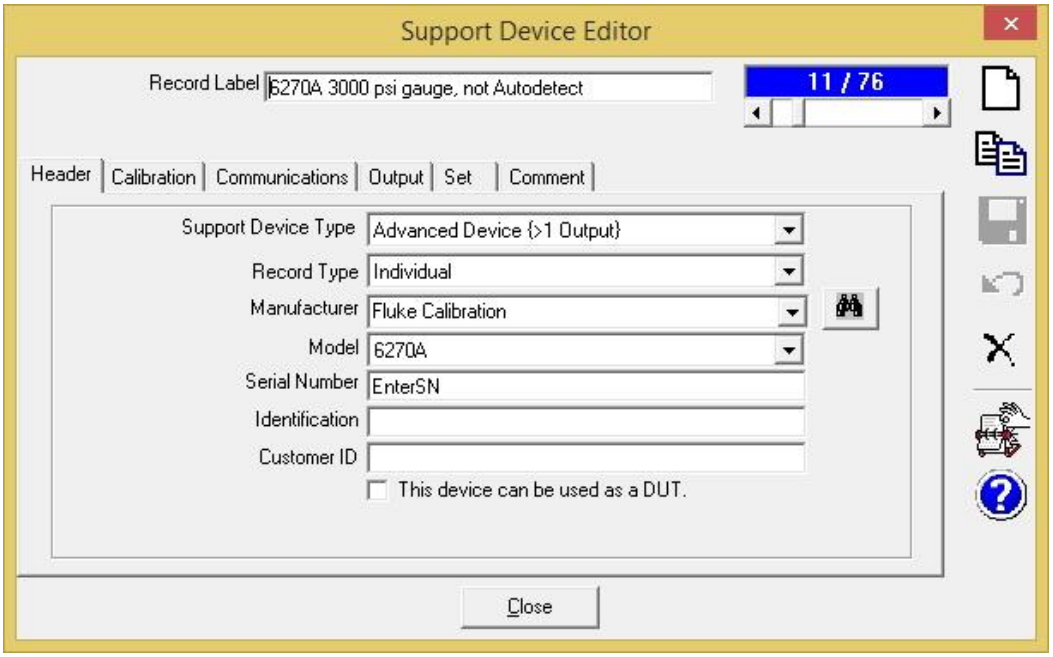
6270A Setup as a non-Autodetect (manual) Support Device in COMPASS

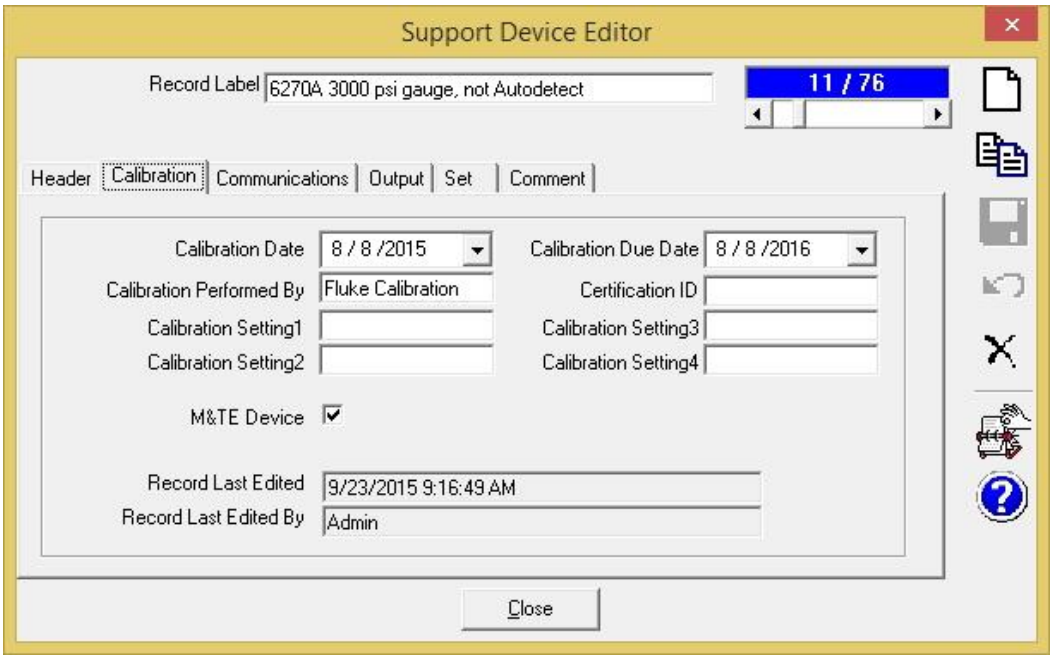
The 6270A pressure controller can be setup as an Autodetect device in COMPASS for Pressure version 5 and higher. This is the preferred method to use a 6270A in COMPASS for Pressure.

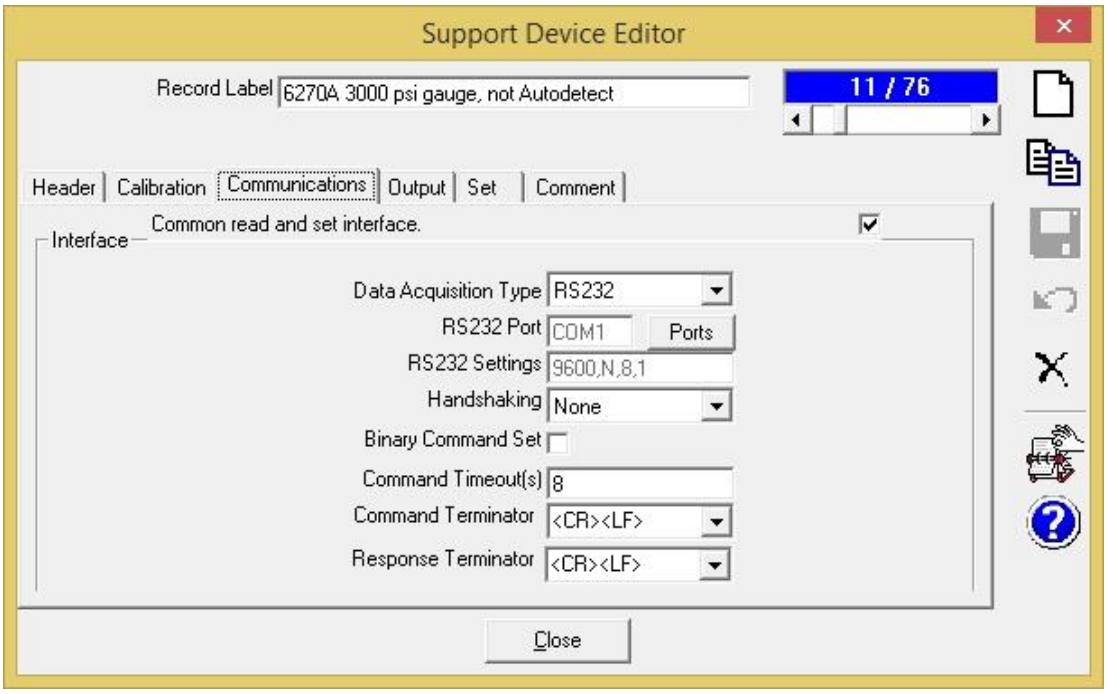
However, it is quite easy to setup as a non-Autodetect device. Instructions below are screen-shots from the setup in COMPASS for Pressure. These screen-shots show the commands that can be used with any software (e.g. LabVIEW, HyperTerminal, Putty).

Note that the highest ranged module should be in slot 1 of the 6270A controller (due to a bug in COMPASS for Pressure that will be fixed in v5.0.50.

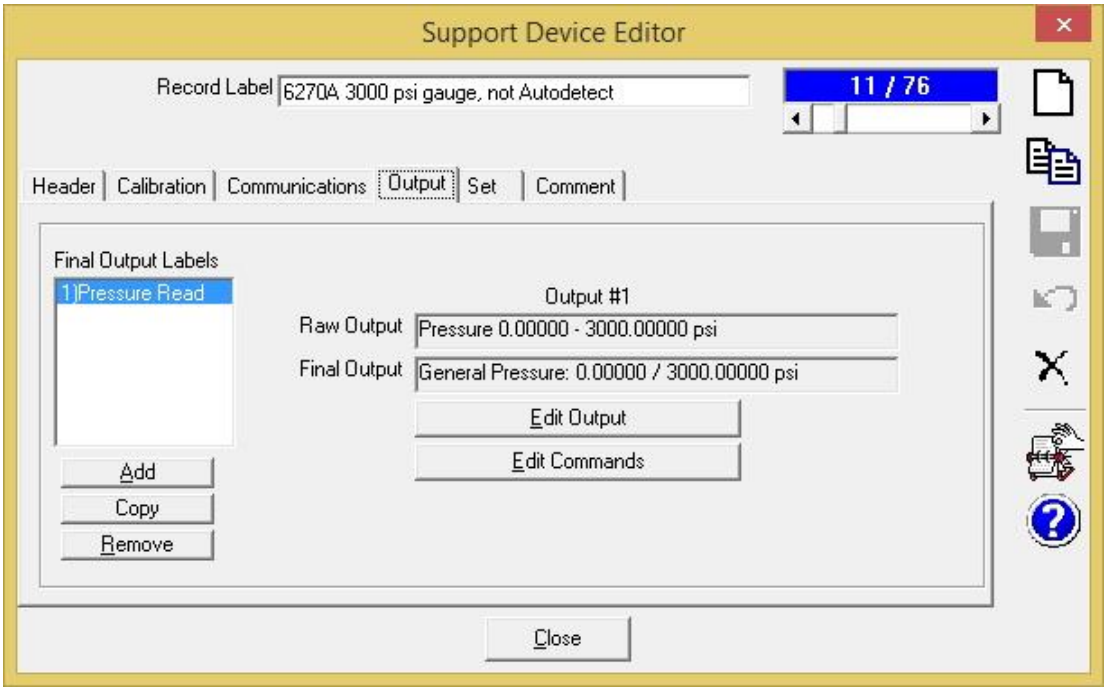
In COMPASS for Pressure, make a new Support Device by the [Setup], <Support Device> menu path, then click the blank white paper icon to make a new Support Device. Fill in the blanks and make selections as follows.



