



ALARMING
MONITORING
DATA LOGGING

AS200 Wireless Alarm, Monitoring and Data Logging System **USERS MANUAL**

Features

- ♦ Multi Function Alarm / Data Transmitter
- ♦ Multi Channel Receiver
- ♦ Range Increase Transceiver
- ♦ Internet Access for Alarm Information
- ♦ Communication Options
- ♦ Data Capture Capability

Important ► Before operating the system the notice on the third page of this manual must be read.

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**Important ► THIS PAGE MUST BE READ BEFORE
OPERATING THE ALARM SYSTEM**

To maintain a high level of confidence in the complete Alarm System it's integrity **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 kept in their equipment.

All alarm systems are there to assist in the overall protection of your product. Good maintenance of the alarm 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.

A test schedule and procedure is shown in Section 8 which is provide as a minimum. 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.

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

The Alarm System can only be set up correctly and its operation understood if the manual is read fully. If there are any points which are not clear please contact your supplier for assistance.

Section 1 ► Overview

The AS200 Wireless Alarm, Monitoring and Data Logging System allows laboratory and hospital equipment to be alarmed, monitored and data logged such as Liquid Nitrogen, ULT Freezers, Fridges, Freezers and Incubators. The temperature transmitter range is -200 °C to +100 °C with an accuracy of 0.1 °C.

The system ensures the safety and continued effectiveness of medicine produce, blood products and samples at specific refrigeration and freezer temperatures. Due to the high value of many of these goods, QA programs increasingly require that storage temperatures are to be verified several times per day and that records be maintained. The AS200 System will meet the alarm, monitoring and logging requirements, offering different levels of logging software.

Several types of communications can be fitted to the receiver unit, from a conventional auto-dialler to a GSM dialler or web enabled facility.

2.1 Features

- Compact size. 110H x 65W x 27D (mm)
- Simple to use.

Section 2 ► AS200TX

- Inputs available : Temperature, 4-20mA and Volt Free Contact.
- Temperature range -200 °C to +100 °C.
- Temperature transmitter resolution 0.1 °C.
- Temperature transmitter accuracy better than 0.1 °C across the full range.
- Front panel display of I/P1, temperature (or other variable input used), time delay, unit number ID and alarm parameters.
- Temperature high and low alarms.
- Audible and visual indication of an alarm.
- Adjustable time delay for temperature alarm. (0 to 90 minutes)
- Mains power failure alarm.
- Alarm information sent to receiver AS200RX, giving details of transmitter unit and fault.
- Status and alarm indication on transmitter.
- Temperature, high & low alarms and delay time data transmitted every 30 minutes. This increases to every 10 minutes when in alarm. *(Increased frequency data transmitters available on request)*
- System self test.
- Volt free contact output available.
- Rechargeable battery backup.
- Easy calibration procedure / Auto calibration reminder customer set. Settings ; none, 6 months or 1 year.
- Rubber holster for easy installation and positioning.



- Traceable calibration for temperature can be carried out for the AS200TX alarm transmitters.

2.2 Inputs

The Transmitter unit has three inputs labelled I/P1, I/P2 and I/P3. All the input connectors have screw terminals and are accessible by removing the back cover. To locate the input connectors remove the rear compartment flap.

2.2.1 Temperature Input (I/P 1)

Temperature input 1 uses a PT1000 probe. The value of this input is displayed on the front panel when temperature is selected. The input range is +100 °C to -200 °C with a instrument accuracy of 0.1 °C. This input is usually used as the main air temperature alarm input. This input has an adjustable time delay between 0 and 90 minutes.

2.2.2 Temperature Input (I/P 2) (Option)

Temperature input 2 uses a PT1000 probe. The input range is +100 °C to -200 °C with a instrument accuracy of 0.1 °C. This input is usually used as an auxiliary input and is mainly used to measure product temperature. The time delay for this input mirrors the time delay set for I/P1.

2.2.3 Volt Free Contact Input (I/P 3) (Option)

Volt free input 3 can be used to monitor any normally closed contact. This input is normally used as a door switch monitor.

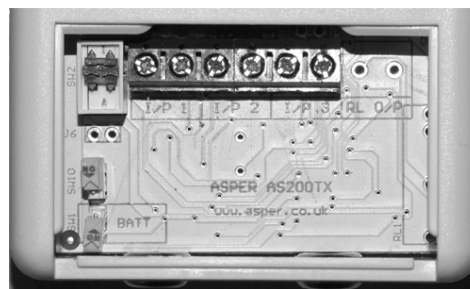
Normally closed position = No alarm

Normally open = alarm

This input has a fixed time delay of 10 minutes.

2.3 Output (Option)

The Transmitter unit has one relay output. This is in the normally open position and will go to the normally closed position in the event of an alarm. Depressing the mute switch will reset the relay in the alarm condition.



2.4 Transmitter Power Fail/Battery Low

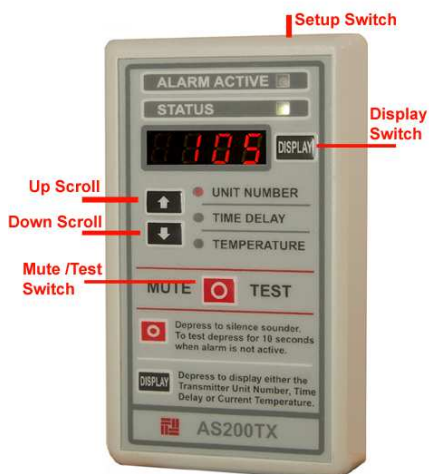
If mains power has been removed from the transmitter unit the system will activate an alarm after a preset 10 minute delay. A signal will be sent to the receiver. The receiver will indicate the transmitter unit number and AC off. The display on the transmitter is extinguished and the buzzer does not sound. This is preserve battery life especially useful if the transmitter is used to log data. If the power is not re-supplied and the unit is left on battery power, a further alarm "Low Bat" will be generated when the batteries are nearly exhausted.

2.4.1 Battery ON Switch/Transmitter Disable

To locate the battery switch remove the rear compartment flap. The battery On / Off switch is located at the bottom LHS of the transmitter. To turn the battery 'ON' first connect the D.C. power, then place battery switch to the 'ON' position. If the battery switch is not switched on after the DC supply is connected the display will intermittently flash up Bat, reminding the user that the battery has not been switched on.

To disable the transmitter turn the battery switch to the 'OFF' position and remove the DC supply.

Note : If a transmitter is removed from the system, the receiver will have require the Add/ Remove transmitters from system initiated. If this is not done the removed transmitter will come up as being "lost" at the receiver.



2.5 Front Panel Descriptions.

Switches

Display Switch: Scrolls the display between Unit Number, Time Delay and Temperature. This switch is also used in the setup procedure.

Mute/Test Switch: When the audible alarm is sounding it can be muted by depressing the switch for one second. A signal strength test to the receiver can be carried out by depressing this switch for 10 second. This switch is also used in the setup procedure.

Up/Down Switches: Scrolls the parameter selected to the required value. These switches are also used in the setup procedure.

Led's

Alarm Active : Bright red led which flashes when the transmitter is in the alarm condition.

Status : White Led indicating the status of the transmitter.

System ok: - Status Light "ON" for 4 seconds and "OFF" for 1 second.

Setup Mode : - Status Light flashes rapidly.

Calibration Mode : - Status Light and Alarm light flashes rapidly.

Mains Power Fail : - Status Light "OFF" for 4 seconds and "ON" for 1 second. (Note in a power fail condition the display is switched off to conserve battery life).

In Alarm Condition : - Status Light "ON" for 1 seconds and "OFF" for 1 second. (A full alarm will only be initiated after delay time has elapsed.)

Unit Number : Red led which is illuminated when the display is indicating the transmitter unit number.

Time Delay : Red led which is illuminated when the display is indicating the transmitter time delay for input 1 and input 2.

Temperature : Red led which is illuminated when the display is indicating the transmitter temperature of input 1.

