SAGE METERING, INC

Addresser 3.18

With PRISM and BASIC Addendums

2/10/2015

This procedure is for the setup and use of the Addresser 3.18 program. The Addresser is a READ/WRITE Program with drop-down menus for convenient user interface between your PC or laptop and Modbus Terminals of the SAGE PRIME, RIO, PRISM and BASIC.

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Addresser Installation

1. Insert the Addresser disc
   A. You will see:

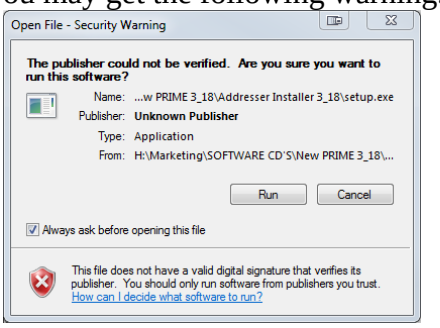
Name	Type	Size	Date modified
AAA Print Addr Proc Below First	File folder		1/15/2015 1:15 PM
Accessories As Required	File folder		1/15/2015 1:06 PM
Addresser Installer 3_18	File folder		1/15/2015 1:04 PM
PRO-ADDR-120814-001- ADDRESSER 3_1...	Adobe Acrobat Document	4,385 KB	12/17/2014 9:37 AM

   1)
   2) Please print and follow the Addresser Procedure instructions.

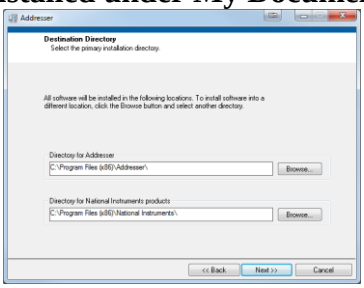
   B. Double click on the Addresser Installer 3_18 folder and you will see:

Name	Date modified	Type	Size
bin	11/26/2014 9:50 AM	File folder	
license	11/26/2014 9:50 AM	File folder	
supportfiles	11/26/2014 9:50 AM	File folder	
nidist.id	10/28/2014 12:02 ...	ID File	1 KB
setup.exe	10/28/2014 12:02 ...	Application	1,360 KB
setup.ini	10/28/2014 12:02 ...	Configuration settings	16 KB

   1)
   2) Now double click on the setup.exe Application
   3) You may get the following warning.



      1.
      2. Click RUN
   4) If you are running Windows Vista, 7, or 8, it is recommended that you DO NOT install the Addresser program in the Default location noted below. **Instead click on the Browse button to have the program installed under My Documents on your C drive.**



      1.
      2. Click the Browse button to select the Addresser location.

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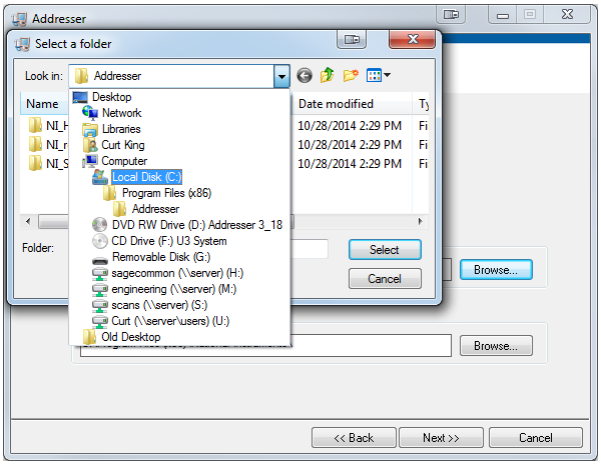
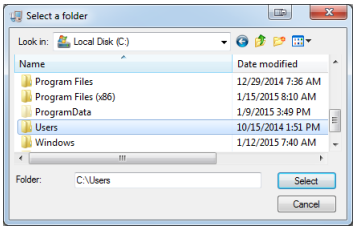
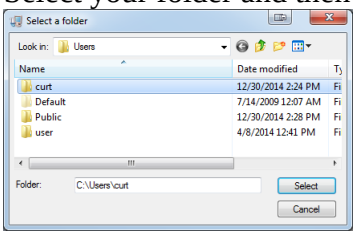
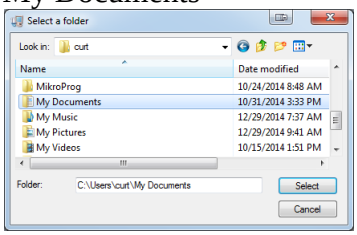
3. 
 Locate Local Disk C
4. Now scroll to find Users
5. 
 Double click Users
6. Then double click your folder and scroll to My Documents
7. Select your folder and then My Documents
8. 
 

9. This is where to install the Addresser Program.
10. It is NOT necessary to change the default location for the National Instruments files.
11. Once you have selected My Documents, click Next

5) You are now ready to install the Addresser.

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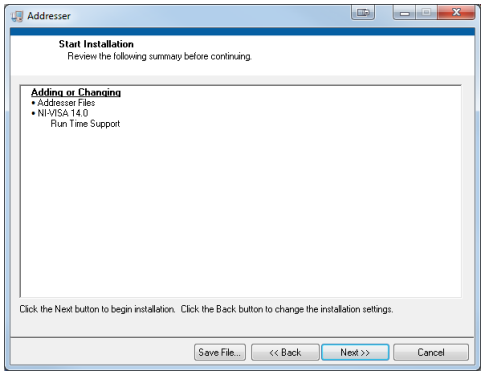
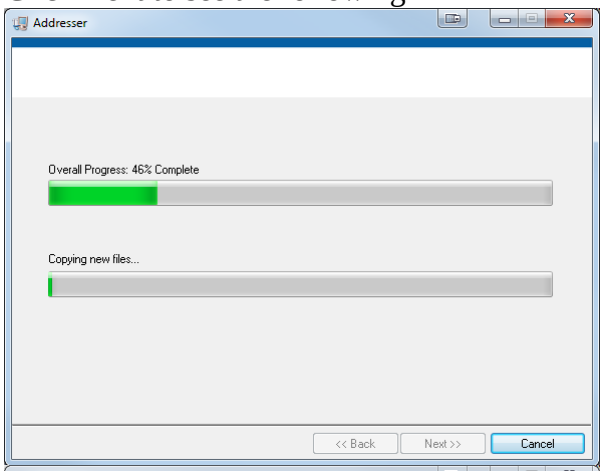
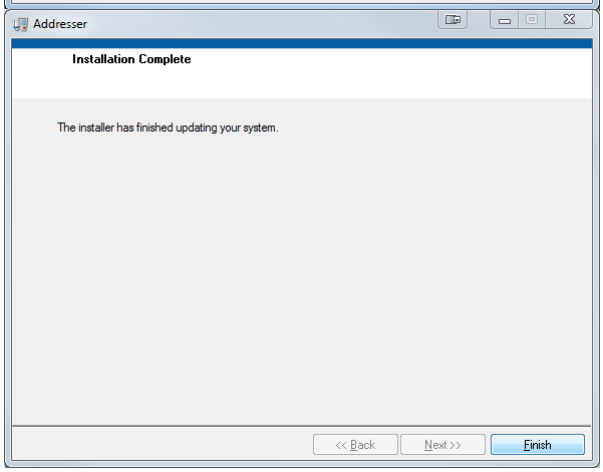
6) 

7) Click Next to see the following

8) 

9) 

Click Finish

C. Once the Installer has finished, go to the Addresser program location. Highlight the Addresser.exe Application and then create a shortcut to it. You can then place this shortcut onto your desktop for ease of access.

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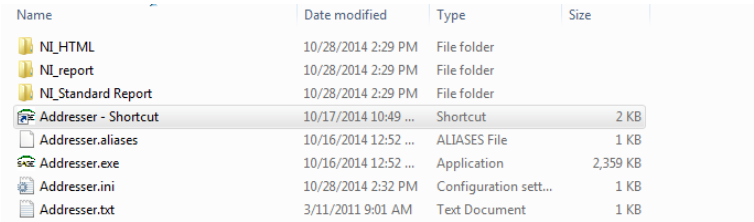
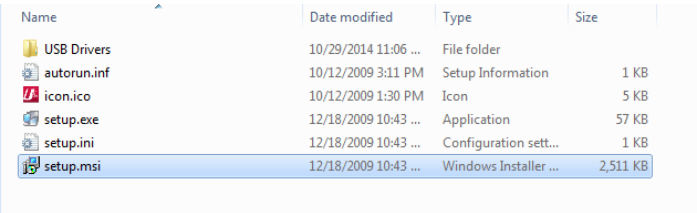


Name	Date modified	Type	Size
NI_HTML	10/28/2014 2:29 PM	File folder	
NI_report	10/28/2014 2:29 PM	File folder	
NI_Standard Report	10/28/2014 2:29 PM	File folder	
Addresser - Shortcut	10/17/2014 10:49 ...	Shortcut	2 KB
Addresser.aliases	10/16/2014 12:52 ...	ALIASES File	1 KB
Addresser.exe	10/16/2014 12:52 ...	Application	2,359 KB
Addresser.ini	10/28/2014 2:32 PM	Configuration sett...	1 KB
Addresser.txt	3/11/2011 9:01 AM	Text Document	1 KB

D. **Note: If you will be working with the Sage Prism, see paragraph 7 for driver installation and special Prism instructions.**

ULinx Setup – B&B Disc

2. You will now need to install the ULinx RS485 USB Adapter. There should be a B&B disc included but the files have also been included on this disc. Open the folder labeled Accessories as required and then B&B Disc backup.
   A. If you double click setup.msi it will walk you through the ULinx install and setup.



