



**BMW E30
Motorsport Parts**



MK60 Standalone Rev 1.01
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CABLE INSTALLATION, DO'S & DON'TS

DO'S

DO ensure that all twisted cable pairs do not run next to power cables, especially if they are ignition power cables. Ideally, run all cables next to the chassis (earth). Twisting the wires reduces magnetically induced interference. Forcing the wires together reduces the loop area and therefore the induced voltage. Since the currents are flowing in minimum loop areas, magnetic field generation is reduced. You will see the pairs that need to be twisted in the pin out table.

DO ensure that any exposed wires that are likely to get water spray are protected with rubber boots or rubber grommets.

DO Double, triple check all your wiring.

DONT'S

DO NOT allow cables to run through sharp edged apertures without protection.

DO NOT fix the cables next to or onto any surface likely to exceed 80 degrees Centigrade.

Brake/Fluid Relay instructions.

The MK60 requires to see a chassis ground connection in the brake light (pin 41) when the brake pedal is pressed and no connection when it's not pressed.

The Stock E30 brake light switch sends +VB to both sides of the switch, thus it is necessary to use a relay to ground Pin 41 when the pedal is pressed. There are many relays, you can use one of the BMW relays, or you can source a small 1A PCB relay, the small one would be my option as its compact and adds minimal weight/bulk to the car. Please see diagram below for the connections. Please note you **MUST** use a protection diode to clamp the high voltage back EMF resulting from the relay coil when it is de-energised.

Using a conversional Bosch Automotive relay.

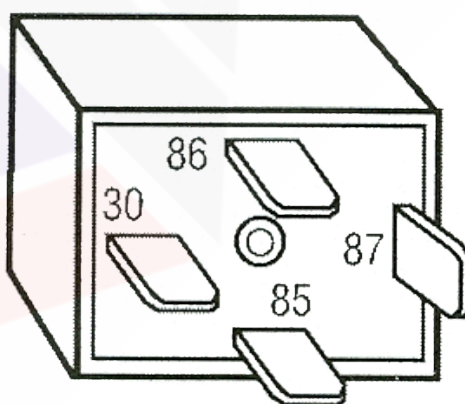
Connect Pin 87 to Chassis Ground.

Connect Pin 86 to Brake light switch hot when switched or to the wire going to the brake light bulb.

Connect Pin 85 to Chassis Ground.

Connect Pin 30 to Pin 41 on the main MK60 ECU Plug.

Connect Zener Diode to Pin 86 and Pin 85 of the relay with the Band end at pin 86.



Brake Fluid warning.

For a road car, I would recommend connecting up the brake fluid warning lamp. Same as above, Pin 86 needs to be connected to HOT when live on the level sensor, this will depend on the sensor you are using.

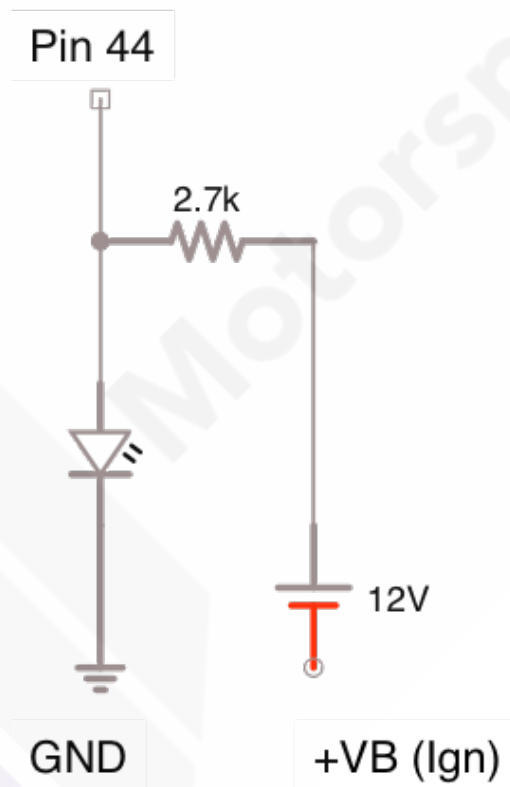
ABS Warning LED

The MK60 has a wired ABS light output which works on a pull up/pull down voltage circuit. Sadly the DSC LED is controlled via CAN and cannot be wired in to the MK60. After market CAN dashes are able to output DSC LED warnings, but the stock one cannot.

Below is a diagram for the wiring of the ABS LED output lamp.

Its quite explanatory, +VB (12v) is HOT when RUN and ideally should be taken from the ignition barrel, or the accessory live from the distribution sockets.

For more information on how pull up and pull down circuits work see here: http://en.wikipedia.org/wiki/Pull-up_resistor



ABS Part Number List (in addition to the basic ABS Kit).

Item	BMW Part Number	Qty
Front Left Wheel ABS Sensor:	34 52 6 792 897	1
Front Right Wheel ABS Sensor:	34 52 6 792 896	1
Rear Left Wheel ABS Sensor:	34 52 6 752 691	1
Rear Right Wheel ABS Sensor:	34 52 6 752 691	1
Front Pressure Sensor:	34 52 1 164 458	1
Rear Pressure Sensor:	34 52 1 164 458	1
DSC Speed Yaw/Accelerometer Sensor:	34 52 6 764 018	1
E46 M3 ZCP DSC ECU:	34 51 2 282 420 + 34 52 2 282 422	1
MK60 Main Connector:	61 13 6 954 574	1
DSC Speed Sensor Connector:	61 13 8 383 300	1
Pressure Sensor Connector:	61 13 8 365 348	2
Wheel Speed Sensor Connector:	61 13 1 392 246	4
Large Crimp Contact:	61 13 8 364 846	4
Small Crimp Contact:	61 13 6 901 726	35
Large Seal Grommet:	61 13 8 372 628	4
Medium Seal Grommet:	61 13 8 366 245	30
Small Seal Grommet:	61 13 8 369 722	5
OBD Plug Housing with cover (black):	61 13 8 373 323	1
OBD Connector plug 16pins (black):	61 13 8 380 698	1
OBD Pins:	61 13 8 366 598	10

DSC Part Number List (in addition to above and DSC Kit).

