

## AD-DRIVE-14: AC-DC, 6-pulse thyristor converter

**Keywords:** thyristor rectifier, ARTEMIS compensation, AC-DC motor

This circuit is a 6-pulse, thyristor rectifier connected to a DC-motor equivalent model. This converter circuit topology exhibits fast switching dynamics, which in simulations with relatively large fixed time steps can cause multiple switching events in a single time-step. The DTCSE algorithm of ARTEMIS deals well with this type of circuit *with no extra computational time*, as compared with a single-event case.

The `psbconverter.mdl` is an example of a circuit exhibiting multiple single-step events. In `psbconverter.mdl`, closing one branch of the thyristor bridge causes another branch to open through an inductive current loop in the source. Depending on the time-step and on the inductance of the source branches, this opening can easily occur a fraction of a time-step after the opposite branch closes.

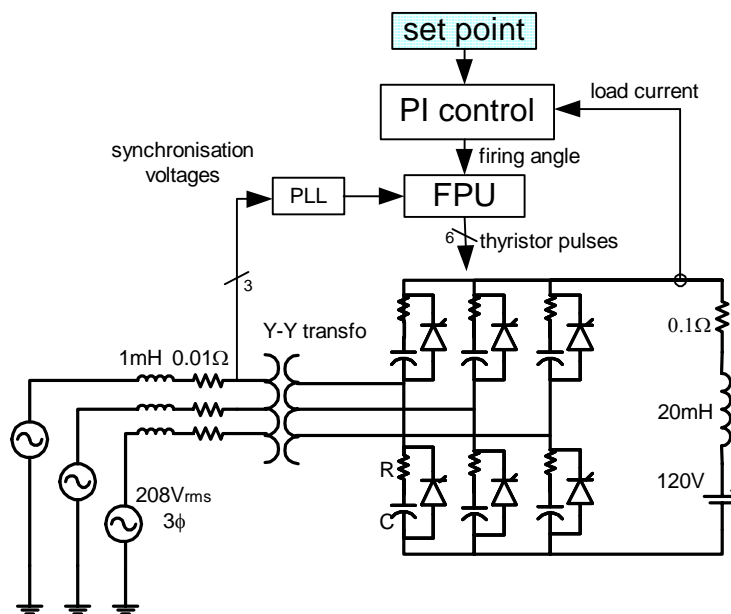


Figure 1. 6-pulse thyristor converter with a simple DC motor model

System configuration	
Hardware enclosure	HILBox
Software modules	ARTEMIS
Additional models	N/A
Package	D