

**LUDLUM MEASUREMENTS, INC.
DIMENSION CONFIGURATION MANAGER
SOFTWARE MANUAL**

March 2020

Version 2.1.0

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Section**1****1.0 Introduction**

The Ludlum Dimension Configuration Manager software is a software package that calibrates any of the Dimension product line of instruments. Calibration and configuration of the Dimension product line requires a special USB cable for communication between the Dimension Configuration Manager software and the instrument. This manual covers the installation and configuration of the Dimension Configuration Manager software.

See Section 4.0 Dimension Configuration Manager Software Installation for installation instructions.

Section**2**

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Section**3****3.0 Getting Started**

The Dimension Configuration Manager software can run on both desktop and server operating systems and also can be installed on a virtual machine. It is necessary for all components to be installed on a single computer.

3.1 Software Prerequisites

The following software must be installed on the network and working before installing the Dimension Configuration Manager software. Any software prerequisites that are from Microsoft can be downloaded at <http://www.microsoft.com/download/>.

- ❏ Windows Installer 3.1 or later. Windows Installer is not included on the installation media.
- ❏ Internet Explorer 5.01 or later. Internet Explorer is not included on the installation media.
- ❏ .NET Framework 4 Client Profile or later. .NET Framework 4 Client Profile is included on the installation media.
- ❏ FTDI Virtual COM Port Driver version 2.08.14 or later. FTDI Virtual COM Port Driver is included on the installation media and can be downloaded automatically from Windows Update (with an available Internet connection) or manually downloaded from FTDI's web site <http://www.ftdichip.com/Drivers/VCP.htm>. The installation documentation for the supported versions of Windows are included in the Documentation directory on the installation CD.

See the appropriate installation documentation for the above items.

3.2 Minimum Requirements

- **Supported Operating Systems:** Windows 7, Windows 7 Service Pack 1, Windows Server 2003 Service Pack 2, Windows Server 2008, Windows Server 2008 R2, Windows Server 2008 R2 SP1, Windows Vista Service Pack 1, Windows XP Service Pack 3
- Recommended Minimum: Pentium 1 GHz or higher with 512 MB RAM or more (1 GB or more is recommended)
- 2.5 GB of free hard disk space

3.3 Installation Overview

The installation requires all of the components to be installed on a single computer or virtual machine. The steps are:

1. Install any required prerequisites.
2. Install the Dimension Configuration Manager software.

Section**4**

4.0 Dimension Configuration Manager Software Installation

4.1 Installing the Dimension Configuration Manager software

To install, run LMIDimCfgMgr.MSI (which can be found on the installation media) and follow the on-screen prompts.

The installation program requires administrator privileges. Some versions of Windows, usually Professional and above, will prompt you to allow the installation program to make changes on this computer:

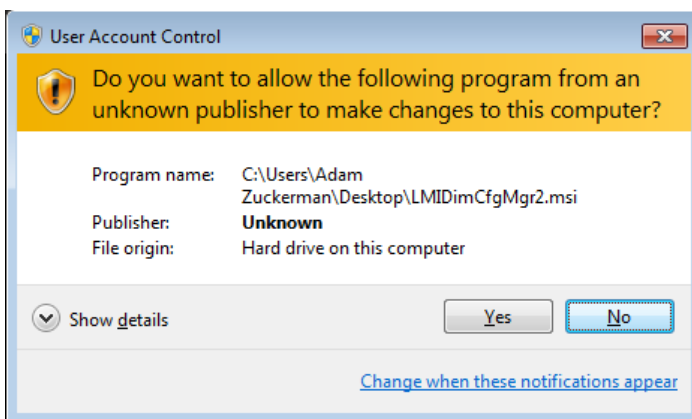


Figure 1 - User Account Control window on Windows 7 Professional

Click on the Yes button to continue the installation.

You will be prompted to accept the End User License Agreement. Should you choose not to accept the agreement, the installation will exit without installing the application.