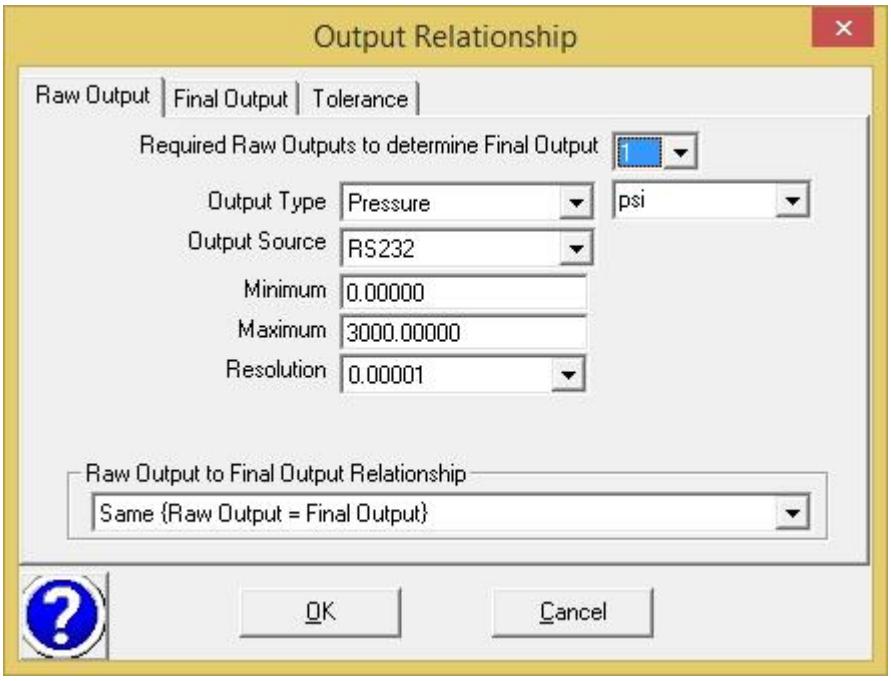




This setup goes to 3000 psi but you can edit as necessary on the following screens.



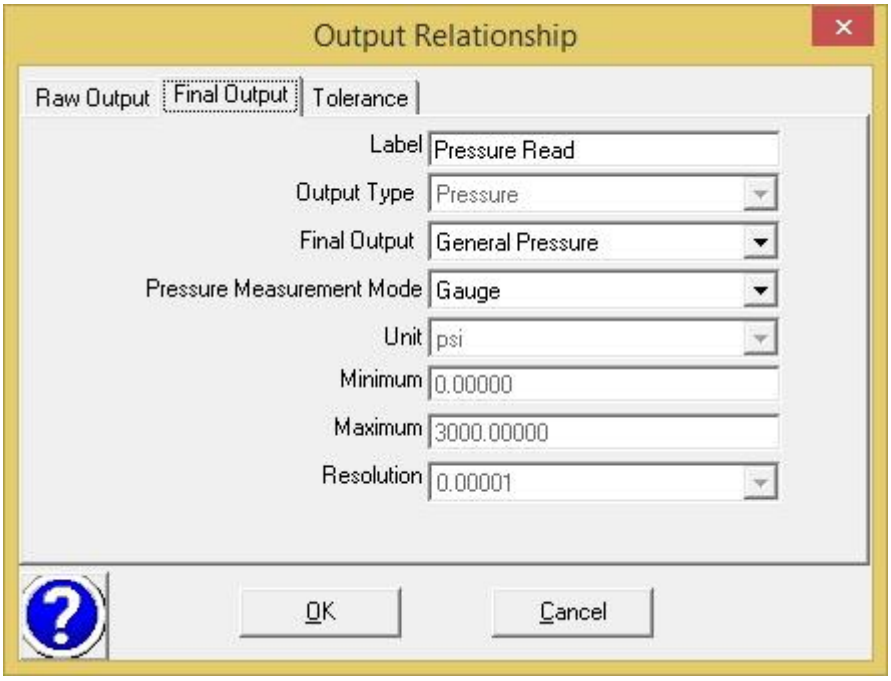
Edit the max pressure as necessary, and the resolution. If you have a very low range PMM like that 2.5K you will want six digits of resolution past the decimal.



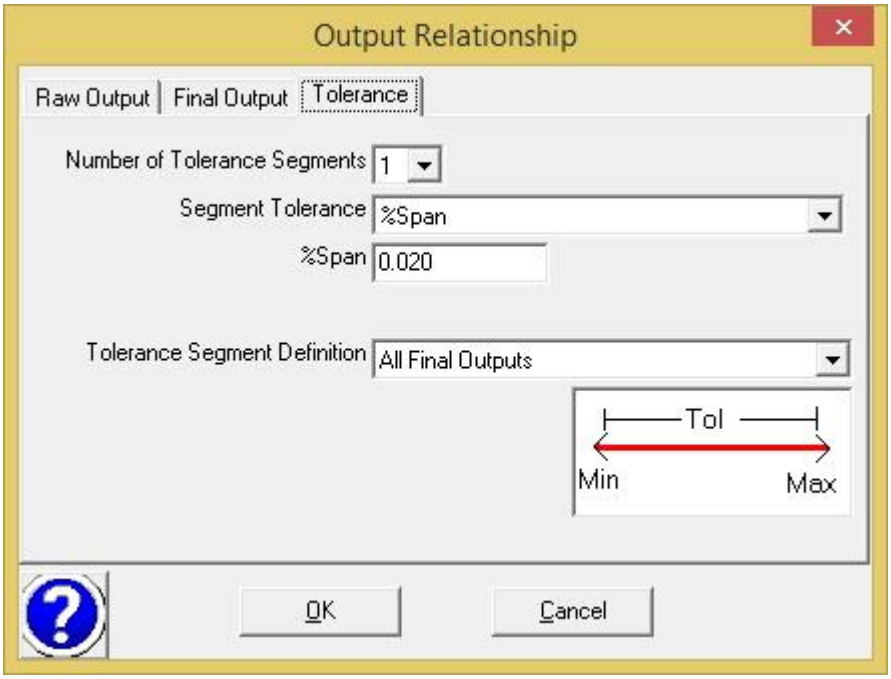
Change to absolute mode if necessary. If you want to operate in absolute and gauge mode there are two options:

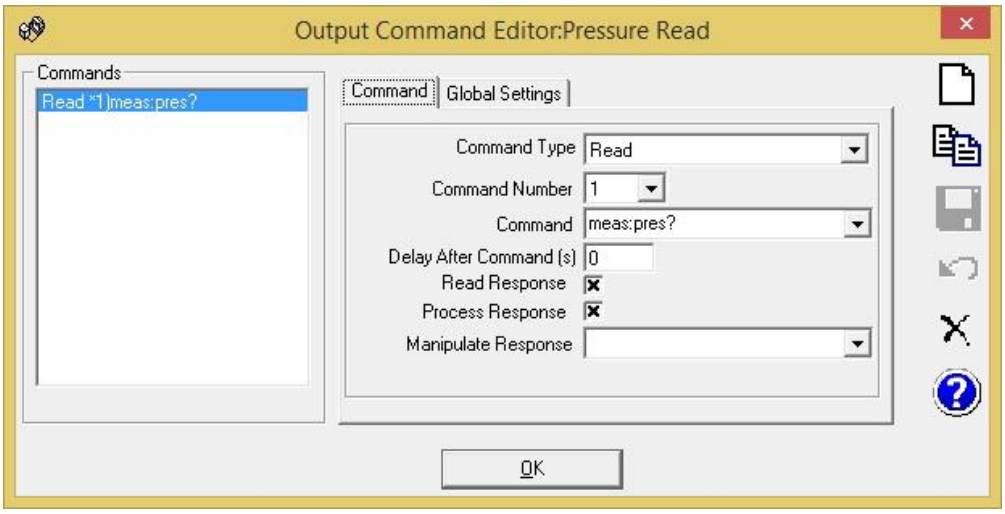
1. Make this an advanced device and make two outputs that are the same but one is gauge, the other absolute

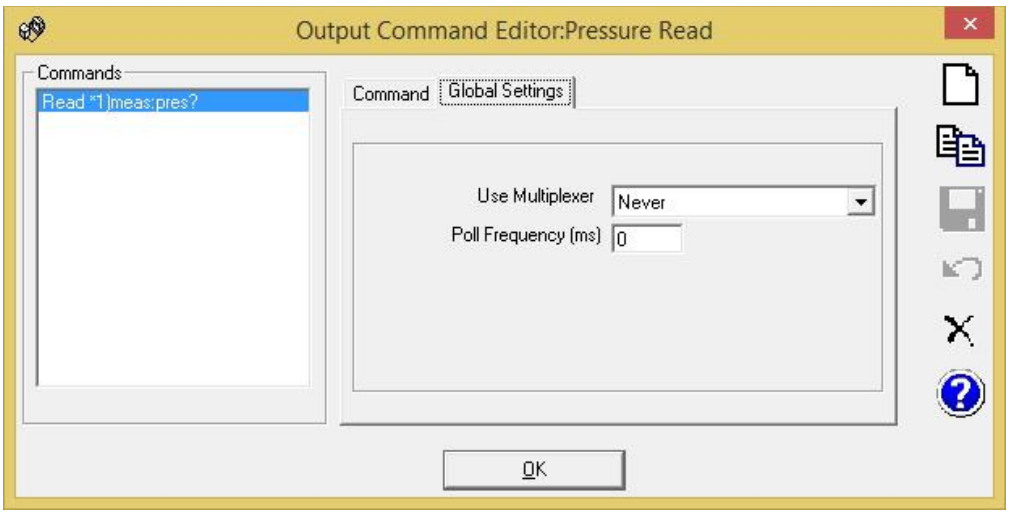
2. Copy this setup when done, copy it, and change the new setup to absolute.



