HUATO

S400W Series

Wireless Data Logging System

ToMonitor & ToClient

ToClient

Logger ST52: Temperature (27 ℃) exceeds limits（10,25）.

SMS Alarm

GSM Modem

Server

Guest

Logger ST52: Temperature (27 ℃) exceeds limits（10,25）.

E-**mail Alarm**

Router

Internet

Factory Workshop

Wireless DTU

Warehouse

Refrigerator

Network Room

Cold Storage

Working Principle

As the pictures shows Wireless Base Station DTU collects all data from S400W data loggers and then transfer to *ToMonitor* server (PC). *ToMonitor* shows the real-time data, turn into EXCEL / Graph / Text format, all logger properties and SMS/email functions can be set on *ToMonitor* interface.

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S400W Series

Wireless Data Logging System

S400W-TH

Instrument Features

- ◆ Using Zigbee 2.4GHz wireless technology
- ◆ Up to 100 meters transmission range (line of sight)
- ◆ Repeater available to extend transmission range
- ◆ Logger memory automatically downloaded
- ◆ Real-time monitoring on your computer
- ◆ Alarm functions: SMS / E-mail available as following picture shows
- ◆ Long battery life (6 months @ 10 minutes interval)
- ◆ Maximum 32 data loggers to one base station
- ◆ Simple, quick and easy to install

S400W-EX　　**S400W-ET**　　**S400W-DT**　　**S400W-EK**

Model	Sensor Type	Range	Accuracy	Memory
S400W-TH	Temperature & Humidity Internal Sensors	-20～+70℃	±0.5℃ ±3%RH	8,192
S400W-EX	Temperature & Humidity External Probe with 3m Cable	-40～+85℃		
S400W-ET	Single External Temperature Probe with 3m Cable	-40～+100℃	±0.5℃	
S400W-DT	Double External Temperature Probe with 3m Cable			
S400W-EK	Single External Temperature Probe (Thermocouple) with 3m Cable	-100～+480℃	±2℃	

Applications

Realize temperature humidity central-monitoring and central management for cold storage, server room, refrigerator, pharmaceutical and industry warehouse, museum as well as laboratory.

Technical Specifications for S400W

◆Recording Capacity：Maximum 8192，record for more than 2 years if log interval can be set 10 minutes.

◆Long Interval：2 second ～24 hours. Timing Recorder Time, Sample Interval and log interval can be set in the Software.

◆Recording protection：Recording Function will stop when Battery is Low but Recording Values can be saved Forever Safely.

◆Adopt Switzerland Digital Temperature Humidity Integration Sensor, which Assure the Reliability & Stability.

◆Display Resolution： temperature: 0.1℃/ humidity: 0.1%RH

◆PC interface：Zigbee + USB

◆Wireless transmission rate: 115200 BPS

◆Waterproof Level：IP54.

◆Dimension：90 * 87 * 44 mm.

◆Wireless Antenna：Built-in（2.4G）.

◆Installation：Wall-mounted with fixed support, easy to use and convenient to maintain.

◆Alarm Type：Audible & Visual Alarm (LED + Buzzer). Automatic Alarm when any Setting Limits are Exceeded.

◆Battery：4*AA 1.5V Battery.

Technical Specifications for HE2400 Wireless Base Station (Transmission Relay)

◆ Wireless transmission rate: 115200 BPS.

◆ Wireless temperature humidity data logger terminal units available: 32 units.

◆ Frequency number supported: 15 Bands

◆ Display：Dual display. The first line shows the packets count received; the second line shows the last five numbers of the serial No of the last packets data logger.

◆ PC interface: Zigbee + RJ45，can be connected directly to the internal LAN of enterprise.

◆ IP address：Fixed IP.

◆ Dimension：126 * 120 * 30 mm。

◆ It will connect several data packets into one packet when receive data packet from multiple wireless data loggers and send to the ToMonitor system.

◆ **Relay Configuration Rules: Each relay has one unique ID to assure no conflict；Every adjoining relay work in different band.**

◆ Installation：Wall-mounted.

