Application Scenario
How Remote Management Optimizes Pump Station Effectiveness

From the Edge to the Cloud
All-in-One, Well-Integrated Solution
Remote monitoring usually requires considerable effort from system integrators and time for testing and integrating different devices with different brands.
This solution-ready platform is suitable for the remote monitoring and control of pump stations of varying size.
Supports Multiple Wireless Solutions
Depending on size or project, you may require different types of wireless connection. The open system architecture allows for 2G/3G/4G/LTE/Wi-Fi solutions with minimal system changes.
Enhanced Cyber Security
Remote pump stations typically use a public network for data communication. Consequently, data may be at risk of attack or hacking. Advantech TagLink can build up a secure communication tunnel with a central station. This ensures both data integrity and security.

Ordering Configuration Table

<table>
<thead>
<tr>
<th>Package Offering</th>
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<tbody>
<tr>
<td>Application Software:</td>
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<tr>
<td>WebAccess/SCADA</td>
</tr>
<tr>
<td>Pump Station Remote Terminal Unit (RTU):</td>
</tr>
<tr>
<td>ADAM-3600 x1</td>
</tr>
<tr>
<td>Intel® 4G LTE Router &amp; Gateway:</td>
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<tr>
<td>Intelligent 4G LTE Router &amp; Gateway:</td>
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Expansion offerings

<table>
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<th>Platform</th>
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<tr>
<td>ECU-4784</td>
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<tr>
<td>TPC-1531T</td>
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<table>
<thead>
<tr>
<th>Module</th>
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</thead>
<tbody>
<tr>
<td>WISE-4012</td>
</tr>
<tr>
<td>WISE-4090</td>
</tr>
</tbody>
</table>

Central Station
Interactive Dashboards developed by WebAccess Software

Small-Sized Unmanned Pump Station
Advantech TagLink Ready

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Contact Information

Name: 
Title: 
Phone: 
Email: 

Under the impetus of IoT technology, water supply facilities will be equipped with intelligent water networks. Water pump stations are the most important nodes in a water network. For example, booster pump stations can improve the water pressure in public water mains, and drainage pump stations can ensure normal drainage during floods. With the rising cost of living and need for larger water supplies, the supervision of water pump stations must rely on science and technology to shorten inspection cycles or achieve unmanned control. By installing a water network information system, relevant departments can view the operating status of their pump stations and control their efficiency, to provide a basis for equipment maintenance in addition to significantly increasing management efficiency.

Introduction

Software Architecture and Key Design Features

Pump Station Management System (PSMS)

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<th>Database</th>
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<td>PSMS Configuration</td>
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<tr>
<td>Operations Management</td>
<td>PSMS Historical Data</td>
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<tr>
<td>Monitor</td>
<td>Archiver</td>
</tr>
<tr>
<td>WebAccess</td>
<td>Archive</td>
</tr>
</tbody>
</table>

Client

| PSMS Management System Software
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PSMS Mobile App</td>
</tr>
</tbody>
</table>

3G/4G High-Speed GPRS

Any Format

Wireless remote management supports all communication formats (4G, 3G, Wi-Fi, GPRS)

No Data Loss

Local data buffering secures data integrity

Line Secured

Secure access from multiple points in one station

Software Architecture and Key Design Features

Pump Station Management System (PSMS)

3G/4G Wireless RTU

ADAM-3600

Low-cost SmartStart LTE Cat.1 and Cat. 4 cellular routers and gateways connect Ethernet, RS-232, and I/O devices to cellular networks.

WebAccess / SCADA

Advantech’s browser-based HMI/SCADA software WebAccess is a 100% web-based SCADA software solution that also serves as an IIoT platform by providing open interfaces for developing IoT applications aimed at various vertical markets.

Solution-Ready Platform Package

ADAM-5560

The Micro PCC is useful for up to 224 I/O point applications. It features control-specific features such as a watchdog timer, battery backup RAM, and deterministic I/O.

SL30410110-SWH

Low-cost SmartStart LTE Cat.1 and Cat. 4 cellular routers and gateways connect Ethernet, RS-232, and I/O devices to cellular networks.