Name	Date modified	Type	Size
USB Drivers	10/29/2014 11:06 ...	File folder	
autorun.inf	10/12/2009 3:11 PM	Setup Information	1 KB
icon.ico	10/12/2009 1:30 PM	Icon	5 KB
setup.exe	12/18/2009 10:43 ...	Application	57 KB
setup.ini	12/18/2009 10:43 ...	Configuration sett...	1 KB
setup.msi	12/18/2009 10:43 ...	Windows Installer ...	2,511 KB

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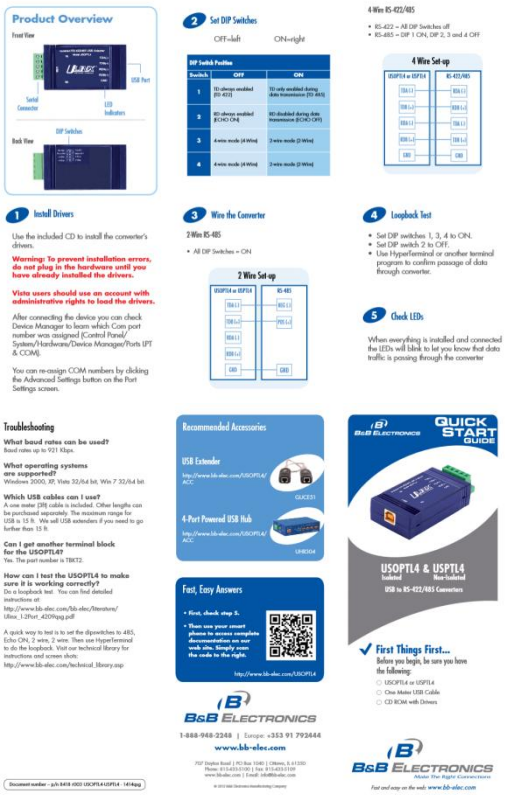
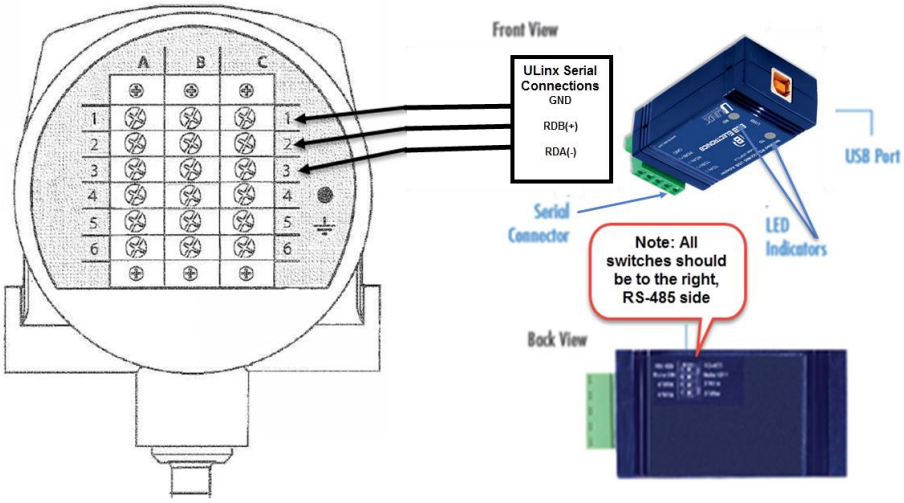
B. The following illustrations are from the ULinx website. They may be informative.



Meter, ULinx, Computer Connections

3. After the ULinx software and drivers have been installed verify the dip switches on the back of the ULinx are positioned to the 2 wire, RS-485 side as noted in the figure below.
   A. With power to the meter off, connect the ULinx GND to pedestal C1; ULinx RDB(+) to pedestal C2; and ULinx RDA(-) to pedestal C3 as noted in the figure below. Connect the USB cable from the ULinx to one of your computer's USB ports.

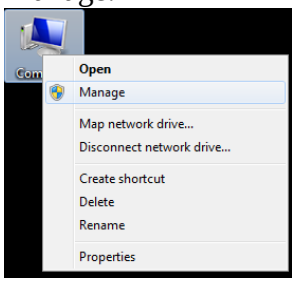


   B. Power may now be applied to the meter.

Determine RS485 Port

4. Once the Addresser and ULinx applications have been installed, and everything has been connected as instructed in step 4 you need to check which com. port on your computer is assigned the RS485 port.

   A. Right click on the My Computer Icon on your Desktop and then select Manage.



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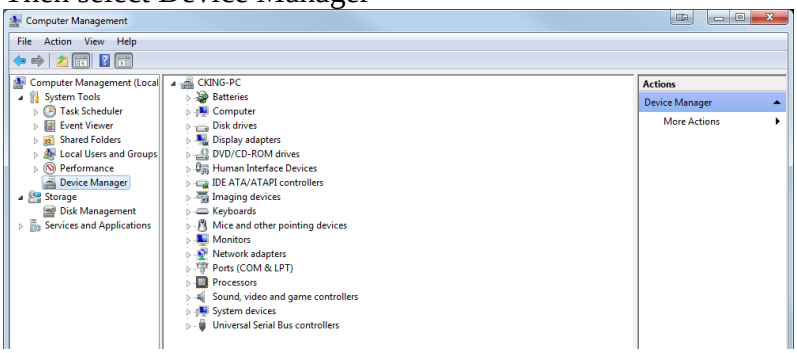
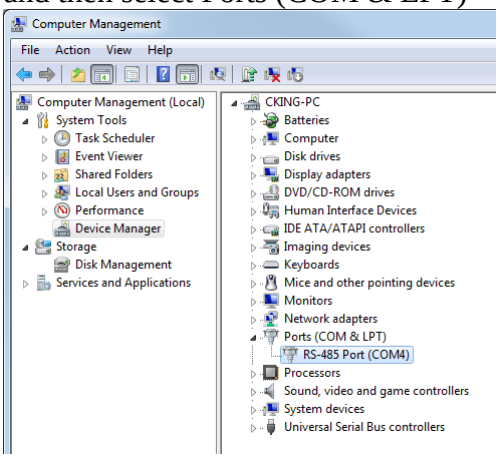
Then select Device Manager



and then select Ports (COM & LPT)



B. The RS-485 Port (COM4) shown in this example indicates that your ULinx is connected to the COM4 port of your computer. Your system may assign another com. Port location.

Addresser Operation

5. If the Addresser is not set to the COM port noted in the previous step, you will get:

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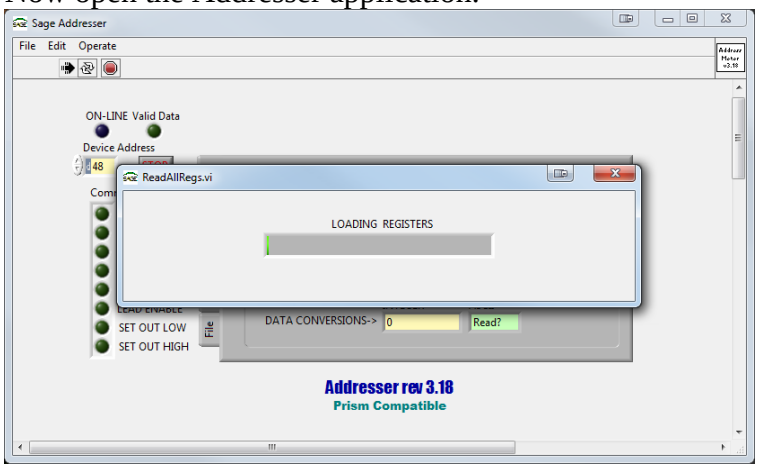
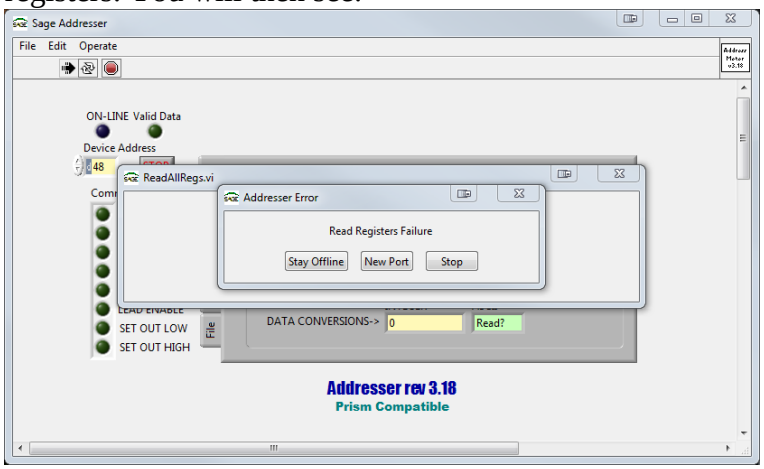
Read Register Failure

A. Now open the Addresser application.



B. If the Port has not yet been selected, the Addresser will NOT begin loading registers. You will then see:



C. Click on New Port. The drop down should show the com. Port identified in step 4 above.

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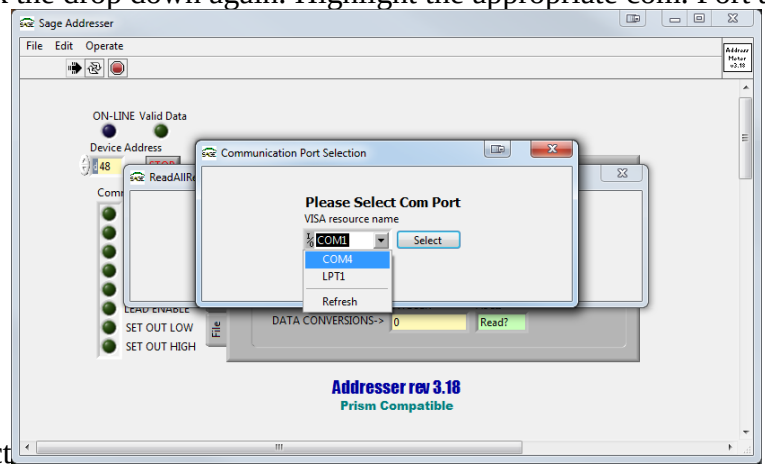
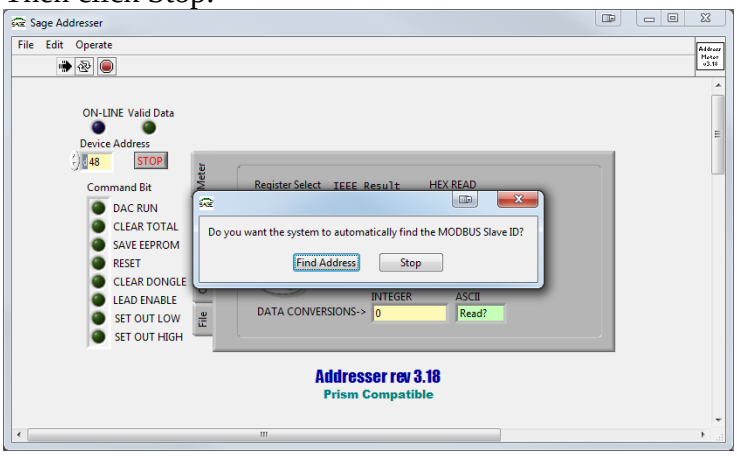
D. If the appropriate port is not listed in the Drop Down, click refresh and then check the drop down again. Highlight the appropriate com. Port and click



Select

Then click Stop.



