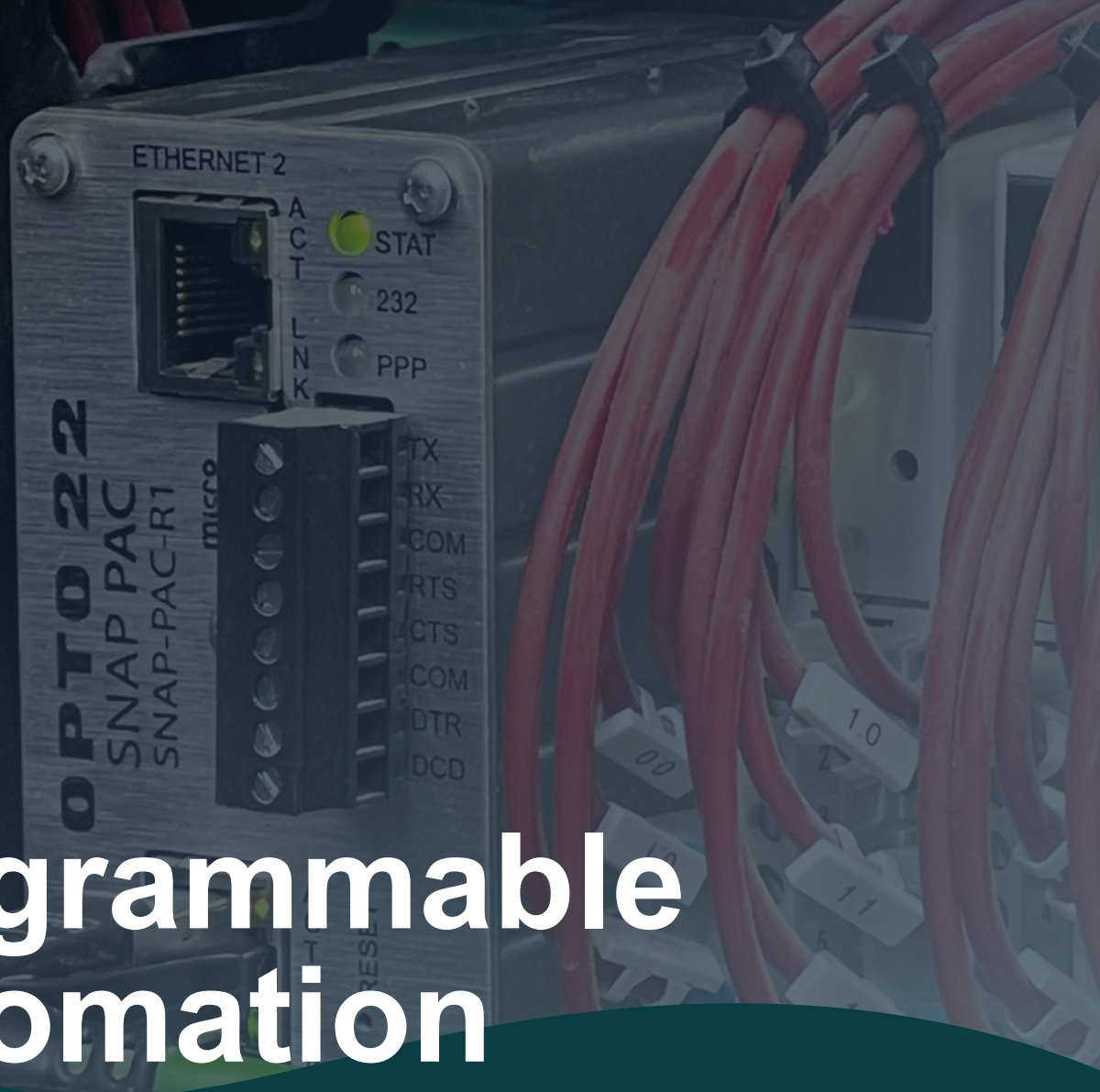


COMPLEX IDEAS. SIMPLE SOLUTIONS.



Programmable Automation

How the SNAP-PAC-R1 plays a pivotal role in the Micro-Malting process for Simpsons Malt.

Featuring

SNAP-PAC-R1 Programmable Automation Controller

System Devices UK Ltd created, in collaboration with Simpsons Malt the above case study entitled 'Programmable Automation' to showcase the SNAP-PAC-R1 from American Manufacturer Opto 22 to provide insight into how the SNAP-PAC-R1 plays a pivotal role within their micro-malting process.





Image: Simpsons Malt

How the SNAP-PAC-R1 plays a pivotal role in the micro-malting process for Simpsons Malt.

What started as an independent family run business more than 160 years ago, proudly remains that way today, driven forward by the fifth-generation of the Simpson family. Alongside their values towards producing high-quality malt, Simpsons Malt works closely with parties throughout the malting barley supply chain, operating with the steadfast belief that quality malt cannot be produced without quality malting barley.

With their story starting in 1862 in Northumberland, Simpsons Malt today operates two malting sites in Berwick-upon-Tweed, Northumberland and Tivetshall St Margaret, Norfolk, where their investment in technology and innovation allows them to meet the evolving demands of the distilling and brewing industries.

Perfecting the Art of Malting

Perfecting the art of malting has been at the core of Simpsons Malt for more than 160 years and their approach ensures exceptional quality and consistency. With the addition of their agricultural division, Simpsons Malt has a greater oversight when it comes to sourcing malting barley, as well as forging relationships with growers to ensure that only the highest-quality of grain reaches their premises.