2.5.1 Setup Switch

The setup switch is located at the top of the transmitter (Small hole). This will require a end of a paper clip or pen pushed through the small hole to activate setup the mode. When in setup mode the white status led will flash rapidly. If the transmitter is left in setup mode it will return to normal mode after approximately 3 minutes.

2.5.2 Transmitter Initial Setup

The setting of the base, calibration reminder, unit number, time delay and high & low alarms are carried out in one complete sequence. The sequence must be completed to return the transmitter to its normal operating condition. The white status led will flash rapidly in setup mode, this will return to solid for 4 seconds on, 1 second off in the normal OK condition. If the transmitter is left in the setup mode it will return to normal mode after approximately 3 minutes.

2.5.2.1 Base Setting

Depress the setup button once, located on the top of the transmitter. (Small hole) This will require the end of a paper clip or pen pushed through the small hole. When in setup mode the white status led will flash rapidly.

Depress the mute button three times and the display will show BASE. Use the up and down arrows to set the base on the transmitter to the same base as the receiver. (Up to 16 bases are available, factory default is base 1). Once this has been done press the Mute switch to register this value.

2.5.2.2 Calibration Reminder Setting

Depress the display switch and the Cal reminder mode will be entered, CAL is displayed. This will now set up the frequency for CAL being shown on the display. By depressing the up and down arrows this can be set for No CAL, 6 monthly or 12 monthly. Once the required value is selected depress the mute switch to register this value.

2.5.2.3 Unit Number Setting

Depress the display switch, the unit number led is illuminated. The unit number can be changed by depressing the up and down arrows. Select a number between 1 and 125. Once the required value is selected, depress the mute switch to register the value.

2.5.2.4 Delay Time Setting

Depress the display switch, the time delay led is illuminated. The time delay can be changed by depressing the up and down arrows. Select a number between 0 and 90 minutes. Once the required value is selected, depress the mute switch to register the value.

2.5.2.5 High and Low Alarms

Depress the display switch, the temperature led is illuminated, HIAL is displayed momentarily. The temperature high alarm can be changed by depressing the up and down arrows. Select a number between 100 and -200, the display will scroll very fast. Once you are near the required value depress the mute switch. Depress the display switch and FINE will be momentarily displayed. Depress the up or down arrows to select your actual high alarm set-point and depress the mute switch to register the value.

The display switch is again depressed entering the low alarm mode LOAL is displayed momentarily. The temperature high alarm can be changed by depressing the up and down arrows. Select a number between 100 and -200, the display will scroll very fast. Once you are near the required value depress the mute switch. Depress the display switch and FINE will be momentarily displayed. Depress the up or down arrows to select your actual low alarm set-point and depress the mute switch to register the value.

The status led will now stop flashing rapidly to indicate that the transmitter is back in normal mode.

2.5.3 Quick Setup to change Unit number, Time Delay or High and Low alarms.

The changing of the unit number, time delay and high & low alarms are carried out in one complete sequence. The sequence must be completed to return the transmitter to its normal operating condition. The white status led will flash rapidly in setup mode and will return to solid for 4 seconds on, 1 second off in the normal OK condition. If the transmitter is left in setup mode it will return to normal mode after approximately 3 minutes.

Depress the setup button once, located on the top of the transmitter. (Small hole) This will require the end of a paper clip or pen pushed through the small hole. When in setup mode the white status led will flash rapidly.

2.5.3.1 Unit Number Setting

Depress the display switch, the unit number led is illuminated. The unit number can be changed by depressing the up and down arrows. Select a number between 1 and 125. Once the required value is selected depress the mute switch to register the value.

2.5.3.2 Delay Time Setting

Depress the display switch, the time delay led is illuminated. The time delay can be changed by depressing the up and down arrows. Select a number between 0 and 90

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2.5.3.3 High and Low Alarms

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The display switch is again depressed entering the low alarm mode LOAL is displayed momentarily. The temperature high alarm can be changed by depressing the up and down arrows. Select a number between 100 and -200, the display will scroll very fast. Once you are near the required value depress the mute switch. Depress the display switch and FINE will be momentarily displayed. Depress the up or down arrows to select your actual low alarm set-point and depress the mute switch to register the value.

The status led will now stop flashing rapidly to indicate that the transmitter is in normal mode.

2.6 Automatic Self Test Wireless Link

The system will automatically test its communications between every transmitter and the receiver.

If the receiver has not received a signal from a transmitter, a lost alarm will be generated approximately every four hours at the receiver until it is acknowledged.

2.7 Check Signal Strength.

The transmitter can be forced to send a test signal to the receiver. This is achieved by depressing the Mute/Test Switch for 10 seconds. No alarms will be activated at the receiver upon receipt of a test signal. The display will show the unit number with the message "Test" to indicate a successful transmission. The strength of the signal will be described as Excellent, Good, Average and Low.

This should be used when installing the system and when a transmitter is moved to a new location. The test display is removed from the receiver by depressing the Mute switch on the receiver. Each time a test signal is sent to the receiver it must be removed by depressing the mute switch. If this is not carried out the next test signal will not be registered.

2.8 Calibration for Temperature

To locate the calibration switch remove the rear compartment flap. The calibration switch is located to the L.H.S. above the battery switch. An internal switch disconnects the temperature probe and a temperature resistance simulator is attached to simulate the temperature probe. The simulated probe resistance is set at 1000Ω, which accurately simulates 0°C. The calibration of the instrument displays a resistance measurement which now can be adjusted by the up and down switches. The value required is 999.9 or 0.0 this adjustment is made by the up and down switches.

Once adjusted the accuracy of the instrument can be checked by switching the calibration switch off. The temperature should now read 0.0. If a AS200TS simulator is used +50 and -50 can easily be checked. Remove the simulated probe and return the probe bypass switch to read the actual probe temperature.

The AS200TX is a very stable instrument and will rarely require calibration. It is recommended that the AS200TX is checked by simulating several temperatures to ensure it is within calibration parameters. This can easily be achieved by using the AS200TC temperature simulator.

2.9 AS200TX Simulator

Test temperatures at +50.0°C, 0.0°C and -50.0°C can be simulated on transmitter input 1 to test the alarm. The fob temperature simulator is attached to a connector inside the transmitter unit and a temperature probe bypass switch is thrown. The simulated temperature is selected and will be shown on the display. If this temperature is out with the alarm limits it will activate the relevant alarm after the time delay. The resistance to simulate 0.0C can be supplied with a traceable calibration certificate. This can be used to calibrate the AS200TX transmitter.

Section 3 ► AS200RX

3.1 Features

- Compact Size.
- Simple to use.
- 125 Channels, one transmitter per channel.
- Additional receivers can be added to expand system.
- Two line LCD display of alarms giving details of transmitter unit and fault.
- Last 999 alarms stored.
- All alarms are time and date stamped.
- Acknowledged by user key-fob.
- Up to four individually named key-fobs available.
- Acknowledged alarms gives details of acknowledger and are time and date stamped.
- Add and remove transmitters by a simple press of one button & administrators key-fob.
- Audible alarm.
- Programmable alarm communications window of 10 minutes.
- Auxiliary Volt Free Contact : Common, Normally Open, Normally Closed.
- Power failure alarm.
- Rechargeable battery backup.
- Selectable Communications available, internet dialler or conventional auto-dialler.
- Internet Access to logged alarm information with internet dialler option.
- 10 Selectable Mobiles can be text messaged with detailed alarm information with the internet dialler option.



3.2 Positioning Receiver

The choice of receiver site affects the ultimate system performance; this can be important if transmitters are positioned at the limit of their range or in buildings where significant metal is used in their construction (such as reinforced concrete containing metal rods), or utilising metal internal partitioning.

For maximum range coverage and reliability the receiver should be located in a central position with respect to the transmitters. In general, the higher the receiver, the better the range achieved. To avoid screening effects, the receiver should be mounted well away from large metal masses such as metal cabinets. The receiver should be mounted at least 1.5 metres above ground level and positioned at least 3 metres away from mains electrical panels, electricity cables and sources of high speed switching, such as computers, otherwise radiated electrical noise may reduce the receiver sensitivity. If these instructions are not carried out the Receiver will have reduced sensitivity and possible future problems can occur like lost transmission of transmitter units.

