AS300SA
SYSTEM MANUAL

ALARM
MONITORING
DATA LOGGING

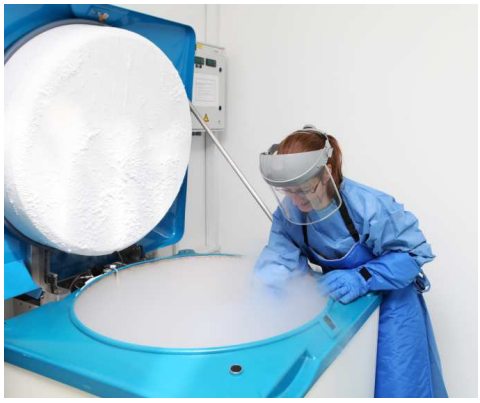


Table of Contents

IMPORTANT : Section1 must be read before operating the alarm and monitoring system.

AS300SA DETAILS	
MASTER PIN	
USER PIN	
SIM TEL NUMBER	
SIM NETWORK	
SERIAL No	

NOTE : This manual uses the master pin 2222 for demonstrational purposes.

Section 1 ► THIS SECTION MUST BE READ BEFORE OPERATING THE ALARM SYSTEM

IMPORTANT

To maintain a high level of confidence in the integrity of the complete alarm system it must be tested on a regular basis.

The responsibility rests with the user as to how often the alarm system is fully tested. This will probably depend on the value of the samples which are being stored in their equipment.

All alarm systems are there to assist in the overall protection of your product. Good maintenance of the monitored equipment is the first line of defence in maintaining the correct operating temperature or environment for your product.
All alarm systems have to be checked on a regular basis. Regular checking will find any faults that have occurred thus improving the overall integrity.

The responsibility for product protected by the alarm system rests completely with the user. The alarm system must be used only as one aid in the customers overall procedure for protecting their product.

Only O2 and Vodafone PAYG SIMS allow credit response ,which will enable the low credit warnings. All other networks do not have this facility, so the low credit warnings will not be activated. Please ensure there is sufficient credit on the SIM card at all times. This will ensure the alarm system will be able to call telephone contacts in the event of an alarm.

The alarm system must never be used as the primary alarm to protect humans.

Section 2 ► AS300SA System Overview

The AS300SA is a new generation of monitoring and alarm systems. Make an informed decision on what action to take based on instant readings from the equipment monitored sent at any time to your mobile telephone - particularly useful if an alarm occurs when the person on call is out of the workplace, in the middle of the night, or at the weekend.

With no need for a dedicated telephone line or line rental the AS300SA is exceptionally easy to install. The programming of telephone numbers and input settings can be done from any location by a mobile telephone using the relevant pin number.

Multiple units at different sites can be connected anywhere in the country or countries as the system uses the GSM network of your choice.

The AS300SA has many special features such as the Defrost Function which allows an input to have the alarms disabled. The disabled period can be set from 0 to 90 hours from the users mobile telephone. Once the disabled period has elapsed the alarms will automatically become reactivated.

Section 3 ► AS300SA Setup

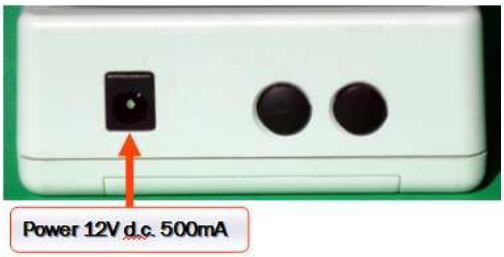
- Compact size. 170H x 85W x 35W (mm)
- Simple to use.
- Two menus available giving information on the system.
- Last 10 alarms stored.
- All alarms are time and date stamped.
- Acknowledged by mobile phone.
- Up to five telephone numbers.
- Audible alarm.
- Power failure alarm.
- Rechargeable battery backup.
- Built in communications to mobiles, land lines and web.
- Logged data to web. (Option)

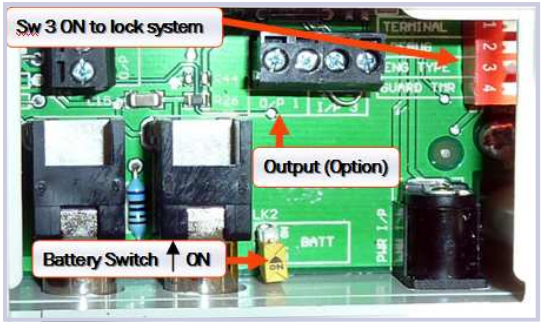
3.1 Front Panel Descriptions.

- **Unit Enabled : -** Green LED when the unit is enabled. Red LED when unit is disabled.
- **Status** :- LED indicating the status of the unit.
  ***System OK*:** - "ON" for 4 seconds and "OFF" for 1 second.
  Mains Power Fail : - Status Light "OFF" for 4 seconds and "ON" for 1 second.
  In Alarm Condition : - Status Light "ON" for 1 seconds and "OFF" for 1 second.
- **GSM Signal** : - Indicates signal strength. LED will be solid and flash every 1 minute. Four flashes indicate a excellent signal strength. This LED will be extinguished if a weak signal is detected.
- **Credit Required** : - "ON" when SIM value drops below £4.00.
- **Alarm Activated** : - "ON" when alarm is activate after delay time.
- **Alarm Input 1 :** - "ON" when alarm on input 1 is activate after delay time.
- **Alarm Input 2** :- "ON" when alarm on input 2 is activate after delay time.
- **Alarm Input 3 :** - "ON" when alarm on input 3 is activate after delay time.
- **Power Failed** :- "ON" when power fail is activate after delay time.
- **Alerts In Progress** :- "ON" when alarm alerts and acknowledgments are being sent.
- **Display** :- The display scrolls through information on system e.g GSM Signal strength and credit on sim (See Section 4)
- **Scroll and Menu Switches** :- Allows access to Alarm and System Menus. (See section 5)

3.2 Power –Battery Switch

Use only the supplied power supply for the SA300SA and connect the 12V d.c. 2.1mm socket to the power input located at the base of the AS300SA To locate the battery switch remove the rear compartment flap. The battery On / Off switch is located at the bottom LHS of the AS300SA switch to the ON position for battery back up in the event of power failure. If mains power is removed from the AS300SA the system will activate an alarm after the programmed delay time.





3.3 SIM Card

If a sim card had not been ordered with the SA300SA, please fit a sim card. A Pay As You Go or contract sim card can be used in the SA300SA. The SA300SA is set up for a "Pay As You Go" sim card by default. If a contract sim card is used the low credit warnings must be disabled in the AS300SA as many contract sims display a £0.00 balance when interrogated by the unit. To change SIM settings please see Section 17.0.

The sim number and credit will be displayed on the main scrolling display when 02 and Vodaphone sims are used.

TOP UP PAYG SIM Card

There are several methods of topping up the credit on a PAYG sim card.

1. The simplest method is to use a cash point machine which displays the sign TOP UP MOBILE HERE, these machine also issues a receipt of the transaction.
2. The internet can be used, go to the network of the sim card web site.

3.4 Low Credit Warnings for Pay as you go Sim Card

If the credit on the SIM Card falls below £4.00 the Credit Required LED will be illuminated and the buzzer will bleep every 30 minutes. If the credit on the SIM Card falls below £2.00, Credit Required LED will flash and a text message will be sent to telephone number 1. The message is "GSM Alarm credit low", this will be repeated every 7days until the SIM has been topped up.

