Midway City Council
6 February 2024
Regular Meeting

SCADA System /
Award Contract

Midway City Public Works / Water Department

Scada System Re-Model and Update Project

Midway City is asking approval for the Award of Bid for the New and Up-dated Scada System from the Vendor known as DELCO WESTERN for the amount of $68,940.00. we feel that they are the lowest most qualified bidder, with there product will enhance are Water System Notifications and eliminate the requirements to have a VPN server and have a Cellular Network Service that will eliminate the current problems that we face daily and provide us with a better alert system and have a more focused support team that can service not just the Scada System, but the Water Pumps and Chlorination Equipment as well.

Bidders in by Lowest to Highest are listed as follows:

Delco Western	$	68,940.00	West Valley
Dorsett Controls	$	130,195.75	Midvale
Wet co	$	138,000.00	Ogden
Global	$	144,442.00	Arizona
EST	$	427,410.00	Texas

I included a bid packet with product information for viewing.

DELCOWESTERN
SINCE 1976

2559 South 1935 West
Salt Lake City, UT 84119-2023
(801) 972-0900 (801) 972-1171 fax
www.delcowestern.com

Quote #: 13272

Date: Oct 12, 2023

Quoted to: Midway City
PO Box 277
Midway, UT 84049

Midway City
PO Box 277
Midway, UT 84049

Qty	Item #	Description	Unit Price	Extension
		Mission Managed Mydro 850 SCADA System		
		~ Mahogany Tank and Chlorination ~		
1		M853 RTU – Wireless Real-Time Alarm System with Streaming Data – FlatPak		
1		RF414C Antenna Cable — 20 ft		
1	0-98i-0-15 P	PS98i 0-15 PSIg Pressure Transducer w/30' of cable attached to each.		
1		SW587 Tank and Well Control Package		
1		Intrusion magnetic door sensor		
1		Building temperature 4-20ma transmitter		
1		OP465 Expansion Module — Analog Input		
1		Install new conduit from tank to building		
1		Installation of Mission RTU/OP465 in existing panel. Run necessary conduits,mast,wire and terminate flow meter4-20ma. test of system.		
		~ Gerber Tank and Chlorination ~		
1		M853 RTU – Wireless Real-Time Alarm System with Streaming Data – FlatPak		
1		RF414C Antenna Cable - 20 ft		
1	0-98i-0-15 P	PS98i 0-15 PSIg Pressure Transducer w/30' of cable attached to each.		
1		SW587 Tank and Well Control Package		

Subtotal: Continued
Sales Tax: Continued
Total: Continued

UNLESS OTHERWISE STATED, IN WRITING, SALES TAXES ARE NOT INCLUDED

This quotation is for listed items only. Accuracy and completeness are not guaranteed.
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Qty	Item #	Description	Unit Price	Extension
1		Building temperature 4-20ma transmitter		
1		OP465 Expansion Module — Analog Input		
1		Water bug installed in pump vault		
1		Intrusion magnetic door sensor		
1		Installation of Mission RTU/OP465 in existing panel. Run necessary conduits,mast,wire,water bug and terminate flow meter4-20ma. test of system.		
		~ Cottage Water Tank~		
1		M853 RTU - Wireless Real-Time Alarm System with Streaming Data		
1	0-98i-0-15 P	PS98i 0-15 PSIg Pressure Transducer w/30' of cable attached to each.		
1		Installation of Mission RTU in existing panel. Run necessary conduits,mast,wire, and terminate flow meter4-20ma. test of system.		
		~Cottage Pump House~		
1		M853 RTU – Wireless Real-Time Alarm System with Streaming Data – FlatPak		
1		RF414C Antenna Cable		
1		SW587 Tank and Well Control Package		
1		OP465 Expansion Module - Analog Input		
1		Building temperature 4-20ma transmitter		

Subtotal: Continued
Sales Tax: Continued
Total: Continued

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Qty	Item #	Description	Unit Price	Extension
1		Intrusion magnetic door sensor		
3		2 Pole relay 24vdc with base and diode		
1		Installation of Mission RTU in existing panel. Run necessary conduits,mast,wire,intrusion, and terminate flow meter4-20ma. test of system. ~Alpenholf Water Tank~		
1		M853 RTU – Wireless Real-Time Alarm System with Streaming Data – FlatPak		
1	0-98i-0-15 P	PS98i 0-15 PSIg Pressure Transducer w/30' of cable attached to each.		
1		Installation of Mission RTU in existing panel. Run necessary conduits,mast,wire. test of system. ~Alpineholf Well House and Chlorinator~		
2		M853 RTU - Wireless Real-Time Alarm System with Streaming Data		
2		RF415C Antenna Cable – 25 ft		
1		SW587 Tank and Well Control Package		
1		OP465 Expansion Module - Analog Input		
1		Lot- control relays and timer for deep well pump control waste circuit. 10hp		

Subtotal: Continued
Sales Tax: Continued
Total: Continued

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Qty	Item #	Description	Unit Price	Extension
		and 60 hp pump. To be installed in pump panel. 2 30mm HOA switches		
1		Intrusion magnetic door sensor		
2		Building temperature 4-20ma transmitter		
1		Removal of Micrologix PLC and replace pump control with Relay logic		
		Installation of Mission RTUs at well house. Terminate I/O to RTUs Run and test of system.		
1		Total For above listed items	57,986.00	57,986.00
7		SP850-36 Service Package – MyDro 850 Series – 3 year (15% discount included)	1,437.00	10,059.00
4		SPOP-36 Service Package – Expansion/Option Board – 1 year (One per expansion board purchased)	180.00	720.00
7	0-Inbound	Incoming Freight	25.00	175.00

Subtotal: 68,940.00
Sales Tax:
Total: 68,940.00

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MISSION COMMUNICATIONS

Simply More Intelligent

Advanced Monitoring • Low Cost • Managed SCADA

Why Mission-Managed SCADA

Mission-managed SCADA is a turnkey system delivered through a model that enables you to gain complete system monitoring right from your desktop or mobile device. Mission provides and maintains everything you need to monitor and operate your system.

Mission-managed SCADA is simply a better approach.

It works out of the box—the first time, every time.

Included Out of the Box:

- A SCADA system that's up and running in a few hours—no programming required
- Highly flexible, customized alarm scheduling
- Data access via web-based HMI optimized for computers, smartphones, and tablets
- Reports, graphs, tables, and charts designed specifically for the unique needs of water/wastewater professionals
- Expandable field RTUs with the most-used features already built in
- A system that uses cellular data networks for enhanced reliability with all data usage included in the annual fee, while Mission manages the carrier relationships
- Training and tech support provided by Mission, without additional expense, and a single point of contact for any issues or maintenance needs
- Predictable cost of ownership with technology obsolescence and price stability guarantees

Not Included:

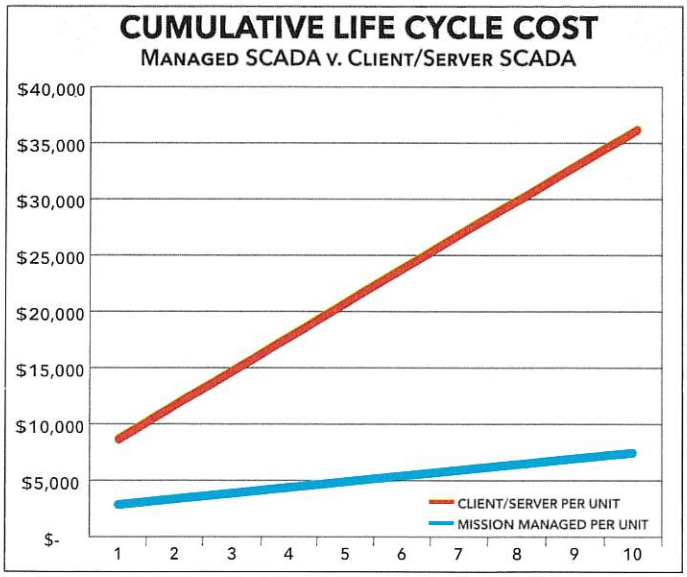
- Complicated radio path studies, expensive private radio upgrades, and network maintenance
- The headaches and hassle of building a team to manage your own SCADA environment

Managed SCADA

What is Included?

