

Electrical System

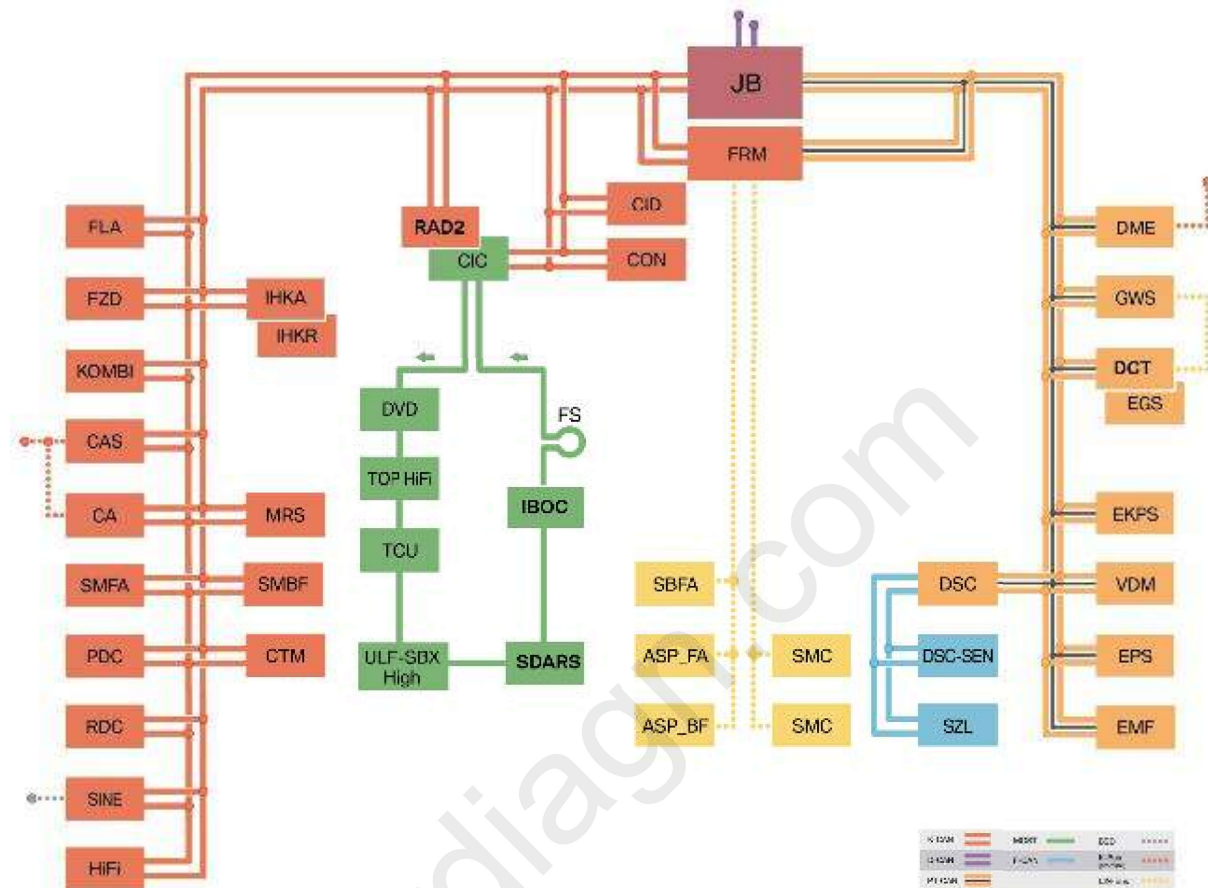
The electrical system of the E89 - Z4 Roadster is based on the BMW 1 Series and 3 Series. The electrical system therefore includes the junction box electronics, footwell module and the roof functions module with the known functions.

