

## AirScout 2D on Multi Function Display MFD6203



## Operating Instructions

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## User Information

In order to get and use your own AirScout 2D and to keep it up to date please read carefully this manual and the information of:

- **"Process to Receive a Registered AirScout 2D and Navigation Data".**  
Please refer to I&O manual "Process to Receive a Registered AirScout 2D and Navigation Data" (on webpage <http://www.airscout2d.com>).
- **"Terms and Conditions for Becker Avionics AirScout 2D / Multi Function Display"**  
(on webpage <http://www.airscout2d.com>).
- **"General Terms and Conditions of Becker Avionics GmbH"**  
(on webpage <http://www.becker-avionics.com/imprint/>).

Your usage of the product and data needs the acceptance with the terms.

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## List of Abbreviations

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ACT WYP	Active Waypoint
AGL	Altitude "Above Ground Level"
ALT AGL	Altitude "Above Ground Level"
ALT M+A	Altitude "Mean Sea Level" + "Above Ground Level"
ALT MSL	Altitude "Mean Sea Level"
CRS	Course (In °)
DCT	Direct-Way-To
DCT ACT	Direct-Way-To Active
DCT INAC	Direct-Way-To Inactive
DME	Distance Measuring Equipment
EET	Estimated Elapsed Time
GPS	Global Positioning System
GS	Ground Speed
LAT/LON	Latitude / Longitude
MAP POS	Map Position
MFD	Multi Function Display
NAV	Navigation
OVL M+O	Overlay Map+Overlay
OVL MAP	Overlay Map
OVL OVL	Overlay Overlay
RTE	Route
RTE ACT	Route Active
RTE INAC	Route Inactive
RYW	Runway
TERR OFF	Terrain Off
TERR ON	Terrain On
TRK	Track
UTC	Universal Time Coordinated
VFR	Visual Flight Rules
WYP	Waypoint

## Units

### Units

A	Ampere
mA	Milliampere
°C	Degree Celsius
dBm	Power ratio in Decibel
ft	foot
kHz	Kilohertz
km/h	Kilometre Per Hour
kts	Knots
mph	Miles Per Hour
NM	Nautical Mile
s	Second
V	Volt
°	Angular Degree

## 1. Introduction

Before using the device it is recommended to study this instruction manual carefully because it contains safety as well as operating instructions.

Include this manual to the documentation carried on board the aircraft.

### 1.1. General Safety Definitions



Indicates a hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



Is used to address practices not related to physical injury.



Safety instructions (or equivalent) signs indicate specific safety-related instructions or procedures.

### 1.2. Packaging, Transport, Storage

Visually inspect the package contents for signs of transport damage.

The packaging material can be kept and reused in the case of a return shipment. Improper or faulty packaging may lead to transport damages.

Make sure to transport the device always in a safe manner and with the aid of suitable lifting equipment if necessary. Do never use the electric connections for lifting. Before the transport, a clean, level surface should be prepared to place the device on. The electric connections may not be damaged when placing the device.

#### First Device Checkup

- Check the device for signs of transport damages.
- Please verify if the indications on the type plate correspond to your purchase order.
- Check if the equipment is complete ("Scope of Delivery", page 9).

## Storage

If you do not wish to mount and install the device immediately, make sure to store it in a dry and clean environment. Make sure that the device is not stored near strong heat sources and that no metal chippings can get into the device.

### 1.3. Disposal

#### **⚠ CAUTION**

The packaging material is inflammable, if it is disposed of improperly by burning, toxic fumes may develop.

This product contains materials that fall under the special disposal regulation, which corresponds to the EC directive for dangerous disposal material. We recommend disposing of the respective materials in accordance with the respectively valid environmental laws. The following table states the materials suitable for recycling and the materials which have to be disposed of separately.

Material	Suitable for recycling	Disposal
Metal	yes	no
Plastics	yes	no
Circuit boards	no	yes

Dispose of the circuit boards:

- Disposal via a technical waste dump which is allowed to take on e.g. electrolytic aluminium capacitors. Do under no circumstances dump the circuit boards with normal waste dump.

### 1.4. Warranty Conditions

#### **User Conversions and Changes are Not Permitted**

Any change made by the user excludes any liability on our part (excluding updates for the navigation data base).

- The device must not be opened.
- Do not make any modifications to the device, except for those described in the installation manual\*.
- Make connections to the inputs, outputs and interfaces only in the manner described in the installation manual\*.
- Fix the devices according to the mounting instructions (installation manual\*). We cannot provide any guarantee for other mounting methods.

\*Manual "Installation&Operation", please refer to: <http://www.becker-avionics.com/downloads>

## 1.5. Conditions of Utilization

### General introductory notes

With this device you bought a product which was manufactured and tested before delivery with the utmost care.

Please take your time to read the following notes which you ought to follow closely during operation.

Unless, all claims under the warranty will become void and a reduced service life or even damages must be expected.

### **⚠ CAUTION**

The user is responsible for protective covers and/or additional safety measures in order to prevent damages to persons and electric accidents.

## 1.6. Non Warranty Clause

We checked the contents of this publication for compliance with the associated hard and software. We can, however, not exclude discrepancies and do therefore not accept any liability for the exact compliance. The information in this publication is regularly checked, necessary corrections will be part of the subsequent publications.



## 2. Operating Instructions

### 2.1. Device Description

The AirScout 2D is an airborne navigation system for fixed wing aircraft consisting of a navigational software called 2D-Pilot running on a Multi Function Display MFD6203-(000). The term AirScout 2D contains the MFD6203 hardware plus software and applications on this hardware and data like ARINC 424, maps and other data available on this device.

- The use of the AirScout 2D as a supplementary navigation aid is limited as reference only.

The device can be operated by means of keys on left and right side, a rotary-encoder on the right bottom side and a 4-way-rocker-key on the left bottom side of the bezel. Depending on the menu actually in use, different functions are assigned to each key for selection of an appropriate option.

For the following descriptions, we are using term "AirScout 2D" for 2D-Pilot software with MFD6203-(000), instead writing the complete model number.

#### 2.1.1. Device Assignment

This manual is valid for the following system:

- AirScout 2D.
  - 2D-Pilot software.
  - MFD6203 hardware.

#### 2.1.2. Scope of Delivery

- MFD6203-(000) with preinstalled software:
  - Navigation Software 2D-Pilot.
  - Navigation data VFR chart Europe, Terrain database Europe, (Albania, Austria, Belgium, Bosnia, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Gibraltar, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Macedonia, Malta, Moldova, Monaco, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom).

- Manuals:
  - Operating Instructions.
  - Installation Manual not included, please see <http://www.airscout2d.com>

- MK6203 mounting kit, including:
  - 1x Aluminium mounting tray,
  - 6x Avionics screw, countersunk head
  - 6x Floating nut
  - 1x Allen key
- 1x  $\mu$ SD8G Micro SD Card 8 GB with adapter for SD card slot.

### 2.1.3. Additional required Equipment

- Connector kit (crimp or solder version) including 1x D-Sub 43W2 female.
- 1x GPS antenna kit for cockpit mounting or
- 1x GPS antenna kit for airframe mounting.

### 2.1.4. Optional Equipment

- Traffic Awareness System (PowerFLARM® Core).

Detailed information, please refer to manual "Installation&Operation": <http://www.airscout2d.com>

### 2.1.5. Return Shipment

#### In case of return shipment

**NOTICE**

The customer is exclusively responsible for data backup.

If you are going to start a return shipment create a data backup to ensure the availability of your own customized data and settings. There is no guarantee for customized data or settings after inspection, repair or customer service work.

### 2.1.6. Type Plate

The device type is defined by the type plate (on the housing):



Figure 1: Type plate (example)

#### Explanation:

<b>P/N:</b>	<b>Example Type designation: MFD6203-(000)</b> MFD = Multi Function Display <b>6203:</b> Product Series <b>Options:</b> <b>(000):</b> no options
<b>S/N:</b>	<b>Serial number:</b> Unique number of the particular device (5 digits)*
<b>A/N:</b>	Article number
<b>DoM:</b>	Date of Manufacturing

\* The serial number (5 digits) works also as the digital registration of the device and is an important point for each navigation data update.

For details see I&O manual "Process to Receive a Registered AirScout 2D and Navigation Data" (on webpage <http://www.airscout2d.com>).

### 2.1.7. Controls and Indications



Figure 2: User interface - AirScout 2D front view

	Description
1	Power ON/OFF key
2	Function keys on left and right side of bezel
3	Function fields (all fields are dedicated to the keys besides)
4	Rotary-encoder (left/right, push for ENTER)
5	4-way-rocker-key
6	Micro SD card slot
7	Dimming key (decrease); active with Power ON
8	Dimming key (increase); active with Power ON
9	Locking device (mounting)
10	Display
11	Zoom factor range indications

## 2.2. Start-Up

### 2.2.1. Disclaimer

After switching ON and booting the Disclaimer screen appears. Here you find the relevant data details like product name, software version, current navigation database and the disclaimer.

Please read the following conditions carefully and accept the conditions to continue.

**Please note** if you accept the conditions in this window you also agree with:

- **"Terms and Conditions for Becker Avionics AirScout 2D / Multi Function Display"**  
 (on webpage <http://www.airscout2d.com>).
- **"General Terms and Conditions of Becker Avionics GmbH"**  
 (on webpage <http://www.becker-avionics.com/imprint/>).

Your usage of the product and data needs the agreement with the terms.

Symbol	Description
"ACCEPT"	Accept the conditions.

- Push the rotary-encoder to continue.

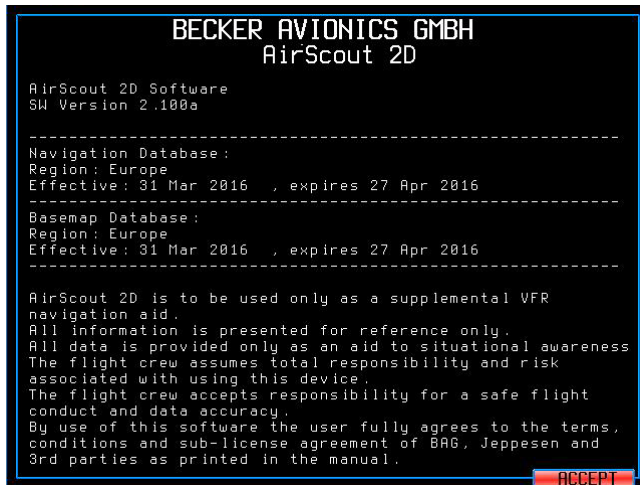


Figure 3: Disclaimer

### 2.2.2. Light Conditions

Use the rotary-encoder by turn left or right to select the desired condition.