You may wonder exactly what is included in the annual service fee purchased with a field Remote Terminal Unit (RTU). What are the actual ongoing costs of the Mission system? Are there any hidden fees? Do I have to buy cellular service to make the RTU work? What about excess messages – are there charges for excessive alarm notifications? Are there any software licenses I have to purchase? How many people can use the system? How long do you keep RTU data? What happens if my RTU is damaged? What about security?

Here's the bottom line: the Mission annual service fee includes everything your utility needs to run your Mission unit in a secure fashion with no risk of hidden fees. This includes all cellular service, the servers that manage and archive the data, web portals, reports, and alarm functions. Mission offers a few optional functions ("Tank and Well" controller software, "OPC Data Transfer," expanded I/O) at additional cost, but the majority of our customers simply buy the RTU and the annual service. You then use your existing computers, smart phones, or tablets to access the SCADA system via the secure web logins.



Guaranteed Price Stability

Mission pledges a predictable cost of ownership and has guaranteed that the annual service fee will never increase more than the rate of inflation. This guarantee has been in effect since the company founding in 1999. To date, the annual service fee has not been increased. No competitors make the same written pledge. For more information, see the Business Performance Guarantee on the back page of this document.

Software as a Service (SaaS)

Mission combines Software as a Service (SaaS) with purpose-built hardware to provide a highly reliable and cost effective "turn

Executive Summary:

Cellular Services

- Cellular airtime; no overages
- Direct relationships with AT&T, Verizon, and Telenor; managed by Mission; other carriers are available through Telenor
- Secure socket connections for responsive telemetry

Alarm Notifications

- Via phone, fax, email, web, pagers, or text messages; no toll charges
- Sophisticated call-out destination and schedule options
- Alarms can be acknowledged via all methods but fax and pager; toll free number for alarm acknowledgement
- Call-outs recorded and available for review from web portal
- Numerous nuisance alarm reduction features

The User Interface and System

- Web portal built with state-of-the-art technologies; live data feeds, infinite scrolling, responsive window sizing, active graphics, and more
- Mobile app for smartphones and tablets (123SCADA)
- Customizable overview map shows all units at a glance
- Over 50 reports, data views, charts, and graphs optimized for the sensors and features of the RTU
- All historical data available for comparative analysis or download to a spread sheet
- Powerful analytical tools like Supergraph
- All systems managed, hosted, and enhanced by Mission

Options and Advanced Features

- Optional automated remote control features like Tank and Well Control, Pulse Based Automated Remote Control, Digital and Analog Interconnect
- Optional real-time OPC link for customers with traditional SCADA HMI
- Expansion boards and service plan for additional data requirements beyond the built-in I/O

Security

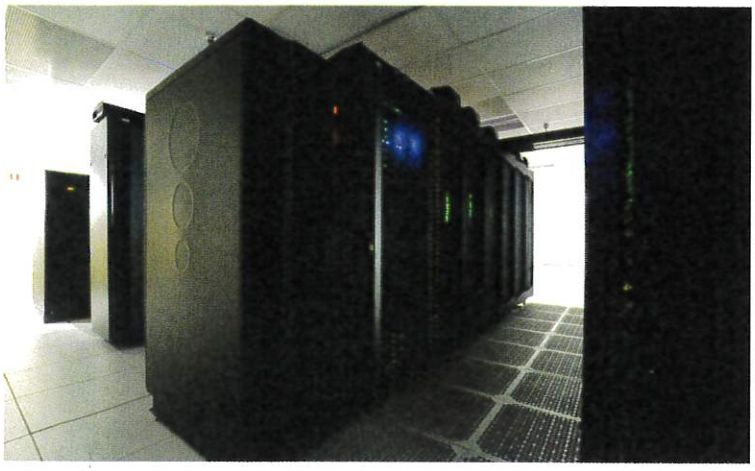
- Data from RTU to servers is encrypted by Mission and sent by carrier over private networks
- RTUs cannot be accessed from the public internet
- Web pages accessed via TLS 2048-bit key encryption
- Logins require credentials; Superadmin can maintain access control list
- Best practices enforced for networks, routers, firewalls, malware protection, and physical access

Support and Warranty

- Toll-free, no-cost technical support
- One-year parts warranty
- Replacement costs guaranteed not to exceed $250 for main board or radio
- Technology and obsolescence guarantee
- Complimentary training and webinars

key" system. The SaaS business model allows you to get more features with less effort at a substantially lower cost than can be achieved in-house. This business model is ideal for applications that are repeatable, like collection system monitoring and smaller water systems.

The engineers of Mission design the electronics and author the software, so we are in full control. Since the data is presented over the web, enhancements are provided system wide with no effort on your part. By combining standardized field hardware, national cellular data networks, and full-featured SCADA software into a single solution we are able to provide a reliable, managed service specialized for the water/wastewater industry.



Mission operates its SCADA service from a carrier grade data center located near Atlanta, Georgia.

You have enough to deal with when managing your water/ wastewater system. Let Mission manage the monitoring and SCADA system for you.

The Alternative to Managed SCADA

Before Mission, the only way water utilities could harness the benefits of automation via SCADA was to build their own proprietary system. This required going through the specification and bid process and then managing the engineering, construction, and debugging phases of a new technology. This is a time consuming and expensive proposition. Once the system is running, IT staff is generally required as well as software support agreements.

In-plant processes, like treatment plants and water manufacturing, best served by traditional client/server SCADA systems can accept data from the Mission system via an optional OPC link. This eliminates the complexities of maintaining a utility-wide communications network for the remote assets associated with a collection system.

Included with the Mission Annual Service Fee:

On Boarding – After setup forms are received, Mission staff configures the web portal, labels RTU inputs, and enters the call-out destinations for each customer. Mission Technical Support is available to discuss best installation practices and help test inputs before units are put into production. With minimal training you can adjust virtually all system parameters from the web portal. With a smartphone all of the conveniences of the web portal are available in the field. Free training webinars are held weekly to quickly acclimate new users.

Support – A large part of the Mission value proposition is technical support. Users can talk directly with Mission Technical Support Specialists, use the ticket section of the web portal, or email questions to techsupport@123mc.com. Mission maintains a team of technicians for live telephone technical support from 8am to 7pm eastern. After hours support is always available on a responsive callback basis for emergencies at no extra charge.

Current Status – Upon login, the Map view displays all your units on a local, customizable map. Clicking on the RTU icons displays additional information such as levels, pressures, or flows. Color codes are used to reflect alarm states, faults, or items of interest. Animated icons show pump running status for real time units.

Alarm Reporting – The Mission system has unparalleled alarm reporting functions. The system can dispatch over 40 phone calls per minute and is scaled as our installed base increases. From the web portal, you can set up your "address book" of alarm recipients and your alarm call-out schedule. This even includes Mission's exclusive call recording feature that allows you to playback recordings of alarm call-outs, eliminating any questions regarding received alarms. The system has a number of nuisance alarm reduction features that eliminate annoying alarms. Alarm notification outcomes are logged. Unique day, night, and weekend schedules are supported and easily setup via a drag-and-drop interface.

Mobile Device Application – The 123SCADA application is available for free download from your app store. Respond to alarm notifications or look at full data from the easy-to-use interface. The mobile app makes on-site RTU setup and configuration easier than ever before. Through the app, users can scan the QR code on their RTU and receive a prompt to access RTU view, RTU info, and RTU config for the selected device. These options allow users to configure RTU call-out settings, view the status of device inputs, and change basic device information.

