

Connecting OT and IT infrastructure in manufacturing

One of the key challenges for today's businesses engaged in the process of digitalisation is connecting shop floor operational technology (OT) with IT infrastructure. From machine building to plant visualisation, automation, networking, robotics and data processing, Mitsubishi Electric's business activities, products, solutions and e-F@ctory Alliance partners can help to address this at.

New business models that improve how we design, build, sell and operate industrial services and machines are being created by improved connectivity between OT and IT.

The first step in optimising OT / IT connectivity is processing and using the large amount of data made available by shop floor equipment, such as sensors and PLCs. The new edge computing solutions from Mitsubishi Electric, the [MELIPC](#) series demonstrates both capabilities. It offers Edge computing functionality combined with OPC UA compatibility. Data can be pre-processed locally and aggregated to create valuable information locally and can seamlessly connect the shop floor with higher level IT systems such as MES and ERP platforms.

This capability enables machine builders to offer valuable services that can be adapted to suit many different IT environments and has already been demonstrated working with Oracle, SAP, IBM and Microsoft Azure. The technology can create competitive advantage by predicting maintenance requirements and identifying anomalies to improve productivity or simply improve the efficiency of existing equipment.

Another application utilising the advantages of OT/IT connectivity is a new web-based 'software as a service' (SaaS) predictive maintenance tool which is under development in conjunction with e-F@ctory Alliance partner [Schaeffler](#). It is planned to be launched during 2020. It has been made possible by the [e-F@ctory](#) concept which is comprised of the e-F@ctory Alliance Network and the knowledge that the partner network provides,

coupled with Mitsubishi Electric's expertise and experience with industrial automation.

The improved control and visualisation of manufacturing processes is another example where OT/IT crossover is in demand. Mitsubishi Electric's SCADA system, [MAPS](#) achieves this by collecting and aggregating production data for both shop floor use and IT management systems. The recent acquisition of ICONICS has extended the company's portfolio in this area and will be able to provide more value by exploiting the data even further.

Classic OT benefits and smart manufacturing aspects

The OT equipment offered by Mitsubishi Electric that is generating valuable data includes the latest [PLCs](#). For machine builders looking for increasingly compact control solutions, the MELSEC iQ-F PLC series offers fully integrated control from one small unit. At the opposite end of the scale the MELSEC iQ-R PLC series enables total control over a much larger machine, or a complete production line. Highly dynamic motion control for up to 264 axes of movement by the iQ-R is made possible using one single network, CC-Link IE TSN.

In addition to connectivity concepts for OT/IT and shop floor automation equipment, Mitsubishi Electric is also supporting humans with robotics that adapt safely to limited space on the shop floor. To enhance and extend human collaboration with robots Mitsubishi Electric has developed a new collaborative robot (cobot), the MELFA FR "[Assista](#)". The cobot is designed to offer maximum safety for close cooperation with humans, combined with added durability. It also allows for ease of use and programming while maintaining very high positional repeatability.

Linking the portfolio of OT automation products such as robotics and PLCs with IT systems is essential and requires a suitable network technology. This is why all new relevant products from Mitsubishi Electric Factory Automation launched during 2020 will be compatible with the latest [CC-Link IE TSN](#) gigabit Ethernet. It offers time-sensitive networking which allows all connected OT equipment to be fully synchronised, maximising production speed and efficiency while also taking advantage of seamless data exchange with IT infrastructure.

All new products, solutions and technologies will universally support digital transformation by providing improved connectivity between OT and IT systems. Enhanced by e-F@ctory Alliance partner innovations, this creates a harmonised portfolio for the realisation of smart manufacturing.

For more information visit: ie3a.mitsubishielectric.com



Image Caption: Increased competitiveness is enabled by the improved connectivity between OT and IT systems required for digital transformation, the realisation of which is supported by products and solutions from Mitsubishi Electric. [Source: Mitsubishi Electric Europe B.V.]

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About Mitsubishi Electric

With nearly 100 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, mobility and building technology, as well as heating, cooling and air-conditioning technology.

Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavours to be a global, leading green company, enriching society with technology.

With around 145,800 employees the company recorded consolidated group sales of 40.7 billion US Dollar* in the fiscal year ended March 31, 2019.

Our sales offices, research & development centres and manufacturing plants are located in over 30 countries.

Factory Automation EMEA

Mitsubishi Electric Europe B.V., Factory Automation EMEA has its European headquarters in Ratingen near Dusseldorf, Germany. It is a part of Mitsubishi Electric Europe B.V. that has been represented in Germany since 1978, a wholly owned subsidiary of Mitsubishi Electric Corporation, Japan.

The role of Factory Automation EMEA is to manage sales, service and support across its network of local branches and distributors throughout the EMEA region.

** At an exchange rate of 111 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2019*

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