Symbol	Description
"Day", "Twilight", "Night"	<ul style="list-style-type: none"> <li>Select the desired lighting condition by means of the rotary-encoder.</li> </ul>
"ENTER"	<ul style="list-style-type: none"> <li>Push the rotary-encoder to confirm the selection and to continue.</li> </ul>

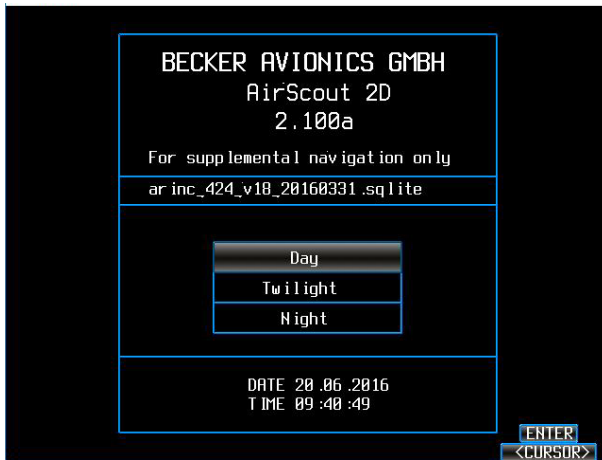


Figure 4: Selection of Light Conditions

Note: Only the navigation map brightness is affected, the entire bezel illumination remains unchanged.

### 2.2.3. Navigation Database - Check of Validity

After the start-up sequence, the navigation database is checking if there are newer navigational data available.

As long as the expiry date of the installed navigational data not passed yet, in comparison to the GPS date, no warning will appear on the screen.

If a newer data base is available, a message appears, stating "Navigation Database Validity expired!"

Details see chapter "Update Mode" page 58.

**⚠ CAUTION**

Do not use with expired navigation data.

The flight crew is responsible for a safe flight conduct and effectivity of all used data.

Symbol	Description
"ENTER"	<ul style="list-style-type: none"> <li>Push the rotary-encoder to confirm the warning and to continue.</li> </ul>

### 2.3. Base Map

After the start-up sequence, the Base map is displayed. This view is the central mask to which you return after selecting "ABORT".

Following information fields are displayed in the top area of the Base map:

- Ground speed (GS).
- Current track (TRK).
- Current time in Universal Time Coordinated (UTC).
- Current altitude above ground level (AGL).
- Current next waypoint or the Direct-to waypoint if currently selected with:
  - Course (CRS in °).
  - Distance in NM.
  - Estimated Elapsed Time (EET).

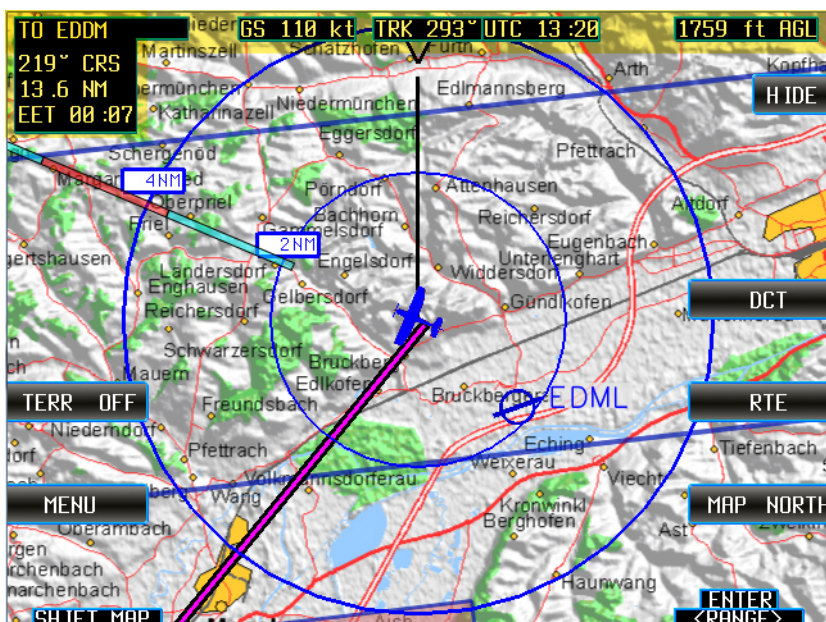


Figure 5: Base map

### 2.3.1. GPS Monitoring

If a red cross appears on the screen, the GPS signal is not available for navigation.

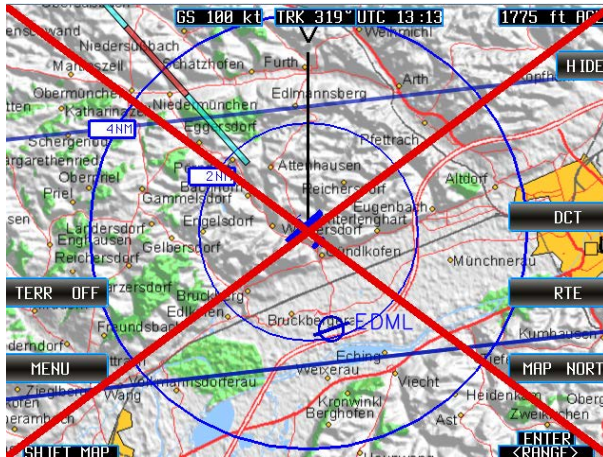


Figure 6: Base map with red cross, GPS not available

### 2.3.2. Zoom Level

- There are 8 steps to zoom in/out the map view.
- The available range is from 2/4 NM to 256/512 NM.
- Use the rotary-encoder left/right to change the zoom level. Figure 6 shows zoom level 2 NM/4 NM.



### 2.3.3. Function Keys on the Right Side

#### 2.3.3.1. "HIDE", "SHOW FIELDS"

Symbol	Description
"HIDE"	Hide the function fields in the display.
"SHOW FIELDS"	Show the function fields in the display.

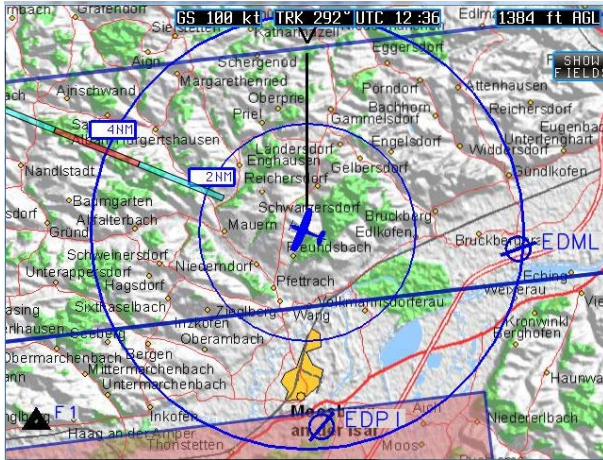


Figure 7: Base map, function fields hidden

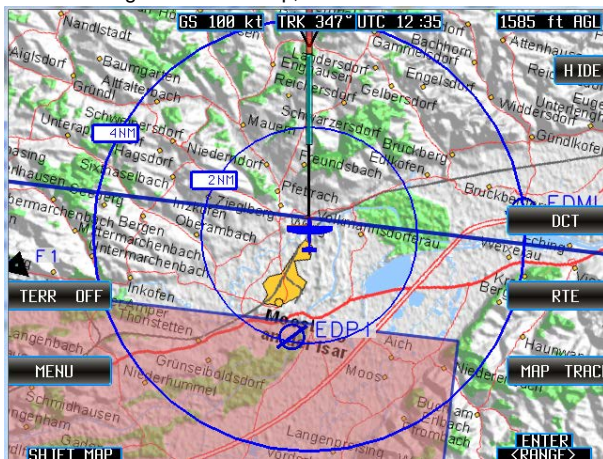


Figure 8: Base map, function fields shown

### 2.3.3.2. "DCT" - Direct-to Mode

Symbol	Description
"DCT"	Is used to select and set direct waypoints. Details see page 32.

### 2.3.3.3. "RTE" - Route Planning Mode

Symbol	Description
"RTE"	Is used to create, manage and use routes. Details see page 49.

### 2.3.3.4. "MAP NORTH", "MAP TRACK", "MAP ARC"

Change the orientation of the map according to the orientation of aircraft.

Symbol	Description
"MAP NORTH"	"MAP NORTH" the map is oriented towards north.
"MAP TRACK"	"MAP TRACK" the map is aligned with the heading of the aircraft.
"MAP ARC"	"MAP ARC" the aircraft is no longer displayed in the centre of the map but in the bottom centre of the map (Figure 11).

- Push the function key to toggle between the functions.
  - The view is currently changed.

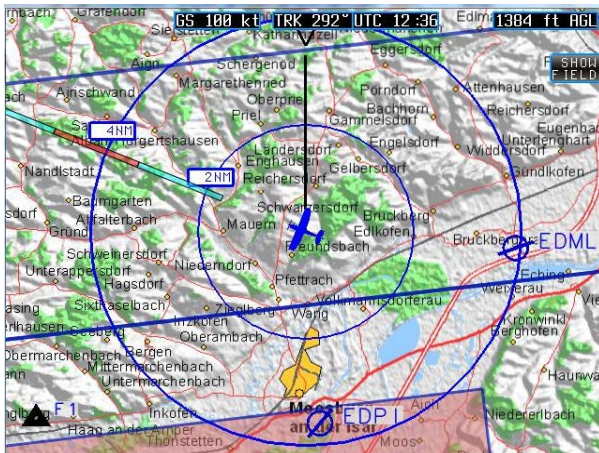


Figure 9: Base map, "MAP NORTH" view

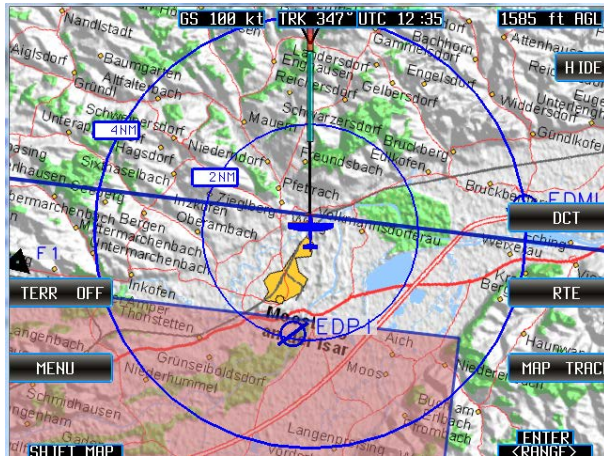


Figure 10: Base map, "MAP TRACK" view

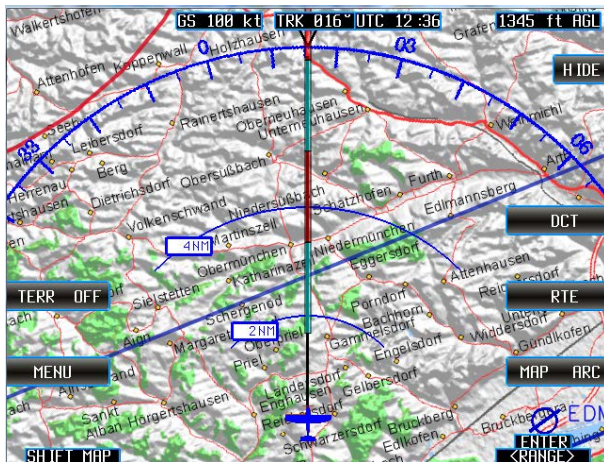


Figure 11: Base map, "MAP ARC" view

## 2.3.4. Function - Keys on the Left Side

### 2.3.4.1. "TERR ON", "TERR OFF"

Symbol	Description
"TERR ON", "TERR OFF"	Terrain warning ON/OFF. If the terrain warning is on, the specific area is coloured red in case the altitude of the terrain will result in collision with the aircraft.

