EXHAUST SYSTEM ADVANCED (for SI/SITC and FDI/FDITC)

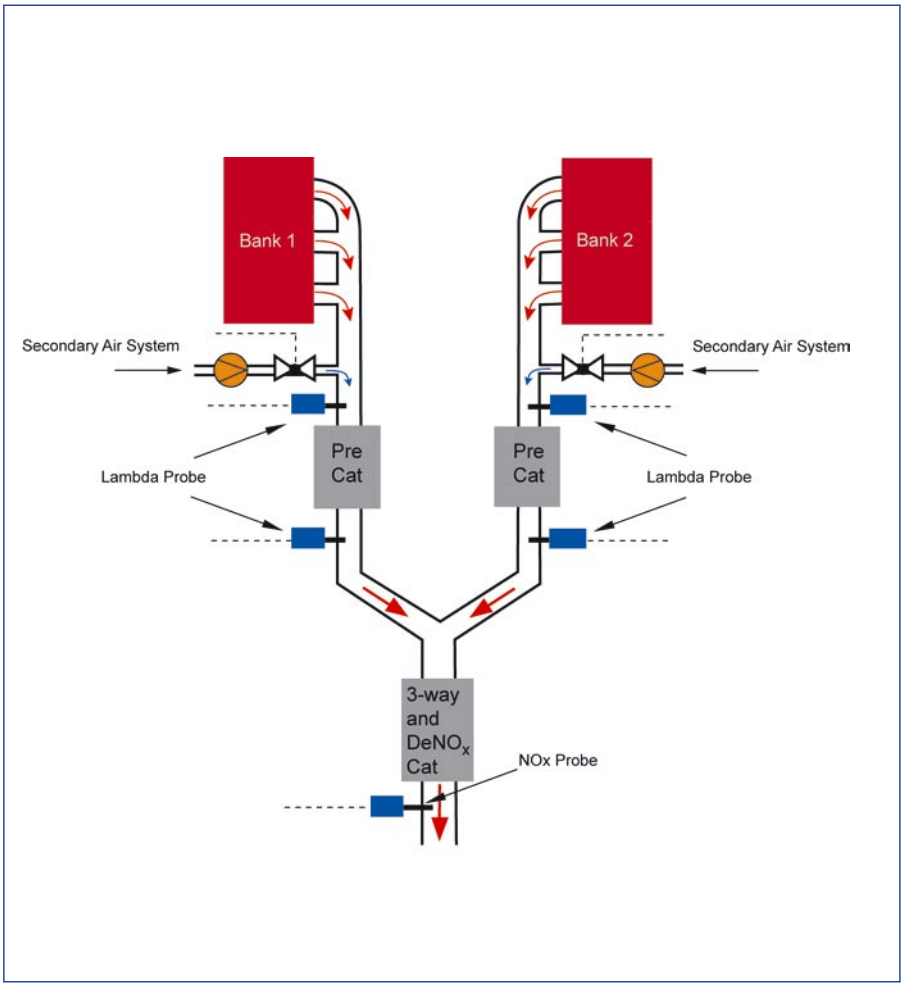
The Exhaust System Advanced model supports the development of control devices as well as OBD relevant tests on HiL test benches. This model is suited for the simulation of various malfunctions in the exhaust system, e.g. the deterioration of the oxygen storage ability of catalytic converters due to the aging, or air leakage at the mounting of the lambda probes.

The standard configuration of the advanced exhaust system consists of two upstream catalytic converters; one main catalytic converter and a total of five lambda probes, as is standard in 2in1 exhaust systems. The model can be used for in-line engines without changes. The following values are calculated:

- Exhaust gas composition, i. e. fractions of O_2, HC, N_2, H_2O, CO_2, CO, NO_X
- Temperatures of the exhaust gas, the lambda probes and the catalytic converters
- Exhaust gas counter-pressure before the catalytic converters
- Heat transfer to the cooling system

Depending on the parameter setting, the lambda probe model offers the options of simulating wide band or conventional lambda probes. The model calculates the air-fuel ratio of the exhaust gas and the temperature of the lambda probe according to the exhaust gas concentrations and the exhaust gas temperature at the respective measuring point. A leakage at the mounting of the lambda probe can also be simulated.

In addition to this, the standard configuration of the FDI/FDITC Exhaust System Advanced provides a NO_X trap model downstream of the main catalytic converter and a NO_X sensor parallel to the last lambda probe.



Scheme of the Advanced Exhaust Line (FDI Version)