HME# 400G484
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RC30A™ SOFTWARE

Version 2.1*

For HME System 30

Installation and Operating Instructions

HME®
HM ELECTRONICS, INC.
14110 Stowe Drive, Poway, CA 92064 USA
Phone: 1-800-848-4468 Fax: (858) 552-0172

Minimum Requirements for Use of RC30A™ Software

IBM compatible PC with a Pentium® compatible microprocessor

Minimum of 32 megabytes RAM

Minimum of 100 megabytes available hard disk space

For direct serial connection: One available RS-232 serial port and a serial (null-modem) crossover interface cable appropriate for your PC (See Section 2.1.2)

For network connections: One Ethernet network port and an Ethernet cable (See Section 2.1.2) and EI30 Ethernet Interface installed in System 30 Timer

System 30 Timer – All versions except Ver 1.12

Microsoft® Windows® 95, Windows® 98, Windows® NT 4.0 Service Pack 3 or higher, Windows® 2000, Windows® ME, Windows® XP or Windows Vista™ (Professional and Home editions)

Familiarity with Windows® operating system

System 30 Drive-Thru Timer System Operating Instructions

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SECTION 1. RC30A™ DESCRIPTION

The purpose of the RC30A™, Raw Car Data Acquisition Software for System 30 Timers, is to gather real-time car data from a System 30 Timer, connected through an Ethernet port or a serial communication port to a personal computer. The RC30A™ can be run from one of the following:

A Task Scheduler provided by the Windows® operating system.

A manual user-initiated, on-demand basis from a shortcut.

Another application that is able to run the RC30A™ using command line arguments.

RC30A™ is used primarily by customers (such as IT Departments) that run a "batch" process in the background, to collect Raw Car Data from the Timer.

To acquire data from a timer directly connected to the "back office" PC on which RC30A™ is running, this software runs in the following sequence:

1. Connects to a Timer.
2. Polls for Raw Car Data from the Timer.
3. Formats the Raw Car Data in ASCII, delimited text.
4. Disconnects from the Timer.
5. Saves text to a file either by appending the data or creating a new file.

The RC30A™ software does not support a user interface for controlling its operation, but uses command line arguments to determine its mode of behavior including:

The communications port it will use to poll the System 30 Timer.

The network or direct serial communications parameters it will use to communicate with the System 30 Timer (For network: IP Address, IP Port — For direct serial: Baud Rate, etc).

The file name where the retrieved data is stored.

The delimiter used to format the data into ASCII, spreadsheet-friendly format.

Date/Time format.

The RC30A™ software does support a user interface for registering the product, indicating the status of its processing, its internal states and any error conditions that may occur during the registration process.

For network connections to multiple System 30 Timers from a central PC, multiple copies of RC30A™ can be run simultaneously using the Windows® task scheduler or other user-provided methods. This reduces the amount of time needed to collect data from multiple Timers.

1.1 RC30A™ FEATURES

RC30A™ provides the following major features listed below:

RC30A™ can be connected to one HME System 30 Timer at a time via network or direct serial connection.

RC30A™ is able to acquire raw car data from the connected timer.

RC30A™ is able to store large amounts of raw car data on a scheduled and on-demand basis in an ASCII text file.

RC30A™ stores raw car data in a user-specified, delimited text format for importation into third party data applications such as Microsoft® Excel®, etc.

RC30A™ can be run from a command line with command line arguments.

RC30A™ can be run from other programs, including the Windows® task scheduler.

RC30A™ can be run from a shortcut.

Multiple copies of RC30A™ can be run simultaneously in "Quiet Mode," to speed up collection of car data over multiple network connections.

1.2 TECHNICAL SUPPORT

For activation of this product, or for technical assistance, call HME Technical Support at 1-800-848-4468 or Fax 858-552-0172 (Attn: Technical Support).

SECTION 2. EQUIPMENT AND SOFTWARE INSTALLATION

2.1 CABLE CONNECTIONS

The cables mentioned below can be obtained from a computer hardware dealer or can be ordered by calling the HME Sales Department at (858) 535-6060. HME cables are available in 10 ft. (3.05 meter) and 50 ft. (15.24 meter) lengths.

2.1.1 Network (Ethernet) Cable Connections for a Network-enabled System 30 Timer (Using EI30 Ethernet Interface for System 30)

Depending on your local network configuration, connect the network-enabled System 30 Timer (EI30) to your network according to one of the following examples. A network-enabled System 30 Timer has an EI30 installed to convert Ethernet to serial communications to and from the Timer.

Direct network connection

If you do not have any connections to your computer's network connector, you can connect the computer directly to the network-enabled System 30 Timer (EI30) using a crossover Ethernet cable as shown in Figure 1.

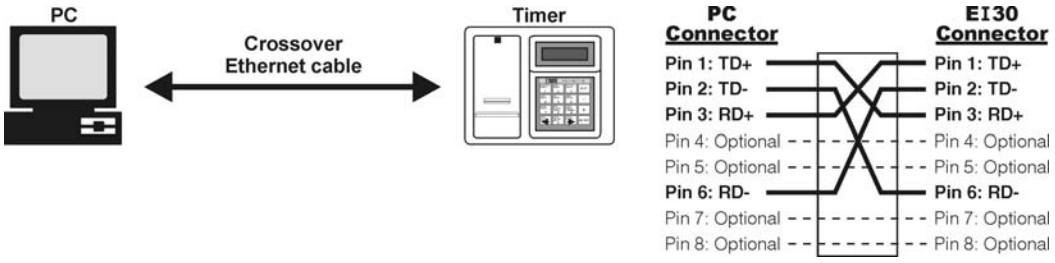


Figure 1. Computer connected directly to a network-enabled System 30 Timer (EI30)

Indirect network connection

If you already have a connection between your computer's network connector and other network devices, such as a hub/switch or router, you can connect the network-enabled System 30 Timer (EI30) to the same hub/switch or router using a standard straight-through Ethernet cable as shown in Figure 2.

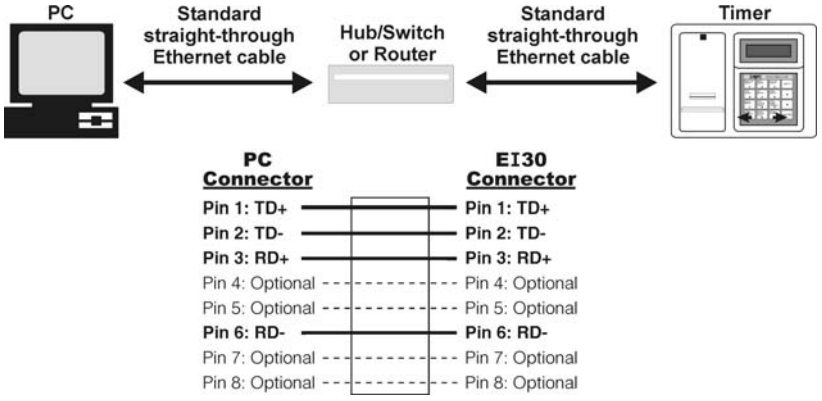


Figure 2. Computer connected via hub/switch or router to a network-enabled System 30 Timer (EI30)

2.1.2 Direct Serial Cable Connection

An RS-232 serial interface cable can be used to connect the computer (PC) to a System 30 Timer. It must have a standard 9-pin female "D" connector at the timer end, and a 9-pin or 25-pin female "D" connector at the computer's end (depending on whether a 9-pin or 25-pin serial input connector is available on your PC).

It must be shielded to prevent interference.

Maximum cable length should not exceed 50 ft. (15.24 meters) for reliable communication.

It must be a **crossover** (null modem) cable (See diagram below).

Pin connections for the cable wires must be as shown in Figure 3.

