

SCADA Solutions Since 1981



DECADES OF RELIABLE SERVICE

Who is DFS

Data Flow Systems, Inc. (DFS) was established in 1981 to manufacture SCADA solutions specifically for water and wastewater utility applications. DFS has gained national recognition for its durable and obsolescence-proof TAC II SCADA System, as well as its technical capabilities and guaranteed radio links.

Today, DFS is recognized as an industry leader, providing remote monitoring and control for remote facilities, and water & wastewater treatment plant automation systems. Our patented product, "Symphony – Harmonious Pump & Flow Management" has been proven to significantly reduce lift station pump run times and pumping energy costs.

The TAC II SCADA System is MADE IN THE USA. The Company's corporate headquarters is located in Melbourne, Florida and consists of a 30,843 square foot facility encompassing sales, engineering, radio study and FCC licensing, customer service, product manufacturing, a certified UL panel shop, and stock warehousing. We currently employ nearly 100 full-time employees – all dedicated to water and wastewater SCADA systems and applications.



Why Consider DFS

Our combination of design, manufacturing, system commissioning, and technical service allows DFS to offer complete SCADA solutions. We place emphasis on developing a good long-term partnership with each end-user. At the present time there are over 400 TAC II SCADA Systems with more than 25,000 RTUs installed and operational throughout the United States. DFS' TAC II SCADA System installation base ranges from small Water Control Districts to large WW Collection Systems, and Automated Plant Control Systems. Our single largest user currently has over 950 DFS RTUs for the monitor and control of their sewer lift stations. No matter the size or complexity of the project, we are your SCADA solution provider!

- ◆ NUMEROUS INSTALLATIONS THAT HAVE BEEN IN CONTINUOUS OPERATION FOR OVER 25 YEARS.
- ◆ BOTH IN-PLANT AND REMOTE SCADA SOLUTIONS, AND PROCESS AUTOMATION CAPABILITIES.
- ◆ FASTEST AND MOST DURABLE SCADA SYSTEM IN THE INDUSTRY TODAY.
- ◆ MOST USER-FRIENDLY SCADA HARDWARE AND SOFTWARE THAT YOU WILL FIND.
- ◆ UNPARALLELED CUSTOMER SUPPORT. WE WANT YOU TO KNOW YOUR SYSTEM AS WELL AS WE DO.
- ◆ DFS OFFERS CONTINUOUS TRAINING PROGRAMS TO ADDRESS EVERY ASPECT OF THE SYSTEM.
- ◆ WE EVEN OFFER SCADA AS A SERVICE THAT INCLUDES A COMPLETE SCADA SYSTEM FOR A LOW MONTHLY FEE.

DON'T OVERLOOK THESE MONEY SAVING HIGHLIGHTS:

- ◆ NO ANNUAL USER FEES. NO SCADA SOFTWARE LICENSE FEES. NO REQUIRED MAINTENANCE CONTRACTS!
- ◆ LIFETIME SCADA SOFTWARE WARRANTY WITH NO CHARGE REVISIONS AND UPDATES.
- ◆ FREE TECHNICAL SUPPORT AVAILABLE TO USERS FOR THE LIFE OF THE SCADA SYSTEM.
- ◆ VPN ACCESS PERMITS DFS TO PROVIDE NO-CHARGE REMOTE TROUBLESHOOTING AND SUPPORT.
- ◆ AMAZING 3-YEAR RTU HARDWARE WARRANTY COVERS DAMAGE CAUSED BY LIGHTNING!
- ◆ FREE OPERATOR AND SUPERVISOR TRAINING IS PROVIDED SEVERAL TIMES A YEAR AT DFS HEADQUARTERS.
- ◆ FREE HT4 MOBILE SMARTPHONE INTERFACE PUTS THE POWER OF SCADA IN YOUR HAND, ANYWHERE... ANYTIME!

SCADA Server

DFS manufactures a revolutionary approach to the SCADA Server. Our Hyper SCADA Server (HSS) is a self-contained, modularized, SCADA Server that is packaged in a lockable wall-mounted enclosure.

This approach for a SCADA system isolates the critical remote equipment polling, data collection, storage, and information serving functions from the operator interface utilizing Client-Server Architecture. No longer will the common computer lock-up bring down your entire SCADA System.

The HSS offers the power and speed of networking, and provides the stability and reliability that you expect in a server. The HSS comes standard with the versatility to expand your original SCADA system installation without costly license upgrade fees.

