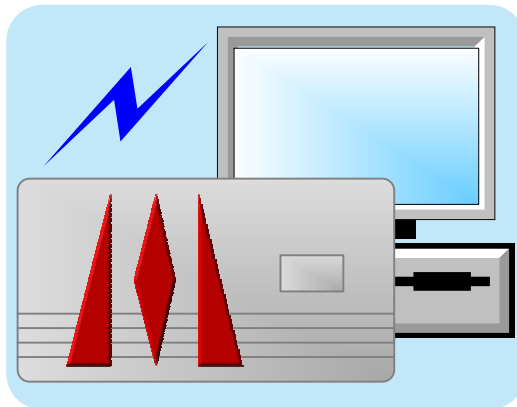


DATA VIEWER

Data Collection and Viewing Software User Manual

Manual Rev A



Communicator

Data Collection and Viewing Software User Manual

Manual Rev A

Preface

The AGM **Data Viewer** is an easy to use data collection and viewing program for use with the Data Controller.

Features

- Real Time Monitoring and Recording of Analog and Digital Signals
- Downloading of Data Recorded in the Data Controller
- Graphic Viewing of Real Time or Recorded Analog and Digital Data
- Minimum, Maximum, Average and Integrated Total Report for Analog Data
- Count of Open to Closed Transitions Report for Digital Inputs
- Beginning, Ending, and Total Count Report for Counter Data
- Automatic Configuration of Program from Configuration in Data Controller

NOTE: Refer to the Data Controller **User Manual** or **Project Book** for other information that is not covered in this manual

Data Viewer

Data Collection and Viewing Software

User Manual

Rev NC

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1. System Requirements

Hardware

Processor:	Pentium 1 GHz or faster.
RAM:	1 GB or higher.
Other:	Ethernet Port.

Software

Operating Systems: Windows XP

Windows Server 2003

Windows Vista

Windows 7

Other Software: Windows .NET 2.0 or later

2. Software Installation

Insert the AGM Electronics' **Data Viewer CD-ROM** into your **CD-ROM** drive and follow the on-screen instructions. If installation does not automatically begin then:

1. From the windows taskbar, click **Start** and choose **Run**
2. In the Run dialog, type **D:\SETUP.EXE**, where **D** is the name of your **CD-ROM** drive
3. Click **OK** and follow the on-screen instructions

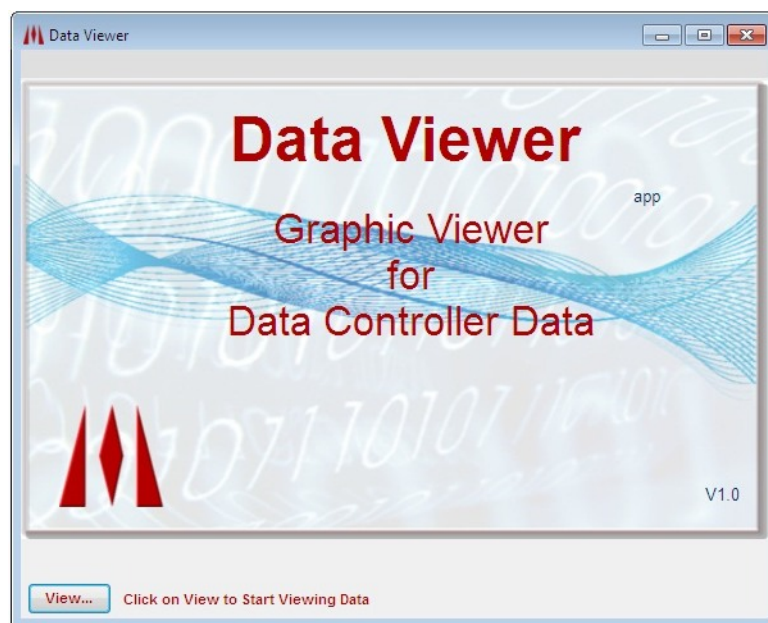
NOTES:

- Microsoft .Net 2.0 or later Framework must be installed on your computer. Most computers already have .Net 2.0 installed. If not installed then you may download the runtime .Net 2.0 Framework from Microsoft's website.
- Microsoft .Net 2.0 Framework provides a large source of pre-coded, tested and proven software solutions to common program requirements that include user interface, data access, database connectivity, numeric algorithms, and network communications.
- Microsoft .Net 2.0 Framework also helps to insure system stability over a broad range of Windows Operating Systems and reduces the vulnerability of applications and computers to security threats.
- Screen images used in this manual were selected on a PC running Windows 7 Operating System. Therefore screen images may differ slightly different from those shown in this manual if your PC is using a different version of Windows.

