AUTOMATION STUDIO

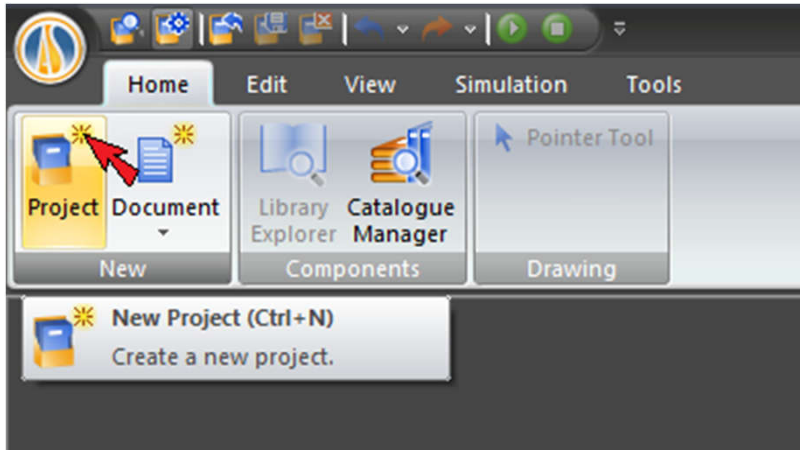
ALOITUSOPAS / STARTING GUIDE

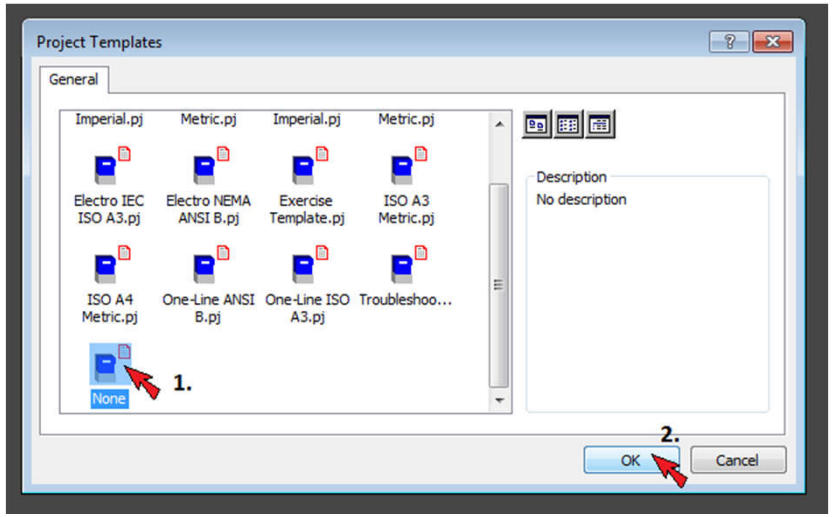
INDEX

Page No.

3 NEW PROJECT

- First click Project to start New project.

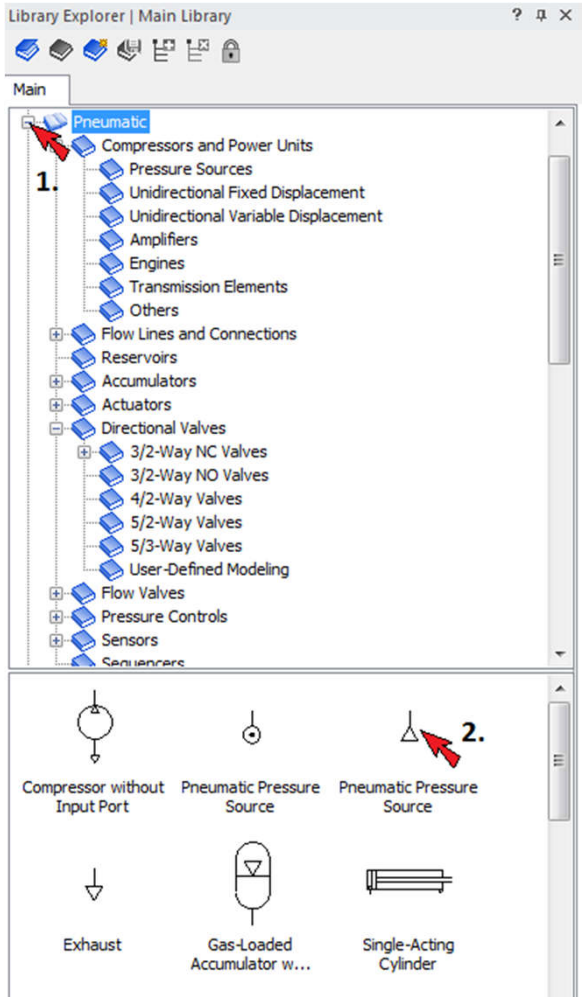




Project Templates:

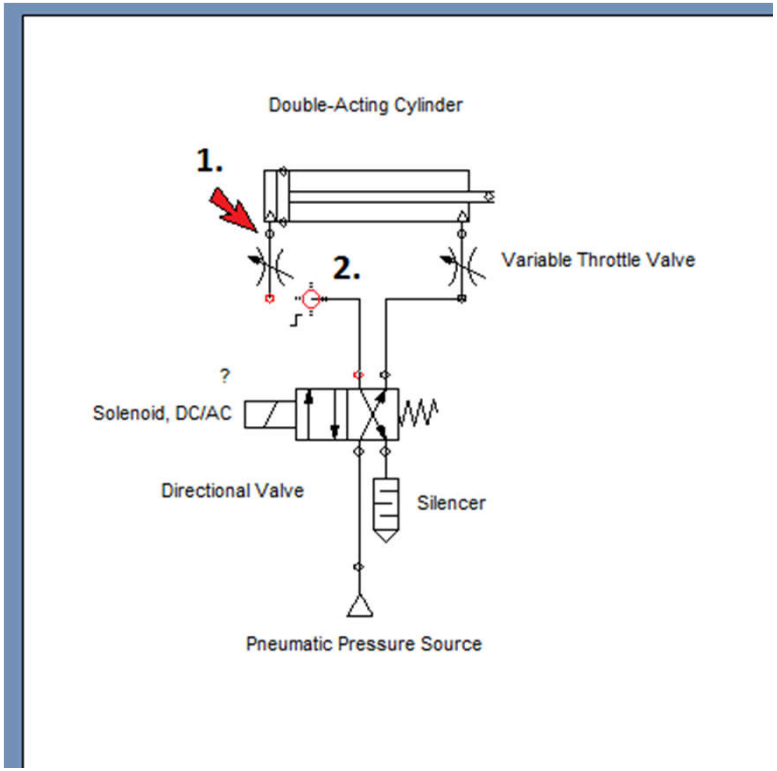
- 1. Choose [None]
- 2. Click OK.

