

RFX CHARTS

V1.1.0.10 March 2009

IMPORTANT NOTICE!

This will be the last release of V1 of the charts. I will be concentrating my efforts on finishing V2, which will offer a great improvement and many new features. I will of course fix any reported problems with this version but I will not add any new features. If you have any feature requests then please email me your ideas at paul.huddlestone@gmail.com and I will see what I can do.

Please do not direct any support queries with regard to these pages and / or scripts to RFXCom. Although some of the coding in the pages and scripts is modified from that originally supplied with the charts as part of the RFXCom plug-in, it would be very difficult, if not impossible for RFXCom to provide support for these pages. For any support queries or suggestions, I can be contacted by email at paul.huddlestone@gmail.com or alternatively post your query in the RFXCom section on the Homeseer forum at: <http://board.homeseer.com> Thank you.

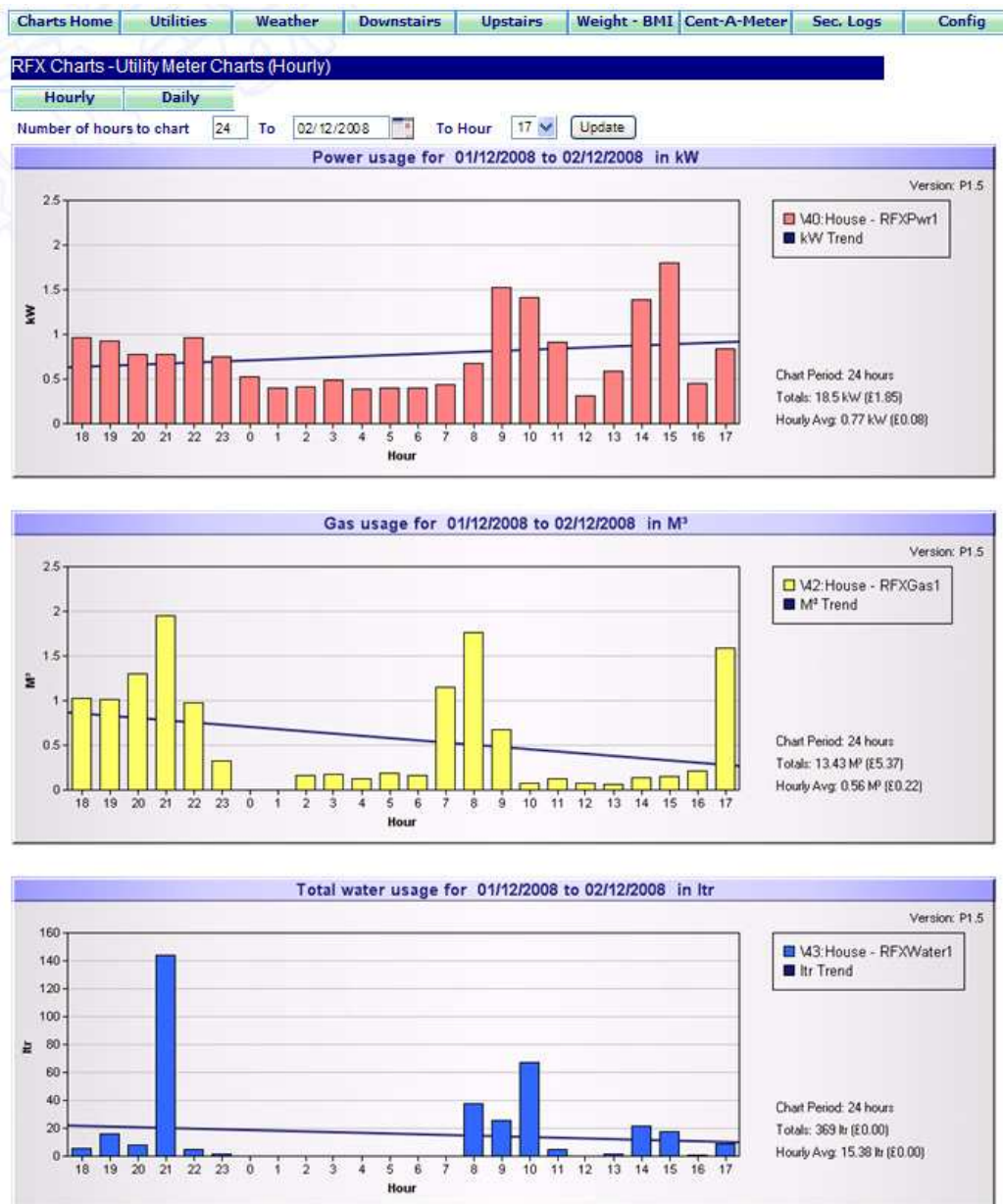


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1. Before Installation

1.1 The purpose of this project

I felt that the original charts supplied with the RFXCom Plug-In were a little limited in functionality, therefore I decided to try and create an enhanced set of charts. Basically this project provides:
A current weather page in both text and graphical formats, to display weather sensor information. When used with the supplied scripts, this page can also be used to record recent rainfall and wind gust data.

