FLM2 Gx ADAPTER

Installation guide V2

ATTENTION!

- failure to follow this manual may result in failure of the device or damage to the electronic components of the vehicle

- installation of the device must be carried out by qualified specialists in strict accordance with this manual

-before installing the device, disconnect the negative cable of the car battery

- it is prohibited to open the device case for repairs or other purposes

- the device does not have an internal safety circuit, therefore connecting the device's power to circuits not protected by fuses or to circuits protected by fuses with a rating of **more than 7.5A** is strictly prohibited!

- when installing or replacing fuses, use only original fuses from the BMW manufacturer

- the manufacturer is not responsible for any damage to personnel or equipment caused by improper installation by unqualified personnel or failure to comply with this manual

Device Description

This device is intended for retrofitting BMW G30/F90 cars with restyled (LCI) front optics released after July 2020. The device ensures full functionality of LCI headlights (with FLM2 control unit) in a car equipped with a pre-restyling BDC G11 (BDC2) and a pre-restyling KAFAS.

When developing this device, all the operating features of LCI optics were taken into account, including the operation of adaptive high beam (S5AC) combined with fully adaptive LED headlights (S552). The device has an additional function (after updating the software) – "STROBE". This feature includes three strobe effects. Control is performed by several short and one long press on the headlight high beam control lever (high beam blinking).

- 1 short, 1 long: mode 1

- 2 short, 1 long: mode 2

- 3 short, 1 long: mode 3

The time between short presses should not exceed 0.5 seconds, and long press should not be less than 0.5 seconds. If you press the lever for a long time for more than 5 seconds, the effect remains working (sticking mode) until the next blink of the high beam headlights.

Color designation of device terminals

Power supply:

-KL30 (red) positive constant power supply (+12V)

-KL31 (brown) connection to GND (ground)

Twisted pair cable, connecting the device to the K-CAN3 BDC network:

-CAN H (orange/brown) CAN bus, high level wire

-CAN L (orange/black) CAN bus, low level wire

Twisted pair cable, connecting the device to the K-CAN3 FLM2 network (front optics):

-CAN H (orange/brown) CAN bus, high level wire

-CAN L (orange/green) CAN bus, low level wire

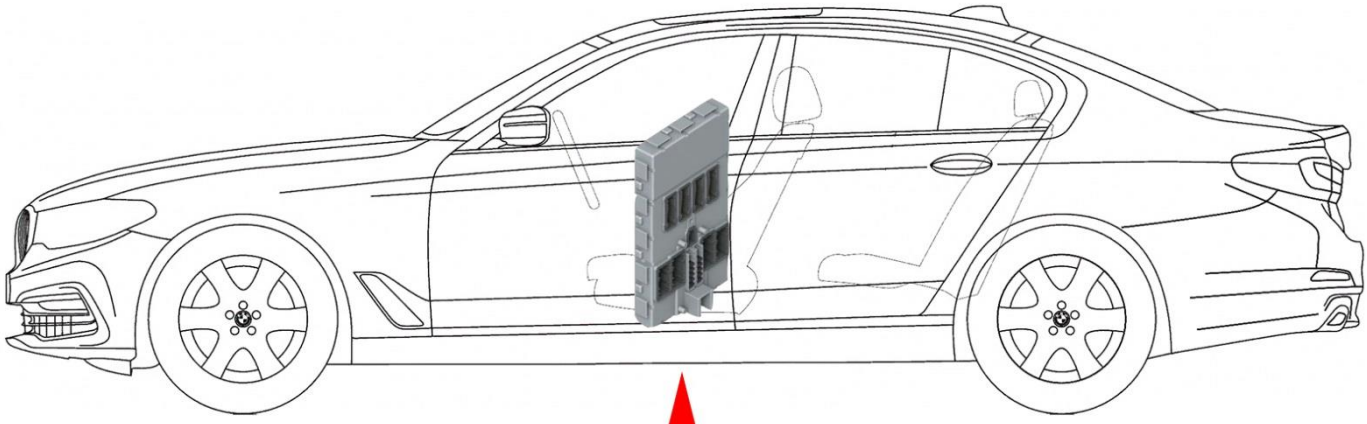
Signals, control:

-BLK LEFT (blue) left turn signal

-BLK RIGHT (green) right turn signal

-FLE POW (white) output for front optics power control relay

General block diagram of CAN connection

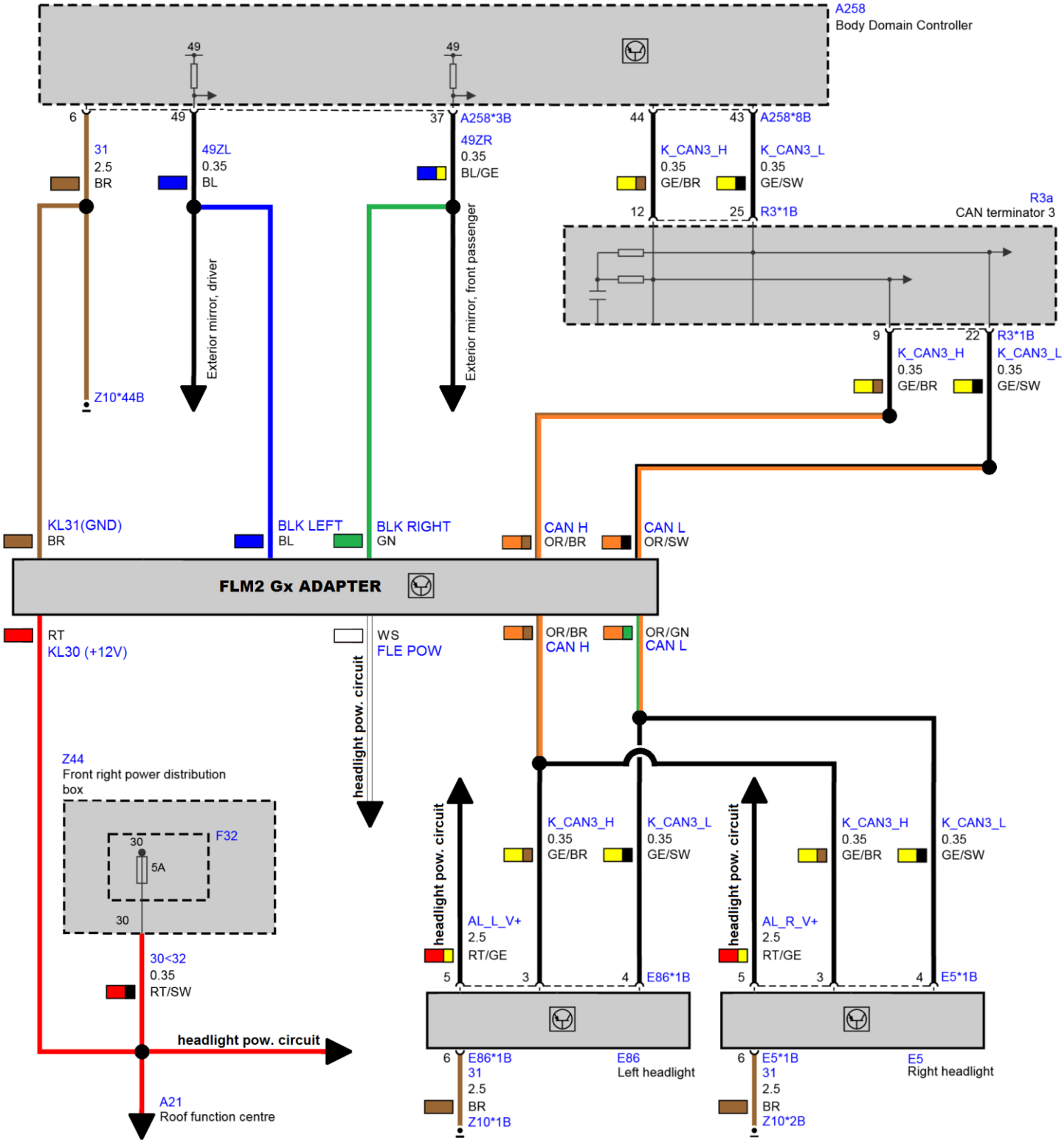


K-CAN3 BDC

FLM2 Gx ADAPTER

K-CAN3 FLM2

Device connection diagram



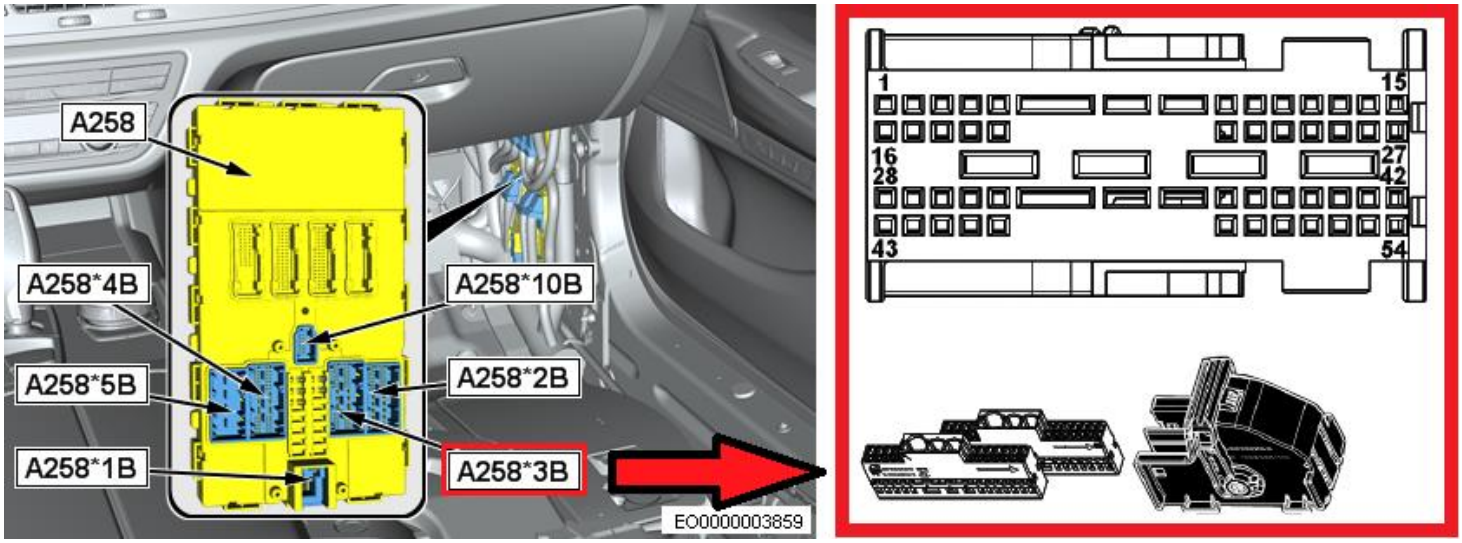
In parallel, connect the BDC control unit to connector **A258*3B**:

