



# M-TVT2000

DIGITAL TERRESTRIAL TELEVISION



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IYALY

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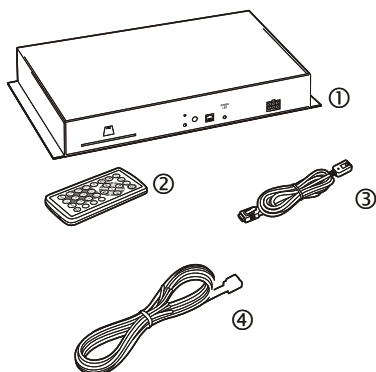
## USER MANUAL

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## EQUIPMENT

Each box contains:

- ① RECEIVER
- ② REMOTE CONTROL
- ③ REMOTE INFRARED SENSOR
- ④ POWER CAR CABLE
- ⑤ USER MANUAL



## Warranty

Dear customer,  
thank you for choosing our product, which has been designed and manufactured to the highest quality standards.

- The product is covered by a warranty, for a period of 24 months, which is testified from a delivery document indicating the date of purchase of the product and the dealer's name.
- The customer is entitled to the rights provided for by Legislative Decree n° 24/2002
- The warranty covers the replacement or the repair operation of all the parts found to have manufacturing defects.
- The warranty does not cover:
  - > failures caused by carelessness or transport.
  - > failures caused by installation not in accordance with the instructions
  - > failures caused by improper, incorrect or not in accordance with the instructions, use of the device
- The manufacturer cannot be held responsible for accidental damages to persons, pets, or things, as a consequence of non-conformity with all the precautions furnished with the instructions manual.
  - > In the event you require service, during the warranty period, you should fill in and show the present certificate, together with a valid receipt issued by the dealer, showing the date of purchase of the product.



## WARRANTY VOUCHER

DEALER'S STAMP AND SIGN

Model .....

Serial number .....

Defect found .....

Date \_\_/\_\_/\_\_

Customer signature  
.....

To return correctly filled in together with the purchase receipt.



## M-TVT200D complies with:

UN-ECE: homologation N° E24 10R-020235

DiGiTVi: specifications D-Book ver.1.0 -  
june 2004 and following updates where  
available

TÜV: the product suits TÜV norms and the  
quality certificate n° 951001196

## CAUTION:

Your receiver is supplied with an operating  
system and resident programs.


Furthermore, while using it, you could have  
downloaded other softwares (for ex. Games).

You should undertake not to use improperly  
any of these types of software or parts of them.

Improper use means: duplication, distribution,  
tampering. In other words, that the only  
allowed usage is the one described in this user  
manual.



## CAUTION

 This symbol means important instructions. Failure to heed them can result in serious injury or death

## DO NOT OPERATE ANY FUNCTION THAT TAKES YOUR ATTENTION AWAY FROM SAFELY DRIVING YOUR VEHICLE

Any function that requires your prolonged attention should only be performed after coming to a complete stop.

Always stop your vehicle in a safe location before performing these functions. Failure to do so may result in an accident

## USE THIS PRODUCT FOR MOBILE 12/24 Vcc APPLICATIONS AND NEGATIVE GROUND

Any misuse that diverts from the designed application may result in fire, electric shock or other injury

## DO NOT DISASSEMBLE OR ALTER THE UNIT

Doing so may result in accidents or injuries

## USE THE CORRECT AMPERE RATING WHEN REPLACING FUSES

Failure to do so may result in fire or electric shock

## HALT USE IF A PROBLEM APPEARS

Failure to do so may cause personal injury or damage to the product

## DO NOT USE OLD BATTERIES

When inserting batteries in the remote control, be sure to observe proper polarity as instructed. Rupture or chemical leakage from the battery may cause malfunctioning, break or injury



## PRECAUTIONS

### TEMPERATURE

Be sure the temperature inside the vehicle is between +45°C and 0°C before turning your unit on.

### FUSE REPLACEMENT

The replacement of the fuses must be of the same amperage. If one fuse blows more than once, carefully check all electrical connections to prevent short circuits. Also have your vehicle's voltage regulator checked.

### MAINTENANCE

If you have problems, do not attempt to repair the unit yourself. Require assistance at the nearest retailer or service station.

### INSTALL LOCATION

Install in dry, safe locations, away from dangers and humidity.

### INSTALLATION PRECAUTIONS

Use only in cars with a 12/24 Vcc negative ground.

Before connecting the device remove the negative terminal from the battery to prevent short circuits. Do not use bolts or nuts related to any safety system (airbag, etc.), to make ground connection.

## CAUTION



WATCHING TV WHILE DRIVING MAY RESULT IN SERIOUS ACCIDENTS, INJURIES OR DEATH!

## SAFETY

### VIDEO OUTPUT

In order to ensure vehicle safety, the driver's side screen must be connected to the front video output connector. This will ensure the driver won't be able to watch Tv while the vehicle is moving, if the handbrake wire is properly connected. The driver will be able to watch Tv once the handbrake is pulled. The rear passenger screens, connected to the rear video output connectors, do not fall under this restriction.