- Modified chart pages where the user can specify the charting periods to view.
- Addition of virtual sensors to record and chart Heat Index, Wind Chill and Dew Point values.
- Support for recording and charting Cent-A-Meter devices.
- Set of configuration pages so settings can be changed from the Homeseer interface.
- Security sensor logging.

1.2 Important Notes

Please **BACK UP** your entire Homeseer 2 folder before installing any of the files or running any of the scripts in this package. Although it is unlikely that installation of this package will cause problems with your Homeseer system, installation is entirely at your own risk.

This package has been tested on Homeseer version 2.2.0.66 running on Windows XP Pro. Although it may run on other Homeseer or Windows versions, this has not been tested.

You must have the RFXCom plug-in installed and operational for the charts to work.

If you already have an event that runs the RFXCOM2.vb script every hour, then change the event to run PH_RFXCOM2.vben instead, otherwise create an event to run PH_RFXCOM2.vben every hour. As both scripts use the same database, running both the RFXCOM2 and the PH_RFXCOM scripts will cause duplicate data to be recorded and any charted data will then be inaccurate.

2. Installation

2.1 The package files

The package contains 2 files, Pending.txt and RFXCharts_x_x_x_x.zip and Installation or upgrade uses a Homeseer Updater style routine.

2.2 Install / Upgrade procedure

1. Stop Homeseer
2. Copy the RFXCharts_x_x_x_x.zip file into the **\Homeseer 2\updates2\zips** folder
3. Copy the Pending.txt file into the **\Homeseer 2\updates2** folder
4. Start Homeseer

On re-starting Homeseer all the necessary files will be copied to the correct locations.

2.3 List of folders & files installed

<u>Type</u>	<u>Name</u>	<u>Location</u>
Folder	RFXCharts	\Homeseer 2\html\ (Main files)
File	GMDatePicker.dll	\Homeseer 2\html\bin
File	ColourPicker.dll	\Homeseer 2\html\bin
File	RFX_Charts.ini	\Homeseer 2\config
File	PH_RFXCOM2.vben	\Homeseer 2\scripts
File	RFX_SecLog.mdb	\Homeseer 2\Data\RFXCharts\
File	PH_RFXCharts.vben	\Homeseer 2\scripts

2.4 Modifications to existing files

A modification will be made to the **links** key in the \Homeseer 2\config\settings.ini file to provide the RFX Charts menu button.

2.4.1 Modification to the startup script file

The following line will need to be added manually to the \Homeseer 2\scripts\startup.txt file between the lines Sub() and End Sub.

```
hs.RunEX "PH_RFXCharts.vben","Startup", ""
```

2.4.2 Modification to the shutdown script file

The following line will need to be added manually to the \Homeseer 2\scripts\shutdown.txt file between the lines Sub() and End Sub.

```
hs.RunEX "PH_RFXCharts.vben","Shutdown", ""
```

2.5 Uninstalling

To uninstall the package, stop Homeseer and then just delete all the above files / folders and restart Homeseer. Also you will need to edit the **links** section in \config\settings.ini to remove the RFX Charts link and remove the entries made in step 2.4.1 and 2.4.2.

3. Set-Up

3.1 Initial Configuration

A new "RFX Charts" menu button will be created during the installation procedure. Click this button to load the ChartsHome.aspx page. When the ChartsHome page loads for the first time, you will be presented with an updater utility screen. See below for an explanation of what this does.



3.1.1 For a new installation where RFXCom plug-in was installed before V8.0.0.2

If installation is onto a system where the RFXCom plug-in was installed before V8.0.0.2 then the RFXCOM.mdb database file will not have all the tables required to work with this package. The updater will back up your **RFXCom.mdb** file to **RFXCOM.mdb** within the same directory and then perform a database structure update adding the necessary tables to the original database.