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Server
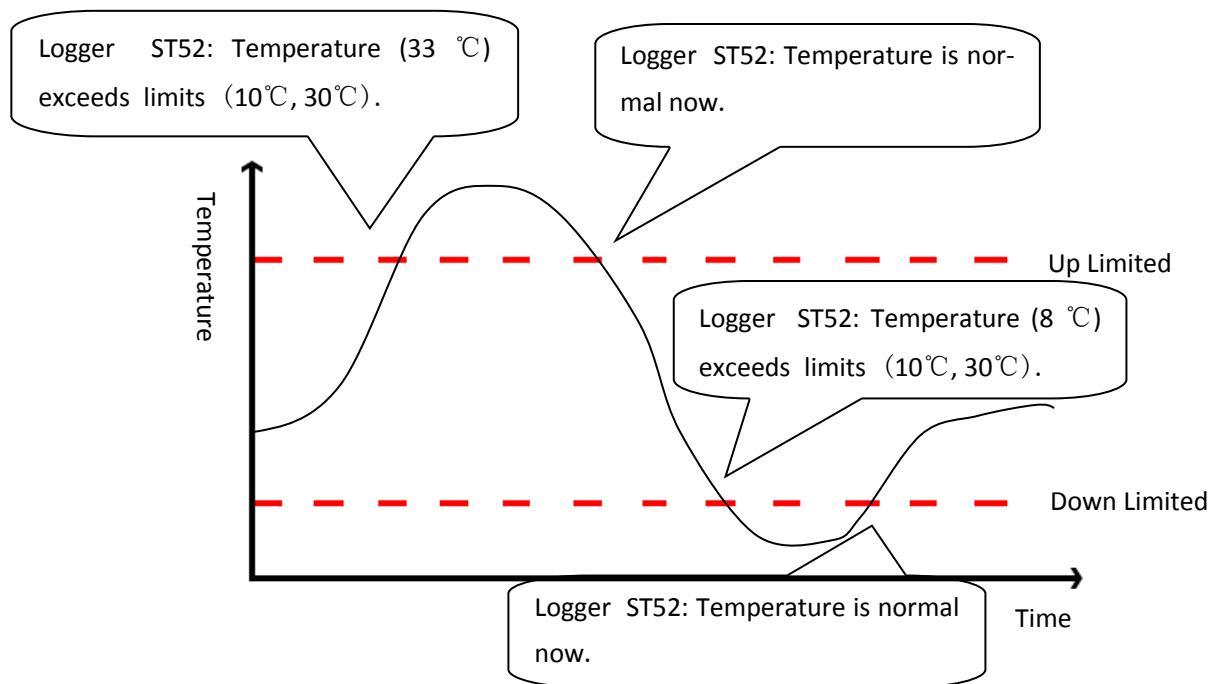
USB Port

Logger ST52: Temperature (27 ℃) exceeds limits（10℃, 25℃）.

HE2508 GSM Modem

SMS Alarm

Logger ST52: Temperature (33 ℃) exceeds limits（10℃, 30℃）.

Logger ST52: Temperature is normal now.

Temperature

Logger ST52: Temperature (8 ℃) exceeds limits（10℃, 30℃）.

Up Limited

Down Limited

Logger ST52: Temperature is normal now.

Time

SMS Alarm Features

◆ If user defined max/min values are exceeded, system will send SMS to USER'S Mobile phone.

◆ The largest number of alarm & frequency can be set.

◆ When the Temperature or Humidity returns to normal range, system will send the SMS to user's mobile phone again.

Network Topology

In this project, there are lots of monitoring stations. Considering wireless signal and reliability problems, we adopt LAN and wireless equipment hybrid networking. *ToMonitor* Software use TCP/IP networking protocol to monitor each transmission relay (station), which collect the wireless list data respectively and real-timely send to *ToMonitor* server software via internal LAN. The network mode adopts Client/Server framework, distributed stationing and centralized monitoring principle so that there is no mutual influence

