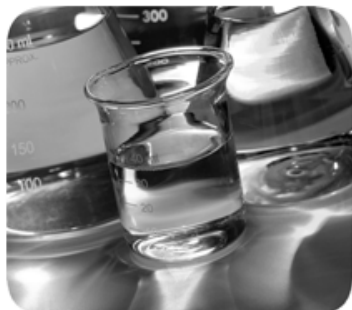


Emonitor 4.0 Getting Results Guide



ROCKWELL AUTOMATION PUBLICATION EMONTR-GR004-EN-E

AUGUST 2016, INITIAL RELEASE

Important user information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice. If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

Reproduction of the contents of this manual, in whole or in part, without written permission of Rockwell Automation, Inc., is prohibited.

Throughout this manual, when necessary, we use notes to make you aware of safety considerations.



WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.



ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence

Important:

Identifies information that is critical for successful application and understanding of the product.

Labels may also be on or inside the equipment to provide specific precautions.



SHOCK HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.



BURN HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.



ARC FLASH HAZARD: Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

Allen-Bradley, Rockwell Software, Rockwell Automation, and TechConnect are trademarks of Rockwell Automation, Inc.

Trademarks not belonging to Rockwell Automation are property of their respective companies.

	Chapter 1	
Introduction	About the documentation set.....	5
	About this book	5
	About Emonitor	6
	Statement of Technical Support.....	7
	Legal Notices	8
	Chapter 2	
Getting started with Emonitor	Welcome to Emonitor	11
	Start Emonitor	11
	Log in.....	11
	Explore Emonitor	12
	Main windows.....	13
	Title bar.....	14
	Menu bar.....	14
	Workspace	15
	Database window.....	15
	List window	16
	Status bar.....	16
	Right-click shortcut menus.....	16
	Chapter 3	
Quick Start steps to set up your database	Step 1 - Add a machine to the database	17
	Step 2 - Set up locations for a machine	18
	Step 3 - Setup measurements for the location	19
	Step 4 - Fill in all locations for a machine.....	20
	Chapter 4	
Quick Start steps to collect, view, and analyze data	Step 1 - Create a list by tagging measurement definitions.....	21
	Step 2 - Load a list to a portable data collector	22
	Step 3 - Unload a list from a portable data collector	23
	Step 4 - View alarms	24
	Step 5 - Acknowledge alarms	25
	Step 6 - Change the refresh rate	25
	Step 7 - Display reports.....	26
	Step 8 - Display trend plots.....	26

Step 9 - Display spectrum plots 27

Chapter 5

Advanced Emonitor features

Frequency analysis 28
Calculated measurements..... 28
Asset health management with decision support..... 28
Import and export data..... 29

Introduction

Emonitor® is a set of Windows® programs that provide complete data management for predictive maintenance services. The Windows interface allows you to perform all your predictive maintenance tasks quickly and easily using a convenient graphical format. With Emonitor you can configure the collection and storage of predictive maintenance data.

You can then use the powerful Emonitor analysis tools to examine the collected data.

About the documentation set

The following table lists the documentation resources:

This document	Comes with
Emonitor Installation Guide	Emonitor
Emonitor Getting Results Guide	Emonitor
Emonitor User's Guide	Emonitor

The documents are intended to be used in the following order:

1. Follow the instructions in the Emonitor Installation Guide for your database to install Emonitor.
2. Use this book to familiarize yourself with and begin using Emonitor.
3. Use the Emonitor User's Guide and the online help for detailed information on all of the Emonitor features and functions. All the information in the User's Guide is included in the online help.

This book is intended to give a general overview of the software. In addition to these manuals, each software component has online help.

Online help

Emonitor online help is available from the Help menu or by pressing F1.

About this book

This book provides you with information on how to get started using your Emonitor system. It is not intended to be a comprehensive user's guide. For

complete information on all Emonitor features, tasks, and interface elements, refer to the Emonitor User's Guide and the online help.

This book is written for people using Emonitor to collect data and perform analysis for their predictive maintenance programs. We assume you are familiar with:

- Windows® operating systems
- Personal computers
- Predictive maintenance principles

Please use the feedback form, which you will find packaged with your software, to report errors and/or let us know what information you would like to see added in future editions of this document.

About Emonitor

There are multiple configurations available for Emonitor®. This book describes the main features of the Emonitor software.

You can use Emonitor to perform the following:

- Learn about Emonitor and its functions with the demonstration plant and Quick Start steps.
- Set up the database to model your machinery and processes and to hold the data you collect in your Predictive Maintenance program. You can use templates containing information about different types of machinery to quickly set up your database.
- Set up lists for data collection and reports.
- Load one or more lists into a data collector for collection.
- Unload data from a data collector into the database.
- Import data from an external file into the database.
- Create alarms from statistical analysis of the data.
- Generate reports of the data, including reports of measurements that exceed alarms.
- Display plots of the data, including trend, spectrum, frequency trend, time waveform, spectrum map, polar, unit, XY, orbit, and shaft centerline plots.

