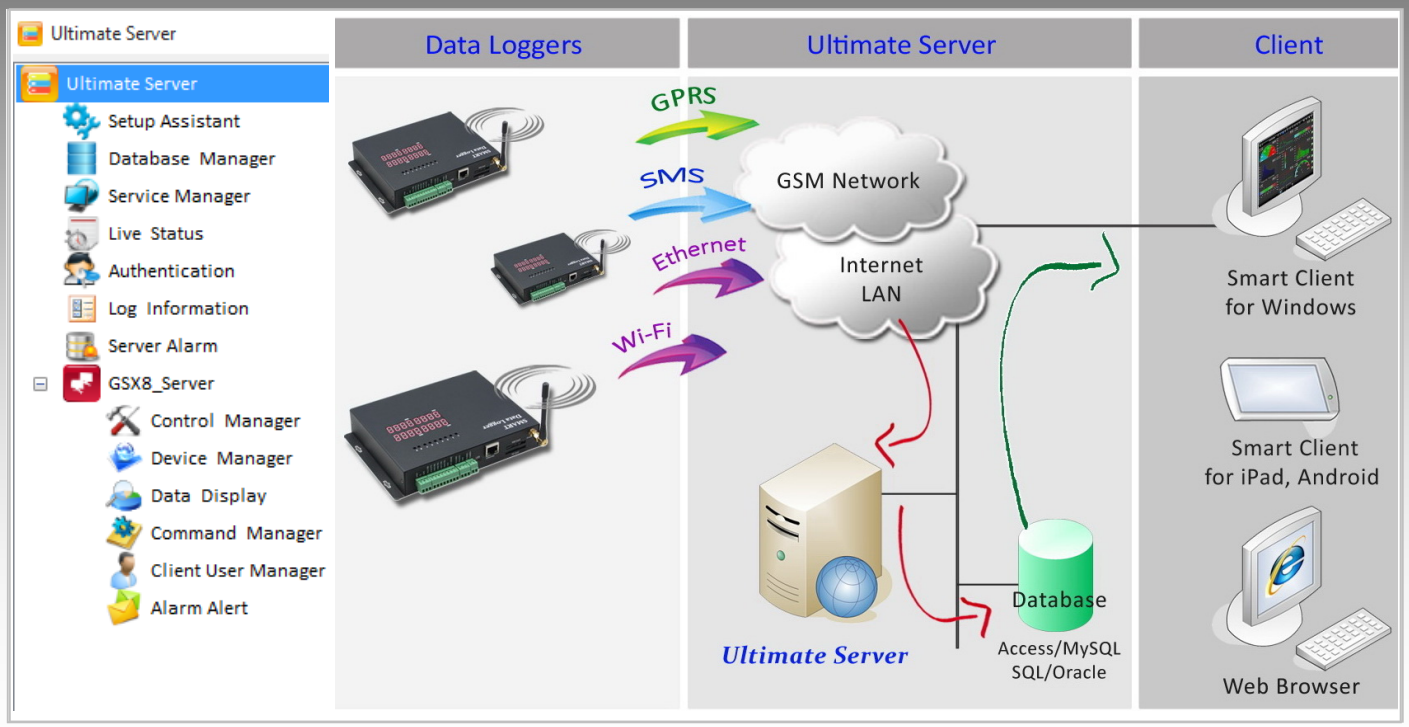
Ultimate Server Client Software

Cloud Server for Smart Data Logger



Ultimate Server is dedicatedly developed for large scale data application.

1. Receive data from Data Loggers in UDP or TCP via GPRS, SMS, Wi-Fi and Ethernet
2. Management of database
3. Management of data loggers and clients
4. Management of data and alarm
5. Alarm level setting for individual channel
6. Alarm Email & Alarm SMS Management
7. Support both Fixed IP & Dynamic Domain Name
8. Support 3 main types of database:
   - SQL Server
   - Oracle
   - MySQL
8. Support redundant databases
9. Handling thousands incoming data simultaneously [patented]
10. Support max. 999999 data loggers and 99 clients in one group
11. Support max. 999 groups in one single hosting
12. Support hosting in Cloud e.g. AWS, Azure

Smart Client displays live, historical data and alarm tracking in graphics & listing mode.

1. Retrieve data from Server Database [server mode]
2. Retrieve data from data loggers [direct mode]
3. Alert user via on screen display and alarm email
4. Support simultaneous display of multiple data loggers
5. Data Export
6. Support 5 display modes:
   - Split Screen (chart & meter)
   - HMI (Human Interface Machine)
   - Line Chart (a number of channels in comparison)
   - Data Listing
   - Dashboard

Platforms

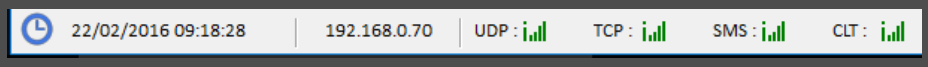
1. Smart Client for Windows 10
2. Smart Client for iPad
3. Smart Client for iPhone, Android Phone
4. Smart Viewer for Windows 10 (end user viewing tool)

Ultimate Web Server supports web browser in displaying live and historical data. Both php and asp versions are available.

Ultimate Server

Management

Service Components



Data Receiving Modules are developed as Windows Service Components for Windows 7, 10, 2012 Server OS.

Services are independent, reliable and stable in server grade application.

1. UDP service - manages the incoming data and outgoing command via UDP protocol
2. TCP service - manages the incoming data and outgoing command via TCP protocol
3. SMS service - manages the incoming data and outgoing command via SMS
4. CLT service - manages the data and command with Client Software

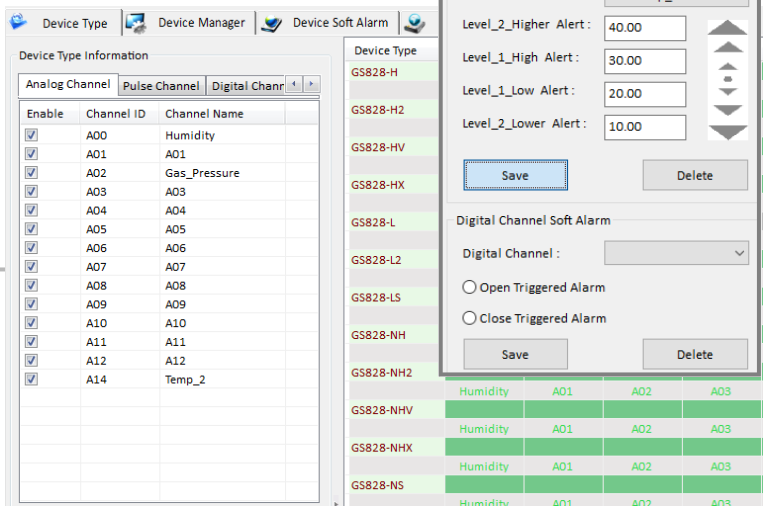
By virtue of multi-threading technology, each service is capable of handling thousands of incoming data per second simultaneously.

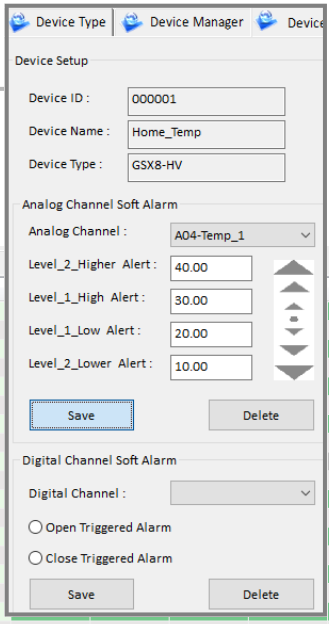
This design is dedicated for Windows Server platform application.