The E89 has no fog lights. The following points are new features or changes on the E89:

- Steering wheel heating
- MOST direct access port
- Overview of head units
- Antenna systems

cardiagn.com

E89 Bus Diagram

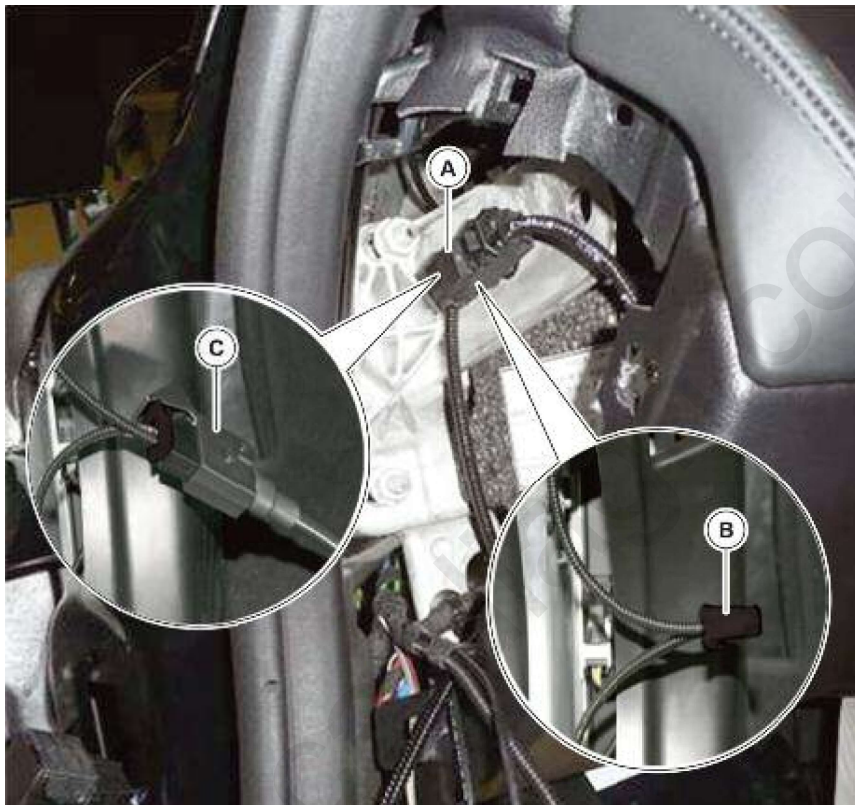


Index	Explanation	Index	Explanation
ASP	Exterior mirrors	IBOC	Digital tuner US (only installed without CIC)
CA	Comfort access	IHKA	Automatic climate control
CAS	Car access system	IHKR	Integrated heating/air conditioning control
CIC	Car information computer	JB	Junction box
CID	Central information display	KOMBI	Instrument cluster
CTM	Convertible top module	MRS	Multiple restraint system
CON	Controller	PDC	Park distance control
DCT	Double clutch transmission/gearbox	RAD2	Radio BMW Professional
DME	Digital motor electronics	RDC	Tire pressure monitor
DSC	Dynamic stability control	SBFA	Switch cluster, driver's side
DSC SEN	DSC Sensor	SDARS	Satellite tuner (US)
DVD	DVD changer	SINE	Siren with tilt alarm sensor
EGS	Electronic transmission control	SMFA	Driver's seat module
EKPS	Electronic fuel pump control	SMBF	Passenger's seat module
EMF	Electromechanical parking brake	SMC	Stepper motor controller
EPS	Electromechanical power steering	SZL	Steering column switch cluster
FLA	High beam assist	TCU	Telematics control unit
FRM	Footwell module	TOP HiFi	Top-HiFi amplifier
FZD	Roof functions module	ULF- SBX	Interface box High (USB/audio interface)
GWS	Gear selector	VDM	Vertical dynamics management
HiFi	HiFi amplifier		

MOST Direct Access Port

Because the vehicle is based on a 2000BN vehicle and is equipped with a MOST-bus, MOST direct access port is also installed in the E89. The MOST direct access port is located on the left in the footwell.