4 COMPONENT LIBRARY



- 1. There is a component library tree view on the left which contains many different component types.
- 2. Top of the desired component, press mouse left and drag it into the project window.

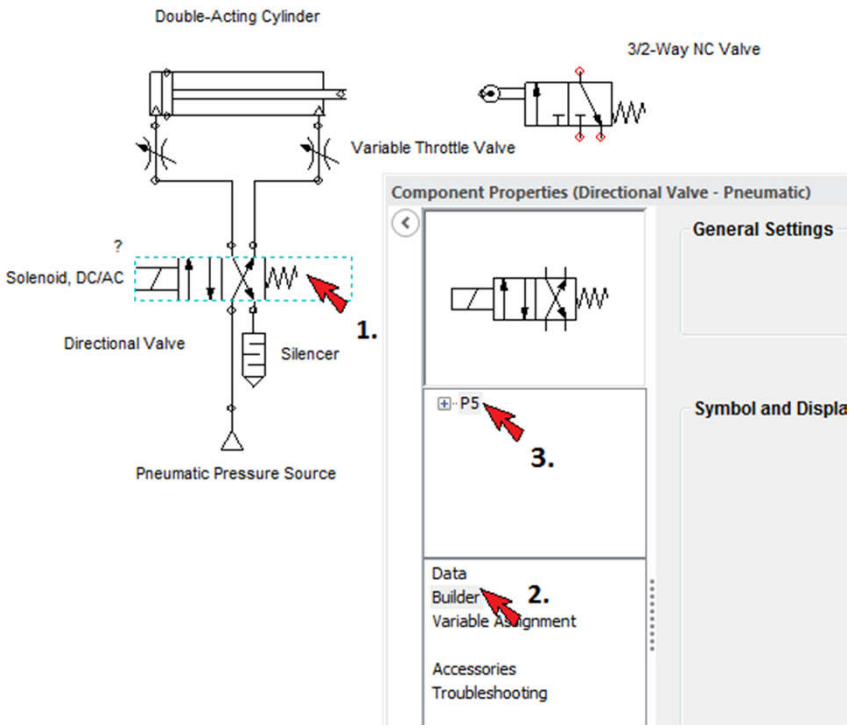
5 WIRING



How to connect component ports or -wires together, there are two options

- 1. Drag the component near another component-, and match little red balloons together, so they will connect automatically.
- 2. Press the left button of the mouse on the little balloon and draw the line where you want to connect it.
- If there is wiring already and there is a need to add a component in the middle of it, drag the component to the wire while pressing the SHIFT key.

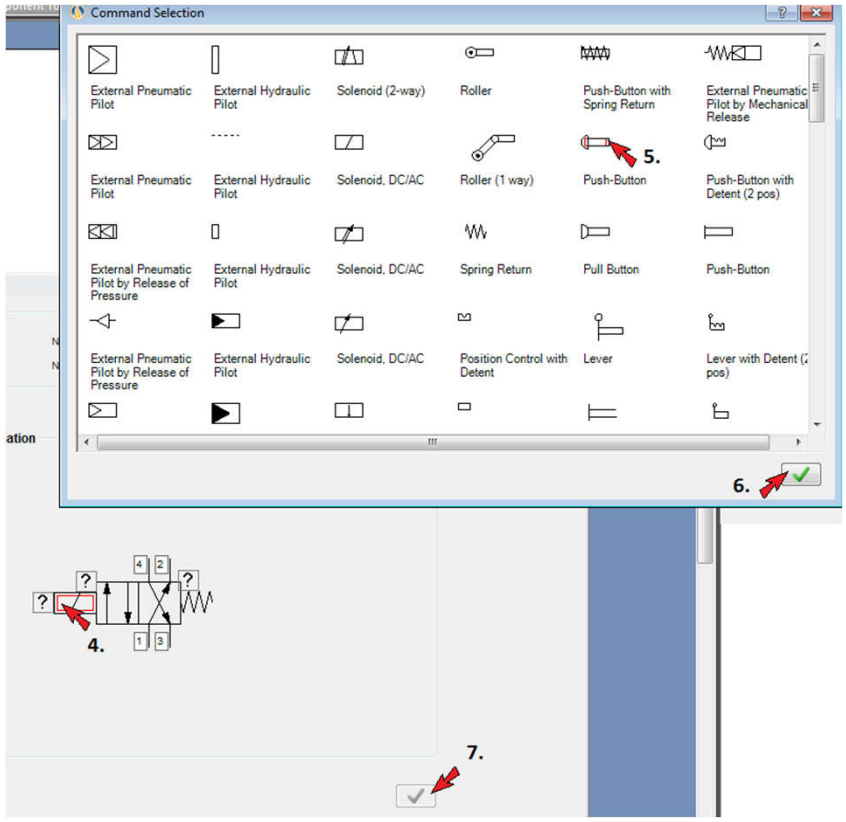
6 COMPONENT BUILDER 1



Changing component structure

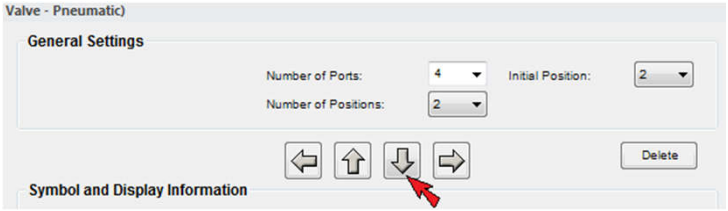
- 1. First doubleclick the component.
- This opens the properties windows.
- 2. Find Builder tab and click.
- 3. To see what has been connected to a valve, open a tree view [P5]
- Remember that [P5 top tree view] has to be selected to modify the component in Builder tab.

