RADIO NAVIGATOR WITH MAPS

The radio navigator module, located in the middle of the dashboard, includes:
- radio module with dual aerial and dual tuner;
- Audio CD and CD MP3 player;
- SD card reader;
- GPS module;
- independent navigation module with maps;
- "flap display" TFT 6.9”, motor-driven, on the top middle part of the dashboard;
- interface with the controls on the steering wheel.

The RADIONAV system described below comes in two versions:
- **matched with the "basic" radio**: there is no telephone management: the navigation functions are managed by the RADIONAV and shown by maps on the display.
- **combined with the "Blue&Me"**: in this case the RADIONAV manages navigation and Blue&Me manages the Media Player and Bluetooth mobile functions.

Example of main MENU screen:

Audio module

General specifications:
- 5 predefined band graphic equalizer;
- easily operated menu for adjusting radio settings or any outside interfaces (Media Player);
- remote control from the steering wheel;
- speed-dependent volume control.

Radio tuner specifications:
- RDS
- RDS - TMC (Traffic Message Channel)
- EON (Enhanced Other Network)
- TA (Traffic Announcements)

Tuning of the following bands: USW (87.5-108 MHz) (FM); MW (153-279 kHz) (AM); LW (531-1602 kHz) (AM);
Possibility of storing:
- 18 FM stations (6 of which can be memorised through autostore);
- 12 FM stations (6 of which can be memorised through autostore);

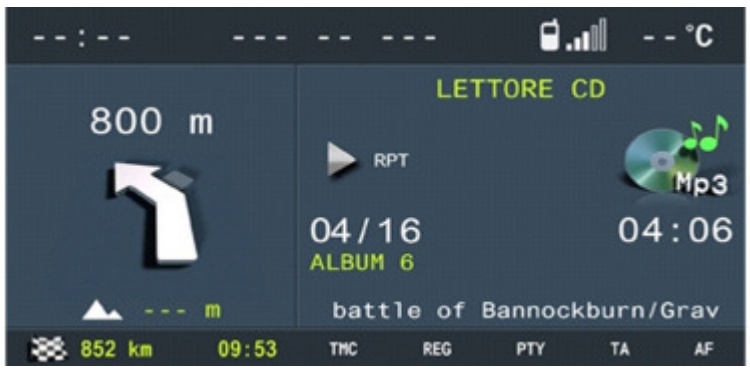
2 scan modes (brief playback of one station and automatic scan to the next):
- scan on the frequency band used and stations memorised.
- possibility of selecting programmes via PTY (on FM bands only).

- predefined sensitivity such as distant.
- List function which shows the list of all radio stations available
Example of screen with radio activated:

AUDIO SPECIFICATIONS:
- bass / treble
- fader / balance
- loudness
- hi-fi system active control
- 5 predefined equalizer curves:
- predefined (manufacturer's equalizing);
- rock/jazz/classical/vocal
- soft mute

Cd rom reader

The radio navigators are equipped with a CD ROM reader capable of reading and managing:
- normal commercial audio CDs
- CDs with files in MP3 format.
Example of screen with CD Mp3 activated:



Audio CD specifications:
- motorized loading and ejection;
- TPM function (Track Program Memory);
- shuffle function;
- repeat;
- skip;
- pause / stop;
- CD naming: CD identification (20 max).
CD MP3 specifications :
- scan;
- repeat (one track or all);
- pause;
- skip;
- maximum number of MP3 tracks considered for each file 255 (if the number of MP3 files in a folder is more than this limit only the first 255 will be considered);
- list function which allows a list of all available tracks to be displayed.

Navigation module

Sd card reader

The radio navigator is equipped with an SD card reader that can read and manage SD cards using SPI technology containing the navigation maps.
There is a dedicated menu for the management of SD cards accessible from the configuration menu as "SD CARD MANAGEMENT".
The system recognises a new map SD-Card and allows initial use for a distance of approximately 1000 km.
An activation code is needed for unlimited map SD-Card access, as indicated below:

Sd-card activation procedure

INTRODUCTION
Unless it has already been activated for map management, the navigation system uses the SD-Card map for the first 1000 km run by the car.
HOW TO ENABLE AN SD-CARD
An activation code is needed for unlimited map SD-Card access in your system.
The activation code can be requested by phone or on-line, connecting to the Web site.
DATA REQUIRED TO RECEIVE THE ACTIVATION CODE
To receive the activation code, you need to know the following information:

1. **Device Code** (it can be obtained as follows):
A. Press the MENU button to enter the navigation system menu.
B. Turn the right knob, select "CONFIGURATIONS" and press the knob to confirm.
C. In the menu, select the "SD CARD - MEDIA AND MAPS" option.
D. In the menu, select the option "SYSTEM CODE FOR MAP ACTIVATION" and press the knob to confirm: an 11 alphanumeric digit code is displayed.
E. Note down the serial number required to get the activation code.
2. **Map serial number** (shown on the SD-Card package cover and visible under the protection plastic).
3. **Area covered by the map.**
4. **Personal data** Name, Surname, Date of Birth, Address and any e-mail address.
The e-mail address is recommended, even if not compulsory, to send the confirmation of the activation code and for further activations.

HOW TO GET THE ACTIVATION CODE BY PHONE

To get the activation code, contact NAVTEQ Customer Service from Monday to Friday, 09:00 a.m. to 06:00 p.m, using one of the toll free numbers below, then give your data as above stated.
Toll free numbers:
- 800 781 145 (from Italy only)
- 00800 18 23 53 22 (from all over Europe)
Direct number (in case there is no toll free number): 0031 555 384 245
The NAVTEQ Call Center shall give you the activation code, formed by 16 alphanumeric digits, that must be entered in the car navigation system. The activation code shall also be sent by e-mail to the address given during the activation process.

