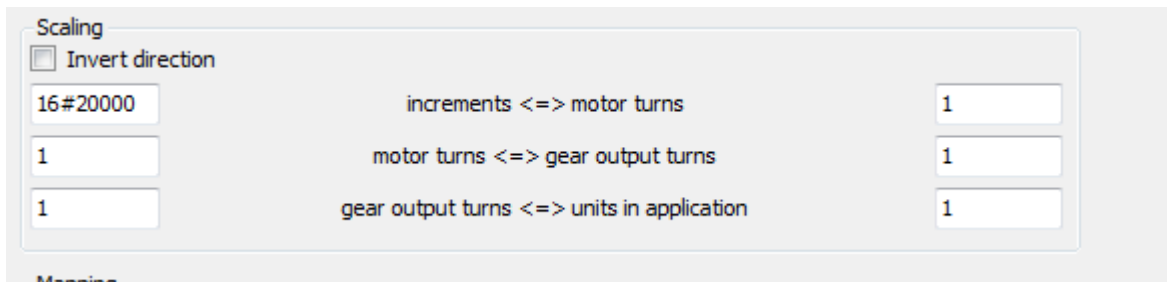


How to calculate the position scaling in CanMotion?

In CanMotion we need to configure the position scaling. The position scaling define how many user unit are corresponding to one revolution.

The default value you can see picture 1.

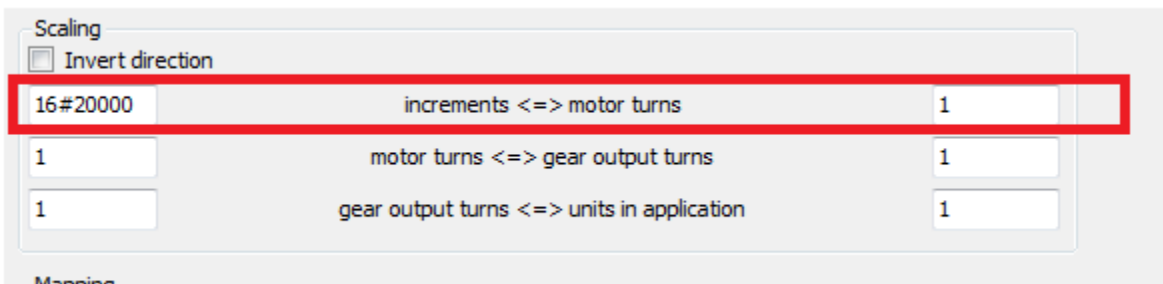


The screenshot shows a 'Scaling' configuration window with the following settings:

Field	Description	Value
<input type="checkbox"/> Invert direction		
16#20000	increments <=> motor turns	1
1	motor turns <=> gear output turns	1
1	gear output turns <=> units in application	1

Picture 1. Default setting

In default setting , it means 1 user unit corresponding to one revolution. The first line left means how many internal unit one revolution. The user not change this internal unit,



The screenshot shows the same 'Scaling' configuration window as in Picture 1, but with the first row (increments <=> motor turns) highlighted in red. The settings are:

Field	Description	Value
<input type="checkbox"/> Invert direction		
16#20000	increments <=> motor turns	1
1	motor turns <=> gear output turns	1
1	gear output turns <=> units in application	1

The second line you can think it is a gearbox. Left is gearbox input. Right is gearbox output.

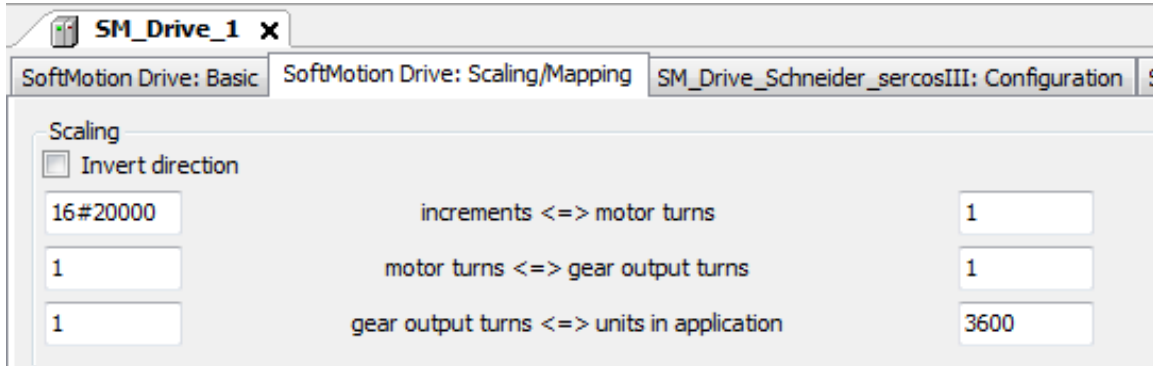
If the gear box is mounted between motor shaft and load. Then you need input gear ratio on it.

For example, the gear box ratio is 5:1 . Motor rotates 5 revolutions corresponding to one revolution on load. So Motor turns set to 5 ,gear output turns set to 1.

On the third line, the user can define how many user units equal to value of gear output turns which also be defined by user.

- Example with rotary axis:
 - 1 User unit should be 0.1°

- LXM32 resolution = 131072 Increments / rev; \leftrightarrow 16#20000
- No gearbox; 1 revolution = $360^\circ * 10$
- Scaling \rightarrow $dwRatioTechUnitsDenom = 131072$ $iRatioTechUnitsNum = 360 * 10$



- Example with linear axis: (PAS 41)
 - 1 User unit should be 1.0 mm
 - LXM32 resolution = 131072 Increments / rev; \leftrightarrow 16#20000
 - 5:1 gearbox; axis with 84 mm = 1 revolution
 - Scaling \rightarrow $dwRatioTechUnitsDenom = 163840$ $iRatioTechUnitsNum = 21$

