MiniGPS

for X-Plane 10.32

Version 1.2

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Austrian X-Plane Design Group

Content:

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1. Overview

What is MiniGPS?
MiniGPS is a software (LUA-Script), which simulates a simple GPS unit (whithout graphical display). It calculates the heading and distance to the target using the great circle calculation (shortest distance on the surface of earth).

What MiniGPS is not?
MiniGPS is not an "autopilot". The pilot stays responsible for the aircraft!

2. Installation
Copy the content of the .zip file into the "Scripts" folder of FlyWithLua. The files "MiniGPS.lua" and " MiniGPS.fpl" must be in the folder "<X-Plane Directory> / Resources / plugins / FlyWithLua / Scripts".

Attention: Needs at least FlyWithLua version 2.3 or higher!

3. Display
Upon start of X-plane the following MiniGPS window appears in the top left corner of the screen:
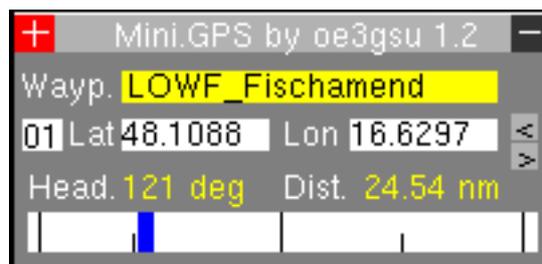
Upon start the current position is saved and displayed as LAT- and LON values.

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3.1. minimize the display
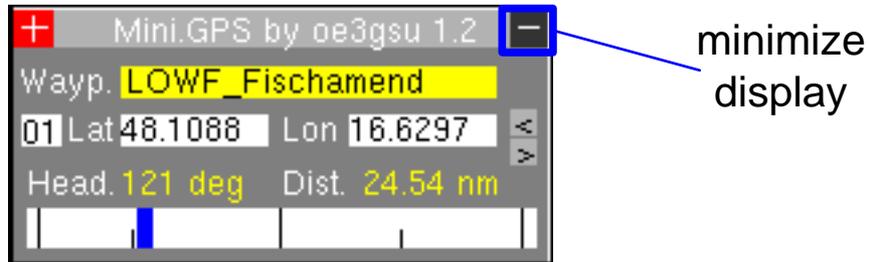
minimize
display

With a mouse click in the field on the right top (the "minus"-sign) the display is
minimized:

and in the lower left corner of the X-Plane window you will see the above field.

in this mode, the calculations will continue and the AP-feed is also functioning. Only
the display is switched off and should improve the fps.

A mouse - click in the above field will restore the display.

3.2. Moving the display

With a mouse click on the white cross in the upper left corner of the display, it will
'stick' on the mouse an can be moved to your desired position. With another click the
display will stay on this position.

move display
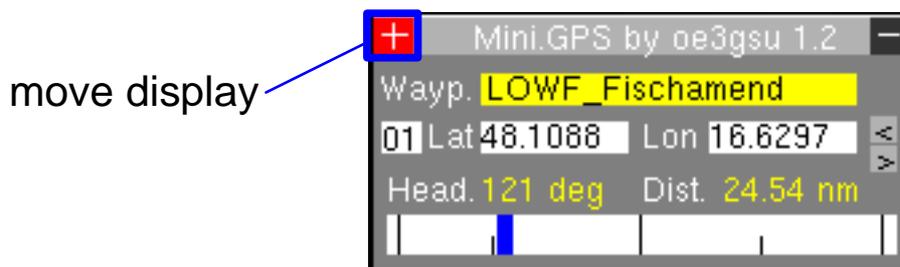
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3.3. Change mode

MiniGPS has two modes:

Manual mode:	is used if a 'MiniGPS.fpl' file (a flight plan file) file **does not exist** in the 'Scripts' folder of FlyWithLUA; but can also selected manually.
Routing mode:	is used if a 'MiniGPS.fpl' file (a flight plan file) does exist in the 'Scripts' folder of FlyWithLUA..
Automatic mode:	is used if a 'MiniGPS.fpl' file (a flight plan file) does exist in the 'Scripts' folder of FlyWithLUA and „Routing mode" is been disabled.

