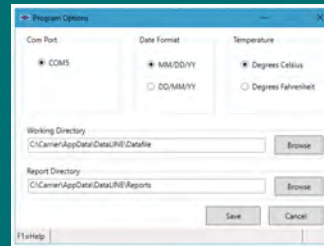




Container Refrigeration



DataLINE User Manual



DataLINE

User Manual

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SECTION 1

OVERVIEW

1.1 DataLINE Overview

The information contained in this manual provides details about the Carrier Transicold DataLINE application and its interface with the DataCorder. DataLINE diagnostic software interrogates, configures and monitors the refrigeration unit controller and DataCorder trip data recorder.

The DataLINE utilities are accessible from a Launch Pad Screen ([Figure 1.1](#)), which is explained in detail in the [Launch Pad Screen](#) chapter of this manual. The DataLINE utilities are listed below:

- Interrogator utility
- System Tools utility
- Probe Calibration utility
- Monitor utility
- DataReader File utility
- Container Configuration utility
- View Data utility
- Data Manager utility
- Program Options utility
- Help utility

Figure 1.1 Launch Pad Screen



SECTION 2

HARDWARE AND SOFTWARE

NOTICE

The user should access the DataLINE Help utility that is included with the DataLINE application to obtain a more in-depth understanding of the DataLINE application and its features. The Help utility provides the user with detailed directions for using the DataLINE application

The DataLINE application provides capabilities for the following hardware platforms:

1. MicroLink 2i (ML2i) based integrated Controller / DataCorder units.
2. MicroLink 3 (ML3) based integrated Controller / DataCorder units.

NOTE

Data from a Microlink (ML1) unit must be retrieved using the Carrier DataReader* hand held device. DataLINE can then be used to transfer data from the DataReader* to a PC.

NOTE

Connections to MicroLink 3 (ML3) Controller / DataCorders and reports generated from MicroLink 3 downloads will be identified as MicroLink 2i by the DataLINE application.

Data retrieval can be accomplished with one of the following devices:

1. Stand-alone, windows-based portable personal computer (PC) with the appropriate cable and DataLINE application.
2. Carrier DataBANK card. Data can be transferred to a personal computer using the Omnidrive interface for reading by DataLINE.
3. Carrier DataReader* hand held retriever. The data can be transferred from the DataReader to a PC.

All data retrieved from a DataCorder is automatically converted to a DCX file, which is a Carrier Transicold proprietary file format.

As new versions of the DataLINE software are released, updates to the software will be available on the Carrier Transicold web site. These updates are called a "Service Pack". In order to protect software ownership, a Service Pack can only be loaded onto a PC that already has DataLINE software installed.

* The legacy DataReader device is still supported through DataLINE but no longer available for purchase.

2.1 PC Requirements

Table 2–1 PC Requirements

	Minimum PC System Configuration	Recommended PC System Configuration
Processor	Pentium	Pentium V + or equivalent
Operating System (support both 32 bit and 64 bit)	Windows 7 - All (32 bit and 64 bit) Windows 8 Windows 10	Windows 7 - Enterprise (32 bit), Windows Enterprise (64 bit). Windows 8 Windows 10
RAM	2GB	4GB
Hard Disk	120 MB free disk space	120+ MB free disk space
Video	VGA	VGA+
Video Resolution	800 x 600	800 x 600 +
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 1 USB
Printer Port	1 standard printer port (LPT 1) or 1 USB port	1 standard printer port (LPT 1) or 1 USB port
Modem	Not required	Option (Internet installation support)
PCMCIA Card	PCMCIA Type I slot	PCMCIA Type I slot or adapter.
Network Connection	Not required	Yes (remote printer support & network installation)
Pre-Requisites	.Net Framework 4.5	.Net Framework 4.5 with administrator privileges

2.2 Installation & Start Up Procedures

The following procedure is a full installation of DataLINE onto a Windows 7/8/10 computer.

NOTE

DataLINE requires Microsoft .NET framework 4.5. If this is not installed on your computer, it will be installed during the DataLINE install.

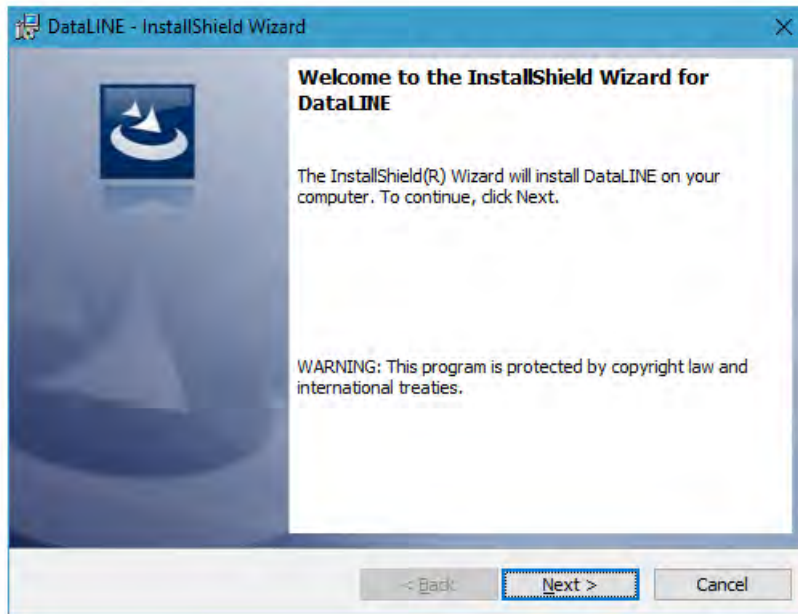
Preparing to Install:

1. Administrator privileges may be required in order to install DataLINE on your device. If you don't have these system privileges or the installation will not run please contact your local system administrator who can assist with system privileges.
2. Make sure all programs are shut down before starting the upgrade process. This includes programs that may be running in the background in the Windows toolbar, such as software firewalls, Anti-virus programs, Instant messaging programs etc.

Procedure for All Users:

1. If DataLine is supplied to you as a zipped file, unzip to a temporary directory. The Dataline_setup.exe file cannot be run directly from inside the zip file.
2. Double click on the "DataLINE_Setup.exe" file. The application installation screen is automatically launched.

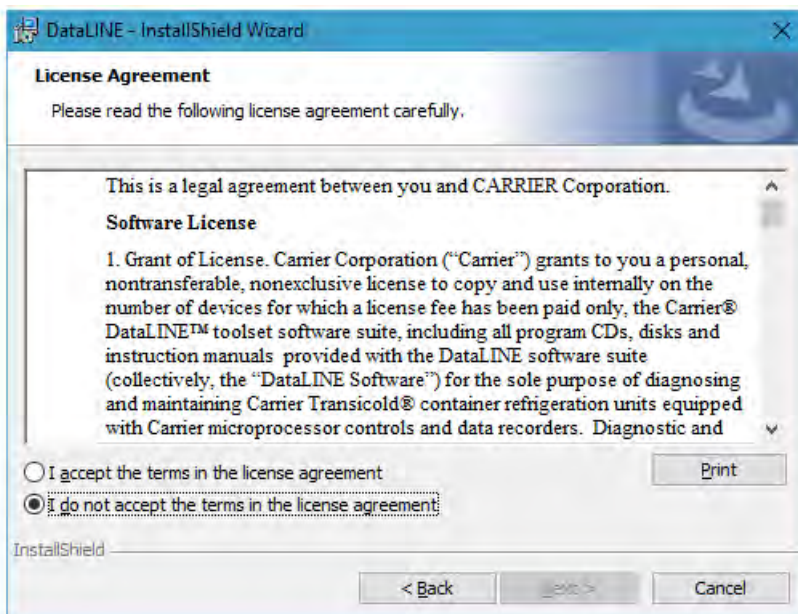
3. The Welcome screen is displayed to begin the setup process. Click “Next” to bring up the License screen.



If “Cancel” is clicked, a screen appears asking to cancel the DataLINE installation. Click “Yes” to exit the installation. Click “No” to resume the setup process and return to the initial Welcome screen.

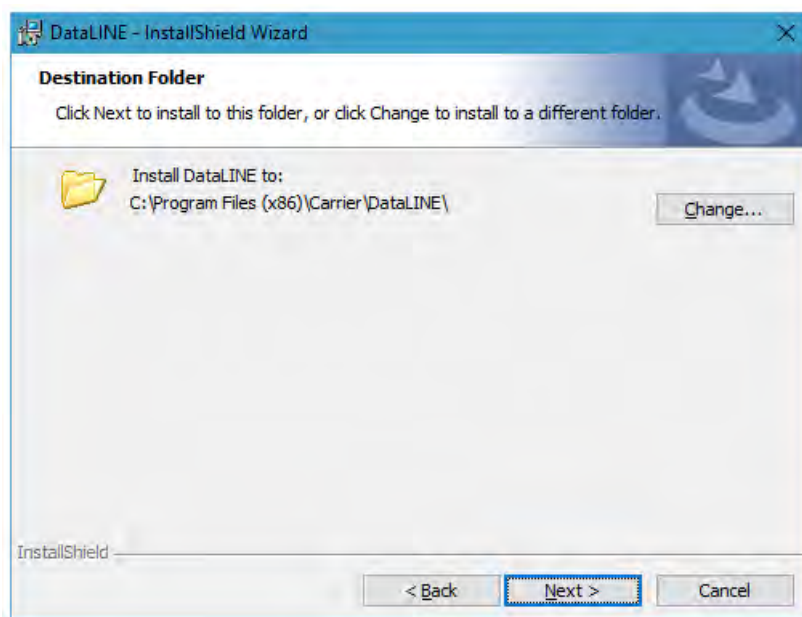


4. On the License Agreement screen, the default option selected is “I do not accept the terms in License agreement”. Change the selection to “I accept the terms in the license agreement”.

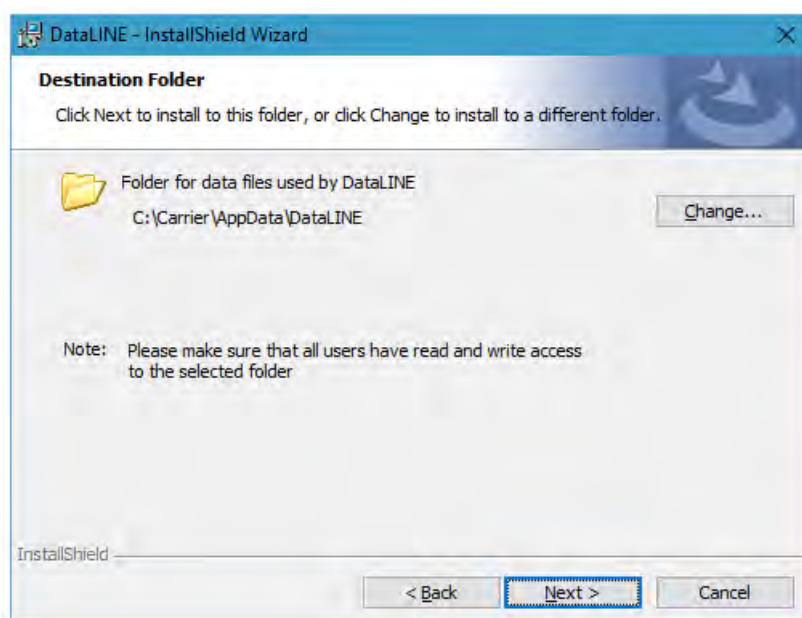


5. Click “Next” to display the Destination Folder screen.

- At the Destination Folder screen, specify into which directory the system should store the application. The default directory is **C:\Program Files (x86)\Carrier\DataLINE**. Click the “Change” button to choose an alternate directory.

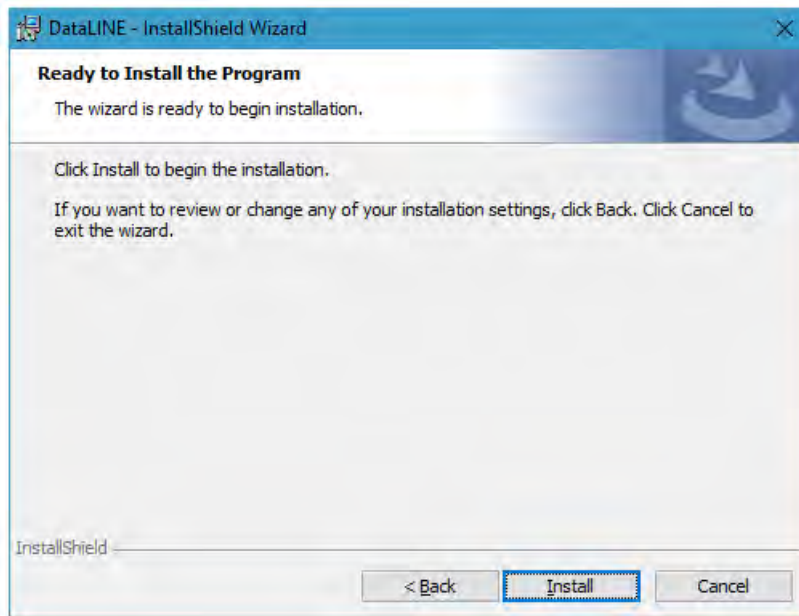


- Click “Next” to display the Destination Folder screen to select the folder for data files.
- At the Destination Folder screen, specify the directory for storing Downloaded data from the system. The default directory is **C:\Carrier\AppData\DataLINE**. Click the “Change” button to choose an alternate directory.

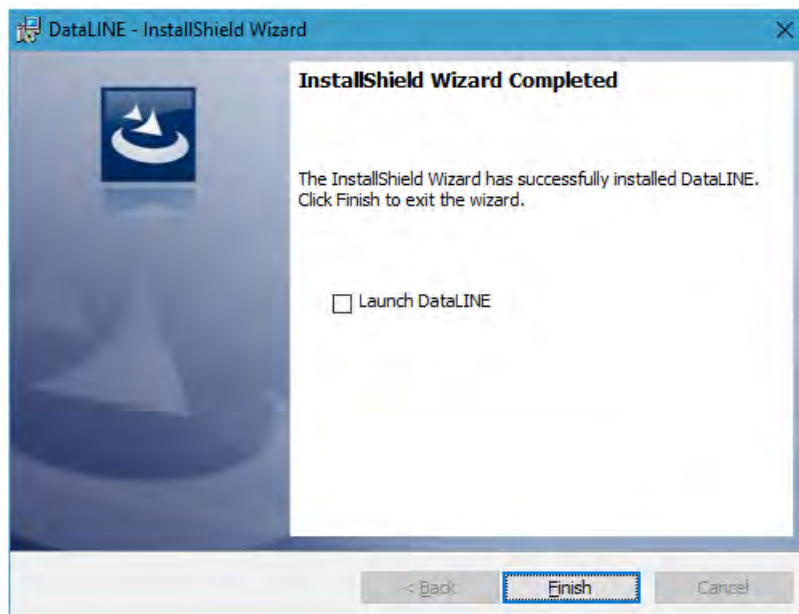


- Click “Next” to display the Ready To Install screen.

10. Click “Install” to start the application installation. Or, click “Cancel” to exit the installation.



11. Once the Installation has completed, a screen appears stating that DataLINE was installed successfully.



12. Click “Finish” to finish the installation of the application.

2.2.1 Service Pack Installation

In order to install the service pack, the target computer must already have DataLINE 2.1 or 2.2 installed.

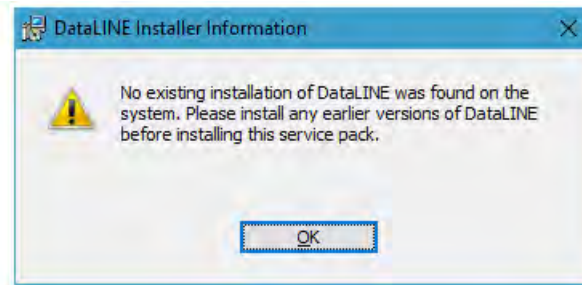
If DataLINE 2.0 or older is installed, follow the additional instructions for DataLINE 2.2 and then upgrade to DataLINE 2.2 prior to upgrading to DataLINE 3.1.

Procedure for All Users:

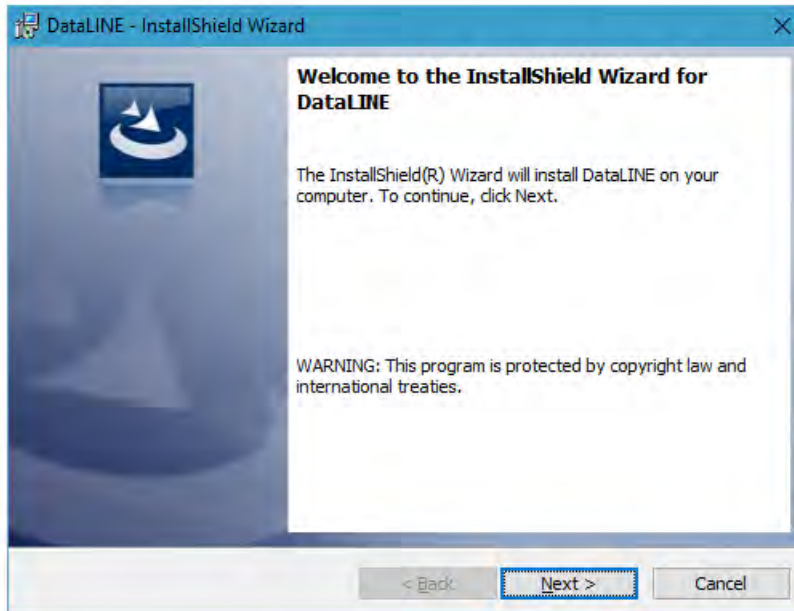
1. Download the service pack from the container public website under Products > DataLINE.
2. The method for loading the program is to access the appropriate drive and double click on the “DataLINE_Setup.exe” file.

If the user does not have administrator rights on the machine to install DataLINE, installation cannot proceed further.

If no existing installation of DataLINE was detected, a screen will be displayed to confirm this. Click “OK” and the installation will abort.



3. The Welcome screen is displayed to begin application setup.



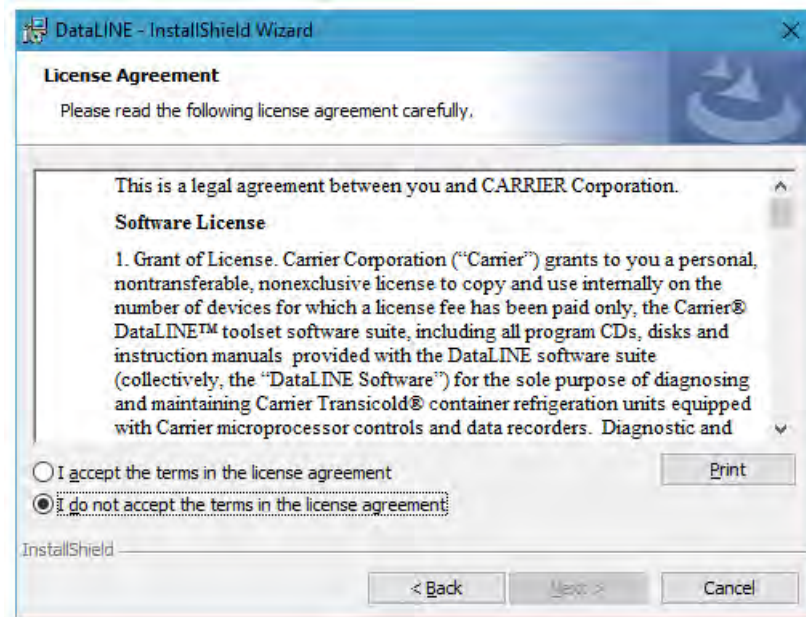
4. Click “Next” to proceed to the License screen.

NOTE

If the user clicks “Cancel” on the Welcome screen, a screen appears asking to cancel the DataLINE installation. Click “Yes” to cancel the installation or click “No” to resume setup and return to the initial Welcome screen.



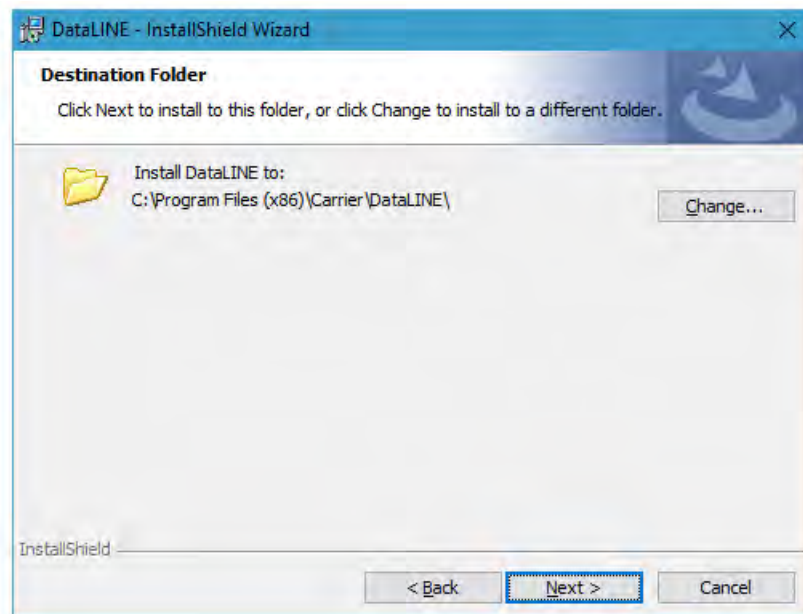
- At the License Agreement screen, the default option selected is “I do not accept the terms in license agreement”. Change the selection to “I accept the terms in the license agreement”.



- Click “Next” to display the Destination Folder screen.
- At the Destination Folder screen, specify the directory to store the application. The default directory is **C:\Program Files (x86)\Carrier\DataLINE**. Click the “Change” button to choose an alternate directory.

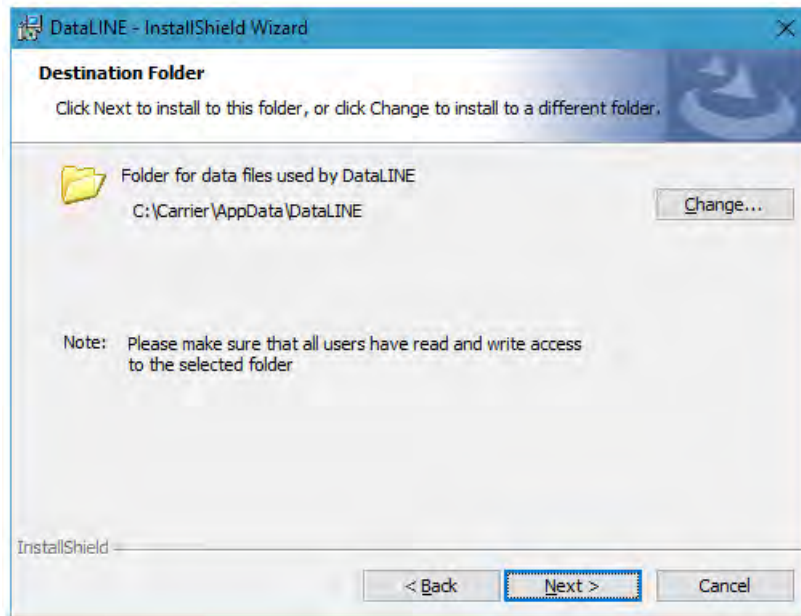


It is recommended that DataLINE 3.1 is installed into its own directory and not into the same directory as a previous version.

