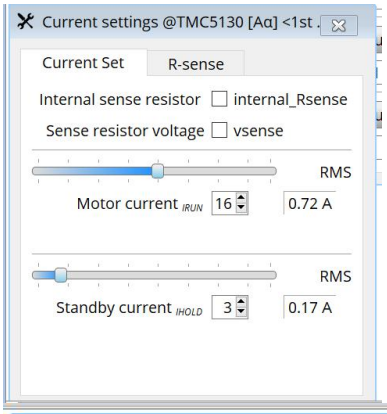
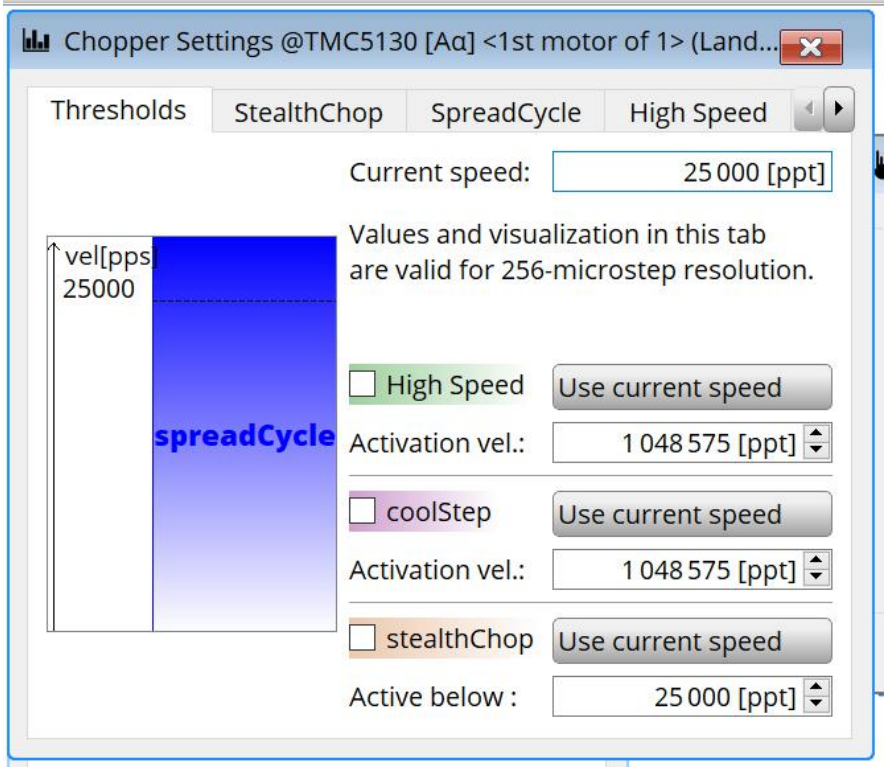
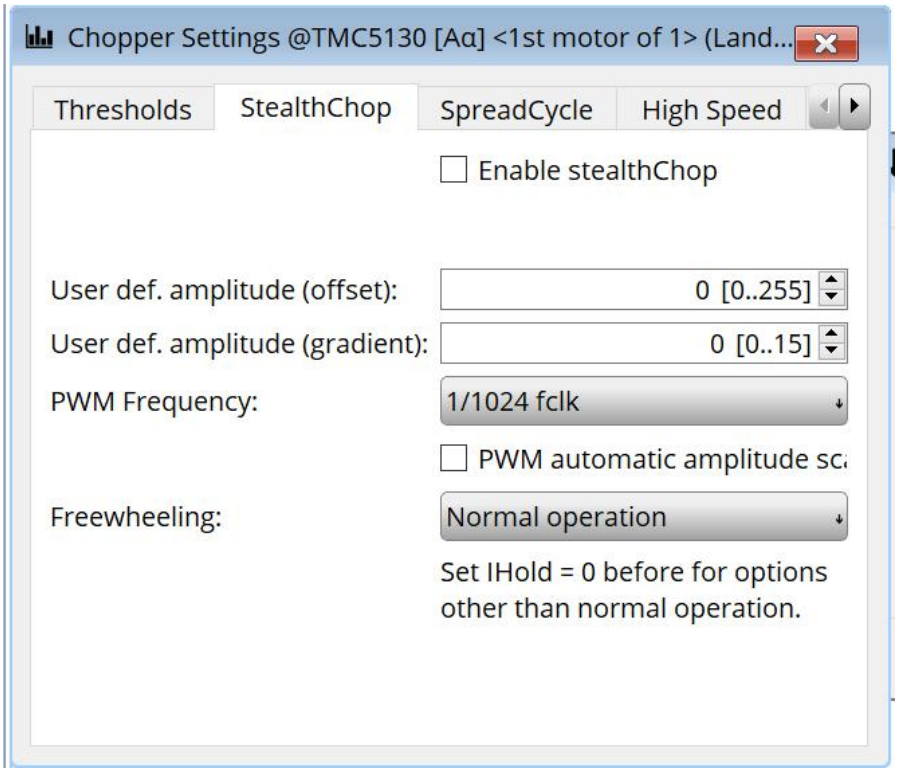
Stallguard ,coolstep,Stealthchop 功能调试

