Temperature & Humidity SMS Alarm Controller
[GSMS-TH]
## CONTENT

1. OVERVIEW .................................................. 3  
2. CONNECTION ............................................... 5  
3. SCHEMATIC DIAGRAM ...................................... 6  
4. EXTERNAL TEMPERATURE & HUMIDITY SENSOR ........ 14  
5. INSERTING SIM CARD ........................................ 16  
6. GSMS-THP SERIES .......................................... 16  
7. SOLAR POWER CONNECTION [GSMS-THP-XC / SXC] .......... 17  
8. SETUP .................................................... 18  
9. QUICK STARTUP ............................................ 19  
10. ALARM TRIGGER RESPONSE TIME ....................... 19  
11. GSM NETWORK CONNECTIVITY .......................... 19  
12. COMMAND LIST ........................................... 20  
13. DEAD LOOP PROBLEM .................................... 46  
14. POWER LOSS & RESUME .................................. 47  
15. SAFETY AND REGULATORY NOTICE .................... 48  
16. MANUFACTURER’S DISCLAIMER STATEMENT ............ 49
1. Overview

a. Introduction
GSMS-TH is designed and integrated with a 16 bit MCU and reliable Siemens GSM module. An external sensor of high accuracy and resolution keeps measuring the “Temperature & Humidity”.

It is operated by AC input. Power loss tolerance is secured by its internal rechargeable battery, and low power level alert via SMS.

b. Application
- Industrial equipment monitoring, Data Centre, Cold Storage
- Food, Medical, Chemical Manufacturing Plant
- Rural Monitoring and Security, Environmental Monitoring
- Intelligent Factory/Facilities Environmental Control
- Large scale area monitoring e.g. Power Plant

c. Features
- Operates in GSM covering zones, phone alarm dial & SMS alarm message
- SMS alarm message text programmable, independent for open or close triggered
- SMS report interval programmable
- Device Status reporting in Automatic, Schedule or Alarm triggered modes
- Keep 10 latest SMS alarm message and resend when sending SMS fails
- Health Status report by GSM mobile phone or PC (RS232)
- Configuration setup by GSM mobile phone or PC (RS232)
- Arm/Disarm via SMS command by mobile phone

- 8 x Alarm Inputs (Opto-isolated)
- Close or Open triggered alarm
- Alarm Alert Modes – SMS, Phone Dial or SMS & Phone Dial

- 2 x AD channels or Temperature and Humidity Sensors
- Alert High/ Low Levels triggers SMS alarm

- 3 x Relay Outputs, NC/NO
- Alarm or SMS activated Relay Control

- 4 x Mobile/Fixed Phone Number, 2 x Control Centre Phone Number
- Sound monitoring when microphone is connected
- Automatic power supply voltage level checking
- Low Power voltage level alert
d. Safety
- Do not touch the antenna
- GSM 900MHz, 2W max. / GSM 1800MHz, 1W max.
- Not designed for medical equipment or aerospace application

e. Electrical Specification
AC Input Voltage: 90~260V AC
Current:
- 500mA (SMS Send/Receive)
- 20mA (standby)
Peak Pulse Current: < 1A
Operating Temperature: -25° C ~ 65° C
Weight: 1.2kg
RS232: 9600bps, 8 Data Bits, None Parity, 1 Stop Bit

f. Antenna Requirement
<table>
<thead>
<tr>
<th></th>
<th>GSM 900</th>
<th>GSM 1800</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Frequency</td>
<td>925~960MHz</td>
<td>1805~1880MHz</td>
</tr>
<tr>
<td>TX Frequency</td>
<td>880~912MHz</td>
<td>1710~1785MHz</td>
</tr>
<tr>
<td>RF Rating</td>
<td>2W 12.5% Loop Loading</td>
<td>1W 12.5% Loop</td>
</tr>
<tr>
<td>Loading Resistance</td>
<td>500Ohm</td>
<td></td>
</tr>
<tr>
<td>Radiation S/N</td>
<td>0dBi</td>
<td></td>
</tr>
</tbody>
</table>

GSM850/900/1800/1900MHZ is available in US or worldwide Quad Band Version

g. Panels
2. Connection

Front Panel

<table>
<thead>
<tr>
<th>LED1 green [GSM Signal]</th>
<th>LED2 red [Operation Status]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flashing Off &gt; On duration</td>
<td>On</td>
</tr>
<tr>
<td>* GSM Module Normal Operation</td>
<td>* Normal</td>
</tr>
<tr>
<td>Flashing Same On/Off duration</td>
<td>Flash</td>
</tr>
<tr>
<td>* GSM Network Connection Problem</td>
<td>* Searching GSM Network</td>
</tr>
<tr>
<td>Reason:</td>
<td>* Connecting GSM Network</td>
</tr>
<tr>
<td>Antenna not connected</td>
<td>* Receiving SMS messages</td>
</tr>
<tr>
<td>No SIM Card</td>
<td>* Sending SMS messages</td>
</tr>
<tr>
<td>Defective SIM Card</td>
<td>* Phone dialing</td>
</tr>
<tr>
<td>GSM Module Defect</td>
<td></td>
</tr>
</tbody>
</table>

2.1 Sound Monitoring
- GSMS-TH automatically picks up any alarm phone call after 8 rings.
- GSMS-TH will reject any call not from alarm phone number.
- By connecting the microphone, mobile phone user can talk to the SMS Messenger.

2.2 PC Connection
- 9600bps, 8bit, No Parity, 1 Stop
- Pin 2 –RXD, Pin 3 – TXD, Pin 5 - GND
3. Schematic Diagram

3.1 Internal Board
- AC-DC Adaptor (Auto 90~260 VAC)
- Rechargeable Battery: 7.4VDC, 1.2Ah

![Internal Board Diagram]

3.2 Internal Rechargeable Battery
- Short the pins BAT-1 and BAT-2 to turn on the rechargeable battery
- When device is not in use, open the pins connection to save the power of rechargeable battery
- When AC power is plugged and BAT pins are shorted, device is powered by AC and internal battery is being charged.
- Charging will be automatically stopped when battery is full.

