

BMW FXX ATM emulator
User and Installation Manual

Designation

"BMW FXX ATM emulator" module designed for use in BMW F-Series cars, when replacing or installing head unit HU EVO unequipped with built-in GPS receiver, without the need to install ATM ECU. The module also provides the following functions:

- activation of the navigation
- «Video in motion»
- protocol matching for correct functioning of Sport Displays
- gyro sensor protocol matching for correct functioning of navigation system
- KAFAS1 and HU EVO protocol matching

Technical description

The appearance of the module shown in Fig. 1. The module contains 16 pin connector «System» for connection to the vehicle systems, FAKRA type connector «GPS» for connection of external GPS antenna, a set of eight (DIP SWITCH type) switches S1 to enable/disable available module features, two led indicators "CAN" and "ETH" to indicate various modes of operation, USB connector for firmware update and module diagnostic.

Connector «System» has the following signals:

- "CAN1H" (yellow), "CAN1L" (blue) for connection to the CAN bus from vehicle side
- "CAN2H" (yellow/black), "CAN2L" (blue/black) for connection to the CAN bus from HU side
- "OABRP", "OABRN" for connection to the HU OABR bus
- output "RAD ON" (white/red), for replacement of the head unit RAD ON signal
- input "+12V" (red), module power "plus" wire
- input "GND" (black), module power "ground" wire

Connector «System» pinout shown in Figure 2, switches features given in Table 1.



Figure 1. Module appearance

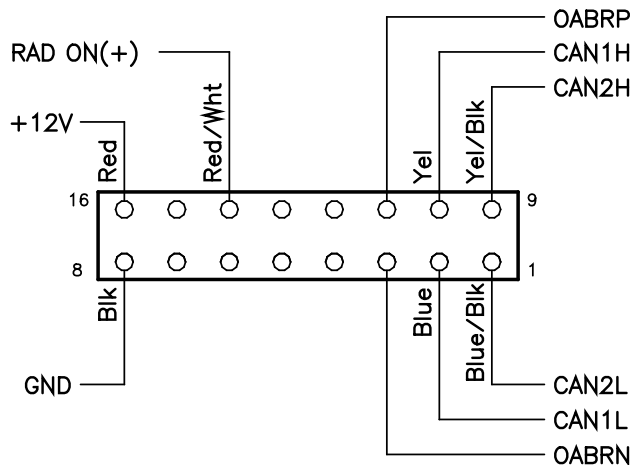


Figure 2. Connector «System» pinout

Table 1, switches features

Switch	1	2	3	4	5
On	Navi activation On	Video in motion On	Sport indicators protocols conversion On	KAFAS1 protocols conversion On	Gyro sensor protocol conversion On
Off	Navi activation Off	Video in motion Off	Sport indicators protocols conversion Off	KAFAS1 protocols conversion Off	Gyro sensor protocol conversion Off

Connections

Module should be connected to the gap of CAN bus between head unit and car, and to the OABR interface of head unit, according to schematic shown in Fig.3, using the supplied cable (Figure 4). Cable consists 16-pin socket for connecting to the module «System» connector, 20-pin socket for connecting to the OABR connector of head unit (position A42*3B Figure 6.), and wires for connect to CAN bus and power. Cable diagram shown in Figure 5. Appearance and head unit connector A42*3B pins numbering shown in Figure 7.

Module operation

Attention: When first connect and powered, module binds to the car and can not be used with any other. Not bounded or installed to another car module will not perform specified functions.

When ignition turn on, or connected over USB cable, module will displays their status via “CAN” and “ETH” indicators. In the normal state indicator “CAN” indicates CAN bus activity, and should blink at a frequency of about 10Hz. Indicator “ETH” should produce a short single flashes with a frequency of 1Hz. If there is no indication on the “CAN” indicator, CAN wires should be verified for the correctness and reliability connection to the CAN buses from the car and head unit. If there is no indication on the “ETH” indicator, OABR wires should be verified for the correctness and reliability connection to the OABR bus of head unit.

When module connected only over USB cable to the computer, it goes into Boot mode and provides the ability to download firmware. In Boot mode both LEDs blink alternately by double flashes series.