7 COMPONENT BUILDER 2



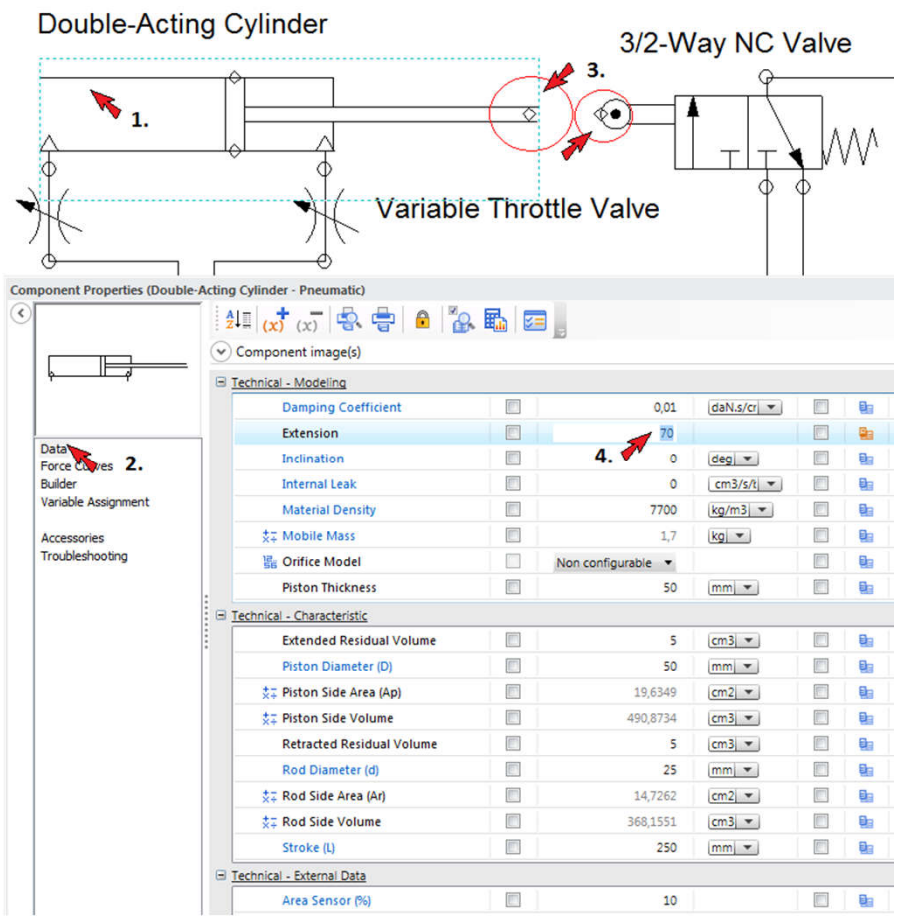
Now there is a constuction picture of a valve, for example.

- 4. Double click either the question mark or, what Command will control that valve, to change it.
- 5. Now you can choose the variety of parts to modify the valves control method.
- There can be many different control methods in a valve at the same time.
- When the parts have been selected, remember to ”save” 6. and finally 7.



- Part position could been modified by clicking the arrows

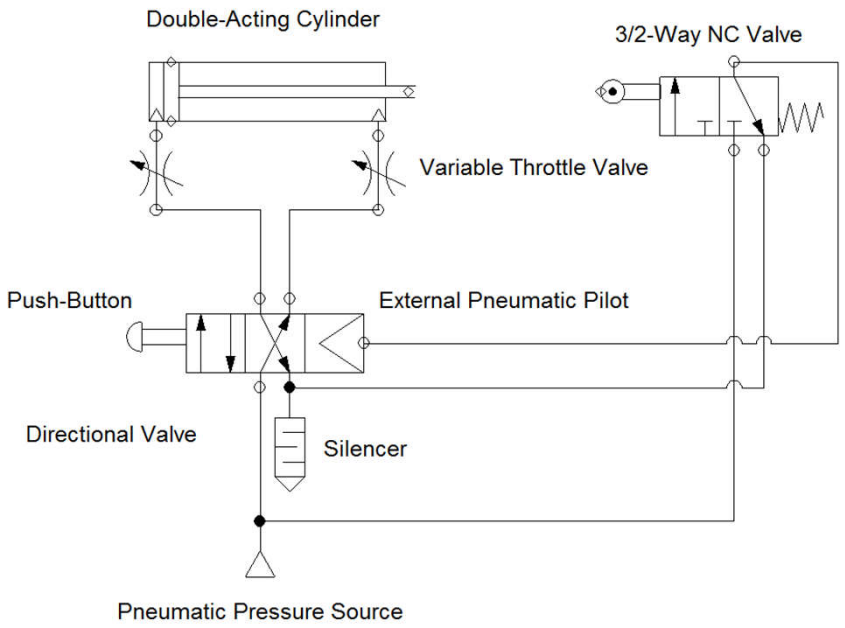
8 COMPONENT DATA



How to trigger sensors or some components?

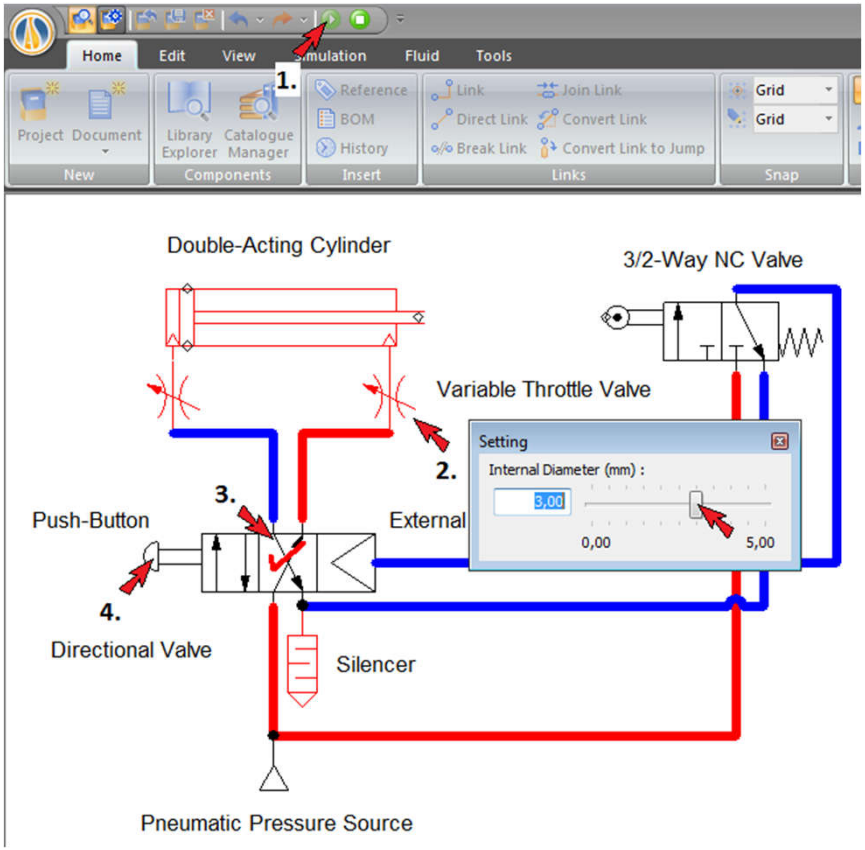
- 1. Double click the component.
- 2. Choose Data from the tree view.
- There is a possibility to change the variety of things in the data tab.
- 3. The program will sense the movement of a piston, for example, when the little diamond (end of the piston rod) touches, in this case, the valve's diamond.
- 4. Press the Extension and input the number 100 there-, to see how far the piston rod goes-. Then move the valve so that the diamonds are one on the other.
- When a sensor or a valve has been moved in the right place, remember to change the Extension value back where it was!!