The following features are not described in this Emonitor Getting Results Guide; refer to the Emonitor User's Guide and the online help for more information.

- Create calculated measurements. These are measurement definitions created by defining mathematical operations on one or more measurement

definitions—such as finding a pressure differential by subtracting one pressure from another.

- Create and use spectrum and band alarms.
- Create frequency items for equipment that generates vibration, and then use the frequency outputs to help diagnose vibration problems.
- Create custom reports.
- Create analyses of problems, consisting of a description of the cause of the problem, and advisories describing the work to correct the problem. You can also use the Intelligent Advisory function to automatically create advisories from diagnosis specifications or rule sets.
- Set up one or more gateways. Gateways allow you to create work requests from advisories, send work request by e-mail, and send work requests to an external Computerized Maintenance Management System (CMMS) or Enterprise Asset Maintenance (EAM) system.
- Emonitor Online features are not described in this Emonitor Getting Results Guide; refer to the Emonitor Online Getting Results Guide and the online help for more information.
- Use the Online Data Management Console to manage data acquisition from permanently mounted instruments (Enwatch units, 6600 monitors, XM modules, and the Logix family of controllers), and to collect and serve OPC data.

Statement of Technical Support

If you cannot connect to the Internet or cannot find answers to your questions in this help file or on the [Technical Support Web site](http://www.rockwellautomation.com/support/) <http://www.rockwellautomation.com/support/>, call Technical Support.

- Phone: 440-646-3434 in North America
- Technical Support hours of operation: 8:00 AM - 5:00 PM

If you are not located in North America and want to contact Rockwell Automation Technical Support by telephone, access the web address <http://www.rockwellautomation.com/support/>, select your region and country under Get Support Now, and then click **Get Support** for information about contacting your local support organization.

When you call you should be at your computer and be prepared to give the following information:

- The product version number
- The type of hardware you are using
- The exact wording of any messages that appeared on your screen

- A description of what happened and what you were doing when the problem occurred
- A description of how you tried to solve the problem

For information about all Rockwell Automation products or for technical support, select one of the following:

- <http://www.rockwellautomation.com/rockwellsoftware/>
- <http://www.rockwellautomation.com/support/>
- <http://rockwellautomation.custhelp.com/>

Legal Notices

Copyright notice

© 2016 Rockwell Automation, Inc. All rights reserved. Printed in USA.

This document and any accompanying Rockwell Software products are copyrighted by Rockwell Automation, Inc. Any reproduction and/or distribution without prior written consent from Rockwell Automation, Inc. is strictly prohibited. Please refer to the license agreement for details.

End User License Agreement (EULA)

You can view the Rockwell Automation End-User License Agreement ("EULA") by opening the License.rtf file located in your product's install folder on your hard drive.

Trademark Notices

Allen-Bradley, Dynamix, Emonitor, Enwatch, FactoryTalk, Logix5000, Intelligent Advisory Evaluator, Rockwell Automation, Rockwell Software, RSLinx Classic, RSMACC, and XM are trademarks of Rockwell Automation, Inc.

Any Rockwell Automation software or hardware not mentioned here is also a trademark, registered or otherwise, of Rockwell Automation, Inc.

Other Trademarks

ActiveX, Microsoft, Excel, Exchange, Internet Explorer, Outlook, SQL Server, Word, Windows, and Windows Server are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Adobe, Acrobat, and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

All other trademarks are the property of their respective holders and are hereby acknowledged.

Warranty

This product is warranted in accordance with the product license. The product's performance may be affected by system configuration, the application being performed, operator control, maintenance, and other related factors. Rockwell Automation is not responsible for these intervening factors. The instructions in this document do not cover all the details or variations in the equipment, procedure, or process described, nor do they provide directions for meeting every possible contingency during installation, operation, or maintenance. This product's implementation may vary among users.

This document is current as of the time of release of the product; however, the accompanying software may have changed since the release. Rockwell Automation, Inc. reserves the right to change any information contained in this document or the software at any time without prior notice. It is your responsibility to obtain the most current information available from Rockwell when installing or using this product.

Environmental compliance

Rockwell Automation maintains current product environmental information on its website at

<http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page>

Contact Rockwell

Customer Support Telephone — 1.440.646.3434

Online Support — <http://www.rockwellautomation.com/support/>

Getting started with Emonitor

Use this section to familiarize yourself with the following items:

- Starting, logging in, and logging off of Emonitor.
- Setting up your Emonitor database and collecting, viewing and analyzing data.
- The Emonitor software and interfaces.

Welcome to Emonitor

Emonitor makes it easy to set up, collect, and store predictive maintenance data. This Getting Results Guide describes the elements of the Emonitor interface. It then covers the basic Emonitor functions of setting up the database, and then collecting, viewing, and analyzing data.

Start Emonitor

After you have installed Emonitor according to the *Installation Guide*, start Emonitor by clicking the **Start** menu, pointing to **Programs**, then **Rockwell Software**, then **Emonitor**, and then clicking **Emonitor**.