Mobile DVB-T signal reception

Autotracking channels search

MultiCA System (NagraVision, Irdeto, Conax)

Favourite Channels List

Update software in local / On Air

2 audio/video input for DVD/CD

3 video output for three separated monitor

1 audio stereo output

Audio/video digital quality

Easy and fast plug-and-play installation

### DVB-T

Network Interface Module - DVB-T COFDM  
Dual-RF Diversity with Anti-Doppler Enhancement  
DVB / MPEG2 Transport and De-Multiplexing  
ISO/IEC 13818-1 MPEG-2 Transport Stream Compliance  
Nordig II and ETS 300 744 DVB-T Full Compliance  
Full 47~860 MHz Frequency Range for VHF and UHF  
OFDM Demodulation 2K and 8K FFT for SFN and MFN  
Symbol Rates : up to 34 MS/s  
Automatic Adjacent-Channel Interface Cancellation  
Supports QPSK and 16/64QAM Constellations  
Supports 1/4, 1/8, 1/16, 1/32 Guard Interval  
Supports FEC Decoding : 1/2, 2/3, 3/4, 5/6, and 7/8  
Supports Reed-Solomon (204,188) ETS 300 477

### Video Decoding and OSD

ISO/IEC 13818-2 MPEG-2 Video MP@ML Compliance  
ISO/IEC 11172-2 MPEG-1 Video Compliance  
Resolution: 720x576 for PAL  
16:9/4:3, 3:2 Letterbox and Pan/Scan  
65K Colour OSD

### Audio Decoding

ISO/IEC 13818-3 MPEG-2 Audio Compliance  
ISO/IEC 11172-3 MPEG-1 Audio Compliance  
Stereo / MTS

### Front Panel

Smart Card reader  
Power-On / lock LED's  
IR Remote Connector  
Power LED  
Car Power Connector 12/24V

### Rear Panel

Antenna-In : F-type x 2  
Stereo Audio Input (RCA) x 2  
Composite Video Input (RCA) x 2  
Stereo Audio Output (RCA) x 1  
Mono Audio Output (RCA) x 1  
Composite Video Output (RCA) x 3

### Safety and Reliability

Operation temperature : -5 C ~ +55 C  
Storage temperature : -45 C ~ +85 C

### Consumptions

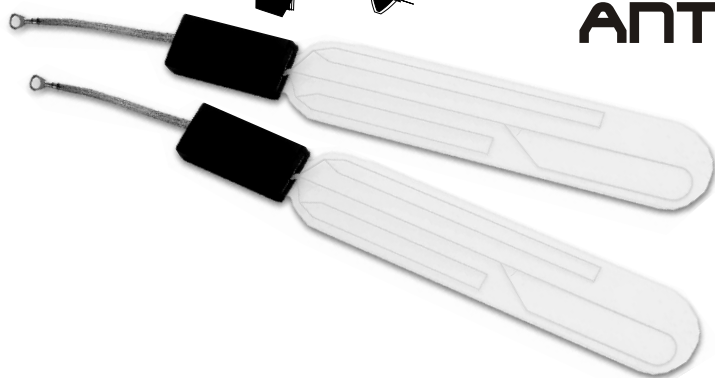
0.94 A in full operation powering two antennas  
0.65 A in stand by  
500 microA when off (car key off)