9 TEST PROJECT



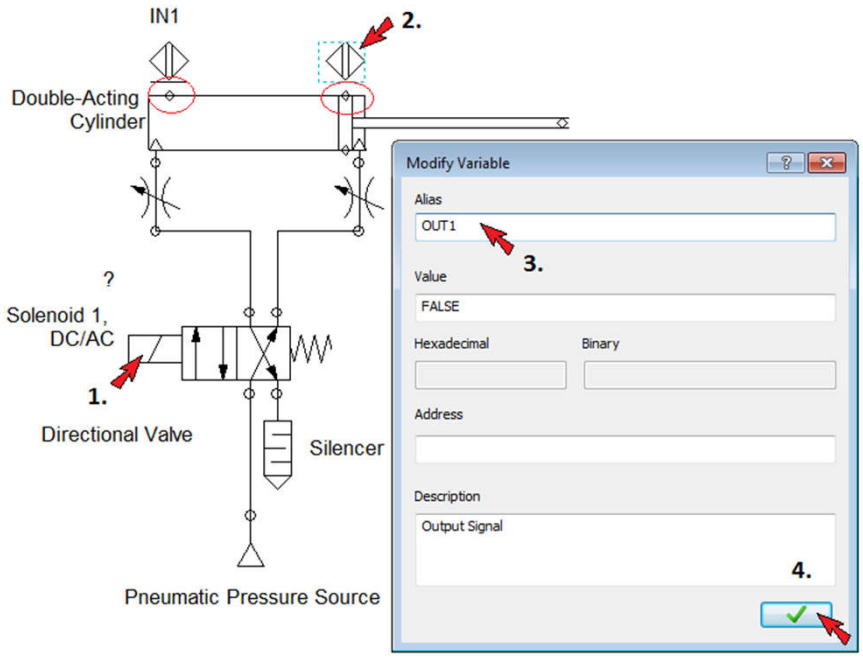
- Run a test project like this.
- If the push-button is pressed the cylinder goes out.
- When the piston is fully extended, the 3/2-way valve triggers and makes the directional valve go back to the original position.
- This makes the cylinder go back to the unextented position.

10 SIMULATION MODE



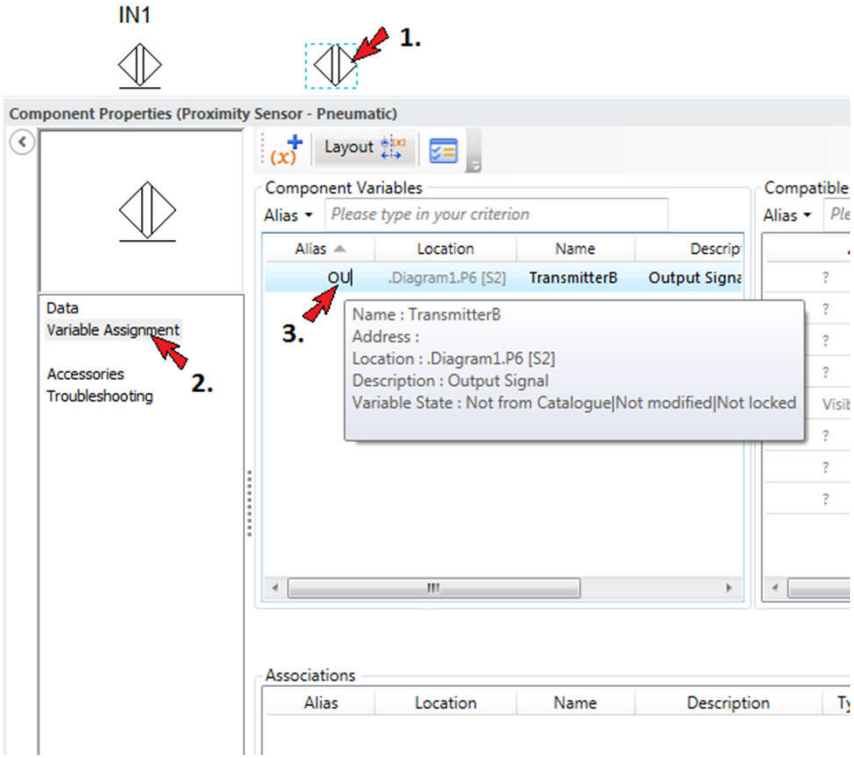
- 1. Click the ”play” button to activate the simulation mode.
- Some component values could be changed during the simulation mode.
- 2. Click the Variable Throttle Valve to change the internal diameter of the valve and affect the movement speed of the cylinder.
- 3. To lock the valve in its position, click the position that needs to be locked.
- 4. Unlock by clicking either side of the valve.