-
4. During installation you may see up to two warning messages indicating the Data Viewer publisher can not be verified. Click on Run or Install to complete the installation.



5. Once installed the Data Viewer program will automatically start displaying the following on your screen



3. Uninstalling Data Viewer

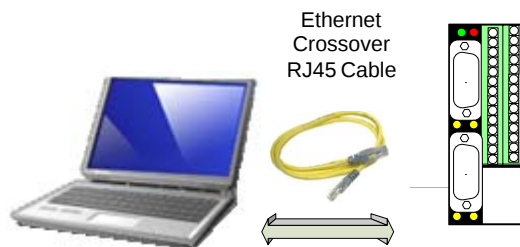
To uninstall **Data Viewer**, use Add or Remove Programs in Windows Control Panel.

4. Using Data Viewer

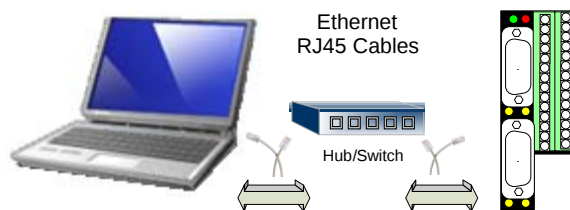
4.1. Connect to the Data Controller

NOTE: If connecting to an existing network and your network is using the subnet of 192.168.0.xxx then make sure no other device on the network is using 192.168.0.251 before connecting the Data Controller to the network. Connect using a crossover cable and modify the IP settings of the Data Controller to an unused IP address before connecting the Data Controller to your network.

Connecting the PC directly to Data Controller



Connecting the Data Controller over a network



4.2. Set Your Computer to Access the Data Controller

4.2.1. Direct Connection

The default setting for the Data Controller uses IP address 192.168.0.251. In order to communicate with the Data Controller set your computer to use a static IP address of 192.168.0.1 with a subnet mask of 255.255.255.0.

See Windows “Help and Support” for instructions on modifying your Ethernet Network adapter settings.

4.2.2. Local Area Network

The default setting for the Data Controller uses IP address 192.168.0.251. When connecting the Data Controller to an existing network set the Data Controller to use an IP address that is compatible with your network.

You will use this new IP address to connect to the Data Controller.

You may need to temporarily modify the network settings on your computer to make the IP address change in the Data Controller. Once the change is made you can restore your computers network settings to their original settings.

See the AGM Data Controller User Manual for instructions on setting the IP address.

4.2.3. Wide Area Network (Internet)

When using the Data Controllers over the Internet the IP address stored in the Data Controller may not be the same IP address used to access the Data Controller. You may also be using HTTP and FTP ports other than 80 and 21. This is due to Gateway and other devices that provide Network Address Translation (NAT). NAT allows a single public IP address to be shared by multiple devices.

You may also have a URL (e.g. domain.com) associated with the site where the Data Controller is located.

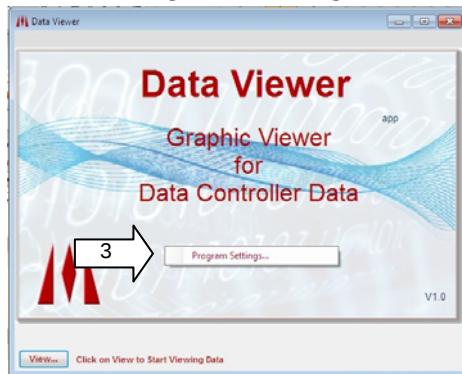
Once the Data Controller has been set up to operate over the Internet and your computer is set up to access the Internet you do not need to modify your computers network settings to use the Data Viewer. You will however need to know the Internet IP address or URL for the Data Controller. You will also need to know the HTTP and FTP port numbers being used by the Data Controller.

Setting up the Data Controller to be used over the Internet is beyond the scope of this document.