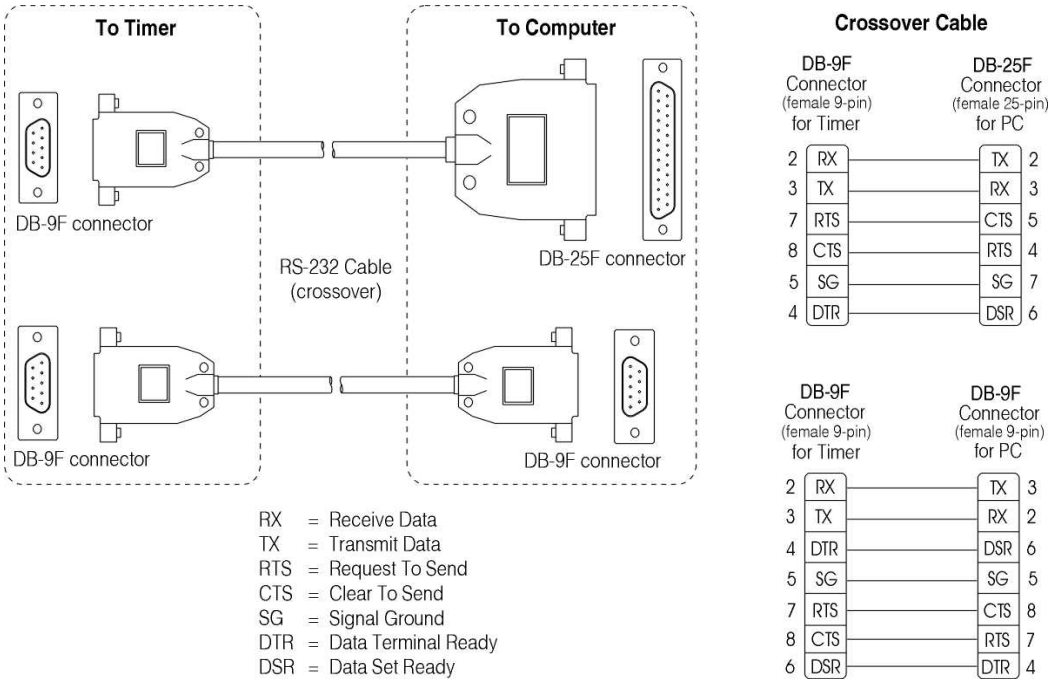


Figure 3. RS-232 cable pin connections (PC to a System 30 Timer)

Connect the cable directly from the computer to the timer unit as follows. Refer to Figure 4.

Plug the 9-pin female connector on the interface cable into the connector on the bottom of the System 30 Timer. Tighten the screws to secure the connector to the unit.

Plug the female 9-pin or 25-pin connector on the other end of the interface cable into the serial port connector on the back of the PC.

NOTE: Be certain you have the correct interface cable for your PC. Some PC's have either two 25-pin connectors or two 9-pin connectors, and some have one of each.

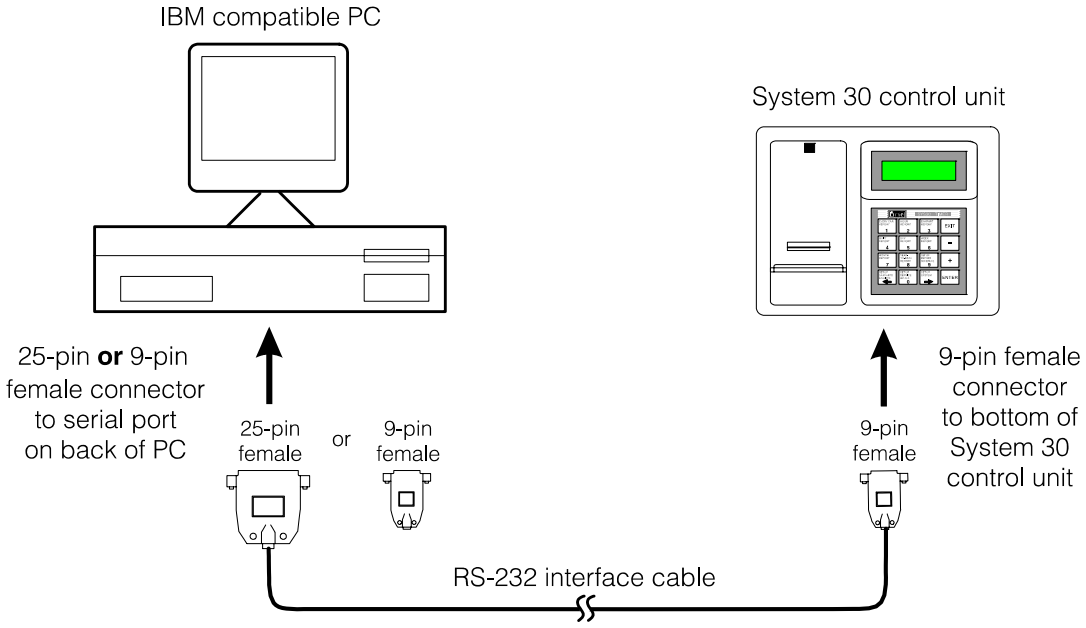


Figure 4. PC to System 30 Timer direct serial cable connections

2.2 INSTALLING RC30A™ SOFTWARE

If you have properly connected the System 30 Timer to your PC using the connections described in the previous section, you are ready to install the RC30A™ software on your computer.

NOTE: Before installing the RC30A™ software, close all other open software.

To install RC30A™ under Windows® 95, Windows® 98, Windows® ME, Windows® NT4.0, Windows® 2000, Windows® XP or Windows Vista™:

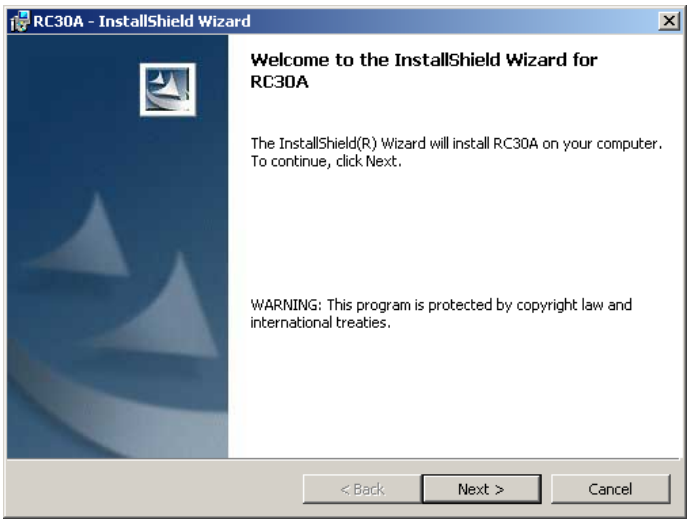
Insert the CD into a selected CD-ROM drive. Auto Setup will start installation.

If Auto Setup does not start:

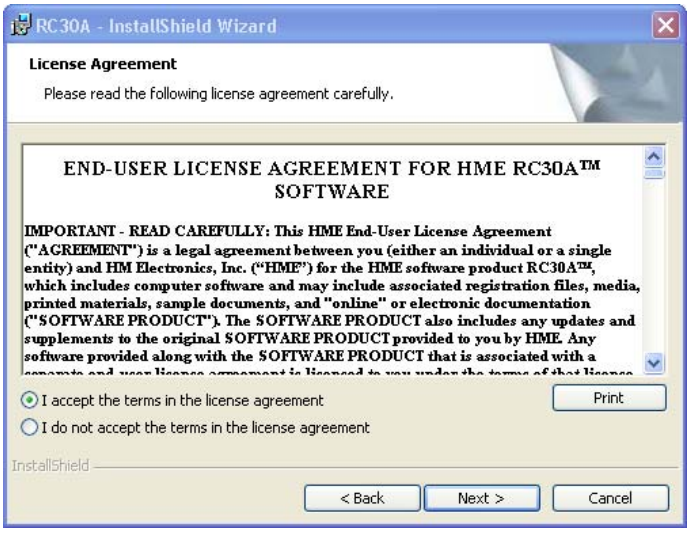
1. Under Windows® Internet Explorer® or File Manager, double click on the CD-ROM drive where the CD is inserted.
2. Double click on the **setup.exe** file.