Interactive Dashboards developed by WebAccess Software

Central Station

Pump Station Management Server

Pump Station Management System (PSMS)

Small Pump Staation

Large / Medium Pump Station

WebAccess Software Features

Visualization

Operations Management

Monitor

WebAccess

TagLink Data Gateway

Any Format

No Data Loss

Line Secured

Secure access from multiple points in one station

TagLink Technology

Taglink is a new embedded technology for intelligent edge devices (e.g., RTUs and gateways), providing an effective means for monitoring key assets from anywhere at any time.
Under the impetus of IoT technology, water supply facilities will be equipped with intelligent water networks. Water pump stations are the most important nodes in a water network. For example, booster pump stations can improve water pressure to public water mains, and drainage pump stations can ensure normal drainage during floods. With the rising cost of living and need for larger water supplies, the supervision of water pump stations must rely on science and technology to shorten inspection cycles or achieve unmanned control. By installing a water network information system, relevant departments can view the operating status of their pump stations and control their efficiency, providing a basis for equipment maintenance in addition to significantly increasing management efficiency.

**Introduction**

Software Architecture and Key Design Features

### Pump Station Management System (PSMS)

- **Client**
- **PSMS**
- **WebAccess**
- **TagLink**

### System Block Diagram

#### Central Station

- **Pump Station Management Server**
- **Pump Station Management System (PSMS)**
- **Interactive Dashboards developed by WebAccess Software**

#### Small Pump Station

- **3G LTE**
- **Pressure Meter**
- **Flow Meter**
- **Float Switch**
- **Water Level Indicator**

#### Large / Medium Pump Station

- **4G Router**
- **SL30410110-SWH**
- **IP Camera**
- **Access Control**

#### Solution-Ready Platform Package

- **ADAM-5560**
  - The Micro PLC is useful for up to 224 I/O point applications. It features control-specific features such as a watchdog timer, battery backup RAM, and diagnostics I/O.

- **ADAM-3600**
  - The intelligent RTU has multiple wireless function capability, multiple I/O selection, a wide temperature range, and supports flexible communication protocols for water applications.

- **SL30410110-SWH**
  - Low-cost SmartFlirtLTE Cat. 1 and Cat. 4 cellular routers and gateways connect Ethernet, RS-232, and I/O devices to cellular networks.

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Advantech’s browser-based WEB/SCADA software WebAccess is a 100% web-based SCADA software solution that also serves as an IoT platform by providing open interfaces for developing IoT applications aimed at various vertical markets.

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### Introduction

Software Architecture and Key Design Features

**Pump Station Management System (PSMS)**

- **Client**
- **PSMS Management System Software**
- **Database**

### System Block Diagram

**Central Station**

**Central Station**

**Interactive Dashboards developed by WebAccess Software**

**Pump Station Management Server**

**Pump Station Management System (PSMS)**

**Solution-Ready Platform Package**

**ADAM-5600**

The Micro PLC is useful for up to 224 I/O point applications. It features control-specific features such as a watchdog timer, battery backup RAM, and deterministic I/O.

**ADAM-3600**

The intelligent RTU has multiple wireless function capability (multiple I/O selection, wide temperature range, and supports flexible communication protocols for water applications).

**SL30410110-SWH**

Low-cost SmartEdge LTE Cat.1 and Cat.4 cellular routers and gateways connect Ethernet, RS-232, and I/O devices to cellular networks.

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From the Edge to the Cloud

All-in-One, Well-Integrated Solution

Remote monitoring usually requires considerable effort from system integrators and time for testing and integrating different devices with different brands. This solution-ready platform is suitable for the remote monitoring and control of pump stations of varying size.

Supports Multiple Wireless Solutions

Different field sites or projects may require different types of wireless connection. The open system architecture allows for 2G/3G/LTE/Wi-Fi solutions with minimal system changes.

Enhanced Cyber Security

Remote pump stations typically use a public network for data communication. Consequently, data may be at risk of attack or hacking. Advantech TagLink can build up a secure communication tunnel with a central station. This ensures both data integrity and security.