NOTE :- NOT ALL MOBILE NETWORKS PROVIDE INFORMATION ON THE CREDIT LEVEL OF THE SIM WHICH MAKES THIS FEATURE UNUSABLE . ONLY O2 & VODAFONE PAYG SIMS HAVE A CREDIT RESPONSE.

3.5 GSM Signal

The AS300SA unit must have a GSM signal to operate. The signal strength is shown in two ways on the unit.

1. The scrolling display will show signal strength and credit on sim.
2. The GSM Signal LED will be lit solid and will flash every one minute. Four flashes indicates a good signal.
3. If no signal or a poor signal is present the unit will sound its audible alarm. This can be muted but will keep resounding every 10 minutes to remind the user that their alarm is not operational. Action should be taken to rectify this problem by moving the unit or changing the network provider.
4. If no Sim card is present in the unit the GSM Signal LED will turn red.

3.6 Antenna

The GSM antenna is located at the top of the AS300SA, the antenna uses a SMA connection. If reception is weak for the GSM signal, larger antenna's are available.

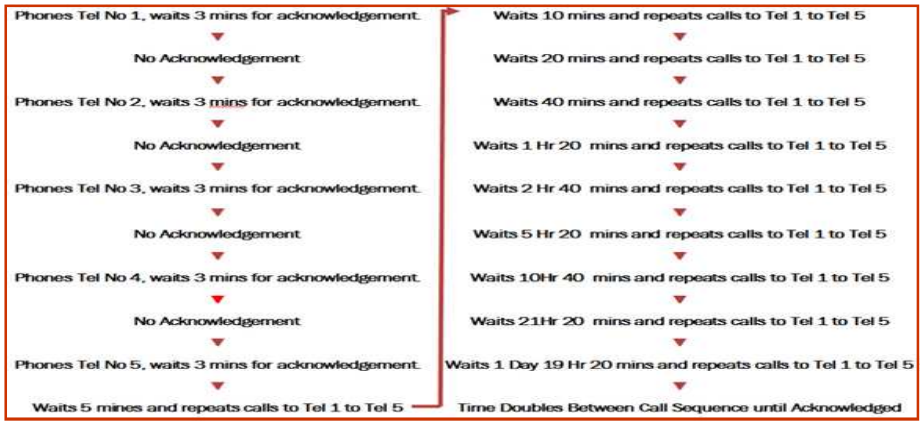
3.7 Input 1, 2 & 3 Alarm Sequence

When an alarm is activated the following sequence is started :-

1. Status led flashes to indicate that alarm is in the delay time.
2. After the delay time has elapsed, Alarm Activated LED, relevant Input LED is lit and LCD displays NEW ALARMS.
3. Audible alarm sounds.
4. Audible alarm can be muted by pressing the mute button or an acknowledgement from a mobile telephone.
5. Telephone sequence starts.
6. Alerts sent, LED is lit.
7. Once acknowledged Alarm Activated and Alerts Sent LED are extinguished (once all alerts are sent).
8. Input LED will remain solid until the input has cleared its alarm. Once cleared the input LED will flash. To extinguish this LED press the Mute /Clear button until the buzzer bleeps.

3.8 Alarm I/P1, I/P2 and I/P3 Telephone Sequence

When an alarm has been activated after its time delay the out going message will be sent to the telephone recipients. When the alarm call is acknowledged, recipients who have received an alarm call will be sent a message containing the acknowledgers telephone number. Acknowledgement of an alarm will silence the audible alarm on the AS300SA unit.



3.9 Power Fail Alarm Sequence

When an alarm is activated by a power fail condition the following sequence is started :-

1. Status led flashes to indicate that alarm is in the delay time.
2. After the delay time has elapsed, Power Failed LED is lit and LCD displays NEW ALARMS.
3. Audible alarm sounds.
4. Audible alarm can be muted by pressing the mute button or an acknowledgement from a mobile telephone.
5. Telephone sequence starts. In a power fail alarm condition Tel 1 to Tel 5 are phoned after the set delay time. If no acknowledgement is received Tel 1 to Tel 5 are phoned again 30 minuets later. After this no more phone calls will be issued until power is resumed.
6. To conserve battery power all other leds are extinguished apart from the status led and power Fail
7. Once power is restored power fail led flashes. To extinguish this LED press the Mute /Clear button until the buzzer bleeps.
8. All other operation LED'S will now be illuminated.

Section 4 ► Display

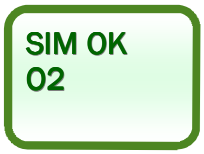
4.0 Display

1. The Version number of the firmware is displayed, followed by Config, AS300SA

2. Please wait, is displayed.

3. Sim check is now done if a sim is fitted SIM OK will be displayed. If no sim is fitted "No Sim" will be displayed followed by best network available. The unit will stop at this point until a sim is fitted.

4. The network of the sim will be displayed.

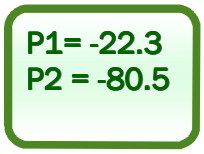


5. The strength of the GSM signal will be displayed.

6. The AS300SA is now started and ready to use.

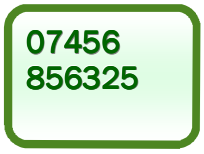
8. The display will now start scrolling, starting with the network strength and credit on the sim card.

9. The temperature for input 1 and Input 2 will be displayed. P1 = temperature I/P1, P2 = temperature I/P2



10. The time and date will be displayed. If this requires to be set up please see Section 20.

11. The display will now start scrolling, starting with the sim card telephone number fitted. If O2 or Vodafone sims are not used the display will read Load Ident. See Section 18.0.



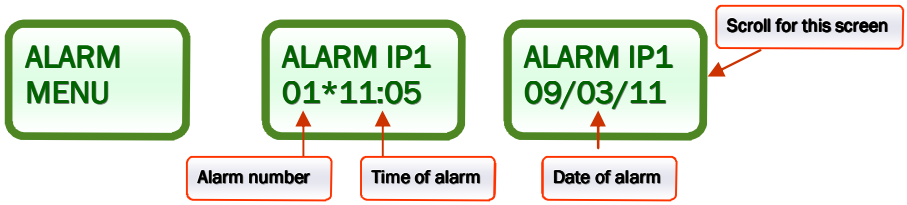
Section 5 ► Menus

5.0 Menus

The menu button will allow the user to access two menus, alarm menu and system menu. Once the desired menu has been selected, use the scroll button to scroll through this menu.

5.1 Alarm Menu

The alarm menu will show the last 10 alarms showing the most recent alarm first. The alarms are time and date stamped and the first alarm will show the number 1 up to 10 for the tenth alarm. An asterisk will follow the alarm number if it has not been viewed before. Once viewed the asterisk will be removed, by scrolling to the next display it will show the date of the alarm.



5.2 System Menu

The system menu will show the serial number of the AS300SA and the current time and date set in the AS300SA unit.

Section 6 ► Pin Numbers

6.0 Pin Numbers

The AS300SA uses two pin numbers, the master pin allows settings to be changed e.g. alarms, telephone numbers etc and the users pin allows alarms to be acknowledged and certain parameters to be queried for information. For convenience no pin number is required for certain texted commands and queried information.