Next, you will be given the choice of which type of installation you want to perform. For most situations, the typical installation type will be sufficient. If you wish to modify which components are installed, choose the custom installation type.

If you choose the custom installation, you will be prompted for which components you want to install and a folder to install the application.

The default installation location is:

System Type	Location
32 bit Windows	C:\Program Files\Ludlum Measurements, Inc\DCM
64 bit Windows	C:\Program Files (x86)\Ludlum Measurements, Inc\DCM

You are ready to install the application.

When the application installation completes successfully, a window with the latest information about the application will be displayed.

Section

5

5.0 Dimension Configuration Manager Software Configuration

5.1 Configuring the Dimension Configuration Manager

The Dimension Configuration Manager software currently has two settings that can be configured:

- ☢ Theme
- ☢ Logging
- ☢ Configuration...

5.1.1 Configuring Themes

You can configure the color theme used by the Dimension Configuration Manager software by choosing from the menu Options → Theme → *theme color*.

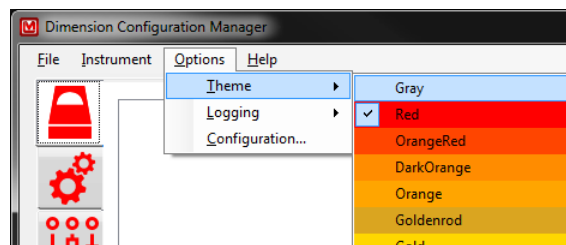


Figure 2 - Selecting the color theme

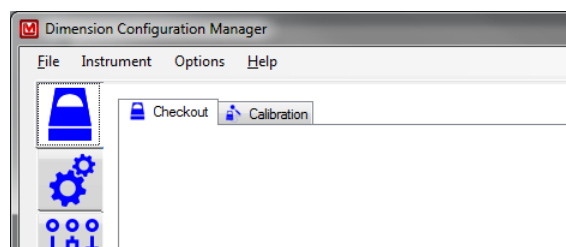


Figure 3 - Example of the blue theme in use

5.1.2 Configuring Logging

You can configure the level of logging to be performed by the Dimension Configuration Manager software by choosing from the menu Options → Logging → *logging level*.

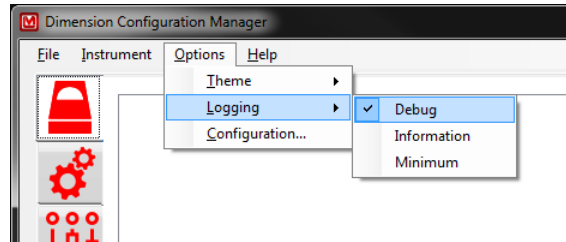


Figure 4 - Selecting the logging level

The Dimension Configuration Manager software currently has three logging levels:

Level	Description
Debug	Performs the most detailed logging of the application events and communications. This level of logging includes all of the logging level(s) listed below. This is the recommended logging level to use when there are communication issues with the instrument. This setting will generate a significant number of log entries that, over time, will cause the log files to become very large. Note: This is the recommended setting for most users.
Information	Performs a lesser detailed logging of the application events and communications. This level of logging includes all of the logging level(s) listed below. This is the recommended logging level to use when there are no communication issues with the instrument.
Minimum	Performs the bare minimum logging of the application events and communications that are always recorded (<i>e.g.</i> , application start-up). This logging level is recommended to use when there are no communication issues, and the user has sufficient experience with the application to determine when to switch to a more detailed logging level.

5.1.3 Configuration Information

You can configure the information displayed on the reports. Two fields are provided on the Configure Information window. Company Name is the name of the company that will be displayed on all reports. Company Information is any supplemental information (i.e., Address, Phone, Fax, web site, etc.) that will be displayed on all reports.