### Mechanical Specification

Dimensions (WxDxH): 275mm x 140mm x 42mm

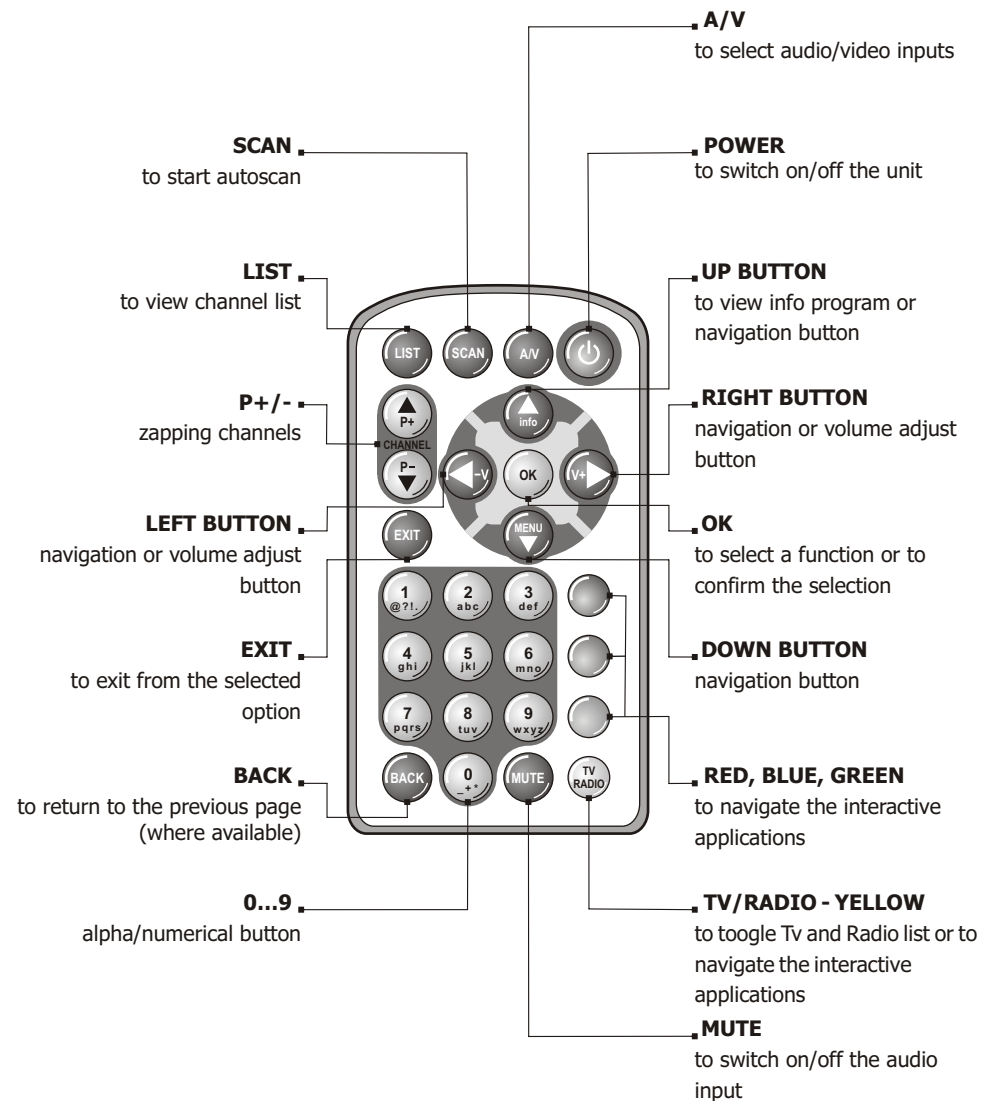


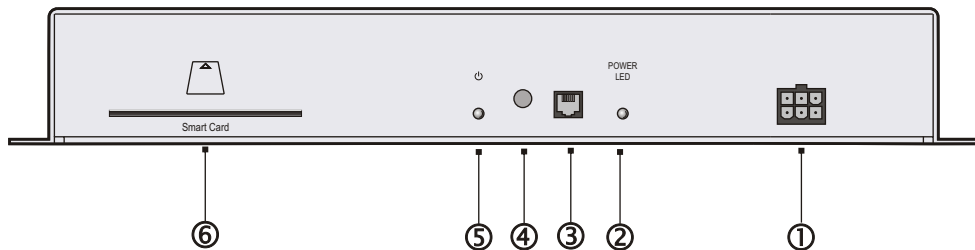
## MACROM ANTENNA



### ❖ TECHNICAL FEATURES

Operation frequencies:	174 - 230 (band III) 470 - 862 (bands IV - V)
Gain:	14 ± 2 dB
Cable type:	coaxial 75 ohm
Cable length:	5 m
Connector:	type F
Power:	12 Vcc
Consumption:	25mA min - 35 mA max
Temperature range :	-40° <> +85° C
Protection class:	IP40
Size (L x B x H):	28 x 2,5 x 1,5 cm





**① 6POLE CONNECTOR - CAR POWER**

Input connector to power and control the unit. For the connection's specifications read page 21

**⑤ STAND-BY LED**

Stand-by led:  
ON= receiver on stand-by  
OFF = receiver switched on

**② POWER LED**

Tension signal led

**⑥ SMART CARD READER SLOT**

Smart card input for pay-tv application

**③ Rj11 CONNECTOR**

Multifunction connector for the remote control sensor

**④ IR SENSOR**

Infrared receiver led of the remote control



## TV ANTENNAS

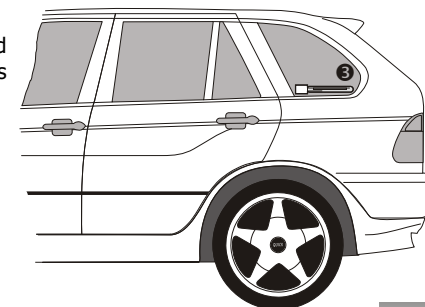
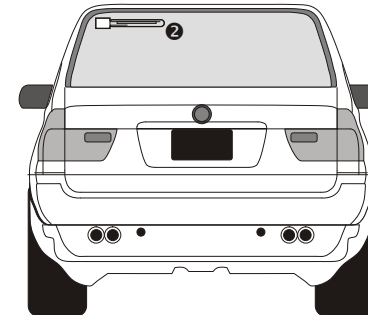
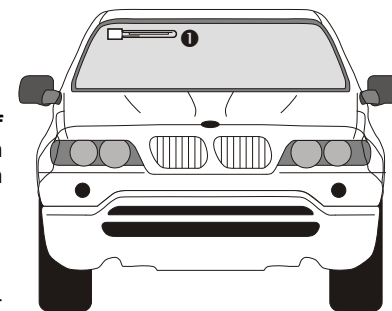
Use only active antennas, amplified with adequate gain, directly powered by the F antenna connector (ANT IN 1 and 2) and suitable to the reception of the Digital Terrestrial signal (DVB-T).

Macrom Antennas, linked together with M-TVT200D receiver, have been manufactured in order to optimize the system's functioning.

**WARNING: do not provide external power in case of use of different brand antennas, not to occur in doing so may result in product damages and in decay of warranty's terms.**

