

Large Area Water-level Monitoring System

How did Shin-Xien Water and Agriculture Bureau apply ADAM-4500 PC-based communication controller and ADAM-4000 series remote data acquisition modules for a wide-area water level monitoring and control system, special in the water gates operation management?

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INTRODUCTION

Shin-Xien, the most inland province of China, depends heavily on livestock products and agriculture for its economic activities, therefore water is a strategic resource for them. Bureau of Water and Agriculture of Shin-Xien decides to build a large area water level monitoring system. And they hope the field data, such as water level, gate status, etc., can send back to regional center through radio modem.

SYSTEM REQUIREMENTS

The general requirements of this intelligent system are:

1. Display of water level and flow volume in different gates.
2. Auto-adjustment of sensors
3. Comparison functions in each point (so as to calculate the water level via flow amount)
4. Standalone control



5. Wireless transmission capability
6. Good price performance

The original design from previous system integrator can only provide part of the user's requirements. The standalone control capability, data storage function and comparison function cannot be executed.

SYSTEM DESCRIPTION

Thing has been changed after the introduction of ADAM-4500 PC-based communication controller. It features with built-in ROM-DOS, 256K RAM, 256K ROM, RS-232 & 485 COM ports and watchdog timer. The process of improved intelligent monitoring system is developed by C language under PC environment and download to ADAM-

4500. The process includes:

1. 8-ch. ADAM-4017 analog input module to collect water level data
2. Non-linear water-level calibration
3. Data storage
4. Calculate flow volume with comparison function
5. ADAM-4050 drives LED display and show the level and volume status
6. Radio transmission upland to field status back to regional center

The strengths of ADAM-4500 are

- Sufficient RAM & ROM provide enough memory and flexibility to develop comparison function and store data.
- Built-in watchdog timer will monitor the CPU and reset the system while it is abnormal.
- A PC-based Communication Controller with C development environment.
- Highly modularized so as the system can be easily expanded in wide area without too much effort.

CONCLUSION

Through the easy-to-use of ADAM-4500 and short application development time, Bureau of Water & Agriculture of Shin-Xien is able to solve the problem and manage water level among a wide area economically. In the end, the productivity of local agriculture will be improved.

Sufficient RAM & ROM provide enough memory to program comparison function and support data storage demand. The built-in watchdog timer can monitor abnormal CPU status and reset while the system is wrong. ■

