Low Power GPRS Data Logger

Low Power Data Logger supporting sleep mode

Continuous operation for 5 years with internal battery

Upload Data via GPRS and SMS on schedule

Programmable data logging and upload interval

Packet Data supports one time upload for multiple logged records

Internal power output for meter or sensors, Modbus support

Turn off power output in sleep mode to save power

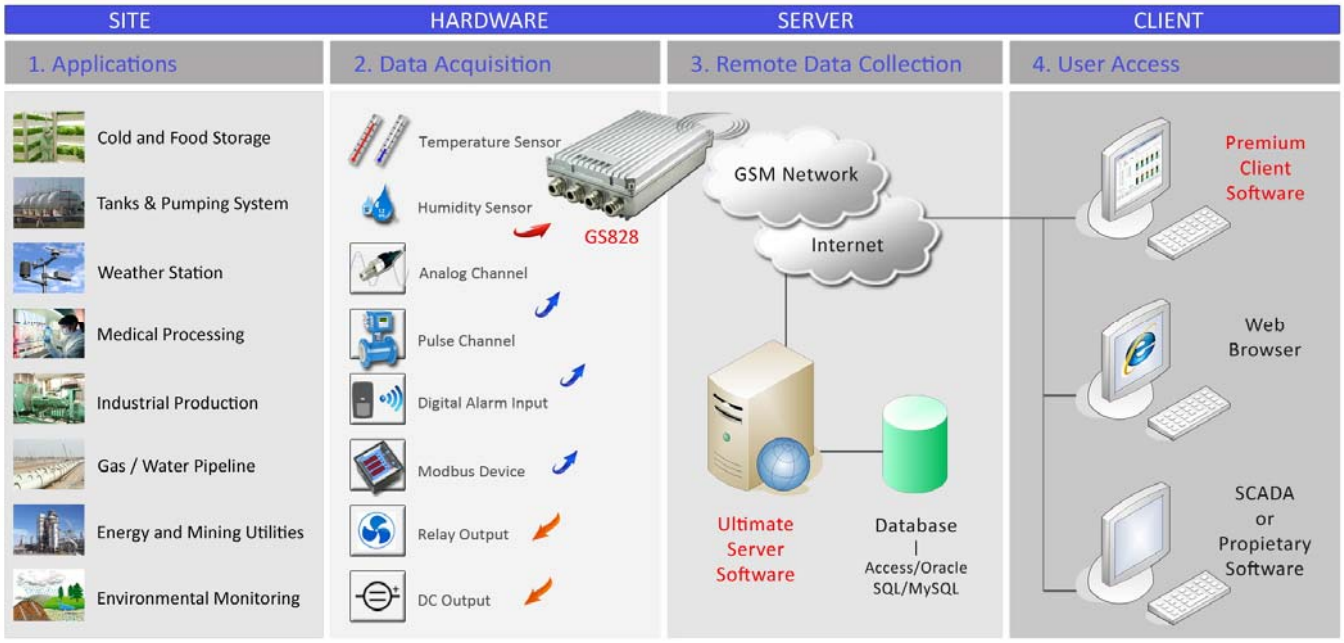
Temperature & Humidity Sensors integrated

Modbus Gas/Water Flow Meter interface

Application:

- Weather Station GPRS Monitoring System
- Water Meter Telemetry System
- Gas / Water Pipeline Remote Monitoring
- Agricultural / Farm Remote Tracking
- River/Reservoir Level Monitoring

GS828-L Low Power GPRS Data Logger



Low Power Consumption & Sleep Mode

Channels

(a) 2 x temperature, 1 x humidity sensors

(b) 2 x High Precision A/D Channels

(c) 4 x Pulse Inputs, 2 x Relay Outputs , 4 x Digital Inputs

(d) 24V AC Output for other sensors power source [turn off in sleep mode automatically to save power]

(e) 2 x DC 5V Outputs, sensors are powered by internal voltage, no external power is needed

Features

(1) Programmable high/low alert level of temperature/humidity or analog levels in each channel