One of the screens below will appear.

If the screen above appears, click on the **Restart** button to reboot your system.



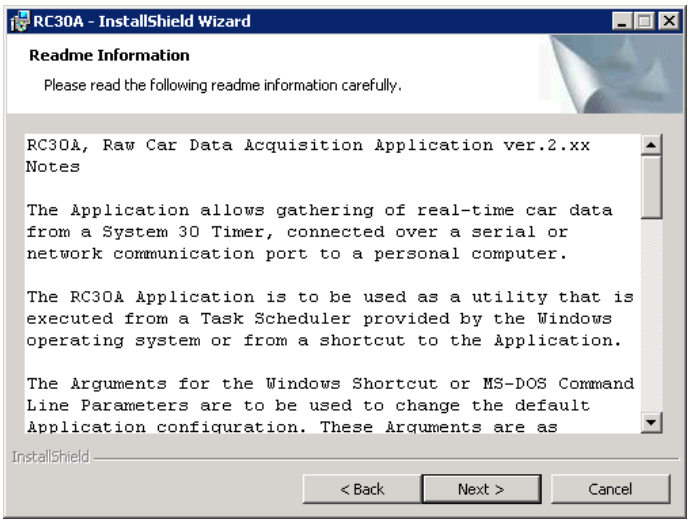
When the screen above appears, select **Next >** to continue.



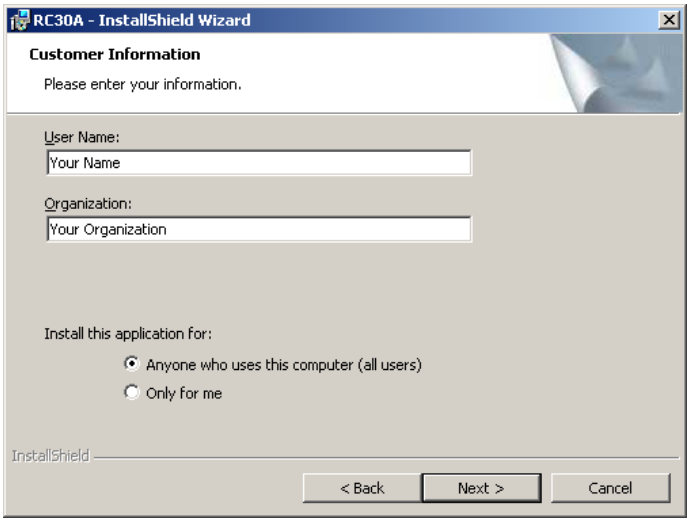
Please read all of the license agreement carefully.

If you do not agree to comply with the license agreement, click on **I do not accept . . .** and **Cancel**, or simply click on **Cancel** and the RC30A™ software installation will stop.

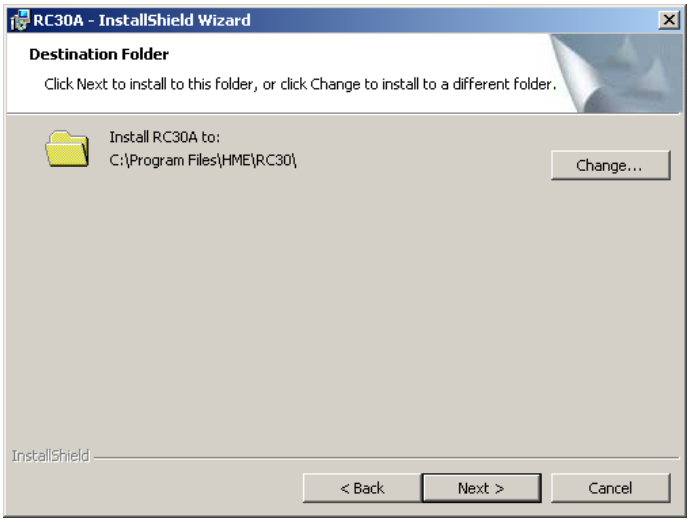
If the license agreement is acceptable, click on **I accept . . .**, and select **Next >**.



Read the Readme.txt file for information regarding the use of this product, then select **Next >**.

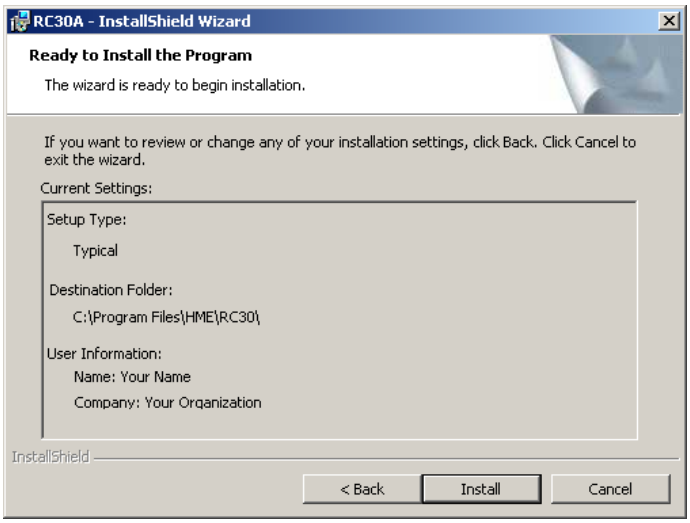


Enter the appropriate information under **User Name** and **Organization**, and select **Next >**.

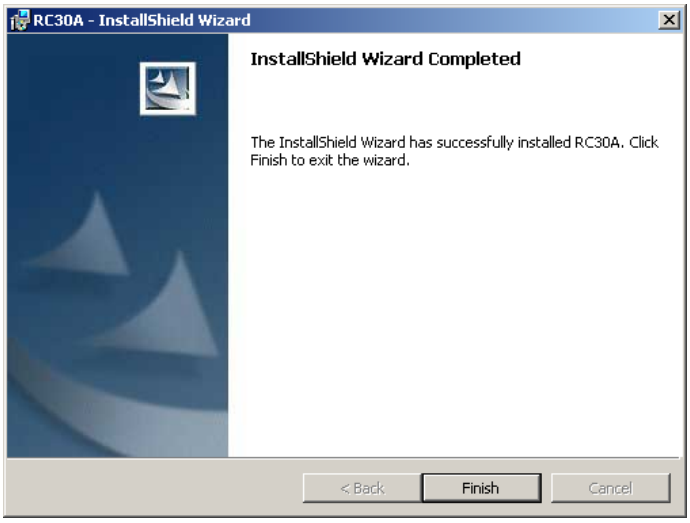


Select **Next >** to install RC30A™ in the folder shown on the screen.

If you would like to install RC30A™ in a different folder than the one shown on the screen, select **Change** to go to the Windows® Explorer and choose another folder. When you return to this screen, select **Next >** to install RC30A™ in the folder shown on the screen.



Read the information on the screen. If the Destination Folder shown is acceptable, select **Install**. Please wait while RC30A™ software is installed. If you would like to stop the installation at any time, select **Cancel**.



Your RC30A™ software installation has been completed. Select **Finish** to close the Installation Wizard.

2.3 UNINSTALLING RC30A™ SOFTWARE

To uninstall RC30A™ software from your computer, complete the steps below.

Go to the **Control Panel**. 

Double click on the **Add/Remove Programs** icon. 

Select **RC30A**™ and select to remove the application.

Follow the screens to uninstall the RC30A™ software.

