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## About this Help Guide

This manual has been written as a guide to the RF500 Web-View software only. There is a companion manual entitled “RF500-SystemManual” which covers installation, operation and maintenance of the individual pieces of equipment which comprise an RF500 wireless logging system. The RF500 System Manual is provided in printed form and also as a Adobe PDF downloadable from the Gateway. The RF500 Web-View Guide is only provided as a Adobe PDF downloadable from the Gateway.

This manual is associated with Gateway Software Release 29.

## Navigating through this Guide

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Each chapter in this guide has been written so that it can be read as a standalone guide albeit with references to other chapters. It is formatted to be read on the screen in a similar manner to the conventional help found in an installed application program. Bookmarks are also used throughout, which, when clicked will jump to the appropriate place in the guide making navigating this large document very easy.

## Conventions Used in this Guide

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To aid understanding and help the user quickly find the information he/she requires, extensive use of coloured text and different fonts has been used to denote various items. These are shown below.

<b>Button</b>	Denotes a Web Page button
<u>Link</u>	Denotes a Web Page link.
<b>Field</b>	Denotes a field name. A piece of information is shown to the right of a field name.
<b>Example</b>	Denotes an example of a piece of information the Gateway provides.
User Entry Example	Denotes an example of a piece of information a user is expected to enter.
Gateway Terminology	Denotes terminology used by the RF500 Gateway. Clicking this item will jump to the definition of the term.
Bookmark	Denotes a link in the document. Click to jump to further information on the topic.

## Logging Into RF500 Web View

The RF500 Gateway requires all users to be identified. Anonymous access to the Gateway is not permitted. Authentication is the process of ensuring that a user cannot masquerade as another user. RF500 users are authenticated using passwords. Authentication is required for the following actions:

- |                     |   |
|---------------------|---|
| Initial Login       | The Gateway login screen is the first page presented after the user enters the Gateway IP address into the browser address bar. |
| Any database change | Each screen that causes a change to the Gateway database such as alarm acknowledgement requires authentication by password.     |

### Login Screen

Start the Web Browser on the PC and enter the IP address of the Gateway into the Address Bar. Press the **Enter** key or click **Go**

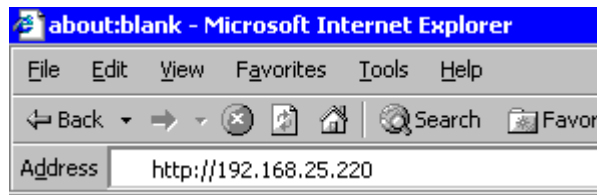


Figure 1 - Browser Address Bar

There are separate screens for entry of **User Name** and **Password**, this is done to defeat the “Save Password” feature of common Web Browsers such as Firefox and Internet Explorer because they are incompatible with the Authentication used in RF500.

Both **User Name** and **Password** are case sensitive. In case your **User Name** or **Password** is not recognised, check the Caps-Lock key.



Figure 2 – Gateway Login Screen

### Inactivity Logout

After 1 hour of inactivity the Gateway will automatically log you out, you will be asked to log back in on further use of the Gateway.

## Gateway Language

The language used throughout the Gateway for web pages and in emails can be changed as follows:

Login as an **Administrator** then click the **Administration** button then the **Language** button to bring up this page.



Click the radio button below the flag corresponding with your choice of language.  
Enter your password and click the **Submit** button.

**Figure 3 – Select Language**

The language selected is used immediately for all web pages and emails generated for all users. There is no need to reset the Gateway or Login again.

## Gateway Navigation

The RF500 Gateway Web-View features several types of screens which allow the user to perform actions such as viewing readings or alarm events

After logging in you will see the HOME screen. Navigation to other screens in the Gateway is via buttons in the blue banner across the top of the screen. Exiting from screens can be by two methods, either completing a form or selecting the appropriate button to finish or cancelling by selecting cancel or back.

### Button Bar

This blue strip is a feature in the heading of most Gateway Web View pages. The number of buttons and their functions offered in each page can vary, and in fact some pages may not even display a Button Bar. Generally these buttons direct the user onward to other pages; buttons which perform an action on the current page are generally located in the main body of the page.



Figure 4 – Button Bar

### Calendar

There are several pages which show **data records** or **Events** by day, week or month, these have a [Calendar](#) date picking function which helps significantly in finding information for a specific time. To use the [Calendar](#) function on pages which it is available click the [Calendar](#) link to display a calendar as in the example below.

Data				Event			
Apr							
M	T	W	T	F	S	S	
						1	
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30							

Figure 5 – Transmitter Calendar

This partial view of the Calendar function (all months are shown) shows all the days that data and **Events** exist. Days highlighted blue show that data exists for that day; days highlighted in red indicate that an **Event** occurred on that day.

Where an alarm **Event** occurs on a particular day there will always be **data records** for that day also.

When viewing transmitter data, clicking any coloured day will cause the preceding display page to show **data records** or **Events** for that day.

When viewing the [Audit Trail](#), clicking any coloured **Event** will cause the preceding display page to show information for that day, week, or month.



# Gateway Home Page

In the figure below an example of a Gateway well populated with transmitters is shown with the main areas of information highlighted as yellow balloons.

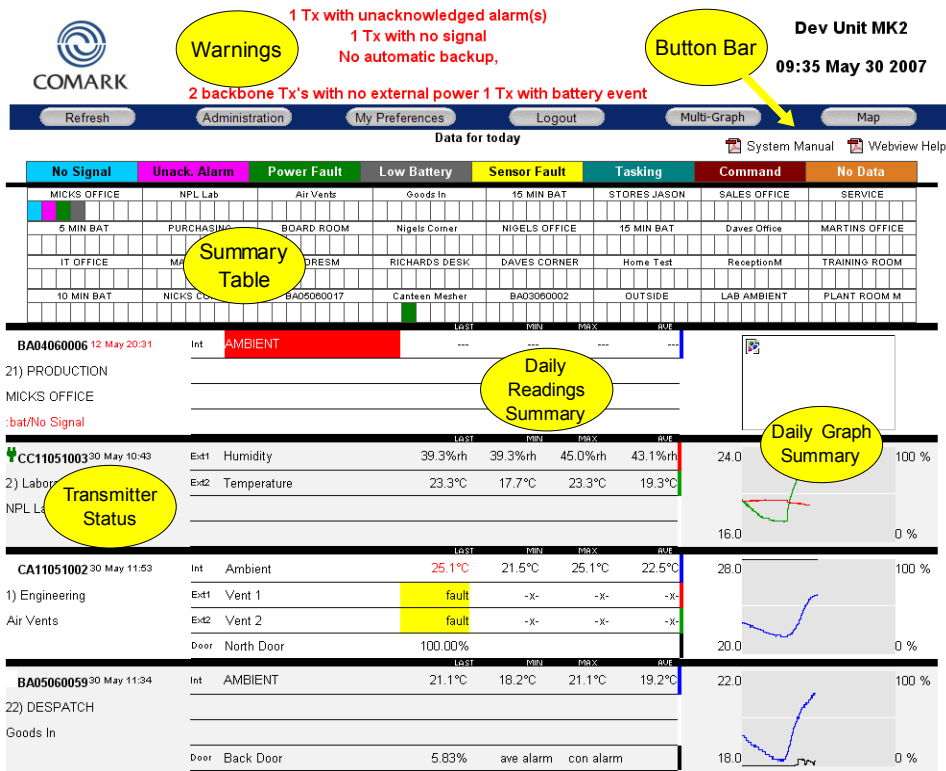


Figure 6 – Home Page

## Button Bar

This strip contains buttons which direct the user onward to other pages See [Button Bar](#) for more information.

## Warnings

This red text area shows a brief summary of alarms and faults. The user can see at a glance when the Gateway or transmitters require attention. Each possible warning is explained below.

## Summary Table

This area shows every transmitter active on the Gateway in a single table which should be totally visible without scrolling. Coloured blocks indicate various states as in the key above the grid.

## Transmitter Status

This area shows for each transmitter, the transmitter serial number, the **Task Description** the date and time of the last received record, any commands waiting to be sent to the transmitter and any detected faults for the transmitter.

## Daily Readings Summary

This area shows for each transmitter, the enabled channels with **Channel Name**. The last received record, the minimum, maximum and average readings for the current **Daily Interval**.

## Daily Graph Summary

This area shows for each transmitter, a small graph for all enabled channels over the current **Daily Interval**.

## Warnings

Each possible warning that may be displayed in the Warnings Area is explained here. Some warnings give a count of the number of transmitters to which the warning applies. The prefix [COUNT](#) is a place-holder for the number in these warnings.



[COUNT](#) *Tx's with unacknowledged alarm(s)*

[COUNT](#) *Tx's with No Signal*

*Email fault*

*No Automatic Backup*

*Manual Backup Overdue*

*Requesting Manual backup*

*Creating Backup file*

*Manual Backup file ready*

*Memory Low*

*Memory Full (no data will be saved)*

*Fault with Gateway (See Hardware Page)*

[COUNT](#) *Transmitters with Sensor Fault*

[COUNT](#) *Backbone transmitters with no external power*

[COUNT](#) *Transmitters with Battery Events*

One or more transmitters have an unacknowledged alarm. See [Alarm Acknowledge](#).

The Gateway has not received any signal from a transmitter for a long time. Usually 1 hour or 5 times the transmitter's radio rate whichever is longest.

The Gateway has failed to send an email successfully for at least 1-hour. Click the **Administration** button then the **Setup Email** button then the **Comark** button to view the error report.

The Gateway has not received a response from the RF500 Backup Server within the time period specified in the [Data Backup](#) page.

The scheduled interval for Manual Backup has passed. See the [Data Backup](#) page.

A manual backup has been requested. See the [Data Backup](#) page.

The Gateway is preparing a backup archive for later download. See the [Data Backup](#) page.

A new backup archive is ready for download. See the [Data Backup](#) page.

The Gateway data storage is greater than 80% used. For continued Gateway operation, contact Comark Instruments Technical Support at the earliest opportunity.

The Gateway data storage is full. Contact Comark Instruments Technical Support.

A Gateway fault has occurred, the [Hardware](#) Page will provide further information to aid Comark Technical Support in the diagnosis.

One or more transmitters has reported a fault with one of the channels. For example an external probe may have become disconnected.

One or more **Backbone** transmitters has detected that external power has failed. The Mains adaptor for this transmitter may have been unplugged.

One or more transmitters is reporting that its battery voltage is low. Batteries should be replaced as soon as possible, consult the RF500 System Manual for instructions and precautions for changing the battery.

## Home Page Button Bar

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**Refresh**

Click this button to manually update the Home page. See [Home Page Automatic Refresh](#) for more details.

**Administration**

Click this button to go to Administration choices.

**My Preferences**

Click this button to configure personal display preferences. See [My Preferences](#) for more details.

**Logout**

Click this button to log out. The [Login Screen](#) will be shown.

**Multi-Graph**

View a graph showing traces for multiple transmitters See [Multi-Graph](#) for more details.

**Map**

View a visual representation of **Locations** and pictures of individual transmitters. See [Map](#) for more details.

## Home Page Automatic Refresh and Daily Interval

---

The Home Page shows summaries for transmitter data over a Daily Interval. This is done because of the nature by which transmitter readings are stored, that is in separate daily files for each transmitter. The effect of this 24-hour cycle is that at midnight (00:00) the Daily Readings Summary and Daily Graph Summary are both reset. The Daily Readings Summary shows no accumulated data and the Daily Graph Summary shows a blank graph. As data is transmitted to the Gateway the Daily Readings Summary is updated and fresh information is then available for download, graphs however are redrawn every minute but only if new data exists. The traces will extend from left to right during the day as fresh data is available and fills the area at 23:59 just before being reset again at 00:00.

The Home Page, by default, will automatically refresh itself at one minute intervals so that updated summaries and redrawn graphs are always displayed.

If you are examining a particular transmitter on the Home Page, the Automatic Refresh feature can interfere with your viewing it can therefore be disabled in [My Preferences](#).

## Summary Table

A Summary Table at the top of the Home Page shows the eight most important selected status criteria for each transmitter. Each criterion is denoted by a coloured block shown in a legend at the top of the table as in the figure below. The eight statuses are described below.

Data for today								<a href="#">System Manual</a> <a href="#">Webview Help</a>	
No Signal	Unack. Alarm	Power Fault	Low Battery	Sensor Fault	Tasking	Command	No Data		
MICKS OFFICE	NPL Lab	Air Vents	Goods In	15 MIN BAT	STORES JASON	SALES OFFICE	SERVICE		

Figure 7 – Summary Table









Each transmitter is identified by its current **Task Description** so for example in the Figure below, the transmitter with the **Task Description** **MICKS OFFICE** has an unacknowledged alarm. The absence of any coloured blocks indicates either that the transmitter has no issues or that it is in a state which cannot be shown in the Summary Table, All transmitter states are shown as text entries in the transmitter Status section of the Home Page.

The Summary Table has **Hover Text** enabled, therefore when placing the mouse pointer over the **Task Description** a pop-up text box will appear after a short delay which provides extra information about that transmitter, see [Home Page Hover Text](#) for details.

The **Task Description** is also a link; Clicking on the text of **Task Description** will cause the lower section of the Home Page to jump to show the Daily Readings Summary and Daily Graph Summary for the selected transmitter.

The RF500 System Manual and Webview Help (this document) are available for download as Adobe PDF using the links at the top of the Summary Table.

### Summary Table Status and Colour Code

OK	If all is well with a transmitter all fields will be blank.
 No Signal	The Gateway has not received any signal from a transmitter for a long time. Usually 1 hour or 5 times the radio rate whichever is longest.
 Unacknowledged Alarm	This transmitter has raised as alarm <b>Event</b> which has not yet been acknowledged. See <a href="#">Alarm Acknowledge</a> .
 Power Fault	This <b>Backbone</b> transmitter has detected that external power has failed. The Mains adaptor for this transmitter may have been unplugged.
 Low Battery	The transmitter is reporting that its battery voltage is low and should be replaced as soon as possible. Please consult the RF500 System Manual for the part number of replacement battery, instructions and precautions for changing the battery and notes on disposal of the exhausted battery.
 Sensor Fault	The transmitter has reported a fault with one of the channels. For example an external probe may have become disconnected.
 Tasking	A new <b>Task</b> has been programmed for this transmitter, however it has not yet been completely sent to the transmitter. Once the transmitter starts running the new <b>Task</b> , this block will clear.
 Command	A <b>Command</b> has been sent to the transmitter, For example after performing an <a href="#">Alarm Acknowledge</a> .
 No Data	There is no data for the current <b>Task</b> this transmitter is running. This may be because it has been recently programmed or logging is not yet started.

## Transmitter Status

---

This small text area shows the following information:

- The Serial number of the transmitter and the Date and Time of the last received reading
- The transmitter's **Location**
- The **Task Description** for the transmitter's current **Task**
- The Transmitter Status, **Command Queue** and any Errors

The example opposite shows for transmitter serial number BA04060006:

- The last received reading is more than 24 hours old, indicated by the date in red.
- It is in **Location** number 21 named **PRODUCTION**.
- It has a **Task Description** of **MICKS OFFICE**.
- It has reported that the battery requires replacement and has ceased to transmit information to the Gateway.

For transmitter serial number CC11051003:

- The green plug symbol indicates that external power is connected.

### Transmitter Statuses, Command Queue and Errors



:	The transmitter has external power connected. Both <b>Backbone</b> and normal transmitters can show this symbol.
bat	A command to adjust the transmitter clock is queued. Transmitter clocks are synchronised with the Gateway at midnight each day.
qF	The transmitter has sent a battery warning. There will be more detailed information in the <a href="#">Audit Trail</a> .
qT	New <b>Firmware</b> has been programmed for this transmitter, however it has not yet been completely sent to the transmitter. Once the transmitter starts running the new firmware, this item will clear.
qC	A new <b>Task</b> has been programmed for this transmitter, however it has not yet been completely sent to the transmitter. Once the transmitter starts running the new <b>Task</b> , this item will clear.
qTr	A command unrelated to <b>Tasking</b> , <b>Firmware</b> or Clock adjustment, for example Start Logging, is queued for the transmitter.
No Signal	The Gateway is waiting to Retrieve Task and Data from a transmitter.
Removed	The Gateway has not received any signal from a transmitter for either 1 hour or 5 times the radio rate whichever is longest.
No Data	The transmitter has been removed from the Gateway.
Power Fault	The Gateway has not received any data corresponding with the current transmitter <b>Task</b> . This may be due to a recent re- <b>Tasking</b> or the transmitter has been set to Not Logging.
Task?	This <b>Backbone</b> transmitter has detected that external power has failed. The Mains adaptor for this transmitter may be unplugged.
Period?	The transmitter has reported an unknown Task, i.e. it is running a different <b>Task</b> to the one the Gateway thinks it is running. This situation can be cleared by reprogramming a new <b>Task</b> .
	The transmitter has reported an unknown <b>Period</b> . This situation can be cleared by reprogramming a new <b>Task</b> .

## Daily Readings Summary

For each transmitter and channel this summary shows the following items:

- The Channel and Channel Name.
- The Last or most up to date reading in the current [Daily Interval](#).
- The minimum and maximum readings in the current [Daily Interval](#).
- The average reading accumulated over the current [Daily Interval](#).