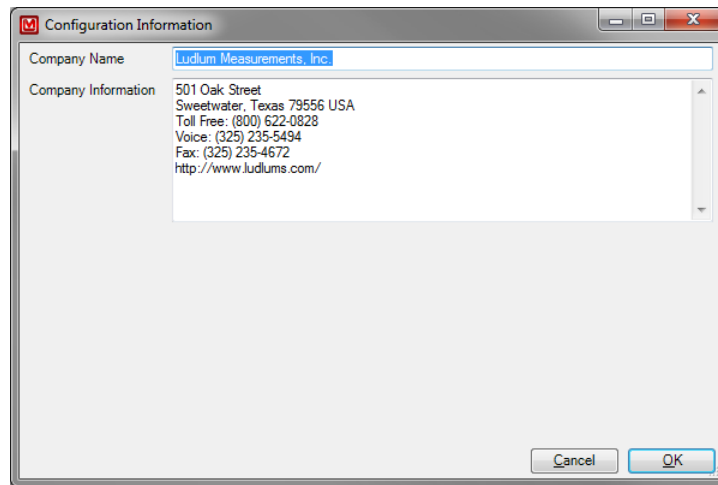


Figure 5 - Configure Information window

5.1.4 Command Line Options

You can configure the Dimension Configuration Manager software by using command line options. Each command line option must start with a forward slash (/) and be separated by a space.

Option	Description
/c:COMx	<p>Specify a serial communications port preference. The Dimension Configuration Manager will scan this port first looking for an instrument. If no instrument is found connected to this port, the DCM will scan all of the serial communications ports available on the system as if this command line option had not been specified. Section 6.1.1.2 Instrument Menu contains more information.</p> <p>Example: C:\Program Files (x86)\Ludlum Measurements, Inc\DCM\Dimension Configuration Manager.exe /c:COM5</p> <p>In this example, if an instrument is physically connected to serial communications port 5, and turned on, the DCM will attempt to connect to the instrument first using COM5. If the instrument is unavailable, then the DCM will scan all available serial communications ports for an attached instrument.</p>

Section

6

6.0 Quick Tour

6.1 Main Window

The main window has several sections of note:

- ☛ Menus
- ☛ Tab selection buttons
- ☛ Tab pages
- ☛ Status bar
- ☛ Action buttons