(2) Programmable Data Upload Interval (5 min ~ 24 hours)

(3) Programmable Data Logging Interval (5 min ~ 60 min)

(4) Live data and logged data of all channels can be retrieved via RS232, SMS or GPRS

(5) Packet Data protocol uploads multiple logged data in one record to save power

(6) Logging Interval: 1hr, Upload Interval: 24hrs = all 24 records will be uploaded in one packet each day

(7) Support both live data and historical data upload

(8) Local Configuration by PC Setup software via COM port, Remote Configuration by GSM SMS or GPRS

(9) Support Dynamic Domain Name or Fixed IP

(10) Support UDP / TCP protocol data transmission

(11) 512KB Non-volatile Memory storing average 60 days period of data or 5000 records

GS828-L

Sensors & Specification

GS828-L2 is built with 2x temperature, 1x humidity sensors, and digital, pulse & analog inputs for other sensors.

It can be connected with Wind Speed/Direction Transducers, water meter, flow meter, rain gauge for measuring environmental condition.

Power Rating

Power Input	6~10VDC
Power Consumption:	10uA Sleep Mode
	10mA Standby
	500mA Data Upload
	(Sensor not included)
Internal Power Output:	5VDC & 24VDC, 2A
	Auto off in sleep mode
Battery Pack:	
Voltage :	2 x 3.6VDC = 7.2V
Battery Capacity:	20/40Ah options

Channel

Temperature & Humidity Channel:	
Temp Accuracy:	+/- 0.5˚C
Humidity Accuracy:	+/- 5%RH
Alert:	Programmable high / low level
AD Channel:	High Precision 12Bit AD converter
Signal Type:	4 ~ 20mA
Input Impedance:	250Ω [current type input]
Accuracy:	2.5/ 4096=0.00061 (0.061%)
Alert:	Programmable high / low level
Digital Input :	Dry contact
	Triggered Level > 20ms
Pulse Input:	Pulse Frequency
	Time lapse > 20ms
	Max. 40 pulses per second
	Max. 99999999 pulses
	Water Meter or Gas Meter
Digital Output:	Max. DC24V @3A,
	Max. AC120V @3A

Bundled Sensors

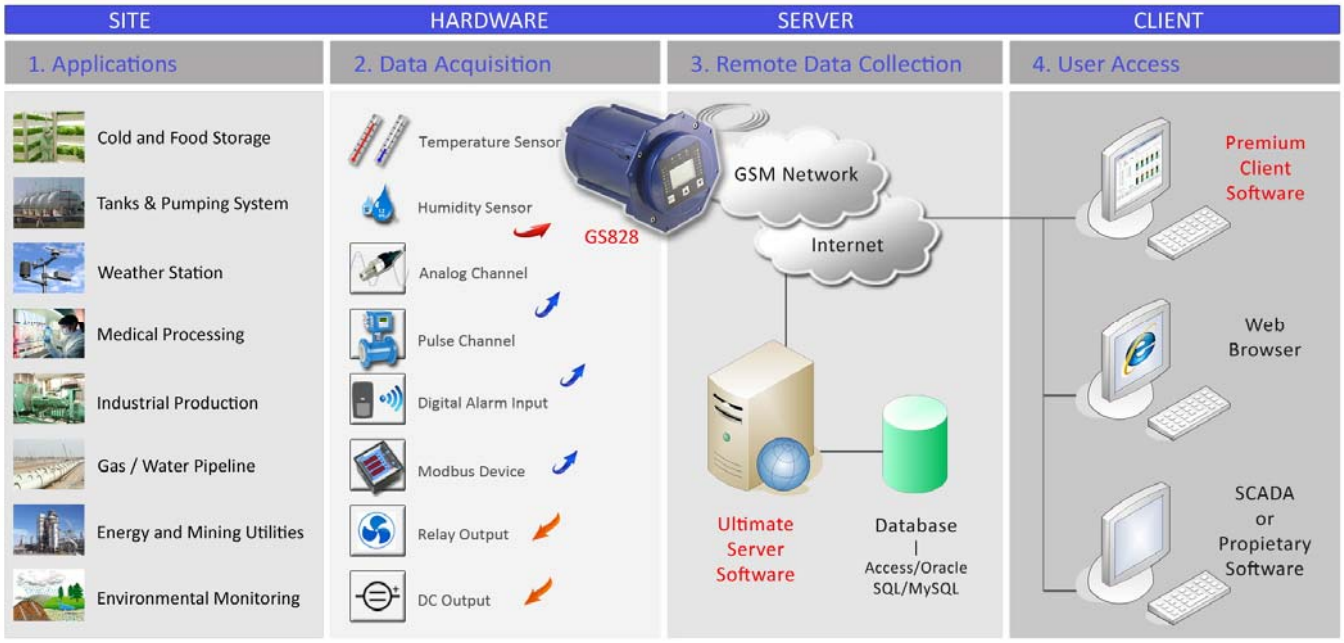
Temperature Sensor T_V2 [Submersible Type]

