

IO-Link Wireless Development Toolkits

Get your devices ready for IO-Link Wireless





FUTURE-ORIENTED TECHNOLOGY

KUNBUS Development Toolkits enable device manufacturers to enter the world of IO-Link Wireless quickly and easily. The toolkits are available for both IO-Link Wireless Master and Device development.

Technologically, KUNBUS has chosen the CC265x microcontroller from Texas Instruments for IO-Link Wireless. Compared to other microcontrollers on the market, the CC265x offers high performance at very low power consumption. This allows potential applications with energy self-sufficient sensors, which are also covered by the IO-Link Wireless standard. The integrated ARM-based application controller enables a single-chip design without separate controllers. The hardware footprint and costs can thus be significantly reduced.

Thanks to the exact synchronization of the single radios, the IO-Link Wireless Master stack supports the implementation of 5 tracks with 40 connected Devices (sensors or actuators). Up to 3 Masters shall be able to communicate with up to 120 Devices at the same time within one RF area. The maximum distance between Master and Device is up to 20 meters. For a seamless integration of an IO-Link Wireless Master into the superordinate fieldbus or industrial Ethernet level, KUNBUS also offers various interface solutions for all common industrial network protocols, such as PROFINET, EtherNet/IP and PROFIBUS.

Use cases for IO-Link Wireless

The IO-Link Wireless technology can be integrated in different applications. On the one hand, the aim is to reduce the number of the cables used and, on the other hand, to generally avoid cabling, for example in harsh industrial environments or in areas of a plant which are difficult to access. Four specific examples are as follows:

1.) Robot applications

If the different sections of a robot move wirelessly, unforeseen downtimes due to extensive cable stress are a thing of the past.

2.) Production lines/transport belt

The immense cabling of multiple sensor solutions or sensor bridges to check the products transported on a belt, can be reduced or avoided. This again leads to less downtime and increased flexibility.

3.) Rotary applications

The highest demands in terms of performance and efficiency are made in the packaging and food industries, among others. Wireless technology makes processes and workflows more agile, flexible and faster.

3.) Hygienic area

It is important to avoid any potential source of contamination as far as possible. IO-Link Wireless supports these activities by reducing the number of cables.

HIGHLIGHTS

- Performance, functionality and capacity are comparable to cable-bound solutions
- High performance at very low power consumption at the same time
- Seamless fieldbus connectivity thanks to integrated fieldbus stacks in TI SDK for AM24x and AM64x multicore SoCs
- Multi-track capability of the master: Up to 40 devices on 5 tracks
- Reduction of installation effort and downtime
- High reliability as well as safe and secure data transmission at critical points
- Raising efficiency, cost reduction, continued competitiveness

Industry 4.0 is no longer just theory or a vision of the future. The idea of the digital factory of the future, in which humans and robots work hand in hand together, machines communicate independently with each other and everything is digitally and intelligently connected – the process from product development to production, logistics and finally to the end consumer – is becoming reality.

In this context it becomes clear, that with the existing cable-based communication networks, especially in the lowest field level, the increased demands and expectations in terms of flexibility, mobility and expandability can no longer be sufficiently fulfilled.