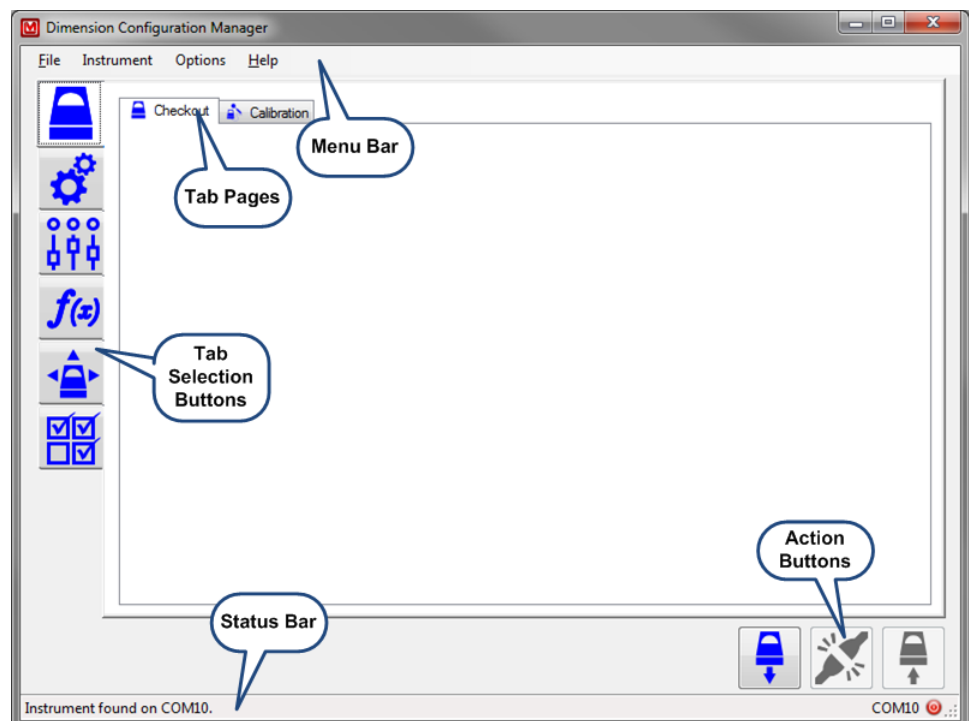


Figure 6 - Main window

6.1.1 Menus

6.1.1.1 FILE MENU

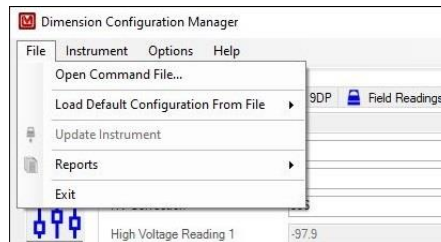


Figure 7 - File menu

☢ Open Command File

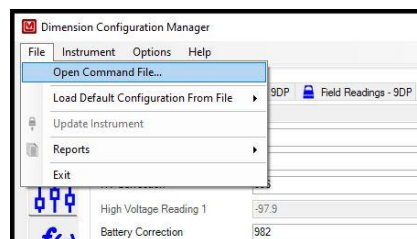


Figure 8 - File menu → Load Default Configuration From File → *available instrument models*

Command files (referred to as configuration files) are used to make configuration changes to an instrument. These files can be installed on a USB thumbdrive and plugged into an instrument anytime it is powered on to make configuration changes. This menu option allows the user to use the Dimension Configuration Manager to send these configuration files without the use of a USB thumbdrive.

☢ Load Default Configuration From File → *available instrument models*

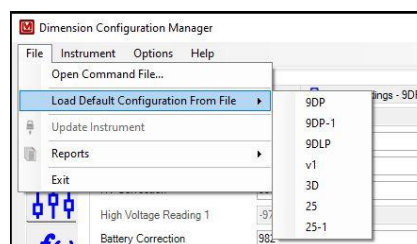


Figure 9 - File menu → Load Default Configuration From File → *available instrument models*

Pick a model from the menu, and the application loads a factory default configuration. No instrument or cable is required to be connected for this to

function. You will not be able to perform any updates or real time readings using this method to load a configuration.

☢ Update Instrument

Communicate changes to the instrument. This menu item is equivalent to the Update Instrument button on the Tab Selection buttons.

☢ Reports → *available reports*

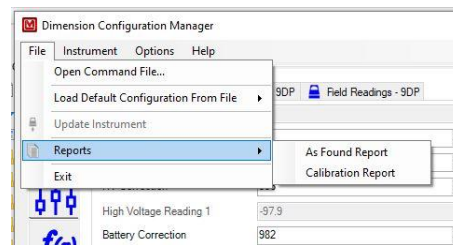


Figure 10 - Reports → *available reports*

The application currently has two reports that can be generated from a connected instrument: As Found; and Calibration. You will receive a warning if you attempt to print a report without a connected instrument.

☢ Exit

Disconnects from the instrument and shuts down the application.

6.1.1.2 INSTRUMENT MENU

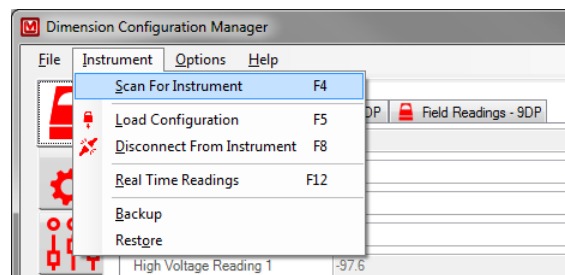


Figure 11 - Instrument menu

☢ Scan For Instrument

Perform a scan of all available serial ports (RS-232 and virtual) for an instrument. Results of the scan will be displayed in the status bar. If an instrument is found, the port name will be displayed next to the connection status indicator. Otherwise, it will display “N/A”.

