

Reading measured value block

List of display groups

Display group number	Indicated on display	Designation		
000	Reading measured value block 0 1 2 3 4 5 6 7 8 9 10	1	=	Intake-air temperature
		2	=	Engine control-unit power supply
		3	=	Coolant temperature
		4	=	Engine load
		5	=	Lambda probe voltage
		6	=	Time counter active/not active
		7	=	Probe status counter; ignore
		8	=	Throttle valve potentiometer voltage
		9	=	Injection period
		10	=	Engine speed

Notes:

- ☐ Display zone 6 indicates length of time for which Lambda control is deactivated in certain operating statuses (e.g. overrun shutoff). Deactivation is displayed by a time counter. If time counter is not "0", Lambda control has been deactivated for a specific period.
- ☐ Display zone 7 shows how often the Lambda probe supplies a signal which cannot be processed or no signal at all. The display is incremented with each ignition operation.

Display group number	Indicated on display	Designation		
001	Reading measured value block 1 1 2 3 4	1	=	Coolant temperature
		2	=	Engine speed
		3	=	Lambda probe voltage
		4	=	Injection period
002	Reading measured value block 2 1 2 3 4	1	=	Coolant temperature
		2	=	Engine speed
		3	=	Throttle valve angle
		4	=	Engine load signal
003	Reading measured value block 3 1 2 3 4	1	=	Coolant temperature
		2	=	Engine speed

		3	=	Intake-air temperature
		4	=	Engine control-unit power supply

Display group number	Indicated on display	Designation		
004	Reading measured value block 4 1 2 3 4	1	=	Coolant temperature
		2	=	Engine speed
		3	=	Calculated ignition point
		4	=	Engine load signal
005	Reading measured value block 5 1 2 3 4	1	=	Coolant temperature
		2	=	Engine speed
		3	=	Throttle valve angle
		4	=	Engine control-unit power supply

Display group 000

Reading measured value block ☐										☐ Indicated on display	Specification	Corresponds to
1	2	3	4	5	6	7	8	9	10			
										Engine speed	211 ... 186	770 ... 870 rpm
										Injection period (internal control unit arithmetic value); ignore	3 ... 7	1.5 ... 3.5 ms
										Throttle valve potentiometer voltage	10 ... 130	0.2 ... 2.6 V
										Probe status counter	0 ... 10	-
										Lambda control time counter; ignore	0	-
										Lambda probe voltage (fluctuating)	230 ... 80	0.1 ... 1.1 V
										Engine load; ignore	35 ... 65	14 ... 25 %
										Coolant temperature	0 ... 8	+ 85 ... 115 ° C
										Engine control-unit power supply	115 ... 150	10.8 ... 14 V
										Intake-air temperature	15 ... 70	+ 65 ... 12 ° C

Test table: Display group 000

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
1	Deviation from tolerance range	- Intake-air temperature sender -G42 defective - Fault in wiring between intake-air temperature sender -G42 and engine	- Interrogate fault memory =>Page 28-20

		control unit	
2	Deviation from tolerance range	- Alternator defective - Battery flat (current draw) - Poor earth connection to engine control unit - Power supply relay for engine control unit defective	- Check power supply =>Page 28-26
3	Deviation from tolerance range	- Coolant temperature sender -G62 defective - Fault in wiring between coolant-temperature sender -G62 and engine control unit	- Interrogate fault memory =>Page 28-23

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
4	Deviation from tolerance range	- Rough idling (not running on all cylinders)	- Check spark plugs =>Page 24-34
		- Air-flow meter potentiometer -G19 defective	- Interrogate fault memory =>Page 24-67
		- Idling-speed stabilisation valve -N71 defective - Fault in wiring between idling-speed stabilisation valve -N71 and engine control unit	- Check idling-speed stabilisation valve -N71 => Page 24-52
		- Intake system drawing in unmetered air	- Check intake system for leaks => Vacuum connections, Page 24-116
		- Load switched on, e.g. air conditioner on; steering wheel on full lock	- Switch off all electr. loads Move steering wheel to centre position

