



# **Carrier Corporation**

## **TRU-Tech & TRU-View**

### **Installation Guide**

**Version 3.8 | 15 Feb 2022**

## References

Reader should read this document in conjunction with the following documents

No	Document Name	Ver	Location
1.	NA	NA	NA

# Table of Contents

References .....	ii
Definitions, Abbreviation and Acronyms.....	4
1. INTRODUCTION .....	5
2. VERSION SUPPORT .....	5
3. GETTING STARTED .....	5
4. SOFTWARE PACKAGE .....	5
4.1 TRU-Tech & TRU- View Program .....	5
4.2 TRU-View Program .....	6
4.3 CCN Communications DLL.....	6
5. PC REQUIREMENTS .....	7
5.1.1 .NET framework pre-requisite requirement.....	8
5.1.2 Microsoft Office pre-requisite requirement.....	8
6. INSTALLATION PROCEDURES .....	8
7. PROGRAM OPERATION .....	17
7.1 Logon and Security.....	17
7.2 PC Setup .....	18
7.3 Help .....	19
7.4 About .....	19
7.5 Main Operations .....	19
7.5.1 Service Live .....	20
7.5.2 Download/Analyze .....	21
7.5.3 Create / Edit. Set Files .....	21
7.5.4 Read / Write PC Card / USB .....	22
7.5.5 Reefer Setup Live.....	25
7.5.6 Monitor Live .....	26
8. PC CARD INSTALLATION .....	27
8.1.1 Omni Drive Installation .....	28
9. PC Card Operation in 64 bit machines .....	28
10. Data Recorder Memory Usage .....	29

## Definitions, Abbreviation and Acronyms

The terms in use in the document are explained below

Acronym	Description
CCN	Carrier Comfort Network
DCX, ZDX & ZAX	Downloaded data file to be viewed in TRU View.
PC	Personal Computer
PCMCIA	PC card interface
USB	Universal Serial Bus

## 1. INTRODUCTION

This guide has been prepared for users of the TRU-Tech & TRU-View program. It contains basic instructions for the installation and operation of these Microsoft Windows-based software programs. Please take the time to read the information contained in this booklet and refer to it whenever you have a question about the installation and operation of TRU-Tech & TRU-View.

## 2. VERSION SUPPORT

This User's Guide supports TRU-Tech & TRU-View version 01.08.00 & above. These versions of TRU-Tech & TRU-View support Truck Trailer Products APX (Zenith), Advance & Summit Controllers

## 3. GETTING STARTED

This User's Guide provides an overview of the following:

- PC system configuration requirements
- Program installation procedures
- Program operation
- On-line help
- PC Card & USB setup procedure
- Intellisnet operation

This User's Guide is written for users familiar with working in the Windows operating system, including Windows 8, Windows 10 & Windows 11. It is also assumed that the users know how to find and open files, launch programs and is also familiar with the operation of on-line help.

## 4. SOFTWARE PACKAGE

### 4.1 TRU-Tech & TRU- View Program

The TRU-Tech & TRU- View program enables the user to do the following:

- Monitor data using the window Monitor Reefer Live in real-time via USB/RS-232 port & CAN Port, the status of the microprocessor inputs, outputs, refrigeration sensors, electrical sensors, engine sensors, alarms, and temperature sensors.
- Log (record) sensor data to a file for diagnostic purposes using the window Monitor Reefer Live.
- Download Advance and Summit data via Serial/USB port communications, APX (Zenith) Controller download (USB port only).
- Download the data using the options: All Data, Since Last Download Event, Last 30 days, By Trip & by Date.
- Display, edit and Send Unit Model Number, Serial Number and Trailer ID to the respective microprocessors using the option Set Micro Information.
- Display, edit and Send Functional Parameters and Configuration Settings to the microprocessors and data recorders using the option Reefer Setup Live.
- Set the date and time in the Real Time Clock used in the Data Recorder using the option Set Date/Time.
- Read and write Hour Meter values using the option Set New Micro Hours.
- Support Download, Configuration, and Program PC Card /USB operations.

- Customize Advance & APX (Zenith) Micro display messaging.
- Provide a security logon system controlled by a System Administrator

## 4.2 TRU-View Program

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The TRU-View program enables the user to do the following:

- Read \*.DCX, \*.ZDX and \*.ZAX download files from Advance and APX (Zenith) Microcontrollers.
- Create various customized reports that include set point, sensors, and events.
- Create various customized graphical reports.
- Print numerical, graphical, and event reports.
- View and print refrigeration system settings
- Filter download data by date range and sensors/events
- Search for a Sensor or Event of Interest.
- Synchronize multiple graphical and numerical windows to better understand historical operation.
- PC Setup enables the user to select how to display various parameters for use in the graph and text window. For example, the user can select to see temperatures in either °F or °C; Pressure in psig, bars, or kPa, and dates in either mm/dd/yyyy format, or dd/mm/yyyy format.
- Easily adjust X and Y axis and color scheme to accommodate various data.
- Export data to a spreadsheet friendly format such as MS Excel, PDF.

## 4.3 CCN Communications DLL

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ComCoSvr.dll will automatically get registered with TRU-Tech & TRU- View installation. ComCoSvr.dll is used to communicate with the Advance & Summit controllers.

**Note:** In case of upgrade the DLL will be overridden.

## 5. PC REQUIREMENTS

	Minimum PC System Configuration	Recommended PC System Configuration
Processor	Core i3 Processor	Core i3 + or equivalent
Operating System (support both 32 bit and 64 bit)	<ul style="list-style-type: none"> <li>Windows7- All (32 and 64 bit)</li> <li>Windows8</li> <li>Window10</li> </ul>	<ul style="list-style-type: none"> <li>Windows7–Enterprise (32bit), Windows Enterprise (64 bit).</li> <li>Windows8</li> <li>Windows10</li> </ul>
RAM	4GB	4GB +
Hard Disk	120 MB free disk space	120+ MB free disk space
Video	VGA	VGA+
Video Resolution	800x600	800x600 +
Serial Port	1 RS-232 port (COM 1)	1 RS-232 port (COM 1) or any other COM port if user has added additional serial ports.
USB Port	1 USB	More than one
Printer Port		1 standard printer port (LPT 1) or 1 USB port
Internet	Not required	Option (internet installation support)
PCMCIA Card	PCMCIA Type I slot	PCMCIA Type I slot or adapter.
Network Connection	Not required	(remote printer support & network installation)
Pre Requisites	.Net Framework 4.0(also gets installed as part of TRU-Tech Installer)	.Net Framework 4.0 with Admin Privileges.

The above chart shows both the minimum and recommended PC system configurations. Using a PC with at least the recommended system configuration will provide the best overall performance.

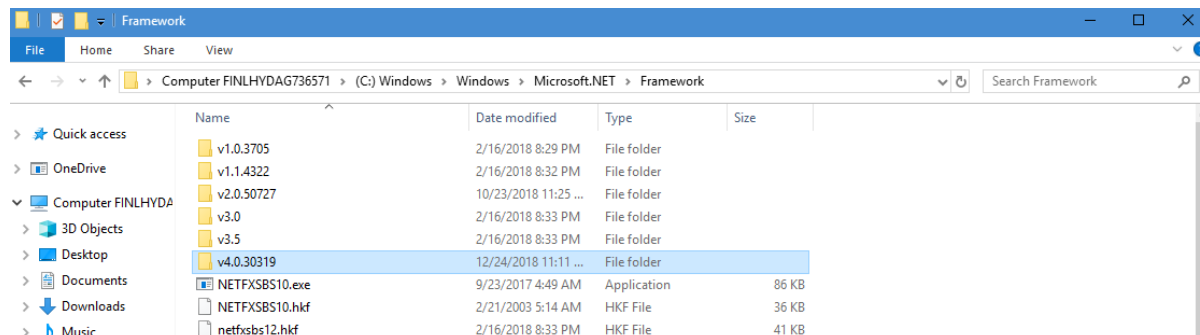
### NOTE:

1. TRU-Tech & TRU- View program supports USB port serial connections/CAN interface. In the event that a notebook PC has a DB-9 serial port connector (COM Port) user can use that for serial connections to the Truck-Trailer unit (Advance Microprocessor Download Cable 22-01737-00 6 ft. length, 22-01737-04 20 ft. length). For computers with only USB ports available a USB to Serial Adapter Cable (07-00503-00) will be required to communicate with Advance and Summit controllers (Use the latest driver for the USB to Serial adapter for e.g. Prolific PL-2303 USB to Serial).
2. APX USB to USB cable for PC communication to an APX unit, APX USB to PC, 22-04253-00 6 ft. length, 22-04253-01 20 ft. length.
3. APX USB Universal flash drive 12-00814-00. Provides TRU-Tech production installation for Windows PCs also used to interface with the APX System for Software upgrades, Data recorder downloads, Configuration, IntelliSet, and Maintenance set file uploads
4. Advance USB PC card reader (Omni-drive) 07-00439-00
5. Summit/Advance USB to serial port adaptor for PC communications (07-00503-00)
6. Summit – Computer DB-9 serial port to flat 3-pin packard (6ft.) (22-01690-00)

The above peripheral equipment is available from Carrier via [Truck Trailer North America Performance Parts | Carrier Transicold](#)

### 5.1.1 .NET framework pre-requisite requirement

Installing TRU-Tech & TRU-View or TRU-View only requires that .NET Framework 4.0 to be installed on the target PC. This can be verified by checking the folder shown below.