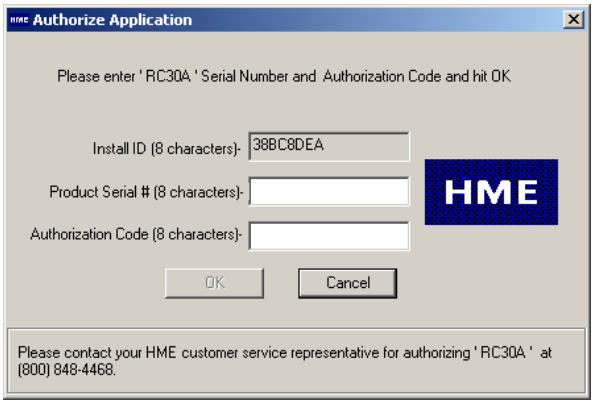
SECTION 3. RC30A™ OPERATION

3.1 AUTHORIZING RC30A™

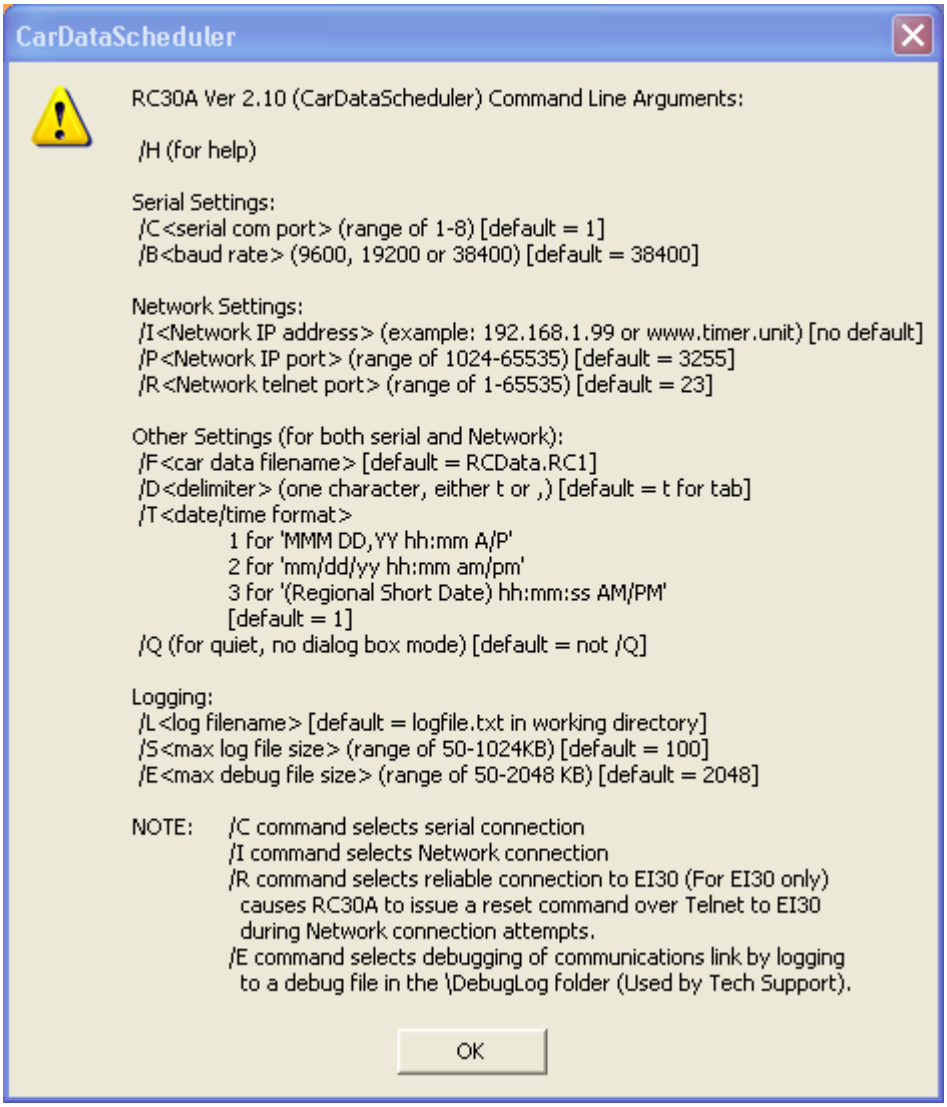
The installation process creates a shortcut on your PC desktop for the purpose of running RC30A™ the first time, to activate its use.

From the desktop, double click on the RC30A™ shortcut icon to start the RC30A™ software.

When the following screen appears, call HME Technical Support at 1-800-848-4468 for an authorization code. Have the Installation ID (as shown on the screen below) and the Product Serial # (from the CD envelope) ready to give to the Technical Support representative. The representative will guide you through the authorization process.



After your RC30A™ has been authorized, the software will attempt to run. The following help screen will be displayed. The Command line arguments on this screen will be explained in the next section.



NOTE: RC30A provides you the capability to customize the **date format** of the Raw Car Data text file. The date format can be modified using Microsoft® Windows® **Regional and Language Options** by following the directions in Appendix A. Changing the date format will affect all Windows® applications.

Select **OK** to continue.

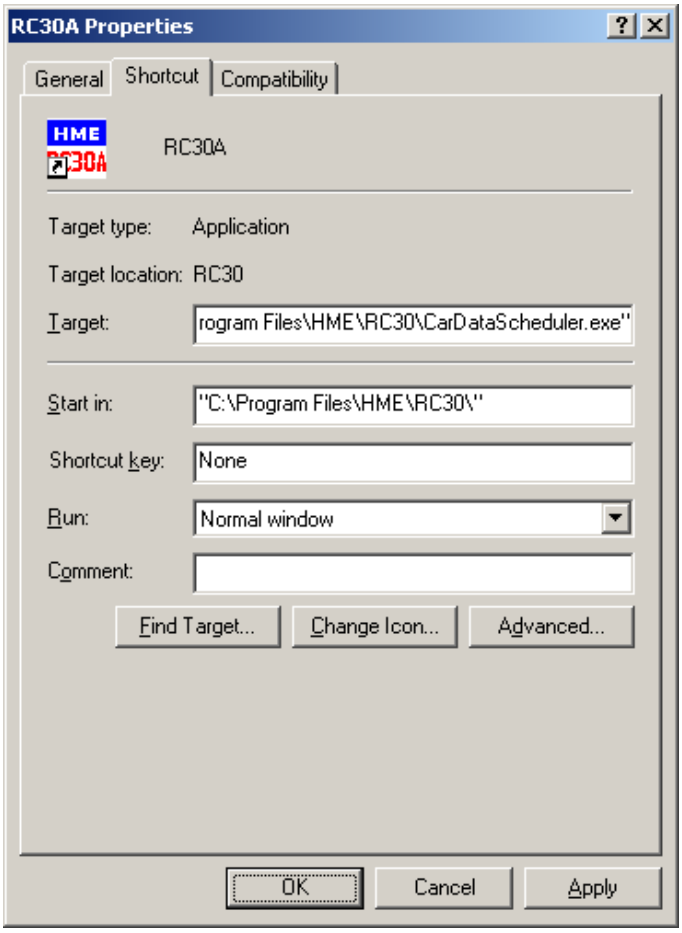
3.2 CONFIGURING RC30A™ FOR RAW CAR DATA COLLECTION

After your RC30A™ has been authorized, it must be configured to gather raw car data from the System 30 Timer as follows.

3.2.1 Configuring the RC30A™ Shortcut

RC30A™ can be started manually by running the application from a shortcut. Use the following instructions to configure the shortcut.

Right click on the RC30A™ shortcut on your desktop and select **Properties**.



Click on the **Target** field and cursor to the right end of the text.

Remove /H from Target in order for RC30A to run.
If this is not removed, the program cannot execute.

Enter a space followed by the applicable command line arguments from the table on the next page, separating each command by a space.

