

X60001 - Voltage Supply

X60001 9-pin					
Pin	Type	Name	Wire	Description / Signal type	Connection / Measuring notes
1	Input	U_15	0.5 GN	Relay, fuel injectors	
2					
3	I/O	D_TXD2	0.5 WS/VI	Diagnostic Link TXD	K-Line - Transmission Control Unit
4	Ground	31E	1.5 BR/OR	Ground	Terminal 31 support, E-box
5	Ground	31L	1.5 BR	Ground	Ground Connector
6	Ground	31L	1.5 BR	Ground	Ground Connector
7	Input	30H<102	1.5 RT	Voltage Supply Terminal 30	B+ Potential Distributor
8	Input	U_HR<2	1.0 RT/WS/GE	Voltage Supply Terminal 87	Fuse Carrier Engine Electronics

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X60002 - Peripherals

X60002 24-pin					
Pin	Type	Name	Wire	Description / Signal type	Connection / Measuring notes
1	Output	T_LHV1	0.5 GN	Negative activation, oxygen sensor heating	Oxygen sensor 1 before catalytic converter
2	Output	T_LHV2	0.5 GN	Negative activation, oxygen sensor heating	Oxygen sensor 2 before catalytic converter
3	I/O	D_CAN_L	0.5 GE/BR	Gearbox CAN-Low	Transmission Control Unit (AT/SMG only)
4	I/O	D_CAN_H	0.5 GE/SW	Gearbox CAN-High	Transmission Control Unit (AT/SMG only)
5					
6	Output	T_LHH1	0.5 BR	Negative activation, oxygen sensor heating	Oxygen sensor 1 after catalytic converter

7	Input	M_LSV1	0.5 SW	Negative signal, oxygen sensor	Oxygen sensor 1 before catalytic converter
8	Input	M_LSH2	0.5 SW	Negative signal, oxygen sensor	Oxygen sensor 2 after catalytic converter
9	Input	M_LSV2	0.5 SW	Negative signal, oxygen sensor	Oxygen sensor 2 before catalytic converter
10	Input	M_LSH1	0.5 SW	Negative signal, oxygen sensor	Oxygen sensor 1 after catalytic converter
11					
12	Output	T_LHH2	0.5 BR	Negative activation, oxygen sensor heating	Oxygen sensor 2 after catalytic converter
13	Input	I_LSVP1	0.5 BL	Signal, oxygen sensor	Oxygen sensor 1 before catalytic converter, only with MS45.1
14	Input	A_LSH2	0.5 GE	Signal, oxygen sensor	Oxygen sensor 2 after catalytic converter
15	Input	I_LSVP2	0.5 BL	Signal, oxygen sensor	Oxygen sensor 2 before catalytic converter, only with MS45.1

16	Input	A_LSH1	0.5 GE	Signal, oxygen sensor	Oxygen sensor 1 after catalytic converter
17					
18					
19	Output	A_LSVP1	0.5 OR	Signal, oxygen sensor	Oxygen sensor 1 before catalytic converter, only with MS45.1
20	Ground	A_LSVR1	0.5 GE	Signal, oxygen sensor	Oxygen sensor 1 before catalytic converter
21	Ground	A_LSVP2	0.5 OR	Signal, oxygen sensor	Oxygen sensor 2 before catalytic converter, only with MS45.1
22	Ground	A_LSVR2	0.5 GE	Signal, oxygen sensor	Oxygen sensor 2 before catalytic converter
23	Output	S_HR	0.5 BR/SW	ECU Main Relay Control	ECU Main Relay
24					

X60003 - Engine

X60003 52-pin					
Pin	Type	Name	Wire	Description / Signal type	Connection / Measuring notes
1	Input	A_HFM	0.5 GE	Signal Hot Film Mass Air Flow Sensor	Hot Film Mass Air Flow Sensor
2					
3	Input	P_KWG	0.5 GE	Signal, crankshaft sensor	Crankshaft sensor
4	Output	U_HFMREF	0.5 RT/GN	Supply, air-mass flow sensor	Hot-film air mass meter
5	Output	U_DKG	0.5 BR/WS	Supply, electric throttle valve	Throttle valve motor
6	Output	P_EVZ2	0.75 BR/RT	Signal, fuel injector	Fuel injector, cylinder 2
7	Output	P_EVZ4	0.75 BR/BL	Signal, fuel injector	Fuel injector, cylinder 4
8	Input	P_EVZ6	0.75 BR/VI	Signal, fuel injector	Fuel injector, cylinder 6