HOW TO GET THE ACTIVATION CODE ON-LINE (INTERNET)

- Connect to the web site **http://alfaromeo.navigation.com**
- If you are already registered, select "Sign In" in the right top corner and enter user name and password. To register, refer to the paragraph "How to register" at the end of the Service News. At the end of the registration, the account page opens automatically.
- Under "Activate Service" select "Generate Unlock Key", then, depending if the navigator is already registered or is a new one, follow the instructions below.

CASE A: the map must be activated on a device which is already registered

- Click on the button "Add New Service".
- Enter the map serial number.
- Select a map coverage area from the drop-down box and click on "Unlock Map Product".

CASE B: the map must be activated on a new device

- Enter the code of the device.
- Enter one name for the device and click on "Add New Device".
- Three options will be displayed:
- Edit Device Details – to edit the device name.
- Add a New Service – to activate a map.
- Add a New Device – to add another navigation system.
- The page with the list of devices opens; under the device, you find the activated service and the activation code. The activation code will also be sent by e-mail to the address given during the registration process.

ENTERING THE ACTIVATION CODE IN THE NAVIGATION SYSTEM

To enter the activation code in the navigation system, proceed as follows:

- Correctly place the SD-Card in the navigator.
- Press the MENU button to enter the navigation system menu.
- Turn the right knob, select "CONFIGURATIONS" and press the knob to confirm
- In the menu, select the "SD CARD – MEDIA AND MAPS" option.
- In the menu, select the option "MAP LICENSE ACTIVATION" and enter the activation code.

To check the map activation, go back to the "SD CARD - MEDIA AND MAPS" menu and select the option "MAP LICENSE STATUS". If it is activated, the following is displayed:
Status: activated
Km limit: unlimited

- Each map can only be used by the equipment which has been registered; therefore if you try and insert the SD card in another piece of equipment, the software will not be accepted.
- The SD-Card with the maps must be used on the navigation system as it is and should not be used in other devices.
- No further data can be added to the SD-Card (e.g. music tracks, pictures, other maps, etc...), or the system functions may be affected
- Up to 10 nations/versions can be activated. By entering the eleventh activation code, the less recently used map is automatically removed.
- A map on SD-Card can acquire an activation code for only one system.
- If you buy the map of another nation, you need to activate it as described previously.

HOW TO REGISTER

To get the activation code on-line you need to register, creating an account.

1. Click on "Register" in top right corner; a screen for entering personal details, such as name, address and e-mail address for future activations is displayed.

Please note that the e-mail address is not compulsory, but is should be given to receive activation codes by e-mail. - The fields marked by an asterisk "*" are compulsory.

2. You need to give / create a user name. Write an easy-to-remember name, because you need to use it later on for each activation of a map. Once registered, the user name cannot be changed. The user name must:

- contain at least six (6) characters.
- contain only alphanumeric characters, excluding special characters or symbols.
- e-mail addresses cannot be used as user name.

3. You need to give / create a password. The password can be changed after the registration. The password must:

- contain at least six (6) characters and do not exceed twenty (20) characters.
- it must include at least one small letter and one number.
- the password cannot correspond to the user name.

4. Select one of the three security questions and give a security answer. If you forget the password, you will be asked to reply to this question. The reply to the security question is case sensitive; please write the reply all caps or all small letters.
5. After entering the required information, click on "Register Now" in the bottom right corner.

System operation

The possible states of the radio navigator from the point of view of power supply and operation in general are:
- off status (OFF)
- normal status
- stand-by status.

Operation also depends on the “system configuration”.
The system configuration remembers what functions the user has selected as activated (what is meant by function is: tuner, CD, Media Player, etc.).
- OFF status: all the radio navigator functions are disabled and the various hardware modules are not supplied.
- Normal status: in the normal status the radio navigator is fully activated and all the system functions are managed in accordance with the system configuration. The internal modules are operational, as are the internal communication lines.

The system configuration is stored when this status is left. It is then restored when the normal status is resumed.
- Stand-by status: in this status the radio navigator is activated but appears to the user as if it is in the off status; in any case the only internal module that can work fully is network communication.

Turning the system on:
The user can switch the system on (change from off to normal) by pressing the ON/OFF button in the front panel, or the button next to the display, irrespective of the key status.
If the key is operated (+ key activated at the first key position) with the system OFF, the radio navigator continues with the anti-theft procedure (exchange of codes with the Body Computer node) to then reach normal status (obviously the typical functions will be available if and only if the authentication has been successful otherwise it will go to stand-by).
The display follows the activation status and opens automatically.
Off:
the user can turn the system off in various ways which depend on the actual system status.
Normal status:
If the key is removed and there is neither a phonecall or a Service call in progress, the system switches off (in other words moves to the off status) (obviously the system configuration and backup data are saved first).If a phonecall with the mobile phone connected to the Blue&Me or a Service Call with the telephone incorporated in the Blue&Me is in progress, there will be a time out (20 mins operation without the key and without any intervention by the user on the buttons on the front panel or the steering) before the radio navigator switches off once the call is over.
If the system is in the normal status with the key off, it may switch off for the following reasons:
- automatically when the above mentioned time out has elapsed.
- through the intervention of the user pressing the on/off button.

When the system is switched off, the display closes automatically.
Stand-by status:
Switching off (move to off status) takes place when there is no key signal (+ key not activated).
Go to stand-by (apparent shutdown):
It is possible to move from normal status to stand-by status (an operation which seems like switching off to the user but, in reality, leaves the radio navigator activated and only prevents usage) when the user presses the ON/OFF button but the key is activated.
It is possible to return from this status to normal by pressing the ON/OFF button.