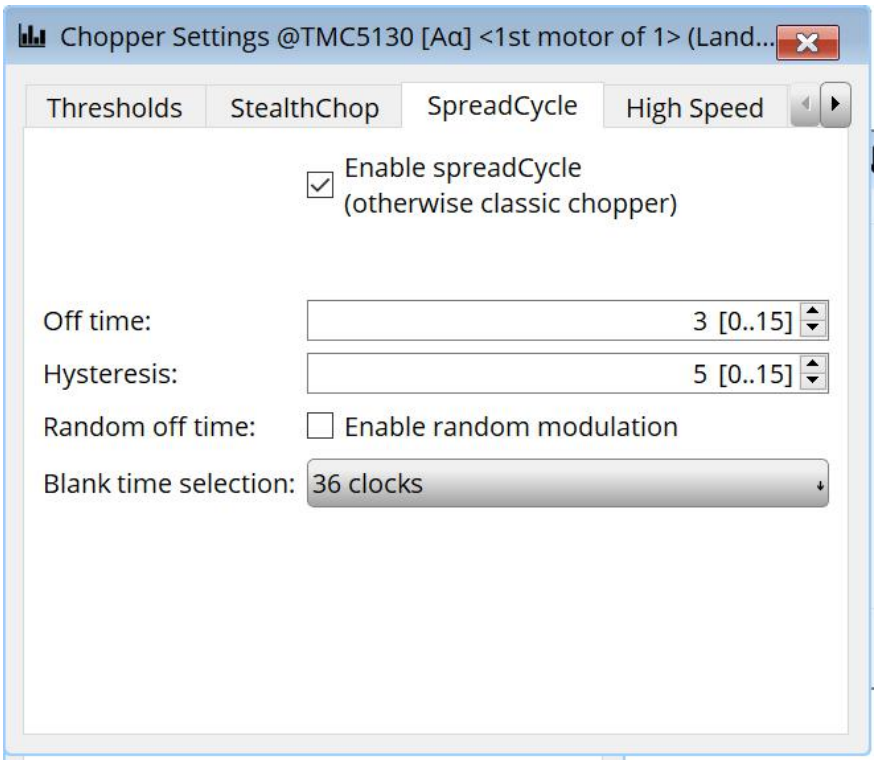
以 TMC5130-EVAL-KIT 为例

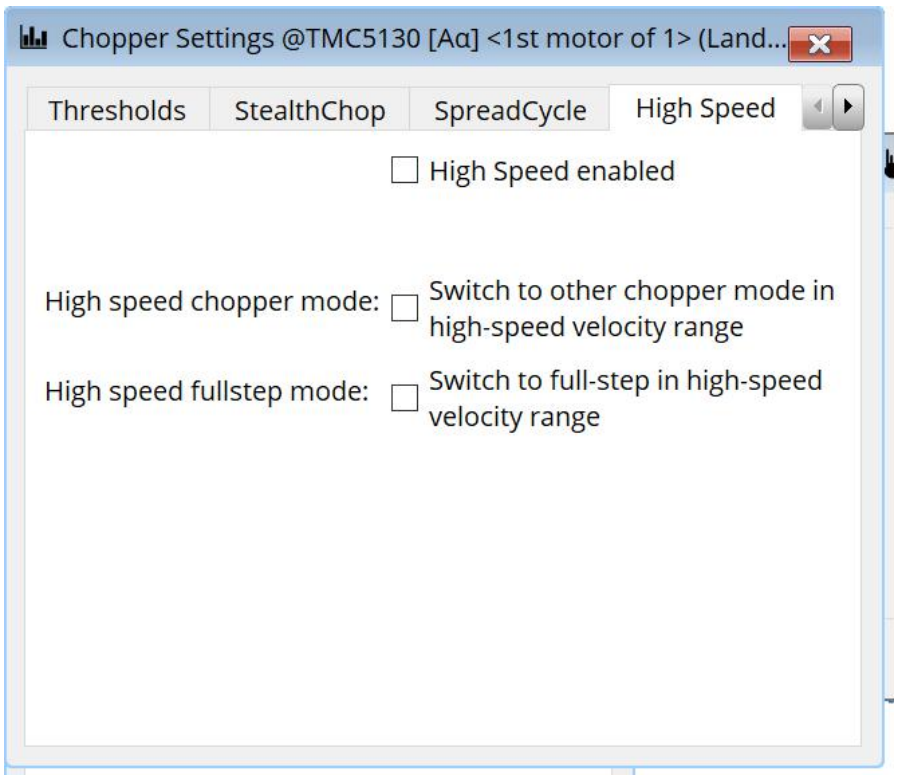
StealthChop



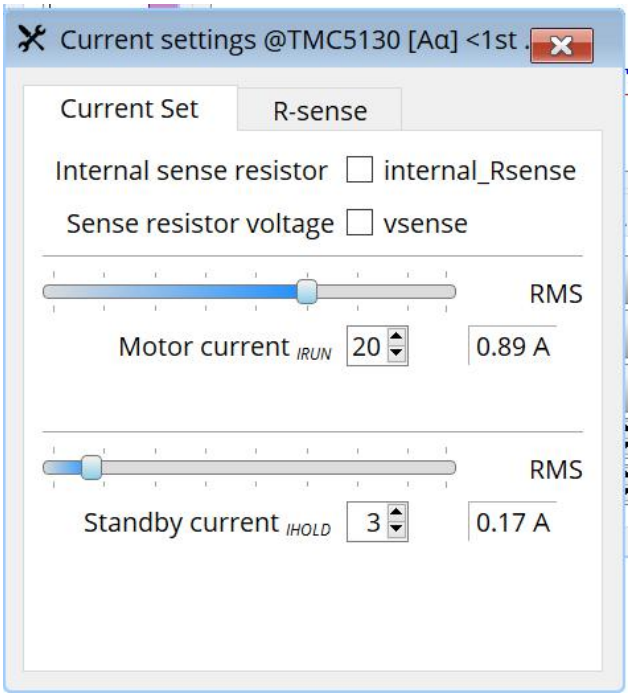


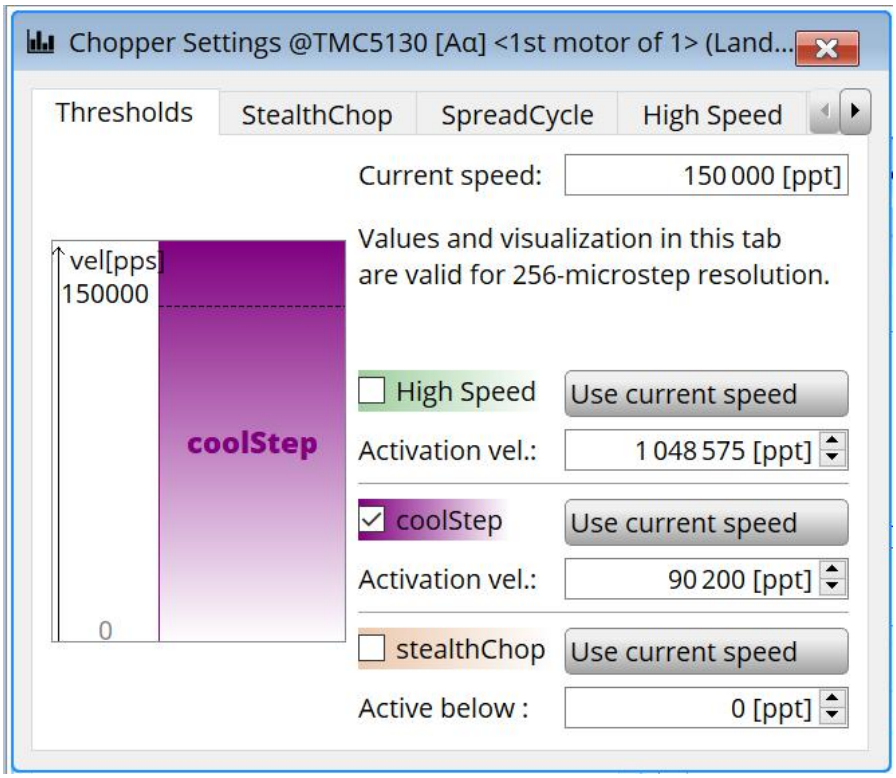

Chopper Settings @TMC5130 [Aα] <1st motor of 1> (Land...
Thresholds
StealthChop
SpreadCycle
High Speed
Enable stealthChop
User def. amplitude (offset):
0 [0..255]
User def. amplitude (gradient):
0 [0..15]
PWM Frequency:
1/1024 fclk
PWM automatic amplitude sc
Freewheeling:
Normal operation
Set IHold = 0 before for options other than normal operation.