Ordering Configuration Table

SRP-ERE001 Optimize Overall Pump Station Effectiveness

Package Offering

Application Software:
WebAccess/SCADA

Pump Station Controller:
ADAM-5560KW x1
7-Slot Microcontroller with Intel ® Atom™ CPU
2xLAN, 2xUSB 2.0, 4xRS-485, VGA

Pump Station Remote Terminal Unit (RTU):
ADAM-3600 x1
4-Slot Expansion Wireless Intelligent RTU
8xAI / 8xDI / 4xDO

Expansion offerings

Platform

ECU-4756

Qty: ___

TPC-15517

Qty: ___


I/O Modules

WISE-4012

4-ch Universal Input and 2-ch Digital Output to 7-bit Wireless I/O Module

WISE-4050

4-ch Digital Input and 4-ch Digital Output to 7-bit Wireless I/O Module

Contact Information

Name:
Title:
Phone:
Email:

Centralized operation with unmanned remote sites
Scalable architecture for plants of any size
Analyzing and optimizing power station efficiency

SRP-ERE001 Optimize overall pump station effectiveness

Remote Pump Station Management Solution

Online Catalog

Energy & Environment

Small-Sized Unmanned Pump Station

Ammeter
Switch
Float Switch
Piezometer
Electric Valve
Water Level Indicator

GPRS
3G
LTE

Interactive Dashboards developed by WebAccess Software

Advantech TagLink Ready

Wireless RTU
ADAM-3600

InterActive Dashboards developed by WebAccess Software
### Application Scenario

**How Remote Management Optimizes Pump Station Effectiveness**

Remote monitoring usually requires considerable effort from system integrators and time for testing and integrating different devices with different brands. This solution-ready platform is suitable for the remote monitoring and control of pump stations of varying size. Supports multiple wireless solutions. Enhanced cyber security. Remote pump stations typically use a public network for data communication. Consequently, data may be at risk of attack or hacking. Advantech TagLink can build up a secure communication tunnel with a central station. This ensures both data integrity and security.

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<td><strong>Pump Station Controller:</strong></td>
<td>ADAM-5560KW x1</td>
</tr>
<tr>
<td></td>
<td>7-Slot Microcontroller with Intel® Atom™ CPU</td>
</tr>
<tr>
<td></td>
<td>2xLAN, 2xUSB 2.0, 4xRS-485, VGA</td>
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<tr>
<td><strong>Pump Station Remote Terminal Unit (RTU):</strong></td>
<td>ADAM-3600 x1</td>
</tr>
<tr>
<td></td>
<td>4-Slot Expansion Wireless Intelligent RTU</td>
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<td>8AI / 8DI / 4DO</td>
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<td></td>
<td>Advantech TagLink Embedded</td>
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<tr>
<td></td>
<td>-40°C to 70°C Operation Temperature</td>
</tr>
<tr>
<td><strong>Intelligent 4G LTE Router &amp; Gateway:</strong></td>
<td>SL30410110-SWH</td>
</tr>
<tr>
<td></td>
<td>1xEthernet, 1xRS-232, 2xSIM Card Holder</td>
</tr>
</tbody>
</table>

**Expansion offerings**

<table>
<thead>
<tr>
<th>Platform</th>
<th>Qty.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECUS-4734</td>
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</tr>
<tr>
<td>TPC-1551T</td>
<td>15” TFT LCD 2D/button 800 x 600 Panel PC</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I/O Modules</th>
<th>Qty.</th>
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</thead>
<tbody>
<tr>
<td>WISE-4050</td>
<td>___</td>
</tr>
<tr>
<td>WISE-4012</td>
<td>___</td>
</tr>
</tbody>
</table>

**Central Station**

Interactive Dashboards developed by WebAccess Software

**Small-Sized Unmanned Pump Station**

Advantech TagLink Ready

- GPRS
- 3G
- LTE
- Wireless RTU ADAM-3600

- Ammeter
- Switch
- Float Switch
- Piezometer
- Electric Valve
- Water Level Indicator

**Contact Information**

- Name:
- Title:
- Phone:
- Email:

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**Remote Pump Station Management Solution**

Optimize overall pump station efficiency with centralization, scalability for plants of any size, analyzing and optimizing power station efficiency.

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**Order Catalog**

**Online Catalog**

**www.advantech.com**

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**Advantech Core Values**

- Customer Focus
- Innovation
- Teamwork
- Accountability

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**Lead Technologies**

- WebAccess
- SCADA
- ADAM-5560KW
- ADAM-3600
- Advantech TagLink Embedded
- Intel® Atom™
- 3G/4G
- Wi-Fi
- GPRS

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**Combining Knowledge & Innovation**

**Enabling an Intelligent Planet**