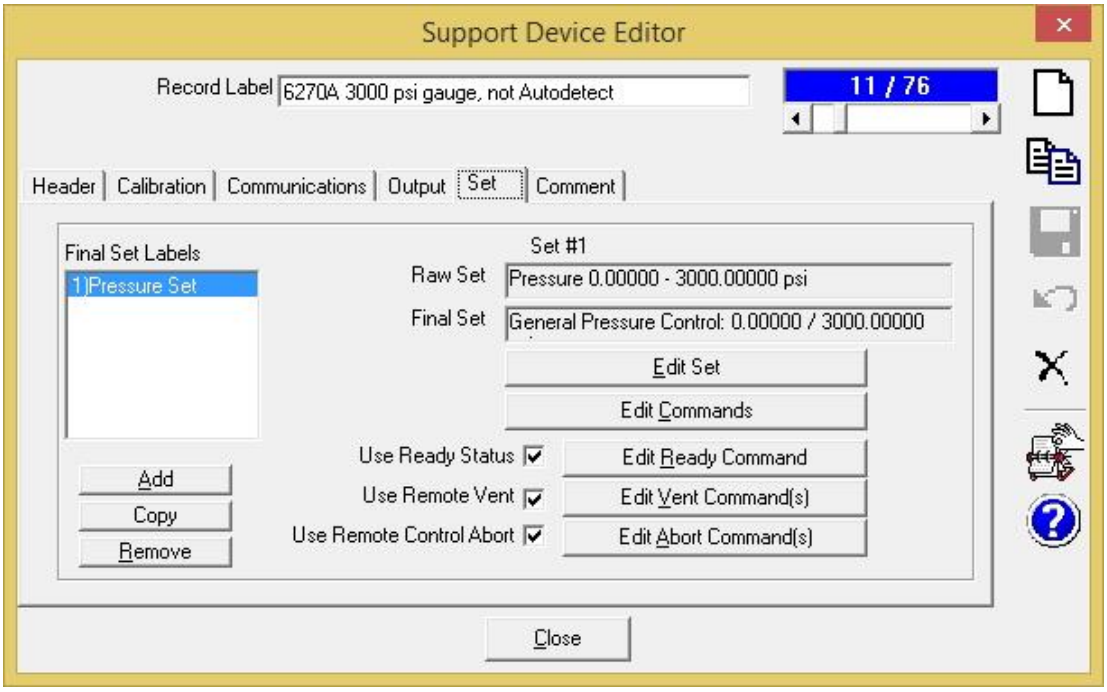
This is the tolerance for a PM200 module. Edit as necessary.

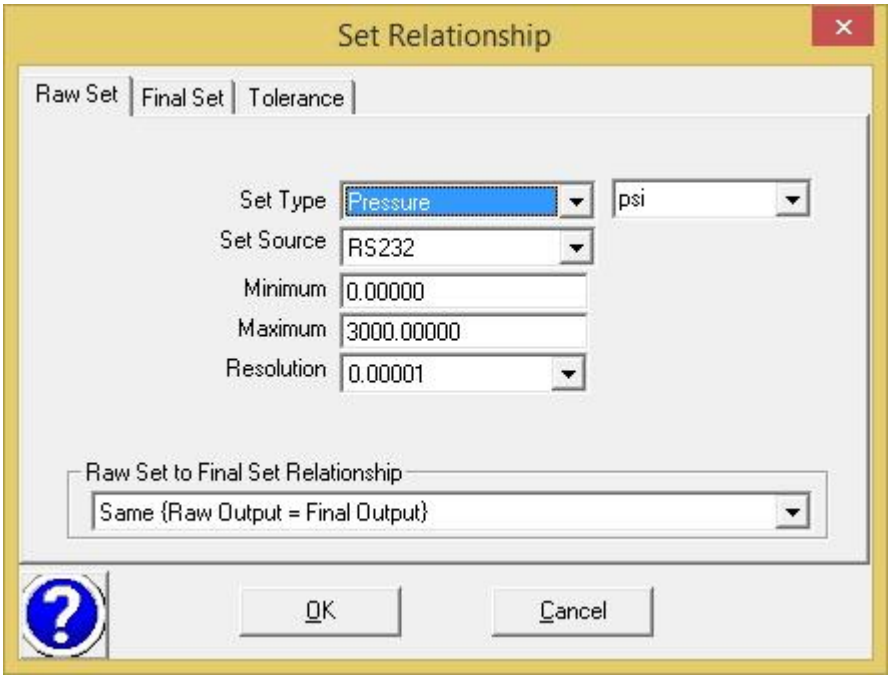


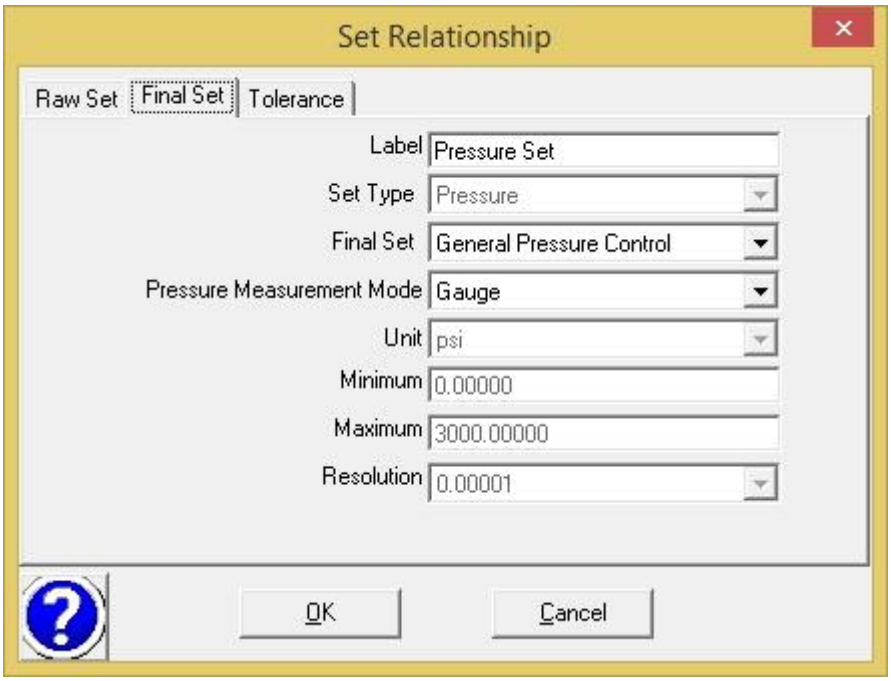


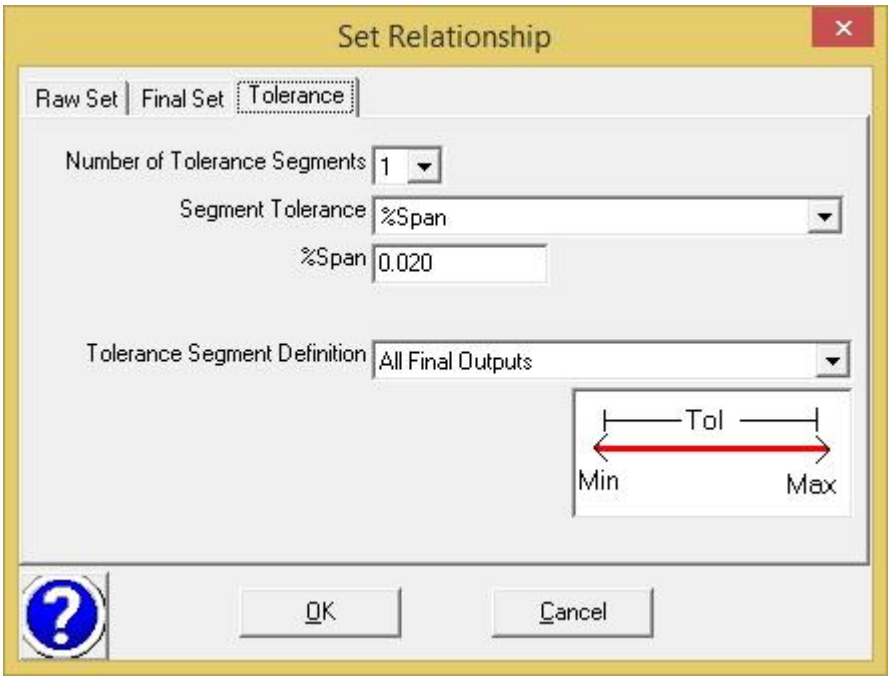


The Set tab

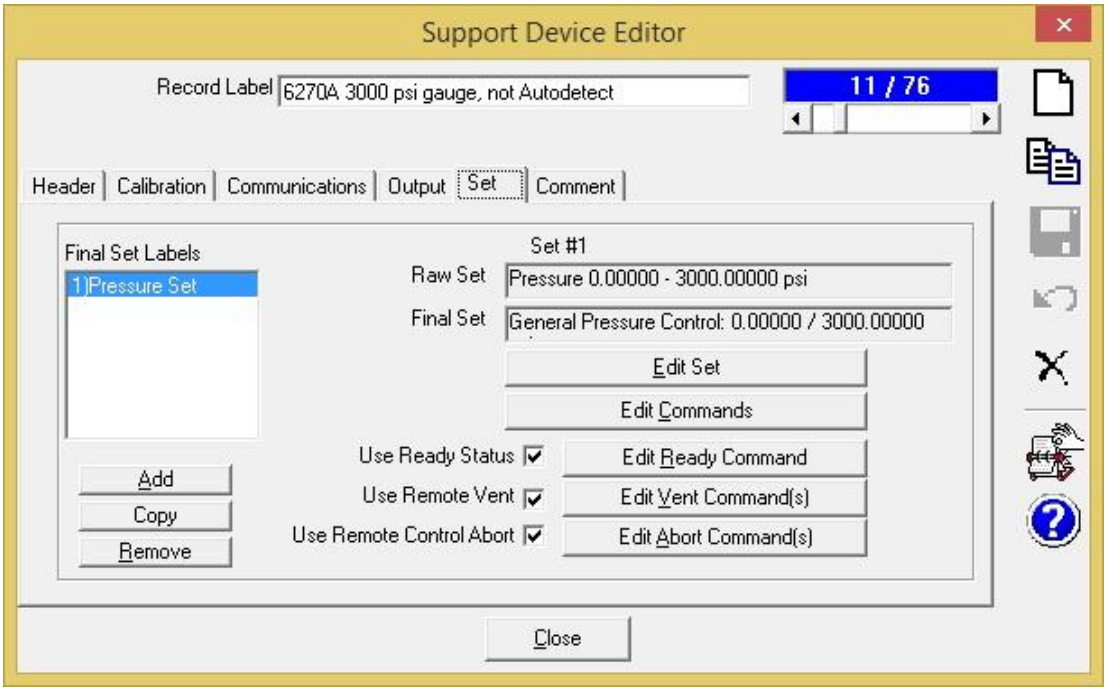

Support Device Editor
Record Label
6270A 3000 psi gauge, not Autodetect
11 / 76
Header
Calibration
Communications
Output
Set
Comment
Final Set Labels
1)Pressure Set
Add
Copy
Remove
Set #1
Raw Set
Pressure 0.00000 - 3000.00000 psi
Final Set
General Pressure Control: 0.00000 / 3000.00000
Edit Set
Edit Commands
Use Ready Status
Edit Ready Command
Use Remote Vent
Edit Vent Command(s)
Use Remote Control Abort
Edit Abort Command(s)
Close


Set Relationship
Raw Set
Final Set
Tolerance
Set Type
Pressure
psi
Set Source
RS232
Minimum
0.00000
Maximum
3000.00000
Resolution
0.00001
Raw Set to Final Set Relationship
Same {Raw Output = Final Output}
OK
Cancel