### 5.1.2 Microsoft Office pre-requisite requirement

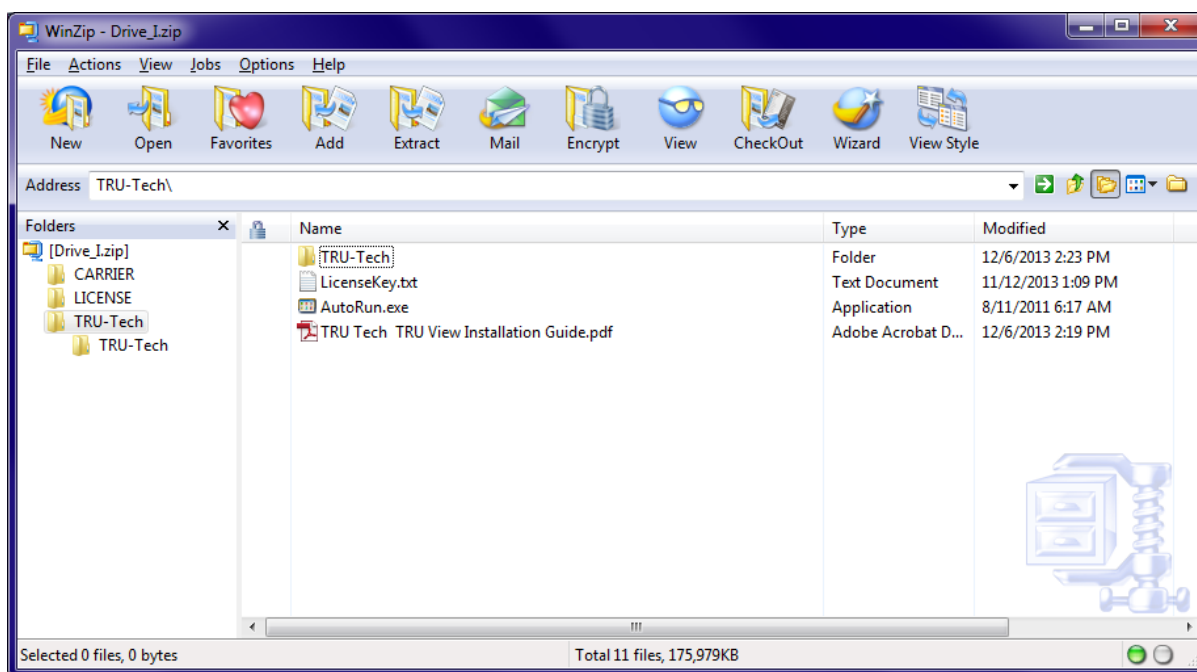
To work with TRU-View Print & Export of Text reports in .XLS format it requires Microsoft office 2010 onwards.

## 6. INSTALLATION PROCEDURES

There are 2 versions of installations for the TRU-Tech & TRU-View applications. Production version installations, and upgrade version installations.

- Production version installations are purchased from PPG on APX USB Universal flash drives and include TRU-Tech/TRU-View (together), and TRU-View (only).
- Upgrade version installations are free and can be downloaded from the following website [TRU-Software \(carrier.com\)](http://TRU-Software.carrier.com). Upgrade installs will not require the license key but do require the associated production version be installed prior with a valid license key. It is recommended to check the website periodically for newer version availability and to always upgrade to the latest version. Please follow the instructions on the website for downloading and installing upgrade versions.



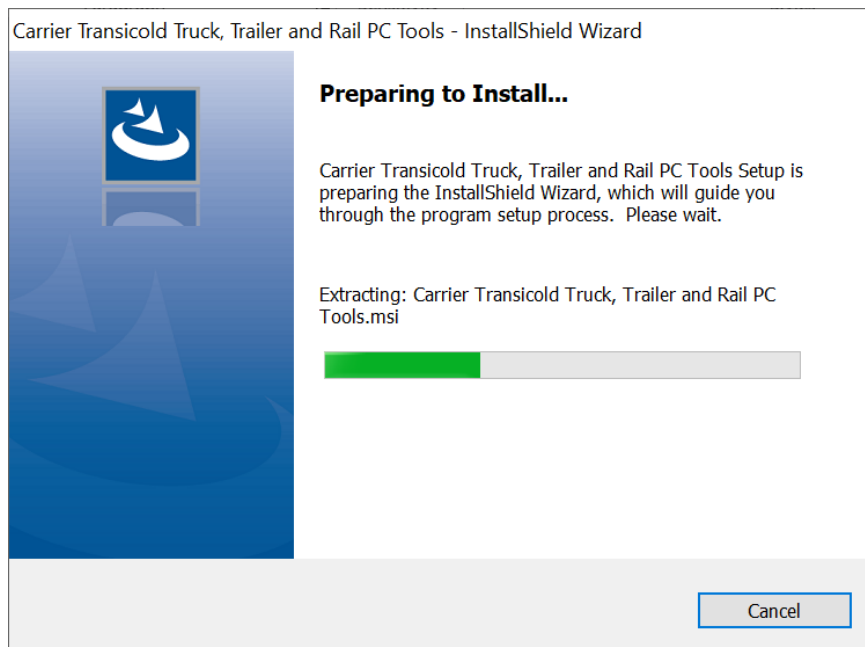


### Auto-Install Instructions

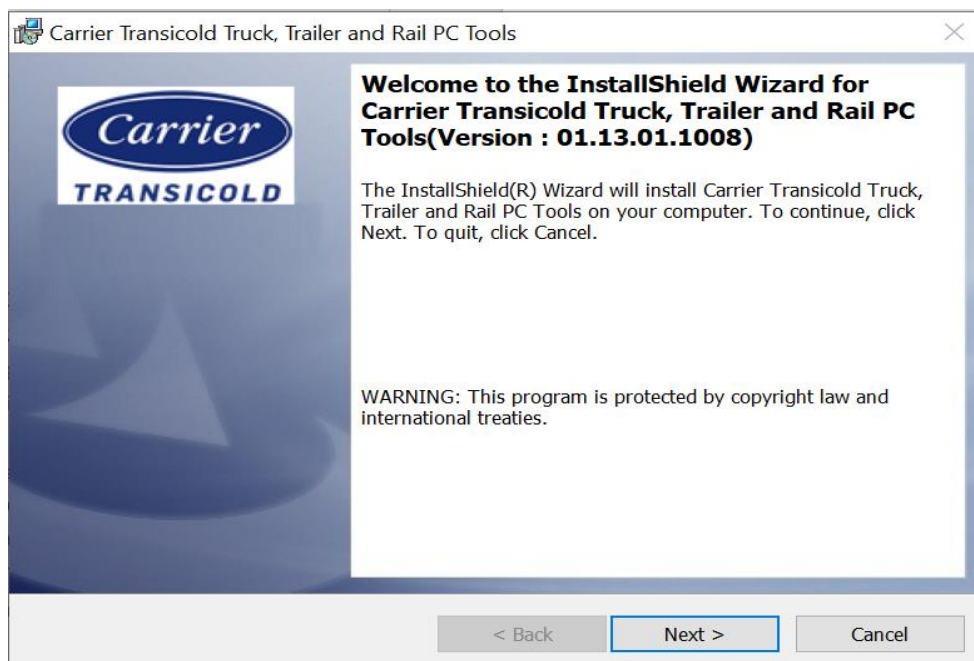
1. Close all programs and applications that are currently running.
2. Insert the USB Flash drive in your computer.
3. Your computer should recognize the USB Flash drive then open the Carrier\TRU-Tech folder in USB Flash drive and double click on AutoRun.exe



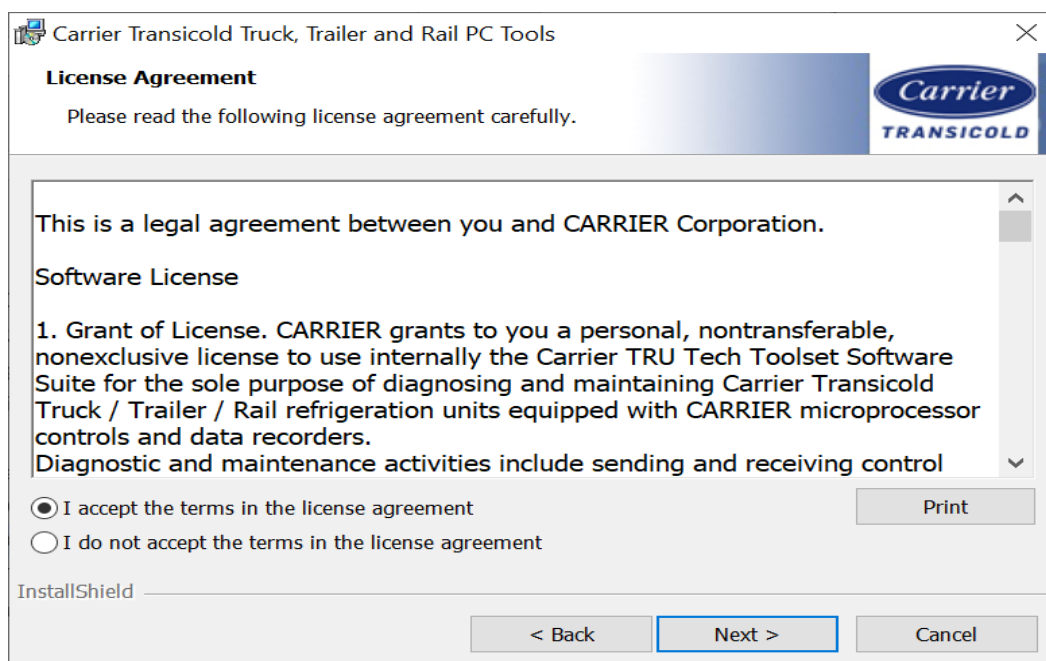
- Click on the **Next** button to start the TRU-Tech & TRU- View program installation. The TRU-Tech & TRU- View Install Wizard will open up and guide you through the installation process.



