MONARCH INSTRUMENT

Instruction Manual

PM Remote Software

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1.0 INSTALLATION

PM Remote is a Windows® PC-based program to enable a user to communicate remotely with a range of panel meters in the ACT series and Frequency to Analog Converters in the F2AX series. The program allows the instruments to be configured (set up) and for data to be viewed in real time on the PC. There is also a method to incorporate the live data into an Excel® spreadsheet. This manual applies to Software Rev 1.0.35 or later.

1.1 Software Installation

This installation is detailed for a Windows 7 system and it is similar for other Windows operating systems.

Note: Before reinstalling or upgrading the software, remove existing versions using the Control Panel: Programs and Features or Add/Remove Programs.

PM Remote Software can be downloaded from the Monarch website (monarchinstrument.com). Once the .ZIP file has been downloaded, **double-click the file** and it will open a folder called *PMRemote_Software file resources* on your system. **Run CD_Start.exe.** The installation program will launch and display the menu as shown below.
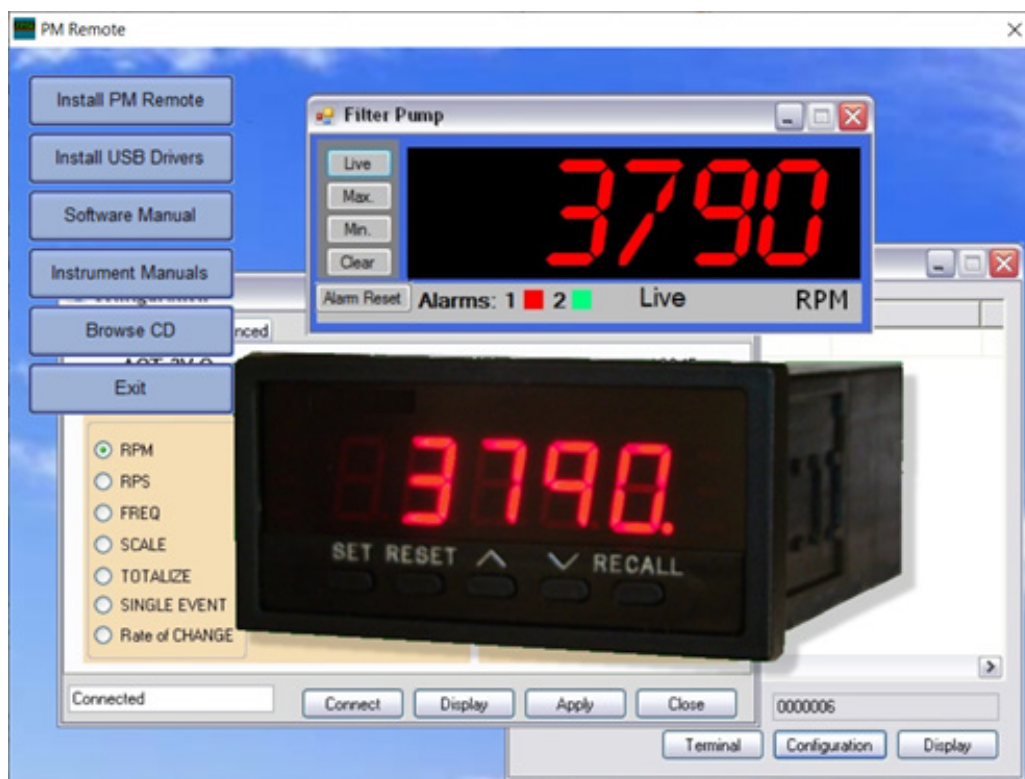
To install the main application, click the **Install PM Remote** button. This will launch the *PmRemote Setup Wizard* (shown right). Click the **Next>** button to continue to the license agreement. Accept the license agreement – "I accept the agreement" (or quit the installation) and click the **Next>** button to continue.
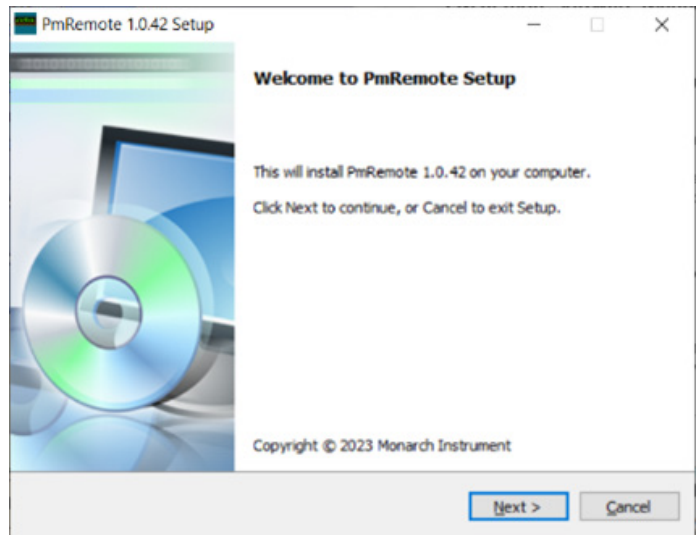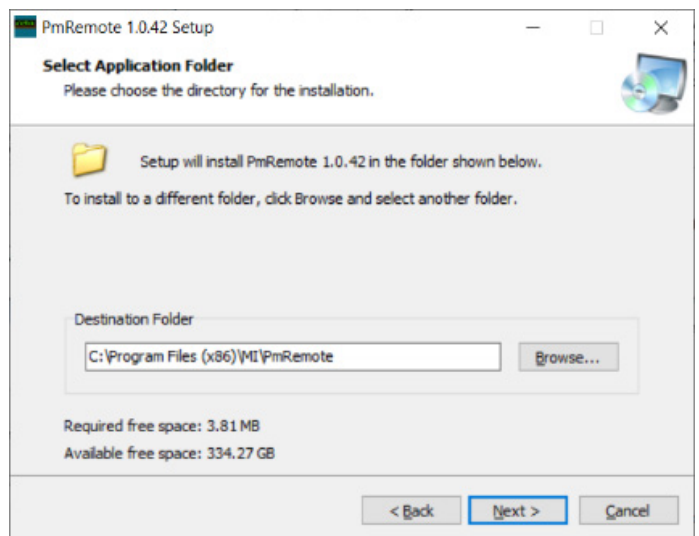