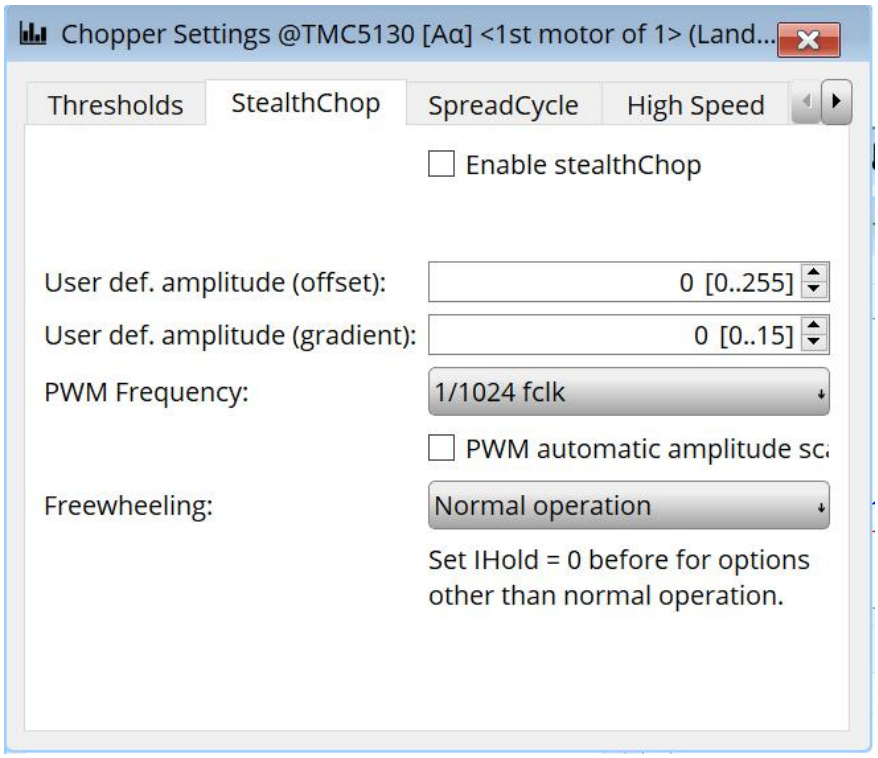

Chopper Settings @TMC5130 [Aα] <1st motor of 1> (Land...
Thresholds
StealthChop
SpreadCycle
High Speed
Enable spreadCycle
(otherwise classic chopper)
Off time:
3 [0..15]
Hysteresis:
5 [0..15]
Random off time:
Enable random modulation
Blank time selection:
36 clocks

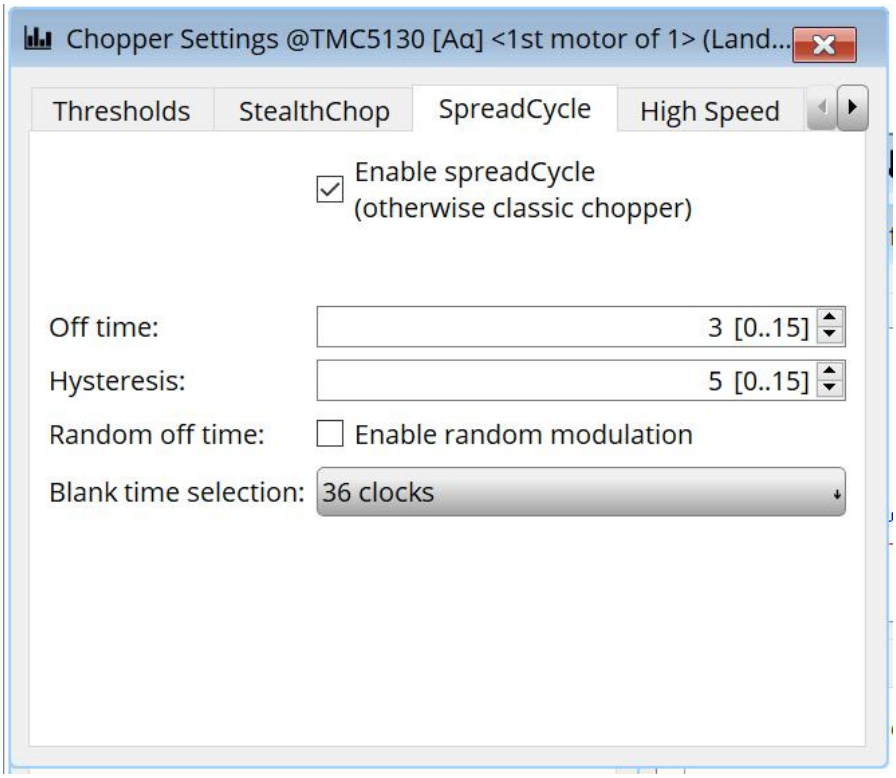

Chopper Settings @TMC5130 [Aα] <1st motor of 1> (Land...
Thresholds
StealthChop
SpreadCycle
High Speed
High Speed enabled
High speed chopper mode:
Switch to other chopper mode in high-speed velocity range
High speed fullstep mode:
Switch to full-step in high-speed velocity range