Common mistakes when positioning a receiver

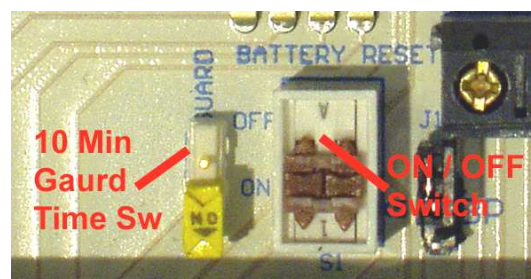
1. Receiver is positioned in receptions or gate houses where there is considerable communications equipment.
2. Receiver is positioned close to electricity cables beneath the wall surface. Check position of electricity sockets and light switches. Cables from these items will be run vertically or horizontally. Do not locate the receiver within 0.5 metre of these cables.
3. Receiver is positioned in a basement.

3.1.2 Aerial and Power

The receiver aerial must be screwed into position and DC power supply connected before operation can proceed.

3.1.3 On / OFF & Battery Switch

The On / Off & Battery switch must be switched "ON" to power up the receiver.



3.1.4 User Key-Fobs

The key-fob acknowledges alarms on the receiver. When acknowledged, the alarm is time and date stamped with the acknowledgers name. Unacknowledged alarms have an asterisk flashing beside it. Up to four user key-fobs are available.

Once all alarms have been acknowledged, the relay, alarm led and communications activated led will be reset.

If any alarms are not acknowledged on the system the Alarm Not Acknowledged led will be illuminated.

Key-fob User 1 is the administrator fob and can be used to add / remove transmitters and delete the alarm memory. Key-fob user 2 , 3 and 4 can only be used to acknowledge an alarm.

3.2 Connecting a Computer to AS200RX

Load the CD supplied with the receiver and connect the USB cable from the computer to the receiver. New hardware found screen will appear. Follow on screen instructions to instal drivers.

The drivers are located in the driver section of the CD. Load the software on to the computer and open program AS200RX following on screen instructions to load time / date and key fob usernames.

3.2.1 Set Time / Date & User Keyfob Names

Load the CD supplied with the receiver and connect the USB cable from the computer to the receiver

Load the AS200RX Setup software on to the computer and open program AS200RX. Click on the connect button and connected will be displayed once a connection to the receiver has been established.

To set the time and date insert the current time and date then click on Set. Uploaded will be displayed when the new time and date has been installed in the receiver.

To set the key-fob usernames select the key-fob number and insert name then click on set. Uploaded will be displayed when the username has been installed in the receiver. Repeat for all users key-fobs.

The screenshot shows the AS200RX Setup software window. It has a 'Help' button at the top left. Below it is a 'No Device Found' status with a 'Connect' button. The 'Time and Date' section has dropdown menus for hh, mm, dd, and yy, with a 'Set' button. The 'Keyfob User' section has a numeric keypad (1-4) and a 'Name' text field, with a 'Set' button. At the bottom is a 'Download Memory' section with 'Download' and 'View' buttons.

3.2.2 Download Memory

To download alarm log connect the receiver to the computer. Open up the AS200 setup software and click on Download. You will be asked to give it a file name. Once the file has been downloaded you can view it by clicking on view and opening the file.

3.3 Mute Button

When the Mute button is pressed, the alarm sounder is silenced.

3.3.1 Scroll Button

The Scroll buttons are used to scroll through the alarms displayed on the LCD. The up scroll button scrolls the alarm towards alarm No 001. When the company screen is displayed it will go to the last alarm then move towards No 001. The down scroll button scrolls the alarm towards the last alarm. When the company screen is displayed it will go to the first alarm then move towards the last alarm.

The screenshot shows the AS200RX ALARM LOG window. It has a title bar 'AS200RX ALARM LOG'. Below the title bar is a 'Created' field showing '10/11/2005' and '09:49:36', and a 'File Name' field showing 'D:\050928-1.csv'. The main area is a table with the following columns: ALARM No., TX UNIT, ALARM TYPE, DATE, TIME, ACKNOWLEDGED BY, DATE, and TIME. The table contains 13 rows of data, starting from alarm 136 and ending at 149.

ALARM No.	TX UNIT	ALARM TYPE	DATE	TIME	ACKNOWLEDGED BY	DATE	TIME
136	10	I/P1	22/09/05	13:08	J Smith	23/09/05	08:45
137	10	I/P1	22/09/05	13:23	J Smith	23/09/05	08:45
138	10	I/P2	22/09/05	13:23	J Smith	23/09/05	08:45
139	10	I/P2	22/09/05	14:09	R Jones	23/09/05	08:45
140	10	I/P1	22/09/05	14:10	J Smith	23/09/05	08:45
141	10	I/P1	22/09/05	14:24	P Herd	23/09/05	08:45
142	10	I/P2	22/09/05	14:39	J Smith	23/09/05	08:45
143	10	I/P1	22/09/05	14:54	R Jones	23/09/05	08:45
144	10	I/P1	22/09/05	14:55	R Jones	23/09/05	08:45
145	10	I/P2	22/09/05	15:09	J Smith	23/09/05	08:45
146	10	I/P1	22/09/05	15:45	P Herd	23/09/05	08:45
147	10	I/P2	22/09/05	15:54	J Smith	23/09/05	08:45
148	10	I/P2	22/09/05	16:04	R Jones	23/09/05	08:45
149	10	I/P1	22/09/05	16:24	R Jones	23/09/05	08:45

3.3.2 Acknowledger Button

The Acknowledger button when depressed shows acknowledgement information of acknowledger, time and date. Scroll to the alarm number where acknowledgement information is required and press the acknowledger button.

3.3.3 Add / Remove Transmitters Button

The Add / Remove button is used when new transmitters are introduced to the system or transmitters are removed from the system.

To add or remove transmitters depress the Add / Remove button whilst depressing user key-fob 1. The user has 1 hour after this procedure to add new transmitters.

Transmitters which require to be removed from the system must have their power removed and battery switched off before this procedure is carried out.

3.4 Power Led

The power indicator will be illuminate when mains power is connected

3.4.1 Alarm Led

The alarm indicator will be illuminated when an alarm is active.

3.4.2 Alarm Not Acknowledged Led

If any alarms are not acknowledged on the system the Alarm Not Acknowledged LED will be illuminated.

3.4.3 Alarm Reactivation Led

Will be illuminated when an alarm has been reactivated.

3.4.4 Communications Sent Led

The communications sent indicator will be illuminated when communications have been activated.

3.4.5 Relay Activated Led

The relay activated indicator will be illuminated when the relay for the volt free contacts have been activated.

3.4.6 Receiver Display/Messages

The receiver display consists of 2 lines by 16 characters. The last 999 alarms are stored and can be scrolled through. A backlight will illuminate the display when powered. In a power fail condition the backlight will be extinguished to prolong battery life.

The display always shows the last event received. Examples of display messages are as follows :

AV200RX 2401141 Base 1	Power On Display AV200RX is the product name. 240118 is the software version Base 1 is the Receiver address.
COMPANY 34 Units Base 1	NO ALARMS DISPLAY Company is the Supplier. 34 Units is the total number of Transmitters on the system. Base 1 is the Receiver Address.
097 Unit 12 I/P 1 * 15:47 26:08:05	097 is alarm number. Unit 12 is Transmitter 12. I/P 1 is Alarm on Input 1. * Alarm Acknowledgement Status. 15:47 Time alarm was received 26:08:05 Date alarm was received Note * Flashing indicates alarm not acknowledged * Solid indicates alarm acknowledged.
098 Unit 38 I/P 2 * 16:47 26:08:05	098 is alarm number. Unit 38 is Transmitter 38. I/P 2 is Alarm on Input 2. * Alarm Acknowledgement Status. 16:47 Time alarm was received 26:08:05 Date alarm was received
099 Unit 29 I/P 3 * 17:57 26:08:05	098 is alarm number. Unit 38 is Transmitter 38. I/P 2 is Alarm on Input 2. * Alarm Acknowledgement Status. 16:47 Time alarm was received 26:08:05 Date alarm was received
101 Unit 17 AC * 18:57 26:08:05	101 is alarm number. Unit 17 is Transmitter 17. AC is a power fail alarm. * Alarm Acknowledgement Status. 18:57 Time alarm was received 26:08:05 Date alarm was received
103 Unit 10 Lost * 22:11 29:09:05	103 is alarm number. Unit 10 is Transmitter 10. Lost indicates that the automatic test transmission was not received over a calculated period. * Alarm Acknowledgement Status. 22:11 Time alarm was received 29:09:05 Date alarm was received Note Lost indicates a serious or complete transmission problem from a particular transmitter and should be investigated immediately.
Unit 01 Test GOOD	Unit 10 is Transmitter 10. Test indicates a manual test transmission from the transmitter and gives the percentage signal received from that transmitter.