You will then be asked to select the installation folder (shown right). If you wish to change the default, enter the new install location. Click the **Next>** button to continue.

You will then be prompted to select Additional Tasks to be performed by the Installation program. Make your selections and then click **Install**. The *PMRemote Setup Wizard* will confirm installation has been completed. Click **Finish** to proceed.

Note: This program requires the DotNet component. If it is not found on the system, it will be installed.

If selected in the Additional Tasks, a shortcut icon (shown right) will be placed on the desktop.
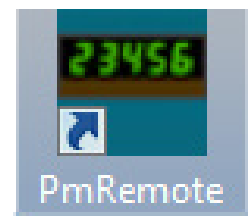
It is now necessary to install the USB drivers.

1.2 Installation of USB Drivers

Note: Ensure the USB programming cable is NOT plugged in during this installation.

From the Install menu, select **Install USB Drivers**. Because PM Remote Software is used for multiple products that use different USB components, two different USB drivers will be installed. A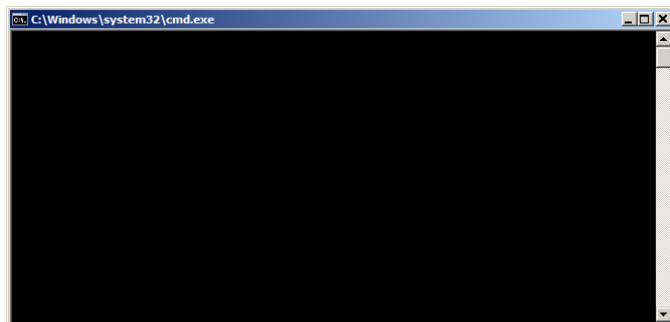 batch file will run, and a DOS window (shown above) will remain on the screen until both USB drivers have been installed.

Note: You must accept any Windows security or Unsigned Driver warning message that pops up to run the Installation of USB Drivers.

The first USB driver is for products using the FTDI USB component. This driver will automatically install without any user interaction.

Note: Files for this driver are stored in the *PMRemote_Software file resources* folder in the FTDI VCP Driver directory.