-ground KL31(GND, brown), pin 6 of connector A258*3B

-left turn signal BLK LEFT (blue), pin 49 of connector A258*3B

-right turn signal BLK RIGHT (green), pin 37 of connector A258*3B

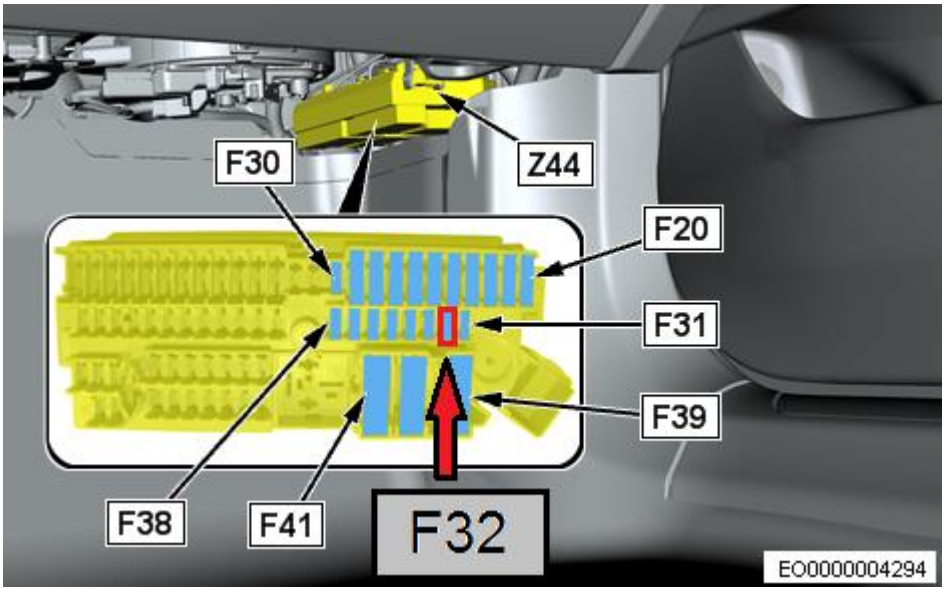
*BDC ECU location and connector configuration **A258*3B**:*



Connect in parallel to the front power distributor **Z44**:

- constant power supply KL30 (+12V, red), pin 30 on Z44 (fuse F32)

*Location of Z44 and fuse **F32**:*



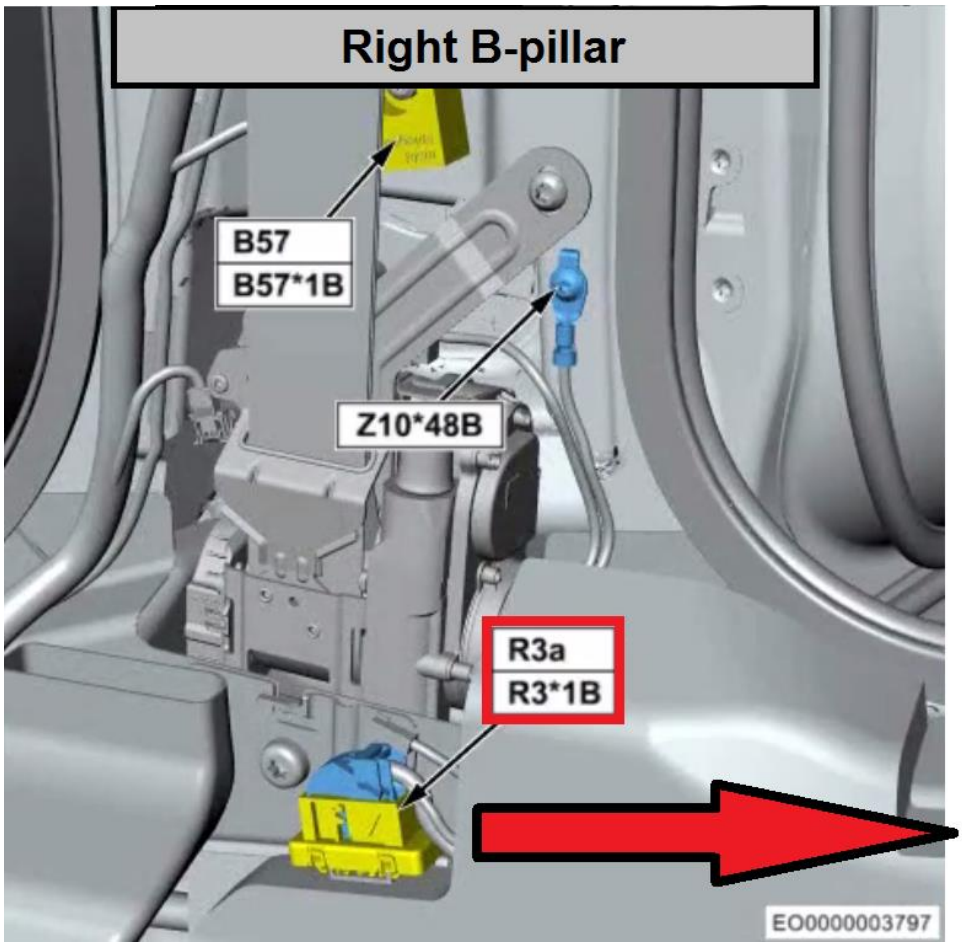
Connect the CAN device harness between the R3a bus terminator and the front optics:

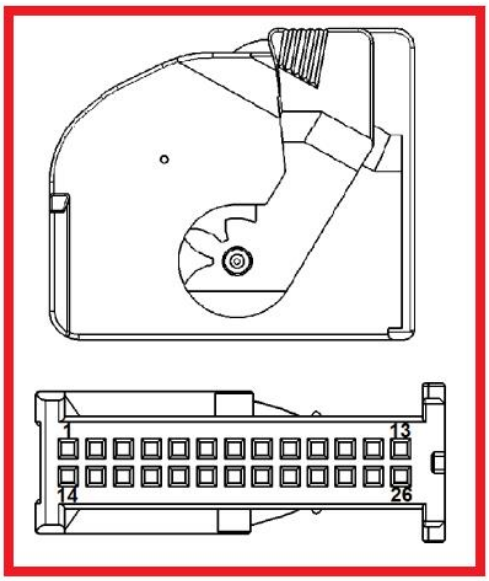
1) Disconnect (cut with a margin of approximately 5cm) from R3a both CAN buses of the front optics - (pins 8,21 and 9,22), while pins 8,21 of the R3a terminator are no longer used, they must be insulated.

2) Connect both CAN buses coming from the front optics (by color) to each other and connect the device bus to them in accordance with the device connection diagram.

