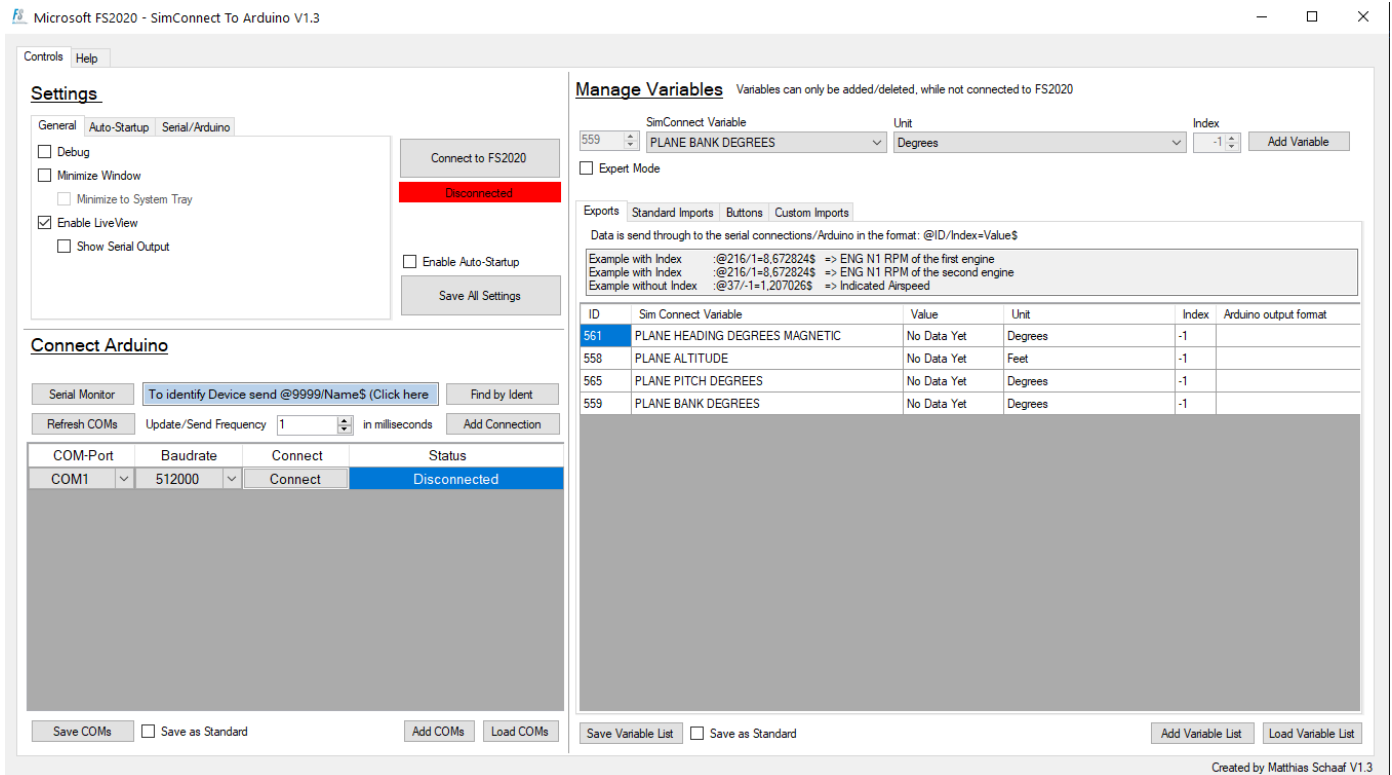
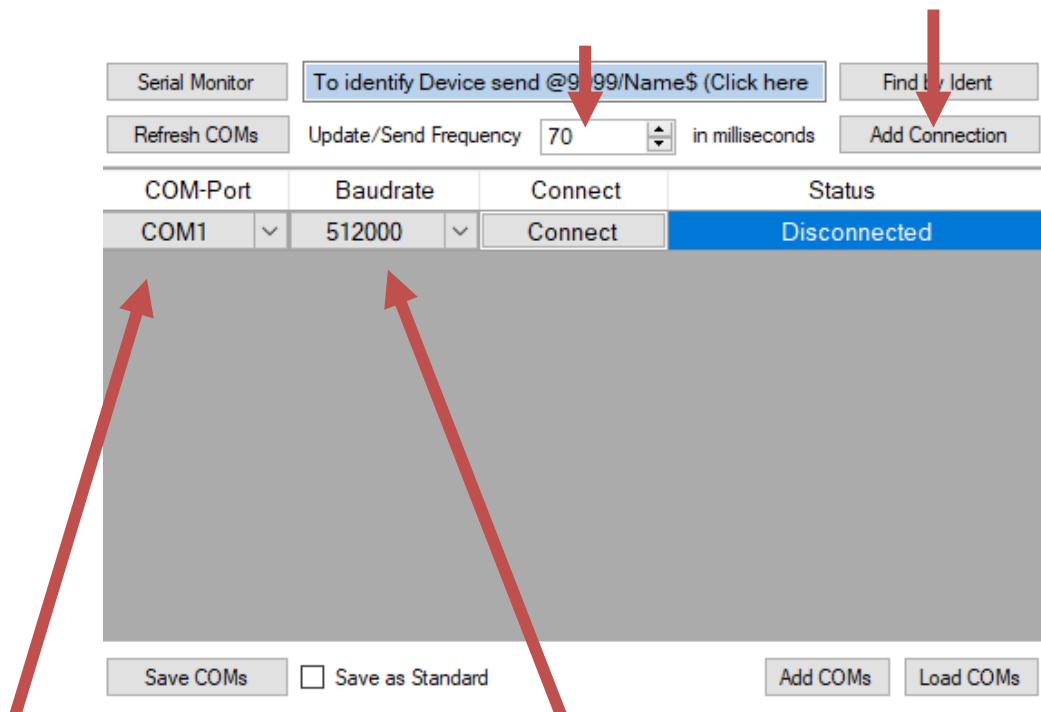