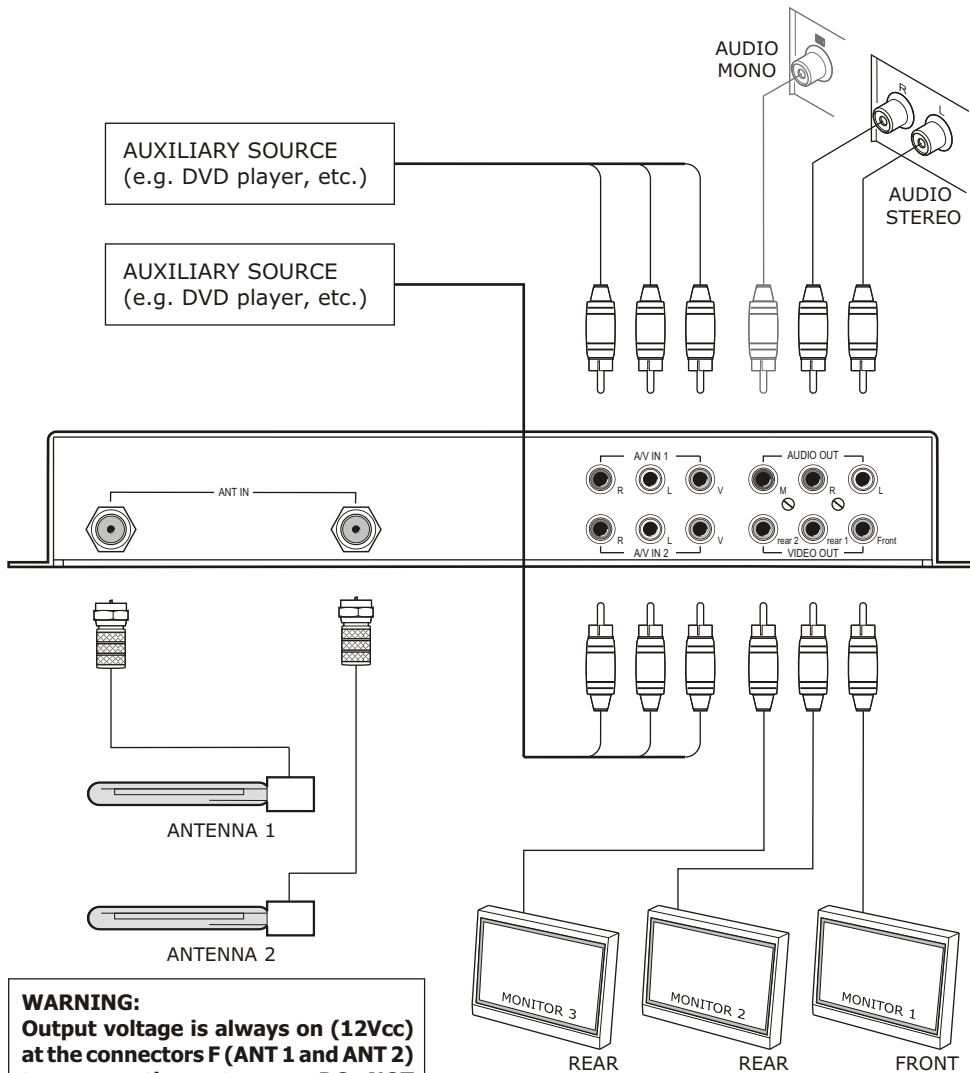
### ❖ INSTALLATION GUIDELINES

- Be sure to position the antennas as far away and opposing from each other as possible. For example, place the first antenna on the right side of the wind screen of the vehicle① and the second one on the left side of the rear window② or on the left rear vent wing③.
- Antennas must be installed as far away from the metal parts (vehicle's roof or vertical borders of the wind screen/rear vent wing) as possible.
- The bonnet or the boot (depending on the vehicle) can influence whether positive or negative - the signal reception. It's recommend to experiment where to place the antennas, whether on the higher or the lower part of the window. The higher part usually guarantees more protection from noises caused by motorcycles and scooters.
- Handle with care the coaxial cable setting in order to avoid damages due to vibration or crushing.
- Be sure that the connections have been correctly set and check the screwing of the connectors. Signal reception's problems are often caused by incorrect assembly.

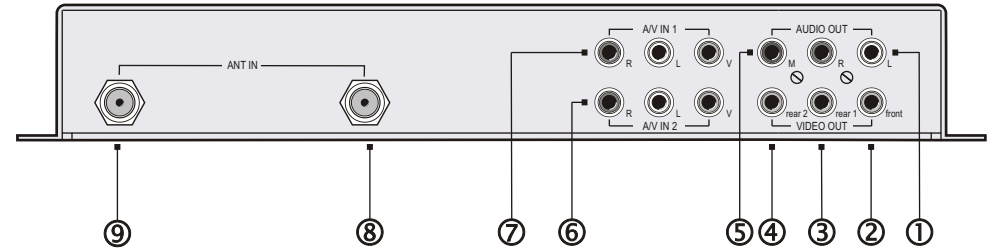




## REAR PANEL



**WARNING:**  
Output voltage is always on (12Vcc) at the connectors F (ANT 1 and ANT 2) to power the antennas. DO NOT POWER THE ANTENNAS WITH DIFFERENT VOLTAGE



- ① **RCA L/R AUDIO OUTPUT - Stereo**
  - ② **RCA VIDEO OUTPUT - Front**  
Video output to connect to the front monitor video input. Warning, signal is output only once the handbrake is pulled
  - ③ **RCA VIDEO OUTPUT - Rear 1**  
Video output to connect to a rear monitor video input. Signal is always available
  - ④ **RCA VIDEO OUTPUT - Rear 2**  
Video output to connect to a rear monitor video input. Signal is always available
  - ⑤ **RCA AUDIO OUTPUT - Mono**
  - ⑥ **AUDIO/VIDEO INPUT - A/V IN 2**  
Audio/Video inputs to connect an auxiliary unit in (for ex. ) This input can be selected by remote control
  - ⑦ **AUDIO/VIDEO INPUT - A/V IN 1**  
Audio/Video inputs to connect an auxiliary unit (for ex. Dvd player, rear camera, etc.) This input can be selected by remote control.
- NOTE: video outputs and inputs according to PAL Standard

- ⑧ **ANTENNA INPUT - ANT IN-1**  
First Tv antenna input
- ⑨ **ANTENNA INPUT - ANT IN-2**  
Second Tv antenna input

**WARNING: Output voltage is always on (12Vcc) at the connectors F (ANT 1 and ANT 2) to power the antennas. DO NOT POWER THE ANTENNAS WITH DIFFERENT VOLTAGE**

**For a correct installation we advise to use the fitting MACROM antennas**



Be sure that every connection has been correctly set, as shown on the diagram at page 21-22.

## ❖ Getting started

Turn the unit on

- POWER LED on the front panel is green, led (⏻) is red: the receiver is on stand-by, press the [⏻] button on the remote control

- POWER LED on the front panel is green, led (⏻) is switched off:

after a few seconds frame ① will be shown on the screen

> press [OK] button to start the channels tuning

It's possible to stop the tuning by pressing EXIT button. Frame ② will be shown on the screen. Press [OK] button to confirm the scan stop or the [EXIT] button to resume it.