There are no user access license limitations or seat fees. Data is readily available to operators, supervisors and managers throughout the utility, enabling them to make fast and effective decisions. Encrypted password protection and user privilege settings are established to prevent unauthorized access. Utility-provided VPN connections establish security that is owned and can be maintained directly by the end-user.

A Hot-Standby Redundant version of the Hyper SCADA Server is available and includes dual central processing units that provide automatic switch-over without human involvement. The secondary unit mirrors the entire database. A back-up of entire database is also stored to a primary workstation PC on a daily basis.

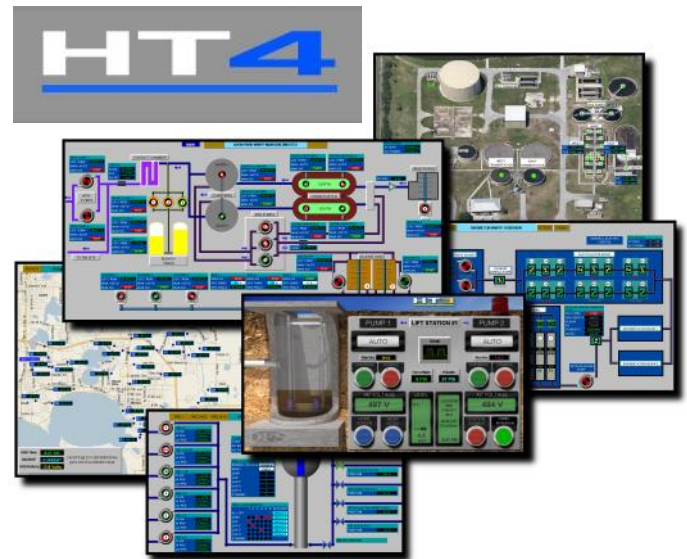
The Hyper SCADA Server (HSS) offers up to seven independent radio/network/cellular communication drivers, and is compatible with multiple communication protocols. The HSS includes support for up to 3,584 individual Remote Terminal Units (RTUs), and can handle 645,120 physical "hard-wired" I/O points, plus an unlimited number of "virtual" points.



SCADA Software

At DFS, we are also the developer of the SCADA System Software. Our HT4 SCADA Software program combines graphic imagery and data with the power of Internet technology. The user's computer interface is a common Internet browser over a local TCP/IP network or secure VPN connection. Access and control using a smartphone or tablet is also included. The graphical interface makes navigating through menus intuitive and follows the familiar look and feel of a typical Internet website. An open SQL database simplifies the sharing of SCADA System data with external programs. The HT4 SCADA Software is developed specifically for use in the water and wastewater industry and its features are driven by the needs of the utility.

DFS provides free updates, revisions, and new releases of the SCADA software for as long as it's in use by the customer. Cost saving advantages include an unlimited I/O point count and there is no additional charge for client licenses. Default HMI screens are automatically generated upon RTU configuration, allowing a user to visually see their data and perform controls without the immediate need for additional screen-building work. As depicted above, graphical depictions of your application can be created and incorporated into your custom HMI screens.



User Interface



Monitor

Vital information such as sewage level, water main pressure, pumping activity, power consumption, chemical usage, etc. can be monitored. DFS RTUs are designed to time-stamp the activity data at time of occurrence, meaning event accuracy and reporting are significantly improved.



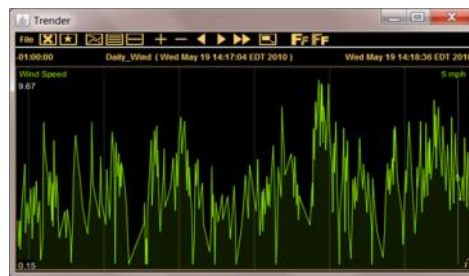
Control

Adjust settings, acknowledge alarms, and perform control commands from any authorized computer or remote device. Password protection and privilege settings prevent unauthorized access. Stay in touch with your system from your office, work truck, home, or anywhere in the world.



Alerts

Alarms are used to alert operators of conditions that need immediate attention. Receive alerts on your PC, land line, cell phone, pager or email. The ability to view and acknowledge alarms is secure and based on the user's permission level.



Analyze

HT4 provides you with a variety of report and trending tools that allow you to analyze the activity and performance of your monitored equipment. Based on parameters that you define, the data is presented in a meaningful form.



