

```

setp pid.z.lgain [JOINT_2]I
setp pid.z.Dgain [JOINT_2]D
setp pid.z.bias [JOINT_2]BIAS
setp pid.z.FF0 [JOINT_2]FF0
setp pid.z.FF1 [JOINT_2]FF1
setp pid.z.FF2 [JOINT_2]FF2
setp pid.z.deadband [JOINT_2]DEADBAND
setp pid.z.maxoutput [JOINT_2]MAX_OUTPUT
setp pid.z.error-previous-target true

```

```

net z-index-enable <=> pid.z.index-enable
net z-enable => pid.z.enable
net z-pos-cmd => pid.z.command
net z-vel-cmd => pid.z.command-deriv
net z-pos-fb => pid.z.feedback
net z-output <= pid.z.output

```

---PWM Generator signals/setup---

```

setp hm2_5i25.0.7i77.0.1.analogout2-scalemax [JOINT_2]OUTPUT_SCALE
setp hm2_5i25.0.7i77.0.1.analogout2-minlim [JOINT_2]OUTPUT_MIN_LIMIT
setp hm2_5i25.0.7i77.0.1.analogout2-maxlim [JOINT_2]OUTPUT_MAX_LIMIT

```

```

net z-output => hm2_5i25.0.7i77.0.1.analogout2
net z-pos-cmd <= joint.2.motor-pos-cmd
net z-enable <= joint.2.amp-enable-out

```

---Encoder feedback signals/setup---

```

setp hm2_5i25.0.encoder.02.counter-mode 0
setp hm2_5i25.0.encoder.02.filter 1
setp hm2_5i25.0.encoder.02.index-invert 0
setp hm2_5i25.0.encoder.02.index-mask 0
setp hm2_5i25.0.encoder.02.index-mask-invert 0
setp hm2_5i25.0.encoder.02.scale [JOINT_2]ENCODER_SCALE

```

```

net z-pos-fb <= hm2_5i25.0.encoder.02.position
net z-vel-fb <= hm2_5i25.0.encoder.02.velocity
net z-pos-fb => joint.2.motor-pos-fb
net z-index-enable joint.2.index-enable <=> hm2_5i25.0.encoder.02.index-enable
net z-pos-rawcounts <= hm2_5i25.0.encoder.02.rawcounts

```

---Bremsverzögerung Z-Achse

```

loadrt timedelay count=1
addf timedelay.0 servo-thread

```

```

setp timedelay.0.on-delay 1
setp timedelay.0.off-delay 0

```

```

net z-enable => timedelay.0.in
net verzoeigerung-out timedelay.0.out => hm2_5i25.0.7i77.0.0.output-00

```

```

*****
# SPINDLE
*****

```