Device Address/Slave ID

E. NOTE: The Addresser software (by default) communicates with Slave ID/Device Address 30.hex (48 decimal). However, meters are generally shipped with IDs of 31.hex (49 decimal) or greater to reduce communication complications with multiple meters.

1) If your Sage meter is at Slave ID/Device Address of 31.hex or other than 30.hex, the Addresser will not communicate initially without some adjustments.
2) You may change the slave ID that the Addresser will communicate with by changing the Device Address in the upper left of the Addresser display.

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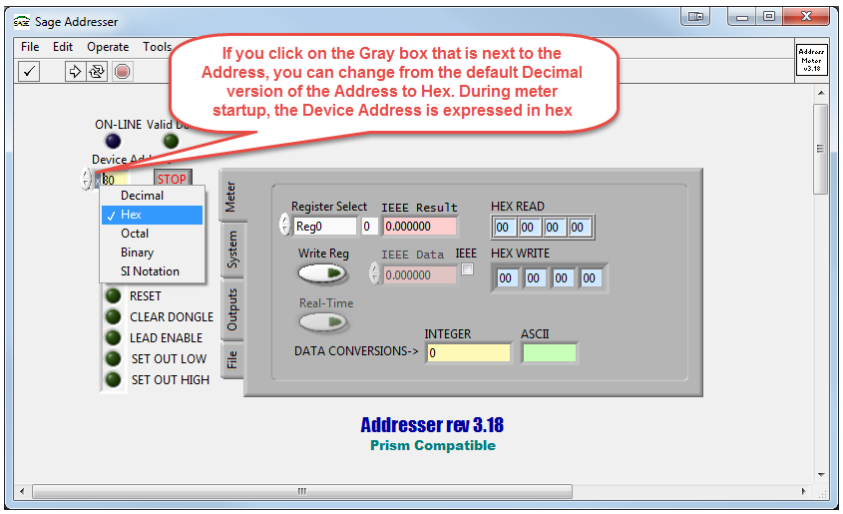
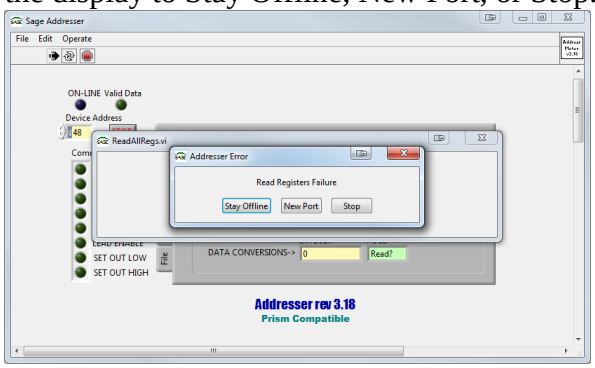
3) Note that the Device Address is listed in decimal when the Addresser begins. If desired you can have the Addresser indicate this in hex which is how the meter display shows it. Follow these instructions:



Determine Device Address

4) You can then change the Device Address to the Address of your meter. There are different ways that you can determine your meter's Device Address.

5) When first starting Addresser, if it is not communicating you can get the display to Stay Offline, New Port, or Stop.



If port has already been selected you may now click on Stop.

6) You can use Addresser search function, select Find Address

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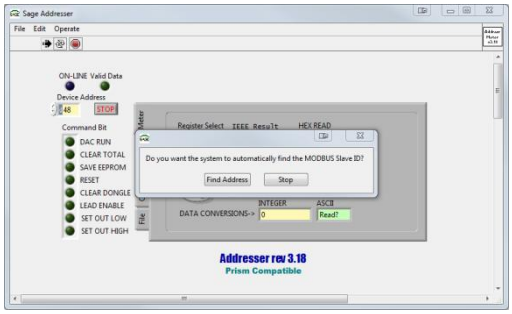
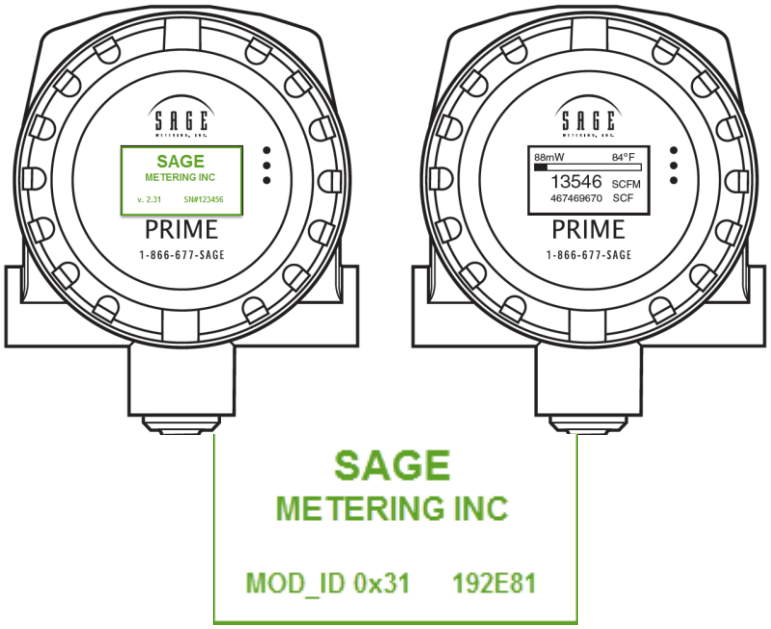


1. The Addresser will then work through all possible Device Addresses and "Should" find the correct one and begin communication.
2. Note: We say "Should" only because it sometimes searches past the proper address without selecting it. Should this occur, try the following:

7) Cycle power to your meter and observe the display during the meter initialization to determine the Device Address.



Note the 0x31 indicates the Device Address/Slave ID in hex

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8) You may also find the Device Address/Slave ID by reviewing the Certificate of Conformance supplied with every new meter

PRODUCT QUALITY CERTIFICATE OF CONFORMANCE

Product Inspection & Quality Statement

All individual parts and components which make up the product being provided have been inspected and approved for manufacture. In addition, subassemblies have been inspected, tested, and accepted for final assembly. Each completed assembly has been final tested and approved for shipment.

Conformance Statement

SAGE Metering Incorporated certifies this instrument was tested in compliance with ANSI/NCSL Z540 and ISO/IEC 17025 requirements. SAGE Metering, Inc. calibration services are derived from MIL-STD-45662A. The Prime DC24 model is Met Labs approved and Met Labs is a Nationally Recognized Testing Laboratory (NRTL) which is recognized by OSHA. The tests are performed using measuring & test equipment with certified NIST traceability. (Applicable NIST numbers are available upon request). Reproduction of the complete certificate is allowed. Parts of the certificate may only be reproduced after written permission is granted by SAGE Metering, Inc.

CUSTOMER:	**SAGE CUSTOMER**	
PURCHASE ORDER:	**123456**	
SAGE SALES ORDER:	**987654**	
MODEL:	**SRP-05-18-DC24-AIR**	
POWER REQUIREMENT:	**DC24**	
OPTIONAL OUTPUT:	**Flow, 4 - 20mA**	**100 SCF/PULSE, 250 ms**
SAGE UNIT/SENSOR SERIAL NUMBERS:	**111111-222222**	**Slave ID = 31 HEX**
TAG:		
PRIME BAUD RATE / PRIME PARITY	**19200.00**	**EVEN**
SUGGESTED CALIB/VALIDATION INTERVAL:	**12 months after Calibration**	
CALIBRATION DATE:	**2/6/2015**	
OPERATING PRESSURE RANGE:	**(14.7 PSIA + PSIG) ± 20%**	
MAXIMUM PRESSURE RATING:	**500 PSIG**	
SENSOR TEMPERATURE RANGE:	**STD: -40 to 200 F**	
ELECTRONICS TEMPERATURE RANGE:	**0° to +150° F (-18° to +65.56° C)**	
ACCURACY REFERENCED TO 70 °F (21° C):	**+/- 1% Rdg + 0.5% FS**	
CALIBRATION REFERENCE CONDITIONS:	**70 °F and 29.92" Hg**	
PROCESS GAS:	**AIR**	
PROCESS FLOW (FS, 4-20 mA)/LowFlowCutoff	**0 - 3000 SCFM**	
CALIBRATED FLOW	**3000 SCFM**	
PROCESS LINE SIZE	**4 IN SCH 40**	
PROCESS TEMPERATURE:	**120 F**	
PROCESS PRESSURE:	**125 PSIG**	
CALIBRATION TECHNICIANS:	**KT**	
HOFFER FLOW CONTROLS TURBINES	**1" SN:11718 2" SN:109420**	**3" SN:98491**
DMM's	**DMM #1 & #2**	
FLOW CALIBRATION PROCEDURE USED:	**100-0164**	
TEMP CALIBRATION PROCEDURE USED:	**100-0089**	
SPECIAL NOTES:		
SOFTWARE REV#	**2.31**	
AMBIENT AIR ZERO in mW/GAS FLOW ZERO in mW	**50**	**64**

Authorization: _____ **Date:** **February 6, 2015**

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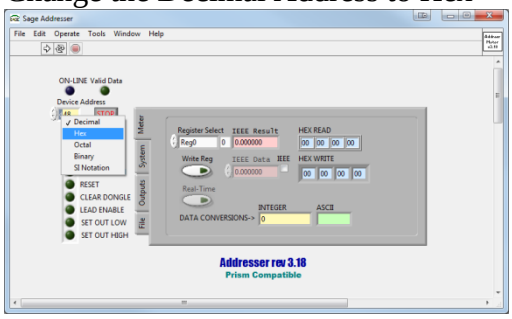
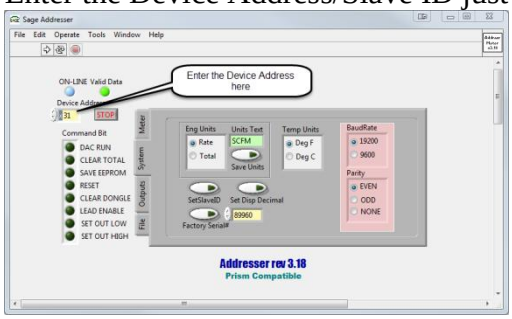
Note the Slave ID = 31 HEX to the right of the Serial number.