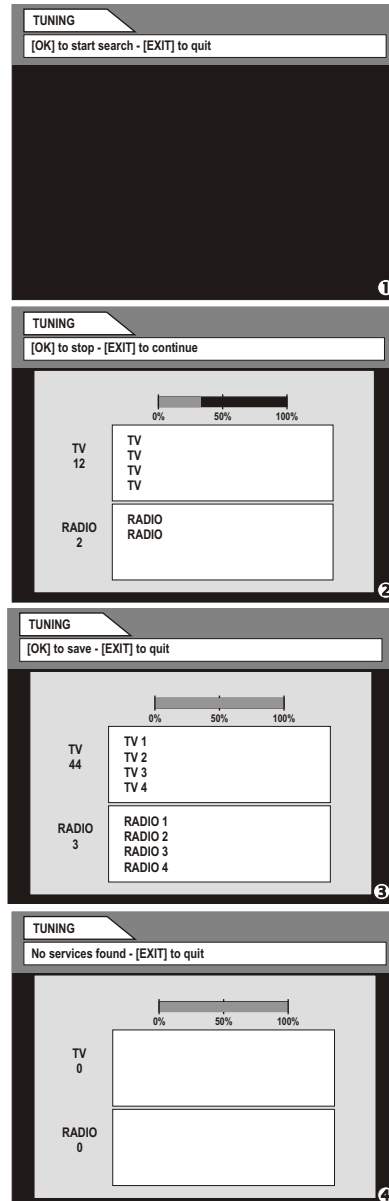
At the end of the tuning frame ③ will be shown on the screen.

> press [OK] button to store the channels in the TV LIST. The first channel in the up-to-date TV LIST will be shown on the screen.

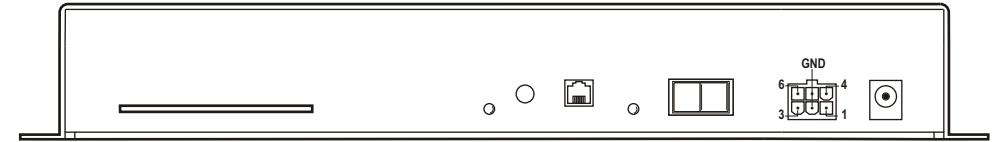
If at the end of the tuning frame ④ is shown on the screen, check the connections and the installation parameters of the receiver, then press in sequence [EXIT], [SCAN] e [OK] buttons to restart the tuning

- The two led on the front panel are both switched off:

Check the connections and begin the getting started operations again.



## FRONT PANEL



### ① KEY(white) - Ignition lead

Connect to an accessory terminal in the fuse block controlled by the car ignition key (+12V=ON)

### ② GROUND(black) - Power lead (-)

Connect to the battery negative pole (car chassis)

### ③ BRAKE (blue) - Parking brake control lead

Connect to parking brake of the car (video output enable)

### ④ +12/24V (red) - Power lead (+)

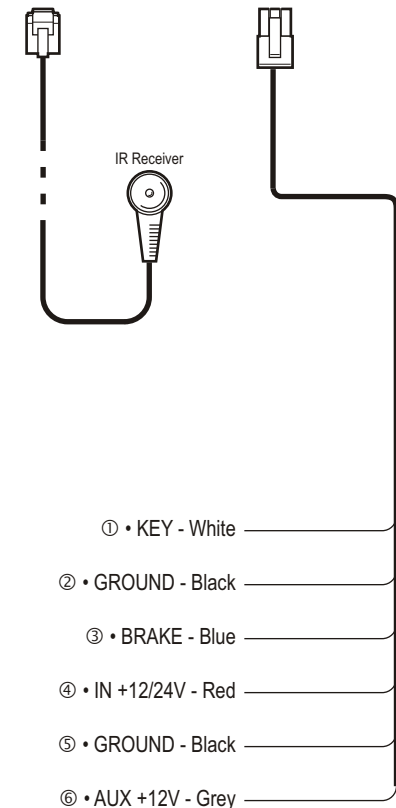
Connect to a live terminal in the fuse block connecting to the car battery

### ⑤ GROUND (black) - Power lead (-)

Connect to the battery negative pole (car chassis)

### ⑥ AUX +12V (grey) - Power output lead for accessory parts

Connect to the device to feed (12V/30 mA max). The device is supplied with power when it is switched on.







## WARNING:



Before installing the device read carefully the following instructions

### HAVE THE INSTALLATION DONE BY QUALIFIED PERSONNEL

The installation and wiring of this unit require special technical skills and experiences. To ensure safety always have the installation done by experts

### USE SPECIFIED ACCESSORY PARTS

Be sure to use only the specified accessory parts. Use of other than designed accessory parts may damage this unit or cause an incorrect functioning of the appliance

### ARRANGE THE WIRING CORRECTLY

Route the electrical and audio/video cables and wiring away from moving parts or sharp or pointed edges. This will prevent crimping and damage to the wiring. If wiring passes through hole in metal, use a rubber grommet to prevent the wires insulation from being cut by the metal edge of the hole

### DO NOT INSTALL IN LOCATIONS WITH HIGH MOISTURE OR DUST

Avoid installing the unit in locations with high incidence of moisture or dust. Moisture or dust that penetrates into this unit may result in product failure

