

# VFD's and Spindles

Find some guidance on VFD and spindle setup/use.

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# Running a Mitsubishi VFD Directly

## Description of the problem:

It may be necessary to run a VFD manually from it's control interface.

## Solution:

Follow these steps:

1. Press the **PU/EXT** button to put the VFD in PU mode



2. Spin the knob to the desired frequency
3. Press **SET** to choose the frequency
  - a) Press **SET** a second time to view current amps
4. Press **RUN** to start movement
5. Press **STOP** to stop movement

Keywords: 7669

# Setting VFD Acceleration

## **Description of the problem:**

I'm trying to set up acceleration on my Mitsubishi VFD.

## **Solution:**

Acceleration on a Mitsubishi VFD is controlled by three parameters:

Pr. 7 - Acceleration Time

Pr. 13 - Starting Frequency

Pr. 20 - Acceleration/Deceleration Reference Frequency

$[Pr. 7] = [Pr. 20] / [Maximum\ operating\ frequency - Pr. 13] * [Total\ time\ from\ stop\ to\ maximum\ operating\ frequency]$

See p. 96 of the FR-D700 manual for more detail.

7766

# Mitsubishi Drive Programming

- Press Mode until it displays: P 00 (or some P range between 00-19)
- Press up/down arrow keys until desired parameter is displayed
- Press Set to view the setting for that parameter

## 1. To Change the Parameter

- Press Set again (display should now be blinking)
- Use up/down arrow keys to change the parameter value
- Press set to store/save
- Press up/down arrow keys to go to other parameters
- Power cycle to the drive to ensure update of the parameter
- To view other parameters press up/down arrow keys or press Mode to cycle display

9708

# Updating Yaskawa Parameters

To update drive parameters on a Yaskawa drive, follow these instructions.

## From the display panel:

Press the Mode/Set key until you see the parameter set needing changed (example: Pn0001). Use the Up/Down arrow keys to move through the list and select the parameter number to change.

Press the Data key to view the current parameter setting (have to hold it for a second or two). Record this number so you know your reference point.

Press the up/down arrow to change the setting. Press and hold the Data key when done.

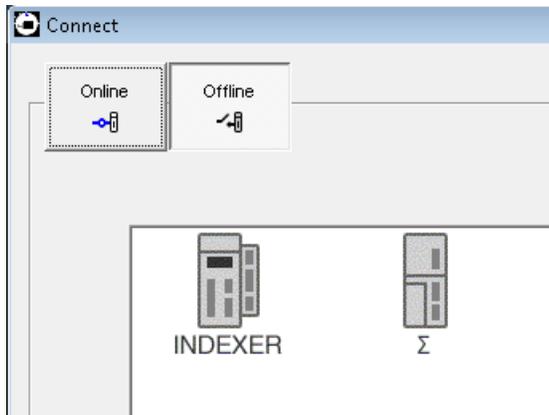
Repeat for other parameters.

Power cycle the drive when done programming.

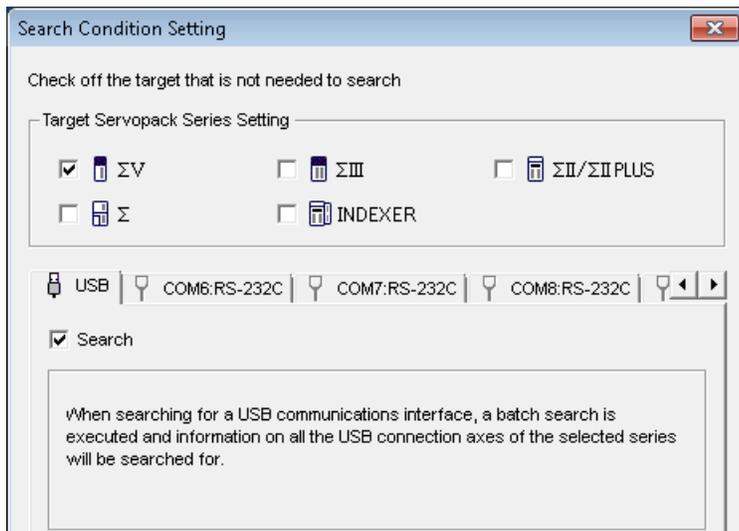
## Through the Software with Tuning/Programming cable:

Go the Start Menu on the control and search "SigmaWin". Open "SigmaWin+ English Edition".

