



# Metrolina Greenhouses

## Designed for Success

### Results

- Substantial time and cost savings
- Increased productivity
- Better control over growing environment
- Mobility
- Quick and easy to configure and use
- No retraining required for mobile CIMPLICITY interface
- Easy to modify system parameters on the fly
- User-friendly graphical interface

*"I have used many different vendors' automation hardware and software over the years, and I find that GE Fanuc's controls are by far the quickest and easiest to program and use."*

**William (Bill) Durkee**  
Maintenance Engineering  
Metrolina Greenhouses

## GE Fanuc's Ethernet-Based Control System Is in Full Bloom at Metrolina Greenhouses

Houseplants and flowers bring a sense of peace and relaxation to their owners. For the greenhouses responsible for supplying the likes of WalMart, Lowes, and Home Depot, however, the process of growing the quantity of flora needed for these retailing giants can be anything but relaxing. With the help of a state-of-the-art automated watering system designed by Metrolina Greenhouse's Bill Durkee, supplied by CIMTEC, and controlled by GE Fanuc Automation's Series 90™-30 PLCs and CIMPLICITY®\* production management software running on both wired and wireless Ethernet, growers at Metrolina Greenhouses can take a little more time to stop and smell the roses.

### "Plant"wide Automation

With 3,200,00 square feet (80 acres) of total heated greenhouse production space, Huntersville, NC-based Metrolina is one of the largest single-location greenhouses in the United States. "Greenhouses are measured in terms of plants per square foot, and the more plants you can grow in a small space, the more money you make," says Bill Durkee, Maintenance Engineering. Metrolina uses a series of 500-foot long overhead cage systems—each of which holds about 12,000 hanging basket-type plants—to maximize their growing space. Having resolved the space issue, Durkee sought a reliable and consistent method of controlling the movement of the cages and the greenhouses' different watering systems: drip watering through the plant baskets, sprinklers, and booming "rain" overhead watering for propagation of plants on the floor. He turned to CIMTEC, a Charlotte,



\* Part of Proficy Intelligent Production Solutions from GE Fanuc.

NC-based supplier of automation and process control products, solutions, and support services, for help.

Durkee designed and built a control system based on a GE Fanuc Series 90-30 PLC platform. Approximately 35 PLCs located in a 30-acre area of the greenhouse, known as the MX, monitor and control between 20 to 30 I/O points each on the overhead cages and about 480 control valves on the floor watering system. The PLCs are connected via a fiber-optic Ethernet backbone. Four fiber-optic hubs connected to two GE Fanuc Display Stations running numerous CIMPLICITY servers split control of the MX. The fiber optics run through water hoses that feed the cages 25 feet in the air, keeping the cables out of the growers' way.

CIMPLICITY's robust feature set helps Metrolina maintain optimal growing conditions. Using the Action Calendar, for example, growers can select not only when and how plants are watered, they can also move the cage based on sunlight during the day and control grow lights to extend the day at night.

#### Grow Your Own Way

The fiber-optic cables may not get in their way, but the time it was taking growers to travel back and forth to each CIMPLICITY server to control the automation was getting in the way of productivity. Growers regularly travel 12 miles per day throughout the massive greenhouses, and nearly a third of this time was spent turning the controls on and off. As a result, CIMTEC recently implemented the



mobile CIMPLICITY PalmView solution using GE Fanuc ThinView running on Compaq iPAQ PDAs. Wireless access points from GE Fanuc allow the growers to program, use, and maintain the automation system from any device and from any location within the 30-acre MX greenhouse. Screens from CIMPLICITY were easily imported to the handheld units, alleviating the need for the growers to invest time and effort into relearning any of the controls. They have taken to the wireless control system like kudzu has taken to the Southeastern soil.

"When we handed the new PDA to one of the growers, he just took off, and I didn't see him again for the rest of the day," says Andy Ebert, Account Manager at CIMTEC. "This has proven to be a tremendous productivity tool for Metrolina.

"Metrolina has benefited in so many ways from this system, including substantial time and cost savings, better control over their growing environment, and the ability to change or add automation components and parameters on the fly," Ebert continues. "Since they all have extensive control and monitoring requirements, any greenhouse could realize similar benefits from an automated system like Metrolina's—but I have never seen another greenhouse put automation to work for them like this." Metrolina's Durkee concurs. "When other people in my industry see the level of automation I have here, they are amazed."

#### GE Fanuc Automation Information Centers

USA and the Americas:  
1- 800-GE FANUC  
or (434) 978-5100

Europe, Middle East and Africa:  
(352) 727979-1

Asia Pacific:  
86-21-3222-4555

#### Additional Resources

For more information, please visit the GE Fanuc web site at:

[www.gefanuc.com](http://www.gefanuc.com)