## WARNING

### MAKE THE CORRECT CONNECTIONS

Failure to make the proper connections may result in product damage

### USE ONLY IN CARS WITH A 12 / 24 Vcc NEGATIVE GROUND

Failure to do so may result in fire, electric shock or other injury

### BEFORE WIRING DISCONNECT THE CABLE FROM THE NEGATIVE (-) BATTERY TERMINALS

Failure to do so may result in electric shock or injury due to electrical shorts

### DO NOT SPLICE INTO ELECTRICAL CABLES

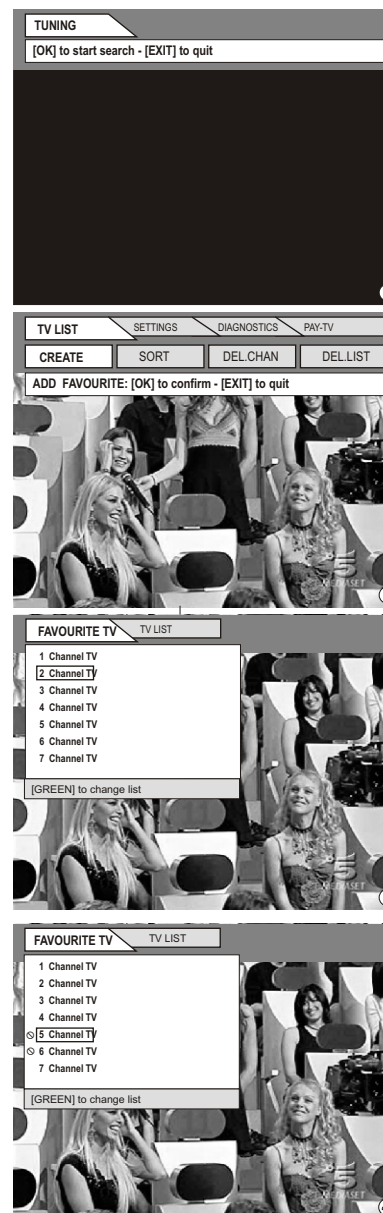
Never cut away cable insulation to supply power to other equipment. Doing so will exceed the current carrying capacity of the wire and result in fire or electric shock

### DO NOT USE BOLTS OR NUTS IN THE BRAKE OR STEERING SYSTEM TO MAKE GROUND CONNECTIONS

Bolts or nuts used for the brake or steering systems (or any other safety-related system), or tanks should NEVER be used for installations or ground connections

### DO NOT INSTALL IN LOCATIONS WHICH MIGHT HINDER VEHICLE OPERATION, SUCH AS THE STEERING WHEEL OR GEARSHIFT

Doing so may obstruct forward vision or hamper movement etc., and result in serious accident



## ❖ Autotracking and Autosearch

These innovative functions make the receiver's daily use easier.

They have the purpose to select a channel by the remote control and to show it without starting a tuning manual searching, in case of frequencies changing during the transmissions.

To optimize Autotracking and Autosearch functions it's necessary to follow carefully the instructions:

1. **Start an autoscan** to tune the available channels in that specific area by pressing [SCAN] button ①
2. **Create a FAVOURITE TV LIST** to organize in sequence your own favourite channels ②
3. **Select the FAVOURITE TV LIST as default** ③

If autosearch does not allow to tune all the favourite channels, start again the operations described at the point 1 and 2 in an other geographic area.

**WARNING:** channels marked with this symbol ④ are temporarily not available upon network coverage ④.



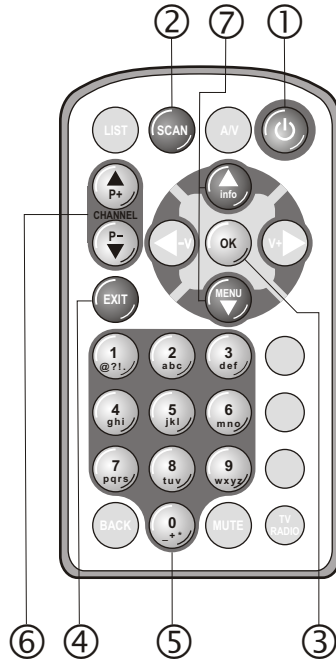
## ❖ How to switch the receiver on

Use the [⏻] button on the remote control ① to turn the receiver on/off

## ❖ How to select a channel

A Tv or Radio channel can be selected by three different modes:

- **DIRECT:** select the desired channel by using the numerical buttons ②
- **ZAPPING:** select the desired channel by using the up/down buttons [▲] ④ e [▼] ⑤ and press [OK] ③ to confirm the selection.  
INFORMATION BAR will be previewed on the screen ⑥ before the channel tuning.
- **DIRECT ZAPPING:** press [P+] [P-] ⑥ to browse directly through the channels without using the [OK] ③ button.



## ❖ Audio/Video Switching

Suppose to connect a device (e.g. Videogame console) to A/V IN1 input, and a second one (DVD player) to A/V IN2 input. The decoder can be set in three different modes that lead to the following configurations:

- **M-TVT200D on TV**  
FRONT and REAR monitors display Tv signal ①
- **M-TVT200D on AV 1** (press [A/V] button)  
FRONT and REAR monitors display the signal coming from the device (e.g. a Videogame console) connected to A/V IN 1 ②
- **M-TVT200D on AV 2** (press [A/V] button)  
FRONT and REAR monitors display the signal coming from the device (e.g. a DVD player) connected to A/V IN 2 ③
- **M-TVT200D on Stand-by**  
FRONT monitor displays the signal coming from the device connected to A/V IN 2 ④



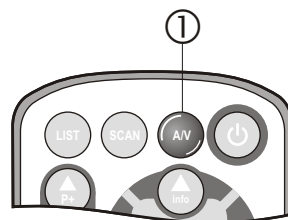
### IN GENERAL, depending on the decoder mode set, we can see that:

- Once the vehicle is stopped and the handbrake is pulled, FRONT monitor can display the signal coming from TV or from the device connected to AV IN 2 input
- REAR monitors can display the signal coming from TV or from the device connected to AV IN 1 input also while the vehicle is moving.