9) Once the Device Address/Slave ID has been determined you can enter it into the Addresser.

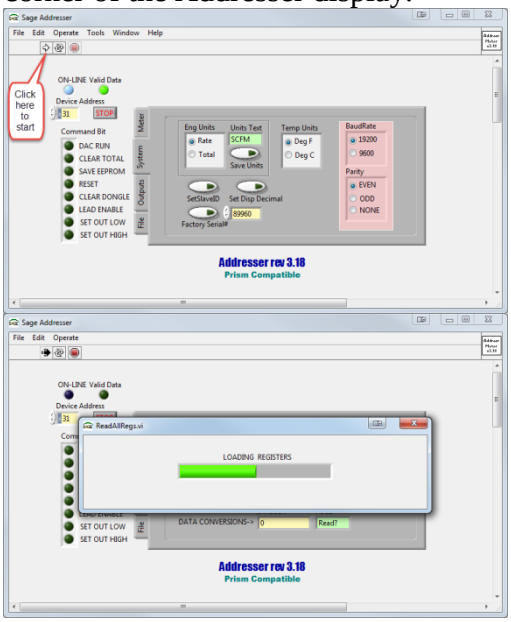
10) Change the Decimal Address to Hex



11) Enter the Device Address/Slave ID just determined.



1. Now activate Addresser again if the Port and Device Address have been corrected by clicking on the Arrow symbol in the upper left corner of the Addresser display.



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F. It is highly recommended at this time to save a copy of the data in the meter as it was supplied by the factory as a backup. See Save2File on Page 25

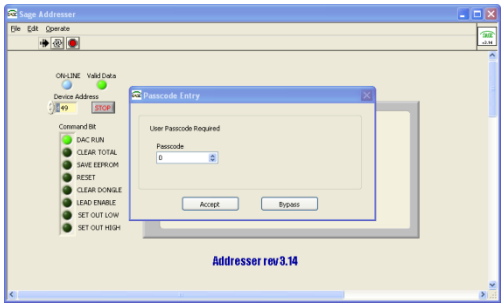
Reading / Changing Registers

(Note that the pictures in the following paragraphs are taken from an earlier version of Addresser (3.14). The results are the same with 3.18.

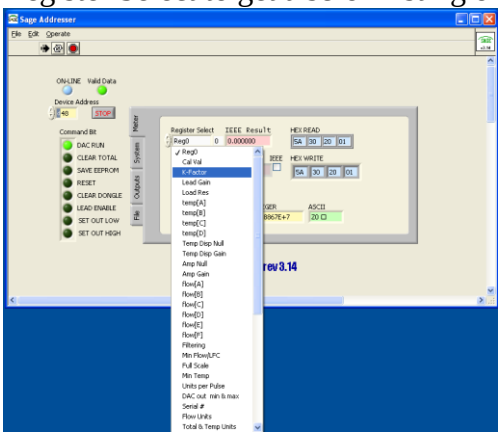
1) Now we can review the various registers that you may look at within your meter. Making changes to most of these registers should not be done.

User Passcode Required

2) The first time that you click on Write Reg to change a setting you will get a screen that says User Passcode Required.



1. This is a Passcode for Factory Only changes. Pressing Accept or Bypass will allow you to make changes to the unrestricted registers, (see para. H. below) without entering any Passcode. **Restricted registers will be read only.**
2. Go back to the Meter Tab, and then click on the window beneath Register Select to get a scroll listing of available registers.



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Registers that Should Not be Changed

G. We should first review a list of the **Registers that should NOT be changed**

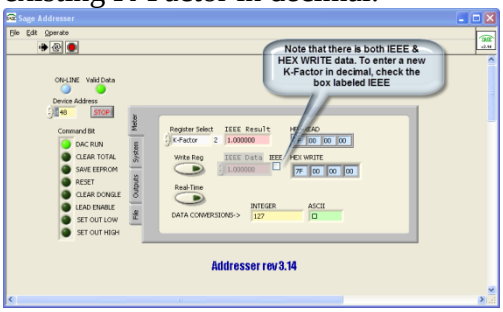
1) Cal Val, Lead Gain, Load Res, Temp Disp Null, Temp Disp Gain, Amp Null, and Amp Gain should generally be left alone as they were set by the factory.
2) Temp [A], [B], [C], & [D] are curve coefficients for the temperature calibration. These may be checked to verify they are at the factory settings, but should not be changed in the field.
3) Register flow [A] – flow [F] are flow coefficients. These may be checked to verify they are at the factory settings, but should not be changed in the field.
4) Registers below Units per Pulse in the scroll down menu should also be left alone.

Registers you can change

H. Following is a list of Registers that may be changed with or without passcode.

The K-Factor register

1) The K-Factor is a useful register when Changing Pipe Size for the flow application. Default K-Factor is 1.000000.
   1. If the factory calibration was set up for a 4” Sch 40 but you now want the meter to be placed in a 6” Sch 40, you need to set the K-Factor to the ratio of the pipe areas. Since you are placing the meter in a larger pipe, the mass flow for the same sensor mW reading will be greater.
   2. Divide the 6” area by the 4” area, 0.200629 / 0.088405 = 2.2694. Assuming the K-Factor is now 1.000000, 2.2694 will be the new K-Factor value.
   3. Select the K-Factor register by clicking the window below Register Select, then selecting K-Factor
   4. Then note the value in the window below IEEE Data – this is the existing K-Factor in decimal.



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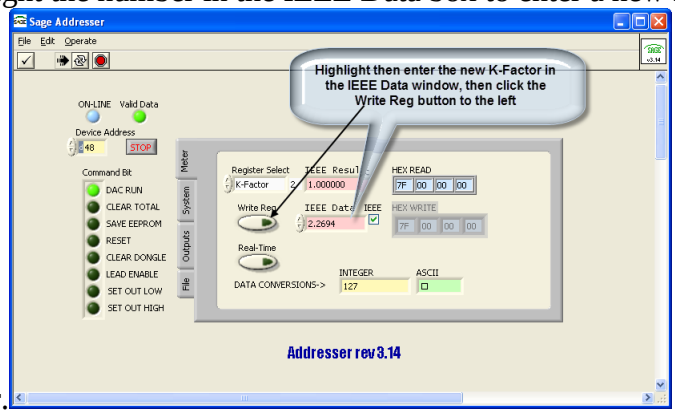
5. To change the K-Factor in decimal the box beneath IEEE must be checked as seen above.
   Highlight the number in the IEEE Data box to enter a new K-Factor.



Filtering

2) Register Filtering deals with the meter's response time and varies between 0.000001 (slowest) & 0.999999 (fastest). 0.5 is the typical factory setting

Min Flow/LFC

3) Min Flow/LFC default is 0.000000. This is the minimum flow setting, i.e. 0 SCFM. If a low flow cutoff is desired, it may be entered here. Note that the 4-20 mA output will remain at 4.00 mA until the actual flow has exceeded this cutoff setting. The current output will then jump to the value determined by ((flow reading/full scale)*16) +4.

Full Scale

4) Full Scale is the value of full scale in the Engineering Units of the meter, i.e. 1500 SCFM. This corresponds to 20 mA output. This value may be changed, but the accuracy specification will still be based upon the original full scale. The coefficients flow [A] – [F] remain the same.

Min Temp

5) Min Temp is default 40.

Units per Pulse

6) Units per Pulse refers to the Pulse Count, i.e. 1 pulse for every 100 SCF (Standard Cubic Feet).

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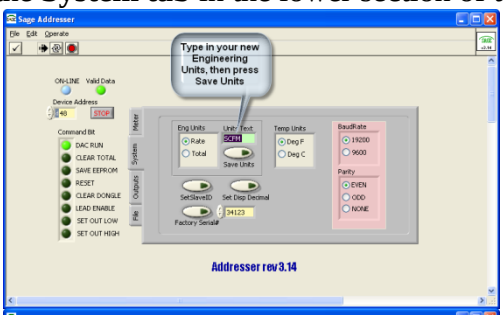
Engineering Units

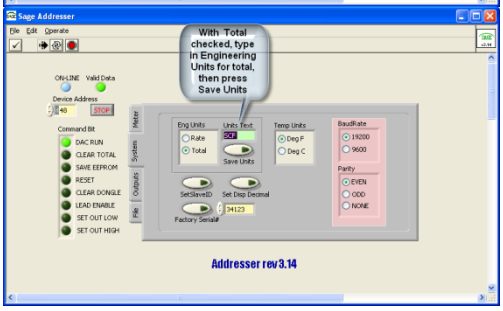
7) Engineering Units, **Caution, changing engineering units will require a change to the K-Factor and full scale. E**nter the desired units in the Units Text box, 4 digits for rate and 3 for total.

1. Select the **System tab** in the lower section of the Addresser display.

a.



b.



2. Prime will only measure in terms of seconds, minutes, hours, or days. The 4th character of the rate must be S, M, H, or D. Do not use lower case.
3. When changing engineering units in terms of days, hours, minutes, or seconds, **there will be no affect on the totalizer until the meter power is cycled off then on, or the meter is reset**.
4. These K-factors are required for the following changes:
   a. SCFH to SCFD -> K-Factor = 24
   b. SCFM to SCFH -> K-Factor = 60
   c. SCFM to SCFS -> K-Factor = 1/60 = 0.016667
5. **The full scale will need to be changed as well**. You may increase it by 24 times if changing from SCFH to SCFD, by 60 times if going from SCFM to SCFH, or decrease it to 1/60 if from SCFM to SCFS.

Deg F or Deg C

8) You can also change from Deg F to Deg C. Click in the appropriate circle.