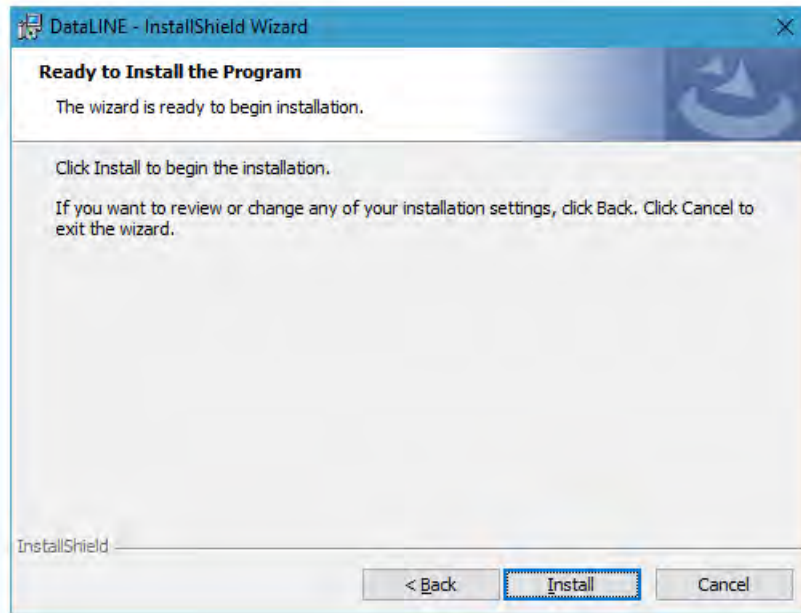


- Click “Next” to display the Destination Folder screen to select the folder for data files.

- At the Destination Folder screen, specify into which directory the system should store Downloaded data. The default directory is **C:\Carrier\AppData\DataLINE**. Click the “Change” button to choose an alternate directory.

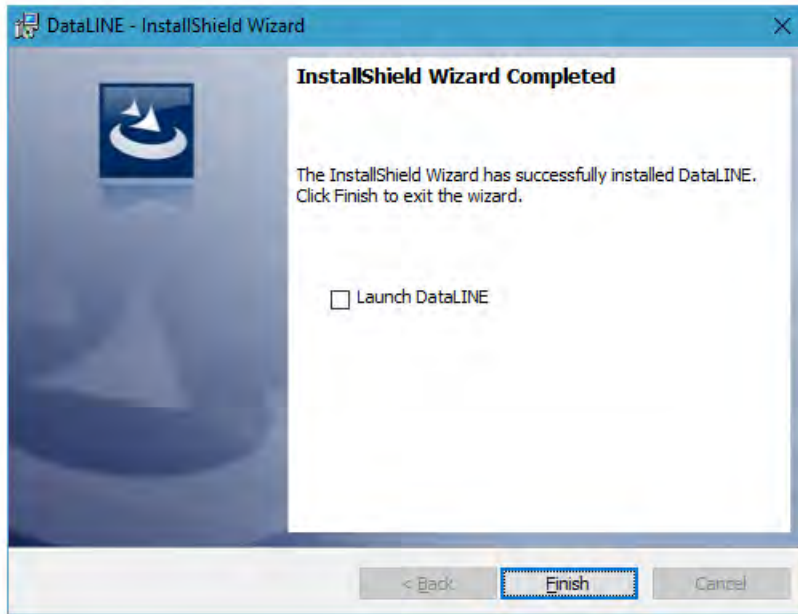


- Click “Next” to display the Ready to Install screen.



- Click “Install” to start the application installation.

12. When installation has completed, a screen appears stating that DataLINE was installed successfully.



13. Click “Finish” to complete the service pack installation.

14. After installation is complete, follow the procedure in [Section 2.2.2](#) to uninstall earlier versions of DataLINE.

2.2.2 Uninstall Earlier Versions of DataLINE

Users must utilize the “Uninstall” utility found in Windows when uninstalling the DataLINE application. Deleting files via Windows Explorer should not be attempted as this can result in system instability.

Procedure for Windows 7 and Windows 8:

1. Click on the “Start” button.
2. Click on “Control Panel”.
3. Under the Programs category, click on “Uninstall a program”.
4. Look for earlier versions of DataLINE program and click on it to select.
5. Click on the “Uninstall” button.
6. The DataLINE uninstall screen will start, which completes the uninstall procedure.

Procedure for Windows 10:

1. Click on the “Start” button.
2. Click on “Settings”.
3. Click on “Systems”.
4. Click on “Apps & features”.
5. Look for earlier versions of DataLINE program and click on it to select.
6. Click on the “Uninstall” button.
7. The DataLINE uninstall screen will start, which completes the uninstall procedure.



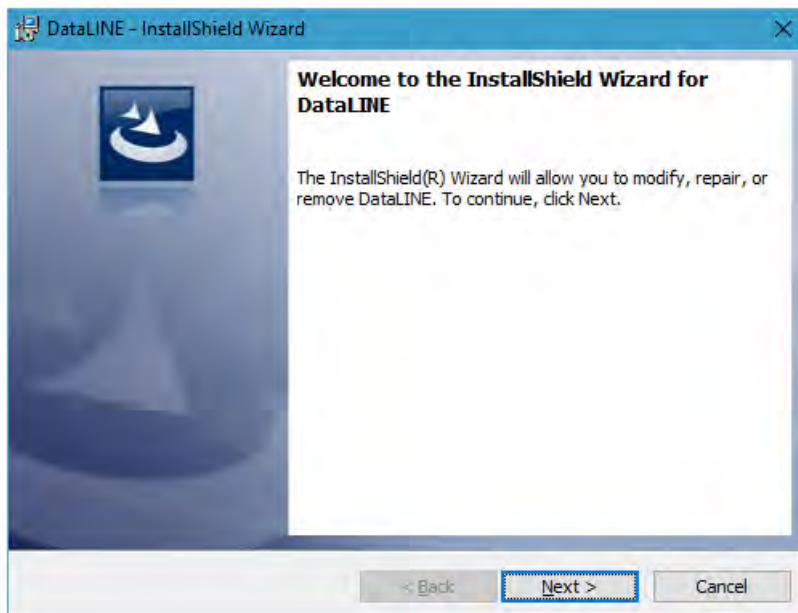
Uninstalling earlier versions of DataLINE (2.1 or 2.2) will result in loss of Custom Controller and DataCorder configurations, hence the user needs to recreate those custom configurations in the latest version of DataLINE 3.1.

! WARNING

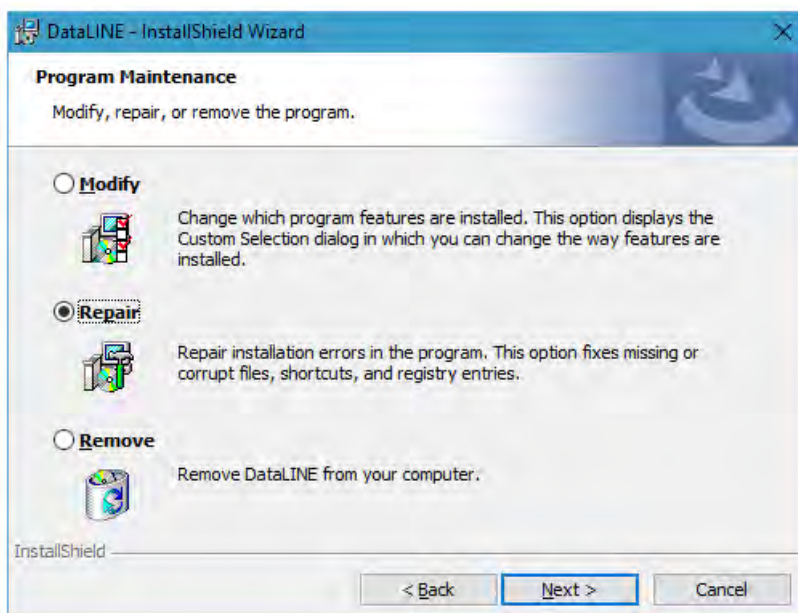
Uninstalling earlier versions of DataLINE (2.1 or 2.2) will result in loss of online communication, requiring the installation to be repaired. Follow instructions in [Section 2.2.3](#) for procedure.

2.2.3 Repair the Installation

1. Double click on the “DataLINE_Setup.exe” file to open a Welcome screen.

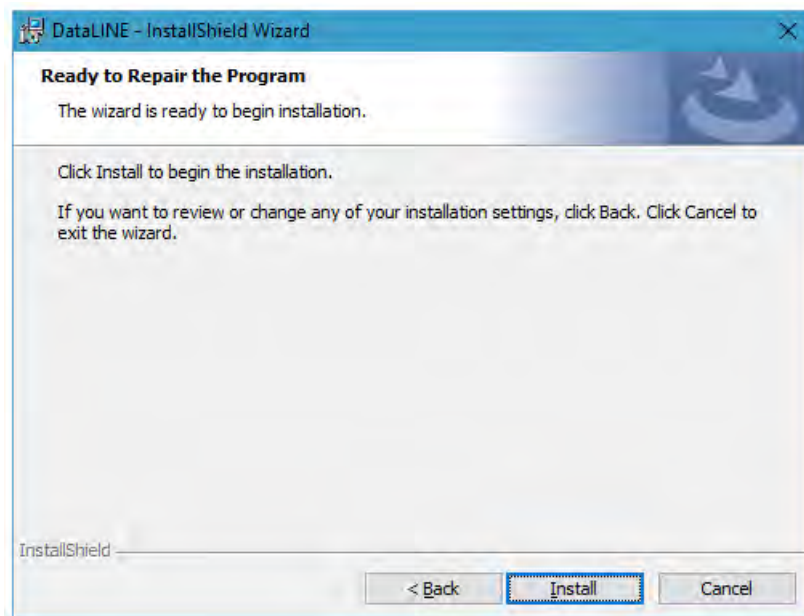


2. Click “Next” to bring up the Program Maintenance screen.

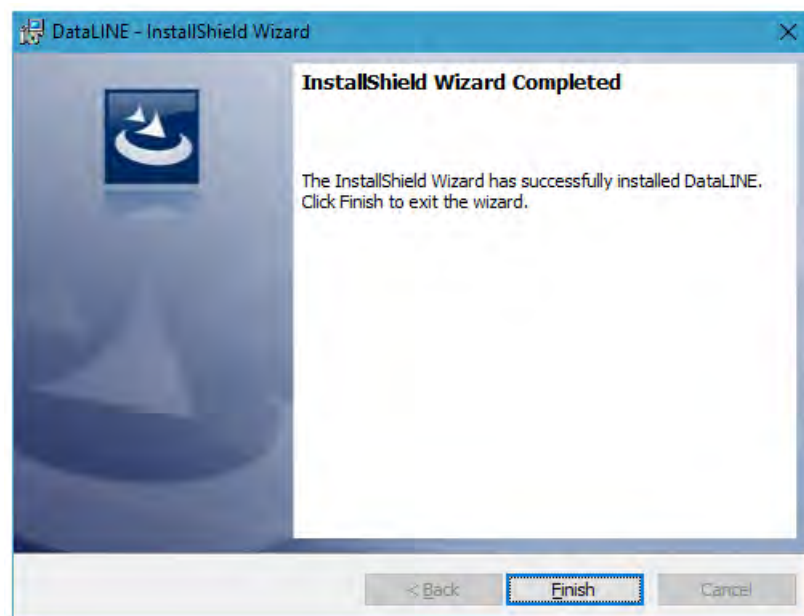


3. On the Program Maintenance screen, the default option selected is “Modify”. Change the selection to “Repair”.

- Click “Next” to bring up the Ready to Repair screen.



- Click “Install” to repair the installation. The InstallShield Wizard Completed screen appears.



- Click “Finish” to complete the Installation.

2.2.4 Start-Up Procedure

- Click on the “Windows” button.
- Navigate to “All Programs”.
- Click on the “Carrier” folder.
- Click on “Launch Pad”.

2.3 User Access Rights

For All Users on Windows 7/8/10

In order to access the complete functionality of DataLINE, users should have administrator access rights on the machine that DataLINE is installed.

SECTION 3

LAUNCH PAD SCREEN

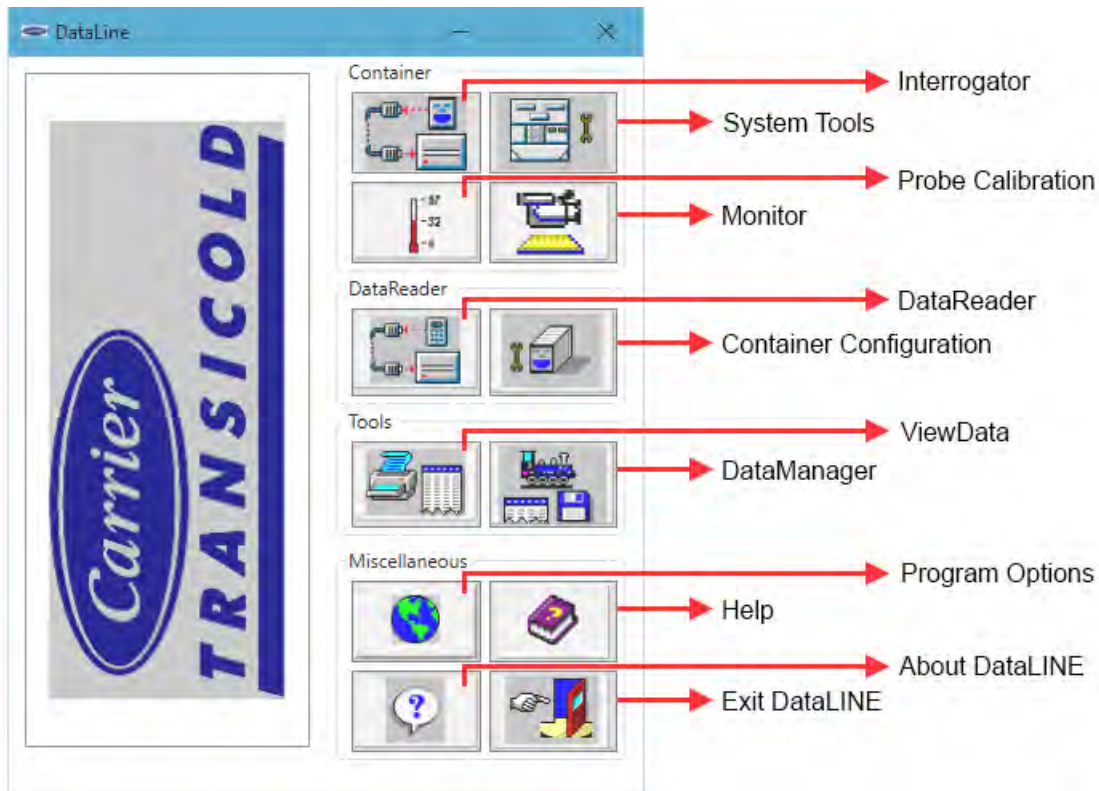
3.1 Introduction

This section describes the features available on the Launch Pad screen. The screen contains the Application Launch Pad, which is the entry point into the DataLINE program. The Application Launch Pad provides a central launching mechanism in order to launch the utilities built into the DataLINE program.

3.2 Launch Pad Screen

The Launch Pad screen ([Figure 3.1](#)) is displayed when the DataLINE application is started.

Figure 3.1 Launch Pad Screen with Application Launch Pad



The Application Launch Pad utilities are described below and can be launched by clicking on the designated button for the utility.

- The **Interrogator utility** provides the capability to interrogate and download data from the DataCorder portion of the container refrigeration unit. Refer to the [Interrogator Screen](#) chapter for detail.
- The **System Tools utility** provides the capability to modify Controller information, update the DataCorder clock and start a new trip. It also allows the user to view/modify the DataCorder and Controller configuration, modify Controller parameters and modify the ISO trip header. Refer to the [System Tools Screen](#) chapter for detail.
- The **Probe Calibration utility** provides the capability to calibrate USDA and Cargo probes for Cold treatment cargos, as well as Supply and Return probes where cargo requires it. Refer to the [Probe and Sensor Calibration Screen](#) chapter for detail.
- The **Monitor utility** provides an interface to monitor the status of the refrigeration unit's analog inputs/outputs and discrete inputs/outputs for diagnostic purposes. Refer to the [Monitor Screen](#) chapter for detail.
- The **DataReader File utility** provides the capability to download raw files from the DataReader*, which are then converted to DCX format by DataLINE. Refer to the [DataReader File Utility Screen](#) chapter for detail.

- The **Container Configuration utility** provides the capability to create/modify/copy/delete container configurations from the PC and the DataReader*. Refer to the [Container Configuration Utility Screen](#) chapter for detail.
- The **View Data utility** provides full reporting capabilities, including customized report generation, for the interrogated data (DCX files). Refer to the [ViewData Screen](#) chapter for detail.
- The **Data Manager utility** provides the capability to store selected header information about the files downloaded from the refrigeration unit into the Data Manager database, and view detailed file information about the files in the database. Refer to the [Data Manager Screen](#) chapter for detail.
- The **Program Options utility** provides a set of program settings, which can be changed to control the behavior of the DataLINE application. Refer to the [Program Options Screen](#) chapter for detail.
- The **Help utility** provides detailed instructions for using the DataLINE application and gives an in-depth look at the DataLINE application and its features.

* The legacy DataReader device is still supported through DataLINE but no longer available for purchase.

SECTION 4

PROGRAM OPTIONS SCREEN

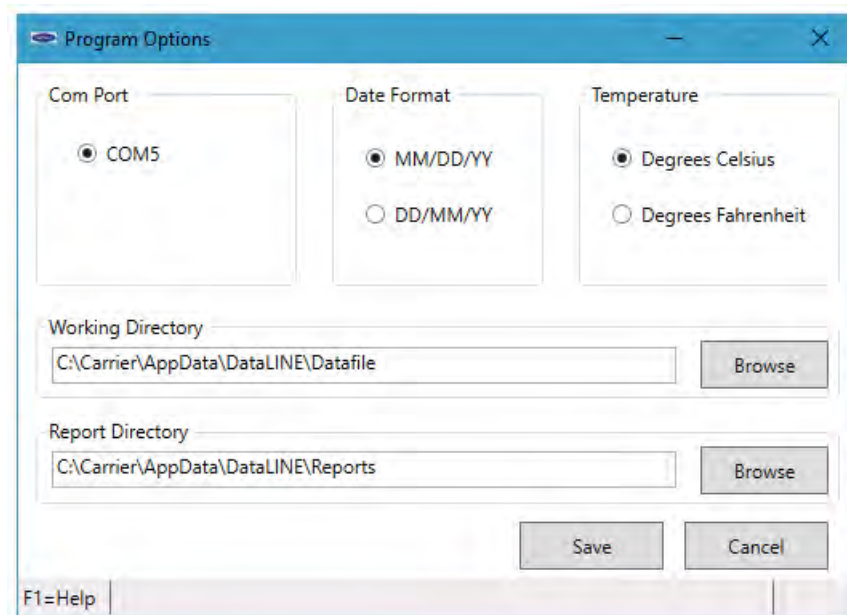
4.1 Introduction

This section describes the features of the Program Options screen. DataLINE provides a set of features (program settings) for use in controlling the behavior of the application. The user can select the COM port, the working directory, report directory, temperature units, and the desired date format to use throughout the program from this screen.

4.2 Program Options Screen

The Program Options screen ([Figure 4.1](#)) is displayed when the user clicks on the Program Options button in the Miscellaneous Group Box on the Launch Pad.

Figure 4.1 Program Options Screen



The user can implement changes to the following settings:

- **Select COM Port** - Provides the capability to select the desired COM port on the target PC for use in communicating with the refrigeration unit (or DataReader).

NOTE

If the Interrogator does not connect using COM1, try changing the setting to COM2, COM3 or COM4. Users may also need to change the physical connection at the back of the PC. When using the Keyspan USB-RS232 adapter, no COM port will be shown unless the adapter is physically connected to a USB port.

- **Select Working Directory** - Provides the capability to specify the directory to which all downloaded interrogation data will be stored. The user can manually change the directory by entering the directory path in the list box. Users can also change the directory by clicking on the “Browse” button in the Working Directory Group Box. The Select Directory screen is displayed and users can specify the path of the directory where the application should store the data. The default directory is **<DataLINE Install Path>Datafile**. The user cannot download data to any removable storage medium (e.g. floppy disks). The working directory should be a local drive on the user's PC or a network drive mapped to the user's PC. The application does not automatically move data stored from the previous working directory into the newly specified working directory. The user must manually move the previously stored data to the new directory via the PC's file system.

- **Select Report Directory** - Provides the capability to specify the directory to which all reports will be stored. The user can manually change the directory by entering the directory path in the list box. Users can also change the directory by clicking on the “Browse” button in the Report Directory Group Box. The Select Directory screen is displayed and users can specify the path of the directory where the application should store the data. The default directory is **<DataLINE Install Path>\Reports**. The user cannot download data to any removable storage medium (e.g. floppy disks). The report directory should be a local drive on the user's PC or a network drive mapped to the user's PC. The application does not automatically move data stored from the previous report directory into the newly specified report directory. The user must manually move the previously stored data to the new directory via the PC's file system.
- **Select Temperature Units** - Provides the capability to specify the temperature units in which the temperature data appears on the application screen. The application uses this setting to convert temperature data to the proper temperature units and display it on the screen as well as in reports. The setting also affects the display of pressure values in the Monitor utility.
- **Select Date Format** - Provides the capability to specify the format in which the date appears on the application screen. The application uses this setting to only control the appearance of the DataLINE screens.

Settings can be changed at any time and the application remembers the settings from one execution of the program to the next.

Any changes made to the settings are reflected in the Interrogator and the DataReader File Utility screen within 30 seconds of the change being saved.

Any changes made to the settings are reflected in the System Tools screen within 60 seconds and the Probe Calibration screen within 15 seconds of the change being saved.

SECTION 5

INTERROGATOR SCREEN

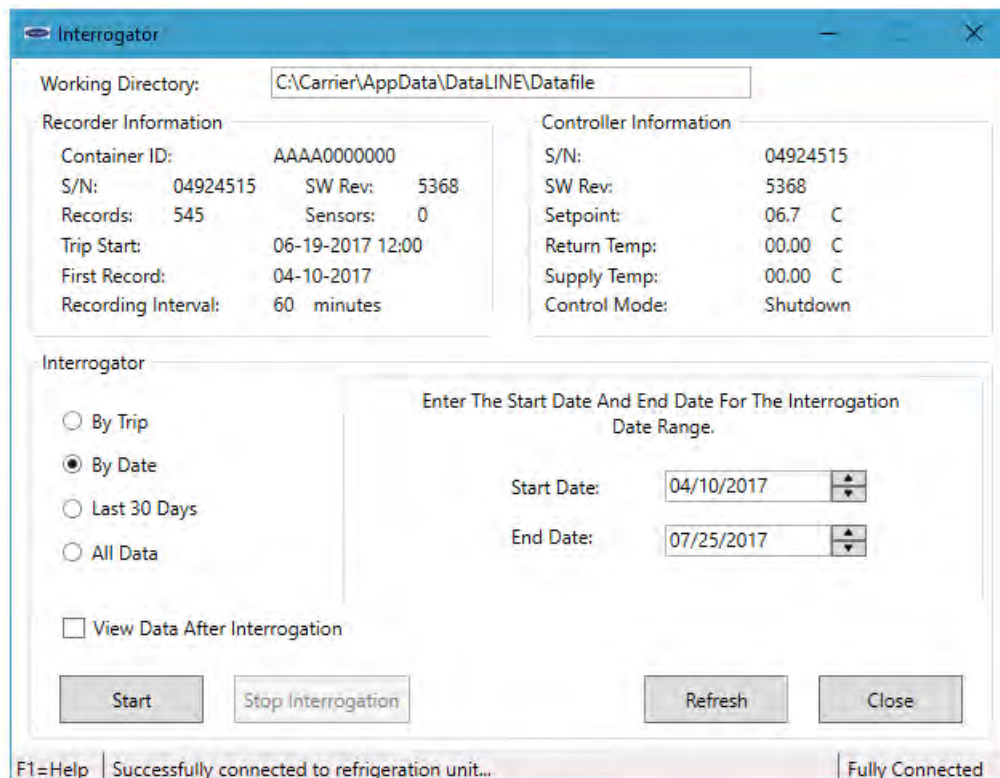
5.1 Introduction

This section describes the features available on the Interrogator screen. DataLINE provides an interface to extract data from the DataCorder portion of the container refrigeration unit through the Interrogator utility. A set of features contained in the Interrogator utility allow the user to successfully download the recorded data and save the data into DCX files on the PC.

5.2 Interrogator Screen

The Interrogator screen ([Figure 5.1](#)) is displayed when the user clicks on the Interrogator button in the Container Group Box on the Launch Pad.