11 COMPONENT VARIABLES 1



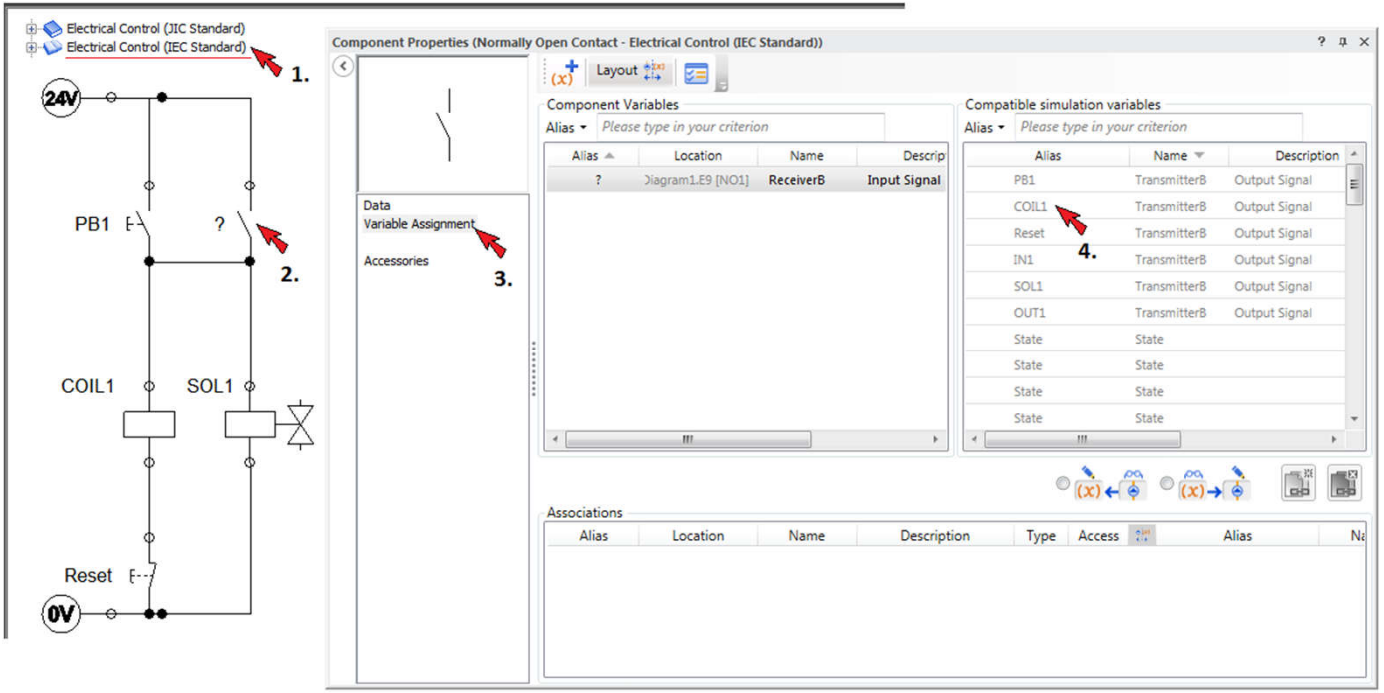
- 1. Now change the project that the Directional Valve is solenoid controlled with spring on other side.
- 2. Add some proximity sensors to the cylinder.
- Remember the ”trigger diamonds”.
- 3. Name the sensors IN1 and OUT1.
- 4. Save.

12 COMPONENT VARIABLES 2



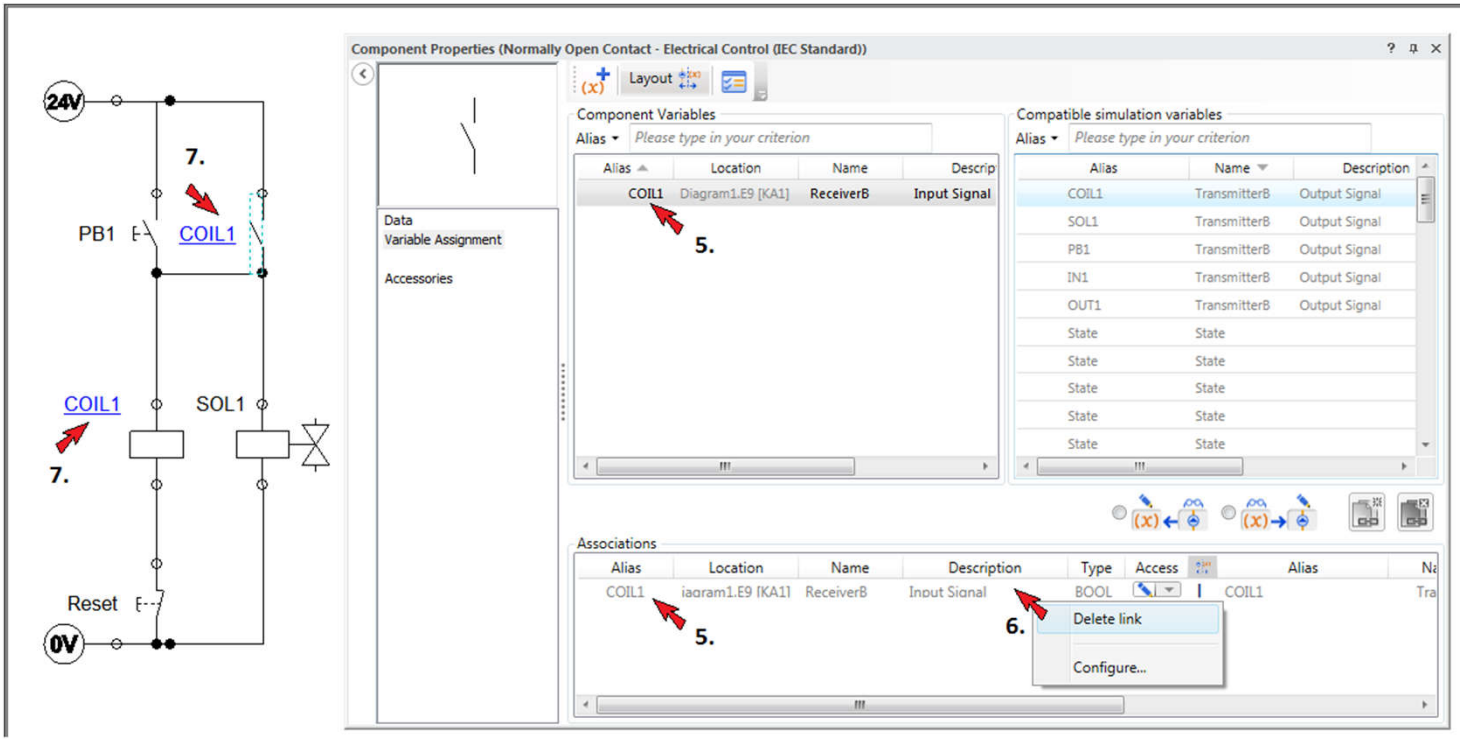
- Components could be named afterwards too.
- 1. Double-click the component, to get properties.
- 2. Select Variable Assignment.
- 3. Click below the Alias tab, write the name and press enter.