For added protection, once the relevant procedures including telephone numbers, messages etc have been set up, internal switch 3 (ENG TYPE) can be switched into the ON position. This will not allow any setting to be changed with a master pin number until this switch is returned to the OFF position (See Fig 3) Section 24. The unit can be queried for information with the switch in the ON position. If the master pin is used for a text command whilst switch 3 is in the on position, the message **Access Denied** will be sent from the AS300SA unit.

Section 7 ► Setup Inputs

7.0 Inputs Summery

The AS300SA has several inputs which are configurable to the customers specification.
Inputs 1 and 2 can be configured to take Temperature, C02, Humidity etc. The most common is temperature, the precision range of the unit is –200°C to +100°C, +/- 0.1°C.

Input 3 is configured to take a volt free contact. This is useful for wiring a door switches of freezers, alerting of a door open condition.

7.1 Setup Input 1.

Useful information :-

- To setup any values the master password has to be used in front of the text .
- ip = Input
- td = Time Delay (Delay time can be set from 1 to 90 minutes)
- ha = High alarm
- la = Low alarm

Example : Setting alarms for a –80°C freezer requiring a high alarm of –55.5°C a low alarm of –90°C and a time delay before alarms are activated of 30 minutes.
Send the following text message to the AS300SA.

2222spaceip1spacetd30spaceha-55.5spacela-90

2222 ip1 td30 ha-55.5 la-90

Master Pin Required

7.2 Setup Input 2.

Useful information :-

- To setup any values the master password has to be used in front of the text .
- ip = Input
- td = Time Delay (Delay time can be set from 1 to 90 minutes)
- ha = High alarm
- la = Low alarm

Example : Setting alarms for an incubator requiring a high alarm of 37.9°C a low alarm of 36.4°C and a time delay before alarms are activated of 5 minutes.
Send the following text message to the AS300SA.

2222spaceip2spacetd5spaceha37.9spacela36.4

2222 ip2 td5 ha37.9 la36.4

Master Pin Required

7.3 Setup Input 3.

Useful information :-

- To setup any values the master password has to be used in front of the text .
- ip = Input
- td = Time Delay (Delay time can be set from 1 to 90 minutes.

Example : Setting alarm for a volt free contact to alarm after 25 minutes.
Send the following text message to the AS300SA.

2222spaceip3spacetd25

2222 ip3 td25

Master Pin Required

7.4 Setup Power Fail Time Delay.

Useful information :-

- To setup any values the master password has to be used in front of the text .
- pwr = Power
- td = Time Delay (Delay time can be set from 1 to 90 minutes.

Example : Setting power fail alarm to activate after 75 minutes.
Send the following text message to the AS300SA.

2222spacepwrspacetd75

2222 pwr td75

Master Pin Required

7.5 RS232 Input.

The unit can be supplied with an RS232 input this would be able to take many types of specialist sensors e.g. C02, Humidity etc. This would be a special request at the time of ordering the unit and customers configurations would be supplied with the unit.

Section 8 ► Output

8.0 Output Summery

The AS300SA can have 1 relay output configured. This can be turned on or off by a text message from a mobile telephone. The rating of this relay is 1A @ 12V D.C. Heavier electrical loads can be driven if the relay from the unit activates the coil of a larger rated relay. This would be a special request at the time of ordering the AS300SA unit.

8.1 Setup Output.

Useful information :-

- To setup any values the master password has to be used in front of the text .
- op = Output.
- Relay ratings 1A at 12Vd.c. (To drive larger loads please use a slave relay)

Example : Turning the relay On.
Send the following text message to the AS300SA.

2222spaceop1spaceon

Example : Turning the relay Off.

Send the following text message to the AS300SA.

2222spaceop1spaceoff

Section 9 ► Set Telephone Numbers

9.0 Telephone Numbers Summary

The AS300SA will accept up to 5 telephone numbers. The telephone numbers can be a mixture of mobile and land lines. Only mobile phones will be able to acknowledge an alarm message.

When an alarm is activated after the delay time set, it will telephone number 1 then 2, 3, 4 and 5 respectively. A delay of 3 minutes is allowed between each call for the recipient of the call to acknowledge the alarm. When the call has been acknowledged no more calls are made and all recipients of the alarm call will receive a further call to alert them that the alarm has been acknowledged. This acknowledged call will contain the telephone number of the acknowledger.

If the alarm call is not acknowledged the telephone numbers will be repeated with the alarm call. To minimise cost and annoyance of these calls, the time interval between each call doubles each time a sequence is phoned. So in the first instance it is 5 minutes, then 10 minutes, then 20 minutes and so on. **Tel1** must have a telephone number entered. If no telephone number is entered here the AS300SA LCD display will intermittently show ***INSERT* RXTEL1***.

9.1 Setup Telephone Number 1

Useful information :-

- To setup any values the master password has to be used in front of the text .
- tel = Telephone number

Send the following text message to the AS300SA.

2222spacetel1space07742663872

9.2 Setup Telephone Number 2

Useful information :-

- To setup any values the master password has to be used in front of the text .
- tel = Telephone number

Send the following text message to the AS300SA.

2222spacetel2space07742663873

9.3 Setup Telephone Number 3

Useful information :-

- To setup any values the master password has to be used in front of the text .
- tel = Telephone number

Send the following text message to the AS300SA.

2222spacetel3space07742663874

9.4 Setup Telephone Number 4

Useful information :-

- To setup any values the master password has to be used in front of the text .
- tel = Telephone number

Send the following text message to the AS300SA.

2222spacetel4space07742663875

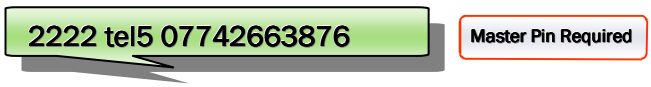
9.5 Setup Telephone Number 5

Useful information :-

- To setup any values the master password has to be used in front of the text .
- tel = Telephone number

Send the following text message to the AS300SA.

2222spacetel5space07742663876



9.6 Query Telephone Numbers set in AS300SA

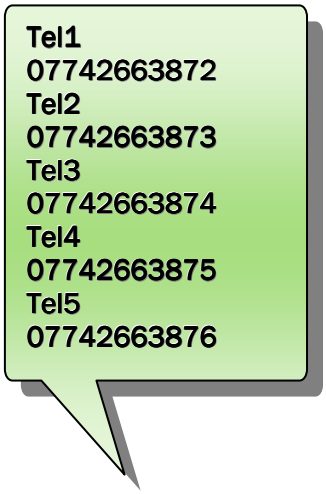
Useful information :-

- tel = Telephone
- ? = Query

Send the following text message to the AS300SA.

tel?

A message will be returned to the senders mobile with all the telephone numbers programmed into unit.



Section 10 ► Set Out Going Message (OGM)

10.0 Out Going Message Summary

When an alarm is activated after the set delay time, a message will be sent to the recipients on the telephone list. If the message is sent to a mobile telephone it will be in the form of a text message. If it is sent to a land line it will be processed as a synthesised voice message.

The OGM can be up to 80 characters long, messages longer than this will be rejected by the AS300SA. The input value and alarm input are attached at the end of the OGM.