3) Connect pins 9,22 of the R3a terminator to the device bus in accordance with the device connection diagram.

*Location of terminator **R3a** and configuration of connector **R3*1B**:*

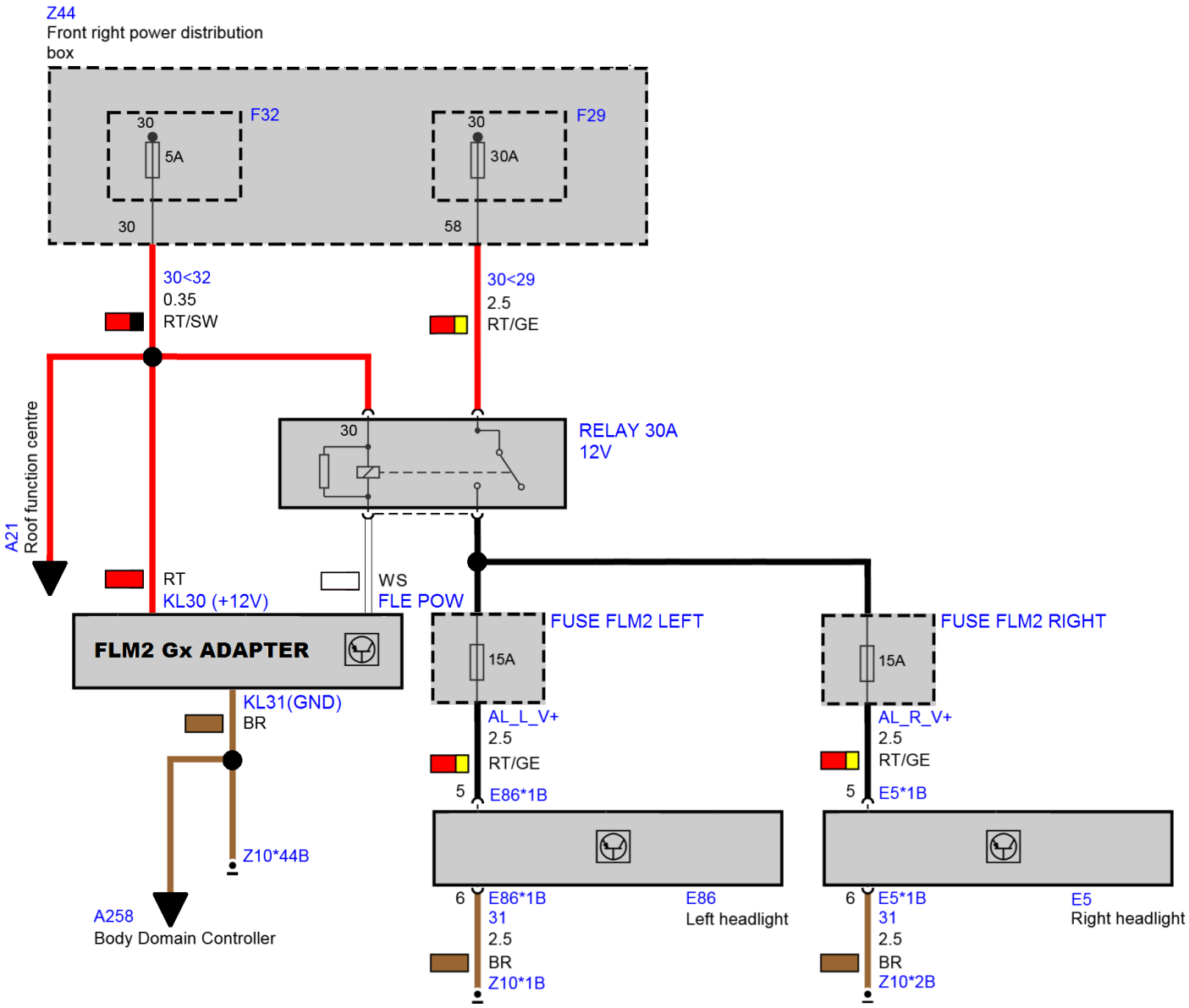




Power supply circuit for front optics (headlights)

The device supports two front optics power connection schemes:

Headlight power supply circuit No. 1: is more preferable, since the functionality of the front optics is maintained (hazard warning lights are on and/or side lights are on) when the vehicle goes into a sleep state, while the device does not wakeup BDC2 out of sleep. Thus, the operation of LCI BDC3 is simulated.