Open-Source Database

The system includes an SQL database back-end that utilizes a MariaDB server engine. MariaDB allows any ODBC capable software program to query the SCADA system's database for status and to set control points. Security is of critical importance for DFS. When security issues are discovered, the developers of MariaDB immediately prepare and distribute a new release, permitting DFS to release critical updates as quickly as possible.



Smartphone Access & Control

HT4 Mobile is a no-charge system feature that is optimized for today's smart phones. Users will find all the essential tools needed for working in the field. Place the power of SCADA in your hand—anytime, anywhere...

Communication Options

FCC Licensed Radio

DFS specializes in the use of VHF/UHF FCC licensed frequencies. We undertake responsibility for the frequency selection, and work directly with the appropriate FCC coordinator. We pay great attention to the rules and regulations outlined in the Code of Federal Regulations, Title 47, Part 80 to End, Telecommunication.

DFS provides RF Path Study services to establish reliable communications for your radio-based SCADA application. Our services are used to determine the optimum antenna height, pattern, gain, and azimuth required at each location. Radio links to and from each location are independently analyzed and designed for maximum communications efficiency. We conservatively design RF links with a minimum 20 db fade margin so that communications can continue even after losing 97% of potential signal strength. When a system is installed in accordance with our design, we guarantee its performance or we'll correct it at our expense.

Network

Communication over Network is a fast and efficient means for monitor and control. Connections to Remote Terminal Units (RTUs) can be over Fiber Optic, Ethernet, and even the Internet. When the Internet is used, firewalls must be installed to protect against outside threats and VPN (virtual private network) connections must be established to ensure data security.

Cellular

The Verizon Cellular Networks and the Internet can be utilized to deliver data and info about the remote equipment. Real-time and historical data is collected and stored on your Hyper SCADA Server for reporting, trending and analysis. Other companies use private Servers they own or rent, often located in another state, to collect and store your data. DFS provides a SCADA solutions that are securely located at your facilities and there's no question that you own the data.

SCADA Hardware

Modular RTU

The DFS "200 Series" RTU is a highly adaptable, high performance family of Remote Terminal Units (RTU). Designed with a great emphasis on scalability and modularity, a 200 Series RTU can be configured to maximize performance in a wide range of monitor, control and automation applications. The RTU base chassis, a passive modular backplane (MBP), is expandable to fifteen (15) slots for plug-in RTU I/O modules.

The 200 Series RTU is available in four models, RTU202, RTU204, RTU210, and RTU216, each offering a variety of mixed digital and analog input and output RTU I/O modules for an extremely versatile solution. RTU communication modules are available for Radio and Ethernet, as well as a PLC module for automation applications.

The communication module (Radio or Ethernet), power supply module (AC power or solar), analog I/O and digital I/O are all "plug-in" type modules. Each RTU Module is designed so that it can be easily removed and reinserted without the use of tools or disturbing any signal or power wiring. All RTU Modules are pre-configured at the factory so there are no switches or jumpers to set. Status-at-a-glance LED indicators offer instant visual notification of module and I/O condition.



SCADA Hardware ...continued

Pump Controller Based RTU

The TCU800 is our latest state-of-the-art pump controller designed to automate the operation of simplex, duplex and triplex sewer pumping stations. The TCU800 provides "off-the-shelf" control of a typical fixed speed pumping station. A future release will incorporate an expansion module for Variable Frequency Drive (VFD) applications.

The TCU800 contains all of the necessary hardware and software to control pumps based on level input from floats, bubblers, or pressure transducers. An integrated phase monitor provides accurate three-phase voltage readings and under/overvoltage motor protection. Its intuitive touch-screen operator interface presents the menu, set-point adjustment, fault resets, and status indication. The H.O.A. switches are fail-safe and remain functional even if the TCU800 is not powered.



The TCU800 is SCADA-ready with both Modbus and DFS protocol compatibility. The TCU800 is also available with an optional factory-integrated synthesized radio, network interface adapter, or cellular modem for remote monitoring and control with the TAC II SCADA System. The TCU800 carries an amazing 3-YEAR LIGHTNING WARRANTY!

When installed in the DFS TAC II SCADA System, TCU's can be utilized with "Symphony - Harmonious pump & flow management" to coordinate the system-wide operation of sewer pumping stations for the purpose of reducing force main pressures and equalizing flow into a wastewater treatment plant. The result is a significant reduction in energy costs and a solution to daily peak-flow problems.