Anti-theft function

The radio navigator remains automatically locked if there is no connection to the CAN: in this case it is necessary to enter the master code manually to allow authentication with the body computer and consequently operation.
Also see description for PROXI function
See descriptions 5505 INSTRUMENT/GAUGE ELECTRICAL CIRCUITS

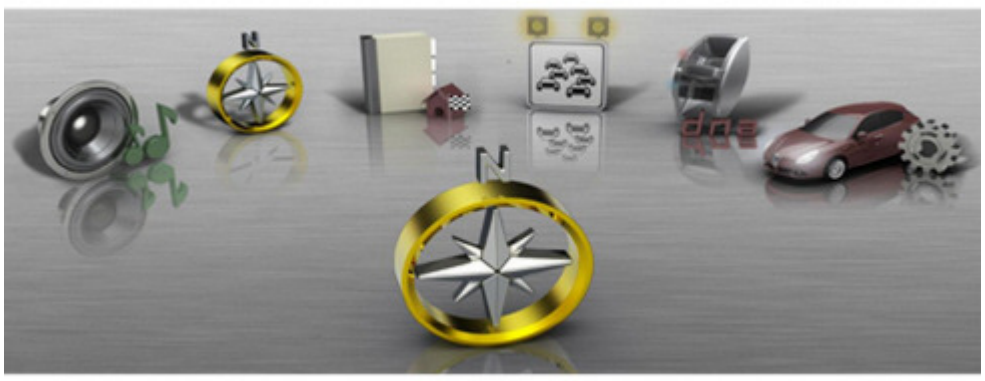
Languages available

The languages available both for the written messages (menu) and vocal navigation messages are:
- Italian
- French
- English
- German
- Spanish
- Dutch
- European Portuguese

- Polish.

Navigation

The radio navigator makes location of the vehicle and route guidance possible.



Location takes place via:
- GPS satellite location;
- Dead reckoning;
- Map matching.

GPS location: this refers to location through the reception of GPS signals; at least three satellites should be received via the dedicated aerial mounted on the vehicle roof. GPS location gives precision of less than 20 metres (in normal operating conditions).
Dead reckoning; this refers to location carried out by integrating the following signals: vehicle direction, speed and direction of travel (supplied by dedicated on board sensors). This is designed to guarantee the position if there are no GPS signals (tunnels, covered areas, etc.).
Map matching: this refers to the comparison of the route taken by the vehicle and the territory map conditions. In this way the effective vehicle position data is refined by connecting it to road maps.
The navigation module receives the location data and direction progress and variation information from the vehicle sensors.
This data is accumulated and processed by a dedicated algorithm which, also taking into consideration the current position obtained from the GPS satellites, allows the calculation of an estimated point (location of the vehicle).

Route guidance

The navigation module is capable of carry out all information extraction, management and processing activities for guiding the driver to the destination they have set.
This chiefly involves:
- route calculation;
- calculating the route between the current position and the destination;
- recalculating the route in case of deviation from the current route;
- calculating an alternative route;
- identifying a service centre along the route;
- calculating the distance to the destination;
- identifying junctions along the route;
- identifying manoeuvres at junctions along the route (and graphic and voice instructions for the user);
- calculating the distance to the next junction where the user has to make a turn;
- junction zoom.

Acquiring RDS-TMC traffic information from the radio module (the navigator module receives traffic information from the radio module via RDS-TMC messages in geographical areas where they are available). In any case, the information referred to is only textual.

Map display

If the navigator function is active, the user can choose to have a map of the territory with the following features shown on the display:
- possible scales: from 1:10.000 to 1:20.000.000;
- possibility of north up or heading up depending on the map scale set;
- representation of certain areas (parks, expanses of water, etc.);
- names of towns;
- POI symbols (categories: restaurants, hotels, service stations, car parks);
- BIRD VIEW function (bird's eye view of maps).

Method of entering destination and calculation criteria

Address of destination: consists of providing the system with the following place details: Locality, Road and Number.
Junction (2nd way); allows the point to be defined as the junction between 2 roads. the first is defined as in the previous case (district, toponym), the second road is selected from a list of roads that cross the first one in the same district.
Points of interest (POI) : this consists of typing in the following sequence of information in order to select somewhere (depending on some information being obtained).The P.O.I. can be selected on the basis of:
- Name
- Proximity to current position
- Proximity to destination
- Proximity to general address.

Example of screen for entering address:

The system calculates the optimum route for reaching the place or places set and a route with one of the following priorities can be set:
- quickest
- shortest
- best distance/time ratio
- motorway yes/no
- ferries yes/no
- RDS TMC yes/no.

Possible information from radio navigator during navigation

Example of screen for NAV application during navigation:

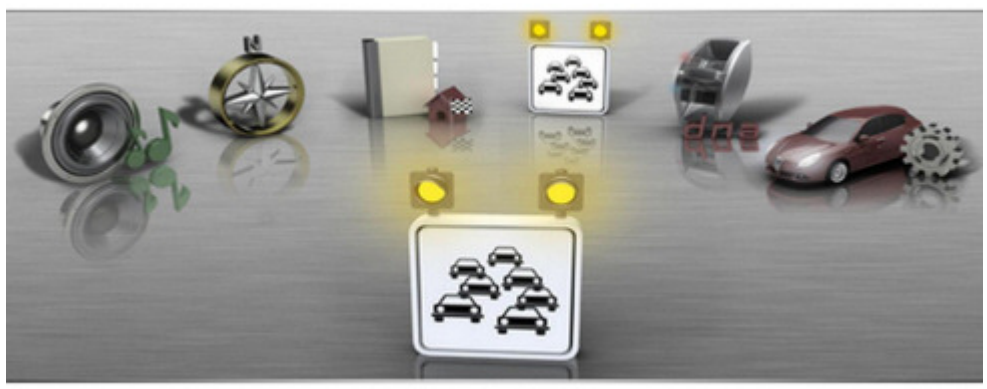
Car location information:
- name of road and area;
- the name of the road and the district appear constantly in the navigation window.
Traffic information: starting with the RDS-TMC information described previously, the user is supplied with the following traffic information:
- symbol on map: the system can be configured to display the symbols on the map corresponding to traffic situations in progress; only some types of situations are displayed;
- explanatory test: an explanatory text with each event. The list of types of events is accessed from the menu and choosing the type gives access to the list of all corresponding events.
Route guidance: voice messages; they are part of the general set of radio navigator voice messages, prerecorded in a female voice. Predefined pictograms give summary information of the next type of manoeuvre.
Junction zoom function: the system can be configured to show the junction, just before a manoeuvre, greatly enlarged with explicit instructions on the route to take.
Atlas function: this function makes it possible to use digital maps like a normal road map.

Destination organizer

The location can be memorised in a personal destination organizer in order to easily recalled later on.
The system allows a descriptive name for the location.
The destination organizer function is accessible from the main menu:

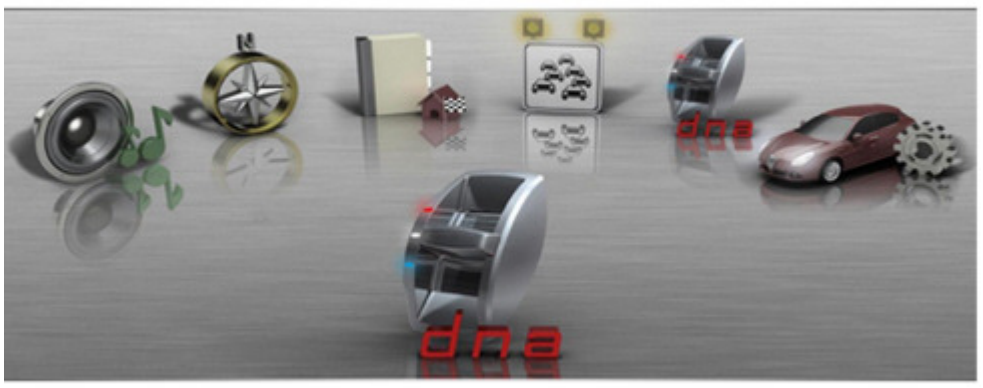
Traffic info

Some stations on the FM band can transmit information about traffic conditions. The information is shown on the display and, if set by the user, is used to calculate the route. If the station selected does not broadcast traffic information, the display will show a warning message and suggest the option of moving to the automatic TMC station selection mode.
The navigation system is compatible with the TMC Premium service which is only available in certain countries (Italy, France, Germany and the UK) and provides more precise information on traffic conditions with greater coverage of the area.
In some countries there are radio stations that do not broadcast traffic information even with the TMC function activated.

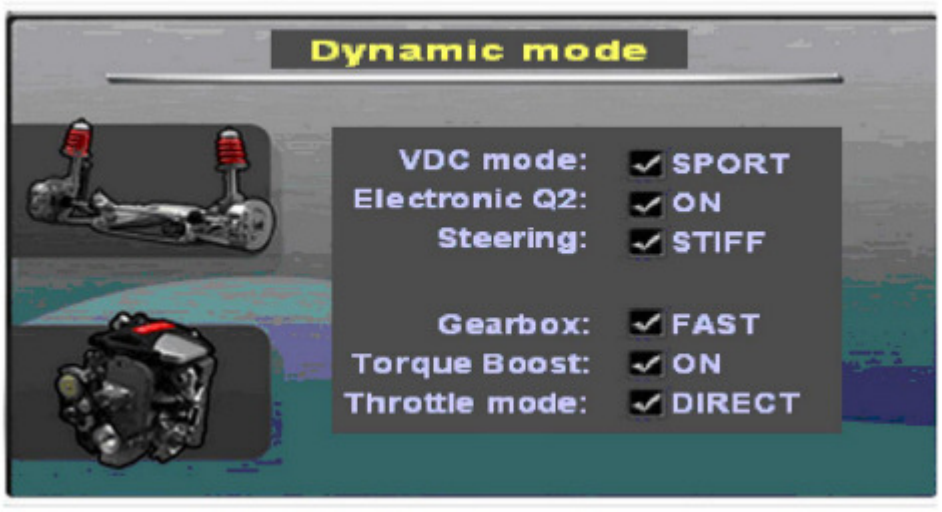


Dna

By selecting the dna item from the main menu it is possible to access the mode screen that highlights (possibility of selection) the item corresponding to the actual position of the switch.



Selecting the item relating to the dna mode makes it possible to access the information screen that shows the vehicle setting divided between Handling and Engine areas in relation to the selection mode.



The pop-up information containing the vehicle settings is shown automatically by the system when a change in the switch status takes place.

My car set up function

The system allows the radio navigator and vehicle set up to be operated.

The changes selected by the user are "proposed" to the panel.
The menu makes six main groups of functions available.
The display configuration makes it possible to:
- select the display lighting mode;
- set the display brightness;
- select the units of measurement.