9	Output	T_NWA1	0.5 GN/VI	Signal, VANOS valve	VANOS solenoid valve, exhaust
10	Output	T_NWE1	0.5 GN/BL	Signal, VANOS valve	VANOS solenoid valve, intake
11	Output	P_EVZ5	0.75 BR/GN	Signal, fuel injector	Fuel injector, cylinder 5
12	Output	S_KFK	0.5 GR/BR	Signal, thermostat heating	Characteristic map thermostat
13	Output	P_EVZ1	0.75 BR/WS	Signal, fuel injector	Fuel injector, cylinder 1
14		M_ANALOG	0.5 SW	Ground, analogue	Hot-film air mass meter
15	Ground	M_DKG	0.5 BR/GR	Ground, electric throttle valve	Throttle valve motor
16	Input	S_OLD	0.5 BR/GN	Signal, oil pressure switch	Oil pressure switch
17					
18					
19	I/O	D_BSD	0.5 BL	Bi-directional data interface	BSD alternator

20					
21	Output	T_TEV	0.5 BR	Signal, fuel tank vent valve	Fuel tank vent valve
22	Output	T_LLFSS	0.5 WS/GN	Signal, idle actuator	Idle actuator
23	Output	T_LLFSO	0.5 WS/GE	Signal, idle actuator	Idle actuator
24					
25					
26	Output	P_EVZ3	0.75 BR/GE	Signal, fuel injector	Fuel injector, cylinder 3
27	Output	A_TANS	0.5 GE/BL	Signal, intake air temperature	Hot-film air mass meter
28	Ground	A_TMOT	0.5 BR/RT	Signal, coolant temperature	Engine coolant temperature sensor
29	Input	P_NWGE1	0.5 GE	Signal, camshaft sensor	Camshaft sensor I
30	Input	P_NWGA1	0.5 GE	Signal, camshaft sensor	Camshaft sensor II

31	Input	A_DKG1	0.5 BR/VI	Signal, throttle valve position	Throttle valve motor
32	Input	A_DKG2	0.5 BR/BL	Signal, throttle valve position	Throttle valve motor
33	Input	A_KS1B	0.5 SW	Signal, knock sensor	Double knock sensor
34	Input	A_KS2B	0.5 BR	Signal, knock sensor	Knock sensor 2
35	Ground	M_TMOT	0.5 GR/BR	Ground, coolant temperature sensor	Engine coolant temperature sensor
36	Ground	M_NWGE1	0.5 BR	Camshaft sensor ground	Camshaft sensor I
37	Ground	M_KWG	0.5 BR	Ground, crankshaft sensor	Crankshaft sensor
38	I/O	D_LOCANH	0.5 SW	Signal, CAN high	CAN terminal resistor, only with M56
39	Output	S_SLV	0.5 BR/WS	Signal, secondary air pump valve	Secondary air pump valve
40	Output	S_DISA	0.5 BR/BL	Signal, DISA changeover valve	Valve, individual control intake system

41					
42	Output	T_MDK1	0.75 GR/WS	Signal, actuator for electric throttle valve	Throttle valve motor
43	Output	T_MDK2	0.75 BR/SW	Signal, actuator for electric throttle valve	Throttle valve motor
44	Input	A_TOEL	0.5 RT/BL	Signal, oil temperature	Oil temperature sensor
45	Ground	M_TOEL	0.5 GR/BR	Ground, oil temperature	Oil temperature sensor
46	Input	A_KS1A	0.5 GE	Signal, knock sensor	Double knock sensor
47	Input	A_KS2A	0.5 GN	Signal, knock sensor	Double knock sensor
48					
49	Ground	M_NWGA1	0.5 BR	Camshaft sensor ground	Camshaft sensor II
50	Input	F_OLN	0.5 GR/BL	Signal, oil level sensor	Oil level sensor

51	I/O	D_LOCANL	0.5 GE	Signal, CAN low	CAN terminal resistor, only with M56
52					

X60004 - Vehicle

X60004 40-pin					
Pin	Type	Name	Wire	Description / Signal type	Connection / Measuring notes
1					
2	Output	S_DMTLH	0.75 SW/RT	Activation, fuel tank leakage, heating	Diagnostic module, fuel tank leakage, only with MS45.1
3	Output	S_SLP	0.35 BR/BL	Signal, secondary air pump	Secondary Air Pump Relay
4	Output	T_ELUE	0.5 SW/GN	Signal Electric Cooling Fan	Electric Cooling Fan
5	Ground	M_SHFM	0.5 SW/GE	Negative supply Secondary air - hot-film air-mass meter	Secondary air - hot-film air-mass meter, only with MS45.1