In the normal state module emulates ATM ECU, receives the signal from the built-in GPS receiver and transmits it to the head unit. Additional features can be set using switches.

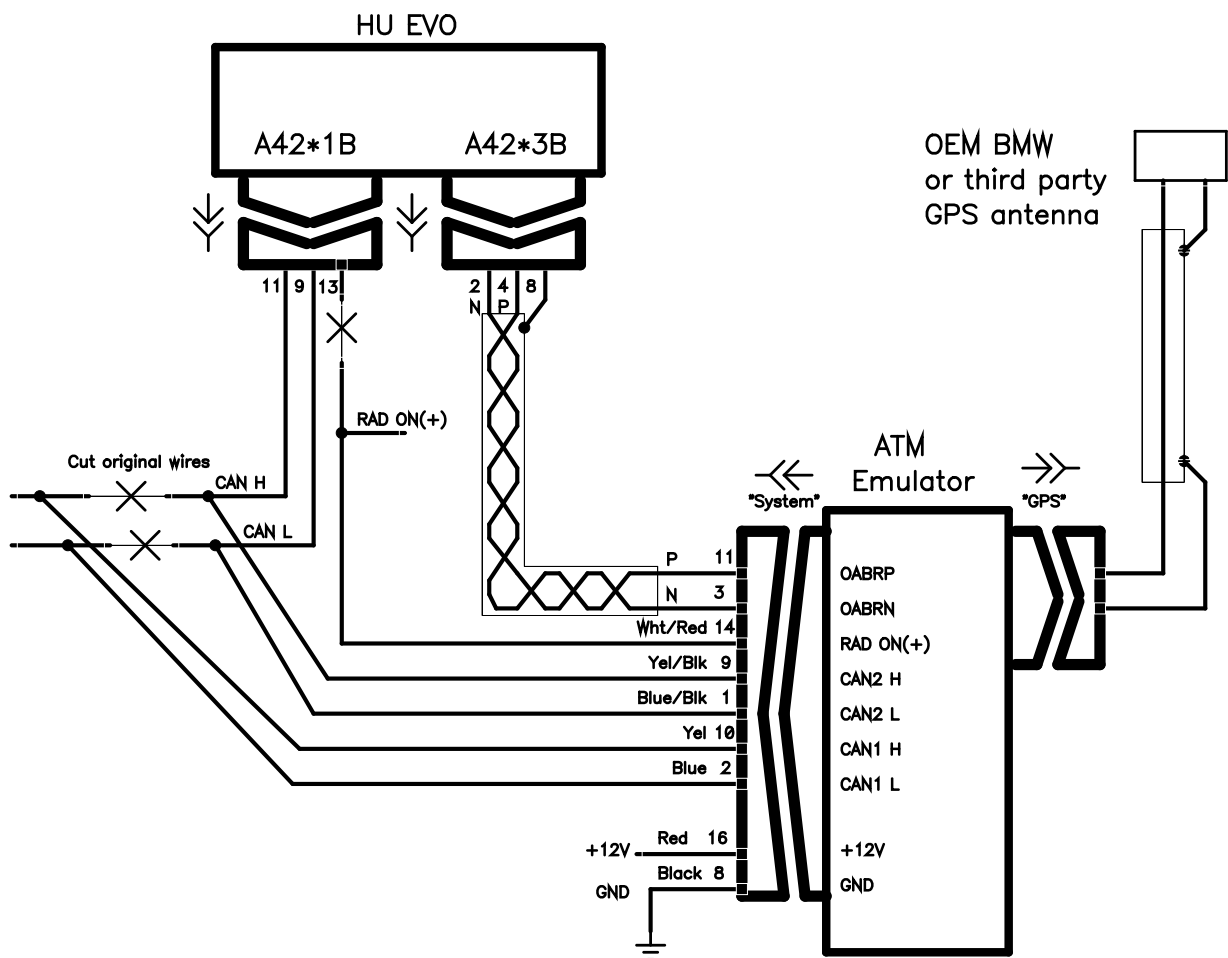


Figure 3. Module connection schematic diagram



Figure 4. Cable appearance

