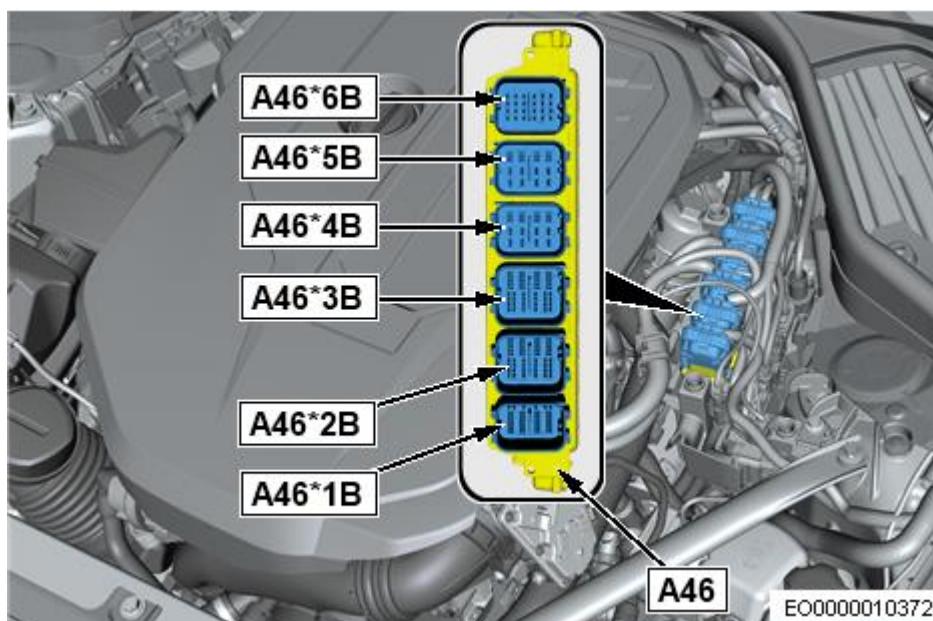


Connector location views

Number X-pin, colour	Description
A46*1B 54-pin, black	Component connector Digital Motor Electronics
A46*2B 64-pin, black	Component connector Digital Motor Electronics
A46*3B 64-pin, black	Component connector Digital Motor Electronics
A46*4B 32-pin, black	Component connector Digital Motor Electronics
A46*5B 32-pin, black	Component connector Digital Motor Electronics
A46*6B 24-pin, black	Component connector Digital Motor Electronics



Pin assignments at plug connector A46*1B

Pin	Type	Description /Signal type	Connection /Measuring information
1	Input	Signal, temperature sensor Dynamic signal	Temperature sensor at radiator outlet 0 V to 5 V
2	Supply	Supply Exhaust gas pressure sensor for petrol particulate filter Static signal	Exhaust gas pressure sensor for petrol particulate filter 5 V \pm 0,1 V
3	Supply	Supply Accelerator pedal module Static signal	Accelerator pedal module 5 V \pm 0,1 V
4	Supply	Supply Accelerator pedal module Static signal	Accelerator pedal module 5 V \pm 0,1 V
5	--	Not used	
6	Output	Activation Electrical exhaust flap Dynamic signal	Electrical exhaust flap 0 V to battery voltage
7	Ground	Sensor ground Static signal	Temperature sensor at radiator outlet 0 V
8	Input	Signal Exhaust gas pressure sensor for petrol particulate filter Dynamic signal	Exhaust gas pressure sensor for petrol particulate filter 0 V to 5 V
9	Input	Signal Accelerator pedal module Dynamic signal	Accelerator pedal module 0 V to 5 V
10	Input	Signal Accelerator pedal module Dynamic signal	Accelerator pedal module 0 V to 5 V
11	--	Not used	
12	--	Not used	
13	--	Not used	
14	Ground	Sensor ground Static signal	Exhaust gas pressure sensor for petrol particulate filter 0 V
15	Ground	Sensor ground Static signal	Accelerator pedal module 0 V
16	Ground	Sensor ground Static signal	Accelerator pedal module 0 V
17	--	Not used	
18	--	Not used	