Management of Data Loggers & Alarms

Central management of data loggers:

- Device ID & Name, Device Type, Password
- Central Alarm System independent of device hardware alarm
- Ready for Data of Analog, Digital, Pulse Channels
- Each data logger has its own set of alarm levels
- Each channel has its own high/low alarm levels
- Support 2 Levels of Alert High/Low Levels
- Data Loggers Health Status
- Auto Clock Synchronization of data loggers





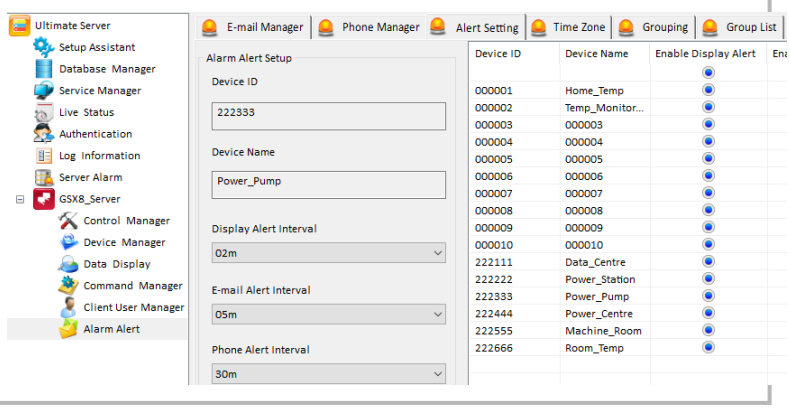
Alarm Alert of remote users

Ultimate Server is capable of alerting remote users via:

- SMS alarm
- Email alarm
- Alert on Smart Client Software

Alarm Categories:

1. Channel data high/low alarm
2. System Alarm
   * System related e.g. database error
   * Data Logger hardware defect



Ultimate Server

System Tracking

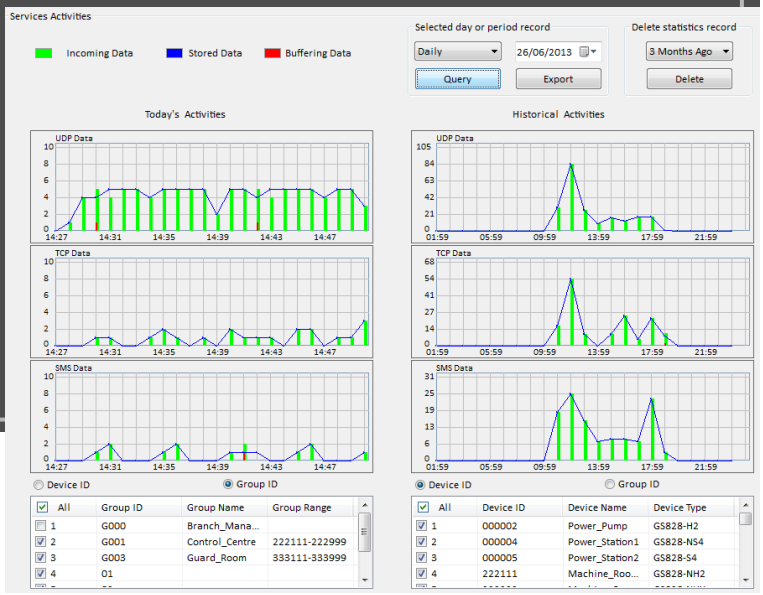
Monitor Server Loading

Ultimate Server keeps track of status, loading and performance of its data receiving service and database.

- Real time tracking of data incoming, buffer and saving
- Data buffering is an indication of system loading and data bandwidth usage
- Historical tracking of system performance for contingency plan
- Performance and Health Status tracking of individual data logger or groups of data loggers

Ultimate Server supports simultaneous port connection to a number of data loggers.

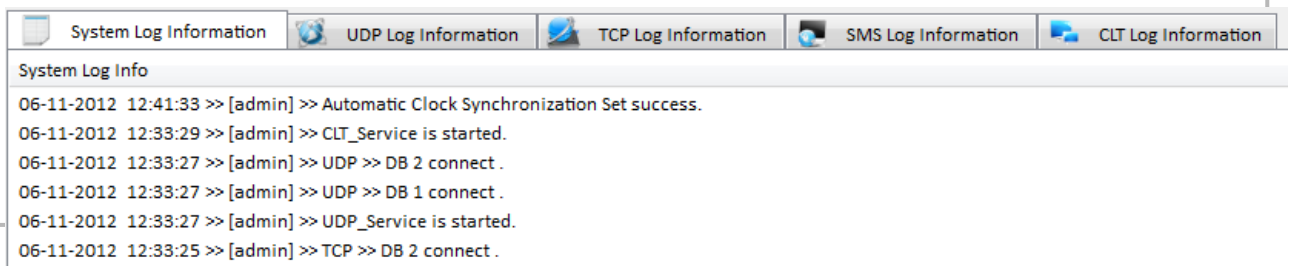
Our State of the Art Technology is capable of handling thousands o f incoming data in a second.



Server Logs

Ultimate Server keeps track of its own activities of managing data loggers, service components, data, clients and alarms:

- Each server operation is stamped with date time, and logged
- Powerful tool for system analysis and error handling



Data Display in both Server & Client

Ultimate Server allows user to view the live and historical data in listing:

- Data by GPRS, SMS, Ethernet or Wi-Fi, Routine Data or Alarm Data can be selected
- Export selected data for third party software application or analysis

NO.	Client Code	Header	Device ID	Device Name	Device Type	Voltage	Upload_Time
1	GHG-XGY-GZG-JGI	STA	003549	Water_Station	GS828-L2	9.71	26-12-2012 10:25:00
2	GHG-XGY-GZG-JGI	STA	003549	Water_Station	GS828-L2	9.70	26-12-2012 10:20:00
3	GHG-XGY-GZG-JGI	STA	666111	Machine_Room	GS828-HV	null	26-12-2012 10:15:01
4	GHG-XGY-GZG-JGI	STA	003549	Water_Station	GS828-L2	9.70	26-12-2012 10:15:00
5	GHG-XGY-GZG-JGI	STA	003549	Water_Station	GS828-L2	9.71	26-12-2012 10:10:00
6	GHG-XGY-GZG-JGI	STA	122101	Water_Pump	GS828-LS	9.28	26-12-2012 10:10:00
7	GHG-XGY-GZG-JGI	STA	003549	Water_Station	GS828-L2	9.71	26-12-2012 10:05:00
8	GHG-XGY-GZG-JGI	STA	122101	Water_Pump	GS828-LS	9.28	26-12-2012 10:05:00

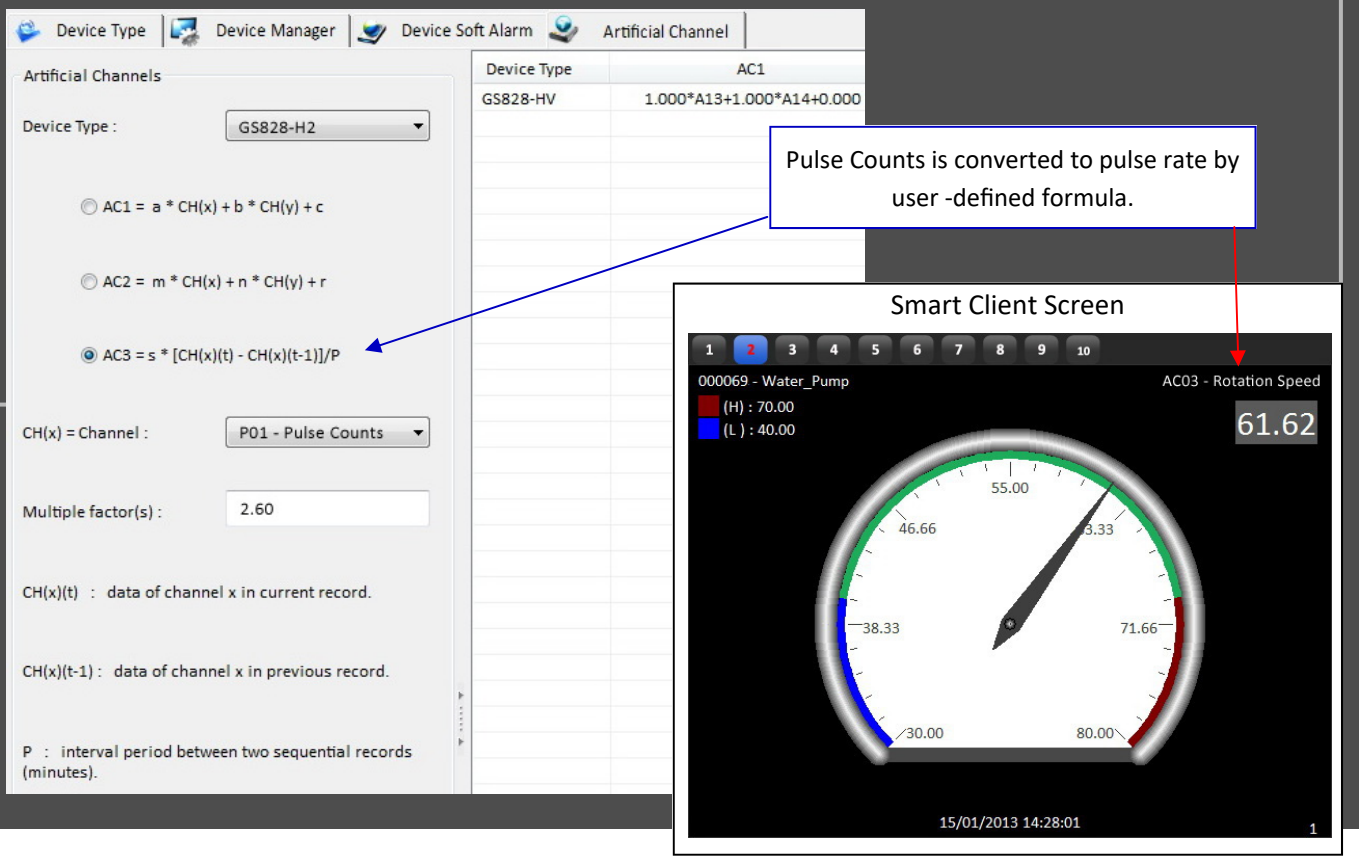
Free Smart Client Lite software:

- Access data from Server Database
- Display live & historical data in graphics mode e.g. HMI, Split Screen, Dashboard or Line Charts

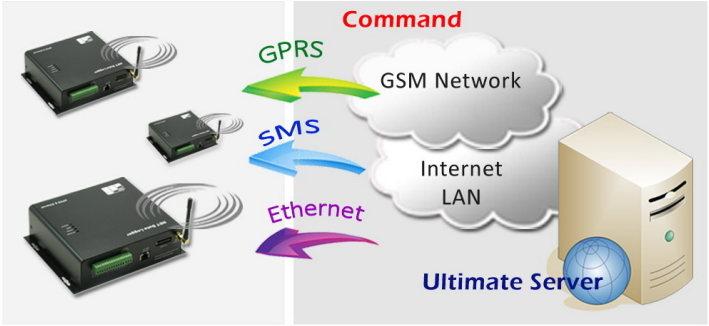
Artificial Channels

Ultimate Server provides three Artificial Channels for more meaningful data presentation:

- It provides the user defined formula to work out rational values by data from different channels
- Compensation factor can be added into reading from pressure sensors
- Pulse rate can be worked out from dividing the pulse reading by time period



Remote Command & Configuration



Ultimate Server allows user to send command to data loggers:

- Server manage the setup or control command centrally on schedule.
- Simultaneous & Central Configuration of multi data loggers is possible.
- Command can be delivered to the data logger by GPRS, SMS or Ethernet.

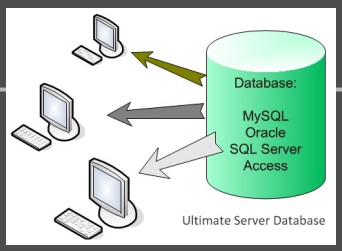
Key Points:

- This feature is a useful tool for installer. A large number of data loggers can be configured in batch remotely.
- Configuration parameters can also be downloaded from data logger, and saved into a configuration file.
- The configuration file can then be imported and setup into a number of data loggers instantly.
- Parameter can be modified on schedule e.g. Daylight Saving Time every season.

Ultimate Server

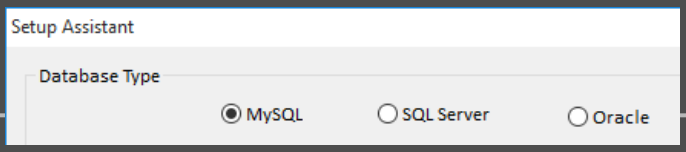
Database & Performance

Database Manager



Ultimate Server supports 3 major database types common in the market:

- Connection engines are integrated in Server Software
- Easy creation and connection of 4 types of database in only few steps
- Database test tool is provided
- Database Connection List is built
- Select different database connection at any time



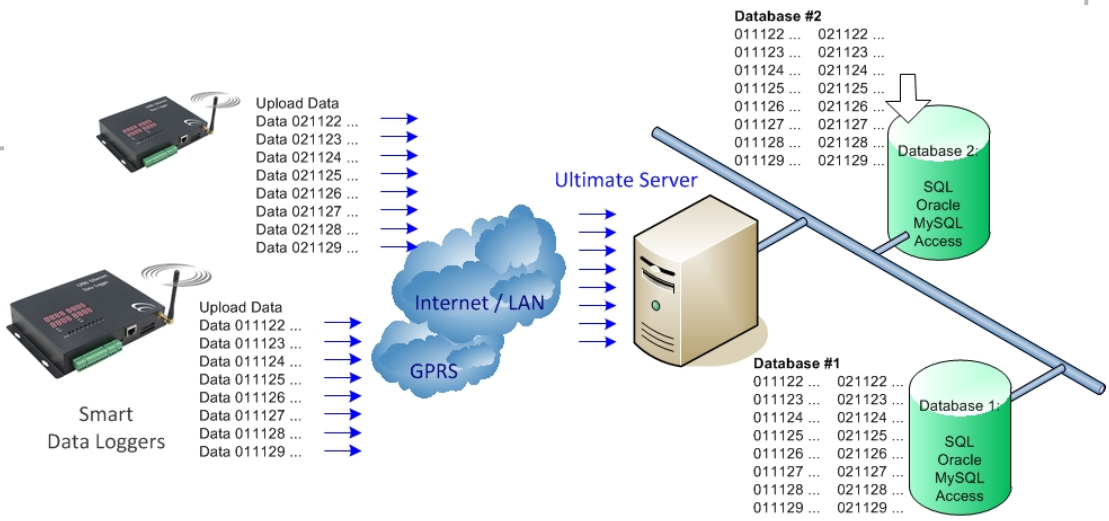
Database Redundancy

Data security is the key issue in telemetry industry. Ultimate Server provides fault tolerant architecture to protect data:

- Simultaneous data saving into two independent databases
- Automatic switching to health database when one of two databases is corrupted.
- Server and Database IP addresses are independent

Server configuration is saved into two databases at the same time:

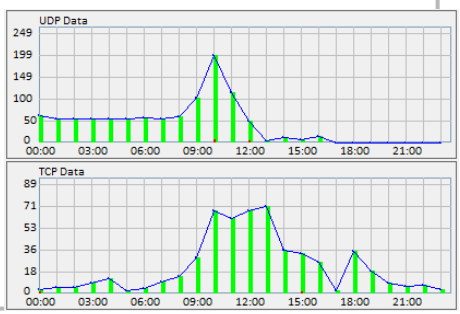
- Devices ID, Types, Channel Names, Device Grouping
- Clients Properties, Client Grouping, Server Users



Stress Test - Ultimate Performance

Ultimate Server Software undergoes stress testing on critical condition.

- It is capable of receiving data from >20000 data loggers simultaneously by creating a number of connections.
- Our patented “threading & multi-ports technology” handles thousands of incoming data records in seconds.
- Establishment of UPD and TCP multi-connections with thousands data loggers simultaneously.
- Synchronized data saving into two databases over network.
- Real Time Status of incoming data, buffering and saving is displayed in graphics



Ultimate Server

Cloud Server for data logging

Management of Remote Clients

Designed for Hosting in Cloud (e.g. AWS, Azure)

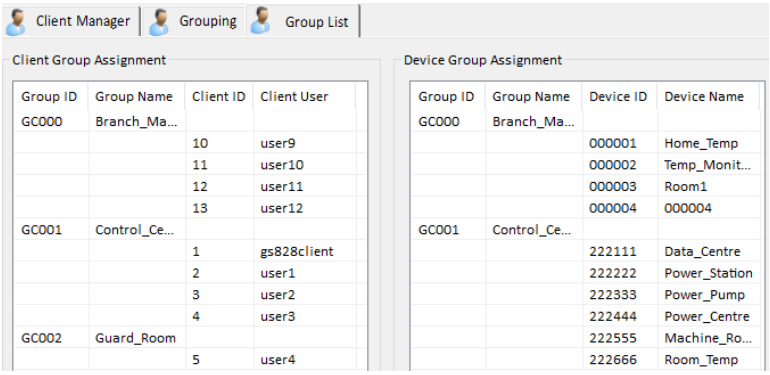
Ultimate Server is designed for hosting a number of user groups in one single server:

- Each client can be assigned for different groups of data loggers
- Each group of data loggers can be assigned for one corporate customer
- Enterprise can manage different plants, factories or stores using one server license
- Service company can manage different groups of data for a number of its customers independently and individually

Client user using free bundled Smart Client for Windows, iOS or Android:

- Access data from Server Database, Receive alarm from Server
- Display live & historical data in graphics mode e.g. HMI, Split Screen, or Line Charts or simple data listing

Ultimate Server allows devices assigned to groups of clients with its own alarm emails and sms phone number.



