D

Damping Controllers

The damping controllers are introduced in EUROSTAG as PQ type injectors that are controlled by macroblocks. The load flow is not affected if the proportion of load is set to zero for both active and reactive power.

The macroblocks of the controllers are shown below. They include a portion for sinusoidal modulation of the active power output, which is used for excitation of individual modes. The excitation signal frequency and amplitude is selected with WOSC and AOSC. Setting GAIN to zero creates an input and an output, that appear explicitly in the linearized system. The output is frequency deviation from the nominal value in rad/s at the local bus (OMHAT) and at a selected machine (DOMMACH) respectively. The input PLOAD is relative to the 100 MVA base in EUROSTAG. The unit of GAIN is therefore p.u./(rad/s) and 1 p.u./(rad/s) = 628 MW/Hz.
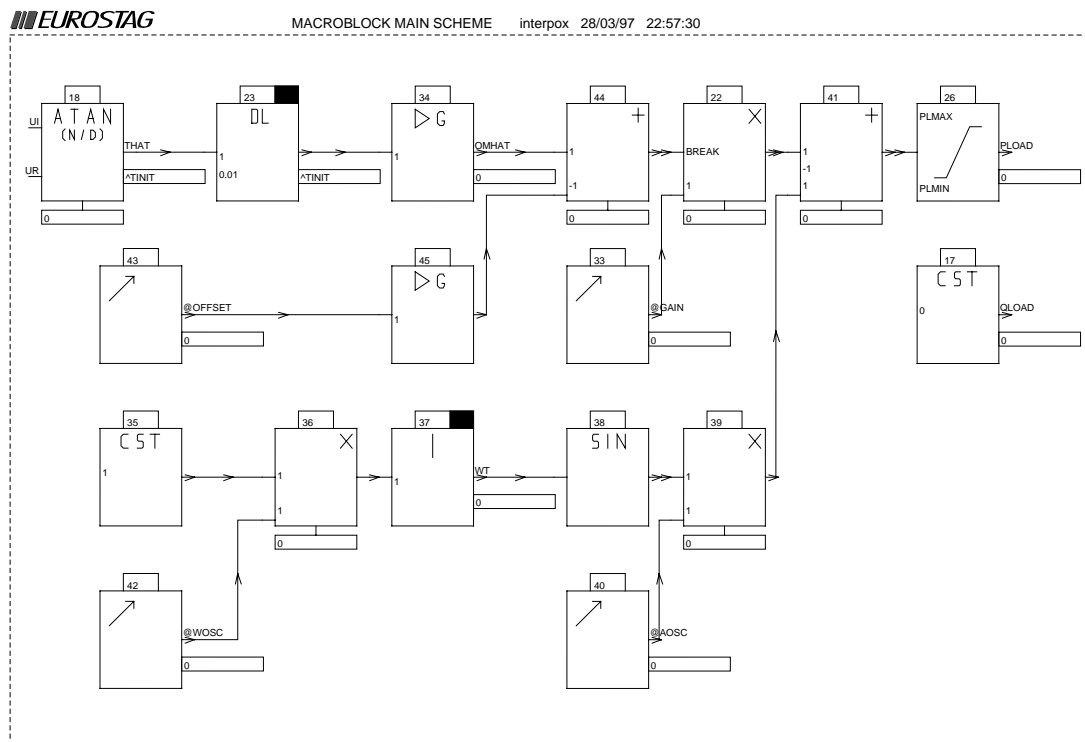