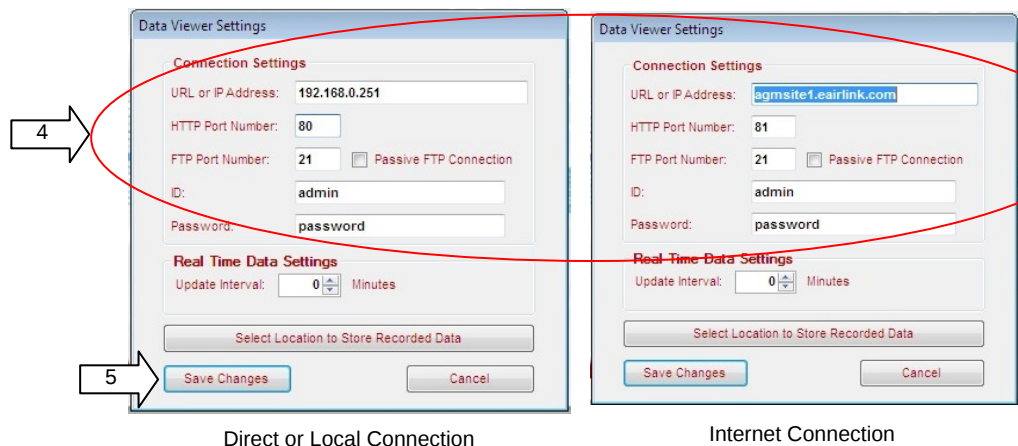
4.3. The first time you use the Data Viewer program or if the address of the Data Controller has been modified –

1. Start the Data Viewer program
2. Right click anywhere on the screen

3 → Select Program Settings...



4 → Modify Connection Settings



If direct or local area network the IP Address; HTTP Port Number; FTP Port Number should match the settings in the Data Controller. Passive FTP Connection should be unchecked.

If connecting over the Internet the URL or IP Address should match the Internet IP address or URL. If a Gateway is used the HTTP Port Number and FTP Port Number should match the TCP port numbers that have been defined in the Gateway and may not necessarily match the settings in the Data Controller.

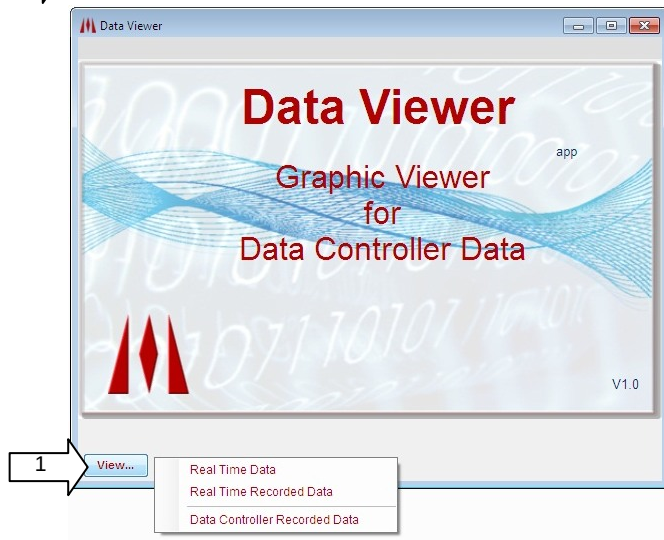
In both cases the ID and Password must match the values set in the Data Controller.

5 → Click on Save Changes to save the modified network settings

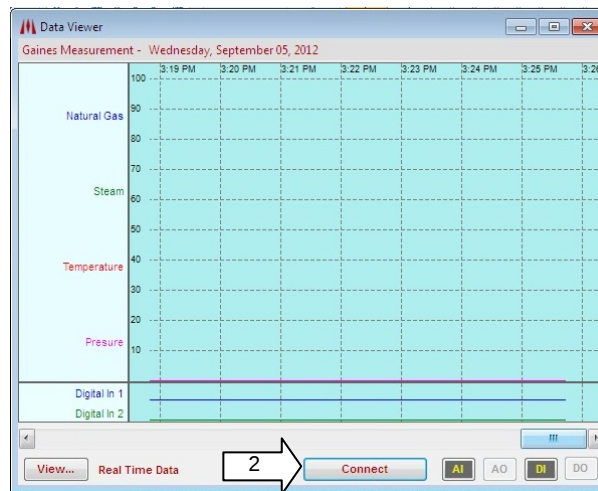
4.4. Obtaining Data From the Data Controller to View

