



## From Data Silos to Seamless Insights: The GENESIS64™ Journey at Nagoya Works



### Project Info

#### Client

Mitsubishi Electric Corporation

#### Location

Nagoya, Aichi, Japan

### Introduction

In the ever-evolving landscape of the manufacturing industry, staying ahead of the curve is essential. As the world transitioned into the “new normal,” characterised by remote work and increased reliance on digital solutions, Mitsubishi Electric stepped up to address the challenges faced by its Nagoya Works facility. This case study showcases how the implementation of ICONICS GENESIS64™ SCADA software revolutionised the administration of energy infrastructure throughout the entire plant, offering real-time plant-wide visualisation, remote access capabilities, and improved operational efficiency.

### Background

The Nagoya Works, a Mitsubishi Electric flagship manufacturing facility for factory automation products, houses over thirty buildings dedicated to production, administration, and social service facilities. The critical infrastructure, providing electricity, air, and steam power to every corner of the works, demanded meticulous monitoring to ensure uninterrupted production.

The Environment Promotion Section of the Manufacturing Systems Division was tasked with monitoring and maintaining this intricate

infrastructure, preventing potential issues like production stoppages due to supply deficiencies or equipment breakdowns caused by overloads.

However, the existing approach of managing individual monitoring systems for various equipment proved time-consuming and inefficient. Collating and analysing data from separate systems demanded extensive man-hours, hampering the swift identification of equipment malfunctions and increasing downtime.

Additionally, updating system diagrams every time the configuration changed and the reliance on individual skills for understanding the data posed further challenges.

### Solution

Seeking a more unified approach, the Environment Promotion Section of the Manufacturing Systems Division at Nagoya Works took up the challenge of finding a solution. They envisioned a system that could provide real-time visualisation of the operating status of electrical substations, boilers, and other vital equipment while facilitating remote access capabilities. This led them to embrace ICONICS GENESIS64™ SCADA software.

The monitoring systems for every building and piece of equipment,



Numerous high-voltage transformers installed right across the Nagoya Works are monitored uniformly and operational data is presented in an easy-to-understand dashboard.

including those at two branch factories, are connected to the works-wide LAN via Programmable Logic Controllers (PLCs).

OPC UA servers collect operational information from diverse monitoring systems throughout the Nagoya Works and are visualised through GENESIS64™.

The software then generated visualisations with update intervals as little as 10 seconds, presenting power usage and equipment status systematically on a single screen. This significant enhancement eliminated the need to manually collate information from disparate monitoring systems and system maps, enabling real-time monitoring and administration from any internet browser-capable device. The equipment status can now be quickly understood without having to patrol the facility, which reduces downtime and improves productivity.

At the Nagoya Works, the system was introduced without having to implement any major changes, as the monitoring systems for all the equipment were made with PLCs. They are connected to the Works' network through an Ethernet module which communicates through the LAN to the equipment.

Only the steam boilers didn't have PLCs, as they used monitoring systems that were unique to their manufacturers. However, if you connect PLCs to those monitoring systems, you can monitor them with GENESIS64™ through Ethernet and the OPC UA server. The

OPC UA is the industry-standard interface for linking the networks on manufacturing sites with information networks. The advantage of this system is the degree of freedom it offers – so long as a piece of equipment is OPC UA-compatible, it can come from any manufacturer.



Connecting a Mitsubishi Electric PLC to a steam boiler manufacturer's dedicated monitoring system made it possible to easily collect data.



Because GENESIS64™ works online, it can be viewed on any internet browser-capable device whether it be a PC, a tablet, or smartphone.

### Enhancing Agility in Remote Work

The Environment Promotion Section previously had the ability to remotely administer some monitoring systems connected to the network. However, due to security concerns, they couldn't connect monitoring systems capable of controlling infrastructure equipment to the network.

With the introduction of GENESIS64™, infrastructure monitoring now allows data to be displayed from PLCs connected to the LAN on an internet browser, but it doesn't grant control capabilities. This means there's no need to log in to a PC-based monitoring system.

Using a VPN to connect to the LAN from offsite enables safe remote administration of infrastructure equipment.

Unexpectedly, the implementation of GENESIS64™ unlocked a new dimension of agility during the COVID-19 pandemic. As employees were encouraged to work remotely, the team within the Environment Promotion Section leveraged the software's remote monitoring capabilities to continue administering infrastructure equipment seamlessly. Thanks to the software's secure internet browser-based access, they could access critical data and instruct junior staff even from remote locations.

Moreover, the system enabled multiple people to view information simultaneously, allowing for collaborative decision-making and enhanced coordination.

Furthermore, the implementation of GENESIS64™ resulted in significant cost savings of approximately ¥1 million annually by simplifying and unifying the monitoring systems specific to each device.

The implementation of GENESIS64™ initially didn't anticipate the significance of remote working, but its capabilities now have added resilience to the operation.



Thanks to the ease with which the system can be used remotely, staff are able to quickly respond to the calls to shift to remote work due to the COVID-19 pandemic.



### Expanding Possibilities for the Future

The success of GENESIS64™ at Nagoya Works has inspired Mitsubishi Electric to envision a future where the software plays a pivotal role in achieving carbon neutrality in the manufacturing industry. The company aims to expand its capabilities further, monitoring energy usage for air-conditioning and lighting and ushering in an era of detailed energy administration.

ICONICS GENESIS64™ SCADA software has proven to be a game-changer for energy infrastructure management at the Nagoya Works facility. By unifying real-time visualisation and enabling remote access, the software has streamlined operations, reduced downtime, and improved productivity. Its seamless integration into the daily routines of employees, combined with its vision for a sustainable future, positions GENESIS64™ as the ultimate solution for modern manufacturing industries seeking to thrive in an ever-evolving world.

### Further Reading

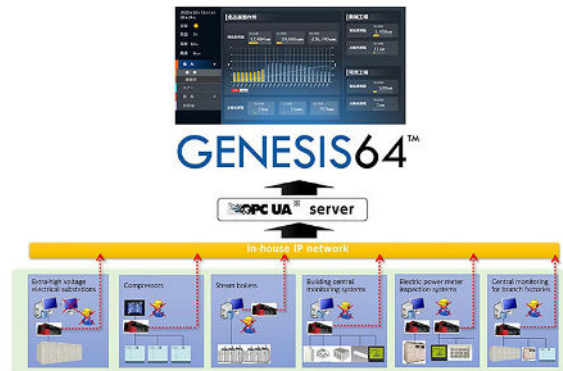
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Monitoring the energy infrastructure throughout the Nagoya Works using ICONICS GENESIS64™. The monitoring systems for every building and piece of equipment, including those at two branch factories, are connected to the works-wide LAN. The GENESIS64™ then creates visualisations based on the data collected.