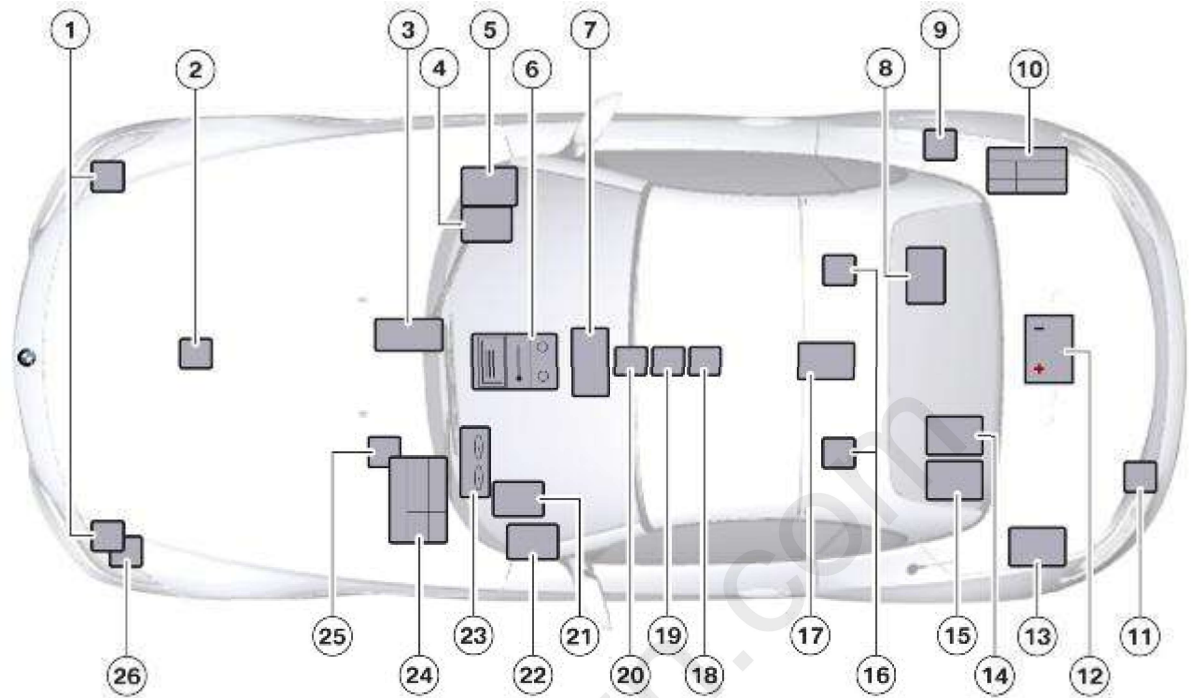
The two connected plugs must be taken from the common connector (A). The two plugs are then connected together (B). The integrated communication optical module ICOM can now be connected in the usual way to the joined plug.



E89 MOST Bus Connection

Index	Explanation
1	MOST plug connector
2	MOST-bus disconnected and plug connector joined
3	ICOM connected with MOST direct access port

Control Units Location



Index	Explanation	Index	Explanation
1	Adaptive headlight (AHL)	14	Side airbag, front left
2	Electromechanical power steering (EPS)	15	Door satellite, front left (STVL)
3	EGS/DCT Control Unit	16	Belt force limiter, right
4	CD changer (CDC) and DVD changer (MMC)	17	Belt force limiter, left
5	Junction box (JB)	18	B-pillar satellite, left (SBSL)
6	IHKA/IHKR, RAD2/CIC, SZM	19	B-pillar satellite, right (SBSR)
7	FZD and FLA	20	Electric fuel pump
8	Top-HiFi amplifier (TOP HiFi)/HiFi amplifier (HiFi)	21	Telephone (TCU)
9	Electronic fuel pump control (EKPS)	22	Safety battery terminal (BST)
10	CTM, PDC, CA, EMF, RDC	23	Side airbag, rear left
11	Diversity module	24	Vehicle center satellite (SFZ)
12	Battery	25	Side airbag, rear right
13	SDARS	26	Seat occupancy detection, rear left

Audio System

Two head units are available on the E89; BMW Professional RAD2 and car information computer CIC.

The available speaker systems include both the stereo system as well as the HiFi and TOP HiFi system.

All of the same features available to the E90 are also available to the E89 such as SBX High (USB), multimedia changer, SIRIUS satellite radio and IBOC (HD radio).