3.1.2 For a new installation where RFXCom plug-in V8.0.0.2 or later was installed

If this installation is onto a system where the RFXCom plug-in was first installed at V8.0.0.2 or later, then the RFXCOM.mdb database will have the necessary tables to work with RFXCharts and no update will be required.

3.1.3 For updating an existing installation of RFXCharts

If you are upgrading an existing installation of RFXCharts, then a similar update notice will be displayed and any necessary database and ini file updates will be made.

3.2 General Settings

General Settings	
Operating Mode	Enabled
Debug Level	Off
First day of week	Monday
Cent-A-Meter Recording	<input checked="" type="checkbox"/>
Security Sensor Recording	<input checked="" type="checkbox"/>
Wind Gust Recording (Weather Pages)	<input checked="" type="checkbox"/>
Rain Total Recording (Weather Pages)	<input checked="" type="checkbox"/>
Input Database Path	C:\Program Files\HomeSeer 2\Data\RFXCharts\RFX_Inpl
Security Database Path	C:\Program Files\HomeSeer 2\Data\RFXCharts\RFX_Sec
Temporary Database Path	C:\Program Files\HomeSeer 2\Data\RFXCharts\RFXSEC

Menu Items	
Choose the items to appear on the menu bar	
Utilities	<input checked="" type="checkbox"/>
RFX Sensor	<input type="checkbox"/>
Weather	<input checked="" type="checkbox"/>
Environmental 1	<input checked="" type="checkbox"/>
Environmental 2	<input checked="" type="checkbox"/>
Environmental 3	<input type="checkbox"/>
Weight - BMI	<input checked="" type="checkbox"/>
Cent-A-Meter	<input checked="" type="checkbox"/>
Security Sensor Logs	<input checked="" type="checkbox"/>

Custom Button Names	
Default Name	Custom Name
Enviro 1	Downstairs
Enviro 2	Upstairs
Enviro 3	--

3.2.1 General Settings

- Operating Mode: This option switches the whole package on or off.
- Debug Level: This option switches on / off the writing of debug messages to the HS log.
- First day of week: This option is used to choose the correct day to reset the weekly counters.
- Cent-A-Meter Recording: Switch on / off recording of Cent-A-Meter device. (See section 3.5)
- Security Sensor Recording: Switch on / off security sensor recording (See section 3.6)
- Wind Gust Recording: If you have a wind sensor then this turns on/off gust recording.
- Rain Total Recording: If you have a rain sensor, then this turns on/off day, week etc totals.
- Input Database Path: This option currently performs no function and is disabled.
- Security Database Path: This is the full path and file name of the security log database.
- Temp Database Path: This is the temporary file location used during database maintenance.

3.2.2 Menu Display

- Menu Items: Switch on / off the various menu items.
- Custom Button Names: Set custom button names for Enviro 1, 2 and 3 buttons.

3.3 Weather Settings

Weather Settings	
Select the sensor devices that will be used on the current weather page.	
Outdoor Temperature	\31 : Outside - Temperature
Outdoor Humidity	\32 : Outside - Humidity
Barometer	\18 : Weather Station - Baro
Wind Speed (Avg)	\47 : Weather Station - Wind Speed
Wind Speed (Gust)	\48 : Weather Station - Wind Gust
Wind Direction	\49 : Weather Station - Wind Direction
Wind Speed (Used for H.I. And W.C. Calc)	\47 : Weather Station - Wind Speed
Rainfall (Total)	\45 : Weather Station - Rain Total
Rainfall (Rate)	\46 : Weather Station - Rain Rate
U.V. Sensor	\2 : Weather Station - UVR 138

Barometer Correction Settings	
Barometer elevation (Enter negative value if below sea level)	5 Meters

Units Settings		
Set units for weather sensors.	Input	Display
Temperature	°C	°C
Barometer	hPa	hPa
Wind Speed	M/Sec	Mph
Rain	mm	mm

3.3.1 Weather Devices

Sensor devices that will be used on the current weather page should be configured here.

3.3.2 Barometer Elevation Correction

Corrects the barometer reading on the weather pages and in the recording / charts for elevation. Enter a negative value if the barometer is below sea level.

3.3.3 Units Settings

Input Units: Set the input units to the same as configured in the RFXCom Plug-In
 Display Units: This sets the display units used on the current weather page.

