Guide to Drive Spindle Motor With LAPOND SVD-PS VFD

The LAPOND VFD set default to drive low frequency (50/60Hz) 3 phase asynchronous motor, a typical spindle motor run at high speed of more than 20,000 rpms, has also wide different electrical characteristics and parameter, the VFD parameter should be re-programmed accordingly to drive the spindle motor well, please following below procedure to set the VFD parameter for driving the spindle motor.

1. **Confirm spindle motor parameter.**

You can find spindle motor parameter on the motor body or datasheet from supplier. A typical spindle motor parameter shown as fig.1

Fig. 1 Parameter of the Motor

From which you can have:

- a.   Rated Voltage
- b.   Rated Power
- c.   Rated Current
- d.   Rated Speed
- e.   Rated Operating frequency

2. Select a Spindle motor Drive

Rate Voltage: the VFD rated output voltage should be same as motor's

Recommend to select VFD of same or higher rated power ,   higher power capacity VFD has more operating margin and better stability.

Smaller VFD drive can be use only you know very well loading (rotating resistant) of the motor is much smaller than the rated of the Motor and VFD.

3. Reset factory default (optional)

1.If you have made some in-successful trial of setting , please reset the VFD to factory

default setting by Set PP-01 to 1 one time, not need for a brand new product you just receive.

2. Set control mode to V/F control by P0.01=2 (factory setting is Vector control mode, it has better torque and dynamic performance, but it is very sensitive to motor parameter, mismatch VFD and motor may cause unstable, so please try V/F mode firstly)

4. Input the Motor Parameter into P1 group function code

a) P1-01 => Rated Power of the Spindle Motor   eg. 0.8KW

b) P1-02=>rated Voltage Motor   eg. 220V

c) P1-03=>The motor rated current   eg. 5A

d) P1-04=> Rated Frequency of the spindle Motor   eg.   400Hz

e) P1-05=> Rated Speed of the spindle Motor   eg. 24000 RPM

5. Automatic tuning steps of motor parameters are as follows:

Following the default motor 1 parameter tuning method for example to explain, the motor 2 tuning method is the same, but the function code number to make specific changes

Auto-tuning	Application	Result
No-load dynamic auto-tuning	It is applied to applications where the motor can be disconnected from the load.	Best
With-load dynamic auto-tuning	It is applied to applications where the motor cannot be disconnected from the load.	OK
Static auto-tuning	It is applied to applications where the motor cannot be disconnected from the load and dynamic auto-tuning is not allowed.	Poor
Manual input	It is applied to applications where the motor cannot be disconnected from the load. Input the motor parameters of the same model that was successfully auto- tuned before into function codes P1-00 to P1-10.	OK

The first step: if the motor and load can be completely disengaged, in the case of power failure, from the mechanical motor and load part of the separation, so that the motor can load free rotation

The second step: after power on, the driver command (P0-02=0) is selected as the operation panel command channel first

The third step: accurate input motor nameplate parameters (such as P1-00 ~ P1-05), please press the actual parameters of the motor input the following parameters (according to the current motor selection):

P1-00: motor type selection P1-01: motor power rating

P1-02: rated voltage of motor P1-03: rated current of motor

P1-04: motor rated frequency P1-05: motor rated speed

The fourth step: P1-37 (tuning selection, motor 2 corresponds to A2-37 function code), select 2 (dynamic complete tuning), press the ENTER key confirmation, at this time, the keyboard shows TUNE, as shown in the following figure:

Then press the RUN key on the keyboard panel, driver will drive motor deceleration, reversing operation, operation indicator light, the identification operation lasted about 2 minutes, when the display information disappears, returned to normal parameter display state, said tuning.

Note: if the motor load can not be disengaged, it can only be static, self-confidence to learn。Then press the RUN key on the keyboard panel, the inverter will drive motor static state, operation indicator light, the identification operation lasted about 30 seconds, when the display information disappears, returned to normal parameter display state, said tuning.

6.Set output frequency of the VFD(please enter code with sequential)
   a)   P0-10=>   Output maximum frequency   eg. 400 Hz
   b)   P0-08 => Preset frequency   eg. 400   Hz
   c)   P0-12=>   Output frequency upper limit   eg. 400   Hz

After finish setting , Press PRG to exit function code setting mode , return to standby mode, the Display will present 400, and keep flashing.

Fig.1The VFD is standby and showing preset frequency 400Hz

Then you can press "RUN" to start running ,

Fig.2 Working Status

Now it works!

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