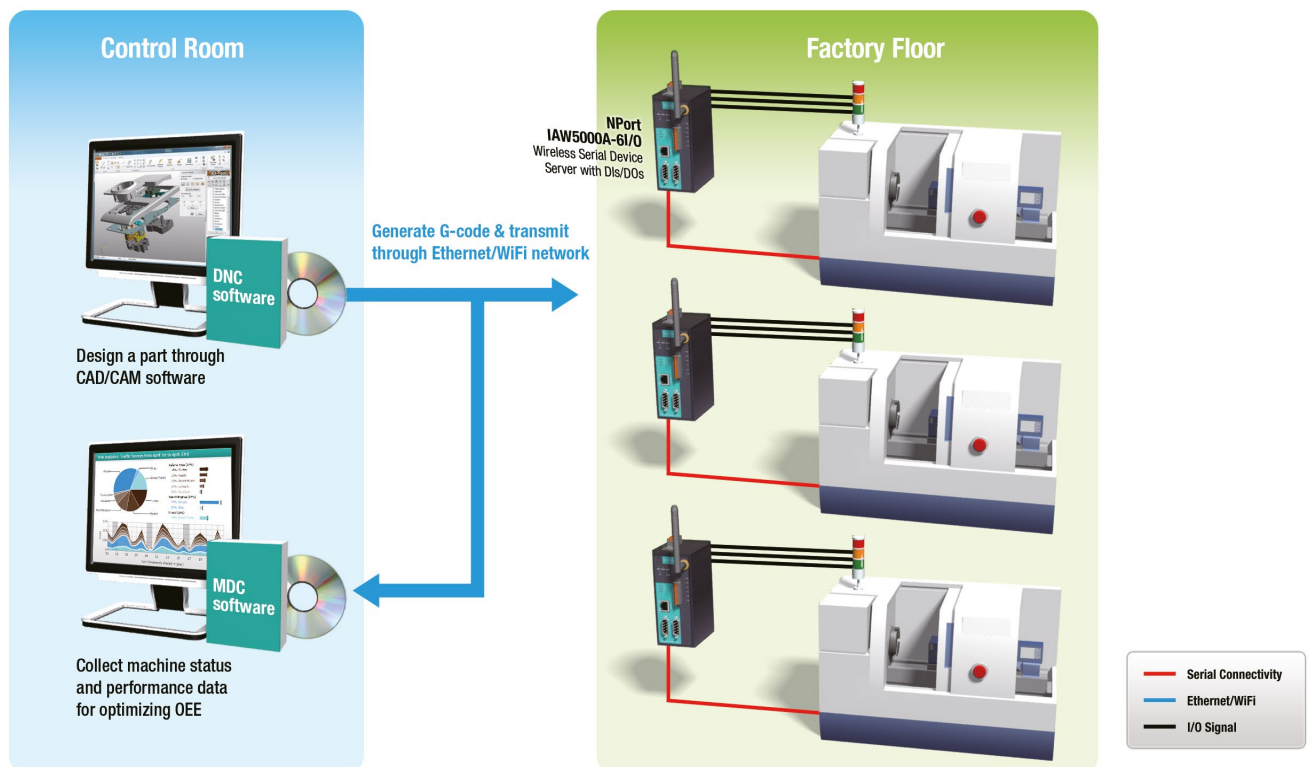


# Combo Serial Device Servers Deliver Higher Overall Equipment Effectiveness for Shop Floors

## Overview

Although Industry 4.0 dominates technology trends and is fast becoming a reality, it is still uncharted territory for many in the manufacturing sector. For an industry in which most manufacturing lines are only 60% productive, these new technologies hold great promise with regard to increased production, operational efficiency, and lowered costs. Clearly, the underperformance in manufacturing calls for improvement, and a tremendous opportunity presents itself in Overall Equipment Effectiveness (OEE). OEE is the key operational metric for machine uptime and capacity utilization that helps factory managers to monitor the performance of a particular machine or factory and make the necessary adjustments to increase the machine's utilization rate. However, before greater efficiency can be achieved, greater visibility of your machines is required, i.e., capturing data.



## Requirements

Many of the unconnected machines on plant floors are older legacy equipment that involves heavy investments. However, investments in new technologies are now necessary to implement modern data collection, monitoring, and analytics systems to:

- Identify issues in machines and resolve it in a timely fashion before it has a serious impact on operations.
- Reduce labor efforts to upload the manufacturing program and record data manually.
- Minimize interruptions to production by monitoring real-time data to ensure optimal manufacturing performance.

