Adaptive curve light retrofit
BMW 3 Series Saloon (E90)
BMW 3 Series Touring (E91)

These installation instructions are valid only for cars with SA 521 (rain-light sensor) and with SA 522 (xenon lights).

Retrofit kit No. 63 13 0 404 183
63 13 0 404 197

Installation time
The installation time is approx. 4 hours, but this may vary depending on the condition of the car and the equipment in it.

The car must be flash-upgraded with the latest I stage status before starting the conversion work. The required programming time depends on the production date of the car and the work that has already been carried out on it, which means that we cannot give a specific time for this work.

The time for the programming/encoding is not included in the installation time as it depends on the age of the car and the equipment in it.

Important information
These installation instructions are primarily designed for use within the BMW dealership organisation and by authorised BMW service companies.

In any event the target group for these installation instructions is specialist personnel trained on BMW cars with the appropriate specialist knowledge.

All work must be completed using the latest BMW repair manuals, circuit diagrams, servicing manuals and work instructions in a rational order using the prescribed tools (special tools) and observing current health and safety regulations.

To avoid unnecessary extra work and/or costs, if any installation or function problems occur, after a brief troubleshooting session (approx. 0.5 hours), contact the following:
1. Either your national sales company or your regional office or
2. The Support team via the Aftersales Assistance Portal (ASAP) using the optional technical parts support application.

Quote the VIN and the part number of the retrofit kit and provide a detailed description of the problem.

Do not archive the hard copy of these installation instructions since daily updates are made by ASAP.

See ASAP for details of the pictograms.

Subject to technical modifications!
Installation information
Ensure that the cables/lines are not kinked or damaged as you install them in the car. The costs incurred as a result of this will not be reimbursed by BMW AG.

Additional cables/lines that you install must be secured with cable ties.

If the specified PIN chambers are already used, bridges, double crimps or twin-lead terminals must be used.

All the figures show LHD cars, proceed in exactly the same way on RHD cars.

After the installation work the retrofit must be programmed / coded using SSS (software service station) via the CIP path.

Ordering instructions
The following parts are not supplied in the retrofit kit and must be ordered separately (see EPC for part number and details).

- Footwell module E
- Light control F

Special tools required
00 9 317, Installation wedges
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</table>
1. Parts list

Legend

A  ALC wiring harness
B  Connection cable
C  Right headlight
D  Left headlight
E  Footwell module (not supplied with the retrofit kit)
F  Light control (not supplied with the retrofit kit)
G  Miniature connector (2x)
H  Cable tie 200 x 3.6 mm (12x)
## Preparations

<table>
<thead>
<tr>
<th>Conduct a brief test</th>
<th>TIS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disconnect negative pole of battery</td>
<td>12 00 ...</td>
</tr>
</tbody>
</table>

The following components must be removed first of all:

<table>
<thead>
<tr>
<th>Component</th>
<th>TIS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front bumper trim</td>
<td>51 11 156</td>
</tr>
<tr>
<td>Replace the two headlights with right headlight C and left headlight D</td>
<td>63 12 010</td>
</tr>
<tr>
<td>Glove compartment</td>
<td>51 16 360</td>
</tr>
<tr>
<td>Pedal trim</td>
<td>51 45 185</td>
</tr>
<tr>
<td>Side footwell trims on the left A pillar</td>
<td>51 43 070</td>
</tr>
<tr>
<td>Replace the light control with light control F</td>
<td>61 31 037</td>
</tr>
<tr>
<td>Replace the footwell module with footwell module E</td>
<td>61 35 115</td>
</tr>
</tbody>
</table>
3. ALC wiring harness connection diagram