Even if a 'MiniGPS.fpl' file exists in the 'Scripts' folder of FlyWithLUA you can use the manual mode following these steps:

- Input of LAT- and LON values with the keyboard
- With a click on the "counter" pad of the automatic mode.

Counter
Field
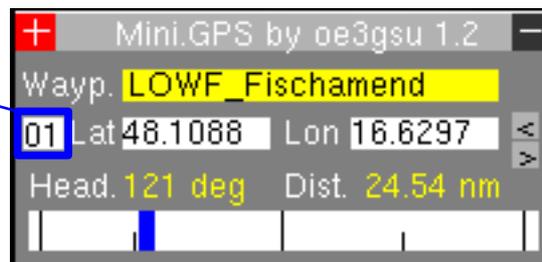
With a click on this pad you can switch between **manual and automatic** mode.

3.4. Heading difference

In this field the actual difference between the heading of the aircraft (center of the filed) and the calculated heading to the waypoint (blue indicator) is displayed.
It is **not** a CDI (Course Deviation Indicator) like other GPS units, because MiniGPS is calculating the course always new and therfore a CDI can not be shown.

Heading
Difference
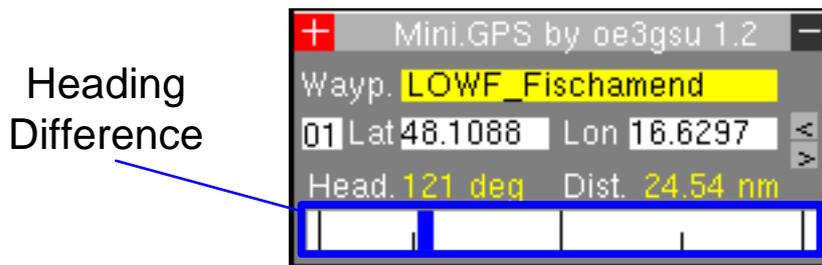
3.5. AP (Autopilot) feed

With a click on the "Heading difference" field the
- AP feed is **activated** (yellow background)
- or **deactiviated** (white background)

AP-Feed
activated
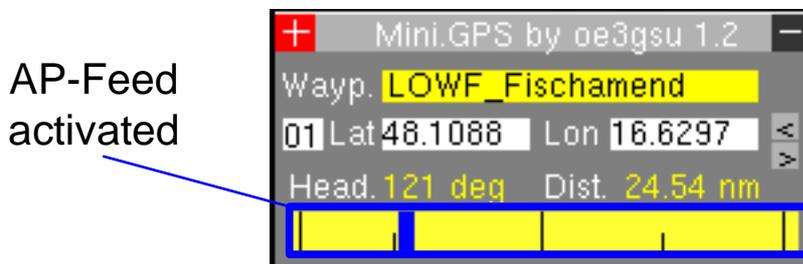
This function also can be linked to a key or joystick button over the X-Plane menu "Settings / Joystick & Equipment / <Keys> or <Buttons adv.>.

3.6. Heading and distance display

Heading and
Distance to Waypoint
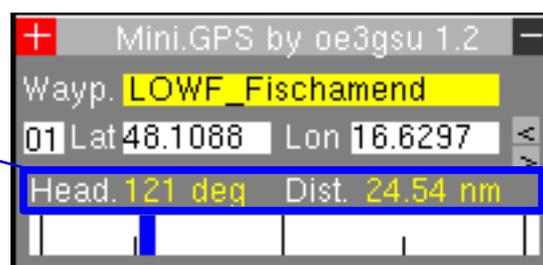
Above the heading difference field you can see the heading and distance to the actual waypoint.