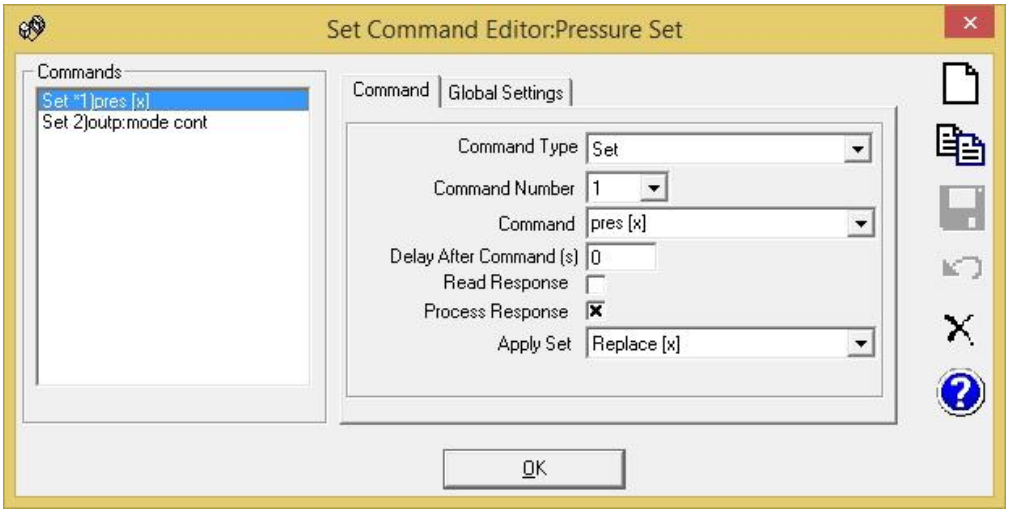

Set Relationship
Raw Set
Final Set
Tolerance
Label
Pressure Set
Set Type
Pressure
Final Set
General Pressure Control
Pressure Measurement Mode
Gauge
Unit
psi
Minimum
0.00000
Maximum
3000.00000
Resolution
0.00001
OK
Cancel

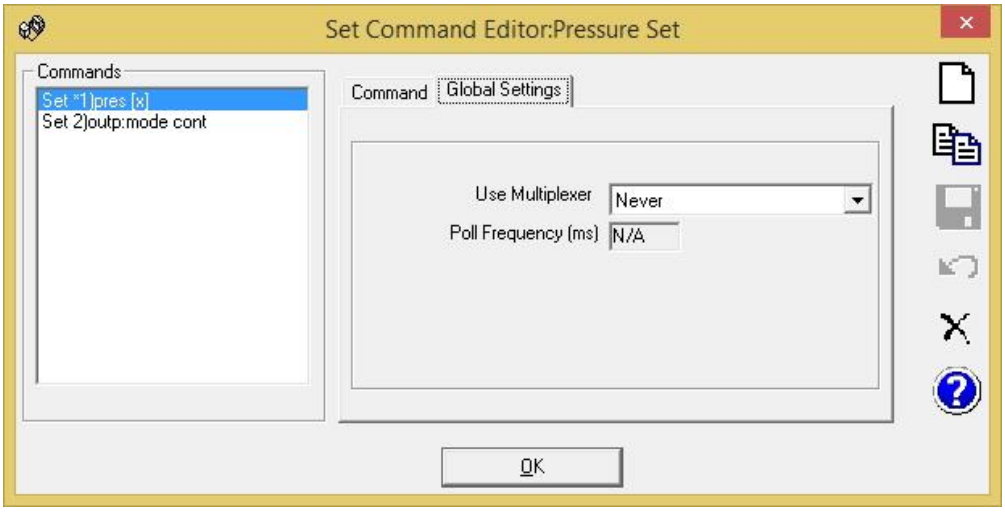

Set Relationship
Raw Set
Final Set
Tolerance
Number of Tolerance Segments
1
Segment Tolerance
%Span
%Span
0.020
Tolerance Segment Definition
All Final Outputs
Tol
Min
Max
OK
Cancel

Back to this screen and click the [Edit Commands] button.

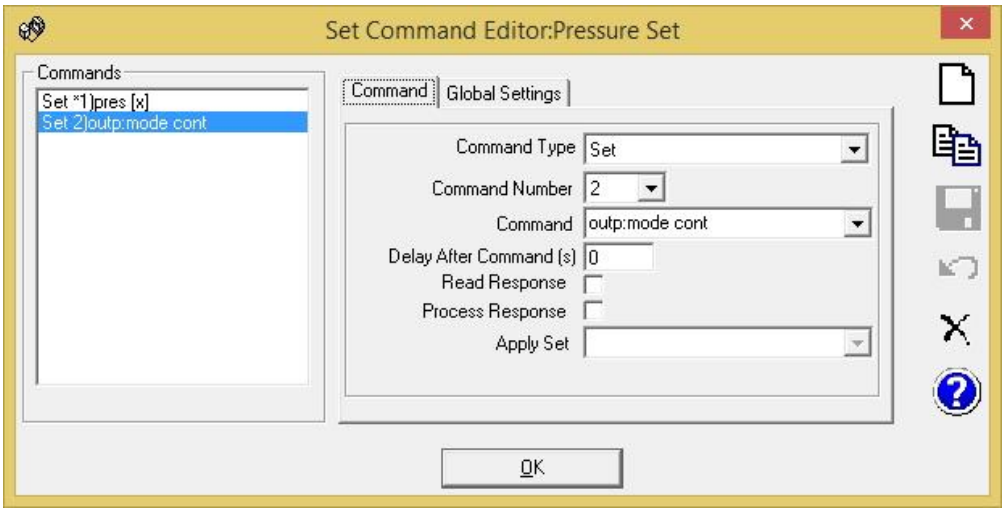


The first Set command is to set the new pressure setpoint. Press the black/white disk icon to save it when done.

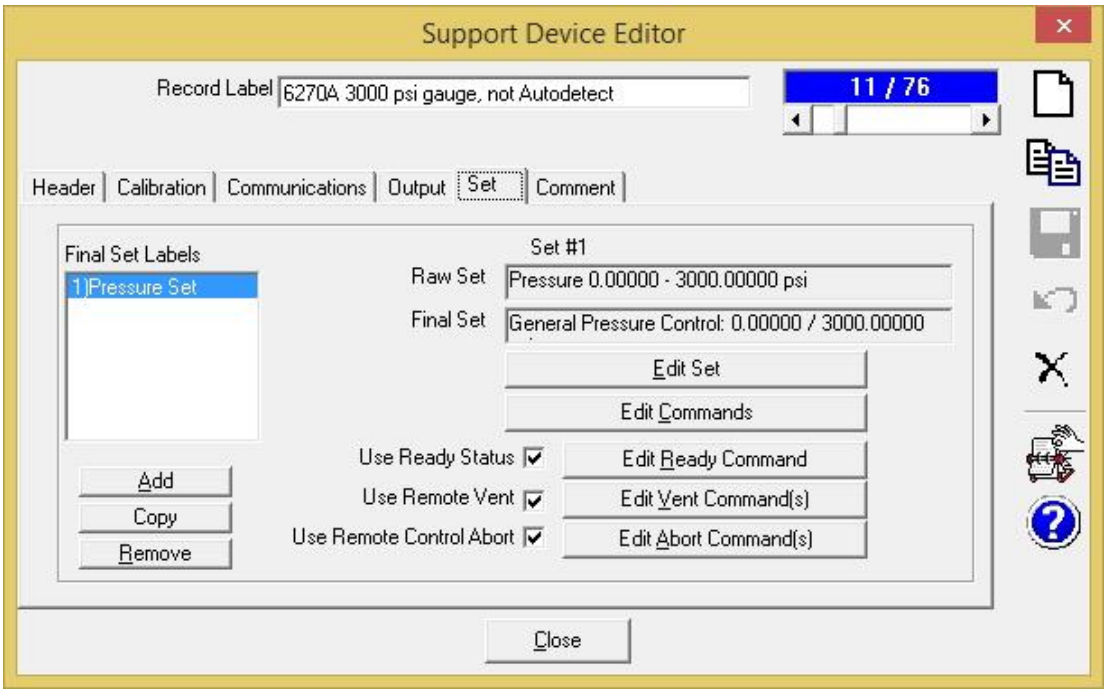




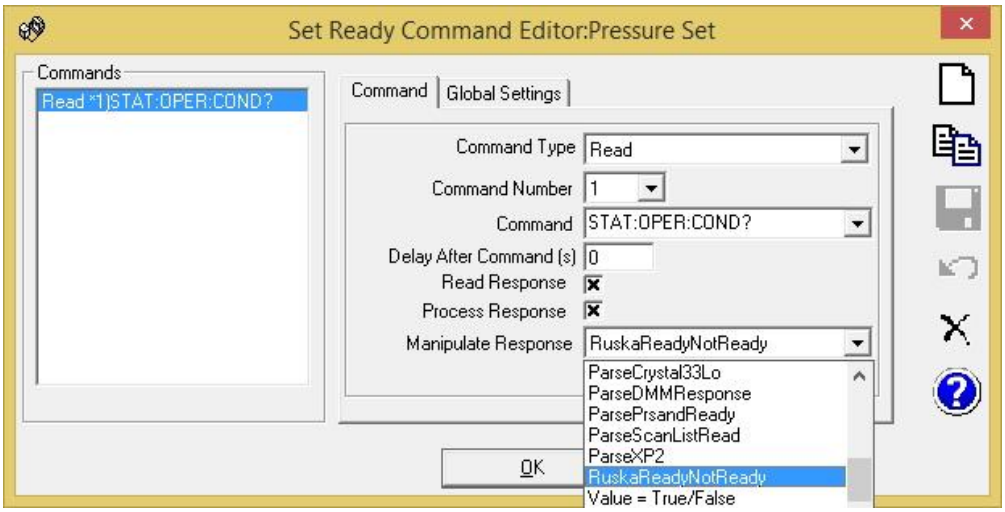
Click the white piece of paper to make a new command. The second command is to put the 6270A in control mode.