19	--	Not used	
20	--	Not used	
21	Output	Activation Electric fuel pump control electronics	Electric fuel pump control electronics
		Dynamic signal	0 V to battery voltage
22	Input	USA/Korea Signal Natural Vacuum Leak Detection	Natural Vacuum Leak Detection
		Dynamic signal	0 V to battery voltage
22	Input	Exhaust emission standards China 6 Signal Natural Vacuum Leak Detection	Natural Vacuum Leak Detection
		Dynamic signal	0 V to battery voltage
23	--	Not used	
24	--	Not used	
25	--	Not used	
26	Bus communication	FlexRay bus signal	Body Domain Controller
		Dynamic signal	1,5 V to 3,5 V
27	Bus communication	LIN bus signal	Bus connection
		Dynamic signal	0 V to battery voltage
28	--	Not used	
29	--	Not used	
30	--	Not used	
31	--	Not used	
32	Bus communication	FlexRay bus signal	Body Domain Controller
		Dynamic signal	1,5 V to 3,5 V
33	Bus communication	Hybrid engine K-CAN5 data bus Signal	K-CAN5 bus connection
		Dynamic signal	2,5 V to 3,5 V
34	Bus communication	Hybrid engine K-CAN5 data bus Signal	K-CAN5 bus connection
		Dynamic signal	1.5 V to 2.5 V
35	Bus communication	PT-CAN bus signal	PT-CAN2 bus connection
		Dynamic signal	2,5 V to 3,5 V
36	Bus communication	PT-CAN bus signal	PT-CAN2 bus connection
		Dynamic signal	1,5 V to 3,5 V

37	Bus communication	with dual storage system LIN bus signal	Auxiliary battery
		Dynamic signal	0,7 V to battery voltage
38	--	Not used	
39	--	Not used	
40	--	Not used	
41	Bus communication	PT-CAN bus signal	PT-CAN bus connection
		Dynamic signal	2,5 V to 3,5 V
42	Bus communication	PT-CAN bus signal	PT-CAN bus connection
		Dynamic signal	1,5 V to 3,5 V
43	--	Not used	
44	--	Not used	
45	--	Not used	
46	--	Not used	
47	--	Not used	
48	Input	Supply, terminal 15	Body Domain Controller
		Binary signal	0 V or battery voltage
49	Output	PHEV USA Activation	Purge air line shutoff valve
		Dynamic signal	0 V to battery voltage
50	--	Not used	
51	--	Not used	
52	--	Not used	
53	Output	Activation Cut-out relay, electric fan	Cut-out relay, electric fan
		Binary signal	0 V or battery voltage
54	Input	Power supply, terminal 30B	Power distribution box, rear
		Static signal	Battery voltage

Pin assignments at plug connector A46*2B

Pin	Type	Description /Signal type	Connection /Measuring information
1	--	Not used	
2	Input	Signal, temperature sensor	Temperature sensor, crankcase
		Dynamic signal	0 V to 5 V
3	--	Not used	
4	Supply	Supply Electromotive throttle actuator	Electromotive throttle actuator

		Static signal	5 V \pm 0,1 V
5	--	Not used	
6	Ground	Sensor ground	Temperature sensor, crankcase
		Static signal	0 V
7	Input	Signal Electromotive throttle actuator	Electromotive throttle actuator
		Dynamic signal	0 V to 5 V
8	Input	Signal Electromotive throttle actuator	Electromotive throttle actuator
		Dynamic signal	0 V to 5 V
9	--	Not used	
10	--	Not used	
11	Output	Activation Digital Motor Electronics main relay	Integrated supply module
		Binary signal	0 V or battery voltage
12	Ground	Ground, electromotive throttle actuator	Electromotive throttle actuator
		Static signal	0 V
13	--	Not used	
14	--	Not used	
15	--	Not used	
16	Output	Hybrid engine Activation Engine mount changeover valve	Engine mount changeover valve
		Dynamic signal	0 V to battery voltage
17	Output	Activation Heat management module	Heat management module
		Dynamic signal	0 V to battery voltage
18	Output	Activation Heat management module	Heat management module
		Dynamic signal	0 V to battery voltage
19	Output	Activation Oil pressure control valve	Oil pressure control valve
		Dynamic signal	0 V to battery voltage
20	Output	Activation Heat management module	Heat management module
		Dynamic signal	0 V to battery voltage
21	Output	Activation Electromotive throttle actuator	Electromotive throttle actuator
		Dynamic signal	0 V to battery voltage
22	Output	Activation Electromotive throttle actuator	Electromotive throttle actuator
		Dynamic signal	0 V to battery voltage
23	--	Not used	
24	Bus communication	LIN bus signal	Turbocharger coolant pump

