Spindle / VFD System Advanced Setup Guide
VFD Parameters

v2022Q1.1

VFD Parameters

> ⚠️ **Warning**
>
> All Avid CNC Plug and Play Spindle / VFD Systems come pre-configured with the correct VFD parameters. **Do not change a VFD parameter unless our support team or documentation specifically directs you to do so.** Setting an incorrect VFD parameter can cause a safety hazard or result in damage to your machine.

In some cases it may be necessary to change certain parameters on the VFD. Reference the **System Identification** page to determine the VFD ID of your Plug and Play Spindle / VFD System. For VFD IDs A1, C1, C2, D1, and D2, follow the **How to Set Delta VFD Parameters** section. For VFD IDs E1 and F1, follow the **How to Set Mitsubishi VFD Parameters** section. If you have any questions or need assistance, please Contact Us.

How to Set Delta VFD Parameters

> ⚠️ **Warning**
>
> It is recommended to have your CNC Controller turned off and Mach4 closed while changing VFD parameters.

When you are instructed by the our support team or our documentation to change a VFD parameter, you will be given a parameter such as "04-12". **This is an example parameter that will be used in these instructions.**

- With the Spindle Controller powered on, locate the digital keypad on the VFD.

- Press the **Enter** button once.

- Use the ▲ and ▼ buttons to until you see the desired parameter group. This is "04" in the example parameter.

- Press the **Enter** button once.

- Use the ▲ and ▼ buttons to until you see the desired parameter. This is "12" in the example parameter.

- Press the **Enter** button once and you will now see the current value for this parameter.

- Use the ▲ and ▼ buttons to enter your new value for this parameter.

- Press the **Enter** button once to set the new value.

- Press the **Mode** button twice to return to the starting display.

- The new parameter has now been set and it is safe to power back on your CNC Controller and open Mach4.

How to Set Mitsubishi VFD Parameters

> ⚠️ **Warning**
>
> It is recommended to have your CNC Controller turned off and Mach4 closed while changing VFD parameters.

When you are instructed by the our support team or our documentation to change a VFD parameter, you will be given a parameter such as "3". **This is an example parameter that will be used in these instructions.**

- With the Spindle Controller powered on, locate the digital keypad on the VFD.

- Press the **PU/EXT** button once.

- Press the **MODE** button once.

- You should now see the VFD in **PU** and **PRM** mode.
- Rotate the **Dial** until the desired parameter number is displayed.

- Press the **SET** button, which will display the parameter's current value.

- Rotate the **Dial** until the new value for your parameter is displayed.

- Press the **SET** button once to save the new parameter value.

- Press the **MODE** button twice.

- Press the **PU/EXT** button twice.

- The new parameter has now been set and it is safe to power back on your CNC Controller and open Mach4.

VFD Parameters for Spindle Changes

> **ℹ Info**
>
> It is only necessary to update these VFD parameters if you have an existing Avid CNC Plug and Play Spindle / VFD system and are only changing which spindle you are using. These parameters are only applicable for Plug and Play Spindle / VFD Systems with **VFD ID** A1.

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3 HP Avid CNC Spindle

> **ℹ Info**
>
> This parameter change is for those with an existing 4 HP Plug and Play Spindle / VFD System who are changing the spindle to a 3 HP Avid CNC spindle.

Follow the **How to Set Delta VFD Parameters** section and set the following parameters:

Parameter	New Value
01-08	33.3
04-12	33.3

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4 HP Avid CNC Spindle

> **ℹ Info**
>
> This parameter change is for those with an existing 3 HP Plug and Play Spindle / VFD System who are changing the spindle to a 4 HP Avid CNC spindle.

Follow the **How to Set VFD Delta Parameters** section and set the following parameters:

Parameter	New Value
01-08	25.0
04-12	25.0

VFD Parameters for Over-Torque Detection

> **ℹ Info**
>
> The following over-torque detection parameters are applicable for Plug and Play Spindle / VFD Systems with Delta VFDs (**VFD ID** A1, C1, C2, D1 and D2). If your system utilizes a different VFD, please Contact Us for support setting over-torque detection parameters.

Over-torque detection can be used to stop operation of the spindle (by activating a VFD warning fault) when abnormally high cutting loads cause the spindle to stall. We recommend starting with the initial settings below. These can then be fine tuned to achieve optimal over-torque detection for your specific machine and cutting environment.

Follow the **How to Set Delta VFD Parameters** section and set the following initial settings:

3HP and 4HP Avid CNC Spindle

Parameter	New Value
06-03	2
06-04	105
06-05	0.1

8.7HP Avid CNC Spindle

Parameter	New Value
06-06	4
06-07	220
06-08	0.1

Fine tuning the over-torque detection can be done by adjusting parameter 06-04 for 3HP and 4HP Avid CNC Spindles, or parameter 06-07 for 8.7HP Avid CNC Spindles.

In the event of nuisance tripping (VFD faults under normal cutting loads), increase this parameter in increments of 5 until the nuisance tripping stops. If the spindle stalls under heavy cutting loads, but the over-torque detection does not stop the spindle, decrease this parameter in increments of 5. Further fine tuning can be made by adjusting the parameter in increments of 1.