![Rechargeable Battery Diagram]

3.3 DC Power Output
- DC output is used to provide the power of alarm input
- All alarm input is power type, but not dry contact
3.4 Model: GSMS-TH-SX

- 1 x Temperature Sensor & 1 x Humidity Sensor  Model: TH_V3
- These two inputs should **NOT** be used as normal AD channel inputs

Sensor Cable Color Code:
- Yellow: HUMIDITY
- Green: TEMPERATURE
- Black: GND
- Blue: 5VDC POWER
- Red: 5VDC POWER
3.5 Model: GSMS-TH-ST

- 2 x Temperature Sensors Model: T_V2 or T_V5
- Max. 100 meter sensor cable
- These two inputs should **NOT** be used as normal AD channel or Humidity inputs

Sensor Cable Color Code:

- TEMPERATURE_2
- TEMPERATURE_1
- GND
- 5VDC POWER
3.6 Model: GSMS-TH-X

- 2 x AD channels
- Input: DC7~15V, 4 ~ 20mA current type, 250 ohm input impedance

3.7 Model: GSMS-TH-X & Sensors

- Sensor with 4~20mA output
- 2 x AD channels are connected to sensors
3.8 Alarm Input

- All alarm input is power type, but not dry contact
- Input: 7~12VDC, 7~15mA, 1KΩ Input Resistance
- IN2+, IN2- are independent isolated inputs
  
  [IN2- is NOT recommended to be common to the GND of the device]
3.9 Water Leakage Detector

- Water Leakage Detector is bundled in “Data Room SMS Alarm Package” only
- Make sure that the [Alarm Setup] is configured properly in the Setup Software

Water Leakage Detector

- Output Signal
  - White: GND
  - Blue: NO
  - Yellow: NC [no use in this case]

- Detecting Wires:
  - ------: connect to extension wire
  - xxxxx: connect to extension wire
  - Extendable to max. 100 meter

- Red: 9~24VDC power
- Black: Ground
3.10 Relay Output

- Relay Output is dry contact on/off switch
- NC or NO can be set by jumper
- The relay on/off start up status is determined by the jumper setting.
- The relay will resume its start up status when power is off.
- Max. Loading: 3A/30VDC, 3A/220VAC
- OUT1 is used for internal siren

---

**Relay Output jumper**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1-2 Short  Normal Close
2-3 Short  Normal Open (Default)
3.11 Siren Control

- Siren is bundled in “Data Room SMS Alarm Package” only
- Make sure that the [Alarm Setup] is configured properly in the Setup Software
4. **External Temperature & Humidity Sensor**

4.1) GSMS-THR-SX

External temperature & humidity sensor is supplied with 1m cable. It can be extended up to 10 meter.

Temperature sensor and Humidity Sensor are built in a single enclosure.

**External Temperature Sensor**
- Model: DS18B20
- Temperature Range: -50 ~ 125°C
- Accuracy: 0.1°C
- AD Channel: 2
- High Temperature SMS Alert
- Low Temperature SMS Alert

**External Humidity Sensor**
- Model: CHM-01A
- Humidity Range: 0 ~ 100%RH
- Accuracy: ±3%RH
- AD Channel: 1
- High Humidity SMS Alert
- Low Humidity SMS Alert

NOTE: Sensor must be installed upwards.
4.2) GSMS-THR-ST

2 x External temperature sensors are supplied with 1m cable. It can be extended up to 100 meter.

Temperature sensor is built in a waterproof steel housing.

**External Temperature Sensor**

- **Model:** DS18B20
- **Temperature Range:** -50 ~ 125°C
- **Accuracy:** 0.1°C
- **AD Channel:** 1, 2

High Temperature SMS Alert
Low Temperature SMS Alert
5. **Inserting SIM card**

1) Press the yellow button to release the SIM card caddy as shown below.
2) Insert the SIM card into caddy.
3) Make sure that the golden contact is facing down when inserting the SIM card caddy.

6. **GSMS-THP/C series**

1) IP67 Waterproof Aluminum Case
2) High Capacity Battery Built-in
3) Solar Panel Controller Built-in
7. **Solar Power Connection [GSMS-THC-X / SX / ST]**

1) Solar Panel Controller

- Solar Panel is connected to the controller as power source
- When solar power is available, it powers device and recharges the 12V battery
- When solar power is not available, battery will powers device
- Press on/off switch shortly to switch different operation modes
- Make sure that digit 6 is displayed on LED for continuous operation mode

2) Connecting to SMS Alarm Messenger

- Connect the controller power output to device
8. Setup

The unit can be programmed remotely or locally by:

(A) SMS command via mobile phone

(B) Setup Software via its built-in RS232 port
9. Quick Startup

1. Insert SIM Card into the alarm unit
2. Connect 12VDC power input connector, or turn on the switch inside the case
3. Wait until the LED1 is ON, and LED2 flash (OFF > ON duration)
4. Use mobile phone with another SIM card, write a SMS message as below:

   PWD:1234,STATUS%

5. Send the message to the phone number of SIM card in the alarm unit
6. Within 30 seconds, your mobile phone will receive a reply SMS message from the alarm unit about its health status.
7. The unit works normally now. Go to the next pages for other operations.

   **Note:** Caller ID service must be activated

10. Alarm Trigger Response Time

After power on, the unit will take about 30 seconds for GSM module initialization and accessing the GSM network.

Upon alarm triggered, the unit will send the SMS alert message to Control Centre, and then other 4 programmable phone numbers. Control Centre can be disabled in order to make the users phone number receiving the alarm sooner.

11. GSM Network Connectivity

1. When GSM network is inaccessible or disconnected on sending SMS, the SMS will be lost.
2. When GSM network is inaccessible or disconnected before sending SMS, the unit will keep searching for the network and send the SMS until the GSM network resumes.
3. When sending the SMS alarm message fails, the SMS unit will keep the last 10 SMS alarm message and resend when the unit succeeds in accessing the GSM network again.
### 12. Command List

