate diverters, regulate conveyor motion and coordinate robotic pick-and-place operations. By converting mechanical movement into pulse signals, encoders allow the system to track each item's exact location on the conveyor and trigger actions at the correct moment.



Powerful D-Size Connectivity

Rugged & Flexible Power Distribution for Sortation

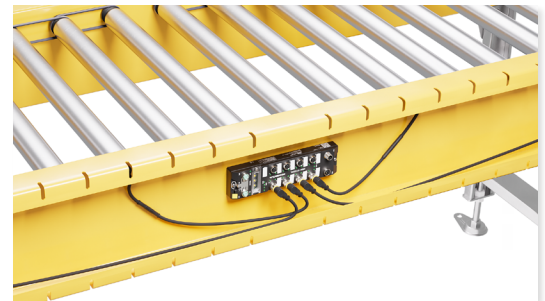
TURCK's D-size [Powerfast®](#) (1 3/8 in) connectivity products offer engineers a rugged and flexible power distribution solution with enough amps to handle conveyor sortation systems and material handling robots. D-size delivers up to 40 amps (typical rating: 35 amps). These cables provide some of the highest electrical performance in the industry, enabling more downstream devices to be powered from a single line without requiring multiple power supplies. This supports decentralized, modular control architectures. Overmolded connectors provide IP67 protection and junction tees allow for easy system expansion.



Decentralized Logic for Scalable Sortation Systems

Field Level Logic with Block I/O & ARGEE

Bring control logic to the field level with TURCK's [ARGEE software](#) platform. With ARGEE, the TBEN-L block I/O module, for example, can run user-defined logic so applications like zone control, accumulation logic and diverter control can be handled locally instead of pushing every decision up to a central PLC. Because the I/O modules are IP67, ARGEE-based logic can reside at the conveyor frame or at a transfer point. Programming is done in a browser with a flowchart-style condition/action model so engineers can implement timers, counters, arithmetic and safety reactions without extra licensed software.



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Sortation System Applications

Reduce Missorts & Improve Throughput with RFID

Control & Verify Sortation Flow

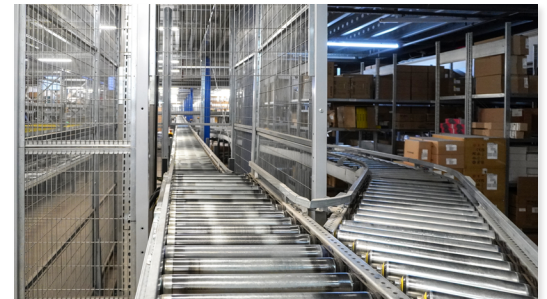
In a sortation system, an RFID read/write head such as the TURCK [Q150 UHF](#) family is the “checkpoint” device that reads an RFID tag on a box, tote, tray or product as it moves through the conveyor network. As a tagged load passes a read zone, the device captures a unique ID on the tag (and any stored data) to make accurate routing decisions. RFID devices read at key points along the sortation process (induct, merge, before diverts, recirculation) to provide package/item tracking and visibility.



Reliable M12 Power Connectivity

In-field Termination Supports Modular Machine Designs

TURCK [M12 power field-wireables](#) are used to deliver rugged and adaptable power connections on industrial sortation systems where standard cordsets aren't always practical. They combine the compact M12 form factor with the ability to terminate cables directly in the field, reducing downtime and simplifying installation.



Automated Storage & Retrieval Systems

Modern Automated Storage and Retrieval Systems demand fast, reliable and intelligent control solutions. TURCK delivers rugged automation technologies that seamlessly integrate with ASRS environments, helping warehouses and distribution centers maximize efficiency, accuracy and uptime. Accurate positioning is critical in automated storage systems. TURCK provides a wide range of inductive sensors that support load detection and presence monitoring in addition to sensors that monitor vibration on machine motors. For cold storage applications, solutions from TURCK also monitor temperature and humidity deviations. With TURCK, you can more easily:

- Get a real-time data exchange between cranes, shuttles, conveyors and control systems
- Choose from a wide range of solutions for condition monitoring
- Build scalable system architectures for future expansion
- Ensure load detection and presence monitoring



**Managed
Ethernet Switch**



**CMVT
Vibration &
Temperature Sensor**



**CMTH
Temperature &
Humidity Sensor**



**IO-Link
Repeater**



**Inductive
Sensor**

Automated Storage & Retrieval System Applications

3-Axis Vibration & Temperature Monitoring

Detect Misalignment, Bearing Wear or Unbalance on Cranes

The TURCK [CMVT sensor](#) is a compact, IP68/IP69K-rated device designed for condition monitoring on industrial equipment. It can be mounted on crane motors, for example, to detect vibrations that indicate loose components, misalignment or faulty bearings. It utilizes IO-Link for data transmission and features a magnetic mount for easy retrofitting, often providing threshold-based warning signals to prevent crane failures. By evaluating data internally, the CMVT eliminates the need for external controllers, making it ideal for both new equipment and retrofit installations.



Simple Condition Monitoring for Sensitive Inventory

IO-Link Makes Tracking Environmental Conditions Easy

Continuously record relative humidity and temperature and reduce risks and maintenance time with the compact [CMTH sensor](#). The CMTH is rated IP67 and can be deployed within high-density warehouse racking and storage rooms to monitor temperature and humidity deviations. If the temperature and humidity exceed the specified limits, users receive an alert. This is vital for industries requiring specific environmental controls, such as food, pharmaceuticals or electronics components. With its IO-Link interface, in combination with TURCK Cloud gateway or other edge controllers, users can get real-time alerts, allowing for remote monitoring.



Ensure More Precise Stacker Crane Positioning

Detect Metal Shelving & Machine Position in a High-bay Warehouse

Non-contact [inductive sensors](#) detect metallic objects as well as monitor the position of equipment like stacker cranes or gantries in warehouse storage systems. They can identify metal rack beams, end position of a crane gantry as well as the exact location and alignment of manned or automated storage and retrieval machines as they travel along warehouse or distribution center storage racks. The heavy-duty inductive sensors from TURCK come in a range of sizes, including M8, M12, M18 and M30 threaded barrels as well as rectangular housings.



Automated Storage & Retrieval System Applications

Extend Communication Distance with IO-Link Repeaters

Maintain High-speed Communication Over Longer Cable Runs

TURCK's [IO-Link Repeater](#) is used to extend the communication distance between an IO-Link master and an IO-Link device beyond the standard 20-meter limit. It effectively boosts the signal to maintain reliable IO-Link communication over longer cable runs. In large-scale logistics centers, such as automated warehouses and material handling systems, sensors are often located far from the PLC or fieldbus node, making repeaters essential for reliable data transmission without requiring more expensive, localized and shielded cabling.



Managed Ethernet Switch Optimizes Traffic Flow

Control & Optimize Network Traffic

TURCK managed Ethernet switches provide ruggedized (IP67/IP69K), decentralized industrial networking, allowing remote configuration, monitoring and traffic management directly on machines. The [TBEN-L-SE-M2](#) managed Ethernet switch now supports Fieldbus integration, enabling direct PLC communication through Profinet, Ethernet/IP, and Modbus TCP. These secure switches are designed for decentralized, on-machine applications, specifically for industrial automation where high reliability is required.



Robots & AGVs

From precise position and distance sensing to rugged Ethernet connectivity, and decentralized I/O, TURCK delivers the rugged, IP67/IP69K-rated components needed to keep robotic platforms operating safely and efficiently in demanding warehouse environments. Its compact Ethernet and multiprotocol communication modules enable seamless integration into PLC and IT systems, while advanced safety and condition monitoring solutions enhance uptime and fleet performance. When you partner with TURCK, you can more easily:

- Benefit from multiprotocol Ethernet I/O modules that offer PROFINET, EtherNet/IP and Modbus TCP in a single device, making them ideal for decentralized onboard control
- Select from a wide range of HMIs that provide high-performance human-machine interfaces for intuitive diagnostics, visualization and control, supporting real-time monitoring
- Get distributed, cabinet-free power solutions that reduce wiring, save space and deliver reliable power