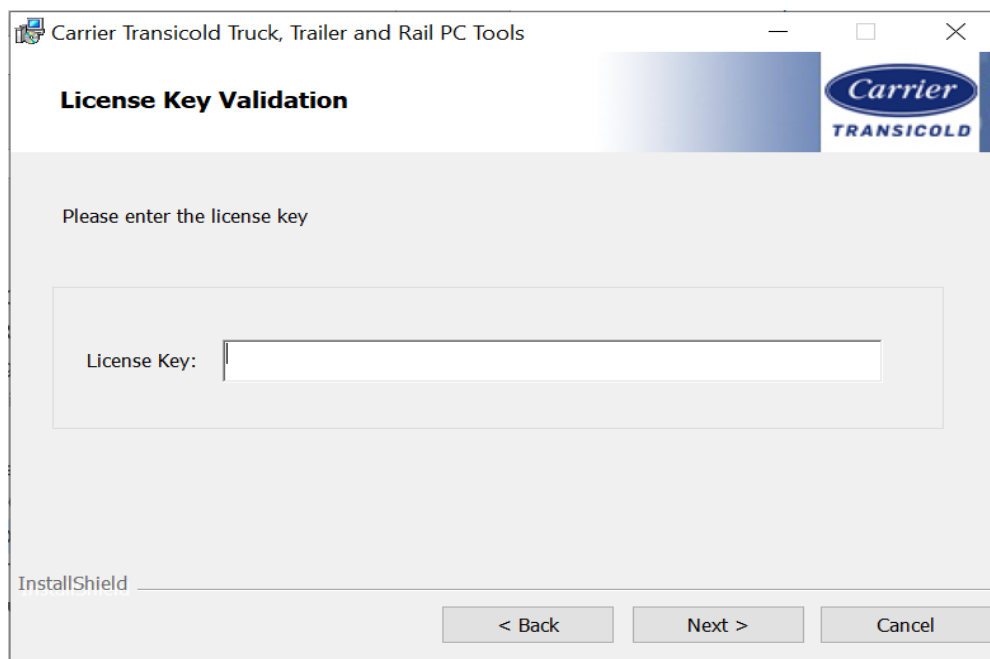
- Click on the **Next>** button when it appears, and the installer displays the version being installed.



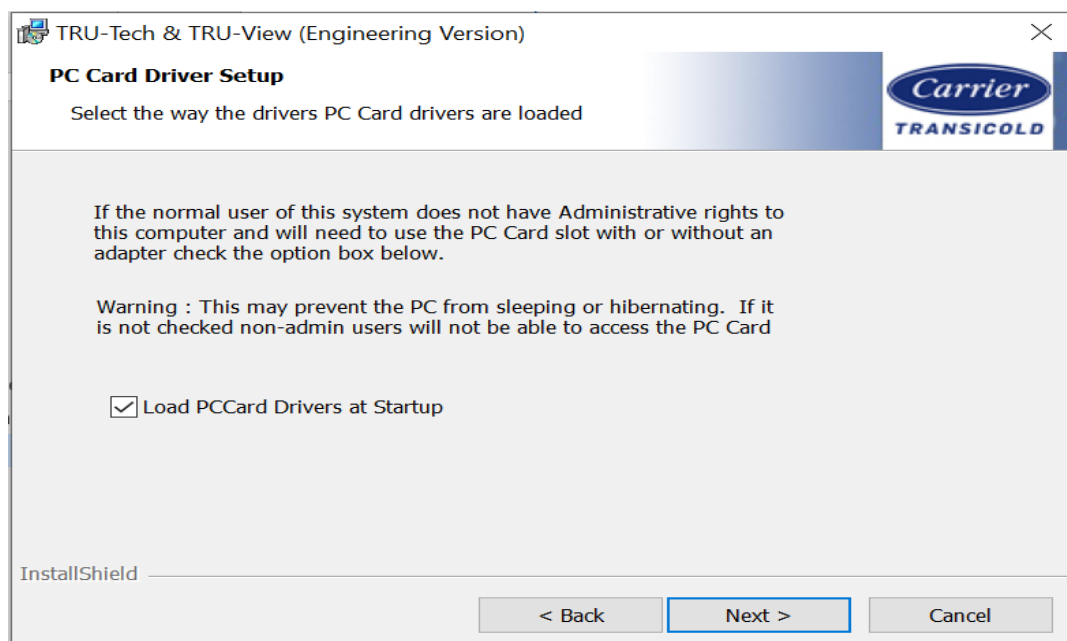
6. The License Agreement window comes up next. This is a legal agreement regarding the installation and use of the program. Users should read through the agreement before proceeding. Should the user decide to not accept the terms of the agreement, click the **<Back** or **Cancel** button to stop the installation process. To continue with the installation of the program, the user must click the radio button indicating that they accept the terms of the agreement. At that time the **Next>** button will become active, and it should be clicked to continue.



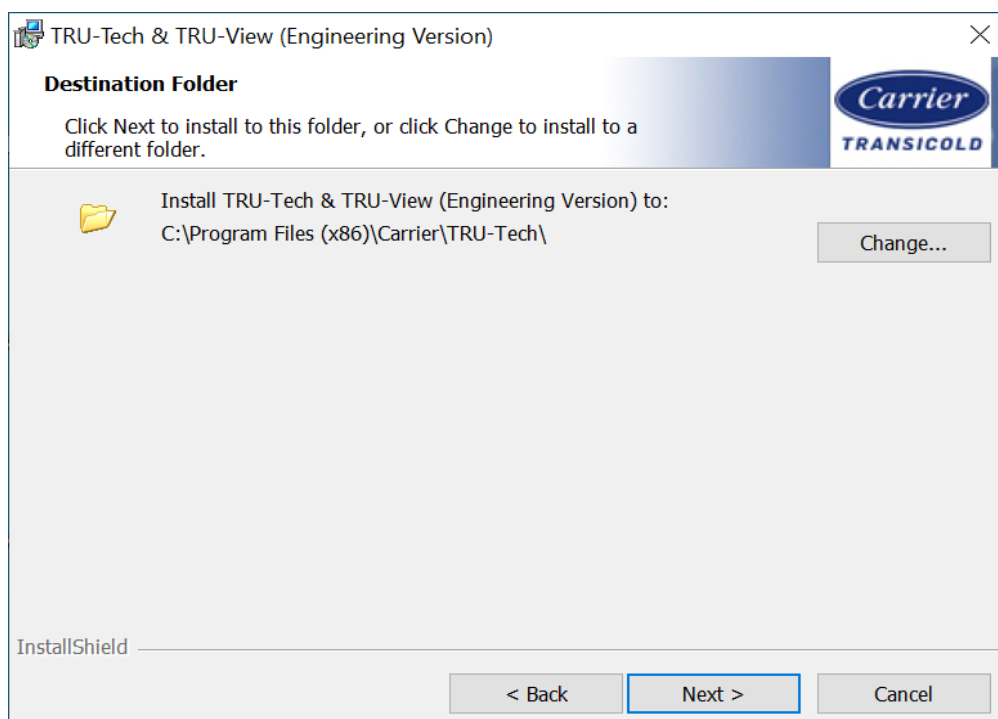
7. The window below shows up with an option to enter the license key, based on the key entered the installer will install TRU-Tech & TRU-View, TRU-View alone or TRU-Tech & TRU-View dealer version. The license key will show up for new or production installations. Upgrade installs will not require the license key but does require the associated production version be installed prior with a valid license key



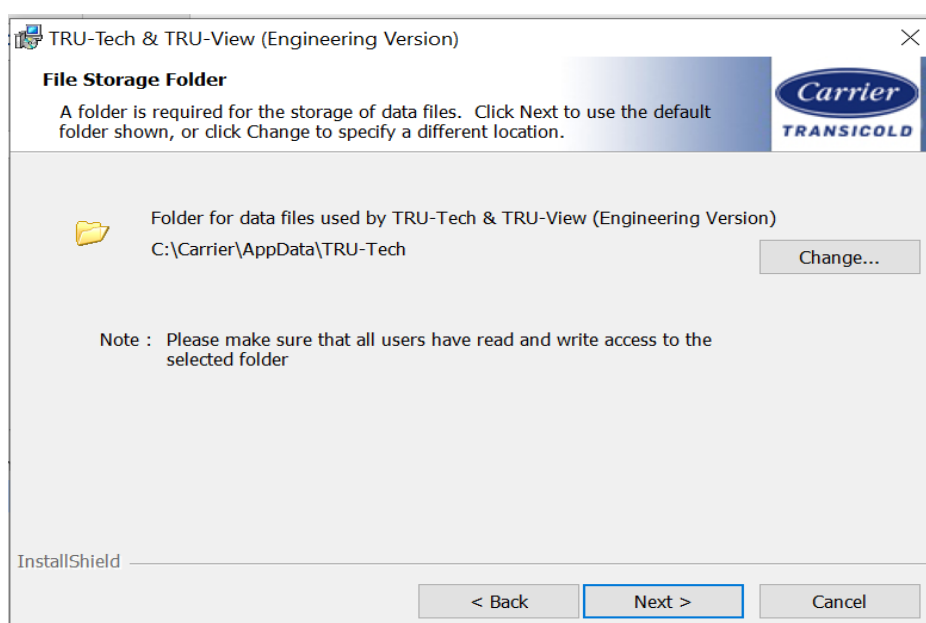
8. The window below provides an option to either load the PC Card drivers on startup or as needed.  
Note: Loading on startup may prevent the PC from sleeping or hibernating.



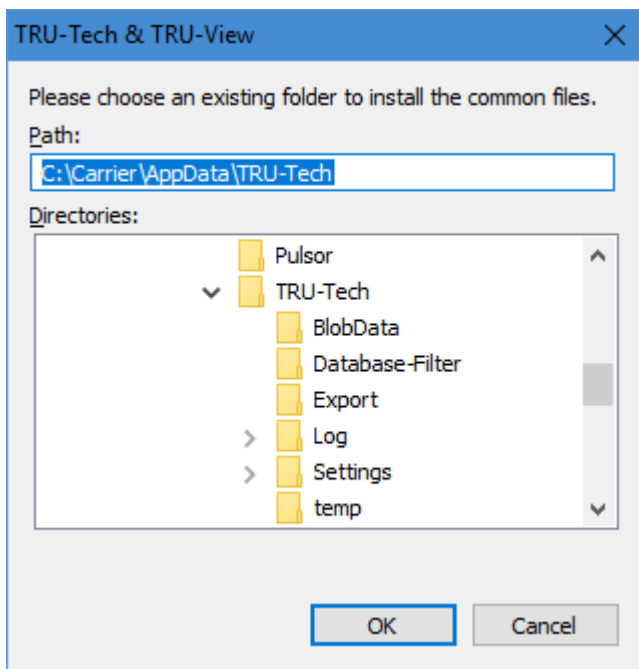
9. The window below shows the default settings for the program location. Typically, this will be C:\Program Files(x86)\Carrier\TRU-Tech for a Win 7 64 bit machine and C:\Program Files\Carrier\TRU-Tech for a Win 7 32 bit machine. Click the **Next>** button to continue.