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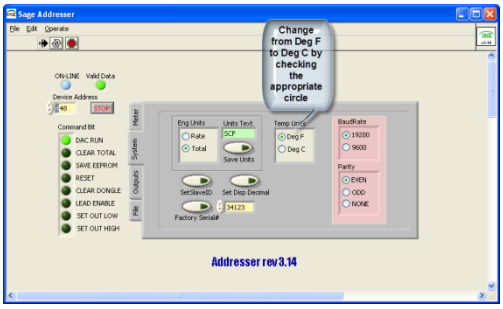
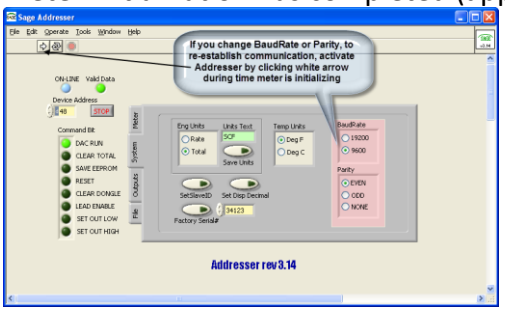


Optional Baud rate and Parity

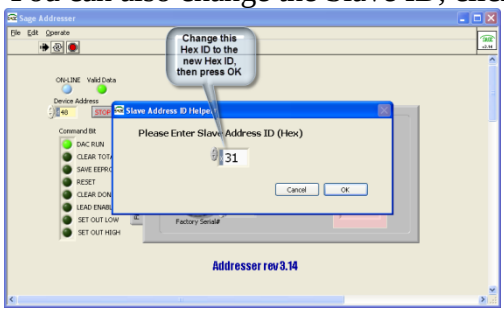
9) Optional Baud rate of 9600, and parity ODD or NONE may also be selected.

1. **Caution, changing from the default settings will affect how you can communicate through the Addresser to the meter under test. If these settings are changed, and the communication link is broken, you cannot just restart the Addresser as in the beginning.**
2. If baud rate or parity has been changed, the meter must be powered down, then back on again. Also, the Addresser must be stopped and restarted during the power up sequence, by clicking on the arrow symbol at the upper left portion of the Addresser display before the meter initialization has completed (approximately 10-12 seconds)



Slave ID

10) You can also change the Slave ID, click on SetSlaveID.



1. Enter the new address in Hex, and then click OK.

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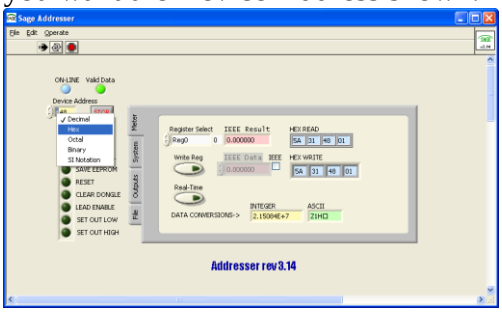
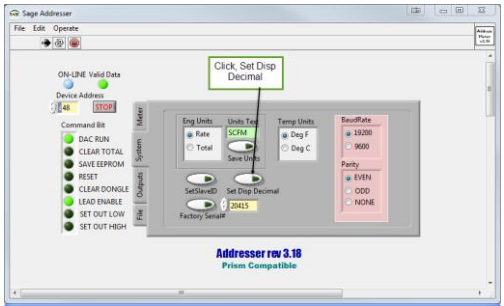
2. Note that the Device Address in the upper left corner of the Addresser is in Decimal in the default mode. This can be changed to hex. Click the dark gray box to the left of the address block, and then select how you want the Device Address shown.

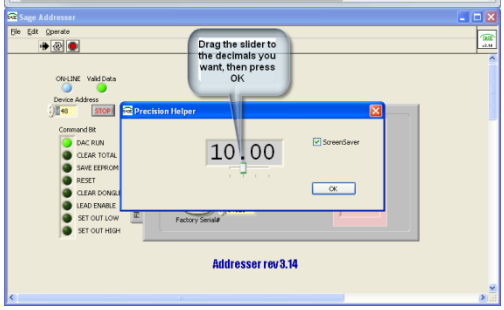


Change Number of Decimals Displayed

11) You may also set the number of decimals to be displayed on the meter display, from 0 to 3 decimals. In the System tab, Click Set Disp Decimal.

12)





Move the slider to the left until the desired decimal is shown, then click OK.

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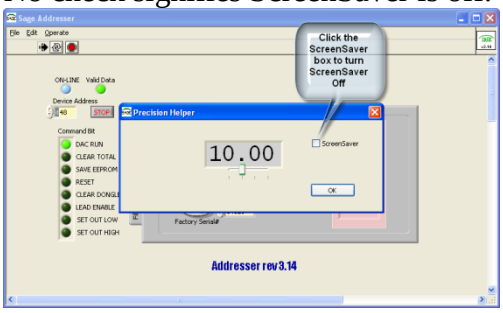
Screen Saver

13) Note that this same Set Disp Decimal box also has Screen Saver listed.

1. If your meter is equipped with Screen Saver code, 1.88 and newer, you may **optionally** turn off the screen saver though this is **<u>not recommended</u>**. The Screen Saver is standard on the Prime to extend the life of the OLED display. **Turning it off will likely cause premature failure of the display.**
2. A check in the ScreenSaver box turns screensaver mode on.
3. No check signifies ScreenSaver is off.



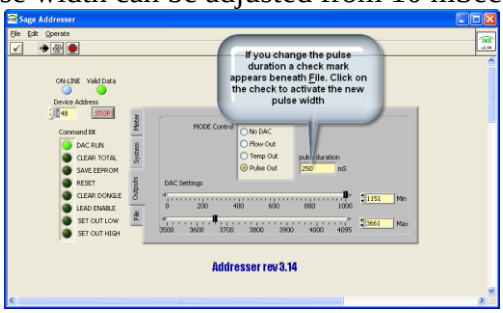
Factory Serial Number

14) **The Factory Serial# cannot be changed.**

Output Settings

15) Select the Outputs tab in the lower section of the Addresser display. This controls the output settings

1. With No DAC checked, there is no 4-20 mA or pulsed outputs.
2. Flow Out gives only 4-20 mA output for flow. Note if the Units/Pulse register has been changed the temperature reading of the meter may be affected. If using Flow Out, reset Units/Pulse to 200 (default).
3. Temp Out gives only 4-20 mA output for temp
4. Pulse Out gives both flow 4-20 mA and Pulsed output. Pulse width can be adjusted from 10 mSec to 1,000 mSec.



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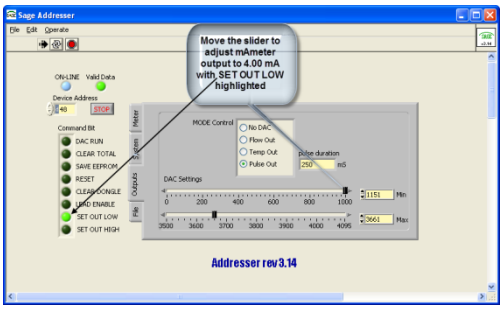
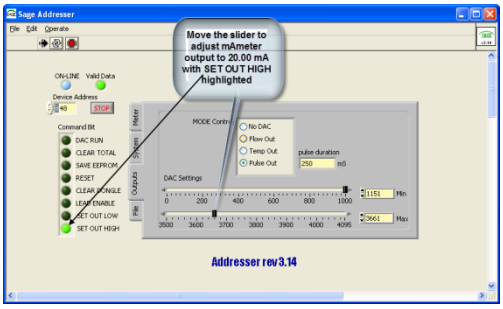
a. The 4-20 mA output, whether for flow or temp, is set by adjusting the sliders or the numbers in the boxes next to Min and Max.

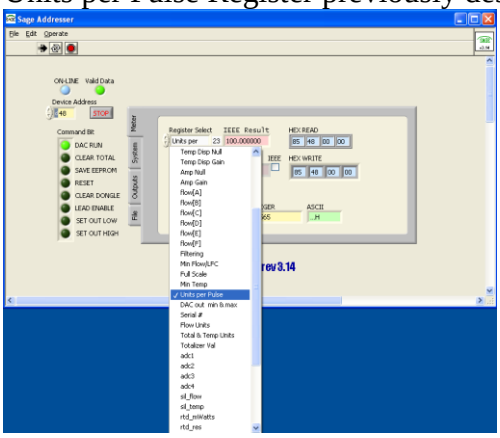


b. Click the Command Bit SET OUT LOW, and then adjust the mA output to 4.00 mA as measured between pins C5 & C6 of the user accessible terminals.



c. Click the SET OUT LOW Command Bit again to turn it off, then click on SET OUT HIGH, and then adjust the mA output to 20.00 mA as measured at pins C5 & C6

5. If Pulse Out is selected, the flow 4-20 mA and pulsed output are both activated. The number of mass flow units per pulse is set with the Units per Pulse Register previously described.



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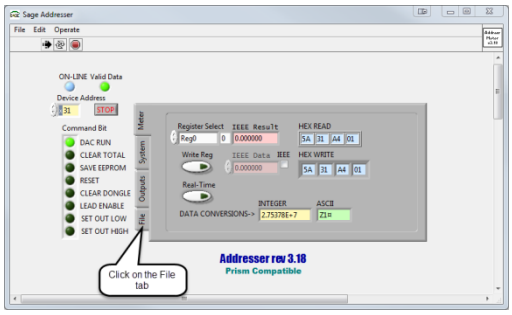
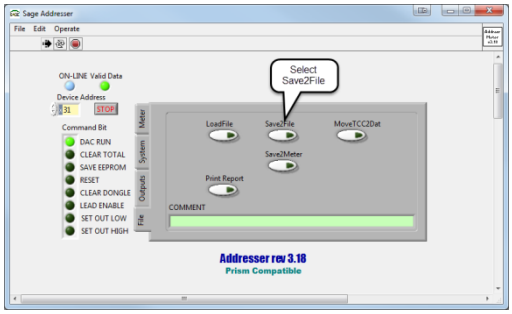
Save2File

I. **Note: Save2File should be accomplished as a backup BEFORE changes are made to a meter fresh from the factory.**

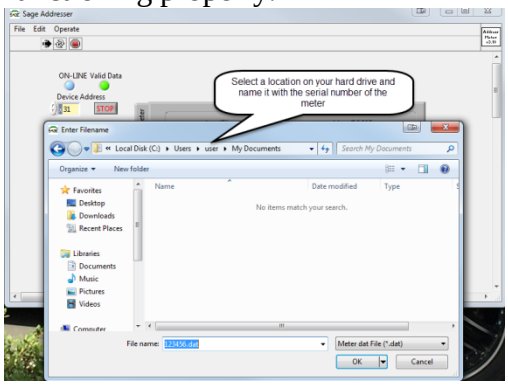
1) **Click on the File tab**



2) Now select Save2File.



3) You will be asked to enter a file name and location to store a .dat file. This file will contain the necessary data to reset the meter to the initial configuration if improper changes are made and the meter is not functioning properly.



4) You may also make a copy of a Report of the meter Registers. Click on Print Report.