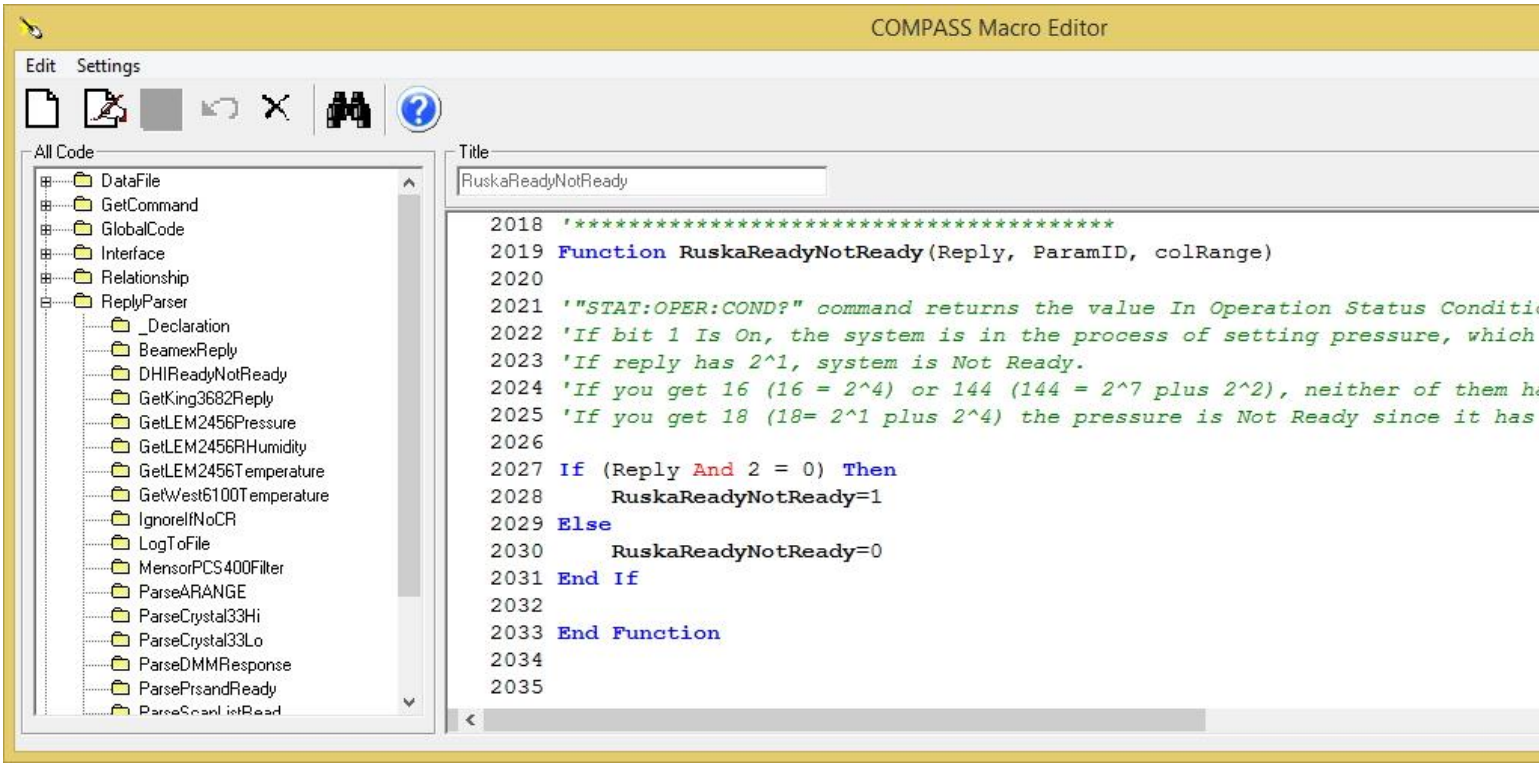
Back to this screen and click the [Edit Ready Command] button. This is optional. If you don't use a Ready/Not Ready reply from the 6270A just setup your test so that COMPASS determines Ready (In the Set child tab on the Pressure tab screen).



To interpret the Ready/Not Ready reply requires a macro named "RuskaReadyNotReady".

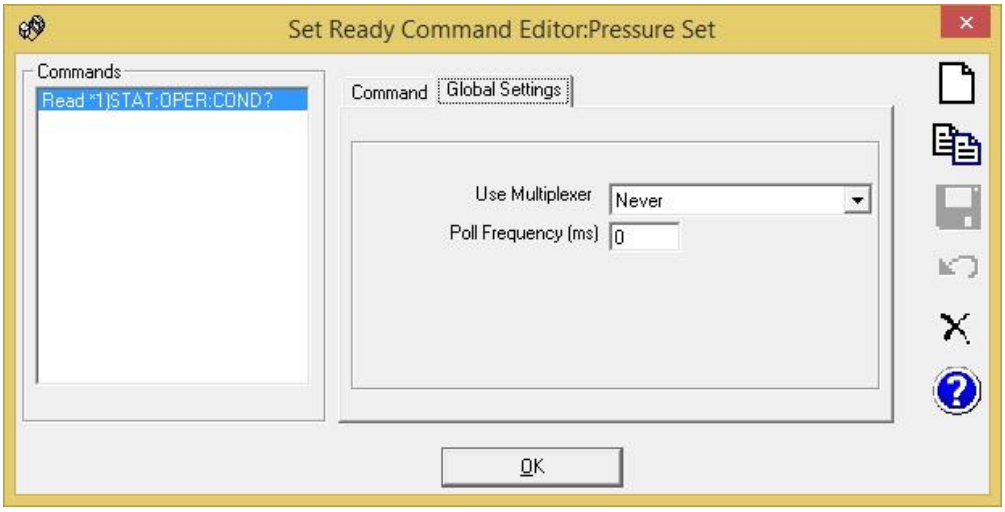


If you don't already have that in the drop down list for "Manipulate Response" select "Add/Edit New Macro" to open the Macro Editor. Click on the Reply Parser folder.

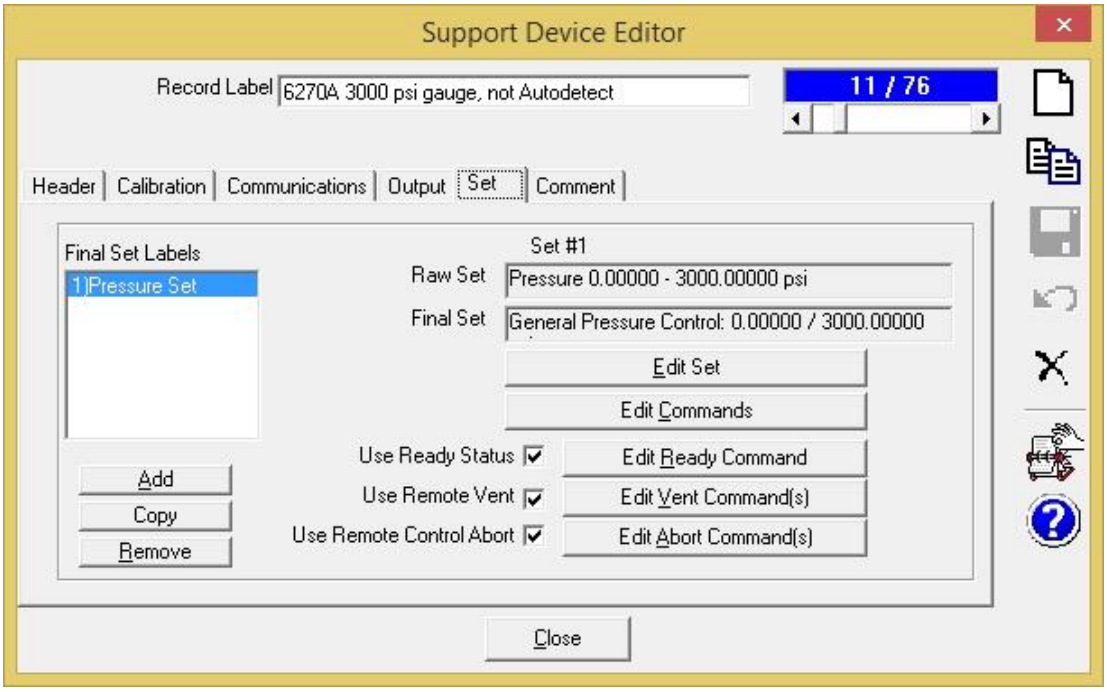


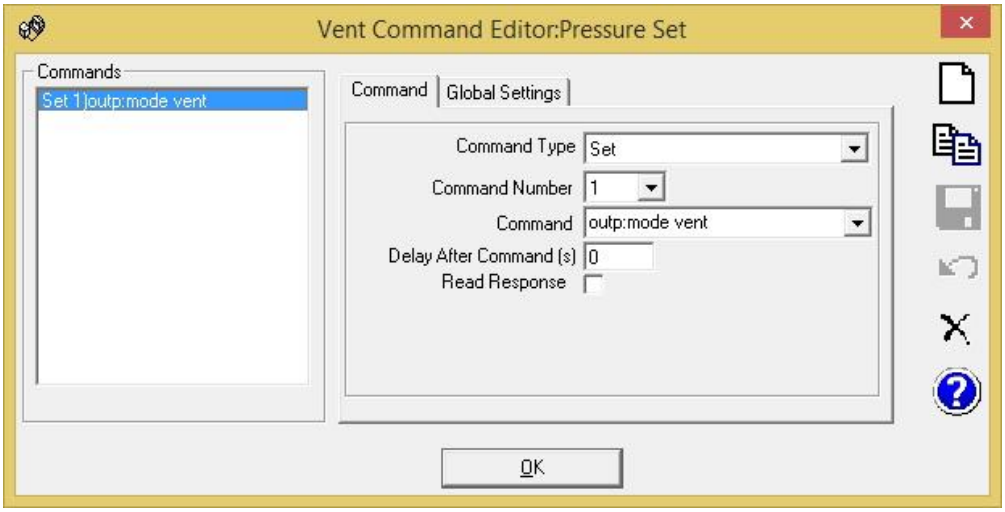
Click the blank white paper to make a new ReplyParser macro. Below in color is the text of the macro that you can copy then paste into a new ReplyParser macro in the Macro Editor. Use [Ctrl]+[v] on your keyboard to paste into the macro because right-clicking the mouse doesn't have a Paste option in the Macro Editor. Everything in green in the macro editor is a comment. Enter the name of the macro "RuskaReadyNotReady" in the Title box and press the black/white disk icon to save the macro when done.