The integration of geolocation allows users to indicate the location of a device without manually inputting coordinates. Additionally, if they choose to share their location, staff members can be found on the map with location markers. This feature streamlines workflows by providing the ability to route and coordinate service calls.

Using the mobile device camera, users can take pictures of site equipment such as RTUs, antennas, enclosures, and expansion modules, and submit them directly to a support ticket, making it even more efficient for Mission Technical Support to troubleshoot and resolve system issues.

Cellular Data – All cellular charges for data used by your RTUs are included in the annual fee. Mission buys airtime in bulk and aggregates it across thousands of RTUs. There are no separate overage charges or early termination fees. Mission

MISSION COMMUNICATIONS

MyDro 150, 850

The Next Generation of Wireless Real-Time Alarm, Monitoring, and Remote-Control

All of the functionality of the legacy series (M110 and M800) with an onboard interactive display and enhanced electronics

MyDro 150 and 850 RTUs

Easy to Install

Each remote terminal unit (RTU) includes all necessary hardware for a standard installation, such as a cellular radio, enclosure, backup battery, transformer, antenna with cable, and mounting hardware. Purpose-built RTUs simplify and speed installation. There is no programming required, and RTUs are self-enrolling.

Reliable Wireless Communications

RTUs operate on current generation cellular radios for dependable data transmissions. Mission maintains direct relationships with the largest cellular carriers in the U.S. and Canada to ensure the best service possible. There are no radios to license or cellular contracts to set up.

Real-Time Alarms Delivered To All Devices

Real-time alarms are delivered via phone call, text message, email, fax, page, and even to an existing HMI software through an OPC data link. Each alarm is logged with a time stamp for tracking and reporting. The alarm call-out schedule is easy, flexible, and intuitive to set up.

Managed Service–The Complete Package

The Mission system includes all cellular data service, data storage, alarm call-outs, reports, and on-call, 24-7-365 technical support. The highly reliable turnkey system offers more features at a lower cost than an in-house setup. No engineering or programming is required, and there are no networks to maintain.

View data and reports using the secure 123SCADA web portal, accessible from any web-enabled device. The 123SCADA user interface is designed to mimic industry-standard HMI SCADA and also includes a legacy user mode. Tabular and graphical reports can be used for compliance reporting and comparative studies. System enhancements are available immediately and included at no cost.

M150 RTUs

Real-Time Alarms with Hourly Summaries

M150 RTUs summarize pump runtimes and pump starts hourly. All alarm data is reported in real-time. Analog data and RTU status are reported hourly. Simultaneous pump runtimes can be reported when two pumps run.

M850 RTUs

Real-Time Alarms and Streaming Data

M850 RTUs report pump starts and stops in real-time. Analog values are reported every two minutes or on a five percent change. Volumetric flow calculations can utilize this information along with sump volume (as determined by an analog level sensor or fixed entries) to calculate hourly volumetric flow rates.

Remote-Control

Expand system operations with optional remote-control for off-site wells, tanks, gates, chlorine dosers, variable frequency drives, and more. Optional automatic remote control interfaces include the Tank and Well Control Package, Digital Interconnect, and Analog Interconnect.

LCD Touch Screen

- Displays current status
- Supports local configuration

Radio

- Cellular radios support LTE, 4G, 3G, and 2G for both GSM (AT&T and partners) and CDMA (Verizon and partners)
- No radio licenses or site path studies required

Expandable

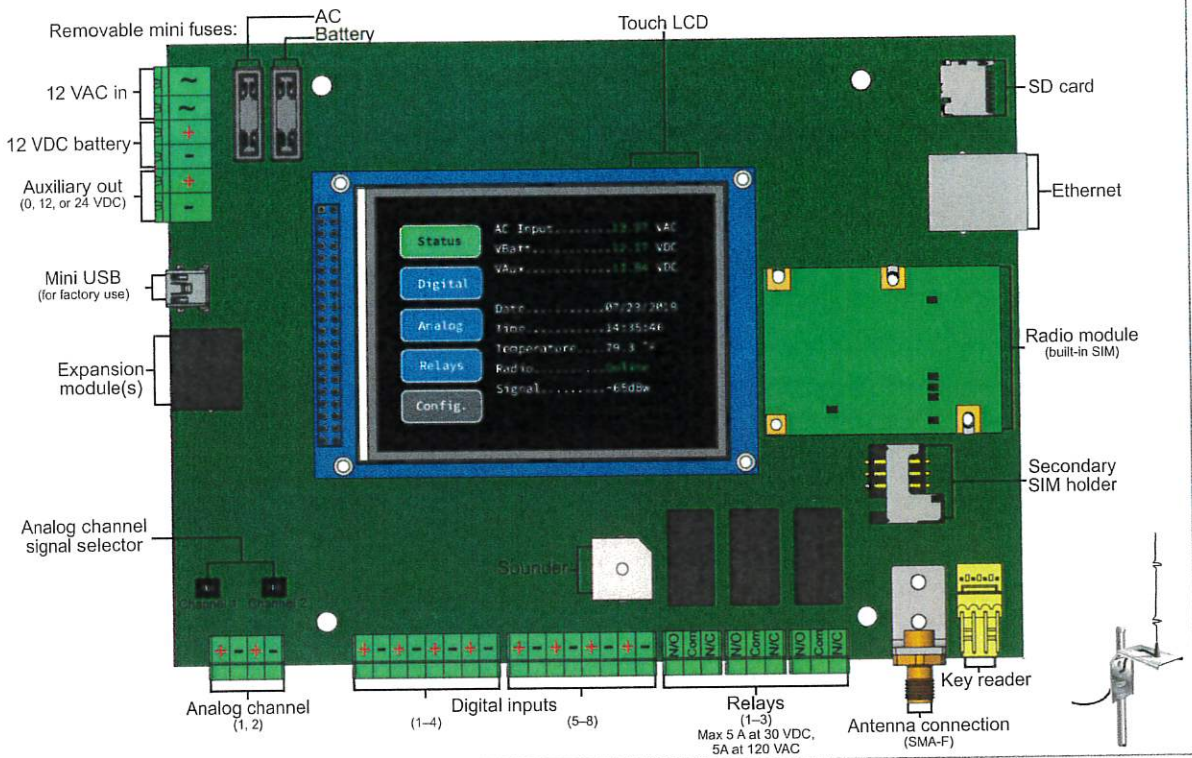
- Up to 16 digital inputs, 6 analog inputs, 2 pulse inputs, and 2 analog outputs, simultaneously
- Onboard digital inputs configurable for wire fault supervision or strap on current sensing switch for easier pump run indication
- RS485 for digital, analog, and pulse expansion

Enhanced

- 12 or 24 VDC auxiliary output for battery-backed analog instrument loop power
- Over-the-air upgradeable firmware

	MyDro 150	MyDro 850
Wastewater	Sewage lift station, industrial water quality (WQ) alarming, lift station generator alarming	Master pump station monitoring and remote-control, critical process monitoring, open channel flow monitoring, sewer station power monitoring, reuse water monitoring and control
Water	Pump station alarming, reservoir level alarming, remote valve alarming, chlorine (Cl) residual WQ alarming, pressure reducing valve station alarming	Pump station monitoring, tank and multiple well control, remote valve monitoring and control, Cl residual WQ alarming, flow or pressure monitoring
Other	Gate status alarming, rainfall monitoring	Septic offload and billing, custody transfer and billing, canal level monitoring and gate control, I&I flow, level data logging

Technical Specifications



Outdoor NEMA 4X enclosure:
13.25" w x 13.75" h x 6.25" d
With sun shield
Weight: 8 lbs

NEMA 1 enclosure:
11.375" w x 11.25" h x 3.5" d
Use indoors, wall mounting
Weight: 3 lbs

FlatPak NEMA 1 enclosure:
10.5" w x 7.75" h x 1.5" d
Use inside MCC cabinet
Weight: 2 lbs