The second USB driver is for products using the SiliconLab USB component.

The SiliconLab USB driver uses the Panel Meter USB Driver Installer program (as shown below). Click **Next>** to continue.

3

Panel Meter USB Driver Installer

Welcome to the Panel Meter USB Driver Installer

This wizard will help you install the drivers for your Panel Meter USB device.

To continue, click Next.

[< Back] [Next >] [Cancel]
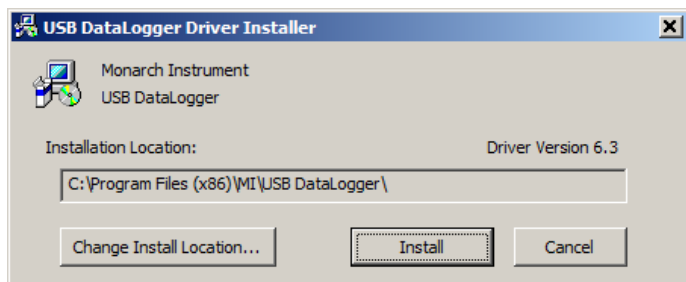
Note: This installer is stored in the *PMRemote_Software file resources* folder in the SiliconLab VCP Driver directory.

The DOS window from the batch file will close once both USB drivers have been installed.

1.3 Insert USB Cable (if applicable)

For units that will be connected to the PC via USB, insert the USB cable into the USB slot on the computer.

If this is the first-time use of the USB connected product, your computer will notify you *Found New Hardware*.

For products that use the FTDI USB component, the *Found New Hardware* message will pop up in the bottom right area of your screen. No further action is necessary.

For products that use the Silicon Labs USB component, you will get the *Found New Hardware Wizard* (shown right). Select the **Install the software automatically** option and click the **Next >** button. Your system should find the USB drivers installed from section 1.2.

**Note:** The file needed by the wizard is *PanelMeterVCP. inf* which should be found automatically.

You must accept any Windows security or Unsigned Driver warning message that pops up to complete the USB Driver installation. The *Found New Hardware Wizard* will copy the necessary files and indicate that it is done. Click the **Finish** button. The product is now ready for use.

2.0 PM REMOTE SOFTWARE CONNECTION

To start the PM Remote Software, double-click the icon (shown right) or select the program from the Windows Start Menu.
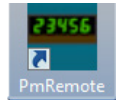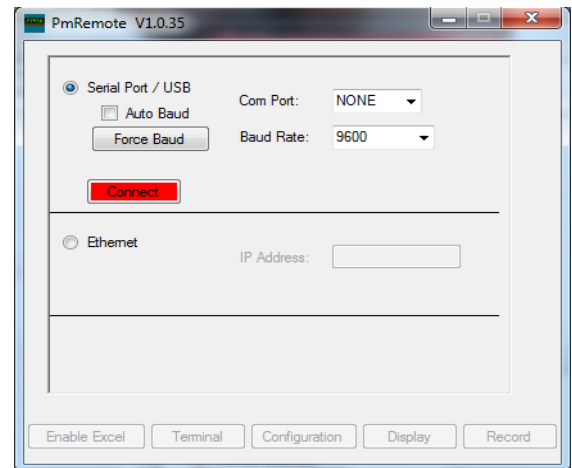
For the software to function, a remote panel meter must be plugged into the PC either via:

1) A USB port on the PC:
    a. ACT-1X or F2A1X using the USB Programming Cable
    b. ACT-3X with Serial Communication option using the USB Programming Cable
    c. ACT-3X or F2A3X with USB option
2) An RS-232 DB9 Cable (ACT-3X with RS-232 option)
3) An Ethernet cable (ACT-3X or F2A3X with Ethernet option)

Within PM Remote there are two options to connect — via Serial Port/USB or Ethernet. Choose the option that matches the interface on the device you have.

Note: The ACT-3X/F2A3X USB interface emulates a Virtual Com Port (VCP) and should be selected as a Serial Port.

2.1 Connection Options

There are two possible methods of connecting to remote units.

