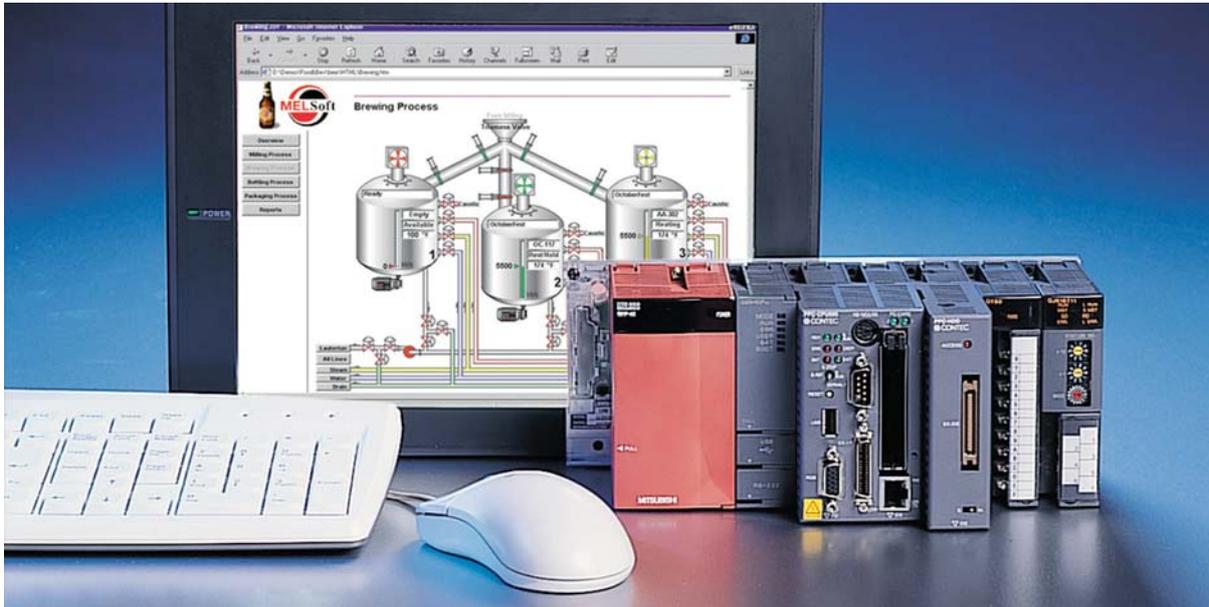


New WTW ‘clever’ addition to Island network setting ‘new standards’ for water distribution

Sulby Water Treatment, completed in the South East of the Isle of Man in Summer 2005, forms part of an island wide distributed network of clean and foul water facilities – a network being developed to help the island cope with the maritime climate, summer influx of holidaymakers and its own growing population – a network setting new standards for ‘intelligence’ in water distribution systems.



Mitsubishi Q-PC

courtesy: Mitsubishi

Sulby is almost unique within the project, as it was a green-field site rather than an upgrade or rebuild. As a result engineers were able to start with a blank sheet of paper on the drawing board and did not have to worry about legacy systems etc. The budget was tight, but rather than seeing this as a disadvantage it was taken as an opportunity to look at ways that technology could be used to pull out costs from both the initial build and the long term running.

The system developed by the technical team is based on the *Mitsubishi* MX4 SCADA top end which is networked to programmable logic controllers providing local control. MX4 is a modular visualisation software package, developed for use with automation systems and offers powerful integration, particularly when combined with Mitsubishi's System Q automation platform. The programme is powerful yet simple to use and provides detailed analyses and logging functions for all operating data. MX4 features “guaranteed zero downtime” which is achieved through innovative redundancy functionality implemented in the programme and duplex I/O server technology. Interconnectivity ensures that no data is lost in the event of a computer failure. MX4's modularity means that installed systems can easily be adapted and extended as the users' needs develop over time.

All of the PLCs at Sulby are from *Mitsubishi*, those communicating directly with the SCADA package being highly sophisticated Q series units. These feature multiple processors which can be rack mounted to produce PLCs that are bespoke to their actual applications. Industry is increasingly referring to this format of PLC by the new name of Programmable Automation Controller because it better reflects the enhanced capability compared to conventional PLCs.

There is a Q-series for each of the Intelligent Motor Control

Centres (IMCCs) at Sulby that between them control all the main and auxiliary pumps. They are each fitted with a Mitsubishi HMI (human machine interface) touchscreen from which local control is available, and many of the motors are fitted with intelligent starters or relays rather than being direct-on-line starting. The IMCCs were built by *Saftronics* in Leeds and shipped to the Isle of Man. Whilst the control equipment is in itself very high tech, it is simple for a systems integrator or service engineer working in the field to use. To enhance the ease of use, extensive use has been made of *Mitsubishi's* Melsec ST ‘slice I/O terminals.’ These are designed specifically for use in control systems where stopping the whole process is highly undesirable, if not impossible. With Melsec ST, it is possible to take a single pump off line while leaving the rest of the plant running. Alternatively, engineers can undertake inspection, service and maintenance on a section by section basis.

The modules or ‘slices’ are just 12.6mm wide and any number can be assembled into a head station to exactly match the requirements of the control system being built. The head station is designed so that power is supplied individually to each slice, which facilitates hot swapping and makes overall systems security very high.

The island wide network as an overall project is considerable in its scope and ambition, but when completed, it will give the island **one of the most sophisticated water supplies systems in the World.** *Merlin and Mitsubishi* will provide long term service support for the entire Isle of Man water network, including Sulby, so will be making extensive use of the ‘slice’ I/O in the coming years. Likewise the scalability of the MX4 SCADA will simplify future upgrades and expansion to the system. ■

Note: The Editor & Publishers thank Mitsubishi Electric for providing information contained in the above article.

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