MSFS HudBar V 0.23.0.17

See (new V0.23) indications for updates from the previous version

# Display essential Information as Bar or Tile at any side of the primary screen

* Displays essential aircraft and flight information as Bar or Tile
* Supports 1 and 2 engine aircrafts (Prop/Engine RPM, Fuel Flow for each)
* Provides 5 different content profiles which are fully configurable
* The pilot can directly activate Autopilot commands
* Auto Elevator Trim on a click
* FS20_HudBar scale 50%Bottom/Top Bars work best with wide screen monitors





# Usage

* Deploy the release zip content in a folder (no installer provided or needed)

Best is to start MSFS first, then the Bar

* Start MSFS2020 first and once the Main Menu is shown
* Start FS20\_HudBar.exe
* It attempts to connect to the Flight simulator in 5 sec intervals, but shows an error message while it cannot connect
* Note: the shown values are a bit meaningless until the aircraft and flight is live  
  Also note that the bar is shown on the **++PRIMARY monitor++** at the bottom of the screen
* **Right** Click the Bar and choose from the pop up menu
  + To **select** a Profile (1..5 - your names)
  + To **Configure**.. to check or uncheck the items to be shown
  + To **Exit** and stop the program
* The Hud can be shown as **Bar** or **Tile**   
  (to be changed in Configuration, default is Bar at the Bottom of the screen)
  + Bar: a full width window attached to the defined side of the screen
  + Tile: a window sized to accommodate the selected items  
    A Tile can be moved freely along the side where it is attached to

*Note: the previous Splitter is no longer available – use Tile and move the tile wherever you want.*

# What is shown

Fields can be selected to be shown in the Configuration Window

The sequence can be adjusted to your needs in Configuration

From the Left - MSFS indicates if the Bar is connected to the Simulation (**red** if not connected)

Then there are: Trim, Gear, Brakes (Park), Flaps

Followed by: Engine Values, GPS data, Aircraft data and Auto Pilot Indications, Checkpoint meters



# Clickable Commands

In general when you see a label with a dark blue background and when hovering with the mouse pointer it turns to a hand cursor – the item is actionable.

## Autopilot commands

Actionable autopilot command are:

-AP-, HDG, ALT, VS, FLC, NAV and APR

Clicking them will toggle the state if this is supported by the Sim

## Setting the BARO to the current pressure

Click BARO to set it to current (same as the keyboard B button)

## E-,R-,A-Trim Reset (new V0.22)

Click the label to set the trim value to 0% (reset Trim)

## Automatic Elevator Trim (separate item A-ETrim in V0.22)

**A-ETrim** – Aside from showing the current Elevator Trim % it provides an Auto Elevator Trim function:

Clicking the **A-ETrim** label will activate the Auto Elevator Trim module for about 20 seconds.  
It will display **A-ETrim** in green color while active - clicking the active module again will switch it off  
Note: the module controls the Elevator Trim in a way to level the aircraft towards zero vertical speed.  
It may or may not work to your expectation.. so use it only if you feel comfortable with.

## Moving a Tile Hud

If a profile is set as **Tile** one is able to move the window along the bound edge of the screen

Movement is available if the cursor shows up as Cross with Arrows

Click the **Left** mouse button and drag the window, it will remain attached to the bound border while moving it

# Other information

## Checkpoint Lapse Meter: (new V0.22)

* Click one of the CP1..CP3 labels to start the meter, it shows the time elapsed and the distance from the trigger location (Lat/Lon Distance). The label turns green when clicked once.
* Click again to re-start the meter – *there is no Stop function, just let it run*

## Waypoint Estimates:

**WP-VS** – Which VS is required to arrive at the next Waypoint at the set altitude given the current GS assuming a straight flight. This requires to have a next Waypoint and its altitude other than zero, the altitude target is ALTP. The target altitude may change to a blue indication and using the AP set altitude when there is no GPS target altitude (=0).