Figure 5.1 Interrogator Screen



The DataLINE application refreshes the screen in one of the following ways:

- **AutoRefresh** - Every 30 seconds the Interrogator screen automatically updates all data in the Recorder and Controller Group Boxes.
- **Refresh Button** - Provides the capability to manually trigger a refresh of the Interrogator screen.
- **F9** - Provides a shortcut to manually trigger a refresh operation.

The Interrogator can perform the interrogation of the DataCorder using one of the following methods:

- **By Date** - Extract data between user specified dates.
- **By Trip** - Extract data for the user selected trip.
- **Last 30 Days** - Extract the last 30 days of data from the DataCorder.
- **All Data** - Extract all available records from the DataCorder.

The ViewData utility can be launched from the Interrogator screen (if successful connection is complete) by checking the box marked "View Data After Interrogation" before starting the interrogation.

Before starting the interrogation, it is important that a successful connection is established with the DataCorder. The status of connection can be determined as follows:

- If the connection is established only with the DataCorder, data is displayed in the fields of the Recorder Group Box.
- If the connection is established with both the Controller and the DataCorder, data is displayed in both the Controller Group Box and the Recorder Group Box.
- If the connection is not established with the DataCorder, all data in the fields in the Recorder Group Box will be displayed as "X's." If the connection is not established, the Interrogator Group Box is disabled and the user is unable to interrogate.
- If the connection is not established with the Controller, all data in the fields in the Controller Group Box will be displayed as "X's." Interrogation of the DataCorder can still proceed without a connection to the Controller.

If at any time during the display of the Interrogator screen the connection is not established or is lost, the user is alerted to the status of the connection.

After selecting the interrogation method and ensuring a successful connection has been made with the DataCorder, click on the "Start" button to begin interrogation.

Once interrogation has started and the data is being downloaded from the DataCorder to the file in the working directory, a progress bar displays the progress of the data download.

Interrogation can be stopped at any time during the download of data from the DataCorder. To suspend interrogation, click on the "Stop Interrogation" button.

5.3 Enter File Comment Screen

After clicking the "Start" button to start downloading, the user is prompted to enter an interrogation file comment. The file comment is stored in the DCX file along with the interrogated data and is included in the reports generated using the ViewData utility.

The File Comment screen ([Figure 5.2](#)) is displayed when prompted to enter an interrogation file comment.

Figure 5.2 File Comment Screen

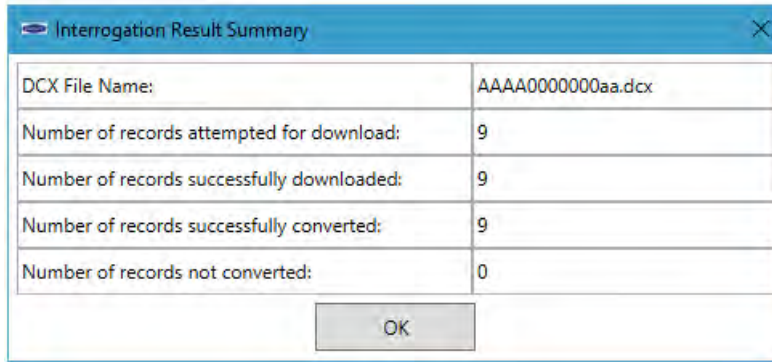
The screenshot shows a dialog box titled "Enter Interrogation File Comment". It features a standard Windows-style title bar with a close button (X) in the top right corner. The main area contains six labeled input fields arranged vertically: "Bill of Lading #:", "Origin:", "Origin Date:", "Destination:", "Destination Date:", and "Comment:". Each field is followed by a text entry box. At the bottom of the dialog, there are two buttons: "OK" and "Cancel". In the bottom-left corner, there is a status bar with the text "F1=Help".

5.3.1 Interrogation Results Summary Screen

The DataLINE application automatically converts the data from the DataCorder to a DCX file after download. After the download and conversion completes successfully, the Interrogation Results Summary screen ([Figure 5.3](#)) appears displaying the following:

- File name where data downloaded
- Number of records attempted for download
- Number of records successfully downloaded
- Number of records successfully converted to a DCX file
- Number of records not converted

Figure 5.3 Interrogation Results Summary Screen



SECTION 6

VIEWDATA SCREEN

6.1 Introduction

This section describes the features available on the ViewData screen. The ViewData utility generates reports that contain data downloaded from the DataCorder. These reports are used to analyze DataCorder data stored in a DCX file. The generated reports are stored in a report directory. The user also has the ability to define and generate customized reports.

The application allows for four methods to launch the ViewData utility:

1. From the Application Launch Pad screen, click on the “ViewData” button in the Tools Group Box.
2. From the Interrogator screen (if a connection is complete), check the box marked “View Data After Interrogation.”
3. From the Data Manager screen, select a row in the “List of Files” and click on the “ViewData” button.
4. From the Data Manager screen, right-click anywhere on the selected row in the “List of Files” Group Box. A pop up menu appears with three options. Click on “Launch ViewData”.

6.2 ViewData Screen

The ViewData screen ([Figure 6.1](#)) is displayed when the user clicks on the ViewData button in the Tools Group Box on the Launch Pad. The screen is blank until a file and report are selected.

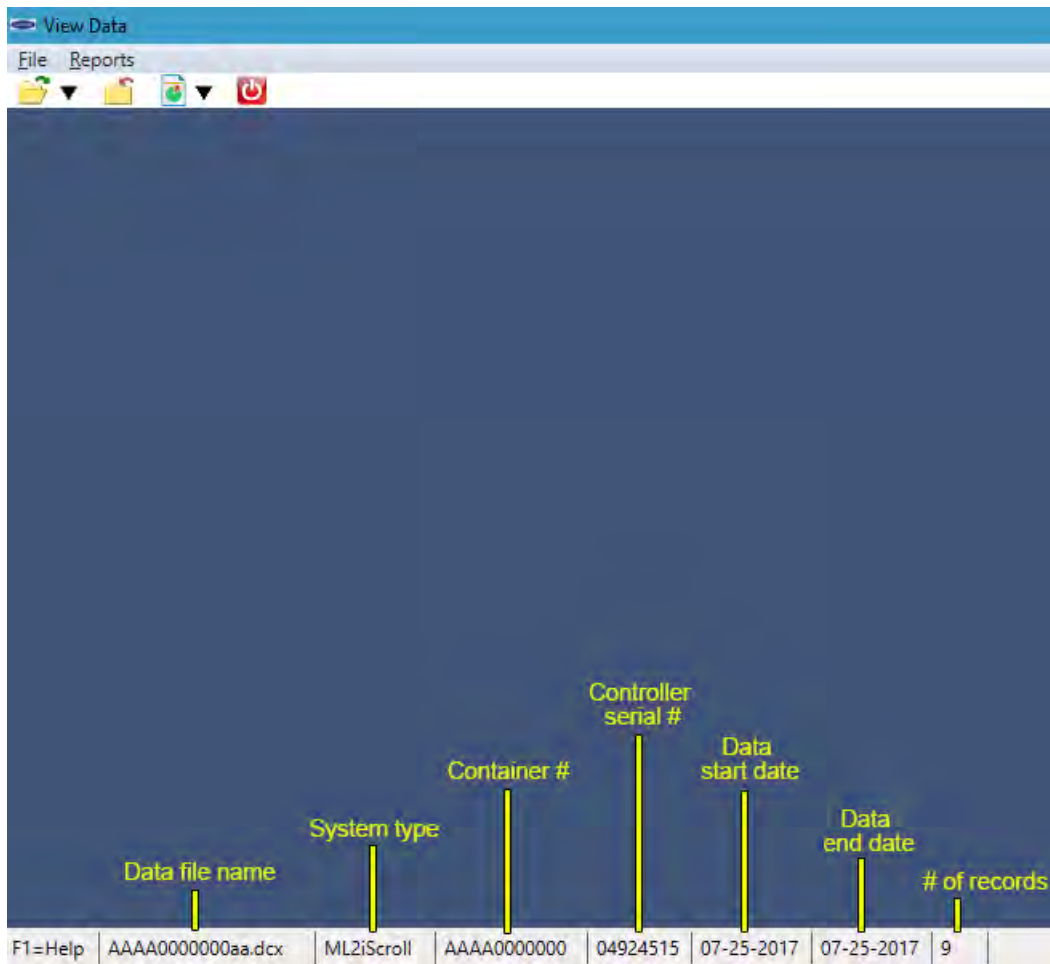
Opening and viewing the data is a 2-step process.

1. To open a DCX file from the ViewData screen, click on the File menu option and select “Open”. After the file has been opened, the DCX file details are populated at the bottom of the screen.

The DCX file details displayed at the bottom of the screen from left to right are:

- Data file name
 - System type
 - Container number
 - Controller serial number
 - Data start date
 - Data end date
 - Number of records in file
2. With the file open, click on the Reports menu option to select the report type.

Figure 6.1 ViewData Screen



6.3 Generate Reports

This section describes the features available to generate standard and custom reports.

The following reports can be generated by utilizing report templates defined by the application. A DCX file must be open prior to generating any of the reports.

- **Graphic Report** - view sensor data and event acronyms for identified events over a selected range of dates in a graphical format. [Table 6–1](#) lists the event acronyms and descriptions.
- **Temperature Chart Report** - view SRS, RRS and Setpoint sensor data over a selected range of dates in a graphical format. User can either select the linear temperature graph to view the sensor data in a linear graph format or select the circular temperature graph to view the sensor data in a circular format.
- **Sensor Report** - display the sensor data over a selected range of dates.
- **Sensor Data Report** - display the sensor data over a selected range of dates and event acronyms for identified events. [Table 6–1](#) lists the event acronyms and descriptions.
- **Event Report** - display the event data over a selected range of dates.
- **Sensor and Event Report** - display the event and sensor data over a selected range of dates. The user can select the sensors to be displayed. This report will also display sensor configuration information.
- **Cold Treatment Summary Report** - display the activity of the selected USDA and Cargo sensors with respect to their operation within predefined temperature ranges over a selected range of dates.
- **TripWise Summary Report** - display the status of Run Time Diagnostics (TripWise) and supporting RTD test results and data for a user selected RTD Status event.
- **Controller Pretrips Report** - display the pretrip results over a selected range of dates.
- **Alarm Summary Report** - display Controller, DataCorder, and CA alarms over a selected range of dates.
- **Raw Data Report** - display the event and sensor data over a selected range of dates. This report will also display sensor configuration information.

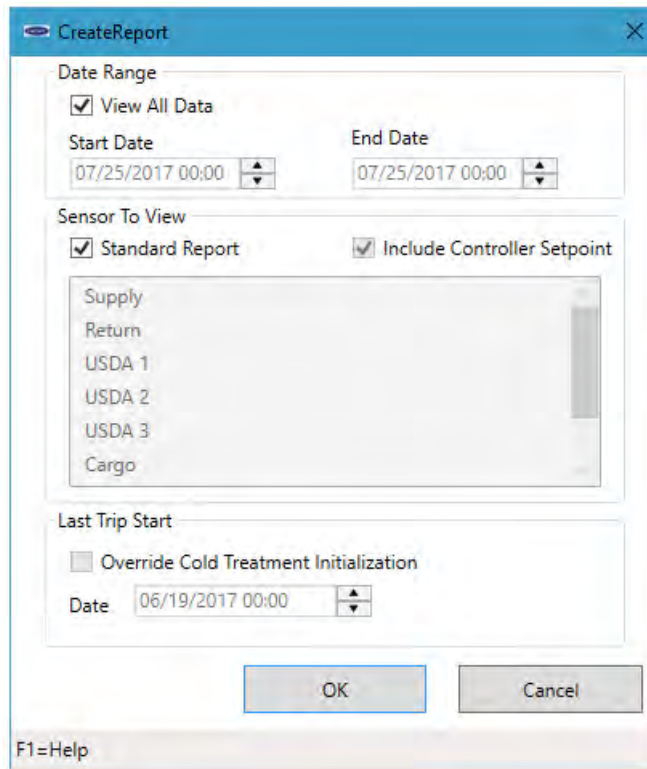
Table 6–1 Report Events

Event Acronym	Event Description
AL	Container Alarm Activity
AL	Container Alarm Activity (Event 78)
BULB_E	Bulb Mode Termination
BULB_S	Bulb Mode Initiation/Status Change
CA_AL	Controlled Atmosphere Alarm Activity
CA_DL	Controlled Atmosphere Door Lock
CA_LE	Controlled Atmosphere Lockout Termination
CA_LS	Controlled Atmosphere Lockout Initiation
CA_NEW_SN	Controlled Atmosphere Controller Replacement
CA_NEW_SW	Controlled Atmosphere S/W Upgrade
CA_PE	Controlled Atmosphere Pre-trip Termination
CA_PS	Controlled Atmosphere Pre-trip Initiation
CA_SP	Controlled Atmosphere Setpoint Change
CA_UL	Controlled Atmosphere Door Unlock
CA_VE	Controlled Atmosphere Vent Termination
CA_VS	Controlled Atmosphere Vent Initiate
dAL	DataCorder Alarm Activity
DE	Container Control Defrost Termination
DHE	Container Dehumidification Termination
DHS	Container Dehumidification Initiation
DS	Container Control Defrost Initiation
ECON_E	Economy Mode Termination
ECON_S	Economy Mode Initiation
HE	Container Humidification Termination
HS	Container Humidification Initiation
NEW ID	Container Control Container ID Change
NEW SN	Container Control Replacement
NEW SW	Container Control S/W Upgrade
NWF	DC Communications Failure
NWR	DC Regained Communications
OFF	Power Loss (w/o Battery Backup)
OFFwb	Power Loss (w/Battery Backup)
ON	Power ON (w/o Battery Backup)
Onwb	Power On (w/ Battery Backup)
PE	Container Control Pre-trip Termination
PE	Pre-trip Termination
PS	Container Control Pre-trip Initiation
Rm_AL	Remote Evaporator Alarm Activity
Rm_SP	Remote Setpoint Change
SP	Container Setpoint Change
TS	Trip Start

Select the type of report for generation from the Report menu, e.g. graph report, and click to launch the Create Report screen.

The CreateReport screen (**Figure 6.2**) is displayed when the option to create a sensor, sensor data, sensor and event, cold treatment summary, or a graph report is chosen.

Figure 6.2 CreateReport Screen



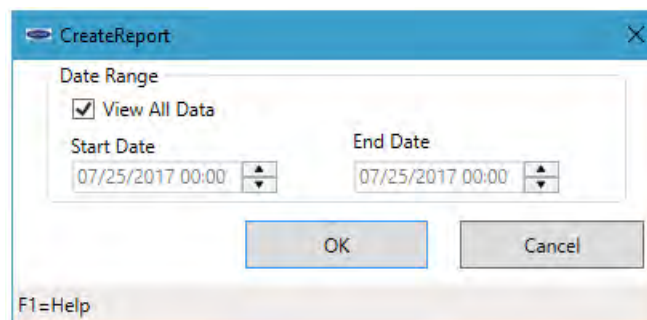
The date range criteria can be selected for all report types by deselecting the “View All Data” checkbox. The user is then allowed to select the start and end date. If the start date selected by the user is after the end date, the application switches the dates.

The available sensors for the report are listed under “Sensor To View” and can be selected by highlighting the sensor name. Only five sensors can be chosen to be displayed on a sensor graph report. For the Graphical report, only supply and return sensors can be selected.

The “Last Trip Start” Group Box is enabled only for Cold Treatment Summary Report.

The Report Date Range screen (**Figure 6.3**) is displayed when the user chooses to create any type of a report other than a sensor, sensor data, sensor and event, cold treatment summary or graphic report.

Figure 6.3 Report Date Range Screen



The date range criteria can be selected for all report types by deselecting the “View All Data” checkbox. The user is then allowed to select the start and end date. If the start date selected by the user is after the end date, the application switches the dates.

After a report has been generated, the following options are enabled. For a graph report, the **Page Setup** and **Find** options are not available.

- Save Report As
- Close Report
- Print
- Print Preview
- Page Setup
- Find

Each report (with the exception of the graphic report and temperature charts) displays a header that contains the following information:

- Report Title
- Container ID
- Report Date Range
- Interrogation Data
- Name and Version of DataLINE software used for extracting the DCX file
- Controller Software Version
- DataCorder Software Version
- Interrogation File Comment
- Calibration Values for USDA 1,2,3 and Cargo sensors
- Controller Serial Number
- Temperature Units

In addition to the above information, the Cold Treatment Summary also includes information for “Cold Treatment Initialization.”

The graphic report and temperature charts contain no header.

All temperature units are chosen through the Program Options utility.

6.3.1 Create Custom Report Template

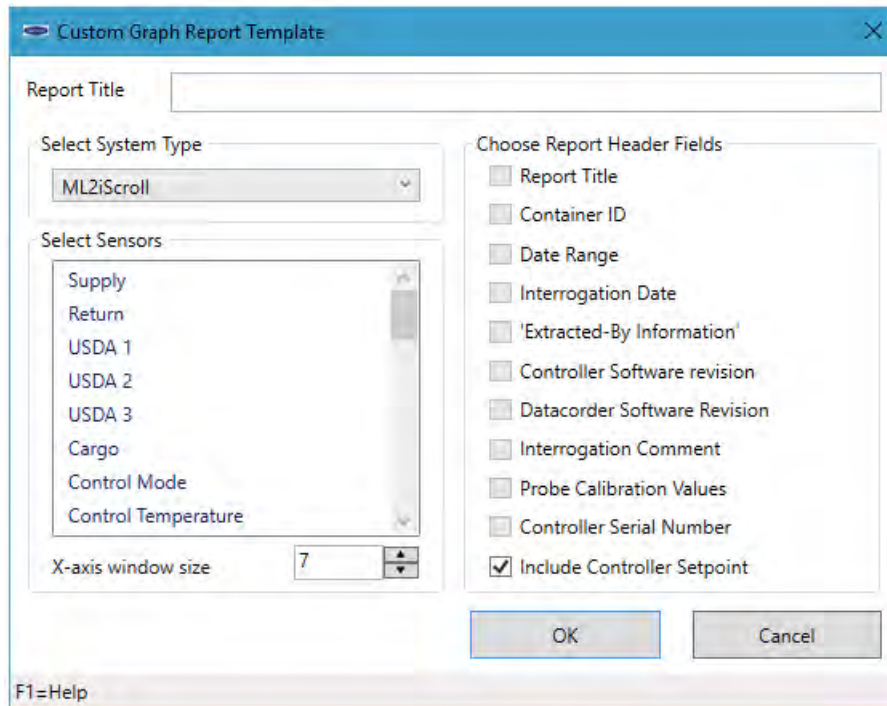
This section describes the features available to create a custom report template.

To create a custom report template, select the “Define Custom Template” option from the Report menu on the ViewData screen and select one of the following report types.

- **Graphical** - The graph report contains no header fields. The X-axis window size is defaulted to 24 for graph reports. The X-axis window size can be set between 24 - 48. The “Include Controller Setpoint” checkbox appears on the Custom Graph Report Template screen. Select from the list box the sensors to be included in the report. Only five sensors can be chosen for a graphical report.
- **Sensor** - The sensor report contains header fields as well as the “Include Controller Setpoint” checkbox that appears on the Custom Graph Report Template screen. Select from the list box the sensors to be included in the report.
- **Alarm** - The alarm report contains **only** header fields and the user can select from the list box the alarms to be included in the report.
- **Event** - The event report contains **only** header fields and the user can select from the list box the events to be included in the report.

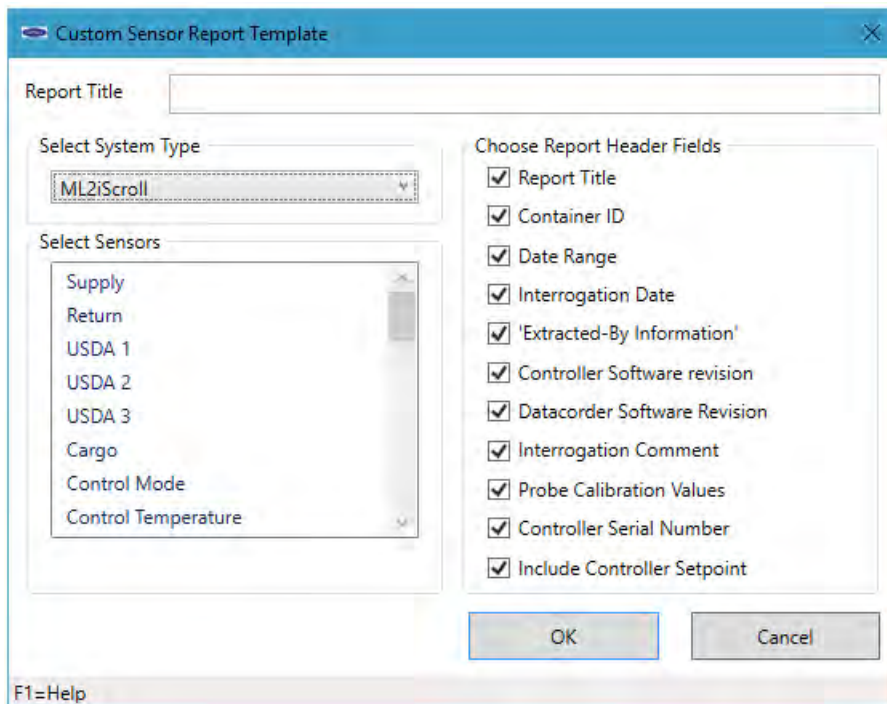
The Custom Graph Report screen (Figure 6.4) is displayed when the option to create a Custom Graph Report template is chosen.

Figure 6.4 Custom Graph Report Screen



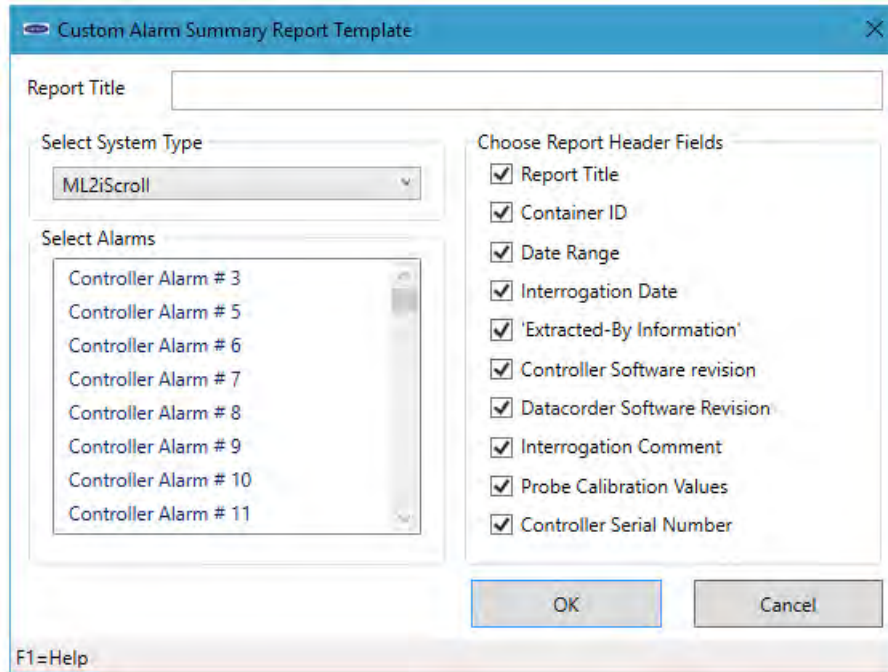
The Custom Sensor Report screen (Figure 6.5) is displayed when the option to create a Custom Sensor Report template is chosen.