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
5	Deviation from tolerance range	- Injector defective - Spark plug defective	- Check injectors=>Page 28-3
		- Intake system drawing in large quantities of unmetered air	- Check intake system for leaks => Vacuum connections, Page 24-116
		- Coolant temperature sender -G62 defective	- Interrogate fault memory =>Page 28-23
		- Activated charcoal filter solenoid valve -N80 defective	- Perform final control diagnosis => Page 01-23
		- Lambda probe -G39 dirty	- Interrogate fault memory =>Page 24-82
Continuation ▼		- Lambda probe heater -Z19 defective	- Check Lambda probe heater - Z19 => Page 24-83

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
5	Deviation from tolerance range	- Fuel system pressure too low/too high	- Check fuel pressure regulator and holding pressure => Page 24-28
	Constant value between 0 and 3	- Short to positive caused by: - - Lambda probe -G39 - - Lambda probe wiring - - Engine control unit	- Check Lambda probe -G39 =>Page 24-82
	Constant value between 164 and 168	- Open circuit in wiring caused by: - - Lambda probe -G39 - - Lambda probe wiring - - Engine control unit	
	Constant value greater than 230	- Short to earth caused by: - - Lambda probe -G39 - - Lambda probe wiring - - Engine control unit	

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
6	...	Ignore	
7	Deviation from tolerance range or 127 constantly displayed	- Fault stored in fault memory	- Interrogate fault memory =>Page 01-8
		- Lambda probe heater -Z19 defective	- Check Lambda probe heater - Z19 => Page 24-83
		- Open circuit in wiring between Digifant control unit -J169 and Lambda probe - -G39	- Check Lambda probe -G39 =>Page 24-82
8	Deviation from tolerance range	- Throttle valve potentiometer -G69 defective - Fault in wiring between throttle valve potentiometer -G69 and engine control unit	- Interrogate fault memory =>Page 24-91

Note on display zone 7:

If 127 is displayed, Lambda control is set to open-loop control.

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
9	...	Ignore	
10	Deviation from tolerance range	- Intake system drawing in large quantities of unmetered air	- Check intake system for leaks => Vacuum connections, Page 01-8
		- Engine control unit not encoded	- Encode engine control unit => Page 01-31
		- Idling-speed stabilisation valve -N71 sticking or stiff	- Perform final control diagnosis => Page 24-52
		- Throttle valve potentiometer -G69 defective	- Check throttle valve potentiometer - G69 => Page 24-

			91 /display group 002, display zone 3
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Display group 001

Reading measured value block 1				☐	☐ Indicated on display
95 °C	820 rpm	0.75 V	2.0 ms		
					Injection period (internal control unit arithmetic value at idle) ▪ 1.5 ... 3.5 ms OK
					Lambda probe voltage (fluctuating) ▪ 0.1 ... 1.1 V
					Engine speed (idling speed) ▪ 770 ... 870 rpm OK
					Coolant temperature

Test table: Display group 001

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
1	Greater than 115 °C or less than 85 °C 1)	- Coolant temperature sender -G62 defective - Fault in wiring between coolant-temperature sender -G62 and Digifant control unit -J169	- Interrogate fault memory =>Page 28-23
2	Greater than 870 rpm	- Throttle valve potentiometer -G69 - defective	- Check throttle valve potentiometer - G69 => Page 24-91 /display group 003, display zone 3
		- Idling-speed stabilisation valve -N71 sticking or stiff	- Perform final control diagnosis => Page 24-52
		- Intake system drawing in large quantities of unmetered air	- Check intake system for leaks => Vacuum connections, Page 24-116
		- Unmetered air at throttle valve 2nd stage	- Perform basic setting of throttle valve => Page 24-99
Continuation ▼			