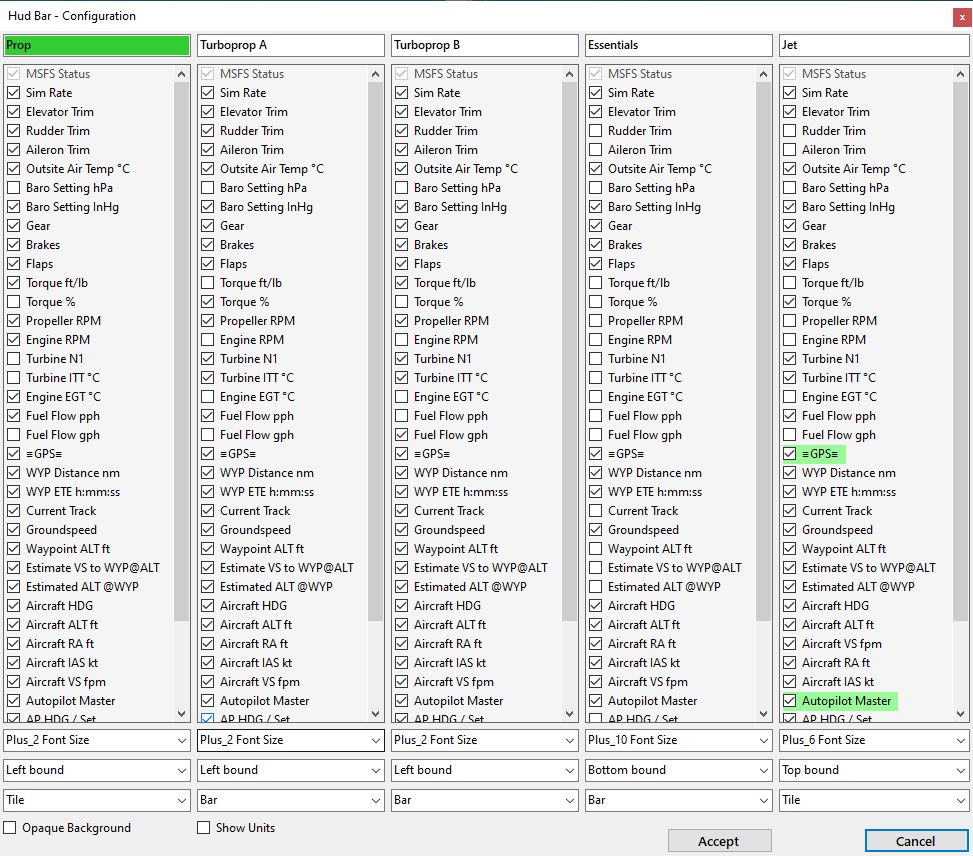
**WP-ALT** – At which altitude is the aircraft when reaching the next Waypoint given the current GS and VS.  
This requires to have a next Waypoint.

# Configuration

The currently selected one will show up with a green background color (here it was “Prop”)

**Name** and use up to 5 different profiles

Type the profile name into the field of the topmost row (here Prop, Turboprop A, …)



General Settings are:

* Check **Show Units** to display the units along the values
* Check **Opaque Background** to have the Bar completely black, else it is slightly transparent

For any profile:

* Check / Uncheck the items in the list which to show / hide items
* Select a **Fontsize** from Regular, Plus-2, -4, -6, -8, -10, Minus-2, -4, Plus-12, -14 (new V0.23)  
  (the bar rescales to multiple rows/columns to fit all checked items on the screen)
* Select the **Alignment** of the bar for any profile (left, right, top, bottom)
* Select the **Kind** of the bar – where Bar is a full width or height band and Tile is a rectangle bound to the Alignment border, the size of the tile will adapt to the items shown
* Checked items are shown in either horizontal or vertical order as they are shown in the configuration panel.  
  See below how to re-arrange the order here and to apply new lines

## Move an item within a bar:

*Works about the same as Drag and Drop*

* **Left** Click and hold the item which will be moved
* Move the mouse up or down – the cursor will change to a NS sign
* Drop (**Release** the mouse button) – the item should appear at the drop position  
  *Note: Due to the rearrangement of the affected items the behavior is different if you move an item up or down – sometimes you need a second drag to place it where you want it to be*
* Hit **Escape** or move the mouse out of the drop zone and release the mouse button if you wish to cancel the movement

## Start a new line for the item and its successors:

* **Right** click an item to start it on a new line/column in the Hud
* New Lines are indicated with items that have a light green background color (e.g -GPS- above)
* **Right** click again to remove the New Line – the background color reverts to light gray

*Note: if the New Line item is unchecked the line break is omitted*

## Leaving the Configuration Window

* Click **Accept** to accept all changes made to the configuration
* Click **Cancel** to discard all changes made
* The window will close and the Hud is rebuilt according to the profile