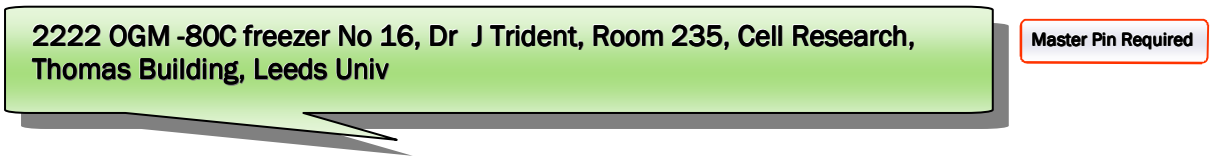
10.1 Setup Out Going Message

Useful information :-

- To setup any values the master pin has to be used.
- OGM = Out Going Message (NOTE : OGM has to be in upper case)

Send the following text message to the AS300SA,

2222spaceOGMspace-80C freezer No 16, Dr J Trident, Room 235, Cell Research, Thomas Building, Leeds Univ



10.2 Query Out Going Message set in AS300SA

When a outgoing message is set or changed in the AS300SA a text message will be sent to the mobile which changed the message. This should be checked to make sure the message has been entered correctly.

Useful information :-

- To query any values the master pin has to be used.
- OGM = Out Going Message
- ? = Query

Send the following text message to the AS300SA,

2222spaceOGM?

OR

OGM?

Section 11 ► Acknowledge Alarms

11.0 Acknowledge Alarms Summary

When an alarm is activated, it has to be acknowledged before it will stop sending out the alarm messages. Once acknowledged, recipient's who have received the alarm message will be sent a message giving telephone details of the acknowledger. Acknowledging of alarms can be carried out by the master password, acknowledgers password or simple ack text. At the end of the alarm text message a prompt will tell the user the correct acknowledgement text to use

11.1 Acknowledge Alarm

An alarm can be acknowledged with any of the following texts to the alarming unit.

Useful information :-

- ack = acknowledge alarm

Send the following text message to the AS300SA.

2222spaceack

OR

Ack

A message will be sent back to the mobile telephone will contain the following details

The telephone number which acknowledged the alarm.

NOTE

On power fail the front panel led's are extinguished to conserve battery life. When the power has been restored and alarm acknowledged, press the Mute Button to restore the led's.

Section 12 ► Query AS300SA Commands

12.0 Query Unit Commands

When information is required from the AS300SA it can be queried. A list of the most commonly used queries are listed in this section. The user can select a master pin number in front of the message which in some queries gives more information.

12.1 Values Query

Useful information :-

- ? = Query

Send the following text message to the AS300SA,

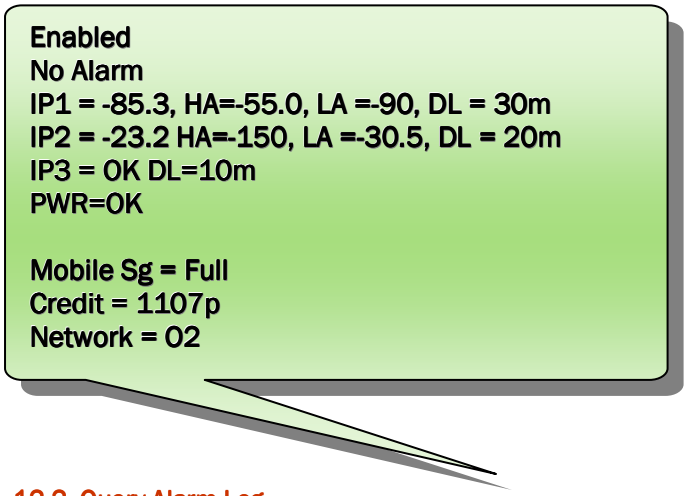
Note : Master pin returns more information

2222space?

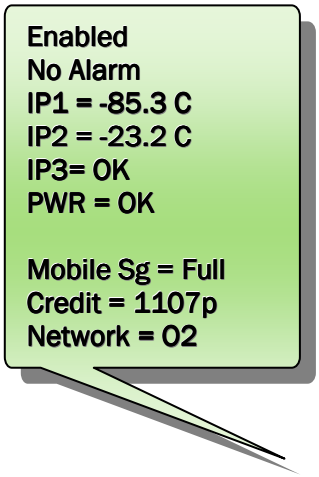
OR

?

Type of message returned to mobile with master password.
With I/P1, I/P2 and I/P3 enabled.



Type of message returned to mobile with ?
With I/P1, I/P2 and I/P3 enabled.



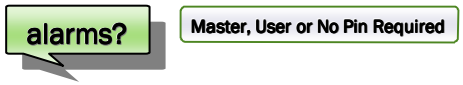
12.2 Query Alarm Log

This will send back to the users mobile telephone, the last five alarms logged.

- alarms= the last five logged alarms in the AS300SA unit.
- ? = query

Send a text a message to the AS300SA Unit,

alarms?



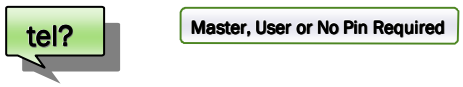
12.3 Query Telephone Numbers

This will send back to the users mobile, the telephone numbers stored for the AS300SA.

- tel= the telephone numbers stored in the AS300SA.
- ? = query

Send a text a message to the AS300SA unit,

tel?



12.4 Query OGM Outgoing Message

This will send back to the users mobile telephone the Out Going Message. (*OGM is case sensitive)*

- OGM= the outgoing message set in the AS300SA, this message will be sent in the event of an alarm.
- ? = query

Send a text a message to the AS300SA unit,

OGM?

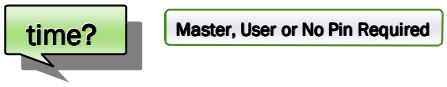
12.5 Query Time and Date Stored in the AS300SA

This will send back to the users mobile, the time and date set in the receiver.

- time= the current time and date set in the AS300SA.
- ? = query

Send a text a message to the AS300SA unit,

time?



Section 13 ► Defrost / Disable Input for a Set Period

13.0 Defrost / Disable Input for a Set Period Summary

Inputs 1 & 2 can be disabled from activating an alarm for a set period of time by a text command. This time can be from 1 to 90 hours. Once the time set has elapsed the alarms will automatically become active. This function is particularly useful for a de-frosting of a freezer or essential maintenance of equipment. To cancel this function once initiated send a further text message with 0 hours.
The probe value on the display will indicate DF when in this mode and return to the input reading once this time has elapsed.

13.1 Defrost / Disable Input 1 for a set period.

Useful information :-

- To setup any values the master password has to be used in front of the text .
- ip1 = Input 1
- Defrost = Disables alarms on the input selected for time selected in hours.

Send the following text message to the AS300SA.

2222spaceip1spacedefrostspace10

13.2 Defrost / Disable Input 2 for a set period.

Useful information :-

- To setup any values the master password has to be used in front of the text .
- ip2 = Input 2

Defrost = Disables alarms on the input selected for time selected in hours.
Send the following text message to the AS300SA.

2222spaceip2spacedefrostspace24

Section 14 ► Calibration for Input1 1 and Input 2

14.0 Calibration Summary

The AS300SA Inputs 1 & 2 can be calibrated by a mobile text command. This is achieved by the following procedure.

1. Remove relevant probe from its input.
2. Replace probe with Test / Cal Fob and set fob to 0.0°C (1000Ω).
3. Send text to AS300SA 2222 cal1.(calibration for input 1)
4. The status LED flashes, enable and disable LED turns red and cal for i/p1 appears on the screen.
5. Once calibration is complete the enable and disable LED's turn's green.
6. Remove Test / Cal Fob and replace probe.
7. Normal mode is resumed.