4.4.1. Viewing Real Time Data

1 → Click on the View Button then Select: Real Time Data



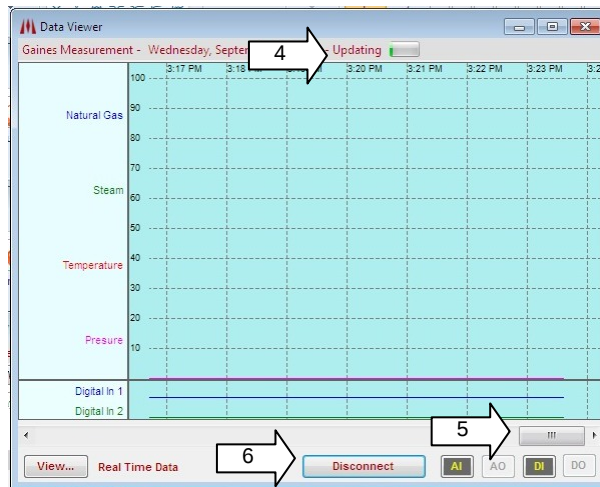
2 → Click on the Connect Button to Start Viewing and Recording Real Time Data



3. Wait for the Data Viewer program to start retrieving data from the Data Controller.

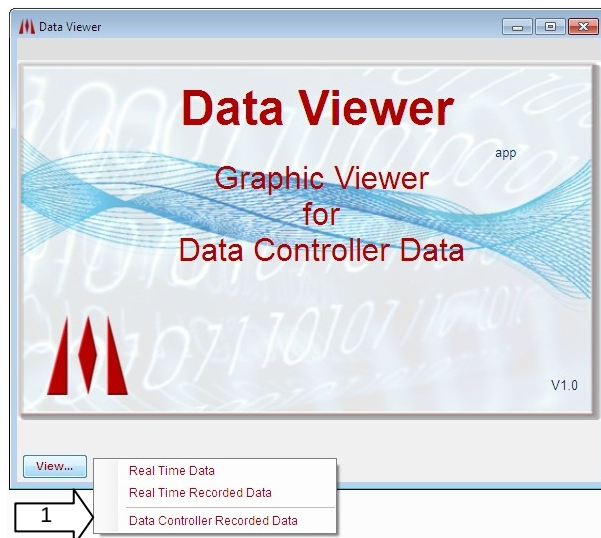
NOTE: The Data Viewer program retrieves the configuration from the Data Controller prior to retrieving any data. Information retrieved include: Names of Data Points; Units; and scaling factors.

-
- 4 → The Data Viewer will continuously poll the Data Controller for data, this indicator will show when data is being updated. The green bar will clear when data has been updated and fill up while the Data Viewer waits for data from the Data Controller.
 - 5 → Use the scroll bar to view data up to 1 hour in the past
 - 6 → Click on the Disconnect button to disconnect from the Data Controller

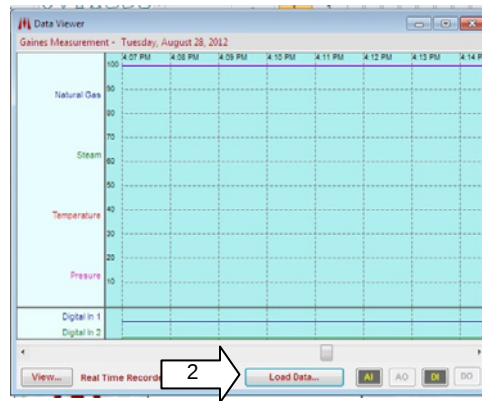


4.4.2. Viewing Data Recorded in the Data Controller

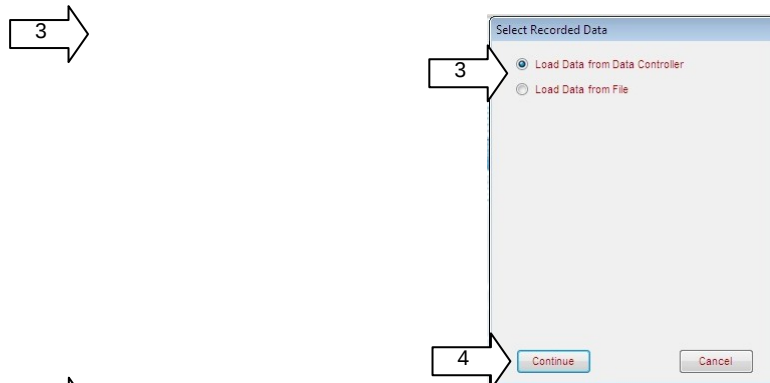
- 1 → Click on the View Button then Select: Data Controller Recorded Data



-
- 2 → Click on the Load Data Button to retrieve data from the Data Controller for viewing



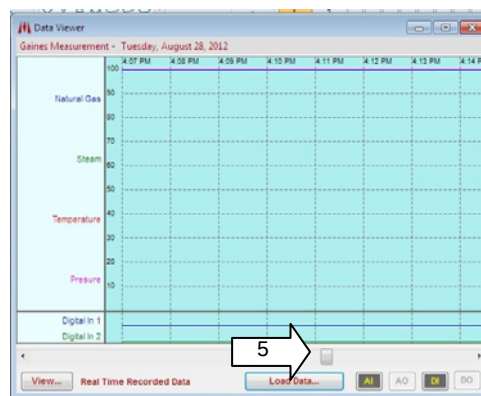
Select Load Data from Data Controller



- 4 → Click on Continue

The Data Viewer will start retrieving recorded data from the Data Controller. When done the progress dialog box will close and the recorded data displayed.