		LAST	MIN	MAX	AVE
<b>BA04060006</b> 12 May 20:31		---	---	---	---
21) PRODUCTION					
MICKS OFFICE					
:bat/No Signal					
		LAST	MIN	MAX	AVE
<b>CC11051003</b> 30 May 10:43					
2) Laboratory	Ext1 Humidity	39.3%rh	39.3%rh	45.0%rh	43.1%rh
	Ext2 Temperature	23.3°C	17.7°C	23.3°C	19.3°C
NPL Lab					
		LAST	MIN	MAX	AVE
<b>CA11051002</b> 30 May 11:53					
1) Engineering	Int Ambient	25.1°C	21.5°C	25.1°C	22.5°C
	Ext1 Vent 1	fault	-x-	-x-	-x-
	Ext2 Vent 2	fault	-x-	-x-	-x-
	Door North Door	100.00%			
Air Vents					
		LAST	MIN	MAX	AVE
<b>BA05060059</b> 30 May 11:34					
22) DESPATCH					
Goods In					
Door	Back Door	5.83%	ave alarm	con alarm	

Figure 8: Daily Readings Summary

When a channel has been in a high or low alarm state which is yet to be acknowledged the Channel Name is shown with a solid red or blue background respectively. In the example opposite, the Internal Channel on BA04060006 has an unacknowledged high alarm.

The Last reading shown in red or blue text indicates that the channel is currently in high or low alarm. Red indicates high alarm, blue indicates low alarm.

--- is shown where there are no data records for the current [Daily Interval](#).

-x- is shown where a Channel has been in a **Fault** condition during the current [Daily Interval](#). After the **Fault** is cleared, the next [Daily Interval](#) will show normal readings.

For the door, **ave alarm** indicates average door alarm and **con alarm** indicates continuous door alarm. See [Transmitter Tabular Data – Door Readings](#) for more detail about the percentage reading.

## Daily Graph Summary

For each transmitter this summary shows a mini graphical view of each channel's readings for the current [Daily Interval](#).

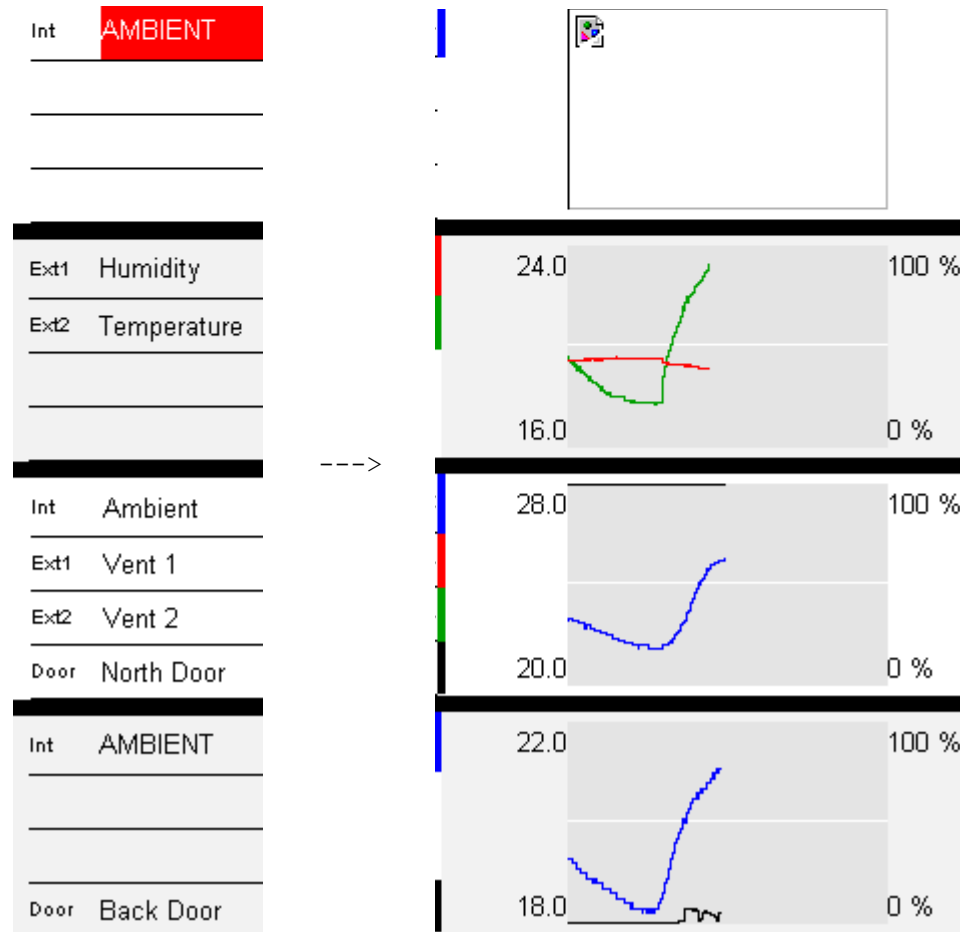


Figure 9: Daily Graph Summary

The top transmitter shows a blank graph because there is no data collected for today. I.e the period of time from midnight to the current time-of-day.

For each graph summary that shows data, the trace colours are given by the vertical bar at the right hand edge of each channel row

The right hand Y-axis shows the scale for the Door and Humidity channels.

The left hand Y-axis shows the scale for all other channels.

E.g. The third transmitter has four enabled channels.

The Int channel named "Ambient" has a blue bar which indicates it is drawn as the blue trace. It is a temperature channel so the scale is 20.0 – 28.0 °C

The Door channel named "North Door" has a black bar so is drawn as the black trace. It is a door channel so the scale is 0% - 100%

The Ext1 & Ext2 channels are not drawn because they have a **Fault** which can be seen on the [Daily Readings Summary](#) page.

## Home Page Hover Text

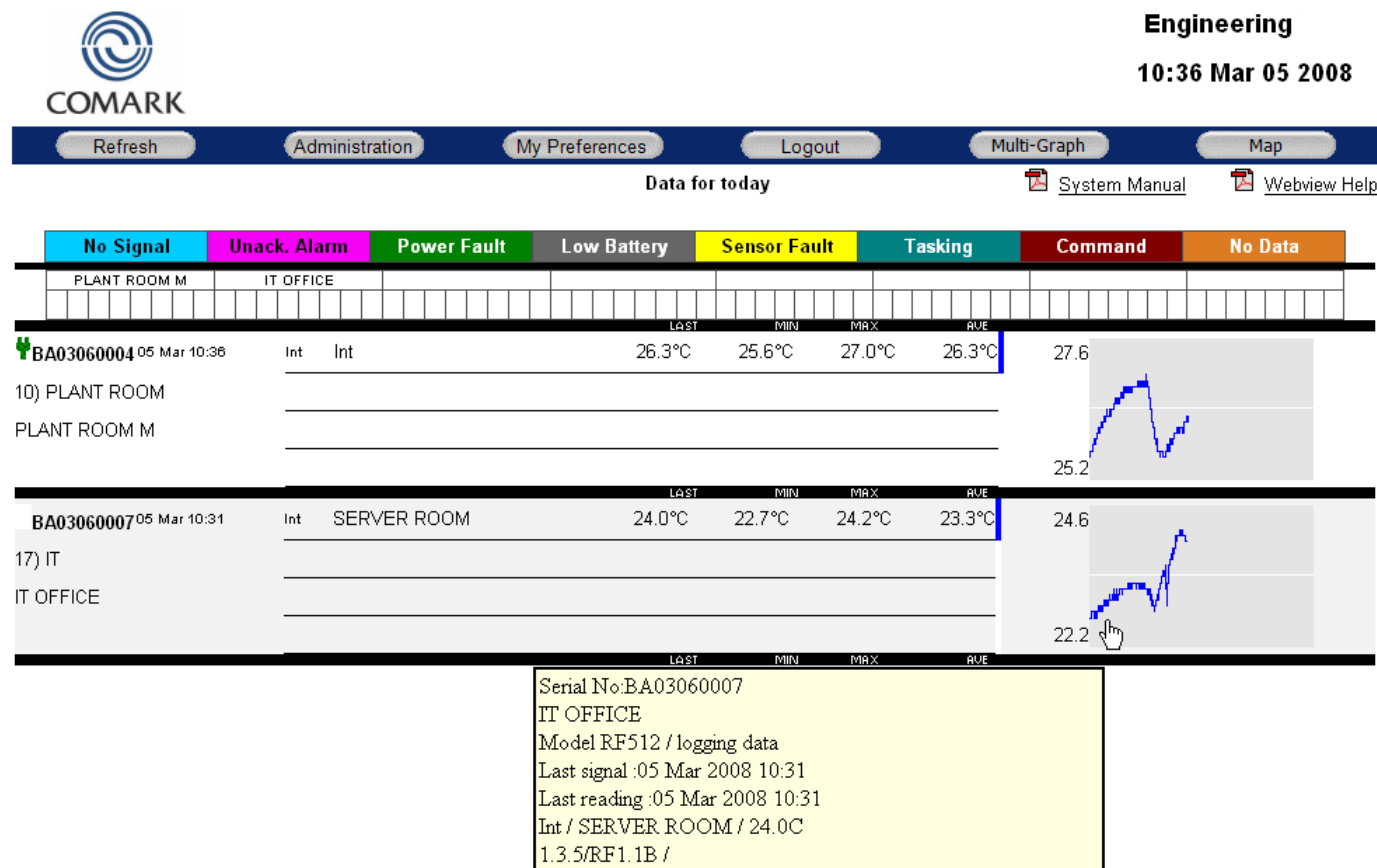


Figure 10: Home Page Hover Text


When the mouse cursor is moved over the **Daily Graph Summary** or the **Task Description** in the **Transmitter Status**, a yellow box is displayed showing the following:

- The transmitter Serial No.
- The Task Description for the transmitter
- The transmitter model and whether it is logging data or not
- The date and time of the last reading transmitted
- The date and time of the last signal from the transmitter
- The channel type, channel name and last reading for each enabled channel



# My Preferences

My Preferences allows each user to set his/her own preferences for the displayed information on the home page. Any changes made in the My Preferences page will be automatically saved as your user preferences. Every time you log in the Gateway, your personal preferences will take effect.



COMARK

BackOK

☒ Enable Graph Preview

☒ Enable Auto Refresh

Model Type

☒ RF512 models

☒ RF516 models

☒ RF513 models

Filter

☒ Show all

☐ With unacknowledged alarm

☐ With a task

☐ With power event

☒ List all locations

☐ Show removed

☐ With Data

☐ With no task

☐ With a sensor fault

☐ Following locations only

☐ Show backbone units

☐ With no data

☐ With no signal

☒ 1) Rear Car Park

☐ 5) Nigels Emulator

☐ 9) Andys Desk

☐ 13) loc 13

☐ 17) IT

☐ 21) PRODUCTION

☐ 25) SALES

☐ 29) SURVEY NODES

☐ 2) loc 2

☐ 6) PRT UNITS

☐ 10) PLANT ROOM

☐ 14) Comark INC

☐ 18) MARKETING

☐ 22) DESPATCH

☐ 26) SERVICE

☐ 30) UKAS LAB ONLY

☐ 3) Show Tx

☐ 7) Nigels RH

☐ 15) QC

☐ 19) ACCOUNTS

☐ 23) PHILS OFFICE

☐ 27) COLD TEST

☐ 31) location 31

☐ 4) loc 4

☐ 8) ROOF

☐ 12) DaveG tests

☐ 16) RECEPTION

☐ 20) MD

☐ 24) STORES

☐ 28) Pauls Testing

☐ 32) UKAS LAB

Figure 11 – My Preferences

Enable Graph Preview

Shows the [Daily Graph Summary](#) on the Home Page.

Enable Auto Refresh

See [Home Page Automatic Refresh](#).

Model Type


Allows only the selected transmitter models to be included in the Home Page view.

Filter

These radio buttons cause only transmitters with the selected attribute to be included in the Home Page view. Only one attribute may be selected.

Locations

When the **Following locations only** button is selected, only transmitters in each ticked **Location** are included in the Home Page view. Any Restricted Locations are greyed out.



When the settings in My Preferences cause the Home Page to exclude any active transmitters from view, a warning message will be displayed on the Home Page.

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## Transmitter Graph Page

By clicking on either the [Daily Graph Summary](#) or the [Task Description](#) in the [Transmitter Status](#), a graph view of the transmitter data is shown. This page is the main means of changing transmitter settings and viewing current or historic data.

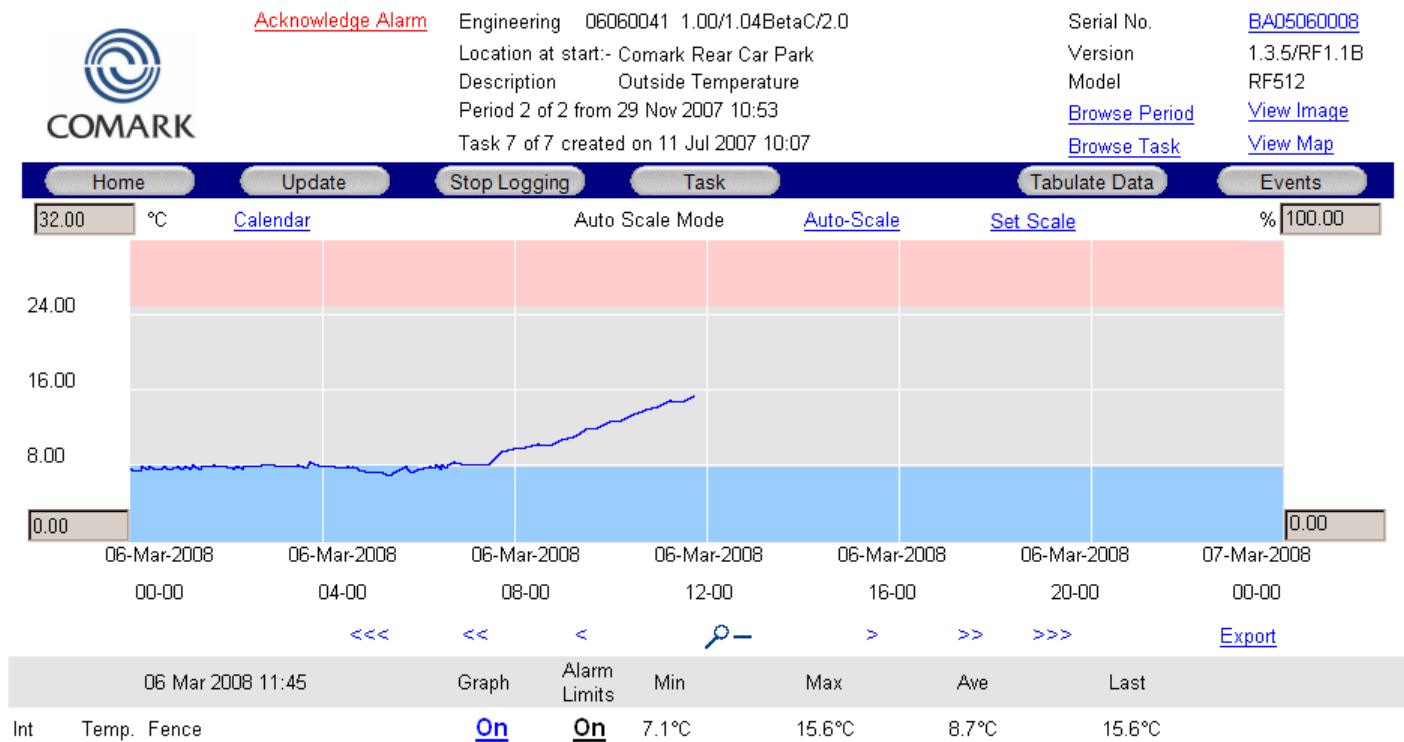



Figure 12 – Transmitter Graph Page

This is one of the most functional pages produced by the Gateway, These functions will be grouped by similarity and described below.

## Transmitter Graph – Important Notifications

---

<a href="#">Acknowledge Alarm</a>	Acknowledge the unacknowledged alarms for this transmitter. See <a href="#">Alarm Acknowledge</a> .
Unit in Alarm	There is an unacknowledged alarm, but the User does not have permission to acknowledge alarms .
Historic Data	Data from a previous <b>Task</b> or <b>Period</b> is being displayed.
External Power Fault	This as <b>Backbone</b> transmitter has detected that external power has failed. The Mains adaptor for this transmitter may be unplugged.
Low battery / Dead battery	The transmitter has sent a battery warning. There will be more detailed information in the <a href="#">Audit Trail</a> .
	The transmitter has external power connected. Both <b>Backbone</b> and normal transmitters can show this symbol.
Sensor Fault	The transmitter has reported a fault with one of the channels. For example an external probe may have become disconnected.
No Signal	The Gateway has not received any signal from a transmitter for either 1 hour or 5 times the radio rate whichever is longest.
Sign Data	This data can be signed. See <a href="#">Signing Data</a> .
Data not Signed	This data is not signed but the User does not have permission to sign data. See <a href="#">Signing Data</a> .