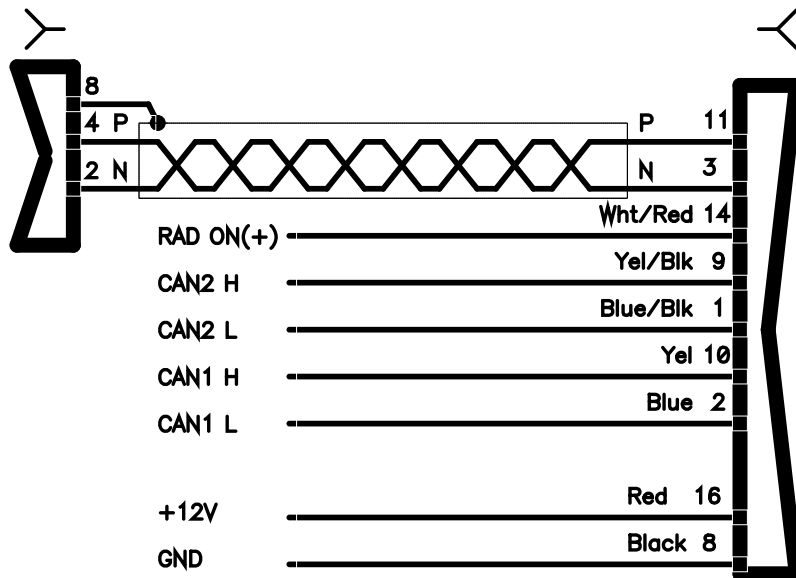


Figure 5. Cable schematic diagram.

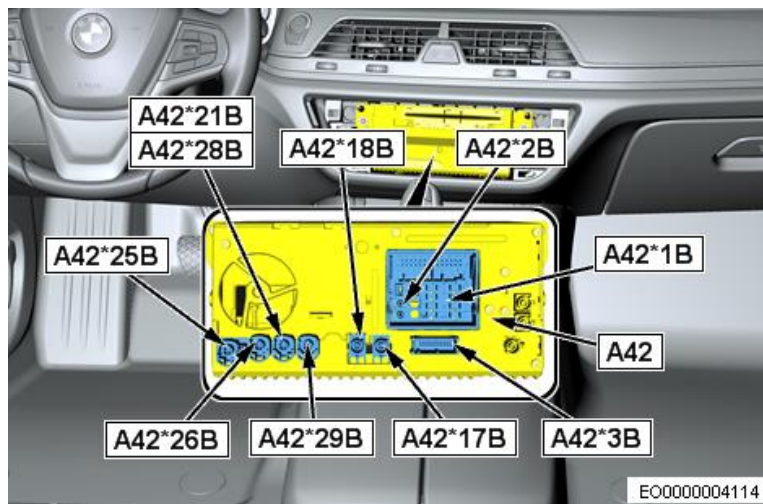


Figure 6. Head unit connectors appearance and locations

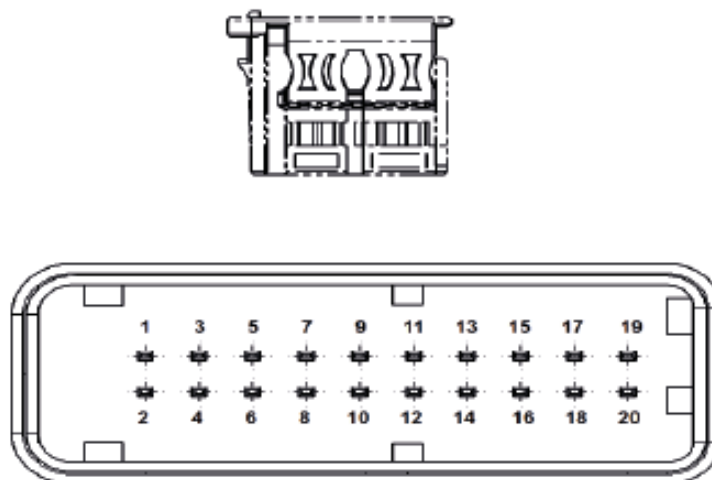


Figure 7. Head unit OABR connector appearance and pins numbering