13 COMPONENT VARIABLES 3



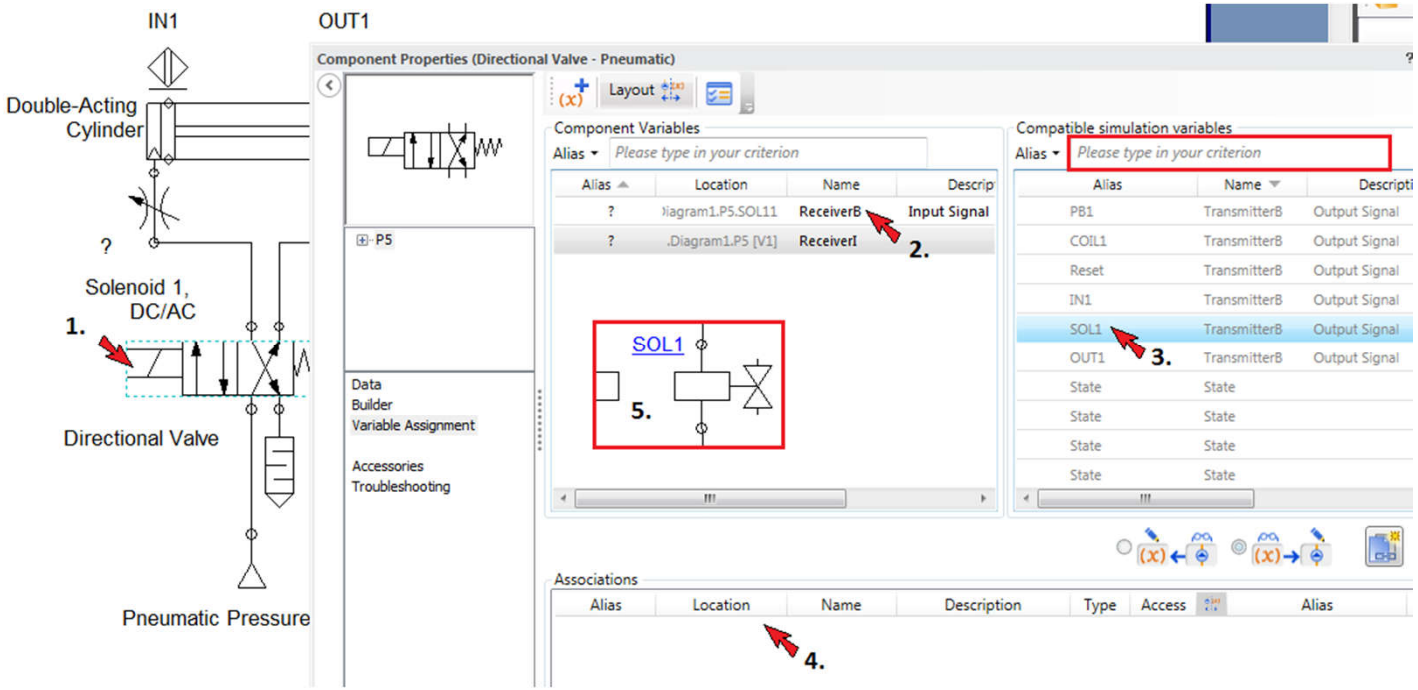
- 1. In Electrical Control, there are two choices. Use IEC Standard parts from library.
- Now draw an electric circuit to control the solenoid.
- When inserting the components, name them simply: Push-Button = PB1
- 2. Lastly insert normally open contact (double-click it to get properties).
- 3. Choose the variable Assignment.
- 4. Now choose the COIL1 in the ”Compatible simulation variables” window, double-click it.

14 COMPONENT VARIABLES 4



- 5. See that COIL1 is connected to the component on Associations.
- 6. If a wrong choise has been made, just right-click the variable and choose the Delete link.
- 7. If the color of the COIL1 text has been changed, it means, it is linked to the component.
- Test simulation to see if the circuit is working.

15 COMPONENT VARIABLES 5

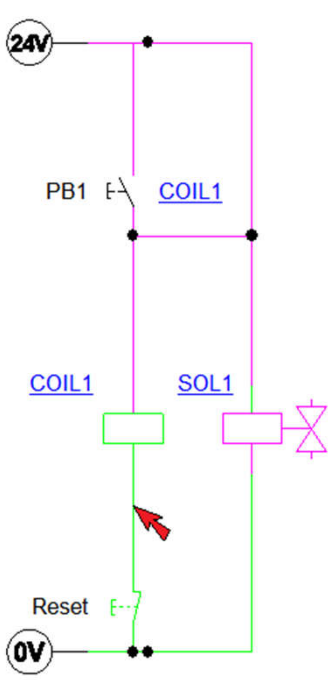


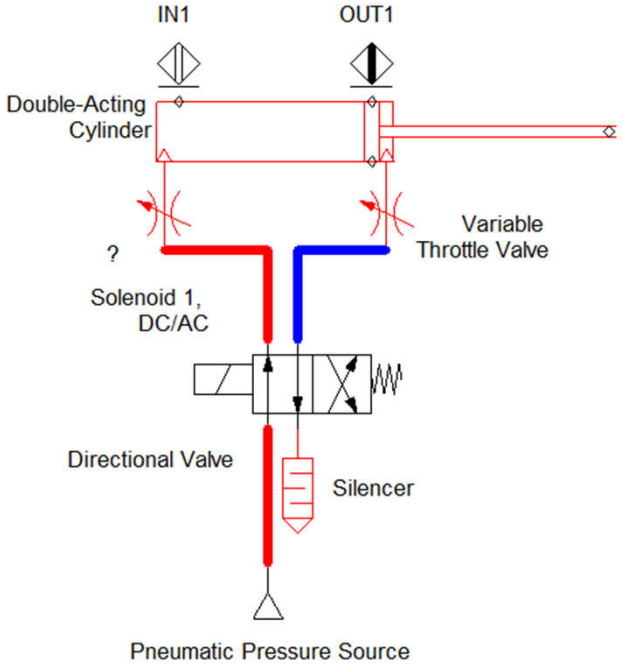
- Search the variables by typing the variable name in the search field.