3.4 Charts Settings

Default Charting Periods		
Chart Type	Hourly	Daily
Weather	24	14
Utilities	24	14
RFX Sensor	24	7
Environmental 1, 2 & 3	24	14
Cent-A-Meter	24	30
Weight Charts		Value
Default number of days for Daily Weight / BMI charts		21
Default number of records to for Old Style Weight / BMI charts		20

Chart Display Options	
Utility Chart Options	Setting
Hide unused utility charts	<input checked="" type="checkbox"/>
Display trend line on utility charts	<input checked="" type="checkbox"/>
Utility Chart Colours	
Power Device 0 Bar Colour	#FF8080
Power Device 1 Bar Colour	#80FF80
Power Device 2 Bar Colour	#8080FF
Power Trend Line Colour	#191970
Gas Device Bar Colour	#FFFF00
Gas Trend Line Colour	#191970
Total Water Device Bar Colour	#3366FF
Total Water Trend Line Colour	#191970
Hot Water Device Bar Colour	#FF6600
Hot Water Trend Line Colour	#191970
Weight Chart Options	
Display trend line on weight charts	<input checked="" type="checkbox"/>
Enviro Chart Options	
Hide unused enviro charts	<input type="checkbox"/>
Cent-A-Meter Chart Options	
Display trend line on Cent-A-Meter Charts	<input type="checkbox"/>

Chart Scaling Options	
Chart	Setting
Weather Hourly - Rain Scale	Auto
Weather Daily - Rain Scale	Auto
Weather - UV Index Scale	0-12

Virtual Sensor Settings		
Sensor	Record	Chart
Heat Index	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wind Chill	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Dew Point	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

3.4.1 Default Charting Periods

Sets the default hours, days or number of records for each chart type.

3.4.2 Chart Display Option

Specify colour and other chart options.

3.4.3 Chart Scaling Options

These options set the scaling used for various sensors.

3.4.4 Virtual Sensor Settings

Switch on / off the recording / charting to the database of the HI, WC and DP virtual sensors.

NOTE: The modified recording script **PH_RFXCOM2.vben** must be used **in place** of the standard RFXCOM2.vb script or the virtual sensors will not be recorded irrespective of the settings used here. The recording script is designed to be run **only once per hour**, in the same manner as the standard RFXCom script.

3.5 Cent-A-Meter Settings

Cent-A-Meter Options			
General Settings			
Record cent-a-meter activity to the HS log	<input type="checkbox"/>		
Change RFXCOM input devices to show kW values	<input checked="" type="checkbox"/>		
Use graphic on status page	<input checked="" type="checkbox"/>		
Average system voltage	<input type="text" value="240"/>		
RFXCom Input Devices			
Select Channel 1 Input Device	<input type="text" value="Disabled"/>		
Select Channel 2 Input Device	<input type="text" value="V41 : House - Electrisave"/>		
Select Channel 3 Input Device	<input type="text" value="Disabled"/>		
Virtual kW Total Devices			
Select Channel 1 Device	<input type="text" value="Disabled"/>		
Select Channel 2 Device	<input type="text" value="Q10 : House - Electrisave Ch2 kW"/>		
Select Channel 3 Device	<input type="text" value="Disabled"/>		
Rate Settings (Cent-A-Meter only)			
Unit Rate 1 (Per kWh)	<input type="text" value="0.10"/>		
Unit Rate 2 (Per kWh)	<input type="text" value="0.10"/>		
Unit Rate 2 Start Time (Format 00:00:00)	<input type="text" value="00:00:01"/>		
Unit Rate 2 End Time (Format 00:00:00)	<input type="text" value="06:59:59"/>		
Charting Options			
	Ch1	Ch2	Ch3
Record virtual device to database and use on charts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Power consumption can be estimated, recorded and charted using a Cent-A-Meter (Electrisave / Owl) device.

NOTE: This method of power monitoring is designed as a guide only. It relies on Homeseer running to work.

IMPORTANT: Before configuring the cent-a-meter settings you will need to create Homeseer virtual devices. These devices will act as virtual kWh meters for each channel of the cent-a-meter. If you are just monitoring 1 phase using 1 cent-a-meter channel, then you will need only 1 virtual device. If you are monitoring 2 or 3 phases using 2 or 3 cent-a-meter channels, then you will need 2 or 3 virtual devices accordingly. It is important that the device type for these virtual devices is set to CENOUT. This is not case sensitive so, CenOut or cenout will be OK. New device types can be created from the Homeseer setup screen.

