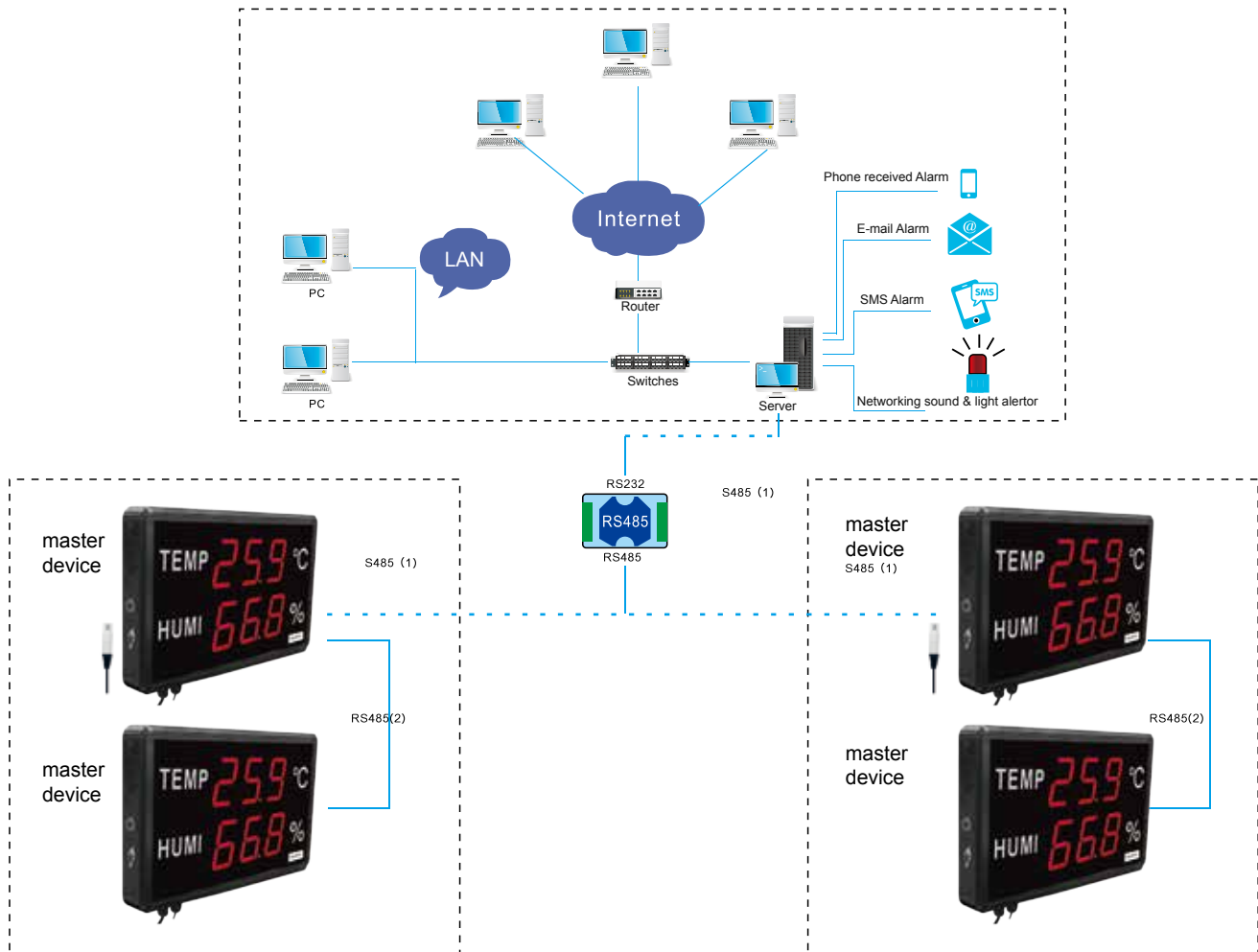


### RS485 network topology



### RS485 network system

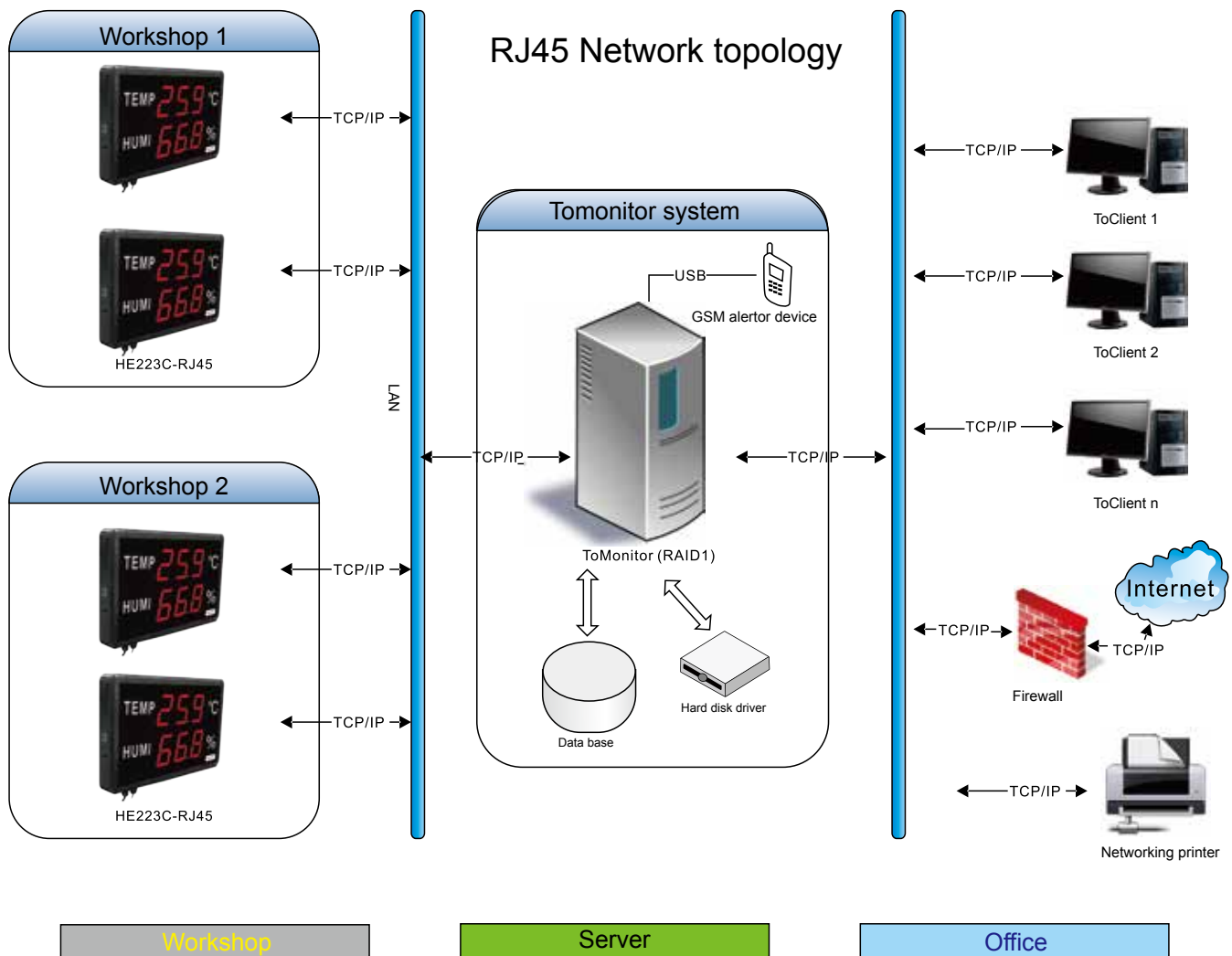
RS485 network is a major network layout for industrial networking systems. It's an easy to deploy, mature, highly reliable and economical network layout.

Thanks to the easy wiring and high reliability features of RS485 network, it's already been widely used in many industrial environments. The advantages of such networks reflect in the following facts: fast transmission speed. The transmission distance is up to 1200 meters when the transmission speed is 100 kbit/s, and in short distance communication speed can be up to 10 Mbit/s.

### Environmental monitoring system

This environmental monitoring system consist of 3 parts: the device layer , control layer and user layer.