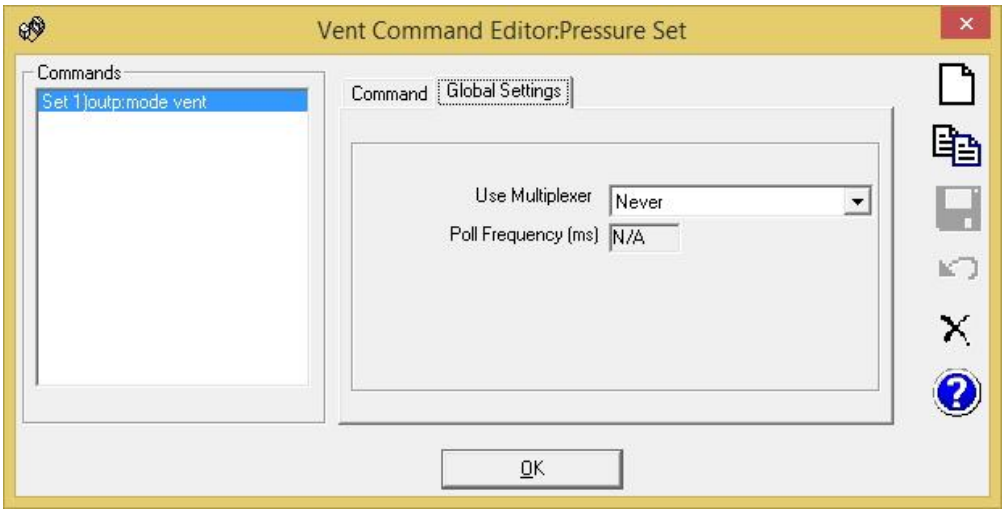
```
Function RuskaReadyNotReady(Reply, ParamID, colRange)

'"STAT:OPER:COND?" command returns the value In Operation Status Condition Register.
'If bit 1 Is On, the system is in the process of setting pressure, which means "Not Ready".
'If reply has 2^1, system is Not Ready.
'If you get 16 (16 = 2^4) or 144 (144 = 2^7 plus 2^2), neither of them have 2^1 so both are Ready.
'If you get 18 (18= 2^1 plus 2^4) the pressure is Not Ready since it has 2^1.

If (Reply And 2 = 0) Then
    RuskaReadyNotReady=1
Else
    RuskaReadyNotReady=0
End If

End Function
```



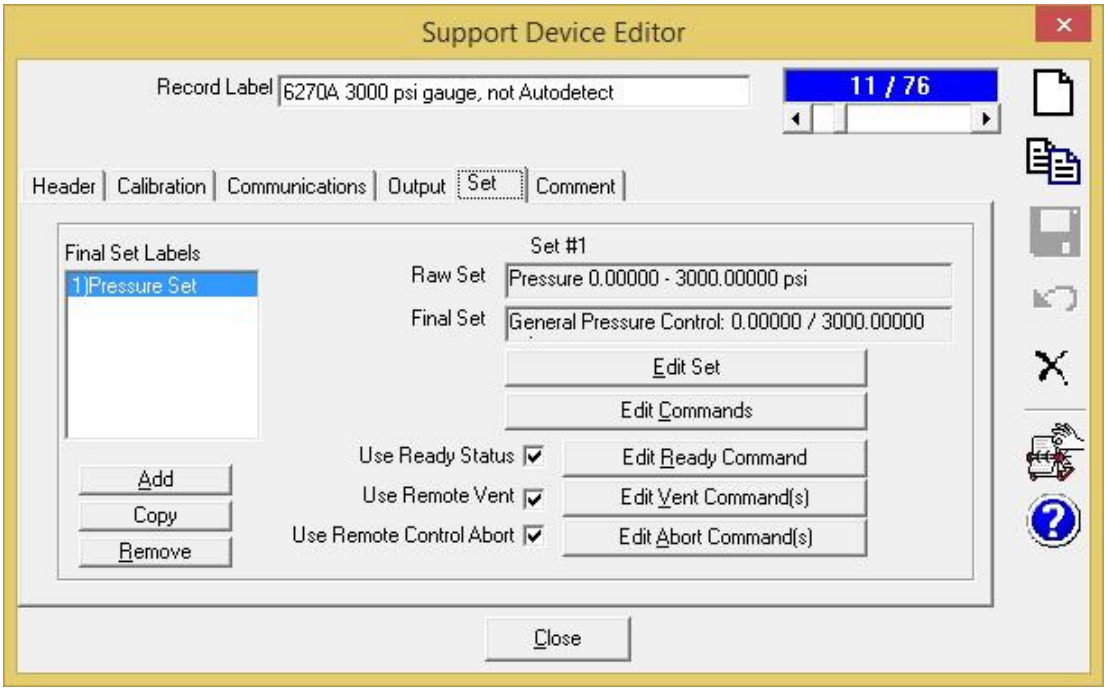
Back to this screen and click the [Edit Vent Command(s)] button.

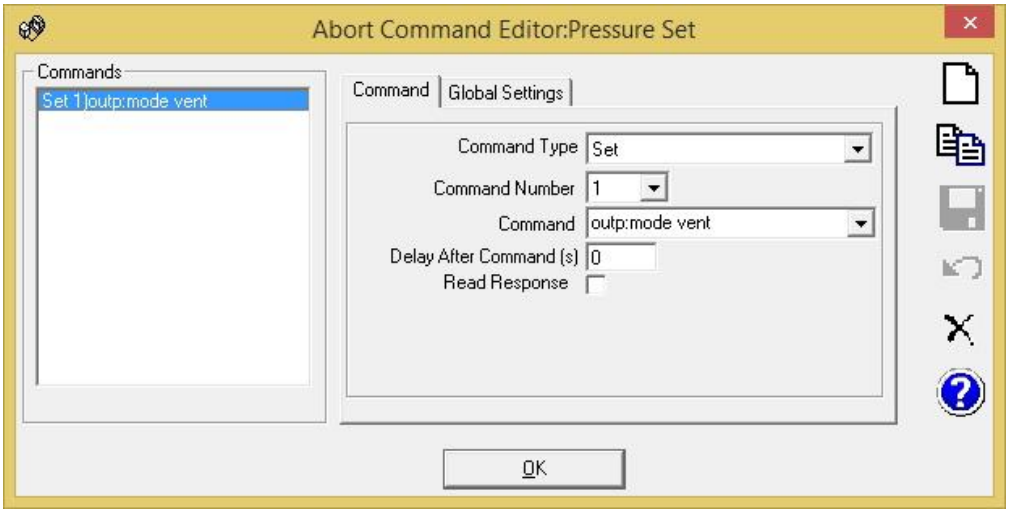


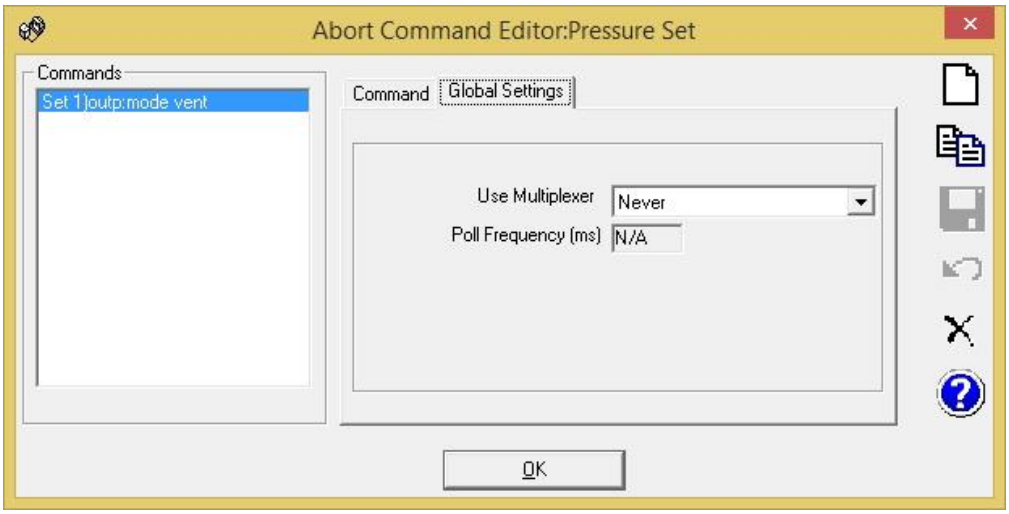




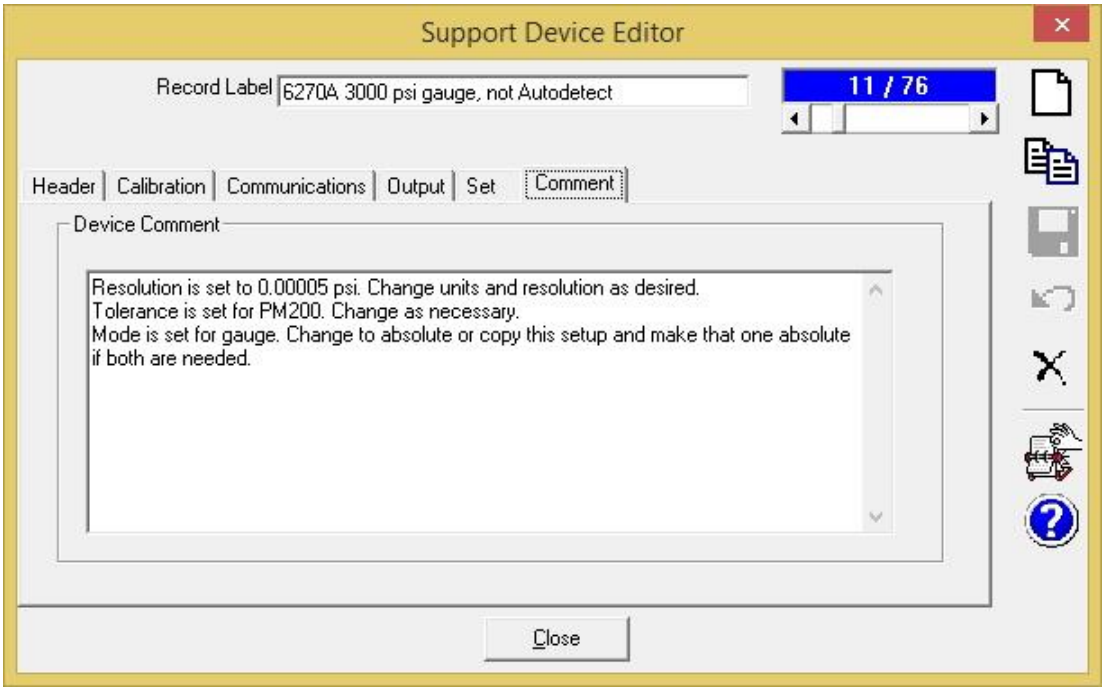
Back to this screen and click the [Edit Abort Command(s)] button.