## Transmitter Graph – Data View Info

---

Gateway Details	The Gateway Name, Serial No. and Software Revision.
Location at Start	The transmitter <b>Location</b> at the start of the <b>Task</b> being viewed. The current Location is given if different.
Description	The <b>Task Description</b> of the <b>Task</b> being viewed.
Period	The <b>Period</b> No. of the <b>Task</b> being viewed. <b>From</b> indicates the time stamp of the first data point.
Task	The <b>Task Description</b> of the <b>Task</b> being viewed.
Serial No.	The Serial Number of the transmitter. Eg. <a href="#">BA05080008</a> , this is also a link to the <a href="#">Transmitter Properties</a> page.
Version	The <b>Firmware</b> release of the transmitter/radio module respectively.
Model	The model code of the transmitter.
<a href="#">Browse Period</a>	Choose a <b>Period</b> to view from a list of historical <b>Periods</b> for the <b>Task</b> selected, (if any available).
<a href="#">Browse Task</a>	Choose a <b>Task</b> to view from a list of historical tasks for the transmitter, (if any available).
<a href="#">View Image</a>	View the Image of the transmitter (if programmed). See <a href="#">Transmitter Images</a> .
<a href="#">View Map</a>	View the Map for the transmitter's <b>Location</b> (if programmed). See <a href="#">Map</a> .

## Transmitter Graph - Button Bar

---

<b>Home</b>	Return to the <a href="#">Gateway Home Page</a> .
<b>Update</b>	Refreshes the display with the latest information. (Useful for seeing live data).
<b>Start/Stop Logging</b>	This button shows either <b>Start Logging</b> or <b>Stop Logging</b> depending on whether the transmitter is currently logging or not. See <a href="#">Start / Stop Logging</a> .
<b>Task</b>	View the <b>Task</b> associated with the displayed data. A new <b>Task</b> can be created from this page. See <a href="#">Transmitter Task</a> .
<b>Tabulate Data</b>	View data records in tabular format. See <a href="#">Transmitter Tabular Data Page</a> .
<b>Events</b>	View <b>Events</b> for the first day in the interval over which data is graphed. See <a href="#">Transmitter Events Page</a> .

## Transmitter Graph – Graph Scaling


---

The default graph view is with **Auto Scale Mode** enabled, this adjusts the Y-Axis maximum and minimum values so that traces are shown unclipped. By editing the maximum or minimum Y-Axis values (in the example above; 0.00 or 32.00 for temperature and 0.00% or 100.00%) then clicking [Set Scale](#) the graph enters **User Set Scale Mode** allowing a section of the graph to be view with greater resolution. The graph remains in **User Set Scale Mode** however selecting a new **Period** or **Task** is selected or using the [Calendar](#) function will revert the graph to **Auto Scale Mode**.

## Transmitter Graph – Graph Navigation

---

The default graph view interval has the X-Axis showing data for today starting from midnight See [Daily Interval](#). The following controls allow this interval to be changed to examine any areas of interest.

<a href="#">Calendar</a>	View the <a href="#">Calendar</a> for this transmitter. Allows jumping directly to a particular day.
<a href="#">Graph Zoom</a>	The graph is divided into 6 or 8 sections, click on any section of the graph to zoom in. This also changes the current view interval. The maximum zoom is an view interval of 1 hour.
<a href="#">&lt;&lt;&lt;</a>	Available at view interval of 1 day or greater. Go back 28 days or to earliest <b>Period</b> date.
<a href="#">&lt;&lt;</a>	Available at view interval of 1 day or greater. Go back 7 days or to earliest <b>Period</b> date.
<a href="#">≤</a>	Go back by the current view interval or 1 day whichever is smallest.
	Unzooms the graph one view interval.
<a href="#">≥</a>	Go forward by the current view interval or 1 day whichever is smallest.
<a href="#">&gt;&gt;</a>	Available at view interval of 1 day or greater. Go forward 7 days or to latest <b>Period</b> date.
<a href="#">&gt;&gt;&gt;</a>	Available at view interval of 1 day or greater. Go forward 28 days or to latest <b>Period</b> date.

## Transmitter Graph – Reading Statistics Minimum Maximum Average

---

The area under the grey bar at the bottom of the [Transmitter Graph Page](#) shows, Minimum Maximum and Average readings for each channel calculated over the current view interval from the graph.

The **Last** reading received for this transmitter is also shown although the associated date and time is rather displaced from the reading.

## Transmitter Graph – Graphical Alarm Limits

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Graph [On / Off](#)

For each enabled channel, the graph trace can be toggled on and off.

Alarm Limits [On / Off](#)

For each enabled channel, the display of alarm limits can be enabled or disabled. Alarm limits for multiple channels however cannot be displayed. Note that **User Set Scale Mode** could cause the alarm limits not to be displayable.

## Transmitter Graph – Export

---

[Export](#)

Allows the user to download a file in Comma Separated Values (CSV) format which contains exported data between the dates as defined by the current view interval from the graph. This file can be opened directly by Microsoft Excel, Open Office and many other spreadsheet programs.

## Transmitter Tabular Data Page

The table is generated in reverse order with the most recent data records at the top of the page. This means that after clicking **Update** no scrolling is necessary to see the most up-to-date records.


		<a href="#">Acknowledge Alarm</a>	Engineering 06060041 1.00/1.04BetaC/2.0 Location at start:- Comark Rear Car Park Description Outside Temperature Period 2 of 2 from 29 Nov 2007 10:53 Task 7 of 7 created on 11 Jul 2007 10:07	Serial No. <a href="#">BA05060008</a> Version 1.3.5/RF1.1B Model RF512 <a href="#">Browse Period</a> <a href="#">View Image</a> <a href="#">Browse Task</a> <a href="#">View Map</a>
<div> <a href="#">Home</a> <a href="#">Update</a> <a href="#">Stop Logging</a> <a href="#">Task</a> <a href="#">Graph</a> <a href="#">Events</a> </div>				
<div> <a href="#">&lt;&lt;&lt;</a> <a href="#">&lt;&lt;</a> <a href="#">&lt;</a> <a href="#">Calendar</a> <a href="#">&gt;</a> <a href="#">&gt;&gt;</a> <a href="#">&gt;&gt;&gt;</a> </div>				
Date / Time	Fence		Gate	
	Int / PST		Door	
02 Dec 2007 23:45	8.7 °C		60 (100.00%)	
02 Dec 2007 23:30	8.5 °C		60 (100.00%)	
02 Dec 2007 23:15	8.3 °C		60 (100.00%)	
02 Dec 2007 23:00	8.2 °C		60 (100.00%)	
02 Dec 2007 22:45	8.1 °C		60 (100.00%)	
02 Dec 2007 22:40	8.2 °C		60 (100.00%)	
02 Dec 2007 22:38	*7.8 °C		60 (100.00%)	
02 Dec 2007 22:31	7.9 °C		56 (94.17%)	
02 Dec 2007 22:30	8.0 °C		55 (92.50%)	
02 Dec 2007 22:27	8.0 °C		52 (87.50%)	
02 Dec 2007 22:25	*7.8 °C		50 (84.17%)	
02 Dec 2007 22:17	7.9 °C		42 (70.83%)	
02 Dec 2007 22:15	8.1 °C		40 (67.50%)	
02 Dec 2007 22:14	8.0 °C		39 (65.83%)	
02 Dec 2007 22:12	*7.5 °C		37 (62.50%)	
02 Dec 2007 22:02	7.9 °C		27 (45.83%)	
02 Dec 2007 22:01	8.0 °C		26 (44.17%)	
02 Dec 2007 22:00	7.8 °C		25 (42.50%)	
02 Dec 2007 21:59	*7.5 °C		24 (40.83%)	
02 Dec 2007 21:48	7.8 °C		13 (22.50%)	
02 Dec 2007 21:45	7.5 °C		10 (17.50%)	
02 Dec 2007 21:38	7.9 °C		3 (5.83%)	
02 Dec 2007 21:35	8.1 °C		0 (0.83%)	

Figure 13 – Transmitter Tabular Data Page



The top section of the [Transmitter Tabular Data Page](#) is identical to the top section of the [Transmitter Graph Page](#) the following sections show any differences:

[Transmitter Graph – Important Notifications](#)

This section on the [Transmitter Graph Page](#) is identical.

[Transmitter Graph – Data View Info](#)

This section on the [Transmitter Graph Page](#) is identical.

[Transmitter Graph - Button Bar](#)

The button bar on the [Transmitter Tabular Data Page](#) removes the **Tabulate Data** button and instead shows a **Graph** button which returns back to the [Transmitter Graph Page](#).

The table shows records for one day only; the date to show is taken from the first data point on the graph in the preceding [Transmitter Graph Page](#) and of course a new date can be selected through the [Calendar](#) function.

## Transmitter Tabular Data - Record Colouring

---

Black Text	Normal reading not in alarm.
Blue Text	Reading below the low alarm limit, but channel not in alarm.
White Text–Blue Background	Channel in low alarm.
Red Text	Reading above the high alarm limit, but channel not in alarm.
White Text–Red Background	Channel in high alarm.
Asterisk by Reading	This record is the Maximum or Minimum reading detected during an out-of-limit condition.

The yellow boxes in the figure above are display examples of the following error conditions:

- Channel fault
- Channel reading Over Range
- Channel reading Under Range

## Transmitter Tabular Data – Door Readings


---

The tabular data shown above represents a door being opened a few seconds before 21:35 and remaining open for more than 60 minutes. The readings reported for the door channel are given as two values:

- *The first number is the cumulative number of minutes that the door has been open throughout the averaging interval, which in this example, is the preceding 60 minutes.*
- *The value in parentheses is the cumulative number of minutes that the door has been open throughout the averaging interval given as a percentage of the averaging interval.*



## Transmitter Events Page



[Acknowledge Alarm](#)  
 Engineering 06060041 1.00/1.04BetaC/2.0  
 Location at start:- Comark Rear Car Park  
 Description Outside Temperature  
 Period 2 of 2 from 29 Nov 2007 10:53  
 Task 7 of 7 created on 11 Jul 2007 10:07

Serial No. [BA05060008](#)  
 Version 1.3.5/RF1.1B  
 Model RF512  
[Browse Period](#) [View Image](#)  
[Browse Task](#) [View Map](#)

Home
Update
Stop Logging
Task
Graph
Tabulate Data

[Calendar](#)

02 Dec 2007 22:14	Fence	Int	PST	gone out of lo alarm, min reading of 7.5°C duration= 0D 0H 12M
02 Dec 2007 22:12	Fence	Int	PST	gone into lo alarm
02 Dec 2007 22:01	Fence	Int	PST	gone out of lo alarm, min reading of 7.5°C duration= 0D 0H 23M
02 Dec 2007 21:48	Fence	Int	PST	gone into lo alarm
02 Dec 2007 21:35	Fence	Int	PST	gone out of lo alarm, min reading of 6.6°C duration= 0D 4H 49M
02 Dec 2007 16:56	Fence	Int	PST	gone into lo alarm
02 Dec 2007 07:27	Fence	Int	PST	gone out of lo alarm, min reading of 4.4°C duration= 0D 16H 40M

**Figure 14 – Transmitter Events Page**

The top section of the [Transmitter Events Page](#) page is identical to the top section of the [Transmitter Graph Page](#) the following sections show any differences:

[Transmitter Graph – Important Notifications](#)

This section on the [Transmitter Graph Page](#) is identical.

[Transmitter Graph – Data View Info](#)

This section on the [Transmitter Graph Page](#) is identical.

[Transmitter Graph - Button Bar](#)

The button bar on the [Transmitter Events Page](#) page removes the **Events** button and instead shows a **Graph** button which returns back to the [Transmitter Graph Page](#).

The table shows transmitter **Event** records for one day only; the date to show is taken from the first data point on the graph in the preceding [Transmitter Graph Page](#) and of course a new date can be selected through the [Calendar](#) function.



## Transmitter Task

Data cannot be collected from a transmitter until a **Task** has been programmed. To create a new Task, click the **Task** button on the [Transmitter Graph - Button Bar](#), the Transmitter Task page will appear.

RF512 Task, for sno. BA05060008 in location 25 'QC'

Back Copy Other Task Use Alarm Zones Program Task

Password required for any changes

Description BA05060008 Data Logging Rate 10 Minutes

Temperature Scale ☒ C ☐ F

Wait for manual start ☐ Use Lethality ☐ DH (kJ/mol) 10.0 T ref 20.0 z 30.0

	Channel Name	Enable Ch	Enable Alarm	Alarm Delay (Minutes)	Lo Alarm	Hi Alarm
Int	Internal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	20.0	25.0
Ext 1	External 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	0.0	50.0
Ext 2	External 2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	65	0.0	50.0
Door	Door Switch	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			

Alarm if door is continuously open for more than 3 minutes.

Alarm if door is open for an average of 10 minutes in a period of 60 minutes.

Figure 15 – Task Setup

### Description

Up to 16 characters available to describe transmitter, e.g. transmitter **Location**.

### Enable Ch

Enable or disable individual channels.

### Enable Alarm

Enable alarm limits for individual channels.

### Channel Name

Text box to identify each channel. (Up to 23 characters available)

### Use Lethality/mkt

See [Mean Kinetic Temperature and Lethality](#).

### Temperature Scale

Choose °C or °F as required.

### Humidity Scale

Choose %rh or dewpoint as required.

### Log rate

Selection of log rate - available log rates: 1, 2, 3, 5, 10, 15, 20, 30, 60 minutes.  
**NB** log rate of less than 15 minutes will reduce battery life.

### Wait for Manual Start

If this box is ticked then the transmitter will not automatically start logging and must be started manually See [Start / Stop Logging](#).

### Alarm Delay

Set alarm time delay, e.g. for defrost cycle.

## Transmitter Task – Button Bar

### Copy Other Task

Link to copy **Tasks** from other transmitters of same model for quick programming.

### Use Alarm Zones

See [Dynamic Alarms](#).

### Program Task

Enter your password and click to send new **Task** to transmitter.

## Transmitter Task – Tasking

Once the **Program Task** button is clicked, the [Daily Readings Summary](#) on the [Gateway Home Page](#) will indicate **No Data** and **qT** to indicate **Tasking**. It can take several minutes for the **Task** to be sent to the transmitter because the Gateway must first wait for the transmitter to contact it.

## Transmitter Task – RF515

The **Task** page for RF515 deserves special mention because it is very different from other transmitters, in that this page caters for both regular task setup and also configuration of scale mapping between analog units and engineering units of the sensor.

**RF515 Task, for serial No. BM12080319 in location 1, 'Engineering'**

Back Copy Other Task Use Alarm Zones Program Task

Password required: ●●●●●

Description: Lab Environment Data Logging Rate: 15 Minutes Wait for manual start: ☐

	Channel Name	Enable Ch	Enable Alarm	Alarm Delay (Minutes)	Lo Alarm	Hi Alarm
Ext 1	Humidity	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	15	5.0	95.0
	Sensor Type: 4mA to 20mA					
	Units: %rh					
	Decimal Places: 1					
	Display: 4.000 as 0.0					
	Display: 20.000 as 100.0					
Ext 2	Temperature	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10	3.00	45.00
	Sensor Type: 0V to 10V					
	Units: C					
	Decimal Places: 2					
	Display: 0.000 as -20.00					
	Display: 10.000 as 110.00					

**Figure 16 – Task Setup for RF515**

Decimal Places	Range
0	±32000
1	±3200.0
2	±320.00
3	±32.000
4	±3.2000
5	±0.32000

### Sensor Type

Select the option to match the sensor output  
 0V to 1V  
 0V to 10V  
 4mA to 20mA

### Units

Engineering units for sensor.(Up to 8 characters available)

### Decimal Places

The number of decimal places required for engineering units.(0 to 5)

### Display xxxxx as yyyy

These 2 sets of numbers define the scale mapping between measured units (V or mA) and sensor units. The example for Ext1 shows 4-20mA mapping to 0-100%rh

### Lo Alarm & Hi Alarm

Alarm limits are entered using engineering units for the sensor.

The allowable range of values for **yyyy** in the **Display xxxxx as yyyy** field and also in **Lo Alarm & Hi Alarm** depends on the number of decimal places selected. See the table below.

## Transmitter Alarms

The graph below shows a temperature profile for a transmitter tasked for 15 minutes log rate, the High Alarm at 5.0 and Low Alarm at 1.0, and 5 minute alarm delay.