- 5 → Use the scroll bar to scroll through up to 1 days worth of data.



4.5. Viewing Previously Recorded Data

Two types of recorded data are available for viewing with the Data Viewer.

The first type of recorded data is the data that was recorded by the Data Viewer program while viewing Real Time Data.

The second type of recorded data is the data that was recorded by the Data Controller then retrieved by this Data Viewer program.

To view previously recorded data you must first select which type of recorded data you wish to view. Click on View button then select one of the following from the menu:

1 → If you want to view the data collected when viewing Real Time Data select:

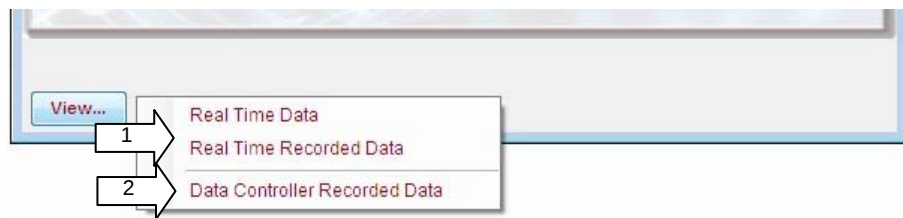
Real Time Recorded Data

Then go to 4.6.1.

2 → If you want to view the data recorded in the Data Controller and previously retrieved by this program select:

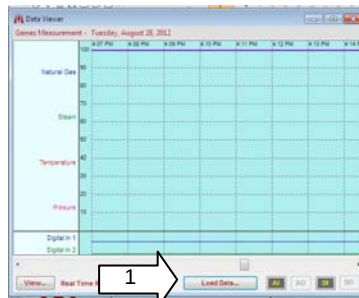
Data Controller Recorded Data

Then go to 4.6.2.



4.5.1. Viewing Previously Recorded Real Time Recorded Data

1 → Click on the Load Data Button



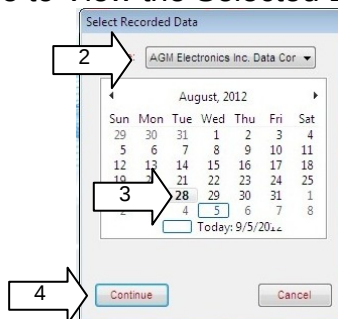
2 → Select the Site to View

Site names are used to identify a Data Controllers. Each Data Controller in a system must have a unique Site Name. That Site Name will be retrieved from the Data Controller and used to identify the data collected from that specific Data Controller.

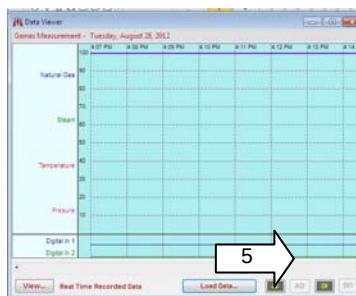
3 → Select the Date to View

Bold calendar dates are dates that contain data.

4 → Select Continue to View the Selected Data

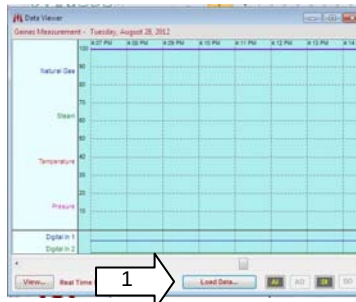


5 → Use the scroll bar to stroll through 1 days worth of data.



4.5.2. Viewing Previously Retrieved Data Controller Recorded Data

1 → Click on the Load Data Button



2 → Select Load Data from File.

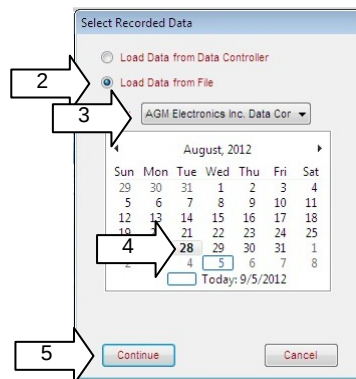
3 → Select the Site to View

Site names are used to identify a Data Controllers. Each Data Controller in a system must have a unique Site Name. That Site Name will be retrieved from the Data Controller and used to identify the data collected from that specific Data Controller.