Group ID	Group Name	Client ID	Client User
GC000	Branch_Ma...		
		10	user9
		11	user10
		12	user11
		13	user12
GC001	Control_Ce...		
		1	gs828client
		2	user1
		3	user2
		4	user3
GC002	Guard_Room		
		5	user4

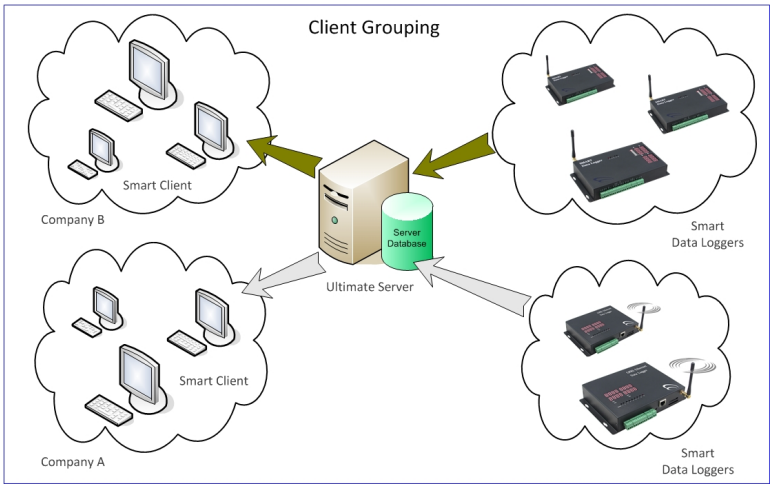
Group ID	Group Name	Device ID	Device Name
GC000	Branch_Ma...		
		000001	Home_Temp
		000002	Temp_Monit...
		000003	Room1
		000004	000004
GC001	Control_Ce...		
		222111	Data_Centre
		222222	Power_Station
		222333	Power_Pump
		222444	Power_Centre
		222555	Machine_Ro...
		222666	Room_Temp

Client Grouping

Client Grouping allows different users to access their own group of devices data.

This feature is unique and important for:

- Performance, Traffics and Health Status of different groups can be tracked and exported for analysis
- Number of data records for each group or individual data loggers are recorded
- Hosting Companies charge their clients for monthly service fee
- Project Management Companies
- Service Providers

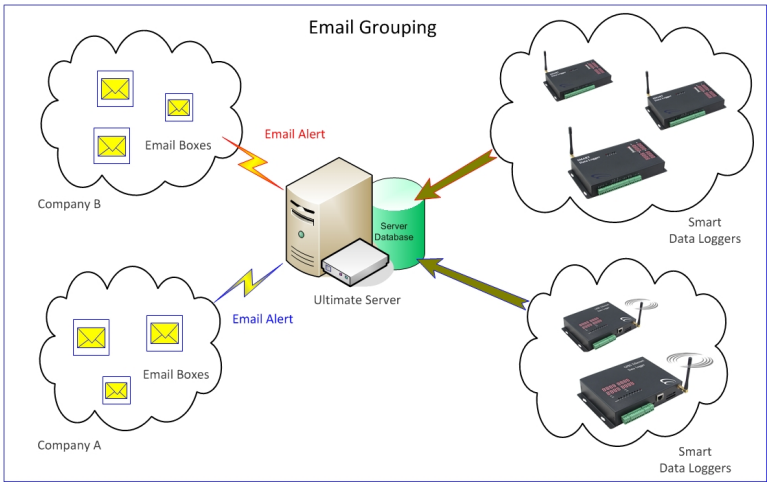


Alarm Email & SMS Grouping

Grouping allows alarms being sent to different groups of emails and phone numbers associated with their devices.

This feature is unique and important for:

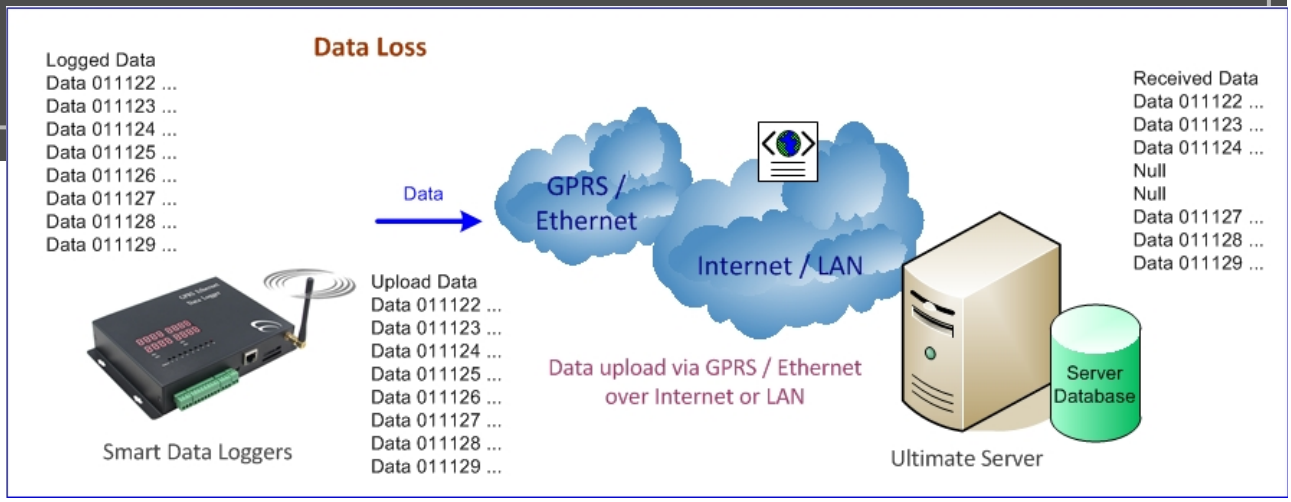
- Alerting different groups of users
- Project Management Companies
- Security Personnel Management



Data Recovery [patented]

Auto Data Recovery Function:

1. When live data is lost owing to GSM or Ethernet network problem, Server will automatically retrieve the lost data from the internal memory of data loggers once network resumes.
2. Ultimate Server keeps track of the data integrity and initiates the "Data Recovery" module when data loss is detected.
3. No human intervention is needed.



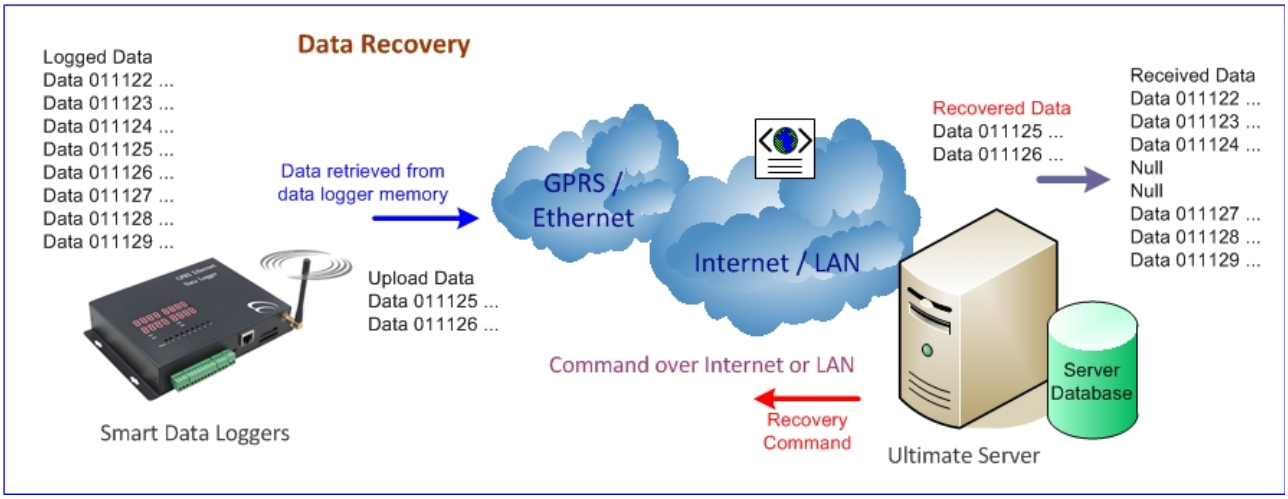
Patented Data Recovery Technology

provides 99.9% data integrity in real application

Mechanism

When Server realized some records loss in the database by checking the previous data records:

- Send command to retrieve all data records during the period
- GPRS Ethernet Data Logger receives command, retrieves those data records from its internal memory
- GPRS Ethernet Data Logger uploads the logged data records instantly
- Server receives the data records, and inserted into the database
- All operation is completed automatically on background



Smart Client for Windows 10

User Friendly Graphics Display

Data Tracking

Support Windows 10
Desktop & Touchscreen Mode

Smart Client allows user to track data from Server Database:

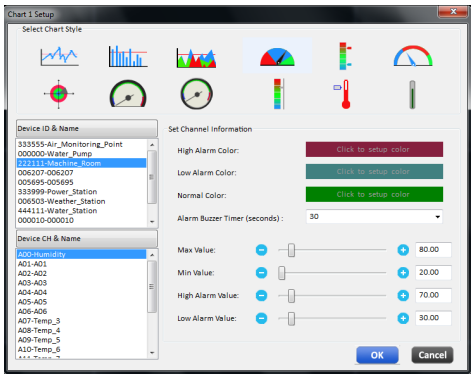
- Live & Historical Data Tracking in graphics mode
- Each client will be alerted when temperature or humidity is over the preset
- Client can be alerted by AD channel, Digital Input or AC Power Loss alarm.
- Each client is assigned to groups of data loggers
- Each client can monitor more than 300 channels in real time simultaneously

