

Microline withTwinCAT3 Setup Notes

Notes on issues encountered with Microline transfer to TwinCAT3 setup

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Comments

In_OCUT1 / LOADD

The infeed 2007 does not have a LOADD sensor.

Confusion over how the code can handle this. It must have worked ok on other infeeds like this (eg Z046).

When investigating in the code, errors found on function blocks fbMotorConvey on inputs to

iArrayError

bNoSensorsCovered

iMeasureErrorMsg

These normally connect to fbArrayMeasure function block, but this does not exist in MHInfeed_2007

Alarms

Disabled alarm for lpull out - this was a misleading error when it is loading to gripper

Tuning X axis drive

Following error on X axis stopped the axis on loading

When tuning took place, the bar was not clamped

Tried a reversing move with clamps on.

At Speed 10, following error was 0.2

At speed 50, following error was 1

At speed 100, the following error was 2mm

This shows a proportional increase in following error as speed increases

Tried changing drive P-Gain, no effect

Changed 3.02 Kff Gain (feed forward. Was on zero

Following error dropped proportionally to ff gain 0-100%

Set at 100%. Seems to easy

After a power off, and on, the problem came back. Checking the drive Kff, it was set to 50%

With some trial and error, the CoE parameter for this setting was identified (2302)

2219	Linear Motor Overspeed Level	RW	0x0000 (0)
221A	Linear Motor Velocity Error Limit	RW	0x0000 (0)
221B	Velocity Smoothing Filter	RW	0x00A1 (161)
+ 2300:0	Follower	RO	> 4 <
2301	Position Command LPF Bandwidth	RW	0x0000 (0)
2302	Position Regulator Kff Gain	RW	0x64 (100)
2303	Position Regulator Kff LPF Bandwidth	RW	0x00C8 (200)
2304	Moving Average Filter	RW	0x0140 (320)
2305	1st Gear Ratio, Follower Counts	RW	0x00000001 (1)
2306	1st Gear Ratio, Master Counts	RW	0x00000001 (1)

This has now need set up as a startup parameter, so will exist even after a drive change

Spindles

invert300Hz=1

InverterOkHigh=1

Input In_InvOk mapped to 90 and configured in alarms

ringType=Mk3with DP

Unloading

Check parameters in sl;oadpos

Positions of pushers relatibe to spindle c/l

1780

3055

Clear positions

2150

3425

longejpos should then be 1600

CLOSV (IORef 408)

Kept switching off with no pressure. Possibly switching on and off very rapidly, but not proven. This gave a really difficult issue to trace. Root cause as yet unknown, but problem can be bypassed using Ioref 418 instead of 408. Same issue as Nextmove Controller upgrades
 Could find no references to io 408 in the whole project

M010 Following Error would not reduce

M010 had a difficult to trace problem with the follwoing error. It would not reduce, even after increasing Kff to 100. The error was completely proportional to the speed, and did reduce with Kff, but not to zero. On the X axis this gave a fol error of 60 with speed of 2000
 Eventually traced by loading M006 project. This worked as expected, therefore problem is not with drive or motor, it has to be the software setup.

Compared M006 and M010 axis and drive set up side by side.

Traced root casue to Internal / External Following Error Calculation parameter on the Axis->Drive->Other Settings

