CoreTigo

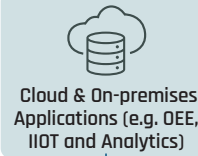## Industrial Wireless Automation

Enabling your Machines and Production Lines to do More
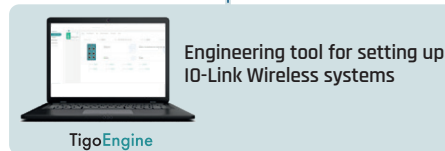
Solution Architecture

Applications
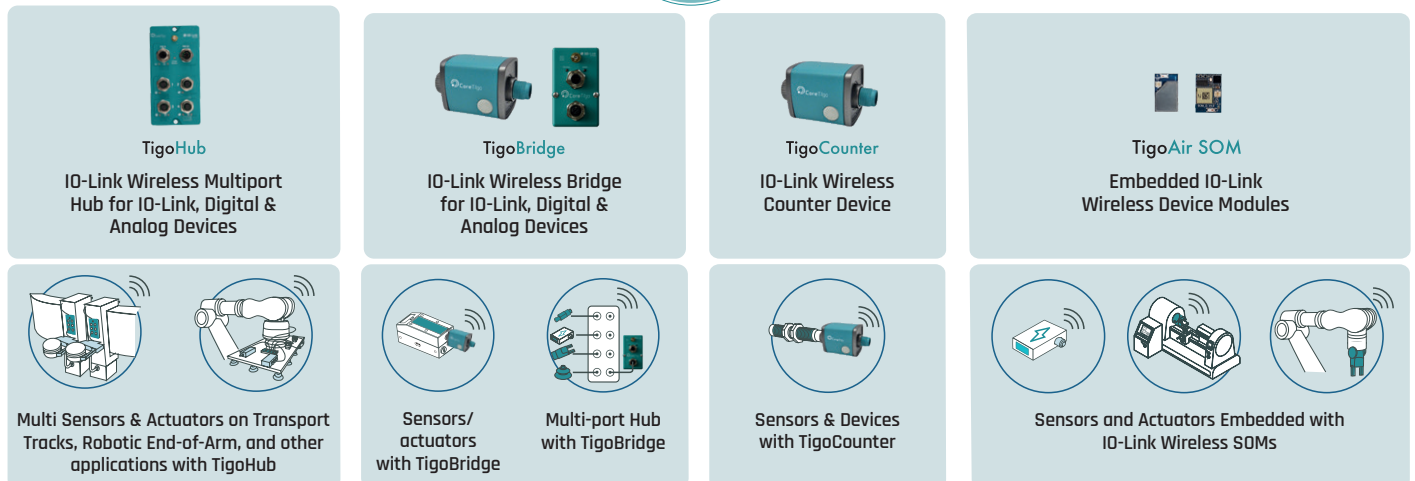
Cloud & On-premises Applications (e.g. OEE, IIOT and Analytics)

OPC UA | **MQTT**

Software

Engineering tool for setting up IO-Link Wireless systems

Tigo**Engine**

Control and Monitoring

PLC

OPC UA | **EtherCAT**
EtherNet/IP | **PROFINET**

Tigo**Master 2TH**
IP67 IO-Link Wireless Master

Tigo**Gateway 1TE**
IO-Link Wireless Master with Edge Computing

Tigo**Gateway 2TC**
IO-Link Wireless 2 Track Master

Sensors and Actuators

IO-Link wireless

Tigo**Hub**
IO-Link Wireless Multiport Hub for IO-Link, Digital & Analog Devices

Tigo**Bridge**
IO-Link Wireless Bridge for IO-Link, Digital & Analog Devices

Tigo**Counter**
IO-Link Wireless Counter Device

Tigo**Air SOM**
Embedded IO-Link Wireless Device Modules

Multi Sensors & Actuators on Transport Tracks, Robotic End-of-Arm, and other applications with TigoHub

Sensors/ actuators with TigoBridge

Multi-port Hub with TigoBridge

Sensors & Devices with TigoCounter

Sensors and Actuators Embedded with IO-Link Wireless SOMs

⚡ RANGE OF POWER OPTIONS: Slip Rings | Inductive Power | Battery | 24v

IO-Link wireless

IO-Link Wireless is a deterministic, low latency (5 msec), highly reliable, and scalable universal wireless communication protocol. Based on the IO-Link IEC 61131-9 standard, it is designed specifically for factory automation, coexisting with other networks - both wired and wireless.