Key points:

- Max. 30 user profiles supported in each client station
- Max. 30 channels simultaneous real time display on single screen [HMI mode]
- Max. 300 channels live data update on background
- Supports [Direct Mode] and [Server Mode]
- Independent alarm levels of each individual channel [independent of Server and Data Logger Alarm]

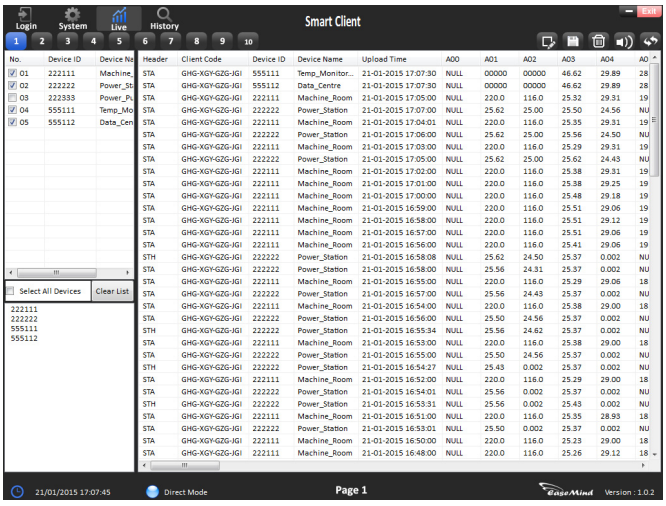
Split Screen Display

- Supports 3x3, 2x2, 1x1 split screens
- More than 9 chart styles can be selected
- Wind Speed & Direction Plot
- Both Live & Historical Data are supported



Data Listing Display

- Max. 2000 records live data listing
- Max. 2000 records historical data query
- Data Logger and Channels user selectable
- Selectable period of history data
- Detail listing of record information
- Date/Time, Device Name & ID, All Channels

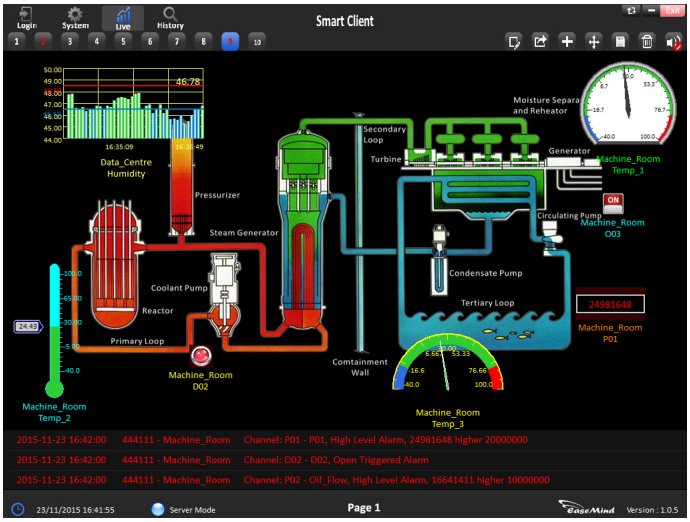


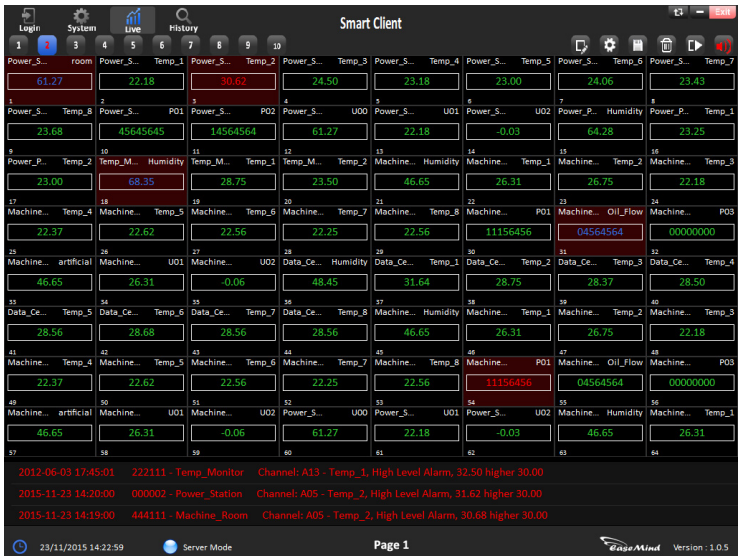
Smart Client for Windows 10

Desktop PC & Tablet

HMI Display

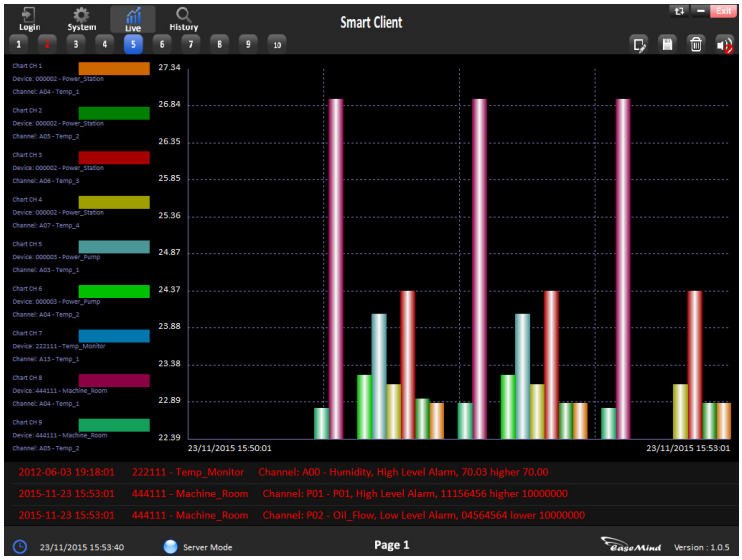
- Max. 30 channels in each background picture
- More than 12 chart styles for AD channels
- Wind Speed & Direction Plot
- Counter display for pulse channels
- LED for digital alarm channels
- Independent alarm levels for each channels





Dashboard

- Max. 64 channels in single screen
- Analog, Pulse, Temperature, Humidity
- Real Time Alarm display



Line Chart Comparison

- Max. 8 channels in single chart
- 8 channels of same data logger comparison
- 8 data loggers of same channel comparison
- Both Live & Historical Data comparison
- Line or Column Chart style user selectable
- Data interval user selectable

Smart Client for iPad

Free Download

Point & Tap, Pinch & Zoom

Smart Client
Easemind Technology Ltd.

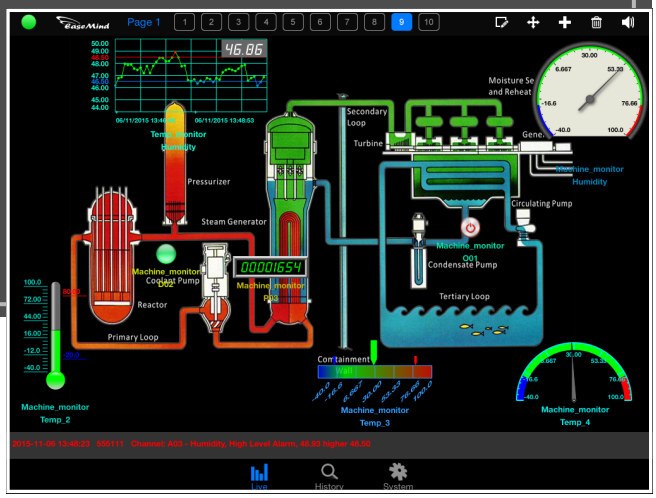
Smart Client for Android allows user to use iPad:

- More user friendly operation on touch screen, fast response and crystal clear display
- Instant manual data checking
- Real time relay control on/off switch
- Works with and without Server

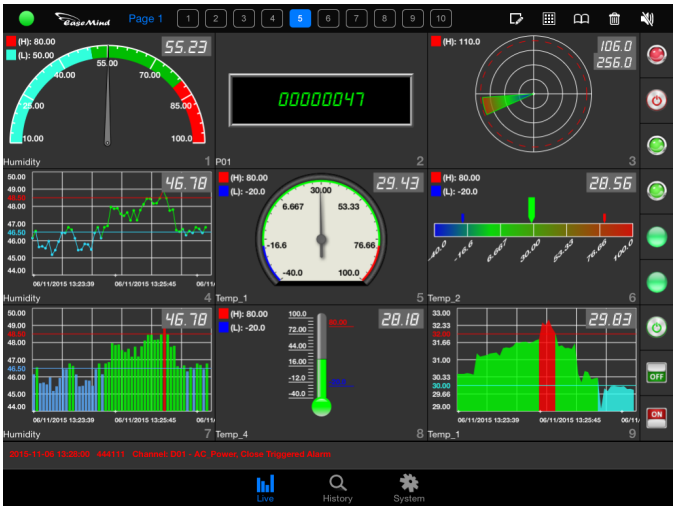
Features:

- Split Screen
- Data Listing
- Dashboard
- HMI [Human Machine Interface]
- Line Chart Display

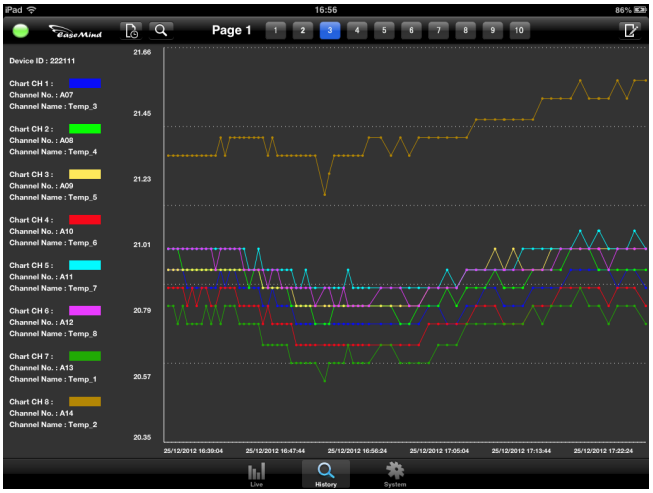
HMI Display



Split Screen Display



Line Chart Comparison



Dashboard

Data Listing Display

Smart Client for iPhone

Smart Client for iPhone
Easemind Technology Ltd.
GET

Smart Client for Android Phone

Smart Client For Phone
Easemind Technology Ltd.

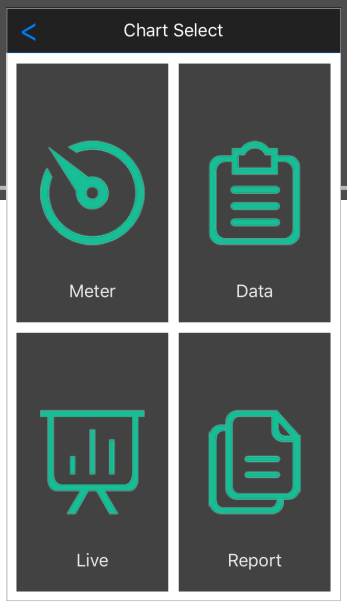
Smart Client for iPhone & Android Phone allows user to use smartphone to access server data:

- More user friendly operation on touch screen, fast response and crystal clear display
- Instant manual data checking
- Channel name user definable
- Device and Channel user selectable

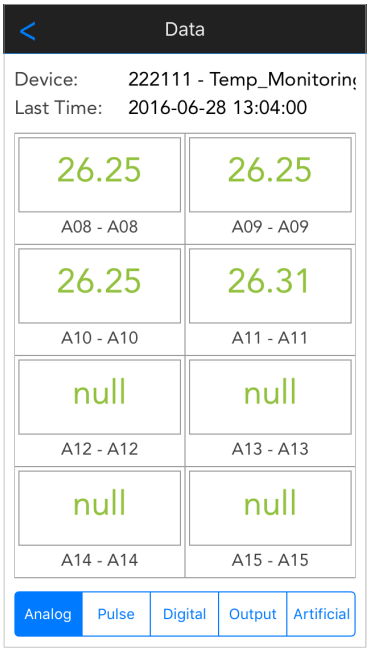
Features:

- Meter, Data Dashboard, Live Chart Line for live data
- Report Chart for history data

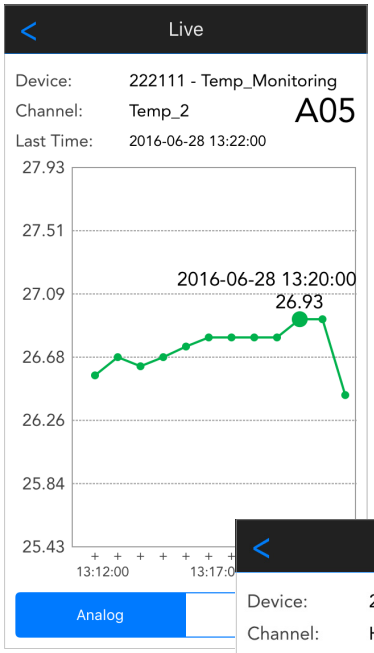
4 charts data display

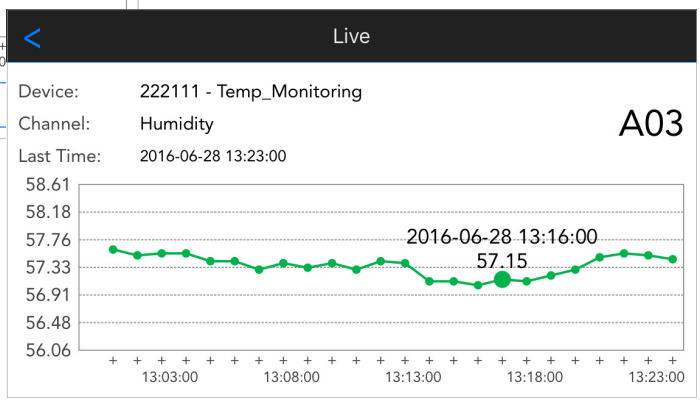


Dashboard

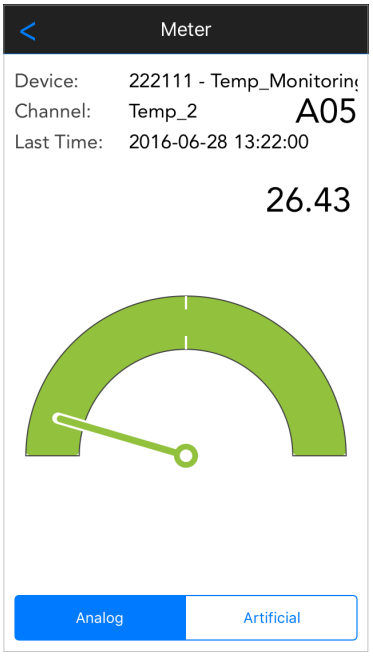


Live Data Chart

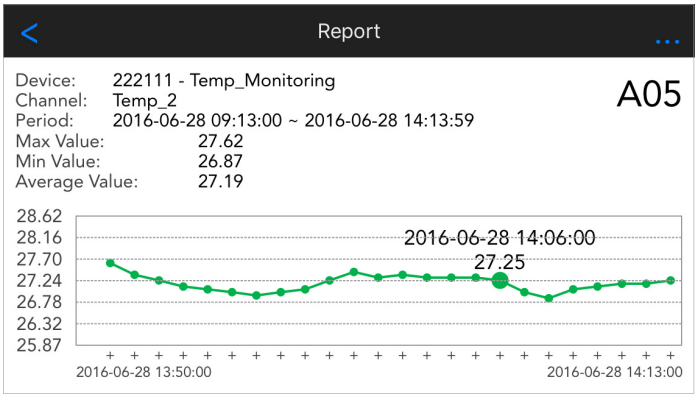




Meter



History Data Report



How Smart Client works?

Server/Direct Mode

Server / Direct Mode Access

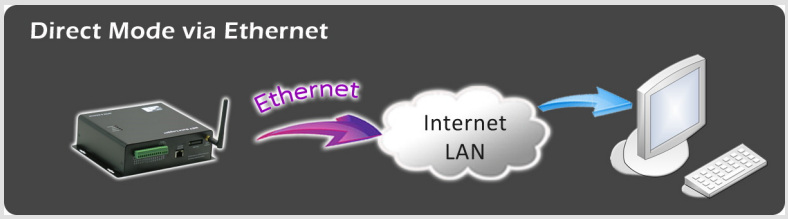
<Direct Mode>

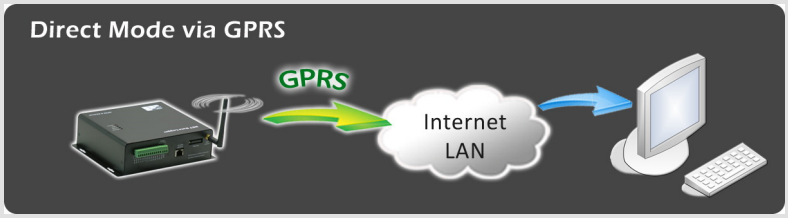
Each data logger delivers data simultaneously to:

- Max. 1 Smart Client user via Ethernet or Wi-Fi
- Max. 1 Smart Client user via GPRS

Smart Client [Direct Mode]

- Alarm email delivered from Smart Client PC when channel level is beyond user preset level
- Direct control of relay output (Ethernet only)
- Direct access of both live and logged data from data logger (Ethernet only)





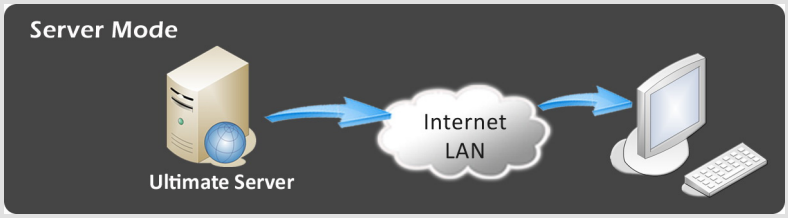
<Server Mode>

Each data logger delivers data to one single server.