AC failure of the receiver and any transceivers on the system will also be displayed on the screen.

3.5 Display Indicating Lost

Indicates that the automatic test transmission was not received over a calculated period. This indicates that the transmitter has been switched off or the usual path of the signal has been severely interrupted. If the transmitter has been switched off remove it from the receiver with the acknowledgers key-fob and add/remove button.

If the transmitter has not been switched off the likely cause is that equipment has been placed in the signal path or new building works etc have interrupted the signal. Move the transmitter and test. If lost keeps appearing after this action has been taken fit a transceiver between the transmitter and receiver.

3.6 Alarm Guard Time

The alarm guard time is the time allowed once an alarm is activated at the receiver, to acknowledge an alarm with the user key-fob, without activating the external communications and volt free contact.

The guard time has two options, no delay or a 10 minutes delay. This time is set at SW2 on the rear of the receiver. When this switch is in the ON position the guard time is 0 minutes. When this switch is in the OFF position the guard time is 10 minutes.

3.7 Power Fail

When the receiver detects the loss of external AC power, the sounder is activated, AC Fail is displayed and an alarm is activated.

3.8 Delete Alarm Memory

It is strongly advised that the alarm memory log is downloaded and saved to a computer before deletion.

The alarm memory can be completely deleted by the following procedure.

1. Depress Add / Remove button once.
2. Within 10 seconds after depression of Add / Remove button, press Mute Alarm button once.
3. Depress and hold Acknowledger Button and depress user key-fob 1 (Administrators Key-Fob).
4. During the depression of Acknowledger Button and Key-Fob User 1 the display will flash **CAUTION! MEMORY WILL BE ERASED**.
5. Once deleted the display will flash **MEMORY ERASED** for approx 5 seconds then the memory record 001 will display Memory Deleted with the User name, date and time

3.9 Volt Free Contacts

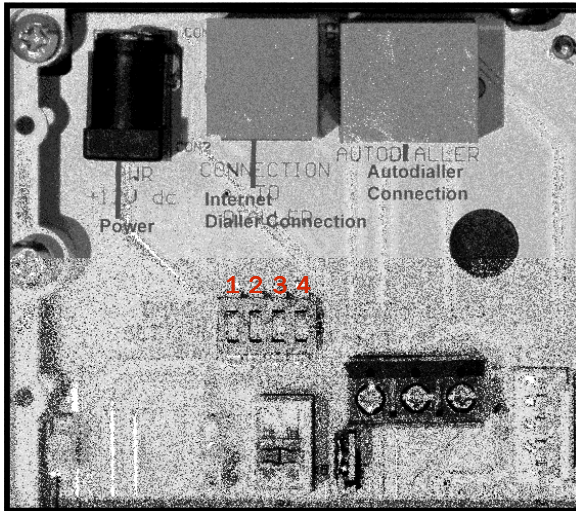
The relay contacts are rated at 2A @ 240Vac. The relay contacts are for clients own remote alarm connections and are presented on an 3 way screw terminal block accessible at the rear of the enclosure. They are marked **C** (Common), **NC** (Normally Closed) and **NO** (Normally Open). They change from this state in an alarm condition. E.g. The Normally Open contact will become closed.

3.9.1 Communications

Once an alarm is received at the receiver and the User Key-Fob is not depressed within the alarm guard time the following will happen: -

With Standard Speech Dialler

The speech dialler will be activated and will send a recorded message to up to four telephone numbers. The volt free contact will be activated.



With Internet Communication

The alarm information will be sent to the users password protected web page. When an alarm is sent to the web page it will be date and time stamped. The full history of alarms will be logged on the web page and cannot be deleted. The full alarm message will then selectively text messaged, up to a maximum of 10 mobiles or e-mails.

If the User Key-Fob is depressed to acknowledge the alarm within the guard time no communications will be activated.



3.9.2 Data Buffer

If a data buffer is fitted to the receiver (internally fitted) it will store one transmitters data for 170 days. The amount of memory used by the number of transmitters on the system is easily calculated by dividing 170 days by the number of transmitters on the system. E.g. 10 transmitters on the system would allow for 17 days of storage. The data buffer should only be used as a backup if there is a failure on the computer collecting the transmitters data.

Section 4 ► AS200TR

4.1 Overview

The transceiver unit is used to increase the distance between a transmitter and the receiver, if required. There is no limit to the number of transceivers that can be used in the system.



The transceiver is powered by an external DC supply and has a rechargeable battery fitted as standard. If power fail is detected on the transceiver an alarm will be sent to the receiver initiating an alarm condition.

Battery Switch

Switch 1 switches the battery ON or OFF. The normal operational setting for this switch is ON.

Test Switch

Switch 2 switches the test mode ON or OFF. This switch must be in the OFF position under operational conditions.

Setup Switches

See appendix 8 for setup configuration. (Para 8.2)

Section 5 ► Monitoring & Data Capture Software

5.1 Overview

- Display and logging of all the information sent from the transmitters.
- Data is updated every 30 minutes from each transmitter, increasing to every 10 minutes when in an alarm condition.
- Information sent from each transmitter includes the following :- transmitter number, transmitter serial number, value I/P1, value I/P2, value I/P3, high alarm set-point, low alarm set-point, delay time and time of last update.
- Alarm status of input 1, input 2, input 3, AC power and low battery are displayed.
- Data is recorded in a CSV and PSA file. The PSA file is encrypted and can only be decoded and read by our analysis software. The CSV file can be read in our analysis software or excel. A set of new CSV and PSA files are generated every day to make record archiving simple.
- Standard 25 inputs can be expanded in blocks of 25 up to 125 inputs.

Tx No.	Serial No.	Alarm Status	IP 1	IP 2	IP 3	AC	Batt	Description I/P 1	Description I/P 2	Description I/P 3	Value I/P 1	Value I/P 2	Value I/P 3	Unit	High Alarm	Low Alarm	Delay Time	Last Update
1	1010	OK						Freezer Room 3.28 No 1	N/A	Door Switch	+22.2	N/A	Closed	C	+54.0	-62.5	20	08:09
2		OK																
3	1015	OK						Freezer Room 3.28 No 3	N/A	Door Switch	+20.6	N/A	Closed	C	+40.0	-20.0	10	08:12
4	1017	OK						ULT No 4 Room 2.67	N/A	Door Switch	+19.8	N/A	Closed	C	+40.0	-20.0	10	08:14
5	1010	ALARM						Freezer No32 Temp Air	Freezer No 32 Product	Door Switch	+28.9	-0.2	Closed	C	+61.4	+11.0	11	08:32
6		OK																
7		OK																
8	1038	ALARM						ULT No 5 Room 2.67	N/A	Door Switch	+18.9	N/A	Open	C	+31.7	-20.0	2	08:32
9		OK																
10		OK																
11	1027	OK						ULT No 6 Room 2.67	N/A	Door Switch	+21.7	N/A	Closed	C	+40.0	-29.8	9	08:32
12	1020	OK						LN2 Unit Room 2.8.0	N/A	N/A	+21.5	N/A	Closed	C	+40.0	-20.0	10	08:13
13		OK																
14		OK																
15	1018	OK						Incubator 3.22 No 1	N/A	Door Switch	+21.2	N/A	Closed	C	+40.0	-20.0	10	08:14
16		OK																
17	1019	OK						Incubator 3.22 No 2	N/A	Door Switch	+23.1	N/A	Closed	C	+40.0	-20.0	10	08:14
18		OK																
19	1012	OK						Freezer Room 3.28 No 2	N/A	Door Switch	+20.3	N/A	Closed	C	+40.0	-20.0	10	08:14
20	1013	OK						Freezer Room 3.28 No 5	N/A		+20.5	N/A	Closed	C	+40.0	-20.0	10	08:15
21	1014	OK									+20.6	N/A	Closed	C	+40.0	-20.0	10	08:14
22	1016	OK						Freezer Room 3.28 No 6	N/A	Door Switch	+20.6	N/A	Closed	C	+40.0	-20.0	10	08:15
23		OK																
24	1001	OK						Incubator 3.22 No 3	N/A	Door Switch	+19.8	N/A	Closed	C	+91.0	-148.0	1	08:33
25		OK																