Rail Pressure Transducer

The Rail Pressure Transducer (RPT001) is a DIN rail mounted product that incorporates patented level sensing and fault detection techniques to provide a highly reliable well level indication via a 4-20mA output. The level transducer is integrated into the RPT001 product – offering an alternative to hanging or submerging an expensive instrument inside the wet well. The RPT001 is an ideal addition to the TCU800 Pump Controller.



RPT001 HIGHLIGHTS INCLUDE:

- ★ LED & DIGITAL OUTPUT FOR FAULT MONITORING
- ★ OUTLASTS SUBMERSIBLE LEVEL TRANSDUCERS
- ★ PATENTED NON-CLOG, SELF CLEANING DESIGN
- ★ NO MERCURY SWITCHES OR PRESSURE SWITCHES
- ★ NO LARGE COMPRESSOR, TANK OR REGULATOR
- ★ SMALL FOOTPRINT FITS IN NEARLY ANY SIZE PANEL
- ★ NO VOLTAGE SIGNALS IN THE WET-WELL

SCADA Hardware ...continued

Programmable Logic Controller (PLC)

Local site automation and process control, as well as a local HMI with Panel PC, can be performed by a DFS Programmable Logic Controller (PLC). The DFS 200 Series RTU architecture provides a simple and convenient platform for remote monitor and remote manual control without the use of any specialized programming. However when more complex operations are required at a remote location, the addition of a DFS PLC will permit the RTU to operate at a completely new level of performance.

Any RTU, including Treatment Plant Control Panels, can be designed to accept a DFS PLC. An existing RTU can be modified to accommodate a PLC through an upgrade process. We can design an entire system for basic monitor and remote manual control and build in the ability to accept a DFS PLC at a later date. Most custom RTUs are currently built to this standard with no additional construction costs.



Solar Powered RTU

The solar-powered RTU enables a utility to monitor a remote site when it is impractical or too expensive to run electrical power to the location. Typical applications for a solar-powered RTU are pressure, water level and rainfall.

Our standard base-model solar-powered RTU features a sleep mode, and is equipped with a Solar Power Module (SPM) with 18 Ah battery to provide power to a Telemetry Interface Module (TIM007), Analog Monitor Module (AMM), and/or Digital Monitor Module (DMM). The base-model design operates up to 3 days without sunlight.

High efficiency multi-crystal photovoltaic modules are utilized in the solar panel. Its cells are constructed to provide protection against severe environmental conditions. The entire panel is installed in an anodized aluminum frame to provide structural strength and ease of installation.

Cellular RTU

The RDP180-C Cellular RTU is a simple, effective and low cost solution for remote monitor and control. Verizon Cellular Networks are utilized to deliver data and alarms for your equipment 24/7/365.

The RDP180 Cellular RTU can easily be installed by the end-user. The RTU I/O points are prewired to terminal hardware and interposing relays. The installer simply supplies 120VAC power and the appropriate voltage from the monitored and controlled equipment.

The RTU hardware is purchased at an economical price, and the user pays a nominal monthly service fee (on a per site basis) for use of the cellular data plan. Rental systems are available as well.



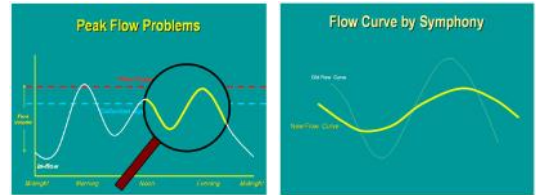
Energy Savings

The "Symphony - Harmonious pump & flow management" is a patented technology that is available only from Data Flow Systems, Inc. Symphony utilizes SCADA to coordinate the system-wide operation of sewer lift stations for the purpose of reducing force main pressures and equalizing flow into a wastewater treatment plant. The result is a significant reduction in energy costs and a solution to daily peak-flow problems.

Symphony requires the use of DFS' Hyper SCADA Server (base station) and the TCU pump-controller RTU at each lift station. A combination of functions provided by both are utilized by Symphony.

Symphony's "Pump management" feature is essentially a coordination technique that addresses the random operation of each lift station pumping into a common force main. Symphony synchronizes their pumping activity on a minute-by-minute basis. Head pressures are reduced and pumps begin to operate more effectively and efficiently. The results are diminished pump-run-times, less maintenance costs, a reduction in pump energy expenses, and the extended life of the force main infrastructure.