	Temperature
Sensor:	DS18B20
Range:	-55 ~ 125 ˚C
Accuracy:	+/- 0.5 ˚C
Resolution:	12 bit (0.0625 ˚C)
Sensor:	Submersible
Housing:	Waterproof Steel
Power Input:	3.5~5.5VDC
Sensor Cable:	2 meter (max. 100m)

Temperature & Humidity Sensors TH_V3 [Indoor Type]

Temperature	Humidity
DS18B20	CH1B
-55 ~ 125 ˚C	1 ~ 100% RH
+/- 0.5 ˚C	+/- 5% RH
12 bit (0.0625 ˚C)	12 bit
Indoor Type	Indoor Type
PVC	PVC
3.5~5.5VDC	3.5~5.5VDC
2 meter (max. 100m)	2 meter (max. 100m)

GS828-LS Low Power Modbus GPRS Data Logger



Low Power Consumption & Sleep Mode

IP68 Enclosure for underground installation

Channels

(a) 1 x internal temperature sensors

(b) 2 x High Precision A/D Channels

(c) 4 x Pulse Inputs, 4 x Digital Inputs

(d) Voltage Output provides power to other sensors [turn off in sleep mode automatically to save power]

Modbus Interface

(a) Support both RS232 and RS485 Modbus port

(b) Support multi-devices via RS485

(c) 4 x Floating Points & 4 x Integers data registers mapping

Features

(1) Programmable high/low alert level of temperature/humidity or analog levels in each channel

(2) Alarm Data via GPRS and SMS - programmable SMS alarm text

(3) Programmable Data Upload Interval (1 min ~ 24 hours)

(4) Programmable Data Logging Interval (1 min ~ 60 min, 2 hours)

(5) Live data and logged data of all channels can be retrieved via RS232, SMS or GPRS

(6) Packet Data protocol uploads multiple logged data in one record to save power

(7) Logging Interval: 1hr, Upload Interval: 24hrs = all 24 records will be uploaded in one packet each day

(8) Support both live data and historical data upload

(9) Local Configuration by PC Setup software via COM port, Remote Configuration by GSM SMS or GPRS

(10) Support Dynamic Domain Name or Fixed IP

(11) Support UDP / TCP protocol data transmission

(12) 2MB Non-volatile Memory storing average 120 days period of data or 20000 records

GS828-LS

Sensors & Specification

GS828-LS is built with 1x internal temperature sensor, with digital, pulse & analog inputs for other sensors.

Analog Channels can be connected with Wind Speed/Direction Transducers, water meter, flow meter, rain gauge for measuring environmental condition.

It supports common Modbus device e.g. Elster, Corus Flow Meter.