<table>
<thead>
<tr>
<th>Command Number</th>
<th>Command Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.1)</td>
<td>NEW PASSWORD SETUP</td>
<td>21</td>
</tr>
<tr>
<td>12.2)</td>
<td>MANUAL HEALTH REPORTING</td>
<td>21</td>
</tr>
<tr>
<td>12.3)</td>
<td>SERIAL NUMBER SETUP</td>
<td>22</td>
</tr>
<tr>
<td>12.4)</td>
<td>CONTROL CENTRE NUMBER &amp; HEALTH REPORTING SCHEDULE SETUP</td>
<td>22</td>
</tr>
<tr>
<td>12.5)</td>
<td>POWER UP MESSAGE</td>
<td>23</td>
</tr>
<tr>
<td>12.6)</td>
<td>SYSTEM CLOCK SETUP</td>
<td>24</td>
</tr>
<tr>
<td>12.7)</td>
<td>PHONE NUMBER SETUP</td>
<td>24</td>
</tr>
<tr>
<td>12.8)</td>
<td>ALARM INPUT LEVEL &amp; ALERT SETUP</td>
<td>25</td>
</tr>
<tr>
<td>12.9)</td>
<td>SMS ALARM MESSAGE SETUP</td>
<td>27</td>
</tr>
<tr>
<td>12.10)</td>
<td>READ THE SMS MESSAGE CONTENT</td>
<td>29</td>
</tr>
<tr>
<td>12.11)</td>
<td>USING SMS ALARM MESSENGER TO SEND SMS MESSAGE</td>
<td>30</td>
</tr>
<tr>
<td>12.12)</td>
<td>RELAY OUTPUT CONTROL</td>
<td>32</td>
</tr>
<tr>
<td>12.13)</td>
<td>RELAY OUTPUT DELAY TIME</td>
<td>32</td>
</tr>
<tr>
<td>12.14)</td>
<td>OPERATING VOLTAGE LOW LEVEL ALARM SMS</td>
<td>32</td>
</tr>
<tr>
<td>12.15)</td>
<td>INPUT VOLTAGE LOW LEVEL ALARM</td>
<td>33</td>
</tr>
<tr>
<td>12.16)</td>
<td>INPUT VOLTAGE ALARM LEVEL SETUP</td>
<td>34</td>
</tr>
<tr>
<td>12.17)</td>
<td>ARM/DISARM SETUP</td>
<td>34</td>
</tr>
<tr>
<td>12.18)</td>
<td>SYSTEM PARAMETERS RESET</td>
<td>34</td>
</tr>
<tr>
<td>12.19)</td>
<td>SYSTEM VERSION CHECK</td>
<td>34</td>
</tr>
<tr>
<td>12.20)</td>
<td>RETURN MESSAGE</td>
<td>35</td>
</tr>
<tr>
<td>12.21)</td>
<td>DEFAULT SETTING</td>
<td>35</td>
</tr>
<tr>
<td>12.22)</td>
<td>SYSTEM PARAMETERS REPORT</td>
<td>36</td>
</tr>
<tr>
<td>12.23)</td>
<td>AD PARAMETERS SETUP</td>
<td>39</td>
</tr>
<tr>
<td>12.24)</td>
<td>AD CHANNEL ALARM SETUP</td>
<td>40</td>
</tr>
<tr>
<td>12.25)</td>
<td>SYSTEM PARAMETERS REPORT (ABOUT AD CHANNELS)</td>
<td>41</td>
</tr>
<tr>
<td>12.26)</td>
<td>MANUAL TEMPERATURE CHECK</td>
<td>43</td>
</tr>
<tr>
<td>12.27)</td>
<td>TEMPERATURE ALARM SETUP</td>
<td>43</td>
</tr>
<tr>
<td>12.28)</td>
<td>MANUAL HUMIDITY CHECK</td>
<td>44</td>
</tr>
<tr>
<td>12.29)</td>
<td>HUMIDITY ALARM SETUP</td>
<td>44</td>
</tr>
<tr>
<td>12.30)</td>
<td>FINE TUNING OF MEASURING TEMPERATURE &amp; HUMIDITY</td>
<td>45</td>
</tr>
</tbody>
</table>
Command Description

Configure the SMS Alarm Controller by sending the command text through the GSM Mobile Phone, or GSM Modem with Setup Software.

Upon command received and processed, the unit will send a confirmation SMS message back to the mobile phone.

If command is incorrect, the unit will reply “SMS format is error!” to the mobile phone.

12.1) New Password Setup

Command: **PWD:XXXX,NEWPWD:YYYY%**

- XXXX: Current Password
- YYYY: New Password (4 digits)

Example: **PWD:1234,NEWPWD:2222%**

Default Password: 1234

New Password: 2222

12.2) Manual Health Reporting

Command: **PWD:XXXX,STATUS%**

[SMS Message received]

ST:XXX;T:2005/01/28/13:00;V:XXXX;AI1:0000;AI2:0000;K1:X;K2:X;K3:X;K4:X;K5:X;K6:X;K7:X;K8:X;OUT1:Y;OUT2:Y;OUT3:Y;#.

Example

ST:002;2005/01/28/13:00;V:8.15;AI1:0000;AI2:0000;K1:1;K2:0;K3:0;K4:1;K5:1;K6:0;K7:0;K8:1;OUT1:1;OUT2:1;OUT3:1;#.

- ST: Unit Serial Number
- T: Unit Internal Clock
- V: Operating Voltage
- AI1: A/D Channel 1
- AI2: A/D Channel 2
- K1: Alarm Channel 1
- OUT1: Relay Output 1

K1:0 means “Open”
K1:1 means “Closed”

OUT1:0 means “Open”
OUT1:1 means “Closed”
12.3) Serial Number Setup

Command: PWD:XXXX,SN:YYYY%

XXXX Password
YYYY Serial Number (0-999)

Example: PWD:1234,SN:268%

Password: 1234 (default)
Serial Number Set into the unit: 268 (default: 000)

12.4) Control Centre Number & Health Reporting Schedule Setup

Two values are configured by one single command.

(1) Control Centre Number is the phone number receiving the periodic report and regular report. Besides the periodic report on schedule (Command 5), report of any command will be sent to this number in addition to the mobile phone number sending the command. Max. 2 control centre can be defined.

Command: PWD:XXXX,CTRZ:YYYYYYYYYY,MM#%

XXXX Password
Z Control Centre Number (Max. 2 centres)
1 means the first centre number
2 means the second centre number
YYYYYYYY Phone number in control centre
MM Period Code of Automatic Scheduled Health Report

Example: PWD:1234,CTR1:123456789,05#%

Password: 1234
Report Health Status every 1 hour (refer Table #1)

(2) Periodic health status and any command from other mobile phone will be reported to the first control centre with number 123456789.

Table #1 Reference Table for the Automatic Periodic Health Status Report

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>No automatic report</td>
<td>07</td>
<td>Every 6 hours</td>
</tr>
<tr>
<td>01</td>
<td>Every 5 minutes</td>
<td>08</td>
<td>Every 12 hours</td>
</tr>
<tr>
<td>02</td>
<td>Every 15 minutes</td>
<td>09</td>
<td>Every 1 day (8:00am)</td>
</tr>
<tr>
<td>03</td>
<td>Every 30 minutes</td>
<td>10</td>
<td>Every odd day (8:00am)</td>
</tr>
<tr>
<td>04</td>
<td>Every 1 hour</td>
<td>11</td>
<td>1st, 7th, 14th, 21st, 28th Day (8:00am)</td>
</tr>
<tr>
<td>05</td>
<td>Every 2 hours</td>
<td>12</td>
<td>1st, 15th Day (8:00am)</td>
</tr>
<tr>
<td>06</td>
<td>Every 3 hours</td>
<td>13</td>
<td>1st Day of Each Month (8:00am)</td>
</tr>
</tbody>
</table>
SMS Pro automatically reports the unit health status on pre-defined schedule via SMS message.