## Solutions

Moxa's NPort IAW5250A-6I/O offers a three-in-one solution, bringing legacy serial CNC machines onto a network and providing data acquisition capabilities via Ethernet and/or wireless communications. The integrated design of the NPort IAW5250A-6I/O combines three separate devices and their respective functions into one package: a wireless client, serial device server, and digital I/O. The NPort IAW5250A-6I/O allows:

- DNC software to network legacy CNCs for manufacturing program upload via Ethernet/WiFi network.
- MDC software to collect machine status via digital I/Os from stack light tower, cycle start/stop button, etc., through Ethernet/WiFi communications.

# Combo Serial Device Servers Deliver Higher Overall Equipment Effectiveness for Shop Floors



## Results & Business Benefits

### ► For factory owners:

- **Increased Remote Monitoring Capabilities**

Ethernet-based networking overcomes distance limitations and enables centralized control to minimize labor-intensive tasks.

- **Lower Overhead**

Remote machine monitoring will significantly reduce maintenance personnel's visits to remote sites to check up on machines. Machine utilization status can be viewed immediately (no need for manual recording) so that the plant manager can adjust the production schedule for optimization; thus, decreasing overhead costs.

- **Reduced System Downtime**

Through the utilization of real-time remote monitoring and predictive analytics, more opportunities are available to address issues both before and shortly after they occur, which in turn can reduce the downtime of the system.

### ► For system integrators:

- **Smaller Inventory Burden**

Integrated solution mitigates the inventory burden for SI's while 2-piece or 3-piece after-market solutions are needed for the desired system.

- **Smoother Learning Curve**

Integrated solutions decrease the design efforts (both installation and maintenance) implementing solutions with multiple sources.

- **Rugged Device Reliability**

The rugged design cuts the risk of surge caused by electromagnetic pulses produced by switching on and off various motors.



## NPort IAW5000A-6I/O Series

1/2-port RS-232/422/485 IEEE 802.11a/b/g/n wireless device server with 4 DIs and 2 DO

- Links any serial or Ethernet device to an IEEE 802.11a/b/g/n network
- Redundant dual DC power inputs and relay output supported
- Secures data access with WEP/WPA/WPA2
- MicroSD for configuration backup
- Wireless Client function for flexible integration
- 4 kV serial surge protection
- Serial device server with 4 DIs and 2 DOs



[Datasheet](#)

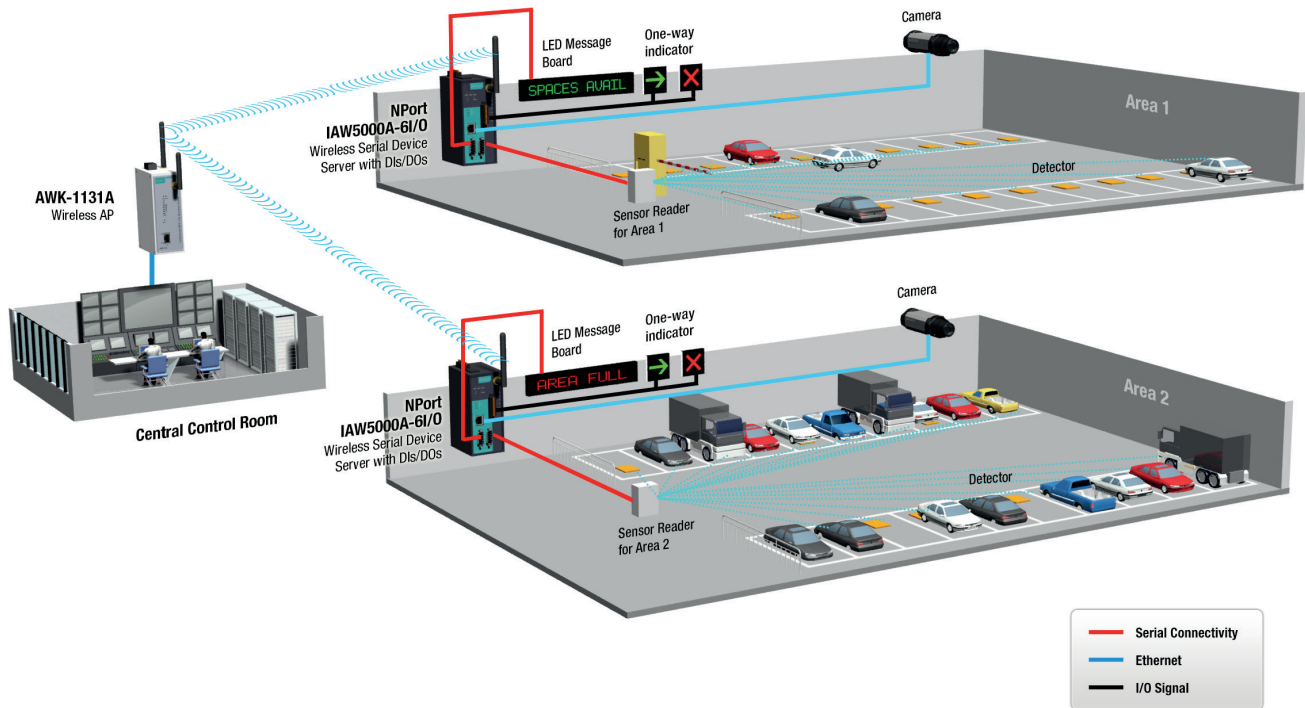
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# Taking the Frustration Out of Parking with Combo Serial Device Servers

