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MSS54

Cat heating over ignition angle efficiency

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1st IGNITION ANGLE ENGAGEMENT CATHETER HEATING FUNCTION

The ignition angle intervention for catalytic converter heating is controlled by the catalytic converter heating module via the condition B_KATH_AKTIV_TZ (bit 1 = 1 in the variable kath_st).

The ignition angle retardation is achieved by specifying a reduction in efficiency, which is converted into an ignition angle retardation via the torque manager depending on the operating point.

At the same time, the loss of torque caused by the late pull is compensated by increasing the filling, so that the engine torque delivered continues to correspond to the driver's specifications.

The deterioration in efficiency is made up of the following:

$$\begin{aligned}
 & \text{tz_kath_eta_offset} = \text{KF_TZ_KATH_ETA} \quad \text{TL/VL efficiency deterioration} \\
 & \quad \quad \quad \text{KL_TZ_KATH_ETA_LL} \quad \text{or LL efficiency deterioration} \\
 & \quad * \text{KF_TZ_KATH_FAKTOR} \quad \text{VL/TL weighting factor} = f(\text{tmot}, \text{t_ml}) \\
 & \quad \quad \text{KF_TZ_KATH_LLFAKTOR} \quad \text{LL weighting factor} = f(\text{tmot}, \text{t_ml}) \\
 & \quad * \text{tz_kath_factor} \quad \text{weighting factor up/down regulation}
 \end{aligned}$$

The determination of the weighting factor tz_kath_factor itself can be divided into five areas:

Area 1: Start or re-start (until the start torque is reduced)

Weighting factor = K_TZ_KATH_START

Area 2: Adjustment of the weighting factor The

weighting factor is adjusted linearly from the starting value with the step size

K_TZ_KATH_T_AUFREG adjusted to the value 1.0

Area 3: Ignition angle intervention fully active

weighting factor = 1.0

Area 4: Reduction of the weighting factor After

removing the condition B_KATH_AKTIV_TZ, the weighting factor is reduced linearly to zero

with the step size K_TZ_KATH_T_ABREG.

Area 5: Ignition angle intervention inactive

weighting factor = 0

The ignition angle intervention for catalytic converter heating can be blocked via the constant K_TZ_KATH_CONTROL.

equal to zero: blocked

not equal to zero: released

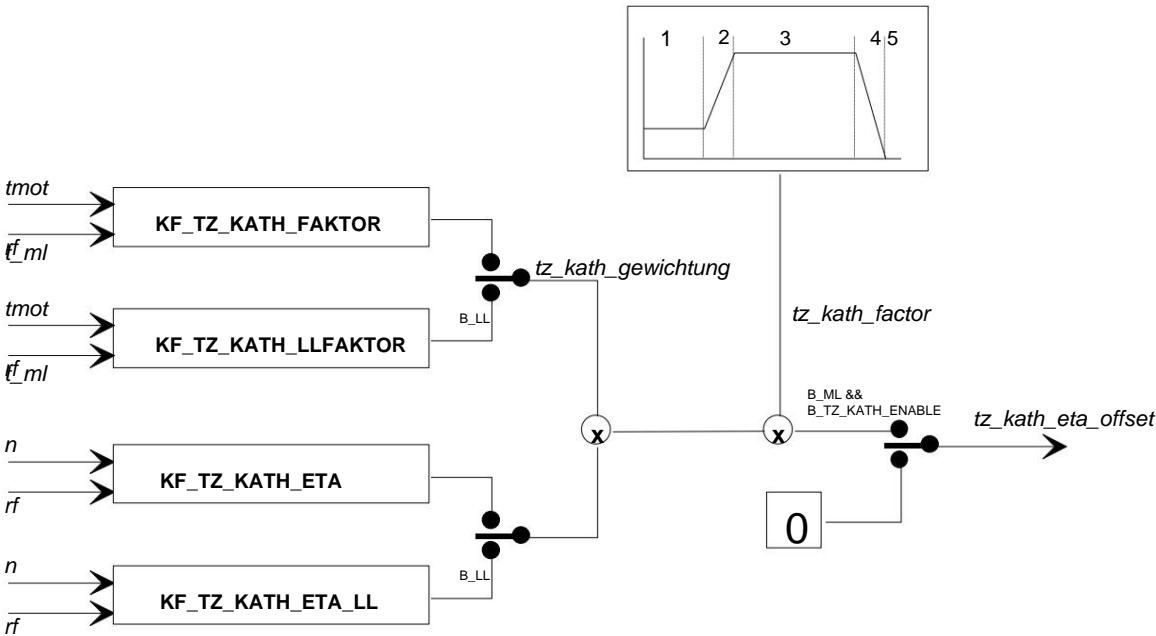
The control parameter K_TZ_KATH_RF_CONTROL can be used to set whether the characteristic maps are calculated with the HFM measured variable or with the rf substitute value.

equal to rf input value rf measured =

zero: not equal to zero: rf input value rf_ersatz =

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Image: Overview of global ignition angle intervention for catalytic converter heaters



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