

## Homing



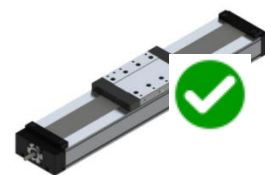
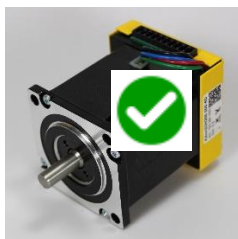
### 1 Introduction

Homing ( define Zero position ) is a important feature in a positioning system. This application note shall give an idea of different homing approaches and the limits of the KannMOTION system.

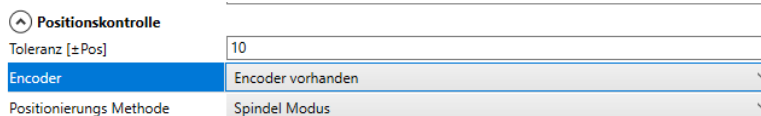
Minimal release number of StepperConfigTool: V0.7  
 Referenced Instruction Manual V1.02e

### 2 Example sequence

#### 2.1 Vertical spindle positioning system



Setup: we have a multi turn system, means we are driving a sledge on a spindle, so KannMOTION is etted into spindle mode w. Encoder enabled:



For HOME Mark detection, we have an M8 inductive metal sensor, output of this sensor is connected to Input<1> of our NEMA17 motor. After power up we allways search first our Home-Position... following sequence shows this principle...

```

Motorkonfiguration Sequenz *
VERSION ( 0 , 1 )
SET MAX TORQUE ( 50 % , 50 % , 50 % , 10 % )
SET MAX VELOCITY ( 100 % )
SET MAX ACCELERATION ( 50 % , 100 % ) Fast Stop
IF ( Input , 1 , Equal , OFF ) We are not on HOME Mark
    ROTATE ( Constant , -10 % ) Drive to Home-Mark
    WAIT ON INPUT ( Input 1 ) Wait until Home Mark is detected
    ROTATE ( Constant , 0 % ) Stop
SET HOME POSITION ( Zero ) Set Home Position
SET MAX ACCELERATION ( 50 % , 50 % ) Set Standard ACC/DEC
POSITION CONTROL ( ON )
WHILE
    IF ( Input , 2 , Equal , ON ) Drive To Pos2
    GO TO POSITION ( Absolute , 2000 Position )
    IF ( Input , 3 , Equal , ON ) Drive To Pos3
    GO TO POSITION ( Absolute , 3000 Position )
    
```

← Homing example code + started by USER CMD <1>

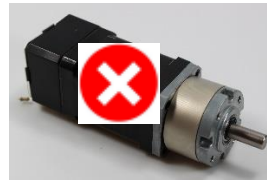
→ Homing type, refer to Manual chapter 6.2.9



**At Multi-Turn Systems, e.g. spindle systems or Motors with included gears, we usually need to do a homing at every POWER-UP, because our ENCODER is mounted direct on motors axis, so the controller only can find stored position inside one turn!**

## Homing

### 2.2 One Turn positioning system



Setup: we have a one turn system, means we are driving e.g. a hour clock pointer.

Positionskontrolle

Toleranz [±Pos]	10
Encoder	Encoder vorhanden
Positionierungs Methode	Kreis Modus
Anzahl Umdrehungen	

For HOME Mark detection, we have an temporary mounted M8 inductive metal sensor, output of this sensor is connected to Input<1> of our NEMA17 motor. In production line we do an initial homing sequence to store the absolute position. After ... following sequence shows this principle...

```

Motorkonfiguration Sequenz *
VERSION ( 0 , 1 )
SET MAX TORQUE ( 50 % , 50 % , 50 % , 10 % )
SET MAX VELOCITY ( 20 % )
SET MAX ACCELERATION ( 50 % , 50 % )
POSITION CONTROL ( ON )
GO TO POSITION ( Absolute , 0 Position ) Goto Home / stored in NV Mem
WHILE
  IF ( Command , 1 ) USER Command <1> starts Homing
  IF ( Input , 1 , Equal , OFF ) HOME Mark Sensor/ we are not on Home Mark
    SET MAX ACCELERATION ( 50 % , 100 % ) Fast Stop
    ROTATE ( Constant , -10 % ) Move to Find Home Mark
    WAIT ON INPUT ( Input 1 ) Wait until HomeMark is detected
    ROTATE ( Constant , 0 % ) Stop, we are on HOME-Mark
    SET MAX ACCELERATION ( 50 % , 50 % ) back to Initial Setting
    SET HOME POSITION ( Store Encoder Position ) Store Home Position
  IF ( Input , 2 , Equal , ON ) Drive To Pos2
    GO TO POSITION ( Absolute , 2000 Position )
  IF ( Input , 3 , Equal , ON ) Drive To Pos3
    GO TO POSITION ( Absolute , 3000 Position )
    
```

@PowerUp goto stored HOME

Homing example code + started by USER CMD <1>

Homing type, refer to Manual chapter 6.2.9



At single-Turn Systems, e.g. clock without gear, we do not need to do a homing at every POWER-UP, because our ENCODER mounted direct on motors axis can resolve the absolute position even when power was lost. So the controller is able to find Home position every time after it was initially stored to non volatile memory!