Log in

If Emonitor is set up to require logging in, the program displays the **Log In** dialog. Enter your user name and password.

- You can also log in using your own user name by selecting **File > Log In** after Emonitor starts.
- You can change to a different database by clicking **Change DB**.
- Depending on your database configuration you may need to perform additional steps to log in to your database. If necessary, contact your System Administrator for more information.

Important: Do not select the Econfig database. Selecting this database instead of an Emonitor vibration database can cause Emonitor to lock up. The default vibration database name is **Entek**.

You can log off Emonitor without exiting the program. Select **File > Log Off**.

Before you can use Emonitor to collect, view, and analyze data, you must first set up your machinery in the Emonitor database. You do this through the main Emonitor program window. You set up the plant where the machinery is located, then add the machines.

On each machine, you select the locations for data collection. Finally, you set up the definitions for the measurements you want to collect at each location.

After you set up the first machine, you can use copy and paste to quickly set up similar machines in the database. In addition, you can set up measurements on processes in your plant, for temperature, pressure, flow, or other process data. See [Quick Start steps to set up your database](#) on [page 16](#)

Emonitor includes a number of other tools to help you set up and manage your database. These are not discussed in this manual, but are described in the Emonitor User's Guide and the online help.

- Create templates of common machines that you can use to quickly set up similar machines.
- Use **Edit > Find** to easily replace parameters for your machinery.
- Set alarms on each of the measurements to warn you when your machinery or processes need maintenance.
- Use Emonitor categories to manage alarm levels on all the machines in the same category.

After you have set up one or more machines or processes in the Emonitor database, you can begin collecting data for that machine or process. The main Emonitor program makes it easy to create a list of the machine or measurements you want to collect. You then download the list of measurements into a data collector. After you collect the data, you unload it back into Emonitor.

You can use the data analysis tools in Emonitor to view your data. These include many different types of plots and reports. See [Quick start steps to collect, view, and analyze data](#) on [page 21](#).

Emonitor includes other tools to help you analyze data and monitor your machinery and processes. See [Advanced Emonitor features](#) on [page 28](#).

Explore Emonitor

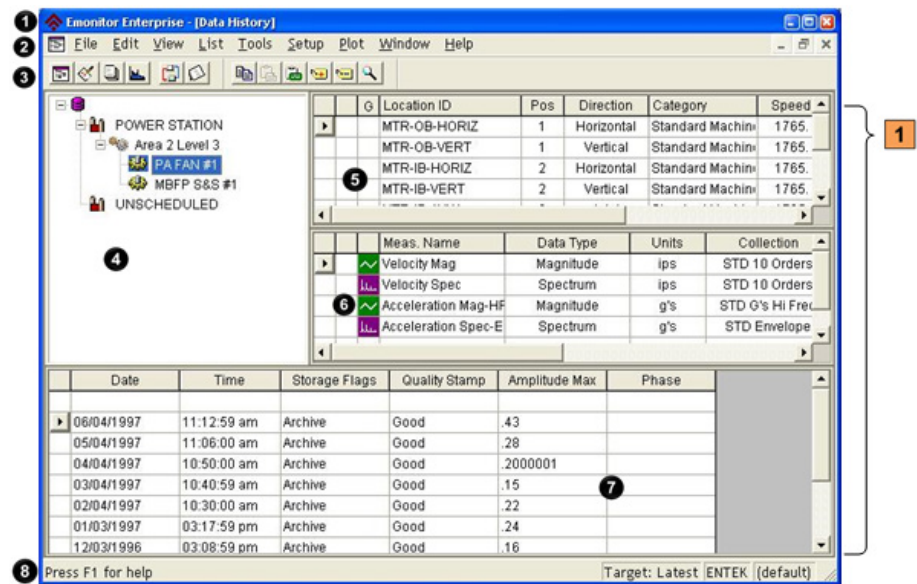
The following sections discuss navigation through the Emonitor software. The Emonitor software uses a simple navigation scheme.

- The main program window with a title bar, menu bar, toolbar, workspace, and status bar

- The Database, List, Plot and Report windows
- Right-click shortcut menus

Main windows

The Emonitor software has the following main program window and panes.



Item	Name
1	Database window (maximized to fill the workspace).
2	Title bar
3	Menu bar
4	Toolbar
5	Hierarchy pane
6	Location pane
7	Measurement Definition pane
8	Archive Data pane
8	Status bar

Title bar

The title bar shows the name of the software (Emonitor). It also contains the name of the current window in the workspace if that window is maximized.



Menu bar

You can open any menu by holding the Alt key and pressing the underlined letter in the menu name. For example, press **Alt-V** to display the **View** menu.









The Emonitor toolbars contain the toolbar buttons. Each button is a shortcut to a feature, which is also available from the Emonitor menus. There is a toolbar for each type of window in Emonitor. The toolbars that appear depend on the current active window within Emonitor.

- You can “undock” the toolbar and move it to any place on your computer screen. To move a toolbar, click on the empty border of the toolbar, and drag it to another location.
- You can also “dock” the toolbar back under the menu bar by double-clicking the toolbar title bar.