		Dynamic signal	0,7 V to battery voltage
25	Input	Signal Coolant temperature sensor	Coolant temperature sensor
		Dynamic signal	0 V to 5 V
26	Supply	Supply Crankshaft sensor	Crankshaft sensor
		Static signal	5 V \pm 0,1 V
27	Supply	Supply Engine-oil pressure sensor	Engine-oil pressure sensor
		Static signal	5 V \pm 0,1 V
28	Supply	Supply Intake-manifold pressure sensor charge air temperature	Intake-manifold pressure sensor charge air temperature
		Static signal	5 V \pm 0,1 V
29	--	Not used	
30	--	Not used	
31	Input	Signal Crankshaft sensor	Crankshaft sensor
		Dynamic signal	0 V to 5 V
32	Input	Signal Engine-oil pressure sensor	Engine-oil pressure sensor
		Dynamic signal	0 V to 5 V
33	Input	Signal Intake-manifold pressure sensor charge air temperature	Intake-manifold pressure sensor charge air temperature
		Dynamic signal	0 V to 5 V
34	--	Not used	
35	Ground	Sensor ground	Coolant temperature sensor
		Static signal	0 V
36	Ground	Sensor ground	Crankshaft sensor
		Static signal	0 V
37	Ground	Sensor ground	Engine-oil pressure sensor
		Static signal	0 V
38	Ground	Sensor ground	Intake-manifold pressure sensor charge air temperature
		Static signal	0 V
39	--	Not used	
40	Input	Signal, temperature sensor	Coolant temperature sensor
		Dynamic signal	0 V to 5 V
41	--	Not used	
42	Ground	Ground Heat management module	Heat management module
		Static signal	0 V
43	Ground	Sensor ground	Intake air temperature sensor
		Static signal	0 V
44	Input	Signal Intake-manifold pressure sensor charge air temperature	Intake-manifold pressure sensor charge air temperature

		Dynamic signal	0 V to 5 V
45	--	Not used	
46	--	Not used	
47	Input	Signal Heat management module	Heat management module
		Dynamic signal	0 V to 5 V
48	Ground	Sensor ground	Charging pressure sensor
		Static signal	0 V
49	Input	Signal Charging pressure sensor	Charging pressure sensor
		Dynamic signal	0 V to 5 V
50	--	Not used	
51	--	Not used	
52	Supply	Supply Heat management module	Heat management module
		Static signal	5 V \pm 0,1 V
53	Supply	Supply Charging pressure sensor	Charging pressure sensor
		Static signal	5 V \pm 0,1 V
54	Input	Signal Intake air temperature sensor	Intake air temperature sensor
		Dynamic signal	0 V to 5 V
55	--	Not used	
56	Ground	Sensor ground	Oil-level sensor
		Static signal	0 V
57	--	Not used	
58	Input	Signal Knock sensor 2	Knock sensor 2
		Dynamic signal	0 V to 5 V
59	Input	Signal Knock sensor 2	Knock sensor 2
		Dynamic signal	0 V to 5 V
60	Bus communication	LIN bus signal	Alternator
		Dynamic signal	0 V to battery voltage
61	Input	Signal Oil-level sensor	Oil-level sensor
		Dynamic signal	0 V to battery voltage
62	--	Not used	
63	Input	Signal Knock sensor	Knock sensor
		Dynamic signal	0 V to 5 V
64	Input	Signal Knock sensor	Knock sensor
		Dynamic signal	0 V to 5 V