## Overview

In most modern cities, the demand for parking spaces outnumbers the supply. Therefore, city governments are hard pressed to address motorists' frustration with parking issues. Although great strides have been made to inform motorists about the availability of empty parking spaces in automated parking lots via display screens, motorists' frustration still persists when it comes to finding those available spaces once they have entered the parking lot.



## Requirements

A state-of-the-art parking access control system with centralized monitoring is required to direct motorists quicker to an available parking space. Saving time and fuel is the main purpose behind the idea to give motorists the right information about available parking spaces.

## Solutions

A detector is installed in the back of each parking space, collecting parking status data in real time. This information is transmitted in a timely manner via a wireless network to a reader, and can be used to provide an application service such as a car-parking guidance system for motorists and for parking management

A reader is a device that registers data from a smart-parking space detector; it sends the data to the control center immediately when it receives the smart-parking space detector's data. As the reader's standard channel of communication is RS232/RS485, Moxa's NPort IAW5250A-6I/O serves as a serial-to-WiFi adaptor to connect the reader to the control center at the head office to show the available parking spaces on a display screen at parking lot entrances. With another serial port, area vacancy information can also be shown to motorists to prevent them from making a whole trip, only to find out there's no parking spaces available. The NPort IAW5250A-6I/O also provides flexible I/O interfaces for connecting field devices like one-way LED indicators, and an extra Ethernet port is also available for connecting IP-based devices like an IP camera for surveillance purposes.

# Taking the Frustration Out of Parking with Combo Serial Device Servers



## Results & Business Benefits

This solution not only saves time but also fuel that is wasted while driving in circles to find parking. It helps to contribute to a better environment by saving energy and producing less pollution.

- ▶ Integrated design makes solution clean and simple.
- ▶ Suitable for applications with a mix interfaces of devices as the NPort IAW5250A-6I/O combines three separate devices and their respective functions into one package: a wireless client, serial device server, and digital I/O.



