Moving to motor encoder

Description: This document explains how to travel on the motor encoder. There are currently 2 different situations for moving to the motor encoder. Travel on motor encoder with defective 2nd measuring system and moving motor encoder with intact 2nd measuring system.

Note: The instructions describe how the software safety function is disabled. Note that there will be no error message to warn you about disabling the safety function! Due to the use of the brake test, care must be taken to ensure to reset the MD37000 to 2 (or the original value) when selecting machine data on the Y, CT and CM axes!

Procedure with a defective 2nd measuring system:

Safety Integrated must be deselected and the number of encoders in the machine data reduced to 1; the encoder type must be set to 0 and the travel to fixed stop function deselected! After powering up, the 1st encoder without position information is selected.

Caution, danger of collision! Note the original values in advance!

- In [Select menu] [Commissioning] [Mach. data] [Axis MD], change the MD30200 setting from 2 to 1, and MD30240[1] from 4 to 0!
- Set MD37000 $MA_FIXED_STOP_MODE to 0!
- Now deselect Safety Integrated, note the values for MD36901 and then set to 0; in [Menu Select] [Inbetriebnahme] [Masch. Daten] [Antriebs-Parameter], note parameter p9501 for the axis in question, and then also set to 0.
- Make a note of P9516; do not change.
- Set P145[1] to 0 to deactivate the measuring system interface.
- Note P1192 [0] / [1] and P1193 [0] / [1] and set to 1. (if not equal to 1)
- Set parameter p971 in the drive machine data to 1 so that values are permanently saved. If this returns to 0 automatically, switch on and off or perform an NCK reset [Select menu] [Commissioning] [Reset(PO)] [Extended reset] ["Make selection"]!
- After powering up, check that the 1st measuring system was selected for the corresponding axis in [Diagnose] [>] [Achs-Diagnose] [Service Achse] .

➔ The encoder (hardware) can be removed or unplugged!

Attention: Encoder 1 is incremental, not absolute! It is not calibrated after powering up and the current position is set to 0, regardless of where the axis is.

Pending errors include:

- Axes not referenced/synchronised
- Integrated safety technology for axis ..... not active!

The original values must be re-entered after replacing a scale:

- Set the following machine data back to their original values:
  (**MD30200, MD30240, MD37000, MD36901, p9501, p145**)
- Check parameter p9516; if needed reset to the original value.
- P1192 [0] / [1] and P1193 [0] / [1] reset to the original value.
- Set parameter p971 to 1 to initiate saving the changes!
- After parameter p971 has automatically reset to 0, the machine must be switched off/on.
- If there are still errors pending, check p9516; if needed reset to the original value.
- Finally carry out new production commissioning of the NC and drives!

Procedure with an intact 2nd measuring system:

This procedure should allow production with a motor encoder, or test operation, in case of a defective ball screw drive. In this variant, the 2nd measuring system is selected during power-up, the absolute value is read out and there is a switch to measuring system 1 after 10 s; travel is carried out with valid position information, thus preventing a collision. Furthermore, production operation is possible with limited accuracy.

- Check the corresponding axis bit in [Inbetriebnahme] [Allgemeine MD] in machine datum 14512[16]*, e.g.: X-axis, check bit 0
  Y-axis, check bit 1
  Z-axis, check bit 2
  A-axis, check bit 3

- Switch machine off/on.
- After powering up, check that the 1st measuring system was selected for the corresponding axis in [Diagnostics] [>] [Axis diagnostics] and if the position value agrees with the scale value!

Otherwise, check the following parameters:

- MD30242[1] $MA_ENC_IS_INDEPENDENT must be set to 1
- MD34102 $MA_REFP_SYNC_ENCS must also be set to 1
- If set incorrectly, correct the settings and perform series commissioning!

***Information:** On the B-axis, the switch-over does not work because a parameter set switch occurs on booting.