14.1 Calibration

Useful information :-

- To setup any values the master password has to be used in front of the text .
- cal1 = Calibration input 1
- Cal2 = Calibration input 2

Send the following text message to the AS300SA.

2222spacecal1

2222spacecal2

14.2 Test Temperature Fob

Test temperatures at +50.0°C, 0.0°C and -50.0°C can be simulated on the GSM Alarm input 1 and input 2 to test the alarm. The fob temperature simulator is attached to the input. The simulated temperature is selected and will be shown on the display. If this temperature is outwith the alarm limits it will activate the relevant alarm after the time delay. At 0.0°C each input can be calibrated.

Section 15 ► Enable / Disable AS300SA

15.0 Enable / Disable Overview

The AS300SA can be enabled or disabled from a mobile text command. When the unit is in the disabled mode no alarm reporting will take place, in the enabled mode all alarms will be reported and texted. An illuminated green LED indicates the unit is enabled and in the disabled mode this LED is red. The unit can be sent query messages in the disabled mode.

15.1 Enable Unit

Useful information :-

- To setup any values the master pin has to be used.
- enable = enable Unit.

Send the following text message to the AS300SA,

2222spaceenable

15.2 Disable Unit

Useful information for setting an alarm.

- To setup any values the master pin has to be used.
- disable = disable Unit.

Send the following text message to the AS300SA,

2222spacedisable

Section 16 ► Test Alarm

16.0 Test Alarm Summary

The test alarm function will send the full OGM to all the five telephone numbers. The message will have test at the end of the OGM. The test alarm has to be acknowledged to stop the test.

16.1 Test Alarm

Useful information :-

- To setup any values the master pin has to be used.
- test = test alarm unit.

Send the following text message to the AS300SA,

2222spacetest

16.2 Test Message

When the AS300SA is powered up, the time and date is recorded into memory. Every 28 days from this time a test message will be sent to telephone number 1.

Section 17 ► PAYG / Contact Sim Card Setup

17.0 PAYG / Contact Sim Card Setup

The receiver is set up for a "Pay As You Go" sim card by default. If a contract sim card is used the low credit warnings must be disabled in the GSM Unit as many contract sims display a £0.00 balance when interrogated by the unit which will set off alarms.

17.1 Setup Contact Sim

Useful information :-

- To setup any values the master pin has to be used.
- CONT = set AS300AS for contact sim. (CONT uppercase)

Send the following text message to the AS300SA,

2222spaceCONT

17.2 Setup PAYG Sim

Useful information :-

- To setup any values the master pin has to be used.
- PAYG = set AS300SA for PAYG sim.

Send the following text message to the AS300SA,

2222spacePAYG

Section 18 ► Load Ident on Display

18.0 Load Ident on Display

The Load Ident will be shown on the display if the sim card used is not an O2 or Vodafone sim. If a O2 or Vodafone sim card is used the telephone number of the sim card will be shown instead of load Ident. To load an ident in the AS300SA send a text message to the AS300SA unit.

Example for setting the ident to SIM 07565627811.

Send the following text message to the AS300SA

***#*#spaceIDENTspaceSIMspace0756;5627811**

Section 19 ► CO2 and Temperature Sensor

19.0 Sensor Connection

The sensor is connected to the AS300SA by the RS232 connector located inside the unit. Remove back flap and connect. See Section 24, Fig 4. If no probe is fitted to the RS232 connector the LCD will read 999.C & 99.999%.

19.1 Sensor Placement

Allow the sensor to stabilise in is environment for approx 24 hours before setting up alarms or calibrating unit.

19.2 Sensor Calibration

The sensor was calibrated by the sensor manufacturer. In ambient air the %CO2 is approximately between 00.04 and 00.10%. The unit will read to three decimal places by the AS300SA and will display only two.

When required the CO2 sensor can be calibrated in two ways :-

A) Calibrates the zero point assuming the sensor is in 450ppm CO2 (Ambient Air). Send the following text message to the AS300SA .

***#*#spaceCOZIR G**

B) Calibrates the zero point with a know CO2 value. Example:- The sensor is in a known CO2 value of 6%, send the following text message to the AS300SA .

***#*#spaceCOZIRspaceXspace6000**

Note :-The sensor used is a COZIR-W. With this sensor the ppm value should be divided by 10 before being used to calibrate the unit. i.e. 6% of 1,000,000 is 60,000 calibration value is 6,000.

19.3 Sensor and Alert Messages Display

On the scrolling display the temperature (one decimal place) and CO2% (two decimal places) are displayed. When a user text query is required, input 2 e.g. CO2% will be displayed as 06.000% for 6%.

Section 20 ► Humidity and Temperature Sensor

20.0 Sensor Connection

The sensor is connected to the AS300SA by the RS232 connector located inside the unit. Remove back flap and connect. See Section 24.0, Fig 4.

20.1 Sensor Display

On the scrolling display the temperature (one decimal place) and Humidity % (one decimal places) are displayed.

Section 21 ► Data Logging & Alarm Log

21.0 Data Logging and Alarm Log Overview

The AS300SA can log data which can be sent to a server, this data can be down loaded to a computer and stored. This downloaded data can be analysed using our Data Analysis Software. The data interval stored can be selected between 1 minute to 60 minutes, this interval will be dependant on the type of equipment being monitored. The alarm log gives details of all alarms, listing alarm input, time, date, call direction, telephone number, acknowledgers number and whether the call was successful or failed.

To activate this service please visit **www.asper.co.uk/Webserver.htm** (Register for Logging)

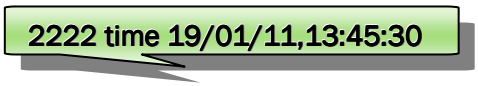
21.1 Set Time and Date in the Real Time Clock

The real time clock is required to be set up to give accurate readings of time and date, two methods are available

Method 1

Example for setting 19th January 2010, 1:45pm (13:45) and 30 seconds.
Send the following text message to the AS300RX

2222spacetimespace19/01/11,13:45:30



Master Pin Required

The time sent should be approx 1 minute ahead of the current time. The time sent will be displayed on the LCD display and the buzzer will start beeping. Check the real time on an accurate clock e.g. mobile phone or computer. When the current time matches the displayed time, press the mute button on the AS300SA. The real time clock will now be set to the correct time.

Method 2

Example for setting 19th January 2010, 1:45pm (13:45) and 30 seconds.
Send the following text message to the AS300SA

2222spaceclockspace19/01/11,13:45:30

Master Pin Required

The time will now be set in the unit.

21.2 Query Date & Time in the AS300SA

This will query the current time and date in the AS300SA.

- time= time and date set in the AS300SA.
- ? = query

Send a text a message to the AS300SA with the following text.

time?

Master, User or No Pin Required

21.3 Initiate a Current Download of Data

The data is sent to the server every 24 hours, if current data is required since the last download, send a text a message to the AS300SA.

Useful information for setting an alarm.

- To setup any values the master pin has to be used.
- DNLD = download data (DNLD upper case)

Send the following text message to the AS300SA,

2222spaceDNLD

Master Pin Required

This will immediately initiate a download to the server.

21.4 Set Time Interval for Logged Data

The logged data time interval can be changed from 1 minute to 60 minutes. We would recommend 30 minutes as a good compromise though it will be dependant on the type of equipment being monitored.
Useful information for setting an alarm.

- To setup any values the master pin has to be used.
- 15 = 15 minute time interval for data stored to be sent to web.

