

«Filter-B» Technical Manual



Unit connection.....	2
Table 1. Wire colors and contact numeration in vehicle ports	3
Table 2. Assignment of the unit port outputs	4
Unit connection recommendations for BMW-7 (E65).....	4
Table 3. Technical data and operation conditions.....	6
Table 4. Standard delivery kit.....	6



Unit description

“Filter-B” (v 2.6.) unit (hereinafter referred to as the unit is designed for BMW-3 (E90), BMW-5 (E60, 61), BMW-6 (E63, 64), BMW-7 (E65, 66), BMW X5 (E70), BMW X6 (E71) vehicles. The unit’s purpose is to remove the blocking of video feed on the original monitor, which is automatically blocked when the car starts moving.

The unit is connected to the CAN-bus interruption and matches with it on hardware and software levels. The unit is fully transparent for both the vehicle and diagnostic equipment and does not interfere with the vehicle electronic equipment operation and original video system control and functioning.

The unit can operate in one of two modes: active (ON) and passive (OFF).

The unit can be activated and deactivated with one of two original steering wheel buttons:  or  or with specially assigned alternate button. Below any of these buttons is mentioned as “controlling button”. Original buttons save their primary functions independently from the unit mode.

After the first command from the alternative button  and  original buttons lose their controlling functions of enabling or disabling the unit. In order to restore this ability, it is necessary to carry out the following actions within 6 sec period:

- ◇ - Switch the ignition ON,
- ◇ - Press any of these buttons 10 times,
- ◇ - Switch the ignition OFF.

Unit activation and deactivation is carried out with long pressing of the controlling button (for no less than 2 sec) when the ignition is ON.

Activated unit removes video feed blocking from the original screen without interfering with other equipment’s operation.

Deactivated unit retransmits CAN-bus signals without changing them. In the meantime, vehicle equipment operation including the display is carried out in accordance with original algorithms.

Information about unit operation mode is stored in permanent memory and its condition will not change should the power be deactivated.

LED is used for indicating the unit’s condition. It can be installed in any place or not installed at all. If the unit is OFF or the ignition is OFF then LED is always OFF. When switching the unit ON the LED turns ON for no less than 4 sec then shuts down. The LED indicates that the unit is ON by lighting with every pressing of control button for the time it is pressed and also by lighting for 4 sec when switching the ignition ON. For all the other cases, the LED is always OFF.

When the CAN-bus switches to hibernation mode, the unit enters the energy saving (standby) mode regardless of whether it is ON or OFF.

It is recommended to switch the unit OFF in case of: putting the car on maintenance in the service station, or when you need to use the standard navigation system and while you do not need to use the unit.

Unit connection

Vehicle CAN-bus is pair of wires: CAN-L and CAN-H. The unit is connected to the breakage of the CAN-bus: for BMW 7-series the unit is connected in the vicinity of power supply port of Control Display (CD) unit (see Fig. 1).

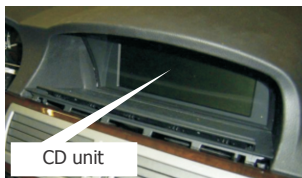


Fig.1. CD unit location in BMW 7 series.

and for BMW 3, 5, 6 series, BMW X5, BMW X6 the unit is connected in the vicinity of power supply port of Car Communication Center (CCC) unit (see Fig. 2)



Fig. 2. CCC unit location for BMW 3,5 and 6 series.

Information regarding wire colors and contacts numeration for various BMW series is indicated in Table 1

Table 1. Wire colors and contact numeration in vehicle ports

Wire	Car series / connector position		
	BMW 3, X5, X6 / CCC Unit	BMW 5, 6 / CCC Unit	BMW 7 / CD Unit
CAN-L	Green No 9	Yellow No 9	Green No 9
CAN-H	Orange/Green No 11	Black No 11	Orange No 3
+12V Power supply	Red/Green No 15	Red/Brown No 15	Red/Black/Yellow No 1
Ground	Brown No 12	Brown No 12	Brown/Black No 7

Output numeration of the unit`s port terminal is shown in Fig. 3 ,

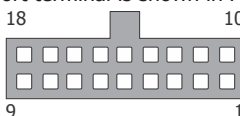


Fig. 3 Numeration of module terminal contacts, view from the side of wires..

and their assignment is indicated in Table 2.

