

# Xylem's Wedeco OptiDetect safeguards Cambridge Water systems

When operating a drinking water ultraviolet (UV) disinfection system, it is important that a lamp failure is quickly distinguished from a quartz sleeve rupture. Cambridge Water recently took action to ensure this determination can be made within one second at its Hinxton Grange groundwater pumping station.

Cambridge Water is a water supply utility company serving Cambridge and the surrounding area in the UK. Cambridge Water supplies high-quality drinking water to approximately 351,000 customers, from Cambridge, extending to Ramsey in the north, Gamlingay in the west, Balsham in the east and Melbourn in the south.

## Challenge

Cambridge Water has invested in Xylem Wedeco UV drinking water reactors across several sites. The first Wedeco drinking water reactors were installed in 2015 and additional reactors have continued to be added to Cambridge Water's asset list.

A crucial part of these UV systems is their quartz sleeves. They allow the water to flow around the UV lamps while these are emitting UV-C light into the system's stainless steel disinfection chamber. If a quartz sleeve ruptures it can cause damage to the UV lamp and other electrical system components and present the imminent potential of shards or materials flowing through downstream pipework.

In order to further protect its customers' drinking water and comply with the latest WIMES and DWI disinfection regulations, Cambridge Water needed to differentiate between the alarms for "quartz sleeve failure" and "UV lamp failure" at its Hinxton Grange facility, thereby allowing operators to take decisive and immediate action in the event of a problem.

**COUNTRY:** United Kingdom  
**CUSTOMER:** Cambridge Water  
**APPLICATION:** Water treatment  
**SOLUTION:** Wedeco OptiDetect system



"The installed OptiDetect system is an excellent enhancement of our ability to monitor UV performance. The system was easy to retrofit to the existing UV unit and has proved itself to be very reliable."

Mark Berry (Operations Manager)

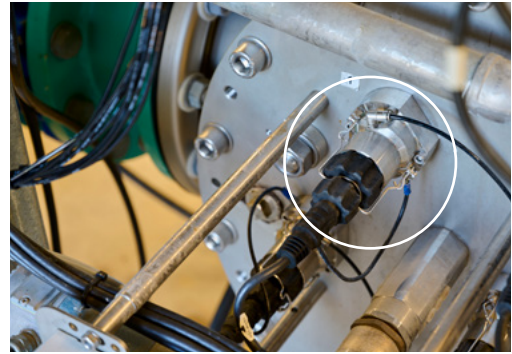
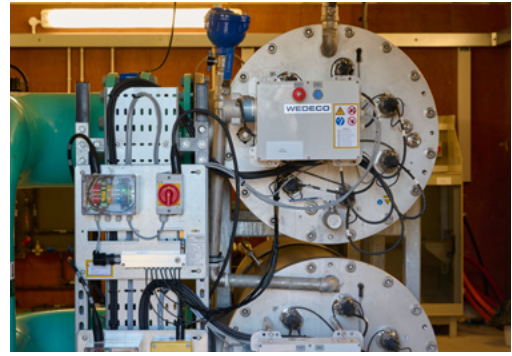
## Solution

Cambridge Water elected to retrofit a Wedeco OptiDetect system at its Hinxton Grange groundwater pumping station to improve process resiliency to the highest and safest levels. Triggered by any pressure change inside the sleeve in the event of a rupture, OptiDetect will send an alert message within one second to the UV system's network control system - providing round-the-clock quartz sleeve breakage safety, even at zero-flow conditions.

The OptiDetect system can be easily retrofitted to a wide range of Wedeco closed vessel drinking water systems regardless of lamp orientation, allowing for maximum versatility. The detector is part of a separate control loop independent from the UV system's electrical cabinet. This allows for the reactor to be completely shut down or for maintenance work to be done on the electrical cabinets, and still keep the system and downstream pipes protected.

## Results & Customer Benefits

Whether the UV system is in operation or in stand-by mode, this quick reaction alert will allow Cambridge Water to take immediate action to protect the UV system and other assets downstream in the treatment system. The OptiDetect solution enables Cambridge Water to prevent any material flowing through the pipework, thus allowing further compliance and protection of their customers' drinking water supplies.



Any change in pressure will be detected by a small connector to the individual quartz sleeve.

**“The ability to retrofit a glass breakage detection system on existing assets makes perfect commercial sense”**

James Gross (Capital Process Risk Manager)