- ◆ User layer : including any authorized computers in this system. These devices is allowed to access thereal-time running information and historic data of this system after installed the ToClient software. Working principle: all data is stored in the database of control layer(control server). Users can view the real-time/stored data via LAN/Internet. When the monitoring data value exceeds settings set by user, this software will also play alarm sound or send email/SMS to alarm users.
- ◆ Control layer: the ToMonitor runs on a server, it writes all real-time data collecting form end devices to SQL database, it triggers the alarm function when data value exceeds settings.
- ◆ Device layer: all the high precision loggers records temperature, humidity and other data automatically, then sends the data to ToMonitor for processing. With battery, our loggers continually records data when the server is shutdown or there's line faults, so the data will not be lost .



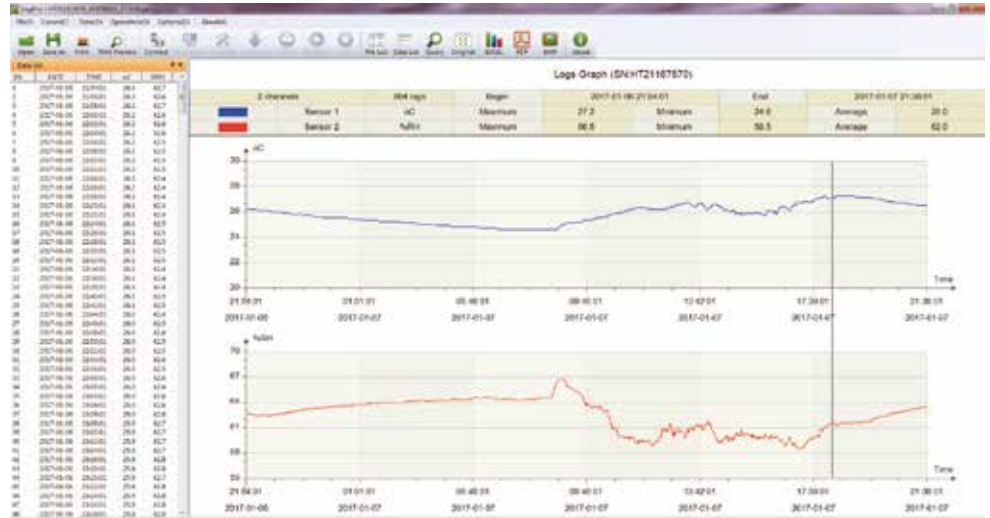
The device layer includes temperature & humidity data logger and wireless repeater, the function of this layer is to collect, record and upload temperature & humidity data . The data logger collects and records temperature & humidity data from surrounding environment and upload it to a server via wireless repeater.

ToMonitor is server software, it stores data uploaded from data loggers and displays it on the software. Users can set temperature and humidity value range for each devices, when the value exceeds limits, the software will alarm user immediately.

ToClient is the client, user can access server via this software to view real-time/recorded data of each temperature & humidity data logger.

### Stand-alone Logpro software

1. Users can change settings by connect a device to a computer .
2. Download the data stored in a device and save it in a database .
3. View the data recorded during a specific time .
4. Save data in PDF, Excel or BMP format.
5. View the data file list and the curve graph of temperature and humidity via this software.



### ToMonitor software for networking

1. Alarm users when data value exceeds limits, device went offline or there's power failure. Alarm the administrator when the device stopped uploading data for a certain time.
2. Each monitoring point supports up to four kinds of sensors, sensor's resolution can be set by users
3. It is a highly extendable system, supports RJ45, GPRS, RS485, USB and wireless devices hybrid networking.
4. ToMonitor take full advantage of multi-core CPU, it supports multi-thread processing and successfully increases system throughput rate. When sending a message or alarm, it will not affect system performance.



### ToClient software

1. The system adopts the client/server architecture to support internal LAN access, users does not need to go to the server room to download data.
2. Instruments/Relay subnet networking, unmanned operation, easy to add new devices.
3. encrypted data transmission effectively prevent data leakage.
4. Providing real-time data list display and curvilinear graphical display function, users can view real-time monitoring data and running information of monitoring points.