Table 2. Assignment of the unit port outputs

No	Wire Color	Type	Assignment
1	Black	Power supply	"Ground"
2	Brown	CAN 2	CAN-L vehicle data bus
3	Brown	CAN 1	CAN-L vehicle data bus
4	Green/Black	(-) Output	To the blue wire of the LED
5	Green/White	(-) Input	Alternate unit activation/deactivation button
6	-	-	-
7	-	-	-
8	-	-	-
9	-	-	-
10	Red	Power supply	Unit +12V power supply +12V
11	Brown/Red	CAN 2	CAN-H vehicle data bus
12	Brown/Red	CAN 1	CAN-H vehicle data bus
13	Green	(+) Output	To the red wire of LED
14	-	-	-
15	-	-	-
16	-	-	-
17	-	-	-
18	-	-	-

CAN 1 wire pair of the unit is connected to CAN-bus from the vehicle side, and CAN 2 wire pair of the unit is connected from CD (CCC) unit side.

Power supply for the unit (wires no. 1 and no. 10 – see Table 2) can be taken from CD (CCC) unit power supply (see. Table 1).

In case when alternative control is needed the green-white wire should be connected to vehicle's Ground by means of normally open alternative button.

All the installation works should be carried out when the car battery is disconnected.

Unit connection recommendations for BMW-7 (E65)

Upon preliminarily disconnecting the power supply port from the CD, disassemble it as shown in Fig. 4. Remove two wires from it: CAN-H (orange, contact no. 3) and CAN-L (green, contact no. 9), see Fig. 5 and Table 1.

Insert these wires in the twin-contact port casing: CAN-H wire (orange) is to be inserted in contact no. 1, CAN-L (green) is to be inserted in contact no 2. Connect the assembled twin-contact port to the counterpart where the "CAN-1" module twisted-pair wire is inserted. Please make sure that CAN-H and CAN-L wires of the vehicle are connected to the namesake wires of the unit: the orange wire of the vehicle must be connected to the brown-red wire of the unit, and the green wire of the vehicle must be connected to the brown wire of the unit (see Fig. 6).

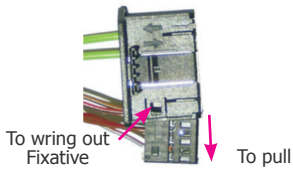


Fig.4. Disassembling of CD connector



Fig. 5. CD unit port with CAN-bus wires disconnected

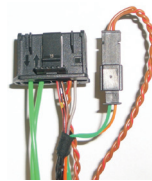


Fig. 6. CD unit port after connection of the unit to CAN-bus

CAN 2 unit's wire twisted pair with female type connectors are to be inserted in the port in place of removed pair. CAN-H (brown-red) is to be inserted in contact no. 3, CAN-L (brown) is to be inserted in contact no. 9 (see Fig. 6, Tables 1 and 2).

The black wire of the unit ("Ground") coming from contact no. 1 of the port (Fig. 3) can be connected to the "ground" of CD unit – the brown-black wire coming to the contact no. 7 of the power supply port.

The red wire of the unit (+12V power supply) can be connected to CD unit's power supply – the red-yellow wire coming to the contact no. 1 of the original port.

Assemble the factory port and connect it to the CD unit.

For other BMW vehicle models unit installation is carried out in the same way. But it is necessary to note that for BMW 3, 5, 6 series and BMW X5, X6 the unit is connected to another unit (to CCC, not to CD). So there are differences in wire colors and numeration of the contacts in the port (see Table 1).

BMW 7 series: upon connecting the unit it is necessary to check operation of I-Drive system. In case if the joystick does not respond to your actions, it is necessary to reset I-Drive system. To do so withdraw the fuse No. 5 (7.5 A) from the fuse box located behind the glove compartment for 10 seconds (see Fig. 7).



Fig. 7. I-Drive system power supply fuse location

Table 3. Technical data and operation conditions

Characteristic	Data
Voltage, V	9 ... 15
Max. current in working mode, mA	200
Max. current in standby mode, mA	1,5
Temperature, °C	- 40 ... + 85
Relative humidity, %	95

Table 4. Standard delivery kit

Item	Q-ty
Central unit	1 pc
Wire harness with terminal	1 pc
Plastic casing of two-contact terminal no 030 545 28 28	1 pc
Technical Manual	1 pc
LED indicator with wiring	1 pc
User memory card	1 pc
Package	1 pc

Product warranty is provided for 1 year since the moment of the sale if all the installation recommendations have been followed. In case of warranty case please contact to the company which sold this product to you.

Distributor _____ Date of sale _____



Manufacturer «TEC electronics» Ltd.
 Product is produced according to TY 4372-006-78025716-10.
 Certificate of origin No POCC RU.AB75.B00340
 Product corresponds to regulatory documents:
 ГОСТ P 41.97-99, ГОСТ P 50789-95