Next link the Directional Valve Solenoid1 to the circuit.

- 1. Double-click the valve.
- 2. Go to the Variable Assignment and choose ReceiverB.
- 3. Choose SOL1 from the list.
- 4. Check that the SOL1 is in the Associations.
- 5. And in the circuit, color of the SOL1 has changed.
- Exit from Properties.

16 COMPONENT VARIABLES 6



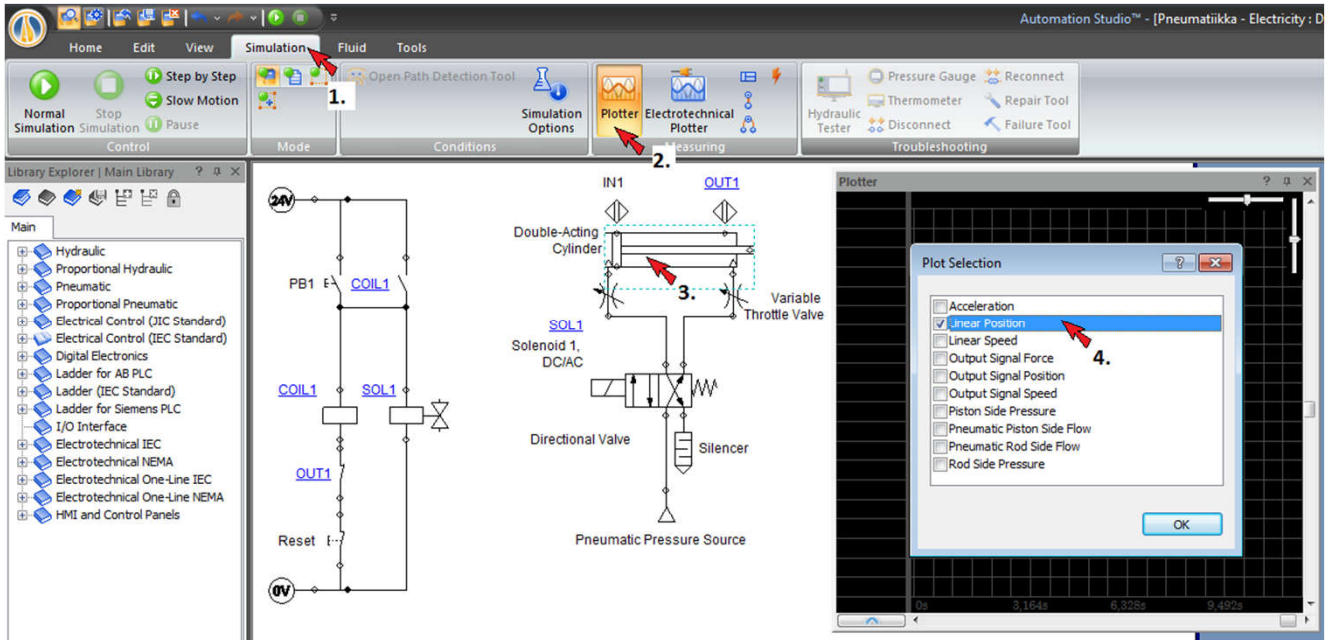


- Start the simulation.
- Movement should work by pressing the PB1 button.
- And resets in the Reset button.

- Note the colors of electrical wiring in simulation mode.

- Try to add a normally closed contact below COIL1 and link it to the proximity sensor OUT1.
- Test the simulation again.

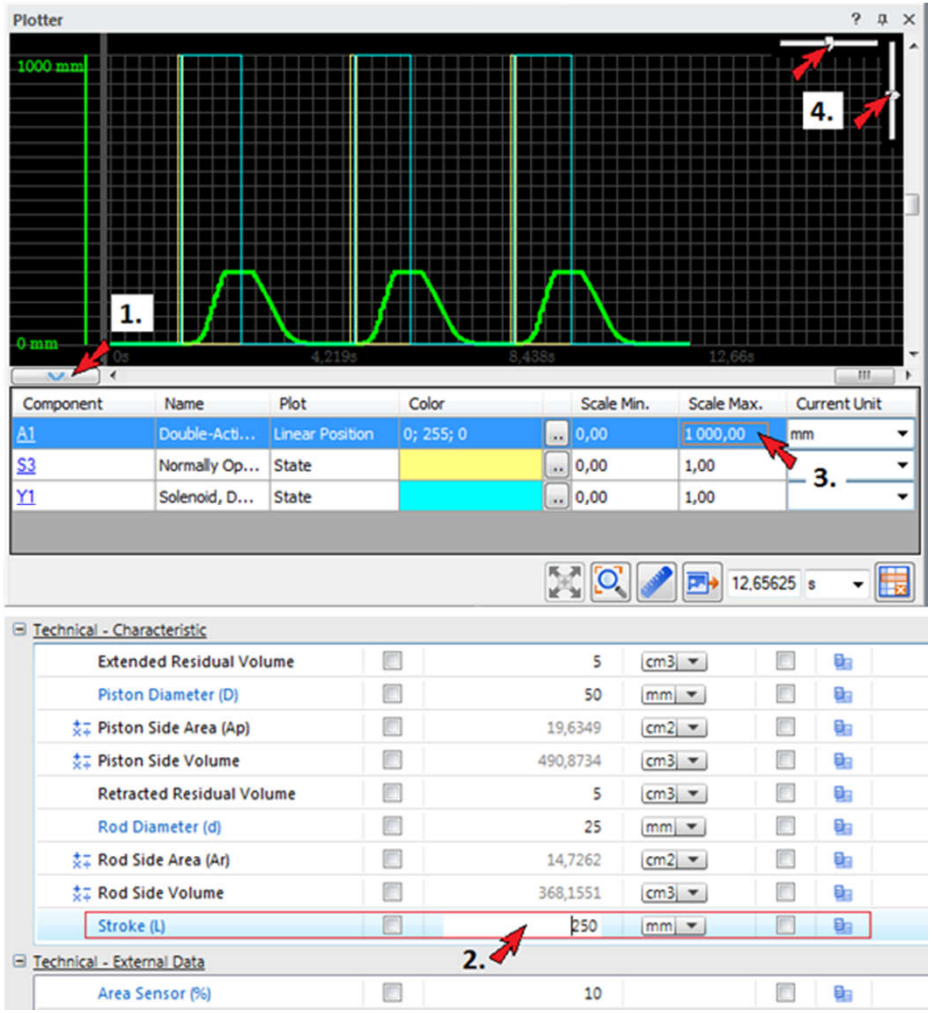
17 PLOTTER 1



- The program has a plotter for drawing charts of the component's variables, such as movement.

