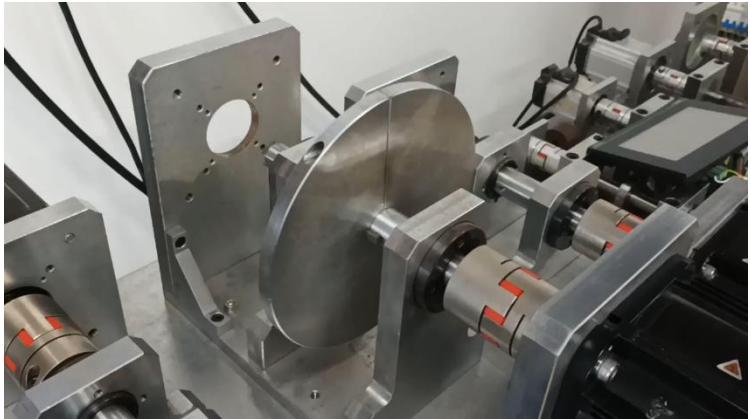


Auto-tuning



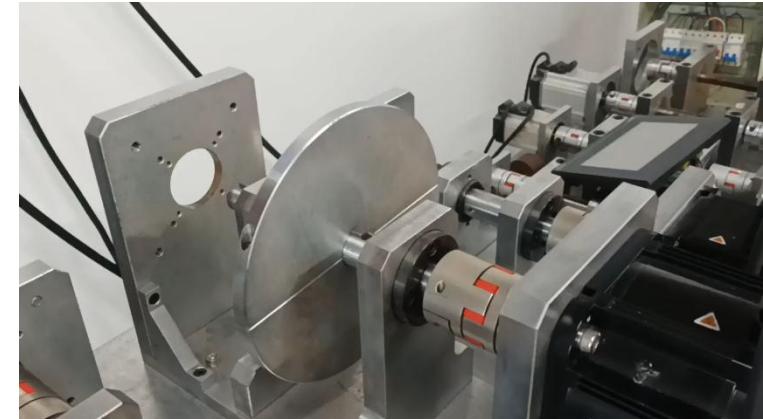
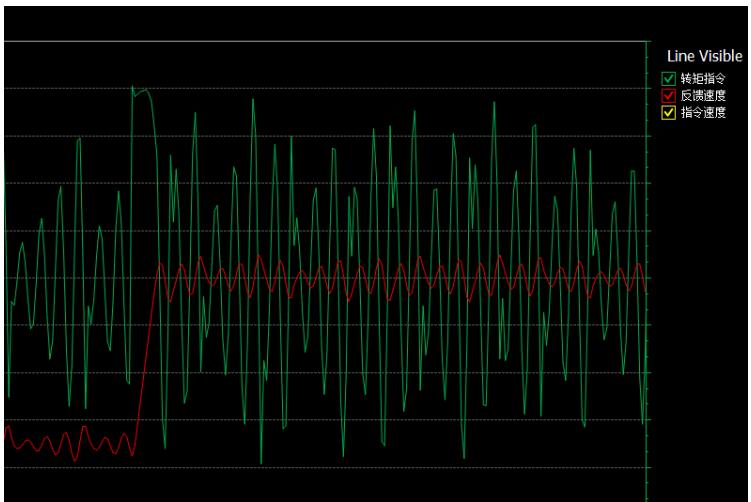


Servo tuning-Auto tuning



Before tuning

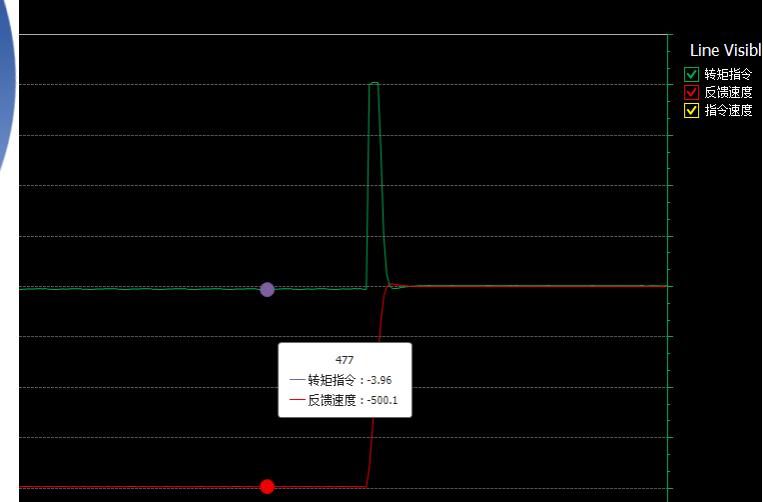
- Significant speed fluctuations
- Shakes when stopped