How-to Setup FS2020 data output



Download the “FS2020TA” application. This is needed to retrieve the required data from FS2020. Launch “FS2020TA.exe” and in the main screen click the button “Add Connection”.



Select the com port to use, select 512000 as the Baudrate and click Connect.

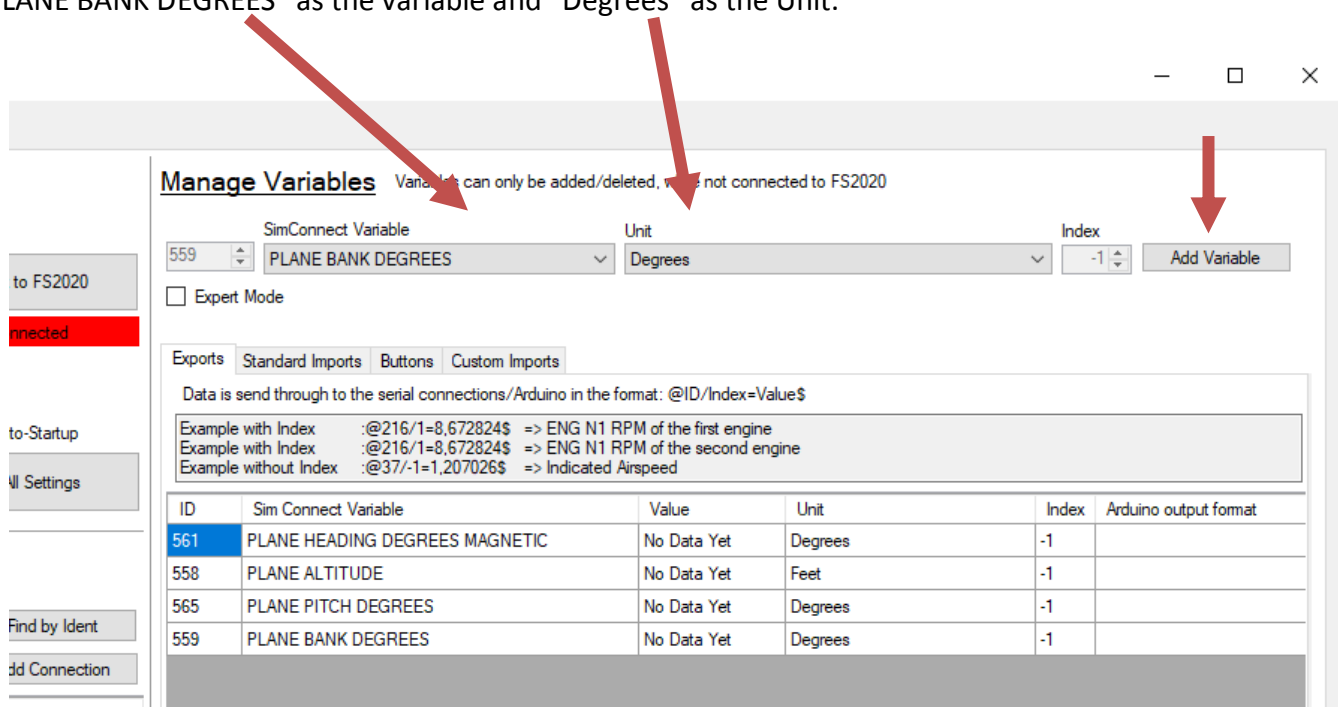
If you don't know which com port corresponds to Horizon Clock, there are a few methods to find out: a) download the HC application from our web site which will automatically identify the port, b) under window's device manager you can see all the current com ports of the system. When plugging in Horizon Clock a new com port is added automatically. This is the port you want to use. c) try to connect to a port randomly (especially if you don't have many ports on your computer).