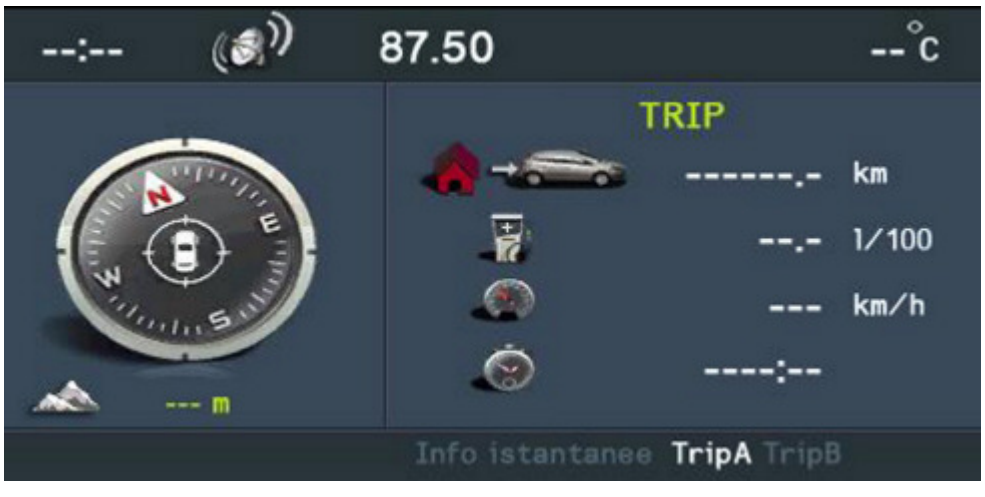
The volumes of the following can be set:
- Voice commands;
- Panel buzzer;
- Panel buttons.

Vehicle parameters configuration: makes it possible to configure the behaviour of some vehicle devices (if the vehicle is not fitted with the special equipment, the corresponding item cannot be selected):
- Service due;
- Speed limit;
- Door locking when moving;
- Information repetition to panel;
- DRL activation;
- Courtesy lights activation;
- Dusk sensor sensitivity.
- Time&Date: date and time can be set.
- Language: the language for the device can be changed.

- SD Card management: contains several items relating to the removal and management of the map SD card.
- SD card safe removal: allows the procedure for the safe removal of the SD card to be activated.
- Navigator serial number: allows the display of the radio navigator serial number necessary for the map activation procedure.
- Map licence activation: selecting this item gives access to the screen for entering the map activation code.
- Map licence status: displays the map information.

Trip

The device makes it possible to display (and, if necessary, reset) the vehicle trip parameters.
Example of TRIP screen



By turning the right knob it is possible to look at 3 information screens:
- Trip A;
- Trip B;
- Instant information.

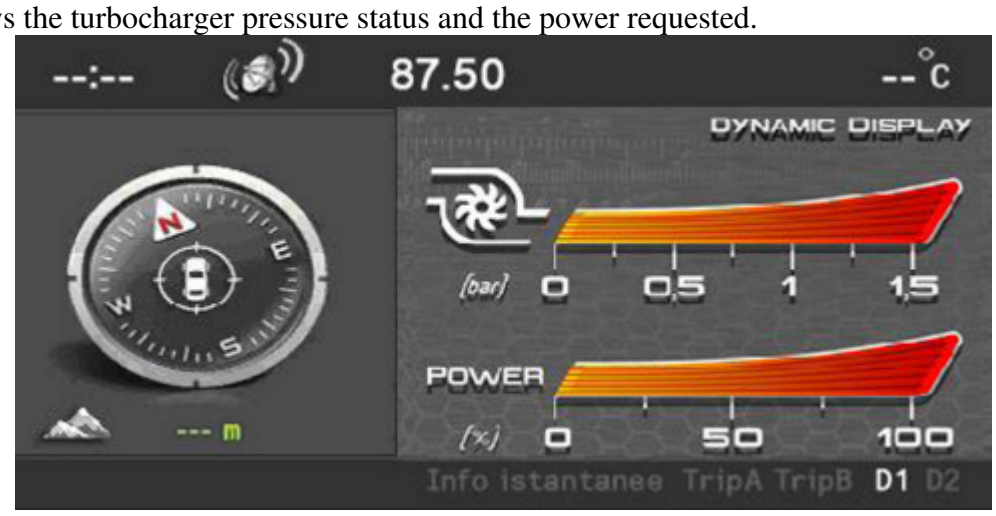
The menu makes the following functions available:
- Reset Trip A
- Reset Trip B

Dynamic display

When the dynamic status of the dna is entered, the Dynamic Display of the trip computer becomes available.
The right knob can be used to move from one screen to another and to return to the trip screens.
The Dynamic Display includes two screens.

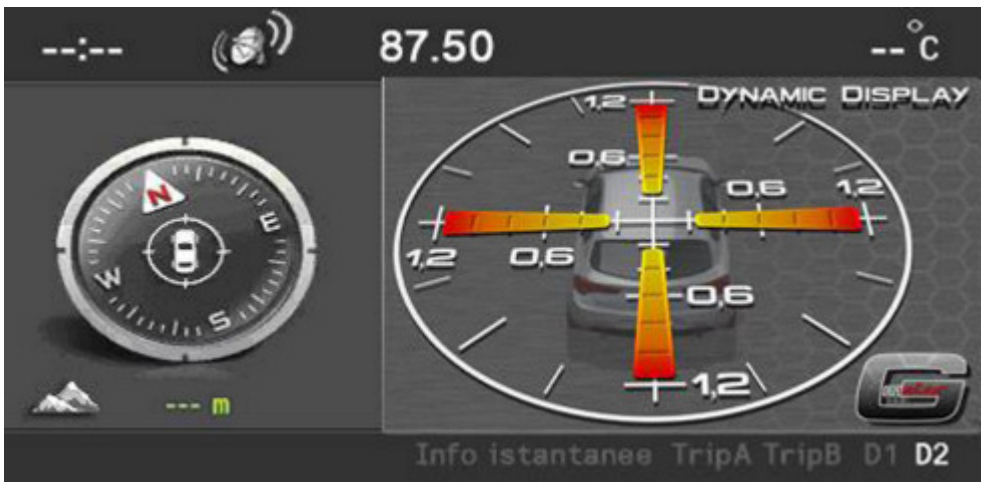
Dynamic display 1

The Dynamic Display 1 screen shows the turbocharger pressure status and the power requested.