- Push the function key to toggle between the functions.
  - The view is currently changed.

**Please note:**

- "TERR ON" warning is available only in the zoom range 64 NM.
- When you leave this range the function automatically changes to "TERR OFF" and the function field will be hidden.
- When you go back to zoom range 2/4 NM the function field "TERR ON", "TERR OFF" appears again.
  - The previously selected mode will be set.

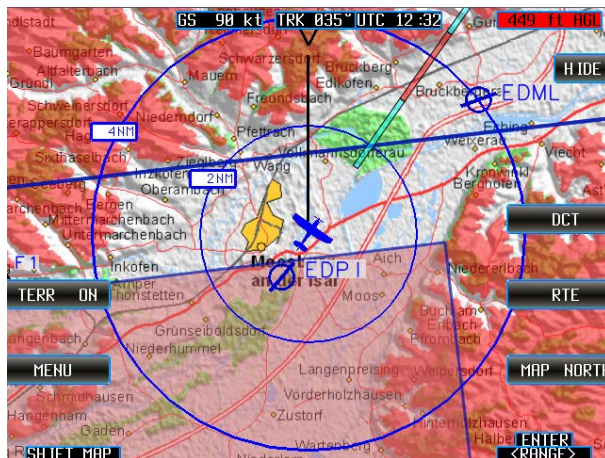


Figure 12: Base map, Terrain warning on "TERR ON"

2.3.4.2. "MENU"

Symbol	Description
"MENU"	Allows editing the configuration settings. Details see page 23.

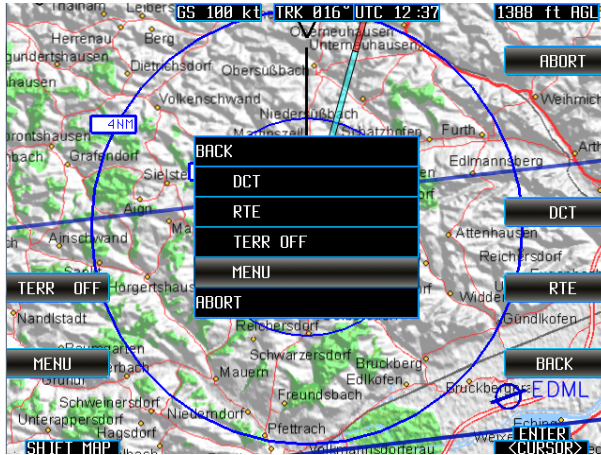


Figure 13: Base map, view with function list

2.3.5. Select a Function from a List

Almost all functions of the keys can also be selected from a list.

- Push the rotary-encoder to get the list displayed.
- Select the desired function by means of the rotary-encoder.
- Push on it to confirm your choice (Figure 13).

2.3.6. Cancel the Selection

With selection "ABORT" or "BACK" all current activities can be terminated.

- "ABORT" returns always back to the Base map,
- "BACK" returns to the previous page.

## 2.4. Manual Mode

- By pushing any of the 4-way-rocker-keys, the map is set to Manual Mode.
  - This function allows moving to any position on the map, independent of the aircraft position.
- The 4-way-rocker-key moves the map in each of the selected directions.
  - It is possible that the overlay view disappears while moving the map.

By a next press on the 4-way-rocker-key it will appear again.
- With the functions "BACK" or "ABORT" the map returns to the aircraft position.

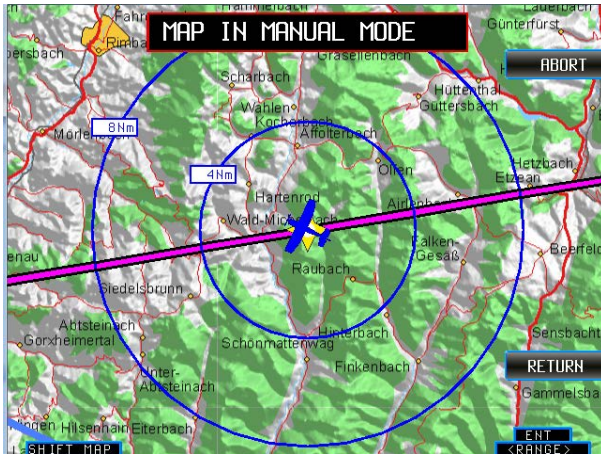


Figure 14: Base map, Map in Manual Mode

### Note:

With selection "ABORT" or "BACK" all current activities can be terminated.

- "ABORT" returns always back to the Base map,
- "BACK" returns to the previous page.

## 2.5. Menu Mode

The Menu mode allows editing of configuration settings.

- Push the function key "MENU" or push the rotary-encoder to call up the selection list and select "MENU" to open the menu mask.

### 2.5.1. Serial Number

In this view the device type plus the serial number (5 digits) of the device MFD6203 is displayed. It is identical with the serial number on MFD6203 type plate.

**MFD6203 xxxxx**

Device type Serial number (5 digits, clear allocation)

See "Figure 15: "MENU" mask", page 24.

With selection "ABORT" or "BACK" all current activities can be terminated.

- "ABORT" returns always back to the Base map,
- "BACK" returns to the previous page.

## 2.5.2. Function "MENU"

### 2.5.2.1. "15 SEC ON", "15 SEC OFF"   !(SEC=seconds)

Symbol	Description
"15 SEC ON"	"15 SEC ON": automatic reset of all actions after 15 seconds without pushing any key. This means after 15 seconds the system change to the Base map.
"15 SEC OFF"	"15 SEC OFF": none automatic reset.

- Push the function key to toggle between the functions.



Figure 15: "MENU" mask



2.5.2.2. "UNITS"

Symbol	Description
"UNITS"	<p>Allows changing the indicated units, like speed and altitude, on the display (Figure 16).</p> <ul style="list-style-type: none"> <li>Open the mask "UNITS", select an option and push the rotary-encoder for further selection of the desired unit.            For speed: "kn" (knots), "km/h" (kilo meters per hour) or "mph" (statute miles per hour);            for altitudes: "feet" and "meter".</li> </ul>

- Select function "BACK" to continue with another unit.



Figure 16: "MENU" mask, "UNITS"

2.5.2.3. "TRAFFIC ALERT"



This function is only available when a FLARM® device is connected.

Symbol	Description
"TRAFFIC ALERT ON"	Interface to FLARM enabled*.
"TRAFFIC ALERT OFF"	Interface to FLARM disabled.

\* Button "TRAFF ON" is available on base map.

- Select the function "BACK" to continue.

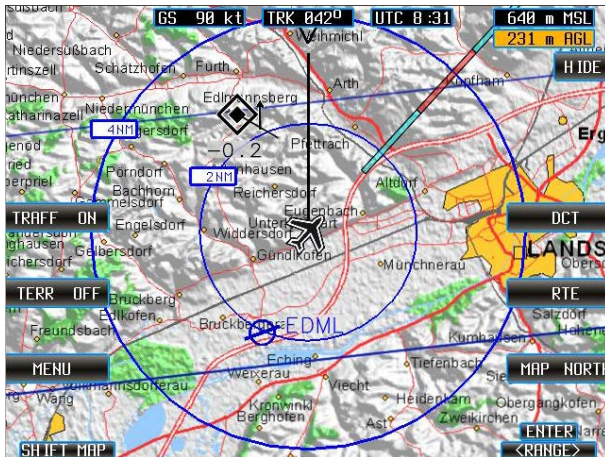


Figure 17: TRAFFIC ALERT ON – traffic in local area  
(from current aircraft position in a range of 8 NM and  $\pm 2000$  ft)

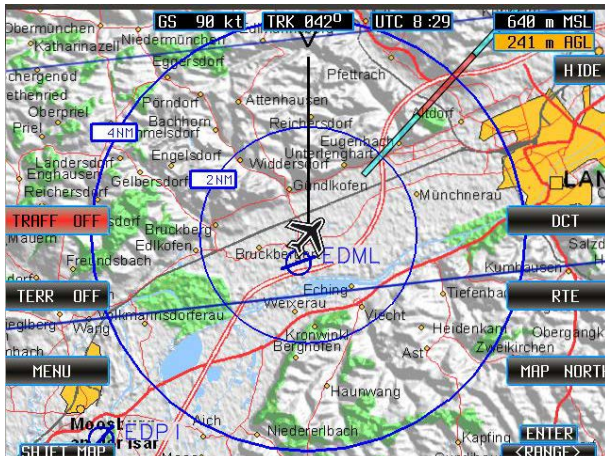


Figure 18: TRAFFIC ALERT OFF – no traffic indication possible

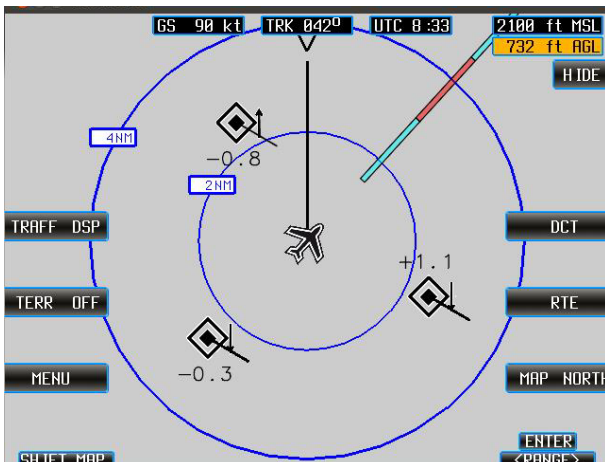


Figure 19: TRAFFIC ALERT ON, DSP view – traffic in local area

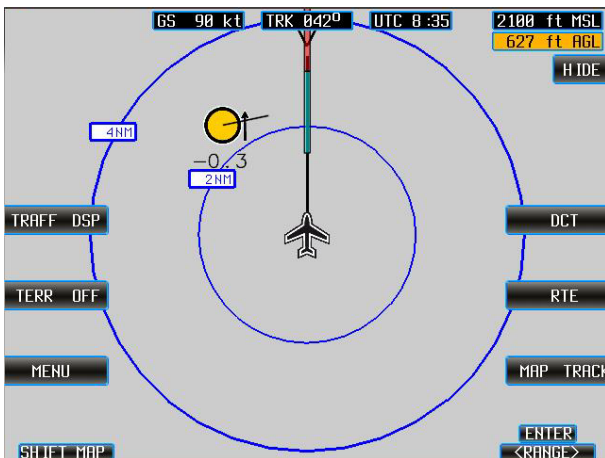


Figure 20: TRAFFIC ALERT ON, DSP view – FLARM traffic in local area

2.5.2.4. "OVL MAP", "OVL OVL", "OVL M+O"

Select the components displayed on the screen.

Symbol	Description
"OVL MAP"	"OVL MAP": shows only the map.
"OVL OVL"	"OVL OVL": shows only the navigation symbols on a gray background (Figure 22).
"OVL M+O"	"OVL M+O": shows the map and the navigation symbols (Figure 23).

- Push the function key to toggle between the functions.
  - The view will be currently changing.
- Select the function "BACK" to continue.

