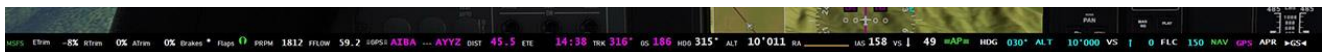


MSFS HudBar V 0.27.0.21

See (new V0.27) indications for updates from the previous version

Display essential Information as Bar or Tile at any side of the primary screen
Or use the Window to have it anywhere you like

- 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
- 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

If you are using it the first time, all items except for the MSFS status are unchecked i.e. no further items are shown in the default bar at the bottom of the screen.

– just head straight to the Configuration and check the ones you like (right click the bar – Configure...)

- **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** or **Window** (new V0.27)
(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
 - Window: like Tile but freely movable

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

See below for all items available



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, BC, NAV, APR and YD, LVL

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

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

Automatic Elevator Trim

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

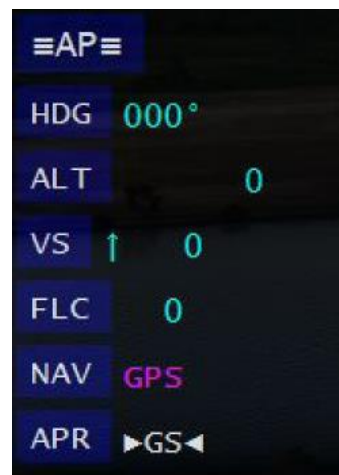
Checkpoint Lapse Meter:

- 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, ...)

