

User Manual

1. General

The MMI Remote Control (MMI...Multi Media Interface) enables the infotainment systems in Audi vehicles to be remote controlled. The arrangement of the keys and the functionality of the remote control are reproductions of the built-in MMI control panels in the front centre console. It is fitted in a storage dish in the rear of the centre armrest and is foreseen for operation by the passengers in the rear of the car. The controls are a reproduction of the built-in MMI controls in the front centre console. This means that it is also possible to control everything that can be controlled with the built-in controls using the remote control alone.



2. Structure and Function

The remote control is housed in a c. 150mm x 50mm x 30mm individually manufactured plastic casing. The power supply is provided using a 3V Lithium battery (Type CR2). All keys are connected to the controller using a keyboard matrix. Each column in this matrix is also connected to an interrupt input. The switches of the two encoders for the rotary switch are also connected to one interrupt input each.

The μ C is mainly in sleep mode. When a key is touched the μ C is woken up and starts the key request. After the control that has been touched has been recognised, the HF transmitter is switched on and after a short delay of 10ms the code foreseen for this purpose is added to the one on the modulation input of the HF transmitter.

The lighting of the controls is activated at the same time using 8 LED's. The transmitter is a PLL-IC with a reference frequency of 13.5444 MHz.

When the control in question has ceased to be operated the HF transmission ends with the telegram "KeyReleased", and the lighting stays on for another 3seconds. The lighting then switches off and the μ C goes back into sleep mode.

3. Technical Parameters

	Europe / USA
Transmission frequency $[f_h - ((f_h - f_L) / 2)]$	433.42MHz
Tolerance of the total transmission frequency (incl. temperature-related deviations)	$\pm 100\text{ppm}$
Transmission power @ 25°C typ.	<10900 $\mu\text{V/m}$ @3m (ca-17dBm)
Modulation	2FSK
Deviation $[f_h - f_L]$ @25°C	34kHz $\pm 3\text{kHz}$
Coding	Manchester Code
Telegram length	12 Byte
Baud rate	4,500Bit/s $\pm 1.5\%$
Working voltage	2.0V – 3,5V
Total current consumption	<25mA
Current consumption for lighting (part of the above)	Approx. 16mA
Working temperature range	-40°C... +70°C
Storage temperature range	-40°C... +90°C

Statements

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Modifications not expressly approved by this company could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- . Reorient or relocate the receiving antenna.
- . Increase the separation between the equipment and receiver.
- . Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- . Consult the dealer or an experienced radio/TV technician for help.