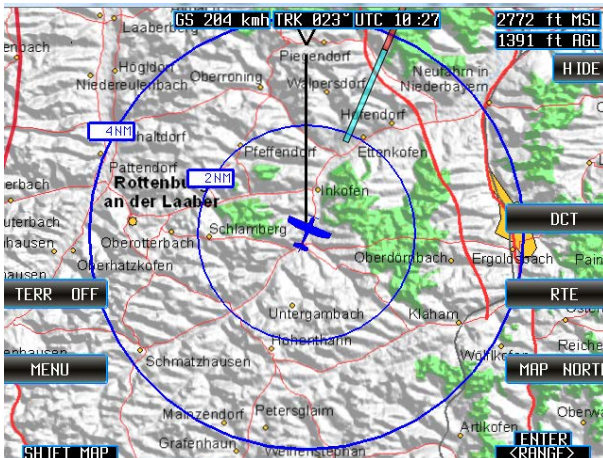


Figure 21: "OVL MAP" – Map only



Figure 22: "OVL OVL" – View with navigation symbols only

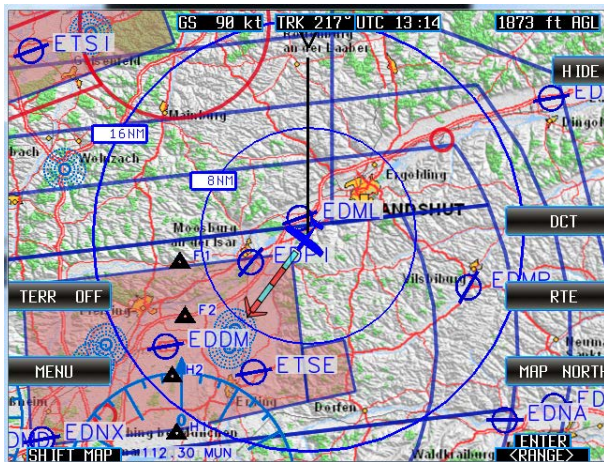


Figure 23: "OVL M+O" - Map + navigation symbols

2.5.2.5. "DISPLAY"

Symbol	Description
"DISPLAY"	This menu allows adjustment of display lighting conditions for adaption with the cockpit environment lighting (Figure 24).

- Use rotary-encoder for selection and push to confirm and to continue.



Figure 24: "MENU" mask, "DISPLAY"

2.5.2.6. "ALT AGL", "ALT MSL", "ALT M+A"

Select how the field "Flight Altitude" in the base map appears.

See "Figure 25"... "Figure 28".

Symbol	Description
"ALT AGL"	<p>"ALT AGL": with a speed:</p> <ul style="list-style-type: none"> <li>• &lt; 30 knots (56 km/h, 35 mph) <ul style="list-style-type: none"> <li>○ "GND CLOSE" with a red background.</li> </ul> </li> <li>• &gt; 30 knots (56 km/h, 35 mph): <ul style="list-style-type: none"> <li>○ Red with black letters in the range below 500 ft (150 m).</li> <li>○ Amber with black letters in the range between 500...1000 ft (150...300 m).</li> <li>○ Black with white letters above 1000 ft (300 m).</li> </ul> </li> </ul> <p>The limits are always calculated in ft, regardless of the selected unit for display.</p>
"ALT MSL"	<p>"ALT MSL": the aircraft altitude is specified relative to the mean sea level. The calculations related to the terrain. In this view the background of the AGL display is not highlighted in different colours concerning the altitude.</p> <p>It is also possible to view both fields simultaneously.</p>
"ALT M+A"	<p>Select "ALT M+A" both fields MSL and AGL are displayed on the screen. The functions described before remain unchanged.</p>

- Push the function key to toggle between the functions.
  - The view is currently changed.
- Select the function "BACK" to continue.

**Note:**

AGL - altitude Above Ground Level: is an altitude measured with respect to the underlying ground surface. This is as opposed to altitude/elevation above mean sea level (MSL). In other words, these expressions (AGL, MSL) indicate where the "zero level" or "reference altitude" is located.

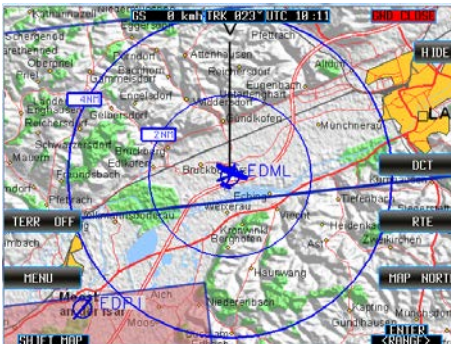


Figure 25: "ALT AGL" – "GROUND CLOSE" speed below 30 knots (56 km/h, 35 mph)



Figure 26: "ALT AGL", AGL between 500...1000 ft (150...300 m)



Figure 27: "ALT AGL" – only AGL is shown



Figure 28: "ALT M+A", AGL + MSL are shown

## 2.6. Direct-to Mode

For selection or setting a Direct-to waypoint, the Direct-to mode ("DCT") is used. Depending on how selecting a direct waypoint, dedicated fields are displayed on the device.

**Note:**

The current aircraft position is always taken as the starting point to determine the nearest point.

- Move in the lists with the rotary-encoder.
- Push always the rotary-encoder to confirm the selection.

**Note:**

With selection "ABORT" or "BACK" all current activities can be terminated.

- "ABORT" returns always back to the Base map,
- "BACK" returns to the previous page.

Almost all functions of the keys can also be selected from a list.

- Push the rotary-encoder to get the list displayed.
- Select the desired function by means of the rotary-encoder and push on it to confirm your choice..

### 2.6.1. Function Direct-to "DCT"

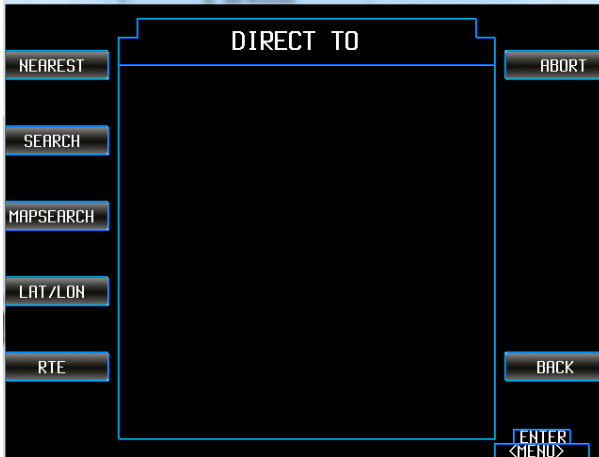


Figure 29: Direct-to "DCT", "RTE" - means planned routes are available

**Note:**

- Waypoints are available in a range of  $\leq 1000$  NM from present position.



2.6.1.1. "NEAREST"

Symbol	Description
"NEAREST"	Allows calling up lists with the nearest airports, nearest runways or a list with a selection of waypoints (Figure 30).

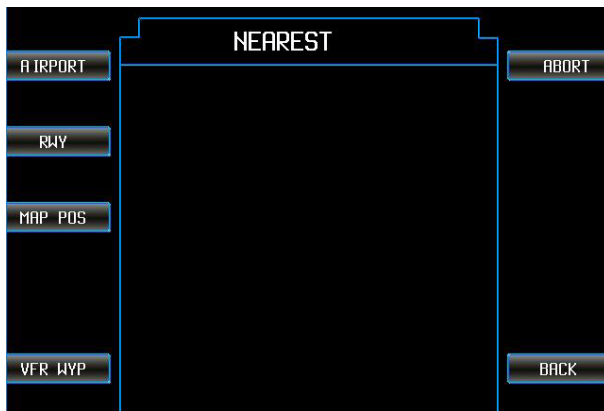


Figure 30: Direct-to "DCT", "NEAREST"

2.6.1.2. "AIRPORT"

Symbol	Description
"NEAREST"	"AIRPORT": shows a list of the nearest airports with some detailed information (Figure 31).

- Use the rotary-encoder left/right to select and push it to confirm and to continue.

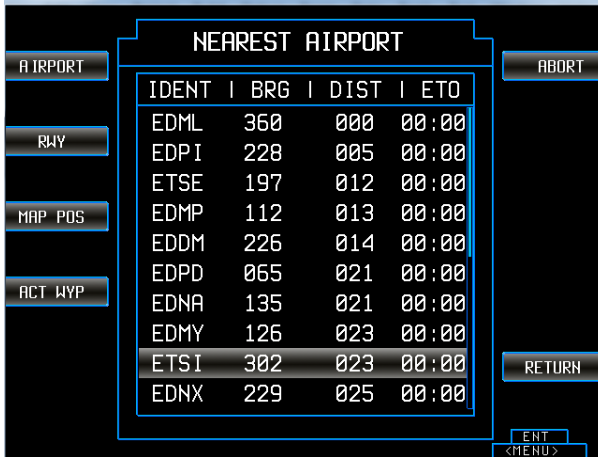


Figure 31: Direct-to "DCT", "NEAREST", AIRPORT

2.6.1.3. "RWY" – Runways

Symbol	Description
"NEAREST"	"RWY" shows a list of the nearest runways with some detailed information (Figure 32).

- Use the rotary-encoder left/right to select and push it to confirm and to continue.

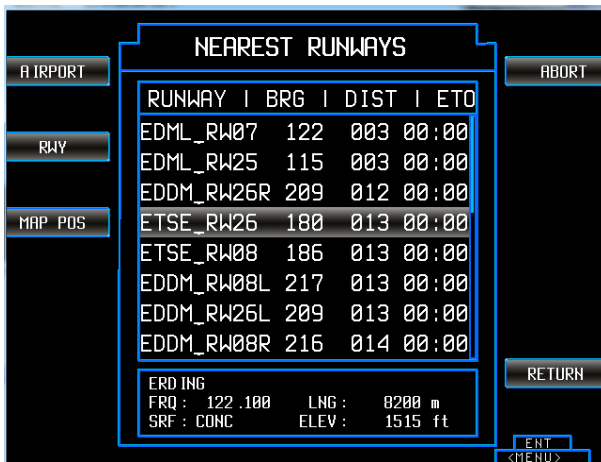


Figure 32: Direct-to "DCT", "NEAREST", RUNWAYS "RWY"

2.6.1.4. "MAP POS" – Map Position

Symbol	Description
"NEAREST"	<p>"MAP POS" opens the group selection of waypoints (Figure 33).</p> <p>The further search is done under the next selected criterion.</p> <p>"AIRPORT" is selected as initial setting.</p> <p>It is modified for the following actions with the selection of the group.</p> <p>The actual map position serves as search criterion.</p>

- Use the rotary-encoder left/right to select and push it to confirm and to continue.