Reliable
Cable-grade reliability, deterministic, coexists with other networks, immune to industrial environments

Fast
Low latency of 5 msec with ultra-high synchronization rates

Scalable
Supports a large number of devices while maintaining the required low latency and high reliability

Universal
Part of the IO-Link IEC standard designed for both wireless control and monitoring

Solutions & Applications

CoreTigo enables faster and more flexible manufacturing by providing high-performance machine digitalization, wireless connectivity and edge solutions for machine builders, system integrators and industrial equipment manufacturers. Industrial-grade wireless communication is a key pillar of Industry 4.0 applications.

It's about enabling applications not possible before. more sophisticated transport and conveyer systems, real-time control and monitoring of rotating machinery, the ability to place sensors anywhere in the factory for real-time data collection, and more. It's about a truly intelligent production line that can take flexibility and agility to new levels, and further drive predictive maintenance and operational excellence.
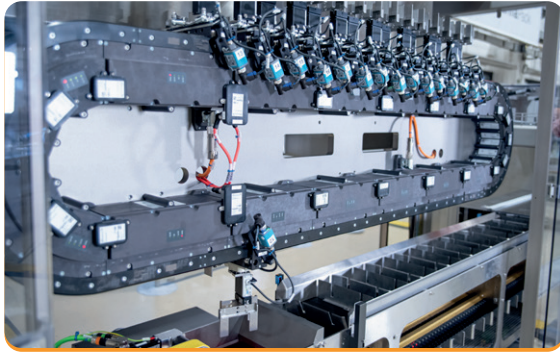
Transport Tracks & Smart Conveying Systems

Support multiple product and package variations - on a single machine with automatic changeover and maximum flexibility.

Sustainable and cost effective design - reduces external customization equipment and machine footprint, energy consumption and number of machines.
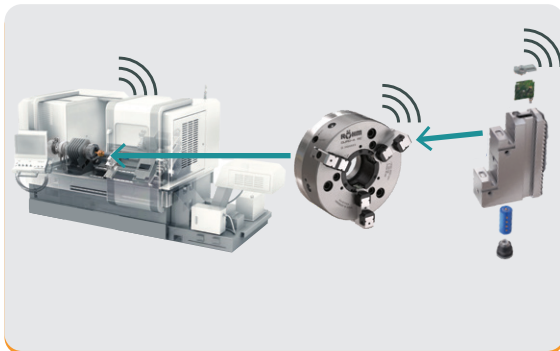
Reduce time to market - for applying new product package designs.

Increase ROI - by monitoring machine throughput and utilization.

Enabling Adaptive Machines and Production Lines with IO-Link Wireless for a variety of industries:

- Packaging - food & beverage, pharmaceutical, cosmetics, and additional consumer packaged goods
- Material Handling and Logistics
- Assembly lines - e.g. Automotive, Batteries

- Each mover is equipped with an IO-Link Wireless Multiport Hub or IO-Link Wireless Bridge which provides multiple sensors and actuators with connectivity on the mover itself.
- The IO-Link Wireless Master communicates wirelessly with all the devices on the movers and is connected to the PLC for automation control and to IoT and enterprise IT-level servers for data monitoring.

Intelligent Tooling

Automatic Setup - Precise workpiece and tool setup without manual intervention

Machine Tuning - Improve quality and performance through real-time measurement of excessive and declining clamping while machining

Safety - Reduce safety hazards and machine damage caused by inadequate clamping forces

Predictive Maintenance - Early indication of wear and tear and production deficiencies

Traceability & Analytics - Measure, document and archive manufacturing process stages in real-time

Intelligent Tooling Solution for CNC, milling and grinding machines:

- The most precise and robust solution designed for industrial conditions (1000's of RPM, harsh & noisy environments) fully integrated inside tools
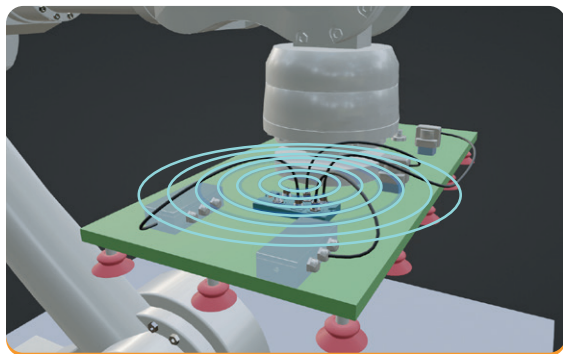- Suitable for a variety of industries, e.g. Metalworks, Automotive, Aerospace

- CoreTigo's TigoAir SOM module can be integrated directly into the CNC machine tools (e.g. Jaw, Vice, Spindle) and connected to a variety of sensors (e.g. force, vibration, temperature) along with a specially designed antenna and powered by battery.
- Other IO-Link, Digital and Analog devices can be connected wirelessly on the machine via TigoBridge or TigoHub Multiport Hub.
- All IO-Link Wireless devices communicate wirelessly with an IO-Link Wireless Master/Gateway which communicates both with the PLC and other cloud or on-premises enterprise applications.