Figure 6.5 Custom Sensor Report Screen



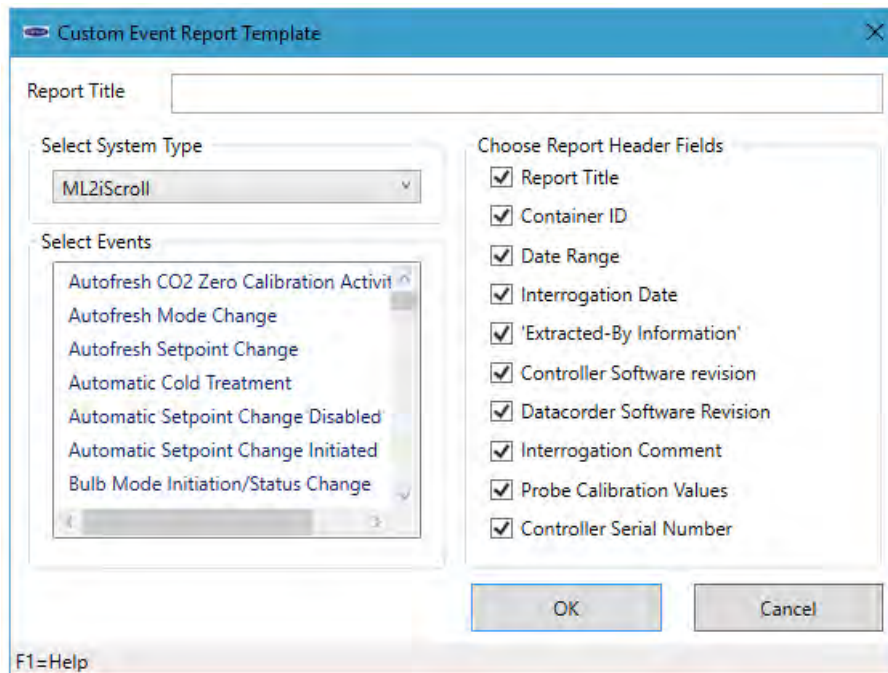
The Custom Alarm Summary screen (Figure 6.6) is displayed when the option to create a Custom Alarm Summary Report template is chosen.

Figure 6.6 Custom Alarm Summary Screen



The Custom Event Report screen (Figure 6.7) is displayed when the option to create a Custom Event Report template is chosen.

Figure 6.7 Custom Event Report Screen



The "OK" button is disabled initially.

Enter a minimum of three characters (max of 30 is allowed) in the "Report Title" text box to enable the "OK" button.

Select at least one sensor from the "Select Sensor" list box (maximum of five sensors if "Include Controller Setpoint" is selected) by highlighting the sensors to be included.

Click "OK" on the "Custom Report Template" screen to create the Custom Report template.

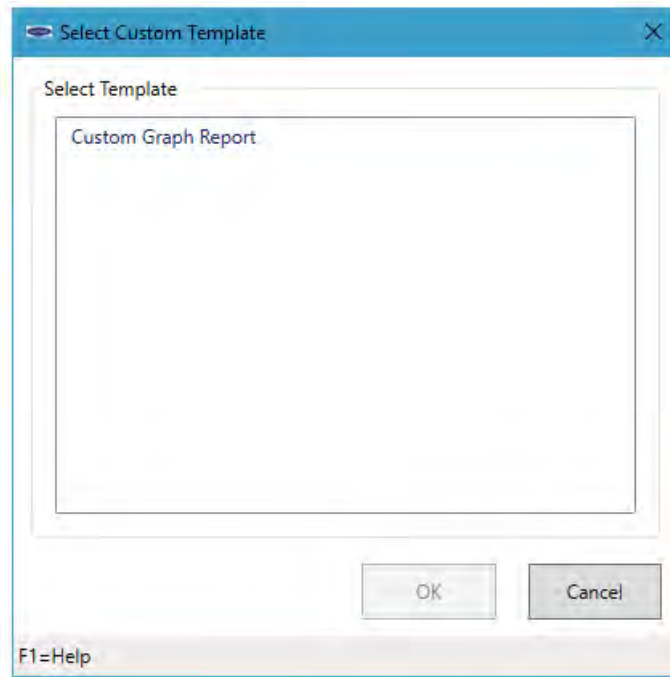
After a custom template is created, it is automatically stored for future use. The custom templates that have been created can be accessed by selecting the "Custom" option from the Reports menu on the ViewData screen.

6.3.2 Generate Custom Report

The section describes the features available to generate a custom report.

The Generate Custom Report screen (**Figure 6.8**) is displayed when the “Custom” option is selected from the Reports menu on the ViewData screen.

Figure 6.8 Generate Custom Report Screen



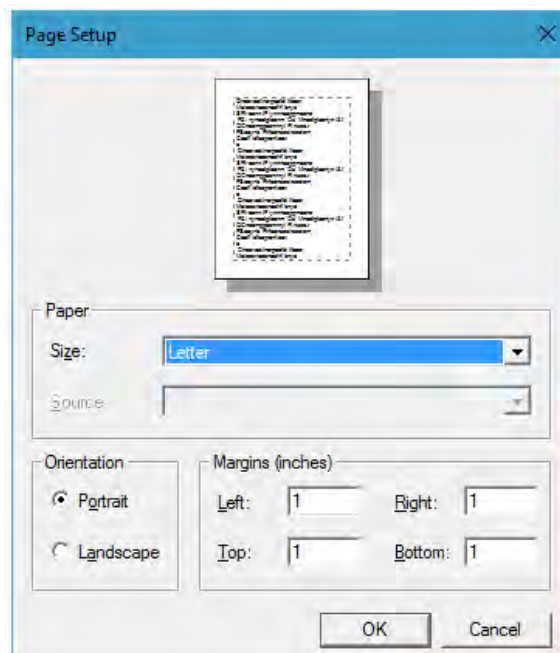
To display the Create Report screen, the user must select a custom template from the “Select Template” list box and click “OK”.

6.4 Page Setup Screen

The section describes the features for changing the appearance of a page through the Page Setup screen.

The Page Setup screen (**Figure 6.9**) is displayed when the “Page Setup” option is chosen from the File menu on the ViewData screen.

Figure 6.9 Page Setup Screen



The default for all margins is 1.00 inches. The margin value can be changed by clicking on the up/down control or by manually entering a margin value. The minimum value for the left and right margins is 0.25 inches and the maximum value is 2.00 inches. The minimum value for the top and bottom margins is 0.75 inches and the maximum value is 2.00 inches.

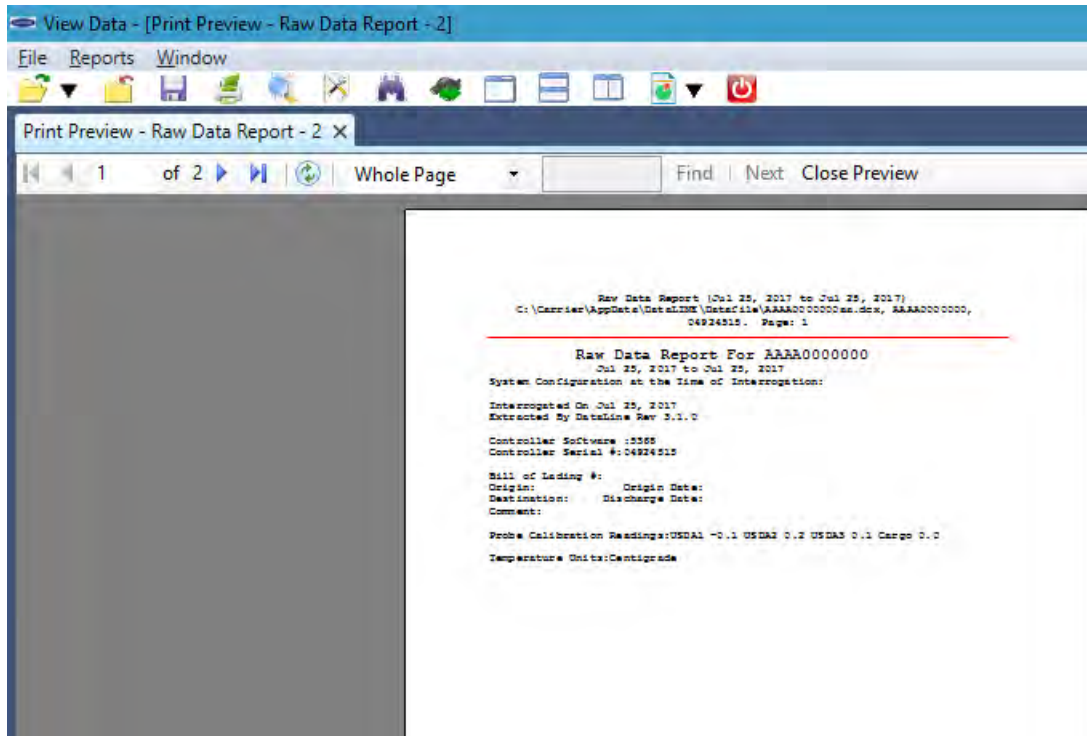
Upon changing the page setup of a generated text report, the changes will become the default settings for the text reports generated going forward, unless the user changes them again or re-launches the application.

6.5 Print Preview Screen

This section describes the features for previewing a page through the Print Preview screen before beginning to print.

The Print Preview screen (Figure 6.10) is displayed when the “Print Preview” option is chosen from the File menu on the ViewData screen.

Figure 6.10 Print Preview



To change the size of the previewed report, click on the zoom drop down list.

To select a page of the report for viewing, click on the “First Page”, “Previous Page”, “Next Page”, or “Last Page” arrow buttons located at the top of the screen.

If the user clicks on the printer icon at the top of the screen, the Print Preview screen closes and the standard Windows Print dialog box appears.

To begin printing, select the appropriate printer settings and click “OK”.

SECTION 7

DATAREADER FILE UTILITY SCREEN

NOTE

The legacy DataReader device is still supported through DataLINE but no longer available for purchase.

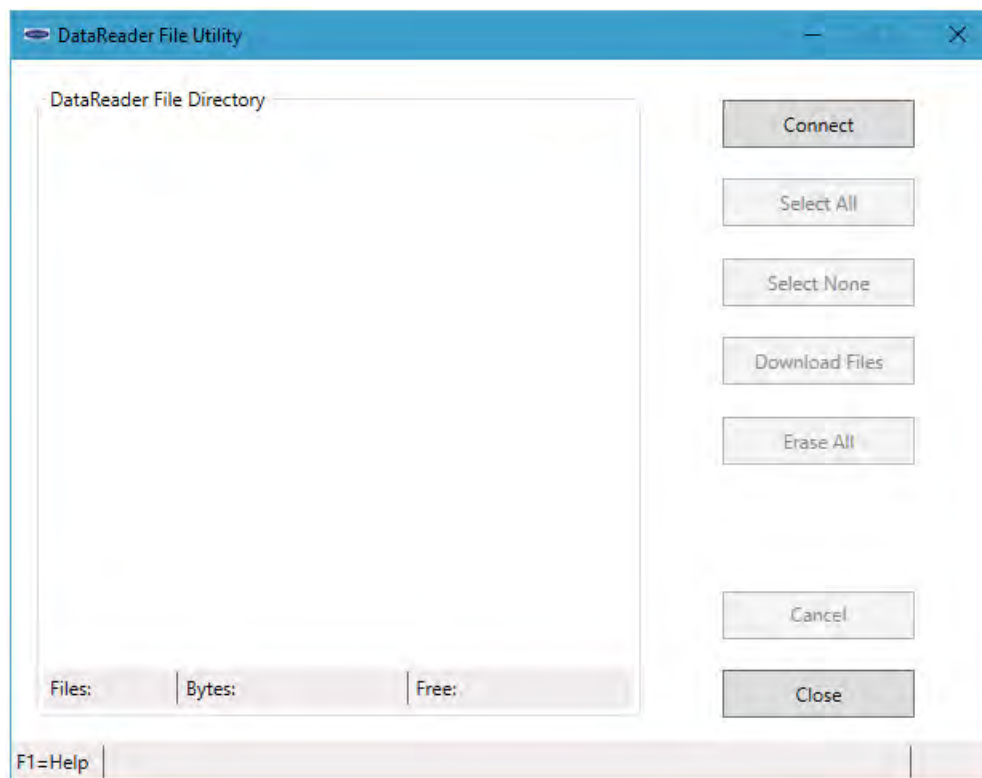
7.1 Introduction

This section describes the features available on the DataReader File Utility screen. DataLINE provides the user with an interface to download or erase raw files from the DataReader through the DataReader File utility. The utility provides the user with the capability to successfully download the raw files and convert the downloaded files into a DCX file format. The utility automatically saves the downloaded files to the PC after the download process successfully completes. The user can choose to erase all the files from the DataReader.

7.2 Datareader file Utility

The following DataReader File Utility screen ([Figure 7.1](#)) is displayed when the user clicks on the DataReader Download button in the DataReader Group Box on the Launch Pad.

Figure 7.1 DataReader File Utility Screen



To Connect to the DataReader:

1. Connect the DataReader to the PC using the Upload Cable P/N 22-01743-00.
2. Turn the DataReader "ON". Then, use the down arrow to scroll to "Transfer Data".
3. Press the "Enter" button on the DataReader.
4. In the "DataReader File Utility" screen, click on the "Connect" button to connect to the DataReader. The status of the connection can be determined as follows:

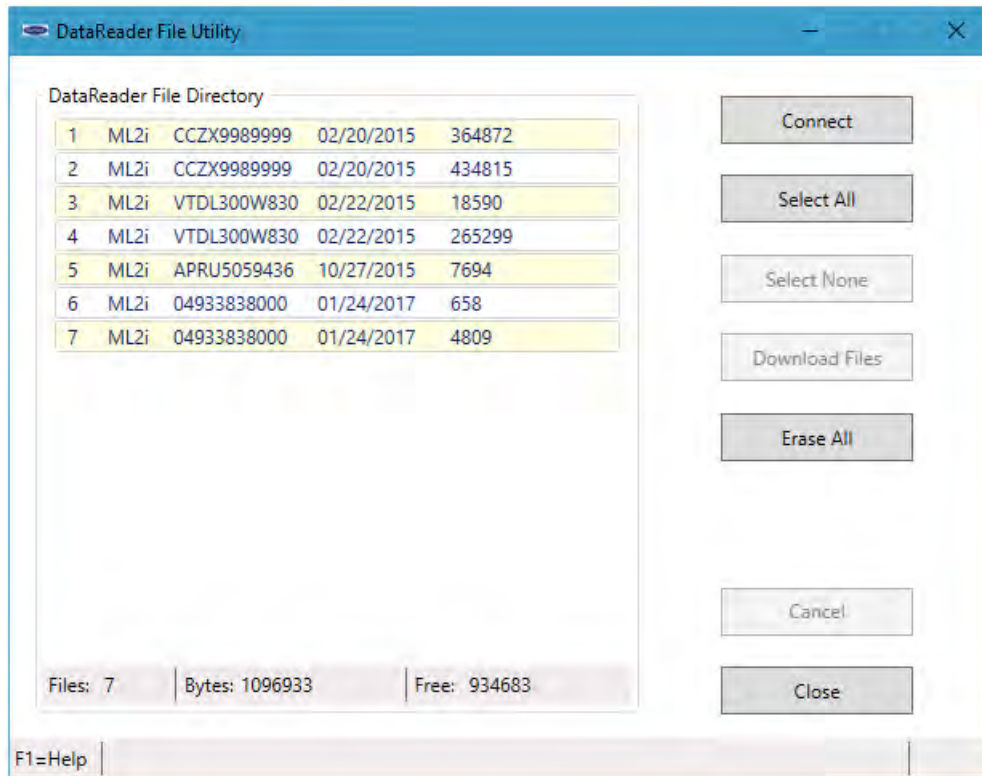
If the connection to the DataReader is successful, the list of raw files available on the DataReader is displayed in the list box. For each file, the following information is displayed:

- File Index - Displays the order of files retrieved from the DataReader
- Controller Type (ML1, ML2, ML2i, ML2i-cs)
- Container ID at the time of interrogation
- Date of interrogation
- Size of the raw file in bytes

If the connection is not established with the DataReader, an error message will appear.

The DataReader Connected screen ([Figure 7.2](#)) is displayed upon successful connection with the DataReader.

Figure 7.2 DataReader Connected Screen



Select one or more files from the list box, and then click the "Download Files" button to start downloading.

Once downloading has started and the files are being downloaded from the DataReader into the working directory, a progress bar displays the progress of the file download.

The download of files from the DataReader can be canceled at any time. To cancel, click on the "Cancel" button.

F9 - Provides the user with a shortcut for manually triggering the refresh operation.

7.3 File Download Results Summary Screen

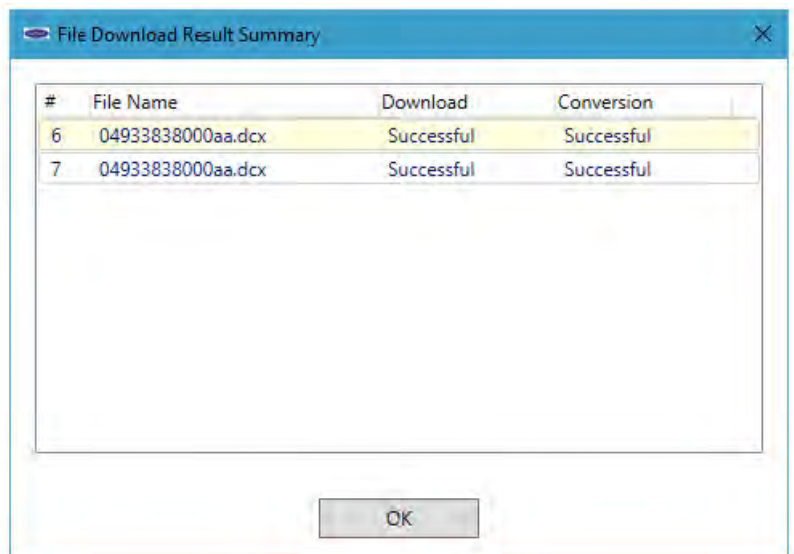
The DataLINE application automatically converts the raw file from the DataReader to a DCX file after download. After the download and conversion completes successfully, the "DataReader File Results Summary" appears displaying the following items.

- **# (File Index)** - the order in which the files are retrieved from the DataReader.
- **File Name** - the name of the downloaded file.
- **Download** - the status of the download process as "Success" or "Failure" or "Not Attempted".
- **Conversion** - the status of the conversion process as "Success" or "Failure" or "Not Attempted".

For each file successfully downloaded and converted, the resulting DCX file name is displayed. For each file successfully downloaded, but not converted, the resulting raw file name is displayed.

The File Download Completed screen (**Figure 7.3**) is displayed when the download completes successfully.

Figure 7.3 File Download Completed Screen



SECTION 8

CONTAINER CONFIGURATION UTILITY SCREEN

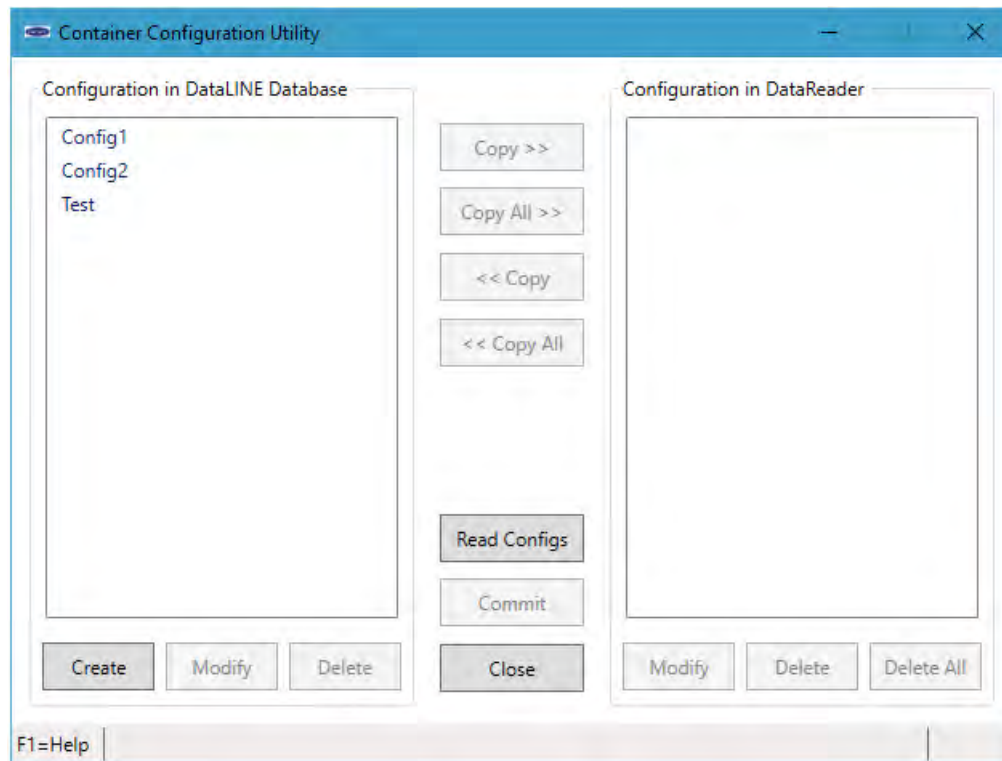
8.1 Introduction

This section describes the features available on the Container Configuration Utility screen. DataLINE provides an interface to create and store new configurations in the PC through the Container Configuration Utility. The utility also provides the capability to copy and delete container configurations between DataReader and the PC.

8.2 Container Configuration Utility

The Container Configuration Utility screen ([Figure 8.1](#)) is displayed when the user clicks on the DataReader DataSet button in the DataReader Group Box on the Launch Pad.

Figure 8.1 Container Configuration Utility Screen



Procedure to Connect to the DataReader:

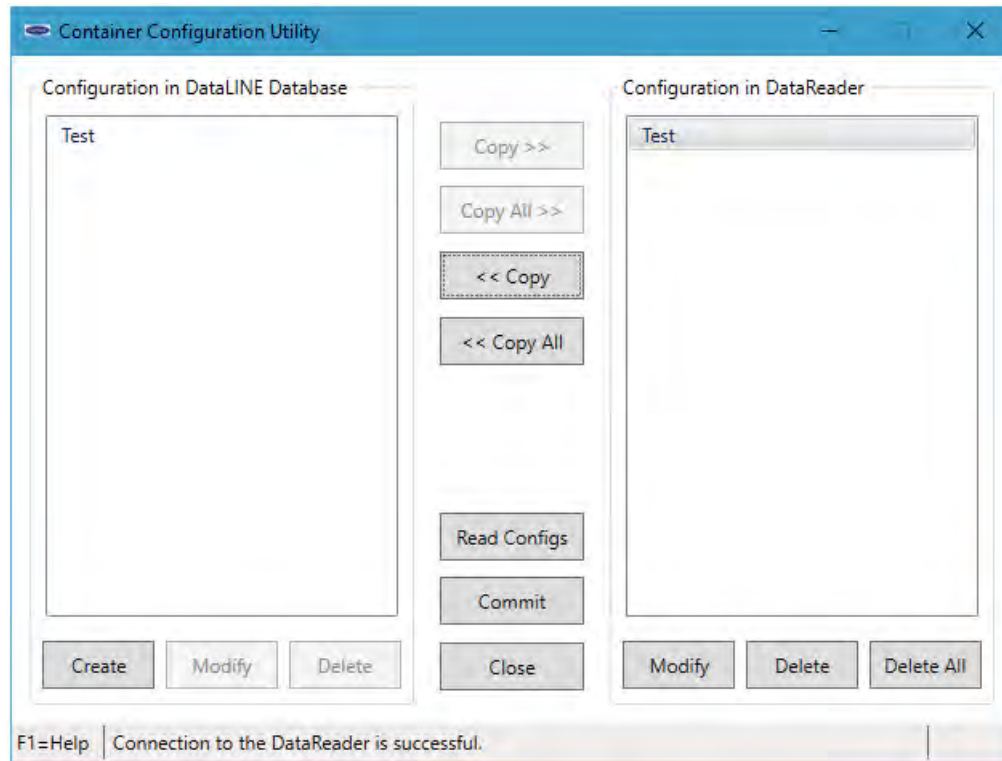
1. Connect the DataReader to the PC using Upload Cable P/N 22-01743-00.
2. Turn the DataReader "ON", and use the down arrow to scroll to "Transfer Data".
3. Press the "Enter" button on the DataReader.
4. In the "Container Configuration Utility" screen, click on the "Read Config" button to connect to the DataReader. The status of the connection can be determined as follows:

If the connection to the DataReader is successful, the configurations are displayed in the list box in the "Configurations in DataReader" Group Box.

If the connection to the DataReader is not successful, the user is notified with a message to check the connections between the PC and DataReader or check that the DataReader is in transfer mode.

The DataReader Connection screen (**Figure 8.2**) is displayed upon successful connection with the DataReader.