Dynamic display 2

The Dynamic Display 2 screen shows the longitudinal and lateral acceleration to which the car is subjected, the reference unit of measurement and the G gravity acceleration.



Radionav contents available in association with blue&me

When the radio navigator is associated with Blue&Me the following new contents and functions become available:

Mediaplayer

The radio navigator reproduces musical tracks memorised on a digital device through the on board audio and stereo system: USB drive, MP3 player.
When the device is connected to the USB port, the radio navigator display shows that the Media Player is activated and the music information is available in the "MUSIC" function.
By using the controls at the front of the radio navigator it is possible to skip to the next/previous track (left and right arrows) and change the search method (up and down arrows).
The dedicated menu accessible in the "MUSIC" function (or from the main menu) can be used for Media Player settings and for selecting the navigation mode between tracks that can be set by type, album, artist, playlist.

Telephone

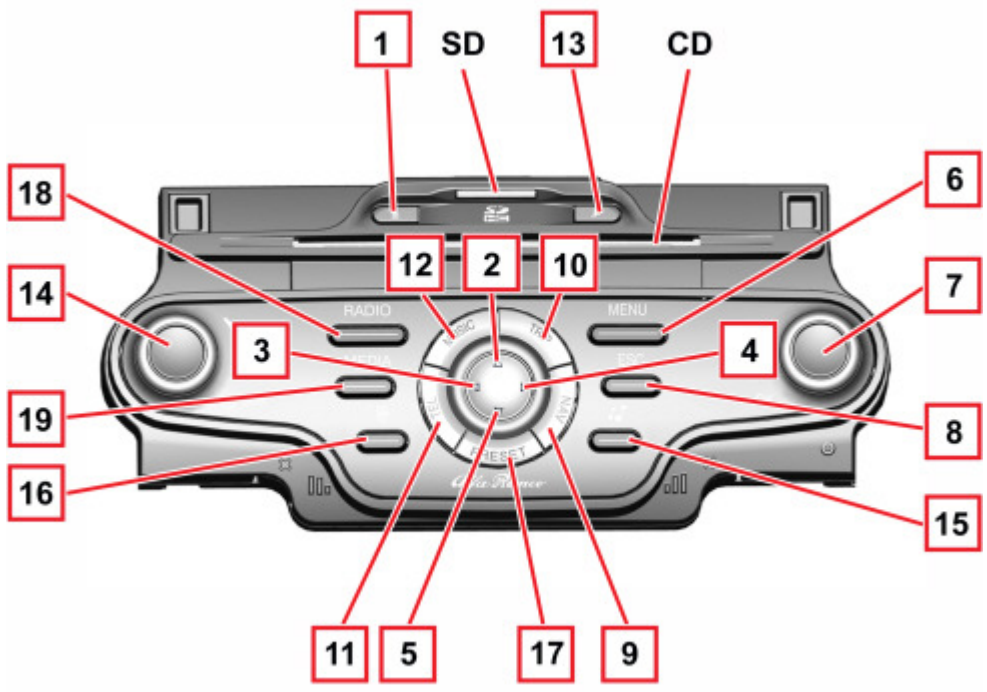
When the vehicle is equipped with Blue&Me, pressing the TEL button gives the radio navigator access to the telephone screen that summarises the information linked to the telephone connected via Bluetooth.
The settings for calls in progress can be changed using the dedicated menu:
- change call (if two calls are activated),
- redirect call,
- deactivate microphone,
- end call.

When the telephone is connected and the Blue&Me privacy function is disabled, the radio navigator will show pop-up information relating to a new SMS being received and the arrival/forwarding of a call allowing the user to accept/refuse.

Example of screen for TEL application during a conference call.

Front view

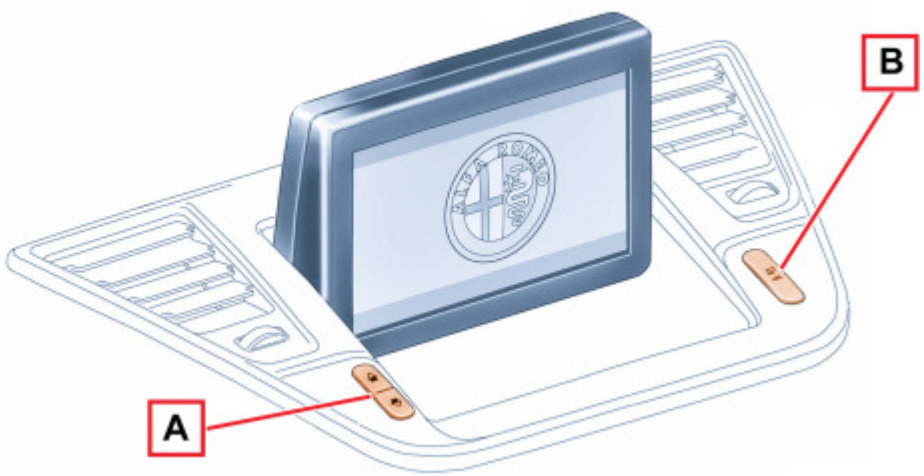
The front section of the radio navigator contains numerous buttons and two rotary selectors (in the form of a ring nut and a button).
Some controls perform multiple functions, according to the system operating conditions active at that time.
The activation of the function selected is controlled, in some cases, by how long the button is pressed (short or long press) as described in the table below.