Click Online button:



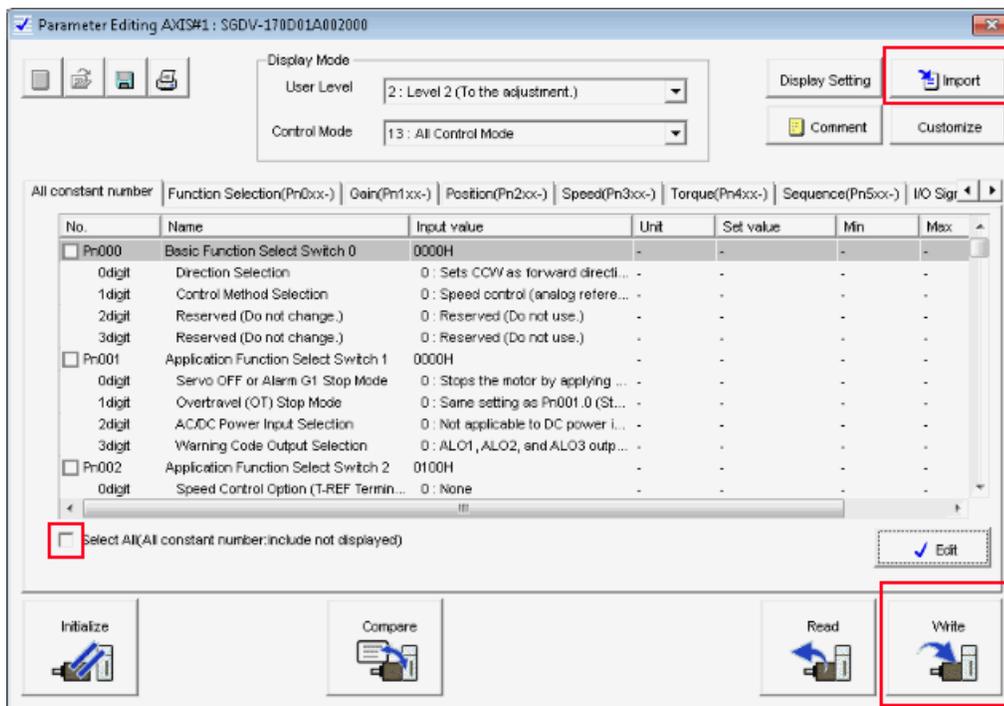
Select search box on the USB tab with the "Sigma Five" drive selected:



Click "Search" It should find the drive. Then select and click "connect".

Choose Parameters -> Edit Parameters from the top menu.

Select "Import" from the top right. Navigate and select the needed parameter file. It may give you a warning, just select "yes".



Check the "Select all" box in the lower left, then click "Write" in the lower right.

The drive should now have the correct parameters. Turn the power off to the drives and back on to enact the changes. You can use the soft reset as well from the menu icon in the main software screen.

# Wiring your VFD not purchased from MachMotion

If you purchased a VFD from MachMotion, all labeling is done and you will not need this information.

However, if you have your own VFD, you may use the following information to match to your VFD inputs (consult your manual or VFD manufacturer/supplier for proper connections).

See image below or attached for wiring a VFD to our Apollo III board:

Any VFD can be wired into the Spindle Control RJ45 jack by cutting the end off of a CAT5 cable and wiring the loose ends to the VFD according to the following pin out.

Function	Analog 0-10VDC	CW Relay	CW Relay	Drive Enable	GND	N/C	CCW Relay	CCW Relay
<b>RJ45 Pins</b>	1	2	3	4	5	6	7	8
<b>Colors</b>	White & Orange	Orange	White & Green	Blue	White & Blue	Green	White & Brown	Brown

TABLE 5 SPINDLE CONTROL RJ45 JACK

## 5.1.2 VFD from MachMotion

The process for setting up a VFD from MachMotion is extremely simple. Simply plug the control cable into the Spindle Control RJ45 jack located on the bottom row of the large RJ45 jack block.

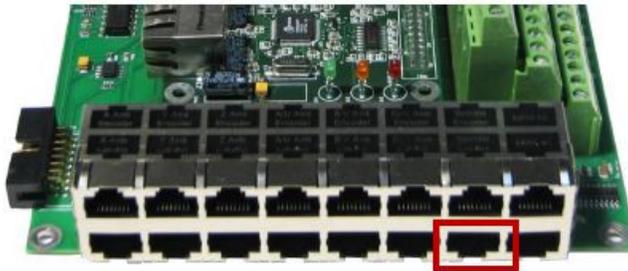


FIGURE 37 SPINDLE CONTROL RJ45 JACK

The following table could be copied/printed to help you match your connections with ours:

Function	Analog 0-10VDC	CW Relay	CW Relay	Drive Enable	GND	N/C	CCW Relay	CCW Relay
<b>RJ45 Pins</b>	1	2	3	4	5	6	7	8
<b>Colors</b>	White & Orange	Orange	White & Green	Blue	White & Blue	Green	White & Brown	Brown
<b>Your Connections</b>	<input type="text"/>							

We also have a couple examples attached you can use to get a better understanding of the needed connections and compare with your unit.