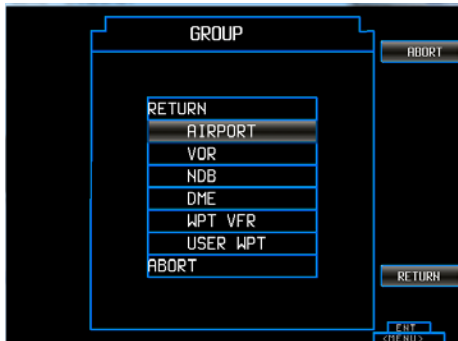


Figure 33: Direct-to "DCT", "NEAREST", "MAP POS", select a group



Figure 34: Direct-to "DCT", "NEAREST", "MAP POS", after Group Selection

2.6.1.5. "VFR WYP" – VFR Waypoints

Symbol	Description
"VFR WYP"	Allows calling up lists of airports with the corresponding VFR waypoints (Figure 35). <ul style="list-style-type: none"> <li>• Airports (magenta): not selectable.</li> <li>• VFR WYP (white): selectable</li> </ul>

- Use the rotary-encoder left/right to select and push it to confirm and to continue.

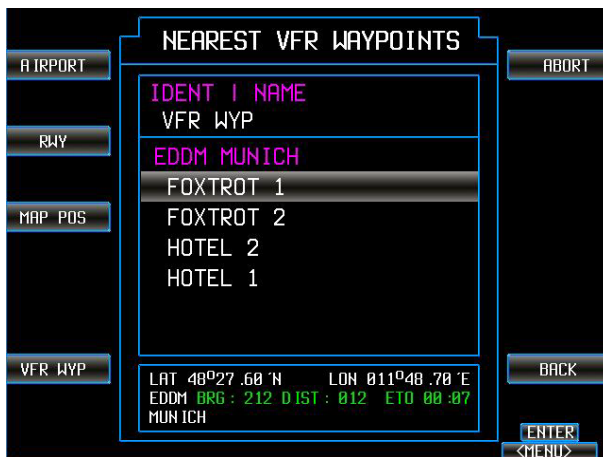


Figure 35: Direct-to "DCT", "NEAREST", VFR WYP

2.6.1.6. "ACT WYP" – Active Waypoint

Symbol	Description
"NEAREST"	"ACT WYP" This function is similar to the "MAP POS" function except that it is a spatial search criterion to the currently selected waypoint. This function is only visible when a current waypoint is set. The function is used to go from one Direct-to waypoint to the next Direct-to waypoint. In the case of search waypoints with "MAP POS" and "ACT WYP", after select one group a list appears (Figure 34). Just as in "AIRPORT" or "RWY" this list serves to select a Direct-to waypoint.

- Use the rotary-encoder left/right to select and push it to confirm and to continue.

2.6.1.7. **USE AS DIRECT TO?**

After selecting the Direct-to waypoint a mask with the question appears:

- USE AS DIRECT TO? (Figure 36).

Following functions are available:

Symbol	Description
"ENTER"	<ul style="list-style-type: none"> <li>• Push the rotary-encoder to confirm the selection. Now the selected Direct-to waypoint is set.</li> </ul>
"OFFSET"	<p>Allows editing an additional offset to the selected waypoint. The mask requires you to edit a:</p> <ul style="list-style-type: none"> <li>• 2-digit offset for distance.</li> <li>• 3-digit offset for bearing.</li> <li>• Correction of inputs with "DELETE".</li> </ul> <p>The input fields distance and bearing can be selected with the 4-way-rocker-key (Figure 37).</p>
"SHOW ON MAP"	Displays the selected waypoint on the map (Figure 38).

- Push the rotary-encoder to confirm the selection.



Figure 36: Direct-to "DCT", USE AS DIRECT TO?



Figure 37: Direct-to "DCT", USE AS DIRECT TO? "OFFSET"



Figure 38: Direct-to "DCT", USE AS DIRECT TO? "SHOW ON MAP"

The information for the Direct-to waypoint is displayed on the top left. This information includes details like:

- The waypoint itself, the bearing of this waypoint,
- The distance to this waypoint.
- The remaining flight time to this waypoint (Figure 39).

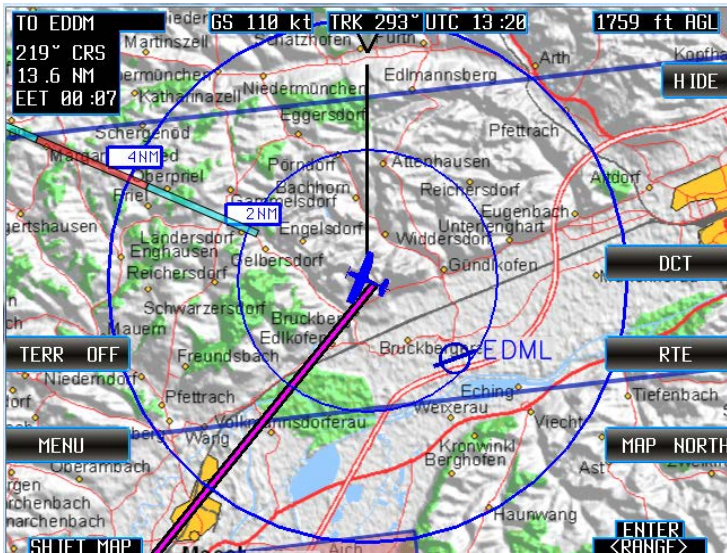


Figure 39: Direct-to "DCT", a Direct-to waypoint is set

### 2.6.1.8. "SEARCH"

Symbol	Description
"SEARCH"	<p>Allow the selection of a waypoint by the identifier or the name.</p> <ul style="list-style-type: none"> <li>• Push the function key "SEARCH" in the Direct-to mask (Figure 29).</li> <li>• Select the function key for switching between "IDENTIFIER SEARCH" and "NAME SEARCH".</li> <li>• Remove a wrong character by pushing the function key "DELETE".</li> <li>• "COUNTRY" and "AIRPORT" reduce the number of search items (Figure 41). <ul style="list-style-type: none"> <li>○ "COUNTRY" – the search is recuded to countries.</li> <li>○ "AIRPORT" - the search is recuded to airports.</li> </ul> </li> </ul> <p>Here you will find the same search groups as already described in the chapter on NEAREST.</p>



### 2.6.1.9. "IDENTIFIER SEARCH"

In this mask you can enter the default setting for the airport, NAV codes or the corresponding names (Figure 40).

- Select an entry via the rotary-encoder.
- Select a character via the rotary-encoder and push the rotary-encoder to confirm this input.
  - After each confirmed input the number of possible outcomes is reduced according to the previous input.

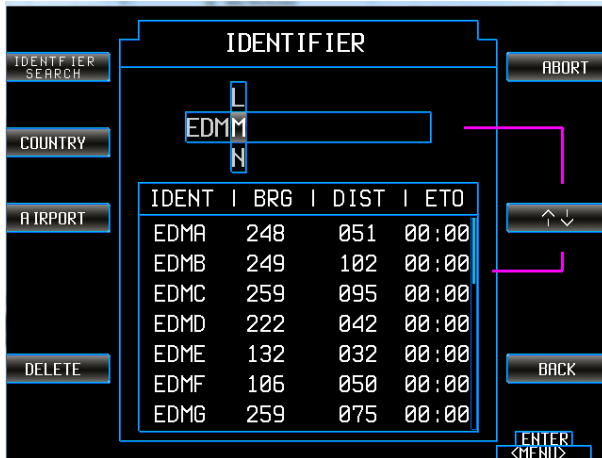


Figure 40: Direct-to "DCT", "SEARCH", "IDENTIFIER SEARCH"

- If not all entries are visible an additional blue bar appears on the edge of the list.
- With the function key "UP / DOWN" you can set selection preference to the list and the movements of the rotary-encoder are interpreted only as control commands for the list.

2.6.1.10. "NAME SEARCH"

- Push the function key "IDENTIFIER SEARCH" to switch to "NAME SEARCH" (Figure 41).
  - In this mask you can enter the actual airport-name or NAV-Aid-name.
  - The relevant identifier is listed below.

For example, with the input of "KARLS" you get the identifier "EDPS" which corresponds to the Airport in Karlsruhe.

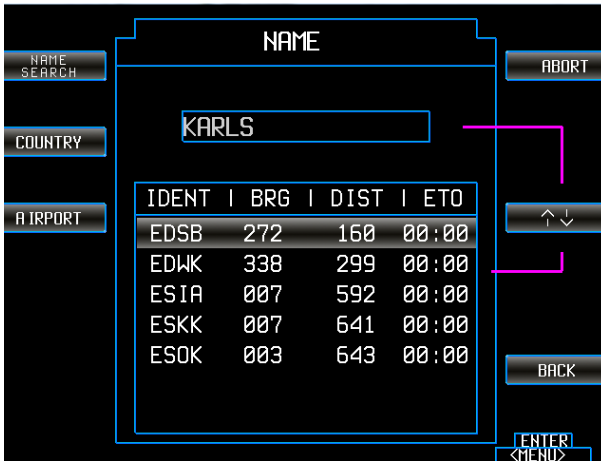


Figure 41: Direct-to "DCT", "SEARCH", "NAME SEARCH"

- After selecting the Direct-to waypoint you get the question "USE AS DIRECT TO?"

(Figure 36). Details see page 38.

2.6.1.11. "MAPSEARCH"

Symbol	Description
"MAPSEARCH"	<p>Allow the selection of a waypoint directly on the map from the main Direct-to mask ("DCT") and the function "MAPSEARCH".</p> <ul style="list-style-type: none"> <li>• Use the turn functions of the rotary-encoder to change the view size of the map.</li> <li>• When entering waypoints on the map the selected point is set in the center of the map.</li> <li>• The airplane symbol marks the center of the map.</li> <li>• You can move the map via the 4-way-rocker-key to the desired position and confirm the Direct-to waypoint by pushing the rotary-encoder.</li> <li>• After completing the entry you get the question "USE AS DIRECT TO?"</li> </ul> <p>Here you have different possibilities to check your selection once more, locate the waypoint on the map or enter an offset value for an approach point. (Figure 36). Details see page 38.</p>

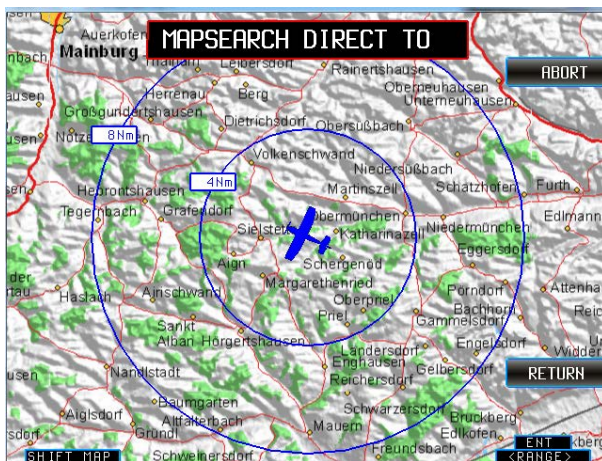


Figure 42: Direct-to "DCT", "MAPSEARCH"

2.6.1.12. "LAT", "LON"

Symbol	Description
"LAT / LON"	<p>Allow the input of a waypoint via coordinate values in the Direct-to mask ("DCT") and the function "LAT/LON" (Figure 43).</p> <ul style="list-style-type: none"> <li>• Select the characters using the 4-way-rocker-key.</li> <li>• Select a character via the rotary-encoder and push the rotary-encoder to confirm the input.</li> <li>• Remove a wrong character by pushing the function key "DELETE".</li> <li>• If the last character in the second line is entered the selected character is valid.</li> <li>• After completing the entry you get the question "USE AS DIRECT TO?"</li> </ul> <p>Here you have different possibilities to check your selection once more, locate the waypoint on the map or enter an offset value for an approach point. (Figure 36). Details see page 38.</p>