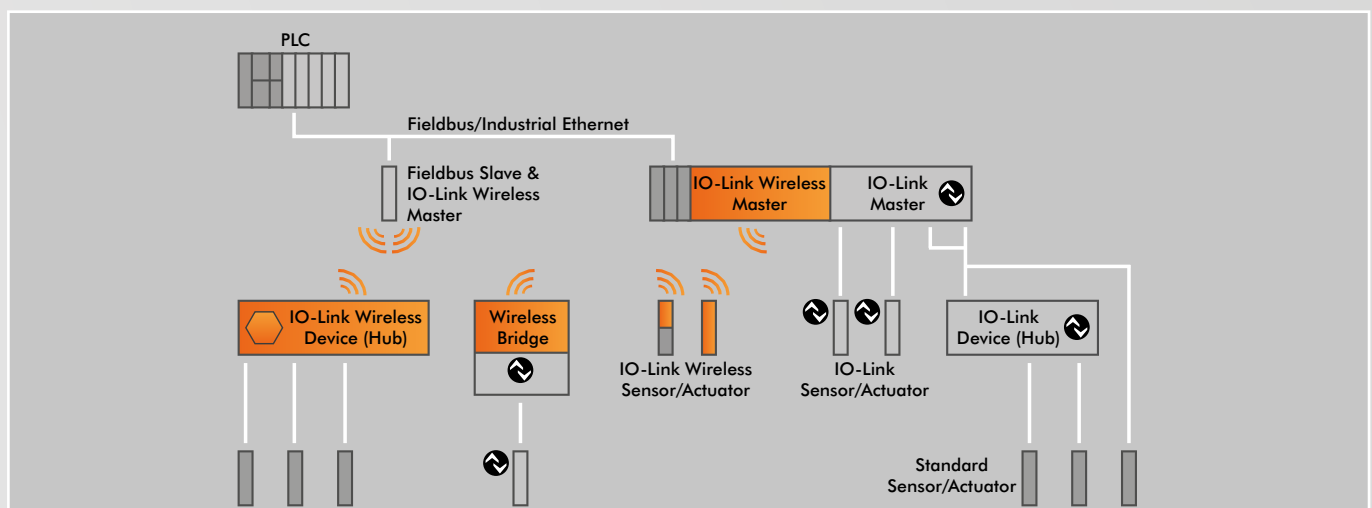
It is therefore just a logical step to expand IO-Link, already known for great simplification and cost reduction, by a wireless communication solution for the wiring of field devices. IO-Link Wireless, for the first time, presents a reliable, real-time and deterministic protocol for industrial factory automation control systems. By omitting cables, IO-Link Wireless offers considerably more flexibility, less wear and better scalability compared to its wired counterpart.

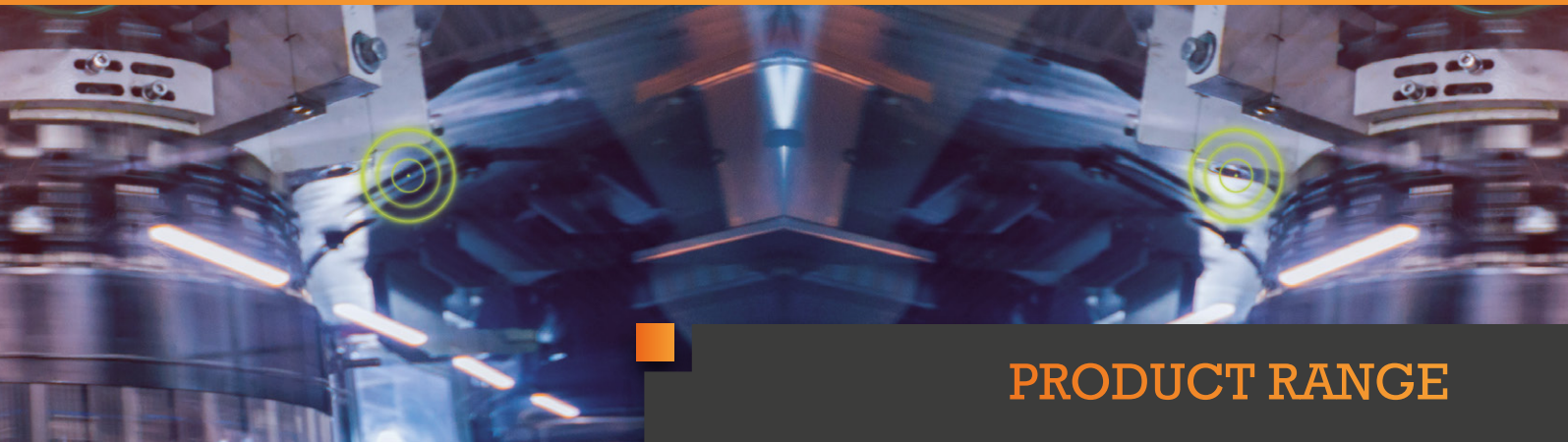
At 10^{-9} , the packet error capability (PEP) of IO-Link Wireless is comparable to the PEP of wired solutions and

thus has a significantly lower probability of error than other wireless protocols such as Bluetooth or Zigbee.