HUD Bar - Configuration				
Prop	Turboprop A	Turboprop B	Essentials	Jet
<input checked="" type="checkbox"/> MSFS Status	<input checked="" type="checkbox"/> MSFS Status	<input checked="" type="checkbox"/> MSFS Status	<input checked="" type="checkbox"/> MSFS Status	<input checked="" type="checkbox"/> MSFS Status
<input checked="" type="checkbox"/> Aircraft ID	<input checked="" type="checkbox"/> Sim Rate	<input type="checkbox"/> Sim Rate	<input checked="" type="checkbox"/> Aircraft ID	<input type="checkbox"/> Torque ft/lb
<input checked="" type="checkbox"/> Sim Rate	<input type="checkbox"/> Elevator Trim	<input type="checkbox"/> Elevator Trim	<input type="checkbox"/> Sim Rate	<input type="checkbox"/> Torque %
<input checked="" type="checkbox"/> Auto E-Trim	<input type="checkbox"/> Rudder Trim	<input type="checkbox"/> Rudder Trim	<input type="checkbox"/> Elevator Trim	<input type="checkbox"/> Propeller RPM
<input type="checkbox"/> Elevator Trim	<input type="checkbox"/> Aileron Trim	<input type="checkbox"/> Aileron Trim	<input type="checkbox"/> Rudder Trim	<input type="checkbox"/> Engine RPM
<input type="checkbox"/> Rudder Trim	<input checked="" type="checkbox"/> Outside Air Temp °C	<input type="checkbox"/> Outside Air Temp °C	<input type="checkbox"/> Aileron Trim	<input checked="" type="checkbox"/> Turbine N1
<input type="checkbox"/> Aileron Trim	<input type="checkbox"/> Baro Setting hPa	<input type="checkbox"/> Baro Setting hPa	<input checked="" type="checkbox"/> Outside Air Temp °C	<input checked="" type="checkbox"/> Turbine ITT °C
<input checked="" type="checkbox"/> Outside Air Temp °C	<input checked="" type="checkbox"/> Baro Setting InHg	<input type="checkbox"/> Baro Setting InHg	<input type="checkbox"/> Baro Setting hPa	<input type="checkbox"/> Engine EGT °C
<input type="checkbox"/> Baro Setting hPa	<input checked="" type="checkbox"/> Gear	<input type="checkbox"/> Gear	<input checked="" type="checkbox"/> =GPS=	<input checked="" type="checkbox"/> Fuel Flow pph
<input checked="" type="checkbox"/> Baro Setting InHg	<input checked="" type="checkbox"/> Brakes	<input type="checkbox"/> Brakes	<input checked="" type="checkbox"/> WYP Distance nm	<input type="checkbox"/> Fuel Flow gph
<input type="checkbox"/> Gear	<input checked="" type="checkbox"/> Flaps	<input type="checkbox"/> Flaps	<input checked="" type="checkbox"/> WYP ETE h:mm:ss	<input type="checkbox"/> =GPS=
<input checked="" type="checkbox"/> Brakes	<input type="checkbox"/> Torque ft/lb	<input type="checkbox"/> Torque ft/lb	<input checked="" type="checkbox"/> Estimated ALT @WYP	<input checked="" type="checkbox"/> WYP Distance nm
<input checked="" type="checkbox"/> Flaps	<input type="checkbox"/> Torque %	<input type="checkbox"/> Torque %	<input checked="" type="checkbox"/> Groundspeed	<input checked="" type="checkbox"/> WYP ETE h:mm:ss
<input checked="" type="checkbox"/> Wind cross / head kt	<input checked="" type="checkbox"/> Propeller RPM	<input type="checkbox"/> Propeller RPM	<input checked="" type="checkbox"/> Baro Setting InHg	<input type="checkbox"/> Bearing to WYP (mag)
<input checked="" type="checkbox"/> MAN Pressure inHg	<input type="checkbox"/> Engine RPM	<input type="checkbox"/> Engine RPM	<input type="checkbox"/> Gear	<input type="checkbox"/> Current Track
<input type="checkbox"/> Torque ft/lb	<input checked="" type="checkbox"/> Turbine N1	<input type="checkbox"/> Turbine N1	<input type="checkbox"/> Brakes	<input type="checkbox"/> Desired track to WYP
<input type="checkbox"/> Torque %	<input checked="" type="checkbox"/> Turbine ITT °C	<input type="checkbox"/> Turbine ITT °C	<input type="checkbox"/> Flaps	<input type="checkbox"/> Groundspeed
<input type="checkbox"/> Propeller RPM	<input type="checkbox"/> Engine EGT °C	<input type="checkbox"/> Engine EGT °C	<input type="checkbox"/> Torque ft/lb	<input checked="" type="checkbox"/> Cross track distance nm
<input checked="" type="checkbox"/> Engine RPM	<input type="checkbox"/> Fuel Flow pph	<input type="checkbox"/> Fuel Flow pph	<input type="checkbox"/> Torque %	<input type="checkbox"/> Waypoint ALT ft
<input type="checkbox"/> Turbine N1	<input checked="" type="checkbox"/> Fuel Flow gph	<input type="checkbox"/> Fuel Flow gph	<input type="checkbox"/> Propeller RPM	<input type="checkbox"/> Estimate VS to WYP@ALT
<input type="checkbox"/> Turbine ITT °C	<input checked="" type="checkbox"/> =GPS=	<input type="checkbox"/> =GPS=	<input type="checkbox"/> Engine RPM	<input type="checkbox"/> Estimated ALT @WYP
<input checked="" type="checkbox"/> Engine EGT °C	<input checked="" type="checkbox"/> WYP Distance nm	<input type="checkbox"/> WYP Distance nm	<input type="checkbox"/> Turbine N1	<input checked="" type="checkbox"/> Aircraft HDG
<input type="checkbox"/> Fuel Flow pph	<input checked="" type="checkbox"/> WYP ETE h:mm:ss	<input type="checkbox"/> WYP ETE h:mm:ss	<input type="checkbox"/> Turbine ITT °C	<input checked="" type="checkbox"/> Aircraft ALT ft
<input checked="" type="checkbox"/> Fuel Flow gph	<input checked="" type="checkbox"/> Current Track	<input type="checkbox"/> Current Track	<input type="checkbox"/> Engine EGT °C	<input checked="" type="checkbox"/> Aircraft RA ft
<input type="checkbox"/> =GPS=	<input checked="" type="checkbox"/> Groundspeed	<input type="checkbox"/> Groundspeed	<input type="checkbox"/> Fuel Flow pph	<input checked="" type="checkbox"/> Aircraft IAS kt
<input checked="" type="checkbox"/> WYP Distance nm	<input type="checkbox"/> Waypoint ALT ft	<input type="checkbox"/> Waypoint ALT ft	<input type="checkbox"/> Fuel Flow gph	<input checked="" type="checkbox"/> Aircraft TAS kt
<input checked="" type="checkbox"/> WYP ETE h:mm:ss	<input type="checkbox"/> Estimate VS to WYP@ALT	<input type="checkbox"/> Estimate VS to WYP@ALT	<input type="checkbox"/> Current Track	<input checked="" type="checkbox"/> Aircraft VS fpm
<input type="checkbox"/> Current Track	<input type="checkbox"/> Estimated ALT @WYP	<input type="checkbox"/> Estimated ALT @WYP	<input type="checkbox"/> Waypoint ALT ft	<input checked="" type="checkbox"/> Autopilot Master
<input checked="" type="checkbox"/> Groundspeed	<input checked="" type="checkbox"/> Aircraft HDG	<input type="checkbox"/> Aircraft HDG	<input type="checkbox"/> Estimate VS to WYP@ALT	<input checked="" type="checkbox"/> AP HDG / Set
<input type="checkbox"/> Waypoint ALT ft	<input checked="" type="checkbox"/> Aircraft ALT ft	<input type="checkbox"/> Aircraft ALT ft	<input checked="" type="checkbox"/> Aircraft HDG	<input checked="" type="checkbox"/> AP ALT / Set
<input type="checkbox"/> Estimate VS to WYP@ALT	<input checked="" type="checkbox"/> Aircraft RA ft	<input type="checkbox"/> Aircraft RA ft	<input checked="" type="checkbox"/> Aircraft ALT ft	<input checked="" type="checkbox"/> AP VS / Set
<input type="checkbox"/> Estimated ALT @WYP	<input checked="" type="checkbox"/> Aircraft IAS kt	<input type="checkbox"/> Aircraft IAS kt	<input checked="" type="checkbox"/> Aircraft RA ft	<input checked="" type="checkbox"/> AP FLC / Set
<input type="checkbox"/> Cross track distance nm	<input checked="" type="checkbox"/> Aircraft VS fpm	<input type="checkbox"/> Aircraft VS fpm	<input checked="" type="checkbox"/> Aircraft IAS kt	<input checked="" type="checkbox"/> AP NAV and GPS
				<input checked="" type="checkbox"/> AP APR and GS
Plus_4 Font Size	Plus_4 Font Size	Plus_4 Font Size	Plus_12 Font Size	Plus_4 Font Size
Left bound	Left bound	Bottom bound	Bottom bound	Left bound
Title	Title	Bar	Bar	Title
Regular Font	Regular Font	Condensed Font	Regular Font	Condensed Font
<input type="checkbox"/> Opaque Background	<input type="checkbox"/> Show Units			