If a vehicle is ordered with a CIC, the iboc tuner is located inside the CIC. If the vehicle is equipped with a RAD2, the IBOC control unit is mounted in a separate location.

Antenna Locations

The antenna system on the E89 consists of 3 FM, 1 AM, 1 GPS, 2 Telephone and an SDARS antenna. Their locations are illustrated below:

Overview of Antennas



Index	Explanation	Index	Explanation
1	Satellite tuner antenna SDARS antenna	5	Not for U.S.
2	Not for U.S.	6	FM antenna 2
3	FM 3	7	FM antenna 1, AM antenna, telephone antenna 1
4	Telephone antenna 2		

Multiple Restraint System 7

The 7th generation multiple restraint system MRS is a consistent further development of the multiple restraint systems fitted in BMW vehicles.

The multiple restraint system detects an accident situation that is critical for the occupants and activates the necessary restraint systems. The restraint system is activated selectively depending on the severity and type of accident.

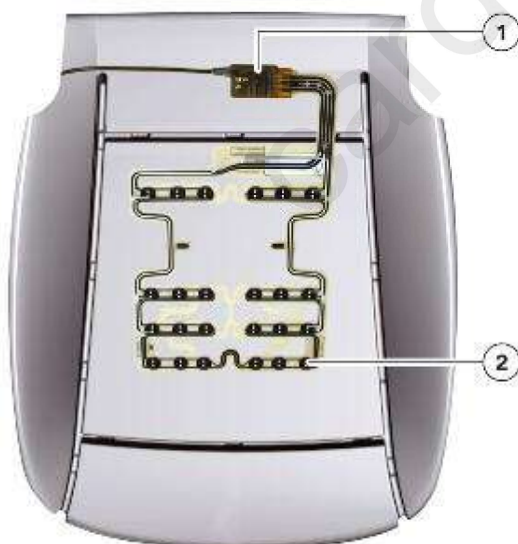
Passenger Seat Occupancy Detection

The new passenger seat occupancy detection system introduced on the E89 consists of a seat occupancy pad with integrated capacitor plate. The previous generation occupancy (OC3) detection was realized via the use of pressure sensors attached to the seat cushion.

In the new capacitive sensing passenger occupancy detection system, an electrical field is generated across the capacitor plate and vehicle ground. The seat occupancy mat is connected to an electronic evaluator. The occupancy status is classified based on the evaluation of the electrical field.