Pin assignments at plug connector A46*3B

Pin	Type	Description /Signal type	Connection /Measuring information
1	Supply	Supply Tank vent valve Static signal	Tank vent valve Battery voltage
2	Supply	Supply VANOS solenoid actuator, intake Static signal	VANOS solenoid actuator, intake Battery voltage
3	--	Not used	
4	Output	Activation VANOS solenoid valve, exhaust Dynamic signal	VANOS solenoid valve, exhaust 0 V to battery voltage
5	Supply	Supply VANOS solenoid valve, exhaust Static signal	VANOS solenoid valve, exhaust Battery voltage
6	--	Not used	
7	--	Not used	
8	Output	Activation VANOS solenoid valve, inlet Dynamic signal	VANOS solenoid valve, inlet 0 V to battery voltage
9	Output	Activation Electrical wastegate valve Dynamic signal	Electrical wastegate valve 0 V to battery voltage
10	Output	Activation Electrical wastegate valve Dynamic signal	Electrical wastegate valve 0 V to battery voltage
11	--	Not used	
12	--	Not used	
13	--	Not used	
14	Output	Activation Engine ventilation heating Dynamic signal	Engine ventilation heating 0 V to battery voltage
15	--	Not used	
16	Output	Activation Tank vent valve Dynamic signal	Tank vent valve 0 V to battery voltage
17	--	Not used	
18	Output	Activation Oxygen sensor before catalytic converter Dynamic signal	Oxygen sensor before catalytic converter 0 V to battery voltage
19	Output	Activation Oxygen sensor after catalytic converter	Oxygen sensor after catalytic converter

		Dynamic signal	0 V to battery voltage
20	--	Not used	
21	--	Not used	
22	--	Not used	
23	Supply	Supply Quantity control valve	Quantity control valve
		Dynamic signal	0 V to battery voltage
24	Supply	Supply Quantity control valve	Quantity control valve
		Dynamic signal	0 V to battery voltage
25	Supply	Supply Hot-film air mass meter	Hot-film air mass meter
		Static signal	5 V \pm 0,1 V
26	--	Not used	
27	Supply	Supply Intake camshaft sensor	Intake camshaft sensor
		Static signal	5 V \pm 0,1 V
28	Input	Signal Oxygen sensor after catalytic converter	Oxygen sensor after catalytic converter
		Dynamic signal	0 V to 5 V
29	--	Not used	
30	Input	Signal Hot-film air mass meter	Hot-film air mass meter
		Dynamic signal	0 V to 5 V
31	Bus communication	Hybrid engine LIN bus signal	Coolant pump 2 in low-temperature coolant circuit
		Dynamic signal	0,7 V to battery voltage
31	Bus communication	not Hybrid engine LIN bus signal	Coolant pump in low-temperature coolant circuit
		Dynamic signal	0,7 V to battery voltage
32	Input	Signal Intake camshaft sensor	Intake camshaft sensor
		Dynamic signal	0 V to 5 V
33	Ground	Ground Oxygen sensor after catalytic converter	Oxygen sensor after catalytic converter
		Static signal	0 V
34	--	Not used	
35	Ground	Ground Hot-film air mass meter	Hot-film air mass meter
		Static signal	0 V
36	--	Not used	
37	Ground	Sensor ground	Intake camshaft sensor
		Static signal	0 V
38	--	Not used	
39	--	Not used	
40	Ground	Sensor ground	Exhaust camshaft sensor

