

CONFIGURATION ENVIRONMENT FOR THE ASDEX UPGRADE CONTROL SYSTEM

G. Neu, Max-Planck-Inst.; V. Mertens, Max-Planck-Inst.; G. Raupp, Max-Planck-Inst.;
W. Treutterer, Max-Planck-Inst.; D. Zasche, Max-Planck-Inst.; T. Zehetbauer, Max-
Planck-Inst. (and Asdex Upgrade Team)

ASDEX Upgrade is a tokamak fusion device controlled by a network of real-time control computers. Field coils, fuelling and heating systems may be operated feedforward used in various feedback control loops. The latter are embedded into a universal control flow mechanism to react to critical machine states or to activate control methods on occurrence of distinct physical states. Real-time control is parameterised by a discharge program, i.e. a set of time varying value trajectories to choose among control algorithms, to define feedforward and feedback references and set control flow conditions. Editing such discharge programs requires detailed knowledge on availability, characteristics and interdependencies among control algorithms, sensors, actuators, I/O path characteristics. A new editing environment to configure discharge programs should attain two goals. It should be closely related to the current set-up of implemented algorithms and attached sensor/actuator signals. And it should be structured along the physical interdependencies among signals to offer the physicist a user-adapted view. Implementation is based on a process database with process information extracted from the software program version(s) used, and on a signal database with signal information extracted from descriptions of sensor / actuator characteristics and I/O path description.