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This manual is to be handed out to the future owner and should always be carried in the car.

Comfort turn signal module B3^{MOS-FET} and B3^{PLUS} Installation and user manual

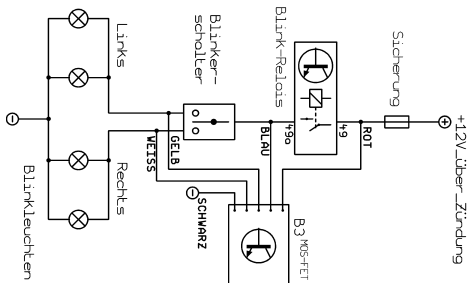
Characteristics

The comfort turn signal B3 recognises the brief press on the turn signal switch and will automatically flash the relevant turn signal three times. The switch does not need to be held or pressed fully. This increases safety and comfort while switching from one lane to another and is already factory installed in many modern vehicles. The B3 provides you with the equipment to retrofit this additional safety feature in older vehicles.

- Simple installation, only five wires to connect
- Cars wires do not have to be cut
- Small dimensions enable it to be hidden in each vehicle
- Adjustable from three to five flashes
- All functions are controlled by a microprocessor
- Optimized tapping intervals increases the convenient operation
- Safety functions recognize potential errors in the turn signal system
- Modern efficient MOS FET amplifiers enable silent operation

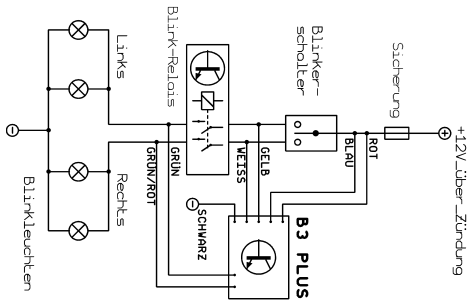
The unit is suitable for normal turn signal systems with a fuse up to 15 Amps. During the development we have paid particular attention to security and safety. The parallel connection construction (involving no cut wires) enables a simple installation and leaves the cars turn signal system untouched. Therefore the B3 can be uninstalled without trace. At the time of printing, the equipment does not have a general operating permit and users are advised to check National rights.

diagramm in principle



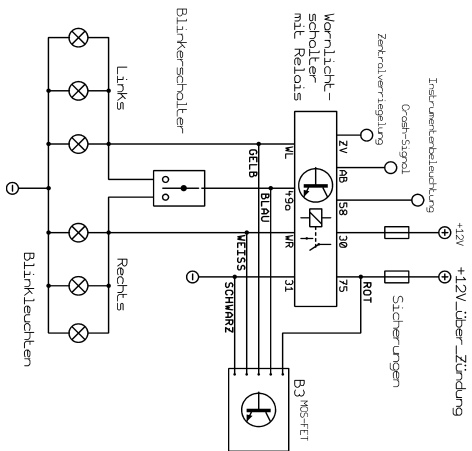
Prinzipielles Anschlussschema

Blinkerschalter on Plus



Blinkerschalter on Plus
 (Achtung: nur B3 PLUS)

erweitertes diagramm of connections



Erweitertes Anschlussschema
 Blinkerrelais im Wornlichtschalter
 (z. B. viele Audi und VW Modelle)

Note

Please thoroughly read this manual before attempting installation, paying particular attention to the above safety references and the disclosure of non-liability herein.

Operation

Normal signalling, (fully engaging the turn signal stalk), is not affected by the B3. The B3 only controls signalling when the stalk is touched lightly and flashes the turn signals automatically three times in the desired direction.

The automatic flashing can be cancelled at any time by pressing the stalk in the opposite direction. This interrupts the flashing immediately. The nature of the subsequent press decides whether the B3 will activate the other turn signal or not.

A courtesy "Thank You" after overtaking is also possible. If, for example, you want to flash once left and once right, the switch must be held a little longer when right flashing.

If you feel flashing the turn signal three times is not sufficient, you can adjust the B3 to flash four or even five times. See section 4. Adjusting the flashing time of the Installation guide.

Sometimes the B3 will not flash three times as expected. This is because of the overload recognition system. If the B3 tapping function is used more than 20 times over a short period of time, a temporary deactivation takes place. After waiting a few seconds the B3 is ready again. This function protects the electronics and all adjacent vehicle parts against any damage that may be caused by the B3 heating up.

What you receive

- B3^{MOS-FET} comfort turn signal module or B3^{PLUS} comfort turn signal module
- Wiring harness with plug and splice clamps
- These instruction (The B3^{PLUS} comes with an additional addendum)



1. Disassembling the emergency switch, plug with pin numbers.



2. Carefully release the harness from its foam surround.



3. Inserting the wire into the clamp, check the connections.



4. Completed connections, five splice clamps.



5. Mounting the module.

Fasten the module if possible with a strip insulating tape to the wiring harness. Make sure that it would not attached too tightly

Remove the emergency/hazard light switch and take off the rear plug. If necessary remove a few inches of the foam surround to give you enough free wire to attach the splice clamps.