## ❖ Audio/Video inputs

The receiver enables the user to connect two auxiliary devices (e.g. Videogame console, Dvd player, etc..) to the audio/video input (A/V IN 1 and IN 2) and to select them by the remote control



## ❖ How to select audio/video inputs:

Switch the receiver on the Tv signal and proceed as follow to select the desired input:

- Press [A/V]①

Frame 2② will be shown on the screen and, after a few seconds, the receiver displays the signal from A/V IN1 input [AV 1]

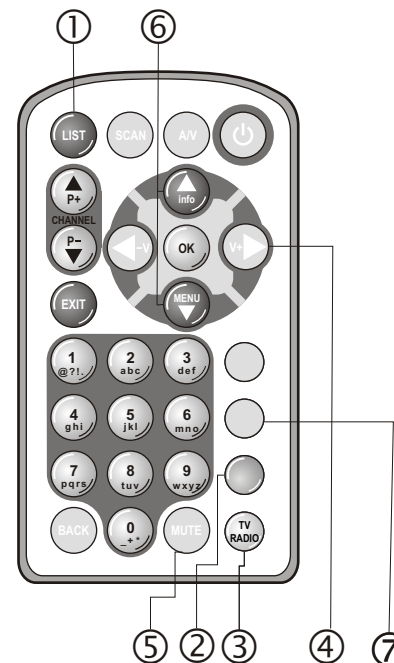
- Press [A/V]① again

Frame 3③ will be shown on the screen and, after a few seconds, the receiver displays the signal from A/V IN2 input [AV 2]

- Press [A/V]① again

Frame 4④ will be shown on the screen and, after a few seconds, the receiver displays TV signal [TV]

**WARNING: FRONT monitor displays the signal only once the handbrake is pulled**



## ❖ How to select a channel in a TV/Radio List

- Press [LIST]① to show the Tv List
  - > press [GREEN]② to toggle the general TV LIST or the FAVOURITE TV LIST if previously preset [see MENU]
- Press [TV/RADIO]③ (yellow) to show the RADIO LIST
  - > press the same button to toggle between the Radio List or the previously selected TV LIST
- Select the desired channel

**WARNING: channels marked with this symbolⓄare temporarily not available upon network coverage Ⓞ**

## ❖ How to adjust the volume level

- The volume level can be adjusted by using the [VOL+] [VOL-] buttons

## ❖ Mute

- Press [MUTE] button to switch on/off the audio output

## ❖ How to view program info

- Press [info]⑥ to view the short information about the selected program
- Press [BLUE]⑦ to get detailed informations.

## ❖ How to select the audio language

To select the desired language in case of multilanguage programs follow the instructions:

- Press [info]⑥ + [GREEN]② and select the desired language by using the up/down[▲] [▼]⑥ buttons





## ❖ MENU

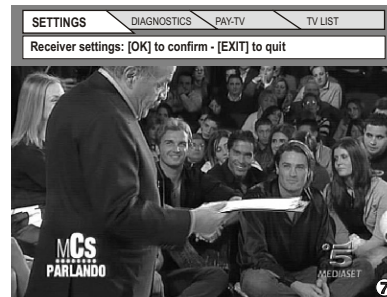
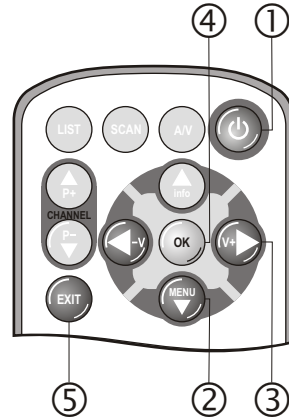
The main MENU ⑦ is used to set user's preferences

### Sub-menus:

- SETTINGS
- TV LIST
- PAY-TV
- DIAGNOSTICS

## ❖ How to show the Menu

- Press [MENU] ⑦ on the remote control



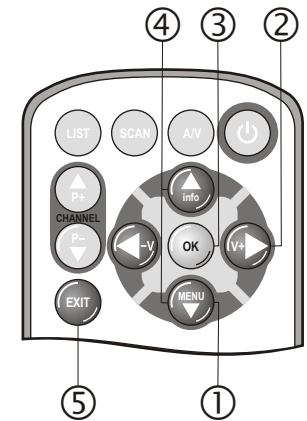
## ❖ DIAGNOSTICS

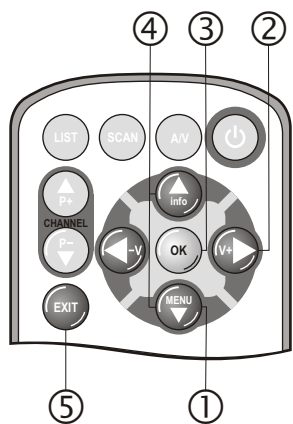
Receiver has two different diagnostics features:

- SIGNAL LEVEL
- RECEIVER DATA

### • How to view the DIAGNOSTICS:

- press [MENU] ①;
- select DIAGNOSTICS by using the right/left [◀] [▶] ② buttons
- press [OK] ③ to confirm the selection or [EXIT] ⑤ to cancel it.





## ❖ PAY-TV

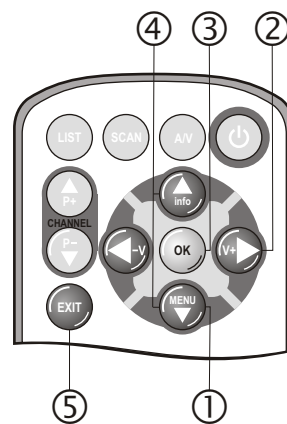
A Smart Card - inserted into the Set Top Box - enables the user to watch two kinds of conditioned access contents:

- the user can access all the services against payment of a pay-tv subscription (standard pay-tv)
- the user purchases a single event (to watch whenever he wants or, in special cases, only once). The purchase price is deducted from the current credit.