Settings	Command Line Argument	Description	Where	Default (If you do not specify argument)	Note
Serial	/Cx	Select Serial Com Port	x = 1…8 Serial Com Ports 1-8	1	For Direct Serial Cable or USB-to-Serial Adapter/ Direct Serial Cable connection to the System 30 Timer.
	/Bx	Serial Baud Rate	x = 9600, 19200 or 38400	38400	Be certain the baud rate matches the setting the System 30 Timer is using. Check the System 30 Installation Instructions to verify or alter the System 30 Timer's baud rate. For network connections, this setting adjusts the EI30 serial interface.
Network (EI30)	/IAddress	Network IP Address of EI30	Address = IP address of EI30 (System 30 Timer) (Example: 192.168.1.99 or www.timer.unit)	None	For Ethernet connection to EI30 (Ethernet Interface installed in the System 30 Timer).
	/P#	Network IP Port of EI30	# = IP port number ranges from 1024 to 65,535	3255	For Ethernet connection to EI30 (Ethernet Interface installed in the System 30 Timer).
	/R#	Telnet Address of EI30	# = IP port number ranges from 0 to 65,535	23	***If command is used***, it causes RC30A™ to Telnet to EI30 at the specified port and to issue a reset command when a network connection fails to be created. Used in networks with intermittent connectivity.
Other (Both serial and network)	/FName	Car Data File	Name = filename including path	.\RCData.RC1	You must specify a valid filename and path where you want to collect the raw car data.
	/Dx	Delimiter to separate fields in the Car Data	x = character used to delimit (Either "t" for tab or "," for comma).	t	
	/T#	Date/ Time Format in Car Data	# = 1 for MMM DD, YY hh:mm A/P # = 2 for mm/dd/yy hh:mm am/pm # = 3 for Regional Short Date hh:mm:ss AM/PM	1	Selects the date format of the Raw Car Data. **NOTE:** "Date" follows the format of regional PC time settings. Please consult your PC operating system manual.
	/Q	Quiet Mode (No dialog box)	No Arguments		***If this command is used***, it causes RC30A™ to run without displaying a dialog box. Confirm operation of RC30A™ using the /L option.
Logging	/LName	Log file name and path	Name = filename including path	.\logfile.txt (in working directory)	Used to log RC30A™ activity to a specified file for use in verifying correct operation. **NOTE:** If multiple copies of RC30A™ are going to run at the same time, a unique log file name should be specified for each copy.
	/S#	Max size of log file	# = Maximum size of file in Kbytes from 50 to 1024Kb	100 (100Kbytes)	Used to control the maximum size log file. If size is exceeded, a new log file is created and the old renamed to Name.old.
	/E#	Debug file size when debugging communications (Used by HME Tech Support)	# = Maximum size of file in Kbytes from 50 to 2048Kb	2048 (2048Kbytes)	***If command is used***, RC30A™ creates a .\DebugLog folder containing a debug file for the specified IP address or serial connection.

Click on **OK** button to accept changes to the command line arguments for the application.

The following is an example of the target line for a shortcut:

"c:\Program Files\HME\RC30A\CarDataScheduler.exe" /C1 /B38400 /FC:\test\a.txt /Dt/T3

where:

/C1 selects comm. port 1
/B38400 selects a baud rate of 38400 bits per second
/FC selects a test folder on the C: drive and puts data in a file called "a.txt"
/Dt selects a tab as a delimiter for separating data fields in the file

NOTE: It is recommended that you not use the /Q Quiet Mode command until you have properly tested the RC30A™ software.

If you are using the /Q command, you will need to use the /L command to confirm proper operation. Refer to Appendix B for information regarding log files.

Go to Section 3.3 to run the RC30A™ software.

3.2.2 Setting Up the Car Data Automatic Collection Scheduler

To set up automatic collection of Raw Car Data on a regularly scheduled basis, use the Windows®-supplied Task Scheduler as follows.

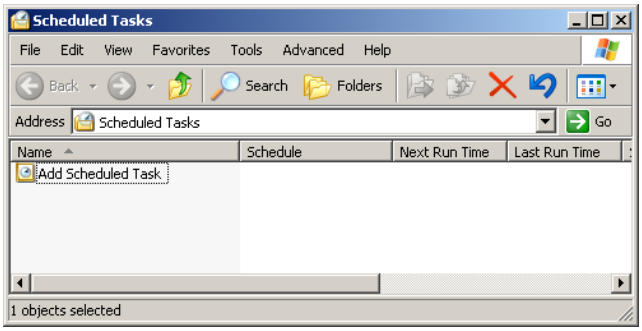
If you are using an operating system older than Windows® 98, such as Windows® 95 or NT, or Windows Vista™ follow the procedures described in the Windows Help. This Help can be accessed from the **Start** button on the Task Bar.

If you are using Windows® 98, Windows® ME or 2000, the following steps describe the procedure for adding RC30A™ to the Task Scheduler.

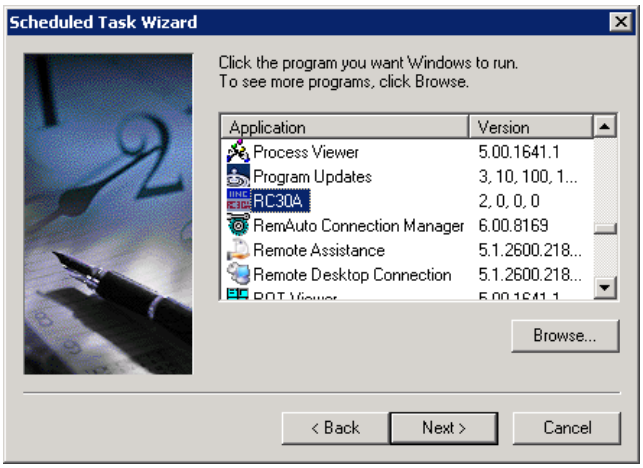
Double click on the My Computer icon on your main computer screen.

Double click on the Scheduled Tasks icon from the My Computer folder, and the Scheduled Tasks screen will appear.

If you are using Windows® XP, select **Start**, **Control Panel** and then select **Scheduled Tasks**.

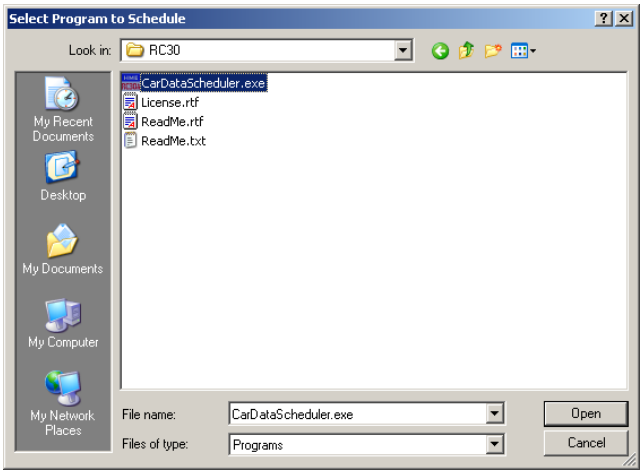


Double click on **Add Scheduled Task** to add RC30A™.

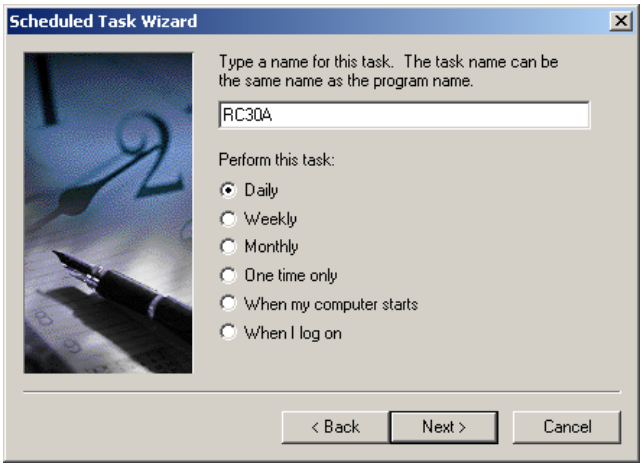


To locate and open the RC30A™ Car Data Scheduler:

1. Click on the **Browse** button.
2. Locate the RC30A installation directory.
   Default is **C:\Program Files\HME\RC30**.