**[SMS Message received]**

```
ST:XXX;T:2006/10/08/06:15;V:XXXX;AI1:0000:AI2:0000:K1:X;K2:X;K3:X;K4:X;K5:X;K6:X;K7:X;K8:X;OUT1:1:OUT2:1;OUT3:1;#.
```

- **ST** Unit Serial Number XXX ASCII code
- **T** Unit Internal Clock XXXX year/month/day/time
- **V** Operating Voltage XXXX
- **AI1** A/D Channel 1 X hex digits
- **AI2** A/D Channel 2 X hex digits
- **K1** Alarm Channel 1 K2~8 Alarm Channel 2~8
  - K1:0 means “Open”
  - K1:1 means “Closed”
- **OUT1** Relay Output 1 OUT2~3 Relay Output 2~3
  - OUT1:0 means “Open”
  - OUT1:1 means “Closed”

**Example [SMS Message received]:**

```
ST:001;2005/01/27/12:00;V:8.14;AI1:2312;AI2:2131;K1:1;K2:0;K3:0;K4:1;O:1
```

**SMS Unit Current Status**

```
ST   Unit Serial Number   001
TIME Unit Internal Clock Date: 27 Jan 2005 Time: 12:00
V    Operating Voltage    8.14VDC
AI1  A/D Channel 1        2132
AI2  A/D Channel 2        X2131
K1   Alarm Channel 1      1 Closed
K2   Alarm Channel 2      0 Open
K3   Alarm Channel 3      0 Open
K4   Alarm Channel 4      1 Closed
O    Output Relay 1       1 ON
```

12.5) **Power Up Message**

Whenever the unit is power up, the unit will automatically send the message “RESTART” to control centre configured in **command 4**.

**RESTART!**
12.6) System Clock Setup

**Command:** PWD:XXXX,TIME:AABBCCDDEE%

- **XXXX** Password
- **AABBCCDDEE** Year/Month/Day/Hour/Minute

**Example:**

```
PWD:1234,TIME:0602031327%
```

Password: 1234
Clock Set: 3 Feb 2006, 13:27

12.7) Phone Number Setup

4 sets Phone Number (Mobile Phone Number) can be preprogrammed to receive the alarm phone dialing or alarm SMS.

**Command:** PWD:XXXX,ALMNU1:ZZZZZZZZZZZ,2:ZZZZZZZZZZZ,3:ZZZZZZZZZZZ,4:ZZZZZZZZZZZ,5:ZZZZZZZZZZZ,6:ZZZZZZZZZZZ,7:ZZZZZZZZZZZ,8:ZZZZZZZZZZZ#%

- **XXXX** Password
- **ZZZZZZZZZZZ** Phone Number

**Example 1:**

```
PWD:1234,ALMNU1:12345678,2:36925814712,3:159357456,4:951753621#%
```

Password: 1234

- Upon Alarm is triggered, call or SMS is made to following numbers.
  - Number 1 12345678
  - Number 2 36925814712
  - Number 3 159357456
  - Number 4 951753621

**Example 2:**

```
PWD:1234,ALMNU1:NUL,3:NUL#%
```

Password: 1234

- Upon first example setup, call to following numbers is cancelled.
  - Number 1 12345678 Call not made
  - Number 2 36925814712 Call Retained
  - Number 3 159357456 Call not made
  - Number 4 951753621 Call Retained

**NUL** means no phone number will be set.
12.8) Alarm Input Level & Alert Setup

Command: PWD:XXX,ALMLEVELR:X,YY,ZZZBBB,NNN%

XXXX Password
R Alarm Channel Number
X 0 means “Disabled”
   1 means “Close” triggered alarm
   2 means “Open” triggered alarm
   3 means both “Close” or “Open” triggered alarm
YY 00 means alarm not report to Control Centre
    10 means alarm report to Control Centre 1
    01 means alarm report to Control Centre 2
    11 means alarm report to Control Centre 1 and 2
ZZZBBB Selection of alarm phone dial and alarm SMS
   0 means no alarm report
   1 means “SMS” only
   2 means “phone dial” only
   3 means “SMS” first, and then “phone dial”

B B B B
   4th phone number
   3rd phone number
   2nd phone number
   1st phone number

NNN Relay Output Control
   0 means no relay output control
   1 means relay output triggered by alarm
   N N N
      3rd Relay Control
      2nd Relay Control
      1st Relay Control
Example 1:
PWD:1234,ALMLEVEL2:1,01,10300000,010%
Password: 1234
Alarm Channel 2: Once input is closed, alarm is triggered.
  Control Centre 2 will be reported by SMS.
  Phone Number 1  SMS alert
  Phone Number 2  no report
  Phone Number 3  SMS alert, then phone dial
  Phone Number 4-8 no report
  Relay Output 1  no control
  Relay Output 2 triggered “CLOSE” by alarm
  Relay Output 3  no control

Example 2:
PWD:1234,ALMLEVEL1:1,11,12300001,100%
Password: 1234
Alarm Channel 1: Once input is closed, alarm is triggered.
  Control Centre 1 & 2 will be reported by SMS.
  Phone Number 1  SMS alert
  Phone Number 2  alarm phone dial
  Phone Number 3  SMS alert, then phone dial
  Phone Number 4-7 no report
  Phone Number 8  SMS alert
  Relay Output 1  triggered “CLOSE” by alarm
  Relay Output 2 no control
  Relay Output 3 no control

Example 3:
How to make the “Relay Output 3” triggered by alarm channels 2 & 5?
Once set, the relay output 3 will no longer be controlled by command 10 “COUT3:1”.

Method 1
   Enable the control 3 triggered by alarm channels 2 & 5
   PWD:1234,ALMLEVEL2:1,11,11110000,001%
   PWD:1234,ALMLEVEL5:1,11,11110000,001%

Method 3
   Programmed by PC Software “SMDPro” via RS232

Note: Microphone should be connected if “alarm phone dial” is selected.
12.9) SMS Alarm Message Setup

**Alarm Channel 1 ~ 8**

**Command:** PWD:XXXX,ALMYTEXT:□□□□□□□□□□□□□□□□#%

- XXXX: Password
- Y: Alarm Channel Number (1~8)
- E: 0 Close Triggered Alarm
  1 Open Triggered Alarm

□□□□□□□□□□□□□□□□ SMS Message (max. 130 characters)

**Example:**

PWD:1234,ALM4T1XT:Main Door is Open#%

Alarm Channel 4 is triggered by “Open Contact”, SMS Message “Main Door is Open” is sent to the pre-defined mobile phone numbers.

PWD:1234,ALM4T0XT:Main Door is Closed#%

Alarm Channel 4 is triggered by “Close Contact”, SMS Message “Main Door is Closed” is sent to the pre-defined mobile phone numbers.
Power Low Level, AD Channel 1 ~ 2

[Low Level Alert Message]

Command: PWD:XXXX,ACLYTEXT:□□□□□□□□□□□□□□□□□□□□#%

XXXX Password
Y AD Channel Number (0~2)
  0: Low Power Input Voltage Level Alarm
  1: AD Channel 1 Alarm
  2: AD Channel 2 Alarm

□□□□□□□ SMS Message (max. 100 characters)

Example:

PWD:1234,ACL2TEXT:Too Cold Alert#%
Alert Low: 5.250
AD value: 5.123
Password: 1234
Date: 2007-06-12
Time: 19:23

AD value captured is lower than threshold low, so alert SMS is sent with the following message content.
Too Cold Alert >ST:001;TM:28/01/2008,15:45;INPU AD2 ALARM!;A2:5.123.