2.1.1 Serial Port

The Serial Port option is for the RS-232 connection or the USB Virtual Com Port whereby the USB port looks like a Serial Com Port to the PC. Select the **Serial Port** radio button. The user needs to select the correct Com Port from the dropdown menu. You can check the correct port using the PC Device Manager.
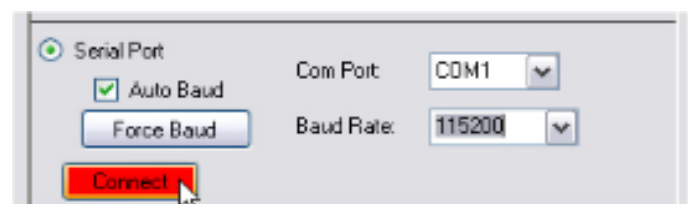
For Windows 7 and higher, go to **Control Panel > Device Manager > Ports** (COM & LPT).

If you know the baud rate, select it from the dropdown menu; otherwise check **Auto Baud** which will automatically determine the baud rate. You can also select a baud rate and click the **Force Baud** button which will set the remote unit baud rate. Lastly, click the **Connect** button to make the connection. It will turn green when the connection is made.

2.1.2 Ethernet

The Ethernet connection requires that the remote unit be connected to the Ethernet.

Select the **Ethernet** radio button. You need to set the remote unit IP Address; this is what you set on the remote unit front panel – refer to the device's instruction manual.

3.0 MODES OF OPERATION

There are five modes of operation: ASCII **Terminal Mode**, **Configuration Mode**, **Real-Time Display Mode**, **Enable Excel**, and **Record Mode**. Select the operation mode by clicking the button at the bottom of the window.

Note: Only one mode can be used at a time except for Enable Excel which requires Display be active. As long as the program is active, a small icon will appear at the right of the task bar.

3.1 Terminal Mode

Selecting **Terminal** from the startup window will launch the terminal program, a serial ASCII communication program that allows the user to send and receive ASCII strings to/from the remote unit. The list of commands is available in the product's instruction manual. This window can be sized by dragging the edges.
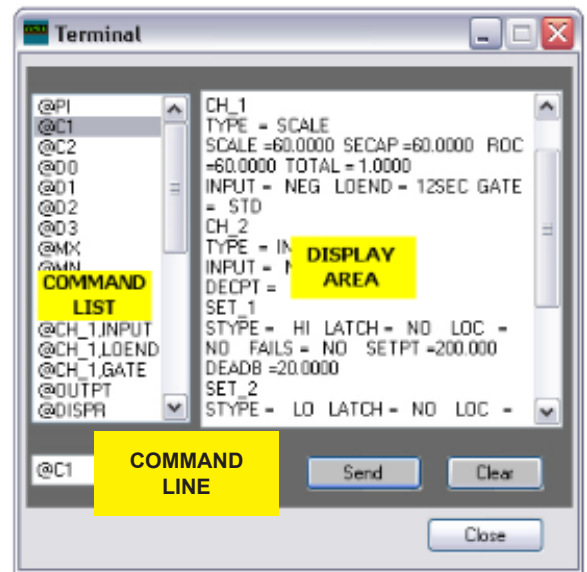
The Terminal window is shown above with the following areas highlighted:

3.1.1 Display Area

This area is used to display results sent from the remote unit. When the area fills the window scrolls, the scroll bars can be used to scroll back through data. The **Clear** button is used to clear the display area.

3.1.2 Command List

This is a list of commands (not complete) that can be sent to the remote unit. Double click the command to send it to the remote unit or click it once to enter it into the command line where it can be modified if needed and sent by clicking the **Send** button.

3.1.3 Command Line

Commands entered here are sent to the remote unit when the **Send** button is clicked (or the enter key is pressed).

3.2 Configuration Mode

The configuration mode is a graphical user interface (GUI) that allows easy set up of the remote unit. The configuration is device dependent. After selecting a communication option, click the **Configuration** button on the startup window.

When the Configuration window opens it will attempt to connect with the remote unit automatically. To connect manually, click the **Connect** button.

