

# MindConnect Nano and MindConnect IoT2040

## Benefits

- Out-of-the-box connectivity
- Quick and easy installations
- Scalable solution to any size production environment
- Multiple protocols supported
- Data security throughout process

## Fast and easy IoT connectivity to MindSphere for immediate data collection

### The IoT connectivity challenge

Industries undertaking the Internet of Things (IoT) transformation are faced with difficulties connecting a wide range of machines quickly, affordably and securely from disparate sources into a central location. Both the MindConnect Nano and the MindConnect IoT2040 offer different levels of service and price points for any size production environment. Both units create a direct and secure connection with MindSphere to transmit data by attaching through a brownfield installation. Different protocols are supported to collect data, allowing for flexibility depending on the physical infrastructure. A one-time purchase of one of these self-maintaining units connects any machine to the digital world to begin collecting and transmitting data to be processed. In addition, the MindConnect Nano and MindConnect IoT2040 facilitate encrypted communications with MindSphere while guaranteeing security of the automation network with fire-wall-friendly connections.

### Quick and easy installation

Flexibility in implementation allows for the MindConnect Nano and MindConnect IoT2040 to connect a variety of industries to MindSphere and the digital world no

matter the machine. A brownfield installation using Deutsches Institut für Normung (DIN) rail with wall mounting and portrait mounting capabilities makes the unit a simple installation. The rugged design prevents damage to the unit where it is placed.

### Deep connectivity through industry standard protocols

The MindConnect Nano and MindConnect IoT2040 support industry standard protocols to facilitate data collection and transfer through interaction with programmable logic controllers (PLC) and other sensors. Siemens S7 is a supported protocol which is used for collecting data from S7-3xx / S7-4xx / ET-200s PLCs. In addition, optimal proximity correction unified architecture (OPC UA) is supported for collecting data from all data sources able to provide data via an OPC UA server utilizing Part 8 of the OPC UA specification. Additional field protocols will follow as further updates are implemented and IoT industry standards continue to evolve.

### Comprehensive security

Stringent security features for the MindConnect Nano and MindConnect IoT2040 ensure the successful transfer of sensitive industrial data. All security measures are in line with the ISO 27001/ IEC 62443 international standards, the best-known cyber security standards for information security and industrial control system security.

# MindConnect Nano and MindConnect IoT2040

Measures are taken at every step of the MindConnect Nano installation and onboarding process to ensure security. The secure onboarding process creates a unique environment of individual tokens and IDs that only register with the MindConnect Nano or MindConnect IoT2040 being installed. From there, a secure setup between MindConnect Nano or MindConnect IoT2040 and MindSphere takes advantage of certificate and key management measures applied to handle the certificates and keys used by the unit. These encrypted communications between the cloud and MindConnect Nano are secured.

## MindConnect Nano

The MindConnect Nano box offers a high performance IoT connector at a reasonable cost. It can handle a steady stream of data that it transfers to the MindSphere platform. The unit has a data reading cycle of up to 250 data points per second while undergoing a data transfer cycle every 10 seconds. This inflow and outflow of data allows for constant monitoring of the industrial process while allowing near real-time business insight into the machine being monitored by the MindConnect Nano.



## MindConnect IoT2040

The MindConnect IoT2040 is the entry level dedicated IoT connector that creates a direct link between the infrastructure and MindSphere without being cost prohibitive. This agent has a data reading cycle of up to 30 data points per second while undergoing a data transfer cycle every 10 seconds. This exchange is right-sized for the volume of a smaller production environment.



Asset	Fast and easy connectivity of industrial machines and automation systems to MindSphere	Data collection via standard industrial protocols	Software update management – always up to date	Rugged design for maintenance-free, continuous operation	Comprehensive security concept in accordance with applicable industry standards	Local data buffer	Cycles (data points per second)	Data transfer cycles (seconds)
MindConnect Nano	Yes	Yes	Yes	Yes	Yes	500	250	10
MindConnect IoT2040	Yes	Yes	Yes	Yes	Yes	500	30	10

# MindConnect Nano and MindConnect IoT2040

## **Solving real-world problems with IoT and MindSphere**

The MindConnect Nano was chosen as the affordable, out-of-the-box connectivity solution for MindSphere by a soft drink producer with a large-scale production environment and broad range of products. The customer required a flexible solution to accommodate rapid production changeover and provide global access of asset data.

The successful implementation of 10 MindConnect Nano boxes enabled 150 motors from different locations to be quickly and securely connected to MindSphere. This allowed the customer to visualize and monitor data across global locations using tool-based evaluation of critical condition events for further

inspection and problem fixing at an earlier stage. Ultimately, the customer benefitted in increased asset uptime through accurate asset failure prediction, improvement of the manufacturing process, higher product quality and optimization of service productivity.

## **MindSphere**

MindSphere is the cloud-based, open IoT operating system from Siemens that connects real things to the digital world, and enables powerful industry applications and digital services to drive business success. MindSphere's open Platform as a Service (PaaS) enables a rich partner ecosystem to develop and deliver new applications.

Siemens

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