See online at:
coretigo.com/solutions

Solutions & Applications

Robotics End of Arm Tooling

Increased Flexibility - Full rotation flexibility and agility without cable interference and constraints

Complexity Reduction - Efficient deployment with reduced dresspacks, simple tool changeover

Maintenance Reduction - Reduce downtime and maintenance due to cable wear and tear

Payload Reduction - Multiple sensors/ actuators connected wirelessly on end-of-arm reduce the weight burden on the robot

Cost Reduction - Significant reduction of expensive high-torsion cables and accessories

Cost efficient and adaptive solution for Robots and Cobots:

- Suitable for variety of applications, e.g. pick & place, assembly, material handling
- Robust and immune to harsh factory environment
- Scalable to support numerous devices on end-of-arm

- Implementation of wireless control and monitoring robotic solutions is enabled either via embedding an IO-Link Wireless module, or by adding an external IO-Link Wireless Hub or Bridge—turning IO-Link, Digital and Analog devices at the End-of-Arm into IO-Link Wireless devices.
- In both cases the IO-Link Wireless End-of-Arm device communicates with IO-Link Wireless Master, placed on the robot, or in the production line's control box.

Condition Monitoring and IIOT

Improved OEE - Real-time visibility and timeline of events enable workflow optimization, increase awareness, and improved communication

Maximize Throughput - Bottlenecks and inefficiencies detection enables to increase capacity and improve performance

Simple and Fast Deployment - Simplify relocation and upgrades of existing machines and production lines with wireless sensors

Flexible - Fit for both fixed and fast rotating/ moving components. Supports analog, digital and IO-Link devices

Maintenance & Downtime Reduction - Reduce cable wear and tear and unplanned downtime

Robust - Industrial-grade, immune to RF and environmental noise, can be installed in remote and hard to reach areas

Access to data from sensors anywhere in the factory enables powerful analysis and business intelligence:

- Integration to enterprise and cloud-based applications
- Fact-based decision making, predictive maintenance, and process optimization
- Complete visibility of the entire factory

- Enabling wireless connectivity for various sensors in the industrial facility is done by converting existing sensors into IO-Link Wireless Bridges, Hubs and Counters.
- These communicate wirelessly with the IO-Link Wireless Master which communicates the data to the IT level for IIOT and other enterprise applications, as well as to the PLC.

See online at:
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Solutions & Applications
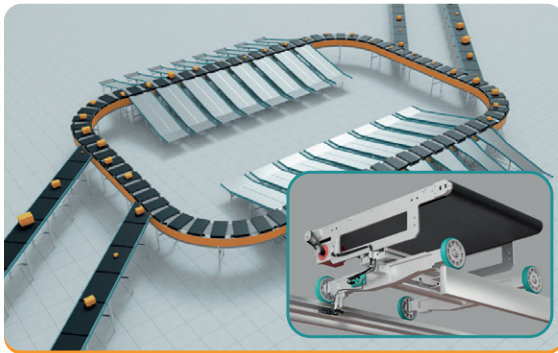
Crossbelt Sortation Systems

High Capacity - High speed sortation

Flexible - Ability to handle a wide variety of product and package shapes, sizes, weights

Space utilization - Narrow discharge area for increased number of splits/hampers

Scalable - flexible and modular design for increasing business volumes

Maximum uptime - extremely reliable, low error rate

Cost - Cost effective deployment, expansion and maintenance

Maximum Speed and Versatility for Logistics and Distribution Centers:

· Ideal for a variety of sorting requirements - expedites order fulfillment and reduces lead times

· Reduces errors in routing items to their correct destinations

· Accommodates increasing business volumes due to flexible and modular design

· Each of the carriers' servomotors is equipped with wireless connectivity, enabled either via embedding an IO-Link Wireless module directly into it or by converting it with an external IO-Link Wireless Hub or Bridge.
· The IO-Link Wireless Master communicates wirelessly with the devices on the carriers on one end, and with the sorting system's PLC on the other.

