SLAVE_F_TO_Z Module Operation (FTP firmware)

Controllers with the SLAVE_F_TO_Z module facilitates use of a master/slave set of motorized axes. When the master axis is moved or adjusted then the slave axis is correspondingly changed automatically. The user should almost always interact with the master axis so that the two axes remain synchronized. During setup it may be helpful to interact with the slave axis to get them mechanically aligned.

Supported Commands with Slave Separate

For these commands, moves or changes to the master axis will be applied to the slave axis automatically but not vice versa. It is possible to change only the slave axis by sending commands to it.

- MOVE
- MOVREL
- HERE

Supported Commands with Mirror Behavior

For these commands, changes made to either axis will be copied to the other one.

- SPEED
- ACCEL
- MC
- CNTS
- MAINTAIN
- WAIT
- EPOL
- HALT = / because all axes are affected
- ZERO serial command and ZERO BUTTON because all axes are affected
- HOME button because all axes are affected
- In most situations the CUSTOMA commands are implicitly supported because they will apply to the system, e.g. all Z leadscrews are set together

Supported Events

- Limits: when one axis reaches one of its hardware (magnet) or software limit a mirror event is also trigged on the other axis too.
- AXIS enabled/disabled. When one of the axes is enabled /disabled either due to user command or controller action (e.g. move error), the other axis is also enabled/disabled.
- KNOB and PEDAL actions are supported.

Unsupported Commands

Make note that these following commands are not supported:

- Software Limits SU and SL. Changing one axis software limit position will not alter the axis software limit position. However, both axes will stop when a limit is encountered on either one.
- SPIN. Spin command will only move the commanded axis only. This is may aid during installations but otherwise should never be used on slaved axes because the motors are running in "open loop" without any position feedback.

Supported Modules

- Autofocus
- CRISP
- SEQUENCER
- PEDALS
- TTL i.e. IN0_INTERRUPT

Aligning/Synchronizing

- Use the MOVE F=### or MOVREL F=#### serial command to move to the desired position without affecting Z axis's position.
- Once aligned and synchronized use the HERE command, ZERO command or button to zero the positions. From then on, F axis will move identical to Z axis.
- When you hit the limits, one of the axes will also detect the limits before another and halts the motion of the axis. This sometimes leads to minor realignment. To realign again, back out with a serial command and the axis should be synchronized again.

tech note, ftp

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