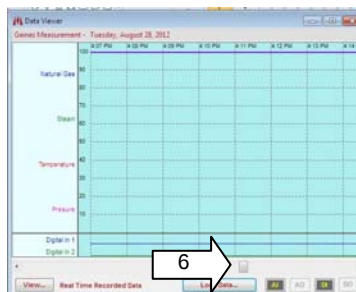
4 → Select the Date to View

Bold calendar dates are dates that contain data.

5 → Select Continue to View the Selected Data



6 → Use the scroll bar to scroll through 1 days worth of data.



5. Reports

The Data Viewer program has the ability to produce a report containing common calculations from the recorded data such as:

- Minimum Analog Value

- Maximum Analog Value

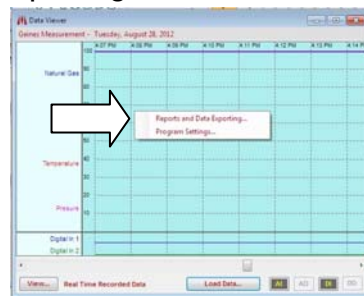
- Average Analog Value

- Integrated Total Derived from an Analog Value

- Count of Open to Closed transitions for Digital I/O

- Total Count from Counters

To access the reports right click on the Graphic Display Page then select Reports and Data Exporting...



The following reports page will pop up then:



1 → Select the Date Range for the Report

 Select the Starting Date

Date Selection will use the following:

Daily and Weekly –

Text box that pops up a calendar to select starting date

Monthly –

Two drop down list boxes that select the month and year

Yearly –

Drop down list boxes that select the year

Number of Days –

Text box that pops up a calendar to select starting date

Numeric box that sets the number of days in the report

Any Date / Time Range –

Text box that pops up a calendar to select starting date

Time Selection box to select starting time

Text box that pops up a calendar to select ending date

Time Selection box to select ending time

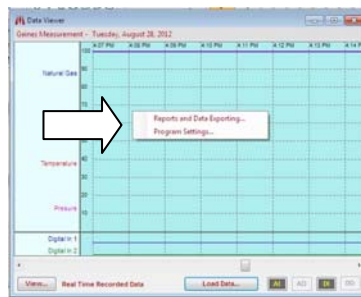
 Calculate the Report

 To print the report or modify how the Analog values are calculated right click on the report and select one of the options from the menu.

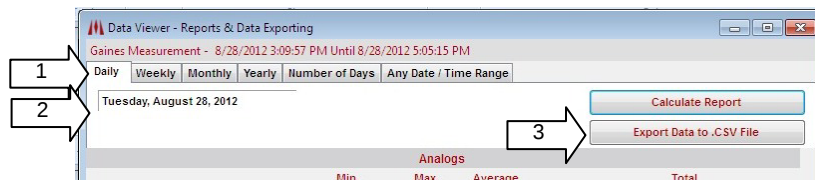
6. Exporting Data

The Data Viewer program stores its data in .XML data files organized by the Site Name and Date. These files may be accessed by programs that can read .XML files. For other programs the Data Viewer can export the data to a Comma Delimited File (.CSV) which can be read by most spreadsheet programs.

The same screen used for displaying reports is also used for selecting the data to export. To access this screen right click on the Graphic Display Page then select Reports and Data Exporting...



The following reports page will pop up:



1 → Select the Date Range for the Report

2 → Select the Starting Date
(See reports section above for available ranges)

3 → Export the Data

You will be prompted for a file name and location using the standard Windows Save As box. The default name of the .CSV file will be the Site Name.

7. Screen Details

7.1. Graphic Display Screen

Status Indicator —
Shows Site Name and Date of data

Analog Data Graph —

Digital Data Graph —

Legend Area —
1. Text color matches lines in graph
2. Clicking on name will enable/disable display of selected data