The window will display the type of device connected, its serial number and current configuration depending on which device is attached and its options (shown right). There are three tabs – General, Alarms and Advanced. (Not all tabs apply to all devices.)
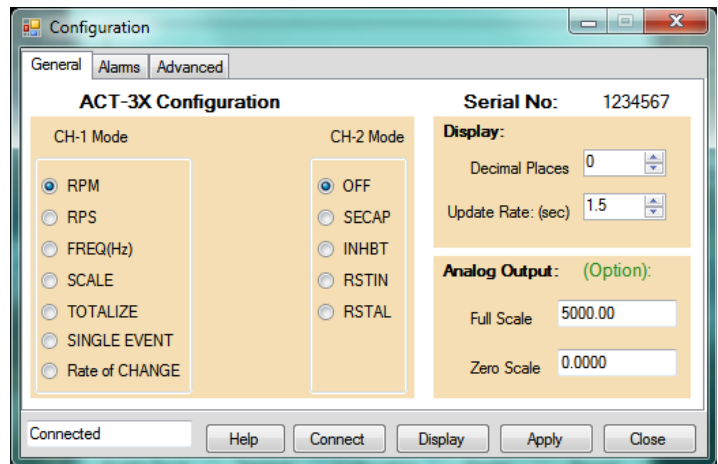
To save the configuration data to the remote unit, click the **Apply** button. To view the live display, click the **Display** button. To exit the application, click the **Close** button. The **Help** button will bring up this file.

3.2.1 General Options

These are the most frequently used options that can be set by the user. Refer to the device instruction manual for a full definition of the available options.

Mode of Operation

Select how the unit is configured to operate. Choices are dependent on the unit type attached. The ACT-1X, F2A1X and F2A3X will have limited CH-1 (Channel 1) Mode Selections. The ACT-3X has both CH-1 and CH-2 modes.

To set the mode: Select the radio button to the left of the desired mode as shown.

The Scale mode has the option to enter a scale factor. The scale factor can be used to program the display in any units. It takes an input in Hz (cycles per second) and multiplies it by the scale factor and this is what is displayed. The scale factor can be fractional.

Note: To change the PPR (Pulses Per Revolution) used by the ACT or F2A Series, you must select the Scale mode. Then enter the Scale Factor as determined by: Scale=60/PPR

Check the device instruction manual for a description of the operating modes.

Display: Allows the user to set the number of decimal points shown on the instrument display and the display update rate (in seconds).

Analog Output: Allows the user to set the value for Full Scale and Zero output of the analog option installed in the unit. If the option is not installed then the entry area will be grayed out and values cannot be entered. The data is entered in display units. (e.g., if the unit is displaying RPM, the analog output is set in RPM). The Zero Scale can in fact be non-zero for greater resolution. For example if you have a 4 to 20 mA output, the unit can be set for a zero of 1000 and a full scale value of 2000 giving a span of 1000 over the 16 mA change in output.

3.2.2 Alarms

Device dependent, this tab allows the user to set up the alarm options of the remote unit. There is a sub tab for each alarm. Not all devices have alarm capability.
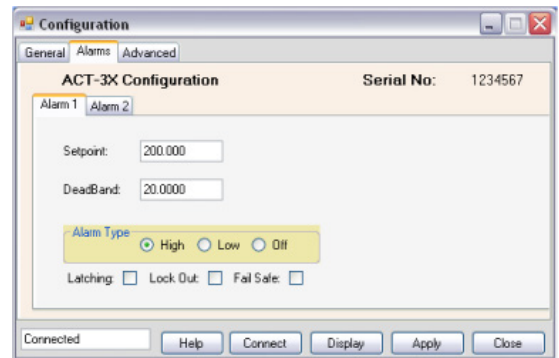
Setpoint: This is the value at which the alarm is activated (in displayed units).

Deadband: This is the value added (low alarm) or subtracted (high alarm) to the setpoint to create a reset point. As shown above, the alarm setpoint is 200, so the reset point will be 180.

Alarm Type: Check High, Low or Off.

Latching: If checked, the alarm will set but will not reset until a physical reset signal is received from the front button or rear input.

Lock Out: If checked, the alarm will not activate until the setpoint has been reached. For example, if the alarm is a low alarm at 1000, the alarm will not activate on start up until the alarm setpoint has been reached; then it will activate.

Fail Safe: If checked, the sense of the output relays will be reversed. The relays will activate when NOT in alarm. In the event of a power fail, the relays will drop out as if the alarm had been set.

3.2.3 Advanced

This tab is for the more advanced features. Options are device dependent; refer to device's instruction manual.