		MyDro 150	MyDro 850
Data	**Alarm Data**	Real-time	Real-time
	Pump State	Summarized hourly	Real-time
	Analog Reporting	Current value reported hourly	Every 2 minutes or on 5% change
	Device Health	Built-in inputs reported hourly	
Input/Output	**Digital Inputs**	8 onboard, dry digital inputs with selectable wire fault supervision or direct attach current sensing switch; Expandable to 16 with PN OP653	
		3 configurable for pump run summary reporting; Simultaneous runtimes reported when 2 pumps are monitored	8 configurable for pump run; Pump states reported in real-time. Simultaneous pump runtime reporting supported for up to 7 pumps
	Analog Inputs	2 onboard, 4–20 mA isolated or 0–5 VDC; 4 alarm set points each; Expandable to 6 with PN OP465	
	Relay Outputs	3 remotely controllable, form C, dry contact relay outputs; 5 A at 30VDC, 120 VAC, SPDT, N/O, or N/C	
	RS485	Support for specified expansion modules	
	Pulse Inputs	2 channels with pulse input expansion module (PN OP464)	
		15-minute reporting	2-minute reporting
	Analog Output	2 channels (4–20 mA or 0–5 V) with PN OP461	
	Electronic Key Reader	Key reader for site activity tracking and service mode	
	Built-in Inputs	AC voltage, battery voltage, board temp, and signal strength; Optional second key reader	
Electrical	**AC Power**	Supervised 120 VAC to 12 VAC, 1.2 A, UL-recognized class II/class III transformer	
	Backup Power	12 V, 5 Ah battery standard with enhanced charging system	
		Up to 50 hours	Up to 18 hours
	Auxiliary	Auxiliary output selectable 12 VDC or 24 VDC for battery-backed analog instrument loop powering; 250 mA max	
	Removable Terminals	Included: Amphenol PN 20020008-G061B01LF (6 pin for power), 20020004-D081B01LF (D08, D04, D03 for I/O)	
	Power Consumption	4.2 W	
Other	**Enclosures**	FlatPak (PN M153), NEMA 1 (PN M151), NEMA 4X (PN M152), Large NEMA 4X (PN M152L)	FlatPak (PN M853), NEMA 1 (PN M851), NEMA 4X (PN M852), Large NEMA 4X (PN M852L)
	Environment	Operating temperature -20–75°C, non-condensing	
	Cellular Radio	Radios make live, continuous, encrypted TCP socket connections; Payload is end-to-end acknowledged; Penta band (850, 900, 1700, 1900, 2100 mHz); AT&T and partners: LTE, HSPA+, 3G; Verizon and partners: LTE, EVDO, 1XRTT	
	Antenna	Omnidirectional antenna with 11' cable, SMA termination, universal mounting bracket	
	Options	Optional SCADA integration OPC link (PN SW586) to client/server HMI, Tank and Well Control Package (see Accessory Catalog for details)	
	Service	Requires Service Packages for the unit and optional expansion boards (see Accessory Catalog for details)	
	Warranty	One-year manufacturing and material warranty	

MISSION COMMUNICATIONS
(877) 993-1911 • sales@123mc.com • 123mc.com

has designed its RTUs to send and receive data very efficiently. In the rare case that we notice a run-away sensor, our technical support team will assist you in resolving the issue so that you receive useful data. Mission understands water and wastewater applications, and we know how much data pump stations, wells, tanks, and instruments require. With nearly 30,000 RTUs deployed, we are the largest purchaser of cellular data airtime in the water/wastewater industry.

Mission monitors the connection status of field units. Technicians are alerted when we see a general reduction of the online units in your area. Since Mission is in control of all aspects of the system we can quickly identify the problem and address it internally, get the cellular carrier involved, or assist you with the resolution of a local issue.

Ready-Made Reports and Data Folders –

- Alarm, alert, and dispatch logs with easy access to call recordings
- Pump information: runtime, starts, alarms, daily, monthly, variance (displayed in tables and graphs)
- Digital data
- Analog data (displayed in tables and graphs)
- Flow data
- Rainfall from national weather service or local tipping bucket (tabular data, graphs, and integrated with other reports like pump runtime)
- Specialty reports- SSO/CSO (sanitary sewer overflow/ combined sewer overflow), SDWA (Safe Drinking Water Act), chlorine, etc.
- Engineering reports: capacity estimator, volumetric calculations
- Weekly management reports for overall system performance
- Disabled inputs reports
- Site access reports: electronic keys
- Web site access: by user and IP address
- Unit health: check-in history, cellular connection history, voltage reports, solar data

Commands – MyDro 150 and MyDro 850 feature three output relays that can be controlled from the web portal with the appropriate password. Use these to manually command pumps or open and close valves. MyDro 850 units can be automated via digital interconnect, where a change of a digital input at one location begets a relay change at another. Use the optional Tank and Well solution to automatically close relays based on an analog value at another location. An optional analog output board is available for setting remote variable values, or with real time units mirroring one analog value to another location.

Continuous Enhancements – Unlike traditional SCADA software that is installed and maintained locally, Mission's SaaS

Security:

Remote Terminal Connectivity

Mission adopts multiple measures to ensure that data is protected at every step – from RTU to end-user. The Mission RTU is purpose-built; it functions for a specific set of tasks, is programmed to understand very limited protocols, and operates without Windows or Linux and their vulnerabilities. The RTU cannot accept an outside connection from an unknown device; the IP address is assigned within a private range. From the RTU to the carrier, Mission encrypts the over-the-air data using two algorithms, one at the application layer and the other at the wireless carrier level. Once the encrypted data reaches the cell towers it is forwarded to the Mission servers over encrypted private networks (VPNs).

Servers

Mission servers are located in a high security data center that requires biometric scans for entry and is guarded 24 hours per day, seven days per week. Access is limited to a small number of Mission personnel. The facility is engineered to withstand a direct F-4 tornado strike and is surrounded by an eight-foot security fence. The site has multiple electric utility interconnects encased in concrete from the substation to the site and 26 MW of generator capacity to last 72 hours. Redundant cooling and fire suppression systems are also in operation. Connections to the internet backbone consists of multiple peering connections accross 14 carriers, redundant internal networks, and a 24-hour network operations center.

Web Access

Once the data is delivered to our servers, it is made available to you via 2048-bit Transport Layer Security (TLS) encrypted website. All activities are logged and monitored. Repeated failed logins are blacklisted by IP address. Access from outside of US and Canada is automatically flagged.

Defense in Depth Security Strategy

The defense in depth security strategy involves layering security measures into the system. Firewalls are configured to minimize entry points and require high levels of validation; VPNs are used to secure the constant connections with cellular providers. Antivirus and antispam tools are used to block malware. The overall system is monitored from several vantage points, which alerts Mission engineers to any anomaly immediately. Mission follows industry standard best practices with respect to configuration and maintenance of all tools and sub-systems.

Practical Issues

Internal threats and shared, stolen, or casual passwords account for many security breaches today. Employing best practices within your organization can reduce security threats. Mission offers five levels of user credentials – public, read only, operator, administrator, and superadministrator. It is recommended to assign a superadministrator to maintain credentials for all of your users. User account passwords require a minimum of 6 characters and must include a number. Best practice states that passwords should be at least 8 characters with upper and lower case, a number, and special character; passwords should be changed every six months.

Comparison of Alternatives

Cellular communications reduce the risk of interception at the RTU due to the complex modulations and the spread spectrum nature of modern radio access technologies. With private radio network (PRN) and wireless ethernet based SCADA systems, the customer must commonly implement encryption on their own. Many private radio based systems are unencrypted and point-to-point wireless. Ethernet WPA/WEP key standards are notoriously easy to circumvent. The beauty of the Mission managed service is that security issues are outsourced to the cellular provider and the professionals at Mission, leaving you to focus on what you do best.

system is continuously maintained and enhanced at our central servers. The enhancements and new features developed by the engineers of Mission are immediately available to you at no extra charge. Each year Mission develops new features, some big, some small, all with a focus on the water and wastewater industry. Your investment with Mission grows in value over time!