Power Rating

Power Input	6~9VDC
Battery Pack:	7.2V DC, 20Ah
Internal Capacitor Battery :	provides transient high current for GPRS network connection
Internal Power Output:	3.3/5/12/24V DC, 2A Auto off in sleep mode
Power Consumption:	10uA Sleep Mode 10mA Standby 500mA Data Upload (Sensor not included)

Channel

Temperature Channel:

Temp Accuracy:	+/- 0.5˚C
Alert:	Programmable high / low level

AD Channel: High Precision 12Bit AD converter

Signal Type:	4 ~ 20mA
Input Impedance:	250Ω [current type input]
Accuracy:	2.5/ 4096=0.00061 (0.061%)
Alert:	Programmable high / low level

Digital Input :	Dry contact Triggered Level > 20ms
Pulse Input:	Pulse Frequency Time lapse > 20ms Max. 40 pulses per second Max. 99999999 pulses Water Meter or Gas Meter

Internal Sensor

Temperature Sensor:	DS18B20
Range:	-55 ~ 125 ˚C
Accuracy:	+/- 0.5 ˚C
Resolution:	12 bit (0.0625 ˚C)

LCD Display

Display Text:	4 rows x 16 characters
Channel Displayed:	4 Channel Data simultaneously
Channel Selection:	Panel Button

Enclosure

IP68 Sealed Type with battery compartment inside

Designed for underground or outdoor environment

Modbus

Port :	RS232/RS485 selectable
Data Registers:	4 x floating points 4 x integers

Modbus Device Address:	programmable
Data Registers Address:	programmable
Long Word Registers:	support

Modbus device can be powered by GS828-LS internal voltage output.

Enclosure & Power Options GS828-L / LS

Power Options

Standard:	Internal High Capacity Polymer Non-rechargeable Battery Pack (7.4VDC, 20Ah)
Option P2:	Internal High Capacity Polymer Non-rechargeable Battery Pack (7.4VDC, 40Ah)
Option C1:	Internal Solar Panel Controller & Li-ion Rechargeable Battery Pack (12VDC, 3Ah)
Option C2:	Internal Solar Panel Controller & Li-ion Rechargeable Battery Pack (12VDC, 6Ah)
Option R3:	Internal Li-ion Rechargeable Battery Pack (7.4VDC, 3Ah)
Option R4:	Internal Li-ion Rechargeable Battery Pack (7.4VDC, 6Ah)

Enclosure Options

Standard	GS828-L2	IP67 Aluminum Waterproof Casing, 280 x 199 x 90 mm
	GS828-LV	IP65 PVC Waterproof Casing, 180 x 150 x 70mm
Standard	GS828-LS	IP68 PVC Waterproof Casing, 190 x ∅ 120mm, with LCD
	GS828-LSA	IP67 Aluminum Waterproof Casing, 280 x 199 x 90 mm, no LCD

IP68 PVC Waterproof Casing

IP67 Aluminum Waterproof

IP65 PVC Waterproof

Application

GS828-L

(a) water pump stations monitoring
(b) weather stations – temperature, pressure and rain fall real time data logging & upload
(c) water pipes network – temperature , pressure, flow rate real time monitoring to avoid water freeze
(e) power station, power network, cable towers data logging

GS828-LS

(a) Gas, fuel, water, power substation monitoring
(b) Modbus interface supporting a number of common flow meters e.g. Elster, Corus, Ultrasonic Water Flow Meter
(c) Internal wide range of voltage output – power source for external Modbus device
(e) IP68 casing for underground and robust condition

Examples of sensors measured by AD or Pulse channels :

- Wind Speed/Direction Transducer
- Rain Gauge, Ultrasonic Water Meter
- Pressure Gauge, Water Level Transducer

Application Package

GS828-L / LS

Solar Power GPRS Data Logger

* Built-in Solar Panel Controller
* Internal 3 or 6Ah Li-ion Rechargeable Battery
* Average 30 days operation by battery only
* Direct connection to solar panel
* Automatic switch to battery power when losing sunlight
* Automatic recharge battery on sunlight
* Low Power Sleep Mode < @10uA, 12VDC
  [GS828-LC/GS828-LSC]
* Suitable for rural sites with adequate sunlight
* IP67 Aluminum waterproof crash proof enclosure
* Aluminum Casing, 280 x 199 x 90 mm
* Solar Panel is not included in package