[High Level Alert Message]

Command: PWD:XXXX,ACHYTEXT:□□□□□□□□□□□□□□□□□□□□#%

XXXX Password
Y AD Channel Number (1~2)
  1: AD Channel 1 Alarm
  2: AD Channel 2 Alarm

□□□□□□□ SMS Message (max. 100 characters)
12.10) Read the SMS Message Content

Previous command is used to program the alarm message content into the SMS Alarm Unit.
This command is used to read the message content for verification.

Alarm Channel 1 ~ 8
Command: PWD:XXXX,READYTEXT%
XXXX Password
Y Alarm Channel Number (1~8)

Alarm Message  NP: Message for “Close Triggered” alarm
NC: Message for “Open Triggered” alarm

Reply Message:  ST001;T:2008/01/22/15/45;NP:□□□□□□□□□
ST001;T:2008/01/22/15/45;NC:□□□□□□□□□

This command is used to read the message content for verification.

AD Channel 0 ~ 2
Command: PWD:XXXX,RDACHYTEXT%
XXXX Password
Y AD Channel Number (0~2)
0: Low Power Input Voltage Level Alarm
1: AD Channel 1 Alarm
2: AD Channel 2 Alarm

Command: PWD:XXXX,RDACH2TEXT%
Reply Message: □□□□□□□□□ST001;T:2008/01/22/15/45;INPU AD2 ALARM!;A2:4.200
□□□□□□□□□ST001;T:2008/01/22/15/45;INPU AD2 ALARM!;A2:1.300
□□□□□□□□□ = alert high alarm message
□□□□□□□□□ = alert low alarm message

Example:
PWD:1234,ACL2TEXT:Alert Low#%
PWD:1234,ACH2TEXT:Alert High#%
Alert High>ST:000;T:08/01/2010,09:29;INPU AD2 ALARM!;A2:00000
Alert Low>ST:000;T:08/01/2010,09:29;INPU AD2 ALARM!;A2:00000

SMS Alarm Unit will reply to the mobile phone with the message content for that alarm channel.
12.11) **Using SMS Alarm Messenger to send SMS Message**

This command is used to make the SMS Alarm Unit to send the SMS for testing purpose.

**Command:** PWD:XXXX,SENDMSA:XB%

- XXXX: Password
- A: Phone Number (1~8)
- XB: SMS message selection
  - 00: schedule health check status
  - 01: Closed Triggered Alarm Channel 1, SMS message
  - 02: Closed Triggered Alarm Channel 2, SMS message
  - 03: Closed Triggered Alarm Channel 3, SMS message
  - 04: Closed Triggered Alarm Channel 4, SMS message
  - 05: Closed Triggered Alarm Channel 5, SMS message
  - 06: Closed Triggered Alarm Channel 6, SMS message
  - 07: Closed Triggered Alarm Channel 7, SMS message
  - 08: Closed Triggered Alarm Channel 8, SMS message
  - 09: manual input message
  - 10: High Voltage Alarm Message [not available]
  - 11: AD Channel 1, Alert High SMS message
  - 12: AD Channel 2, Alert High SMS message
  - 13: Open Triggered Alarm Channel 1, SMS message
  - 14: Open Triggered Alarm Channel 2, SMS message
  - 15: Open Triggered Alarm Channel 3, SMS message
  - 16: Open Triggered Alarm Channel 4, SMS message
  - 17: Open Triggered Alarm Channel 5, SMS message
  - 18: Open Triggered Alarm Channel 6, SMS message
  - 19: Open Triggered Alarm Channel 7, SMS message
  - 20: Open Triggered Alarm Channel 8, SMS message
  - 21: Low Voltage Alarm Message
  - 22: AD Channel 1, Alert Low SMS message
  - 23: AD Channel 2, Alert Low SMS message

For example: PWD:1234,SENDMS4:09,Good Morning%

SMS message “Good Morning” will be sent to the phone number 4.

**Error message about setting A:**

- **Number Choice Miss** A is not within 1~8
- **Number Non Exist** No phone number is preset in that location

**Error message about setting B:**

- **Did not specify SMS contents** B is not within 00~20
Reply confirmation message:

Success! SMS Alarm unit succeeds in sending out the message

Failed! Operation failed but phone number exists

When using SMSPro_Setup Software, SMS Alarm Messenger can be used as a GSM Modem sending SMS message to a user alarm mobile phone number.

Please select the following:

- Select alarm phone number 3, please make sure that this alarm phone number must be preset in device properties first
- Type the message e.g. "this is a phone test" in Manual Input box
- Click button
- Message "sms alarm" will be sent to the alarm phone 1 as below
12.12) Relay Output Control

Command: PWD:XXXX,COUTN:Y%

XXXX Password
N Relay Output Channel (1 ~ 3)
Y 1 Turn On (Close) the output
   0 Turn Off (Open) the output

Relay Output is Normally Open by default. The default can be changed by the jumper on the board.
- Command “COUTN:1” is NOT valid when the relay output is triggered by alarm. Reply message will be “ST:XXX” in this case.
- In the above case, command “COUTN:0” is used to reset the relay output after the alarm is triggered.

12.13) Relay Output Delay Time

Command: PWD:XXXX,OUTNDLAY:YYYY%

XXXX Password
N Relay Output Channel (1 ~ 3)
YYYYY 0000 – 9999 seconds
   0000 Turn On or Off the output (default)
   0005 Turn On the output for 5 seconds, and then Off again
   Turn Off the output for 5 seconds, and then On again

Relay output delay time is good for controlling the device e.g. electric door lock/unlock. Only a time lapse on/off is necessary.

12.14) Operating Voltage Low Level Alarm SMS

When the power supply voltage level is below the min. level at 5.34VDC, alert SMS is sent.

Date: 2007-06-15
Time: 13:25
ST:001;TM:200706151325;V:5.34#
12.15) Input Voltage Low Level Alarm

This command is to set the action to be done once the operating voltage drops below the preset value. Value of current operating voltage can be retrieved by the command 2.