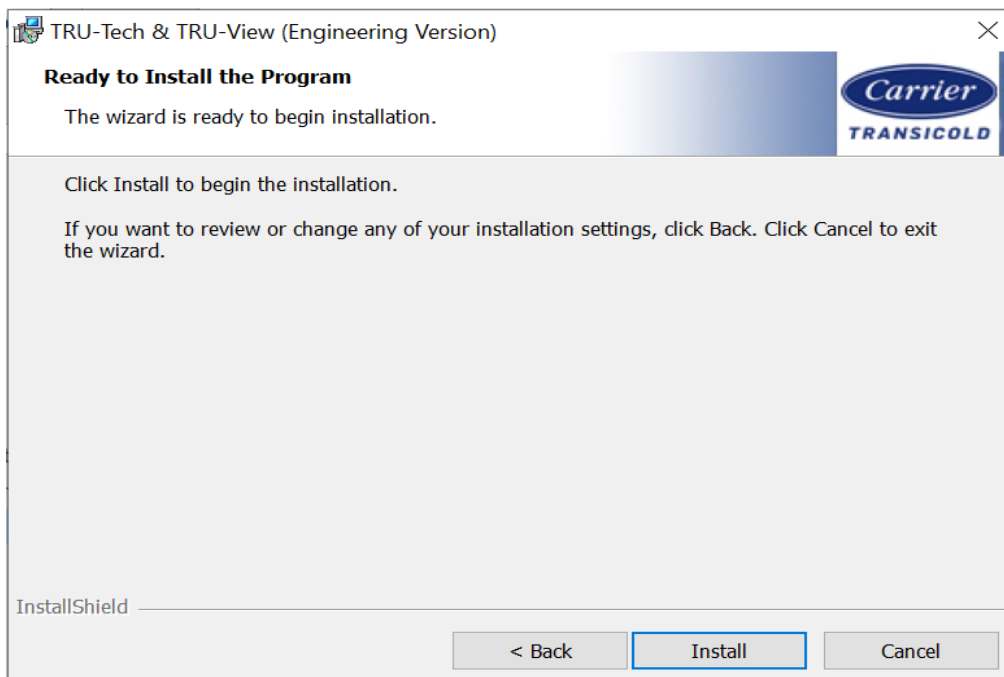
10. The window below shows the default settings for the common folder location. Typically, this will be C:\Carrier\AppData\TRU-Tech.



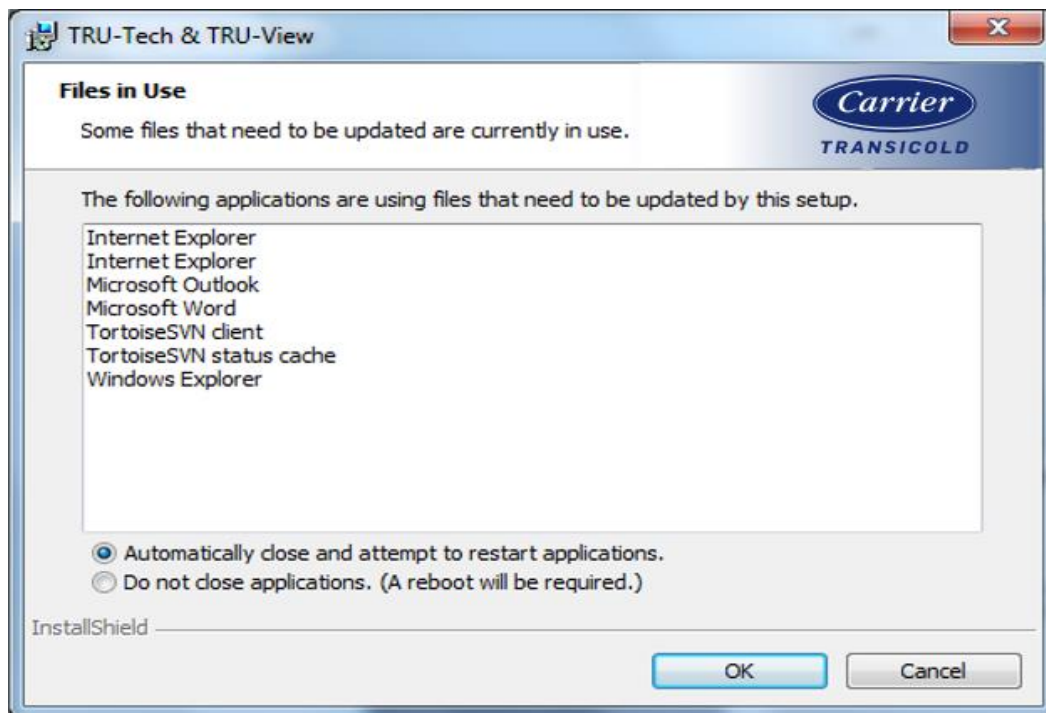
11. If user clicks on the change button he can browse through and select the folder where he wants to save the common files. Make sure that the folder selected should have Read and Write permission for all the users using the application and click the **Next>** button to continue



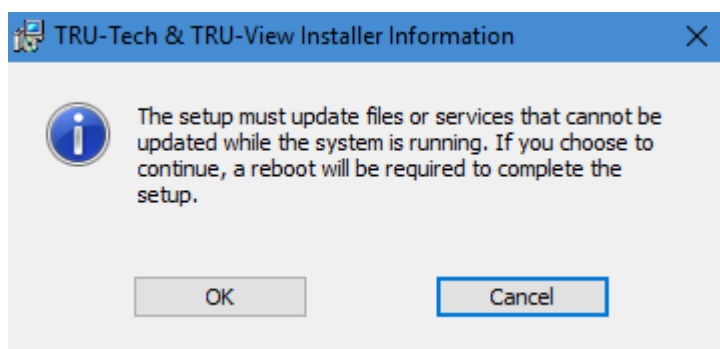
12. Ready to install screen will appear click on the Install button. The installer will install the software as indicated by the entered license key. When the installation is complete, the TRU-Tech & TRU-View - Install Shield Wizard Completed box will appear.



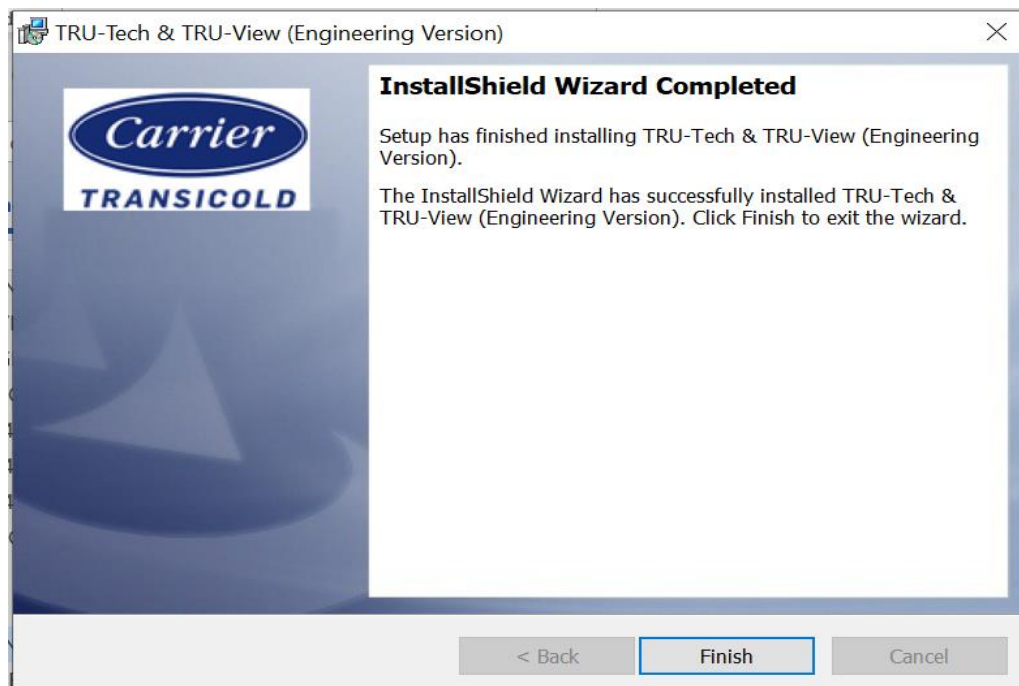
13. The below window will be prompted to close the dependent programs



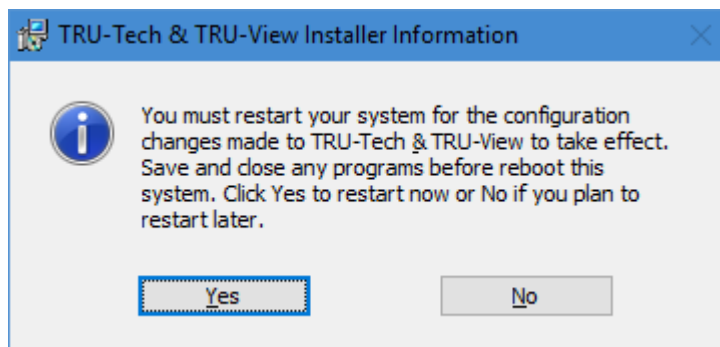
In case if the installer is unable to close the dependent programs below dialog will be prompted



14. Click on the Finish button.



15. There will be a pop-up message stating that the computer must be restarted before the changes to the new TRU-Tech & TRU-View program will take effect. Click on **Yes** to automatically restart the computer, or click on **No** if you prefer to do this later. Clicking on **No** will return you to the TRU-Tech & TRU-View Installation screen.