Button	Short button press (less than 2 seconds)	Long button press (more than 2 seconds)
1	Eject audio CD or CD MP3	-
2	**Radio mode**: increase frequency (FM or AM mode) **MP3 CD/SD mode**: select next folder **Map Mode**: map scroll upwards **Media Player Mode**: select genre/author/album/folder/next Playlist depending on the selection mode currently activated	-

3 - 4	**Radio Mode**: scanning function to search for the first audible radio station with frequency lower/higher than the starting one (FM or AM mode) **CD - CD/SD MP3, Media Player mode**: select next/previous track **Map Mode**: scroll map to the left/right	-
5	**Radio mode:** frequency decrease (FM or AM mode) **MP3 CD/SD mode**: select previous folder **Map Mode**: scroll map downwards **Media Player Mode**: select previous genre/author/album/folder/playlist depending on the selection mode currently activated	-
6	Main Menu Display	Access to the navigation simulation function
7	**Button press**: open specific menu Confirm selection **Knob rotation**: select menu items	-
8	Exit from the selection	System reset (if pressed for more than 8 seconds)
9	Navigation Map displaying or, in Navigation Map mode, repetition of the last voice message	-
10	Display TRIP data and Dynamic display screens	-
11	Mobile data displaying (only if the Blue&Me system is available)	-
12	Music information display	-
13	Activation/deactivation of Audio function (Mute)	Navigation message activation/deactivation
14	**Button press**: system activation/DARK function activation **Knob rotation**: volume level setting	**Button press**: switch system on/off
15	Audio Adjustment Menu Display	-
16	**Radio Mode**: display of radio station names in the selected band **CD Mode**: display of tracks available on the CD **MP3 CD/SD mode**: display of folder and track list	Radio Mode: station list updating (pressing for over 5 seconds)
17	Access to the menu for selecting and storing favourite radio stations	-
18	**Radio Mode activated**: radio band selection (FM1, FM2, FMAST, AM) **Radio Mode deactivated**: displaying of special menu and radio band selection (FM1, FM2, FMAST, AM)	Radio Mode: AutoSTore function activation
19	Source selection: Media Player (only with Blue&Me)/CD/MP3 SD/ AUX only with Blue&MeTM) (where provided)	-
SD	SD Card housing	-
CD	Audio CD or CD MP3 housing	-