		Static signal	0 V
41	--	Not used	
42	Input	Signal, temperature sensor	Hot-film air mass meter
		Dynamic signal	0 V to 5 V
43	--	Not used	
44	--	Not used	
45	Supply	Supply Exhaust camshaft sensor	Exhaust camshaft sensor
		Static signal	5 V \pm 0,1 V
46	Input	Signal Exhaust camshaft sensor	Exhaust camshaft sensor
		Dynamic signal	0 V to 5 V
47	--	Not used	
48	--	Not used	
49	Ground	Ground Oxygen sensor before catalytic converter	Oxygen sensor before catalytic converter
		Static signal	0 V
50	Ground	Sensor ground	Rail pressure sensor
		Static signal	0 V
51	Ground	Sensor ground	Electrical wastegate valve
		Static signal	0 V
52	--	Not used	
53	Ground	Sensor ground	Pressure sensor, Venturi nozzle
		Static signal	0 V
54	Input	Signal Oxygen sensor before catalytic converter	Oxygen sensor before catalytic converter
		Dynamic signal	0 V to 5 V
55	Input	Signal Rail pressure sensor	Rail pressure sensor
		Dynamic signal	0 V to 5 V
56	Input	Signal Electrical wastegate valve	Electrical wastegate valve
		Dynamic signal	0 V to 5 V
57	--	Not used	
58	Input	Sensor signal Pressure sensor, Venturi nozzle	Pressure sensor, Venturi nozzle
		Dynamic signal	0 V to 5 V
59	Input	Signal Oxygen sensor before catalytic converter	Oxygen sensor before catalytic converter
		Dynamic signal	0 V to 5 V
60	Supply	Supply Rail pressure sensor	Rail pressure sensor
		Static signal	5 V \pm 0,1 V
61	Supply	Supply Electrical wastegate valve	Electrical wastegate valve

		Static signal	5 V \pm 0,1 V
62	--	Not used	
63	Supply	Supply Pressure sensor, Venturi nozzle	Pressure sensor, Venturi nozzle
		Static signal	5 V \pm 0,1 V
64	--	Not used	

Pin assignments at plug connector A46*4B

Pin	Type	Description /Signal type	Connection /Measuring information
1	--	Not used	
2	--	Not used	
3	--	Not used	
4	Output	Activation Valvetronic actuator motor Dynamic signal	Valvetronic actuator motor 0 V to battery voltage
5	--	Not used	
6	Output	Activation Valvetronic actuator motor Dynamic signal	Valvetronic actuator motor 0 V to battery voltage
7	--	Not used	
8	Output	Activation Valvetronic actuator motor Dynamic signal	Valvetronic actuator motor 0 V to battery voltage
9	--	Not used	
10	--	Not used	
11	--	Not used	
12	--	Not used	
13	Supply	Supply Motor position sensor Static signal	Valvetronic actuator motor 5 V \pm 0,1 V
14	--	Not used	
15	--	Not used	
16	Ground	Ground Motor position sensor Static signal	Valvetronic actuator motor 0 V
17	--	Not used	
18	--	Not used	
19	Input	Signal Motor position sensor Dynamic signal	Valvetronic actuator motor 0 V to 5 V
20	--	Not used	
21	--	Not used	

22	Input	Signal Motor position sensor Dynamic signal	Valvetronic actuator motor 0 V to 5 V
23	--	Not used	
24	--	Not used	
25	Input	Signal Motor position sensor Dynamic signal	Valvetronic actuator motor 0 V to 5 V
26	--	Not used	
27	--	Not used	
28	Input	Signal Motor position sensor Dynamic signal	Valvetronic actuator motor 0 V to 5 V
29	--	Not used	
30	--	Not used	
31	Input	Signal Motor position sensor Dynamic signal	Valvetronic actuator motor 0 V to 5 V
32	--	Not used	

Pin assignments at plug connector A46*5B

Pin	Type	Description /Signal type	Connection /Measuring information
1	Supply	Supply Valvetronic Static signal	Integrated supply module Battery voltage
2	Supply	Supply Ignition Static signal	Integrated supply module Battery voltage
3	Ground	Ground Static signal	Ground point 0 V
4	Supply	Supply Static signal	Integrated supply module Battery voltage
5	Ground	Ground Static signal	Ground point 0 V
6	Supply	Supply Static signal	Integrated supply module Battery voltage
7	Ground	Ground Static signal	Ground point 0 V
8	Supply	Supply Fuel injectors Static signal	Integrated supply module Battery voltage
9	--	Not used	
10	Input	Signal	Integrated supply module