between the single point faults. Also the testing data can truly reflect the interior room (box) environment. In this way, we can improve the system reliability greatly and combine the unified monitoring and independent measurement and control. Take this project for example; the Network Topology picture is as follows:
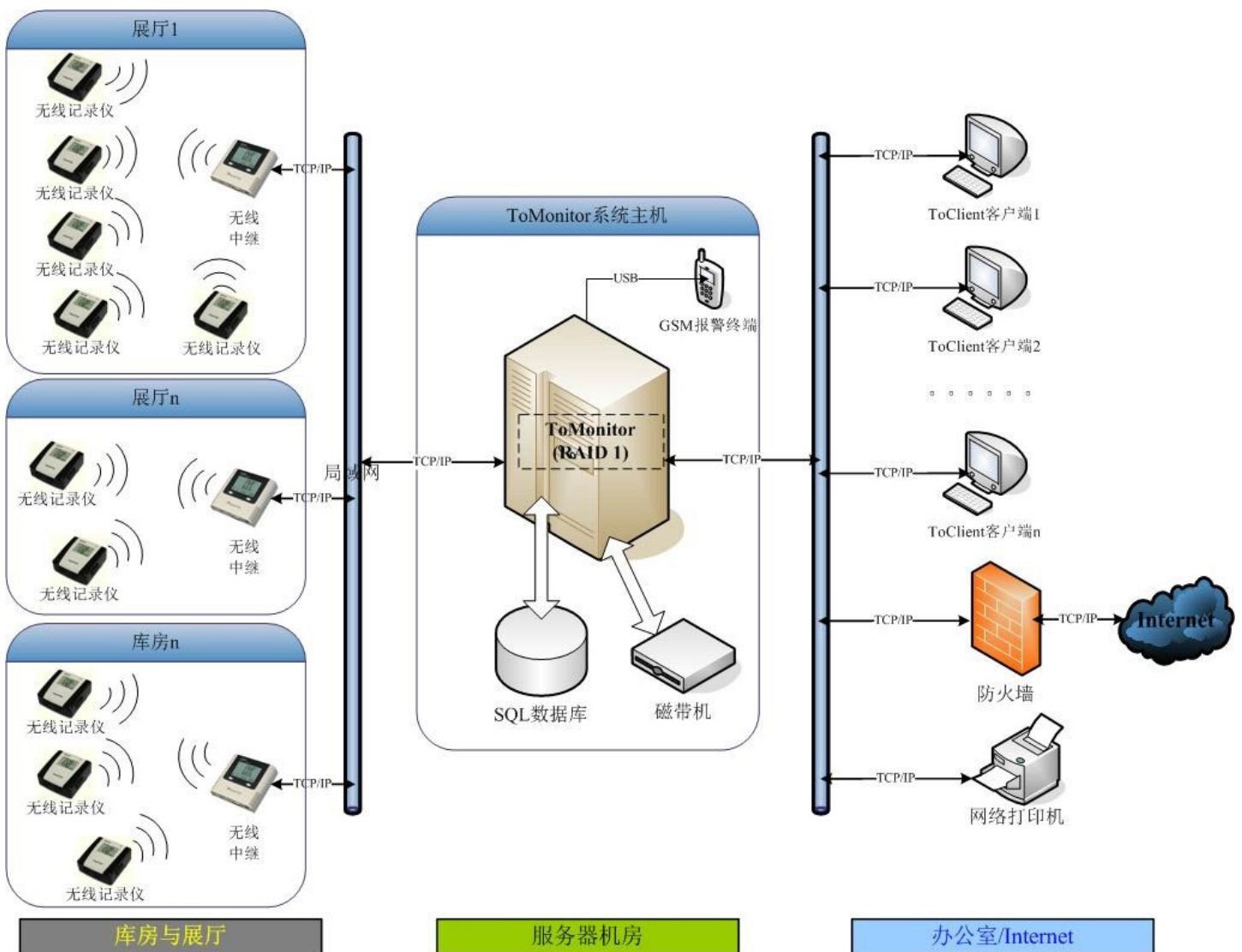
Note：*ToClient* software is a kind of tool software for terminal clients, which can be used to check all the history data and view the real-time data，*ToMonitor* software is a kind of serve software, to compose the C/S framework together with the *ToClient*.

ToMonitor monitoring system includes three parts: user layer (office/ Internet), control layer (server room) and equipment room (warehouse and exhibition hall). *ToMonitor* interior loystem is quite easy to manage; full automatic control and very accurate so that clients can save manpower and material recourses and fully satisfy the temperature humidity environment monitoring requirements.

Real-time Monitoring

Data from the transmission relay can update automatically. It will have visual alarm and the color will turn into red font if any setting limit is exceeded.（the background picture can be changed according to the actual situation，the display position of the monitoring station can be adjusted as well）. Clients can enter gallery and warehouse by navigation chart and check the real-time temperature and humidity values.