Find your car in the table below. Mark the line with your vehicle in the column My Car and connect the five wires of the module with the respective wires of the emergency/hazard light switch. Be sure to use the contact numbers on the plug and not rely on the colours, because the wire colours are often duplicated or very hard to recognize.

Vehicle	My Car	B3 wire colour				
		black	red	blue	yellow	white
Audi A3 ...98		5	6	1	3	2
Audi A3 99...04		9	2	3	5	7
Audi A4 ...01		5	6	1	3	2
Audi A6 ...04		9	2	3	5	7
Audi A8 ...97		4	3	7	5	6
Audi A8 98...03		9	2	BR-8	5	7
Audi RS6 ...05		9	2	3	5	7
Audi TT		9	2	3	5	7
Opel Astra ...97		2	9	1	4	7
Skoda Octavia		6	7	1	3	2
VW Golf4/Bora		6	7	1	3	2
VW Passat		5	6	1	3	2
VW T4		6	7	1	3	2

More cars can be found at www.cxi-europe.com

BR = extra turn signal relay

Guidance and Safety Notes

The following information is particularly important and you are advised to ensure you fully understand it.

- Before attempting installation of the B3 carefully read these guidance notes.
- Although the equipment has been constructed and manufactured to high safety standards, you are advised to handle it with care.
- The equipment may only be operated with the provided accessories. No alterations must be made.
- During installation, ensure the battery is disconnected and that the key is not in the ignition.
- Pay particular attention to the polarity of the B3. Incorrectly wiring the B3 will destroy the equipment.
- Monitor the B3 for any signs of defects. Prolonged incorrect functioning can lead to damage.
- Do not mechanically load the B3 module (e.g. get jammed).
- Use only with 12 V electrical systems.
- Use only on turn signals with a maximum of 15 A fuse.
- Ensure the module is securely mounted.
- Do not open the module housing. No user serviceable parts are inside.
- Do not install in areas susceptible to extreme temperatures or dampness. The module is not suitable for installation in the engine compartment.
- Install the equipment behind the vehicle's fascia, so that it cannot cause injuries in the case of an impact.
- Ensure that after installation the equipment switches off when you remove the ignition key.
- Pay attention to other road users at all times and do not let the equipment impede your driving.
- Legal guidelines are to be followed at all times. These differ from country to country.

Incorrect installation may lead to damages to the equipment, to the car or to persons (see non-liability). Therefore we strongly recommended a qualified engineer carry out the installation.

Conditions

The B3^{MOS-FET} module can only be operated with conventional turn signal systems. These are systems in which the current is lead from the fuse to the turn signal relay, directly to the turn signal switch and then to the bulbs.

The B3^{PLUS} comfort flashing module can be operated by turn signals, in which the current first goes to the switch and then to the flashing relay to the bulbs.

Turn signal systems, in which the turn signal switch is attached at a controller but has no connection to the bulbs, cannot be retrofitted with B3^{MOS-FET} or B3^{PLUS}. In these cases please use the B3^{TTL} for digital turn signal systems.

Installation

1. Preparation

Installation using the enclosed splice clamps is quite simple, but nevertheless should only be carried out by a specialist. Knowledge of the cars electrical system is necessary to connect the five wires of the B3 module.

In the appendix you will find the wiring diagram for the B3^{MOS-FET}. For the B3^{PLUS} please use the additional diagram (found in the addendum). If the flashing relay is part of the emergency/hazard light switch, it is recommended you connect the module there as you will find all necessary connecting points (see extended diagram of connections). In this case please ensure all wires are of the same length. You will find a table for different models from the VAG Company in the appendix.

NOTE: Before undertaking any work on the electrical equipment of the vehicle please disconnect the battery. If necessary, ensure you have all codes needed to unlock protected devices such as radios, navigation systems or cellular phones.

Appendix

1. LED control light and the meanings of the signals.

LED status signal	meaning
lights 1x briefly	Ready status after switching on, stored characteristics are used.
lights 2x briefly	Ready status after switching on, learning mode is active (very short tapping).
shines brightly	Tapping recognized, flashes 3x
shines weakly	After tapping the module momentarily pause for approx. half a second
fast continuous flashing	temporarily deactivated, overload recognition, cooling phase
short lightning	thermal load has dissipated
3 short flaches	RESET, stored characteristics deleted
fast flashing with short breaks	permanently deactivated, Failure with the turn signals, e.g. a bulb isdefective
long shining, no bulbs are flashing	Failure or incommatibility, e.g. flashing relay is defective (ends with permanently deactivation, see above)

The above signals do not need to be monitored during normal operation. They only become important in cases of maintenance and as such the module can be mounted out of site.