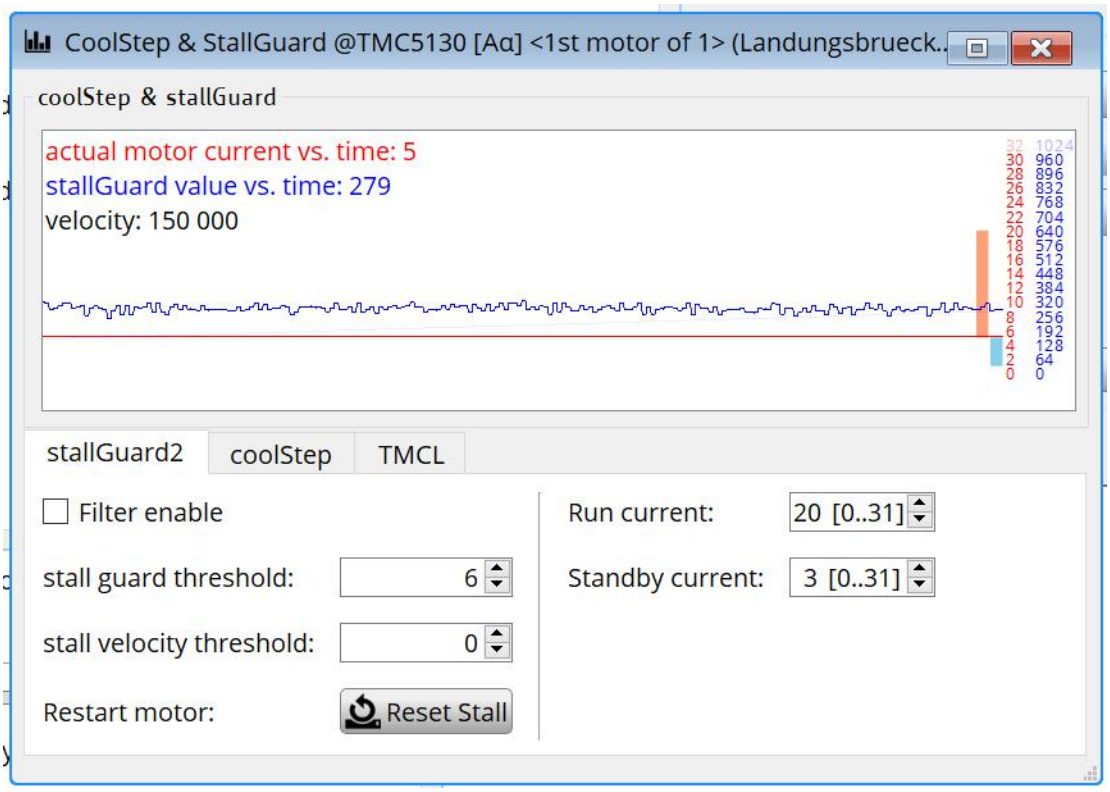
Coolstep 功能

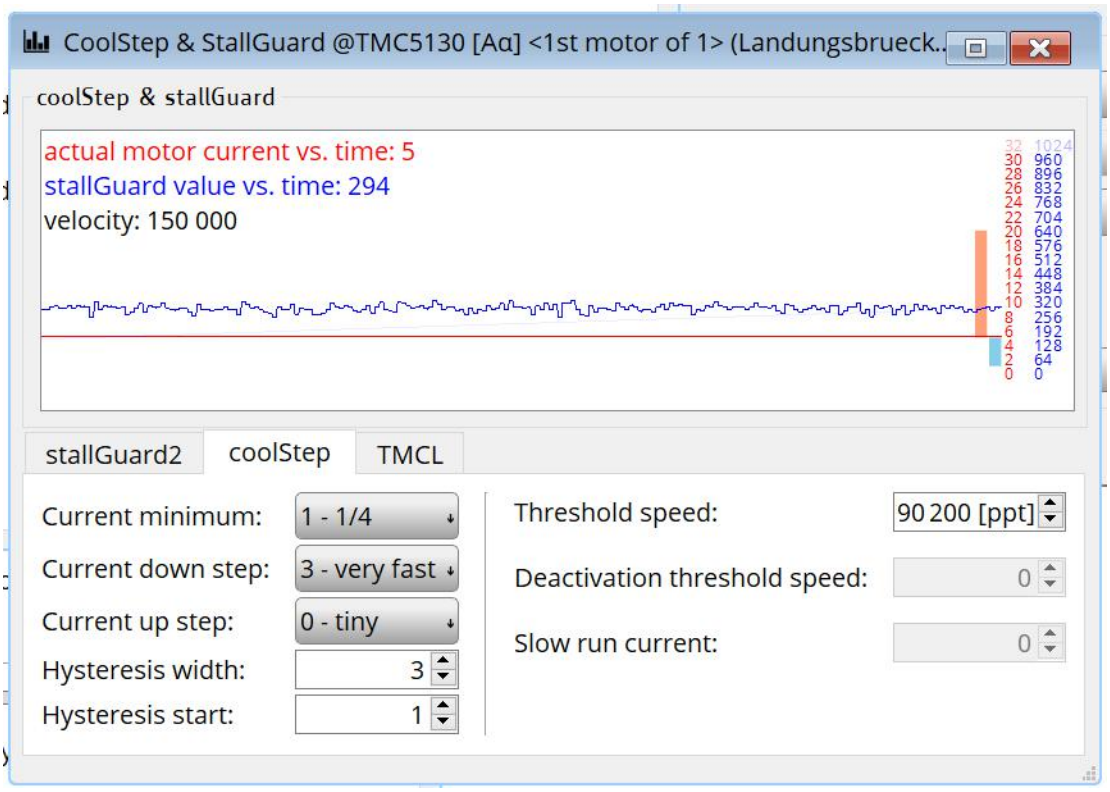

Current settings @TMC5130 [Aα] <1st ...
Current Set
R-sense
Internal sense resistor
internal_Rsense
Sense resistor voltage
vsense
RMS
Motor current IRUN
20
0.89 A
RMS
Standby current IHOLD
3
0.17 A