Peak-flow problems occur in a collection system several times a day. There are opportunities to reduce peak flow in virtually every collection system. Symphony also employs a technique that levels the flow by systematically managing the peaks and valleys over a 24 hour period. Overflows at the head-works can be prevented, the need for equalization basins may be eliminated and the biological treatment systems work more efficiently.



Installation Services

DFS has a fleet of fully-equipped vans and experienced teams of dedicated, professional, installation crews ready to quickly and efficiently install our Remote Terminal Units. Experience is a useful tool when it's time to install an RTU. We use a standardized installation plan, installing each RTU in an organized series of steps. We take care of it all - conduit, concrete, tower, antenna, enclosure mounting, wiring and start-up. Project coordinators manage each project from start to finish.

In certain parts of the country, DFS also utilizes a network of Value Added Resellers (VARs) and Preferred Contractors to perform the physical installation services.



DFS provides complete assembled, wired and tested RTU panels in our certified UL panel shop. We design and build both off-the-shelf and custom RTU panels to the highest standards of customer expectations. RTU panels can be certified and UL labeled. All wiring is in accordance with the latest N.E.C. codes and conventional standards.

All panels are manufactured using the highest quality components from our suppliers or customer specified suppliers. Every panel built must pass a rigid performance acceptance test before leaving the factory. Every wired input and output is thoroughly checked and documented. Our approach ensures proper operation upon delivery.

Obsolescence-Proof System

The average life of a SCADA system in the water and wastewater utilities market is around seven to ten years. While poor design and selection of materials accounts for the premature demise of many systems, it is more often technical obsolescence of the system that brings about its end.

Although the DFS TAC II SCADA System is designed to withstand the effects of Florida's harsh environmental conditions, careful planning in the engineering and design phase produced a system that has also achieved "technical durability." The TAC II SCADA System has continuously evolved and improved since 1981. All new products maintain a downward compatibility with all older versions - allowing a utility to maximize their investment over the long term.



Over the years utilities have purchased new and improved DFS products to expand their "original installation." All DFS products incorporate current state-of-the-art technology, but maintain downward compatibility with older versions, demonstrating an obsolescence-proof design that can be found in no other SCADA system.

All DFS I/O modules, Pump Controllers, Powers Supply Modules and Radio Interface Modules are backward compatible with older versions and revisions of like type. New products are designed with pin-for-pin compatibly of like type and require no rewiring, adjustments, straps or configuration adjustments (plug and play).

In addition, DFS provides support for every TAC II SCADA product that we have ever manufactured. DFS does not have "generation systems" with a limited life cycle of availability and support. No matter how old, if we built it we will service it. DFS doesn't require annual maintenance contracts or renewal support program fees.

Warranties

Product Warranty

DFS products carry the standard one (1) year warranty against defects in material and workmanship. However, all Plug-in RTU Modules, Pump Controllers (TCU), Power Supply Modules and Radio Interface Modules carry an extended two (2) year return-to-factory warranty when installed with factory required surge protection. Products that carry the extended warranty are also covered against damage due to lightning and surge for the entire three-year period!



THREE YEAR LIGHTNING WARRANTY

Software Warranty

The SCADA Software manufactured by DFS is warranted for as long as it is in use by the Owner. All DFS SCADA Software revisions and upgrades are provided to the Owner free of charge for the life of the system.

Onsite Support

When a DFS product has been installed and/or on-site inspected by a DFS certified technician, on-site warranty services are provided for one (1) year, from the date of system acceptance, covering defects in installation, material and workmanship. The one year onsite installation warranty also includes 24/7 factory phone support.

Telephone Support

DFS provides factory phone support, free of charge during our normal business hours, for the life of your DFS SCADA system. Normal business hours are weekdays, excluding holidays, 8:00 AM to 5:00 PM Eastern Time Zone.

SCADA as a Service (SaaS)

DFS offers SCADA as a Service. Enjoy the benefits of a bona-fide SCADA System, tailored to meet your specific SCADA requirements, for a simple monthly service fee. The SCADA hardware & software is supplied with the service and its use is included with the monthly service fee. The service also includes lifetime warranties, product repairs, upgrades, and DFS technical support for the entire life of the service. Under this service you can simply enjoy the benefits of SCADA, while DFS assumes the task of keeping it in perfect operating condition.

