

# Settings and other details

## Settings panel

It is possible to change important computing parameters such as frequency ranges, simulation times and the period of discretization. We can write a real number or write "auto" (the parameter is set by applet automatically) in the textfield.

- **Nyquist w min** – minimum frequency for Nyquist plot computing and painting
- **Nyquist w max** – maximum frequency for Nyquist plot computing and painting
- **Regions w min** – minimum frequency for regions computing and painting (the same for all regions)
- **Regions w max** – maximum frequency for regions computing and painting (the same for all regions)
- **Cl. loop sim. time** – closed loop simulation stop time
- **Cl. loop LD time** – load disturbance start time
- **Step sim. time** – process step response stop time
- **Sampling time** – period of discretization of the process and the controller (used only for simulation)
- **SF w min** – minimum frequency for sensitivity function computing and painting
- **SF w max** – maximum frequency for sensitivity function computing and painting
- **CSF w min** – minimum frequency for complementary sensitivity function computing and painting
- **CSF w max** – maximum frequency for complementary sensitivity function computing and painting

All of these parameters are changed automatically to „auto“, if new process model is defined in PM window.

## Stop button

The simulation is sometimes very slow and takes a long time. The **stop** button interrupts all simulation computations. The actual simulation time is written in status line at the bottom of the applet.

## Save, Clear, Delete and Del. all buttons

If we press the **Save** button, all actually painted regions get shadow and they are displayed until we clear them by **Clear** button. These buttons must be used, if we want to design robust controller for more processes. The **Delete** button clears specification (shaping point) which is actually selected in design specifications list (with corresponding region). The **Del. all** button clears all specifications from the list (except the shadow saved by the save button).

## Mouse buttons function in RR window

We can choose any point (representing PID parameters) by the left mouse button. If we use the right mouse button, the point is automatically justified to the nearest region border. This feature can help use, if we are looking for optimal PID parameters. The optimal parameters usually lie on some region border.

## **Mouse buttons function in DS window**

We can add new design specifications by the left mouse button. If the gain and phase margins checkbox is checked, the points near a unit circle or a negative real axis are justified and interpreted as *Gm* or *Pm*. If we press the right mouse button, the nearest shaping point is highlighted in design specification list and prepared for editing. The corresponding region is also painted by red color.

## **Mouse buttons in design specification list**

We choose the point for editing by single click. We can hide any region by double click on the corresponding shaping point. The information "not active" appears in the list. We must use double click to make a region active again.

## **Axes ranges and movement in the graph**

We can use four buttons with arrows to move in the graph. When the graph component has a focus, we can also use cursor keys. To change axes ranges, we can use zoom+ and zoom- button. The best way is to specify the zooming rectangle by mouse dragging. The auto button sets ranges automatically. All of these operations could be disabled if we don't check the zoom checkbox.