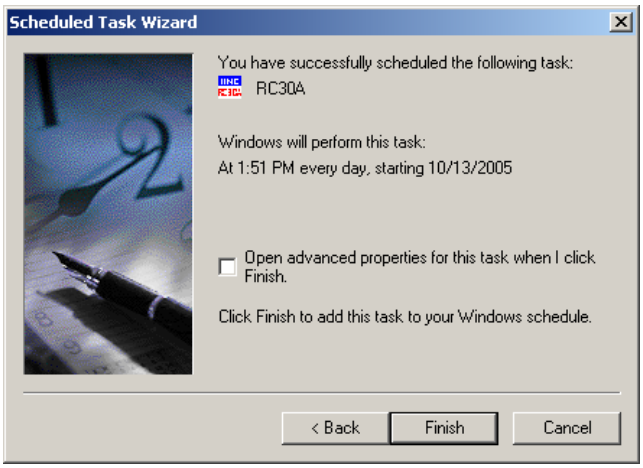


Highlight CarDataScheduler.exe and select **Open**.



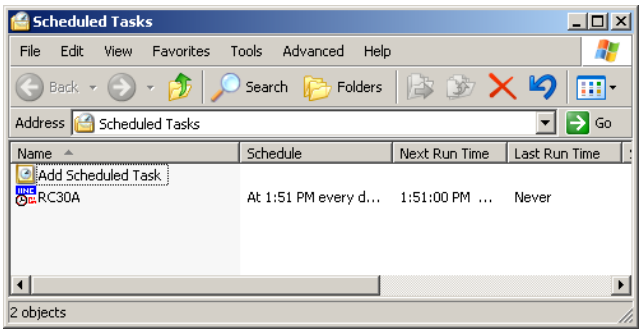
Select the period in which the application will be run, then select **Next >**.

Select the start time and day as well as the frequency of the task and the first date the RC30A™ task should be run.

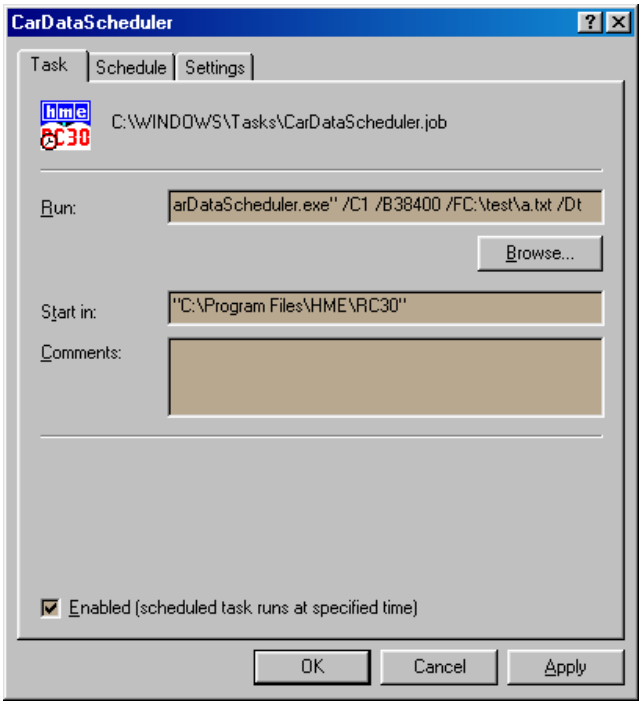


Select **Finish** to complete the scheduling of the RC30A™ task.

The **CarDataScheduler** task (RC30A™ task) should now appear in the list of Scheduled Tasks.



Double click on **CarDataScheduler** to modify the command line arguments in the **Run:** field, using the same procedure described in Section 3.2 for editing the Target field of the RC30A™ shortcut.



Select **OK** to establish the shortcut to the RC30A™ CarDataScheduler location you have just set up.

Raw Car Data should now be collected automatically, according to the schedule you have set up.

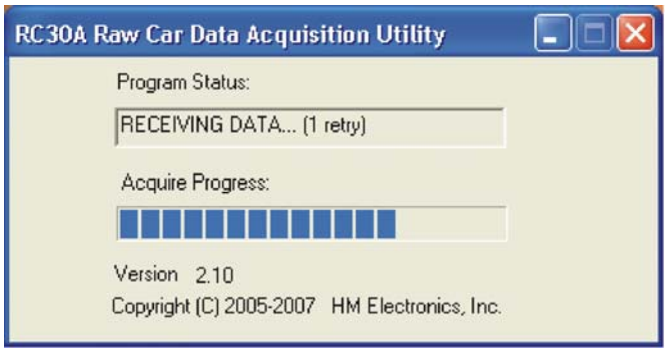
NOTE: Avoid scheduling data collection from a given timer faster than once every two minutes, to provide enough time for the timer to finish the process.

3.3 RUNNING RC30A™ FOR RAW CAR DATA COLLECTION

Whether you use a shortcut (by double clicking on it) or some other application such as the Task Scheduler to start RC30A™, and provided you are not using the /Q Quiet Mode command line argument, the following screen should appear, indicating that Raw Car Data is successfully being collected from the connected System 30 Timer:

3.3.1 Successful Data Collection

The following screen should appear, indicating Raw Car Data is successfully being collected from the System 30 Timer.



While the RC30A™ is collecting data, this screen will show activity in the Acquire Progress bar. As data is received from the Timer, the Program Status bar will show the number of Raw Car Data records received.

3.3.2 Unsuccessful Data Collection

If the above screen does not appear, there may be a number of reasons. Be certain you have turned the System 30 Timer power ON. Be certain the following steps have been followed.

For network connection:

Be certain EI30 has been properly installed in the System 30 Timer.

Be certain a proper network cable is used for your network configuration (Straight-through or crossover --- See section 2.1.1).

Be certain the network cable connectors are properly connected to the timer and the PC.

Be certain the IP address and IP port are set properly.

For direct serial connection:

Be certain you have a valid serial crossover cable connecting the System 30 Timer to your PC (See section 2.1.2).

Be certain the cable connectors are properly connected to the Timer and the PC.

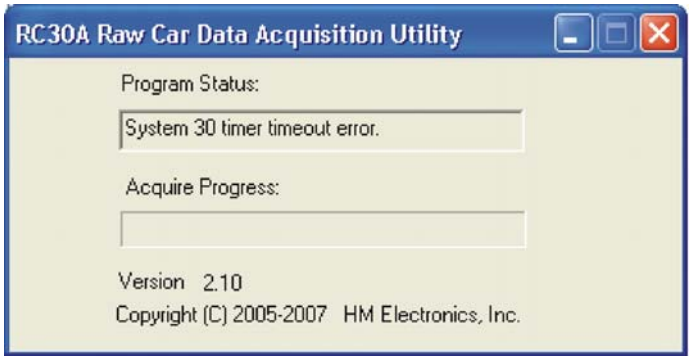
Be certain you have specified the proper baud rate in the RC30A™ command line arguments (See section 3.2).

Be certain you have connected the cable to the serial port connector that coincides with the COM port you selected in the RC30A™ command line arguments (See section 3.2).

Be certain the COM port you have specified in the RC30A™ command line arguments is a port that is not being used by another application.