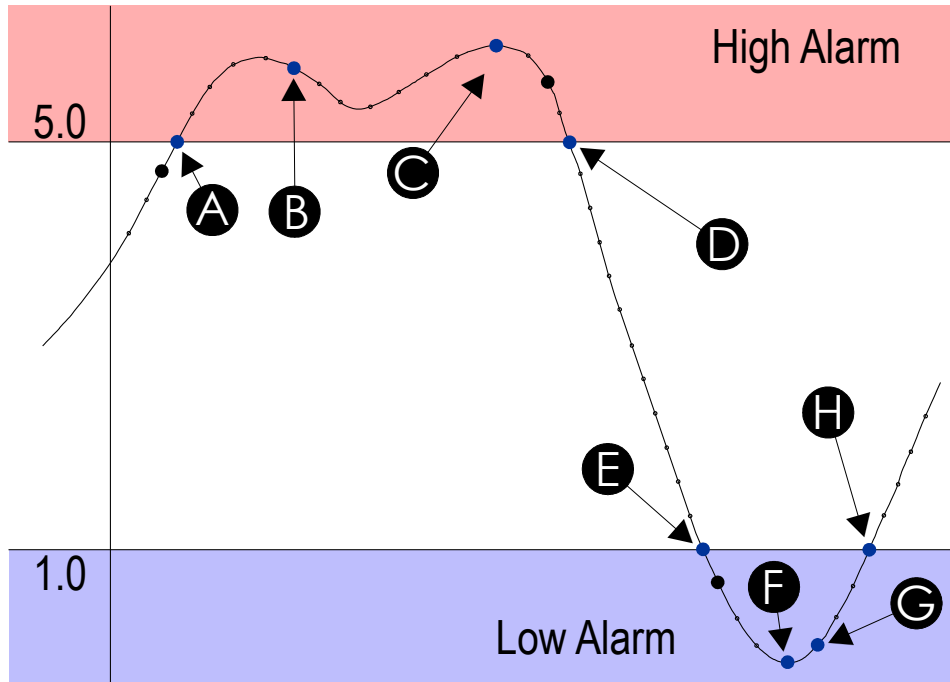


Figure 17 – Transmitter Alarms

The curve indicates the actual temperature being sampled by RF500.

The small dots indicate the sampling at 1 minute intervals.

The large black dots indicate readings logged at 15 minute (log rate) intervals.

When the temperature goes out-of-limit, extra records are logged as indicated by the blue dots as follows:

- A The record logged as the temperature goes out-of-limit (high)
- B The record logged because the temperature has remained out-of-limit throughout the alarm delay.
- C The maximum temperature reached for the out-of-limit period.
- D The record logged as the temperature again becomes within limits.
- E The record logged as the temperature goes out-of-limit (low)
- F The minimum temperature reached for the out-of-limit period.
- G The record logged because the temperature has remained out-of-limit throughout the alarm delay.
- H The record logged as the temperature again becomes within limits.

Points B and G correspond to data records which generate alarm **Events**. They cause the transmitter to have an unacknowledged alarm which in turn generates alerts according to the Location in which the transmitter is placed. These alarm **Event** records are shown as entries in the [Transmitter Events Page](#) and in the [Audit Trail](#).

## Door Alarms

---

RF500 includes two types of Door Alarm:

Continuous Door Alarm      Alarm on Door continuously open for a period of more than X minutes.

Average Door Alarm      Alarm on Door open for more than X minutes cumulatively in a given period of up to 60 minutes. This alarm captures many individual shorter door open times that may fail to trigger a continuous door alarm but are nonetheless still important.



Both continuous and average door alarms are enabled or disabled together, therefore if the average door alarm is not required, setting the average limit equal to the average period causes the average alarm never to occur because the limit can not be exceeded.



Whenever a continuous door alarm is triggered an **Event** only is generated, tabular data will not be coloured to indicate the alarm. .

Date / Time	Fence	Gate
01 Jul 2010 08:07	25.7 °C	12 (32.19%)

A representation of tabular data shown above shows a typical reading. The readings reported for the door channel are given as two values:

- *The first number is the cumulative number of minutes that the door has been open throughout the averaging interval, which in this example, is the preceding 60 minutes.*
- *The value in parentheses is the cumulative number of minutes that the door has been open throughout the averaging interval given as a percentage of the averaging interval.*

The percentage gives a measure of how much time a door actually spends opened which could represent a problem in a real world application. Consider the following scenario:

*A door to a laboratory is monitored using RF500 and the continuous alarm is set to 20 minutes to capture a “door left open” event. If that door is opened then closed after 19 minutes have elapsed, then immediately opened again for 19 minutes then closed, the continuous alarm event would not have been generated; however that door has effectively been open for 38 minutes during the previous 40 minutes or so. With an averaging interval of 60 minutes the RF500 system would report a door reading of approximately 63% or with an averaging interval of 40 minutes a door reading of close to 100% would be reported. It may be the case that this high level of “door open” condition may cause environmental controls to be overloaded.*



## Dynamic Alarms

Dynamic alarms allow the transmitter to vary the alarm limits or indeed disable alarms for each 30 minute timeslot throughout a 7-day period. Typical uses for this feature include cycling incubators which cycle between temperatures and chillers which are only active for certain times during the week.

From the [Task Setup](#) page, click the **Use Alarm Zones** button to activate this function. The fixed alarm limits for each channel are replaced by **Dynamic Times** buttons. For each enabled channel, click the **Dynamic Times** button to configure the alarm limits for each timeslot of the 7-day period.

**Dynamic Alarm Setup for CA07060243, channel Int**

OK

slot	Hi	Lo	Set All
	OFF		
	5.0	0.0	
	-18.0	-30.0	
	20.0	40.0	
	40.0	60.0	

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
M																								
T																								
W																								
T																								
F																								
S																								
S																								

**Figure 18 – Dynamic Alarm Setup**

Each cell represents the alarm limits for a 30 minute timeslot the first beginning at midnight 00:00 and the last beginning at 23:30. Enter up to four sets or zones of alarm limits as required. To allocate an alarm zone to each cell first click the *Slot* coloured block to the left of the alarm zone then click the cell to allocate to the selected zone. The area above the *M* representing Monday, shows which alarm zone has been selected.

(In the Figure above the 20.0 to 40.0 zone has been selected and the cell for Tuesday 12:30 is about to be clicked yellow.)

To quickly set the entire grid to one alarm zone click the *Set All* colour to the right of the chosen alarm zone.

When done click the **OK** button on the button bar.

### Dynamic Alarms for Door Switch

Setup of dynamic alarms for Door Switches is as per temperature or RH channels except only the average alarm limit for Door can be changed dynamically, the continuous alarm limit remains in effect at all times.

## Mean Kinetic Temperature and Lethality

### Mean Kinetic Temperature Background

*Good warehousing and distribution practice requires that warehouse temperatures are monitored and controlled and that appropriate actions are taken if temperatures exceed the specified storage conditions. Those actions are based on the calculation of the mean kinetic temperature as a verification of exceeded storage conditions.*

The International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH) stability testing guidelines define mean kinetic temperature (MKT) as 'a single derived temperature which, if maintained over a defined period, would afford the same thermal challenge to a pharmaceutical product as would have been experienced over a range of both higher and lower temperatures for an equivalent defined period'.

In other words, MKT is a calculated, fixed temperature that simulates the effects of temperature variations over a period of time. It expresses the cumulative thermal stress experienced by a product at varying temperatures during storage and distribution. Mean kinetic temperature refers to a datum, which can be calculated from a series of temperatures. It differs from other means (such as a simple numerical average or arithmetic mean) in that higher temperatures are given greater weight in computing the average. This weighting is determined by a geometric transformation, the natural logarithm of the temperature number. Disproportionate weighting of higher temperature in a temperature series according to the MKT recognises the accelerated rate of thermal degradation of materials at these higher temperatures. MKT accommodates this non-linear effect of temperature.

The formula for MKT is:  $TK[K] = (-DH / R) / \ln \{ (SUM (\exp (-DH / (R * T_n)))) / n \}$  where  $DH$  is the activation energy,  $R$  is the universal gas constant (0.0083144 kJ/molK),  $T$  is the temperature in degrees K,  $n$  is the total number of (equal) time periods over which data are collected,  $\ln$  is the natural log and  $\exp$  is the natural log base.  $SUM$  is the mathematical function of building up a total over  $n$  time periods, starting with time period 1.

The practical application of the equation is less complex than it first appears. For a huge range of pharmaceuticals  $DH$  is within the range of 42 - 125 kJ/mol. In cases where an exact knowledge of the activation energy is important, it is possible to determine this factor with the help of a differential scanning calorimetry (DSC) analysis.  $T_1$  is the average temperature recorded over the first time period and  $T_n$  is the average temperature recorded over the  $n$ th time period.

As an example of how the MKT calculation will affect an expressed mean for a calculation (important for the long term storage of critical drugs and chemicals), here is an illustration. If the temperature is constant for a period of time, but is 'out of spec' for some moments of time, there will be a difference in the calculated arithmetic mean (the sum of all of the measurements divided by the number of measurements - a simple mean) and the kinetic mean.

**Mean kinetic temperature:** value = 9.4°C

**Arithmetic mean temperature:** value = 6.3°C

Conclusion: Depending on temperature conditions the effect may be dramatic, it is clear that the MKT method weights the higher temperatures in a series more than the lower temperatures.

This is a more appropriate way of calculating an overall thermal effect because of the acceleration of thermally driven processes of degradation at higher temperatures.

For ageing a secondary calculation is used to determine the shelf life reduction due to incorrect storage conditions of a drug substance or drug product. The formula for this calculation is based on the Arrhenius2 life-stress model. This is not included on RF500.

Example: Due to the incorrect treatment during the unloading of a pharmaceutical product, its shelf life has been dramatically reduced from ten days down to 4.3 days.

## Lethality

---

Lethality equivalent time is calculated using the formula:

$$\text{LET} = (\text{SUM}(10^{((\text{Tn}-\text{Tref})/Z)})) * \text{Tinc}$$

**Tn** is a temperature reading in Celcius

**Tref** is the reference temperature in Celcius

**z** is a constant just known as the 'Z value'

**Tinc** is the reading time increment in seconds

**Tref** and **z** are entered on task setup form.

Standard lethality (Fo) uses **Tref** = 121.1°C and Z = 10

If the channel does not read in temperature then the result will be shown as 'N/A'.

## Alarm Acknowledge

When any transmitter channel with enabled alarms goes into alarm the transmitter is said to have an unacknowledged alarm. See [Transmitter Alarms](#).

Unacknowledged alarms are identified on the [Gateway Home Page](#) in two ways:

- 1) A message such as *1 Tx with unacknowledged alarm* will appear in the warnings area.
- 2) As a colour coded block in the [Summary Table](#).
- 3) The channel name is shown with a solid red or blue background in the [Daily Readings Summary](#).

To acknowledge an alarm, navigate to the [Transmitter Graph Page](#), [Transmitter Tabular Data Page](#) or [Transmitter Events Page](#). Click on [Acknowledge Alarm](#) at the top of the page to bring up the alarm acknowledgement page.

**Acknowledge Alarm for BA05060050**

Password required

Note down any action taken below. Alphanumeric characters only, 100 characters max

To view alarms cancel and select 'Events' / 'Calendar'

**The following periods have unacknowledged alarms**

**Period 1**

**Figure 19 – Alarm Acknowledge Page**

The action of Alarm Acknowledge is recorded in the Audit Trail.

All unacknowledged alarms for all channels across all **Periods** are acknowledged together in one operation. You are advised to use the **Events Calendar** to view the alarm **Events** that will be acknowledged by this operation. There could be many.

There will be a text box where the reason(s) for the alarm can be entered, along with all actions taken. When you have typed your reason ensure you have entered your password before selecting the **Acknowledge Alarm** button.



## Start / Stop Logging

When programming a transmitter **Task** using the [Task Setup](#) page, there is a **Wait for Manual Start** option. If this box is ticked then the transmitter will not automatically start logging when the Task programmed but must be started manually using the **Start Logging** button on the [Transmitter Graph Page](#), the [Transmitter Tabular Data Page](#) or the [Transmitter Events Page](#).

The **Stop Logging** button can be used at any time to suspend the monitoring activity of transmitters to prevent false alarms, for example, due to equipment maintenance. Logging can also be resumed at any time.

The function of the **Start/Stop Logging** button changes depending on the current logging status of the transmitter:

<b>Start Logging</b>	The transmitter is not currently logging and can be started.
<b>Stop Logging</b>	The transmitter is currently logging and can be suspended.

Each separate session of monitoring created by use of the **Start/Stop Logging** button will create a new **Period**.

## Locations

RF500 Locations are simply a logical or administrative grouping of transmitters for the purpose of filtering and directing alerts. These Locations may correspond to the physical siting of transmitters but more usually group transmitters monitoring equipment or environments “owned” by an individual person or department.

A transmitter must be allocated to a single Location, but it can be changed at any time without reprogramming its **Task**.

The RF500 Gateway provides 32 Locations which can be individually named to aid recognition.

The administration of Locations can only be performed by an **Administrator**. From the [Gateway Home Page](#) click the **Administration** button then the **Locations List** button. A grid of the 32 Locations is displayed. Click the name of the Location to be configured. The Edit Location page is shown.

**Setup for Location no. 11**

Back
Save

Your password is required for this change

Location Name (16 characters max)

Enable switch op1 on alarm ☐

Enable switch op2 on alarm ☐

Enable LED on alarm ☐

Enable internal speaker on alarm ☐

Enable Emails/SMS on alarm ☒

Enable Emails/SMS on alarm clear ☐

Enable Emails/SMS on transmitter fault ☐

Enable Emails/SMS on battery / mains power event ☒

Enable Emails/SMS on no signal ☐

Email to:

<input checked="" type="checkbox"/> 1) Nick	<input checked="" type="checkbox"/> 2) Nigel	<input checked="" type="checkbox"/> 3) Paul
<input type="checkbox"/> 4) Andy	<input type="checkbox"/> 5) dave	<input type="checkbox"/> 6) pete
<input type="checkbox"/> 7) dave f	<input type="checkbox"/> 8) dave f2	<input type="checkbox"/> 9) Nigel@Home
<input type="checkbox"/> 10)	<input type="checkbox"/> 11)	<input type="checkbox"/> 12)

**Figure 20 – Edit Location**

**Back**

Return to the Locations List page. Any unsaved changes will be lost.

**Save**

Save changes and return to the Locations List.

**Location Name**

A name to identify the Location

**Enable switch op1...**

Switch OP1 activates on alarm. See [Hardware](#).

**Enable switch op2...**

Switch OP2 activates on alarm. See [Hardware](#).

**Enable LED on alarm**

The Gateway Alarm LED flashes on alarm.

**Enable speaker on alarm**

The Gateway speaker beeps on alarm.

**Emails/SMS on alarm**

The Gateway generates an alert on transmitter alarm for the enabled recipients.

**Emails/SMS on alarm clear**

The Gateway generates an alert on clearing of transmitter alarm for the enabled recipients.

**Emails/SMS on transmitter fault**

The Gateway generates an alert on alarm for the enabled recipients.

**Emails/SMS on battery /mains power event**

The Gateway generates an alert on alarm for the enabled recipients.

**Emails/SMS on No Signal**

The Gateway generates an alert on **No Signal** for the enabled recipients.

**Emails to:**

List of [Email Setup](#) recipients with tick-boxes to enable or disable sending of Emails/SMS.

## User Management

The RF500 has two types of user, each with different levels of user permissions:

- **Administrator** Has unrestricted access to all Gateway functions.
- **Restricted User** Does not have unrestricted access to all Gateway functions and must be granted permission to access each major Gateway function.

There are no defined limits to the number of users that can exist. Any number of Administrators and Restricted Users can be created.

## Password Format

---

When choosing a password the Gateway enforces a minimum password length of 6 characters and allows a maximum of 31 characters. These characters can be any mixture of the following:

Alpha-numeric	A-Z, a-z or 0-9 and space.
Special characters	! @ \$ % * ( ) - _ 'full stop'

This scheme allows companies that require use of strong passwords to implement them.



The Gateway will not validate that an entered password is strong, this check must be performed by the person entering it.

## Account Expiry

---

All **Restricted User** accounts will expire 180 days after they are created or renewed. **Administrator** accounts do not expire.

When an account is due to expire within 14 days, a warning message such as **Warning: Your account will expire on Sat Jun 16 11:59:53 2007** will show on the [Login Screen](#). After an account has expired the user will not be able to login to the Gateway until renewed by an Administrator using the **Renew User** option in [Editing User Options](#).

## Adding New Users

To add another **Restricted User** or **Administrator** on the Gateway, complete the new user details allocating an individual password to each user. Login as an Administrator then click the **Administration** button then the **Users** button and then the **New user** button to bring up this page.

**COMARK**

Users

Password Required

**New User Details**  
(6 Characters Min. 31 Max. )

Username

Password

Verify Password

Make user administrator ☐

Allow user to acknowledge alarms ☒

Allow user to sign data ☒

Allow user to start / stop logging ☒

Allow user to create new task ☒

Allow user to add/remove transmitter ☒

**Restrict user to the following locations**

<input checked="" type="checkbox"/> 1) General	<input checked="" type="checkbox"/> 2) Comark UK MH	<input checked="" type="checkbox"/> 3) Comark UK AH	<input checked="" type="checkbox"/> 4) Comark UK CH
<input checked="" type="checkbox"/> 5) Comark UK GB	<input checked="" type="checkbox"/> 6) Comark UK MB	<input checked="" type="checkbox"/> 7) Comark USA JC	<input checked="" type="checkbox"/> 8) Comark USA VB
<input checked="" type="checkbox"/> 9) Comark USA DS	<input checked="" type="checkbox"/> 10) Christian Berner	<input checked="" type="checkbox"/> 11) Lomnitz	<input checked="" type="checkbox"/> 12) DIMED
<input checked="" type="checkbox"/> 13) ECEFast	<input checked="" type="checkbox"/> 14) Andy Wallace	<input checked="" type="checkbox"/> 15) Hospitality 07	<input checked="" type="checkbox"/> 16) Williams
<input checked="" type="checkbox"/> 17) Haccpworks	<input checked="" type="checkbox"/> 18) Training Room	<input checked="" type="checkbox"/> 19) Compton	<input checked="" type="checkbox"/> 20) International
<input checked="" type="checkbox"/> 21) Laboratory	<input checked="" type="checkbox"/> 22) Comark UK SO	<input checked="" type="checkbox"/> 23) location 23	<input checked="" type="checkbox"/> 24) location 24
<input checked="" type="checkbox"/> 25) location 25	<input checked="" type="checkbox"/> 26) location 26	<input checked="" type="checkbox"/> 27) location 27	<input checked="" type="checkbox"/> 28) location 28
<input checked="" type="checkbox"/> 29) location 29	<input checked="" type="checkbox"/> 30) Demo	<input checked="" type="checkbox"/> 31) Training	<input checked="" type="checkbox"/> 32) New Transmitters

Figure 21 – Add New User

### Username

Enter a unique username of your choice to identify the new user.