In the "Update/Send Frequency" field, enter a value between 70 and 100. We recommend 75 as a starting value. If "FS2020.s" is selected in Horizon Clock's configuration, values down to 50-55 can be set for faster response times.

Next, we need to build the list of data which we want to export. This setup is only needed to be done once since after it is completed, all the settings can be saved to a file so we don't have to repeat the setup every time the simulator is started.

A huge amount of variables are available through the simulator but we will only need a few which correspond to: speed, altitude, vertical rate of climb/ descent, heading, pitch, roll and slip ball.

To build the list, select the "SimConnect Variable" under the drop down list and the measurement unit under "Unit" and then click button "Add Variable". For example in the screen below we selected "PLANE BANK DEGREES" as the variable and "Degrees" as the Unit.



Manage Variables Variables can only be added/deleted, when not connected to FS2020

SimConnect Variable: 559 PLANE BANK DEGREES Unit: Degrees Index: -1 Add Variable

☐ Expert Mode

Exports: Standard Imports Buttons Custom Imports

Data is send through to the serial connections/Arduino in the format: @ID/Index=Value\$

Example with Index :@216/1=8,672824\$ => ENG N1 RPM of the first engine
 Example with Index :@216/1=8,672824\$ => ENG N1 RPM of the second engine
 Example without Index :@37/-1=1,207026\$ => Indicated Airspeed

ID	Sim Connect Variable	Value	Unit	Index	Arduino output format
561	PLANE HEADING DEGREES MAGNETIC	No Data Yet	Degrees	-1	
558	PLANE ALTITUDE	No Data Yet	Feet	-1	
565	PLANE PITCH DEGREES	No Data Yet	Degrees	-1	
559	PLANE BANK DEGREES	No Data Yet	Degrees	-1	

For each of the speed, altitude, heading, etc information we can use any one of many supported "SimConnect" variables. Check the table below to select which one to choose. Just make sure to select the supported measurement units too when building the export list. Although the program allows the selection of more than one variable for the same data, choose only a single one SimConnect variable for each information (do not add more than one variable for speed data, one for altitude data, one for heading data etc).

