

Insert a Plot

base model: models/SpringDamper.mdl

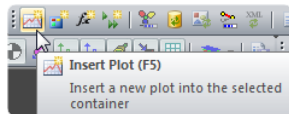
final model: models/Plot.mdl

Explanations

- ▶ To analyze and check the model it is very helpful to generate live-plots
- ▶ Any real variable can be plotted while the analysis is running, i. e. no post-processing is needed to draw the plots
- ▶ The real variable can be plotted over time or over any other real variable of the model
- ▶ This is demonstrated by plotting
 - ▶ The revolution angle of the pendulum as a function of the time
 - ▶ The angular velocity as a function of the revolution angle

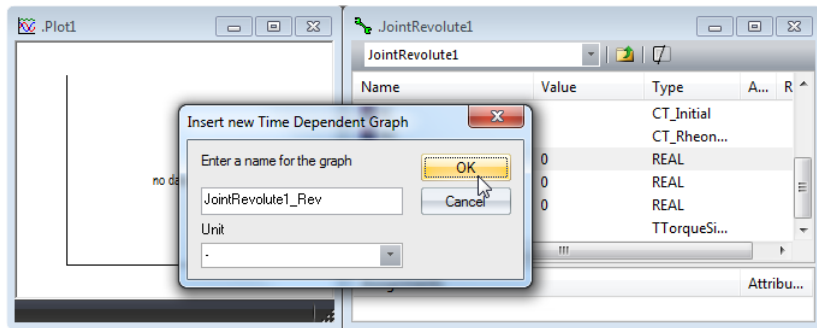
Open the base model `SpringDamper.mdl` in alaska/ModellerStudio

- 1 Select "Model" at the "Model Tree"
- 2 To add a plot press `F5` or click the following icon within the toolbar:



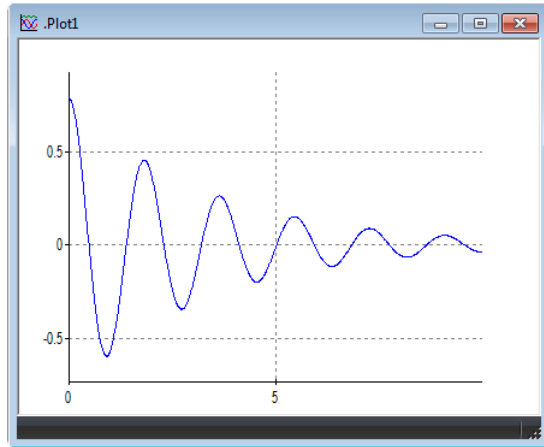
- 3 Name the new plot `"Plot1"` and click `OK`
- By default the x-axis of a new plot is set to use the `TIME` variable of alaska, which will be kept for this plot
- The easiest way to add variables, which should be plotted, is to use drag and drop
- 4 Double-click on `Plot1` to open its `"Special View"`, which will be an almost empty window
- 5 Double-click on `JointRevolute1` to open its `"Component View"`

- 6 Click and hold the variable `Rev` within `JointRevolute1`
- 7 Drag the mouse over "Special View" of the plot and release mouse button
- 8 A dialog to insert a new variable to the plot will open
- 9 Keep the defaults and click **OK**



- 10 Select `Batch` and run it

- ① The “Special View” of `Plot1` will be updated and showing the behavior of the revolution angle over time

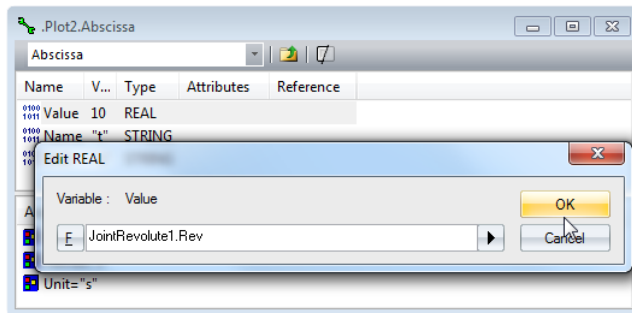


The angular velocity as a function of revolution angle

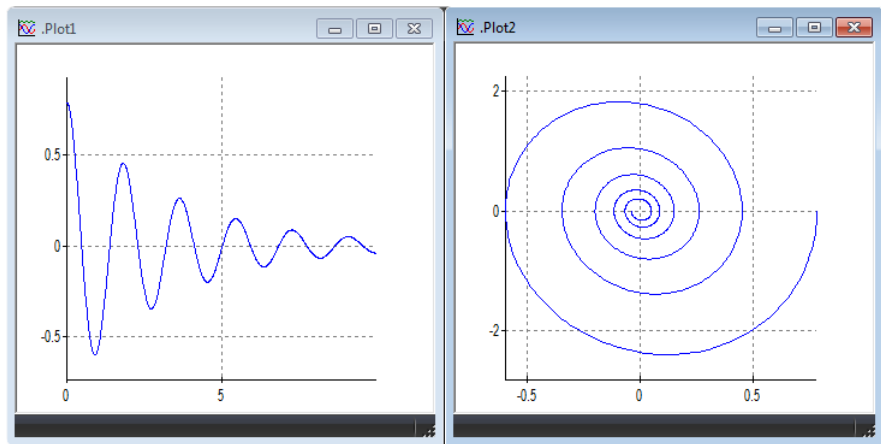
- ① Select "Model" at the "Model Tree", press `F5` and insert a second plot named "Plot2"
- ② Open the "Special View" of Plot2 and the "Component View" of `JointRevolutel`
- ③ Drag the variable `JointRevolutel.RevVel` to Plot2 and confirm the dialog by `OK`
- ▶ Now Plot2 would show the angular velocity over time
- ▶ Next we change the x-axis/abscissa of Plot2 to be the revolution angle:
- ⑦ Select Plot2 at the "Model Tree" and press `F4` to open its "Component View"

The angular velocity as a function of deflection angle


- 4 Scroll down inside the "Component View" of Plot2 until you find the element named *Abscissa* and double-click it
- 5 To reset the abscissa double-click the variable *Value*
- 6 Delete the current assignment "TIME"
- 7 Replace it by the assignment `JointRevolute1.Rev`



- 8 Now we may change the variables *Name* to "Revolution angle" and *Unit* to "rad"
- 9 Running *Batch* we get the desired plots in *Plot1* and *Plot2*



Configuring plots

- ▶ There are various properties which may be configured for the plots
- ▶ Use the “Component View” to configure things like line colors, line widths, grid, and more
- ▶ You can add more than one variable to the same plot
- ▶ The plot toolbar  may be used to add legends, select data to be plotted, rescale the plot or perform a FFT analysis

Next tutorial

Next tutorial: **Data Export – Request**