<table>
<thead>
<tr>
<th>Branch/Item</th>
<th>Description</th>
<th>Signal</th>
<th>Cable colour / Cross-section</th>
<th>Connection location in the car</th>
<th>Abbreviation / Slot</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>ALC wiring harness</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>A1</td>
<td>Eyelet</td>
<td>Terminal 31</td>
<td>BR/SW 0.75 mm²</td>
<td>To the joint connector behind the left headlight</td>
<td>X165</td>
</tr>
<tr>
<td>A2</td>
<td>Socket contact</td>
<td>SMC</td>
<td>GN/SW 0.5 mm²</td>
<td>To left headlight D, 12-pin plug SW</td>
<td>X13420 PIN 9</td>
</tr>
<tr>
<td>A3</td>
<td>Socket contact</td>
<td>LIN_LEUC_L</td>
<td>WS/RT 0.35 mm²</td>
<td>To left headlight D, 12-pin plug SW</td>
<td>X13420 PIN 10</td>
</tr>
<tr>
<td>A4</td>
<td>Socket contact</td>
<td>Terminal 31</td>
<td>BR/SW 0.75 mm²</td>
<td>To left headlight D, 12-pin plug SW</td>
<td>X13420 PIN 11</td>
</tr>
<tr>
<td>A5</td>
<td>Socket contact</td>
<td>SMC</td>
<td>GN/SW 0.5 mm²</td>
<td>To right headlight C, 12-pin plug SW</td>
<td>X13421 PIN 9</td>
</tr>
<tr>
<td>A6</td>
<td>Socket contact</td>
<td>LIN_LEUC_R</td>
<td>WS/GE 0.35 mm²</td>
<td>To right headlight C, 12-pin plug SW</td>
<td>X13421 PIN 10</td>
</tr>
<tr>
<td>A7</td>
<td>Socket contact</td>
<td>Terminal 31</td>
<td>BR/SW 0.75 mm²</td>
<td>To right headlight C, 12-pin plug SW</td>
<td>X13421 PIN 11</td>
</tr>
<tr>
<td>A8</td>
<td>Eyelet</td>
<td>Terminal 31</td>
<td>BR/SW 0.75 mm²</td>
<td>To the joint connector behind the right headlight</td>
<td>X166</td>
</tr>
<tr>
<td>A9</td>
<td>Socket contact</td>
<td>LIN_LEUC_R</td>
<td>WS/GE 0.35 mm²</td>
<td>To footwell module E, SW 51-pin plug</td>
<td>X14260 PIN 24</td>
</tr>
<tr>
<td>A10</td>
<td>Socket contact</td>
<td>LIN_LEUC_L</td>
<td>WS/RT 0.35 mm²</td>
<td>To footwell module E, SW 51-pin plug</td>
<td>X14260 PIN 25</td>
</tr>
<tr>
<td>A11</td>
<td>Socket contact</td>
<td>SMC</td>
<td>GN/SW 0.35 mm²</td>
<td>To footwell module E, SW 51-pin plug</td>
<td>X14260 PIN 42</td>
</tr>
</tbody>
</table>
## 4. Connection cable connection diagram

<table>
<thead>
<tr>
<th>Branch/Item</th>
<th>Description</th>
<th>Signal</th>
<th>Cable colour / Cross-section</th>
<th>Connection location in the car</th>
<th>Abbreviation / Slot</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Connection cable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>Socket contact</td>
<td>PT-CAN_H</td>
<td>BL/RT 0.35 mm²</td>
<td>To footwell module E, SW 51-pin plug</td>
<td>X14260 PIN 44</td>
</tr>
<tr>
<td>B2</td>
<td>Socket contact</td>
<td>PT-CAN_L</td>
<td>RT 0.35 mm²</td>
<td>To footwell module E, SW 51-pin plug</td>
<td>X14260 PIN 43</td>
</tr>
<tr>
<td>B3</td>
<td>Cable open</td>
<td>PT-CAN_H</td>
<td>BL/RT 0.35 mm²</td>
<td>To the junction box, BL 54-pin plug, using a miniature connector G to the BL/RT cable</td>
<td>X14271 PIN 1</td>
</tr>
<tr>
<td>B4</td>
<td>Cable open</td>
<td>PT-CAN_L</td>
<td>RT 0.35 mm²</td>
<td>To the junction box, BL 54-pin plug, using a miniature connector G to the RT cable</td>
<td>X14271 PIN 2</td>
</tr>
</tbody>
</table>
5. Installation and cabling diagram for E90 (LHD cars only)

Legend

A  ALC wiring harness
B  Connection cable
C  Right headlight, plug X13421
D  Left headlight, plug X13420
E  Footwell module plug X14260
F  Light control

1  Joint connector X166
2  Junction box, plug X14271
3  Joint connector X165
6. Installation and cabling diagram for E91 (LHD cars only)