3.7. *Previous / next waypoint*

next/previous
Waypoint
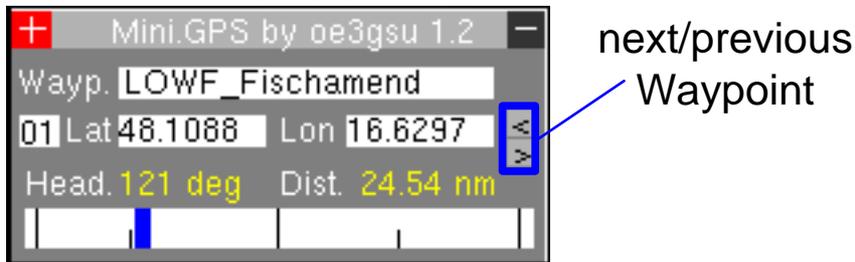
With automatic mode active the next (">") or previous ("<") waypoint can be selected.

3.8. *Waypoint-Name*
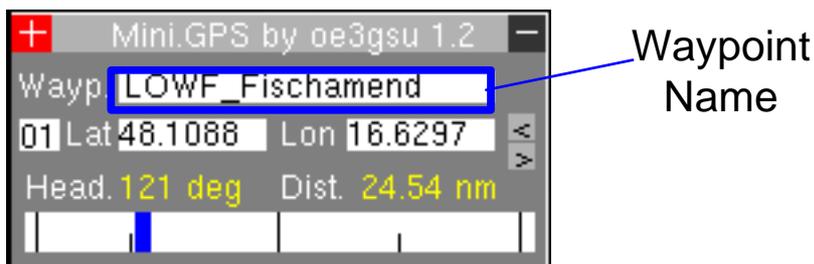
Waypoint
Name

There the name of the waypoint (if entered in the "MiniGPS.fpl"-File) is displayed.

3.9. *Routing-Mode*
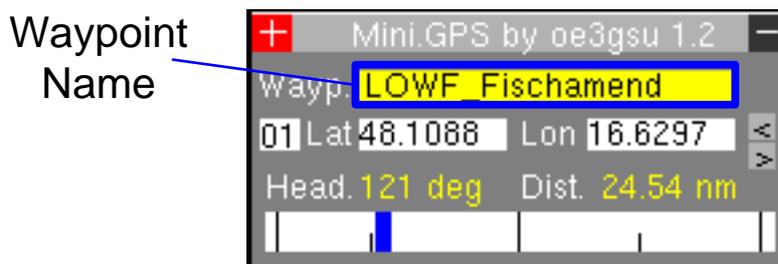
Waypoint
Name

With a mouse click in the Waypoint-Name - field you can switch between the **Routing-Modus** (MiniPGS switches to the next waypoint when reaching the actual waypoint) and the **Automatik-Mode** (next waypoint has to be selected manually).

Attention: The caclucaltion and display of heading and distance are made only once per second because of performance reasons.

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4. Functions

4.1. OVERVIEW

4.1.1. Manual mode

MiniGPS calculates the heading and distance to the displayed waypoint. If AP feed (see below) is activated, the AP of the aircraft will be feeded with the necessary data.

4.1.2. Automatic mode

MiniGPS calculates the heading and distance to the displayed waypoint. To switch to the next or prevoius waypoint you have to use the appropriate pad (see paragraph 3.6).

4.1.3. Routing mode

MiniGPS calculates the heading and distance to the displayed waypoint. Shortly before the waypoint is reached it will switch to the next waypoint. The actual ground speed is part of the calculation and with activated AP feed and AP of the aircraft it will perform a 'fly by' of the waypoint.
If AP feed is activated, the AP of the aircraft will be feeded with the necessary data.

4.2. Manual mode

This mode is selected:
- automatically, if no flightplan file is found
- manually with mouse click on the „counter field"
- with manual input of LAT- and LON values

The fields "counter" and "next / previous waypoint" are not displayed in this mode.

4.2.1. Input of LAT- und LON values

With a click in the LAT- or LON field the input mode will be activated.