Send the following text message to the AS300SA,

2222spaceSTDLspace15

21.5 Network Settings (APN Settings) Default setting O2 PAYG SIM

For data to be sent to the server the network settings must be set up in the AS300RX. Each network has different settings, the AS300RX by default is setup for a 02 PAYG SIM.
If you have purchased your PAYG SIM with the AS300RX the relevant network settings will have been set for you. A list of all network settings can be found in the document Network Settings which can be downloaded from www.asper.co.uk/Downloads.htm

21.6 Access to the Data Server

The data from the AS300SA can be accessed from the following web location.

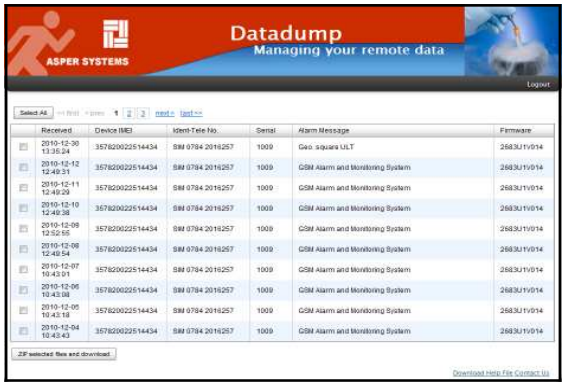
http://datadump.co:8080/login

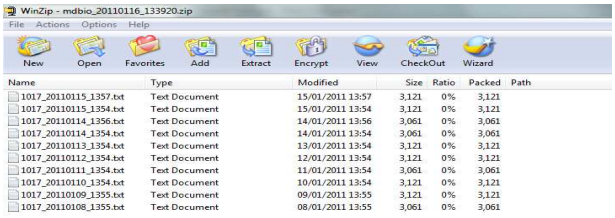
A Username and Password will be required to access the data. Several AS300SA units can be accessed using the same username and password.

21.7 Download Data Required

Tick on the data you wish to download, then click on "Zip Selected Files and Download" button.

A new screen will be displayed, click on button "Your Zip Files are ready click here to Download"





21.8 Winzip Data Files

The files will now be presented in winzip or a zip application that is running on your computer. These file now should be stored in a folder on your computer for later analysis.

Section 22 ► Data Logging Software

It is the customers responsibility to regularly download their data files for backup. The data files on the server are not deleted once they have been downloaded

22.0 AS300 Data Analysis Software Overview

- Numerical & Graph information easily displayed.
- Easy print facility for data required.
- Filtering of data is possible between specific dates and times.
- Statistical Information of the following is recorded : First Reading; Date and Time, Last Reading; Date and Time, Number of Readings, Maximum Temperature, Minimum Temperature, Average Temperature, Time in High Alarm and Time in Low Alarm.
- AS300 Data Analysis software can be used on as may computers as required.

22.1 Installing Data Analysis Software

Double click on the AS300S Alarm and Monitoring Data Analysis file, prompts will guide the installation. Once installed the program can be accessed from the program bar under the heading Asper.

22.2 Opening a Data File

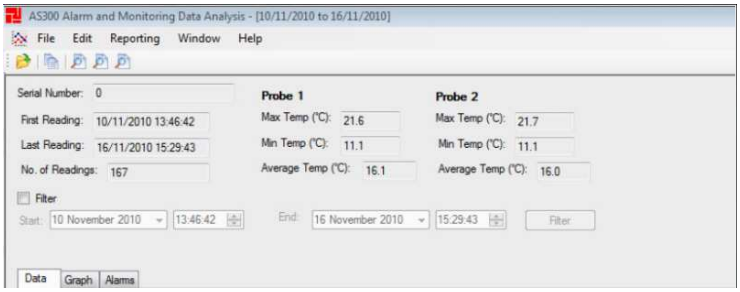
To open a data file go to File > Open. The files are automatically saved in a date form.

22.3 Using a Data File

Once the required date or dates are open, data for this unit is displayed.

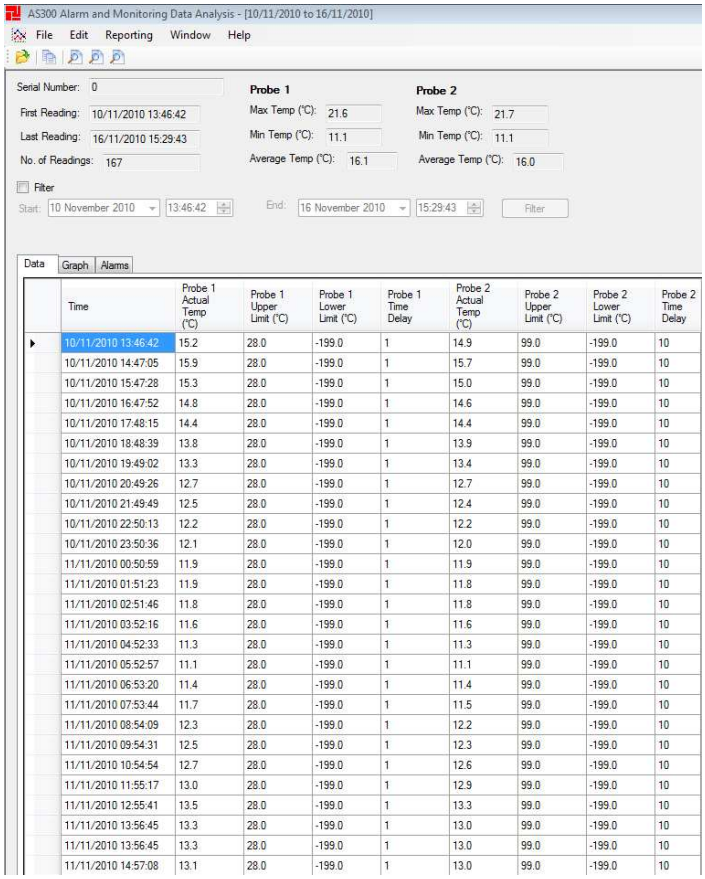
22.4 Top Screen Displayed Information

Information at the top of the screen is displayed for the selected transmitter. The information is Serial Number, First Reading, Last Reading, Number of Readings, Max Temp, Min Temp and Average Temp for I/P1 and I/P2.



22.5 Column Data

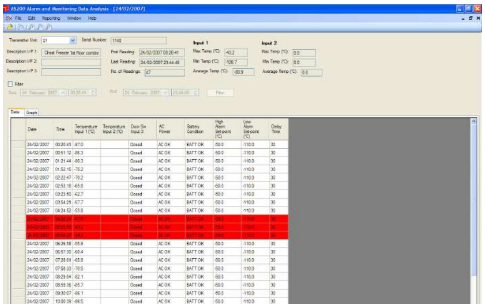
The data in the columns gives easy access to the following :-
Date, Time, Temperature input 1, Temperature Input 2, High Alarm Set-point, Low Alarm Set-point and Delay Time.