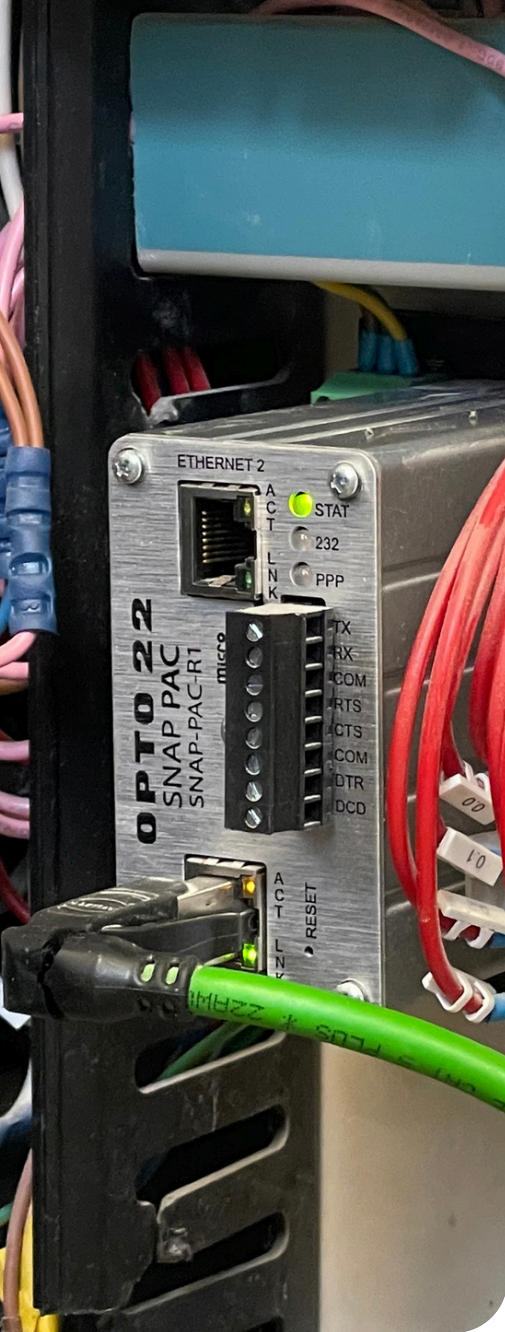
A critical component that serves Simpsons Malt during their micro-malting process is the Joe White Malting System. An exceptional piece of machinery in its own right, is controlled through the SNAP-PAC-R1 controller by Opto 22. Three fundamental processes take place within this machine: steeping, germination and kilning.

Steeping starts off the process and is often referred to as the 'active' phase. This is where the intake of grain is soaked, with the aim for each grain to achieve the same moisture content at the exact same time to trigger the beginning of stage two: the germination process. The germination process is a time-laboured phase that lasts no less than a four-day period. During this time, the aim is to alter the genetic makeup of the grains by breaking down the cell walls, protein composition and starch granules. By using Opto 22 and creating a dashboard, Simpsons Malt are able to set, adjust

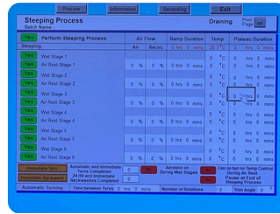
and control temperature values, as well as other variables, critical to ensuring perfect conditioning. The last stage is the kilning process. Within the kilning process, the embryo is killed and the endosperm of the grains are stabilised, which results in the remains of viable enzymes. For brewers and distillers, this can be used in the mashing process. The cycle time of the kilning phase can vary between 20-24 hours, which if manual, would result in the need for careful planning of resources, as well as methodical human intervention.



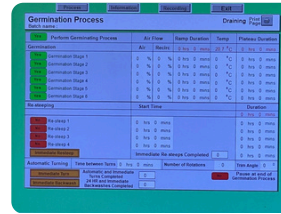
Image: Joe White Malting System



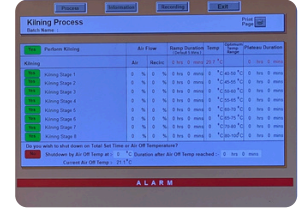
Steeping



Germination



Kilning



Thanks to a visual dashboard through programming software, Simpsons Malt are able to see data and activity in real-time. The above images taken on-site at Berwick-upon-Tweed, showcase the three aforementioned processes undertaken with the Joe White Malting System and use of Opto 22 as a controller. With ease, any adjustment to temperature, duration variables, as well as the interjection of new air, as well as recirculated air can be made, monitored and recorded.

Control you can trust

What once would have been a labour intensive process, with meticulous manual intervention and planning, now runs independently without supervision thanks to the addition of the SNAP-PAC-R1 programmable automation controller from American manufacturer Opto 22.

Part of the SNAP PAC System™ family, the SNAP-PAC-R1 is a rack-mounted, industrially hardened control unit that can exercise multiple tasks that involve both digital and analog control. As well as serial string handling, communication and connectivity. The SNAP-PAC-R1 provides powerful, real-time control that allows users to control, monitor, understand their acquired data as well as exchange any needs.

The SNAP PAC R-Series controllers are well positioned to process control, discrete manufacturing and a diverse array of both industries and applications. As the SNAP-PAC-R1 is an Ethernet-based SNAP PAC controller it comes included with PAC Project Basic which allows the controller to specifically run control programs written in Opto 22's PAC Control™ software.

Conclusion

The SNAP-PAC-R1 positions itself as a versatile controller, capable of providing control, communication and i/o processing all within a compact, yet powerful unit. What makes the controller a force within industrial control is that despite its size, this Ethernet-based controller can handle almost all levels of industrial control, remote monitoring and cater to your data acquisition needs.

Duncan Myhill, Group Electrical & Automation Manager, said

"The Opto 22 SNAP-PAC-R1 has proven to be a robust and reliable addition to our automation infrastructure. It has enabled us to operate our micromalting machinery with a high degree of consistency and confidence, supporting efficient day-to-day operations and providing us with long-term reliability."

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