- Max. 999 Smart Client users can access data from the Server Database simultaneously

Smart Client [Server Mode]

- Receives data from unlimited number of data loggers
- Access of both live and historical data from Server Database



Highlight

Each Client:	3 Pages
Each Page:	10 User Profiles
HMI Display:	max. 100 channels
Split Screen:	max. 9 channels (3x3)
Data Listing:	unlimited channels
Line Chart:	max. 8 channels
Dashboard:	max. 64 channels one single screen
Data:	Live & Historical
Alarm:	User programmable high/low
Alert:	Visual & Buzzer, Email & SMS

Key Points:

- Each user profile can be configured as:

  HMI / Split Screen / Data Listing / Line Chart Display / Dashboard
- Channel data of all user profiles will be refreshed in interval automatically
- User can switch among user profiles for instant data viewing
- Client accesses data either in direct mode or server mode
- Alarm on each profile and individual channel will be displayed
- Independent alarm setting for each client user
- Analog Channel, Digital Alarm and Pulse Channel are all supported
- Chart Styles, High/Low Alarm Color, Range are user programmable

Ultimate Web Server

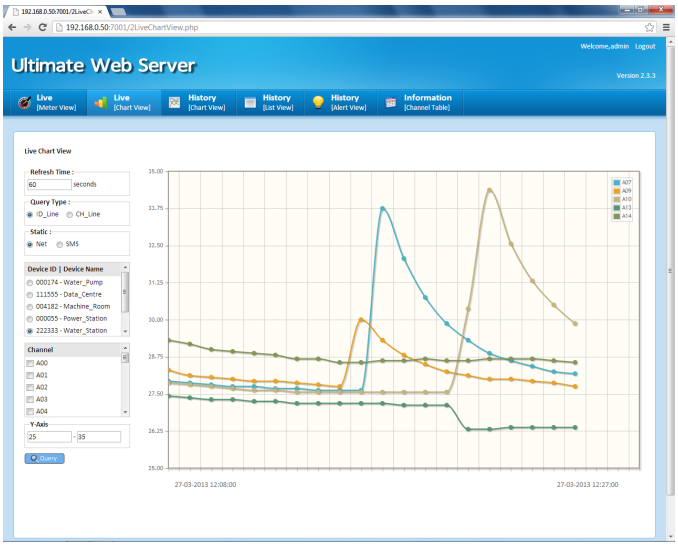
Simple Web Browsing

Web Server (php)

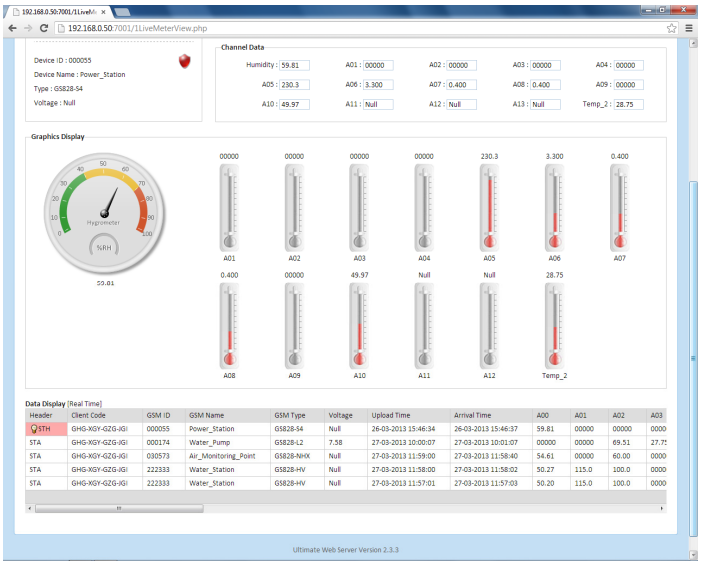
Data presentation is possible at any place using Web Browser

- No software installation is needed in Client PC.
- Any computer with Web Browser can access the data, and present in graphics.
- Browser accesses live, alarm and historical data from Web Server.
- Clients will be assigned to monitor their own Data Loggers in Ultimate Server.
- All channels data and alarm e.g. AD or temperature are displayed with alert signal.
- Each client can monitor a number of data loggers in real time simultaneously
- Developed with OS independent language: PHP

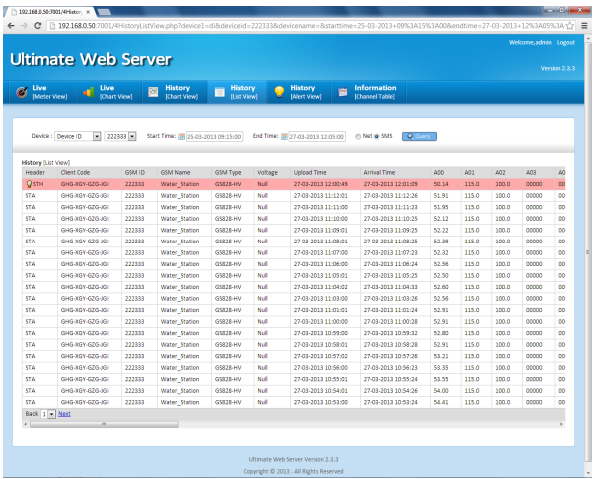
Line Chart

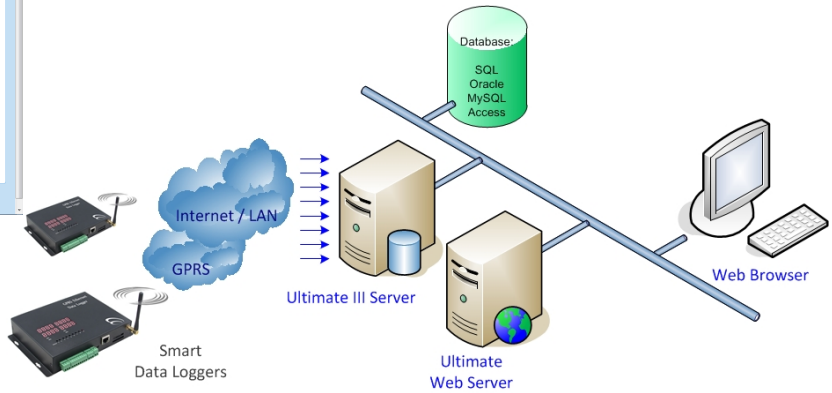


Meter Display



Data Listing





Ultimate Web Server

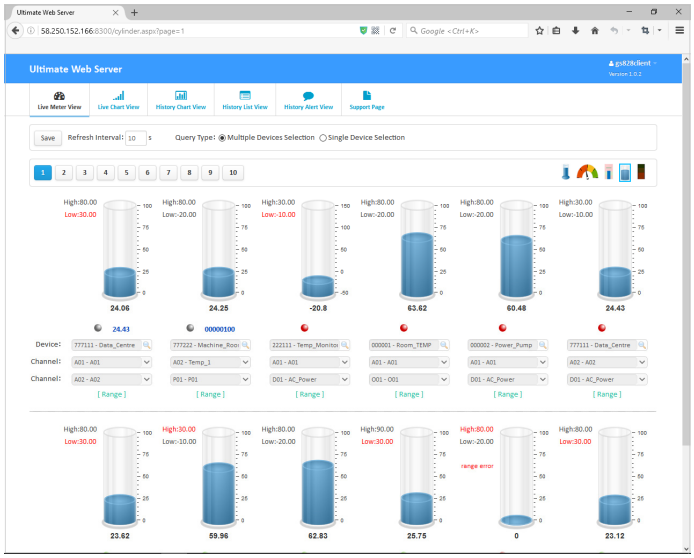
Simple Web Browsing

Web Server (asp)

