

Magnum Industrial Switches and Hubs Network Municipal Wastewater Treatment Plants in Springfield, Missouri

An Industrial Ethernet Application

TECHNOLOGY TODAY

The advantages of Ethernet, especially when using fiber-based media, are becoming more and more obvious to industrial markets. Fiber is capable of supporting longer distances, is EMI- and RFI-immune, and provides bandwidth “future-proofing” to 1 Gb and beyond. When networking within and between utility plants, fiber-based Ethernet offers an indisputable advantage.

ABOUT SPRINGFIELD’S WASTEWATER TREATMENT PLANTS

The City of Springfield Missouri maintains two Wastewater Treatment Plants. The water treatment plants are 24x7 operations that together collect and treat 39 million gallons of wastewater generated daily by the citizens of Springfield and Greene County. The Southwest Plant is the larger of the two, with a capacity to treat up to 42.5 million gallons per day. The Northwest Plant can treat up to 6.4 million gallons per day.

THE CHALLENGE

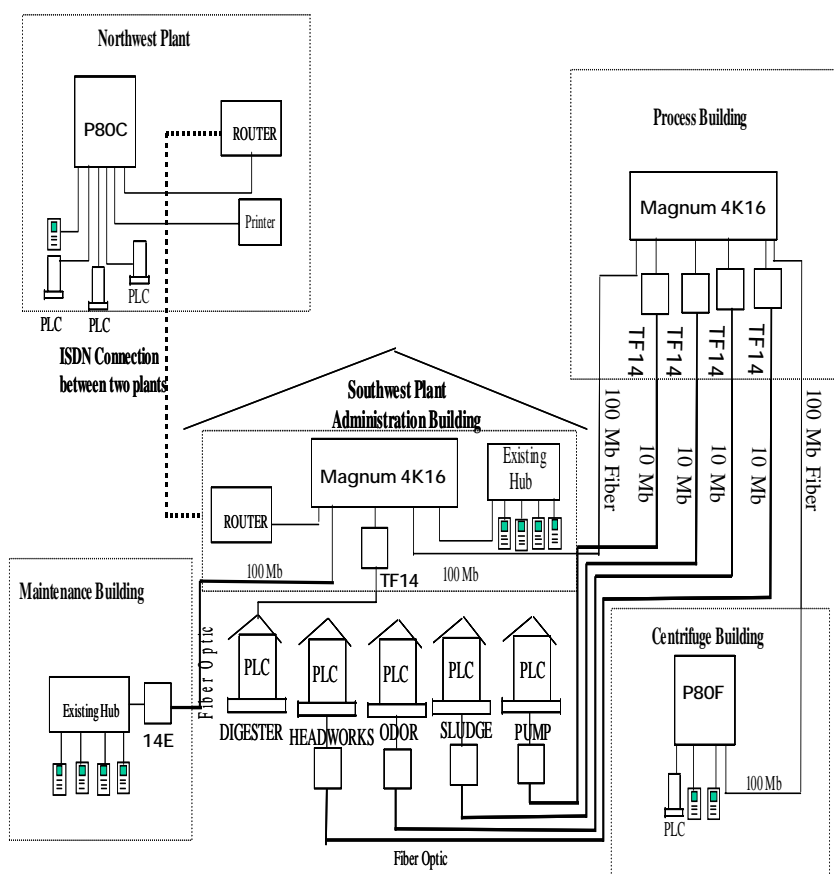
The Wastewater Treatment Plants needed to expand their SCADA systems. Only two buildings on the nine-building Southwest Plant site had in-building networks, and none of the buildings were interlinked. In addition, there was no network link between the Southwest and Northwest Plants, and the city’s plans called for a more integrated system.

The objective was to create a network that incorporated existing equipment and ensured that expandable technology and bandwidth were available for future growth. Fiber was required because it was easier to deploy through the plant – and it offered both immunity to EMI and RFI, and eliminated ground current loops.

THE SOLUTION

The Southwest Wastewater Treatment Plant contacted R. E. Pedrotti Co., Mission, Kansas, to assist in designing a solution. The Pedrotti company has been providing total packages for water and wastewater treatment plants for more than 25 years.

The Pedrotti company explored existing products for industrial environments and recommended the GarrettCom Magnum Ethernet product line. The breadth of the Magnum products and their built-in fiber ports reduced the requirement for extensive numbers of media converters to connect existing copper-media equipment.



All Cabling Among Buildings at Southwest Plant is Fiber.

Wastewater Treatment Plant

City of Springfield, Missouri

THE RESULT

Flexible Magnum 4K16 Switches allow per-port assignment of 10 or 100 Mb bandwidth with a combination of RJ-45 and fiber ports. The 4K16 Switches easily accommodate migration of PLCs in outlying sites from 10 to 100 Mb performance as required. The compact Magnum 14E and TF14 Media Converters are easily installed to enable fiber connection with other buildings on the site.

A Magnum P80F 8-port 10/100 Mb Personal Switch is installed in the Centrifuge Building where both a management system and a PLC required connection to the network. The built-in 100 Mb fiber port supports a link to the Magnum 4K16 in the Process Building).

The Magnum P80C Personal Switch at the Northwest Wastewater Treatment Plant combines the convenience of a fiber uplink via ISDN line to the Southwest Plant with the performance of switched 10/100 copper ports for LAN connections within the plant.

By connecting the two plants and making all data collected available at any computer terminal within the system, the City of Springfield could reduce maintenance personnel, allowing the Northwest Plant to be unmanned for longer periods of time, and conversely, allowing personnel at the Northwest Plant to assist with the Southwest Plant as required.

ABOUT MAGNUM 4K-SERIES SWITCHES

Magnum 4K-Series Switches are NEBS and ETSI-Certified, and provide convenient increments of 10/100 Mb RJ-45 ports to meet configuration requirements, as well as two optional configurable 100 Mb fiber ports. Designed for flexibility, these rack-mount units may be configured "forward" (ports and LEDs front) or "reverse" (cables in rear, LEDs in front). Low EMI and a MTBF of more than 5 years allow these units to be deployed with confidence in sensitive, high-availability applications.

ABOUT P80 10/100 Mb SWITCHES

Magnum P80 10/100 Mb Personal Switches provide the performance of a switched 100 Mb fiber uplink with the convenience of dual-speed copper ports. These compact (1.25" x 6.75" x 5.0") switches can be daisy-chained together for easy and cost-effective expansion eliminating the need for media converters.

ABOUT GARRETTCOM

GarrettCom, Inc., is the leading manufacturer of industrial and carrier-class Ethernet LAN products. GarrettCom offers a comprehensive line of NEBS and ETSI-Certified switches and hubs for use in telecommunications, industrial, military COTS, and outdoor environments. GarrettCom markets its products through a network of resellers, OEMs, system integrators, and distributors worldwide. For more information on GarrettCom and its Magnum products, visit www.GarrettCom.com.

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