**Command:** `PWD:XXXX,ADCOUT0:YY,ZZZZBBBB,NNN%`

- **XXXX** Password
- **YY** 00 means alarm not report to Control Centre
  - 10 means alarm report to Control Centre 1
  - 01 means alarm report to Control Centre 2
  - 11 means alarm report to Control Centre 1 and 2
- **ZZZZBBBB** Selection of alarm phone dial and alarm SMS
  - 0 means no alarm report
  - 1 means “SMS” only
  - 2 means “phone dial” only
  - 3 means “SMS” first, and then “phone dial”
- **NNN** Relay Output Control
  - 0 means no relay output control
  - 1 means relay output triggered by alarm

1st phone number
2nd phone number
3rd phone number
4th phone number
5th phone number
6th phone number
7th phone number
8th phone number

1st Relay Control
2nd Relay Control
3rd Relay Control
12.16) Input Voltage Alarm Level Setup

**Command:** PWD:XXXX,POWVL:mmmm%

- XXXX: Password
- mmmm: when power input is lower than this value, alarm is triggered

**Example:** PWD:1234,POWVL:8.25%

Password: 1234

When the battery voltage is lower than 8.25VDC, alarm is triggered. The reactive will be setup by the command above.

12.17) Arm/Disarm Setup

**Command:** PWD:XXXX,ARM%

- XXXX: Password

**Example:** PWD:1234,ARM%

Password: 1234

Unit is armed, and in alert status

**Command:** PWD:XXXX,DISARM%

- XXXX: Password

**Example:** PWD:1234,DISARM%

Password: 1234

Unit is disarmed, and no alarm is reported

12.18) System Parameters RESET

**PWD:XXXX,PARAMETER&%**

This is to reset the parameters and password into default setting.

[SMS Message received]

Parameter initialize success!

12.19) System Version Check

**PWD:XXXX,CHECKVR%**

[SMS Message received]

SD41 V7.2_3_B 2010/01/28
12.20) **Return Message**

Command succeeds

SMS Message: Function Code & Setting Parameters Set in the command

Command fails

SMS Message: SMS format is error!

12.21) **Default Setting**

**PWD:1234,PARAMETER1%**

ST:000;T:2006/10/01/01:01;H:1;F1:,00;F2:,00;XH:31#

**PWD:1234,PARAMETER2%**

ST:000;VL:7.00,O:00,0000,000;A1M:5.000,0.000,1.000,0,5.000,0.500,O:00,00000000,000;A2M:5.000,0.000,1.000,0,5.000,0.000,O:00,00000000,000#

**PWD:1234,PARAMETER3%**

ST:000;K1:1,O:00,00000000,000;K2:1,O:00,00000000,000;K3:1,O:00,00000000,000;K4:1,O:00,00000000,000;K5:1,O:00,00000000,000;K6:1,O:00,00000000,000;K7:1,O:00,00000000,000;K8:1,O:00,00000000,000;OTY:0000,0000,000;#

**PWD:1234,PARAMETER4%**

ST:000; C1:,1;C2:,1;C3:,1;C4:,1; C5:,1; C6:,1; C7:,1; C8:,1;#
12.22) System Parameters Report

**PWD:XXXX,PARAMETER1%**

[SMS Message received]

ST:XXX;T:2006/10/08/08:00;H:X;F1:XXXXXXXXXXXX,YY;F2:XXXXXXXXXXXX,YY;
XH:RR;ER:xyz#

ST: XXX  Unit Serial Number
T: 2006/10/08/08:00  Date/Time
H: X 1  Arm
0  Disarm
F1: 1st Control Centre Number
XXXXXXXXXXXX  Control Centre Phone Number
YY  Automatic Health Report Schedule
F1: 2nd Control Centre Number

C1  1st Alarm Phone Number
XXXXXXXXXXXX  Alarm Phone Number
Y 1  Alarm Report enabled
0  Alarm Report disabled
XH:RR  GSM Network Signal Strength (1 ~ 40)
ER: xyz

<table>
<thead>
<tr>
<th></th>
<th>Normal</th>
<th>Defect</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSM Module</td>
<td>x: 0</td>
<td>1</td>
</tr>
<tr>
<td>SIM Card/Service</td>
<td>y: 0</td>
<td>1</td>
</tr>
<tr>
<td>GSM Network Coverage</td>
<td>z: 0</td>
<td>1</td>
</tr>
</tbody>
</table>

**PWD:XXXX,PARAMETER4%**

ST:XXX;C1:XXXXXXXXXXXX,Y;C2:XXXXXXXXXXXX,Y;C3:XXXXXXXXXXXX,Y;C4:XXXXXXXXXXXX,Y;C5:XXXXXXXXXXXX,Y;C6:XXXXXXXXXXXX,Y;C7:XXXXXXXXXXXX,Y;
C8:XXXXXXXXXXXX,Y;#

C2 ~ C8  2nd ~ 8th Alarm Phone Number
PWD:XXXX, PARAMETER 2%

[SMS Message received]


<table>
<thead>
<tr>
<th>VL</th>
<th>Min. Operating Voltage, below this level will trigger alarm 7VDC by default</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>alarm report to Control Centre 1 0 means no report 1 means report</td>
</tr>
<tr>
<td>X</td>
<td>alarm report to Control Centre 2 0 means no report 1 means report</td>
</tr>
</tbody>
</table>

BBBBBBBB

report status for 8 phone numbers

0 means no report
1 means “SMS” but no “phone dialing”
2 means “phone dialing” but no “SMS”
3 means “SMS” and then “phone dialing”

<table>
<thead>
<tr>
<th>CCC</th>
<th>relay output control</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0 means relay is not controlled by low voltage alarm</td>
</tr>
<tr>
<td>1</td>
<td>1 means relay is turned on by low voltage alarm</td>
</tr>
</tbody>
</table>
**PWD:XXXX, PARAMETER 3%**


Message is longer than 160 bytes.
By SMS, two separate messages will be sent via GSM.
By RS232 port, one message will be uploaded to PC.

**Alarm 1 ~ 8 Status Report**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>K1</td>
<td>Alarm Channel 1</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>0 means “Disabled”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 means “Close” triggered alarm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 means “Open” triggered alarm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 means both “Close” or “Open” triggered alarm</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>Control Centre Report Setting</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>alarm report to Control Centre 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 means no report</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 means report</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>alarm report to Control Centre 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 means no report</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 means report</td>
<td></td>
</tr>
<tr>
<td>BBBBBBBB</td>
<td>report status for 8 phone numbers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 means no report</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 means “SMS” but no “phone dialing”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 means “phone dialing” but no “SMS”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 means “SMS” and then “phone dialing”</td>
<td></td>
</tr>
<tr>
<td>CCC</td>
<td>relay output control</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 means control not triggered by alarm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 means alarm triggered control</td>
<td></td>
</tr>
<tr>
<td>OTY</td>
<td>1st relay time lapse</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>2nd relay time lapse</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>3rd relay time lapse</td>
<td></td>
</tr>
</tbody>
</table>
12.23) AD Parameters Setup