All settings are automatically saved and should be available for any further use

# Available Info Fields

For Engine related fields the Bar shows up to 2 Engines.  
Once a 2 Engine aircraft is detected the left one is Engine 1 and the second/right one Engine 2

**SimRate x** : the current Sim Rate factor – if not x1 it is shown with yellow background

**ID**: the aircraft ID (new V0.23)

**E-**, **R-**, **A-Trim**: Elevator, Rudder, Aileron Trim % values +- deflection (click the label to Zero Trim (new V0.22))

**A-ETrim**: Elevator Trim % value with clickable Auto Elevator Trim (separate item in V0.22)

**OAT**: Outside Air Temperature (only in °C – sorry…)

**BARO**: Setting is available as InHg or HPA – chose one that fits the needs

**AoA**: Angle of attack degrees (new V0.23)

**Gear**: either Up, down or Unknown (Transient) 

**Brakes**: Parking Brake indication - Set:Released:

**Flaps**: either full up, down or steps in-between (depends on the number of steps available) 

**TORQ**: Engine torque value is available as ft/lb or % – chose one that fits the needs

**P-RPM**: Propeller RPM Value

**E-RPM**: Engine RPM Value

**N1**: Turbine N1 % Value

**ITT**: Turbine ITT Temperature in °C

**EGT**: Engine Exhaust Gas Temperature in °C

**MAN**: Manifold Pressure inHg (new V0.22)

**FFLOW**: Fuel Flow value is available as pounds per hour or gallons per hour – chose one that fits the needs

**-GPS-** Shows the previous and next Waypoint if a flight plan is active

WYP **DIST** shows the GPS Distance to the next Waypoint

WYP **ETE** shows the GPS Estimated Time Enroute to the next Waypoint

**BRG** shows the GPS magnetic bearing to the next Waypoint (new V0.23)

**TRK** shows the GPS ground track

**DTK** shows the GPS desired track to the next Waypoint (new V0.23)

**XTK** shows the GPS cross track distance in nm (new V0.23)

**GS** shows the GPS ground speed

**ALTP** shows the GPS Waypoint Altitude if it is available

***Calculated*** fields when a "Next Waypoint" is available:

* **WP-VS** Estimated VS to WYP@ALT:  
  Calculated VS to reach the next waypoint at the proposed altitude with the current GS and DIST   
  (ALTP altitude when purple or Setting Alt when blue)
* **WP-ALT** Estimated ALT@WYP:  
  Calculated altitude at next waypoint using the actual GS, VS and DIST

*Note: the calculated fields are experimental they are rounded to the nearest 100.*

**HDG**: Current Heading

**ALT**: Current Altitude (ft)

**RA**: Radio Altitude (ft AOG) available when <1000ft AOG

**IAS**: Indicated Airspeed (kt)

**TAS**: True Airspeed (kt) (new V0.23)

**VS**: Vertical rate (feet per minute)

**-AP-**: Autopilot Master (all Autopilot signs turn to **Green** text if active)

**HDG**: Heading Mode Sign and Heading Setting

**ALT**: Altitude Mode Sign and Altitude Setting (ft)

**VS**: Vertical Rate Sign and VS Setting (fpm)

**FLC**: Flight Level Change Sign and IAS Setting (kt)

**NAV**: Nav Mode Sign and GPS Source – GPS active source shown in purple letters else if NAV is guiding the GPS label is greyed out

**APR**: Approach Mode Sign and Glide Slope/Path (**>GS<**) Capture. GS turns **green** if captured



**CP1..3**: Checkpoints to track elapsed time and Lat/Lon distance from start point  
click a CPn label to start tracking, it turns green while tracking, click again to set a new start point   
(new V0.22)

My FlightSim Libraries (included in the release package)

* SimConnectClient.dll -- FlightSim interface to MSFS2020 SimConnect
* FSimClientIF.dll -- Generic FSim Client interface definition
* FSimIF.dll -- Generic FSim interface definition

From MSFS2020 Developer Kit for convenience included:

* SimConnect.cfg
* Microsoft.FlightSimulator.SimConnect.dll
* SimConnect.dll

**Full Credit goes to JayDeeGaming**

Where the idea of this HudBar is 'borrowed' from (<https://www.youtube.com/c/JayDeeGaming/about>)