



CoreTigo, IO-Link Wireless – Executive Summary

With the onset of the Industrial Revolution 4.0 (Industrial IoT), communication scenarios are changing rapidly. Machine-to-machine (M2M) communication such as connected robots, warehouse automation, and factory processing machinery is becoming more and more prevalent and demanding higher availability, better robustness, low latency, and deterministic patterns.

In this Revolution, wireless communication shall outperform with respect to cable-based in terms of flexibility, mobility and cost. Only wireless communication makes the usage of connected devices economically feasible. As of today, standard wireless technologies are unable to meet the required robustness and low latency that industrial M2M applications needs.

CoreTigo's solution is a wireless standard protocol between industrial controllers (PLC, industrial PC, gateway, monitor) and sensors or actuators for industrial automation segment. For the first-time It presents a solution tailed to industrial needs such as: reliability, latency and security in par as cables. CoreTigo wireless network system supports up to 40 IoT nodes in a single Master at a low latency, high reliability and deterministic timeline of 5 milliseconds. This timeline enables the replacement of the serial wired cables in critical mission applications, taking the Industrial Revolution 4.0 to the next level.

CoreTigo's solution transforms factories to smart enterprises, which allows them to enjoy the benefits of wireless communication like simple installation and configuration of the machine, mobility and flexibility, Hygienic and sterilization of food and medical equipment and reduced machine weight and dimensions.

CoreTigo Wireless solution is 6 orders more reliable than other wireless protocols like Bluetooth, WiFi, WirelessHart etc., with PER (packet error rate) of $1e-9$ the network works without errors in a common use-case and presents a latency of 5 mSec that communicates with 40 sensors. IO-Link Wireless protocol supports deployment of multiple cells using the same medium, meaning the numbers of nodes can go up to 120 in a use-case of 3 masters at the same cell and units can roam between cells and masters. Unlike other wireless protocols (Bluetooth, WiFi etc.) IO -Link Wireless from CoreTigo is deterministic allowing certainty as well as security in par with 802.11 or 802.15.1.

CoreTigo end to end solution includes 4 elements:

1. **Physical layer protocol** based on narrow band signals to address robustness requirements.
2. **MAC layer** to handle harsh, industrial environments in low latency and still present a negligible packet error rate.
3. **System on a module** based on existing transceivers and MCU that meet regulation and industry standards.
4. **SW stack** to communicate with upper layer industrial protocols with the right cyber confidentiality and authenticity levels.

CoreTigo wireless network is based on a new standard called IO – Link wireless (www.io-link.com). The standard was launched in 2017 together with a working group CoreTigo is part of, within PNO organization (Profibus/Profinet user Organization - www.profibus.com), together with German discrete vendors like Balluff, Festo, ifm and Sick, silicon manufactures like Texas Instruments and academic institution as HSU in Germany.

For more information, please contact with us at: Info@coretigo.com or navigate to our website at www.coretigo.com