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 (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
- Window is similar to Tile however it can be moved freely to any position and screen (new V0.27)
- Select from **Regular** or **Condensed** Font type

- ➔ 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

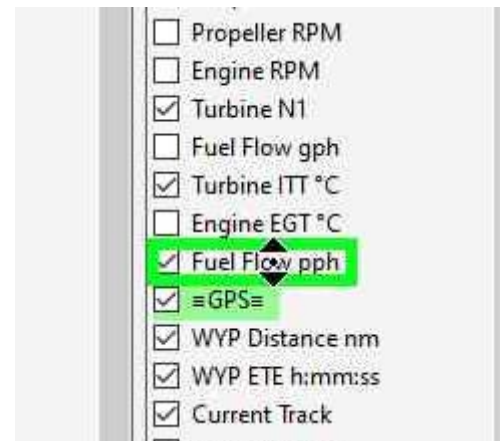
Move an item within a bar:

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

Time: the current Sim Time (new V0.27)

E-, R-, A-Trim: Elevator, Rudder, Aileron Trim % values +/- deflection (click the label to Zero Trim)

A-ETrim: Elevator Trim % value with clickable Auto Elevator Trim




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

VIS: Visibility nm (new V0.27)

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

WIND: Setting is available as Dir° @ Speed kt or Cross- / Head-Tail Wind kt

AoA: Angle of attack degrees

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

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

F-LR: Fuel quantity Left / Right as gallons (only gal available)

F-TOT: Fuel quantity Total as gallons (only gal available)

-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

TRK shows the GPS ground track

DTK shows the GPS desired track to the next Waypoint

XTK shows the GPS cross track distance in nm

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 Magnetic Heading

HDGt: Current True Heading (new V0.27)

ALT: Current Altitude (ft)

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

IAS: Indicated Airspeed (kt)

TAS: True Airspeed (kt)

Mach: Mach number (M)

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)

BC: Back Course Sign (new V0.27)

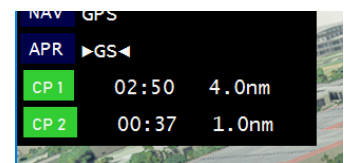
NAV: Nav Mode Sign and GPS Source – GPS active source shown in **purple** letters else if NAV is guiding the GPS label is greyed out

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

YD: Yaw Damper Sign (validity depends on Acft type) (new V0.27)

LVL: Wing Leveler Sign (validity depends on Acft type) (new V0.27)

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



Distributed Contents:

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

(new V0.27)

From Google Fonts Library embedded:

- Share_Tech_Mono

A rather condensed monospaced font used for the 'Condensed Font Window

Full Credit goes to JayDeeGaming

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