This circuit uses the output of the "FLE POW" device (output color - white) to control an additional relay for turning on the power of the front optics. Switching on is done by applying negative power (ground) to the relay coil, while the second terminal of the relay coil is connected to constant (positive, +12V) power along with the device power.

To connect power according to this scheme, you must additionally install (not included with the device):

-relay with a control voltage of 12V and a switching current of at least 30A

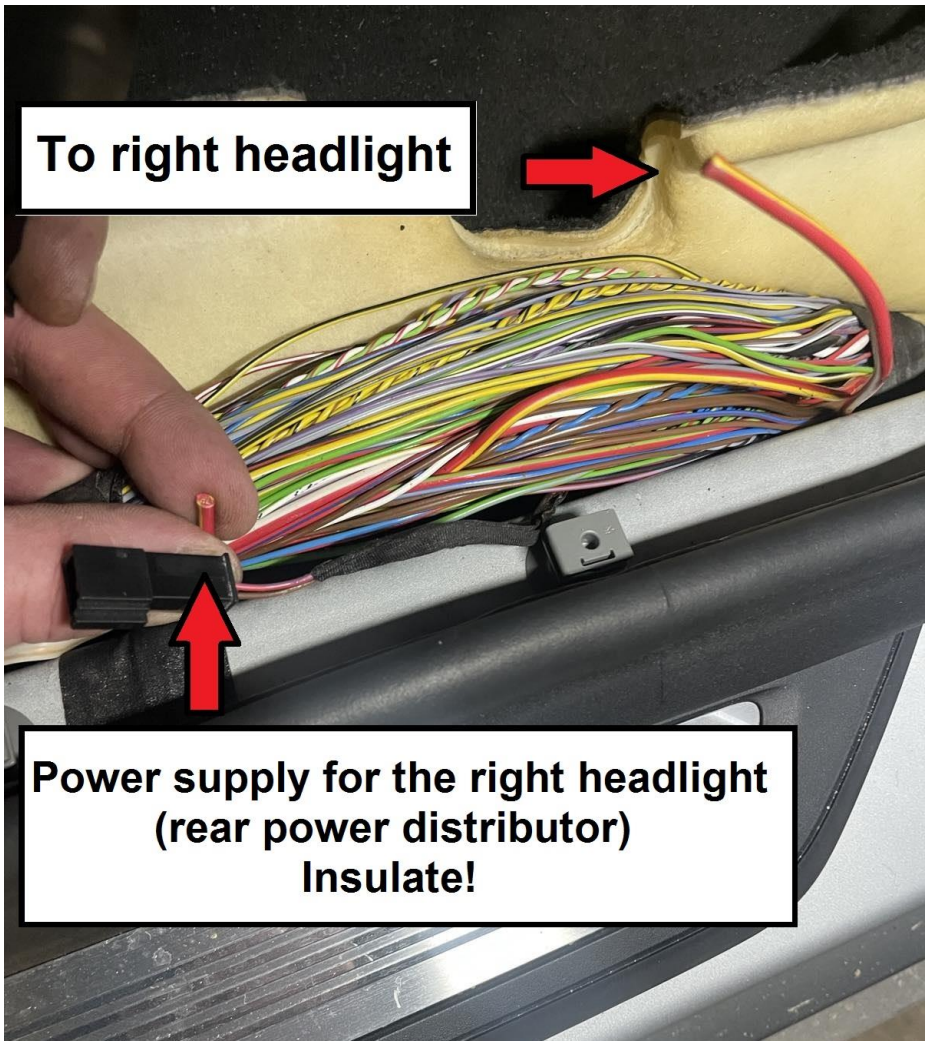
-two additional sockets for fuses

-two fuses rated 15A

Connect the headlight power relay and two additional fuses in accordance with the attached diagram (left headlight power fuse F29 -> relay -> additional fuses for both headlights -> headlights). Replace fuse F29 rated 20A in the front power distribution box with a fuse rated 30A.

The power cable for the left headlight can be found at the output of the current distributor Z44 (pin 58).