After tuning

Minimal speed fluctuation

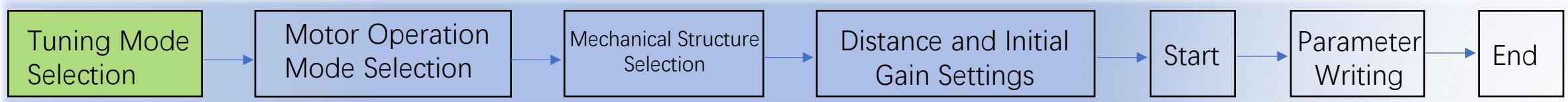
Stable during stops





Servo tuning-Auto tuning

201 Advanced Auto-Tuning (Without PLC) Operation Method



① Open Advanced Auto-Tuning Menu

② Tuning Mode Selection

- Advanced Auto-Tuning (No PLC commands; servo automatically completes enable and runs motor)
- Command Input Type Advanced Auto-Tuning (PLC controls servo operation)

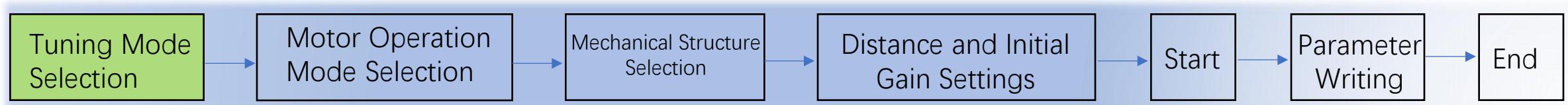
1

2



Servo tuning-Auto tuning

201 Advanced Auto-Tuning (Without PLC) Operation Method



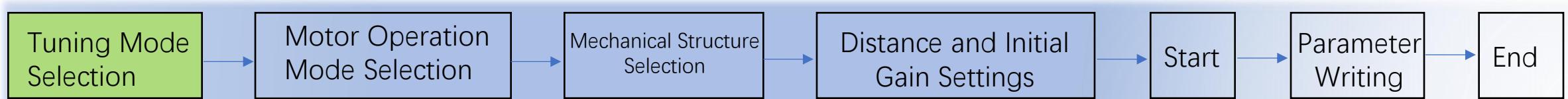
③ Motor Operation Mode Selection

- Auto Mode 1: Adjusts gain, notch filtering, and Type A vibration suppression
- Auto Mode 2: Adjusts gain, model tracking, notch filtering, Type A vibration suppression, and vibration suppression
- Auto Mode 3: Adjusts gain, notch filtering, Type A vibration suppression, and vibration suppression



Servo tuning-Auto tuning

201 Advanced Auto-Tuning (Without PLC) Operation Method



高级调谐



请设定条件

调谐选择 :	201 高级自动调谐
选择电机运行模式 :	自动模式2
选择机械结构 :	滚珠丝杠或直线电机
• 距离设置	滚珠丝杠或直线电机 刚体系 3.0 [圈]
*1000 [指令单位]	
(上位机脉冲数*电子齿轮比分子/电子齿轮比分子/编码器分辨率)	
● 速度设置	
Pn100 速度环增益 100	
Pn101 速度环积分时间常数 2000	
● 推定设定	
惯量推定开始值	100 %
定位完成宽度	7
● 编码器信息	
对象	电机编码器
分辨率	[Pulse/rev]

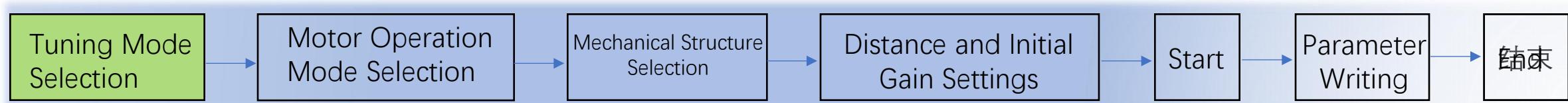
④ Mechanical Structure Selection

- Conveyor Belt Structure
- Ball Screw or Linear Motor
- Rigid System



Servo tuning-Auto tuning

201 Advanced Auto-Tuning (Without PLC) Operation Method



请设定条件

调谐选择： 201 高级自动调谐

选择电机运行模式： 自动模式2

选择机械结构： 滚珠丝杠或直线电机

对增益、模型追踪、陷波滤波、A型抑振、抑制振动调整

⑤

• 距离设置	3.0 [圈]	*1000 [指令单位]
(上位机脉冲数*电子齿轮比分子/电子齿轮比分子/编码器分辨率)		
• 推定设定	惯量推定开始值 100 %	定位完成宽度 7
• 速度设置	Pn100 速度环增益 100	Pn101 速度环积分时间常数 2000
• 编码器信息	对象 电机编码器	分辨率 [Pulse/rev]