Main toolbar



Button	Description
	Open the Database window. This performs the same function as Window > Database from the Menu bar.
	Open the List window. This performs the same function as Window > List from the Menu bar.
	Open a Report window. This performs the same function as Window > Reports from the Menu bar.
	Open a Plot window. This performs the same function as Window > Plots from the Menu bar.
	Load or unload a data collector. This performs the same function as Tools > Load / Unload from the Menu bar.
	Open the Hierarchy Notebook. This performs the same function as Tools > Notebook from the Menu bar.

Workspace

This is the area used for the Database window, List window, Plot windows, and Report windows.

To access the online help for any pane or window, click in that pane or window, and then press F1.

Database window

The Database window contains one or more displays of information from the database. The Database window can be split into two or more parts, called panes.

The different panes in the Database window are:

- Hierarchy
- Location
- Measurement Definition
- Alarms
- Frequency Items
- Frequency Outputs
- Advisory
- Intelligent Advisory Assignment
- Alarm Event Log
- System Event Log
- Archive data

See [Main windows](#) on [page 13](#) for a picture of the Database window.

For more information on using the Database window, see [Quick Start steps to set up your database](#) on [page 16](#). You can also press F1 when a Database pane is active to display the help topic for that pane.

For more information on the database and the panes in the Database window, read the online help topics under the *Understand the Database* section. To access the online help, press **F1** or select **Help > Contents and Index**.

List window

The List window contains a display of locations in the current list. A list is a set of measurement definitions that you select for a purpose (such as collecting data or creating a report). Emonitor has only one List window, and the List window cannot be split into panes.

For more information on using the List window, see [Quick start steps to collect, view, and analyze data](#) on [page 21](#). You can also press **F1** when the List window is active to display the help topic for that window.

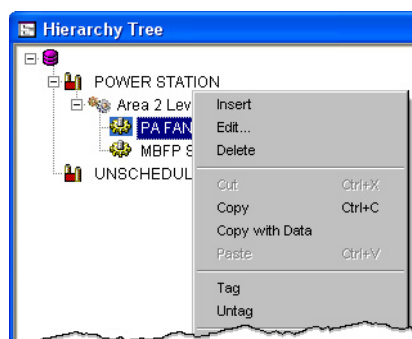
Status bar

This contains the status bar help, the current database name, and the current user name. The status bar help contains a brief description of an item under the pointer, such as a toolbar button or a plot region. It also shows the Target date time, which is the time of the currently selected measurement.

Right-click shortcut menus

To open a shortcut menu with tasks specific to the current selection, simply right-click the selection. Each window in Emonitor has its own right-click menus.

For example, the following image depicts the menu that is displayed when you click an item in the Hierarchy Tree using the right mouse button.



Quick Start steps to set up your database




The following Quick Start steps show you how to add a machine to the database, how to set up locations for measurements, and how to set up the measurement definitions. For more detailed information on setting up the database including important planning considerations, see the *Set up the Database* section in the online help.

Tip: You can substitute a machine from your plant for the one in the example. When you are done, you can delete or keep the machine that you added to the database.

To use the Quick Start steps, select a function then perform all of the quick start steps for that function. For detailed information on tasks or on using specific dialog boxes in Emonitor, refer to the online help.

Step 1 - Add a machine to the database

Emonitor uses a hierarchy to represent the organization of your plant. You can assign up to six levels however you like, but in this guide we will use the following three levels: plant, train, and machine. Each has their own icon in the Hierarchy pane of the Database window. For information on setting the hierarchy levels, see the online help topic *Edit the Number and Names of Hierarchy Levels*.

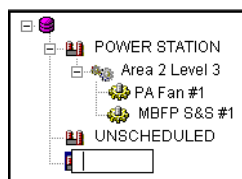
Hierarchy Tree Icon	Description
	Plant is the highest level. In the default database (see the illustration under Step 2 - Set up locations for a machine on page 18), the items at the plant level are POWER STATION and UNSCHEDULED. Some companies may be divided into different plants in the same complex. For example, a paper mill may have a pulp plant which is separate from the paper mill, yet both are included in the same database.
	Train is the second level. This is a logical grouping of machines that have common characteristics or functions. In the default database, Area 2 Level 3 is at the train level.
	Machine is the third of three levels. It represents the components of a train. In the default database, the Area 2 Level 3 train consists of two machines, PA FAN #1 and MBFP S&S #1.

This step shows you how to add a new plant, train, and machine to the database.

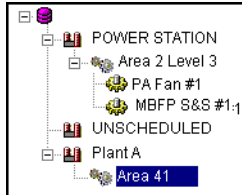
1. Open the Database window by selecting **Window > Database** and selecting the **Database Setup** view in the **Select View** dialog. The view shows the Hierarchy pane on the left and the Location pane on the right.