**PWD:** XXXX, **ADVALEB:** UUUUU, XXXXX, NNNNN, Y, ZZZZZ, WWWW

- **B:** Channel 1 or 2
- **UUUUU:** Measuring Range Upper Limit
- **XXXXX:** Measuring Range Lower Limit
- **NNNNN:** Start Value
- **Y:**
  - 0: AD Alarm disabled
  - 1: AD Alarm enabled, Relay On Time Lapse
  - 2: AD alarm enabled, Relay On when AD is higher than Alert High
  - Relay Off when AD resumes normal
  - 3: AD alarm enabled, Relay On when AD is lower than Alert Low
  - Relay Off when AD resumes normal
  - 4: AD alarm enabled, Relay On when AD is beyond Alert High & Low
  - Relay Off when AD is within Alert High & Low

- **ZZZZZ:** Alert High Value Setup
- **WWWWW:** Alert Low Value Setup

**Operation in case Y=1:**

a) When the captured analog value is higher or lower than the alert values, alarm is triggered.
b) SMS or Dial Phone etc corresponding actions described on next page will be taken.
c) Relay is turn on, and off after preset time lapse.
d) Alarm will only be re-triggered when the captured analog value returns to normal range and then reaches beyond the alert values again.

**Operation in case Y=4:**

a) When the captured analog value is higher or lower than the alert values, alarm is triggered.
b) SMS or Dial Phone etc corresponding actions described on next page will be taken.
c) Relay is turn on, and only off when analog value is back within Alert Range.
d) Alarm will only be re-triggered when the captured analog value returns to normal range and then goes beyond the alert values again.

**Application:**

- When temperature is high, ventilation fan is turn on to cool down.
- When temperature is normal again, ventilation fan is turn off to save power.
12.24) AD Channel Alarm Setup

PWD:XXXX,ADcoutB:YY,ZZZZBBBB,NNN%

XXXX  Password
B     0: Low Voltage Alarm
     1: AD Channel 1 Alarm
     2: AD Channel 2 Alarm
YY    00 means alarm not report to Control Centre
     10 means alarm report to Control Centre 1
     01 means alarm report to Control Centre 2
     11 means alarm report to Control Centre 1 and 2
ZZZZBBBB  Selection of alarm phone dial and alarm SMS
     0 means no alarm report
     1 means “SMS” only
     2 means “phone dial” only
     3 means “SMS” first, and then “phone dial”

NNN  Relay Output Control
     0 means no relay output control
     1 means relay output triggered by alarm
12.25) System Parameters Report (about AD channels)

PWD:XXXX,PARAMETER2%

[SMS Message received]
ST:XXX;VL:XXXXX,O:AX,BBBB,CCC;A1M:XXXXX,UUUUU,YYYYY,R,HHHHH,PPPPP,O:AX,
BBB BBBB,CCC;A2M:XXXXX,UUUUU,YYYYY,R,HHHHH,PPPPP,O:AX,BBB BBBB,BBBB,CCC;#

<table>
<thead>
<tr>
<th>A1</th>
<th>AD Channel 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>M:</td>
<td>XXXXX Range Upper Limit</td>
</tr>
<tr>
<td>UUUUUU</td>
<td>Range Lower Limit</td>
</tr>
<tr>
<td>YYYYY</td>
<td>Start Value</td>
</tr>
<tr>
<td>R:</td>
<td>1 AD Channel Alarm enabled</td>
</tr>
<tr>
<td></td>
<td>0 AD Channel Alarm disabled</td>
</tr>
<tr>
<td>HHHHHH</td>
<td>Alarm Triggered Alert High Value</td>
</tr>
<tr>
<td>PPPPPP</td>
<td>Alarm Triggered Alert Low Value</td>
</tr>
<tr>
<td>O:</td>
<td>A alarm report to Control Centre 1</td>
</tr>
<tr>
<td></td>
<td>0 means no report</td>
</tr>
<tr>
<td></td>
<td>1 means report</td>
</tr>
<tr>
<td>X</td>
<td>alarm report to Control Centre 2</td>
</tr>
<tr>
<td></td>
<td>0 means no report</td>
</tr>
<tr>
<td></td>
<td>1 means report</td>
</tr>
<tr>
<td>BBB BBBB</td>
<td>report status for 8 phone numbers</td>
</tr>
<tr>
<td></td>
<td>0 means no report</td>
</tr>
<tr>
<td></td>
<td>1 means “SMS” but no “phone dialing”</td>
</tr>
<tr>
<td></td>
<td>2 means “phone dialing” but no “SMS”</td>
</tr>
<tr>
<td></td>
<td>3 means “SMS” and then “phone dialing”</td>
</tr>
<tr>
<td>CCC</td>
<td>relay output control</td>
</tr>
<tr>
<td></td>
<td>0 means relay is not controlled by alarm</td>
</tr>
<tr>
<td></td>
<td>1 means relay is turned on by alarm</td>
</tr>
<tr>
<td>A2M...</td>
<td>AD Channel 2</td>
</tr>
</tbody>
</table>

Note: AI1 and AI2 values are reported by COMMAND [PWD:XXXX,STATUS%]
Example:

A1M:0.600,0.000,1.000,1,0.500,0.100

0.600 range upper limit
0.000 range lower limit
1.000 Start Value is “1.000” (4mA * 250Ω=1)
1 Alarm Enabled
0.500 Threshold High
0.100 Threshold Low

Standard range of data captured in AD Channel 1 is 4~20mA.

AI1 value depends on user setting of “Range”, “Start Value” and the input current “c”.

Start Value = 4mA x 250Ω = 1
AD Range = 0.600 - 0.000 usually specified by the current type transducer

\[
AI1 = \frac{(c \times 250 - \text{Start Value})}{(0.02 \times 250 - \text{Start Value})} \times \text{Range}
\]

AI1 reported value will be = Range x \((0.012 \times 250 - \text{Start Value}) / (5 - \text{Start Value})\)

When current input is 12mA, AI1 = 0.6 x \((0.012 \times 250 - 1) / (5 - 1)\) = 0.3

When user requires:
High level alarm at 0.018mA
Low level alarm at 0.008mA

\[
H = (0.018 \times 250 - 1) \times 0.6 / (0.02 \times 250 - 1) = 0.525
\]

\[
L = (0.008 \times 250 - 1) \times 0.6 / (0.02 \times 250 - 1) = 0.15
\]

When AI1 value is over 0.525 or below 0.150, alarm will be triggered – SMS alert message will be sent out to phone number 1 and relay 1 is turned on.

Command: PWD:1234,ADVALE1:0.600,0.000,1.000,1,0.525,0.150%
Command: PWD:1234,ADCOUT1:10,10000000,100%
External Temperature Sensor Operation

- AD Channel 2 is used for temperature measurement
- AD Channel 1 is used for humidity measurement [GSMS-THR-SX]
- AD Channel 1 is used for temperature measurement [GSMS-THR-ST]

12.26) Manual Temperature Check

Command:  PWD:XXXX,STATUS%

[SMS Message received]
ST:XXX;T:2005/01/28/13:00;V:XXXX;AI1:0000;AI2:0000;K1:X;K2:X;K3:X;K4:X;K5:X;K6:X;K7:X;K8:X;OUT1:Y;OUT2:Y;OUT3:Y;#.