Time	Probe 1 Actual Temp (°C)	Probe 1 Upper Limit (°C)	Probe 1 Lower Limit (°C)	Probe 1 Time Delay	Probe 2 Actual Temp (°C)	Probe 2 Upper Limit (°C)	Probe 2 Lower Limit (°C)	Probe 2 Time Delay
10/11/2010 13:46:42	15.2	28.0	-199.0	1	14.9	99.0	-199.0	10
10/11/2010 14:47:05	15.9	28.0	-199.0	1	15.7	99.0	-199.0	10
10/11/2010 15:47:28	15.3	28.0	-199.0	1	15.0	99.0	-199.0	10
10/11/2010 16:47:52	14.8	28.0	-199.0	1	14.6	99.0	-199.0	10
10/11/2010 17:48:15	14.4	28.0	-199.0	1	14.4	99.0	-199.0	10
10/11/2010 18:48:39	13.8	28.0	-199.0	1	13.9	99.0	-199.0	10
10/11/2010 19:49:02	13.3	28.0	-199.0	1	13.4	99.0	-199.0	10
10/11/2010 20:49:26	12.7	28.0	-199.0	1	12.7	99.0	-199.0	10
10/11/2010 21:49:49	12.5	28.0	-199.0	1	12.4	99.0	-199.0	10
10/11/2010 22:50:13	12.2	28.0	-199.0	1	12.2	99.0	-199.0	10
10/11/2010 23:50:36	12.1	28.0	-199.0	1	12.0	99.0	-199.0	10
11/11/2010 00:50:59	11.9	28.0	-199.0	1	11.9	99.0	-199.0	10
11/11/2010 01:51:23	11.9	28.0	-199.0	1	11.8	99.0	-199.0	10
11/11/2010 02:51:46	11.8	28.0	-199.0	1	11.8	99.0	-199.0	10
11/11/2010 03:52:16	11.6	28.0	-199.0	1	11.6	99.0	-199.0	10
11/11/2010 04:52:33	11.3	28.0	-199.0	1	11.3	99.0	-199.0	10
11/11/2010 05:52:57	11.1	28.0	-199.0	1	11.1	99.0	-199.0	10
11/11/2010 06:53:20	11.4	28.0	-199.0	1	11.4	99.0	-199.0	10
11/11/2010 07:53:44	11.7	28.0	-199.0	1	11.5	99.0	-199.0	10
11/11/2010 08:54:09	12.3	28.0	-199.0	1	12.2	99.0	-199.0	10
11/11/2010 09:54:31	12.5	28.0	-199.0	1	12.3	99.0	-199.0	10
11/11/2010 10:54:54	12.7	28.0	-199.0	1	12.6	99.0	-199.0	10
11/11/2010 11:55:17	13.0	28.0	-199.0	1	12.9	99.0	-199.0	10
11/11/2010 12:55:41	13.5	28.0	-199.0	1	13.3	99.0	-199.0	10
11/11/2010 13:56:45	13.3	28.0	-199.0	1	13.0	99.0	-199.0	10
11/11/2010 13:56:45	13.3	28.0	-199.0	1	13.0	99.0	-199.0	10
11/11/2010 14:57:08	13.1	28.0	-199.0	1	13.0	99.0	-199.0	10

22.6 Alarm Highlighting Column Data

If an alarm occurs it will be highlighted in red for a high alarm and blue for a low alarm in the column



22.7 Filtering Data

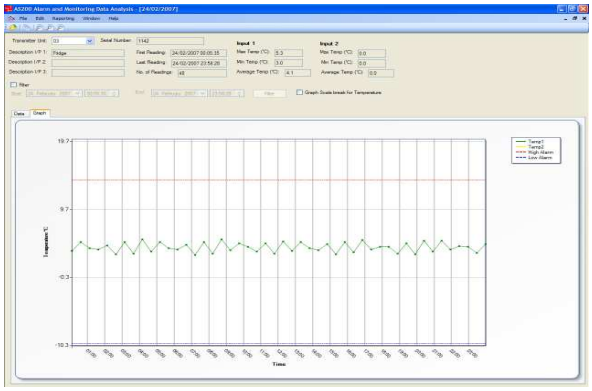
Data can be filtered by ticking the filter box and selecting a start date and time and end date and time. Once this has been done click on the filter button.

22.8 Displaying Graphs

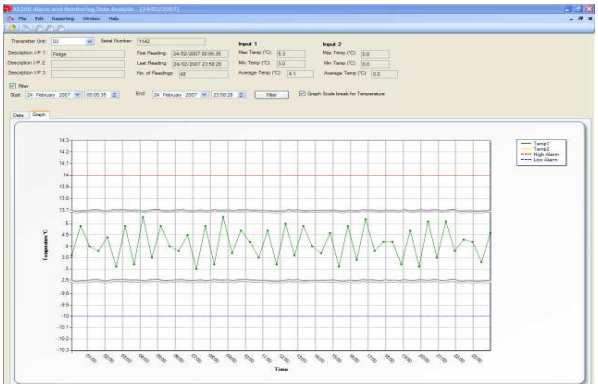
A graph of the current data can be displayed by clicking on the Graph Tab. To return to the column data, click on the Data Tab.

22.9 Graph Scale Break for Temperature

When the graph is displayed, if there is a relatively large difference between the High Alarm, Low Alarm and I/P1, I/P2 measurements, the I/P1 and I/P2 variations can be hard to distinguish. To make this clearer, the "Axis Scale Break" feature collapses the gap between the highest data line and lowest data line. This allows the variations between the data lines to become more visible.



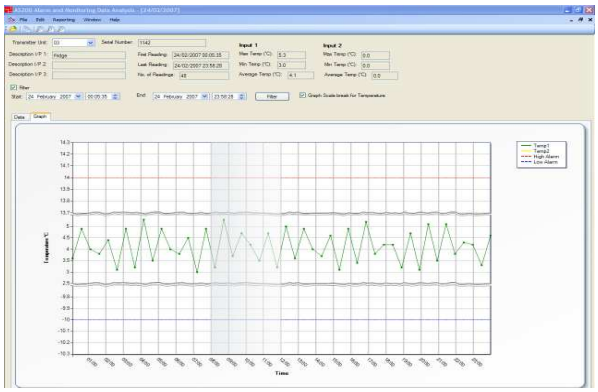
Scale Break Off



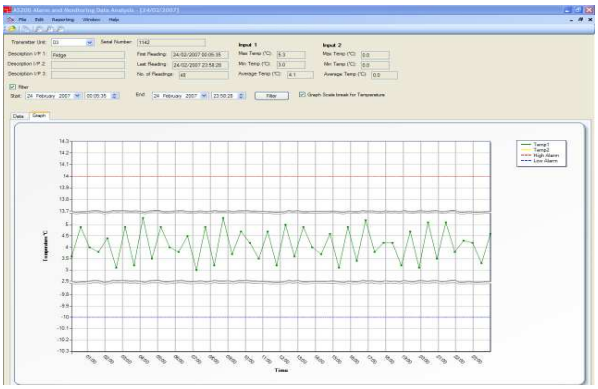
Scale Break On

22.10 X Axis Zooming

As well as the existing "Filter" functionality of the analysis application, which allows the user to filter a subset of the transmitter readings using a smaller time span, there is also the "Graph Zoom" function. This allows the user to zoom into a specific X-axis range of the graph. This is achieved by clicking on the start of the range required and then dragging the mouse to the end of the range, the zoomed data is then displayed.