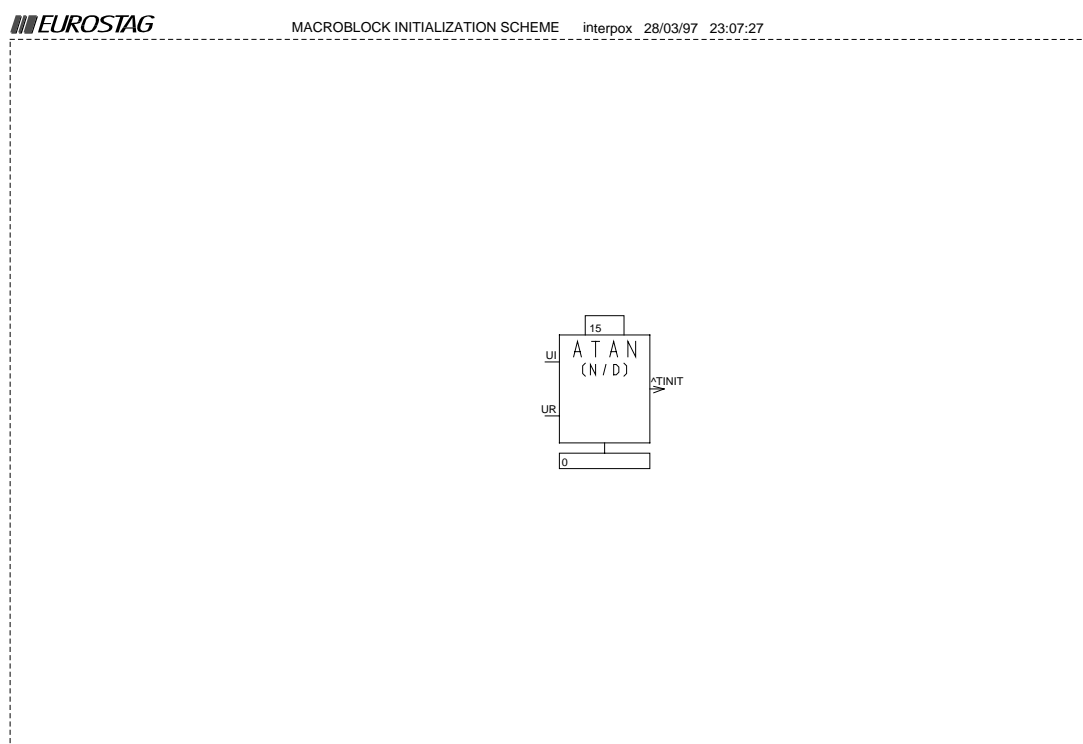**Fig. D.1**   Main block diagram of damping controller using bus frequency

Fig. D.2   Block diagram for initialization of damping controller using bus frequency
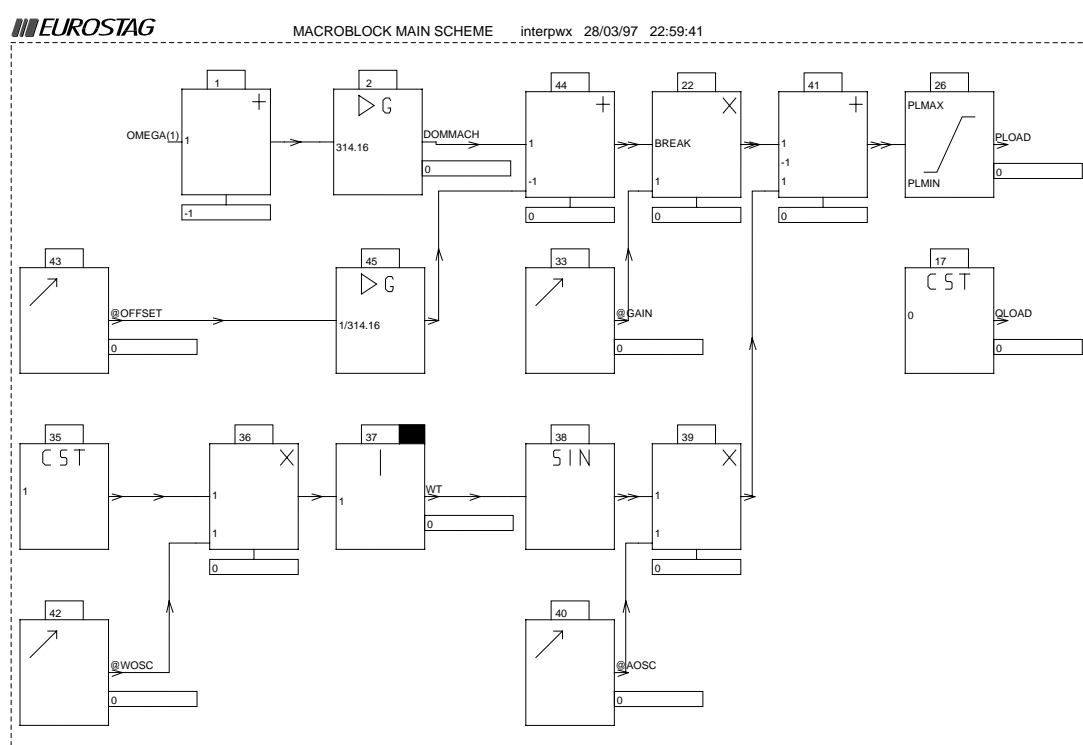

Fig. D.3   Main block diagram of damping controller using machine frequency