**TX Series
HMIs**



FEN20



FIL20



TBEN-S2-4IOL



**IP67 Power
Supplies**



Ethernet Cable

Robots & AGVs Applications

Monitor Logistics Operations

Wide Range of HMI/PLCs

Monitor and control your logistics and warehouse processes with TURCK's range of [HMI/PLC](#) devices. From packaging and distribution applications to the control of loading ramps and roller doors, users will improve efficiency with TURCK. Critical conditions are clearly visible to workers via alarms such as flashing symbols or color changes. Quad-core processing on the TX800 family provides even faster processing power for more complex applications. Step-by-step work processes can be illustrated visually as a sequence of pictures or drawings.



Localized I/O Control

Connect Localized Sensor Signals in a Cabinet Directly to the PLC

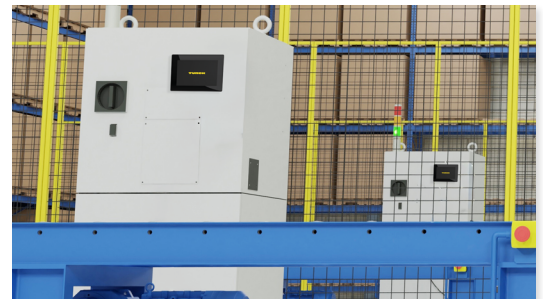
The TURCK FEN20 is a compact, IP20-rated, Ethernet I/O module used in logistics control cabinets to turn manual switches and sensors into Ethernet-compatible (Profinet, EtherNet/IP, Modbus TCP) nodes. Due to its small size, it is ideal for space-constrained control panels, enabling localized I/O control for conveyors and sorting systems. Using ARGEE software, the [FEN20-4IOL](#) with IO-Link integration can act as a local controller to perform basic logic without needing a main PLC.



Reduce Cabling in PLC Panels

Space-saving I/O Hub Reduces Wiring

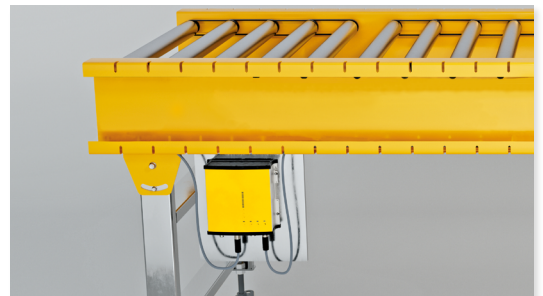
The [FIL20](#) is a compact IP20-rated IO-Link I/O hub designed for control cabinet installation, acting as a bridge between SIO (standard input/output) sensors/actuators and an IO-Link master. In logistics, it reduces cabling by consolidating multiple digital sensors such as conveyors onto a single master cable. It connects up to 8 or 16 digital signals within the cabinet using a 3-wire cable, ideal for reducing wiring in large PLC panels.



Flexible Power Distribution

Power Up Conveyor Applications in IP67

The [PSU67 family](#) can be mounted directly on a conveyor or wall for application flexibility. Protective measures are not required as for these IP67-rated devices. These low voltage solutions achieve high efficiency rates of up to 95%, depending on the model chosen. Versions with IO-Link give users options for easier parameter setting, remote monitoring of load currents and resetting the device if needed.