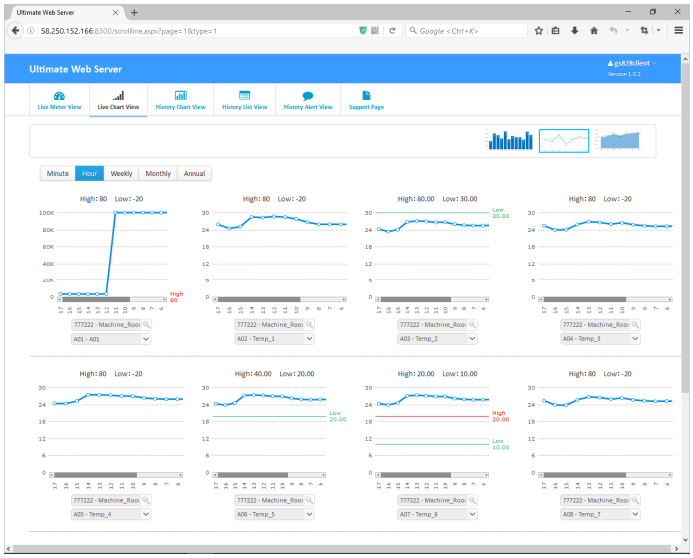
Data presentation is possible at any place using Web Browser

- Support [Multiple Devices Multiple Channel Selection] or [Single Device Multiple Channel Selection]
- 5 meter graphics user selectable
- Refresh Interval user selectable
- Max. 10 pages each view, and Max. 12 channels each page
- Analog, Pulse & Digital Alarm Channels are supported and user selectable
- Each client can monitor max. 120 data loggers or channels in real time simultaneously
- Real time alarm alert

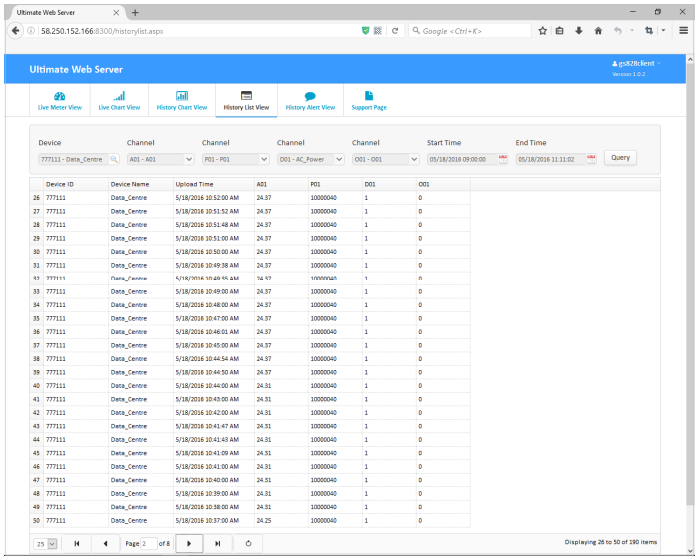
Live Meter



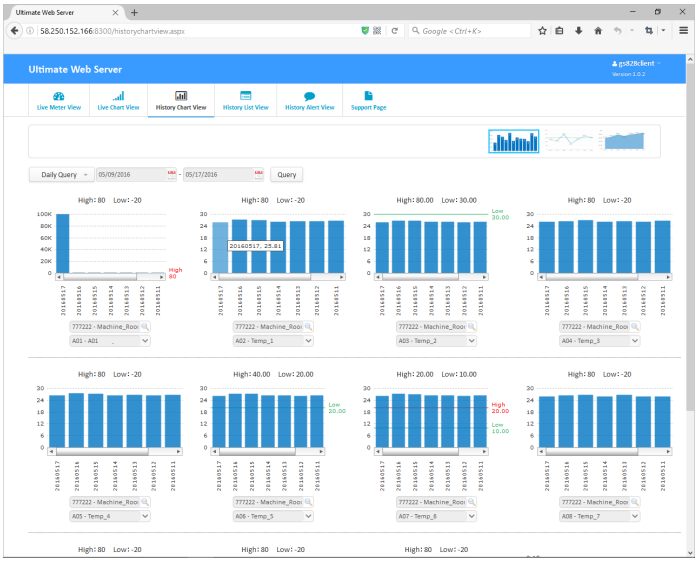
Live Chart



Data Listing



Data Listing



Ultimate Server Edition

Edition	Centre	Ultimate III	Ultimate III +
[A] Server Software			
GSX8 Server	GSX8	GSX8, GS828	GSX8, GS828
G7 Server	G7	G7	G7, GS902
Receive Data & Alarm via GPRS	Yes	Yes	Yes
Receive Data & Alarm via SMS	—	Yes	Yes
Receive Data & Alarm via Ethernet, Wi-Fi	Yes	Yes	Yes
Receive Data & Alarm via RS232 Port, USB	—	Yes	Yes
Both Live & Historical Data Display	—	Yes	Yes
Database	txt	MySQL	MySQL
		SQL / Oracle	SQL / Oracle
Data Export to Excel	—	Yes	Yes
Remote Command via SMS, Internet	—	Yes	Yes
Remote Command via Ethernet	—	Yes	Yes
Schedule & Batch Command	—	Yes	Yes
Temperature & Humidity Alert	—	Yes	Yes
Send Alarm Alert via TCP network, email, SMS	—	Yes	Yes
Users Grouping & Management	—	Yes	Yes
Remote Clients Grouping & Management	—	Yes	Yes
Smart Client Software support	—	Yes	Yes
Max. Data Loggers simultaneous support	99	99999	99999
Data Loggers Management	—	Yes	Yes
Intelligent Data Recovery	—	Yes	Yes
Redundant Database Management	—	Yes	Yes
Login User Authentication & Management	—	Yes	Yes
Network Client Authentication & Management	—	Yes	Yes
Data Direct Access for user development	—	Yes	Yes
Server Loading & Performance Status Monitoring	—	Yes	Yes
[B] Web Server Software [asp & php]	N.A.	Bundled	Bundled
[C] Client Software	N.A.	Bundled	Bundled
Direct & Server Mode	—	Yes	Yes
Live, Historical & Alarm Data Display	—	Yes	Yes
AD Level, Temperature & Humidity Hi/Low Alert	—	Yes	Yes
Graphics Display of Temperature, Humidity & AD	—	Yes	Yes
No. of User Profiles / No. of Channels each profile	—	30 / 9	30 / 9
Charts & Lines (Listing, Meter, Line Chart…)	—	12	12
Remote Setup	—	Yes	Yes
[D] Smart Client for Win10, iPad, iPhone & Android Phone	—	Yes	Yes
[E] GPS Client for Windows	—	—	Yes
[F] 3G Modem Bundled	—	Optional	Optional

Smart Client

	Smart Client Lite			Smart Client	Smart Client
	Free bundled with data logger			Free bundled with Server	Full Version License
Windows 10, iPad, iPhone, Android Phone	Yes			Yes	Yes
[A] Server Mode					
Receive Data & Alarm via GPRS	—			Yes	Yes
Receive Data & Alarm via Ethernet, WiFi	—			Yes	Yes
Receive Data & Alarm via SMS	—			Yes	Yes
Receive Data via GPRS & Ethernet simultaneously	—			Yes	Yes
Server Database	—			Yes	Yes
Data Export to Excel	—			Yes	Yes
Intelligent Data Recovery	—			Yes	Yes
Redundant Database Management	—			Yes	Yes
Remote Command via SMS, Ethernet	—			Yes	Yes
Schedule Live & History Data Export	—			Yes	Yes
Temperature & Humidity Software Alarm				Yes	Yes
Send Alarm Alert via IP network or email	—			Yes	Yes
Data Loggers Grouping & Management	—			Yes	Yes
Remote Clients Grouping & Management	—			Yes	Yes
Client Software support	—			Yes	Yes
Max. Data Loggers simultaneous support	—			99999	99999
Max. Clients simultaneous support	—			999	999
Max. Channels	—			unlimited	unlimited
	Smart Client Lite			Smart Client	Smart Client
[B] Direct Mode	Limited			—	Full Version
Receive Data & Alarm via GPRS	Yes			—	Yes
Receive Data & Alarm via Ethernet, WiFi	Yes			—	Yes
Receive Data via GPRS & Ethernet simultaneously	—			—	Yes
Alarm Alert on screen and email	Yes			—	Yes
Schedule Live & History Data Export	Yes			—	Yes
Max. Data Loggers accessed simultaneously	2			—	unlimited
Live, Historical & Alarm Data Display	Yes			—	Yes
Digital Alarm Alert each profile	2			—	9
AD Level, Temperature & Humidity Hi/Low Alert	Yes			—	Yes
Graphics Display of Temperature, Humidity & AD	Yes			—	Yes
	Win	iPad	Android		
No. of User Profiles	4	4	4	30	30
No. of Channels in Data Listing	unlimited	2	26	unlimited	unlimited
No. of Split Screen profiles / Channels each profile	1 / 9	1 / 4	1 / 4	30 / 9	30 / 9
No. of Channels in Chart Line profile	2	2	2	8	8
No. of HMI profiles / Channel each profile	1 / 4	1 / 4	1 / 4	30 / 30	30 / 30