Figure 8.2 DataReader Connection



Copy Configurations from the PC to the DataReader:

1. Select one or more configurations from the list box by highlighting the name of configuration in the “Configurations in PC Database” Group Box.
2. Click on the “Copy >>” button.

Copy Configurations from the DataReader to the PC:

1. Select one or more configurations from the list box by highlighting the name of configuration in the “Configurations in DataReader” Group Box.
2. Click on the “<< Copy” button.

Copy all Configurations from the PC to the DataReader:

1. Click on the “Copy All >>” button.

Copy all Configurations from the DataReader to PC:

1. Click on the “<< Copy All” button.

Delete Configurations from the PC or the DataReader:

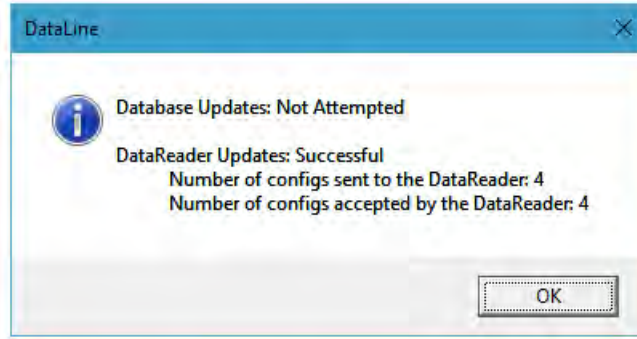
1. Select one or more configurations from the list box by highlighting the name of the configuration.
2. Click on the “Delete” button in the corresponding Group Box.
3. To delete all configurations in the DataReader, click on the “Delete All” button in the “Configurations in DataReader” Group Box.

Save Changes to the PC Database and the DataReader:

1. Click on the “Commit” button.
2. After the commit process completes successfully, the following details are displayed:
 - Database Updates - Status of the database updates as Success or Failure or Not Attempted.
 - DataReader Updates - Status of the DataReader updates as Success or Failure or Not Attempted.
 - Number of Configs Sent - Number of list box configurations in the “Configurations in DataReader” Group Box.
 - Number of Configs Accepted - Number of configurations successfully sent to the DataReader.

The Commit Process Completed screen is displayed ([Figure 8.3](#)) upon completion of the commit process.

Figure 8.3 Commit Process Completed



8.3 DataSet Editor Screen

This section describes the features available on the DataSet Editor screen. DataLINE provides an interface to create configurations in the PC database through the DataSet Editor screen. The utility also provides the capability to modify container configurations stored in the DataReader and the PC.

Create a New Configuration in the PC Database:

1. Click on the "Create" button in the "Configurations in PC Database" Group Box.

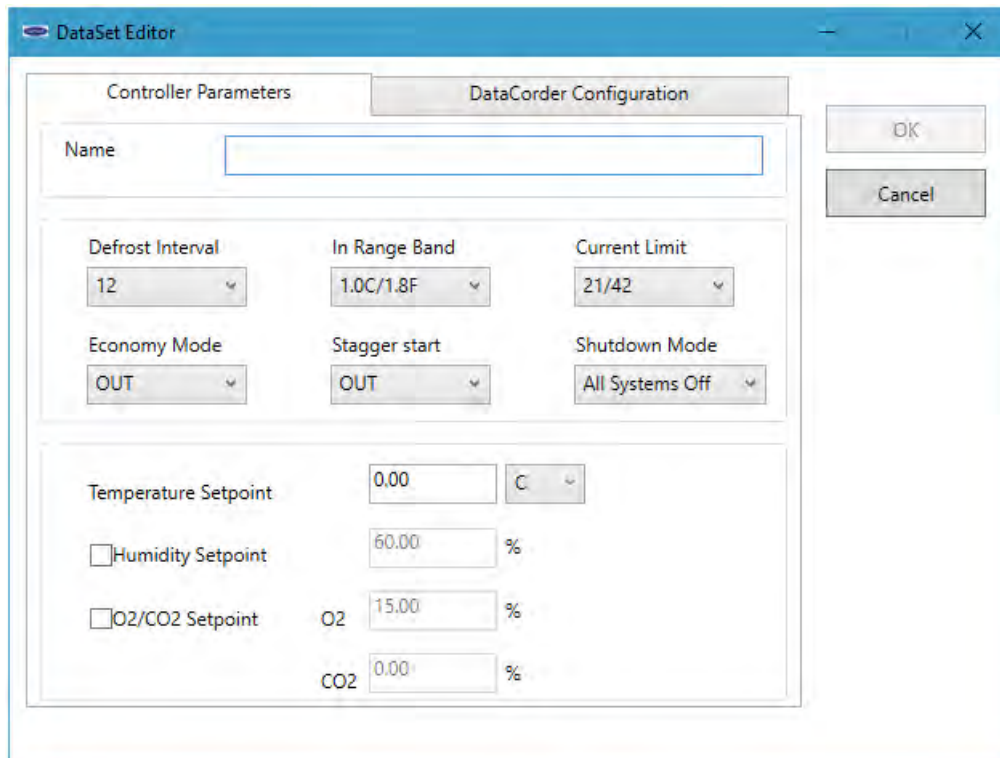
For a new configuration, all the values in the fields are set to the default settings. The user has the ability to change these default values.

Modify an Existing Configuration:

1. Select the configuration from the list box in either the PC Database or the DataReader.
2. Click on the "Modify" button. The configuration name is displayed in the "Name" field.

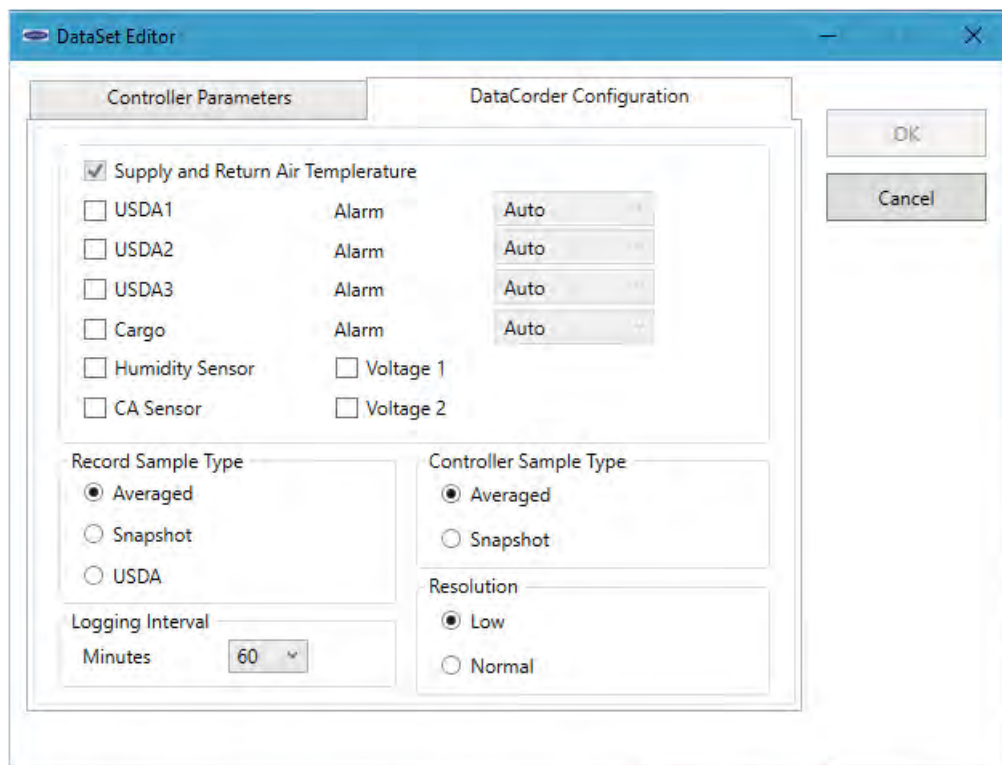
The DataSet Editor screen ([Figure 8.4](#)) is displayed when the user clicks on the "Create" or "Modify" button. Two tabs are displayed when the screen opens: one for Controller Parameters and one for DataCorder Configuration. Click the "Cancel" button to cancel the create/modify operation.

Figure 8.4 DataSet Editor



To change DataCorder Configuration values click on the “DataCorder Configuration” tab on the DataSet Editor screen. The DataSet Editor screen (Figure 8.5) for DataCorder Configuration is displayed.

Figure 8.5 DataCorder Configuration Screen



SECTION 9

SYSTEM TOOLS SCREEN

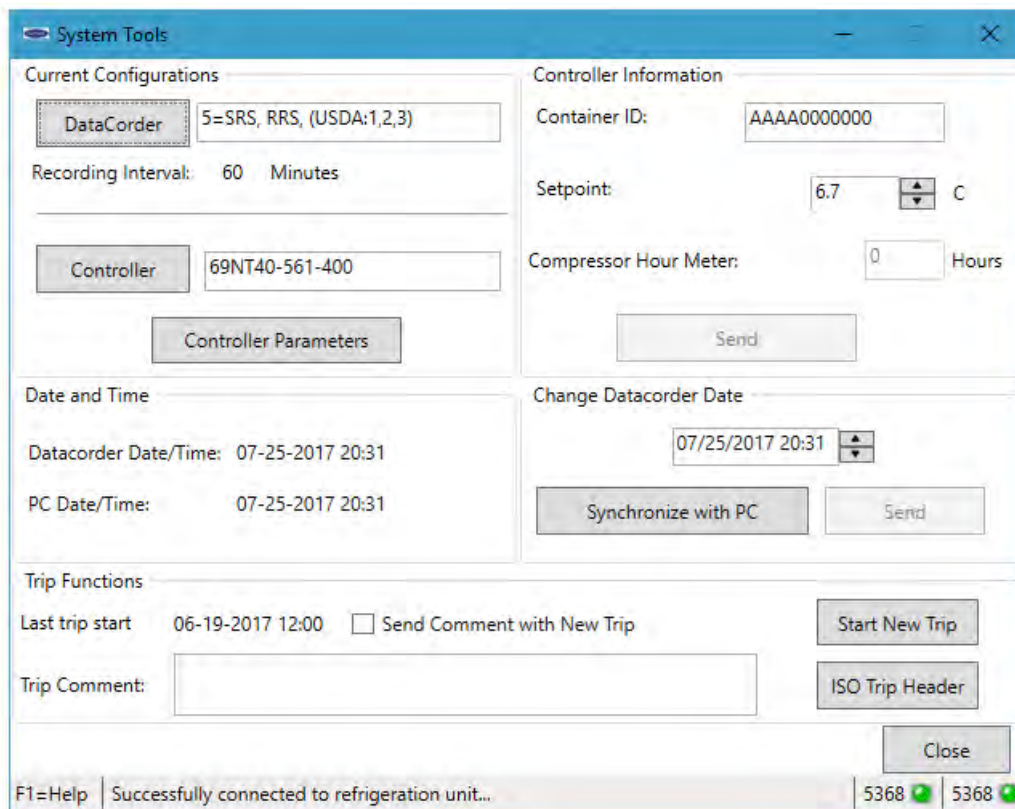
9.1 Introduction

This section describes the features available on the System Tools screen. DataLINE provides an interface to modify controller information, update the DataCorder clock and start a new trip through the System Tools utility.

9.2 System Tools

The System Tools screen (**Figure 9.1**) is displayed when the user clicks on the System Tools button in the Container Group Box on the Launch Pad.

Figure 9.1 System Tools Screen



The DataLINE application refreshes the screen in one of the two following ways:

- **AutoRefresh** - Every 60 seconds the System Tools screen automatically updates the DataCorder and PC Date/Time in the “Date and Time” Group Box and Last Trip Start in the “Trip Functions” Group Box.
- **F9** - Provides a shortcut for manually triggering the refresh operation. If the user tries to refresh the screen without sending the changes made on the screen to the refrigeration unit, an alert message is displayed.

In order to view/modify the DataCorder and Controller settings and their configurations, the user must ensure that a successful connection is established with the DataCorder and Controller.

The connection status can be determined as follows:

- If a connection is established with both the Controller and DataCorder, data is displayed in all Group Boxes.
- If the configuration on the DataCorder is custom, the DataCorder Configuration in the “Current Configuration” Group Box will be displayed as “Custom”.
- If the configuration on the Controller is custom, the Controller Configuration in the “Current Configuration” Group Box will be displayed as “Custom”.

If a connection is not established with the DataCorder, the following conditions exist:

- The DataCorder Configuration in the “Current Configuration” Group Box will be displayed as “Custom”.
- The “DataCorder Date/Time” field in the “Date and Time” Group Box and “Last Trip Date” field in the “Trip Functions” Group Box will be displayed as “X's.”
- The DataCorder date/time will not be able to be changed.
- The “Last Trip Date” field in the “Trip Functions” Group Box will be displayed as “X's.” The user will be unable to start a new trip.

If a connection is not established with the Controller, the following conditions exist:

- The Controller Configuration in the “Current Configuration” Group Box will be displayed as “Custom”.
- All fields data in the “Controller Information” Group Box will be displayed as “X's” and the user will be unable to send the changes to the Controller.

If at any time during the display of the System Tools screen the connection is not established or is lost, the user is alerted to the status of the connection.

9.2.1 Features Available on the System Tools Screen

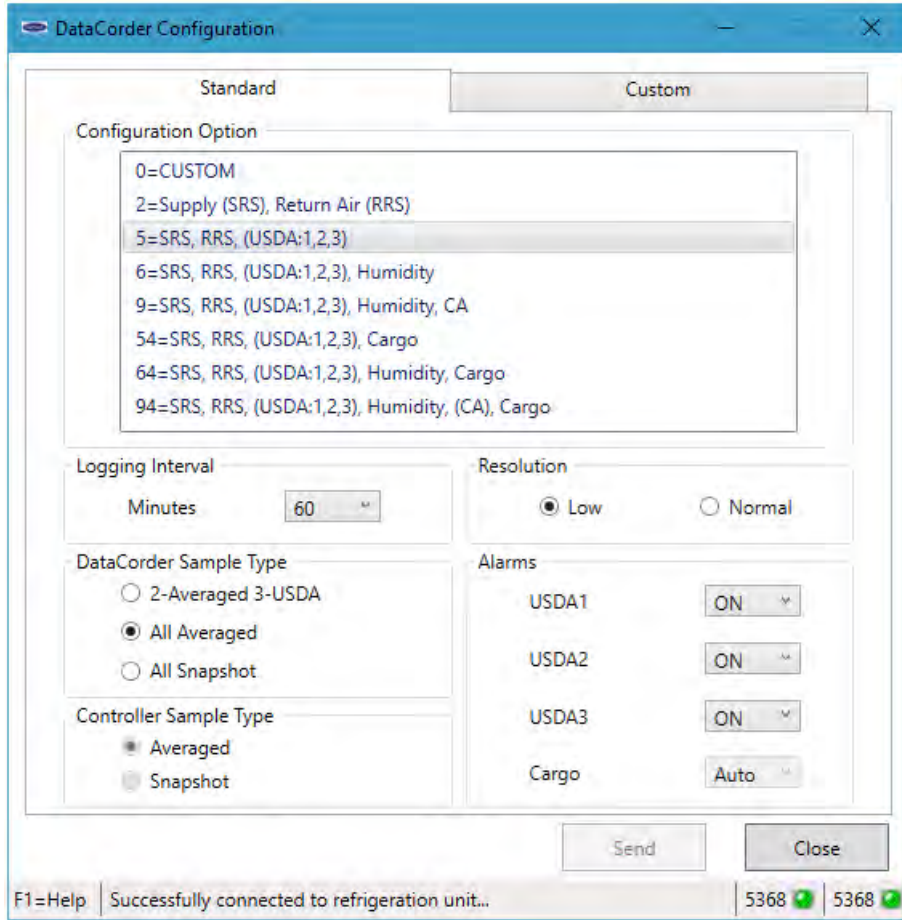
- Modify Controller Information:
 1. Modify at-least one the fields in the “Controller Information” Group Box.
 2. Click on the “Send” button.
- Modify DataCorder Date and Time:
 1. Modify the field in the “Change DataCorder Date” Group Box.
 2. Click on the “Send” button.
- Synchronize DataCorder Clock with PC Clock:
 1. Click on the “Synchronize with PC” button.
- Start a New Trip on the DataCorder:
 1. Enter the USDA comments if needed.
 2. Click the “Start New Trip” button.

9.3 DataCorder Configuration Screen

This section describes the features available on the DataCorder Configuration screen. DataLINE provides an interface to view/modify current settings of the DataCorder configuration through the DataCorder Configuration screen.

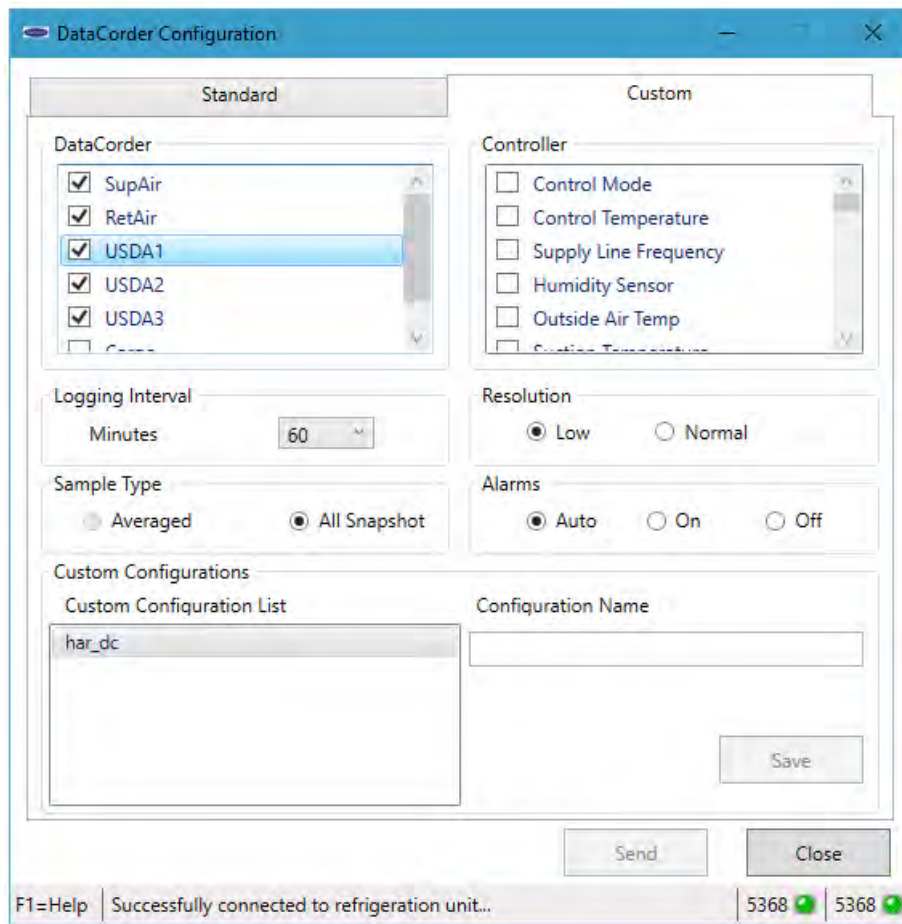
The DataCorder Configuration screen (Figure 9.2) is displayed when the user clicks on the “DataCorder” button in the “Current Configurations” Group Box on the System Tools screen. Two tabs, one for Standard and one for Custom (Figure 9.3) configuration are displayed when the screen opens.

Figure 9.2 DataCorder Configuration Screen



To change custom configuration settings click on the “Custom” tab on the DataCorder Configuration screen. The DataCorder Configuration screen (**Figure 9.3**) for Custom configuration is displayed.

Figure 9.3 DataCorder Custom Configuration



- **F9** - Provides the user with a shortcut for manually triggering the refresh operation.

Before sending the new configuration, a successful connection must be established with the DataCorder.

- If the connection is established with the DataCorder, the current configuration on the DataCorder and its corresponding values are displayed in each field.
- If the connection is not established with the DataCorder, the default configuration and its corresponding values are displayed on the screen. The user does not have the capability to send the configuration to the DataCorder.

If at any time during the display of the DataCorder Configuration screen the connection is not established or is lost, the user is alerted to the status of the connection.

9.3.1 Features Available on the DataCorder Configuration Screen

- Modify the settings of the standard configuration
- Create a new custom configuration
- Modify the settings of the existing custom configuration
- Send a new configuration to the DataCorder:
 1. The user must either modify the settings of the standard configuration, create a new custom configuration or modify the settings of the existing custom configuration.
 2. Click on the “Send” button.
- Save a configuration to the PC:
 1. The user either must modify the settings of the standard configuration, create a new custom configuration or modify the settings of the existing custom configuration.
 2. Click on the “Save” button.

NOTE

The user does not have the capability to save the OEM and CRO defined DataCorder configurations.

If the user tries to refresh the screen, select another configuration or close the utility without sending the changes made on the screen to the DataCorder or saving the changes, the user is alerted with a message.

9.4 Controller Configuration Screen

This section describes the features available on the Controller Configuration screen. DataLINE provides an interface to view/modify current settings of the Controller configuration through the Controller Configuration screen (Figure 9.4). Click on the “Controller” button in the “Current Configurations” Group Box on the System Tools screen. There must be an established connection to the controller to ensure the correct configuration can be viewed. Display defaults to ML2i (69NT40-489 and 511) configurations if not connected.

Figure 9.4 Controller Configuration Screen

The screenshot shows the 'Controller Configuration' window with three main sections: 'Current Configuration', 'Selectable Variables', and 'Fixed Variables'. The 'Current Configuration' section shows '69NT40-561-400' as the selected configuration. The 'Selectable Variables' section lists various settings like 'Dehumidification' (ON), 'Discharge Pressure' (IN), and 'Economy Mode' (OFF). The 'Fixed Variables' section lists settings like 'Bypass Valve' (IN), 'Evaporator Fan' (DUAL), and 'Refrigerant' (134a). At the bottom, there is a 'Save Option' field with '69NT40-561-400' and buttons for 'Save', 'Send', and 'Close'. A status bar at the bottom indicates 'F1=Help' and 'Successfully connected to refrigeration unit...' with two green status indicators showing '5368'.

Current Configuration:	Selectable Variables:	Fixed Variables:																																																												
69NT40-561-400	<table border="1"><thead><tr><th>Variable</th><th>Value</th></tr></thead><tbody><tr><td>Dehumidification</td><td>ON</td></tr><tr><td>Discharge Pressure</td><td>IN</td></tr><tr><td>Suction Press sensor</td><td>IN</td></tr><tr><td>Economy Mode</td><td>OFF</td></tr><tr><td>Defrost Interval Save</td><td>NO SAVE</td></tr><tr><td>Advanced Pretrip</td><td>AUTO 2</td></tr><tr><td>PreTrip Results</td><td>DATA</td></tr><tr><td>Suction Temp Sensor</td><td>IN</td></tr><tr><td>Bulb Mode</td><td>NORMAL</td></tr><tr><td>Arctic Mode</td><td>OUT</td></tr><tr><td>Probe Check Logic</td><td>STD</td></tr><tr><td>Snap Freeze</td><td>NO SNAF</td></tr><tr><td>Temperature Unit Display</td><td>BOTH AV</td></tr></tbody></table>	Variable	Value	Dehumidification	ON	Discharge Pressure	IN	Suction Press sensor	IN	Economy Mode	OFF	Defrost Interval Save	NO SAVE	Advanced Pretrip	AUTO 2	PreTrip Results	DATA	Suction Temp Sensor	IN	Bulb Mode	NORMAL	Arctic Mode	OUT	Probe Check Logic	STD	Snap Freeze	NO SNAF	Temperature Unit Display	BOTH AV	<table border="1"><thead><tr><th>Variable</th><th>Value</th></tr></thead><tbody><tr><td>Bypass Valve</td><td>IN</td></tr><tr><td>Evaporator Fan</td><td>DUAL</td></tr><tr><td>Number of Probes</td><td>FOUR</td></tr><tr><td>Probe Calibration</td><td>OFF</td></tr><tr><td>Condenser Fan</td><td>Dual Speed</td></tr><tr><td>Unit Size</td><td>40 FOOT</td></tr><tr><td>Motor Phases</td><td>3 PHASE</td></tr><tr><td>Refrigerant</td><td>134a</td></tr><tr><td>Compressor Speed</td><td>SINGLE</td></tr><tr><td>Defrost 'Off' Selection</td><td>NO OFF</td></tr><tr><td>Quench Valve</td><td>SOLENOID</td></tr><tr><td>Unloader</td><td>IN</td></tr><tr><td>CPC Logic</td><td>OUT</td></tr><tr><td>Discharge Temperature</td><td>IN</td></tr><tr><td>DataCorder</td><td>ON</td></tr></tbody></table>	Variable	Value	Bypass Valve	IN	Evaporator Fan	DUAL	Number of Probes	FOUR	Probe Calibration	OFF	Condenser Fan	Dual Speed	Unit Size	40 FOOT	Motor Phases	3 PHASE	Refrigerant	134a	Compressor Speed	SINGLE	Defrost 'Off' Selection	NO OFF	Quench Valve	SOLENOID	Unloader	IN	CPC Logic	OUT	Discharge Temperature	IN	DataCorder	ON
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Discharge Temperature	IN																																																													
DataCorder	ON																																																													

- **F9** - Provides the user with a shortcut for manually triggering the refresh operation.