- | | |
|--------------------------------|--|
| Record activity to the HS log: | If checked then all detected cent-a-meter activity will be recorded to the HS log. (Normally used for troubleshooting only). |
| Change RFXCom devices kW: | This option will change the status display of any input devices configured to include the instantaneous kW reading as well as amps. |
| Use graphic on status page: | If checked the standard RFXCOM icon will be used for all input and output devices configured. |
| Average system voltage: | This is the voltage value that is combined with the amps value from the cent-a-meter to calculate the kW value. This may need some adjustment to get an average because voltage can fluctuate by quite a large amount. |
| RFXCom Input Devices: | Choose up to 3 (previously configured in the RFXCom plug-in) cent-a-meter device channels to act as the input devices. |

Rate Settings:

These are the values used to calculate power cost. These settings are independent of the RFXMeter settings and only apply to the cent-a-meter.

Use Rate 2 at weekends

If checked, then Rate2 will be used for power cost calculations at weekends.

Record / Chart:

Check the channels that you wish to record to the database and have displayed on the charts. **NOTE:** Only channels that have an output device configured can be selected for recording / charting.

3.6 Security Sensor Logging Settings

General Settings			
Record security sensor activity to the HS log			<input type="checkbox"/>
Alarm Panel Log Settings			
Log Alarm Panel State Activity - Panel 1	All		
Log Alarm Panel Status Activity - Panel 2	Alarm/Panic Only		
Log Alarm Panel Messages Activity - Panel 3	All		
Log Alarm Panel Control Activity - Panel 4	All		
<i>Note: Logging of individual security sensors must be configured from within the RFXCom Plug-in.</i>			
Log Display Settings			
Log Type	Sensor Log	AC Log	Panel Log
Total No of records to get for full list view (Max 500)	200	500	100
No of records to display per page in list view (Max 50)	25	25	25
No of detail records to display per page (Max 25)	15	15	
Security Log Database Maintenance			
Purge Panel Records older than	90 Days	Purge Now	
Purge Sensor Records older than	90 Days	Purge Now	
Purge AC Records older than	90 Days	Purge Now	
Security Log Database Size	6.93mb		
Compress database to save disk space	Compact Db		

3.6.1 General Settings

Record to HS log

If checked, security sensor logging activity will also be written to the Homeseer log. (Normally only used for troubleshooting)

3.6.2 Log Settings

Sets the various log levels for each alarm panel.

3.6.3 Log Settings

Set number of records to display for log viewing.

3.6.4 Database Maintenance

NOTE: Logging must be stopped before any database maintenance tasks can be performed. See Status screen to stop logging.

Purging deletes records from the database older than XX number of days.

After purging records, run the Compact Db routine to compact the database. A backup of the database will be made before it is compacted. This file will be located in the same directory as the original database file and named the same as the original database with the letter "x" appended to the file extension. **BEWARE:** When Compact Db is next run, the backup database will be overwritten.

5. RFX Settings

NOTE: This section is provided to make editing of the RFXCOM parameters accessible from the Homeseer web interface rather than editing the ini file directly.

Database Settings

Database Path (Valid)

Utility Settings

Power - Unit Rate 1	<input type="text" value="0.10"/>
Power - Unit Rate 2	<input type="text" value="0.10"/>
Power - Rate 2 Start Time (Format 00:00:00)	<input type="text" value="00:00:01"/>
Power - Rate 2 End Time (Format 00:00:00)	<input type="text" value="06:59:59"/>
Gas - Unit Rate	<input type="text" value="0.40"/>
Water - Unit Rate	<input type="text" value="0.00"/>
Hot Water - Unit Rate	<input type="text" value="0.00"/>

Weight Scale Users

No	User Name	Height-cm	Min-kg	Max-kg	Display
1	<input type="text" value="User 1"/>	<input type="text" value="181"/>	<input type="text" value="85"/>	<input type="text" value="95"/>	<input checked="" type="checkbox"/>
2	<input type="text" value="User 2"/>	<input type="text" value="167"/>	<input type="text" value="75"/>	<input type="text" value="84"/>	<input checked="" type="checkbox"/>
3	<input type="text" value="User 3"/>	<input type="text" value="145"/>	<input type="text" value="35"/>	<input type="text" value="42"/>	<input checked="" type="checkbox"/>
4	<input type="text" value="User 4"/>	<input type="text" value="150"/>	<input type="text" value="43"/>	<input type="text" value="46"/>	<input checked="" type="checkbox"/>

5.1 Database Settings

Set the path to the RFXCOM database.

5.2 Utility Settings

Set the various parameters used for utility related database recording.

5.3 Weight Scale Users

Settings for users of the weight scale and chart display options.

5. Homeseer Events

5.1 ResetCounters

If you use the rain and wind gust monitoring features of the package, then the day, week, month and year counters will need to be reset.