With IO-Link Wireless, up to 40 actuators or sensors (so-called Devices) with a maximum latency of 5 ms can be connected to an IO-Link Wireless Master. The 2.4 GHz frequency band is used for communication. The simultaneous operation of WLAN systems is also possible, because this technology blocks out occupied frequency bands.

Thanks to backwards compatibility with the factory and process automation protocols, users do not have to replace their existing IO-Link system when installing IO-Link Wireless, but can integrate IO-Link Wireless seamlessly into their existing, wired system.





PRODUCT RANGE

KUNBUS IO-Link Wireless Development Toolkit – 5 Track Master

IO-Link Wireless Master stack as binary, including the lower layers (MAC/PHY) based on the CC265x

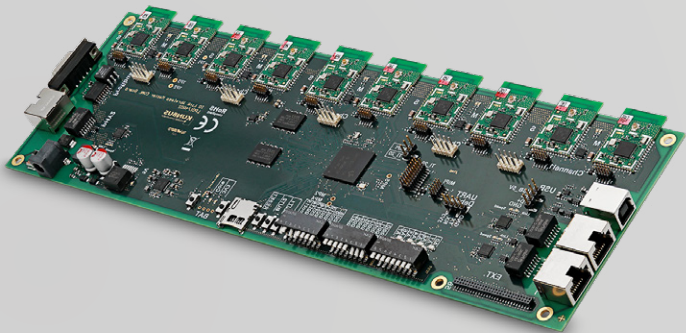
1 x Evaluation Board with ten CC265x PCB modules and one AM4379 processor

CC265x based sample project

Detailed documentation, inclusively hardware schematics

Development support (1/2 year)

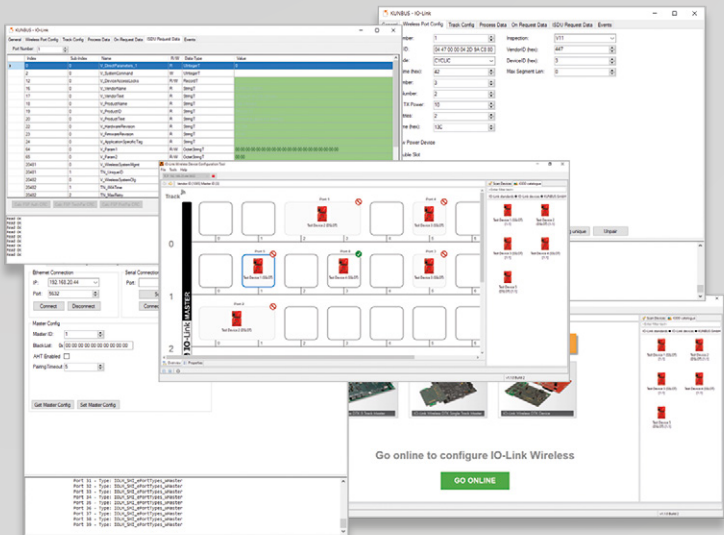
Optional: Fieldbus/IE Development Toolkit for the processor



KUNBUS IO-Link Wireless Configuration Tool


Configuration of the IO-Link Wireless Master and Devices

Compatible with Windows 10





PRODUCT RANGE

KUNBUS IO-Link Wireless Development Toolkit – Device	
IO-Link Wireless Device stack as binary, including the lower layers (MAC/PHY) based on the CC265x	
1 x TI CC265x Wireless MCU LaunchPad™	
1 x Test and Reference Board including IO-Link Wireless Device Module KE2640MODA1	
1 x IO-Link Wireless Master Board USB	
CC265x based sample project	
Detailed documentation, inclusively hardware schematics	
Development support (1/2 year)	

ARTICLE	ARTICLE NO.
KUNBUS IO-Link Wireless Development Toolkit – 5 Track Master	100288
KUNBUS IO-Link Wireless Development Toolkit – Device	100296

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