LAT-Field
LON-Field
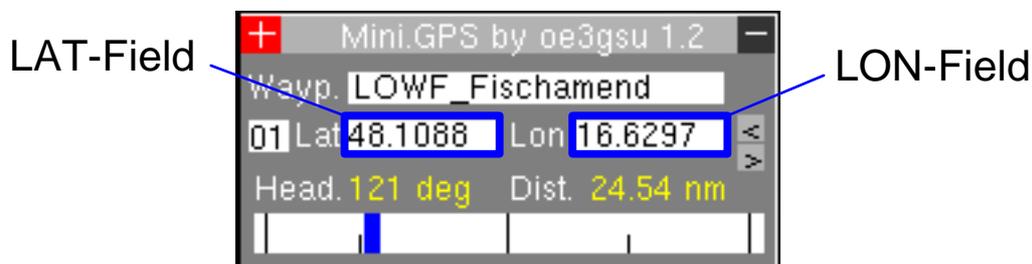
Following values are valid:
- "0" to "9", "-", "," or "."
- "+" on the number pad of the keyboard for ending the input mode
- "ESC" to erase written values

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During the input mode the numbers are been displayed in red, when finished again in black.

If you entered invalid values an 'ERROR' message will appear.

As soon as a value has been inputed, MiniGPS starts to calculate heading and distance.

4.2.2. Activation of AP feed

With a click on the „heading difference" field you can activate the AP feed and the calculated values are feeded into the AP of the aircraft. The background color of the field changes to yellow.

AP-Feed activated
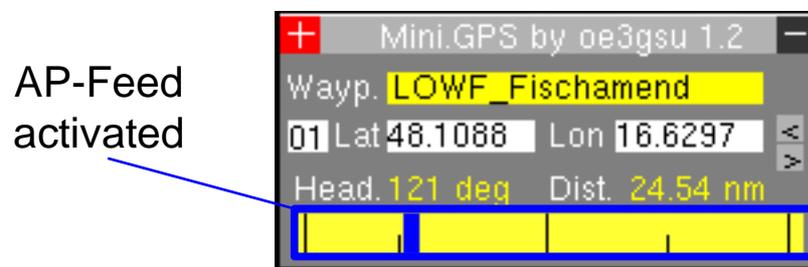
MiniGPS **DOES NOT** activate the AP. This has to be done by the pilot himself.

4.3.   Routing mode

If the flightplan file "MiniGPS.fpl" does exist in the „Scripts" folder of FlyWithLUA this file will be loaded and the automatic mode activated.

The actual position of the aircraft will be saved as waypoint „0". So you can always return to the point you have started from.

Before start waypoint "1" has to be selected with the "next / previous waypoint" pads.

next/previous Waypoint
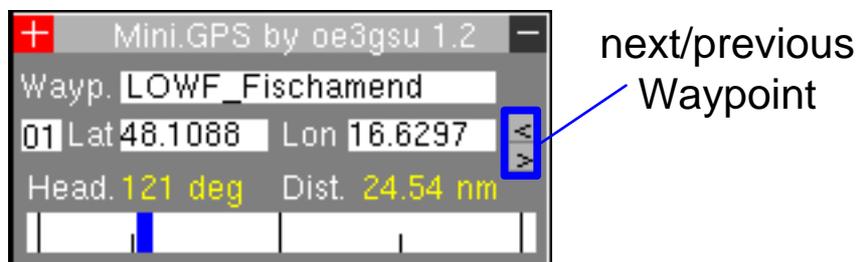
MiniGPS calculates heading and distance. With a click on the "heading difference" field (see above) the AP feed will be activated.

After the start the AP can be activated in 'heading mode' and MiniGPS will guide you to the first waypoint.

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Shortly before the waypoint is reached MiniGPS will switch to the next waypoint. The actual ground speed is part of the calculation and with activated AP feed and AP of the aircraft it will perform a 'fly by' of the waypoint.