5.1.2 Connecting a Computer to AS200RX

Connect the USB cable from the computer to the receiver. It is assumed that the drivers will be loaded from the initial installation of the setup software. If the drivers have not been installed consult the AS200 Operating manual and disc supplied with the receiver.

5.1.3 Installing Capture Software

It is suggested that a new folder is made called Temperature Data or a name of your choice to describe where the data and Capture software file will be stored. Double click on the AS200 Capture 25 file, prompts will guide the installation. Once installed the program can be accessed from the program bar under the heading Asper.

- ◆ *Note : If the capture software is installed in the desktop folder and not a folder nominated by the user the data icons will be displayed on the desktop screen.*

5.1.4 Connecting to the AS200RX

If the Receiver is connected to the computer the capture software will connect automatically when the program is started. Connect will be displayed at the bottom LHS of the screen. If the software has not been connected disconnect will be displayed. To connect manually go to File > Connect.

The Capture software must be continually run to capture and store data. If the receiver becomes disconnected from the computer the system will display "Disconnected".

- ◆ *Note : If you find that the software does not collect data, this will be displayed by an error file at the first time a transmitter sends its data. This is caused by older drivers for USB ports on older operating systems. A simple fix to upgrade drivers and USB port is to install a USB hub and connect it into the existing USB port. A USB hub is supplied free of charge with the software in case it is required.*

5.1.5 Main Screen

The data will collect the following details from each transmitter, transmitter number, transmitter serial number, value I/P1, value I/P2, value I/P3, high alarm set-point, low alarm set-point, delay time and time of last update. This data will be collected every 30 minutes, this interval will increase to every 10 minutes when the transmitter is in an alarm condition.

5.1.6 Descriptions

The user can enter descriptions for I/P1, I/P2 and I/P3 for each transmitter. Most transmitters purchased only use I/P1 and a typical description would be type of equipment or ID or location. E.g. -80 Freezer No 05

5.1.7 Alarms

Alarms are indicated on the screen by the colour of the transmitter monitoring box changing from green to red. Items monitored are I/P1, I/P2, I/P3, AC connected and battery low.

5.2 Data Analysis Software Overview

- CSV and encoded PSA files can be read.
- Numerical & Graph information easily displayed for any transmitter.
- 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.
- The Data Capture software and Data Analysis software come as a package. Each licence allows one capture software and up to 5 data analysis software programs.

5.2.1 Installing Data Analysis Software

Double click on the AS200 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.

5.2.2 Opening a Data File

To open a data file go to File > Open. The files are automatically saved in a date form e.g. 12_08_2006 is data collected on the 12th August 2006. Two files are made for each date a csv and psa. The psa file is encrypted and can only be viewed in the analysis software.

5.2.3 Using a Data File

Once the required date or dates are opened for analysis, select the transmitter unit number required to be viewed. This is done by using the mouse to move the "Transmitter Unit" Column numbers up or down. Once the required transmitter unit is selected data for this unit is displayed.

5.2.4 Top Screen Displayed Information

Information at the top of the screen is displayed for the selected transmitter. The information is Serial Number, Descriptions if entered into the capture screen, First Reading, Last Reading, Number of Readings, Max Temp, Min Temp and Average Temp.

Date	Time	Temperature (I/P1)	Temperature (I/P2)	Temperature (I/P3)	AC Power	Battery	Low Temp	High Temp	Unit
15/09/2006	00:12:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:14:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:16:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:18:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:20:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:22:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:24:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:26:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:28:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:30:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:32:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:34:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:36:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:38:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:40:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:42:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:44:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:46:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:48:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:50:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:52:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:54:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:56:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	00:58:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:00:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:02:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:04:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:06:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:08:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:10:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:12:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:14:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:16:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:18:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:20:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:22:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:24:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:26:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:28:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:30:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:32:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:34:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:36:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:38:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:40:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:42:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:44:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:46:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:48:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:50:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:52:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:54:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:56:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	01:58:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10
15/09/2006	02:00:00	-28.8	-28.8	-28.8	On	OK	-30.7	-28.8	10

5.2.5 Column Data

The data in the columns gives easy access to the following :-

Date, Time, Temperature input 1, Temperature Input 2, Door Switch I/P3, AC Power, Battery Condition, High Alarm Set-point, Low Alarm Set-point and Delay Time.

5.2.6 Filtering Data

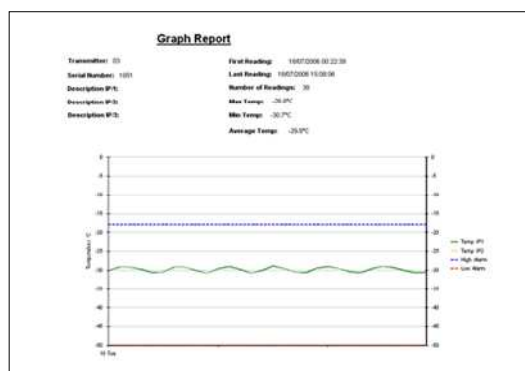
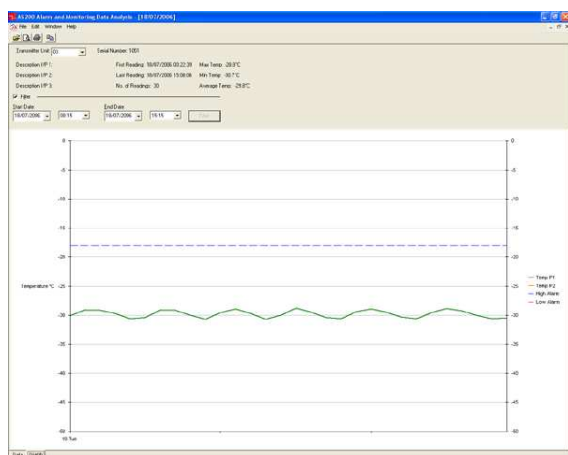
Data can be filtered by ticking the filter box and selecting a start date and time and end date and time. Once this has been done click on the filter button.

5.2.7 Displaying Graphs

A graph of the current data can be displayed by clicking on the Graph Tab at the bottom LHS of the screen. To return to the data display, click on the Data Tab at the bottom LHS of the screen.

5.2.8 Printing Data or Graphs

To print out the data selected go to File > Print. To print out a graph of the data selected, display the graph as described in para 2.7 and go to File > Print.