Tip: You can click in a pane, then press F1 for a description of the pane

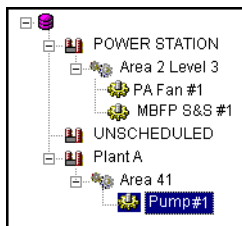
2. To add a new plant, select the disk icon in the Hierarchy pane, and press **Insert**. The cursor appears in a box next to a new hierarchy item at the bottom of the Hierarchy tree.



3. Type in the name of your new plant. For example, type **Plant A**, and press **Enter**.
4. Press **Insert** again to add a new hierarchy item. Type in the name of your new train. For example, type **Area 41**, and press **Enter**.
5. Press **Ctrl+Right Arrow** to move the new train under the plant.



6. Press **Insert** again to add a new machine under the new train, and type in the name of your new machine. For a motor-pump combination, type **Pump #1**, and press **Enter**.
7. Press **Ctrl+Right Arrow** to move the new machine under the new train. You now have the hierarchy set up for your new machine.



Step 2 - Set up locations for a machine

This step shows you how to add measurement locations for the new machine. A location can be a physical point in a plant, in an area, on an equipment train, or on a machine. Each location is attached to an item in the Hierarchy Tree. At each location you can collect different kinds of measurements.

1. Select the **Pump #1** machine in the Hierarchy pane. You may have to click the + icon to expand the plant or train so you can see the machine.
2. In the Location pane (next to the Hierarchy pane) there are several columns that describe the measurement. Double-click in the **Location ID** column and type **Mtr-OB-Vert** (for motor-outboard in the vertical direction).
3. Press **Tab** or double-click in the **Pos** (position) column, and enter **1**.
4. Press **Tab** or double-click in the **Direction** column, and select **Vertical**.
5. Press **Tab** or double-click in the **Category** column, and select the **Standard Machine** category. Notice that Emonitor puts default values in some of the other fields.

6. Press **Tab** or click in the **Speed** column, and type the default running speed of the motor. For this example, type **1800**.
7. Press **Tab** or double-click in the **Description** column and type a short description if desired.

Tip: Many data collectors can collect the machine speed along with a vibration or other measurement. Emonitor stores the collected machine speed with the measurement. Emonitor can use the collected speed when analyzing the data.

Step 3 - Setup measurements for the location

This step shows you how to add measurement definitions for the new machine. A measurement definition is a set of parameters that controls the collection of a measurement. It defines the type of measurement (numeric, magnitude, spectrum, image, and so on). It also includes the collection and storage specifications. Each measurement definition is attached to a location.

1. Select **View > Measurement** to change to the Measurement view of the database. This view shows the Hierarchy, Location, and Measurement Definition panes.
2. Select the **Pump #1** machine in the Hierarchy pane. You may have to click the + signs to expand the Plant or Train so you can see the Machine level.
3. Double-click in the **Data Type** column in the Measurement Definition pane. Select **Magnitude** for the Data Type.
4. Emonitor automatically names the measurement definition “**None Mag**” meaning a magnitude measurement with no units. You can edit the **Name** now or later if desired—double-click the name to edit it.
5. Press **Tab** or double-click in the **Units** column. Select **g’s** (acceleration) for the **Units**.
6. Press **Tab** or double-click in the **Collection** column. Select **STD 50 Orders** for the collection specification. You can right-click the **STD 50 Orders** collection specification and select **Edit Collection** to see the parameters for the collection specification.
7. Press **Tab** or double-click in the **Filter** column. Select **Smart HP** for the measurement filter. This allows Emonitor to select the appropriate high pass filter for your particular data collector, saving you collection time.

For more information on the Smart HP and other filters, refer to your Emonitor data collector User’s Guide.

8. Press **Tab** or double-click in the **Storage** column. Select **Always/2 Year** for the storage specification. Again, you can right-click and select **Edit Storage** to see that this saves this measurement on any condition (alarm or not) for two years.

The Active column is set to **Yes**, which means the measurement definition is active, and can be loaded and unloaded using a data collector.

Step 4 - Fill in all locations for a machine

This step shows you how to add additional locations and measurement definitions for the new machine. The easiest way to add measurement definitions to the rest of the locations on your machine is to copy and paste the completed location.

1. Select the **Pump #1** machine in the Hierarchy pane.
2. In the Location pane, select a cell by clicking in it. You do not have to select all the cells to copy the entire row.
3. Select **Edit > Copy**.
4. Select **Edit > Paste**. The new location is pasted in the row directly below the current row. All the measurement definitions for the location are pasted into the Measurement Definition pane.
5. Double-click in the **Location ID** column and change the name of the measurement location to **Mtr-IB-Vert** (for motor-inboard, measurement in the vertical direction).
6. Select **Edit > Paste** again.
7. Double-click in the **Location ID** column and change the name of the measurement location to **TANK** (for a condition inside the tank). Change the **Direction** column to **None**.

You have now created three locations, each with a single vibration measurement definition. For the motor locations, the vibration measurement is correct. For the TANK location, however, the measurements should be for pressure and temperature.