Zero Time: This is the gate time that the unit will use to determine an input of zero (in seconds – 12 seconds is a low of 5 RPM).
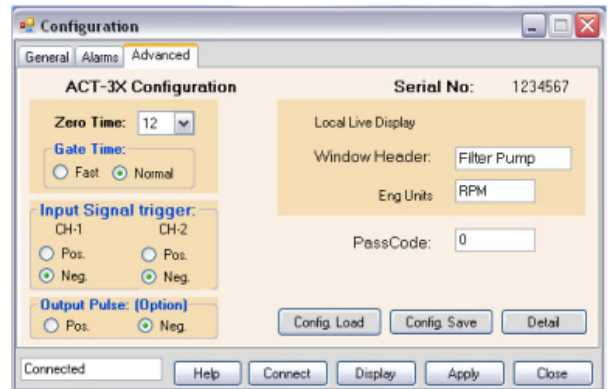
Gate Time: This is the rate at which the unit will measure input at higher speed. The Fast time will update serial data faster at reduced accuracy.

Input Signal trigger: Select the sense of the input pulse trigger.

Output Pulse: Select the sense of the optional pulse output.

Local Live Display: Allows the user to customize the local display.

Window Header – the text string displayed on the top of the local digital display

Eng Units – Engineering units or any text string displayed on the bottom right of the display

PassCode: This is a five-number code used to prevent unauthorized setting of the remote unit via its front panel. No code means the remote input will be unlocked.

**Note:** To save these settings for future recall, press **Apply**.

The **Config. Load** and **Config. Save** buttons allow the user to load saved configurations or save the current configuration to the local PC media.

The **Detail** button opens a pop-up window showing an overview of the current settings of the connected unit. Clicking **Detail** again will close it.

3.3 Display Mode

The display mode pops up a real-time display of the remote unit readings. The user can view live data, the maximum or minimum (at the time the button is clicked) and alarm status – also shown in real time.

The example shown right denotes the window's header and engineering units. Note that the window's header (Filter Pump) and engineering units (RPM) are set in the configuration Advanced tab (see section 3.2.3 Advanced).
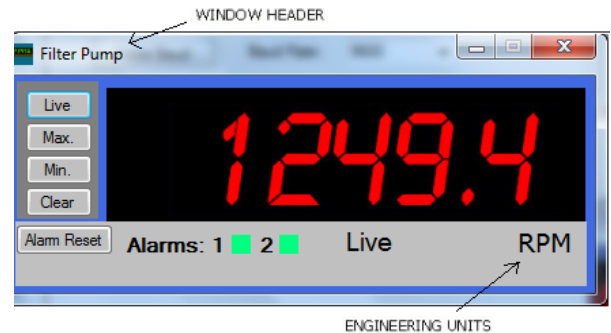
There are multiple buttons on the left side of the display window:

Live   Click to show live data

Max.   Click to show Maximum value

Min.   Click to show Minimum value

Clear   Click to clear maximum, minimum

Alarm Reset   Click to clear alarm

Total Reset   Click to clear totals; only available if the channel is configured as totalize

Along the bottom of the display are boxes that indicate status:

Alarms   A green box means the alarm is not set and a red box means the alarm is active.

Live Toggle   A green box to the left of the word "LIVE" will toggle on and off as data is updated.

3.3.1 Display Configuration

The display colors can be set by the user. Right click anywhere on the display area. This will pop up the configuration option. Select the following:
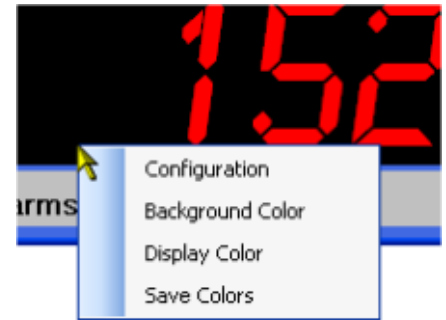
|	
Configuration	Go to the Configuration menu 3.2 Configuration Mode
Background Color	Choose a background color
Display Color	Choose a display (segment) color
Save Colors	Save colors to PC configuration file

Click the **X** in the top right corner of the Display Window to exit.

3.4 Enable Excel

Note: The display must be running in order for the Enable Excel option to work. If it is not, it can be launched by clicking the **Display** button at the startup window.