Transmitter Report										
Transmitter: 03					First Reading: 15/07/2006 00:22:38					
Serial Number: 1051					Last Reading: 15/07/2006 15:08:06					
Description IP1:					Number of Readings: 30					
Description IP2:					Max Temp: -29.0°C					
Description IP3:					Min Temp: -30.7°C					
					Average Temp: -29.8°C					
Date	Time	Temp Input 1	Temp Input 2	Door SW Input 3	AC Power	Battery Condition	High Alarm Setpoint	Low Alarm Setpoint	Delay Time	
15/07/2006	00:22:38	-30.1°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	00:53:11	-29.1°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	01:23:43	-29.2°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	01:54:15	-29.7°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	02:24:47	-30.5°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	02:55:19	-30.4°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	03:25:51	-29.1°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	03:56:23	-29.2°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	04:26:55	-30.0°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	04:57:27	-30.7°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	05:27:59	-29.6°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	05:58:31	-29.0°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	06:29:03	-29.7°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	06:59:35	-30.7°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	07:30:07	-30.0°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	08:00:39	-28.8°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	08:31:12	-29.5°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	09:01:44	-30.4°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	09:32:15	-30.6°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	10:02:47	-29.4°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	10:33:21	-29.0°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	11:03:51	-29.5°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	11:34:22	-30.3°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	12:04:57	-30.6°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	12:35:27	-29.6°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	13:05:57	-29.9°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	13:36:32	-29.2°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	14:07:03	-30.0°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	14:37:34	-30.6°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	
15/07/2006	15:08:06	-30.5°C	N/A	Closed	AC OK	BATT OK	-18.0°C	-50.0°C	25	

Transmitter: 03

Serial Number: 1051

1 of 1

Section 6 ► Communications

6.1 COMGSM Dialler

Overview

The GSM Dialler will dial up to 5 telephone numbers or emails when an alarm is activated. Targeted personnel for a particular piece of equipment will be contacted in the event of an alarm. The targeted message will contain the alarming transmitter unit number and a generic description. No telephone line is required so installation of this device can be carried out in remote locations.

6.1.2 SIM Card & Signal Strength

An O2 pay as you go sim card is provided with approximately £10 worth of credit on it. This has been provided primarily to get the system commissioned on site. The user can top up this sim card or opt for a contract sim card of their choice. As the GSM unit is usually connected to give information for an alarm it is highly recommend that the user replaces the pay as you go sim to a monthly contract sim. The O2 network has been chosen as it has a very good network coverage in the UK. The final location the COMGSM unit site may require another network for good signal strength.

Once power has been connected to the COMGSM Unit, the system will sound a bleeping tone and the status and function leds will be red. The status and function leds will turn green within 30 seconds of applying power. When the unit picks up a satisfactory network signal the bleeping will stop. If the signal strength is lost to the COMGSM unit a bleeping tone will sound. This gives audible indication to the user that the unit will not respond to an alarm, as the unit has not got adequate signal strength from the network being used. If this happens the COMGSM unit should be located in an area where a good network signal is achievable or change the sim card to another network with a good signal strength in the area required.

To check signal strength and if any alarms are active on the GSM unit, send the message Q to the GSM's sim's telephone number.

6.13 Initial Setup

All Connections and layouts can be found in Figure 1, 2, 3, 4 and 5.

6.1.4 Aerial & Power

Connect the Aerial and 12V DC Power Supply to the Unit.

6.1.5 Battery Switch

Switch battery ON, remove rear flap battery switc located near middle at bottom. Yellow in colour.

6.1.6 Connection to Computer

Connect the serial cable between the GSM unit and serial port 1 of a computer, using the cable supplied. If your computer does not have a serial port a USB to serial port adaptor (USB to RS232 connector) is supplied with the COMGSM unit.

6.1.7 Installing COMGSM Software

Install the COMGSM SETUP file on to your computer. This file is found on the CD supplied in the AS200 COMGSM folder. Follow screen prompts to install the software.

6.1.8 Using GSM Software

The COMGSM unit must be placed into the configuration mode before any changes can be made to the unit. This is achieved by toggling the large button marked EDIT SETTINGS. In the configuration mode the function led on the front panel of the COMGSM unit will turn red.

To return the COMGSM unit back to normal alarm mode click on the large button marked ENABLE GSM UNIT. In this mode the function led on the front panel will turn green.

When the view buttons are depressed e.g. View Selected, View Contacts etc, the information displayed in the black top screen is the stored details taken from the COMGSM Dialler. Details entered into the Setup menu on the computer will not become active in the COMGSM dialler unit until the relevant "Update" buttons are depressed.

It is recommended that the relevant "View" buttons are depressed before the GSM dialler is disconnected from the computer setup. This is to check the correct details are entered into the COMGSM dialler unit. Once the COMGSM unit is connected to a receiver a full test to check the dialler unit is working correctly must be carried out.



6.2 User Number Message Setup

6.2.1 Entering Contact Phone Numbers or Email address

This is achieved in the User Number Message setup box. Enter telephone numbers or email address in the Contact Numbers 1 to 5. To update this information into the COMGSM dialler click on the "Update All Contacts" button. When entering a number +44 must be used in front of the number and the 0 must be removed.

E.g. Mobile number 07756452398 would be entered as +447756452398, Land Line 0131 645 3976 would be entered as +441316453976

Land lines will receive the sms message through a BT service which converts the sms message to a synthesised voice message. Email address entered will receive a message containing the mobile number which has acknowledged the alarm message. This is useful record of who acknowledged the alarm call. The email address is not used to send an alarm.

6.2.2 Entering Outgoing Message

Enter a outgoing message in the outgoing message box. To update this information into the COMGSM dialler click on the "Update Outgoing Message" button. When a message is sent it will contain this message and the transmitter unit number which activated the alarm.

6.2.3 E Mail Gateway

The email gateway is a number which is used to convert an sms message to an email. This has been setup as default and will only required to be changed if the user wishes to use another provider. The provider of this service is sent on every email and at present they do not charge for this service.

6.2.4 View Settings

Clicking on this button will display in the top black screen the email gateway and outgoing message that are programmed into the COMGSM Dialler.

6.2.5 View Contacts

Clicking on this button will display in the top black screen the contact numbers and email address that are programmed into the COMGSM Dialler.

6.3 Telephone Outgoing Calls

6.3.1 Telephone Outgoing Call Sequence

Select the transmitter number required. Select the outgoing sequence for this transmitter for the first call through to the fifth. If a outgoing number is not required select 0.

E.g. If transmitter number 02 is selected and the outgoing sequence is 1st : 3, 2nd : 2, 3rd : 1, 4th : 4 and 5th : 5. This would mean the first number phoned would be contact number 3, the second number phoned would be 2, the third number phoned would be 1 etc.

6.3.2 Update Selected

Clicking on this button will update the selected transmitter number outgoing call sequence to the COMGSM unit.

6.3.3 Update All Sequences

Clicking on this button will update all the transmitter numbers sequences to the COMGSM Dialler. An "Updating All Sequences" tool bar will be displayed on the progress of this update which can take approximately 90 seconds.

The screenshot shows the AS200 Alarm System software interface. The top section, 'Transmitter Outgoing Call Sequence', displays a list of transmitter numbers (USR 1 to USR 5) and their corresponding sequences (1st to 5th). Below this, there are buttons for 'Update All Sequences', 'Update Selected', 'View Selected', 'View All', and 'Clear All'. The 'Clear All' button is highlighted with a red box. The bottom section, 'User Number Message Setup', displays a list of contact numbers (Contact No 1 to Contact No 5) and their corresponding email addresses. Below this, there are buttons for 'Update All Contacts', 'View Contacts', 'View Settings', 'Update Email Gateway', and 'Update Outgoing Message'. The 'Update Outgoing Message' button is highlighted with a red box. The 'Outgoing Message' field contains the text 'This is a temperature alarm call.'

6.3.4 View Selected

Clicking on this button will display the telephone number sequence for the transmitter selected in the COMGSM unit, this will be displayed in the top black screen.

6.3.5 View All

Clicking on this button will display all the telephone number sequences for all the transmitters in the COMGSM unit, this will be displayed in the black screen.

6.3.6 Clear All

Clicking on this button will clear the memory in the COMGSM Dialler unit. All transmitter outgoing call sequences and the user number setup will be deleted.

6.3.7 Store Sequences / Store Settings on PC

Clicking on this button will save the data entered into the COMGSM setup menu into a file on the PC. Please do this before closing the program to save your data.