Weather Station

Solar Powered GPRS Data Logger

* Wind Direction / Speed Transducer
* Temperature & Humidity Sensors
* Rain Gauge Tip Bucket
* CO2, Pressure, UV Transducer

GPRS Data Logger & Modbus Flow Meter

* GS828-LS supports Modbus interface
* It powers the flow meter with its internal voltage
* Its internal battery support average 5 years operation
* Programmable 4 floating points and 4 integers registers mapping

GPRS Data Logger & Ultrasonic Flow Meter

* Protocol for Ultrasonic Water Flow Meters are integrated in GS828-LS
* Remote Monitoring of Flow Meter Reading
* Interface with Ultrasonic Water Meter via RS485 port
* User selectable data registers addresses

Model Selection GS828-L / LS

Model Selection	GS828-L2	GS828-LV	GS828-LC	GS828-LS	GS828-LSA	GS828-LSC
Aluminum Waterproof	IP67	—	IP67	—	IP67	IP67
PVC Waterproof	—	IP65	—	IP68	—	—
LCD Display	—	—	—	4 x 16 char	—	—
High Capacity Battery 20Ah	✓	✓	—	✓	✓	—
Low Power Sleep Mode	✓	✓	✓	✓	✓	✓
Low Voltage Alert	✓	✓	✓	✓	✓	✓
Solar Panel Controller	—	—	✓	—	—	✓
3Ah Rechargeable Battery	—	—	✓	—	—	✓
Built-in 5/24VDC output	✓			✓		
Built-in 3.3/12VDC output	—			✓		
AD Channel	2			2		
Pulse Channel	4			4		
Alarm Input (DI)	4			4		
Relay Output (DO)	2			0		
Modbus Device Support	—			✓		
Modbus Interface	—			Both RS232 & RS485		
Modbus Meter support	—			Elster EK220, Corus PTZ, Ultrasonic Flow Meter		
Floating Point Registers	—			4		
Integer Registers	—			4		
Temperature Sensor	2			1		
Humidity Sensor	1			1		
Internal Memory	512KB			2MB		
SMS Alarm Text	Data only			User programmable text		
Data Logging Interval	1 ~ 60 minutes, 2hours					
Data Upload Interval	1 minute ~ 24 hours					
Data Upload	On Schedule / Alarm Triggered / Manual Check by SMS or GPRS					
IP Connection	Dynamic / Fixed					
Protocol	UDP / TCP					
Data Transmission	GPRS Data / SMS / RS232					
PC Communication Port	RS232					
SMS & GPRS Alarm	Triggered on high/low level in AD, DI or Modbus Data					
Local Setup	via RS232 by PC Software					
Remote Command	Support remote command via SMS or GPRS					
Cinterion GSM Module	MC55i Quad Band [850/900/1800/1900MHz]					
Bundled Software Free	Standard Edition					
Setup Software	Remote (GSM Modem GS300) & Local (RS232 port)					
Centre Software	Data Receiving Software, support txt database, max. 99 data loggers					
Optional Software	Ultimate Server Client Software Package					

How to?

GS828-L / LS

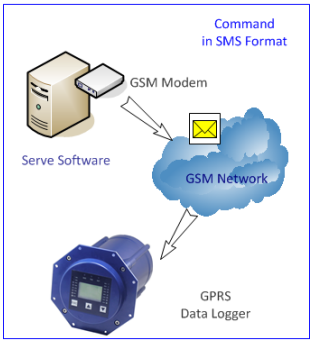
How to setup GS828?