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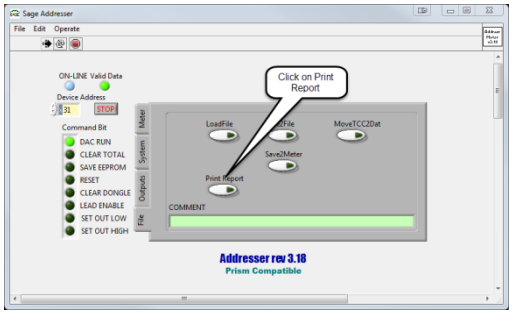
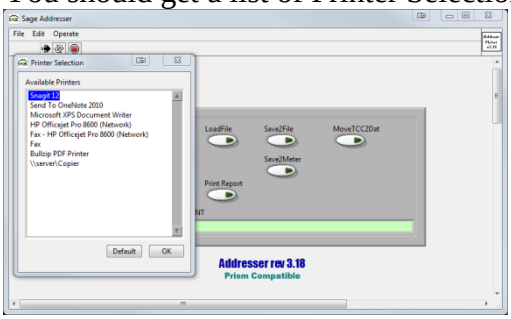


1. You should get a list of Printer Selections for your computer.



2. Select an appropriate option. You will see a report similar to this:

SMB Printout **Units: SCFM Modbus: 0x31** **11/5/2014**
Serial# 89960 **10:16:41 AM**

Parameter	Decimal Data	Hex Format
Calib mW Val	75.33599	8516AC08
K-Factor	1.000000	7F000000
Lead Gain Val	1.000000	7F000000
Flow Load Res	20.10000	8320CCCD
Temp Calib[A]	-9.34835	829592DC
Temp Calib[B]	1.351913	7F2D0B80
Temp Calib[C]	-0.00270	76B1246D
Temp Calib[D]	0.000007	6D5AE7C0
Temp Disp Null	0.000000	00000000
Temp Disp Gain	1.000000	7F000000
Amp Null Val	0.000000	00000000
Amp Gain Val	1.000000	7F000000
Flow Coeff[A]	-1.07584	7F89B54B
Flow Coeff[B]	0.038187	7A1C69C7
Flow Coeff[C]	-0.00055	7490D537
Flow Coeff[D]	0.000004	6C76F9B2
Flow Coeff[E]	-0.00000	648834BB
Flow Coeff[F]	0.000000	596F7288
Filtering	0.500000	7E000000
Min Flow/LFC	0.000000	00000000
Full Scale	25.00000	83480000
Min Temp	40.00000	84200000
Units/Pulse	200.0000	86480000
DAC1 Min	812.0000	0000032C
DAC1 Max	4026.000	00000FBA
Serial Number	89960.00	00015F68
Flow Units	12964504	4D464353
Total Units	11790099	46464353
Output Config	164.0000	000000A4
Pulse Dur	250.0000	000000FA

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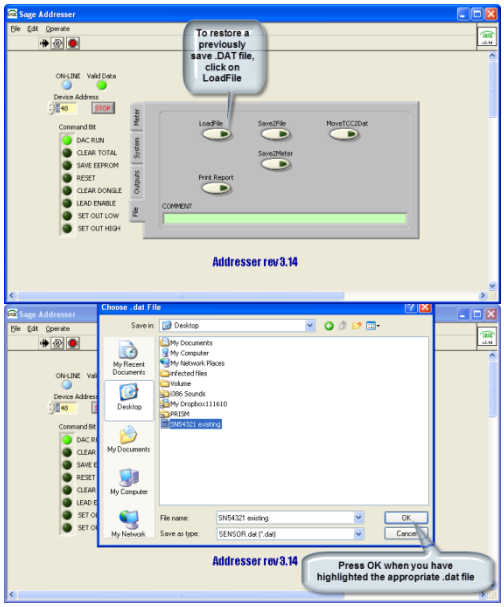
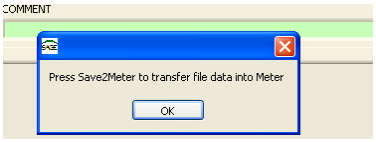
To Restore a saved .DAT file such as created in Save2File

5) Select LoadFile.



1. Select the .DAT file you wish to restore:
2. When you click OK the Addresser will be loaded with the registers stored in the .DAT file selected.
3. A reminder to Save2Meter will come up on the display



4. **Click OK, and then click on Save2Meter**
5. **This will transfer the data from the Addresser to the meter.**

Additional Register Changes

6. For changes to other registers, please consult factory.

Prism Supplemental Instructions

7. If you are working with a Prism, see the following

Initial setup

A. Copy the entire Folder titled Prism Drivers to the Program Files Folder of the hard drive of your computer.

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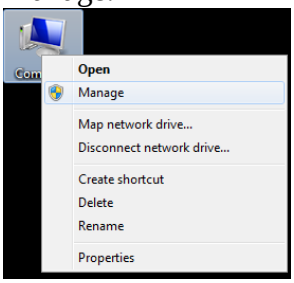
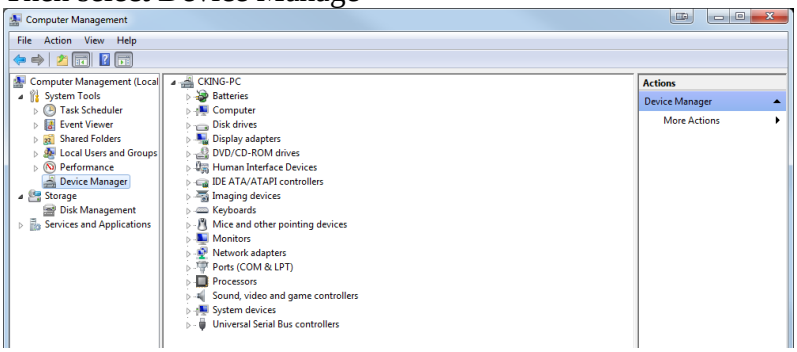
B. Connect the USB to Mini USB (UART) cable from your computer and to the Mini USB port on the Prism.

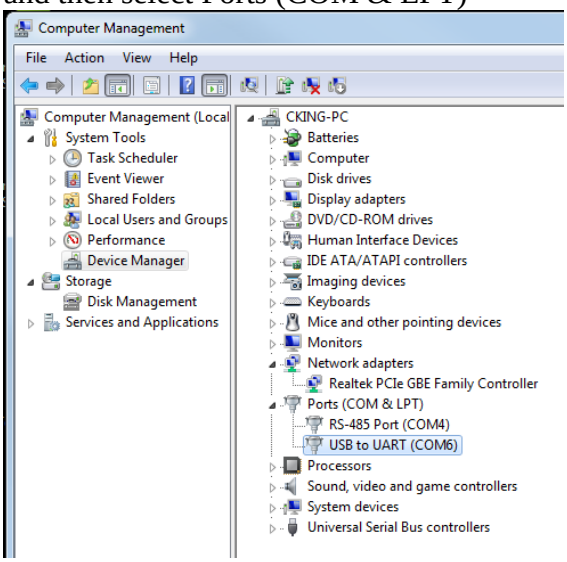
C. Right click on the My Computer Icon on your Desktop and then select Manage.



Then select Device Manage



and then select Ports (COM & LPT)



D. Note the USB to UART (COM6) in this example. This will be the Com Port for the Addresser to talk to when it is started.

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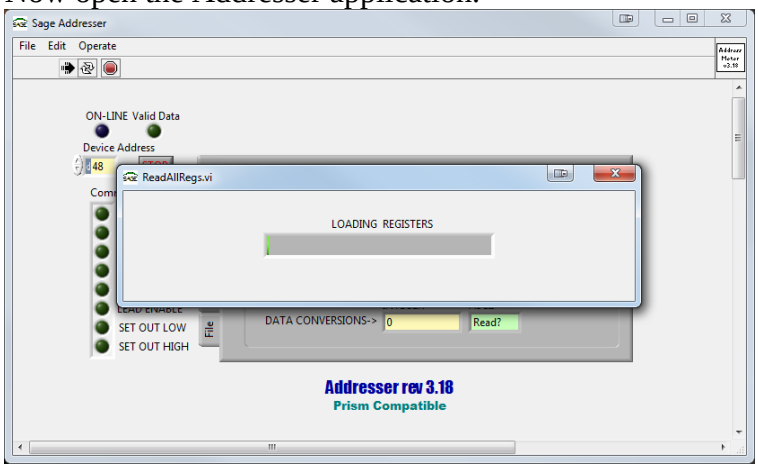
Addresser Operation

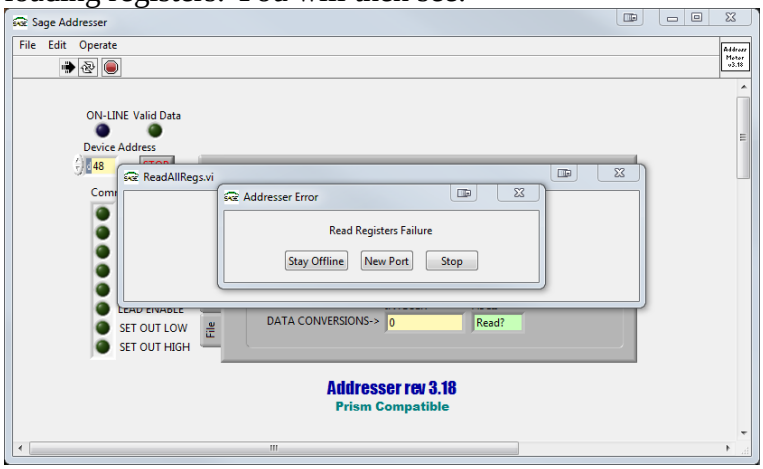
E. If the Addresser is not set to the COM port noted in the previous step, you will get:

Read Register Failure

1) Now open the Addresser application.



2) If the Port has not yet been selected, the Addresser will NOT begin loading registers. You will then see:



3) Click on New Port. The drop down should show COM6 or whatever Port identified in step above.
4) If the appropriate port is not listed in the Drop Down, click refresh and then check the drop down again.