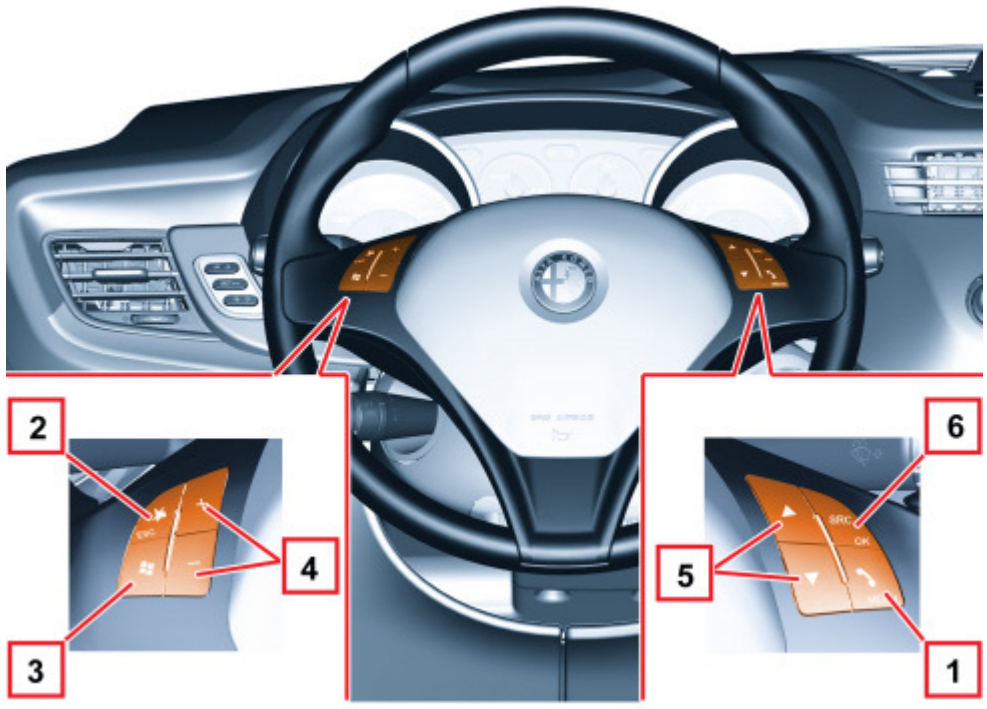
Motorised display controls



A - Display angle adjustment
B - Display opening/closing

Steering wheel controls

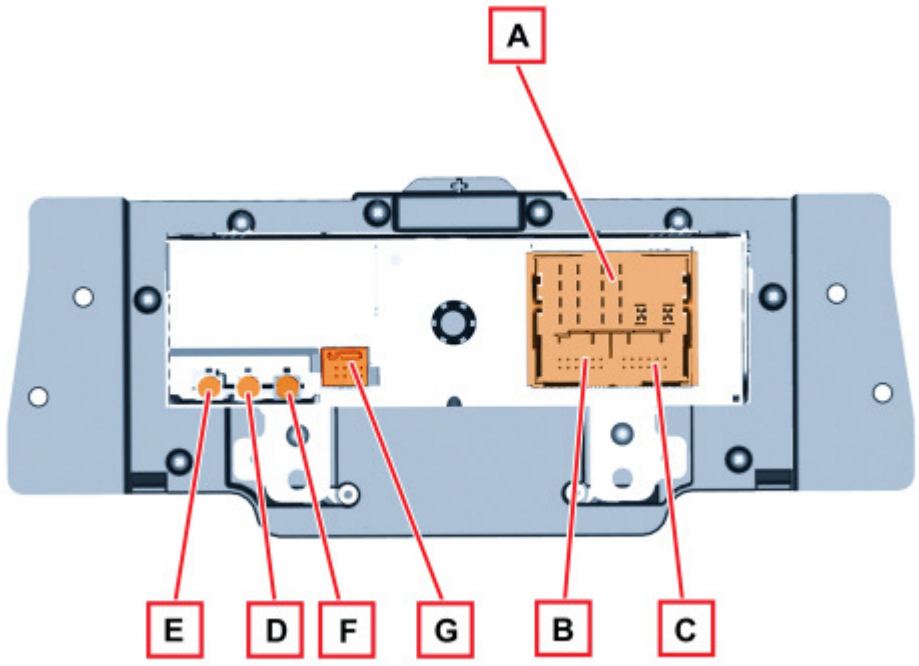
The controls for the main radio navigator functions are replicated on the steering wheel to make things easier.



Button	Short button press (less than 2 seconds)	Long button press (more than 2 seconds)
1	Activate Telephone and Menu functions (if **Blue&Me** is present)	-
2	Activates/deactivates Audio functions	-
3	Activate "Voice commands" (if **Blue&Me** is present)	-
4 (+)	Increasing volume	Continuous increase in volume
4 (-)	Decreasing volume	Continuous decrease in volume
5 (up)	Active audio source: **Radio Mode**: select next radio station **CD - MP3 CD/SD, Media Player Mode**: select next track	-
5 (down)	Active audio source: **Radio Mode**: select previous radio station **CD - MP3 CD/SD, Media Player Mode:** select previous track	-
6	Change active audio source and confirm selection	-

Radio navigator rear view

The rear view of the radio navigator with the connectors highlighted is illustrated below.



Connector A

PIN	SIGNAL
1	Right rear speaker (positive)
2	Right front speaker (positive)
3	Left front speaker (positive)
4	Left rear speaker (positive)
5	Right rear speaker (negative)
6	Right front speaker (negative)
7	Left front speaker (negative)
8	Left rear speaker (negative)
9	Outside display power supply
10	B CAN B (high)
11	Outside aerial power supply, Mute signal for hi fi audio amplifier control unit (preparation)
12	+ Battery power supply
13	B CAN A (low)
14	Power supply (positive signal) for hi-fi audio system enablement
15	Earth reference for outside display
16	Chassis earth

Connector B

PIN	SIGNAL
1	D+ signal (USB differential data signal) from USB port (N.C.)
2	Reference earth (USB gnd) for USB port (N.C.)
3	Reference earth for hands-free microphone signal screen (N.C.)

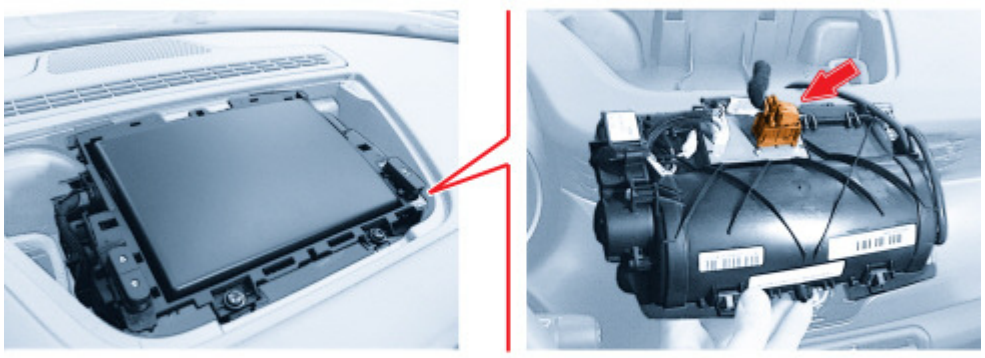
4	Aux R signal (MP right) from Bluetooth control unit
5	Outside display backlighting control PWM signal
6	Video signal (CVBS signal) from outside TV camera (N.C.)
7	D- signal (USB differential data signal) from USB port (N.C.)
8	Power supply (USB device power supply) for USB port (N.C.)
9	Signal from hands-free microphone (N.C.)
10	Aux L signal (MP left) from Bluetooth control unit
11	Aux GND reference earth (MP GND) from Bluetooth control unit
12	Reference earth (CVBS gnd) for video signal from outside TV camera (N.C.)

Connector C

PIN	SIGNAL
1	Connection to the display
2	Connection to the display

Connector D: (grey) FM1 aerial on roof coaxial cable
Connector E: (brown) coax FM2 aerial ("phase diversity") on rear window
Connector F: (blue) GPS aerial on roof coaxial cable
for more information on aerials,
See descriptions 5570 ACCESSORIES
Connector G: multipolar cable for display connection

Motorised display



PIN	SIGNAL
1	Display power supply
2	NC
3	+30 for display
4	Display control
5	NC

6	Earth reference for display
7	NC
8	Display power supply
9	Digital output signal for open display
10	PWM signal for display backlighting
11	NC
12	Earth reference for display