惯量识别

增益搜索

开始

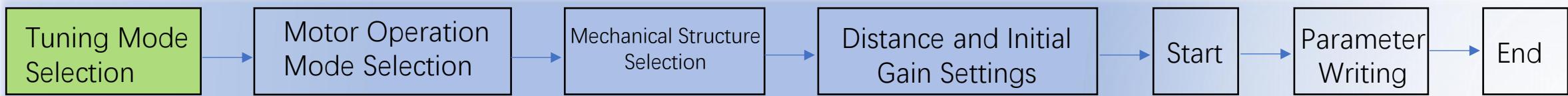
⑤ Distance, initial gain setting, and positioning completion width setting

- Automatically adjust the travel distance setting
- Set the speed loop gain and speed integral time constant at the start of adjustment
- The positioning completion width generally does not require modification (If tuning failed, increase this value)



Servo tuning-Auto tuning

201 Advanced Auto-Tuning (Without PLC) Operation Method



请设定条件

调谐选择 :	201 高级自动调谐
选择电机运行模式 :	自动模式2
选择机械结构 :	滚珠丝杠或直线电机

● 距离设置

3.0	[圈]
*1000 [指令单位]	
(上位机脉冲数*电子齿轮比)	
比分子/编码器分辨率	

● 速度设置

Pn100 速度环增益	100
Pn101 速度环积分时间常数	2000

● 推定设定

惯量推定开始值	100	%
定位完成宽度	7	

● 编码器信息

对象	电机编码器
分辨率	[Pulse/rev]

* 惯量识别 增益搜索

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开始

⑥ Click start

Perform inertia identification and gain search by default.

Note: If inertia estimation fails:

1. Do not connect CN1
2. Check gear ratio

When Pn20E=8388608 (23bit), Pn210 minimum value cannot be set below 350; otherwise,auto-tuning will fail

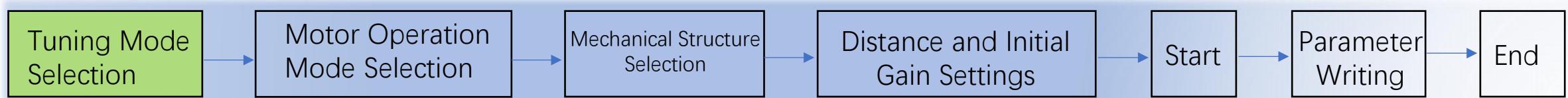
If Pn210 < 350 (e.g., 300), the drive's internal algorithm will compute a 0 travel distance for inertia estimation, it will cause the auto-tuning stuck at the interia estimation process, then timeout.

3. Try to initial the parameters
4. For eccentric mechanisms, self-tuning is currently unsupported; estimation may fail



Servo tuning-Auto tuning

201 Advanced Auto-Tuning (Without PLC) Operation Method



调谐已完成, 请确定结果是否写入。

调谐结果

	推定前	推定后
Pn100: 速度环增益	400	336
Pn101: 速度环积分时间常数	2000	1894
Pn103: 转动惯量比	100	43
Pn141: 模型追踪控制增益	945	411

7

⑦ Click to write the result into servo

设置信息

模式选择: 自动模式2
机构选择: 滚珠丝杠或直线电机
移动距离: 3.0 [圈]
393 *10000 [指令单位]
(上位机脉冲数*电子齿轮比分子/电子齿轮比分母/编码器分辨率)

编码器信息

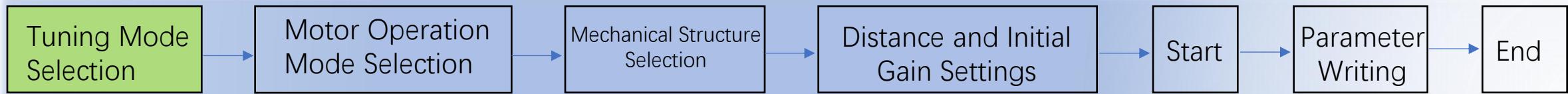
对象: 电机编码器
分辨率: 131072 [Pulse/rev]

中断高级调谐



Servo tuning-Auto tuning

201 Advanced Auto-Tuning (Without PLC) Operation Method



① 高级调谐

高级调谐配置

等待执行

等待执行

等待完成

高级调谐选择

201 高级自动调谐

选择电机运行模式

自动模式2

对增益、模型追踪、陷波滤波、A型抑振、抑制振动调整

选择机械结构

滚珠丝杠或直线电机

距离设置

3.0 [圈]

*1000 [指令单位]

(上位机脉冲数*电子齿轮比分子/电子齿轮比分子/编码器分辨率)

速度设置

Pn100 速度环增益 100

Pn101 速度环积分时间常数 2000

推定设定

惯量推定开始值 100 %

定位完成宽度 7

编码器信息

对象 电机编码器

分辨率 [Pulse/rev]

惯量识别

增益搜索

开始