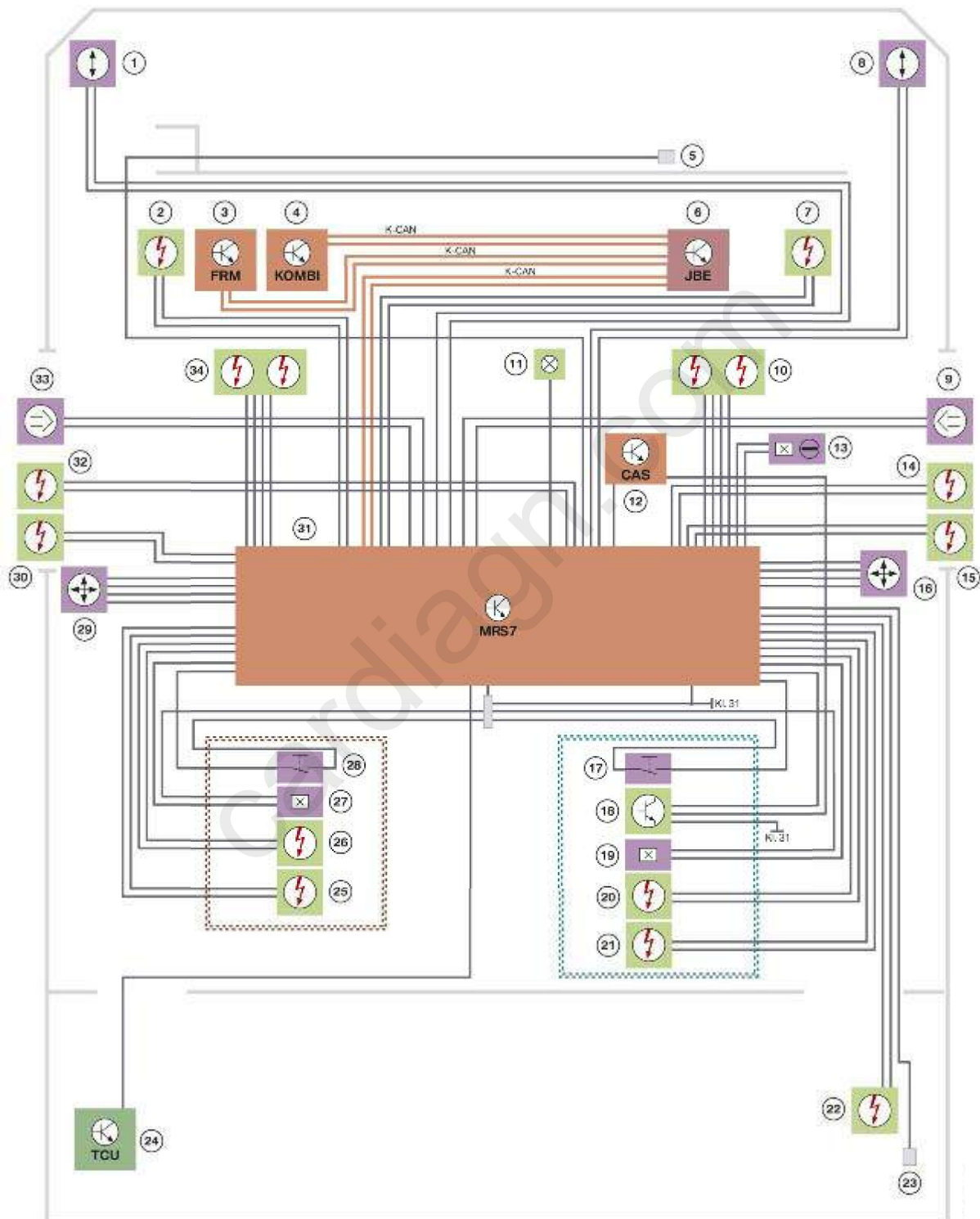
A person sitting down on the seat changes the electrical field. The change is registered by the electronic evaluator and the corresponding status is determined. The electronic evaluator sends the status information cyclically to the MRS control unit. Data exchange takes place by means of a hardware link. The seat occupancy detection function monitors the inputs and outputs. Possible fault statuses are stored in the fault code memory of the MRS control unit.

Capacitive Seat Occupancy Sensor



Index	Explanation
1	Electronic Evaluator
2	Seat Occupancy Pad

MRS 7 Circuit Schematic



Index	Explanation	Index	Explanation
1	Airbag front sensor, left	18	Seat occupancy pad, front passenger
2	Driver's knee airbag	19	Seat belt buckle contact, front passenger
3	Footwell module (FRM)	20	Side airbag, front passenger
4	Instrument cluster (KOMBI)	21	Seat belt pretensioner, front passenger
5	Plug connection, battery monitoring line, front	22	Safety battery terminal
6	Junction box electronics (JBE)	23	Plug connection, battery monitoring line, rear
7	Knee airbag, front passenger	24	Telematics control unit (TCU)
8	Airbag front sensor, right	25	Seat belt pretensioner, driver
9	Airbag sensor, front right door	26	Side airbag, driver
10	Front airbag, passenger's side	27	Seat belt buckle contact, driver
11	Indicator lamp for front passenger airbag deactivation	28	Seat occupancy switch, driver
12	Car access system (CAS)	29	Seat occupancy pad, driver
13	Switch for front passenger airbag deactivation	30	Retractor tensioner, driver
14	Seat belt force limiter, front passenger	31	MRS control unit
15	Retractor tensioner, front passenger	32	Seat belt force limiter, driver
16	Airbag sensor, front left door	33	Airbag sensor, driver's door
17	Seat occupancy switch, front passenger	34	Steering wheel airbag