6.4 Enabling COMGSM Unit

Once all settings have been entered and checked the COMGSM unit must be taken out of the configuration mode to enable alarm mode. Click on the "Enable GSM Unit" button, the function led on the COMGSM unit front panel will change from red to green. Note :- This can take up to 30 seconds.

6.4.1 Testing an Alarm Call From COMGSM Unit

The COMGSM unit must be in the enable alarm mode e.g. function led green, Select the transmitter number and I/p required and click on the test alert button.

The unit will now dial the required sequence for the selected unit. The test alert transmitter must be set up previously in the configuration mode. E.g. If unit 7 is selected for testing, unit number 7 must have its call sequence setup to work.

6.5. Connecting the GSM unit to the Receiver

Make sure the function led is green. Connect the cable supplied between the Rx connection of the COMGSM unit, Fig 3 and connector in rear of the receiver.

6.6 Alarm Activation

When an alarm is received at the AS200RX receiver it will trigger the GSM unit. This could be delayed for up to 10 minutes depending on the guard time setting at the receiver. If the receiver is acknowledged within the guard time the GSM unit will not be activated.

Once the GSM unit is triggered the status led will start flashing red, after approximately 40 seconds the first number on the telephone list off the transmitter that has activated the alarm will be telephoned. If the alarm is not acknowledged the second number on the list will be telephoned and so on up to contact number 5. The time between calls is approximately 90 seconds. If no person has acknowledged the alarm the telephone sequence will be repeated. This will take place approximately 10 to 15 minutes after the call to contact number 5.

Only approximate times can be given between calls as it depends on the network used and how busy it is.

6.7 Acknowledging Alarms

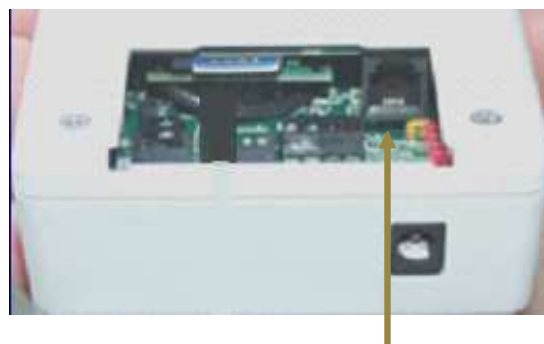
To acknowledging an alarm a mobile phone can only be used. When an alarm message is received at the mobile phone, reply to the call with the unit number alarming. If this is successful no more calls will be phoned and a second message will be received with the mobile number of the person who acknowledged the call. This acknowledgement message will go to all mobile telephone numbers that have been set up in the call sequence. If an email is in the contact list the acknowledgers telephone number will be sent to the email address for reference purposes.

E.G. Alarm from Transmitter number 9, reply to alarm message with 09 then send., Alarm from transmitter number 36, reply to alarm message with 36 then send.

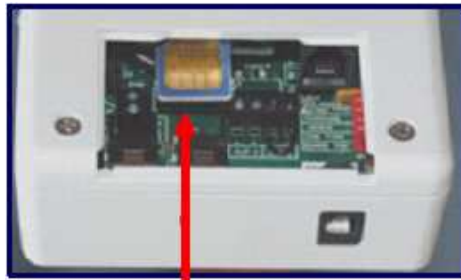
6.8 Cancelling Multiple Alarms

If multiple alarms are received at the GSM unit e.g. an AC power fail so all transmitters are sending in power fail alarms. In this case the GSM unit will send out each alarm until acknowledged, which could be annoying and take a considerable amount of time depending how many transmitters are on the system.

The GSM unit can be reset of all its alarms by sending the message reset in lower case to the GSM's Sim's telephone number.



RS232 PC / RX CONNECTION



Insert Sim Card this way up



Sim Card fully inserted

6.9 Conventional Speech Dialler Unit

General Note : It is always recommended to have installed a direct telephone line for this device.

If simpler communications are required a speech dialler unit can be fitted to the receiver.

Power for the speech dialler and alarm trigger is obtained from the receiver. This ensures that, even during a mains power cut, the equipment will still detect an alarm condition and dial out.



The Speech Dialler Unit accepts one input from the receiver, which causes corresponding messages (A,) to be sent out to pre-arranged telephone numbers.

Telephone Numbers: The Speech Dialler Unit will dial up to a maximum of four different telephone numbers and play its message. The numbers may be up to 16 digits long and are simply programmed using the text display and keypad on the unit.

Messages: The Speech Dialler Unit has a built-in microphone and speaker so that phrases can be recorded and re-played directly from the unit. When the out-going call is answered by the remote telephone the speech dialler unit plays a common phrase (O) plus one of the specific alarm messages (phrase A). Phrase O normally states the location of the establishment or building and phrases A relate to the location of the Receiver. Each phrase can be up to 20 seconds long giving a total possible message length of 40 seconds (messages O + A).

Acknowledgement : On receiving a call from the Speech Dialler Unit the person answering acknowledges it by pressing the number [8] on their telephone keypad, this prevents further calls being initiated. The speech dialler unit may be programmed to stop dialling after the first call has been acknowledged or when two or three have been acknowledged, as required.

If the message is not acknowledged then it is repeated three times, after which the dialler abandons the call. It then dials the next number. This procedure is repeated three times in sequence for all four telephone numbers. If no acknowledgement has been received then the dialler shuts down.

FOR FULL UP TO DATE INFORMATION ON HOW TO SET UP AND USE THE AUTODIALLER PLEASE READ ENCLOSED BOOKLET SD1+ SPEECH DIALLER / OPERATORS MANUAL. (Only Supplied if this option is selected)

The Speech Dialler unit is manufactured by an independent company from the alarm system. Its operation and warranty guarantee are that of the manufacturing company.

Section 7 ► Installation

Purpose: The information given in this section will enable the alarm system to be installed correctly with no expert help. If the system has already been installed and commissioned by the supplier then this section can be ignored. Most of the information required to operate the system has already been covered in previous sections but is summarised here in relevant stages for clarity during installation.

Receiver

STAGE 1

Selecting the Alarm Receiver Site.

The choice of receiver site affects the ultimate system performance; this can be important if transmitters are positioned at the limit of their range or in buildings where significant metal is used in their construction (such as reinforced concrete containing metal rods), or utilising metal internal partitioning.

For maximum range coverage the receiver should be located in a central position with respect to the transmitters. In general, the higher the receiver, the better the range achieved. To avoid screening effects, the receiver should be mounted well away from large metal masses such as metal cabinets. The receiver should be mounted at least 1.5 metres above ground level and positioned at least 3 metres away from mains electrical panels and sources of high speed switching, such as computers, otherwise radiated electrical noise may reduce the receiver sensitivity.

The receiver requires to be sited near to a single 13A power outlet and also a standard telephone socket if the communication facility is to be used.

STAGE 2

Setting up Unit Base

Up to 16 individual receivers can be used on one system giving up to 2048 individual channels. The transmitters and receivers have to be configured to activate the relevant receiver base unit. The receiver will be factory set for base No 01. As one standard receiver gives up to 126 channels most clients will not require any additional set-up. If additional receivers are used the receiver base can be configured on the rear of the receiver. (See Para 3.6 for details)

STAGE 3

Setting up Time Guard

The time guard delay allows staff that are present to reset the receiver thus avoiding any unnecessary alarm phone calls.

The time delay switch is located at the rear of the receiver. (See Para 3.7 for details)

STAGE 4

Enabling Battery.

The battery enable switch should be switched on. (See Para 3.1.3 for details)

STAGE 5

Mounting.

Mount unit on wall with single screw, plug in three-pin transformer into 240V mains socket and connect communications option to telephone socket.

Transmitters

STAGE 6

Selecting the Alarm Transmitter Site

There is less choice in sighting transmitters, as they must normally be mounted close to the equipment being monitored.

To minimise shielding effects, the transmitter should be positioned at the top of equipment to be monitored if possible, with the wire aerial stub standing above the top surface of the equipment. This will allow the aerial to radiate freely in all directions when a signal is transmitted and ensure maximum range.