8. Select the **TANK** location in the Location pane.
9. In the Measurement Definition pane, change the first measurement definition to make it a pressure measurement. Set **Filter** to **None**, **Data Type** to **Numeric**, **Collection** to **Manual Entry**, **Units** to **PSI**, and finally, change the **Name** to **PSI Numeric**.

Note: You must change the Filter before you can select Numeric for the Data Type. You must change the Data type and Collection before you can

select PSI for the Units. The selections for the Units are filtered by the other parameters you select for the measurement definition.

10. Select a cell in the **PSI Numeric** measurement definition by clicking in it.
11. Select **Edit > Copy**.
12. Select **Edit > Paste**. This pastes a copy of the PSI Numeric measurement definition.
13. Change the pasted measurement definition. Set **Name** to **Deg F Numeric**, and **Units** to **deg. F**.

You now have two measurement locations with one measurement definition each, and a third location with two measurement definitions. This means you have four measurement definitions for that machine. If you want to continue adding to your database you can simply copy and paste locations, bringing the measurement definitions with them.

For example, you might want to add a location and measurement definitions to measure vibration on the gearbox. Then, if you have other similar motors and pumps, you can copy and paste the entire machine. This method is a quick and easy way to fill in your machines and your database.

Chapter 4

Quick Start steps to collect, view, and analyze data

The following quick start steps show you how to create one or more lists of measurement definitions, load and unload the list from a data collector, and view the data after unloading.

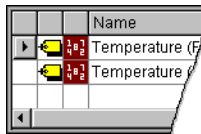
Step 1 - Create a list by tagging measurement definitions

Once you have added several machines in your database, you can create a list of the measurements you want to collect with your portable data collector. You can later use this same list for collecting data, creating reports, and viewing data.

1. Select **List > Clear Current List**. You probably want to get in the habit of using this command before working on any new list so you know the current list is empty. The current list is the most recently recalled or created

set of measurement definitions held in the computer's memory or saved on the computer's hard disk.

2. Open the Database window by selecting **Window > Database**. Select **View > Measurement** to select the Measurement view.
3. Select (click) the machine in the Hierarchy pane that you want to include in the list.
4. Select **List > Tag Current Item** to tag all locations and measurement definitions in the current machine.
5. If you want to add additional measurements from another machine, simply select the measurement definition or location and tag it using the same method. A small tag icon appears next to the tagged items. Notice that the measurement definitions for each location have tags beside them as well.



Note: You can tag calculated measurement definitions, but you cannot load them to a data collector. For more on calculated measurements, see the topic *Add calculated measurements* in the online help.

6. You can view the list in the List window. Select **Window > List**. Select **View > Standard List**. This view shows the information for each location in the current list.
7. Select **List > Save** to save the current list.
8. Enter a list name in the Save List dialog and select a list type. Also, set the due date and the interval for collection if you want to schedule it for collection. If you plan to use this list for data collection, select one or more data collectors from the list under **Create Quickload files**. Quickload files save time in loading the list. Click **OK** to save the list when all the settings are correct.

For more information about lists, see the topics in the *Use lists* section of the online help.

Step 2 - Load a list to a portable data collector

Load a list to your data collector before collecting data. For more information on using Emonitor with your particular data collector, click the Help menu and then click the data collector name to display the online help.

1. Connect the data collector to the computer and prepare the data collector for loading if necessary.

2. Select **Tools > Load / Unload**.
3. If you have not yet set up the communications port/type, click the large **Set up computer** button in the **Load/Unload** dialog box. Select the serial port on your computer that you attach to your data collector. Click **OK**.
4. Click the large **Set up collector** button to select the current data collector if the picture does not show your data collector. Double-click in the **Current** column next to your data collector name to change it to **Yes**, then click **OK**.
5. After properly connecting and setting up the data collector, the cable connect icon appears.



You can click the **Load Options** button to select other options, such as initializing the data collector prior to loading. Only those options supported by the current data collector are available.

6. Select the list you want to load under **Name** in the **Load / Unload** dialog box. You can change which lists appear by clicking **Filter**.

Some lists may not appear in the **Load/Unload** dialog box if a filter is applied. To see all lists, click the **Filter** button and make sure all items are selected in the **Type** and **Assigned to** boxes. (Ctrl-click to select multiple items.)

7. Click the red arrow button in the **Load / Unload** dialog box to load the list to the data collector. This button points from the computer button to the data collector button.
8. Emonitor automatically builds the load file, updates the statistics, and loads the list to the data collector. If you are using Quickload lists, it simply loads the Quickload file if previously built.
9. After loading is complete, disconnect the data collector from the computer and collect your data. Refer to your data collector documentation for more information.

Step 3 - Unload a list from a portable data collector

After collecting your data, unload it to your Emonitor database.

1. Connect the data collector to the computer and prepare the data collector for unloading if necessary.
2. Select **Tools > Load/Unload**.

3. Set up the data collector using the same settings as when you loaded the list. The cable connect icon appears in the Load/Unload dialog.



You can click the **Unload Options** button to select some options, such as clearing the list after unloading. Only those options supported by your data collector are available.

