

Optimised municipal water management by artificial intelligence

IFAT 2018, 14th –18th May 2018, Munich, Hall C1 / Stand 440

Process management, visualisation and control package Aquatoria® is delivering balanced water pressure across urban distribution networks, significantly improving water service levels, reducing leaks and lowering energy usage.

The ideal situation for any water utility operator is to provide a service as close to perfect as possible. This means each customer has a similar usage experience, operating costs are controlled, and maintenance requirements are minimal. The key to realising this type of operation is to apply automation technology to system equipment such as pumping stations and valves, then provide a control platform that optimises all those resources.

The entire automation process is part of a wider market requirement for increased digitalisation, resulting in better control and efficiency. Practically, this means connecting equipment over an intelligent network that then allows the addition of a software layer which can coordinate all the automated equipment. Smart devices such as inverters and PLCs together with a set of sensors provide the data and feedback required for a detailed visualisation of an entire network or system, and the ability to affect precise real-time control.

[Aquatoria®](#) from Mitsubishi Electric is already providing exactly these operational advantages. Developed specifically to meet key challenges facing the [water industry](#), it helps maintain optimum water quality while reducing the incidence of leaks by precisely controlling system pressure. It thereby improves operational efficiencies and delivers significant reductions in total cost of ownership for water utilities.

The software can be configured to identify inefficient equipment operation and can automatically optimise active pumping stations while controlling and managing pressure. This results in significant reductions in energy consumption. Harmonising pumping station operation with consumer demand means high peak pressures are avoided and less stress is transmitted through distribution equipment, resulting in fewer maintenance callouts.

Management and optimisation of the system is achieved using Artificial Intelligence (AI) functionality. The AI processing happens within the Adaptive Control module, which is one of six distinct software modules that make up Aquatoria®. Experience gained by application engineers shows that implementation of computational intelligence can produce better results when multiple variables are in play. A series of borehole pumps for example, feeding into one pipeline did not work well when controlled using fixed mathematical models, however harmonisation was achieved using fuzzy logic algorithms in Aquatoria® and delivered an average 15% energy saving.

Efficient management of the whole water distribution system is made possible when both water and process data flow concurrently to give a real-time picture. When it comes to optimisation of energy consumption,

leak detection or asset management, a perfectly structured communication system between facilities and the control room is a key element for distributed control systems. Automated monitoring processes and reporting also relieves water utility staff from monotonous manual analysis tasks, freeing them to look at pro-active improvements.

Providing a structure for those improvements, Aquatoria® offers a software platform based on Mitsubishi Electric [SCADA](#) which provides the robustness of a proven industrial automation tool with the flexibility to accommodate different application set-ups. From an operator point of view, information is presented on clear graphical user interfaces (GUIs) as well as control room displays that can be modified easily to represent changes to the infrastructure. The Geo module for example offers an interactive map that shows the geographic location of each facility, this helps the user to manage and control the sites, but also makes it easy to add or change the information presented on the display.

In addition to the Geo module and the AI based Adaptive Control module, there are four other software modules that are part of Aquatoria®. These include a Configuration module for adding and amending assets, and a Pumping Selection module that allows for manual intervention of each pumping asset to balance duty, efficiency and service-life. There is also an Analytics module used for alarm setting and general monitoring, which works with an Infrastructure Diagnostics module which checks and backs-up control parameters.

This solution is currently delivering the benefits described in several large municipal areas, it is also being demonstrated on the Mitsubishi Electric stand at IFAT 2018.

Note:

See how Mitsubishi Electric is able to address today's water management challenges:

eu3a.mitsubishielectric.com/fa/en/solutions/industries/water

Download the full Mitsubishi Electric IFAT 2018 press pack here:

www.dmaeuropagroup.com/ME_IFAT_2018

Image captions:



Image 1: Process automation control and visualisation package Aquatoria® supported by artificial intelligence functionality is delivering balanced water pressure across urban distribution networks, significantly improving services, reducing leaks and controlling energy usage.

[Source: Mitsubishi Electric Europe B.V.]



Image 2: Efficient management of the whole water distribution system is achieved when water and process data flow concurrently to give a real-time picture of all connected assets and their performance.

[Source: Mitsubishi Electric Europe B.V.]

The image(s) distributed with this press release are for Editorial use only and are subject to copyright. The image(s) may only be used to accompany the press release mentioned here, no other use is permitted.

Note to Editor: if you would like the text in another language please contact our PR agency: DMA Europa Ltd., Philip Howe, +44 (0)1562 748315, philip@dmaeuropa.com.

About Mitsubishi Electric

With over 95 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation is a recognised 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, as well as in products for the energy sector, transportation and building equipment.

With around 142,340 employees the company recorded consolidated group sales of Yen 4,431.1 billion (\$ 41.8 billion*) in the fiscal year that ended on March 31, 2018.

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

Factory Automation – European Business Group

Mitsubishi Electric Europe B.V., Factory Automation - European Business Group (FA-EBG) has its European headquarters in Ratingen near Dusseldorf, Germany. It is a part of Mitsubishi Electric Europe B.V., a wholly owned subsidiary of Mitsubishi Electric Corporation, Japan.

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

**Exchange rate 106 Yen = 1 US Dollars, last updated 31.03.2018 (Source: Tokyo Foreign Exchange Market)*

Further Information:

eu3a.mitsubishielectric.com/fa

Follow us on:



youtube.com/user/MitsubishiFAEU



twitter.com/MitsubishiFAEU

Press contact:

Mitsubishi Electric Europe B.V.

Factory Automation - European Business Group

Monika Torkel

Expert Marketing Communications

Mitsubishi-Electric-Platz 1

40882 Ratingen, Germany

Tel.: +49 (0)2102 486-2150

Fax: +49 (0)2102 486-7780

Monika.Torkel@meg.mee.com



PR agency:

DMA Europa Ltd.

Philip Howe

Europa Building, Arthur Drive, Hoo Farm Industrial

Estate, Kidderminster, Worcestershire, UK

Tel.: +44 (0)1562 751436

Fax: +44 (0)1562 748315

philip@dmaeuropa.com

www.dmaeuropa.com