If you wish to land at a certain waypoint you must deactivte either the AP of the aircraft or the AP-feed of MiniGPS.

As long as you don't change the aircraft or the airport (in both cases FlyWithLUA will be restarted) the flighplan stays active and can be reactivated.

If you reach the last waypoint of the flighplan, AP feed of MiniGPS will be deactivated.

4.4.   Automatic mode

With a click on the 'Waypoint name' field the routing mode will be deactivated and MiniGPS will switch into automatic mode (the field appears with white background).
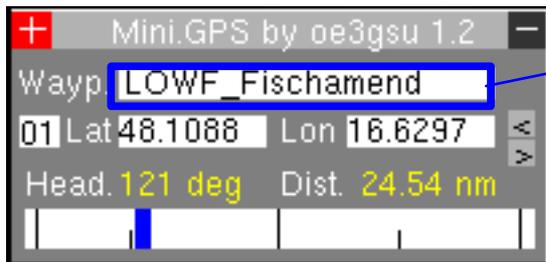
In this mode MiniGPS will not switch to the next waypoint automatically. This has to be done manually by using the appropriate pads (see paragraph 3.6). The advantage of this mode is to fly exactly to the waypoint without 'losing' it shortly before arrival because of automatic switching to the next waypoint (useful for a helicopter landing for example).

4.5.   The 'MiniGPS.fpl' file
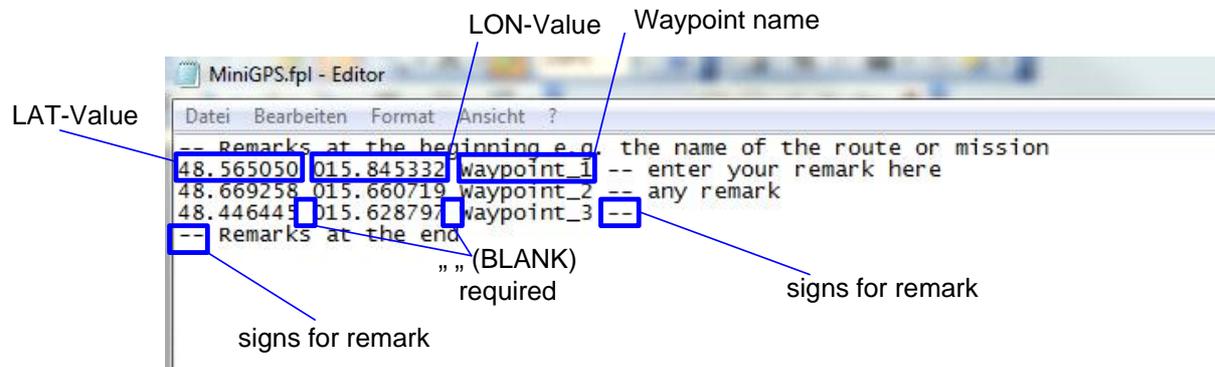
The file can be made with a simple text editior.

The first column sets the LAT value, the second column the LON value, the third column holds the waypoint-name. One row per waypoint.

Between the values a blank " " is required.

The waypoint-name should not contain more than 20 letter und must not contain " " (blank).

Remarks are marked with "--" (two times minus). You can put them at the beginning of a line or on the end of the values. **All entries after "--" are been ignored.**

There is a maximum of 99 lines that can be read.

There is NO error check of the file with the current version of MiniGPS!

5. Credits

LAMINAR RESEARCH®   X-Plane®
X-Friese   for FlyWithLua and lots of example scripts
PetJedi   Editor Manual and english version

6. Betatester-Team

Members of AXDG.

7. Terms of license

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The developers are not responsible for any malfunctions or possible failures of hard- or software in connection with this scenery.
Under http://forum.aerosoft.com/index.php?/forum/621-freeware/ the developers are available for questions or remarks regarding this scenery but cannot give the guarantee that this scenery will work on all computer systems.

Have fun flying with MiniGPS

oe3gsu, Gerhard