Software and Database Maintenance – The Mission engineering team maintains, archives, and optimizes the system continuously. Terabytes of data are stored on high-speed Storage Array Networks. With a staff of engineers, Mission maintains a more responsive and reliable system for you.

Hybrid Systems – The optional OPC Data Link is used to synchronize RTU data on Mission servers with a traditional SCADA-HMI server(s). This allows operators to look at one system while receiving the advantages of managed and low-cost RTU connections. OPC security is assured via credentials and an optional VPN.

Low Risk Field Hardware – After the one year hardware warranty expires, Mission provides a low cost replacement parts commitment. Simply stated, the main circuit boards or radios will not exceed $250. In addition, we offer a technological obsolescence guarantee that eliminates your risk of an orphaned technology. These are some of the ways we have maintained an attrition rate of less than 1% per year.

Business Performance Guarantee:

Service Price Stability Guarantee

For as long as the customer chooses to use the Mission service the annual price will not increase from the initial term price by more than the amount equal to the annual compounded inflation rate as determined by the US Bureau of Labor as measured year-to-year from the start of the initial service term for the unit or as measured year-to-year from the mutually agreed annual service renewal date. This date must be mutually agreed upon by Mission and the customer.

Replacement Hardware Price Stability Guarantee

Replacement components for the originally purchased remote terminal units (RTUs) will be no higher than $250 for the radio module and $250 for the unit's main printed circuit board (PCB). Replacement costs for the Manhole Monitor will be no higher than $450 for the entire Manhole Monitor electronic assembly. Due to conformal coating of the Manhole Monitor unit there will be no sub-assembly replacements.

Technology Guarantee

Mission guarantees to the customer that the radio telemetry technology will be available for use by the customer as long as the customer wishes to utilize the service of Mission. If the original installed radio telemetry technology becomes unavailable or unusable for any customer unit, then Mission will at its sole expense, provide to the customer hardware for the customer to swap out and replace the non-performing unit's radio telemetry module hardware. The new radio module technology will be equal to or better than the original radio telemetry technology. Such equivalency is to be approved by the customer and such approval is not to be unreasonably withheld by the customer. If Mission cannot make such equivalent radio telemetry technology available to the customer within 120 days of the original radio telemetry cessation, then Mission maybe required by the customer to refund any prepaid service fees paid by the customer, minus any used service fees while the radio telemetry performed to the above standard for Service Performance, plus the sum of $500.

Obsolescence Guarantee

From time-to-time Mission intends to introduce hardware and service improvements to existing hardware models and to introduce new hardware/service offerings. Customers utilizing the managed service offerings of Mission (standard monitoring service) may wish to upgrade previously installed equipment to the newest model offering. Customers may trade in and/or upgrade equipment for a price equal to the new model price minus the current trade in value for the existing field equipment. The trade in value is defined as being 100% of the original purchase price in the first year (from date of purchase), 80% of purchase price in the second year, 60% in the third year, 40% in the fourth year, 20% in the fifth year and no trade in value thereafter. Additionally, if the new equipment has a higher annual service fee associated with it, the new fee will be applied to the customer's annual service at the time of field commissioning going forward. All the above are part of, and included in, the Mission annual service fee. Whether you use the legacy series, MyDro series, or the Manhole Monitor all the Mission SCADA services are included.

Mission is simply a better way to perform SCADA.

MISSION COMMUNICATIONS

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How Can You Use Mission Systems?

1. Complete stand-alone alarm and SCADA system

Small-to-medium size municipalities use the Mission system as a complete stand-alone alarm or managed SCADA system. This works especially well for lift stations at less than half the price of custom-developed SCADA. Mix and match RTUs and the Manhole Monitor Plus to meet all your needs. All Mission-managed service packages include communications, data storage, alarm call-outs, reports, and technical support.

2. Dialer replacement

A full Mission SCADA system costs less than a telephone dialer. You can upgrade one site at a time or the whole collection system.

3. Back up to existing problem or critical sites

Mission can provide backup at problem or critical sites that require redundant monitors and alarms. This improves system reliability and effectiveness for daily operations.

4. Fill-in to existing SCADA–hybrid or blended system

View your Mission data through our web interface, send the data into your existing SCADA software via our OPC client for redundant HMIs, or both. System savings with this approach typically run in the tens of thousands dollar range, both up front and over time.

5. In-sewer monitoring and alarming

Protect your organization from liability by monitoring your manholes to identify problems before they escalate and ultimately lead to spills. These low-maintenance, battery-driven systems install completely under the road bed, are waterproof and rugged, and cost less than $1 per day to operate.

Where Can You Use Mission Systems?

Water

- Tanks and Wells
- Flow Meters
- PRV Stations
- Streams, Ponds, Reservoirs, etc.

Wastewater

- Lift Stations
- Manhole Sites
- Pump Stations
- Booster Stations

Monitoring and Reporting:

- Real-Time Alarms
- Pumps Starts and Runtimes
- Level
- Flow
- Current
- Pressure
- Chlorine
- Turbidity
- Temperature

Remote Control:

- Tanks and Wells
- Valves
- Standby Equipment
- Chemical Dosers

Add rainfall tipping buckets to get a complete rainfall monitoring system.

namic, Reliable System

5 Intelligent hardware with solid and sophisticated capabilities

Easy to install—purpose-built RTUs speed and simplify installation and include all necessary hardware. There is no programming required, and RTUs are self-enrolling.

MyDro, MyDro 150, and MyDro 850 RTUs

Next Generation—MyDro RTUs feature all of the functionality of the M110 and M800 and take it further with an onboard interactive display and enhanced electronics.

Model M150

- Real-time alarms
- Hourly updates
- Continuous and secure RTU connection
- Manual remote control

Model M850

- Real-time alarms and streaming analog data for trending
- Real-time pump state changes
- Continuous and secure RTU connection
- Automated remote control with optional Tank and Well package

Manhole Monitor +

The Manhole Monitor Plus is our sewer overflow alarm and tracking system. Floats tipped by surcharges and high levels signal Mission servers to initiate notifications. It features our game-changing RMDT1 radio; this allows the device to switch cellular carriers as needed to ensure the best signal for reliable data transmission. The intrinsically safe IP 68 rated enclosure features double seals for the ultimate environmental protection.

- In-sewer, real-time CSO/SSO alarm system
- Rugged, waterproof enclosure
- E-paper display shows last reading without waking device
- 5+ year battery
- In-road antenna

6 Mission performance is guaranteed year after year

You never have to worry about technology obsolescence with Mission. We help our customers meet evolving challenges by staying on top of industry trends and making sure new features are readily available. Our managed service model provides the opportunity to upgrade previously installed equipment to the latest RTU without high up front or out-of-warranty expenses. That assurance is reinforced with our predictable cost of ownership—a pledge not to increase our annual service fee more than the rate of inflation. We want to earn your business, month after month, year after year, by delivering state-of-the-art technology through the most streamlined, cost-effective model available.

With Mission-Managed SCADA, you can:

- Install RTUs in a morning, and control costs all day
- Quickly identify system issues while on the go
- Leverage more control over your system to increase performance
- Simplify compliance reporting
- Increase efficiency by reducing pump wear
- Monitor your water/wastewater system from anywhere

You're Never Alone

We're ready to hand over the keys to a SCADA system built to meet your unique requirements. Everything is protected, affordable, and as easy as 1-2-3. You can even take a no-risk test drive using our trial RTU. We'll make it easy to move forward from there with a low and predictable total cost of ownership.

Share your needs with us, and we'll get to work determining the best path to achieving your water/wastewater monitoring goals. We provide live technical support, comprehensive training videos, and regular webinars. U.S. based after-hours support is always available on a responsive callback basis for emergencies—no additional charge.