1) Vehicle at operating temperature

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
2	Greater than 870 rpm	- Incorrect throttle cable setting	- Adjust throttle cable => 4-cyl. Fuel-injection Engine (2-Valve), Mechanics; Repair Group 20; Removing and

			installing fuel supply system components; => Adjusting throttle cable
	Less than 770 rpm	- Idling-speed stabilisation valve -N71 sticking or stiff	- Perform final control diagnosis => Page 24-52
		- Load switched on, e.g. air conditioner on; steering wheel on full lock	- Switch off all electr. loads Move steering wheel to centre position
3	Deviation from tolerance range	- Injector defective - Spark plug defective - Cold start valve -N17 defective	- Check injectors=>Page 24-52
Continuation ▼		- Intake system drawing in large quantities of unmetered air	- Check intake system for leaks => Vacuum connections, Page 24-116

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
3	Deviation from tolerance range	- Coolant temperature sender -G62 defective	- Interrogate fault memory =>Page 28-23
		- Activated charcoal filter solenoid valve -N80 defective	- Perform final control diagnosis => Page 24-86
		- Lambda probe -G39 dirty	- Interrogate fault memory =>Page 24-82
		- Lambda probe heater -Z19 defective	- Check Lambda probe heater - Z19 => Page 24-83
		- Fuel system pressure too low/too high	- Check fuel pressure regulator and holding pressure => Page 24-28
Continuation ▼	Constant value of 1.60 V	- Short to positive caused by: - - Lambda probe -G39 - - Lambda probe wiring - - Engine control unit	- Check Lambda probe -G39 =>Page 24-82

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
3	Constant value between 0.40 and 0.50 V	- Open circuit in wiring caused by: - Lambda probe -G39 - Lambda probe wiring - Engine control unit	- Check Lambda probe -G39 =>Page 24-82
	Constant value of 0.00 V	- Short to earth caused by: - Lambda probe -G39 - Lambda probe wiring - Engine control unit	
4	... ms	Injection period (internal control unit arithmetic value at idle)	

Note on display zone 3:

Probe voltage U in mV

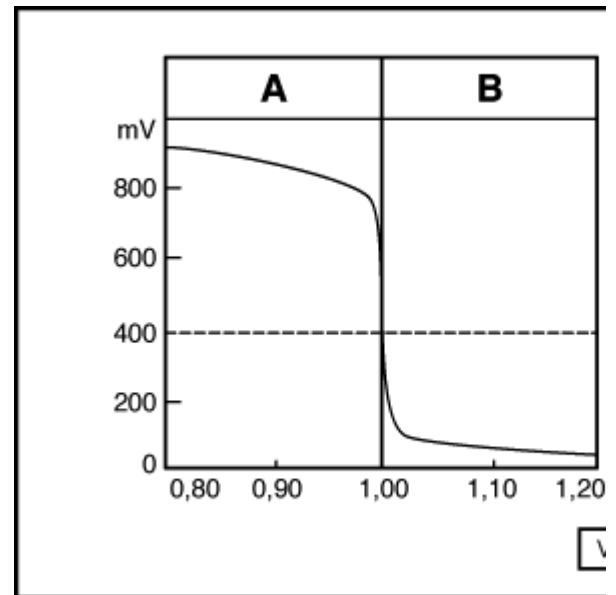
Excess air factor

A - → Lambda probe voltage (mV) high, rich mixture (excess fuel/lack of air), high CO value

B - Lambda probe voltage (mV) low, lean mixture (lack of fuel/excess air), low CO value

Display group 002

Reading measured value block 2				□ Indicated on display
95 °C	820 rpm	1.5 <°	20 %	
				Engine load signal
				▪ 14 ... 25 % OK
				Throttle valve angle:
				▪ Idling speed: 0.0 ... 2.0 <° OK
				▪ Full throttle: Greater than 75 <° OK
				OK
				Engine speed (idling speed)
				▪ 770 ... 870 rpm OK
				Coolant temperature