Load Configuration

Connect to the instrument. Some instruments will change the display to indicate a connected state. The connection status indicator will change to green. The application will query the instrument for its current settings, displaying them on various tab pages.

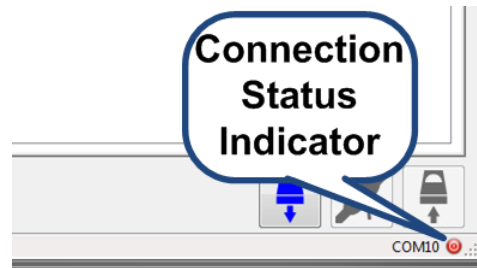


Figure 12 - Connection status showing connected

Disconnect From Instrument

Disconnect from the instrument. This will also stop the real time readings (if currently started). Some instruments will change the display to indicate a disconnected state. The connection status indicator will change to red.

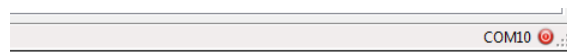


Figure 13 - Connection status showing disconnected

Real Time Readings

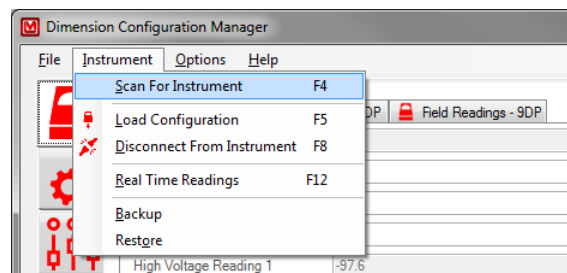


Figure 14 - Instrument menu

Turn on or off the real time readings being sent from the instrument. Real time readings are displayed on any scale/meter face being displayed. This menu item is disabled until a connection to an instrument is made.

☢ Backup

Perform a backup of the instrument's settings. Upon completion of the backup, the instrument will reboot. This menu item is disabled until a connection to an instrument is made.

☢ Restore

Disconnects from the instrument and shuts down the application. Upon completion of the restore, the instrument will reboot. This menu item is disabled until a connection to an instrument is made.

6.1.1.3 OPTIONS MENU

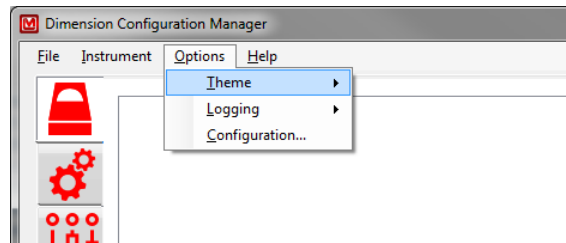


Figure 15 - Options menu

This menu and its options are covered in Section 5.1 Configuring the Dimension Configuration Manager.

6.1.1.4 HELP MENU

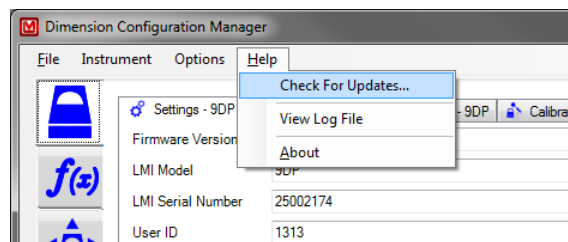


Figure 16 - Help menu

☢ Check for updates

Check for application and configuration updates through the Internet.

☢ View Log File

View the log file contents.

 About

Open a window that shows version information about the application and configuration files.