Item	BMW Part Number	Qty
Steering Angle Sensor:	32 30 6 793 632	1
Steering Angle Connector:	61 13 6 909 058	1
Steering Angle Crimp Contact:	61 13 0 005 197	6
DSC Passive Switch:	61 31 6 901 592	1
DSC Switch Connector:	61 13 3 333 333	1
DSC Switch Connector Crimp Contact:	61 13 0 005 197	4

Pump Valve block ports

Port	Meaning	Size
H	Rear Inlet	M12x1
HL	Rear Left Outlet	M12x1
HR	Rear Right Outlet	M10x1
V	Front Inlet	M12x1
VL	Front Left Outlet	M12x1
VR	Front Right Outlet	M10x1

MK60 Main ECU Pin	Description	Connection
1	Fuse 30amp 2.5mm Cable	Fused Battery Plus - Always Live
2	Diagnostics TXD 0.5mm Cable	OBD Connector Pin8 (OBD-2)
3	Not Used	
4	Fuse 5amp 0.5mm Cable	Connect to Ignition Hot when running.
5	Not Used	
6	DSC Speed Sensor (Silver Yaw/Gyro Box) 0.5mm Cable	DSC Sensor Pin3
7	Not Used	
8	Speed output for E46 Instrument Cluster 0.35mm Cable	Output for wheel speed sensor (used only in SMG conversions).
9	Brake Fluid Level Switch input 0.35mm Cable	For track cars attach to chassis ground, for road cars see Brake/Fluid Relay instructions.
10	Speed output for E46 ECU 0.35mm Cable	Output for wheel speed sensor (Used for ECU speed signal input MSS54).
11	CAN-Bus High 0.5mm Cable	Connect to ECU CAN-High or Datalogger CAN-High (Twisted with 15)
12	Not Used	
13	Not Used	
14	Not Used	
15	CAN-Bus Low 0.5mm Cable	Connect to ECU CAN-Low or Datalogger CAN-Low (Twisted with 11)
16	Chassis Ground 2.5mm Cable	Connect to Chassis Ground
17	Not Used	
18	Rear line Pressure sensor 2 Pin3 0.5mm Cable	Rear line Pressure Sensor 2 Pin3
19	Rear line Pressure sensor 2 Pin1 0.5mm Cable	Rear line Pressure Sensor 2 Pin1
20	Rear line Pressure sensor 2 Pin2 0.5mm Cable	Rear line Pressure Sensor 2 Pin2
21	Front line Pressure sensor 1 Pin1 0.5mm Cable	Front line Pressure Sensor 1 Pin1
22	Front line Pressure sensor 1 Pin3 0.5mm Cable	Front line Pressure Sensor 1 Pin3
23	Front line Pressure sensor 1 Pin2 0.5mm Cable	Front line Pressure Sensor 1 Pin2
24	DSC Speed Sensor (Silver Yaw/Gyro Box) 0.5mm Cable	DSC Sensor Pin5
25	DSC Speed Sensor (Silver Yaw/Gyro Box) 0.5mm Cable	DSC Sensor Pin1 (Twisted with 29)
26	Not Used	
27	Handbrake Signal input 0.5mm Cable	Handbrake Signal input, leave blank for race car and connect to handbrake activator wire for road car and SMG.
28	Not Used	
29	DSC Speed Sensor (Silver Yaw/Gyro Box) 0.5mm Cable	DSC Sensor Pin2 (Twisted with 25)
30	Not Used	
31	Not Used	
32	Fuse 30amp 2.5mm Cable	Fused Battery Plus - Always Live
33	Wheel Speed sensor front right 0.5mm Cable	Wheel Speed sensor front right Pin1 (Twisted with 34)
34	Wheel Speed sensor front right 0.5mm Cable	Wheel Speed sensor front right Pin2 (Twisted with 33)
35	Not Used	
36	Wheel Speed sensor rear left 0.5mm Cable	Wheel Speed sensor rear left Pin2 (Twisted with 37)
37	Wheel Speed sensor rear left 0.5mm Cable	Wheel Speed sensor rear left Pin1 (Twisted with 36)
38	Not Used	
39	DSC Passive microswitch 0.5mm Cable	Pin 2 on E46 ASC/DSC switch; single switch version is best, can use a microswitch switching to chassis ground.
40	Tyre pressure control switch 0.5mm Cable	Tyre pressure control switch (not used).
41	Brake light switch signal 0.35mm Cable	Signal brake light switch. Stock E30 shows a +VB Signal when pressed, the MK60 needs to see a ground to chassis for OFF. Please see Brake/Fluid Relay Instructions.
42	Wheel Speed sensor rear right 0.5mm Cable	Wheel Speed sensor rear right Pin1 (Twisted with 43)
43	Wheel Speed sensor rear right 0.5mm Cable	Wheel Speed sensor rear right Pin2 (Twisted with 42)
44	ABS Fault/Warning light output 0.5mm Cable	ABS Fault/Warning light output, please see ABS LED Section
45	Wheel Speed sensor Front Left 0.5mm Cable	Wheel Speed sensor front left Pin2 (Twisted with 46)
46	Wheel Speed sensor Front Left 0.5mm Cable	Wheel Speed sensor front left Pin1 (Twisted with 45)
47	Chassis Ground 2.5mm Cable	Connect to Chassis Ground