**Note:** It is required to restart the PC once the application is installed.

16. Click on the Exit button to exit the TRU-Tech installation.





17. Restart your computer before using any of the new programs.
18. Start the TRU-Tech & TRU- View program by double clicking the icon placed in desktop. You will be prompted to enter a password twice before entering the program only it will happen for first time after the fresh installation.

**NOTE:**

1. User needs to have full access permission (Read & Write) to the common folder. By default, the common folder will be C:\Carrier\AppData\TRU-Tech.
2. If an earlier version of TRU-Tech & TRU- View had been installed, the same passwords will be used with this newer version.

## 7. PROGRAM OPERATION

### 7.1 Logon and Security

TRU-Tech & TRU-View has a security logon system controlled by the System Administrator. This system operates as follows:

Once the program is initially installed on the PC, the first person to logon and enter a password is automatically the System Administrator. The System Administrator must assign a logon ID, password, and security level for all users (using the tools pull down menu "add/remove users"). In order to use TRU-Tech & TRU-View each

user must then logon to the system using this assigned logon ID and password. The System Administrator privileges include the ability to add new users, delete users, re-assign a user ID and password for any user, and print a copy of all users and their passwords to both a file and a printer. (Users can also change their own password as desired.) If the System Administrator forgets his password, the TRU-Tech installation directory must be deleted (not just un-installed), and the TRU-Tech & TRU-View program re-installed and all users and their passwords set up again. Therefore, it is highly recommended that the System Administrator either “print” or use the “print to file” feature to save all security logon information. If “print to file” is used, the file is stored in the C:\Program Files\Carrier\TRU-Tech directory.

The security levels are as follows:

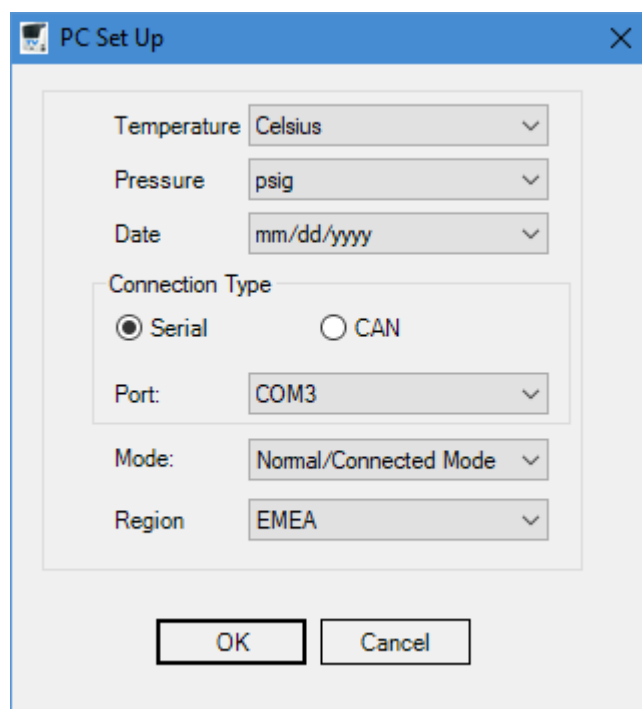
- Level \* – It has basic privileges to access the application like TRU-View, PC Setup, Download USB/PC Card, Change Password, Analyze download & Download live etc.
- Level \*\* – It has more privileges to access the application compared to Level\* like TRU-View, PC Setup, Download USB/PC Card, Change Password, Analyze download, Download live, Enter Trip Start/Comment, Monitor Reefer Live, Monitor Data Recorder Live etc.
- Level \*\*\* – It has more privilege when compared to other two levels to access the application like TRU-View, PC Setup, Download USB/PC Card, Change Password, Analyze download, Download live, Enter Trip Start/Comment, Monitor Reefer Live, Monitor Data Recorder Live, Reefer Setup Live operations, Create/Edit. Set Files.
- System Administrator –has highest privilege to access the application, create user and manage details for access the application.

**NOTE:** Details for Sysadmin cannot be modified.

## 7.2PC Setup

The PC Set up includes selecting which COM Port the computer will use for serial port communications, what units will be used for temperatures and for pressures and how the program displays the date. You can use either the System->Preferences->PC Setup menu or the **PC Set Up** button (below the Preferences menu) to make your selection.

- Select the connection type from the PC Setup screen



- If connection type is selected as serial, then the available COM port should be the Channel drop down list. If the serial port communication fails when connecting the download cable from the PC to the microprocessor or data recorder, return to PC setup and select the available ports in the drop-down list (COM 2 or COM 3 etc.). If all the COM Ports fail, then some further investigation needs to be done. You can use the Windows *control panel / system / device manager / ports* to verify which port the computer is using.
- If connection type is selected as CAN, then select the physically connected CAN cable i.e. either Kvaser or PCAN\_USB from the channel drop down list.
- Select which temperature units are desired (°F or °C), by clicking on the button in front of the desired value.
- Select how pressure values are desired. The user can select between psig, Bars and kPa by clicking the button in front of the desired value.
- Select how the date will be displayed. The user can select between mm/dd/yyyy and dd/mm/yyyy by clicking the button in front of the desired method.
- Select the mode in which user will want to run the application: Normal/Connected mode OR Demo Mode.

*Note: PEAK available only on USB port that installed on. Able to install on multiple USB's ports on same machine if desired*

## 7.3 Help

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The on-line help function (menu at the top of the screen) should be utilized for screen-by-screen operation of the TRU-Tech & TRU- View program. However, the following information orients the user to additional basic help features.

## 7.4 About

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The About functionality tells the User about the current Version of TRU-Tech & TRU- View program and its copyrights.

## 7.5 Main Operations

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When the TRU-Tech & TRU-View program is launched, it comes up with two quick links: TRU-Tech quick link and TRU-View quick link.

The options available under each quick is as follows

### **TRU-Tech:**

- Service Live
- Download / Analyze
- View/Copy .Set Files
- Create / Edit. Set Files
- Read / Write PC Card / USB
- Reefer Setup Live
- Monitor Live

### **TRU-View:**

- General
- View
- Data Filter

- Enhance Data
- Graphs
- Text

## 7.5.1 Service Live

7.5.1.1 Options under Service live can be accessed only in connected mode like Set New Micro Hours, Set Micro Information, Set Date/Time, Enter Trip Start/Comment, Serial Port Check, Get Module Version, Production Line Screen, Component Test Mode & Service Mode

The Microprocessor Information screen allows the user to view/modify the current status of the microprocessor, when directly connected to the unit.

- For Advance/ APX (Zenith) Microprocessor – Allows the user to view Software Revision Numbers, Unit Model Family, Unit Model Number, Microprocessor Serial Number, and Trailer ID AND to change the Unit Model Family, the Model Number within the Family, Unit Serial Number and Trailer ID. For Vector MultiTemp units, compartment configuration may be entered
- For Standard micro – Allows the user to view the Software revision numbers, Microprocessor Serial Number, and Trailer ID, AND to modify Trailer ID

**NOTE:** *It is important that the correct model number is selected, as this governs the groups of settings available and general TRU-Tech & TRU-View performance accuracy elsewhere in the program.*

### 7.5.1.2 Setting New Micro Hours

This feature is intended to transfer the existing microprocessor hour values, the start cycles, the clutch engage cycles, and the high speed hours to a new microprocessor in the event of a microprocessor change out.

A replacement Advance / APX (Zenith) microprocessor must have less than 25 hours each on both the diesel and standby hour meters in order to accept any new values. Additionally, with Advance /APX (Zenith) software once the hours are first sent, the technician has 60 minutes to make any necessary changes before the hours are locked in. A replacement Standard microprocessor must have less than 6 hours each on the diesel, standby, and idle hour meters in order to accept any new values, and does not have the 60 minute grace period feature

**NOTE:**

- o *The 60 minutes allowed in the Advance / APX (Zenith) microprocessor is controlled by the Real Time Clock (RTC). If the RTC time is advanced more than 60 minutes ahead, the grace period will be lost. For best results, when setting up a new microprocessor, set the Date and Time first, and then enter the hour meter values.*

### 7.5.1.3 Set Date / Time

Using this option it is possible to set the microprocessor / data recorder date and time.

TRU-Tech & TRU- View allows the choice of either synchronizing the microprocessor to the PC's date and time, or entering the date and time manually.

### 7.5.1.4 Enter Trip Start / Comment

Using this option it is possible to enter a "Trip Start" event and a "Trip Comment" into the data recorder.

The Trip Start event is entered into the data recorder and is time stamped immediately when entered to mark the start of a trip. A Trip Start event is a convenient way of marking the data recorder so that data may be downloaded from specific trips.

The Trip Comment can be up to 80 characters in length to reference relevant trip information. Other information such as repair information may also be entered directly into the data recorder as a Trip Comment.

**TIP:** *Do not use the computer's "enter" key at the end of the line. Type in the message without regard to the way the line ends in the typing box. The message will appear correctly in the data downloaded file.*

## 7.5.2 Download/Analyze

### 7.5.2.1 Download live, Download USB / PC Card & Analyze Download Options are available.

To download the recorded data from PC card or USB, first connect the USB or the PC to the system. Click the **Download USB/PC** button.

The Record Information and Unit Information fields will fill in automatically with information from the data recorder.