### Password

Enter the login password for the new user.

### Verify Password

Re-enter the login password for the new user.

**Make user administrator** If not ticked, the user will be a **Restricted User**.

The following self explanatory fields are only applicable for a **Restricted User**:

**... acknowledge alarms** See [Alarm Acknowledge](#).

**... sign data** See [Signing Data](#).

**... start/stop logging** See [Start / Stop Logging](#).

**... create new task** See [Transmitter Task](#).

**Allow user to add/remove transmitter**  
See [Transmitter Management](#).

### Submit

Submits changes to the Gateway. Your own password must be entered in the password box at the top of the page.

### Cancel

Cancels any changes.

## Restricting Locations

Any user whether an **Administrator** or a **Restricted User** can have access limited to a sub-set of the **Locations**. In this way several systems can co-exist on the one Gateway but other users will not be able to see transmitters from other users' Locations. To restrict users from some or all Locations un-tick the appropriate boxes.

When Restricted Locations are in force, the Home Page will display a message to indicate that some Locations are excluded from display.

## Editing User Options

To edit the options for an existing user on the Gateway Click the **Administration** button then the **Users** button and then the **Edit Existing User** button. Use the drop down list to select the user you wish to edit and then click **Submit** to show the User Options page.

This page is very similar to the New User page above. When editing your own user options, only the Password and Restricted **Locations** can be changed.

<b>User login expire date 16 Jun 2007</b>		<b>User login expire date 16 Jun 2007</b>	Shows the date after which the user will be unable to login to the Gateway.
<b>Change password</b>	<input type="checkbox"/>	<b>Change password</b>	Tick this box to enable the password change options.
<b>Password</b>	<input type="text"/>	<b>Password</b>	Enter the new login password for user. If required.
<b>Verify Password</b>	<input type="text"/>	<b>Verify Password</b>	Re-enter the new login password for the user.
<b>Disable User</b>	<input type="checkbox"/>	<b>Disable User</b>	Shows the enabled/disabled state of the user.
<b>Renew User</b>	<input type="checkbox"/>	<b>Renew User</b>	Renew users password. See <a href="#">Account Expiry</a> .
<b>Make user administrator</b>	<input type="checkbox"/>	<b>Make user administrator</b>	If not ticked, the user will be a <b>Restricted User</b> .
<b>Allow user to acknowledge alarms</b>	<input checked="" type="checkbox"/>	The following self explanatory fields are only applicable for a <b>Restricted User</b> :	
<b>Allow user to sign data</b>	<input checked="" type="checkbox"/>	<b>... acknowledge alarms</b>	See <a href="#">Alarm Acknowledge</a> .
<b>Allow user to start / stop logging</b>	<input checked="" type="checkbox"/>	<b>... sign data</b>	See <a href="#">Signing Data</a> .
<b>Allow user to create new task</b>	<input checked="" type="checkbox"/>	<b>... start/stop logging</b>	See <a href="#">Start / Stop Logging</a> .
<b>Allow user to add/remove transmitter</b>	<input checked="" type="checkbox"/>	<b>... create new task</b>	See <a href="#">Transmitter Task</a> .
<input type="button" value="Submit"/> <input type="button" value="Cancel"/>		<b>Allow user to add/remove transmitter</b>	See <a href="#">Transmitter Management</a> .
		<b>Submit</b>	Submits changes to the Gateway. Your own password must be entered in the password box at the top of the page.
		<b>Cancel</b>	Cancels any changes.

Figure 22 – Edit User Options

Users cannot be deleted from the Gateway, only disabled. This is because the Gateway keeps a record in the [Audit Trail](#) of all users actions such as creating a [Transmitter Task](#), [Signing Data](#) or each [Alarm Acknowledge](#) for auditing purposes. If a user were to be deleted these records would also be deleted.

Network Settings

Click the **Administration** button then the **Setup Network** button to show the Network Settings page.

Network Settings

Mac Address 00:40:63:E1:C0:FB

Back

Save

Password is required to make any changes

Network Details

Static IP Address

192.168.25.217

Net mask

255.255.255.0

Default gateway

192.168.0.1

DNS no

192.168.0.1

Modem Email Details

DNS no

195.92.195.94

Domain name

myisp.co.uk

Phone No.

08440564000

Account Name

myname.myisp.co.uk

Account Password

Verify Password

Email Options

Email via network

Email via modem

Email via modem during power cut else use network

Network Details

Static IP Address

The IP address which has been allocated to the Gateway. E.g. 192.168.25.217

Net mask

The subnet mask associated with the above IP address. E.g. 255.255.255.0

Default Gateway

The IP address of the network gateway to allow access by users on a different subnet.

DNS no

The IP address of your LAN name server.

Modem Email Details (Not for RF500Lite).

DNS no

The IP address of your dial-up ISP name server.

Domain name

The domain name of your ISP.

Phone No.

The number the modem must dial to connect with your ISP.

Account Name

The username for logging into your ISP. E.g. myname.myisp.co.uk

Account Password

The password for logging into your ISP.

Verify Password

Retype the Account Password for validation.

Email Options (Not for RF500Lite).

Email via network

See Email Options Below.

Email via modem

See Email Options Below.

Email via modem during power-cut else use network

See Email Options Below.

Figure 23 – Network Settings

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## Network Details

---

Usually your IT Department will allocate a static IP address and subnet mask for the Gateway. Enter these using dotted decimal notation into their respective fields . If access from different subnets is required also enter the Network Gateway IP address. Users who implement MAC address access security will find the MAC address of the LAN interface displayed in this screen.

## Modem Email Details

---

Modem Email Details only appear for RF500. The settings are saved but not used if there is no modem fitted. RF500Lite however does not show these settings because it cannot be fitted with a modem.

To enable emails to be sent by modem you will require a dial-up account with an Internet Service Provider (ISP). Information to be entered in the above fields is provided on account registration and also in their support web pages:

## Email Options

---

Email Options only appear for RF500. The selection is saved but not used if there is no modem fitted. RF500Lite however does not show these options because it cannot be fitted with a modem.

This set of radio buttons allows choice of email sending methods. Do not select the **Email via modem** options if the modem is not fitted.

**Email via network**            The Gateway will always send emails via the Ethernet LAN using the settings in [Email Account Setup](#). The modem will not be used.

**Email via modem**            The Gateway will always send emails via the modem, the Ethernet LAN will not be used.

**Email via modem during power-cut else use network**  
The Gateway will send emails via the Ethernet LAN when power is connected. When running off internal batteries, during a power-cut, for instance, the modem will be used.

To save changes enter your Gateway password and click the **Save** button. The Gateway may automatically reset after this step.



Depending on network settings entered above the Gateway may reset. You may need also to undo network changes on the PC, remove any cross-over Ethernet cable and connect both the PC and Gateway to the LAN.

## Set Gateway Clock

Click **Administration** button then the **Set Clock** button.

**Set Clock**

Password required to make changes

Year

Month 1 to 12

Date 1 to 31

Hour 0 to 23

Minute 0 to 59

Second 0 to 59

Submit

Cancel

Figure 24 – Network Settings

Enter the current date and time using a 4-digit year.

Enter your password and click the **Submit** button.

The Gateway will automatically reset after this step.

The new time will be sent to each transmitter when it next contacts the Gateway.



## Gateway Name



A Gateway name must be entered for email operation.

Click **Administration** button then the **Gateway Name** button.

The Gateway Name is any name you choose for the Gateway and will be used in the form [gatewayname@comarkltd.com](mailto:gatewayname@comarkltd.com) as the default in the 'From: field' in email and SMS notifications. This is important if you have more than one Gateway in your wireless system and all should be unique.

## Email Setup

The primary method for remote notification of Transmitter alarms and **Events** is email. SMS is supported via an “Email to SMS” service such as **TextMagic™**. The RF500 Gateway sends all email via SMTP mail servers. As of Gateway Software Release 28, SMTP servers that require authorisation using SSL or a validated FROM address are also supported.

If a Yahoo! Mail or Google GMail account is used solely for RF500 emails then you should regularly log into the account using a web browser otherwise these organisations suspect the account is dormant and suspend it.

RF500 allows up to 12 email/SMS recipients. To configure these; click the **Administration** button then the **Setup Emails** button; a table showing the 12 available notification recipient slots in shown. Each slot can be assigned an identification name.

Email / SMS Setup

Back

OK

Clear Emails

Refresh

Output

Email Account

Password required

Emails waiting to go: 0

	Username	Email Address	SMS no.	Email	SMS	Set Times	Test
1)	<input type="text" value="nick"/>	<input type="text" value="nickkantaris@comarkltd.com"/>	<input type="text"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Table off"/>	<input type="button" value="Test"/>
2)	<input type="text" value="Nigel"/>	<input type="text" value="nigelwinterbottom@comarkltd.com"/>	<input type="text" value="07890123456@textmagic.co.uk"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="Table off"/>	<input type="button" value="Test"/>
3)	<input type="text" value="Paul"/>	<input type="text" value="paulmorrison@comarkltd.com"/>	<input type="text"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Table off"/>	<input type="button" value="Test"/>
4)	<input type="text" value="Andy"/>	<input type="text" value="...@virgin.net"/>	<input type="text"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Table on"/>	<input type="button" value="Test"/>
5)	<input type="text" value="dave"/>	<input type="text" value="davegoulden@comarkltd.com"/>	<input type="text"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Table off"/>	<input type="button" value="Test"/>
6)	<input type="text" value="pete"/>	<input type="text" value="petergiddens@comarkltd.com"/>	<input type="text"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Table on"/>	<input type="button" value="Test"/>
7)	<input type="text" value="dave f"/>	<input type="text" value="davidfrench@comarkltd.com"/>	<input type="text"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Table on"/>	<input type="button" value="Test"/>
8)	<input type="text" value="dave f2"/>	<input type="text" value="davidfrench@comarkltd.com"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Table off"/>	<input type="button" value="Test"/>
9)	<input type="text" value="Nigel@Home"/>	<input type="text" value="...@freemove.co.uk"/>	<input type="text"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Table off"/>	<input type="button" value="Test"/>
10)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Table off"/>	<input type="button" value="Test"/>
11)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Table off"/>	<input type="button" value="Test"/>
12)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Table off"/>	<input type="button" value="Test"/>

Figure 25 – Email//SMS Setup

OK

Clear Emails

Refresh

Output

Email Account

The **Emails waiting to go** value shows the number of emails that are queued awaiting transmission to the email server

Username

This field is used to identify the email / SMS recipient in other Gateway screens. **There is no relation here between Username and the username for logging in.** A typical entry for this field could be “**Nigel’s Phone**”

Email Address

The recipient’s email address for notifications.

SMS No.

The recipient’s phone number for SMS notifications. NB. Use the format required by your email to SMS provider. For **TextMagic™** an example is **07890123456@textmagic.com**

Email

Enable notifications using email settings.

SMS

Enable notifications using SMS settings.

Set Times

This function allows setting of an availability for the recipient. See below for information on email set times.

Test

This button will send a test email and/or SMS.

# Email Set Times

This feature allows suppression of email alerts at programmable times throughout a 7-day weekly period. To use Email Set Times, enter your password in the Email / SMS Setup page and click the **Set Times** button alongside the notification slot of your choice. The Email Set Times page is displayed.

The page displays a grid of cells corresponding to every 30 minute timeslot throughout a 7-day weekly period. When this feature is enabled email alerts generated by the Gateway for the associated recipient are either allowed or disallowed Grey cells denote those times during which alerts will not be generated, coloured cells denote those times during which alerts will be generated.

For example, the page below shows that recipient “Nigel” only wishes to receive alerts between the hours of 08:00 and 16:59 on Monday through Friday.

Email times for Nigel

Back

Save

Disable Set Times

Password required

select the half hour time slots that you require the email / Txt sms to be active for any transmitter event

Set times are currently enabled

Select

ALL ON

ALL Off

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
M																								
T																								
W																								
T																								
F																								
S																								
S																								

Figure 26 – Email Set Times Page

- Back

Save

Enable/Disable Set Times

All ON

All Off

Cell Grid
- Return to the Email / SMS Setup page.

Save changes and return to the Email / SMS Setup page.

Use or don't use the Set Times feature. Settings are retained when disabling the feature.

Set all timeslot cells to allow emails.

Set all timeslot cells to disallow emails.

Click in each individual cell to toggle between allowing and disallowing emails generated at the day and time represented by that timeslot cell.

## Email Account Setup

Click the [Administration](#) button then the [Setup Emails](#) button then the [Email Account](#) button.

**Email Account**

Back Save

Password ●●●●●

**Network Mail Server**

Mail Server smtp.comarkltd.com

Use Default From Address ☒ gatewayname@comarkltd.com

or use

**Network SSL**

Server requires authentication ☐

Username

Password

Port Number

**Modem Mail Server**

Modem Mail Server smtp.mail.yahoo.com

Use Default From Address ☐ gatewayname@comarkltd.com

or use myname@yahoo.co.uk

**Modem SSL**

Server requires authentication ☒

Username myname@yahoo.co.uk

Password ●●●●●

Port Number 587

**SMS Details**

Account Name myname@textmagic.co.uk

Figure 27 – Email Account Page

### Network Mail Server

#### Mail Server

The name of your LAN mail server.

#### Use Default from Addr or use

Use a **from:** email address as displayed

Enter a user specified **from:** email address

### Network SSL

#### Server requires authentication

The mail server requires SSL authorisation.

#### Username

The username for logging into the mail server.

#### Password

The password for logging into the mail server.

#### Port Number

The TCP port for SSL connection.

### Modem Mail Server

#### Modem Mail Server

The name of your ISP's mail server.

#### Use Default from Addr or use

Use a **from:** email address as displayed

Enter a user specified **from:** email address

### Modem SSL

#### Server requires authentication

The mail server requires SSL authorisation.

#### Username

The username for logging into the mail server.

#### Password

The password for logging into the mail server.

#### Port Number

The TCP/IP port for SSL connection.

### SMS Details

#### Account Name

This text is used as the **Subject:** field in an Email-to-SMS alert. No longer required by **TextMagic™**. Consult the Email-to-SMS provider for more details.

## Network Mail Server

---

Usually your IT Department will provide the information for this section and whether a custom from address is required. However if you are using an ISPs mail server or web mail service you will find the information required on that company's support web pages.

Due to the proliferation of email spam, many USA based Internet Service Provider (ISP) companies and also web-based email services such as Google and Yahoo require user authentication before allowing emails to be sent using their servers. This authentication is typically performed using SSL encryption which is configured as above.



If a Yahoo! Mail or Google GMail account is used solely for RF500 emails then you should regularly log into the account using a web browser otherwise these organisations suspect the account is dormant and suspend it.

## Modem Mail Server

---

Modem Email Details only appear for RF500. The settings are saved but not used if there is no modem fitted. RF500Lite however does not show these settings because it cannot be fitted with a modem.

To enable emails to be sent by modem you will require a dial-up account with an ISP. Information to be entered in the above fields is provided on account registration and also in their support web pages:

## SMS Details

---

The Gateway supports SMS alerts via a third party "Email-to-SMS" conversion service. Comark have tested **TextMagic™** [www.textmagic.com](http://www.textmagic.com)

To enable SMS alerts to be sent, subscribe to the **TextMagic™** service and configure your account using instructions provided on their website.

Other "Email-to-SMS" conversion services may well work with RF500 but are untested. Those providers may require entry of your email address into the **Account Name** field:

## Transmitter Management

The administration of transmitters can only be performed by an **Administrator**, although the right to add a new transmitter can be granted to a **Restricted User**.

From the [Gateway Home Page](#) click the **Administration** button then the **Transmitters** button. A categorised list of transmitter serial numbers is displayed.

**Transmitter List**

[Back](#) [Refresh](#) [Add New](#)

**Searching for the following transmitters**

[BA03060001](#)

**Found the following transmitters**

<a href="#">BA04060040</a>	<a href="#">BA05060060</a>	<a href="#">BE03060016</a>
<a href="#">BE03060019</a>	<a href="#">BE03060015</a>	<a href="#">BE02060003</a>
<a href="#">CC11051007</a>	<a href="#">CE11051008</a>	

**Transmitters waiting to be removed**

[CC11051006](#)

**Transmitters removed**

<a href="#">CE11053001</a>	<a href="#">CC11051008</a>	<a href="#">CC11051002</a>
<a href="#">BA03060002</a>	<a href="#">CA03060001</a>	<a href="#">CC11059999</a>

**Back**

Return to the Administration page.