**Drive Fault and Other I/O:**

- It is good to connect a drive fault/error signal to our control from your VFD. This way our control can stop if your VFD has an error. This should be connected to X13 on the Apollo board.
- Other IO may be connected as well. By default we use X14 for spindle at speed and X15 for spindle at zero. Other available inputs can be used for any other signals you want to include from your VFD.
- If you need to supply the VFD with 24V you can use a wire from C0+ on the inputs of our apollo board.

Keywords: Spindle

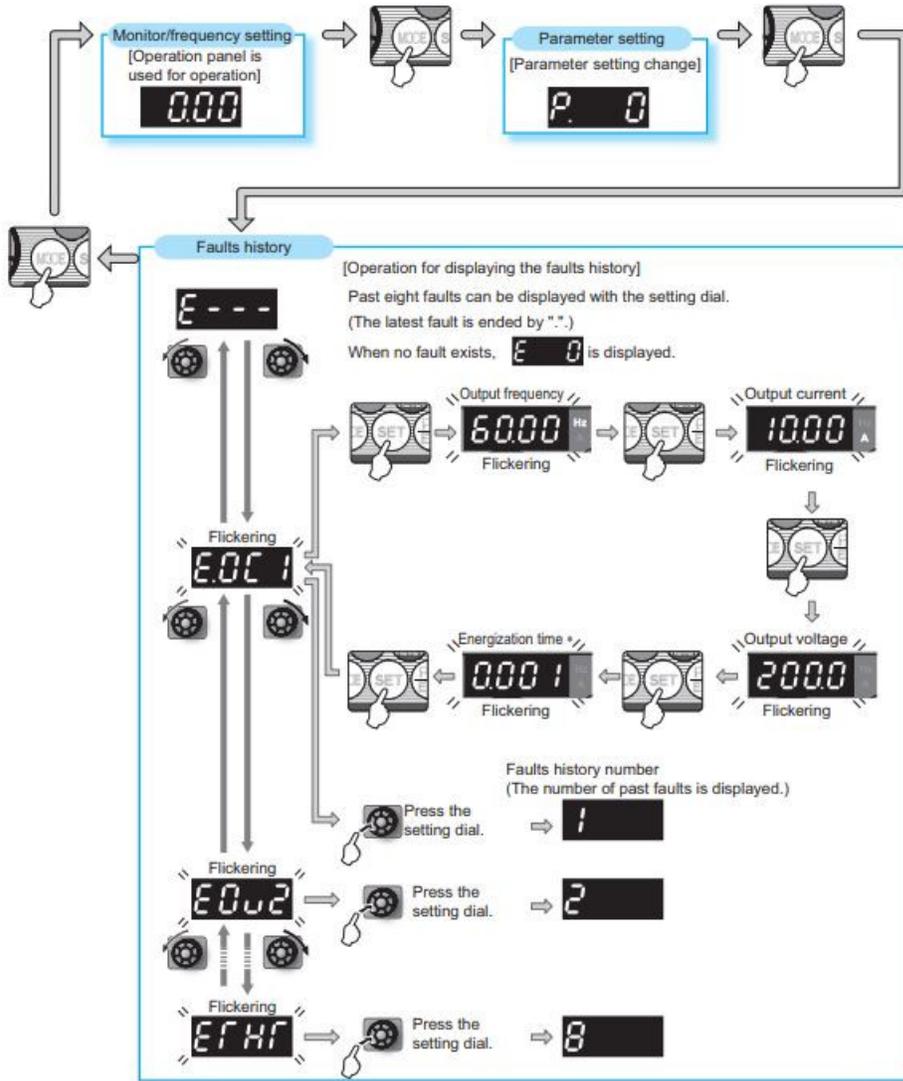
9850

# Fault History Mitsubishi VFD

Mitsubishi D700 VFD has a feature to check past faults To view a past fault follow these steps:

Press the **Mode** button until **E---** is displayed on the screen. The past 8 faults can be displayed by spinning the settings dial. Use the following chart to navigate through the data.

## (1) Check for the faults history



Keywords: VFD D700 Mitsubishi Fault history faults