Contact Mission today!

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Six Components of a D

1 Fully flexible, proactive alarms

Our diagnostic alert system quickly dispatches alarms to notify you of issues in real-time with your lift stations, pump stations, tanks, wells, booster stations, and PRV stations to prevent spills and other costly problems. Alarms are delivered via phone, text message, email, and even to your existing HMI software through an OPC data link. The alarm call-out schedule setup is easy, flexible, and intuitive. It can be as simple or sophisticated as you want it to be. Our alert system can notify you of anomalies to help reduce pump wear and tear, power usage, and more.

2 Comprehensive reports and graphs accessible from anywhere

RTU data can be securely accessed in the office or field from devices such as desktop computers, smartphones, and tablets. There is no RTU software to install or maintain. With the Mission reporting and graphing features, you can:

- Compare pump station flow with local rainfall to study inflow/infiltration
- Reduce wear and tear on your pumps by analyzing pump runtimes and starts for anomalies
- Track site access for maintenance records
- Record and report chlorine residual levels for compliance reporting

3 National wireless networks that are ready when you are

Mission has direct relationships with multiple cellular providers that uniquely allow us to have redundant, private gateways (signal paths) through the cellular system. These redundancy and data protocols are part of what allows Mission to deliver end-to-end uptime reliability much better than traditional phone lines or private radio. We purchase data in "bulk" and pass the savings on to you.

4 Dedicated security and performance managed by Mission

The Mission defense-in-depth security strategy centers on layering security measures into the system. The system is monitored from several perspectives so Mission engineers can identify any anomaly immediately. We also author—and continuously improve—our own software, enabling us to maintain our high level of performance standards and ensure continued feature upgrades.

MyDro Expansion Modules

Increase the monitoring possibilities of the MyDro remote terminal unit.

Expand MyDro 150 and 850 possibilities with MyDro Expansion Modules. The MyDro remote terminal unit (RTU) automatically recognizes the module when it is installed. The readings will be presented on the MyDro LCD screen and your web portal immediately.

Configurable options are presented on the LCD screen under the "Config." button. Your web portal is used to create alarm notification rules for the new I/O including alarm delays, analog thresholds, and flow (pulse) thresholds.

Analog Input, Analog Output, and Digital Input Expansion Modules are most suitable for the Mydro 850 series RTU. Pulse Input Expansion Modules can be used on either the MyDro 150 or 850 series RTUs. Setup forms for the modules are available online.

The expansion modules provide signal conditioning, isolation, ranging, A/D, and D/A conversion. Digital communication to the MyDro is based on a unique device ID and communications cable (RS485 2-wire, plus power). The device ID has been set by Mission at the factory as indicated on the label. One of each expansion module can be included on a single MyDro with the exception of the Pulse Input, as described below. Modules are daisy-chained (wired in parallel) on the same data bus via the included communications cable.

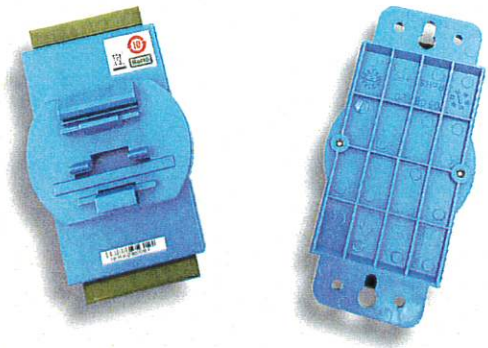
Analog Input Expansion Module
The two on-board analog inputs can be expanded to six with the Analog Input. 4–20 mA or 0–5 VDC signals can be selected by an internal jumper and configuration at the MyDro touch screen.

Analog Output Expansion Module
The Analog Output can be used to remotely change chemical dosers, variable frequency drives, or variable position valves, either manually or automatically. Output signals can be configured as 4–20 mA.

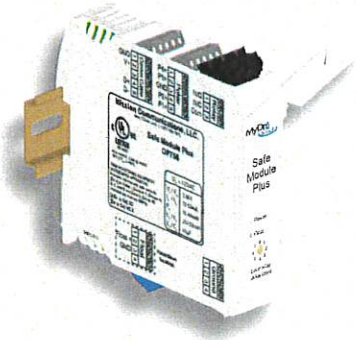
Digital Input Expansion Module
The eight on-board digital inputs can be expanded to 16 with the Digital Input. The inputs can be connected to instruments that provide a dry switch closure or a powered signal up to 50 VDC.

Pulse Input Expansion Module (not pictured)
The Pulse Input is used with pulse-based flow meters or rain tipping buckets. Each expansion module supports two pulse input channels. The MyDro supports two expansion modules yielding a total of four pulse channels. Dry contact or wetted up to 5 VDC are supported.

- **Easy to install**
- **Expands RTU inputs and outputs**
- **MyDro supports one of each expansion module simultaneously**
- **Included communications cable capable of long distances (RS485)**



- **DIN rail or flat back mount**

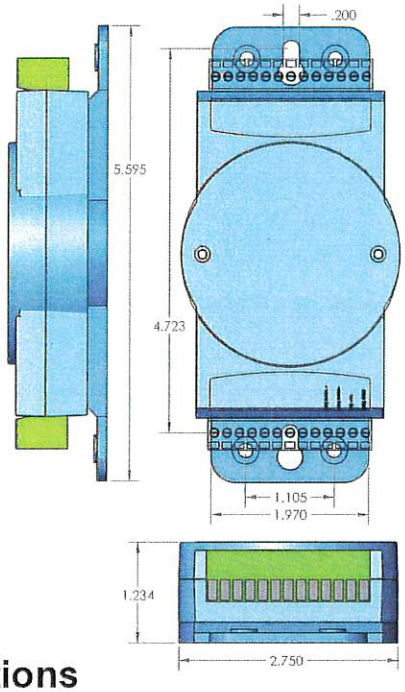


- **DIN rail mount**

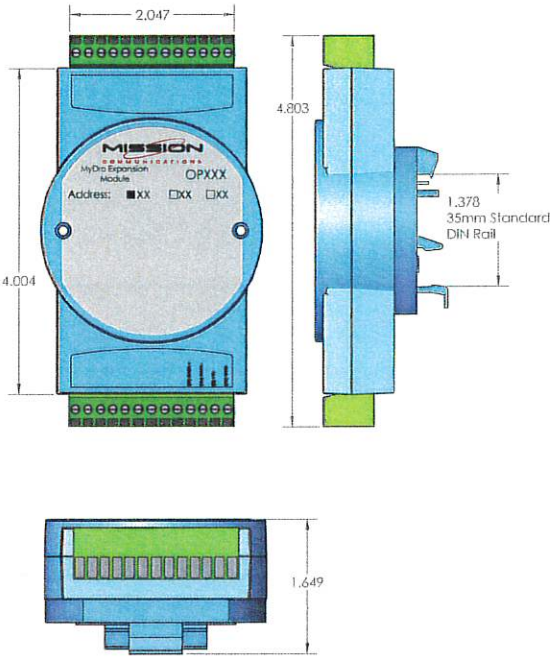
Dimensions

Interchangeable Mount Options

Direct Mount



DIN Rail Mount



Specifications

Data	Description	Analog Input	Analog Output	Digital Input	Pulse Input
	Mission Product Number	OP465	OP461	OP653	OP464, consider SMP pg. 3-4
	Device ID (decimal)	20	40	10	30
I/O	Channels	4	2	8	2
	Voltage on terminals	In: 0–4 mA or 0–5 VDC	Out: 4–20 mA	Dry or isolated, 0–50 VDC	Dry or wet, up to 5 VDC
	Input Impedance	Current: 120 Ω Voltage: 20M Ω	0.5 Ω out, max current load is 500 Ω	5.2K Ω	50M Ω
	Timing	N/A	N/A	N/A	Minimum 8 msec, high and low, max frequency 60 Hz
Communications	Cable (PN CP500)	Jacketed with RJ45 terminal on MyDro end, tinned on other, 2 conductors for data, 2 for power--			
	Protocol	RS485 (2-wire Data+, Data-)			
	Maximum communication distance	4,000 feet, voltage drop of included power must be considered			
	Indicators	Power, communications		Power, communications, DI	Power, communications
	Asynchronous Data Format:	Handled by MyDro (no config required) 1 startbit, 8 databits, 1 stopbit, no-parity, with checksum			
	RS 485 Transient Suppression	Yes			
Power		10–30 VDC, unregulated, protected against power reversal			
	Maximum power (including instruments)	1.2 W	3 W	1 W	2 W
Mech	Case	ABS and PC with captive mounting hardware			
	Included mounting plates	35 mm DIN rail or direct panel mount			
Terminals	Wire gauge	14–28 AWG			
	Mission PN	CP501	CP502		CP501
Service		Requires service package (PN SPOP-12)			
Environment	EMI	Meets FCC Class A or CE			
	Temperature	10–70° C			
	Humidity	5–95%, non-condensing			