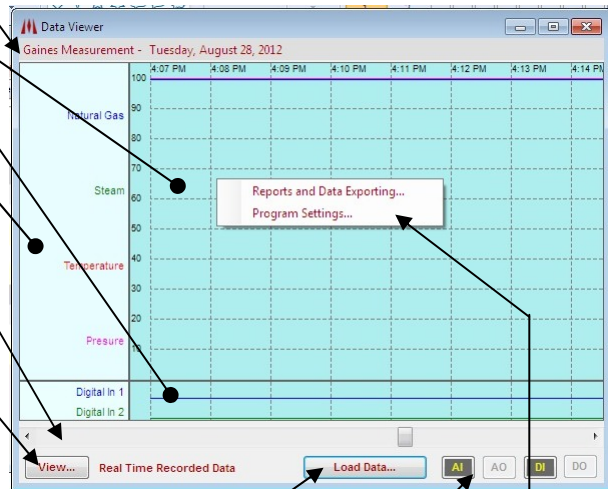
Scroll Bar —
Scrolls through displayed data:
Real Time data available for 1 hour
Recorded data available for 1 day

View Button —
Selects the type of data viewed

Action Button —
Connects/Disconnects or Loads Data

Display Buttons —
Enables/Disables display of one type of data:
Analog Inputs; Analog Outputs; Digital
Inputs; or Digital Outputs.

Options Menu —
Right Click to display menu and select menu
option. Used for: Accessing Reports;
Exporting Data; and changing Program
Settings.



7.2. Report Display Screen

Status Indicator
Shows Site Name and Date of data

Date Range Selection Tabs

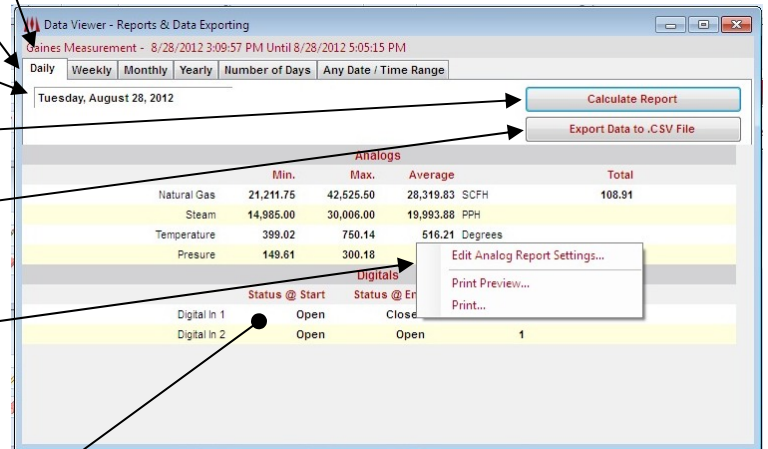
Date and Time Selection

Calculate Report Button
Updates the Data in the Report

Export Data Button
Exports Data from the selected range to a .CSV file

Options Menu
Right Click to display menu and select menu option. Used for: Modifying How Analog Data is Displayed; and Printing

Report Area



7.3. Data Viewer Settings

Address Setting

Sets the address where the Data Controller is located. You may enter either an IP address (e.g. 192.168.0.251) or if a domain name has been assigned the domain name or URL (e.g. something.com).

HTTP Port Number

Normally the HTTP port should be set to 80 however when used with Gateways and other devices the HTTP port number may set to a different value.

FTP Port Number

Normally the FTP port should be set to 21 however when used with Gateways and other devices the FTP port number may set to a different value.

Passive FTP Connection

For most cases this box should remain unchecked. If however the Data Controller is on the Internet and you have a firewall between the computer running the Data Viewer and the Internet you may need to check this box.

NOTE: The Data Viewer program will attempt to connect to the Data Controller using both Passive and Active mode and remember the setting if a successful connection is made. Initial connection may take up to 3 minutes to successfully connect.

User ID and Password

Enter the user ID and password for the Data Controller. Default User ID is "admin" and password is "password".

Update Interval for Real Time Data Viewing

Controls how frequently the Data Controller is polled for data.

Range: 0 - 60 minutes

0 = Continuous Polling

Selects Location for Saved Data Files

In order to provide historical viewing of data recorded from the Data Controller the Data Viewer program stores multiple files on your computer. The default location is "AGM Electronics Data Viewer" folder located in "My Documents". If you wish to change the location where these files are stored click this button and select the folder to use.

