

**«Filter-MBN»
Technical Manual**


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Unit Description

Filter-MBN (v 2.4) unit (hereinafter referred to as "the unit") is designed for bodies 216 and 221 of Mercedes-Benz 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 breakage 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 "end conversation" button  located on the steering wheel, or a specially installed alternative button. Below any of these buttons is mentioned as "controlling button". Original button saves its primary function regardless of the unit operation mode. 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 area 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

The unit is connected in the breakage of the CAN-bus line near the power supply port of CO-MAND unit. CAN bus is a twisted pair wire composed from yellow CAN-L and yellow-white CAN-H wires connected to their corresponding contacts No. 11 and No. 1 of the indicated port.

Unit port outputs numbering is shown in Fig. 1.,

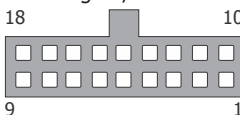


Fig. 1 Unit port outputs numbering, from the wiring viewpoint.

Wire assignment is shown in Table 1.

Table 1. Unit port outputs assignment

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	Alternative unit activation/deactivation button
6	-	-	-
7	-	-	-
8	-	-	-
9	-	-	-
10	Red	Power supply	+12V unit supply
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 unit's wire pair is connected with CAN bus from the vehicle's side, while CAN 2 unit's wire pair is connected to the bus from COMAND unit's side. Brown wires of the unit are connected with yellow wires of the vehicle, while brown-red wires of the unit are connected with yellow-white wires of the vehicle.

The black wire of the unit coming from the contact No. 1 of the unit port is connected to the vehicle body in the areas defined by manufacturer for connection of the original electrical equipment ground.

Unit's red wire is connected to the one of the car wires with +12V constant voltage.

Green/white wire is connected to vehicle's ground via normally open alternative control button in case when the button installation is necessary.

Connection recommendations

Disconnect the power supply port from COMAND unit and disassemble it as shown in Fig. 2. Remove two wires from it: No. 11 (yellow) and No. 1 (yellow-white) as shown in Fig. 3.

Insert the withdrawn wires into the supplied into the housing of the 2-contact port supplied in the delivery kit: yellow wire is to be inserted in contact No. 2 while yellow-white wire is to be inserted in contact No. 1. The resulting 2-contact port is to be inserted into its counterpart where CAN 1 unit's twisted wire pair is inserted. Please make sure that the yellow wire of the vehicle is connected with the brown wire of the unit and yellow-white wire of the vehicle is connected with the brown-red wire of the unit (see Fig. 4).

Insert CAN 2 unit's twisted wire pair with female-type connectors into the original vehicle port in place of withdrawn twisted wire pair: brown wire goes into contact No. 11, while brown-red wire goes into contact No. 1 (see Fig. 4).

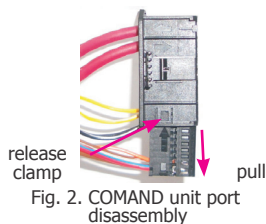


Fig. 2. COMAND unit port disassembly

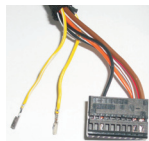


Fig. 3. COMAND unit port with disconnected CAN bus

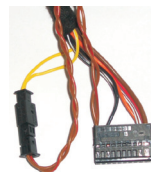


Fig. 4. COMAND unit port after unit connection to CAN bus

Assemble the original port and connect it to COMAND unit.
Black wire of the unit coming from contact 1 of the port (Fig. 1) can be connected to the brown wire coming to contact No. 20 of the original port.
Red wire of the unit can be connected to red-blue wire coming from contact No. 10 of the original port.

Note

The unit automatically checks the correction of CAN bus connection by checking which side COMAND unit is connected to. If CAN 1 and CAN 2 branches have been mixed up, the unit will inform on the mistake made by constant frequent LED blinking for the whole time while CAN bus is active

Table 2. 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 3. Standard delivery kit

Item	Q-ty
Central unit	1 pc
Wire harness with port	1 pc
Plastic casing of two-contact port No. 030 545 28 28	1 pc
LED indicator with wiring	1 pc
Technical Manual	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