The normal operating range of the transmitter is about 100 metres. In practice, depending on the construction materials of the building, this distance can be larger or smaller. Once the site has been chosen use the eyelets and self-adhesive hooks to hang the transmitter in place.

STAGE 7

Inserting the probe into the equipment.

As the probe wire is made out of PTFE covered wire it is very thin and strong and can normally be passed through the door gasket of freezers or top inserts of liquid nitrogen equipment without any problem and secured with the supplied cable ties and bases. In this case, it is not necessary to disconnect the probe wires from the terminal block located inside the transmitter.

Freezers / Incubators

Once the transmitter is mounted, the probe has to be inserted into the equipment. This can be done in two ways:

- a) Disconnect the probe wire from the input terminal block inside transmitter box and pass this wire from the inside through any existing probe holes in the freezer, then reconnect probe wire to the terminal block in the transmitter unit. In many cases the probe entry into the freezer will be frozen solid, making it impossible to fit the probe in this way until a total defrost has taken place.
- b) As the probe wire is made out of PTFE covered wire it is very thin and strong and can normally be passed through the door gasket without any problem and secured with the supplied cable ties and bases. In this case, it is not necessary to disconnect the probe wires from the terminal block.

Allow 30 minutes for the probe to reach the cabinet temperature

LN2

Employ safety procedures before proceeding e.g. correct gloves and full-face protection.

As the probe wire is made out of PTFE covered wire it is very thin and strong and can be passed through the top inserts of liquid nitrogen equipment without any problem. Once the desired depth for the probe is established loop the probe wire round the dewar handle and secure with cable ties.

Stage 8

Plug in three-pin transformer into 240V mains and switch on battery

STAGE 9

Set required Base and Cal Details.
(See Para 2.5.2 for details)

STAGE 10

Set required Unit No, Delay Time and High & Low Alarms
(See Para 2.5.2.3 for details)

Stage 11

Depress the test button.

Depress the test button on the alarm transmitter for 10 seconds. The display on the receiver will give information of unit number tested.

Stage 12**Test**

Test all alarm transmitters to make sure the receiver has logged on the relevant transmitter unit.

N.B. If the receiver is not triggered move transmitter to a more suitable location or install a transceiver.

Stage 13**Communications**

Connect relevant communications selected.
(See Section 5 for details)

ter on a full alarm. Do this by simulating an alarm on an input, checking all communications are working.

Every Three Months

Check the entire system. Do this by simulating an alarm on the input of each transmitter, checking all communications are working

Main Cause of Faults**1. Alarm equipment is switched off at mains.**

Action: Do not ignore AC Fail alarms at the receiver and carry out weekly check.

2. Communications equipment is set-up wrongly or company/hospital telephone exchange has blocked telephone line for certain types of calls.

Action: Check full communications on a regular bases. A company can change the status of a telephone line at its exchange to have several blocks on it.

3. Persistent alarms from a faulty piece of equipment, are ignored.

Action: Switch off Alarm Transmitter on the faulty piece of equipment until it has been repaired. Remove the transmitter unit from the receiver.

Section 8 ▶ Testing System Integrity

The system testing is only a recommended minimum; it is up to the customer to decide how important their samples are and the frequency of testing required.

Transmission of signal

The system automatically tests transmission between each transmitter and the receiver. If the receiver does not receive a test transmission it will alarm at the receiver as "Lost" giving the transmitter unit number approximately every four hours. To stop the alarming of a lost transmitter, the transmitter must be removed from the receiver.

A manual test signal can be sent by depressing the test button for between eight and twelve seconds on the transmitters. The receiver will indicate the unit number with the message "Test"; no alarms will be activated on a test signal.

Testing Inputs

The only way to completely test the system is by simulating a real fault on an input. Example : If it was a temperature input, the probe would be warmed up and after the time delay an alarm signal would be sent to the receiver. If communications were fitted the relevant action would be processed.

Recommended Minimum**Each Week****Alarm Transmitters**

Check white status led is illuminated.

If white led is 'OFF' check power has not been switched off. If mains power is 'ON', unit is faulty and must be returned for repair.

Receiver

Check blue power led is illuminated. If this light is 'OFF' check mains power has not been switched off. If power is on, unit is faulty and must be returned for repair.

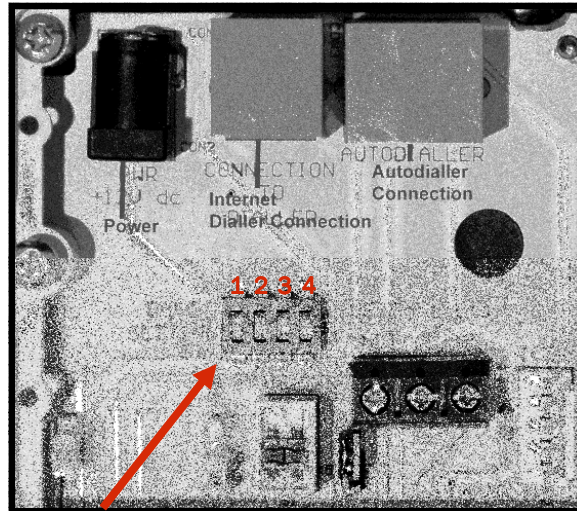
Each Month

In addition to the weekly check, test at least one transmit-

Section 9 ► Appendix

8.1 Receiver Base Settings Setup

BASE	Sw1	Sw2	Sw3	Sw4
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON



8.2 Transceiver Setup Switches

TRANSCIVER RECEIVES BASE	TRANSCIVER TRANSMITS BASE	Battery Sw1	Test Sw2	Sw3	Sw4	Sw5	Sw6
ANY	SAME	Battery	OFF	ON	ON	ON	ON
2	1	Battery	OFF	ON	ON	ON	OFF
3	2	Battery	OFF	ON	ON	OFF	ON
4	3	Battery	OFF	ON	ON	OFF	OFF
5	4	Battery	OFF	ON	OFF	ON	ON
6	5	Battery	OFF	ON	OFF	ON	OFF
7	6	Battery	OFF	ON	OFF	OFF	ON
8	7	Battery	OFF	ON	OFF	OFF	OFF
ANY	SAME	Battery	OFF	OFF	ON	ON	ON
3	1	Battery	OFF	OFF	ON	ON	OFF
4	2	Battery	OFF	OFF	ON	OFF	ON
5	3	Battery	OFF	OFF	OFF	ON	OFF
6	4	Battery	OFF	OFF	OFF	ON	ON
7	5	Battery	OFF	OFF	OFF	ON	OFF
8	6	Battery	OFF	OFF	OFF	OFF	ON
9	7	Battery	OFF	OFF	OFF	OFF	OFF

Examples :

1. Transmitter at Base 1 (Default Setting)
require to go through one Transceiver to a Receiver at Base 1.

Set Transceiver to [transceiver receives any base] [transceiver receives any base] Sw3- ON, Sw4-ON, Sw5-ON, Sw6-ON

2. Transmitter to go through two transponders to reach a Receiver set at Base 1.

Change the base on the Transmitter to Base 3 Appendix 5.

Set the first Transceiver to [transceiver receives base 3] [transceiver transmits base 2] Sw3- ON, Sw4-ON, Sw5-OFF, Sw6-ON.

Set the second Transceiver to [transceiver receives base 2] [transceiver transmits base 1] Sw3- ON, Sw4-ON, Sw5-ON, Sw6-OFF.

3. Transmitter to go through three transponders to reach a Receiver set at Base 1.

Change the base on the Transmitter to Base 4 Appendix 5.

Set the first Transceiver to [transceiver receives base 4] [transceiver transmits base 3] Sw3- ON, Sw4-ON, Sw5-OFF, Sw6-OFF.

Set the second Transceiver to [transceiver receives base 3] [transceiver transmits base 2] Sw3- ON, Sw4-ON, Sw5-OFF, Sw6-ON.

Set the third Transceiver to [transceiver receives base 2] [transceiver transmits base 1] Sw3-ON, Sw4-ON, Sw5-ON, Sw6-OFF.

Section 10 ► Test Record Sheet

Please Photocopy

DATE TX ON / OFF