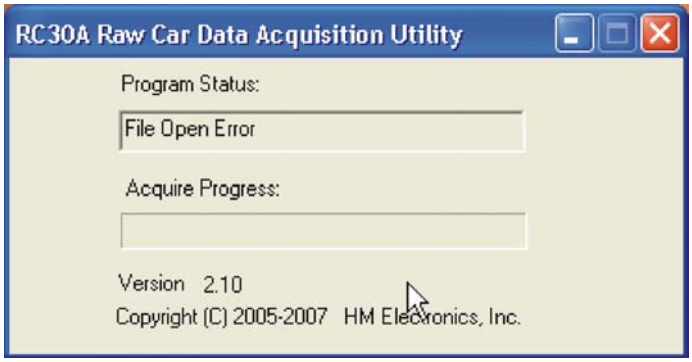
If your attempt to start RC30A™ has failed, and you are not using the /Q Quiet Mode command line argument, one of the following displays will appear. It will remain on the screen with a blinking title bar for up to 20 seconds, to inform you of the error condition.

Timeout error --- If one of the preceding steps is not followed, the next screen will appear.

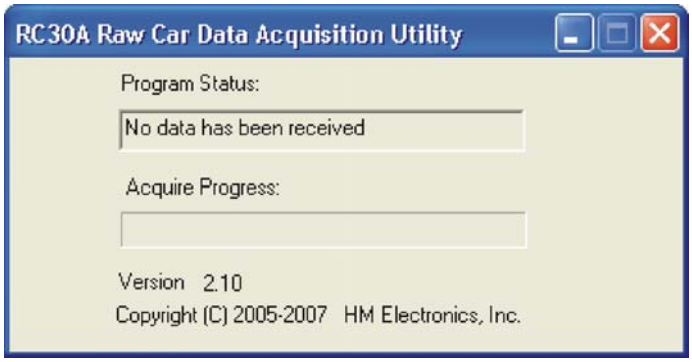


Port already open (direct serial connection) --- If you attempt to start RC30A™ after specifying a command line argument for a COM port that is being used by some other application, the following screen will appear.

File Open Error --- If you attempt to start RC30A™ while you are viewing the car data file with a software such as Microsoft® Excel®, the following screen will appear. Close the viewing software and restart RC30A™ to allow it to gather data into the car data file.



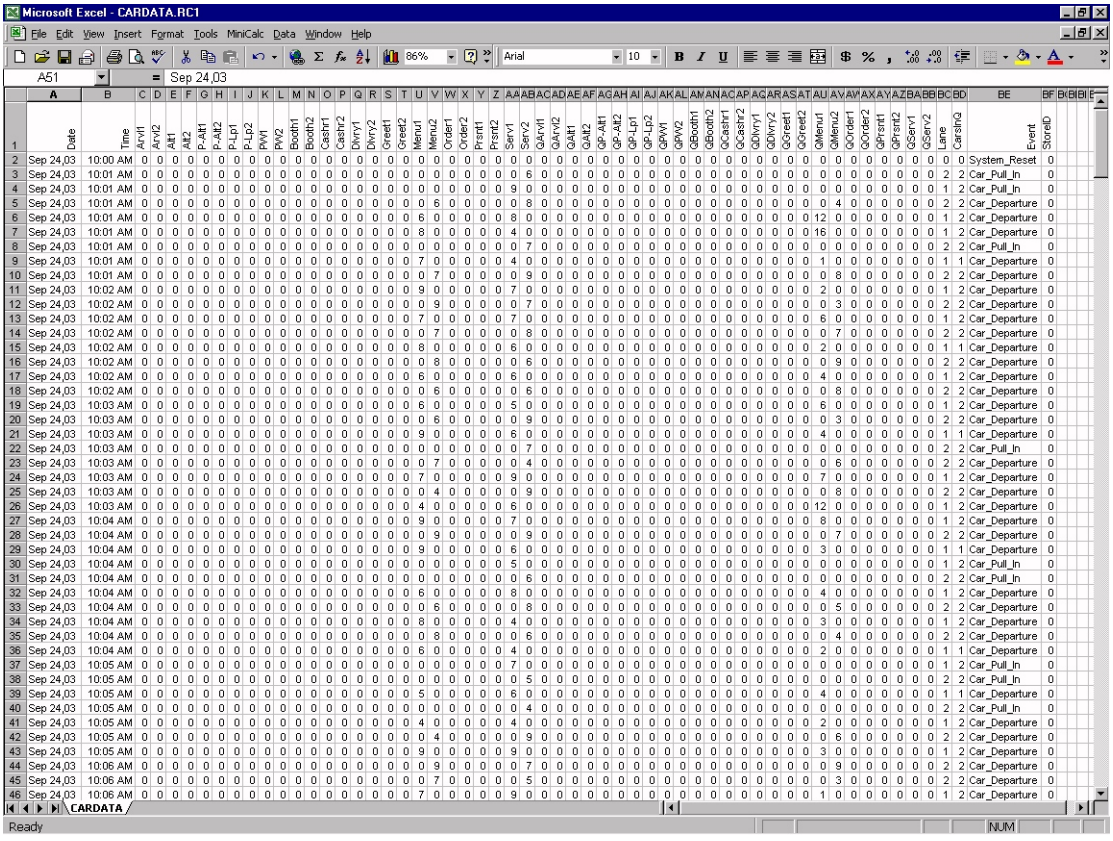
No data received --- If you attempt to start RC30A™, and it has not gathered any new data since the last time you ran it, the following screen will appear. This condition indicates there has been no activity at the timer from which RC30A™ is gathering data.



3.3.3 Data Format of RC30A™

After successful collection of Raw Car Data from the System 30 Timer, you can open the data file you specified in the Command Line arguments for RC30A™. This file is created the first time you run RC30A™, and adds new data each time you run RC30A™. To avoid an excessively large file, archive the file by saving it to another folder or disk. After the data file has been archived, RC30A™ will create a new car data file to replace it.

The following tables show examples of the data format of a file containing Raw Car Data from a System 30 Timer, in Raw Text Format and imported into a Microsoft® Excel® spreadsheet. In this example, the System 30 Timer is configured for a dual lane operation, with menu boards Menu1 and Menu2, and service windows Serv1 and Serv2. Note also that there are queue times for the times between menu boards and service windows designated QMenu1 and QMenu2 for lane 1 and lane 2 respectively.



Raw Text Format:

The Raw Text Format generated by RC30A™ contains an individual record (row) for each Car_Departure, System_Reset, Delete_Auto_Pullout, etc. Each record contains fields with the following information:

Date in the default form MMM DD,YY or date matching regional format (MM/DD/YY or other) --- for normal Car_Departures and Car_Pull_Ins, this is the departure date; for other record types, this date indicates the date of the occurrence of the record. See section 3.2 for alternate date formats.

Time in the form HH:MM A/P --- for normal Car_Departures and Car_Pull_Ins, this is the departure time; for other record types, this time indicates the time of the occurrence of the record.

Times for detector and queue events that car experiences in the drive-thru (used for normal Car_Departures and Car_Pull_Ins).
NOTE: In the example, detector and queue event fields (columns have been deleted from the screen shown on page 24, since they are not relevant to this explanation). Arvl1, Arvl2, Alt1, Alt2 are left to show that other unused events contain '0' for event times.

Lane --- Indicates which lane the car used as it moved through the drive-thru. For single lane configurations, this is always set to 1.