1. Next, the download method must be selected. Downloading is possible by several methods: Last 30 Days, By Date (requires entry of start and end dates), All Data, Since Last Download, and By Trip (requires selection from the list of available trips). Generally when this screen is opened, All Data will be selected.
2. Click on the "Download" button and the data download process will begin.
3. Once completed, the operator can rename the data file if desired or just click save. Data will be saved in a .dcx file for advance and \*.ZDX file for APX (Zenith) and will be stored in **C:\Carrier\AppData\TRU-Tech** by default.
4. Note: \*.DCX download files can be properly opened using the TRU-View and Report Program and \*.ZDX download files can be opened using the TRU-View program only.
5. If desired, the operator can then click the **Analyze Download** button to invoke the TRU-View Program for data viewing and analysis.

## 7.5.3 Create / Edit. Set Files

This allows the operator to create and edit .set files for the various card types without actually having a PC card / USB in the computer. The Data Recorder and Microprocessor settings, including IntelliSet settings, can be prepared and saved using this method, and then written to a PC card / USB at a later time. The screens activated by the **PC Card / USB Operation** button are the same screens used when a PC card is in the PC. The sections below discuss the procedures to create and edit the settings and save them to a .set file.

### 7.5.3.1 Edit IntelliSet; Re-order IntelliSet, Write to Card / USB the IntelliSets:

On the PC Card operations Screen there is an option to write IntelliSets to a Card Edit the selected IntelliSet and Reorder the edited IntelliSets. When User selects the IntelliSets 2,3,15 and 30 to be written to the card and then edits the IntelliSet name configurations, only those particular name files can be re-ordered and saved to a file then reopened further modifications. User would see the IntelliSet as edited with rest of the IntelliSets as they are.

### 7.5.3.2 Download PC Cards/ USB: Extracting Data Recorder Downloads, Erasing Download Cards

1. Remove all PC Cards from the computer's PCMCIA Card Slot.
2. Insert the Download PC Card into the computer's PCMCIA Card slot.
3. Click the **Read All Data from PC Card** button.
4. Once the card is read, the card type will be displayed as a "Download" card, and the number of downloads on the card, and the card capacity will be displayed.
5. Next click the **Download** button (under Download Card on the right side of the screen).
6. The PC Card Download screen will appear. Click to select a download file from the list and then click the **OK** button.
7. A screen will appear that gives detailed information on the download file and various options for extracting the data from the card.

8. Select either "Last 30 days", "By Date", (Requires entry of start and end dates desired), "All Data", "Since Last Download Event", or "By Trip" (Requires selection of trip from list provided).
9. Next, click the **Download** button. When complete, click **OK**.
10. The File Save screen will appear with a default name for the download file that corresponds to the date of the extraction from the card, and includes the trailer / car ID number.
11. To change the name of the download file, type a new file name. Then click the **Save** button.
12. The download files are saved in C:\Program Files\Carrier\TRU-Tech\Data.
13. Clicking the **Analyze Download** button will open the TRU-View Program, which will support viewing the data file that was just downloaded.
14. Clicking the **Close** button will return to the PC card download screen where the card can be erased if desired.
15. Clicking the **Erase** button will delete all the download files from the PC card, allowing for reuse of the card. All of the desired files should be extracted from the card prior to erasing the card.

#### 7.5.3.3 Program PC Cards: Writing Microprocessor Operational SW to the Card/USB

1. Remove all PC Cards from the computer's PCMCIA Card Slot.
2. Insert the Program PC Card/USB into the computer's PCMCIA Card / USB slot.
3. Click the **Read All Data From PC Card** button.
4. Once the card type is recognized as a "Program" card, the current software version on the card will be displayed if there is a version already on the card.
5. Next, click the **Add Micro Software To PC Card** button (under Program Card on the right of the screen).
6. A list of .bex files in the **C:\Carrier\AppData\TRU-Tech \ Bex** directory will be shown .Bex files are the operational software files for Advance microprocessors. Select the file that corresponds to the software version desired.
7. If you have downloaded .bex files onto your computer, and did not place them in the above-mentioned directory, you may need to browse to find and select the desired file.
8. Either double clicks on the .bex file or single click on it and selects "Open".

**Note:** You will need to copy the file onto the computer's hard disk in order for TRU-Tech & TRU-View to open it. Do not attempt to write a file directly from the TransCentral internet site to write to the Program Card.

9. TRU-Tech & TRU- View automatically begins erasing the old file from the card, then writing the new operational software file (.bex file) to the card.
10. Once the write is complete, click the **OK** button. Once the selected .bex file is written to the card, the new version will be displayed on the screen.
11. Remove the card from the PC.

#### 7.5.4 Read / Write PC Card / USB

This screen provides support for Carrier Download, Program, and Configuration / IntelliSet PCMCIA cards (PC cards) / USB.

For "Download" PC cards / USB, data recorder downloads can be extracted and saved to .dcx files on the PC. \* .dcx / \*.ZDX files can then be handled by the TRU-View program for report creation, printing, and data analysis. TRU-Tech & TRU-View can also erase the download PC cards / USB so that they can be reused for additional data recorder downloading.

**NOTE:** The same PC Card is used for both Configurations and IntelliSets. Configuration Cards, by definition, contain a single set of Advance Controller settings. A Configuration Card is used to 'program' a single configuration setup into the Advance Controller. It can be used for controllers with or without the IntelliSet Option installed. For APX (Zenith) USB should have Carrier folder with subfolder as CONFIG to work with Configuration, IntelliSets and maintenance files. The Steps followed to create PC Card will also hold good for USB APX (Zenith)

#### 7.5.4.1 Creating a Configuration Card

Creating a configuration card involves writing a single complete Data Recorder and Microprocessor setup on to the PC card.

1. Remove all PC Cards from the computer's PCMCIA Card Slot.
2. Insert the Configuration PC card into the computer's PCMCIA Card Slot.
3. Application will automatically read the data in PC card if not Click the **Refresh** button.
4. Once the card type is recognized as an IntelliSet, Configuration, or Maintenance Card, the name of the .set file on the card will be displayed.
5. Click the configuration Card Edit Option.
  - The **Write To Card** button at the bottom of the screen which is used to write the selected Data Recorder and Microprocessor settings to the Configuration PC card
  - The "Write Product Shield Parameters" check box which is used to ensure the ProductShield settings selected get written to the Configuration PC card
6. Type the desired file name and click the **OK** button to save the settings. They will be saved in a .set file in C:\Program Files\Carrier\TRU Tech-TRU View\Settings.
7. Next, click the **Write To Card** button to write all the selected settings to the card.
8. It is important to remember that both Data Recorder and Microprocessor settings will be written to the saved file, and to the Configuration PC card. Therefore, the operator should take care to select all of the desired settings.

#### 7.5.4.2 Creating a Maintenance Card

Creating a maintenance card involves writing certain microprocessor settings on to the PC card for maintenance purposes.

1. Remove all PC Cards from the computer's PCMCIA Card Slot.
2. Insert the Configuration PC card into the computer's PCMCIA Card Slot.
3. Application will automatically read the data in PC card if not Click the Refresh button.
4. Once the card type is recognized as an IntelliSet, Configuration, or Maintenance Card, the name of the .set file on the card will be displayed.
5. Click the **Edit Card Data** button (under "IntelliSet / Configuration / Maintenance Card" on the right of the screen).
6. Click on "Maintenance Card".
7. Any of these settings can be edited and written to the card by ensuring that its corresponding check box in the "Include On Card" column is checked. Any setting that you do not want to change should NOT be checked.
8. The operator can also open an existing .set file to edit and/or write to the card if desired.
9. Using a maintenance card is a handy way of changing individual settings or hour meter configurations for a maintenance situation.
10. Ensure the desired settings are set properly and their corresponding check box is checked.
11. It is required to save the settings selected by clicking the "Save" button prior to writing to the PC card.



12. Type the desired file name and click **OK** to save the settings. They will be saved in a .set file in C:\Carrier\AppData\TRU-Tech\Settings.
13. Next, click the **Write To Card** button to write all the selected settings to the card.

#### 7.5.4.3 Creating an IntelliSet Card

Creating an IntelliSet card involves writing multiple complete Data Recorder and Microprocessor setups on to the PC card. This includes customized display messaging for each of the setups. This allows optimized reefer operation for up to 40 different commodities (including default IntelliSet), each having their own specific data recorder and microprocessor settings and customized display messages.

**NOTE:** *The same PC Card is used for both Configurations and IntelliSets. IntelliSet Cards, by definition, contains more than one set of settings for an Advance Controller. The IntelliSet Option must be installed in order for the IntelliSets to operate. (See the Data List in the Advance Controller to see which – if any – options is installed.)*

1. Remove all PC Cards from the computer's PCMCIA Card Slot.
2. Insert the Configuration PC card into the computer's PCMCIA Card Slot.
3. Application will automatically read the data in PC card if not Click the Refresh button
4. Once the card type is recognized as either an IntelliSet, Configuration, or Maintenance Card, the name of the .set file on the card will be displayed.
5. Click **Edit Card Data** button (under "IntelliSet / Configuration / Maintenance Card" on the right of the screen).
6. Click on "IntelliSet" Card.
7. The first step is to ensure the model number is correct for the reefer to be configured. The screen that appears is for IntelliSet setup and shows the data that was read from the card.
8. The model number should be selected from the drop down list on the left side of the screen.
9. Next, decide if you are going to edit the settings that were just read off of the card. The other choices would be to open a .set file with some settings already prepared, or to open and edit the default settings for a particular model.
10. The default IntelliSet i.e. IntelliSet OFF (Ultra Ultima family) and Standard IntelliSet for Vector will always be written to the card.
11. The procedure is to FIRST select the complete microprocessor setting on IntelliSet OFF.
12. IntelliSet OFF also serves to indicate which settings are carried forward to successive IntelliSets, and which are desired to stay the same no matter which IntelliSet is active in the microprocessor. Only the settings carried forward need to be set on the successive IntelliSets. This simplifies and speeds up the entire process of selecting all of the settings. If the operator wants a setting to be carried forward to set differently on successive IntelliSets, then they should check the "Use For All IntelliSets" box corresponding to that setting.
13. Ensure that the "Customize Display Messages" box is checked if custom display messaging is required.
14. The PM hour meters can be only be set for IntelliSet OFF and will operate the same across all IntelliSets.
15. Add the new IntelliSet using the option add IntelliSets and it will come with default name New IntelliSet 1 ... 39. User can rename the child IntelliSets
16. Be sure to check the "Write to Card" boxes for each IntelliSet to be written to the card in the configuration Tab.
17. Once all the settings have been chosen, click the **Save** button to write the settings to a .set file with the name of your choose.