[1] Mobile Phone

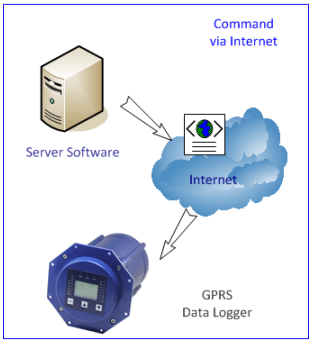
[2] Setup Software [bundled free] or Server Software

Remote setup

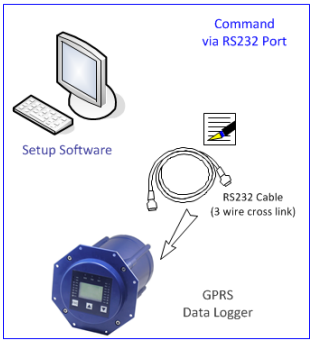
Remote setup via SMS



Remote setup via GPRS

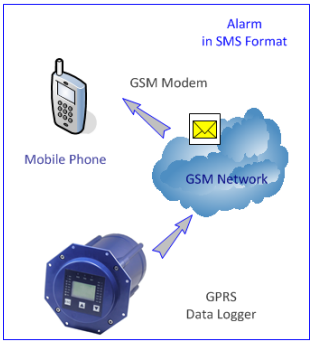


Local setup

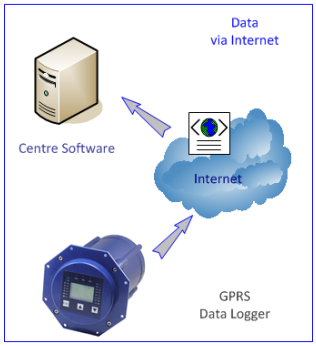


How to receive data from GS828?

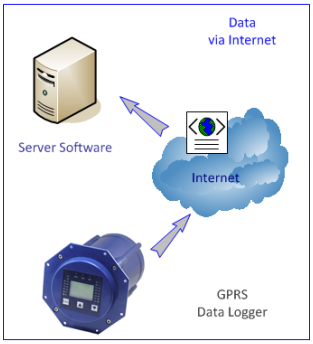
[1] Mobile Phone [SMS only]

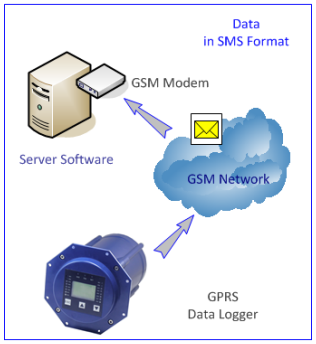


[2] Centre Software [Internet only]



[3] Ultimate Server Software [SMS & Internet]





When will GS828 upload data?

(a) On Schedule

- Data is uploaded every interval via SMS or GPRS
- User Programmable upload interval
- Data records within the interval will be uploaded in packet

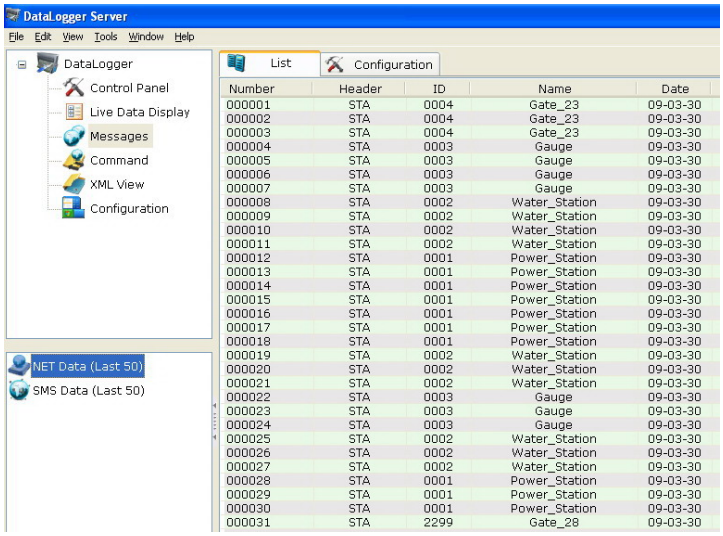
(b) Manual Check

- Query by user mobile phone SMS
- Command from Server via SMS or GPRS when it is connected to network

