

How to run long distance in CanMotion

Hardware configure: LMC058 + LXM23A in CanMotion mode.

And the axis is configured to finite mode. The mechanical gear ratio is 30:1. It mean motor rotate 30 revs then the load rotate 1 rev.

The screenshot shows the 'Axis type and limits' configuration window. The 'Finite' mode is selected. The 'Software limits' section has 'Activated' checked, with 'Negative [u]' set to 0.0 and 'Positive [u]' set to 1000.0. The 'Software error reaction' section has 'Decelerate' checked, with 'Deceleration [u/s²]' set to 0.0 and 'Max. distance [u]' set to 0.0. The 'Limits for CNC (SMC_ControlAxisBy*)' section shows 'Velocity [u/s]' as 1e3, 'Acceleration' as 1e5, and 'Deceleration' as 1e5. The 'Position lag supervision' section is set to 'deactivated' with a 'Lag limit [u]' of 1.0. The 'Velocity ramp type' section has 'Trapezoid' selected, with other options being 'Sin²', 'Quadratic', and 'Quadratic (smooth)'.

And the position scaling see the picture. 392 user units corresponding to 1 rev on load side.

And the customer sent 22000 units one time.

$(22000 / 392) * 30 = 1683.6734693877551020408163265306$ revs on motor side.

The screenshot shows the 'SM Drive CAN Schneider Lexium 23' configuration window, specifically the 'Scaling/Mapping' tab. The 'Scaling' section has 'Invert direction' unchecked. The 'increments <=> motor turns' field is set to 1280000. The 'motor turns <=> gear output turns' field is set to 30. The 'gear output turns <=> units in application' field is set to 1. The 'increments <=> motor turns' field is also set to 1. The 'motor turns <=> gear output turns' field is also set to 1. The 'gear output turns <=> units in application' field is also set to 392.

If I use FB MC_MoveAbsolute , and the MC_MoveAbsolute.position is set to 22000.

But there is a travel limit in softmotion . It will trigger error.

You can use the formula $2^{31} / \langle \text{Drive} \rangle . \text{fSaleFactor}$ to calculate .

What is our solution ?

You can create a virtual axis. The virtual axis set as Finite mode. It can running MC_MoveAbsolute and no error to be triggered.

Then the real axis can synchronize with the virtual axis(MC_GearIn). And the real axis configure to module mode.

If you want to read the position , you can read the virtual axis.