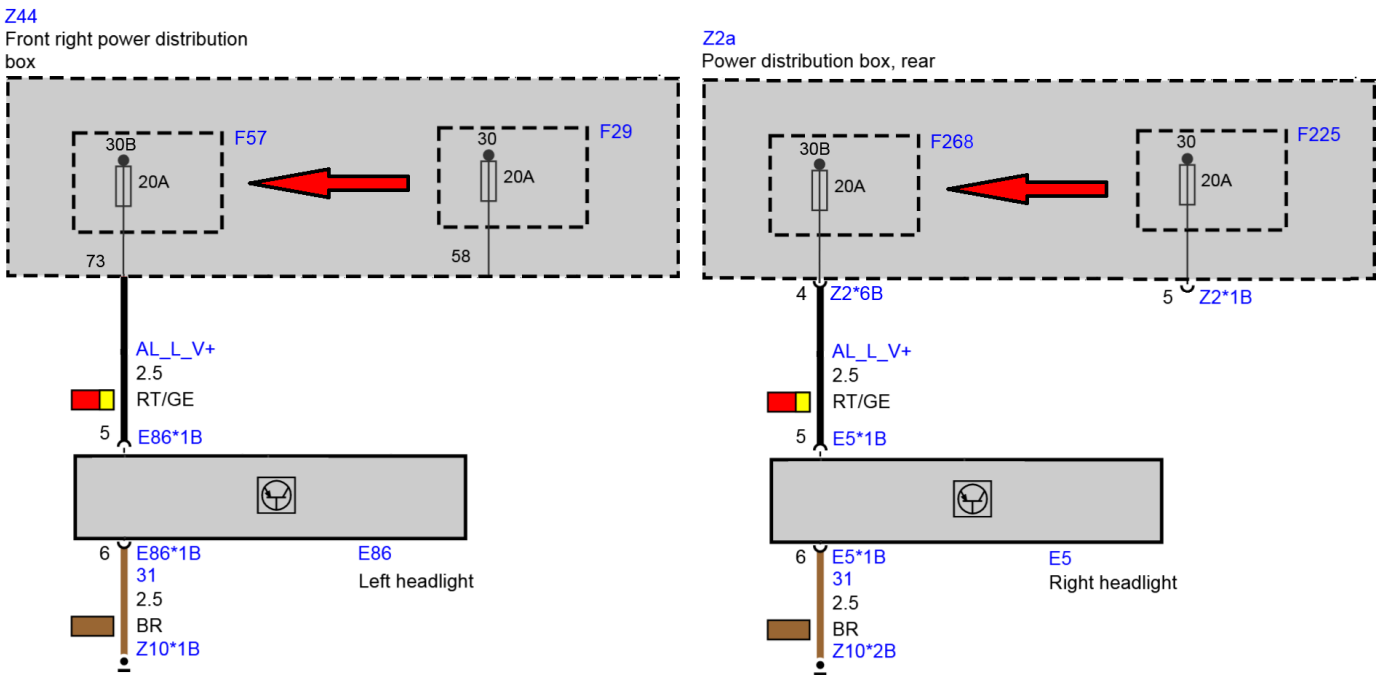
The power cable for the right headlight can be found in the harness going to the rear power distributor near the front passenger's threshold. Be careful, as this harness contains at least one more cable of the same cross-section and color (red with a yellow stripe) that is used by other vehicle equipment.



ATTENTION!

The "FLE POW" output of the device is designed for a long-term load of no more than 1A (short-term up to 2A). Connecting a larger load to the output, incorrectly connecting the output, short-circuiting the output to positive power - leads to damage to the device!

Headlight power supply circuit No. 2: less preferable, since the operation of the front optics is interrupted when the car goes into sleep mode (contact 30B is disconnected) after about 6 minutes. However, this connection scheme is less labor-intensive to implement (it is enough to connect the front optics power supply to pin 30B).