Legend

A  ALC wiring harness
B  Connection cable
C  Right headlight, plug X13421
D  Left headlight, plug X13420
E  Footwell module plug X14260
F  Light control

1  Joint connector X166
2  Junction box, plug X14271
3  Joint connector X165
7. Installation and cabling diagram for E90 (RHD cars only)

Legend

A  ALC wiring harness
B  Connection cable
C  Right headlight, plug X13420
D  Left headlight, plug X13420
E  Footwell module plug X14260
F  Light control

1  Joint connector X166
2  Junction box, plug X14271
3  Joint connector X165
8. Installation and cabling diagram for E91 (RHD cars only)

Legend

A  ALC wiring harness
B  Connection cable
C  Right headlight, plug X13420
D  Left headlight, plug X13420
E  Footwell module plug X14260
F  Light control

1  Joint connector X166
2  Junction box, plug X14271
3  Joint connector X165
9. To install and connect the wiring harnesses

Disconnect the following cables (1) from plug **X13421** (12-pin SW) on the right headlight **C**, insulate them individually and tie them back:
- GE/BR cable from PIN 9
- BL/SW cable from PIN 10
- BL/BR cable from PIN 11

Connect branches **A5 – A7** as follows to plug **X13421** (12-pin SW) from right headlight **C**:
- Branch **A5**, GN/SW cable, to PIN 9
- Branch **A6**, WS/GE cable, to PIN 10
- Branch **A7**, BL/SW cable, to PIN 11
Connect plug **X13421** to the right headlight **C**.
Secure branch **A8**, BR/SW cable, to joint connector **X166**.

Route ALC wiring harness A to the left-hand side of the car.

Disconnect the following cables (1) from plug **X13420** (12-pin SW) on the left headlight **D**, insulate them individually and tie them back:
- GE/BR cable from PIN 9
- BL/RT cable from PIN 10
- BL/BR cable from PIN 11

Connect branches **A2 – A4** as follows to plug **X13420** (12-pin SW):
- Branch **A2**, GN/SW cable, to PIN 9
- Branch **A3**, WS/RT cable, to PIN 10
- Branch **A4**, BL/SW cable, to PIN 11
Connect plug **X13420** to the left headlight **D**.
Secure branch **A1**, BR/SW cable, to joint connector **X165**.
9. To install and connect the wiring harnesses

Route ALC wiring harness A through the grommets 1) into the interior.

Connect branches A9 - A11 as follows to plug X14260 (51-pin SW) in the footwell module E:
- Branch A9, WS/GE cable, to PIN 24
- Branch A10, WS/RT cable, to PIN 25
- Branch A11, GN/SW cable, to PIN 42

Connect branches B1 - B2 as follows to plug X14260 (51-pin SW) in the footwell module E:
- Branch B1, BL/RT cable, to PIN 44
- Branch B2, RT cable, to PIN 43

Route branches B3 - B4 to the footwell on the passenger side (1).
9. To install and connect the wiring harnesses

Connect branches **B3 - B4** as follows to plug **X14271** (54-pin BL) on the junction box (2) using miniature connectors **G**:

- Branch **B3**, BL/RT cable, to the same-coloured cable (1) on PIN 1
- Branch **B4**, RT cable, to the same-coloured cable (2) on PIN 2
10. Concluding work and coding

This retrofit system requires coding.
- Connect the battery
- Encode the retrofit with SSS (software service station) via the CIP path
- Conduct a brief test
- Conduct a function test
- Re-assemble the car
- Test the default headlight setting and adjust if necessary
11. Circuit diagram

![Circuit Diagram](image-url)
11. Circuit diagram

Legend

A4010 Junction box

C* Right headlight (E127)

D* Left headlight (E126)

E* Footwell module (A4011)

X1* SMC connector
X165 Terminal 31 joint connector
X166 Terminal 31 joint connector
X13420 12-pin plug SW
X13421 12-pin plug SW
X14260 51-pin plug SW
X14271 54-pin BL plug

All the designations marked with an asterisk (*) apply only to these installation instructions or this circuit diagram.

Cable colours

BL Blue
BR Brown
GE Yellow
GN Green
GR Grey
RT Red
SW Black
WS White