2. Connection points in some cars (without guarantee)

It is recommend to connect the module to the harness off the emergency/hazard light switch, if this also contains the flashing relay. This is the case with the cars in the following table.

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2. Connecting the harness

The power consumption of the module in standby mode is very small. However do not connect it to a constant live source, but - like the turn signals - with the ignition switched on.

First disconnect the negative terminal of the battery. Use the enclosed blue splice clamps for all connections, unless otherwise instructed. The clamps have one one-sided and one double-side cable run. The cables of the module are inserted into the one-sided chamber, the chamber is locked by closing the cover and squeezing with flat-nosed pliers until the hook engages. Ensure the cable insulation is broken and that the wire comes in contact with the metal of the clamp. The cars cables are inserted into the double-side chamber and are installed in the same manner.

The red splice clamps are intended for use on cables with a small diameter, the blue splice clamps for those with larger diameters. First connect the black cable of the module to ground (minus mass) and the red to switched positive (only when ignition is on). If the cars wiring (usually only the ground wire) is particularly thin, please use a red clamp. Make sure that the positive connection you use is fused. When installing at the emergency light switch the fuse of the turn signal system is used.

As you will have noticed, the module has five pins. Initially you must only connect the positive and negative, do not connect any other wires. You must now test, by watching the LED, whether the connections you made are working.

If the LED does not flash it may be for one of two reasons: a) the module is incorrectly connected or b) it is connected to a non-switched positive (a constant live source). In the case of b) ask a second person to disconnect and connect again the battery. If the LED flashes you have incorrectly connected it to a constant live source.

If the LED does not flash at all, there is probably a problem with the contacts. Disconnect the negative battery terminal again and swap the two blue splice clamps for red clamps, (suitable for smaller cable diameters) ensuring you work carefully, to prevent any damage to the cars wiring.

If the LED flashes when you turning the ignition key, the connection is perfect. You can now attach the remaining wires using the blue splice clamps ensuring you have first disconnected the battery.

3. Start-up + function test

At this time the module should not be installed behind the fascia to enable you to observe the status signals of the LED. You will find a table with the different status signals and their meaning in the appendix.

Attach the battery again and switch on the ignition. The LED will flash once or twice. If it flashes twice, the module is already in learning mode. If the LED flashes once you should RESET the module (described in section 5.), to force it into learning mode. Once you have done that carry on with the following. □

Briefly flash (tap turn signal switch) once to the left or right. The turn signal will automatically flash three times and the turn signal systems characteristics will be determined and stored. The learning mode is finished.

4. Adjusting flashing time

During normal operation the module will flash three times. If you wish it to flash more, the B3 can be changed to four or five flashes. To change it, please proceed as follows:

- a) Do a RESET as described in section 5., to force the module into learning mode. Once done, carry on with the following. □
- b) Hold the turn signal switch to the left and count your desired number of flashes, three four or five.
- c) Hold the turn signal switch to the right and count your desired number of flashes.
- d) Tap the turn signal switch very briefly in any direction to store the value. The vehicle will flash three, four or five times according to the stored value, to confirm your chosen amount.

You must follow the above sequence precisely. This is the only way to change the desired number of flashes. If you want to change the value, repeat the procedure again, beginning with a).

Note: The RESET does not change the stored value back to three flashes. The value remains until it is replaced with another, as described above.

5. RESET + Learning mode

After maintenance work (e.g. replacement of the turn signal relay) and to adjust the flashing time it is necessary to reset and retrain the module. For this you must follow the RESET procedure (to delete the module's memory) and activate the learning mode.

In order to prevent an inadvertently initiated RESET, the RESET procedure can only be done a short time after switching on the ignition. Please proceed as follows:

- a) Switch off ignition.
- b) Switch on ignition and wait for approx. 5 seconds.
- c) Switch on the emergency light switch and off again.

If the emergency light will be switched on too early or too late, the RESET will be prevented. The same occurs, if you flash to the left or right.

To confirm the RESET was accomplished the LED briefly flashes three times (if the properties were not already deleted). The module is now in learning mode and you can continue with the start-up procedure or adjust the flashing time. □

6. Final work

The comfort turn signal B3 can be fitted anywhere behind the fascia, but not in the engine compartment. Because it radiates some heat, you should not tape it onto any flammable material. Simply fix the module with some insulation tape to the wiring harness. Avoid areas of high dampness and temperature (i.e. heating system, condensation, or air-conditioning system).