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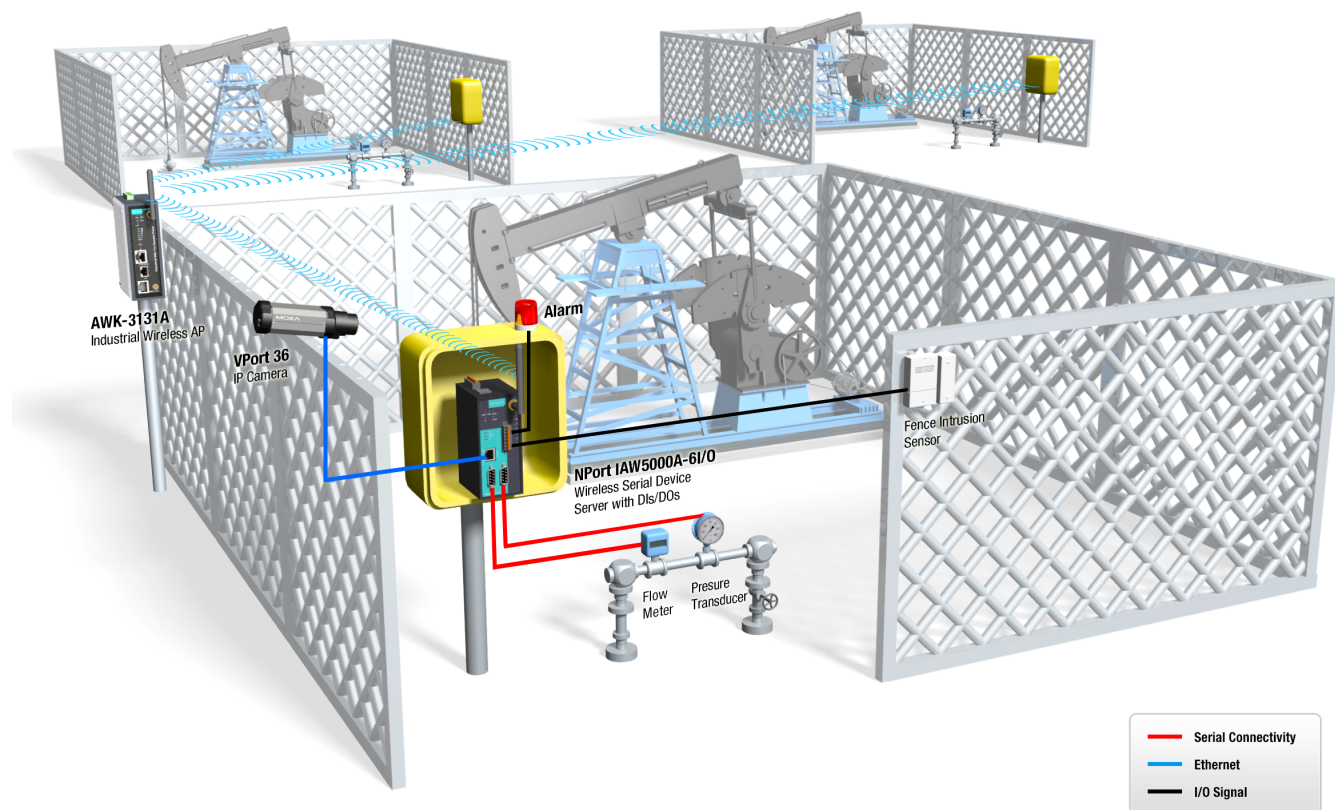
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# Connecting Legacy Devices for Remote Wireless Condition Monitoring

## Overview

Over the past few years, the oil and gas industry has embraced digital technologies on a large scale to increase production, reduce downtime, and lower costs. As these investments in digitalization are paying dividends, full-scale digital oil fields are fast becoming the new normal industry-wide. Wireless technology has certainly spearheaded this digitalization, improving communications especially in oil and gas fields that often span hundreds or even thousands of square miles across remote areas. One specific area where wireless technology is delivering optimal results in oil and gas fields is in wellheads. Because wellheads are scattered across oil and gas fields, adopting wireless network solutions to transmit and collect mission-critical data helps overcome the difficulties posed by wired connections.



## Requirements

- Connecting legacy devices to wireless networks
- I/O solutions to monitor field-site environments
- Seamless wireless connections
- 24/7 operational reliability
- Compact devices, supporting multiple interfaces, need to fit in limited spaces

## Solutions

The integrated design of Moxa's NPort IAW5250A-6I/O combines three separate devices and their respective functions into one package: a wireless client, serial device server, and digital I/O. Furthermore, the NPort IAW5250A-6I/O's compact design comes in especially handy in applications where space is limited, such as Other solutions include:

- Moxa's industrial wireless enables data aggregation in large oil fields
- Field communication devices integrate a variety of serial and IP-based oil-field equipment spanning large areas
- A web-based monitoring tool for easier setup and simplified maintenance

# Connecting Legacy Devices for Remote Wireless Condition Monitoring



## Results & Business Benefits

Reliable, high-capacity wireless networks can provide the oil and gas industry with:

- ▶ Reduced installation time and costs
- ▶ Increased system flexibility and scalability
- ▶ Real-time production monitoring and data aggregation
- ▶ Improved operational efficiency



### NPort IAW5000A-6I/O Series

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