

Industrial Fiber Optic Networking

For Factory Automation and Process Control

Alliances

Weed Instrument works closely with the leading PLC manufacturers to ensure that our fiber optic modems interface properly with their products. We are members of Rockwell Automation's Encompass program, GE-Fanuc's Accompany program, and Schneider Electric's Alliances.

PLC Manufacturer Programs



Water Treatment Applications



Corporate Profile

Weed Instrument Company is a leading supplier of instrumentation and power control applications. Through constant innovation, the company is a leading supplier of accurate and reliable sensing devices and data communication environments. Sensing products include temperature sensors, switches, and a wide range of fiber optic and custom products, and provides field service instrumentation, and control applications.



The Fiber Optic division of Weed Instrument was established in 1991 through acquisition of two pioneering companies in the application of fiber optic technology to the industrial market, EOTec (from 3M) and APEC. Both companies had over ten years of experience in providing fiber optic solutions specific to factory automation and process control. Weed Instrument is continuing this pioneering spirit through such achievements as being the first company to receive FM Approval for fiber optic based products in hazardous areas and developing new technologies such as bi-directional communications over a single fiber.

Our staff is comprised of individuals from the I&C industry, and has a good understanding of the needs and problems specific to industrial applications. We provide complete systems product support including conceptual design, design engineering, manufacturing, testing, field installation, maintenance and calibration. Currently, Weed Instrument Company has manufacturing, testing and engineering facilities located in Round Rock, Texas.

Fiber Optic Products

- PLC Modems
- Ethernet Connectivity
- Multiplexers
- Analog/Digital Links
- Training/Service



ISO 9001 Certified



EOTec

Fiber optic products are available immediately from stock.

Fiber Optic Systems for Water Treatment Plants

Fiber Optics in Water Treatment Plants

Fiber optic communication systems are particularly suitable for all types of water treatment facilities. These facilities are typically located on large land areas where control systems and components are scattered over long distances from central control areas. These components are also usually located in relatively open areas, exposed to problems such as lightning, EMI/RFI interference, and breakage.

A fiber optic communication system can greatly extend the effective reach of controller networks, as well as allowing for the unique advantages of fiber optic transmission.

Customers in Water/Wastewater Industry

Orange County Sanitation District, Fountain View, CA
 Los Angeles G.W.R.P., Los Angeles, CA
 Central Contra Costa Sanitary District, Martinez, CA
 Contra Costa Electric, Bakersfield, CA
 City of Simi Valley, Simi Valley, CA
 Alameda County Water District, Fremont, CA
 Las Virgenes Municipal Water, Calabasas, CA
 Rancho California Water District, Temecula, CA
 South Regional Waste Water Treatment Plant, Hollywood, FL
 City of Orlando, Orlando, FL
 Deerfield Beach Water Dept., Deerfield Beech, FL
 JEA, Jacksonville, FL
 Town of Jupiter Utilities, Jupiter, FL
 Bureau of Reclamation, Estes Park, CO
 Chamber Creek WWTP, Tacoma, WA
 City of Olympia, Olympia, WA
 British Columbia Hydro, Hudson's Hope, B.C. Canada
 City of Manchester, Manchester, GA
 City Water Light and Power, Springfield, IL
 City of Austin, Davis Water Treatment Plant, Austin, TX
 Walworth County Metro Sewage District, Delavan, WI
 Wisconsin Public Service Corp., Green Bay, WI

Project Example



Major Wastewater Treatment facility

- More than 250 million gallons of wastewater treated every day
- Several hundred EOTec fiber optic modems help control all aspects of plant operation
 - All primary basin functions
 - Communications to Aux Pump Stations outside the plant
 - Communications to areas beyond the distance limitations of the PLC system network protocol
- Self-Healing fiber optic ring networks ensure network reliability in adverse conditions, such as lightning strikes or accidental cable breaks
 - High speed switching prevents data corruption when signals are rerouted due to network failure
 - Failure area can be pinpointed by monitoring status of Self-Healing Ring system through the PLCs



EOTec 6000 Modems installed in Control Room rack system

Typical Fiber Equipment for Water Treatment Plants

Fiber Optic Modems

- Convert network protocols into digital fiber signals
- Compatible with PLC and Ethernet networks
- Allow for much longer cable runs (x10)
- Protection from adverse conditions
- Redundant self-healing networks
- Dual power supply
- Hot - swappable
- Integrated backplane
- -40 to 85°C operation



Analog Data Links

- Transmit 4-20mA or 0-10VDC signals over fiber cable
- No calibration required
- Long cable runs
- Protection from adverse conditions
- 0.1% Accuracy over entire operational temperature range and distance



Digital Data Links - Contact Closure

- Transmit contact closure signals over fiber cable
- Activates SPDT relay
- -40 to 85°C operation



Multiplexers

- Transmit RS-232, 0-20mA analog, or dry-contact signals over fiber cable
- Bi-directional 4-channel multiplexed signals
- Rugged housings for outdoor installations



Modular expandable fiber optic system for water treatment networks

Extended temperature range (-40 to 85°C) for harsh applications

Class I, Div 2 hazardous locations (selected models)

CE and UL approvals

35mm DIN-Rail mounting for compact efficient design with smaller space and less power

Hot-Swappable, bus compatible Redundant Power Supplies with diagnostic outputs to eliminate single point of failure, reducing the risk of significant costly system down-time

Power Supplies	Electrical Interface Modules	Optical Interface Modules	Ethernet Connectivity
Power supplies for AC or DC power sources.	Electrical Interface modules compatible with all major communications standards	Cascade up to five optical engines on one power supply to achieve the popular STAR topology	Ethernet to Fiber Media Conversions, Hubs, Switches

Pluggable Screw Terminals or industry standard connectors for all copper cable connections

Inter-module communications achieved via an integrated BUS-System, no external wiring

Patented Self-Healing Ring module provides a "NO DATA LOSS" media redundancy solution for highly reliable communications

System diagnostic indicators for continuous monitoring during operation

Continuous 4-20mA optical diagnostic output

Status indicators for functional optic/wire links and link activity indication

Lightweight interchangeable modules facilitate custom configurations, easy expansion and reconfiguration

Optical and Electrical compatibility with EOTec 6000 modems

Network Topology capabilities beyond the limitations of wire-cable including Point-to-Point, Daisy Chain, Star and Self-Healing Ring