18. Next, click the **Write To Card** button to send all of the settings to the PC card.
19. When the "Write Complete" message appears, click **OK** and remove the PC card from the PC.

### 7.5.5 Reefer Setup Live

Under "Reefer Setup Live" user can read and write entire microprocessor setup for Configurations, Functional Parameters, Hour Meters, Set points, and customized display messages can be selected, saved to a file, and sent to the microprocessor via the serial port. Additionally, on the Data Recorder Setup tab, the setup of selectable sensors and events to be recorded, along with the recording time interval can be handled.

In "connected" mode, all of the current values in the microprocessor / Data Recorder, automatically come up on the screen, including the unit model family and model number. The selection of a different model family or number is blocked. In "Stand-Alone" mode, check that the model number correct. Select the model family and model number of the unit you want to configure. This is an import first step.

In "Stand-Alone" mode, check that the model number correct. Select the model family and model number of the unit you want to configure. This is an import first step.

1. In the "Open Configuration File" box, select "Default for This Model" and "Open".
2. Select "Yes" when notified that "changes would be lost, are you sure?"
3. Now the settings displayed are all the default (factory) settings (microprocessor and data recorder).
4. The settings can now be changed to "exactly" configure the unit you are working on.
5. Select the "configuration" tab.
6. Make all selections on the configurations tab, and then repeat the process on both the "functional", "meters" and "Custom message" tabs to complete microprocessor setting selections.
7. **If customized display messages are desired, check the box at the bottom left of the screen. This indicates to the microprocessor to replace the standard messaging with customized display messages. The customized messages themselves then need to be entered.**
8. Next, the "Check At Next Service Interval" message can be changed to a user message. Up to 30 characters and spaces may be used for this message. When the message is complete click **OK**.
9. Next, if you would like to rename the remote sensors, go back to the Custom messages tab and select "Rename Remote Sensors". Repeat the above steps for renaming of the remote sensors. (1-20 characters.) & PM 1-5 Hour meters. If you have remote sensors turned OFF in configurations, skip this step.
10. Once you have completed the customized displays, you are ready to go to the Data Recorder Setup tab to configure the Data Recorder.
11. Use the Sensors, Events and Interval tabs to select the desired Data Recorder settings. For the Sensors you may select "Off". "Average" or "Snapshot". "Off" means that sensor information will not be recorded. "Average" means that the temperature that is recorded is an average reading taken during the recording interval. "Snapshot" will record the precise temperature of the sensor at the time it is recorded.
12. Once complete, "Save" all the information by clicking the "Save" button in the "Save Configuration File" box.
13. Type a file name into the highlighted field of the pop-up box that comes up. The file is automatically appended with the ".set" extension, so just type a name like "CUSTOMER 1", and TRU-Tech & TRU-View will save it as CUSTOMER 1.SET.
14. Notice it was saved into the **C:\Carrier\AppData\TRU-Tech \Settings** directory. The program automatically will look there when you go to "Open" your saved configuration files.
15. This file can be recalled later to send the settings to a customer's unit when in for repair.

16. When your computer is connected to the microprocessor through a Download Cable, you can bring up the file using the Previously Saved Configuration option and browse for the path and send just the microprocessor settings or just the data recorder settings to the microprocessor, by selecting the appropriate tab and clicking on the "Send" button.
17. Once the **Send** button is clicked, a Confirm Send Information pop-up will appear. You will need to click on each appropriate item that you want sent to the Microprocessor. Any selections that are not checked will not be sent. All items may be selected by clicking the **Select All** button. Then, information will be sent to the Microprocessor when the **OK** button is clicked.
18. Anytime a "read" of the microprocessor or data recorder is desired to view or verify the settings, the "Refresh" button at the bottom of the screen can be used.

### 7.5.6 Monitor Live

The Microprocessor Monitor Screen allows the user to view microprocessor: inputs, outputs, refrigeration sensors, electrical sensors, engine sensors, alarms, temperature sensors, hour meters, and cycle counters. This is accomplished by clicking on the individual tabs for each group. The values for that group will be displayed. The values are updated from the microprocessor every 10 seconds for Advance, APX (Zenith) Controllers & around 20 Secs for Summit Controller.

On each tab there are also log check boxes for each parameter being monitored. Checking these log boxes selects each parameter to be included in the logging function to be discussed below.

#### 7.5.6.1 Logging Profile and Logging

TRU-Tech & TRU-View provides a diagnostic tool that allows the user to log sensor data to a file on the computer's hard drive when connected through the Download Port. This tool can be used to monitor and acquire performance data, while the equipment runs unattended.

First, a Logging Profile must be created and/or opened. To do this, the user must check the "log" boxes on the various tabs of the microprocessor monitor screen corresponding to all of the sensors desired to be logged. This customized "view" of the sensors should then be saved as a "Logging Profile" using the "Save" button in the Logging Profile box. This allows various different saved "views" to be recalled later (using the "Open" button) so they won't have to be set up again.

1. Under the "Record Tab Options" Check for the parameters which you want to log in the file to get logged to a file on your computer.
2. Select "Start" button to start logging
3. Type any descriptive name into the "Logging File" pop-up box.
4. Also, you can type in a comment that will remind you later what the logged data represents and the logging interval from the provided dropdown box with options 10, 15, 20, 25, 30 & 35 Sec.
5. Note that you can also open an existing logging file to add more logging data to it. To do this you would use the "Browse" button. It will show you all the logging files already created and stored on the PC.
6. Click "OK". Notice that the logging files are stored in the following directory:  
**C:\Carrier\AppData\TRU-Tech\Log**
7. Next, click "OK" in the "Data Recording Control" box.
8. Logging will then commence. TRU-Tech & TRU-View will write data to the logging file on your computer.
9. The logging to the file will continue until the user either exits the "Microprocessor Monitor" screen or selects "Close File" in the "Log Control" pop-up box.
10. To view the logged data, use Microsoft Excel to view the logging files in the **C:\Carrier\AppData\TRU-Tech\Log** directory. The logging files are "comma delimited". (When you enter Excel, it will ask a question about this, and the answer you select is "comma delimited").

### 7.5.6.2 Reset Alarms

The reset alarms function allows the operator to clear the alarms in the microprocessor. For Advance /APX (Zenith) micro equipped units, the operator can select and reset either the active alarms or all alarms. For Standard microprocessor equipped units, this function will always clear all alarms.

### 7.5.6.3 Data Recorder Monitor

The Data Recorder Monitor Screen allows the user to view the data recorder sensor values, their logging state (off, averaged, snapshot), the date and time setting of the real time clock, and the model number of the reefer that the recorder is recording data from.

### 7.5.6.4 Override Control System

This feature is not available for any Advance Micro units and currently it is not supported for APX (Zenith) models. However it is available for Summit 3.xx and 4.xx controllers.

Summit Controllers:

1. Click on the **1. Microprocessor Override** button. If the unit is operating, it will shut down.
2. From the Outputs screen, select the devices that you wish to activate (turn on).
3. Click the **Send** button to send the command.

**CAUTION:** *When an output is enabled using the Override Mode, it will remain on until it is turned off using Override Mode, or until the SROS is turned Off. For example, the starter will remain engaged until it is turned off, even though the engine may start. The alternator D+ output will not disengage the starter.*

## 8. PC CARD INSTALLATION

The PCMCIA Cards that are used by the TRU-Tech & TRU-View program are provided by Carrier. These are the only PC Cards that will work with the TRU-Tech & TRU-View program. Should a generic PC Card be used, TRU-Tech & TRU-View will show it as an “unknown” card. Should a generic PC Card be inserted into the Advance microprocessor, the PC Card will become a 1-Unit Download PC Card.

The following is the recommended procedure for initial use of the PC Cards with the TRU-Tech & TRU-View program. This procedure may not be required for all computers, but does ensure that the TRU-Tech & TRU-View program will recognize the PC Card if the computer is capable. For successive PC Card uses, the user should be able to find shortcuts in this procedure which may be specific to some types of PCs.

Begin by using only a Carrier Transicold Configuration or Program PC Card.

1. If the computer is off, remove all PC Cards. If the computer is running Windows, stop all cards by clicking on the PC Card icon on the bottom right of the task bar, and then clicking on the stop command for each card. When Windows acknowledges that the cards have been stopped, remove all cards.
2. Look at the Program or Configuration PC card and check the position of the write protect slide switch. It should be in the OFF position.
3. Insert the PC Card into one of the PCMCIA slots (the slot must support *Type I* PC cards). Try the bottom slot first.
4. Upon power up (or if already running Windows), the computer may launch a PC Card device driver utilities program asking the user to install a driver for the PC Card. The user should select, “do not install driver” and exit the program. The TRU-Tech & TRU-View program contains the necessary drivers to read from the PC Card.
5. With some PC’s, whenever the PC Card is plugged in, Windows may continue to request the user to install a device driver. In this case, execute the new PC card device driver dialog until requested to search for a driver. Ask it to search, when the program cannot find a driver, select finish. Windows will not continue to prompt the user to load a device driver every time the PC card is inserted.

6. Launch the TRU-Tech & TRU-View by double-clicking on the icon, then click on "PC Card Operations".
7. Next, click on "Read all data from PC Card". The program will then attempt to read the PC Card. After a few seconds the program should display Card Type, and if it is a Program Card, the version of software on the card.
8. At this point the TRU-Tech & TRU-View program recognizes the card and will allow use of both the Configuration PC Card and Program PC Card functionality. The PC setup for use of the PC card is now complete.