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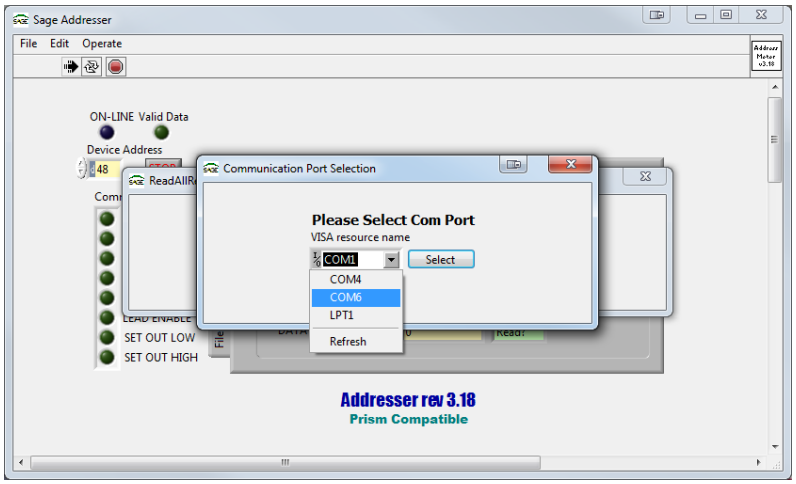
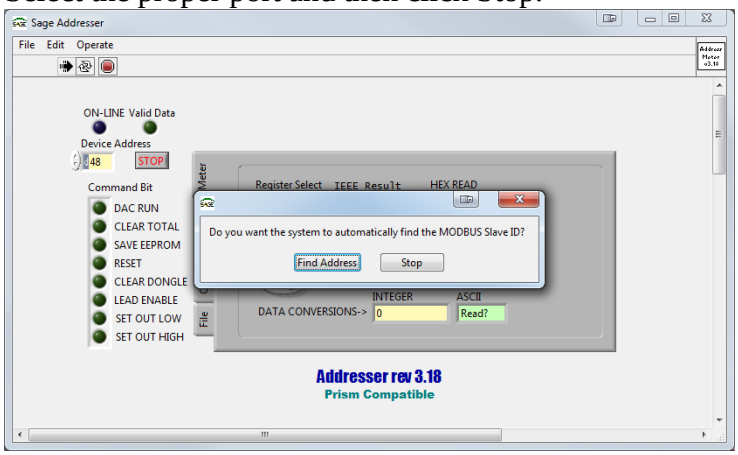


5) Select the proper port and then click Stop.



6) Now activate Addresser again if the Port has been corrected by clicking on the Arrow symbol in the upper left corner of the Addresser display.

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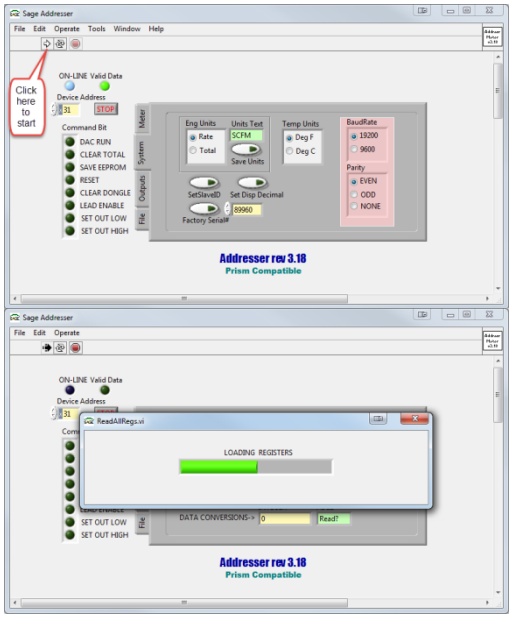
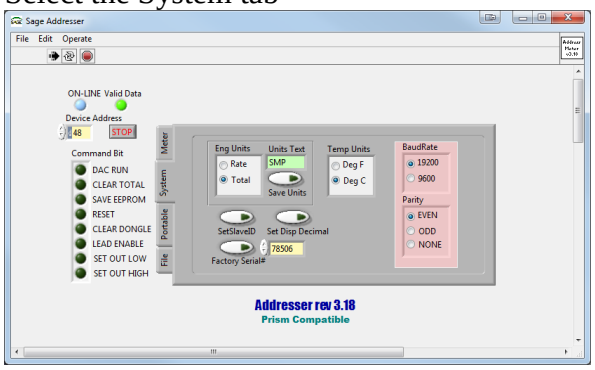


PRISM does NOT Totalize

7) Select the System tab



8) Click the Total button beneath EngUnits.
9) Note the Units Text for Total is SMP (Sage Meter Portable)
10) **Caution: Do NOT change the Units Text for Total. It must say SMP. If this is changed, the Addresser will no longer see the meter as a Portable or Prism**
11) You should now see a new tab on the Addresser titled Portable.

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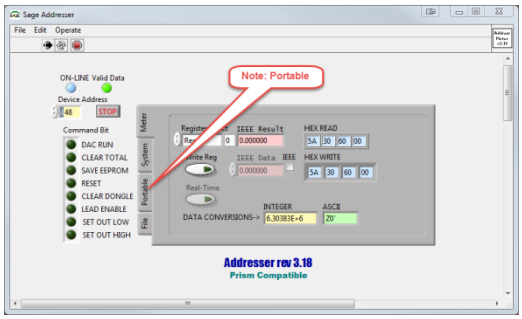
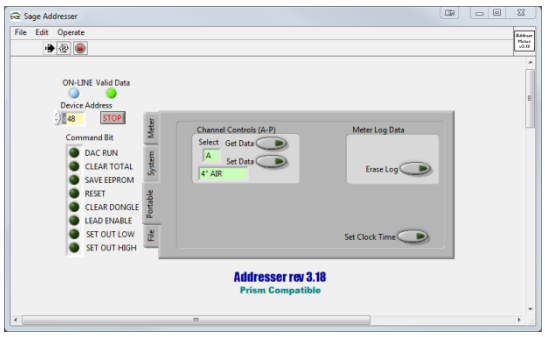


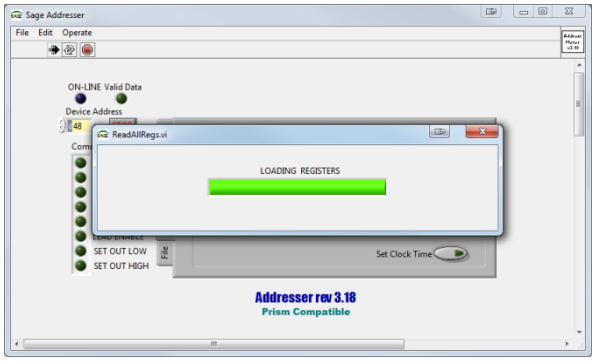
Rename this Channel

12) Click the Portable tab



13) Highlight the current name and then type in your new name, NatGas 4", and then click on Set Data

14) To verify the name has been properly entered, you may want to click on Get Data. The Addresser will retrieve the Channel A data and show the new name



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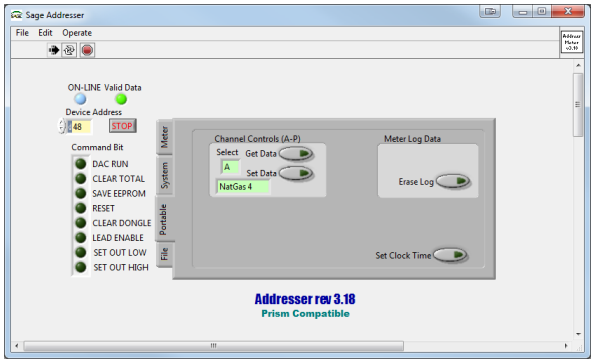
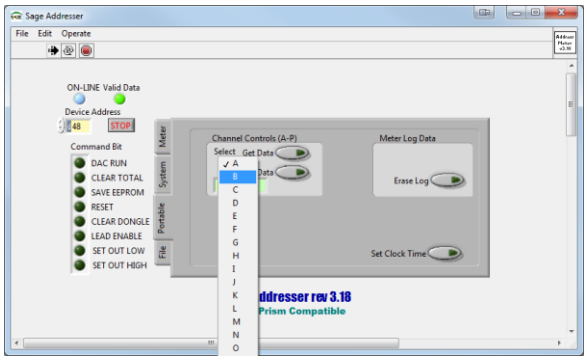
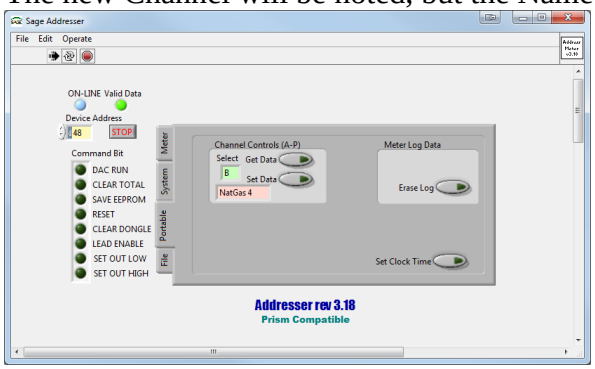


Copying Channels

15) Left click in the Select box and select the Channel to copy to.



16) The new Channel will be noted, but the Name will be in Pink



17) Click on Set Data, but note that the Name is still Pink. Click on Get Data to retrieve the data that has been stored.

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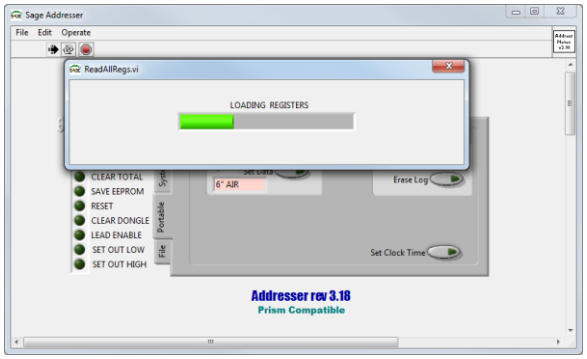
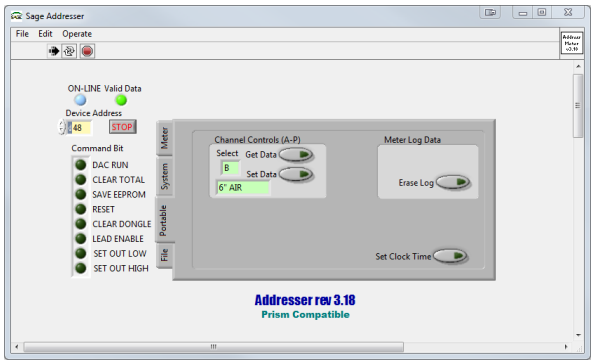


18) Now note that the Title has changed to what was stored in Ch B and is now also Green.