**Refresh**

Update the list of transmitters (useful when adding or removing transmitters).

**Add New**

Show the page for adding a new (or re-add a removed) transmitter.

**Searching for the following transmitters**

Newly added transmitters appear in this category until they contact the Gateway and become "found".

**Found the following transmitters**

These transmitters are currently live on the Gateway.

**Transmitters waiting to be removed**

Newly removed transmitters appear in this category until the removal process is completed.

**Transmitters removed**

Successfully removed transmitters appear in this category.

Figure 28 – Transmitter List Page

## Add a New Transmitter

Click the **Add New** button; a form will be presented as follows:

**Enter Serial No.**

Password required to make any changes

Serial No

Make this a backbone unit (RF512 & RF513 only) ☐

Disable Display ☐

Radio Tx rate

Add to Location

### Serial Number

Enter the serial number of the Transmitter provided for your installation.

### Make this a Backbone unit (RF512 & RF513 only)

Those Transmitters which have been identified as **Backbone** units during the site survey must have this box ticked. Do not tick for Transmitters which have no mains adaptor connected.

### Disable Display

Disable the LCD for those Transmitters where the local display is not required.

### Radio Tx rate

(*Radio Transmission Rate*). This setting controls the rate at which batches of readings are transmitted to the Gateway. A drop-down-list of intervals is presented. Choose 15 minutes unless a faster update rate is necessary.

### Add to Location

Choose an administrative Location for this Transmitter. See [Locations](#).

The newly added Transmitter will be added to the **Searching for the following Transmitters** list.

**Figure 29 – Adding New Transmitters**

Enter your password and click the **Save** button. The newly added Transmitter will be added to the **Searching for the following Transmitters** list.

Note that the serial numbers are case sensitive, i.e. **BA03060001** is correct, **Ba**, **bA** or **ba** is incorrect and will not be recognised.



Setting a **Radio Tx rate** faster than 15 minutes has a detrimental effect on battery life.

The Transmitter will attempt to transmit **Events** back to the Gateway within a minute of their occurrence irrespective of radio rate selected. Whilst there is an **Event** awaiting transmission the **radio rate** is temporarily set to 1 minute. Once all **Events** are transmitted the **radio rate** is returned to the user set value.

## Transmitter Properties

The Transmitter List page shows the serial number of every Transmitter associated with the Gateway in blue underlined. Click on the serial number to view the properties for the Transmitter.

Properties for transmitter BA05060036		Back	Refresh	Edit
Model	RF512	Back	Refresh	Edit
Version	1.3.5/RF1.0R (000D6F000004A8E0) cd tx.1.0 gw.1.0	Model	Refresh	Edit
Class	RF Sensor	Version	Refresh	Edit
Backbone	No	Class	Refresh	Edit
Logging Status	Yes	Backbone	Refresh	Edit
Radio Rate	60 minutes	Logging Status	Refresh	Edit
Battery mV	3504	Radio Rate	Refresh	Edit
Battery Status	10	Battery mV	Refresh	Edit
Mains Power	No	Battery Status	Refresh	Edit
Last RF Transmission	01 Sep 2008 10:20	Mains Power	Refresh	Edit
Last Event Transmission	01 Sep 2008 10:20 (Tx time)	Last RF Transmission	Refresh	Edit
Display	Yes	Last Event Transmission	Refresh	Edit
Location	location no 1) Engineering	Display	Refresh	Edit
Transmitter Found		Location	Refresh	Edit
		Transmitter Found	Refresh	Edit

Figure 30 – Transmitter Properties

Return to the Transmitter List page.

Update details for the selected Transmitter.

Edit settings for the selected Transmitter.

The Model name of the selected Transmitter.

Transmitter f/w RF Module f/w (EUI-64), Transmitter and Gateway command set.

Type of Transmitter.

Indicates Transmitters which were identified as **Backbone** units during the site survey.

Yes/No. See [Start / Stop Logging](#).

The rate at which the Transmitter contacts the Gateway.

The voltage of the Transmitter lithium battery.

Estimated battery capacity from 0-10. Where 10 is new and 0 is dead.

Shows whether RF520 PSU is connected.

The last Transmitter contact time.

The Transmitter internal clock time as determined at the Last RF Transmission.

Indicates whether the Transmitter is configured to show readings on its display.

The Transmitter's Location. See [Locations](#).

Message to aid technical support.



## Edit Transmitter Properties

From the Transmitter Properties page described above, click the [Edit](#) button to display the Edit Transmitter Properties page.

**Properties for BA05060036**

Back

Password required ●●●●●

Make this a backbone unit ☐

Disable Display ☐

Remove ☐

Retrieve task & data ☐

Radio Tx rate 60

Add to Location 1] Engineering

☒ Auto scale graph as default ☐ Pre-set graph scale to:-

	Low Limit	High Limit
Temperature scale	<span>-10.0</span>	<span>220.0</span>
Percent scale %	<span>10.0</span>	<span>100.0</span>

Edit

-----Transmitter Image-----

Upload the transmitter image first then select transfer image

Browse...

Transfer Image

Upload Image

Figure 31 – Edit Transmitter Properties



Setting a **Radio Tx rate** faster than 15 minutes has a detrimental effect on battery life.

**Back**

Return to the Transmitter List page.

**Make a Backbone unit**

Those transmitters which have been identified as **Backbone** units during the site survey must have this box ticked. Do not tick for transmitters which have no mains adaptor connected.

**Disable Display**

Disable the LCD for those transmitters where the local display is not required.

**Remove**

Request removal of the transmitter from the Gateway.

**Retrieve task & data**

Advanced feature only. If the Gateway is replaced for any reason then the current Task and data can be retrieved from the transmitter and will be restored on the new Gateway.

**Radio Tx rate**

This setting controls the rate at which batches of readings are transmitted to the Gateway. A drop-down-list of intervals is presented. Choose 15 minutes unless a faster update rate is necessary.

**Add to Location**

Choose an administrative Location for this transmitter. See [Locations](#).

**Auto scale graph ...**

This option causes the graphs in [Daily Graph Summary](#) and [Transmitter Graph Page](#) to auto-range their axes to always show the entire set of data.

**Preset graph scale to**

This option forces the graphs in [Daily Graph Summary](#) and [Transmitter Graph Page](#) to use the axes limits from the table.

**Edit**

Save changes.

**Transmitter Image**

This section is described in [Transmitter Images](#).

## Audit Trail

RF500 includes a full Audit Trail for purposes of complete record keeping complying with the requirements of **21 CFR Part 11**.

Click the **Administration** button then the **Audit Trail** button.



### Audit Trail for Jul 2007

<div>Back</div> <div>Calendar</div> <div>Day Mode</div> <div>Week Mode</div> <div>Month Mode</div> <div>Refresh</div>				
Click on Time, Action or User to sort				
* Time	Action	User	Comments	<a href="#">Disable view of transmitter alarms</a>
09 Jul 2007 15:58	Login	nigelw		
09 Jul 2007 15:56	System Call	System	Automatic backup in progress	
09 Jul 2007 15:56	Transmitter Alarm	System	<a href="#">Alarm Event for CA07060149-Task 2-Period 3-CA07060149-09 Jul 2007 15:53-Sensor Ext1-probe 2--gone int</a>	
09 Jul 2007 15:36	Transmitter Alarm	System	<a href="#">Alarm Event for CE11051006-Task 7-Period 1-1234567890123456-09 Jul 2007 15:02-Sensor Int-1234567890</a>	
09 Jul 2007 15:36	Transmitter Alarm	System	<a href="#">Alarm Event for CE11051006-Task 7-Period 1-1234567890123456-09 Jul 2007 15:02-Sensor Door-1234567890</a>	
09 Jul 2007 15:31	System Call	System	No automatic backup in progress	
09 Jul 2007 15:31	System Call	System	Gateway switch on,from abnormal shutdown/reset	
09 Jul 2007 14:58	Transmitter Alarm	System	<a href="#">Alarm Event for CE11051006-Task 7-Period 1-1234567890123456-09 Jul 2007 14:58-Sensor Door-1234567890</a>	
09 Jul 2007 14:56	New Task	nick k	<a href="#">No.CE11051006, Task 7, 1234567890123456</a>	
09 Jul 2007 14:56	New Task	nick k	<a href="#">No.CE11051006, Task 6, 1234567890123456</a>	
09 Jul 2007 14:55	Alarm Acknowledged	nick k	Serial No. CE11051006 Task 5, during Period 2 actions taken: test	
09 Jul 2007 14:48	Login	nigelw		
09 Jul 2007 14:40	Transmitter Alarm	System	<a href="#">Alarm Event for CE11051006-Task 5-Period 2-1234567890123456-09 Jul 2007 14:40-Sensor Door-1234567890</a>	

**Figure 32 – Audit Trail**

The default display shows activity for the current day, sorted in descending time order. Any administration changes or New **Tasks** entered are displayed.

Audit Trail entries can be grouped by Time, Action or User by clicking the following column headings:

[Time](#) Sorts the Audit Trail view in descending time order.

[Action](#) Groups the Audit Trail view by action order.

[User](#) Groups the Audit Trail view by username in the order of which users were added.

The Time, Action, User grouping setting is remembered.

[Disable view of transmitter alarms](#)

If there are very many Alarm **Event** entries they can confuse the display of less prolific **Events**. By clicking this link the display of Alarm **Events** is suppressed.



Using the **Day Mode**, **Week Mode**, and **Month Mode** buttons it is possible to change the amount of information displayed as follows:

**Day Mode** Displays entries by Day.

**Week Mode** Displays entries for the current week where Monday is considered the start of the week.

**Month Mode** Displays entries for the current Month.

**Calendar** mode allows the selection of archived **Events** by date.

# Hardware

Click **Administration** button then the **Hardware** button. The Hardware page is normally used for status checking for diagnostic purposes although the Switch outputs are configured here also.

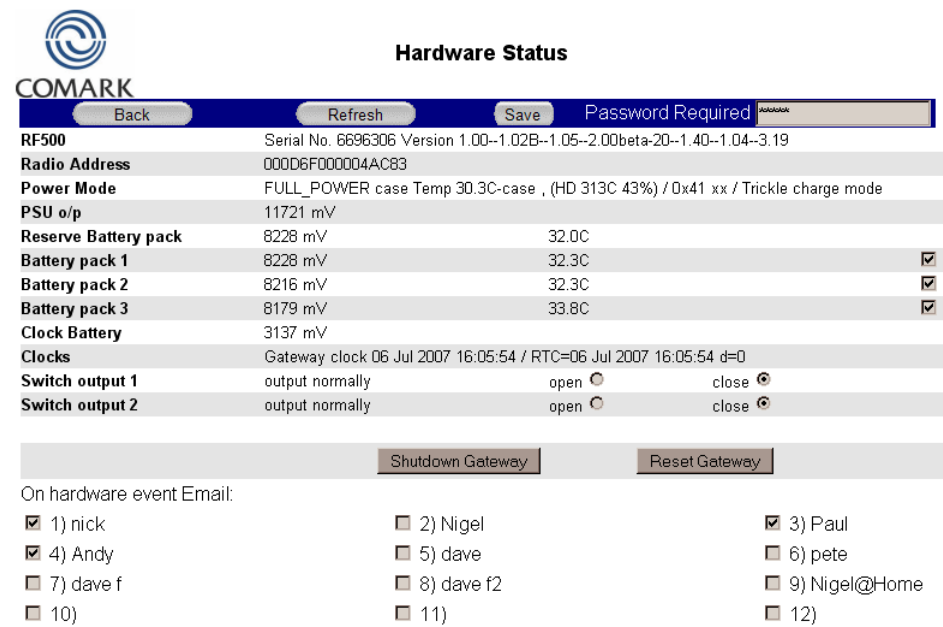


Figure 33 – Hardware Status

- RF500**  
The Gateway Serial No. and software version.
- Radio Address**  
The EUI64 of the Radio Module.
- Power Mode**  
**FULL\_POWER** indicates running from external dc. **BATTERY\_PACKS** indicates running from internal battery packs.  
The Case and Hard Disk temperatures are shown here along with other readings.
- PSU o/p**  
The PSU voltage nominal 12V.
- Battery pack X**  
The voltage and temperature of each battery pack.
- Clock Battery**  
The backup battery voltage Nominal 3.6V.
- Clocks**  
The internal real time clock.
- Switch output X**  
Select either normally open or normally closed for each switch contact output. This setting must be saved by entering your password and clicking **Save**.
- Shutdown Gateway**  
Enter your password and click to shutdown the RF500.
- Reset Gateway**  
Enter your password and click to reset the RF500.
- On hardware event Email**  
Select who from the email list will receive emails relating to hardware issues.

## Hardware Events

---

The possible reasons for a Hardware Event email are as follows:

At least one responsible person should choose to receive Hardware Event emails so that any faults are recognised in good time.

Gateway Start-up	The Gateway has been started.
Gateway Shut-down	The Gateway has been shut down (either by side switch or by the Hardware page).
Gateway Shut-down due to low battery	The Gateway is running on batteries which have become low charge.
Gateway Reset	The Gateway has reset (either by a user request or for some other internal reason).
Battery Pack 1,2,3 Fault	A problem with battery pack 1, 2 or 3 has been detected.
Reserve Battery Pack Fault	A problem with the reserve battery pack has been detected.
Gateway Overheat	The internal temperature of the Gateway has exceeded limits, the fan may be blocked by an obstruction.
Clock Error	There is a large difference between the two Gateway clocks.
Clock battery low	The real time clock battery is low voltage.

## Data Backup

Data backup for RF500 comes in three formats: Two methods of Automatic Backup and one Manual Backup. The Backup files created are compressed and encrypted for data security. The Restore facility will fail if any data tampering attempt is detected.

Restoration of Gateway data from a backup set produced by any of the methods described below can only be performed by Comark Instruments technical staff. Comark technical support therefore may ask for the Manual Backup file or a zipped copy of the folders and files created by Automatic Backup.

### Automatic Backup

---

The advantage of Automatic Backup is that data is backed up continuously as data is received from Transmitters and therefore your Gateway will always have up-to-date backups. This process is completely automated and once configured, no user involvement is required.

#### Backup to Microsoft Network Share

It is recommended that a Microsoft Network share is created specifically for the purpose of Gateway backup and that this share be protected from inadvertent modification by username & password. The share must of course have read, write and modify permissions. Comark recommend that the share be created on a file server which is subject to an off-site backup policy.

A “top-level” folder is created and named according to the Gateway serial number of each Gateway accessing the network share for backup. This folder contains the backup files and folders associated with each Gateway.

#### RF500 Backup Server

Use of this method of Gateway backup is considered by Comark Instruments as legacy support for existing systems only. It is not recommended for new installations.



Click the **Administration** button then the **Data Backup** button for Automatic Backup Settings.

## RF500 Automatic Backup

Back
Save
Refresh
CSV Data Export
Manual Backup

Password required

☒ Enable automatic backup

<input checked="" type="radio"/> Via Share Drive	Server	eng01.comarkltd.com
	Share Name	rf500backup
	User Name	backup
	Password	*****
<input type="radio"/> Via PC software		Automatic backup via Network <input checked="" type="radio"/> or Modem <input type="radio"/>

Backup Message: // Last file 1 of 1 sent Mon Feb 15 09:59:55 2010

**Email list for automatic backup, manual backup and CSV export**

Notify by email if no data transfer in  day(s) ☐ hour(s) ☒

☒ 1) NICK

☐ 2) Nigel@Home

☐ 3) Nigel@Work

☐ 4)

☐ 5)

☐ 6)

☐ 7)

☐ 8)

☐ 9)

☐ 10)

☐ 11)

☐ 12)

### Figure 34 – Automatic Data Backup

**Enable automatic backup** Enables Automatic Backup using one of the methods selected below.

**Via Shared Drive** Enable Backup to a Microsoft Network Share.

**Via PC Software** Enable Backup using Comark Backup Server.

<b>Server</b>	The Server name or IP address for the Microsoft Share host.
---------------	---

Share Name	The Microsoft Network share name.
------------	-----------------------------------

<b>User Name</b>	The username for logging onto the share.
------------------	--

<b>Password</b>	The password associated with the username above.
-----------------	--

**Automatic backup via** Select either Network or Modem operation.  
RF500 Backup Server must be configured to  
match this Gateway setting.

**Backup Message: //** Time of last file saved or any error message.

**Email list** The list of email recipients for Backup and CSV Export alerts. See [Email Setup](#) for details.  
**Note:** Any changes made here also affect the **Email list** settings in Manual Backup and CSV Export

**Notify by email if no data transfer in**

Enter a number of days or hours to use as a timeout for alerting, by email, of a problem with Automatic Backup, Manual Backup or CSV Export.

Note1: Depending on your network configuration it may be necessary to provide a fully qualified domain name for the **Server** field.

Note2: If the file server is part of a Microsoft Domain it may be necessary to use the **DOMAIN\username** format in the **User Name** field.

Click the **Administration** button then the **Data Backup** button then the **Manual Backup** button for Manual Backup Settings.

RF500 Manual Backup

Back

Save

Refresh

CSV Data Export

Automatic Backup

Password required

Send an email  days from last manual backup as a reminder to perform a manual backup.