Ultimate Server & Client GS828-L / LS

Optional Software Support

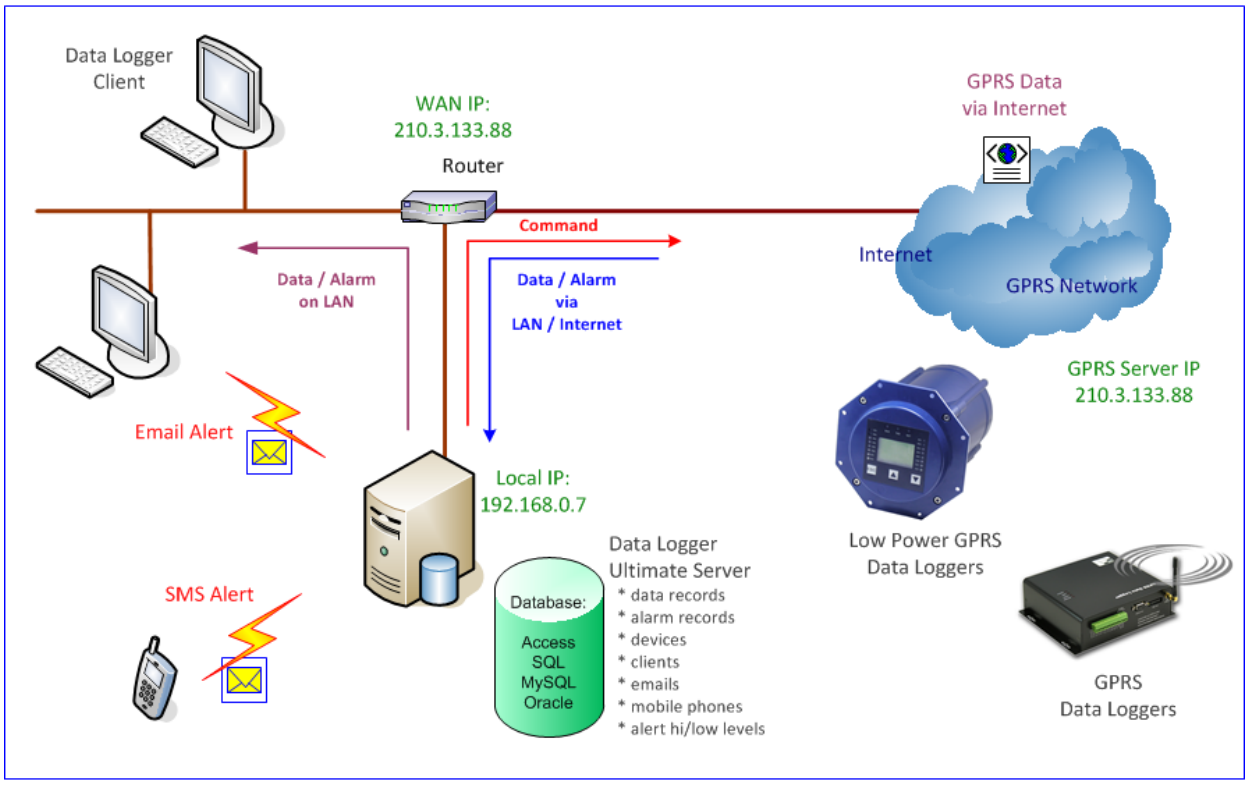
[Refer "GS828X Ultimate Software Catalogue"]



Ultimate Server Software

- Receiving data via LAN Internet & SMS remotely
- Display of live data and devices status in real time
- Maintaining the record database in xml files
- Maintaining the database of GPRS data loggers identities and properties
- Display status of server, data loggers and clients
- Interface for user development and application
- Alert user via TCP / Email / SMS
- Grouping of user/client/email/SMS phone numbers
- Client software support
- Support of integrating with:

  Access / MySQL / SQL / Oracle Databases



Ultimate Client Software

- Downloading live or historical data from Server
- Real time monitoring of a number of data loggers
- Alert users when temperature or humidity is too high/ low
- Alert customers via email, SMS or TCP
- Data trend review
- Web based Client