Chopper Settings @TMC5130 [Aα] <1st motor of 1> (Land...
Thresholds
StealthChop
SpreadCycle
High Speed
Current speed:
150 000 [ppt]
vel[pps]
150000
0
coolStep
Values and visualization in this tab
are valid for 256-microstep resolution.
High Speed
Use current speed
Activation vel.:
1 048 575 [ppt]
coolStep
Use current speed
Activation vel.:
90 200 [ppt]
stealthChop
Use current speed
Active below :
0 [ppt]


Chopper Settings @TMC5130 [Aα] <1st motor of 1> (Land...
Thresholds
StealthChop
SpreadCycle
High Speed
Enable stealthChop
User def. amplitude (offset):
0 [0..255]
User def. amplitude (gradient):
0 [0..15]
PWM Frequency:
1/1024 fclk
PWM automatic amplitude sc
Freewheeling:
Normal operation
Set IHold = 0 before for options
other than normal operation.

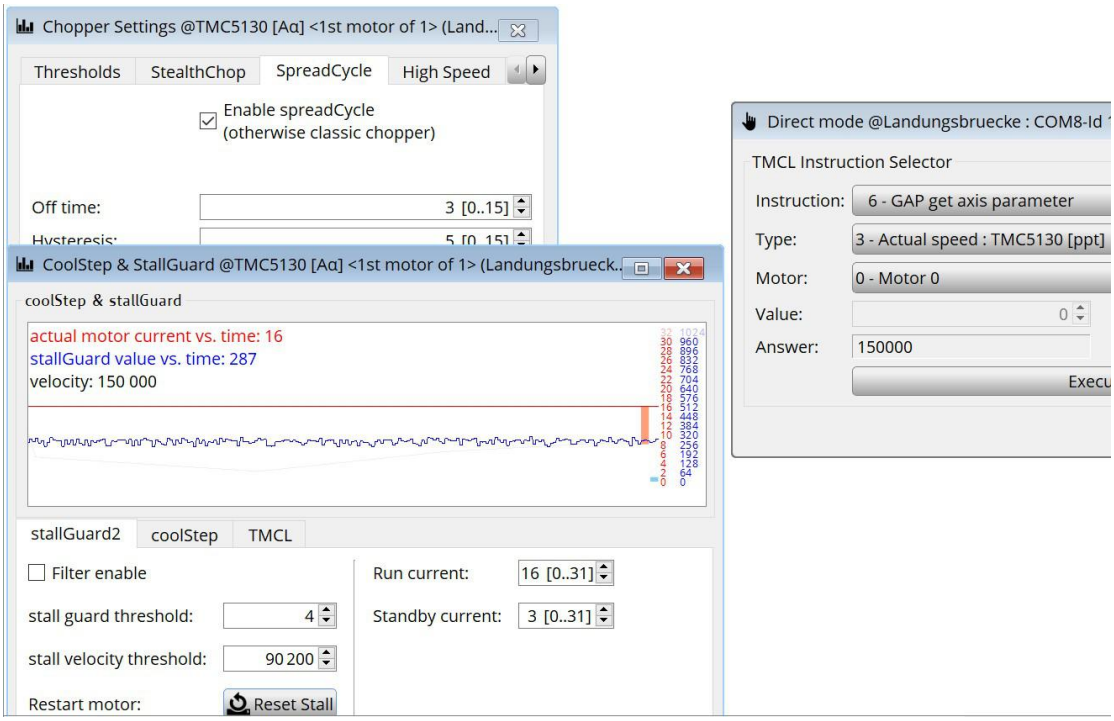

Chopper Settings @TMC5130 [Aα] <1st motor of 1> (Land...
Thresholds
StealthChop
SpreadCycle
High Speed
Enable spreadCycle
(otherwise classic chopper)
Off time:
3 [0..15]
Hysteresis:
5 [0..15]
Random off time:
Enable random modulation
Blank time selection:
36 clocks