Keep the backup download, as Comark will need these files to reconstruct your data

[Click here to start a manual backup](#)

Last manual backup to Thu Oct 1 15:04:26 2009 done by peterg

**Email list for automatic backup, manual backup and CSV export**

Notify by email if no data transfer in  day(s) ☐ hour(s) ☒

<input checked="" type="checkbox"/> 1) NICK	<input type="checkbox"/> 2) Nigel@Home	<input type="checkbox"/> 3) Nigel@Work
<input type="checkbox"/> 4)	<input type="checkbox"/> 5)	<input type="checkbox"/> 6)
<input type="checkbox"/> 7)	<input type="checkbox"/> 8)	<input type="checkbox"/> 9)
<input type="checkbox"/> 10)	<input type="checkbox"/> 11)	<input type="checkbox"/> 12)

Enter the interval between Manual Backups your backup policy requires. You will receive a reminder by email when the backup is due.

[Click here to start a manual backup](#)

Click this button to request a Manual Backup.  
Note: This button is replaced by other messages below after requesting a Manual Backup.

Click this link to download a previously built Backup Archive. Once the file is successfully downloaded, the link no longer appears.

<b>Email list</b>	The list of email recipients for Backup and CSV
-------------------	---

Export alerts. See [Email Setup](#) for details.  
**Note:** Any changes made here also affect the [Email list](#) settings in Automatic Backup and CSV Export

Requesting Manual backup	A manual backup has been requested.
--------------------------	-------------------------------------

**Creating Backup file** The Gateway is building a backup archive for later download. This stage could take up to 2 hours for a very large backup archive.

**Manual Backup file ready** A new backup archive is ready for download. The download link appears as above.



## Data Export

The Data Export function allows for continuous export of RF500 data in CSV format to enable a means, independent of RF500, for viewing the information. The purpose could be as simple as a human readable archive or to enable the creation of a reporting program with real-time update.

Click the **Administration** button then the **Data Backup** button then the **CSV Export** button for Manual Backup Settings.

RF500 CSV Data Export

Back Save Refresh Automatic Backup Manual Backup

Password required

☒ Enable CSV Data Export [CSV Export Data Format Guide](#)

Server	eng01.comarkltd.com
Share Name	rf500backup
User Name	backup
Password	*****

Export Message: // Last File sent Mon Feb 15 09:59:55 2010

**Email list for automatic backup, manual backup and CSV export**

Notify by email if no data transfer in  day(s) ☐ hour(s) ☐ min(s)

☒ 1) NICK ☐ 2) Nigel@Home ☐ 3) Nigel@Work  
☐ 4) ☐ 5) ☐ 6)  
☐ 7) ☐ 8) ☐ 9)  
☐ 10) ☐ 11) ☐ 12)

Figure 36 – CSV Data Export

### Enable CSV Data Export

Enables CSV Export using one of the methods selected below.

### CSV Export Format Guide

Click to download the CSV format specification document.

### Server

The Server name or IP address for the Microsoft Share host.

### Share Name

The Microsoft Network share name.

### User Name

The username for logging onto the share.

### Password

The password associated with the username above.

### Export Message://

Time of last file exported or any error message.

### Email list

The list of email recipients for Backup and CSV Export alerts. See [Email Setup](#) for details.

**Note:** Any changes made here also affect the **Email list** settings in Automatic Backup and Manual Backup.

### Notify by email if no data transfer in

Enter a number of days or hours to use as a timeout for alerting, by email, of a problem with Automatic Backup, Manual Backup or CSV Export.

Note1: Depending on your network configuration it may be necessary to provide a fully qualified domain name for the **Server** field.

Note2: If the file server is part of a Microsoft Domain it may be necessary to use the **DOMAIN\username** format in the **User Name** field.

## Multi-Graph

The Multi-Graph page allows data from several different transmitters to be graphed together simultaneously.

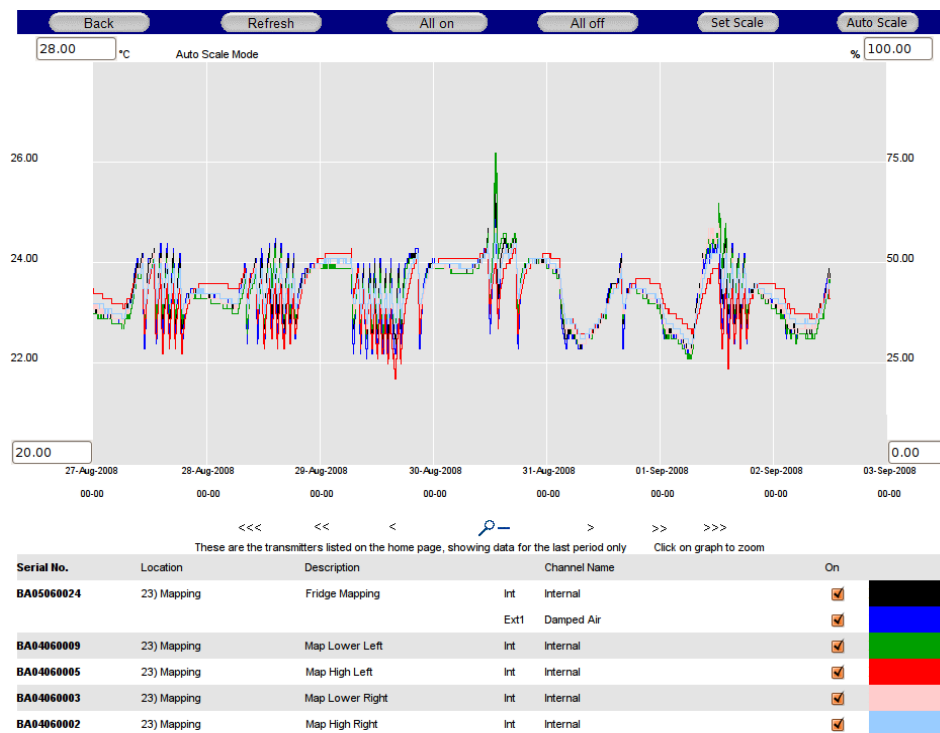


Figure 37 – Multi-Graph

### Limitations

- There is no method to select a historic **Task** or **Period**, therefore only the latest **Period** data can be Multi-Graphed.
- Only Transmitters displayed on the [Gateway Home Page](#) can be Multi-Graphed, and because [My Preferences](#) only allows "Removed" Transmitters to be shown exclusively, it is impossible to Multi-Graph "Removed" and "Live" Transmitters together.
- Trace colours are fixed by the layout of the grid. If the chosen channels have too similar colours, it may be possible to add or remove Transmitters using [My Preferences](#) so that colours are more evenly distributed.
- Channel selections are not saved when exiting the page.
- RF515 scales will always appear on the left-hand-side, even if it has been configured with % as a user scale.

This page initially shows a blank graph with no transmitter channels selected. The transmitters as selected for view on the [Gateway Home Page](#) are shown in a grid below the graph. The list of transmitters can be changed using [My Preferences](#).

To add a transmitter channel to the Multi-Graph click the check box on the row associated with the channel, then click the **Refresh** button. (Multiple check boxes can be enabled or disabled before clicking the **Refresh** button)

The **All On** and **All Off** buttons respectively, enable and disable every available channel.

The coloured blocks serve as a legend to identify the graph traces.

The graph scaling and time span can be changed in the same manner as on the [Transmitter Graph Page](#).

## Signing Data

Signing of data is a feature of RF500 required for compliance to the electronic signature section of **21 CFR Part 11**.

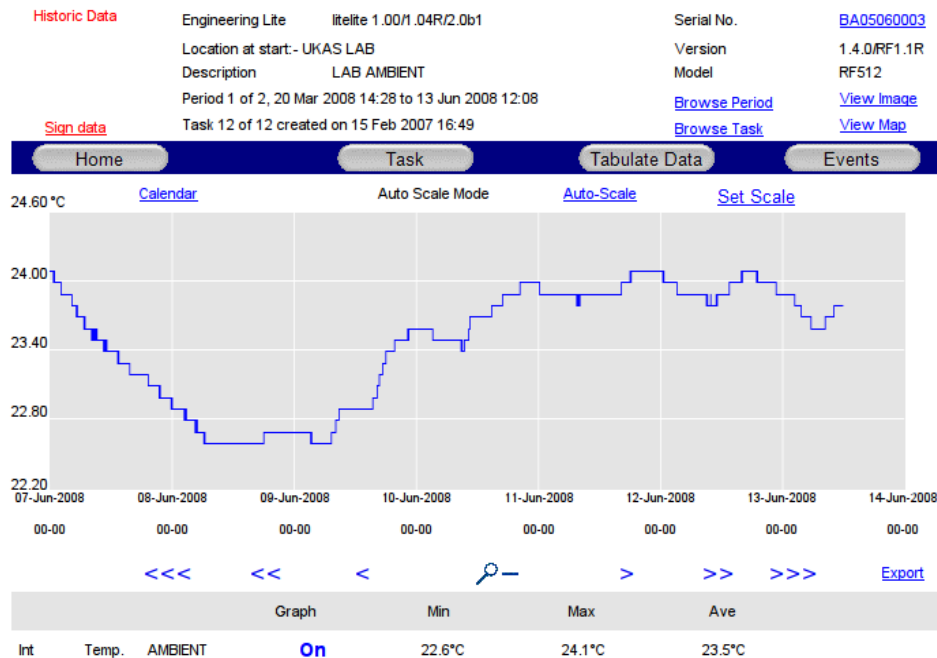
From the perspective of 21 CFR Part 11 the definition of an electronic signature is as follows:

### 12.2.2 Electronic Signature

*A computer data compilation of any symbol or series of symbols, executed, adopted or authorised by an individual to be a legally binding equivalent of the individual's handwritten signature.*

Signed data as far as the **FDA** is concerned means that the signer accepts that the data is true and good, and that he is taking legal responsibility for it. It is no different to printing off the page and signing it with a pen. It can be deemed as legally binding as shown above.

As far as RF500 is concerned each historic **Period** of data can be individually signed. A **Period** cannot be signed if it is still live and capable of storing extra data.



**Figure 38 – Find Data to Sign**

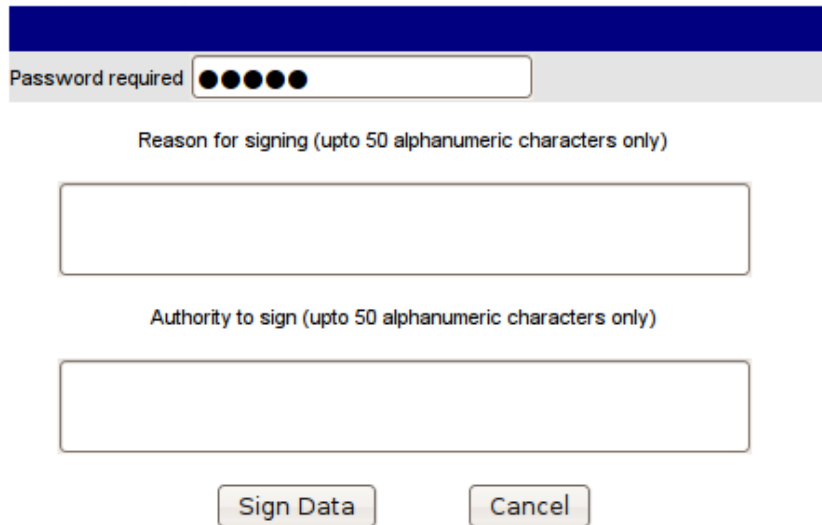
Use the [Browse Task](#) and [Browse Period](#) links on the [Transmitter Graph Page](#), [Transmitter Tabular Data Page](#) or [Transmitter Events Page](#) to find the historic **Period** to be signed.

In order to sign a live **Period** the **Period** must be closed using either [Start / Stop Logging](#) or [Tasking](#) the transmitter. Only once it has become historic it is possible to sign the data.

To sign data, click the [Sign Data](#) link and the following page will be displayed:



## Electronic Signature for BA05060003, Task 12, Period 12



The form is titled "Electronic Signature for BA05060003, Task 12, Period 12". It features a dark blue header bar. Below the header, there is a "Password required" label followed by a password input field containing five black dots. Below the password field is a text input field labeled "Reason for signing (upto 50 alphanumeric characters only)". Below this is another text input field labeled "Authority to sign (upto 50 alphanumeric characters only)". At the bottom of the form are two buttons: "Sign Data" and "Cancel".

**Figure 39 – Electronic Signature for Data**

To sign data, enter the reason for signing the data and your authority to sign, enter your password and click the **Sign Data** button. The data is then digitally signed and the text entered is displayed on the [Transmitter Graph Page](#), [Transmitter Tabular Data Page](#) and [Transmitter Events Page](#).

Each action of Data Signing is recorded in the Audit Trail.

## Transmitter Images

This feature allows an image to be associated with each transmitter added to the Gateway for use as a visual aid to what the transmitter is actually monitoring.

**Properties for BA05060036**

Back

Password required

Make this a backbone unit ☐

Disable Display ☐

Remove ☐

Retrieve task & data ☐

Radio Tx rate

Add to Location

☒ Auto scale graph as default ☐ Pre-set graph scale to:-

	Low Limit	High Limit
Temperature scale	<input type="text" value="-10.0"/>	<input type="text" value="220.0"/>
Percent scale %	<input type="text" value="10.0"/>	<input type="text" value="100.0"/>

Edit

-----**Transmitter Image**-----

Upload the transmitter image first then select transfer image

Upload Image

Browse...

Transfer Image

To add a Transmitter Image navigate to the [Edit Transmitter Properties](#) page.

1. Click the **Browse** button and select an image file (JPEG, BMP or GIF)
2. Click the **Upload Image** button
3. Click the **Transfer Image** button

The page will reload and show the uploaded image.

The Transmitter Image is shown on the [Transmitter Properties](#) page.

## Map

Mapping allows RF500 to graphically present details about the location of Transmitters within your organisation. RF500 provides two levels of mapping:

Site Map                      Represents [Locations](#) superimposed onto a Site Map image Useful for a whole system overview.

Location Map                Represents transmitters superimposed onto a Location Image.

To view the Site Map: From the [Gateway Home Page](#) click the [Map](#) button.

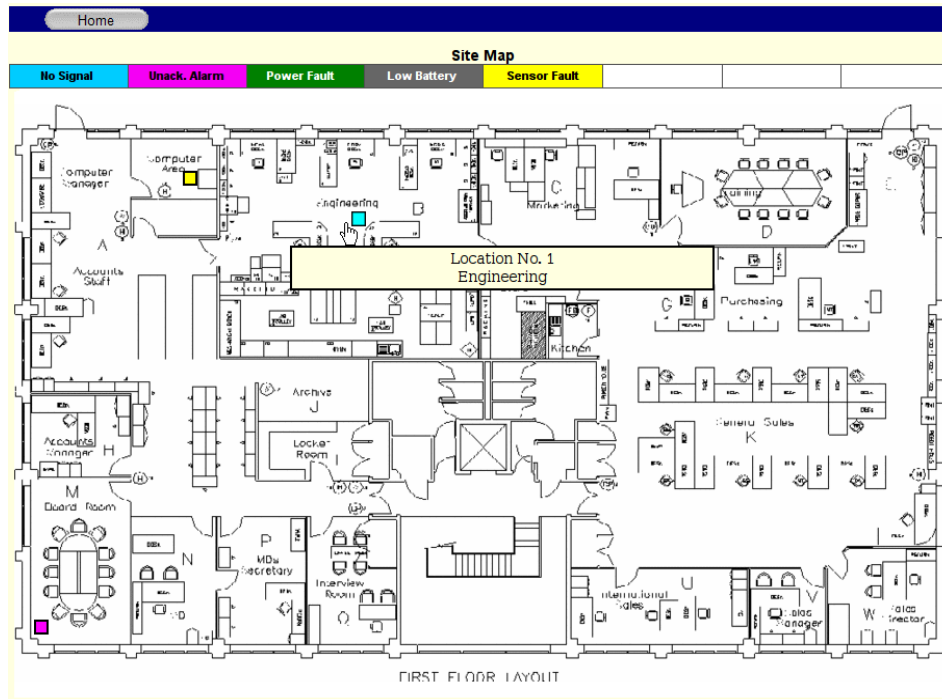


Figure 40 – Site Map

On the Site Map each placed Location is represented by a flashing rectangle. The colour of each rectangle cycles through a sequence with each colour representing whether any transmitter in that Location has generated one of the five **Events**:

- No Signal (Cyan)
- Unacknowledged Alarm (Magenta)
- Power Fault (Green)
- Low Battery (Grey)
- Sensor Fault (Yellow)

If none of the above **Events** have occurred for any transmitter within a Location then the rectangle remains clear.

If the mouse cursor is moved over a rectangle then the Location no and name is displayed as "Hover Text".

## Location Map

If a flashing Location rectangle is clicked then the Location Map for that Location is displayed. This page operates in exactly the same way as the Site Map except that on the Location Map Transmitters are displayed as flashing rectangles with the colour sequence representing events on the individual transmitter. The "Hover Text" for the Location Map is identical to [Home Page Hover Text](#) and if a flashing Transmitter Rectangle is clicked then the [Transmitter Graph Page](#) is shown.

# Map Administration

To add images to the Gateway Map function, click the **Administration** button then the **Map** button to bring up the following screen.