6.1.2 Tab Selection Buttons

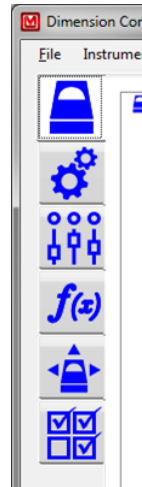


Figure 17 - Tab Selection buttons

Click on one of the tab selection buttons to make that set of tabs visible. With this version of the application, only the Instrument, Settings, Controls, Functions, and View tabs are available. The Instrument tab selection will contain fields relating to the instrument board settings. The Settings tab selection will contain fields relating to the instrument's primary configuration settings. The Controls tab selection will contain fields relating to the audio and lighting of the instrument. The Functions tab selection will contain fields relating to the configuration of system-wide function availability. The View tab selection will contain a Control tab page and individual view configuration tab pages.

6.1.3 Tab Pages



Figure 18 - Tab Pages

Each of the tab pages contains fields for different configuration items on the instrument. Each instrument model (9DP, 9DP-1, 9DLP, 3D, 3D+, etc.) will have different controls displayed on each of the tabs. While some of the tabs may contain exactly the same fields between models, this should not be expected.

Checkout

This tab page will contain fields that are used to configure the instrument's main board settings. This is primarily for the voltage and battery settings.

Calibration

This tab page will contain fields that are used to configure the instrument's detector calibration settings. This is primarily for the calibration constants settings. The real-time readings display is usually on this tab page.

Field Readings

This tab page will contain fields that are used to display field strengths and readings only on reports. Values entered into the fields on this tab are not stored on the instrument or anywhere else.

6.1.4 Status Bar

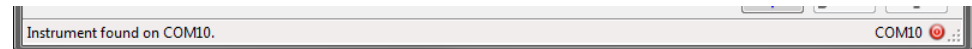


Figure 19 - Status bar

The status bar is divided into three sections. The left side is the status message area. On the right side are the serial communications port name and the connection status icon.

Performing various actions within the application will change the status message. Some actions will also display a pop-up window with detailed information.

6.1.5 Action Buttons



Figure 20 - Action buttons

The three action buttons are (from left to right): Load Configuration From The Instrument; Disconnect From The Instrument; and Update The Instrument. The Load Configuration From The Instrument action button is enabled when an instrument has been located on an available serial communications port. Refer to Section 7.2 Loading An Instrument Configuration for more information about the connected state. The Disconnect From The Instrument action button is enabled once a connection has been made with an instrument and disabled when the connection has been closed. Refer to Section 6.1.1.2 Instrument Menu for more information about the connected state. The Update The Instrument action button is enabled when a change has been made to a field that has not been sent to the instrument. Refer to Section 7.4 Updating The Instrument for more information about updating the instrument.



Figure 21 - Action buttons when an instrument is connected and a field is ready to update to the instrument

Section**7****7.0 Operation**

The Dimension Configuration Manager software performs a specific function utilizing generic methodologies. Application operations are discussed from a generic instrument standpoint. Instrument specific operations (checkout and calibration) are documented separately.

7.1 Start-Up

When the application starts, many functions are performed automatically for you. At the start of the application, the application will scan for the instrument. If the instrument is connected and powered up, the application will display the serial communications port name in the right section of the status bar. If your computer is connected to the Internet, the application will also check for any updates.

7.2 Loading An Instrument Configuration

If a serial communications port name is displayed in the right section of the status bar, you can load an instrument configuration by choosing Instrument → Load Configuration from the menus or by pressing the F5 key on your keyboard. The application will set the instrument into a connected state. On some instruments, this will change the instrument display. Fields will be loaded onto the tab pages with the current settings from the instrument. Please refer to the instrument specific documentation for checkout and calibration for a list of fields, acceptable values, and definitions that will be on each tab page.

Note: If the instrument model loads a current date and/or time, the date/time field will be at the time the application requested the information from the instrument. Current date/time fields do not update as time progresses.