<table>
<thead>
<tr>
<th>AI2</th>
<th>Current Temperature</th>
<th>[GSMS-THR-SX]</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI1, AI2</td>
<td>Current Temperatures</td>
<td>[GSMS-THR-ST]</td>
</tr>
</tbody>
</table>

12.27) Temperature Alarm Setup

PWD:XXXX,ADVALE2:UUUUU,XXXXX,NNNNN,Y,ZZZZZ,WWWWW%

- AD Channel 2
- UUUUU  Range Upper Limit  0.000  Default
- XXXXX  Range Lower Limit  250.0  Default
- NNNNN  Start Value       000.0  Default
- Y  1: Triggered Alarm enabled
    0: Triggered Alarm disabled
- ZZZZZ  Alert High Temperature Setup
- WWWWW  Alert Low Temperature Setup

Example:
When temperature is above 70° or below 15°, SMS alarm message will be sent to phone number 3 and relay output 1 will be triggered.

<table>
<thead>
<tr>
<th>AD Channel</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range High/Low, Start Value</td>
<td>Ignored</td>
</tr>
<tr>
<td>Triggered Alarm enabled</td>
<td>1</td>
</tr>
<tr>
<td>Alert High Temperature Setup</td>
<td>070.0</td>
</tr>
<tr>
<td>Alert Low Temperature Setup</td>
<td>015.0</td>
</tr>
</tbody>
</table>

PWD:1234,ADVALE2:250.0,0.000,000.0,1,070.0,015.0%
PWD:1234,ADCOUT2:00,00100000,100%
External Humidity Sensor Operation

- AD Channel 2 is used for temperature measurement
- AD Channel 1 is used for humidity measurement [GSMS-THR-SX]

12.28) Manual Humidity Check

Command: PWD:XXXX,STATUS%

[SMS Message received]

ST:XXX;T:2005/01/28/13:00;V:XXXX;AI1:0000;AI2:0000;K1:X;K2:X;K3:X;K4:X;K5:X;
K6:X;K7:X;K8:X;OUT1:Y;OUT2:Y;OUT3:Y;#.

AI1 Current Humidity

12.29) Humidity Alarm Setup

PWD:XXXX,ADVALE1:UUUUU,XXXXX,NNNNN,Y,ZZZZZ,WWWWW%

1 AD Channel 1
UUUUU Range Upper Limit 140.0
XXXXX Range Lower Limit 0.000
NNNNN Start Value 000.0 Default
Y 1: Triggered Alarm enabled
   0: Triggered Alarm disabled
ZZZZZ Alert High Humidity Setup
WWWWW Alert Low Humidity Setup

Example:
When humidity is above 70%RH or below 15%RH, SMS alarm message will be sent to
phone number 2 and relay output 3 will be triggered.

AD Channel 1
Measuring Range 140.0 – 0.000
Start Value 000.0
Triggered Alarm enabled 1
Threshold High Humidity Setup 070.0
Threshold Low Humidity Setup 015.0

PWD:1234,ADVALE2:140.0,000.0,1,070.0,015.0%
PWD:1234,ADCOUT1:00,01000000,001%
External Temperature Sensor Specification:
- Model: DS18B20
- Power Input: 5VDC
- Measuring Range: -50 ~ 125°C

Output Signal: Digital Signal

AD2 Channel Setup
- Start Value: 000.0 Default
- Range: 250.0 Default

External Humidity Sensor Specification:
- Model: CHM-01A (Resistance Type Humidity Sensor)
- Power Input: 5V±5%
- Power Rating: 5mA max.(2mA avg.)
- Operating Range:
  - Temperature: 0~60°C
  - Humidity: 10% ~ 95%RH
- Measuring Range: 0~100%RH
- Temperature Factor: 0.4%RH/°C
  - 30~80%RH @5V Operating Voltage
  - Temperature Range=10~40°C (reference point: 25°C)
- Accuracy: ±5%RH (at 25, Input 5V)

12.30) Fine Tuning of Measuring Temperature & Humidity

Temperature sensor is digital type. No calibration is necessary.

Humidity sensor needs calibration.
- Output Signal: 0~3 DCV
  - 0VDC = 0RH
  - 3VDC = 100RH

AD1 Channel Setup
- Start Value: 000.0 Default
- Range: 140.0 Default

Adjust the Range of AD1 Channel Setup from 100 ~ 150 for calibration.

ℹ️ “SMSPRo_Setup” Software provides a one-click button operation of calibration. Please refer to the manual of Setup Software.
13. **Dead Loop Problem**

Please find below the possible cause of the “dead loop” problem which creates thousands of SMS delivery. User must pay attention to the setup of phone numbers.

1. When [Unit A] alarm is triggered, it will send alarm message to alarm phone number or control centre phone number.

2. When “alarm phone number” or “control centre phone number” is set to the phone number of another SMS Alarm Unit [Unit B], “Dead Loop” problem happens.

3. [Unit B] receives the alarm message from [Unit A]. Since it will consider this incoming text as a wrong command message, [Unit B] will reply to [Unit A] a message “SMS format is error!”.

4. Then, [Unit A] receives the message “SMS format is error!” from [Unit B], it also considers this incoming text as a wrong command message. Therefore, [Unit A] will reply to [Unit B] a message “SMS format is error!”.

5. Again, [Unit B] receives the same message from [Unit A]. Since it will also consider this incoming text as a wrong command message, [Unit B] will reply to [Unit A] a message “SMS format is error!”.

6. Such case will cause a serious “Dead Loop” problem.
14. **Power Loss & Resume**

1) **PWD:1234,ARM%**  
   Above command is followed by another command e.g. **PWD:XXXX,SN:YYY%**  
   ARM status will be kept when power is lost and resumed.

2) **PWD:1234,ARM%**  
   No other command is followed  
   DISARM status will be as default when power is lost and resumed.
15. Safety and Regulatory Notice

All applicable regulatory compliance statements, product certification markings, and safety and electromagnetic compatibility (EMC) standards and regulations the Data Logger is compliant with.

European Union Declaration of Conformity
Statement
We declare under our sole responsibility that the product GS828 GPRS Data Logger is in conformity with all applicable essential requirements necessary for CE marking, following the provisions of the European Council Directives 2004/108/EC (EMC Directive) and 2006/95/EC (Low Voltage Directive).

The product is properly CE marked demonstrating this conformity and is for distribution within all member states of the EU with no restrictions. This product follows the provisions of the European Directives 2004/108/EC and 2006/95/EC.
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