Map

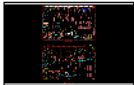
Back

Upload image then select the site map or location to transfer it to.  
Select the Edit button to add the locations or transmitters to the image

Browse...

Upload Image

Site Map, image showing locations

Site map	comarkfloorplan.gif		Edit	Transfer Image
----------	---------------------	---	------	----------------

Locations, image showing transmitters

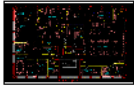

1]	General	1stfloor.gif		Edit	Transfer Image
2]	Comark UK MH	FridgeSimulant512.gif		Edit	Transfer Image
3]	Comark UK AH	No Image		Edit	Transfer Image
4]	Comark UK SO	No Image		Edit	Transfer Image

Figure 41 – Map Administration

To add a Site Map or Location image:

1. Use the **Browse** button at the top of the page to select an image file (JPEG, BMP or GIF)
2. Click the **Upload Image** button
3. Click the **Transfer Image** button to transfer the image to either the Site Map or any one of the Location Maps

After a short delay, the page will reload and show the page for placing locations or transmitters onto the respective Site Map or Location Map. See the next page for details.

## Placing Locations and Transmitters

The procedure for placing Locations or transmitters onto their respective Site Map or Location Map is almost identical so only the steps to place Locations onto the Site Map will be described here.

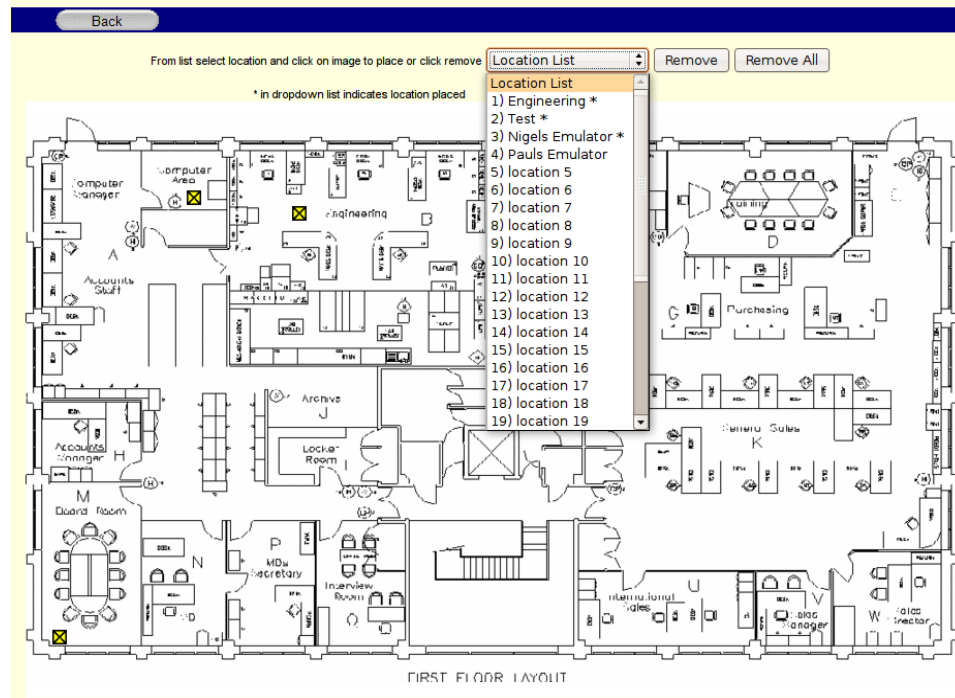


Figure 42 – Placing Locations onto Map

To add a Location to the Map:

1. Using the drop-down list select the Location to be added to the Map. (The \* by the Location name indicates that it already has been added to the Map)
2. Click on the Map where the Location is to be placed

A flashing rectangle will indicate the placed Location

To Remove or choose a new placement for a Location:

1. Using the drop-down list select the Location of interest. (The \* by the Location name indicates that it already has been added to the Map)
2. Click the **Remove** button

The Location is now deleted from the Map and can be re-added as above if required.



## Printing with RF500

Printing with RF500 is completed by using the Print function within Internet Explorer or your preferred Browser. However there is some configuration required to ensure that screens and colours are displayed correctly.

### For Internet Explorer (Ver 6)

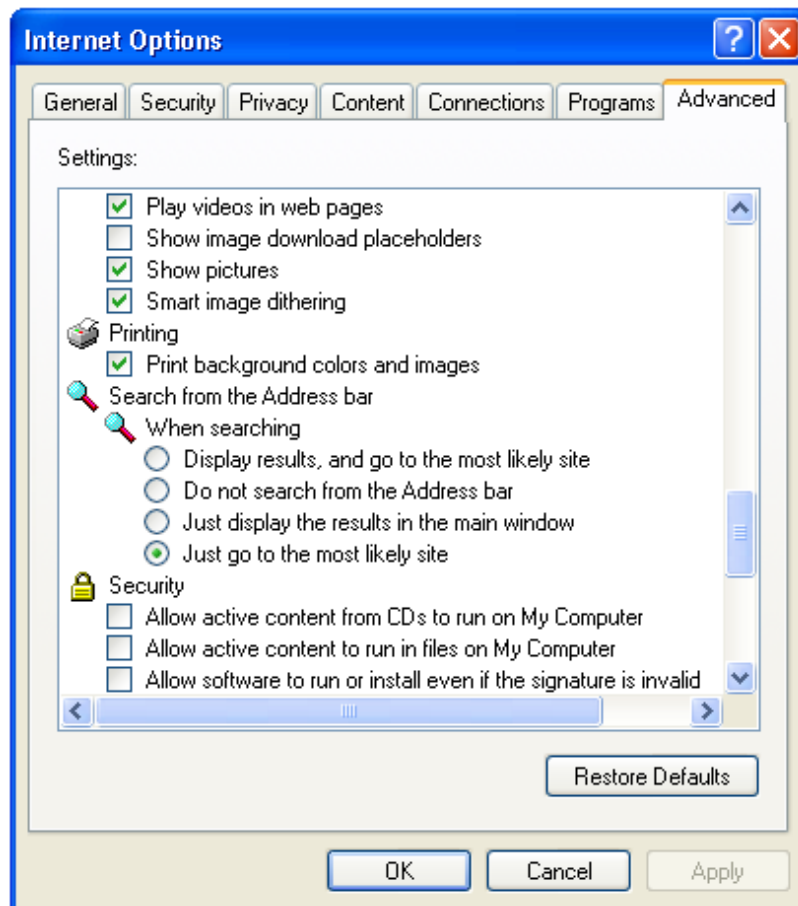


Figure 43 – Printing in I.E.

From any page:

Select *Tools – Internet Options*

Select the *Advanced* tab

Scroll down as shown and tick the box *Print Background colors and images*.

Select **OK** to finish.



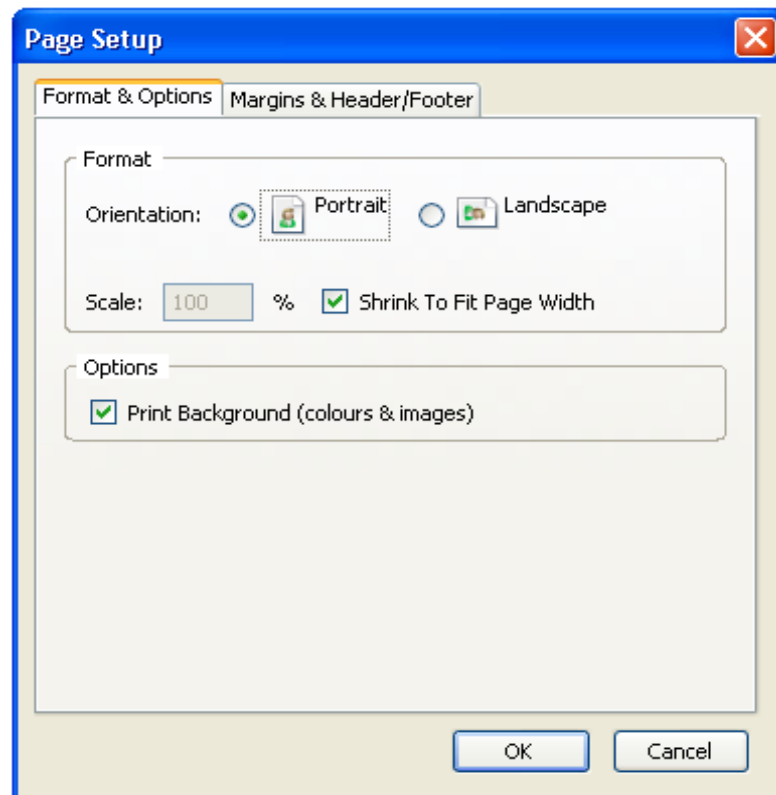


Figure 44 – Printing in FireFox

From the home page:

Select *File - Page Setup* to bring up the following screen

Tick the box *Print Background (colours & images)* to ensure that RF500 printed web-pages print correctly.

## Continuous Monitoring and Alarms

RF500 transmitters provide a continuous monitoring activity as opposed to a standard logger. This technique allows an RF500 system to reduce the amount of data logged but still able to detect any out-of-limit **Events** even if their duration is less than the log rate. This has several benefits for a wireless monitoring system.

- There is less radio activity making it more likely a radio transmission reaches the Gateway without interference from other transmitters. Some competing systems have transmitters send a radio message every 30 seconds which in a large system increases the likelihood of two transmitters “talking” at the same time, the result being neither message is received causing missing data.
- Each transmitter can log data over a longer time. RF500 transmitters can store records covering 3 months at recommended settings.
- The Gateway can store more data. RF500 can store records for 128 transmitters for more than 10 years at recommended settings.

A standard temperature logger set for a log rate of 15 minutes will only sample the temperature once every 15 minutes. This means that any out-of-limit periods with a duration of less than 15 minutes could be missed entirely.

RF500 transmitters sample the inputs at 1 minute intervals making RF500 much more responsive to out-of-limit **Events**. Samples taken at the log rate are logged to memory and transmitted via radio to the Gateway. If however the input goes out-of-limit then extra readings are logged and alarm **Event** alerts generated if necessary.

See the section on [Transmitter Alarms](#) for an explanation of how alarm **Events** and extra readings are generated.

## Definitions of Gateway Terminology

**Avg** – This is the average reading recorded in the **Period** being displayed. On the Home screen this is the average reading over the period of time from midnight to the timestamp of the latest reading received. In the summary pages the average reading could be over a much longer period of time.

**Backbone** – A Transmitter during setup can be designated to be part of the Wireless Network Backbone. This requirement is identified during site surveys. A Backbone Transmitter will be mains powered and constantly active. It will therefore (almost) always be available to re-transmit messages received from nearby Transmitters.

**Event** – All Transmitters have the capacity to measure from one or more sensor inputs at a number of pre-defined logging intervals. However should an alarm event occur between log intervals then the Transmitters will wake up to record this event. As soon as the alarm is triggered, a Transmitter will wake up and transmit the alarm back to the Gateway via the mesh network. This technique allows for long intervals between logging static readings knowing that if an alarm does occur it will be captured. This results in a robust system that log an extra reading when there is an event to record.

**Gateway Name** – A customer selectable name for each Gateway for easy identification.

**Last** – This is the last known good reading from the Transmitter. It does not imply that the Transmitter is functional or currently within range.

**Location** – A logical grouping of transmitters for the purpose of filtering and directing alerts. These Locations may correspond to the physical siting of transmitters but more usually group transmitters monitoring equipment or environments “owned” by an individual person or department.

**Login Page** – A user name and password are required in separate pages to log in to the Gateway to perform any setup changes or maintenance.

**Max** – This is the Maximum reading recorded in the **Period** being displayed. On the Home screen this is the maximum reading over the period of time from midnight to the timestamp of the latest reading received. In the summary pages the maximum reading could be over a much longer period of time.

**Min** – This is the minimum reading recorded in the **Period** being displayed. On the Home screen this is the minimum reading in the period of time from midnight to the timestamp of the latest reading received. In the summary pages the minimum reading could be over a much longer period of time.

**Mesh Network** – The technology used in the RF500 system to increase wireless reception reliability. Transmitters are setup to be either part of a Backbone or to be a regular Transmitter. Those designated as part of the Backbone remain in RF contact with each other. By doing this the system is able to dynamically adapt to changing conditions automatically ensuring the integrity of the system at all times.

**Modem Emails** – If the Gateway is not network enabled, or in the event of power failure to the network, the modem can send emails via dialup connection.

**No Signal** – The Gateway has not received any signal from a Transmitter for a long time. Usually 1 hour or 5 times the **Radio Rate** whichever is longest.

**Period** – A continuous session of logged records. Any break in monitoring will result in the creation of a new logging **Period**.

**PST** – Precision Semiconductor Technology or Thermistor, a sensor for measuring temperature.

**Radio Rate** – The rate at which a Transmitter enables its radio to contact the Gateway. The default is once every 15 minutes.

**Restricted User** – A user of RF500 who can only perform a selection of functions.

**Self-Healing** – As part of the Mesh technology the system is able to adapt automatically if one part of the system is damaged, i.e. Radio Contact is lost with part of the Backbone. Only the regular Transmitters directly reliant on the faulty part of the system will be affected with the rest of the Transmitters simply finding alternative routes for the data.

**Task** – The name given to the collection of logging parameters for a specific monitoring job. Tasking is the action of entering these parameters into RF500 and sending them to the Transmitter.

**TextMagic™** – Internet Email-to-SMS provider ([www.textmagic.com](http://www.textmagic.com)) Warning emails sent from the Gateway can be converted to SMS messages using this service. Other service providers may also work but only TextMagic has been tested.

**Transmitter** – A transmitter is a device connected wirelessly to the system. This device records data locally from a number of sensors and sends the information back to the Gateway using RF. A transmitter is powered via battery or AC adaptor.

## Glossary

**21 CFR Part 11** – The FDA (Food and Drug Administration) in the USA, issued regulations Title 21 CFR (Code of Federal Regulations) Part 11 that provide criteria for acceptance by FDA or an approved regulatory body, for the acceptance of electronic records, electronic signatures, and handwritten signatures executed to electronic records as equivalent to paper records and handwritten signatures executed on paper. These regulations, which apply to all FDA program areas, are intended to permit the widest possible use of electronic technology, compatible with the FDA's responsibility to promote and protect public health. Part 11 applies to any record governed by an existing FDA predicate rule that is created, modified, maintained, archived, retrieved, or transmitted using computers and/or saved on durable storage media. In other words any record from a data logger for instance that is at some stage stored on a PC or where a PC is used to retrieve the data, 21 CFR Part 11 can be applied. The RF500 system is designed to aid compliance with 21 CFR Part 11.

**Administrator** – An Administrator is a user who has unrestricted access to all Gateway functions.

**Antenna** – Electrical device for collecting or disseminating RF energy. The interface between a radio transmitter or receiver and transmission medium (air).

**Autodialler** – A device when triggered (by Gateway alarm for example) to dial a specific telephone number to playback a pre-recorded alarm message.

**Ethernet/Network/LAN** – Terms used to describe the connection of the Gateway to various users with access to the system. Personal Computers are connected together using a network, via ethernet ports combining to make a Local Area Network of many users.

**FCC** – Federal Communications Commission.

**FDA** – Food and Drug Administration. A regulatory body in the USA.

**Firmware** – The software program operating the various components of RF500 e.g. Transmitter, RF module and RF500 Gateway.

**Frequency** – Number of oscillation cycles-per-second of a radio signal.

**IE** – Microsoft Internet Explorer.

**IP address** – Internet Protocol address. Unique identifier for each device connected to a network.

**ISP** – Internet Service Provider.

**Licence free** – Term used to describe the frequency band in which the system operates in terms of licence to broadcast. RF500 uses the licence free ISM band of 2.4GHz where operators and users are not required to purchase any kind of licence in order to use the product.

**Modem** – Device for connecting to an analogue phone line to communicate with another Personal Computer remotely. Used to dial-in to the Gateway for user access and service. Can also be used to send email alarms via Internet dial-up account.

**Password** – A password is a string of characters that is used for user authentication. The password is personal and should be kept secret.

**Pt100** – Platinum Resistance Device for measuring temperature.

**RF** – An abbreviation of the words Radio Frequency. Commonly used to describe “wireless radio communication”.

**RH** – Relative Humidity. The amount of water vapour present in the atmosphere expressed as a percentage of the maximum that could be present at the same temperature.

**Users** – A user is anyone who is able to log onto an IT system such as RF500.



## Revision History

### **Release-5      20101007**

Manual associated with Gateway Software Release 29.

Data Backup extensively modified

Network Setup modified

Email Account added.

Data Export added.

Door Readings explanation added.

Gateway Terminology & Glossary entries added.

### **Release-4      20090722**

Many minor text changes for clarity

Add RF515 Task Page.

Modify Data Backup Page.

Re-worded battery warnings.

Re-worded User Account Expiry.

Added note about RF515 to Multi-Graph section.

### **Release-3      20090216**

All unfinished sections now complete.

### **Release-2      20080930**

Added Locations section.

Added section on Gateway Language.

Added warning about selecting Email via Modem options with no modem fitted.

Changed Modem details to reflect RF500M & RF500.

### **Release-1      20070702**

Original Release