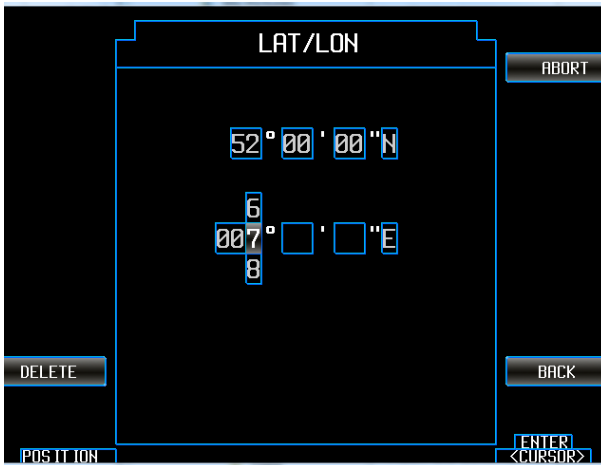


Figure 43: Direct-to "DCT", "LAT/LON"

2.6.1.13. "RTE" (in Direct-to mode)

Symbol	Description
"RTE"	<p>Allow the selection of a waypoint from an activated route. This function is only available when a route is activated.</p> <ul style="list-style-type: none"> <li>"RTE" opens the activated route with the available waypoints of this route plan.</li> <li>Select a waypoint via the rotary-encoder and push the rotary-encoder to confirm the input.</li> </ul>

**Note:**

Important here is the mode change after this selection.

- Please note an activated route plan will be interrupted.
- The device was on an active flight route and route departure mode and with the selection of a waypoint as a Direct-to waypoint the route plan disappears as inactive, but remains in memory.
- The route plan is no longer active.
- The Base map view changes also.
- The field for route planning "RTE" is no longer highlighted.
- The display shows now the Direct-to waypoint (no longer the next waypoint from the route plan).
- Change the mode back to route planning by selecting a route as the active route (Base map, "RTE").

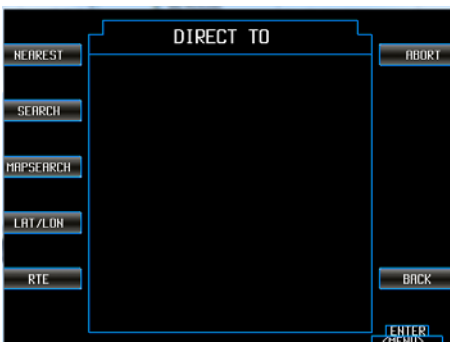


Figure 44: Direct-to "DCT", "RTE" visible - means a route is activated



Figure 45: Direct-to "DCT", "RTE", opens the activated route plan

2.6.1.14. **Update/Refresh the Map View (Direct-to mode)**

- The bearing line is displayed on the map (Figure 46).
- In contrast to the continuously updated waypoint position, the bearing line does not updated permanently; you have to do this manually in the Direct-to mask (Figure 48).
- After some time, when the aircraft has moved further away, the distance between the aircraft and the bearing line is no longer current.
  - You have to update this manually in the Direct-to mask (Figure 48).

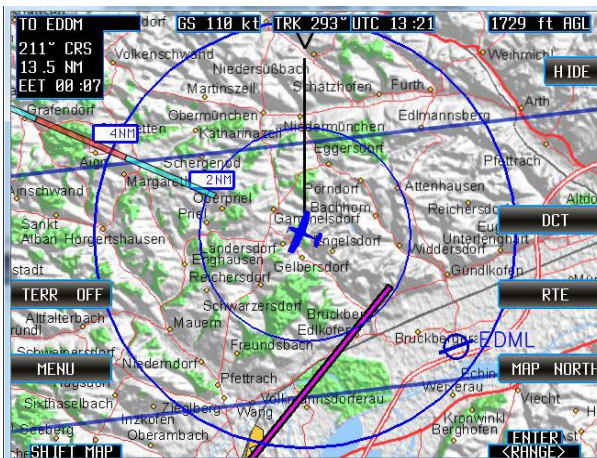


Figure 46: Direct-to "DCT", After the aircraft has moved further away

- After reopening the Direct-to mask and when a Direct-to waypoint is active, additional function fields are visible on the right side.

2.6.1.15. "DCT ACT", "DCT INAC"

Symbol	Description
	Indicates that a Direct-to waypoint is in memory.
"DCT ACT"	If "DCT ACT" is displayed means a waypoint is activated.
"DCT INAC"	If "DCT INAC", is displayed means a waypoint exists but it is inactive. Only an activated waypoint can be updated (Figure 48).

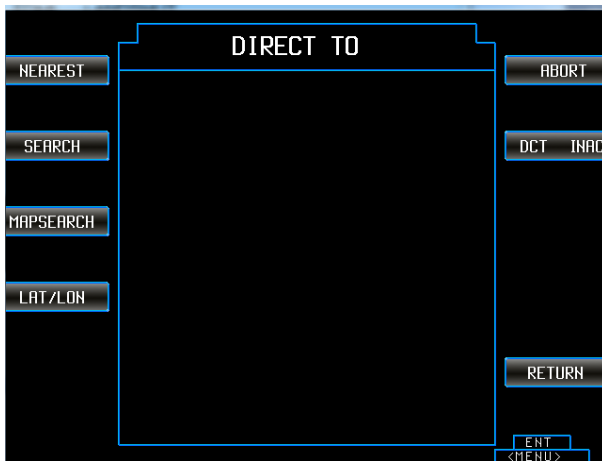


Figure 47: Direct-to "DCT", inactive waypoint

2.6.1.16. "UPDATE"

Symbol	Description
"UPDATE"	It serves to synchronize the bearing with the current aircraft position. It is only visible when a Direct-to waypoint is activated (Figure 48).



Figure 48: Direct-to "DCT", active waypoint, "UPDATE"



## 2.7. Route Planning Mode

The route planning mode is used for creating, managing and using routes.

- A route is a collection of waypoints.
- Between the waypoints is a distance, the sum of these distances gives the total length of the route.
- Each waypoint is connected with the previous waypoint.
- Route names are always built from the indication of the start- and end-point.
  - The names are unique, if there are several routes with the same start- and end-point, the additional route receives a consecutive numbering in parentheses.
- Start- and end-point of a route may be the same waypoint (round-flight).
- Routes need not be explicitly stored.
- Routes are only valid if they have more than one waypoint.
- They remain available if they are valid routes.

### 2.7.1. Function Route "RTE"

- Push the function key "RTE" or push the rotary-encoder to call up the list and select "RTE" to open the menu mask.
  - A mask with a list of available routes appears.
- The information about the current status is displayed above the list.

#### **Note:**

With selection "ABORT" or "BACK" all current activities can be terminated.

- "ABORT" returns always back to the Base map,
- "BACK" returns to the previous page (Figure 13).

Almost all functions of the keys can also be selected from a list.

- Push the rotary-encoder to get the list displayed.
- Select the desired function by means of the rotary-encoder and push to confirm your choice. (Figure 13).

2.7.1.1. **Active and Inactive Routes**

- To be able to fly a certain route, it must be activated.
  - An active route is displayed in the map as a magenta line to the current next waypoint and with stars for waypoints.
  - The details bearing, distance and the time to the next waypoint are displayed in the field on the top left.
  - The name of the next waypoint is displayed (Figure 49).
  
- If a route is set to inactive, its state is displayed "INAC" in brackets in the text box above the route list (Figure 51).
  - The text "ACT" indicates the route is active.
  - The function field shows the current state and not the state to which one can switch.

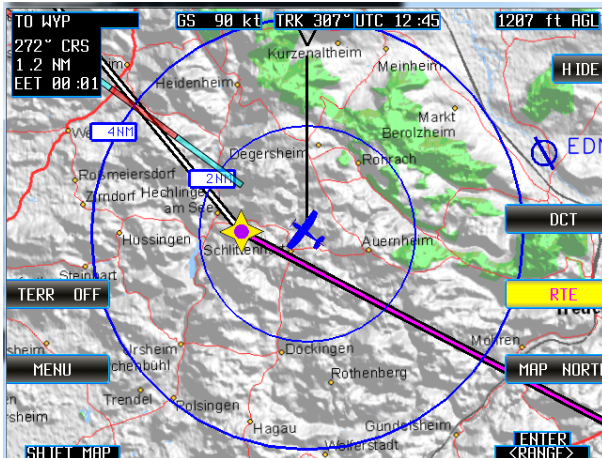


Figure 49: "RTE", Route activated

2.7.1.2. "LOAD ROUTE"

Symbol	Description
"LOAD ROUTE"	<p>Allows to set a selected route active (Figure 51).</p> <ul style="list-style-type: none"> <li>• Use the rotary-encoder to select a route from the list.</li> <li>• Set it to active.</li> <li>• Select the function "BACK" to continue.</li> </ul>

2.7.1.3. "RTE ACT", "RTE INAC"

Symbol	Description
"RTE ACT", "RTE INAC"	<p>Allows setting a selected route active/inactive.</p> <ul style="list-style-type: none"> <li>• Use the rotary-encoder to select a route from the list.</li> <li>• Set it to active/inactive.</li> <li>• Select the function "BACK" to continue.</li> </ul>

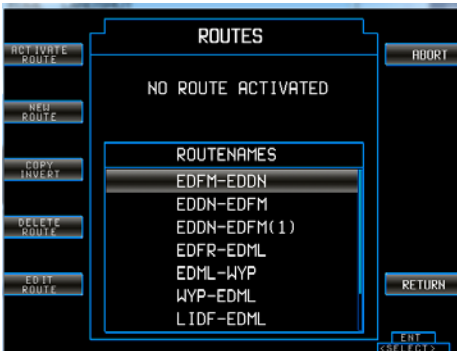


Figure 50: "RTE", ROUTES

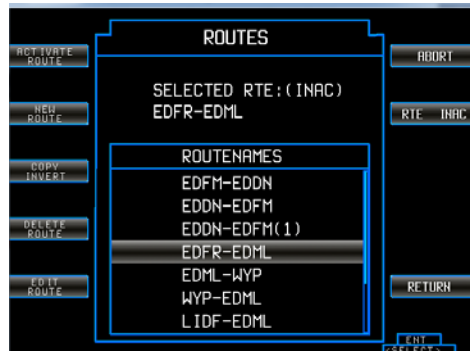


Figure 51: "RTE", "RTE ACT", "RTE INAC"

#### 2.7.1.4. "NEW ROUTE"

Symbol	Description
"NEW ROUTE"	<p>Opens an empty route mask to set own waypoints (Figure 52).            In the waypoint mask are all the functions available to create a new route: (Figure 53)</p>
	<p>"IMPORT ROUTE": route plans in .gpk-format can be imported from a storage medium (Micro SD card).</p> <p>"INSERT ABOVE": insert a waypoint before an existing waypoint.</p> <p>"DELETE WYP": deletes the selected waypoint from the route.</p> <p>"INSERT BELOW": insert a waypoint behind an existing waypoint.</p> <p>"SHOW ON MAP": it is possible to display the route on the map.</p> <p>The route is automatically valid and saved when the second waypoint is inserted in the route.</p>

- Select and confirm the waypoints in the same way of proceeding as described in the chapter Direct-to "DTC".
  - The masks for selecting waypoints are identical to the masks from the Direct-to mode,
    - "NEAREST" see page 33,
    - "SEARCH" see page 40,
    - "MAPSEARCH" see page 43,
    - "LAT", "LON" see page 44.
- Select the function "BACK" to continue.