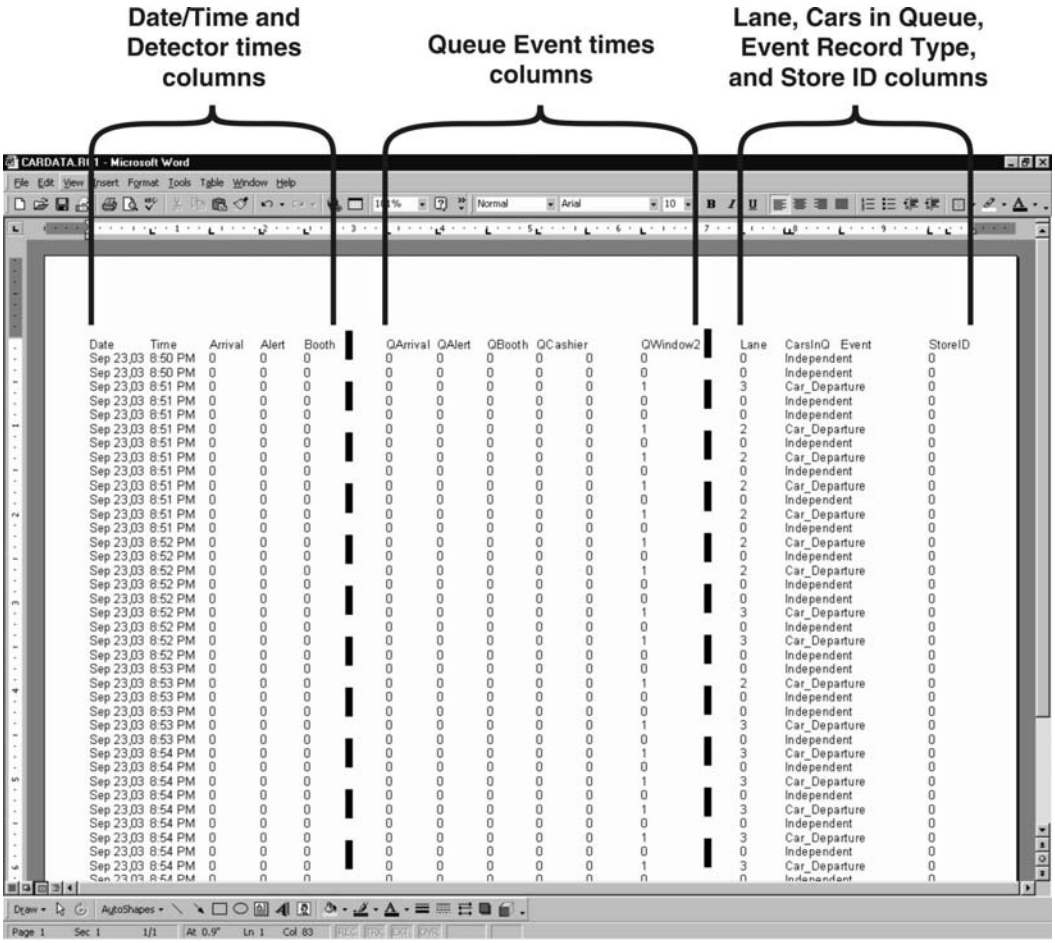
Cars In Queue --- Indicates the number of cars in the queue when the record was recorded. This field provides information regarding the activity in the lane as cars and other record types are occurring.

Event --- This is the actual record type, which includes the following information.

Event (Record Type)	Description
Car Departure	A normal car has been processed through a lane.
Timer Reset	An employee has reset the System 30 Timer.
VDB Reset	An employee has reset the last active Vehicle Detector in a given lane
Delete_Auto_Pullout	The Timer has automatically deleted a car detected to be a pull out from the lane.
Delete_Auto_Discard	The Timer has automatically discarded a car detected to have passed thru the first or last detection point in a given lane faster than the minimum discard time.
Delete_Auto_Over	The Timer has automatically deleted a car from the lane due to the Maximum Number of Cars being exceeded.
Delete_Manual	An employee has manually deleted the first car in the lane.
Car_Pull_In	A car has pulled into the lane, avoiding entering the lane at the first detector.
VDB_Reset	An employee has manually reset the vehicle detectors.
Power_Up	The Timer has been powered up.
Power_Down	The Timer has been powered down.
New_Day	The Timer has passed through a new calendar day.
New_Daypart	The Timer has passed through a new daypart.
Independent	A vehicle has departed from an individual independent detector.
System_Reset	An employee has reset the Timer.

Each record of the Raw Car Data is organized as follows:

NOTE: The vertical dashed lines indicate columns omitted from this illustration.



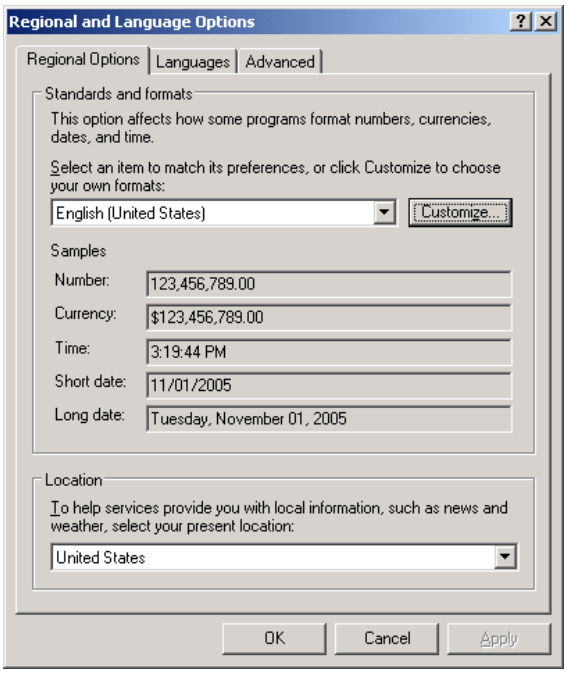
3.3.4 Exporting RC30A™ Data to Another Software

As stated in Section 3.2, it is possible to select either a tab or comma delimiter. This separates the fields of the records with either a tab or comma, which allows the data records to be exported to another software such as Microsoft® Excel® or Lotus® 123 for spreadsheets, which require one type of delimiter (separator) or the other.

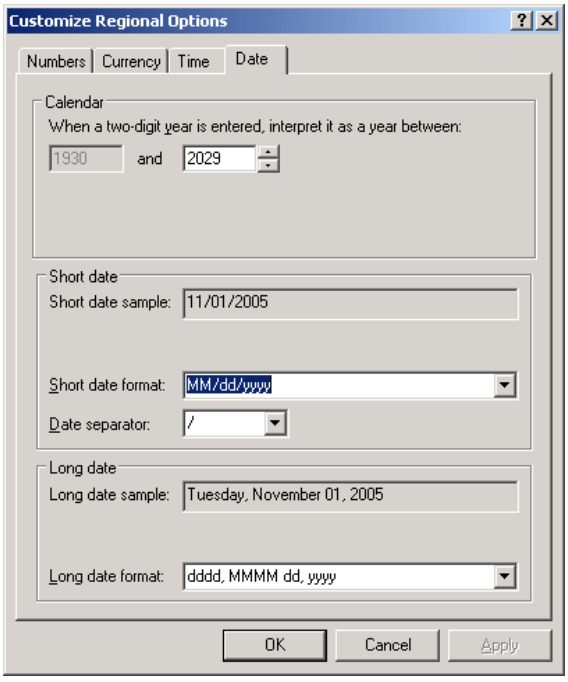
APPENDIX A: CHANGING WINDOWS REGIONAL DATE FORMAT

For Windows® XP:

Select Start -> Settings -> Control Panel -> Regional and Language Options



Under Regional Options click on **Customize**



Under **Date** modify the **Short date format** as desired.
Click **OK** to save.

APPENDIX B: LOG FILE AND DEBUG FILE FORMATS

RC30A™ uses two files to provide feedback as to what events have occurred during the process of polling System 30 Timers for car data.

Log file

When the /L command line argument is used, RC30A™ creates a log file to track the time and date of communication activity between RC30A™ and the System 30 Timer, including number of records obtained, failed attempts to get data, etc. This log tracks either serial or network connections.

Debug file

When the /E command line argument is used, RC30A™ creates a debug file in a DebugLog folder to track, in more detail, the communication activity between RC30A™ and a given System 30 Timer. This debug file tracks either serial or network connection activity. This file has information that can be interpreted by HME Technical Support to debug network communication problems.