The screenshot shows the 'Data Viewer Settings' dialog box. It has two main sections: 'Connection Settings' and 'Real Time Data Settings'. In the 'Connection Settings' section, there are fields for 'URL or IP Address' (set to 192.168.0.251), 'HTTP Port Number' (set to 80), 'FTP Port Number' (set to 21), 'ID' (set to admin), and 'Password' (set to password). There is also a checkbox for 'Passive FTP Connection' which is unchecked. In the 'Real Time Data Settings' section, there is a field for 'Update Interval' (set to 0) with a unit of 'Minutes'. Below this is a button labeled 'Select Location to Store Recorded Data'. At the bottom of the dialog are two buttons: 'Save Changes' and 'Cancel'. Arrows from the text blocks point to the following fields: 'Address Setting' points to 'URL or IP Address'; 'HTTP Port Number' points to 'HTTP Port Number'; 'FTP Port Number' points to 'FTP Port Number'; 'Passive FTP Connection' points to the 'Passive FTP Connection' checkbox; 'User ID and Password' points to the 'ID' field; 'Update Interval for Real Time Data Viewing' points to the 'Update Interval' field; and 'Selects Location for Saved Data Files' points to the 'Select Location to Store Recorded Data' button.

7.4. Analog Report Settings

Use Percentage of Full Scale

When selected all analog I/O values will be normalized to a percentage of full scale when performing report calculations. This can be useful when comparing multiple inputs with widely different engineering ranges.

Use Engineering Units

Report Calculations are performed and displayed in Engineering Units.

Enable Totals

The Data Viewer can integrate analog I/O values to create a total value. This total while meaningless for some types of analog signals can be useful for flow measurements to estimate a total value. For example a flow measurement in Gallons per Minutes (GPM) can be totalized to provide an estimate of the total number of gallons.

When using percentage this totalization is fixed at:
1 count = 100% for 1 minute

When using engineering units the following additional settings are provided to allow the totalization to be calculated.

Analog I/O Selection Box

When using engineering units each analog I/O value can use different settings for totalization. Select the analog I/O here before modifying any of the Totals Calculation settings.

Enable

Enables or disables the total calculation for the selected Analog I/O value. If unchecked the total will not be calculated nor displayed for the selected Analog I/O value.

Engineering Units

Selects the time base used to calculate the totals. Use:
per Minute to calculate Gallons from Gallons per Minute
per Hour to calculate Gallons from Gallons per Hour
per Day to calculate Gallons from Gallons per Day

Multiplier

Selects or enter any multiplier to use for displaying the total.

Decimal Point

Selects the decimal point for the displayed total.

Units for Total

Enter any text you wish to display after the total value. For example if the units of the measured analog I/O were in GPM you could enter "Gallons" here to indicate the total is in Gallons.

Dialog Box: Edit Analog Report Settings

- ☐ Use Percentage of Full Scale
- ☒ Use Engineering Units
- ☒ Enable Totals
- Totals Calculation
 - For Analog I/O: Natural Gas
 - ☒ Enable
- Engineering Units are: per Minute
- Multiplier: 0.001
- Decimal Point: 0.00
- Units for Total:
- Buttons: Save Changes, Cancel

8. Additional Information

8.1. Scaling on Graphic Display

Analog I/O data is normalized to 0 and 100% based on the settings contained in the Data Controller. Even when you set engineering units in your Data Controller for display on a web page or in recorded data the graphic display will always use 0 to 100 percent for display. If an analog I/O value is below zero scale engineering units 0 percent will be used. If the analog I/O value is above full scale engineering units then 100 percent will be used.

Digital I/O data will be displayed a colored box when the contact is closed and a line when open.

8.2. I/O Labels

Labels used to identify all I/O are obtained from the Data Controller. The Data Viewer program uses the same labels used by the Data Controller's web page.

8.3. I/O Available for Real Time Display

Only the data displayed on the Data Controller's web page is available for real time display in the Data Viewer. See the Data Controller User Manual for instructions on adding values to Data Controller's web page.

8.4. Data Files Used

The Data Viewer stores data files on your computer to allow historical viewing of data. The default location is the folder "AGM Electronics Data Viewer" which is located in "My Documents".

The following files are saved:

(Site Name)-Configuraiton.agmdvx

Contains the configuration information obtained from the Data Controller. This includes the I/O labels and engineering units.

Example: Main Plant- Configuraiton.agmdvx

(Site Name)-Settings.xml

Contains the settings used to display Analog I/O data in a report.

Example: Main Plant- Settings.xml

(Site Name)L(yyyy-mm-dd).xml

Contains data recorded while viewing Real Time Data in the Data Viewer program. (yyyy-mm-dd) is the date of the recorded data in the format of year-month-date.

Example: Main PlantL2012-08-28.xml

(Site Name)R(yyyy-mm-dd).xml

Contains data recorded in the Data Controller then retrieved by the Data Viewer program. (yyyy-mm-dd) is the date of the recorded data in the format of year-month-date.

Example: Main PlantR2012-08-28.xml