If the program responds with: "Error: PC Card Not Found", then continue with the following:

Carrier Transicold PC cards are *Type I* / PCMCIA cards. Be certain that the computer you are using supports the use of these cards. Some computers require use of a specific slot for these types of cards. Refer to your computer owner's manual to see if this is the case. The PC Card may be in the wrong slot. If so, repeat the procedure with the card in the correct slot.

*Note: If the PC card is not getting detected by TRU-Tech for PC's which has in-build PC card slot, to fix this user need to install the Elan Memory Card Installer drivers and then do a restart to make the functionality work*

### 8.1.1 Omni Drive Installation

- Insert the CDROM provided by the vendor into your CD/DVD-drive
- If "auto play" is active, the CD browser will start automatically
- If not, use the windows explorer to display the contents of the CD. Start the program SetupUSB.EXE in the root directory of the CD with a double-click.
- Click on Setup to install the device drivers.
- All the PC card functionalities in TRU-Tech will work as expected when using OMNI Drive.

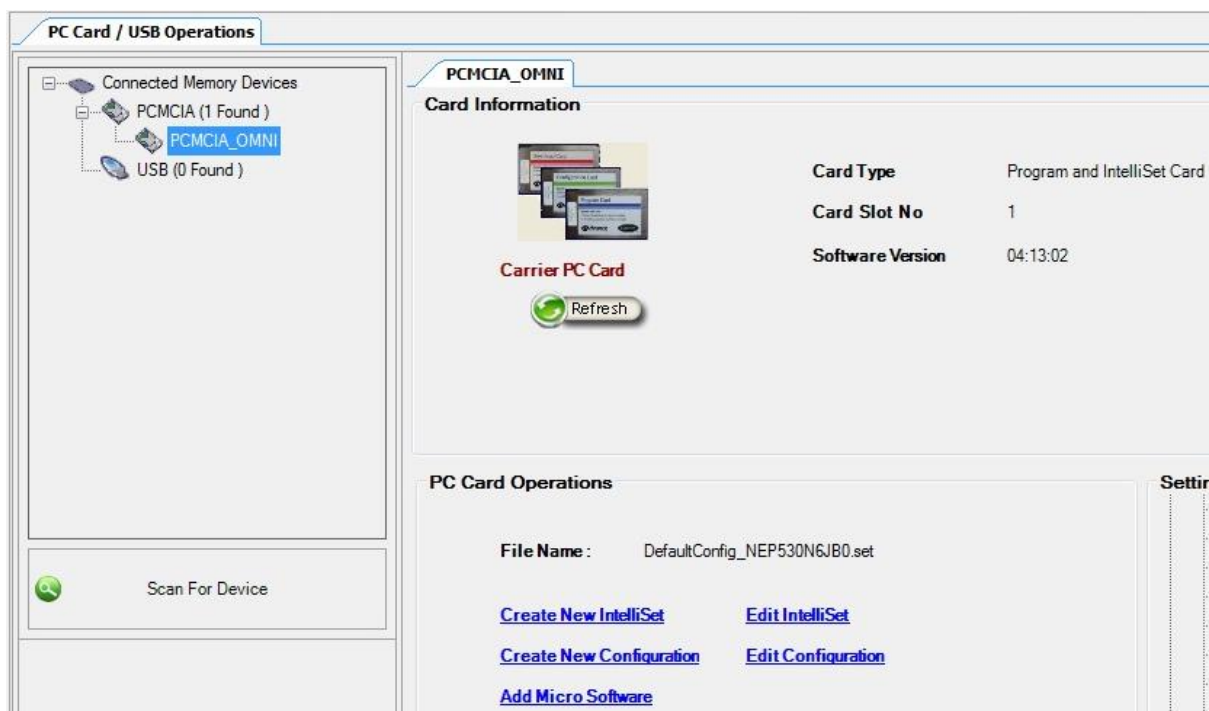
*Warning: The Omni Drive requires 2-1/2 to 3 times as long to perform card operations as the standard PC Card adapters'.*

## 9. PC Card Operation in 64 bit machines

In 64 bit machines, TRU-Tech will not be able to Read/Write data to the PC Cards inserted through normal PC card slots and Express Card PC Card adapter in laptops.

To work on PC cards in 64 bit machines, user needs to have the CSM Omni Drive USB2 LF – must be the Linear Flash version Drive. This is a USB device where user can insert the PC Cards and this device can be connected to the machine as a USB device.

In TRU-Tech the PC card inserted in Omni Drive USB2 LF will be detected under the connected memory devices section with name PCMCIA\_OMNI and work as a normal PC Card.



## 10. Data Recorder Memory Usage

The table below lists the approximate number of days one can expect the Advance microprocessor data recorder memory to last before it fills up and begins to progressively overwrite itself with new data. The table is based on “typical” event recording and should only be used as a guideline.

Note: when configuring the data recorder for event recording, enabling the “control mode” and “ESV” events to be recorded may affect the recording capacity of the data recorder. These two events are frequent occurring events that reduce recording capacity based on the frequency of their occurrence. To improve recording capacity, disable these two events.

	Days	Days	Days	Days	Days
<b>21 Sensors</b>	9.87	24.0	45.9	66.1	117.7

<b>20 Sensors</b>	10.3	25.1	47.9	68.8	121.8
<b>18 Sensors</b>	11.3	27.4	52.2	74.7	131.0
<b>17 Sensors</b>	11.9	28.8	54.7	78.0	136.2
<b>15 Sensors</b>	13.3	32.0	60.4	85.7	147.8
<b>12 Sensors</b>	16.0	39.1	71.6	100.6	169.4
<b>10 Sensors</b>	18.6	44.2	81.7	113.8	187.7
<b>6 Sensors</b>	27.4	63.7	113.8	154.3	239.5
<b>2 Sensors</b>	52.2	113.8	187.7	239.5	330.7
<b>Recording Interval</b>	<b>2 Min</b>	<b>5 Min</b>	<b>10 Min</b>	<b>15 Min</b>	<b>30 Min</b>

The table below lists the approximate number of days one can expect the Summit DataLink data recorder memory to last before it fills up and begins to progressively overwrite itself with new data. The table is based on “typical” event recording and should only be used as a guideline.

	<b>Days</b>	<b>Days</b>	<b>Days</b>	<b>Days</b>
<b>16 Sensors</b>	38.6	74.9	142.7	260.4
<b>14 Sensors</b>	43.6	84.7	160.3	289.3
<b>10 Sensors</b>	59.5	114.5	212.6	371.9
<b>8 Sensors</b>	72.9	138.9	254.0	433.9
<b>6 Sensors</b>	93.9	176.6	315.6	520.4
<b>4 Sensors</b>	131.9	242.2	416.4	650.3
<b>2 Sensors</b>	221.6	385.6	612.1	866.6
<b>Recording Interval</b>	<b>15 Min</b>	<b>30 Min</b>	<b>60 Min</b>	<b>120 Min</b>

The table below lists approximate estimates on the data recorder usage for APX Models (Low- and High-End models)

#### Low End Models

	<b>Recording Interval (minutes)</b>	<b>Recorder Capacity (Days)</b>
<b>30 Sensors</b>	10	182
<b>30 Sensors</b>	15	244
<b>30 Sensors</b>	30	370
<b>30 Sensors</b>	60	500
<b>30 Sensors</b>	120	606
<b>30 Sensors</b>	240	678

## High End Models

	Recording Interval (minutes)	Recorder Capacity (Days)
<b>45 Sensors</b>	10	131
<b>45 Sensors</b>	15	182
<b>45 Sensors</b>	30	294
<b>45 Sensors</b>	60	425
<b>45 Sensors</b>	120	548
<b>45 Sensors</b>	240	640

## Revision History

Please keep the latest version on top

Ver	Change Description	Sections	Date	Author	Reviewer
3.8	Update the Carrier Logo, Screenshots & Weblinks	6	15-Feb-2022	Giriprasad	Srinivas Chinta
3.7	Updated Section 5 PC Requirements and Installation Screenshots	5 & 6	24-Dec-2018	Ranjith Reddy	Srinivas Chinta
3.5	Updated Section 3 and 5 for PC Requirements	3 & 5	27-Jan-2017	Narasimha Murthy	Srinivas Chinta
3.4	Updated Section 5 PC Requirements	5	30-July-2015	Srinivas Chinta	Paul Stoddard
3.3	1.Updated the Website address 2. Update the Approximate memory usage for APX low and High end models as per PCR020770.	6 & 10	16-May-2014	Srinivas Chinta	Paul Stoddard
3.2	Updated the instances where it was referring installing via CD-ROM and updated the *.NET framework Version. Removed the notes stating UAC should be low to work on all the functionalities of TRU-Tech and TRU-View.	5.1.1 and 6	08-May-2014	Srinivas Chinta	Paul Stoddard
3.1	Updated the PC REQUIREMENTS Note section	5	12-Nov-2013	Srinivas Chinta	Paul Stoddard
3.0	Updated .Net Framework pre-requisite screen for Win 7 and updated new Carrier Logo in installation procedure screens.	5.1.1 and 6	12-Sep-2013	Shantanu	Srinivas Chinta
2.9	Updated the section 6.2 as per PPR 20838	6.2	21-August-2013	Srinivas Chinta	Suresh Manda
2.8	Updated Section PC Setup with the modified the TRU-Tech UI screen.	7.2	25-July-2013	Srinivas Chinta	Paul Stoddard
2.7	Updated Section 5 with accessories used for TRU-Tech	5	04-July-2013	Srinivas Chinta	Suresh Manda



2.6	Added PC Card driver screen to install procedure	6	29-May-2013	Dominic Pesapane	Srinivas Chinta
2.5	Added .NET framework	5.1.1	29-May-2013	Dominic Pesapane	Srinivas Chinta