Test table: Display group 002

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
1	... °C	Coolant temperature => Display group 001, display zone 1	
2	... rpm	Engine speed => Display group 001, display zone 2	
3	At idle greater than 2 <°	- Throttle valve potentiometer - G69 defective	- Interrogate fault memory =>Page 24-91
		- Throttle cable setting	- Adjust throttle cable
		- Throttle valve sticking	- Eliminate cause
	At full throttle less than 75 <°	- Throttle valve potentiometer - G69 defective	- Interrogate fault memory =>Page 24-91
		- Throttle cable setting	- Adjust throttle

			cable
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Note on display zone 3:

For checking at full throttle, switch engine off and ignition on.

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
4	Deviation from tolerance range	- Rough idling (not running on all cylinders)	- Check spark plugs =>Page 24-34
		- Air-flow meter potentiometer -G19 defective	- Interrogate fault memory =>Page 24-67
		- Idling-speed stabilisation valve -N71 defective - Fault in wiring between idling-speed stabilisation valve -N71 and engine control unit	- Check idling-speed stabilisation valve -N71 => Page 24-52
		- Intake system drawing in unmetered air	- Check intake system for leaks => Vacuum connections, Page 24-116
		- Load switched on, e.g. air conditioner on; steering wheel on full lock	- Switch off all electr. loads Move steering wheel to centre position

Note on display zone 2:

Engine load is calculated by way of intake manifold vacuum using air-flow meter signal.

Display group 003

Reading measured value block 3	☐	☐ Indicated on display
95 ° 820 ° 40 ° 12.4		

C	rpm	C	V
			Engine control-unit power supply ▪ 10.8 ... 14.0 V OK
			Intake-air temperature ▪ No specification; governed by ambient temperature
			Engine speed (idling speed) ▪ 770 ... 870 rpm OK
			Coolant temperature

Test table: Display group 003

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
1	... °C	Coolant temperature => Display group 001, display zone 1	
2	... rpm	Engine speed => Display group 001, display zone 2	
3	Different from ambient temperature	- Intake-air temperature sender -G42 defective - Fault in wiring between intake-air temperature sender -G42 and engine control unit	- Interrogate fault memory =>Page 28-20
4	Less than 10.8 V or Greater than 14.0 V	- Alternator defective - Battery flat (current draw)	- Check voltage
		- Poor earth connection to engine control unit - Power supply relay for engine control unit defective	- Check power supply =>Page 28-26

Display group 004

Reading measured value block 4				☐ Indicated on display
95 °C	820 rpm	28 °	20 %	
			Engine load signal ▪ 14 ... 25 % OK	
			Calculated ignition timing ▪ V.A.G 1551 cannot display ignition angles greater than	

		30 °
		Engine speed (idling speed)
		▪ 770 ... 870 rpm OK
		Coolant temperature

Test table: Display group 004

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
1	... °C	Coolant temperature => Display group 001, display zone 1	
2	... rpm	Engine speed => Display group 001, display zone 2	
3	°	Ignition timing; V.A.G 1551 cannot display ignition angles greater than 30 °	
4	... %	Engine load signal => Display group 002, display zone 4	

Display group 005

Reading measured value block 5				☐ Indicated on display
95 °C	820 rpm	1.5 <°	12.4 V	
			Engine control-unit power supply	▪ 10.8 ... 14.0 V OK Throttle valve angle: ▪ Idling speed: 0.0 ... 2.0 <°OK ▪ Full throttle: Greater than 75 <°OK
			Engine speed (idling speed)	
			▪ 770 ... 870 rpm OK	
			Coolant temperature	

Test table: Display group 005

Display zone	Display on V.A.G 1551	Cause of trouble	Fault remedy
1	... °C	Coolant temperature => Display group 001, display zone 1	
2	... rpm	Engine speed => Display group 001, display zone 2	
3	... <°	Throttle valve angle => Display group 002, display zone 3	
4	... V	Engine control-unit power supply => Display group	

		003, display zone 4
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