Figure 52: "RTE", "NEW ROUTE",  
 WAYPOINTS

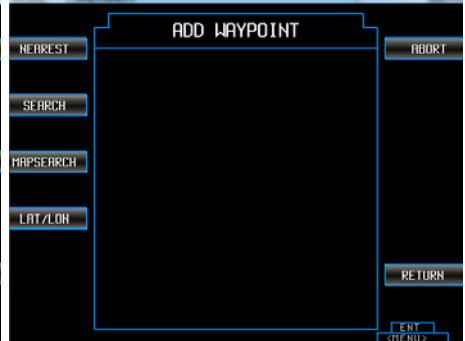


Figure 53: "RTE", "INSERT ABOVE"/"INSERT  
 BELOW"

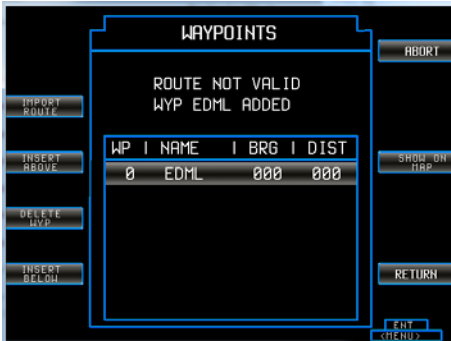


Figure 54: "RTE", New Route, First Waypoint

For the first waypoint, it does not matter whether it was inserted with "INSERT BELOW" or "INSERT ABOVE" - it is the first point (Figure 54).

The route is automatically valid and saved when the second waypoint is inserted in the route.

2.7.1.5. "COPY INVERT"

Symbol	Description
"COPY INVERT"	Creates a copy of the selected route with the reverse order of the waypoints for using this as a return flight function. The naming is done automatically according to the rules for the generation of route names. (Figure 55).

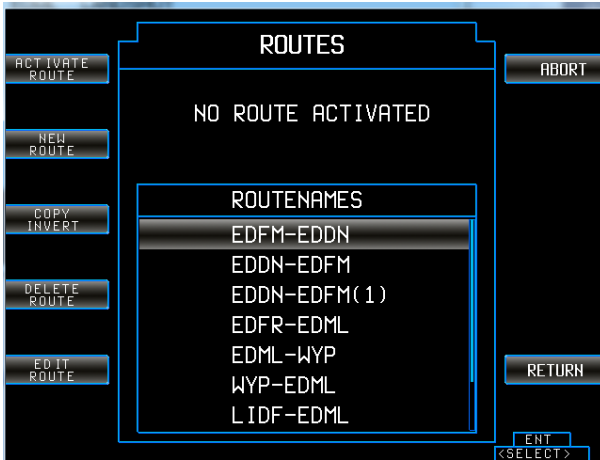


Figure 55: "RTE", ROUTES

2.7.1.6. "DELETE ROUTE"

Symbol	Description
"DELETE ROUTE"	Deletes the selected route.

2.7.1.7. "EDIT ROUTE"

Symbol	Description
"EDIT ROUTE"	Opens the waypoint mask for adding, delete and edit waypoints from route plans (Figure 52).

2.7.1.8. "SHOW ON MAP"

Symbol	Description
"SHOW ON MAP"	<p>Shows selected waypoints of a route in the map (Figure 56).</p> <ul style="list-style-type: none"> <li>The selected waypoint is displayed in the map centre with an airplane symbol (Figure 57).</li> </ul> <p>When the map is in Manual Mode, you can move the map with the 4-way-rocker-key and zoom in/out with the rotary-encoder and thus explore the area around the waypoint.</p>



Figure 56: "RTE", route with waypoints



Figure 57: "RTE", waypoint in the map ("SHOW ON MAP")

### 2.7.1.9. "IMPORT ROUTE"

Import a route from an external storage medium (Figure 58).

- Files in .gpx format can be imported and displayed.
- The name on the storage medium is the name of the route in the device.
- The names of the waypoints are taken from the waypoint names in the database of the device.

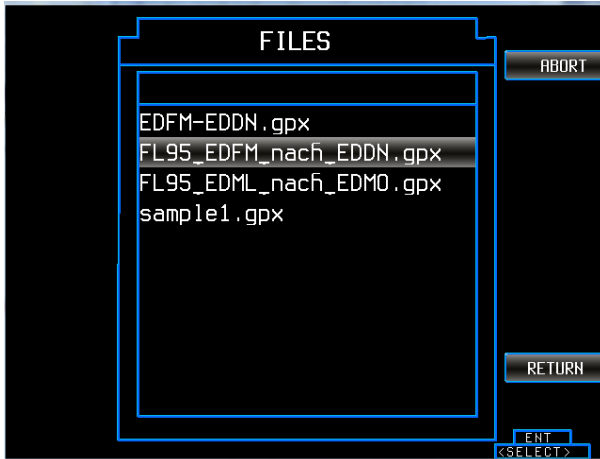


Figure 58: "RTE", "IMPORT ROUTES", files from an external storage medium



2.7.1.10. "EXPORT ROUTE"

When a valid route exists, an additional function appears on the upper left function key bar:

- "EXPORT ROUTE" (Figure 59).
- With this function, the route can be stored on a plugged external storage medium (Figure 60).
- The export file format is .gpx.

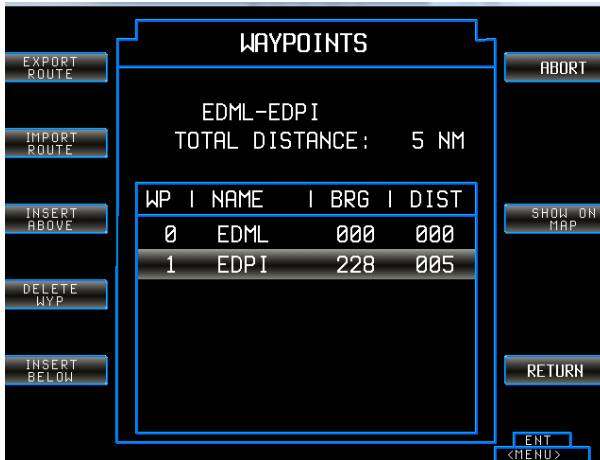


Figure 59: "RTE", "EXPORT ROUTE"

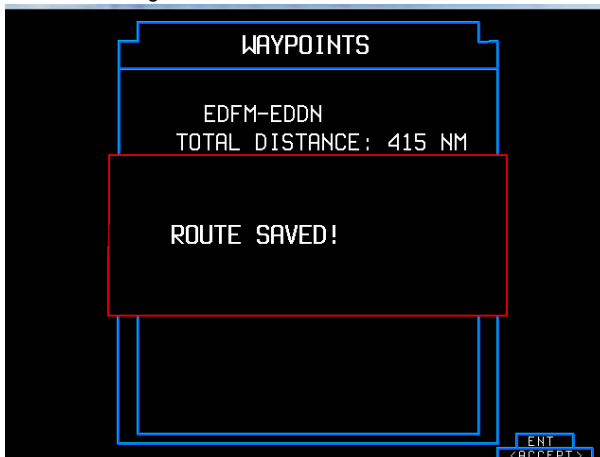


Figure 60: "RTE", "ROUTE SAVED!"

## 2.8. Update Mode

### 2.8.1. Update Process: ARINC 424 Jeppesen® Navigation Data Europe

Your delivered device is updated with the latest valid ARINC 424 Jeppesen® Navigation Data Europe.

#### 2.8.1.1. Displayed Product Information

After switching ON the device and booting the Disclaimer screen appears. Here you will find the relevant data details like the date of the current navigation database, base map database, product name, software version.

- ① Product name, software version
- ② Navigation database
- ③ Base map database

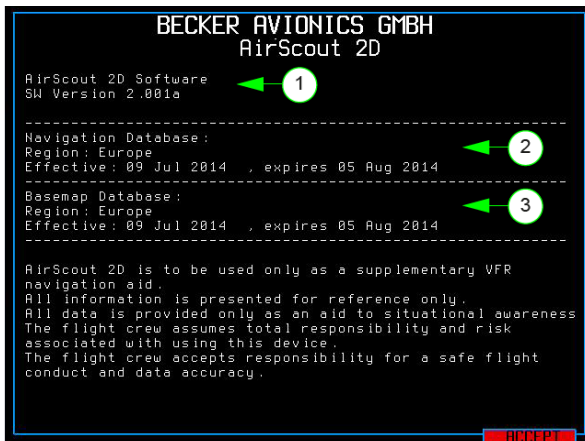


Figure 61: Displayed product information

The purchase of a new AirScout 2D includes 12 free of charge navigation database update files (every 28 days).

The requirement for receiving Navigation Data Europe files by email is:

- Fill in the order form "First Order Form for Jeppesen® ARINC 424 Navigation Database Europe" see <http://www.airscout2D.com>.  
*For details see I&O manual "Process to Receive a Registered AirScout 2D and Navigation Data" (on webpage <http://www.airscout2d.com>).*
- Keep your address data up-to-date to ensure the receiving of the monthly Navigation Data Europe ("Change Form for Data Service Contract" see <http://www.airscout2D.com>).
- Check the filter settings of your email program to ensure the receiving of the Navigation Data Europe volume (zip file, ca. 8 MB). Becker Avionics assumes no liability if you can not receive this file.
- If you need a follow-up contract for Navigation Data Europe files please use the order form "Order Form fee-based for Jeppesen® ARINC 424 Navigation Database Europe" see <http://www.airscout2D.com>.
- Computer with SD card slot.

### 2.8.2. Explanation of the file name for Navigation Data Europe update files

You will receive the update files via email. Here you will find a explanation to identify the file version.

Example:	"arinc_424_v18_20150625_00100.zip"
arinc_424	<b>ARINC 424 data base</b>
v18	<b>Version number</b> (Becker internal info)
Data effective : Year Month Day	<b>2015</b> <b>06</b> <b>25</b>
00100	<b>Serial number of your device</b> see type plate on MFD "Type Plate" page 11 or see menu mode "Serial Number" page 23. The serial number works also as the digital registration. Each update file is unique and works only with your registered device.

Please use the empty  $\mu$ SD card (delivered with the AirScout 2D) for the data transfer from your computer to your AirScout 2D. Please handle the card with care, don't bend it or scratch the contacts.