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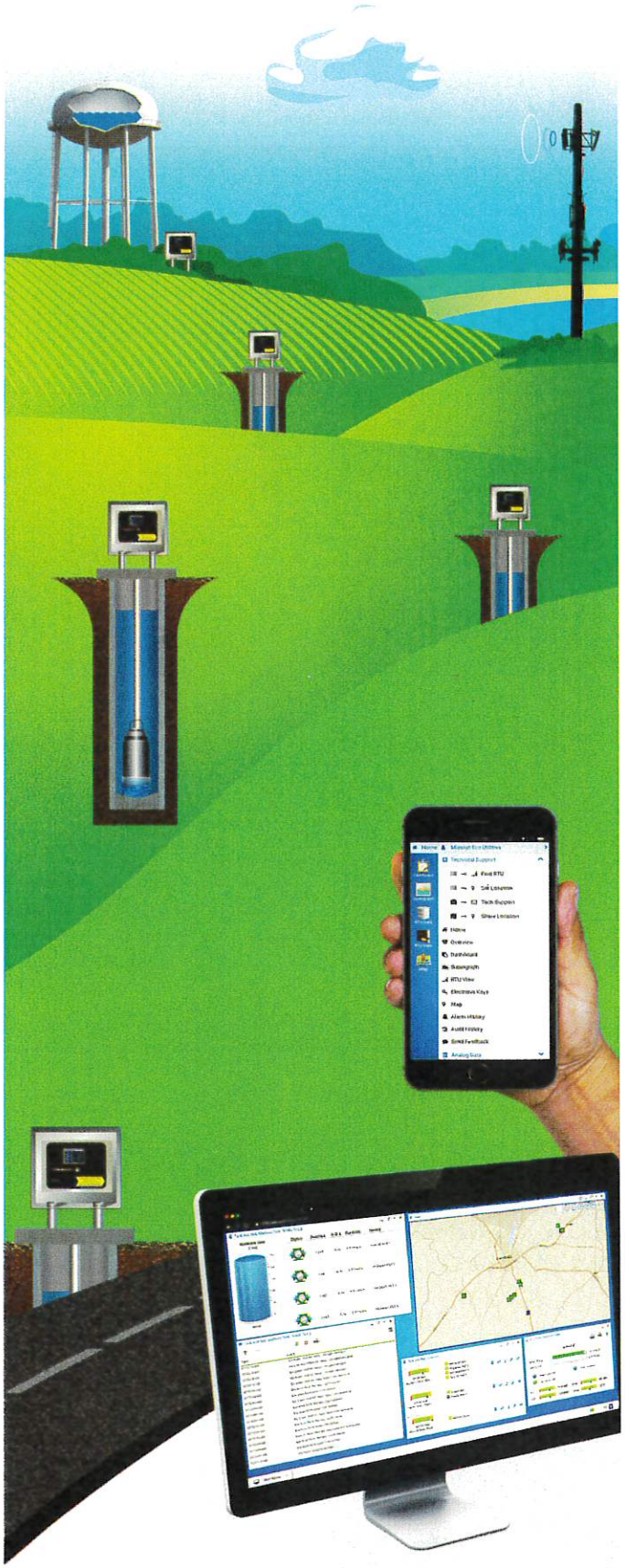
Tank and Well Package

Automated Remote Control for Water Systems

The Mission Tank and Well System maintains the water level in a storage tank by automatically sending commands that signal remote well or booster pumps to turn on and off. The system relies on standard Mission 800 series RTUs and a transducer to measure the tank level. There are no radio networks, computers or PLCs to maintain. It is low cost and easy to set up.



How It Works

The RTU at the water tank continuously transmits level information to a nearby cellular tower. This RTU may be connected to other equipment such as chlorine monitors or other alarm inputs and can be solar powered. Status data packets are transmitted through a secure private network connection to Mission servers. When the tank level is outside the user configurable level boundaries, a command is automatically sent to output relays on the same RTU or remote RTUs to energize pumps or valves and refill the tank. The Tank and Well software is offered in two packages. The first supports up to three pumps, and the second supports up to five pumps.

Real-time notifications and reports inform operators of high pump starts, excessive pump runtimes, AC failure, low battery and more. The web portal allows an operator with appropriate security credentials to adjust the pump on/off trigger levels and view current level readings. Trending graphs and reports are accessible on desktops and through the 123SCADA app on devices such as smart phones and tablets.

Optimization and Money Saving Features

The software includes a virtual pump alternator feature which cycles through each well pump connected to a Tank and Well system. It can be set up to evenly distribute pump runtimes across all wells or alternate the lead pump to favor the well that has had the least water production in the last one to seven days.

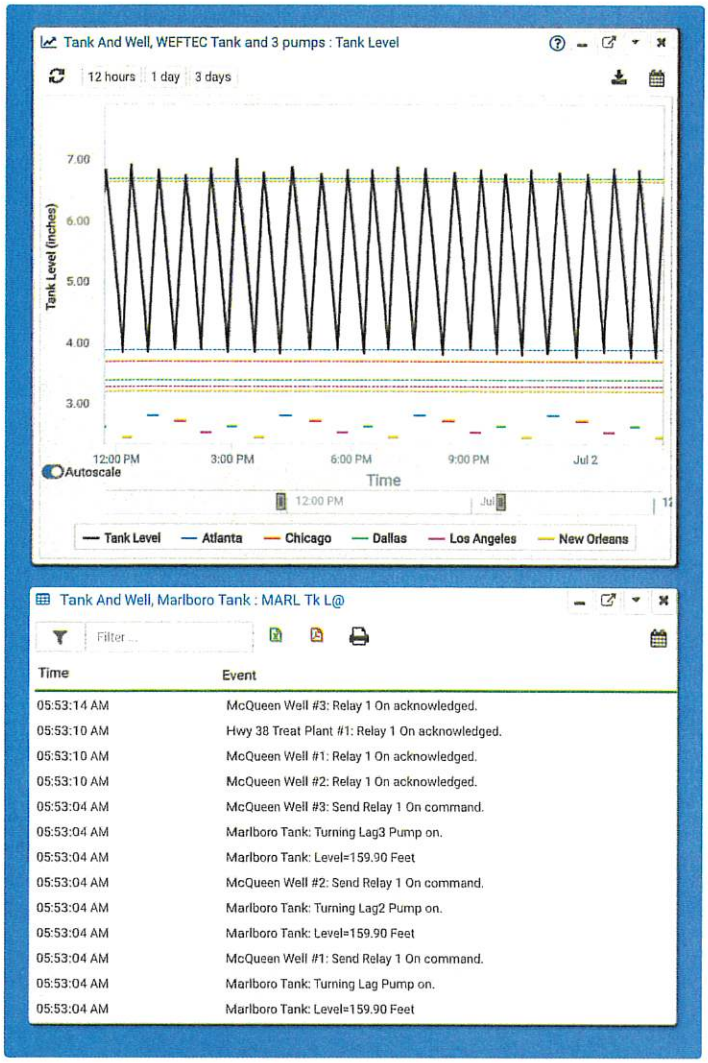
Maximum runtimes can be set for each pump, and the system will alternate to the next pump once the maximum runtime is reached. This reduces the risk of damaging the water table by over pumping.