Before sending a new configuration, a successful connection must be established with the Controller.

- If the connection is established with the Controller, the current configuration on the Controller and its corresponding values are displayed in each field.
- If the configuration on the Controller is custom, the Controller Configuration in the “Current Configuration” Group Box will be displayed as “Custom”.

If the connection is not established with the Controller:

- The Controller Configuration in the “Current Configuration” Group Box will be displayed as “Custom”.
- The default configuration values will be displayed in each field.
- The capability to send the configuration to the Controller will be disabled.

If at any time during the display of the Controller Configuration screen the connection is not established or is lost, the user is alerted to the status of the connection.

9.4.1 Features Available on the Controller Configuration Screen

- Modify the pre-existing Controller Configuration
- Send a configuration to the Controller:
 1. The user must either select a new configuration from the “Available Configurations” list box or modify the pre-existing configuration.
 2. Click on the “Send” button. If the configuration sent was standard, the associated DataCorder configuration will be sent to the DataCorder, if available.
- Save a configuration to the PC:
 1. The user must modify either the value of at-least one selectable variable or the name of the existing configuration as shown in the “Save Option” Group Box.
 2. Click on the “Save” button.

NOTE

The user does not have the capability to save the CRO defined Controller configuration.

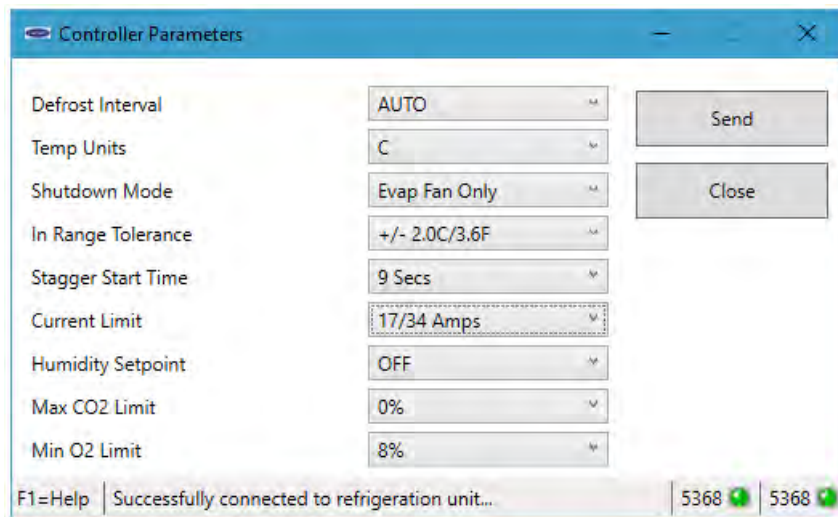
If the user tries to refresh the screen, select another configuration, or close the utility without sending the changes made on the screen to the Controller or saving the changes, the user is alerted with a message.

9.5 Controller Parameters Screen

This section describes the features available on the Controller Parameters screen. DataLINE provides an interface to view/modify current settings of the Controller parameters through the Controller Parameters screen.

The Controller Parameters screen ([Figure 9.5](#)) is displayed when the user clicks on the “Controller Parameters” button in the “Current Configurations” Group Box on the System Tools screen.

Figure 9.5 Controller Parameters



- **F9** - Provides the user with a shortcut for manually triggering the refresh operation.

Before sending modified parameter values, a successful connection must be established with the Controller.

- If the connection is established with the Controller, the current parameter values of the Controller are displayed in each field.
- If the connection is not established with the Controller, the default values for each parameter are displayed. The user does not have the capability to send the modified values to the Controller.

If at any time during the display of the Controller Parameters screen the connection is not established or is lost, the user is alerted to the status of the connection.

After modifying the parameter values and ensuring a successful connection has been made with the Controller, click on the “Send” button to send the modified parameter values.

If the user tries to refresh the screen or close the utility without sending the changes made on the screen to the Controller, the user is alerted with a message.

9.6 ISO Trip Header Screen

This section describes the features available on the ISO Trip Header screen. DataLINE provides an interface to view/modify current settings of the ISO trip header through the ISO Trip Header screen.

The following ISO Trip Header screen (Figure 9.6) is displayed when the user clicks on the “ISO Trip Header” button in the “Trip Functions” Group Box on the System Tools screen.

Figure 9.6 ISO Trip Header

The screenshot shows a software window titled "ISO Trip Header Update". It features a "Trip Header Information" section with 14 input fields arranged in two columns: Container ID, Operator ID, Vessel Voyage, Date, Origin, Time, Shipper, Product, Temperature Setpoint, Intermediate Destination, Air Exchange Setpoint, Final Destination, Humidity Setpoint, and Booking. Below this is a "Header Comment Information" section with a single text input field. At the bottom right are "Send" and "Close" buttons. The status bar at the bottom displays "F1=Help", "Successfully connected to refrigeration unit...", and two green status indicators with the number 5368.

- **F9** - Provides the user with a shortcut for manually triggering the refresh operation.

Before sending modified parameter values, the user must ensure that a successful connection is established with the Controller.

- If the connection is established with the DataCorder, the current contents of the ISO Trip Header from the DataCorder will be displayed in each field.
- If the connection is not established with the DataCorder, all fields on the screen will be displayed as “X’s”.

If at any time during the display of the ISO Trip Header screen the connection is not established or is lost, the user is alerted to the status of the connection.

After modifying the values and ensuring a successful connection has been made with the DataCorder, click on the “Send” button to send the modified parameter values.

The maximum allowed length of the ISO Trip Header is 128 alphanumeric characters.

If the user tries to refresh the screen or close the utility without sending the changes made on the screen to the DataCorder, the user is alerted with a message.

SECTION 10

PROBE AND SENSOR CALIBRATION SCREEN

10.1 Introduction

This section describes the features available on the Calibration screens when using the Probe Calibration utility. Through the use of these screens, DataLINE provides an interface to perform temperature sensor calibration.

There are two versions of the probe calibration utility:

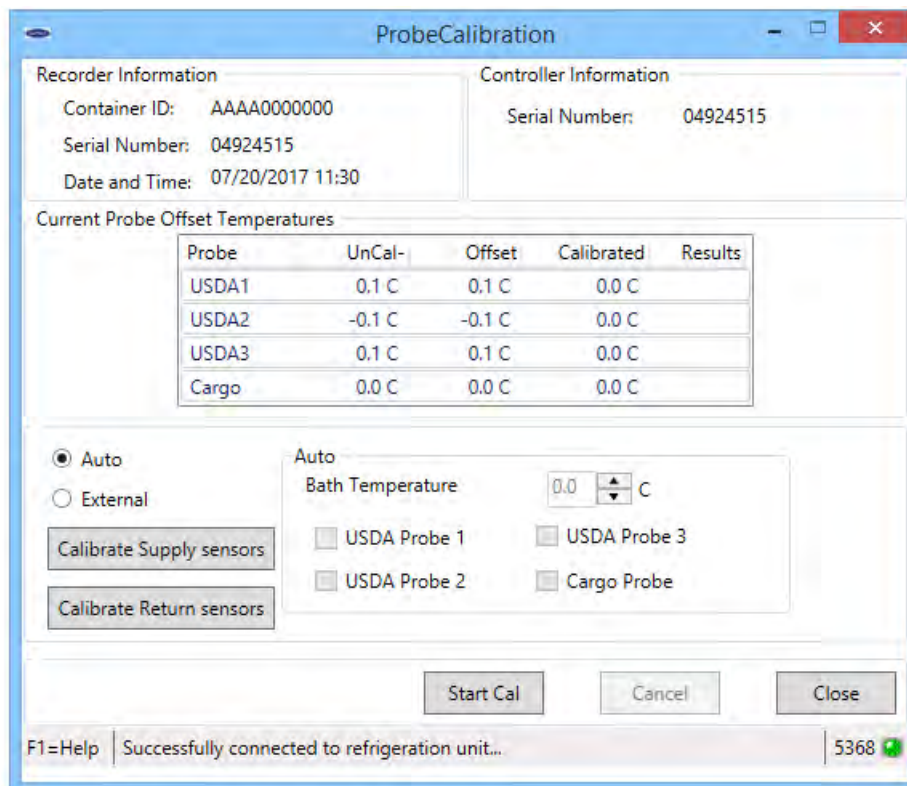
1. Units with ML3 controllers loaded with SWR53xx series controller software SWR5368 or greater:
 - Calibration of USDA sensors, supply and return sensors, control and recording sensors.
2. Units with ML3 controllers loaded with SWR51xx series, SWR53xx below 5368, SWR57xx series and all ML2i controllers:
 - Calibration of USDA sensors.

The screens and procedures change depending on the controller version installed.

10.2 Units with ML3 controllers loaded with SWR53xx series controller software from SWR5368

The Probe Calibration screen ([Figure 10.1](#)) will be displayed when the user clicks on the Probe Calibration button on the DataLINE Launch Pad or the Auto option button. From this screen the user can perform USDA/Cargo probe calibration using either the Auto or external methodology. In addition, there is the option to calibrate Supply Air and Return Air Temperature sensors.

Figure 10.1 Probe Calibration



When DataLINE has established a connection with a container unit, each calibration screen displays the following information:

- DataCorder (Recorder) information
- Controller information
- Temperature probe/sensor information
- Controls related to the selected calibration option

- Controller software version

The connection status with the container unit is also reported at the bottom of the screen. If DataLINE is not able to communicate with the refrigeration unit, X's will be presented in the data fields.

DataLINE refreshes the calibration screens in two ways:

- **AutoRefresh** - Every 15 seconds the probe calibration screen automatically updates all data in the “Recorder Information”, and “Controller Information” Group Boxes. It will also update sensor information in the “Current Probe Offset Temperatures” group box. However, the information in the Results column will only be updated when calibration is in progress and when complete.
- **F9** - Provides a shortcut for manually triggering the refresh operation.

10.2.1 USDA Probe Calibration

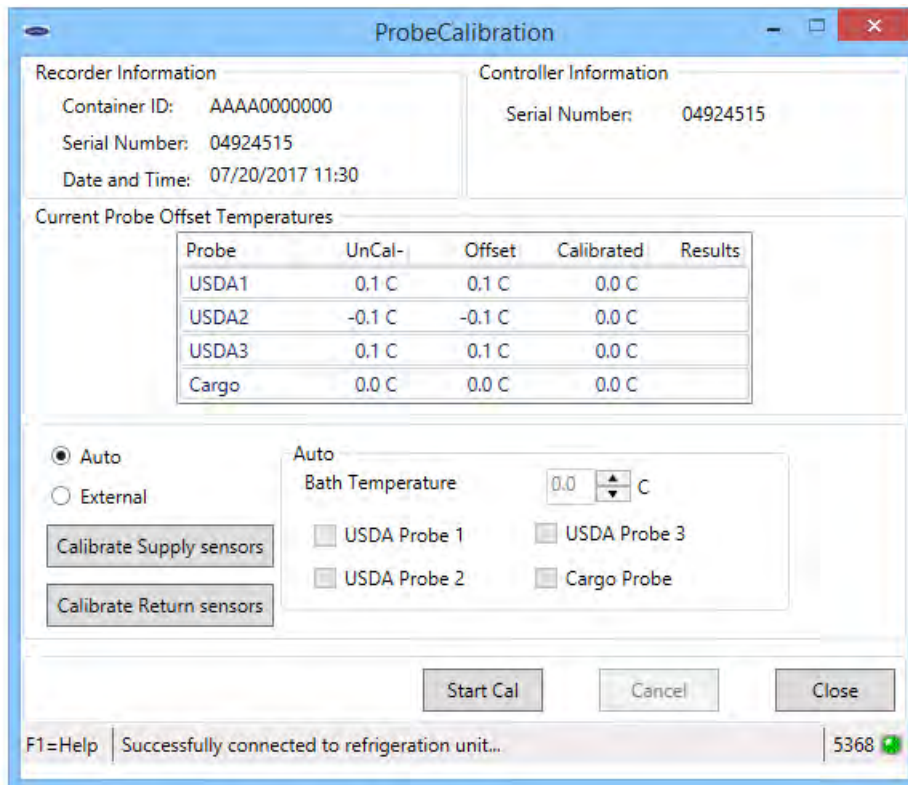
The following procedure is used to perform USDA and Cargo Probe calibration. The user can choose to use either of the two options that are available:

- **Auto** - The MicroLink controller in the container unit calculates the offsets for all probes using an assumed ice-bath temperature of 0.0°C (32°F). The user cannot select probes or change the ice bath temperature value. Once initiated, calibration is performed when the probes are determined to be stable by the controller.
- **External** - The user explicitly specifies the offset to be used for each probe that is to be calibrated. Offset values between -0.3°C and +0.3°C (-0.5°F and +0.5°F) can be entered.

Auto Calibration

By default, the Auto Calibration screen (**Figure 10.2**) is displayed. It can also be displayed by choosing the Auto option button if it is not selected. Prior to displaying this screen, the user is reminded to verify the ice bath to be used is at 0°C (32°F).

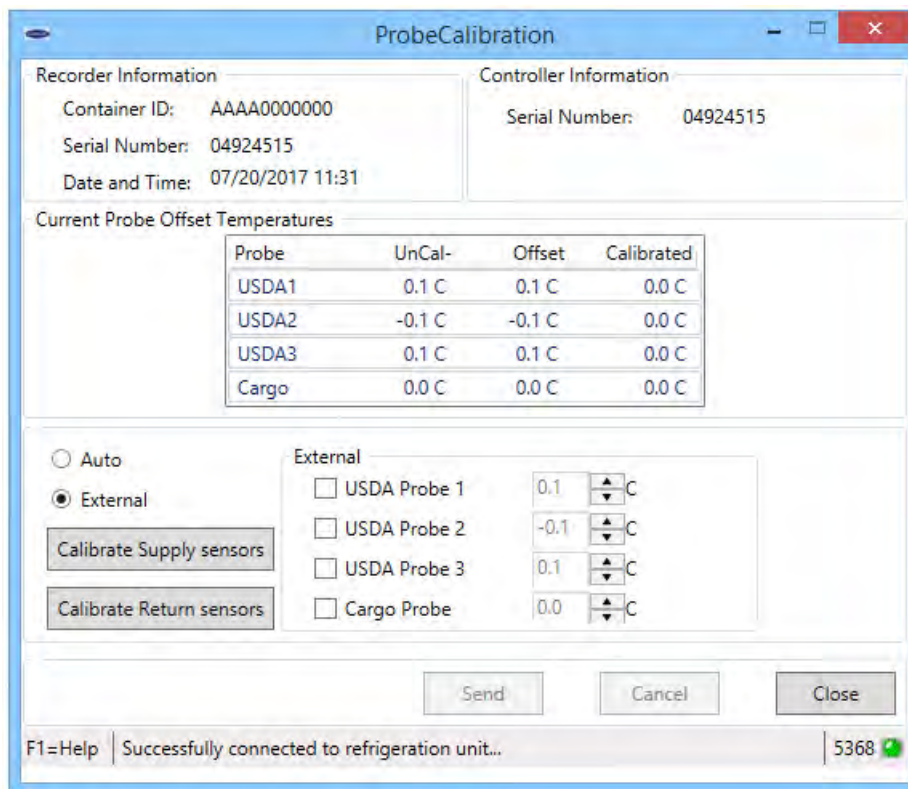
Figure 10.2 Auto Calibration



Procedure:

1. Prepare proper ice bath and ensure that it has stabilized at 0°C (32°F). See [Ice Bath Preparation Procedure and Equipment](#).
2. Place all USDA probes to be calibrated in the ice bath and observe readings on the screen.
3. Once probe readings have reached equilibrium and ice bath is 0°C (32°F), press the “Start Cal” button.
4. During the 5 minute period that calibration is attempted, confirm that the ice bath remains at 0°C (32°F). If the ice bath temperature changes, press “Cancel” to stop calibration.
5. Probes are calibrated individually once they are determined to be stable.
6. The calibration process is complete once all probes have been calibrated or the end of the 5 minute period is reached. Results are reported on the screen for each probe as follows:
 - **Passed** - probe remained stable, offset within $\pm 0.3^{\circ}\text{C}$ ($\pm 0.5^{\circ}\text{F}$) has been calculated. (Offset saved)
 - **Failed** - invalid probe, probe not stable, calculated offset outside of $\pm 0.3^{\circ}\text{C}$ ($\pm 0.5^{\circ}\text{F}$). Offset set to 0.0°C (0.0°F)
 - **No Cal** - calibration was canceled before probe was calibrated. (Offset set to 0.0°C (0.0°F))
7. “Start Cal” ([Figure 10.3](#)) can be pressed to perform calibration again. If calibration is successful, press “Close” to exit Probe Calibration.

Figure 10.3 USDA/Cargo Probe Calibration (Auto) During Calibration



External Calibration

The Probe Calibration screen (Figure 10.4) is displayed when the user clicks on the External option button on the Probe Calibration screen.

Figure 10.4 Probe Calibration Screen

Probe	UnCal-	Offset	Calibrated
USDA1	0.1 C	0.1 C	0.0 C
USDA2	-0.1 C	-0.1 C	0.0 C
USDA3	0.1 C	0.1 C	0.0 C
Cargo	0.0 C	0.0 C	0.0 C

Procedure:

1. Check the box in front of the first probe needing calibration to activate the offset entry box.
2. Use the arrows or type an offset value into the entry box to use for the probe. (up to $\pm 0.3^{\circ}\text{C}$ ($\pm 0.5^{\circ}\text{F}$))
3. Repeat steps 1 and 2 for each probe being calibrated.
4. Press the “Send” button to calibrate the sensors using the offsets that were entered.
5. Press the “Close” button to exit Probe Calibration.

10.2.2 Supply Air and Return Air Temperature Sensor Calibration (SWR 5368 and higher only)

Supply Air and Return Air Temperature sensors can be calibrated similar to USDA and Cargo probes. The screens used to perform this operation are accessed by pressing the “Calibrate Supply Sensors” or “Calibrate Return Sensors” buttons on the USDA/Cargo probe screens.

These instructions should be read through completely before proceeding.

WARNING

Before proceeding with dismantling of Supply and Return air sensors, set ON/OFF switch and circuit breaker to OFF position. Disconnect power plug from the unit. Follow proper lockout/tag out procedures to ensure the power cannot inadvertently be energized. It is important that all dismantling work is done and tools and personnel are away from the unit before powering on the unit for calibration.

When performing the return air sensor calibration, disconnect both evaporator motors.

NOTE

Before proceeding with the calibration procedure, ensure that the controller software is 5368 or higher and DataLINE 3.1 or higher is installed onto the download device. Only the latest DataLINE and Controller software will allow users to carry out Good Distribution Practice (GDP) Calibration. Do not downgrade the software after installing the latest software. Read appendix A for the Ice bath preparation procedure before beginning the calibration process. It is also recommended this procedure be done before the full pre-trip inspection.

Before proceeding with the calibration procedure, it is recommended to check the sensors by running pretrip P5-0. This test checks the sensor values. If the test fails identify and correct the faulty sensor and rerun the test

Supply Air Sensors Calibration

1. Locate the sensor cover assembly on the suction side of the compressor. Remove the two fasteners securing the cover of the sensors, remove the cover and rotate supply air sensors (STS/SRS) in a clockwise direction. Remove the sensors from the sensor housing (Figure 10.5).

Figure 10.5 Supply Air Sensor Removal



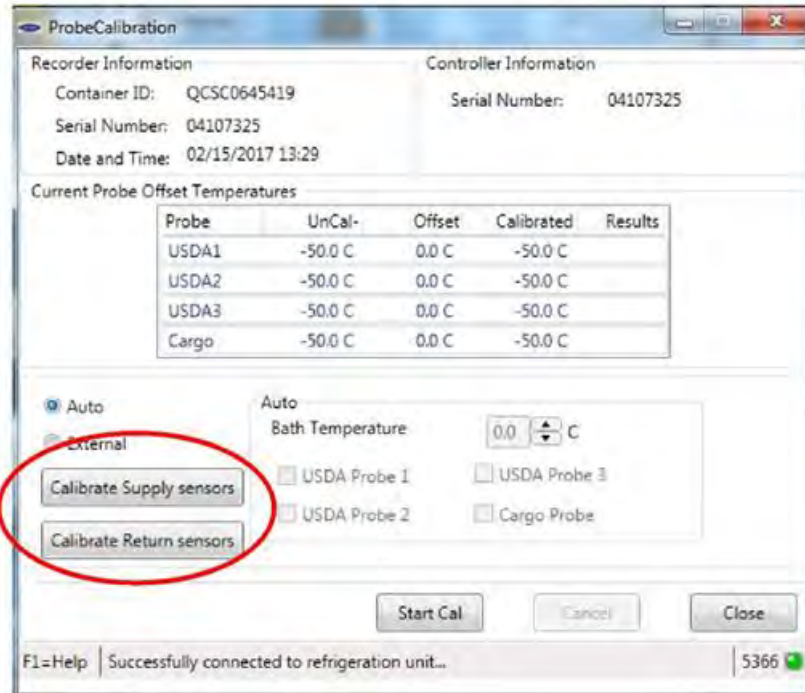
2. Connect the interrogator cable to the interrogator port, then power on the unit.

NOTE

Before powering on the unit, it is important to ensure that all dismantling work is done and tools are away and service personnel are not working on the unit at the time of power on.

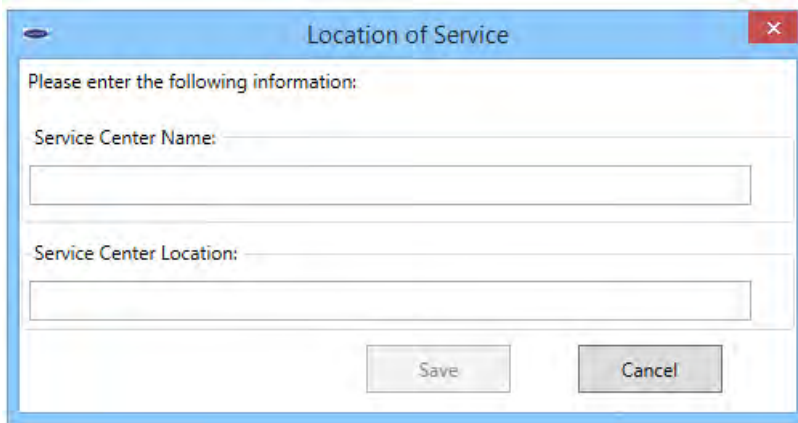
3. On the Probe Calibration screen (Figure 10.6) select which pair of sensors you will be calibrating.