HIGHLIGHTS:

- ★ YOU UTILIZE THE SCADA—DFS KEEPS IT RUNNING
- ★ POTENTIALLY ELIMINATE THE CAPITAL PURCHASE
- ★ FIXED MONTHLY SERVICE FEE (BUDGET FRIENDLY)
- ★ HARDWARE/SOFTWARE WARRANTY NEVER EXPIRES
- ★ GUARANTEED TO PERFORM OR YOU PAY NOTHING
- ★ CONFIGURED TO YOUR SCADA REQUIREMENTS
- ★ EMPLOY MONITOR—CONTROL—AUTOMATION
- ★ RADIO, CELL AND NETWORK COMMUNICATIONS
- ★ INCLUDES INSTALLATION, SERVICE AND SUPPORT
- ★ GET MAXIMUM SCADA FOR THE MINIMUM PRICE



AMPAD

"The Coral Springs Improvement District and Data Flow Systems have built a great relationship from the start. Our service agreement not only allowed us to avoid the start-up costs of a purchased system, but it also relieved any worry about upgrades or replacement costs. I can't imagine there being another product that could give us more value or better control than the one we have. And your support staff offers fast, friendly and professional service."

Curtis Dwiggins
Head SCADA Technician
Coral Springs Improvement District

Lease-Purchase Financing

DFS also offers a Lease-Purchase Option that allows you to finance the purchase of a complete SCADA System over a period of time determined by your budget. Please contact DFS today to discuss your options.

Multiple Financing Options

Customer Testimonials



DFS has provided hundreds of SCADA Systems and thousands of RTUs for utility customers located throughout the United States. These SCADA systems range from small water control districts to large county-wide wastewater collection systems. No matter the size or complexity of the project, we have a SCADA solution for you.



"We started to realize their professionalism early on in our discussions with representatives of DFS. We never felt pressured and DFS produced... free of charge... a high quality report showing how they would save our district money while automating our lift stations at the same time. We have been using the DFS system since January 2012 and we are very satisfied. Every claim they made has been backed up by their actions or their product. And speaking of the company's actions, we have to state that each employee we have had the pleasure of working with has been knowledgeable, courteous, responsive, and professional. As a water and wastewater processing utility serving approximately 45,000 residents, we are challenged by rising costs, performance standards, and quality issues almost daily. DFS has made part of our job easier and we are glad they were chosen to partner with us."

Dan Daly, Director of Operations
Coral Springs Improvement District, FL

"I first used DFS equipment when I worked for the City of Greenville. I had heard things about the hardware and software that appealed to me. The two main things that attracted me to DFS was the ability to remotely access and control my equipment using only a browser, and the ability to change out hardware (cards) without having to do programming. Since coming to NETMWD we have changed nearly all our SCADA equipment to DFS equipment. DFS is not perfect, but it serves my purposes very well. I am also very pleased with our local DFS people, in particular Skip Hall, and Robert Durham. I have recommended DFS to others in the past and still do today."

Pete Wright, Operations Manager
Northeast Texas Municipal Water District (NETMWD)

"Complete confidence in your pump station controller... After becoming familiar with your products, I have complete confidence in your pump station controllers (TCU's)... Storm situations can be monitored and dispatched (if needed) from a single location. Mechanics can perform small system shutdowns without needing assistance from site attendants. Shut-downs that used to take 4-8 workers driving from station to station, can now be done by one person from the comfort of his truck or office. The only regret I have is that our system was not built out years ago. We currently have 550 installed and will be adding more as the housing market is building again. Thanks for the products, technical support and all the kind, knowledgeable staff at DFS."

Darryl Gibson, Field SCADA Specialist
Pasco County Utilities, FL

"Manatee County Utilities continues to grow at a rapid rate requiring technology, equipment and expertise to run, monitor and maintain 620 satellite lift stations and 15 master lift stations throughout the county. We rely on Data Flow Systems to help us design and maintain this ever changing environment. Having Data Flow's engineering and support team available to assist with issues 24/7 is the icing on the cake."

Ralph Braun, Senior Industrial Electrician for Lift Stations Section
Manatee County Utilities Department

No Shortcuts, Just Solutions.



TAC II SCADA Systems
Radio Path Studies
Process Automation
UL Panel Fabrication
HMI Screen Building
Installation Services
Operator Training
Customer Service

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OBSOLESCENCE-PROOF.. BY DESIGN