Create a new Homeseer event to run at or just after midnight every day.

Set the action to Run Script.

Add ("ResetCounters") in the parameters.

Enable the event.

Existing script:	<input type="text" value="PH_RFXCharts.vben"/>
Existing or new script name:	<input type="text"/>
Optional parameters (function,param) ie: ("main","lights")	<input type="text" value='("ResetCounters")'/>
OR Script Statement: ie: &hs.speak "hello"	<input type="text"/>
Wait for script to finish:	<input type="checkbox"/>
Only allow one instance to run:	<input type="checkbox"/>

NOTE: The reset counters sub will only run between 00:00:00 and 00:00:02. It will fail if run outside these times.

6. Software Revisions and Change Log

1.0.4.1 - First release version June 2008

1.0.4.2 - Update June 2008

Fixed minor errors on mouse over tool tips on some charts pages.
Fixed error in PH_RFXTableAdder.vb where the script would fail on some systems.
Corrected version number on ChartsHome page.

1.0.4.3 - Update June 2008

Added custom name capability for environmental buttons.
Added auto-scaling to UV meter on graphical weather page.
Other minor fixes.

1.0.4.4 - Update July 2008

Added support for RFXSensor barometric and humidity sensors on current weather page.
Fixed a problem with the tool-tip not displaying correctly on all charts when a large number of days or hours is charted and the X axis is incremented.

1.0.5.1 - Update July 2008

Added Security Sensor Logging
Chart Director is now licensed so the yellow banners have been removed for the charts.

1.0.6.1 - Update July 2008

Added Security Sensor Logging.
Chart Director is now licensed so the yellow banners have been removed for the charts.
Config and security pages are not viewable by guest users.
Internal version upgrade utility added.
Unused utility charts are hidden. (e.g. gas & water)
Weather UV scaling option added for UV sensors with a range of 0-25.
Other minor fixes.

1.0.6.2 - Update July 2008

Fixed problem with guest access to config and security pages.

1.0.7.0 - Update July 2008

Changed daily chart pages to use to / from dates.
Added option to hide unused utility charts.
Added option to display trend line on utility charts.

1.0.7.1 - Update July 2008

Fixed problem with incorrect display of units on hourly utility chart.
Added trend line option to weight charts.

1.0.8.8 - Update September 2008

Added barometric elevation correction formula to weather pages and PH_RFXCOM2.vben script.
Added Beaufort unit type to current weather pages.
Added option to hide unused environmental charts.
Added ability to specify bar and trend line colours on utility charts.
Added web page to configure RFXCom utility rates and weight scale user parameters.
Added option to hide unused weight charts.
Number of records for Old Style weight charts can be set in charts config.
Alerts summaries in security logs can now be clicked to display full details of each alert.
Added new "Hot Water Usage" chart and associated table to utilities page. RFX device name must start with "RFXHOT" for the device to be recorded and charted.
Fixed some rendering issues experienced with Firefox V3 browser.
Changed way in which trend line works on daily weight charts. If there is no data for the first day of a selected charting period, then the trend line will be automatically hidden.
Changed the way in which the internal update utility works following a version upgrade. This should eliminate the problems experienced by users where Homeseer is not installed at C:\Program Files\Homeseer 2\...

1.1.0.5 - Update December 2008

Changed the way in which chart images are created to prevent partial image loading problems reported by some users.
Changed the way in which the package is loaded and runs with Homeseer.
Added full support for logging and charting of cent-a-meter (Electriscave / Owl) devices.

1.1.0.7 - Update December 2008

Added option to cent-a-meter and RFX Power config to have power cost calculated at Rate2 on weekends.
Fixed problem where some hourly charts could display data 1 hour behind. For example the chart point for hour 09 would display the data for hour 08.

1.1.0.8 - Update February 2009

Added ability to display RFX sensor type humidity sensors on the enviro pages.

Fixed problem with PH_RFXCOM2.vben where the alternative rate was always used for RFXPwr and cent-a-meter devices.

Numerous other small fixes.

1.1.0.9 - Update February 2009

Fixed a problem where the sort order of sensors on the environmental charts was not synchronised for temp and humidity sensors.

1.1.0.10 - Update March 2009

Added option to force Auto Scaling and set the scaling parameters of the temperature charts on environmental pages 1, 2 & 3.

Added option to choose stacked bar type chart for the utilities>power charts.

Added ability to record and chart Owl CM119 devices on the standard utilities>power charts in tandem with RFXPwr or RFXPower devices.