



Drive-By-Wire Configuration Tool

Procedure to configure the values of
drive-by-wire firmware parameters.

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1 Install Visual C++ Redistributable Package

In order to run the Drive-By-Wire Configuration Tool, the Microsoft Visual C++ 2015-2019 Redistributable Package (x64) must be installed. This can be downloaded at https://aka.ms/vs/16/release/vc_redist.x64.exe

2 Using the Drive-By-Wire Configuration Tool

2.1 Connecting a Drive-By-Wire Module

The Drive-By-Wire Configuration Tool is a Windows-based GUI program used to configure certain parameters in the Dataspeed ADAS Kit firmware and save them in flash memory such that the specified values persist across power cycles. To use the GUI, connect a drive-by-wire module (Brake/Throttle/Steer/Shift) to the computer via its USB connector. If successfully connected, the parameters specific to the module will appear in the GUI window, as shown in Figures 1a and 1b.

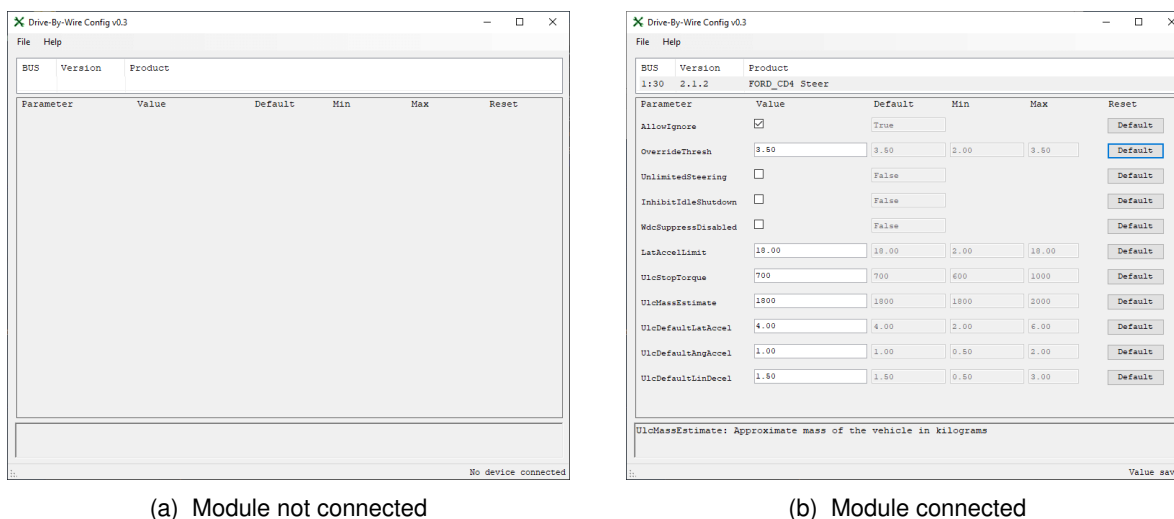


Figure 1

2.2 Changing Parameter Values

Figure 2 shows the configuration GUI with labels indicating the useful components. To summarize the behavior of the GUI components:

- Once a drive-by-wire module is connected, its firmware version number and its product string are displayed at the top of the window.
- The 'Value' column shows the value for each parameter that is currently stored in the flash memory. The controls in this column are editable, and are how changes to the parameter value can be made.
- Boolean parameters are represented by checkbox controls in the 'Value' column, whereas numeric parameters are represented by text boxes.
- A boolean parameter value is saved immediately after toggling its checkbox control. A numeric parameter value is saved by editing its text box control and pressing Enter.
- The 'Min' and 'Max' columns show the valid range for numeric parameters. Users cannot specify a parameter value outside of this range. Doing so results in the parameter being saturated within the valid range.
- The push button controls in the 'Reset' column revert a parameter's value to its default. The particular default value is shown in the 'Default' column.

- Clicking the name of a parameter in the 'Parameter' column will load the textual description of that parameter in the text box at the bottom of the window. Descriptions of numeric parameters include the expected units.
- To reset all parameters of the connected module to the default values listed in the 'Default' column, click 'File' → 'Reset to Defaults'.

Detected Firmware Version

Detected Module Type

BUS	Version	Product
1:19	2.0.7	FORD_CD4 Steer

Parameter	Value	Default	Min	Max	Reset
AllowIgnore	<input checked="" type="checkbox"/>	True			Default
InhibitIdleShutdown	<input type="checkbox"/>	False			Default
WdcSuppressDisabled	<input type="checkbox"/>	False			Default
UlcStopTorque	600	600	600	1000	Default
UlcMassEstimate	1800	1800	1800	2000	Default
UlcDefaultLatAccel	4.00	4.00	2.00	6.00	Default
UlcDefaultAngAccel	1.00	1.00	0.50	2.00	Default
UlcDefaultLinDecel	1.50	1.50	0.50	3.00	Default

Parameter Name **Current Value** **Default Value** **Valid Range** **Reset to Default**

Description of Selected Parameter

UlcMassEstimate: Approximate mass of the vehicle in kilograms

Press enter to save

Figure 2: Components of the GUI

3 Importing and Exporting Settings From a File

Parameter configurations can be exported to a file for loading later or for configuring multiple modules with the same values. Once the parameters are set, clicking 'File' → 'Save to File' saves the configuration to a .cfg file.

A .cfg file can be loaded by clicking 'File' → 'Load from File'. When this happens, the GUI writes all the parameter values to the connected module, provided that the connected module is of the same type as the module used to create the .cfg file.