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Robots & AGVs Applications

Reliable Industrial Ethernet Network

Safeguard Against Network Failures

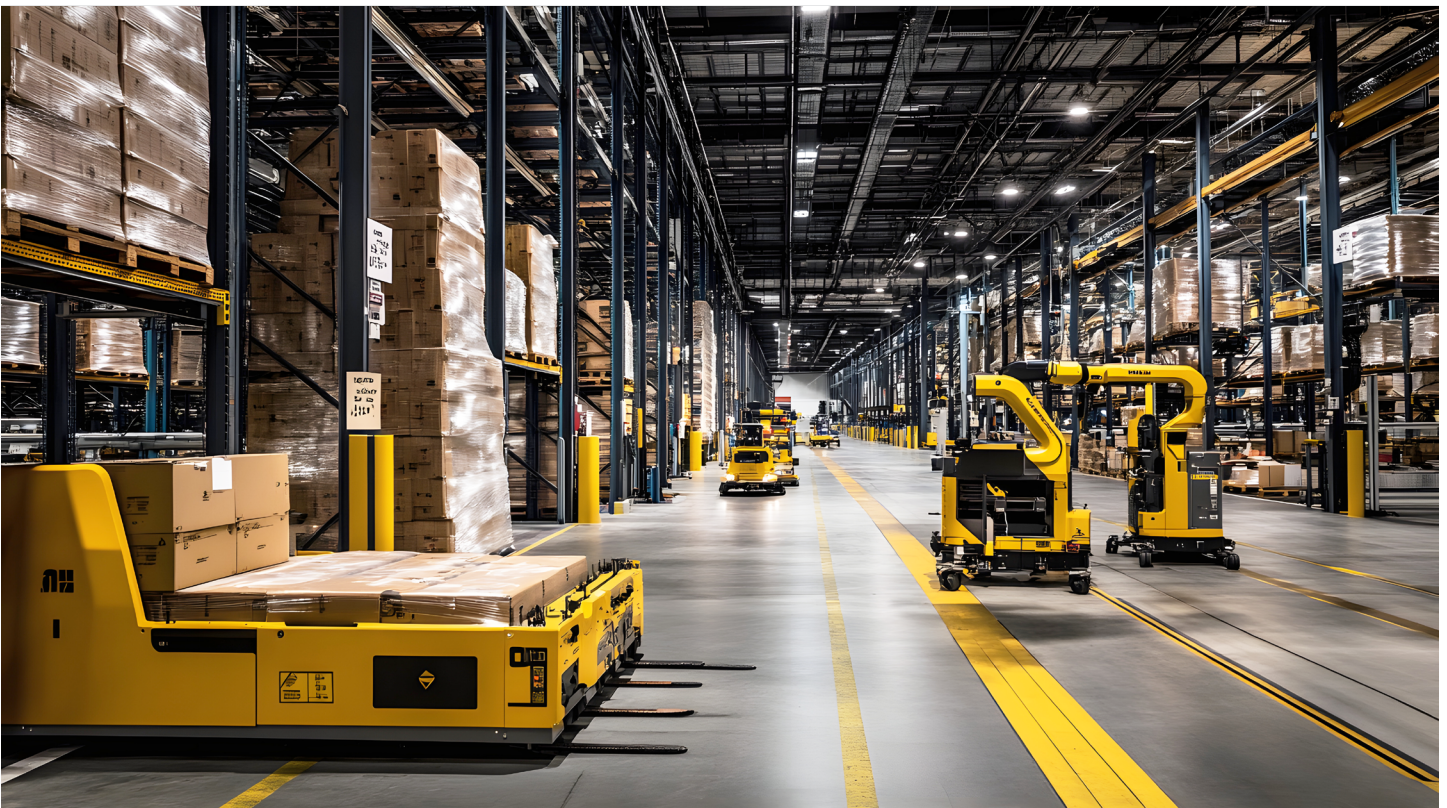
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IO-Link Master for Decentralized Control

IO-Link Master Enables Cabinet-free Control

The [TBEN-S2-4IOL](#) is an IP67-rated, IO-Link master used on robots in logistics to connect sensors and actuators directly on the robot, enabling decentralized, cabinet-free control. It supports PROFINET, Ethernet/IP, and Modbus TCP to connect, monitor, and control grippers, linear sensors, and RFID tags, optimizing autonomous picking and sorting tasks. Mounted directly on the robot arm, the module allows for the quick and efficient connection of pneumatic valves and sensors, facilitating safe and rapid tool changes.



Notes

A large grid of graph paper for taking notes. The grid consists of 30 columns and 40 rows of small squares, providing a structured space for writing or drawing.

Notes

TURCK

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60 representatives worldwide

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