AMRs & Mobile Equipment

Independent - Closed-loop local communication

Ultra-Reliable - Deterministic wireless communication, enabling control in harsh environments

Scalable - Designed to support multiple AMRs and stations on the factory floor

Simple Deployment - Supporting various sensors, actuators, and PLCs

Coexistence - IO-Link Wireless coexists with various IT and OT communication systems

Flexible - Enhances mobility and enables simple access to multiple machine positions

Independent and Reliable Wireless Control for Mobile Automation in Logistics and Material Handling:

· Provides seamless interaction with equipment on the production floor

· Ensures high-speed and reliable interactions with minimal points of failure

· Allows direct communication with PLCs, push buttons, doors/gates, relays, and other actuators and sensors

· Each AMR/mobile equipment is equipped with an IO-Link Wireless Multiport Hub which provides multiple sensors and actuators with connectivity on the AMR itself.
· Additional stationary equipment and devices on the factory floor communicate via IO-Link Wireless with a TigoBridge or TigoHub.
· IO-Link Wireless Gateways deployed throughout the factory floor or directly on the AMR's communicate with the wireless devices and the fleet management system for the most reliable connectivity on the go.

See online at:
coretigo.com/solutions

Solutions & Applications

Rotary Units & Carousels

Increased Capacity - Perform actions while in constant rotating motion

Maintenance Reduction - Reduce cables wear and tear, dependency on slip rings, and components requiring sterilization

Mass Customization - Enable automatic changeover and rapid tooling setup for a range of product types

Simplify Retrofit - easy add-on of sensors and actuators with less cables, accessories and payload

Reducing complexity and increasing flexibility of rotary units and carousels with IO-Link Wireless for a variety of industries:

- Packaging - food & beverage, pharmaceutical, cosmetics, and additional consumer packaged goods
- Automotive - Material Handling and Assembly
- Natural stone processing - grinding and refining

- Sensors and Actuators onboard the rotating equipment are connected wirelessly via embedding an IO-Link Wireless module directly into it or by converting it with an external IO-Link Wireless Hub or Bridge
- The IO-Link Wireless Master communicates wirelessly with all the devices on the rotating equipment and is connected to the PLC for automation control and to IOT and enterprise IT-level server for data monitoring.

Industries

CoreTigo's solutions are addressing a variety of industries, such as Automotive, Food & Beverage, Metalworking, Pharmaceutical, CPG, Logistics and more. These solutions are enabling machines and production lines to do more by expanding their flexibility and capacity in a cost effective manner. Smart ultra-reliable wireless communication in the factory is enabling applications not possible before that are driving operational efficiency, production and machine optimization, higher availability, sustainability and greater intelligence.


Consumer Packaged Goods (CPG)

Suitable for a variety of CPG industry types, such as Food & Beverage, Pharmaceutical, Cosmetics, Electronics

- Primary packaging (bottling, heat treatment)
- Secondary Packaging
- Tertiary & Palletizing
- Glove Integrity Testing
- OEE Improvement

Automotive

Serving Automobile Manufacturers, first and second tier manufacturers

- EV Battery Assembly
- Car Seat Assembly
- Cranes and Gantries Connectivity
- Energy Conservation
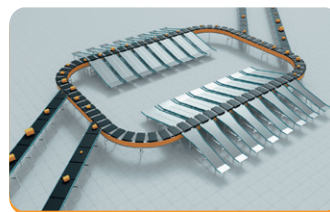
Logistics

Applicable for distribution centers, smart warehouses, and material handling

- Crossbelt Sortation Systems
- Stacker Cranes
- AMRS and Mobile Equipment
- Condition Monitoring and Predictive Maintenance

Discrete Manufacturing

Suitable for a variety of industries, such as Metalworking, Woodworking, Energy, Pulp & Paper, Steel and Stone Manufacturing

- CNC intelligent tooling
- Solar panel cell assembly
- Converting machines
- Stone processing

Product Portfolio

Software Platform for Configuration & Optimization
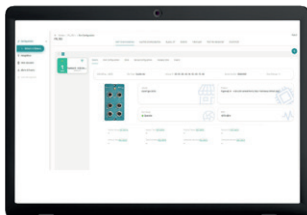
TigoEngine

A software-based engineering tool for efficient setup of IO-Link Wireless Masters and devices. Enables installation, configuration, and monitoring of an IO-Link Wireless system.

With an intuitive user interface, TigoEngine offers an advanced IODD finding and parsing tool, and an MQTT publisher along with data collection capabilities from multiple Masters for integration with cloud-based and other enterprise/ IIOT systems.