6					
7	Ground	M_FWG1	0.35 BR/GN	Ground, accelerator pedal position sensor	Accelerator Pedal
8	Input	A_FWG1	0.35 WS	Signal, accelerator pedal position sensor	Accelerator Pedal
9	Output	U_FWG1	0.35 GE	Supply, accelerator pedal position sensor	Accelerator Pedal
10	Input	S_EKP	0.35 SW/VI	Activation, fuel pump relay	Fuel Pump Relay
11					
12	Ground	M_FWG2	0.35 BR	Ground, accelerator pedal position sensor	Accelerator Pedal
13	Input	A_FWG2	0.35 WS/GN	Signal, accelerator pedal position sensor	Accelerator Pedal
14	Output	U_FWG2	0.35 GE/GN	Supply, accelerator pedal position sensor	Accelerator Pedal

15	Input	A_SHFM	0.5 SW/RT	Signal, secondary air/hot-film air mass meter	Secondary air - hot-film air-mass meter, only with MS45.1
16					
17	Output	TD	0.35 SW	Engine Speed Signal	OBD-II Connector
18	Output	S_AKL	0.5 GR/VI	Signal, exhaust flap	Exhaust flap solenoid
19	Output	S_EBOXL	0.5 BR/OR	Signal, E-box fan	E-box fan
20	Output	S_DMTLP	0.75 BR/BL	Activation, fuel tank leakage pump	Diagnostic module, fuel tank leakage, only with MS45.1
21	Output	S_GLF	0.5 BR/WS	Signal, radiator shutter solenoid	Solenoid, radiator shutter
22	Input	F_DFAHR	0.35 WS/GN	Signal, processed wheel speed, rear right	Connector X10186 (rear right wheel speed)
23	Input	S_KUP	0.35 BL/BR	Signal Clutch Switch	Clutch Switch

24	Input	S_BLS	0.35 BL/RT	Signal Brake Light Switch (BLS)	Light Control Module
25	Input	S_EAC	0.5 BL/GE	Signal, EAC sensor	EAC sensor, only with M56
26	Input	15<29	0.5 GN/SW	Wake-up signal, terminal 15	Connector , terminal 15 wake-up signal
27	I/O	FGRS	0.35 BL/SW	Signal, Data Link Multi Function Steering Wheel	Volute Spring Steering Wheel
28	Input	S_BLTS	0.35 BR/GR	Signal Brake Light Test Switch (BTS)	Brake Light Switch
29	Output	S_KOREL	0.5 SW/BL	Activation, A/C compressor	A/C compressor relay
30	Output	S_DMTLV	0.5 SW/GN	Signal Diagnostic Module Fuel Tank Leakage Pump (DMTL)	Diagnostic module, fuel tank leakage, only with MS45.1
31	I/O	D_LOCANL	0.5 GN	Signal, CAN low	Fuel pump control (EKPS), only with M56
32	I/O	D_TXD2	0.5 WS/VI	Engine Diagnostic Link TXD	OBD-II Connector

33	I/O	D_EWS	0.35 SW/VI	Electronic Vehicle Immobilisation Crosslink	Electronic Vehicle Immobilisation Unit (EWS)
34					
35	I/O	D_LOCAN H	0.5 BL/GN	Signal, CAN high	Fuel pump control (EKPS), only with M56
36	I/O	D_CAN_H	GE/RT	CAN High	CAN Bus Connector
37	I/O	D_CAN_L	GE/BR	CAN Low	CAN Bus Connector
38	Input	M_TKA	0.35 SW/GN	Signal Coolant Outlet Temperature	Temperature sensor at radiator outlet
39	Input	A_TKA	0.35 SW/GR	Signal Coolant Outlet Temperature	Temperature sensor at radiator outlet
40	Input	S_START	0.35 GE/BR	Start signal	Car access system. Not used in cars without CAS (ie. e46)

X60005 - Ignition

X60005 9-pin

Pin	Type	Name	Wire	Description / Signal type	Connection / Measuring notes
1	Output	P_ZSZ 5	1.5 SW/RT/WS	Ignition Signal Cylinder 5	Ignition Coil Cylinder 5
2					
3					
4	Output	P_ZSZ 3	1.5 SW/GE	Ignition Signal Cylinder 3	Ignition Coil Cylinder 3
5	Ground	31L	2.5 BR	Ground	Terminal 31 support, E-box
6	Output	P_ZSZ 1	1.5 SW/WS	Ignition Signal Cylinder 1	Ignition Coil Cylinder 1
7	Output	P_ZSZ 2	1.5 SW/RT	Ignition Signal Cylinder 2	Ignition Coil Cylinder 2
8	Output	P_ZSZ 4	1.5 SW/BL	Ignition Signal Cylinder 4	Ignition Coil Cylinder 4
9	Output	P_ZSZ 6	1.5 SW/VI	Ignition Signal Cylinder 6	Ignition Coil Cylinder 6