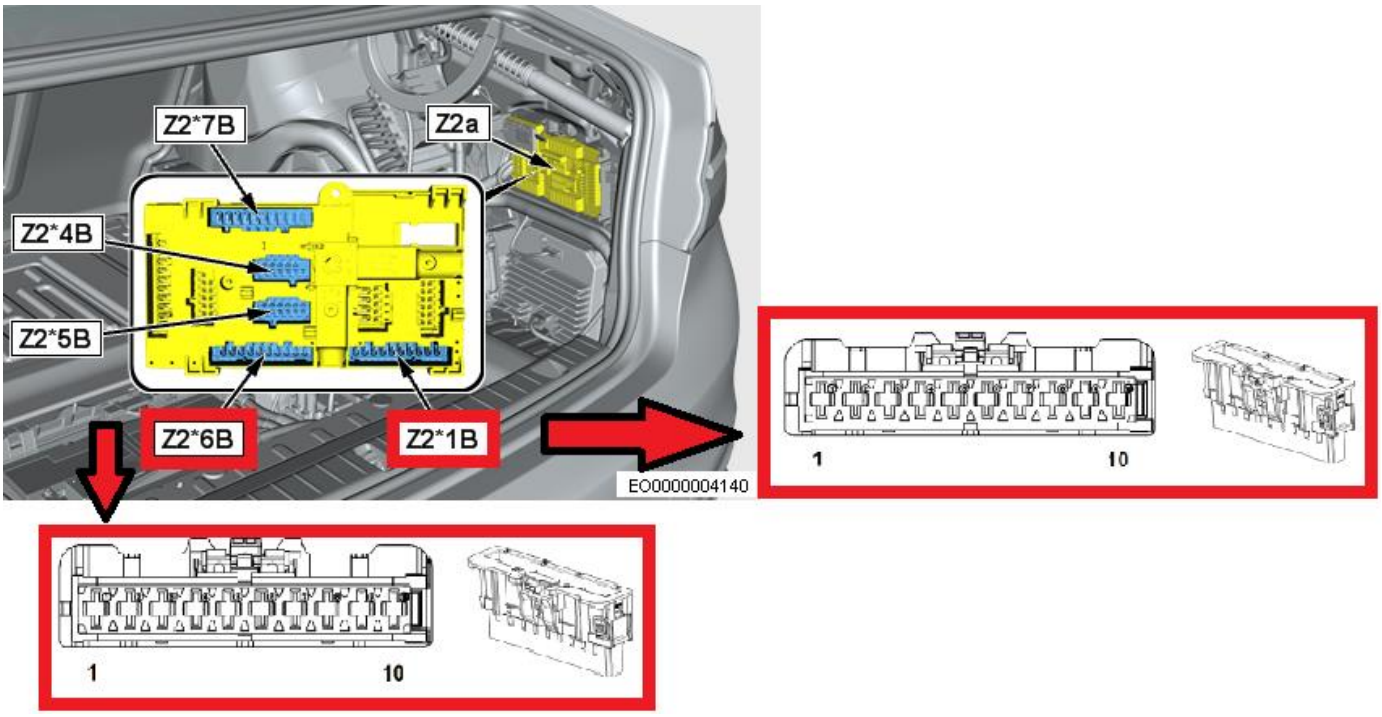


In this circuit, the output of the "FLE POW" device (output color is white) is no longer used.

Disconnect the left headlight power cable from pin 58 of the Z44 current distributor and connect it to pin 73 (power bus 30B, fuse F57).

Disconnect the right headlight power cable from pin 5 of connector Z2*1B of the rear current distributor Z2a and connect it to pin 4 of connector Z2*6B (power bus 30B, fuse F268).

*Location of current distributor **Z2a** and configuration of connectors **Z2*1B**, **Z2*6B**:*



Coding, programming

Coding and programming is possible with the FLM2 Gx ADAPTER already installed. The device does not in any way affect the operation of diagnostic and engineering software.

1) Remove options S5AP and S8S4 (if present) from the original FA.

2) Add option S552 and remove (if available) the option of standard (factory) head light (for example S5A4, S5A2).

3) Encode with these FA units: BDC, KAFAS.

4) Make sure that, the following parameters in the BDC block are set correctly, if not, set them manually:

BDC->1DF8->3530 LaMaster1->**LUT_FLC_FORWARDLIGHTING_Y**=G001_AFS (Werte=00, 00, 00)

BDC->1DF8->3530 LaMaster1->**C_AFS_ENA**=G001_enable (Werte=01)

BDC->1DF8->3530 LaMaster1->**C_AFS_ECO_LEVEL_3_ENA**=G011_enable (Werte=01)

5) Manually set the following parameter in the BDC to the appropriate value:

BDC->5AF9->3075 LceMaster->**BLINKERSTATUS_PLAUSIPRUEFUNG_AKTIV** = hinten_aktiv (Werte=02)

6) Create a backup copy of the current FA, change the time criterion to 0720 (Zeitkriterium=0720). Set the LCI vechicle type corresponding to the general characteristics of the car and optics. Example:

Before - JB51 535i XDRIVE ECE LL (**Typschlüssel=JB51**) - preLCI

After - 71BJ 540i XDRIVE ECE LL (**Typschlüssel=71BJ**) – LCI

7) Program and code the FLM2 headlight units with this FA.

After the work has been carried out, for the adaptive high beam system to work correctly, be sure to adjust the front optics using a headlight adjustment tool.