Here's the Comments tab

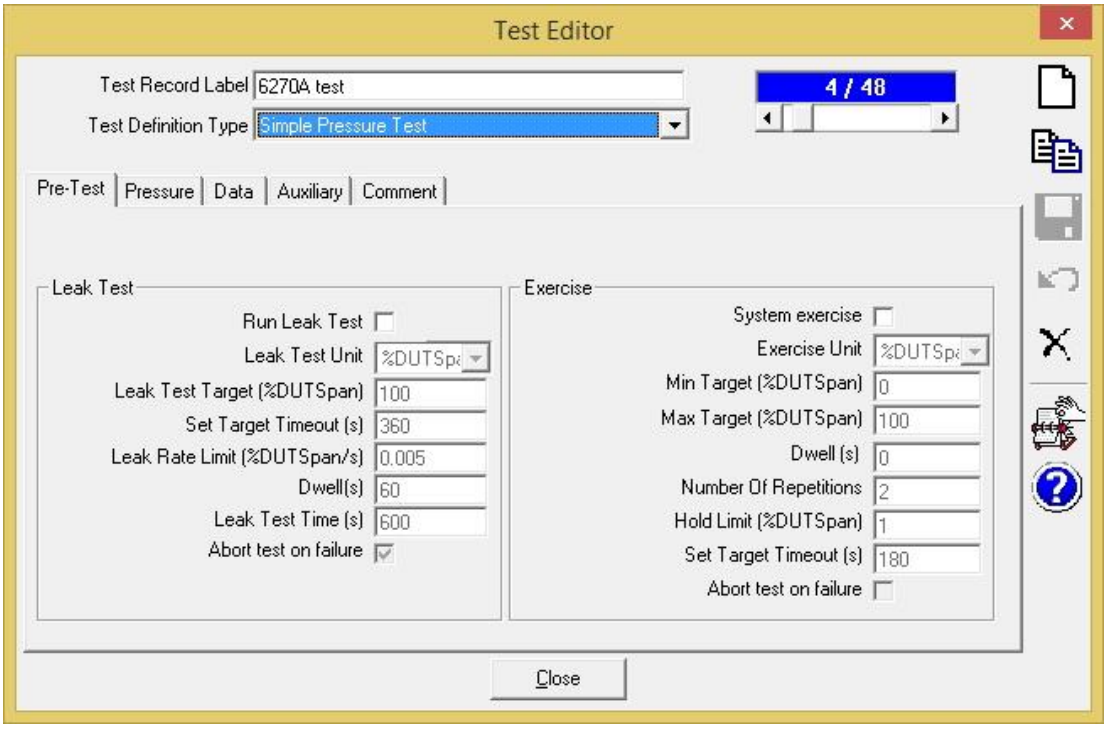


Press the black/white disk icon to save the setup.

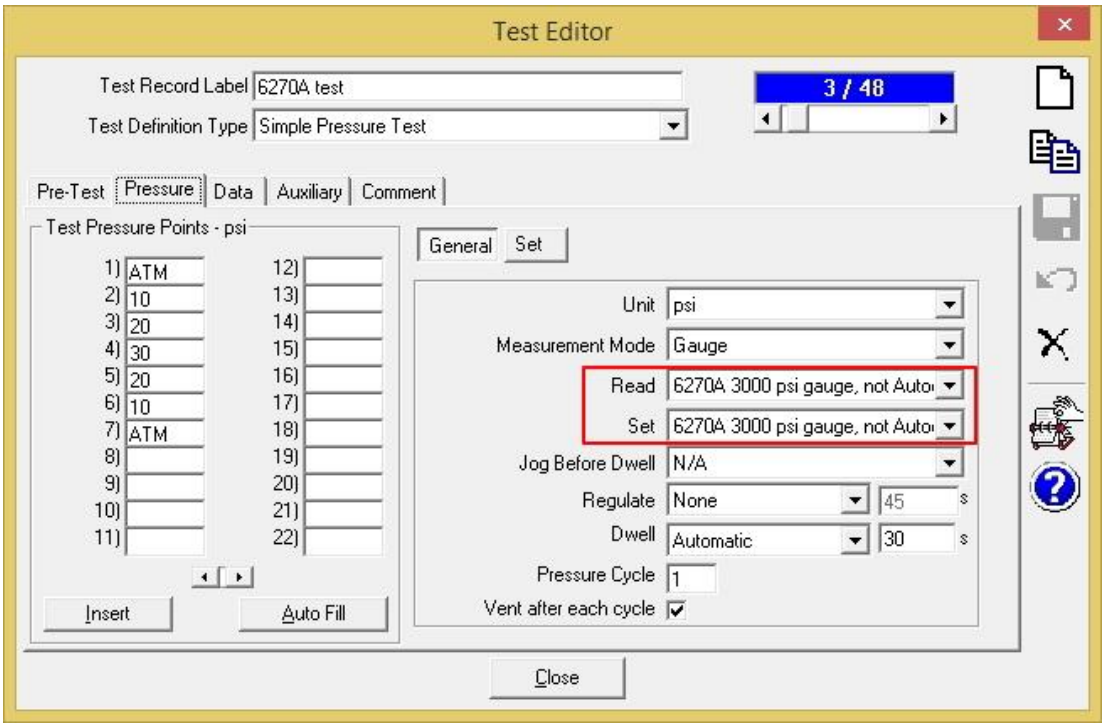
Test setup with 6270A as the reference device and the controller in COMPASS

In COMPASS for Pressure, make a new Test by the [Setup], <Test> menu path, then click the blank white paper icon to make a new Test. Alternately edit or copy an existing test.

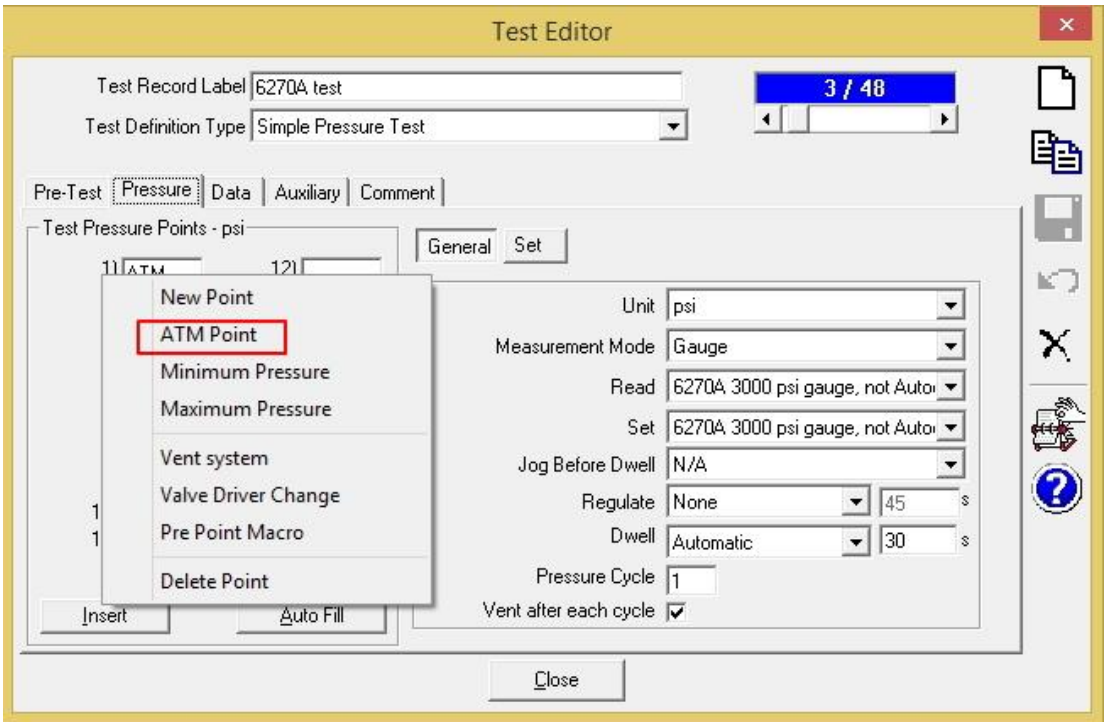
Fill in the blanks and make selections as follows. These instructions will only show the screens and sections that are specific to use with the 6270A controller.



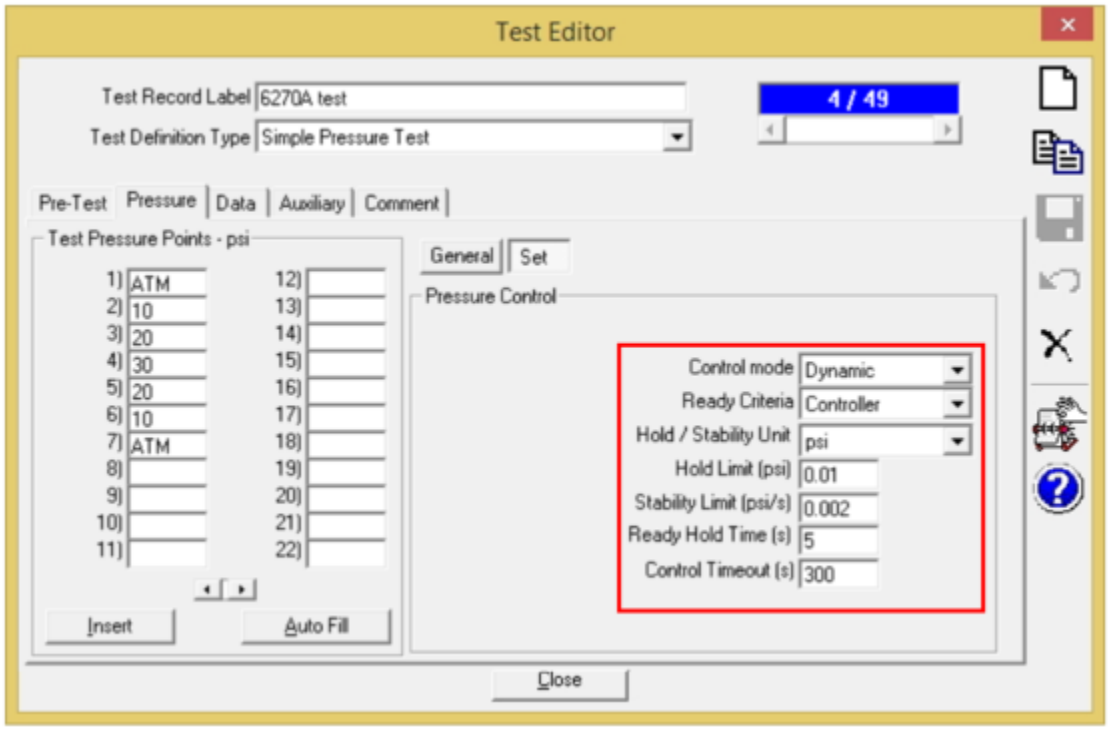
Choose the 6270A as the Read (reference or measure) and the Set (control) device.