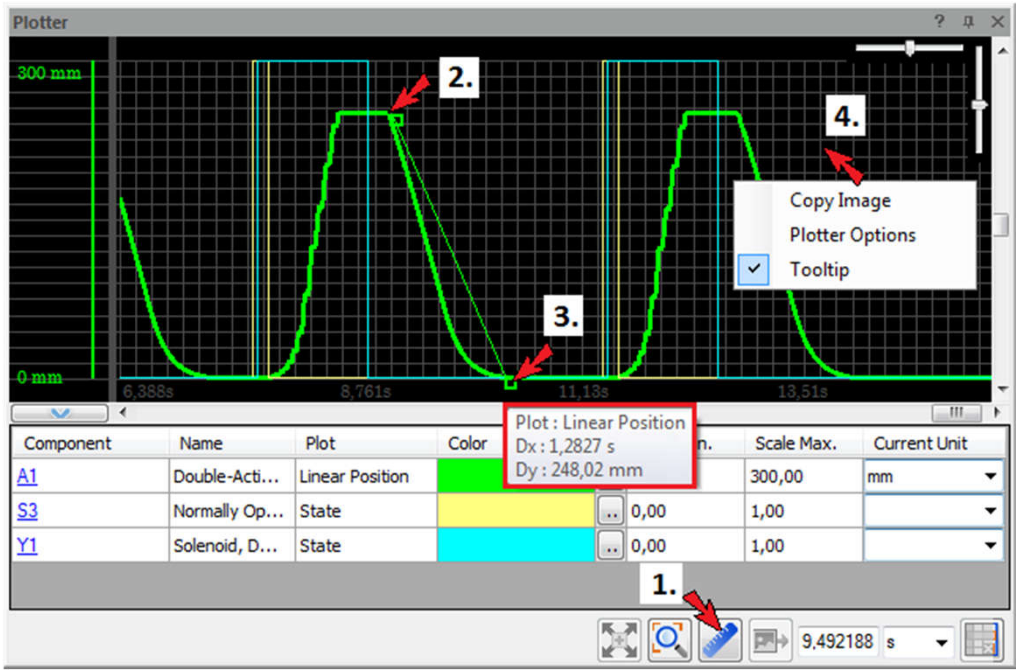
- 1. Click the Simulation tab.
- 2. Click a Plotter.
- 3. Choose the component to plot and drag it into Plotter window.
- 4. Choose what to print out from Plot Selection window.
- Click OK.
- Drag the Push-Button 1 and the SOL1 to a Plotter window.

18 PLOTTER 2



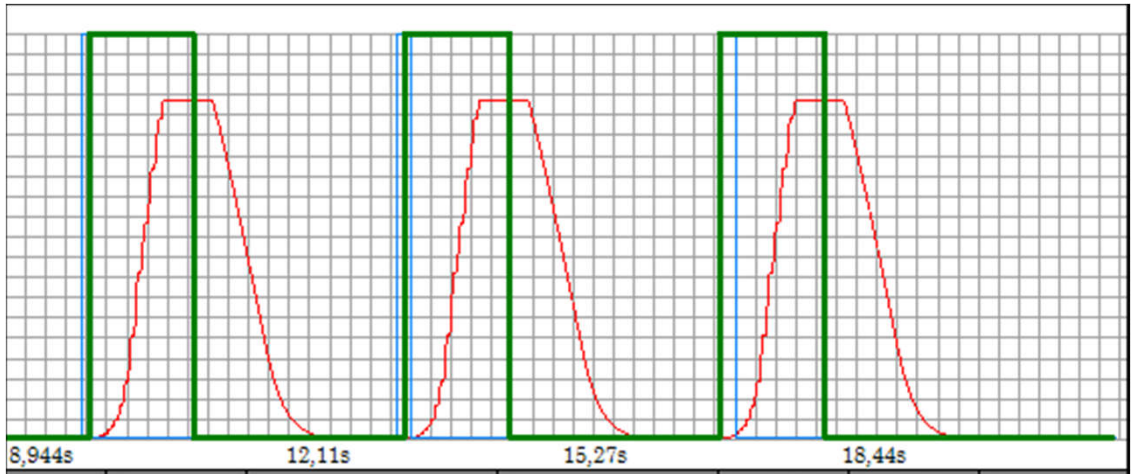
- 1. Press ”arrow” to see the Plotted variables.
- Adjust the plotter scale of one variable, for example a cylinder’s linear position.
- 2. Open the cylinder properties, go to the data and check, in this case, the cylinder Stroke.
- 3. See that the plotter scale is 1000mm where Stroke is 250mm, correct this by entering the plotter Scale Max. at 300mm.
- 4. The visual scale of the plotter could be adjusted by sliders.
- Close the cylinder Properties window and test the simulation.

19 PLOTTER 3



- 1. Measure the chart by using a ruler tool.
- 2. Click on the first point.
- 3. Then click on the second point.
- This will open a grey box where the measured data is.
- 4. To save the plotted chart, right-click the mouse above the plotter and choose the Copy image. Now the plotted image can be saved.
- In the Plotter Options it is possible to adjust the background color and the grid color, for example.

20 PLOTTER 4



Color	Component	Name	Plot	Scale Min.	Scale Max.	Current Unit
	A1	Double-Acting	Linear Position	0,00	300,00	mm
	S3	Normally Open Push-Button	State	0,00	1,00	
	Y1	Solenoid, DC/AC	State	0,00	1,00	

- Example of saved plotter view.
- Program saves pictures as .BMP – file.
- The colors have been changed to get a clearer view.
- The Y-axle shows the millimeters.
- The X-axle shows the time in seconds.