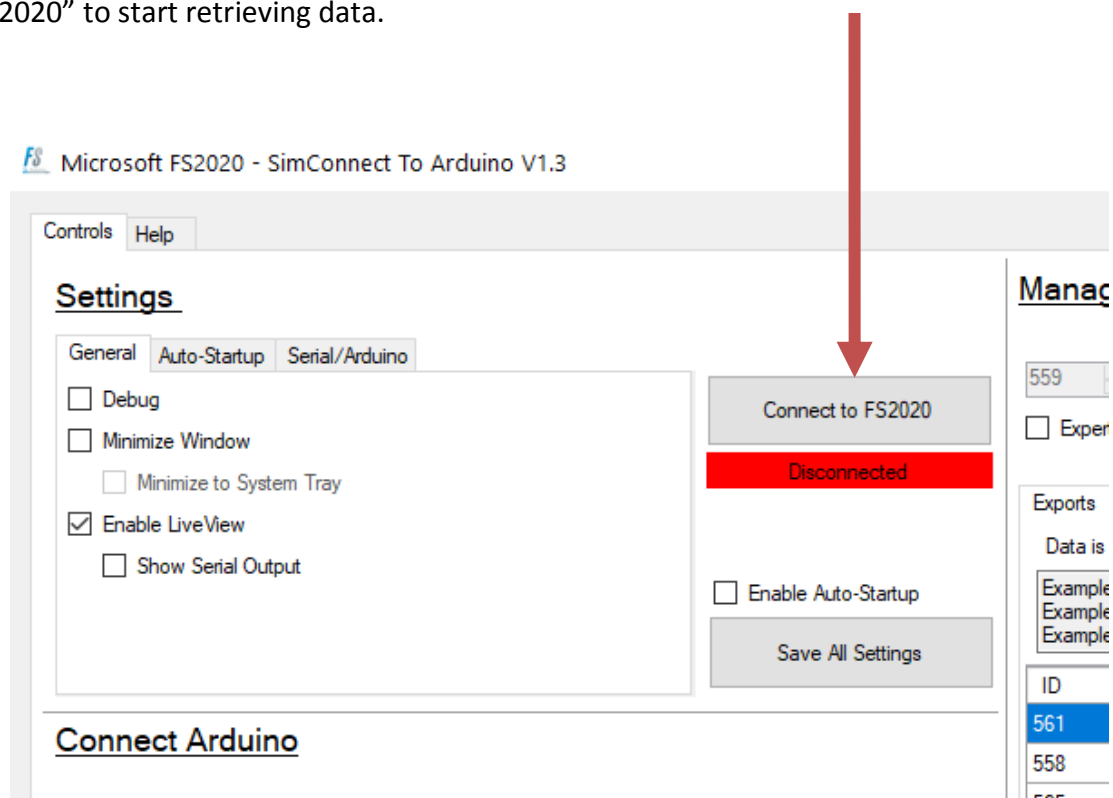
After the list is complete, save it by clicking “Save Variable List” at the bottom of the screen:



The screenshot shows a software interface with a list of variables. At the bottom, there are four buttons: "Save Variable List", "Save as Standard" (with an unchecked checkbox), "Add Variable List", and "Load Variable List". A red arrow points to the "Save Variable List" button.

Data to export and display	Supported SimConnect variables	Supported measurement units
Speed	37 AIRSPEED INDICATED	Knots, etc 0-999
	41 TRUE AIRSPEED	Knots, etc 0-999
	375 GPS GROUND SPEED	Knots, etc 0-999
Altitude	566 PRESSURE ALTITUDE	Feet, meters, etc
	558 PLANE ALTITUDE	Feet, meters, etc
	557 PLANE ALT ABOVE GROUND	Feet, meters, etc
	386 GPS POSITION ALT	Feet, meters, etc
Roll (Bank angle)	70 ATTITUDE INDICATOR BANK DEGREES	Degrees only
	559 PLANE BANK DEGREES	Degrees only
Pitch	565 PLANE PITCH DEGREES	Degrees only
	71 ATTITUDE INDICATOR PITCH DEGREES	Degrees only
Vertical rate	763 VERTICAL SPEED	Feet per minute
	755 VARIOMETER RATE	Feet per minute
Heading	562 PLANE HEADING TRUE DEGREES	Degrees only
	561 PLANE HEADING MAGNETIC DEGREES	Degrees only
	489 MAGNETIC COMPASS	Degrees only
	413 HEADING INDICATOR	Degrees only
	376 GPS GROUND TRUE HEADING	Degrees only
Slip ball	748 TURN COORDINATOR BALL	Percent or Percentage

Finally, after launching Microsoft FS2020, wait for it to load and click the button “Connect to FS2020” to start retrieving data.



When the knob is pressed, AP_MASTER as a standard input signal will be sent. This will turn autopilot on or off. This may not be compatible with all aircraft. If you need this disabled, instead of choosing “FS2020” under configuration menu Other → Sim Mode choose “External”.