- Insert the SD card adapter including the  $\mu$ SD card to the SD card slot of your computer.
- Copy the sent Navigation Data Europe file as it is (zip file, no unpacking or modification needed) to this empty  $\mu$ SD memory card.
- Safely remove of the card from your computer (refer to your operating system manual of your computer for details).
- Remove the  $\mu$ SD card out of the SD card adapter.
- Make sure that your AirScout 2D is switched OFF.
- Insert this  $\mu$ SD card into the  $\mu$ SD card slot of the AirScout 2D, please pay attention of the  $\mu$ SD Card Insertion Direction, see page 62. Please push the card carefully into the slot and ensure that it is locked.
- Switch ON the AirScout 2D.
  - Now the updater recognizes the availability of new Navigation Data Europe and displays the possibility of the start for an update process see Update New Version Available, page 62.
- After message "Successfully updated to new version" see Update Completed, page 63 switch OFF the AirScout 2D.
- A slight pressure on the  $\mu$ SD card ejects it from the slot.
- After switching ON the AirScout 2D you can check whether the data transmission for this version was successful see Displayed Product Information, page 58.

Please use always the delivered empty  $\mu$ SD memory card for further data updates. You have to delete all data files from the  $\mu$ SD memory card to avoid problems between the file transfers.

**2.8.3. Flow Chart: Update of Navigation Data**

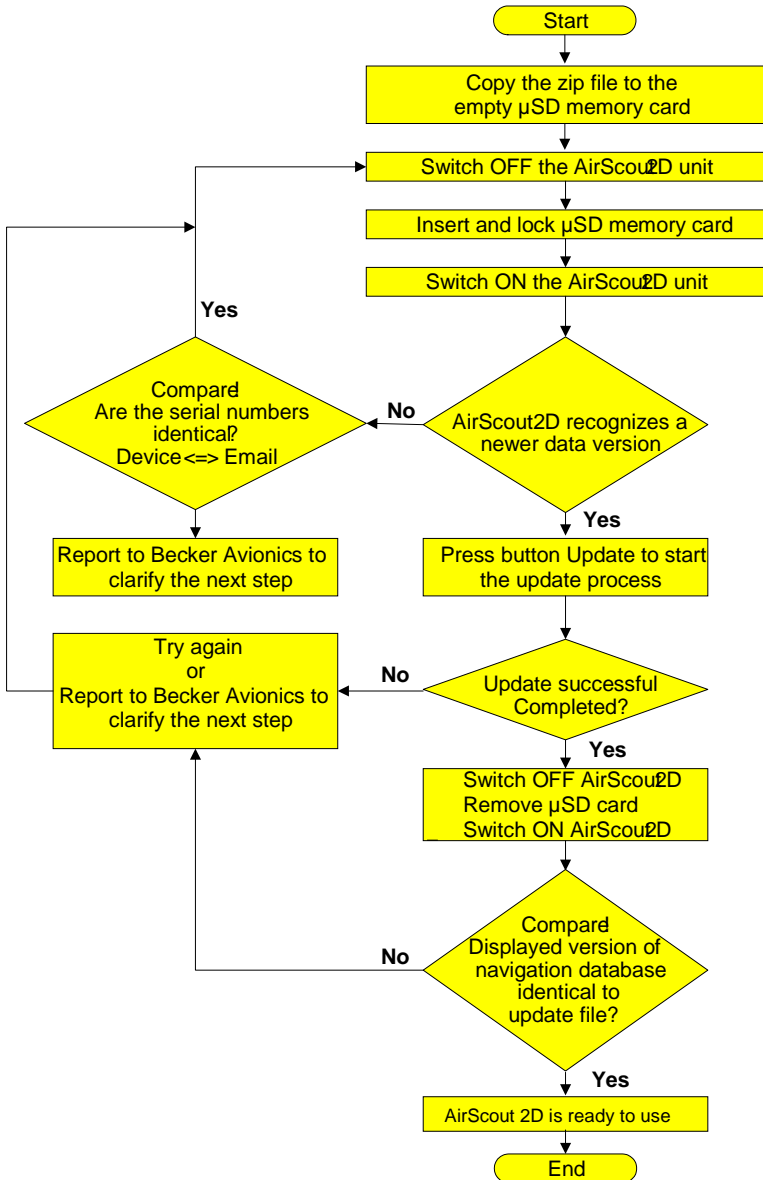


Figure 62: Flow chart: Update of navigation data

### 2.8.4. $\mu$ SD Card Insertion Direction

Please make sure that the golden contacts on the upper side (see picture).

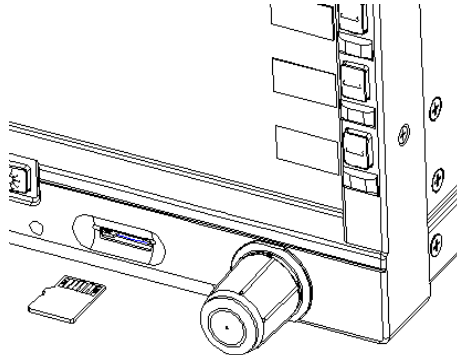


Figure 63:  $\mu$ SD card

### 2.8.5. Update New Version Available

First, an  $\mu$ SD card is inserted into the device with a newer version. The updater recognizes this and displays a possible update.

The update is done in two steps depending on the  $\mu$ SD card contents.

The user can then decide whether this should be executed:

- Now (press button "Update") or
- At a later time (press button "Later").

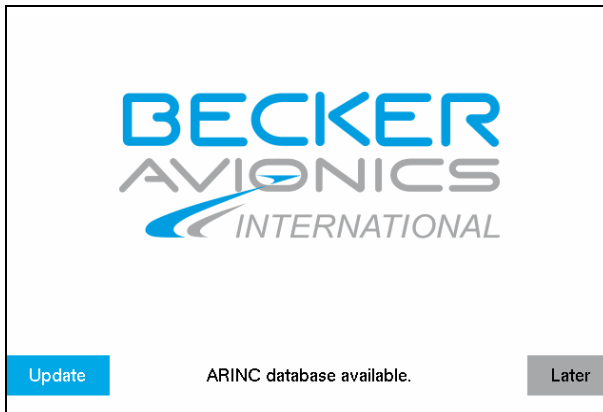


Figure 64: Update new version available

### 2.8.6. Update in Progress

If the user performs the update, a status indicator on the the update progress is displayed.

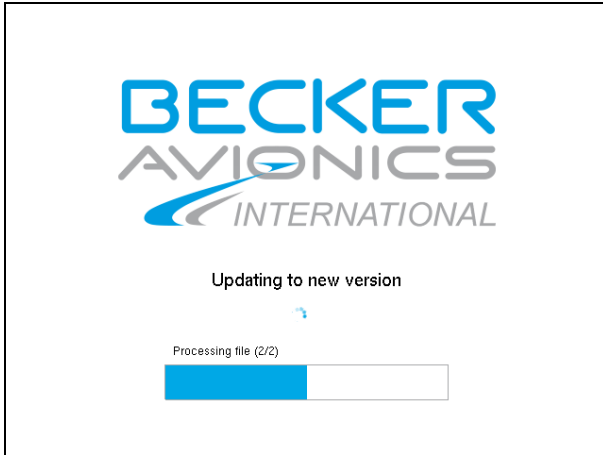


Figure 65: Update in progress

### 2.8.7. Update Completed

If the update was successful, the "Successful Update" message appears.

- Press Confirm to acknowledge.

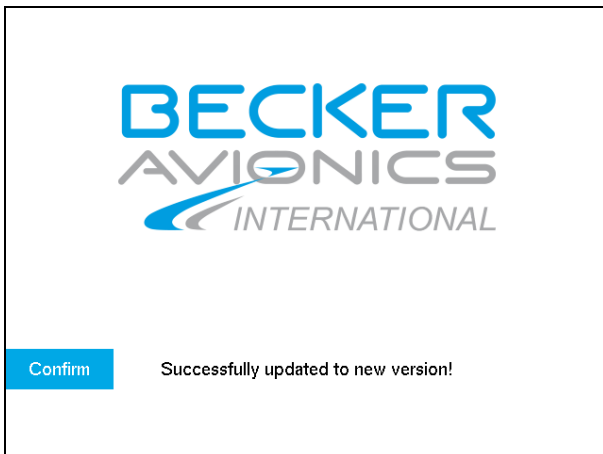


Figure 66: Update completed

### 2.8.8. Update Error

If an error occurs during the update, an error message appears.

In this case, the user can :

- Try the update again (press "Try again") or
- Quit the updater (press "Cancel").

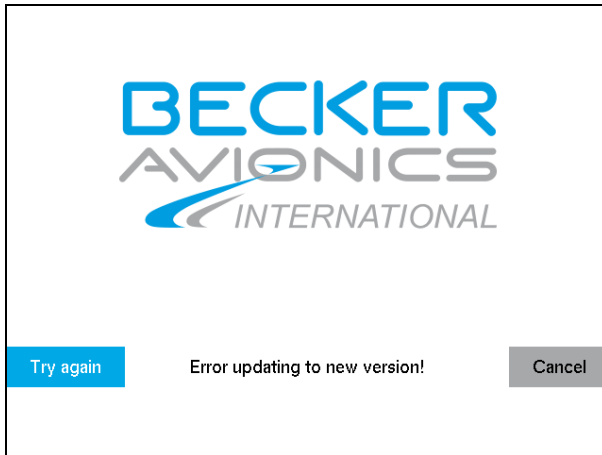


Figure 67: Update Error



### 3. Technical Data

<b>MFD6203</b>	<b>Specifications</b>
Power supply	+9...+32.5 VDC
Max. power consumption	22 W
Power consumption standby (OFF)	0.5 W
Current consumption (typical, with max. brightness)	1.6 A at 14 V 0.8 A at 28 V
Standby mode (OFF mode)	0.04 A at 14 V 0.02 A at 28 V
Power-up time	typical 35 s
Internal fuse protection	5 A fast-blow, SMD nano fuse
Operating temperature	-20...+55 °C (short-time +70 °C)
Storage temperature	-30...+70 °C
Operating altitude	≤15 000 ft
Receive frequency	1575.42 MHz; L1 C/A code
Sensitivity (tracking)	-158 dBm
Position accuracy	Without aid 3.3 m CEP DGPS (RTCM) 2.6 m
Velocity accuracy	0.1 knot RMS steady state
Update rate	1...5 Hz
Display+bezel	TFT panel by LED backlight; Buttons, switches with LED backlight Dimmable
Display active screen size / resolution	6.5", diagonal / 640x480 VGA
Display surface	Glare, Anti-reflective (AR), Hardness: 3H
Memory	16GB SATADOM for system and data storage
DRAM	2G DDR3-1333 204Pin SO-DIMM
Interfaces	Micro SD
Installation	160 mm system
Qualifications	Hardware: DO-160D Software: None
Certifications	Hardware: None Software: None

In case of additional questions contact your local Becker Avionics dealer or forward your request direct to Becker Avionics "Customer Service".

In the event of damage or a defect, the entire device must be returned for repair. The repair must be made by trained Becker Avionics personnel.

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**Support in German or English**

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**Support in French**

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**User Conversions and Changes are Not Permitted**

Any change made by the user excludes any liability on our part (excluding updates for the navigation data base and excluding the work described in this manual).

**Blank**

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We reserve the right to make technical changes.  
 The data correspond to the current status at the time of printing.  
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**\*\*\* End of the Document \*\*\***