4. Select the list you want to unload under **Name**. You can change which lists appear by clicking the **Filter** button.
5. Click the blue arrow button to unload the list from the data collector. This button points from the data collector button to the computer button.
6. Emonitor automatically transfers the data and updates the database.

After unloading is complete, disconnect the data collector from the computer.

Step 4 - View alarms

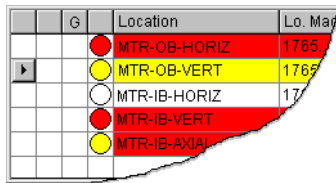
An alarm alerts you to a change in a measurement. For example, an alarm can notify you when the temperature for a process exceeds a pre-defined value. You can create one or more alarms for each measurement definition.

The Alarms view in the Database window shows you the measurement definitions and locations in alarm. It also displays the alarm severity based on the colors you choose for the severity. Before you can show or hide alarm indicators you must select the correct pane. Remember, if you change views, the panes may not have the same options as previously selected. You can save a view with the alarm display options and recall it later. See the online help topic *Saving and Recalling Panes in a View* for more information on views.

These steps show how to display the alarm status indicators for a particular Database window pane.

1. Select the pane where you want to display the alarm indicators. In this example, select the Location pane (in the Database window).
2. Select **View > Pane Options**.

3. Select **Show current alarm severity** in the **Pane Options** dialog box to display the alarm status indicators. Select **Show unacknowledged alarm severity** to show unacknowledged alarm severity. Select both options if you want both indicators displayed.



G	Location	Lo. Mag
	MTR-OB-HORIZ	1765
	MTR-OB-VERT	1765
	MTR-IB-HORIZ	17
	MTR-IB-VERT	
	MTR-IB-AXIAL	

- The circles represent the current alarm status indicators in the Location pane
 - The items with the red highlight and the red circle have Unacknowledged alarm status
4. Click **OK** to close the **Pane Options** dialog box. The alarm status indicators you chose are displayed in the Location pane if any measurements for those locations are in alarm.
 5. To refresh the alarm status indicators in the Database window select **Tools > Alarm Severities > Refresh Display**.

Step 5 - Acknowledge alarms

You can acknowledge an alarm to indicate that the alarm has been seen. Emonitor shows a colored circle next to the item that is in alarm. The circle indicates that the item is in alarm, and the color indicates the current severity of the alarm. The item also shows a highlighting color, called a severity bar. The bar can be the same color as the circle, or different if the alarm has been acknowledged.

1. Click the desired pane in the Database window (Hierarchy, Location, or Measurement Definition).
2. Right-click the desired row or item and select **Acknowledge Status**. The row returns to the normal background/foreground colors of the pane.

Step 6 - Change the refresh rate

The refresh rate is the rate at which Emonitor redraws the screen with new information from the database. This is particularly important for online systems that are continually collecting new data.

1. Select **Setup > Options > General**.
2. Select the **General** tab on the **General Options** dialog box.
3. Select **Enable automatic screen refresh**. Next to **Refresh rate**, enter a refresh rate number and select a unit of time.
4. Click **OK**.

You can also manually refresh the screen by pressing **F5** or clicking the **Refresh** button on the Main toolbar.

Step 7 - Display reports

After collecting and unloading your data, you can generate reports of the data.

1. Select **Window > Reports**.
2. Select a list as the source for the report under **Report** from in the **Print Reports** dialog box.
3. Under **Report description** select the desired report.

You can select multiple reports by pressing the Ctrl key while clicking more than one report description.

4. Click **Preview** to view the reports on screen, or click **Print** to send the reports directly to the printer. You may want to use the **Window** menu commands (**Tile** or **Cascade**) to display all the open Emonitor windows.
5. If you have a Database window open when you preview a report on screen, you can tile the windows to see them side by side. Then you can click data in the report to select that measurement in the Database window. The cursor turns into a hand to indicate where you can click in the Report window. Clicking data in the report selects that measurement in List and Plot windows as well.

Step 8 - Display trend plots

Plots provide a powerful, graphical method for examining and analyzing your data. There are many different types of plots in Emonitor, and each type of plot has a specific use. For example, a trend plot of a magnitude or process measurement definition displays the trend of that measurement over time.

1. Select a magnitude or process measurement definition in the Database window. Make sure you have collected some data for the measurement definition, or use a measurement definition from the default database.
2. Select **Window > Plots**.
3. Select **Trend** in the **Select Plot View** dialog box, then click **OK**.
4. You can use the remote control to move through locations, measurement definitions, and data in the database. Select **View > Toolbars > Remote Control**. Click the [**<**] and [**>**] buttons to move forward or backward in the database at different levels. For example, you can move to different locations to compare the horizontal and vertical measurements at the same location.

You can also right-click a measurement definition in the Database window and select **Show Data** to quickly display an Active Measurement plot of the data. Emonitor chooses the correct plot type for you.

Tip: Select **Open a window for each location in list** in the **Select Plot View** dialog box to display multiple trend plots, one for each location in the current list. This allows you to compare data at different locations. You must have a list loaded (**List > Recall**) for this option to be available.