Figure 10.6 Sensor Selection from Probe Calibration Screen



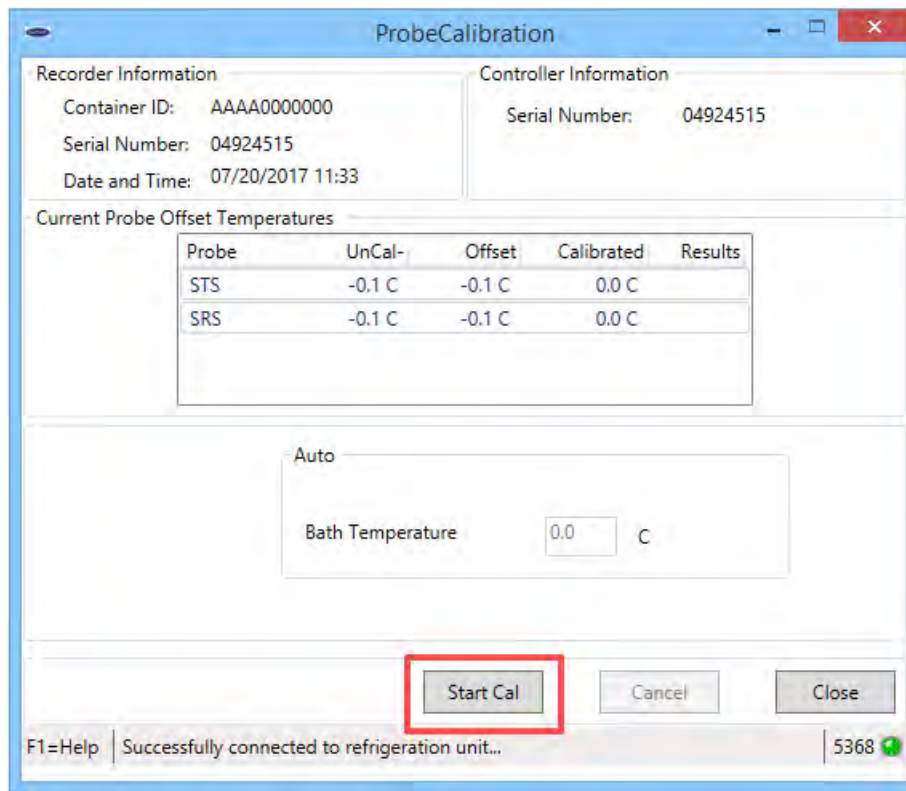
4. A Location of Service pop-up window (Figure 10.7) will appear. Enter the Service Center name and the Location of the service center where the calibration is completed. Click save and a pop-up window reminding user of ice bath temperature will appear click OK to acknowledge and remember to maintain the Ice bath at 0° C (32°F)

Figure 10.7 Location of Service



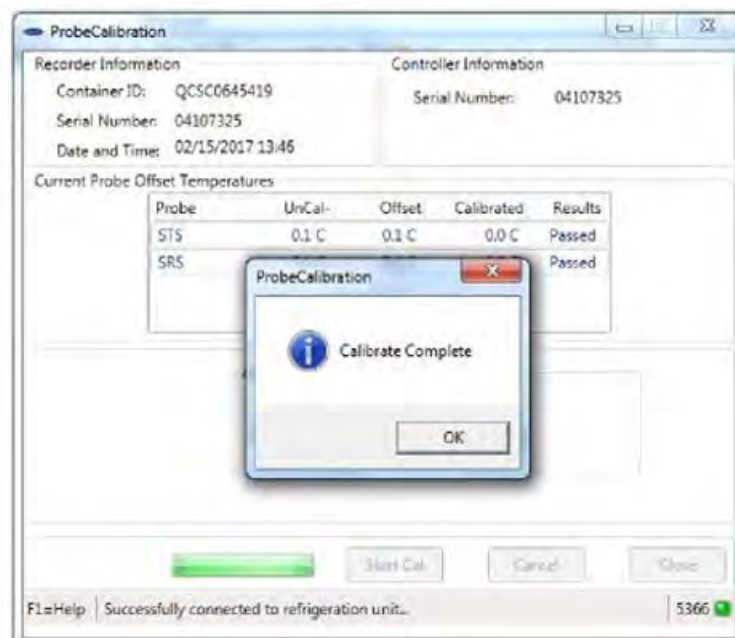
5. Prepare the ice bath. Refer to the Ice Bath Preparation procedure below.
6. Once temperature stability is ensured submerge the sensors in the ice water slurry without touching the container sides, bottom or each other. Continuously stir the slurry mixture during calibration.
7. Before clicking the Start Cal button, ensure that the Ice bath is at 0° C (32°F) using the calibrated reference thermometer. Click on the start Cal button **only after the sensor readings have stabilized and the sensors are within +/- 0.3° C (0.5°F)**. The readings can be taken at the UnCal column circled below.

Figure 10.8 Start Cal



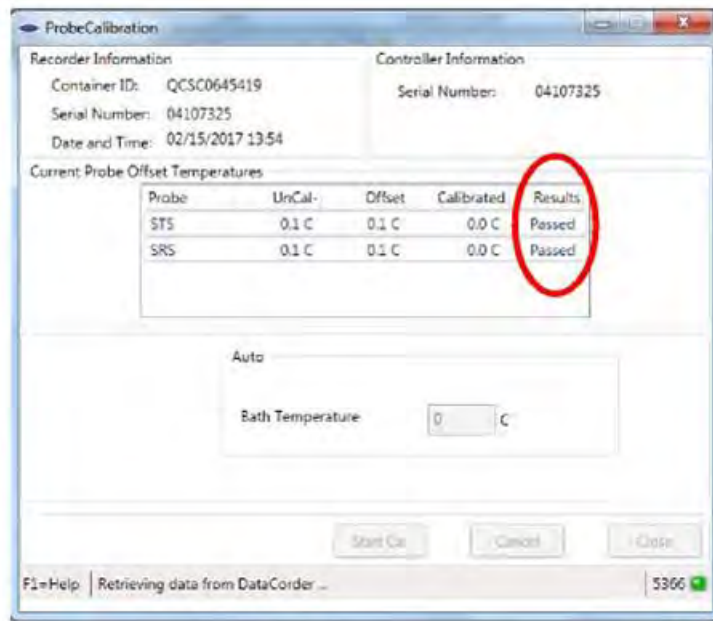
8. After clicking Start Cal (Figure 10.8), the process will proceed automatically taking a maximum of 5 minutes.
9. Continue to stir the ice bath during the testing.
10. Calibration will fail if the stability cannot be achieved or the sensor offset is greater than 0.3°C (0.5°F). Replace sensor and repeat recalibration.
11. Once the calibration has completed, a “Calibrate Complete” pop-up message will appear (Figure 10.9).

Figure 10.9 Calibrate Complete



12. Acknowledge the pop-up. The results will then be displayed on the Probe Calibration screen (Figure 10.10).

Figure 10.10 Calibration Results



13. After completing the calibration event, download a DCX file and check if all the information is captured (see Figure 10.11). The service center name and location, the results of the calibration and the offset applied will be captured in the DCX file. Ensure that all the information is captured and the event is considered a success when all the intended sensors in calibration have passed.

Figure 10.11 Event File

```
11:09 Calibration Performed:  
Service Centre: CTPL Lab  
Location: Singapore  
11:10 Supply Air Temperature Probe Calibration:  
Primary Supply Temp - -0.2 Pass  
Secondary Supply Temp - -0.3 Pass
```

14. After the completion of the calibration, restore the unit to its original state. It is recommended that calibration is done before the Auto PTI procedure.

Return Air Sensors Calibration

The return air sensor calibration is similar to the supply air sensors calibration.

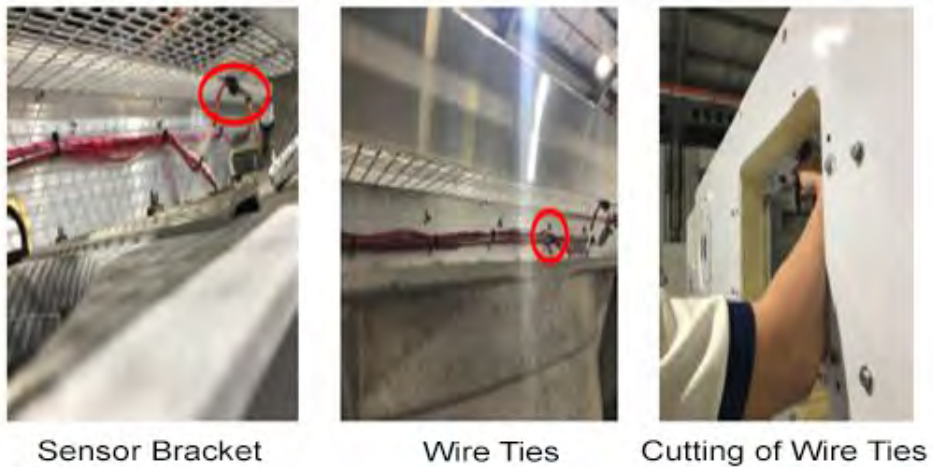
1. Remove both front access panels from the unit by removing 8 fasteners from each panel (see Figure 10.12). Save all hardware for re-installation. On the right side, disconnect the fan motor wiring, loosen the fastener and remove (slide) the evaporator motor from the unit. (Circled).

Figure 10.12 Return Air Sensors



2. Loosen the fastener on the sensor bracket and cut all the wire ties that secure the sensor wiring to the unit (**Figure 10.13**).

Figure 10.13 Sensor Bracket



3. Put the ice bath on an elevated platform (i.e. step ladder) of appropriate height. Keep the ice bath level so that the sensor would not touch the side of the container (**Figure 10.14**).

Figure 10.14 Ice Bath Placement



4. Route the sensors to the ice bath and submerge them.
5. Perform steps 7 through 14 of the supply air sensor calibration procedure.

Ice Bath Preparation Procedure and Equipment

1. Wherever possible, use a thermometer that is regularly calibrated by an accredited test lab.
2. Always use a temperature measurement reference instrument which is of higher accuracy than the device checked, for instance, a thermometer with a rated accuracy of $\pm 0.2^{\circ}\text{C}$ should be used to check a device with a rated accuracy $\pm 0.3^{\circ}\text{C}$.
3. A thermally insulated container, tub open to atmosphere and large enough to contain crushed ice and water should be used. The tub should be large enough to contain the unit's sensor and the reference thermometer.
4. Enough distilled water should be available to make ice cubes and to set up a proper and stable ice-water triple-point mixture. Prepare ice using distilled water.
5. Pre-cool distilled water for testing.
6. Prepare a mixture of clean ice using distilled water in a clean insulated container. If possible, the person handling should be wearing latex gloves.
 - a. Crush or chip the ice to completely fill the container. The finer the ice particles, the more accurate the mixture.
 - b. Add enough pre-cooled distilled water to fill the container.
 - c. Stir the mixture for a minimum of 2 minutes to ensure water is completely cooled and good mixing has occurred.
 - d. General, the mixture should contain about 85% ice with the distilled water occupying the rest of the space.
 - e. Add more ice as the ice melts.
7. Stir the ice water slurry mixture to maintain a temperature 0°C (32°F).
8. Constantly monitor the temperature of the ice water slurry with your reference thermometer. Ensure that the temperature of the bath has stabilized. The criterion for stability generally is to take two readings at 1 minute intervals, and the two readings should give you 0°C (32°F).

Key Points to Note:

1. If the calibration process has failed, check the validity of the sensor by hand warming the sensors to see if there are changes in the readings on the DataLINE screen. The changes should be displayed on the DataLINE screen. If there is Uncal in the download, it means that the calibration process was not completed.
2. Ensure that the set-up (i.e. Ice bath, Sensors, reference thermometer) has reached a stable state before starting the process. Ensure that the set-up is clean and reference thermometer is regularly maintained and calibrated.
3. When undergoing the calibration process, ensure that the sensors do not contact the container and also do not contact each other.
4. Contact your instrument representative if the reference thermometer is not showing correct readings. Having an accurate reference thermometer is important for the process.
5. Calibration should be conducted in pairs. (STS/SRS, RTS/RRS). If the sensor is unable to fall within reading of $(\pm 0.3^{\circ}\text{C} / 0.5^{\circ}\text{F})$ after stabilizing, replace the sensor and recalibrate the sensors. Refer to the service manual for the sensor replacement procedure.
6. Ensure that DataLINE 3.1 is installed and controller software is at least to the level of 5368 before proceeding with the calibration.
7. Calibration process should be started only after temperature has stabilized for all sensors involved.
8. Record all steps and all appropriate paper work involved with the servicing procedure.

10.3 All other ML3 controllers loaded with SWR51xx series SWR53xx below 5368, SWR57xx series and all ML2i controllers

The Probe Calibration screens will be available when the user clicks on the Probe Calibration button on the DataLINE Launch Pad. From each of these screens, the user can perform USDA/Cargo probe calibration using the selected methodology. Unlike with newer 53xx series unit software, calibration for Supply Air and Return Air Tem-

perature sensors is not available.

When DataLINE establishes a connection with a container unit, each calibration screen displays the following information:

- DataCorder (Recorder) information
- Controller information
- Temperature probe/sensor information
- Controls related to the selected calibration option
- Controller software version

The connection status with the container unit is also reported at the bottom of the screen. If DataLINE is not able to communicate with the refrigeration unit, X's will be presented in the data fields.

DataLINE refreshes the calibration screens in two ways:

- **AutoRefresh** - Every 15 seconds the probe calibration screen automatically updates all data in the "Recorder Information", "Controller Information" and "Current Probe Offset Temperatures" group boxes.
- **F9** - Provides the user with a shortcut for manually triggering the refresh operation.

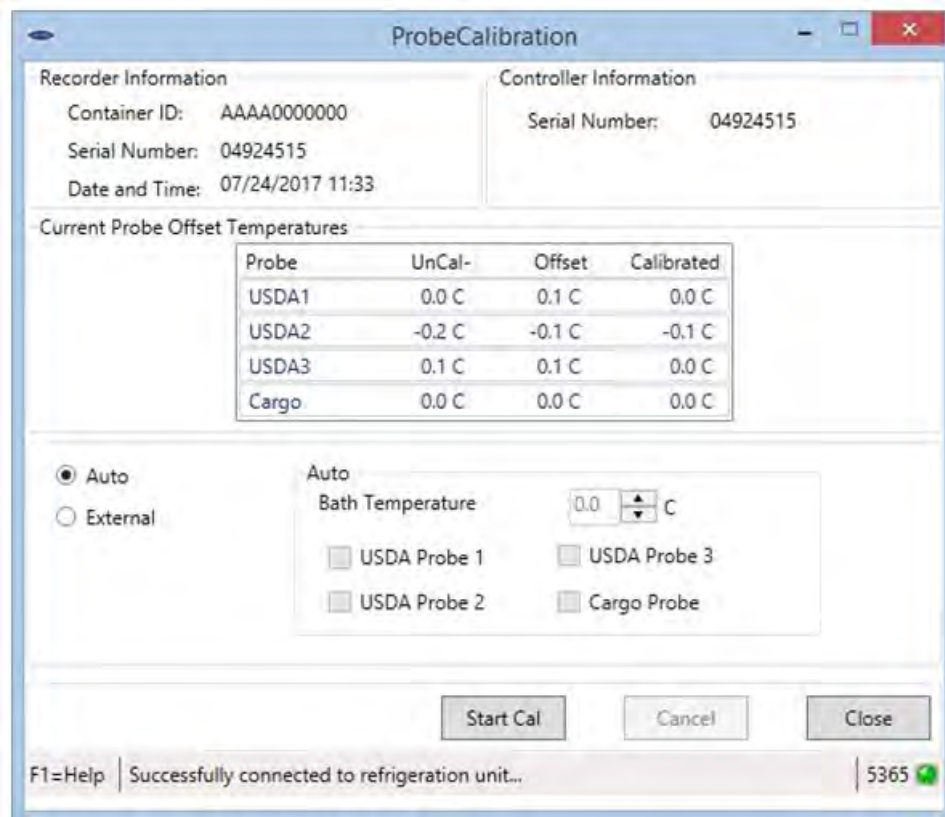
The user can choose to perform USDA/Cargo probe calibration using either of the two available options:

- **Auto** - The MicroLink controller in the container unit calculates the offsets for all probes using an assumed ice-bath temperature of 0.0°C (32°F). The user cannot select probes or change the ice bath temperature value. Calibration is performed when initiated by the user after determining the probes are stable at the ice bath temperature.
- **External** - The user explicitly specifies the offset to be used for each probe that is to be calibrated. Offset values between -0.3°C and +0.3°C (-0.5°F and +0.5°F) can be entered by the user.

Auto Calibration

By default the following screen is displayed ([Figure 10.15](#)). It can also be displayed by choosing the Auto option button if it is not selected.

Figure 10.15 Auto Calibration



Procedure:

1. Prepare proper ice bath and ensure that it has stabilized at 0°C (32°F).
2. Place all probes to be calibrated in the ice bath and observe readings on the screen.
3. Once probe readings have reached equilibrium and ice bath is 0°C (32°F), press the “Start Cal” button.
4. Once calibration is complete, the calculated offsets will be displayed when the screen refreshes.
5. “Start Cal” can be pressed to perform calibration again. If calibration is successful, press “Close” to exit Probe Calibration.

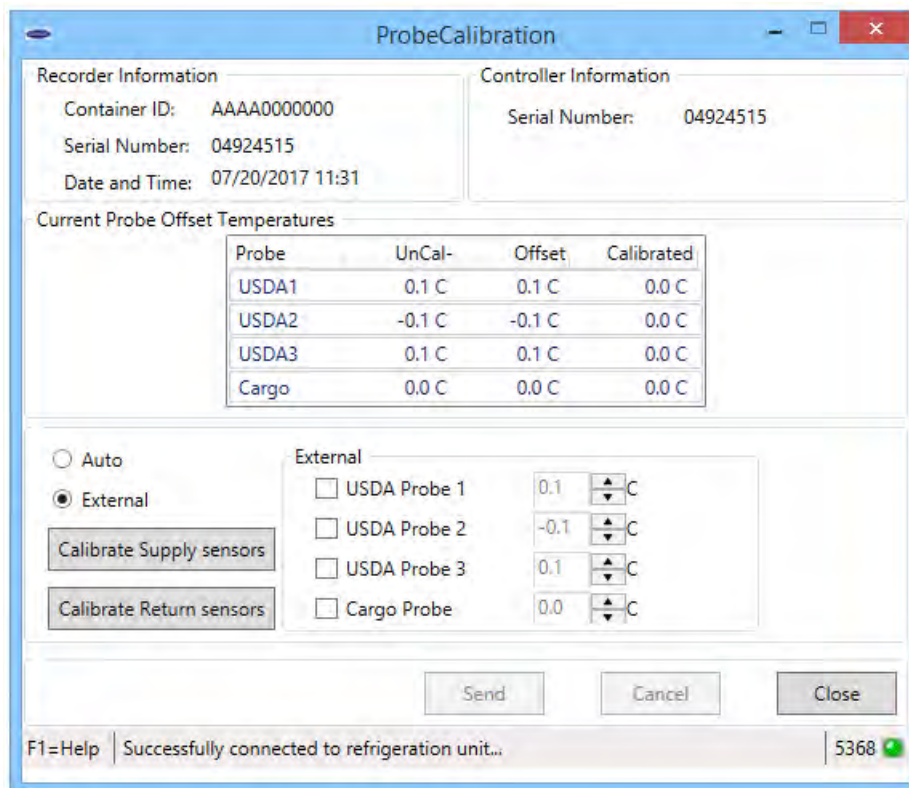
NOTE

Calculated offsets up to ±2.0°C (±3.6°F) are saved. If calculated offsets exceed this value, offsets for those probes are saved as 0.0°C (0.0°F).

External Calibration

The following Probe Calibration screen (**Figure 10.16**) is displayed when the user clicks on the External option button on the Probe Calibration screen.

Figure 10.16 USDA/Cargo Probe Calibration (External)



Procedure:

1. Check the box in front of the first probe needing calibration to activate the offset entry box.
2. Use the arrows or type an offset value into the entry box to use for the probe. (up to ±0.3°C (±0.5°F))
3. Repeat steps 1. and 2. for each probe being calibrated.
4. Press the “Send” button to calibrate the sensors using the offsets that were entered.
5. Press the “Close” button to exit Probe Calibration.

SECTION 11

DATA MANAGER SCREEN

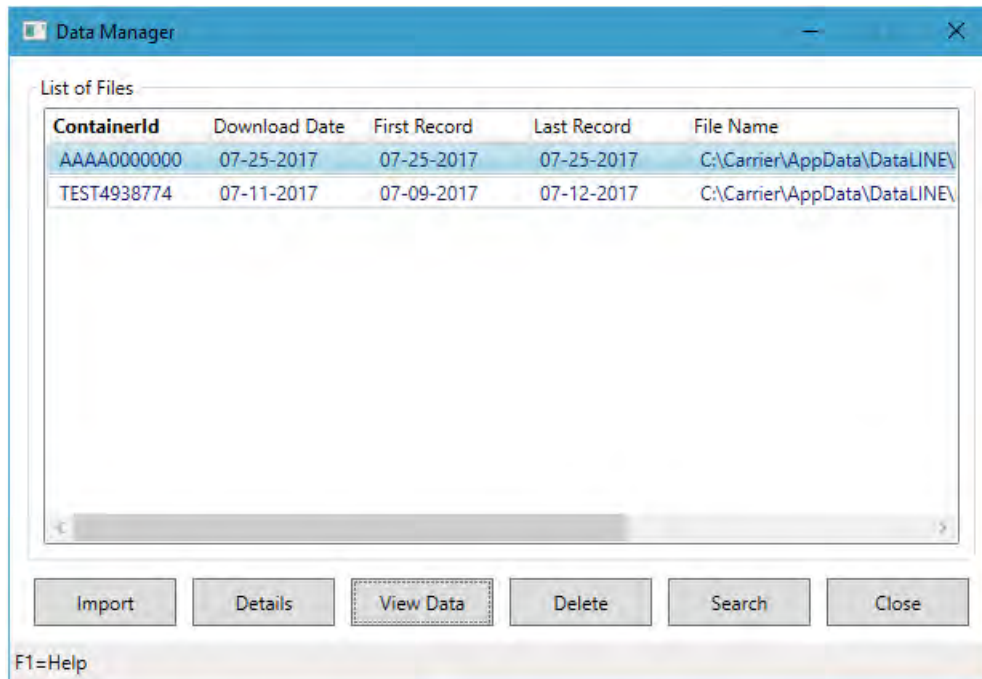
11.1 Introduction

This section describes the features available on the Data Manager screen. DataLINE provides an interface to store selected header information about the files downloaded from the refrigeration unit in a database (using the Interrogator utility, DataReader Download utility, DOS DataView, or other means). The capability to view files in the database and to import DCX files downloaded into the database using applications other than DataLINE are also provided.

11.2 Data Manager

The Data Manager screen ([Figure 11.1](#)) is displayed when the user clicks on the Data Manager Button in the Tools Group Box on the Launch Pad.

Figure 11.1 Data Manager Screen



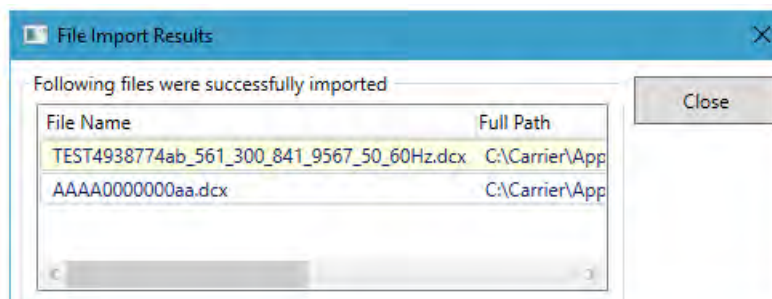
- **F9** - Provides a shortcut for manually triggering the refresh operation.

11.2.1 Features Available on the Data Manager Screen

- Import DCX files into the Data Manager database:
 1. Click on the “Import” button.
 2. Choose file name(s) in the “Select Files to Import” dialog box.
 3. Click on the “OK” button. The information pertinent to the successfully imported file(s) appears in the “List of Files” Group Box for each DCX file on the Data Manager screen ([Figure 11.1](#)).

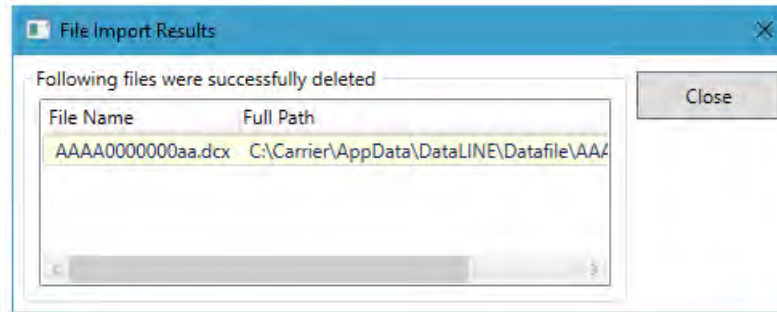
After the import process completes, the File Import Results screen ([Figure 11.2](#)) displays.