When the application is in a connected state with the instrument, the connection status indicator will change to green. While the connection status indicator is green, you should not physically disconnect the instrument from the computer without first instructing the application to disconnect from the instrument.

7.3 Changing A Field Value



Figure 22 - A blank text field value

Changing the value of a field is dependent on the type of field being displayed. Text fields can display any type of text available. While the field entry is not restricted to a specific type of text (e.g., numbers), the purpose of the field may require that the field be numeric.

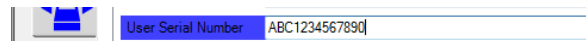


Figure 23 - A text field that has been changed

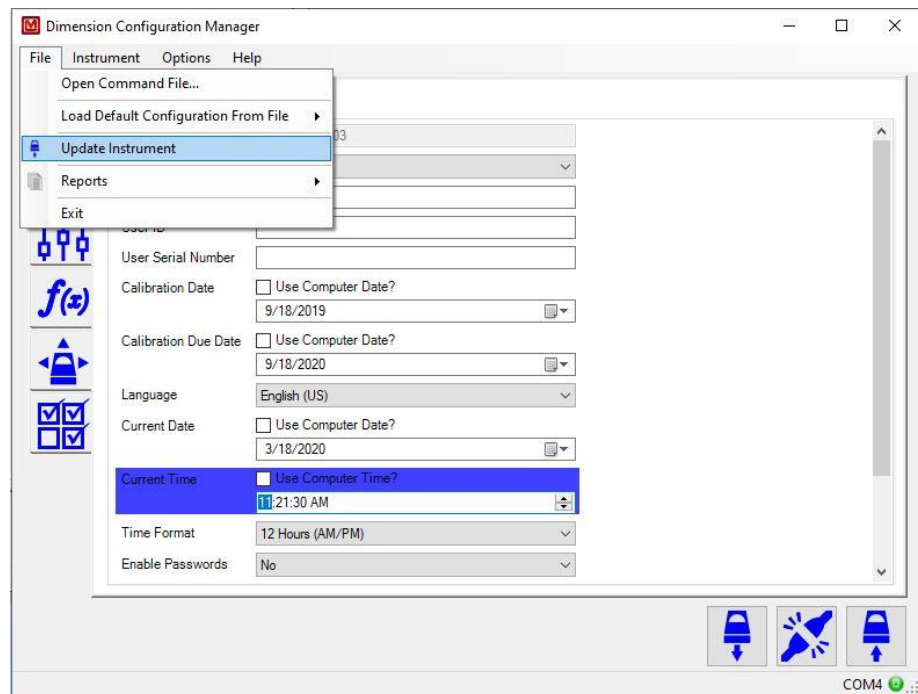


Figure 24 - Update Instrument button and menu item available

Once a field value has been changed from the value loaded from the instrument, the background color of the field will change colors (to a theme-based color). The Update Instrument menu item and button in the action buttons will become available. Click on either the Update Instrument button or menu item to save the changes to the instrument.

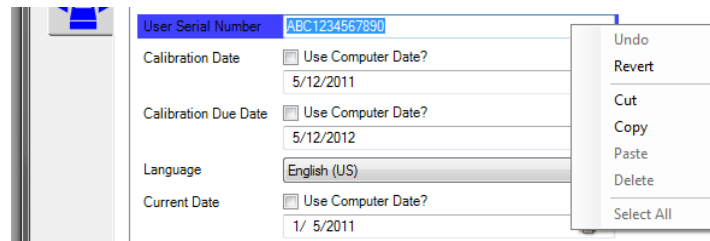


Figure 25 – Pop-up menu for a field

You can revert an individual field's value back to the current value on the instrument. To revert, opposite-button-click on that field. Click Revert on the pop-up menu that appears to change the value to the current value from the instrument. Menu items will vary with the field type and what actions have been performed.