Step 9 - Display spectrum plots

You can display a spectrum plot for further analysis. A spectrum plot is a graph of amplitude versus frequency. Usually the amplitude is a measure of the acceleration, velocity, or displacement at that frequency.

1. Select a spectrum measurement definition in the Database window that you want to view in a plot.
2. Select **Window > Plots**.
3. Select **Spectrum** in the **Views** field in the **Select Plot View** dialog box, then click **OK**.
4. You can use the remote control to move through locations in the database. Select **View > Toolbars > Remote Control**.

Click the [**<**] and [**>**] buttons to move forward or backward in the database at different levels. For example, you can move backward through the data history to view changes in your data.

5. You can change most aspects of the plot using the controls on the Plot window. Click the plot to select it, then press F1 to display the help topic for the plot. To show alarms, select **Plot > Options** and click the **Alarms** tab. You can also double-click on the X or Y axis to open the **Plot Options** dialog box.

Advanced Emonitor features

Emonitor includes other tools to help you analyze data and monitor your machinery and processes. These are not discussed in this manual, but are described in the Emonitor online help.

Frequency analysis

You can use frequency analysis to identify the frequencies generated by individual components in your machinery. For example, this allows you to match peaks in a spectrum plot with the frequencies generated by a specific part of a machine. For more information, see *Identify diagnostic frequencies* in the online help.

Calculated measurements

Calculated measurements allow you to combine multiple data values into a single value. This creates new types of data, such as the ratio of pressure to temperature, overall vibration to speed, or the difference between the 1X and 2X vibration magnitude. You can set alarms on calculated measurement definitions, and use calculated data in the same ways you would use any other data in Emonitor. See *Add calculated measurements* (under *Set up the database*) in the online help.

Asset health management with decision support

Asset health management allows you to manually or automatically analyze problems with your machines and processes.

- With manual analysis, you use the tools in Emonitor to review and examine the data from your machinery and processes. These tools include alarms, reports, and plots. You then manually create one or more advisories that describe the actions to take to fix the problem.
- With automated analysis, you use the Intelligent Advisory feature. This feature automatically creates the analyses and advisories for you when a measurement goes into an alarm severity range. The Intelligent Advisory feature allows for unattended operation of the Emonitor system, especially for faults that are relatively simple to identify and diagnose.

After the advisories are created, Emonitor can send them out as work requests through your email system or to an external Computerized Maintenance Management System (CMMS) or Enterprise Asset Maintenance (EAM) system. You can track the progress of the work requests in Emonitor. Finally, you can verify the solution to the problem by analyzing data in Emonitor after the work

request is completed. See *Asset Health Management* in the online help or Emonitor User's Guide.

Import and export data

You can import and export data using Emonitor.

- The **List > Export to Microsoft Excel Spreadsheet** command allows you to export data for the measurement definitions in the current list to a Microsoft Excel® Spreadsheet. Microsoft Excel must be installed on the computer.
- MIMOSA™ import and export gives you an easy way to move data from your Emonitor database into any other application that supports the same MIMOSA interfaces. You can also import data into Emonitor from any other application that supports the same interfaces. MIMOSA stands for the Machinery Information Management Open Systems Alliance, which is a non-profit corporation. See *MIMOSA Import and Export* in the online help.
- The Data Mover program allows you to export part or all of your Emonitor database to a binary file. You can also re-import the data to the same or another Emonitor database, including an Emonitor database on a different database platform.

This allows you to perform these tasks:

- Back up just a part of the database, instead of the entire database.
 - Create an export file containing your machinery setup information that you can use in several plants.
 - Import data from a remote plant into a centralized database. See *Data Mover* (under *System Management*) in the online help.
-

Rockwell Automation support

Rockwell Automation provides technical information on the web to assist you in using its products.

At <http://www.rockwellautomation.com/support> you can find technical and application notes, sample code, and links to software service packs. You can also visit our Support Center at <https://rockwellautomation.custhelp.com> for software updates, support chats and forums, technical information, FAQs, and to sign up for product notification updates.

In addition, we offer multiple support programs for installation, configuration, and troubleshooting. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://www.rockwellautomation.com/services/online-phone>.

Installation assistance

If you experience a problem within the first 24 hours of installation, review the information that is contained in this manual. You can contact Customer Support for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the Worldwide Locator available at http://www.rockwellautomation.com/locations , or contact your local Rockwell Automation representative.

New product satisfaction return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

Documentation feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete the feedback form, publication [RA-DU002](http://literature.rockwellautomation.com/idc/groups/literature/documents/du/ra-du002_-en-e.pdf) http://literature.rockwellautomation.com/idc/groups/literature/documents/du/ra-du002_-en-e.pdf.

Rockwell Otomasyon Ticaret A.Ş., Kar Plaza İş Merkezi E Blok Kat:6 34752 İçerenköy, İstanbul, Tel: +90 (216) 5698400

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Rockwell Automation Publication EMONTR-GR004A-EN-E