Figure 11.2 File Import Results Screen



- View detailed file information of a DCX file
- Search for files
- Sort the list of files in ascending, descending and custom order
- Delete the selected files from the database:
 1. Select the files in the “List of Files” Group Box.
 2. Click on the “Delete” button. The “File Delete Results” screen ([Figure 11.3](#)) is displayed upon completion of the delete process.

Figure 11.3 File Delete Results Screen

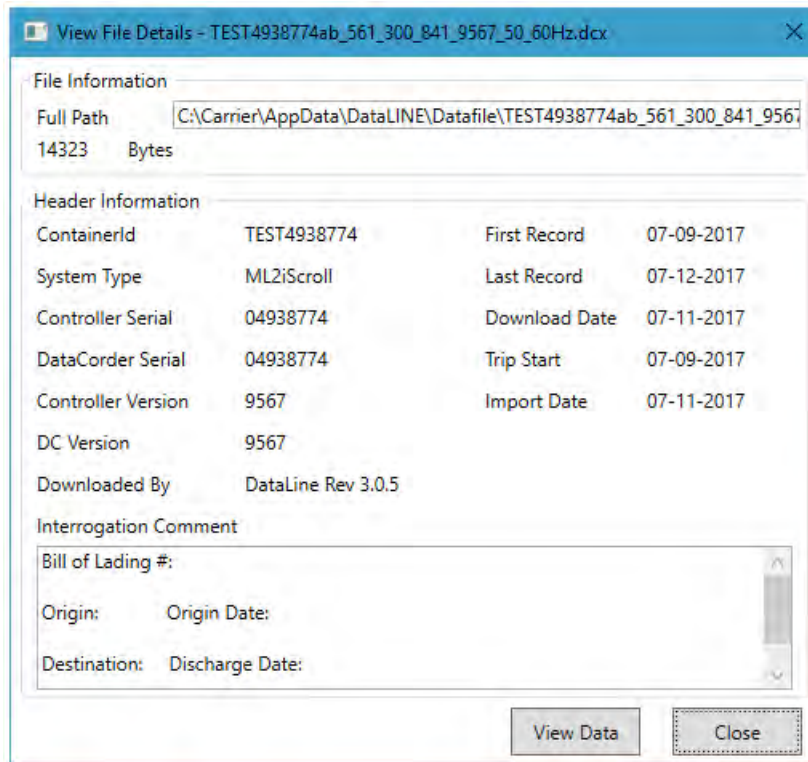


11.3 View File Details Screen

To view the detailed file information of a DCX file in the Data Manager database:

1. Select a row in the “List of Files” Group Box in the Data Manager screen.
2. The application provides two methods by which launch the “View File Details” screen:
 - a. Click on the “ViewData” button.
 - b. Right-click anywhere on the selected row in the “List of Files” Group Box. A pop up menu appears with three options, click on “View File Details”.
3. The information for fields available in the enhanced/standard header displays. The following “View File Details” screen ([Figure 11.4](#)) displays. To launch ViewData utility click on “ViewData” button.

Figure 11.4 View File Details Screen

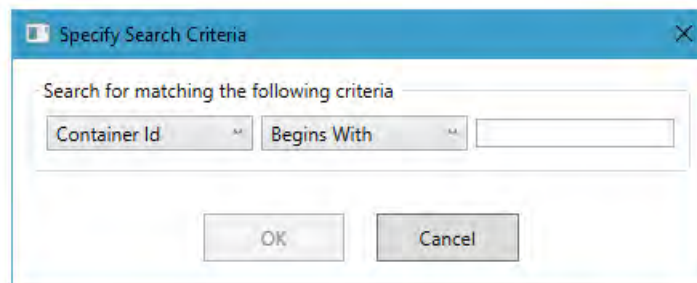


11.4 Specify Search Criteria Screen

The Data Manager utility provides the user with the capability to search for DCX files in the Data Manager database based upon the criteria specified by the user.

The Specify Search Criteria screen (Figure 11.5) is displayed when the user clicks on the "Search" button in the Data Manager screen.

Figure 11.5 Specify Search Criteria Screen



Specify the search criteria in the displayed fields and click on the "OK" button.

All the files that match the search criteria will be highlighted in the "List of Files" Group Box in the Data Manager screen.

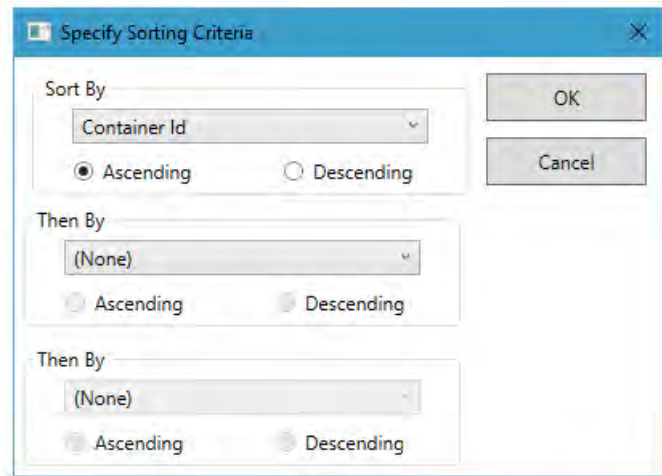
11.5 Specify Sorting Criteria Screen

The Data Manager utility provides the user with the capabilities to sort the list of files based upon any of the fields in the list. The user can customize the sort order up to three levels.

Customize the Sort Order:

1. Right-click on the column header of the list of files to be sorted. A pop up menu appears with three options.
2. Click on "Custom Sort...". The "Specify Sorting Criteria" screen (Figure 11.6) is displayed.

Figure 11.6 Specify Sorting Criteria Screen



3. Select the sort criteria and click on the "OK" button.
4. All the files in the "List of Files" Group Box are sorted by the custom order of the selected column(s).

SECTION 12

MONITOR SCREEN

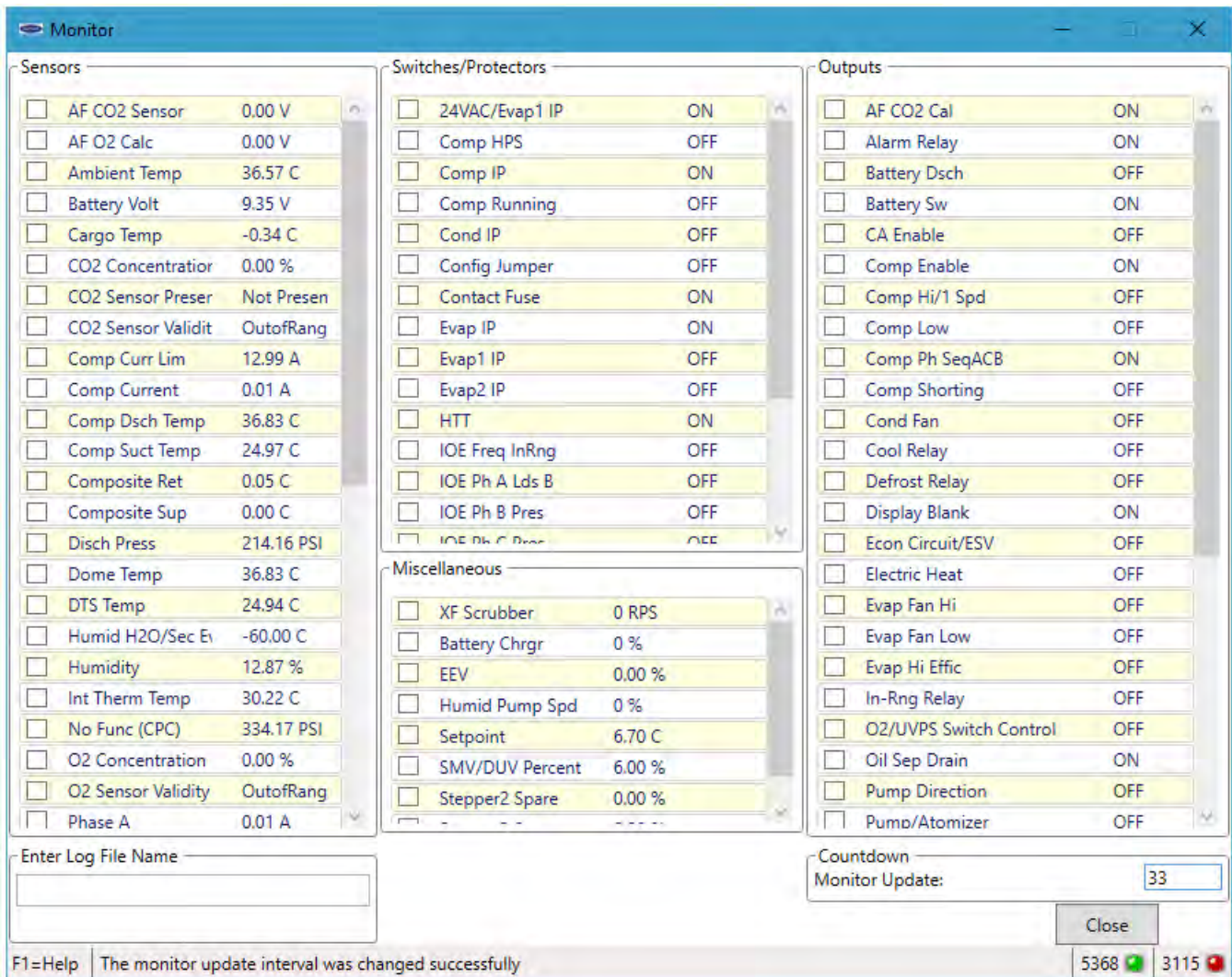
12.1 Introduction

This section describes the features available on the Monitor screen. DataLINE provides an interface to monitor the status of the refrigeration unit's analog inputs/outputs and discrete inputs/outputs for diagnostic purposes. The utility provides the ability to log selected inputs/outputs to a space delimited text file. The capability to edit and send variable values to the refrigeration unit for override is also provided.

12.2 Monitor Screen

The Monitor screen ([Figure 12.1](#)) is displayed when the user clicks on the Monitor button in the Container Group Box on the Launch Pad.

Figure 12.1 Monitor Screen



The DataLINE application refreshes the screen in one of the two following ways:

- **AutoRefresh** - The utility provides the ability to specify an auto-refresh interval (monitor update interval). When monitor update interval expires, the Monitor screen automatically updates all data on the screen.
- **F9** - Provides the user with shortcut for manually triggering the refresh operation.

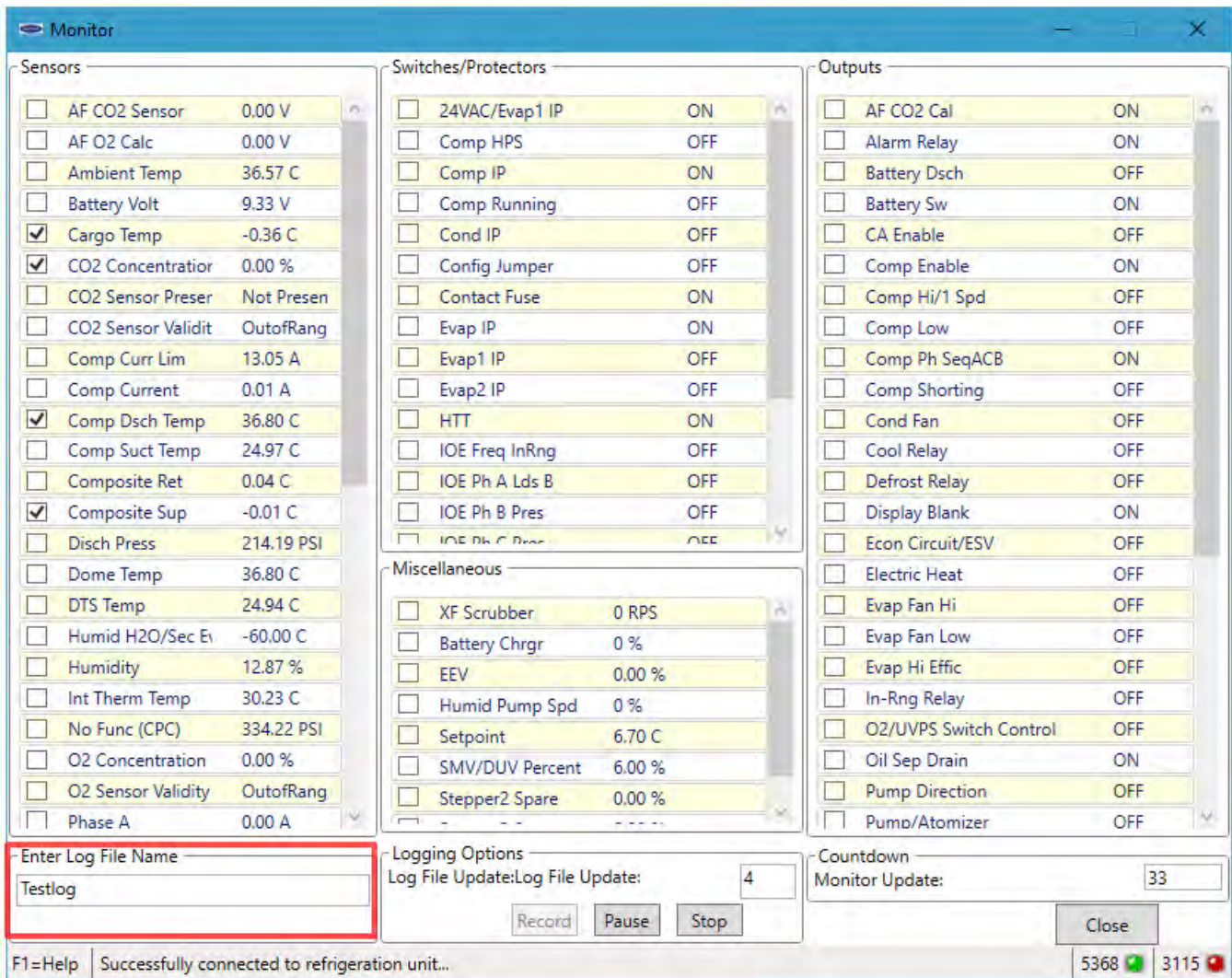
The Monitor utility provides the ability to log selected inputs/outputs to a space delimited log file at regular intervals, override variable values and cancel variable overrides.

12.3 Log Monitor Data Screen

Log Monitor Data into the Log File:

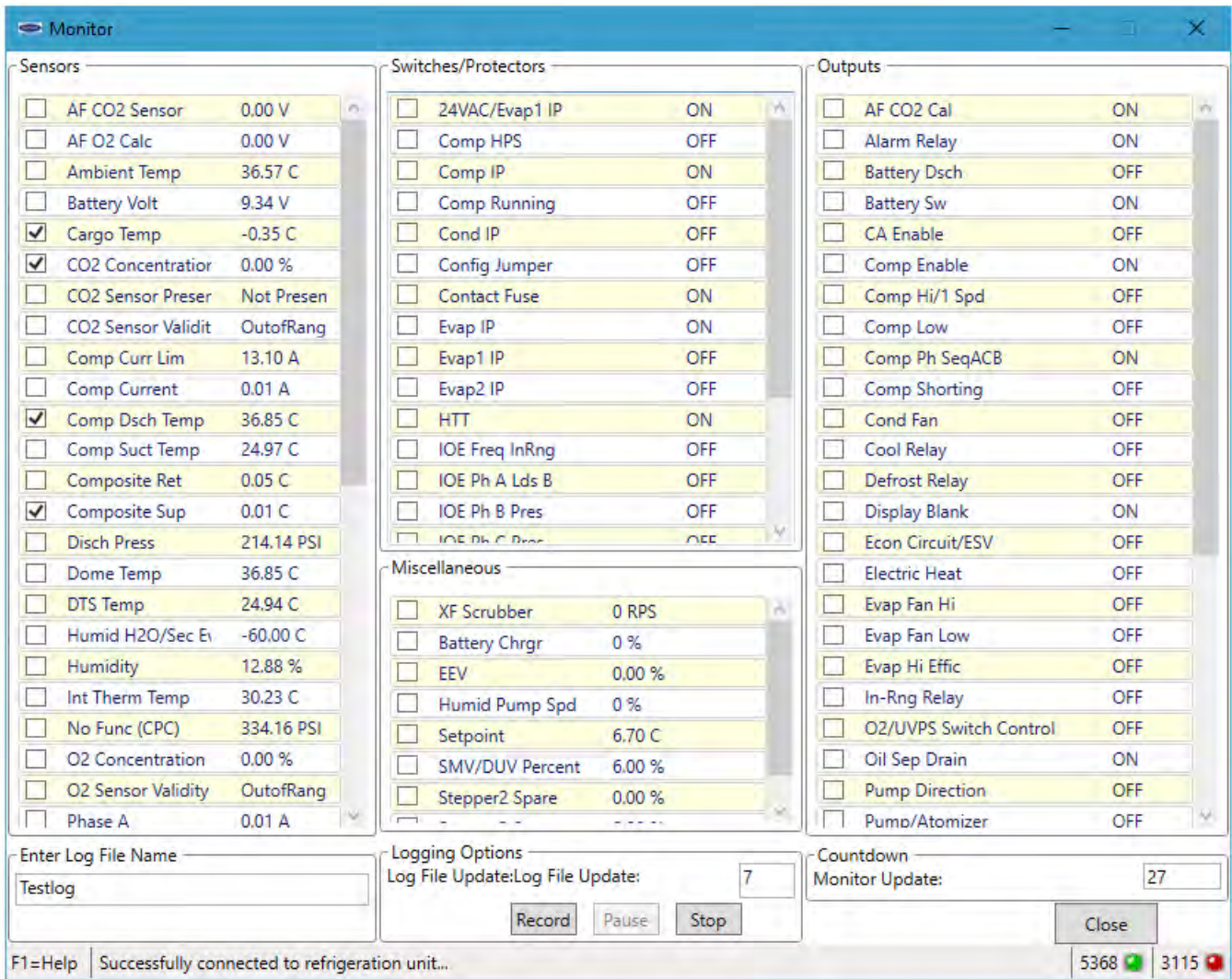
1. Enter a log file name in the field displayed in the “Enter Log File Name” Group Box (Figure 12.2). The Monitor screen is displayed when the user enters a log file name.

Figure 12.2 Enter Log File Name



2. The user can specify the interval at which they want to log data into the log file.
3. After selecting variables for logging, click on the “Start” button in the “Logging Options” Group box. The Monitor screen (Figure 12.3) is displayed when the user selects variables and clicks on “Start” button.

Figure 12.3 Start Logging



4. Click on the “Pause” button to pause logging.
5. Click on “Stop” button to stop logging.

12.4 Override Variable Value Screen

Before starting to override variable values, verify that a successful connection is established with the controller and/or CA.

The user can determine status of connection as follows:

- The connection is established only with the CA; the values of CA variables are displayed in all four lists.
- The connection is established only with the controller; the values of controller variables are displayed in all four lists.

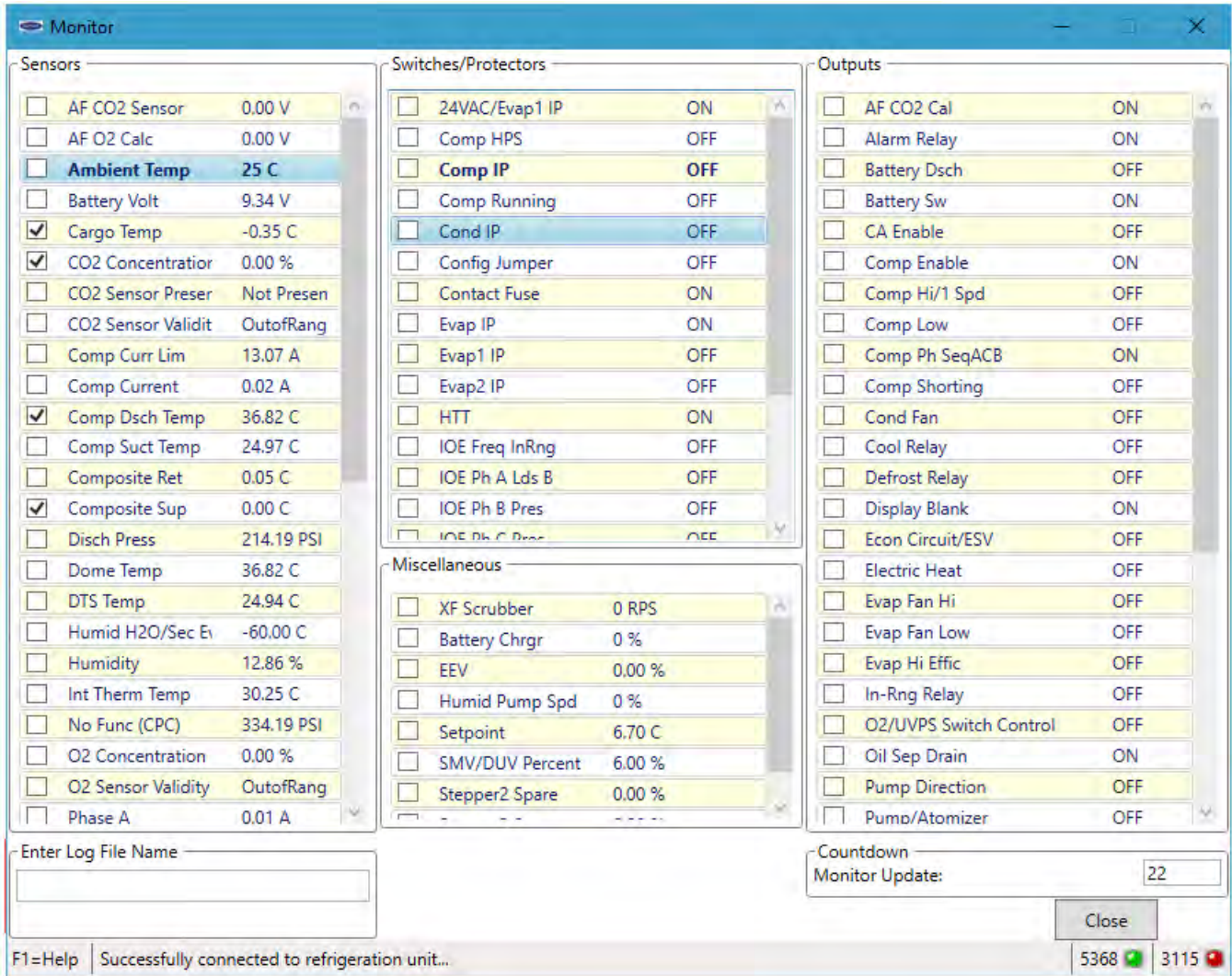
If the connection is not established with the controller or CA:

- For analog variables, the X's are displayed in the same format as they would be displayed if the source component is connected.
- For discrete variables, XX is displayed.
- The user will be unable to override the variable values to the unconnected component.

If at any time during the display of the Monitor screen the connection is not established or is lost, the user is alerted to the status of the connection.

To edit the variable value, press 'ALT+W' or 'ALT+SHIFT+W' or 'Alta' or 'Shiftless', or double click on the variable value. After editing the variable value and ensuring a successful connection has been made with the controller or CA, press "Enter" key on the keyboard to override variable value. The variable row is displayed in bold. The following screen (Figure 12.4) is displayed upon pressing "Enter" key.

Figure 12.4 Edit Variables



The user does not have the capability to override the Miscellaneous variable, Remote SMV Percent, using the DataLINE application.

The user can write or override the Miscellaneous variable, Setpoint, using the DataLINE application. However, the override flag is not set and therefore Setpoint variable row will not be shown in bold.

The user has the capability to cancel variable override.

To cancel variable override, press 'ALT+C' or 'ALT+SHIFT+C' or 'Altaic', or 'Shiftless' while the variable's value is selected in the list. The variable row is displayed in regular (non-bold) font.

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