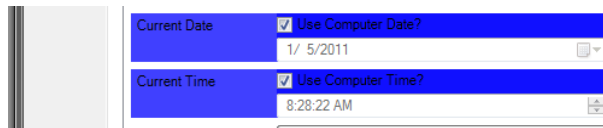


Figure 26 - Using the computer's date and time to set the instrument's value

Date and time fields have a check mark that instructs the application to use the computer's date or time when setting the instrument's values. Tick the check mark to use the computer's date or time. Untick the check mark to manually set the date or time.

7.4 Updating The Instrument

Click on the Update Instrument menu item, or button in the tab selection buttons, to send the changes to the instrument. After the instrument has been updated successfully, the field will change the background color to its default color. The Update Instrument menu item and button will become disabled (grayed out).

If a field does not update successfully, a window will be shown listing all of the fields that did not update. The most common cause of a field not updating is trying to change a read-only field.

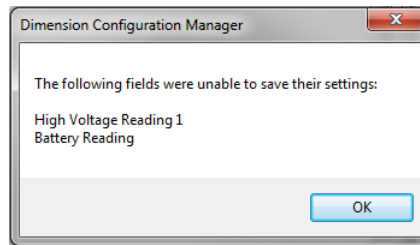


Figure 27 - Fields that did not update

7.5 Real Time Readings

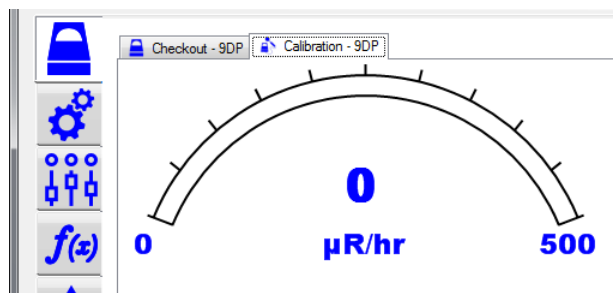


Figure 28 - Real time readings meter face

Real time readings from the instrument can be started only when an instrument is in a connected state with the application. Refer to Section 6.1.1.2 Instrument Menu for more information about the connected state. The real time readings meter face will display the same information as your instrument. If your instrument is set to automatically change ranges, the meter face will mimic the changes as they occur.

Important: Failing to disconnect from the instrument can cause real time readings from the instrument to have communication issues with the application.

Note: The real time readings meter face will change with the instrument model that is being connected.

7.6 Disconnecting The Instrument

You can disconnect from the instrument by using the Instrument menu (see 6.1.1.2 Instrument Menu) or by shutting down the application through normal means (e.g., clicking the red “X” at the top of the window). This step is required before returning the instrument to a service status.

Important: Failing to disconnect from the instrument can cause real time readings from the instrument to have communication issues with the application.

Section

8

8.0 Troubleshooting

8.1 Instrument Not Found At Application Start-Up

There are several possible reasons that an instrument cannot be found when starting the application:

Reason	Solution
Cable is loose or missing	Reconnect the cable at both ends. Scan for the instrument again. If the application is being run on a virtual machine, configure the virtual machine to have access to the cable.
Cable is not the supplied cable	The Dimension product line requires a special USB cable for communications between the Dimension Configuration Manager and the instrument. An off-the-shelf USB cable will not communicate correctly with the instrument. Find the special cable supplied with the software. If your cable is lost or damaged, you can order another cable (LMI part number 21-8758) directly from LMI or your local distributor.
Instrument not powered up	Turn the instrument on. Scan for the instrument again.
Interference with another serial device	Disconnect the other serial device's cable (if external). Disable the device within Windows using the Device Manager.

8.2 Tab Pages Display Unusual Instrument Information

This can happen when an instrument was in the real time readings mode and not disconnected from the application. To correct this, power down the instrument for a moment and then power it back up. Ensure the cable is properly connected. Load the instrument configuration again.