

Application Note

JM600: Master/Slave absolute gearing (SSI)

Firmware >= 3.20

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For the Master/Slave mode with two JM600 drives you need settings as follow:

Master: (is sending the SSI position)

ENCMODE 2	setting for encoder emulation (1=ROD, 2=SSI)
SSIGRAY 0	data format (0=binary/1=gray)
SSIINV 1	SSI-Clock (0=standard, 1=inverted)
SSIMODE 1	0=single turn / 1= multi turn
SSIOUT 0	baudrate 0=200 Kbaud / 1=1Mbaud

Slave: (is reading the SSI position)

GEARMODE 7	Setting for the master interface
OPMODE 4	Master/Slave mode
ENCMODE 2	always 2 when GEARMODE=7 (SSI)
SSIGRAY 0	data format (0=binary/1=gray)
SSIINV 0	start transmission with MSB (=0) or LSB (=1)
SSIMODE 0	alarm bit at begin (=1) or at end (=2) or off (=0)
SSIOUT 25	data bits-1 (26)
IN1MODE 16	Start input for the motion task
IN1TRIG 0	0 means: motion task is a homing move
NREF 8	Number for homing move

The settings GEARMODE = 7 and OPMODE =4 activate the function read the SSI-position about the encoder-input. The drive read then the SSI-position every 250 s and calculate the difference to the old position before. This difference will be multiply with a scaling-factor and add to the last position command value.

Scaling-factor = $2^{(33-SSIOUT)} * GEARO/GEARI$; with PRBASE=20

With SSIOUT=25: Scaling-factor = $256 * GEARO/GEARI$

The absolute position from Master/Slave could move with the parameter ROFFS. To adjust the absolute position between Master and Slave, it is necessary to do a homing with the slave drive and NREF = 8 (start with digital input). At the beginning of the homing the Slave drive read the absolute position from the Master, do the scaling and use this position as his target position for the homing. Then the drive change the operation mode to OPMODE = 8 and start the homing move, to the target position with VREF and the ramps ACCR/DECR. When the drive reach the target position he set the INPOSITION message. Then the PLC should reset the start input, to activate the Master/Slave-mode (OPMODE = 4) again.

For testing (with the setting MSG = 2) it is possible to display the Master SSI-position at the Slave drive with the command "M NEWSSI" in the terminal program of the drive. It is possible to get the Slave position with the command "M PFB". The relation between this positions is corresponding to the scaling-factor.