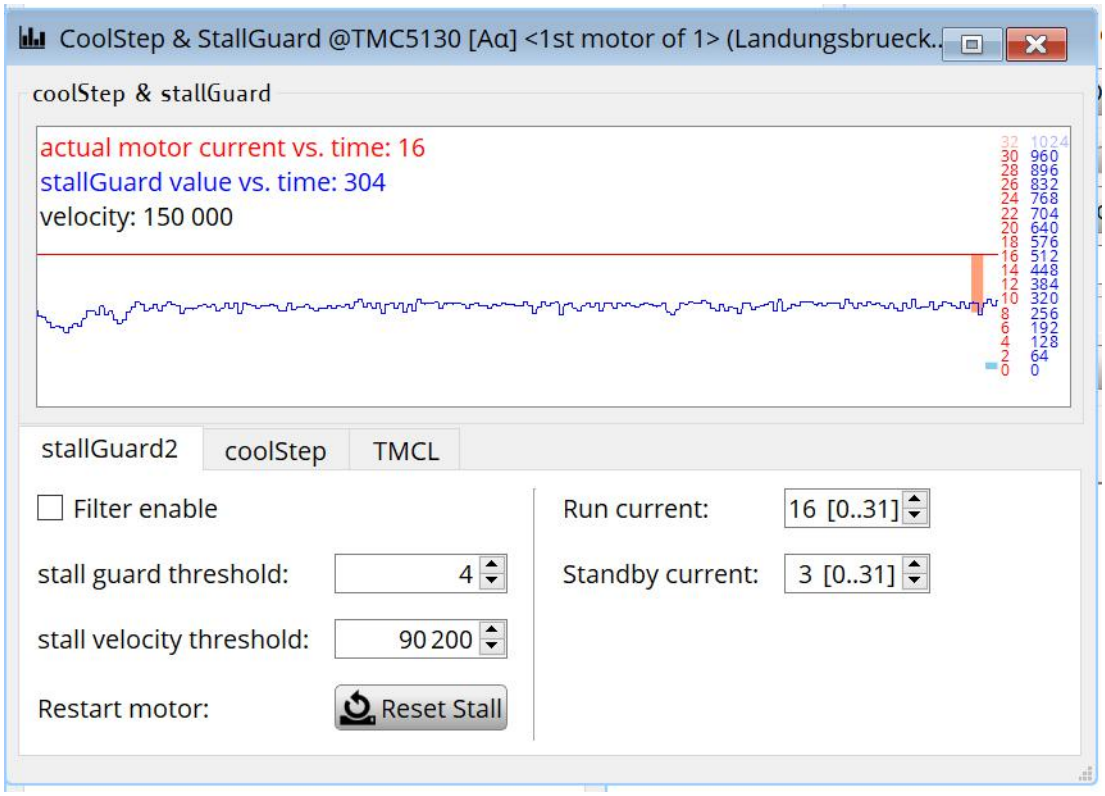

CoolStep & StallGuard @TMC5130 [Aα] <1st motor of 1> (Landungsbrueck..
coolStep & stallGuard
actual motor current vs. time: 5
stallGuard value vs. time: 279
velocity: 150 000
stallGuard2
coolStep
TMCL
Filter enable
stall guard threshold:
6
stall velocity threshold:
0
Restart motor:
Reset Stall
Run current:
20 [0..31]
Standby current:
3 [0..31]



SAP 6, 0, 20 //motor run current
SAP 7, 0, 3 //motor standby current
SAP 173, 0, 0 //stallGuard2 filter setting 滤波设置
SAP 174, 0, 6 //stallGuard2 threshold value 阀值设置SAP
181, 0, 0 //stop on stall value
SAP 168, 0, 1 //coolStep minimum current setting 最小电流比例
SAP 169, 0, 3 //coolStep down step setting 电流下降下降幅度
SAP 171, 0, 0 //coolStep up step setting 电流上升幅度
SAP 170, 0, 3 //coolStep hysteresis width 迟滞宽度SAP
172, 0, 1 //coolStep hysteresis start 迟滞启动SAP
182, 0, 90200 //coolStep threshold speed 阀流速度