Changing pipe size and/or full scale.

19) Note that the pictures in the following paragraphs are taken from an earlier version of Addresser 3.14. The results are the same with 3.18

20) Now all of the flow data from Channel A has been copied to Channel B. As an example, let's say we want Channel B to be NatGas but in a 6" line.

21) This can be accomplished by changing the K-Factor in the Meter tab of the Addresser. To determine the proper K-Factor, calculate the areas of the "from" and "to" pipes.

1. 4" Sch 40 = 0.0884 Ft^2; 6" Sch 40 = 0.2006 Ft^2
2. The same flow in a larger pipe will result in more mass flow, so to calculate the K-Factor: 0.2006/0.0884 = 2.269
3. Click on the Meter tab of the Addresser

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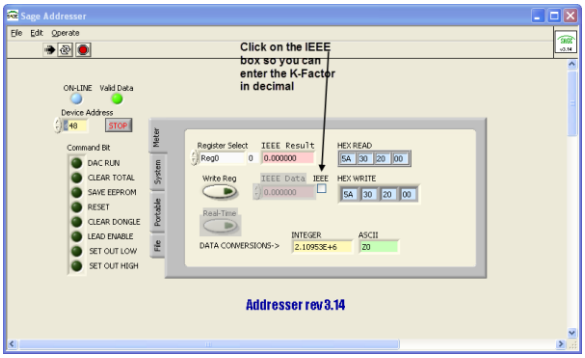
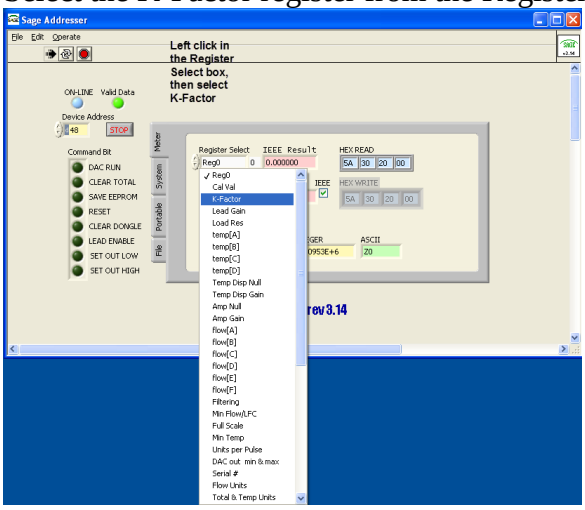
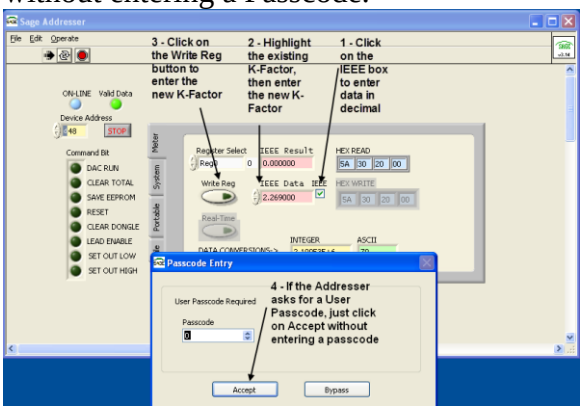


4. Select the K-Factor register from the Register Select box



5. Click on the IEEE box to enter the K-Factor in decimal, highlight the IEEE Data box and enter the new K-Factor, 2.269 and then click on Write Reg. If the Addresser asks for a Passcode, just press select without entering a Passcode.



22) You can also enter a new Full Scale at this time.

1. Select the Full Scale register from the Register Select box.

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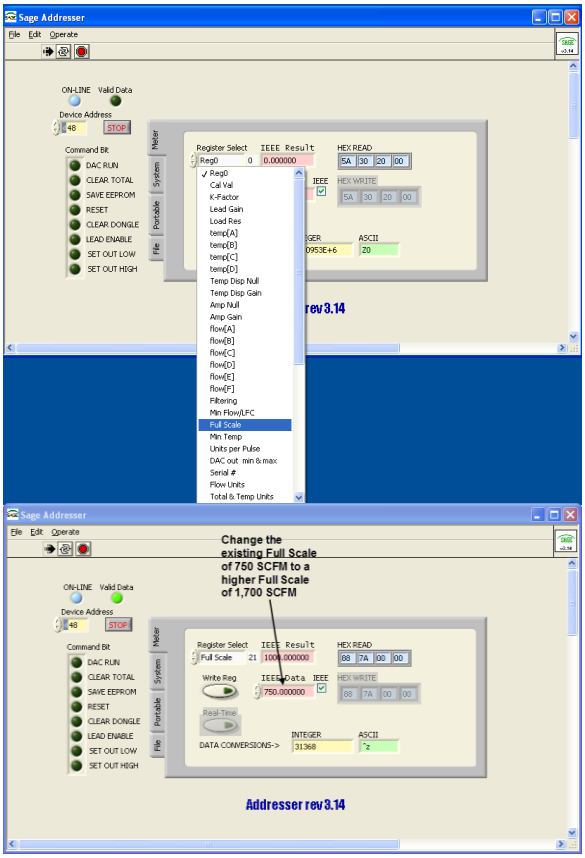
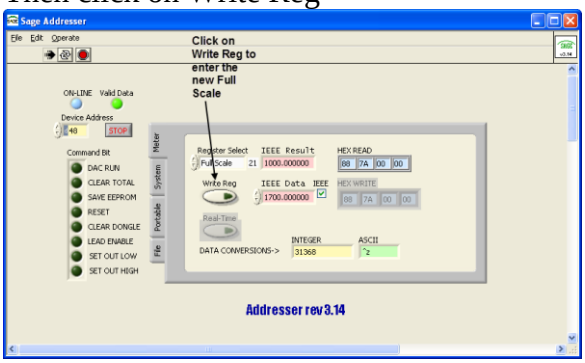


2. Then click on Write Reg



3. Click on the Portable tab of the Addresser to rename this new Channel to NatGas6" and Set the new name and Data

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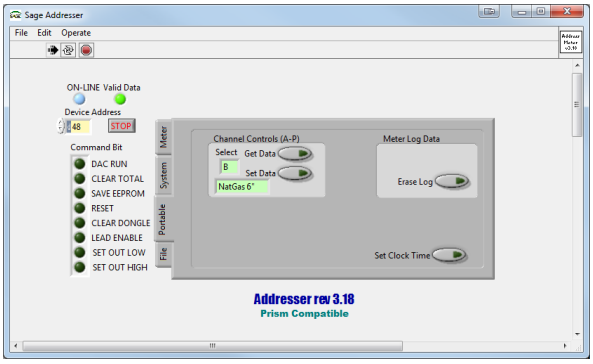


4. You now have Channel A set up for Nat Gas in a 4" and Channel B set up for Nat Gas in a 6" pipe.

BASIC Supplemental Instructions

8. If you are working with a BASIC, see the following

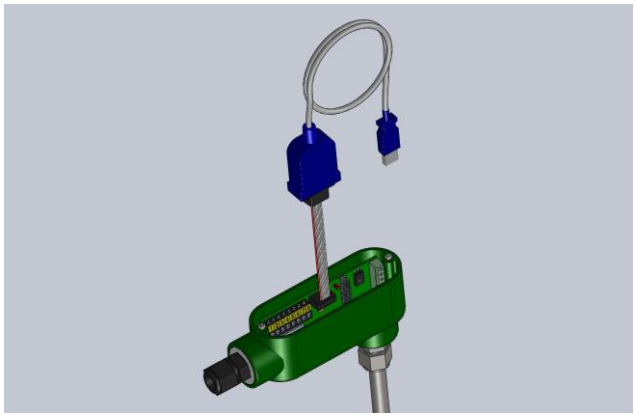
USB to Serial Converter Driver Installation

Do not connect the USB Serial Converter to your computer before completing the driver installation

A. The BASIC Addresser CD contains drivers for the Plugable USB Serial Converter.

B. Double click the PL-2303_Prolific_DriverInstaller_v****.exe application and follow the instructions.

C. Your USB to Serial converter is now ready for use with the ribbon cable to connect to the BASIC meter as illustrated below.

D. 

E. With power to the meter off, connect the ribbon cable, 10 pin female plug to J5 on the Basic PCA.

F. Connect the DB9 female plug of the ribbon cable to the DB9 male connector on the USB to Serial converter.

G. Insert the USB plug into your computer USB port.

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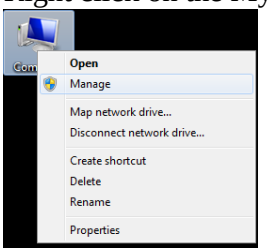
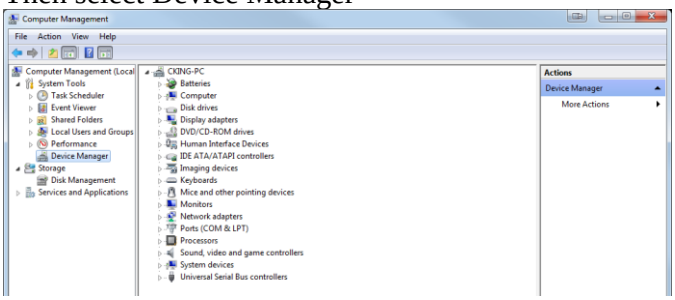
Determine USB to Serial Port

9. Once the Addresser and USB to Serial applications have been installed, and everything has been connected as instructed above you need to determine which port on your computer is the USB to Serial port.

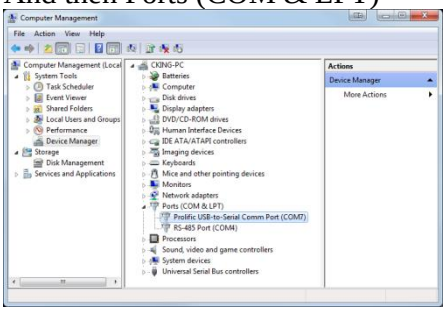
   A. Right click on the My Computer Icon on your Desktop and then select Manage.



Then select Device Manager



And then Ports (COM & LPT)



   B. The USB Serial port in this example is COM7

   C. You may now return to Addresser Operation Paragraph 5 to make changes to your BASIC

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