IO-Link Wireless Masters for Control & Monitoring

TigoGateway 1TE

An IP20 IO-Link Wireless Master with Edge Computing functionality. Supports up to 8 IO-Link Wireless Devices simultaneously. Includes Industrial Ethernet, OPC UA, MQTT and a Linux OS. Docker enabled for running a variety of advanced applications and edge-computing.

TigoGateway 2TC

An IP20 IO-Link Wireless Master. Supports up to 16 IO-Link Wireless devices simultaneously. Includes Industrial Ethernet and OPC UA interfaces.

TigoMaster 2TH

A 2-Track IO-Link Wireless Master with IP67 enclosure. Supports up to 16 IO-Link Wireless Devices simultaneously along with Industrial Ethernet and OPC UA protocols.

IO-Link Wireless Starter Kits

TigoStarter Evaluation/Development Kits

TigoStarter Kits include all components required for setting up a quick IO-Link Wireless environment for evaluation and development purposes.

IO-Link Wireless Devices for Sensors and Actuators

TigoBridge A1/B1

are IO-Link Wireless Class A/B Bridges, converting Class A/B IO-Link devices to IO-Link Wireless. TigoBridge is IP67 rated with an internal custom antenna.

TigoBridge A2/B2

are IO-Link Wireless Class A/B Bridges, converting Class A/B IO-Link devices, or 2 Digital devices to IO-Link Wireless. TigoBridge is IP67 rated with an external antenna.

TigoHub i4

Multiport hub for IO-Link Wireless connectivity of IO-Link, Digital, and Analog devices. Connects up to 4 IO-Link devices and up to a combination of 6 IO-Link\DIO devices and converts them to IO-Link Wireless.

TigoCounter

TigoCounter is an IP67 IO-Link Wireless Counter device that connects to a Digital output and enables object counting capabilities along with the transmission of the data wirelessly to an IO-Link Wireless Master.

TigoAir SOM

System-on-Module ID-Link Wireless Devices for embedding and integration in sensors and actuators.

TigoConverter

Converts an Analog current (4mA to 20mA) or voltage (0-10VDC) source to IO-Link. For use with TigoBridge/TigoHub.
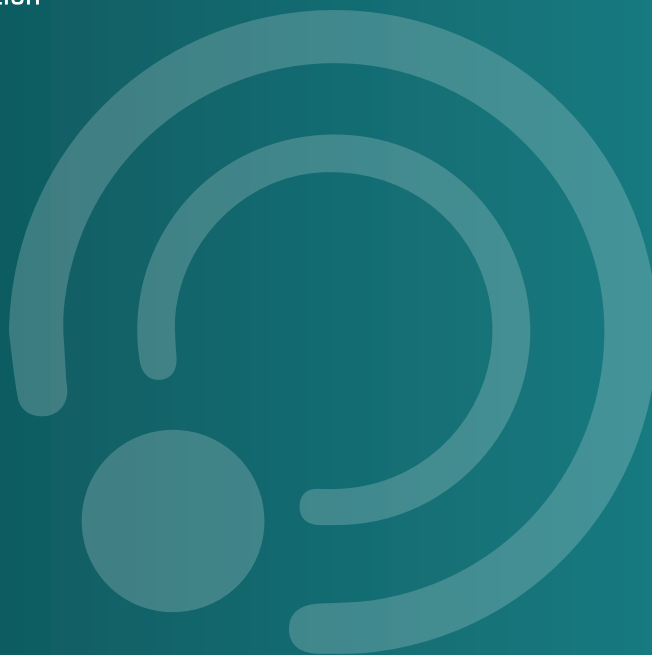
Near Field Communication System

Provides contactless near field RF to IO-Link Wireless communication for challenging and motion-related industrial automation applications.

See online at:
coretigo.com/products

CoreTigo
Industrial Wireless Automation

IO-Link
wireless

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CoreTigo enables faster and more flexible manufacturing by providing high-performance machine digitalization, wireless connectivity and edge solutions for machine builders, system integrators and industrial equipment manufacturers. CoreTigo's products enable the design and retrofit of machines and production lines that were not possible before. These solutions increase flexibility, adaptivity and modularity, resulting in cost effectiveness, increased productivity and downtime reduction. Embraced by industrial leaders, CoreTigo's solutions are based on the IO-Link Wireless global standard, which is fit for harsh factory environments and motion control applications, providing the most reliable wireless connectivity for millions of sensors, actuators and industrial devices worldwide.

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