If the tv program is not for free, all the informations about prices and payment will be shown on the screen

### ♦ How to access pay-tv services:

- press [MENU]①
- select PAY-TV and press [OK]③ to confirm
- select the specific conditioned access by using the up/down [▲][▼]④ buttons
- press [OK]③ to confirm or [EXIT]⑤ to cancel the selection



## ❖ SETTINGS

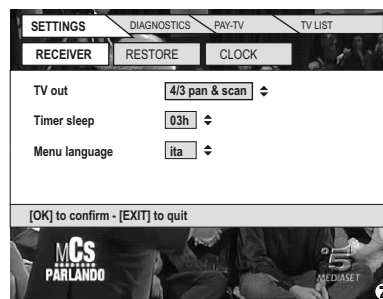
This sub-menu shows the data related to:

- RECEIVER
- RESTORE
- CLOCK

WARNING: Do not accidentally change the parameters in order to avoid the malfunctioning of the device. Default settings are normally correct for standard installation. They can be restored through the RESTORE function

### ❖ How to navigate the Settings Menu

- press [MENU]② to view the main menu on the screen
- select SETTINGS by using the right/left [◀][▶]③ buttons.
- press OK to enter this sub-menu and then press it again till you get the required item
- select the desired function first by using the right and left buttons [◀][▶]③ and then the up/down [▲][▼]④ buttons
- press [OK]④ to confirm the selection and to move to the next function or [EXIT]⑤ to cancel the selection





## ◆ RECEIVER<sup>⑥</sup>

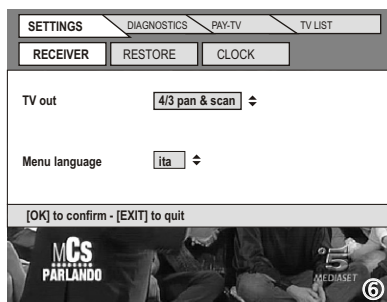
### • TV OUT

Set tv out mode according your screen type<sup>⑦</sup>:

- > 4:3 pan&scan
- > 4:3 letter box
- > 16:9

### • MENU LANGUAGE

To select the menu language



## ◆ RESTORE<sup>⑦</sup>

This function enables the user to reset the input data among these data categories:

### • RECEIVER DATA

To reset settings, system and installation parameters

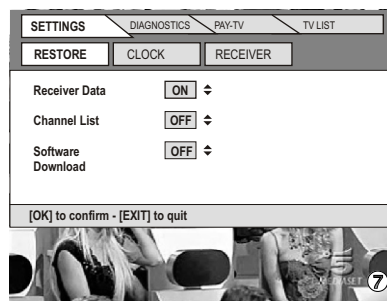
### • CHANNELS LIST

To delete all the channels lists

### • SOFTWARE UPDATE

To update the receiver software

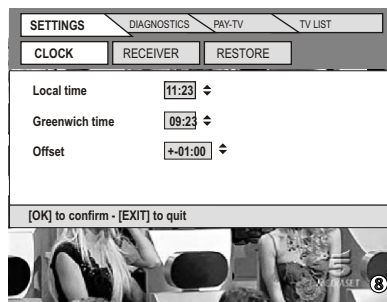
WARNING: This process must be carried out by experts



It's possible to make a complete data's restore by selecting all the items

## ◆ CLOCK<sup>⑧</sup>

The receiver's clock will be automatically updated through the tv signal. It's possible, if desired, to change the time zone, set at GMT+1 by default

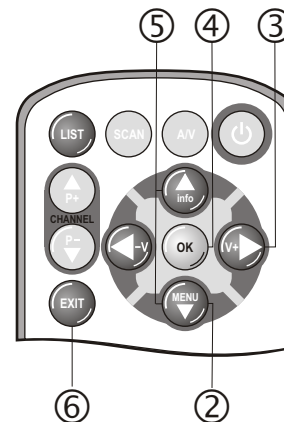


## ❖ How to manage the Favourite Tv List

It's possible to create a personal favourite Tv List. TV LIST and RADIO LIST, include all the tuned channels, so they are not allowed to be personalized

### 1. How to create the Favourite Tv List:

- press [MENU]<sup>②</sup>
- select TV LIST and press [OK]<sup>④</sup> to confirm
- select CREATE and press [OK]<sup>④</sup> to confirm
- browse the list sequentially by using the up/down buttons [▲][▼]<sup>⑤</sup>, or in groups of six channels by using right and left buttons [◀][▶]<sup>③</sup> and select the channel
- press [OK]<sup>④</sup> to confirm the selection. A tick signal ✓ will be shown next to the selected channel<sup>⑦</sup>
- If you want to cancel the selection press [OK]<sup>④</sup> again and the tick mark ✓ will be deleted



### 2. How to delete a channel from the Favourite Tv List:

Follow the same procedure as shown at the point 1 and replace CREATE with DEL.CHAN.

### 3. How to sort the Favourite Tv List:

- press [MENU]<sup>②</sup>
- select TV LIST and press [OK]<sup>④</sup> to confirm
- select SORT LIST and press [OK]<sup>④</sup> to confirm
- browse the list sequentially by using the up/down buttons [▲][▼]<sup>⑤</sup> or in groups of six channels by using the right/left buttons [◀][▶]<sup>③</sup> and select the channel you want to move
- browse the list in the same way and click on the position where you want to move the selected channel. A tick mark ◀ will be shown next to the selected channel
- press [OK]<sup>④</sup> to confirm the new position of the channel<sup>⑧</sup>