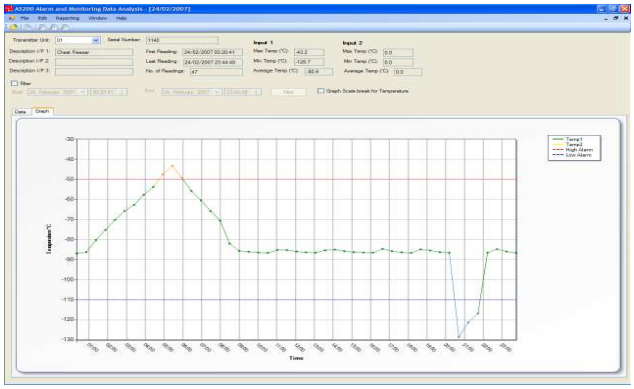


Highlighted Area to be Zoomed



Zoomed Graph

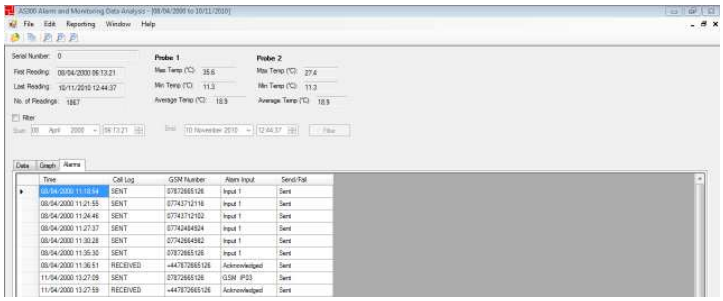
22.11 Alarm Highlighting



If either I/P1 (Temp1) or I/P2 (Temp2) value goes into the high alarm, the graph line is coloured red. If the input value goes below the low alarm set-point, the graph line is coloured blue.

22.12 Alarm Log

To view the alarm log, click on the alarm tab, the log will then be displayed giving time, date, call direction, telephone number, alarm input and whether the call was sent or failed.

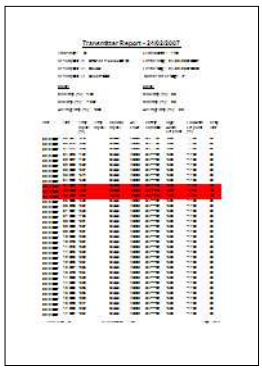


22.13 Reporting

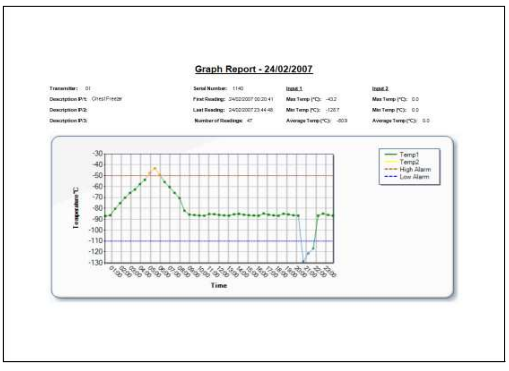
Print out of data can be done in three ways.

- "Transmitter Report" prints the data column view.
- "Graph Report" prints the graph view.
- "Summary Report" prints the "header" information for each transmitter and alarm log.

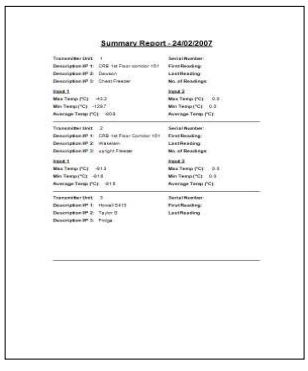
To access these functions go to Reporting > Transmitter Report etc.



Transmitter Report



Graph Report



Summery Report

ALARM LOG

Time	Call Log	GSM Number	Alarm Input	Send\ Fail
08/04/2000 11:18:54	SENT	07872665126	Input 1	Sent
08/04/2000 11:21:55	SENT	07743712116	Input 1	Sent
08/04/2000 11:24:46	SENT	07743712102	Input 1	Sent
08/04/2000 11:27:37	SENT	07742484924	Input 1	Sent
08/04/2000 11:30:28	SENT	07742664982	Input 1	Sent
08/04/2000 11:35:30	SENT	07872665126	Input 1	Sent
08/04/2000 11:36:51	RECEIVED	+447872665126	Acknowledged	Sent
11/04/2000 13:27:09	SENT	07872665126	GSM IP03	Sent
11/04/2000 13:27:59	RECEIVED	+447872665126	Acknowledged	Sent

Summery Report Alarm Log *(At end of Summery Report)*

Section 23 ► SETUP NOTES

AS300SA Installed	Location	Contact	Master PW
AS300SA Ser No			

Contact Number	Telephone Number	Contact Name
Tel No 1		
Tel No 2		
Tel No 3		
Tel No 4		
Tel No 5		

Input	Delay Time	High Alarm	Low Alarm
Input 1			
Input 2			
Input 3			
AC Fail			

AS300SA Installed	Location	Contact	Master PW
AS300SA Ser No			

Contact Number	Telephone Number	Contact Name
Tel No 1		
Tel No 2		
Tel No 3		
Tel No 4		
Tel No 5		

Input	Delay Time	High Alarm	Low Alarm
Input 1			
Input 2			
Input 3			
AC Fail			

AS300SA Installed	Location	Contact	Master PW
AS300SA Ser No			

Contact Number	Telephone Number	Contact Name
Tel No 1		
Tel No 2		
Tel No 3		
Tel No 4		
Tel No 5		

Input	Delay Time	High Alarm	Low Alarm
Input 1			
Input 2			
Input 3			
AC Fail			

Section 24 ► Layouts For the AS300SA

AS300SA Unit

FIG 1 Power supply input for AS300SA, only use power supply supplied. (12V d.c. 500mA). Input sockets for temperature probes input 1 and input 2.

FIG 2 Sim position and correct way up insertion.

FIG 3 1. AS300SA battery position, push in the upward direction for ON.
2. (Eng Type) Sw 3 in the ON position locks the receiver . No master pin numbers will be accepted in this position.

FIG 4 CO2 and temperature sensor and position of plug to fit sensor. Same position for Humidity and temperature sensor.

FIG 1

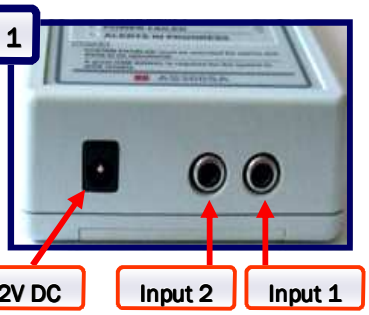


FIG 2

FIG 3

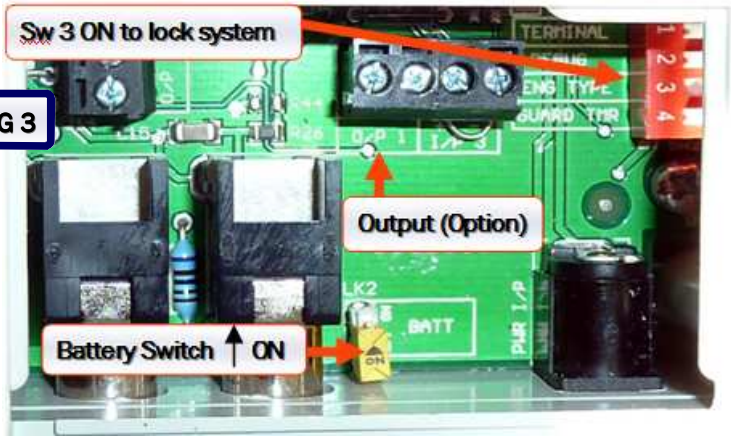


FIG 4

CO2 + Temperature Probe Socket
Humidity + Temperature Probe Socket