An off-peak force fill feature is available to save you money by filling your tank when electricity rates are lower than peak hour rates.

Behind the scenes business logic is available to notify you of abnormal situations that can affect system performance. For example, a "call-to-run fail-to-run" alarm notification can be dispatched by the system if the well pump does not run when instructed. This could happen if the well is without AC power, an operator has locked the pump out locally (typically via the HOA switch) or the pump requires service (motor burnt out). More information is available in our document "Best Practices for Remote Control," which can be found via the web portal.

Details

Tank and Well Package



On the 123SCADA web portal the customer can:

- View current and historic tank level
- View real-time well call and run status

With administrator credentials the operator can:

- Set well control points
- Enable and disable alternation
- Manually run or lock out individual wells via virtual HOA switch
- Set high and low alarm points

What You Will Need:

At the tank

- One MyDro 850 RTU (PN M851, M852, M852L, M853)
- One 800 Series Service Package for real-time alarms and streaming data (PN SP850-12/24/36)
- One Tank and Well Control Package (PN SW587)
- One 4-20 mA or 0-5 V analog level sensor, various PSI ranges (PN IT47X)
- One level sensor surge suppressor (PN IT482)
- One antenna extension kit, various lengths, optional (PN RF41X)

At each well

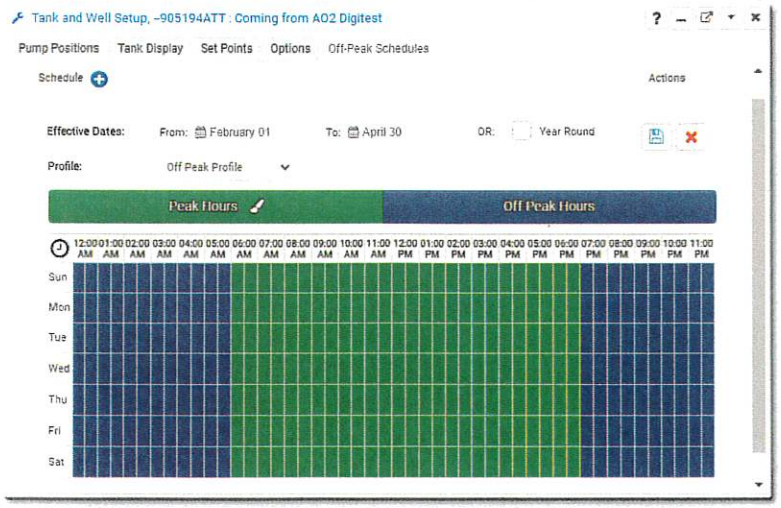
- One MyDro 850 RTU (PN M851, M852, M852L, M853)
- One 800 Series Service Package for real-time alarms and streaming data (PN SP850-12/24/36)
- Interposing relays (PN PW479 or PW480)
- One antenna extension kit, various lengths, optional (PN RF41X)

Refer to the MyDro data sheet, the accessories catalog, and Best Practices for Remote Control for more information.

Off-Peak Schedules

Off-Peak Schedules allow users control the filling of their tanks to a different level during off-peak hours to take advantage of lower utility costs. By keeping the levels high during the off-peak period the tank will be nearly full at the start of the peak period where energy costs are higher. Depending on the size of the tank and demand for water the pumps may not need to run at all during the peak period.

Configure off-peak schedules from 123SCADA.com using the following navigation path: Start Menu > Applications > Tank and Well > Tank and Well Setup (Wrench Icon) > Off-Peak Schedules



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PS98i

4-20mA SUBMERSIBLE PRESSURE TRANSMITTER

APPLICATIONS

- Pump and slug tests
- River, stream, reservoir gauging
- Stormwater runoff monitoring
- Wetland Monitoring
- Well, tank, tidal levels
- Flow monitoring
- Water resource management
- Landfill leachate levels
- Control applications

Features

- Pressure
- ± 0.25% FSO accuracy
- Lower power (9-24Vdc)
- Small diameter—0.75" (1.9cm)
- 1/4" NPT end cone adapter option (300psi max.)

The **Seametrics PS98i** pressure transmitters are rugged and accurate with great noise immunity, transient protection, and thermal performance.

These pressure sensors have been designed to provide trouble-free submersible operation in liquid environments. Pressure is measured with an extremely rugged and stable piezo-electric, media isolated pressure element and calibrated with well established calibration procedures and NIST traceable equipment.

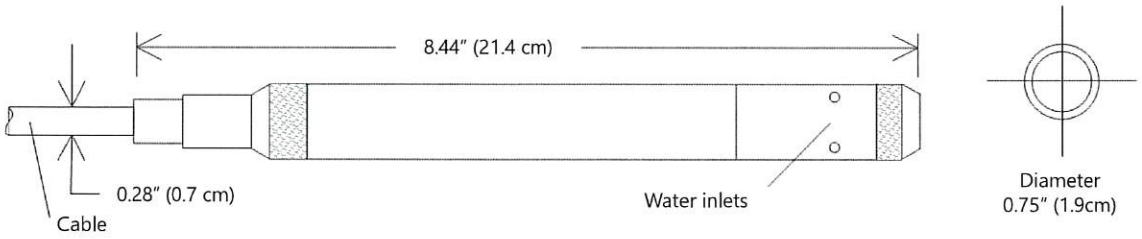
The PS98i sensors are thermally compensated, making them great where water temperatures vary, as they are thermally stable (2% over 50 degrees standard).

These industry standard, 2-wire, 4-20mA devices offer reverse polarity protection, under- and over-current limitation, and built-in transient protection.

Contact Your Supplier

PS98i
4-20mA SUBMERSIBLE PRESSURE TRANSMITTER

Dimensions



Specifications

Housing	**Weight**	0.8 lb. (0.4 kg)
	Length	8.44" (21.4 cm)
	Diameter	0.75" (1.9 cm)
	Body Material	Acetal and 316 stainless or optional titanium
	Wire Seal Material	Fluoropolymer and PTFE
Cable	**Cable**	Submersible: Polyurethane, polyethylene, or ETFE available
	Desiccant	1-3 mm indicating silica gel
	Field Connector	Available as an option
Operating Temperature Range		Recommended: -5° to 70°C (23° to 158°F) Requires freeze protection if using in water below freezing.
Transmitter Voltage		9-24Vdc (100ms warmup)
Output		4-20mA
Pressure	**Element**	Silicon strain gauge transducer, 316 stainless or Hastelloy
	Accuracy	±0.25% FSO (static, B.F.S.L. 20°C)
	Range	Gauge PSI: 1, 5, 15, 30, 50, 100, 300 FtH_2O: 2.3, 12, 35, 69, 115, 231, 692 mH_2O: 0.7, 3.5, 10.5, 21, 35, 70, 210 Absolute[1] PSI: 30, 50, 100, 300 FtH_2O: 35, 81, 196, 658 mH_2O: 10, 24, 59, 200
	Compensated	0° to 50°C (32° to 122°F)
Max operating pressure		1.1 x FS
Burst pressure		3.0 x FS (for >300 psi (650ft, 200m) contact Seametrics representative)
Regulatory		CE

**Specifications subject to change. Please consult our web site for the most current data (seametrics.com).*
1 Depth range for absolute sensors has 14.7 PSI subtracted to give actual depth allowed.

Seametrics • 19026 72nd Avenue South • Kent, Washington 98032 • USA
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