



Fiber: Ensuring Leading-Edge Environmental Controls at New Pfizer Lab

A Case Study

Few places in the world require stricter controls over temperature and other environmental factors than the laboratories where pharmaceutical products are researched, developed and tested. A power outage, even a sudden or prolonged temperature change, could alter the results of the sensitive chemical and biological processes that help create new drugs and other health products.

That's why Pfizer, a research-based, global pharmaceutical company that has developed some of the world's breakthrough drug treatments, is relying on fiber optic technology to carefully control the building and environmental management system (BEMS) at its new research laboratory at Sandwich in Kent, England. One of the biggest single research and development investments into the UK by any company, Pfizer's expansion of its drugs research facility further positions the UK as a world pharmaceutical center.

The BEMS for the newly constructed 500,000 square feet facility will work off a 2,500 meter fiber optic backbone using 43 routers made by Control-By-Light[™], a worldwide leader in the development of ultra-reliable, fault-tolerant fiber-based solutions for building controls as well as security, access control and other automated functions. TAC (UK) Limited., the BEMS contractor for the Pfizer project, will use CBL routers supplied by UK firm Liberty Control Networks to link the fiber optic backbone with a LonWorks® system to precisely control environmental conditions such as temperature, humidity and air pressure, all of which are crucial to pharmaceutical production and research.

"The use of CBL's fiber optic routers is the ideal solution for an infrastructure project involving a large facility with a need for complex, precise and secure BEMS controls", said Allan Gould, engineering manager for TAC (UK) Limited, the British arm of a large building controls firm based in Sweden. Pfizer engineers wanted to use fiber to make the building "as future-proof as possible" – meaning a system that can be easily expanded and adapted as new technology becomes available, Gould said.

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Control-By-Light is the only complete fiber-based solution for Echelon's LonWorks distributed sensing and control technology. Fiber is an intrinsically safe and highly reliable medium. It efficiently transmits critical information via light rather than electricity, and is immune to electromagnetic interference, power failures and lightning surges. Fiber also has a higher bandwidth than copper wire-based systems and can transmit and receive clear and ultra-reliable data communication for longer distances, up to 30 km without repeaters. CBL's FTR Fiber Optic/Twisted Pair Routers are being used to create links and backbones that connect copper-based systems or fiber-based systems to the fiber optic backbone. Plus, they're simple to install and will run right out of the box.

Control-By-Light components also feature built-in ring redundancy and signal level monitoring on every link. For maximum performance and reliability, Control-By-Light systems are configured to operate in a "ring," whereas most wire-based systems operate linearly. The system's "ring architecture" connects smart sensors and actuators with CBL's single fiber networks, ensuring a continuous redundant information path with extensive built-in diagnostics. As a result, critical data always will be captured and communicated over longer distances, without repeaters, despite localized failure of any link.

The CBL and LonWorks system will control a BEMS system created and manufactured by TAC, which is one of the world's largest specialists in BEMS controls and integration. TAC installs state-of-the-art controls in new hospitals, universities and other construction projects and also retrofits older structures, including Building No. 1 of the Kremlin in Moscow.

The new Pfizer plant is part of a major expansion of the headquarters complex of Pfizer UK, Ltd. Pfizer, which just celebrated its 150th anniversary, has experienced tremendous success in the past decade, launching 11 major products, including Norvasc, the world's leading medicine for the treatment of hypertension and angina; Zoloft, one of the world's leading anti-depressants; Zithromax, the most prescribed brand-name oral antibiotic in the U.S, and Viagra, the most famous and fastest selling drug in the world.

The company credits much of its success to the quality of its research and development capabilities. The R&D work in Sandwich helped to develop three of Pfizer's best-selling drugs, including Viagra. Part of the new facility in Sandwich, which employs 3,500 people, will support a second production line for Viagra.

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