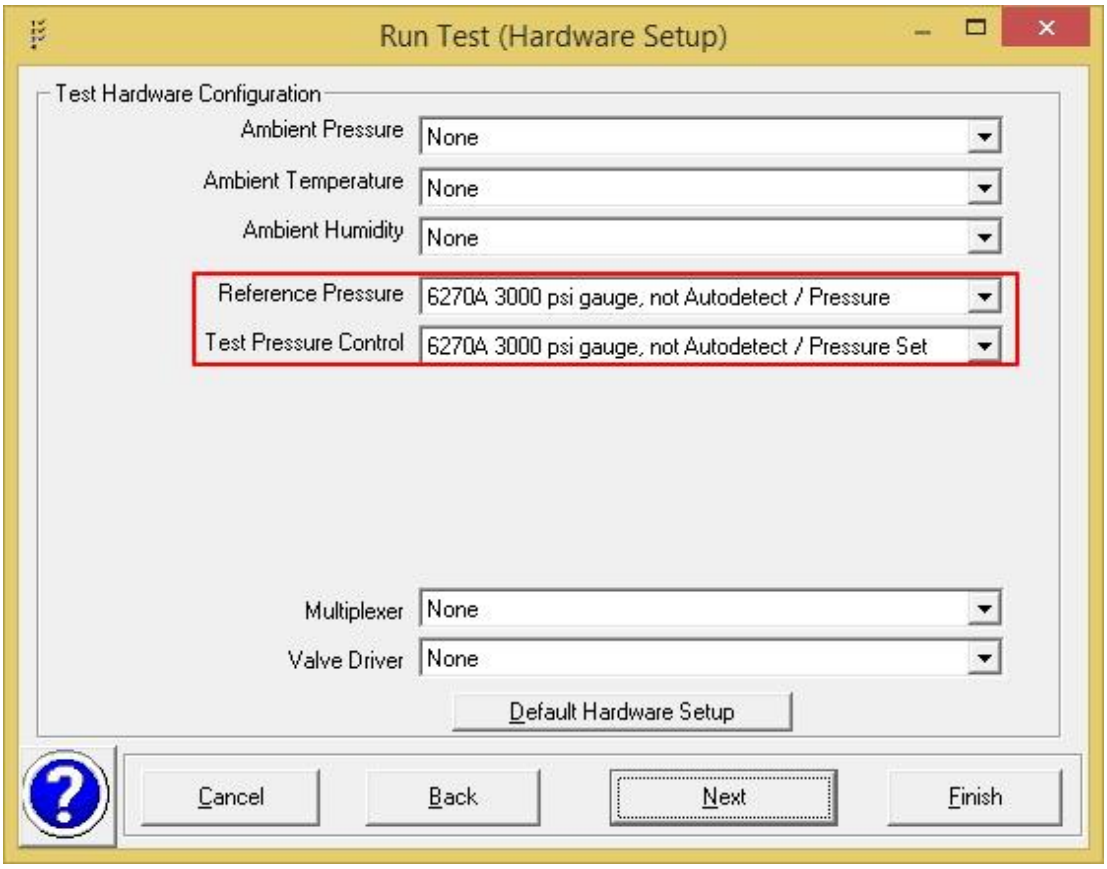
Note that I setup the 0 psi points as ATM points because I don't want the 6270A to control to 0 psi gauge. Because the 6270A is setup with a Vent command, COMPASS will vent the 6270A at these points. Set these as ATM points by hovering the cursor over the point number until the cursor changes to a hand, then left-click the mouse and select "ATM Point". This will insert a point so if you already have a zero point delete the zero point.



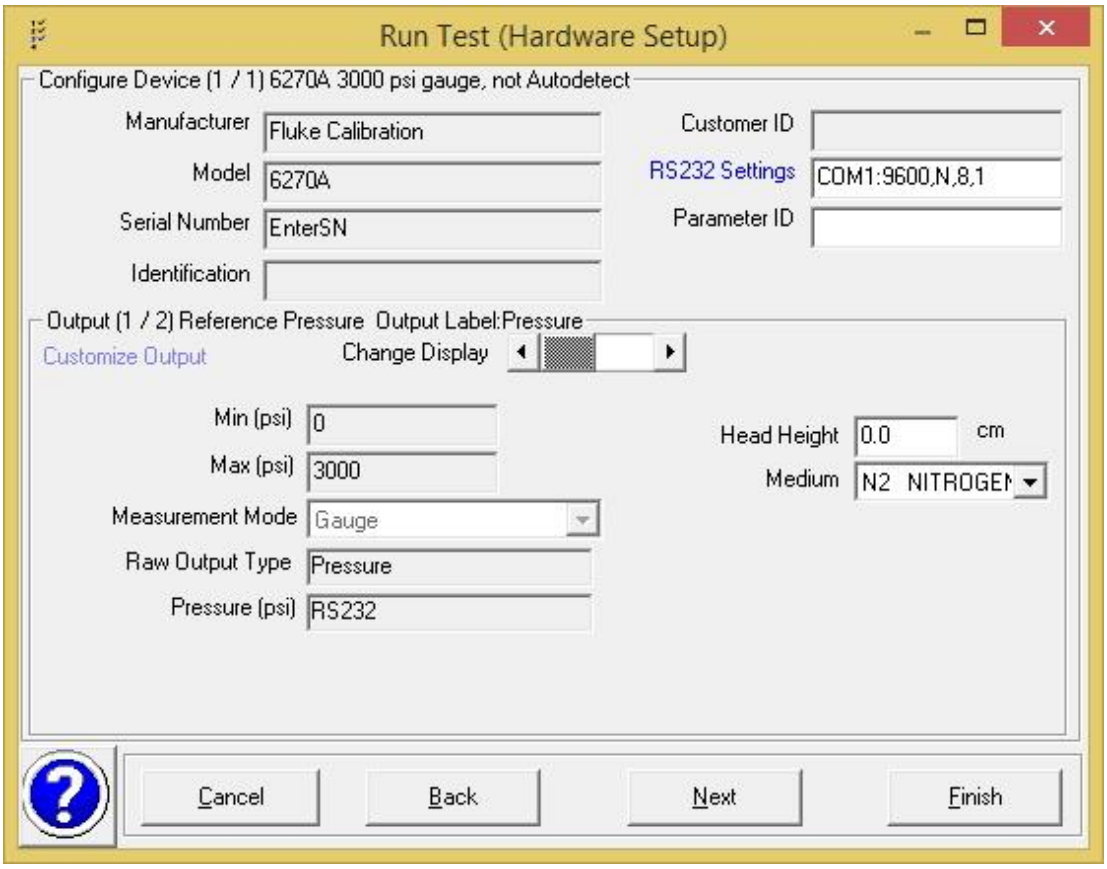
Here is the Set tab. For "Ready Criteria" choose "Controller". COMPASS will query the 6270A to check that it’s within the "Hold Limit" and "Stability Limit" for the "Ready Hold Time" to determine Ready status and to proceed from the pressure generation/control status to the Dwell time or Data collection process. In this example we chose a stability limit that is 10 times better than the specifications of the DUT that will be calibrated. Click the blue/white question mark icon to open the COMPASS Help File to read more about this. The information in the Help File is on the "Test Point Sequence" link and then the "Test Points Sequence, [Set] Child Tab" link.



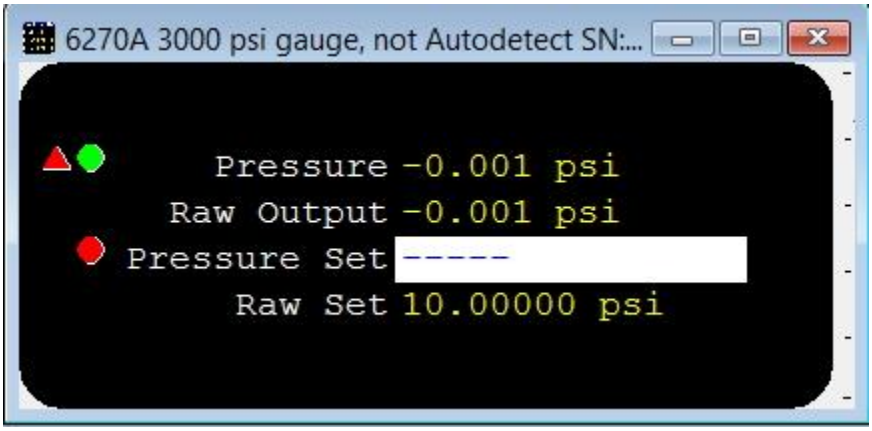
During Test Initialization the 6270A will be selected as the "Reference Pressure" and the "Test Pressure Control" device.



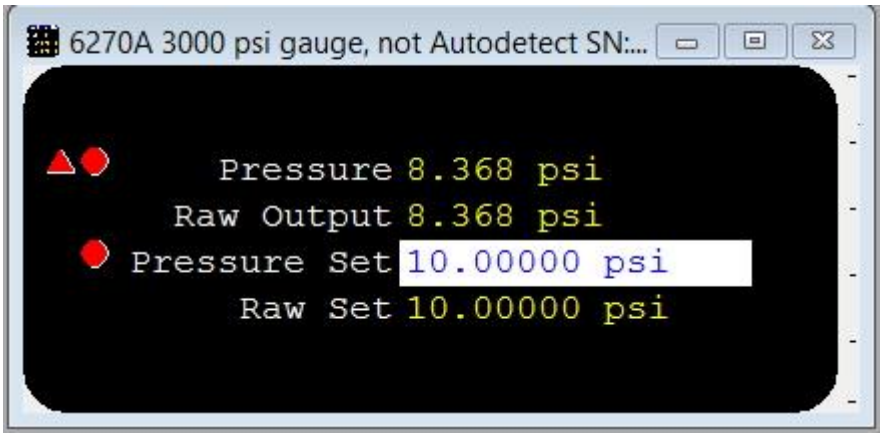
The 6270A screen will look this. There is no [Load Settings] button because it's not an Autodetect device.



Here is a view of the 6270A window when running a test. Note that the Green circle for Pressure indicates that COMPASS has determined that the Ready criteria has been met.



Here's a view when it's setting the 10 psi gauge point. The pressure is not within the Hold Limit, nor is the Stability Limit being met, so the circle is red. See the COMPASS Help File for more information on this. The other indicators are based on DUT status.



Contact Fluke Calibration Pressure Technical Support at pressuresupport@flukecal.com or call +1.877.355.3225