Note: You need to have Microsoft Excel version 2003 or later on your system.

Clicking the **Enable Excel** button will open up an Excel spreadsheet and will export the live data to cells on the spreadsheet in real time. The value will update as long as the remote unit is attached and the PC display mode is active. You can open new worksheets and use this data as you wish.
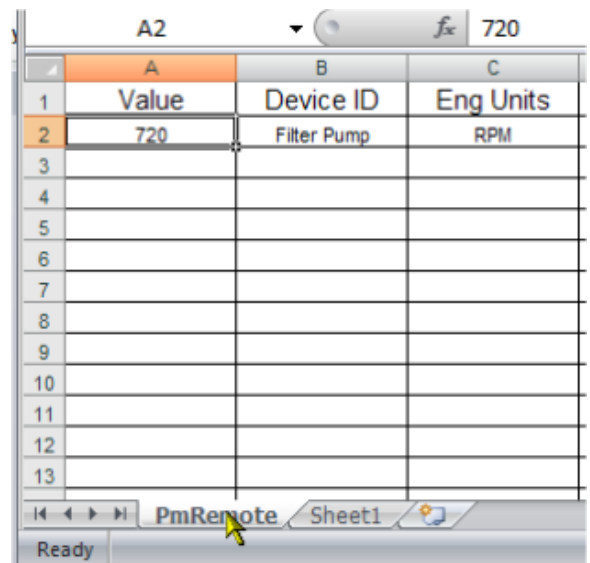
In Excel, the PmRemote tab is where the data source is located. It will show Value (live data), Device ID (window header), and Eng Units (engineering units). A live example is given in the spreadsheet on the Sheet1 tab. Use this data by referring to it in cells on your own tab (e.g., "=+PmRemote!A2").

The live example can be deleted.

If you do not wish to see the digital displays, right-click the **Display** button and select **Hide All**. To see them again, right-click the **Display** button and select **Show All**.

Note: When done, make sure to click the **Disable Excel** button to remove the driver from memory.

3.5 Record Mode

The record mode pops up a Record window to allow the user to record data.

Click the **Setup** button to select the recording rate/interval and where to record the data. Check the **Append File** checkbox if you want to add to an existing file. Otherwise, the data will be overridden every time the recording is stopped and started again. Once selections are complete, click **OK** to return to the Record window.

Click the **Record** button to begin recording. The square next to the Record button will flash red until the **Record** button is clicked again to stop recording. After recording is stopped, the recorded data can be viewed by opening the saved file.
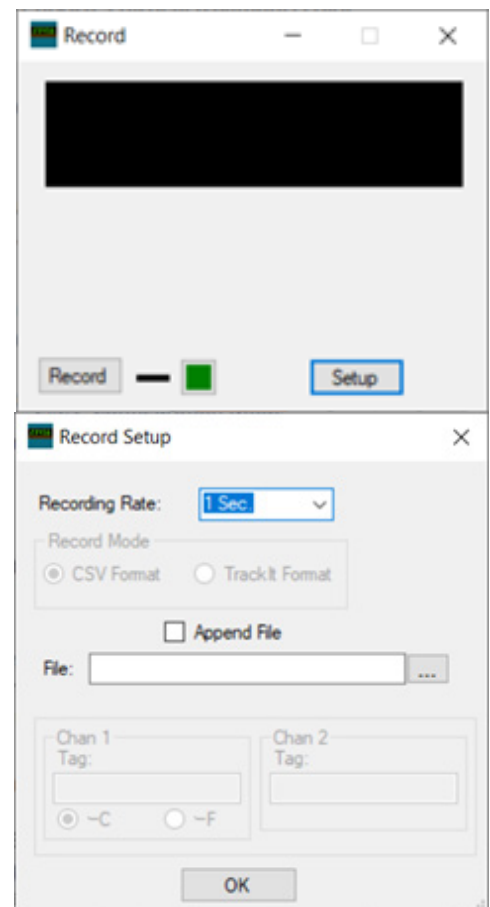
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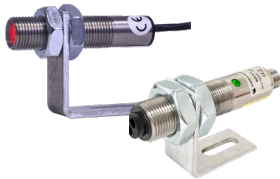
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