		Dynamic signal	0 V to battery voltage
11	--	Not used	
12	--	Not used	
13	--	Not used	
14	--	Not used	
15	--	Not used	
16	Supply	Supply Gear sensor	Gear sensor
		Static signal	5 V \pm 0,1 V
17	--	Not used	
18	Output	Activation	Integrated supply module
		Binary signal	0 V or battery voltage
19	Input	Signal Gear sensor	Gear sensor
		Dynamic signal	0 V to 5 V
20	--	Not used	
21	Ground	Sensor ground	Gear sensor
		Static signal	0 V
22	--	Not used	
23	--	Not used	
24	--	Not used	
25	--	Not used	
26	--	Not used	
27	Output	Activation Valvetronic relay	Integrated supply module
		Binary signal	0 V or battery voltage
28	--	Not used	
29	--	Not used	
30	Output	Activation	Integrated supply module
		Binary signal	0 V or battery voltage
31	Supply	Supply Digital Motor Electronics main relay	Integrated supply module
		Static signal	Battery voltage
32	--	Not used	

Pin assignments at plug connector A46*6B

Pin	Type	Description /Signal type	Connection /Measuring information
1	Output	Activation Ignition coil, cylinder 1	Ignition coil, cylinder 1
		Dynamic signal	0 V to 450 V

2	Output Activation Ignition coil, cylinder 3 Dynamic signal	Ignition coil, cylinder 3 0 V to 450 V
3	Output Activation Ignition coil, cylinder 4 Dynamic signal	Ignition coil, cylinder 4 0 V to 450 V
4	Output Activation Ignition coil, cylinder 6 Dynamic signal	Ignition coil, cylinder 6 0 V to 450 V
5	Supply Supply Ignition coil, cylinder 1 Static signal	Ignition coil, cylinder 1 Battery voltage
6	Supply Supply Ignition coil, cylinder 3 Static signal	Ignition coil, cylinder 3 Battery voltage
7	Supply Supply Ignition coil, cylinder 4 Static signal	Ignition coil, cylinder 4 Battery voltage
8	Supply Supply Ignition coil, cylinder 6 Static signal	Ignition coil, cylinder 6 Battery voltage
9	Output Activation Ignition coil, cylinder 2 Dynamic signal	Ignition coil, cylinder 2 0 V to 450 V
10	Supply Supply Ignition coil, cylinder 2 Static signal	Ignition coil, cylinder 2 Battery voltage
11	Supply Supply Ignition coil, cylinder 5 Static signal	Ignition coil, cylinder 5 Battery voltage
12	Output Activation Ignition coil, cylinder 5 Dynamic signal	Ignition coil, cylinder 5 0 V to 450 V
13	Output Activation Fuel injector, cylinder 1 Low side Dynamic signal	Fuel injector, cylinder 1 0 V to 70 V
14	Output Activation Fuel injector, cylinder 3 Low side Dynamic signal	Fuel injector, cylinder 3 0 V to 70 V
15	Output Activation Fuel injector, cylinder 4 Low side Dynamic signal	Fuel injector, cylinder 4 0 V to 70 V
16	Output Activation Fuel injector, cylinder 6 Low side Dynamic signal	Fuel injector, cylinder 6 0 V to 70 V
17	Output Activation Fuel injector, cylinder 6 Positive side Dynamic signal	Fuel injector, cylinder 1 0 V to 70 V
18	Output Activation Fuel injector, cylinder 3 Positive side Dynamic signal	Fuel injector, cylinder 3 0 V to 70 V
19	Output Activation Fuel injector, cylinder 4 Positive side Dynamic signal	Fuel injector, cylinder 4 0 V to 70 V

20	Output	Activation Fuel injector, cylinder 6 Positive side	Fuel injector, cylinder 6
		Dynamic signal	0 V to 70 V
21	Output	Activation Fuel injector, cylinder 2 Low side	Fuel injector, cylinder 2
		Dynamic signal	0 V to 70 V
22	Output	Activation Fuel injector, cylinder 2 Positive side	Fuel injector, cylinder 2
		Dynamic signal	0 V to 70 V
23	Output	Activation Fuel injector, cylinder 5 Positive side	Fuel injector, cylinder 5
		Dynamic signal	0 V to 70 V
24	Output	Activation Fuel injector, cylinder 5 Low side	Fuel injector, cylinder 5
		Dynamic signal	0 V to 70 V