

ZUE 282.130 (Fundamental Function – Ignition)

See the *funktionsrahmen* for the following diagrams:

zue zue
zue dzwill

ZUE 282.130 Function Description

The ignition angle (zwgru) from the fundamental ignition angle calculation is corrected by the warm-up angle (dzwwl) and the cylinder-specific knock control angle (dwkrz), and it follows that the basic ignition angle (zwbas) is identical with the earliest possible ignition angle. This ignition angle now forms the route in to the ignition engine torque implementation (MDZW), which provides the output ignition angle (zwsol). This ignition angle is now limited to the earliest or latest possible ignition angle. The resulting ignition angle (zwist) is corrected by the phase error which gives the output ignition angle (zwout).

For back-up protection of the ignition angles, the one's complement (i.e. inverse binary value) of zwout is calculated which forms zwoutcpl. This then becomes the input variable of the function monitor.

The cylinder bank selective ignition angle adjustment is activated via the codeword CWDZWLL = 1. The delta ignition angle (dzwill) corresponding to B_bank12 is added to, or subtracted from zwsol.

ZUE 282.130 Application Notes

Three interfaces are provided for the application; the RAM cell vszw and the fixed value ZWAPPL ZW enable adjustment of application tools. Engagement of the torque functions can be disabled using the codeword CWMDAPP (bit 0), so that the applied ignition angle (zwbas) can be driven directly.

Parameter	Description
CWZWBANK	Codeword for enabling cylinder-specific ignition angle offsets
FZIZWV	Factor for torque correction via cylinder-specific ignition angle adjustment
KFDZWLL	Map for delta ignition angle during idle
KLZWBSMN	Latest possible basic ignition angle
TMZIZWV	Engine temperature threshold for enabling cylinder-specific ignition angle adjustment
VZIZWV	Vehicle speed threshold for disabling cylinder-specific ignition angle adjustment
WPHN	Phase response
ZWAPPL	Application interface: ignition angle adjustment
Variable	Description
B_BANK2	Condition flag for cylinder bank 2
B_LL	Condition flag for idle
B_LLREIN	Condition flag for idle control active
B_NOZWE	Condition flag for no ignition angle intervention in the torque structure
B_SA	Condition flag for overrun fuel cut-off
B_ZWAPPL	Condition flag for ignition angle application without torque intervention
B_ZWKRA	Condition flag for ignition angle output during knock regulation
CWDZWLL	Codeword for delta ignition angle during idle active
DWKR	Cylinder-specific ignition angle retardation during knock control
DZWBANK	Cylinder bank-specific ignition angle offset
DZWOB	Delta ignition angle during overboost
DZWWL	Delta ignition angle during warm-up
DZWZK	Delta ignition angle during knock
MISOLZ_W	Indexed resulting desired torque for ignition angle intervention
MIZSOL_W	Indexed resulting desired torque for ignition angle intervention
NMOT	Engine speed
NSOL	Desired idle speed
REDIST	Actual reduction stage
RL	Relative cylinder charge
SY_REDMX	System constant: maximum reduction stage
SY_TDZW	System constant: additive ignition angle adaptation active
SY_TURBO	System constant: turbocharger
SY_WMAX	System constant: earliest outputtable ignition angle
SY_WMIN	System constant: latest outputtable ignition angle
SY_ZIZWV	<i>Text must be provided by Mrs Sauer</i>
SZOUT_W	Closing time output
TMOT	Engine temperature
VFZG	Vehicle speed

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VSTDZW	Additive ignition angle adaption
VSZW	Ignition angle correction adjusting system
WKRDY	Ignition angle retardation via dynamic knock regulation
WPHG	Ignition angle speed sensor phase correction
ZNACHANZ	Number of ignitions in overrun
ZWBAS	Basic ignition angle
ZWDLLPRT	Ignition angle pointer with delta idle ignition angle
ZWGRU	Fundamental ignition angle
ZWIST	Actual ignition angle
ZWOUT	Ignition angle output
ZWOUTCPL	One's complement of the ignition angles for function monitoring
ZWOUTPRT	Ignition angle pointer
ZWSOL	Desired ignition angle for torque intervention
ZWSPAE	Latest ignition angle
ZWSTT	Ignition angle during start
ZWZYL1	Ignition angle for cylinder 1
ZZYLZUE	Dwell angle-cylinder counter for calculating ignitions