Stallguard 力矩检测

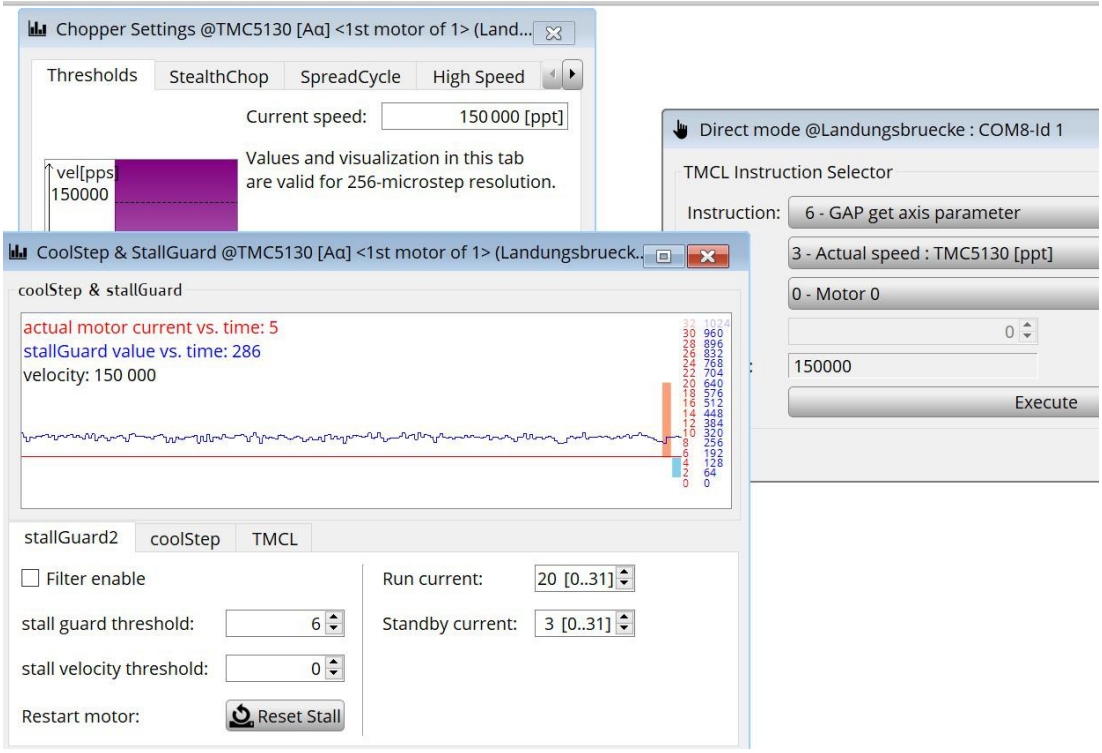


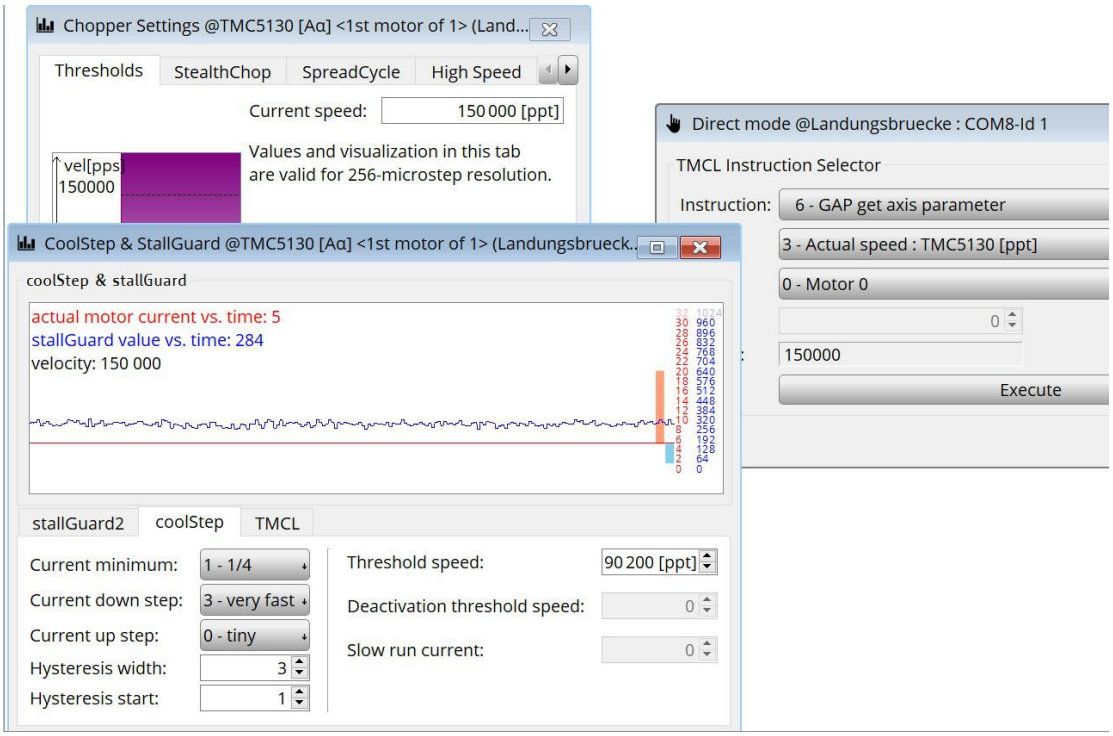



```
SAP 6, 0, 16 //motor run current
SAP 7, 0, 3 //motor standby current
SAP 173, 0, 0 //stallGuard2 filter setting
SAP 174, 0, 4 //stallGuard2 threshold value
SAP 181, 0, 90200 //stop on stall value
SAP 168, 0, 0 //coolStep minimum current setting
```

```
SAP 169, 0, 0 //coolStep down step setting
SAP 171, 0, 0 //coolStep up step setting
SAP 170, 0, 0 //coolStep hysteresis width
SAP 172, 0, 0 //coolStep hysteresis start
SAP 182, 0, 90200 //coolStep threshold speed
```

Stallguard 力矩检测+Coolstep 功能






```
SAP 6, 0, 20 //motor run current
SAP 7, 0, 3 //motor standby current
SAP 173, 0, 0 //stallGuard2 filter setting
SAP 174, 0, 6 //stallGuard2 threshold value
SAP 181, 0, 0 //stop on stall value
SAP 168, 0, 1 //coolStep minimum current setting
SAP 169, 0, 3 //coolStep down step setting
SAP 171, 0, 0 //coolStep up step setting
SAP 170, 0, 3 //coolStep hysteresis width
SAP 172, 0, 1 //coolStep hysteresis start
SAP 182, 0, 90200 //coolStep threshold speed
```

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